SITE DEVELOPMENTAL PLAN
THE VINE - BUCH APARTMENTS
PARCEL 126
HOWARD COUNTY, MARYLAND

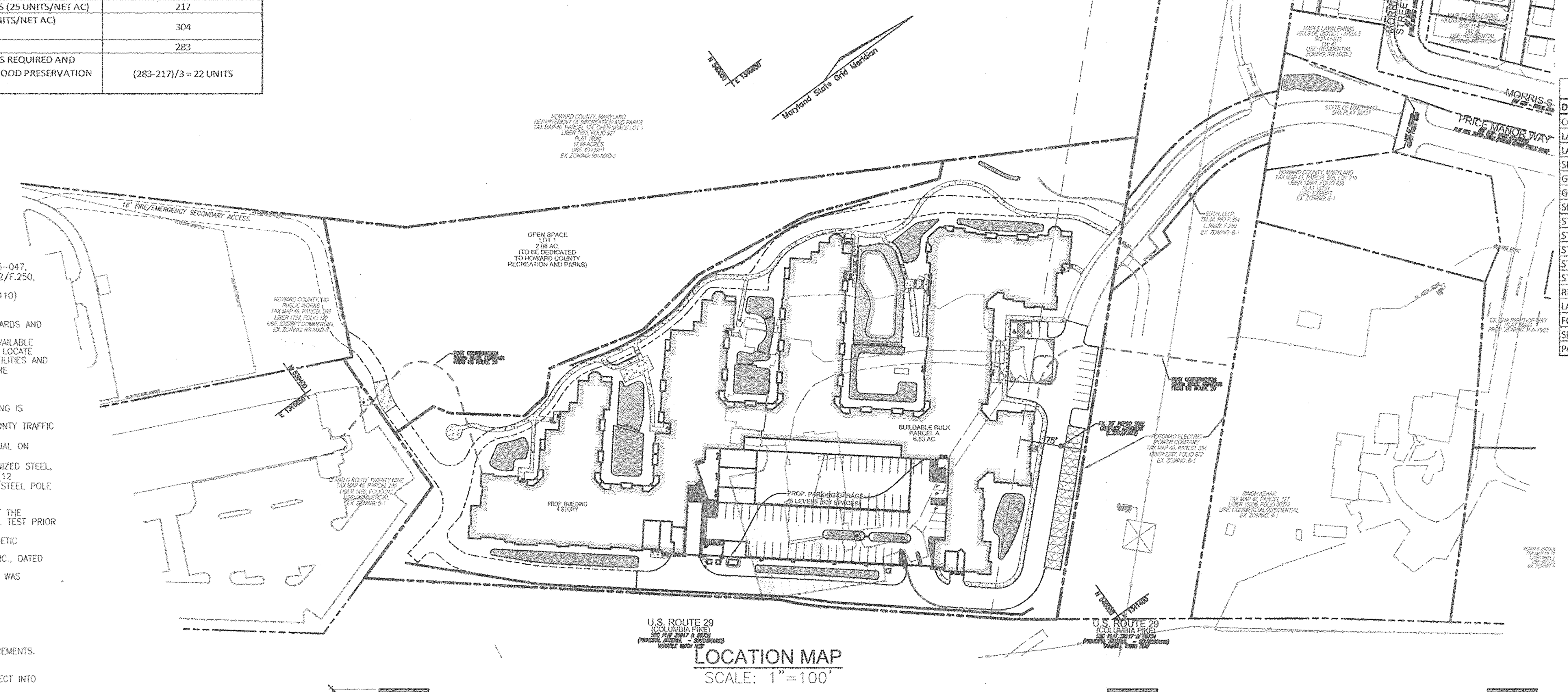
GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY STANDARDS AND SPECIFICATIONS. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
3. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY:	1-800-257-7777
VERIZON:	1-800-743-0033
BUREAU OF UTILITIES:	410-313-4900
AT&T:	1-800-252-1133
B.G.&E. (CONSTRUCTION SERVICES):	410-637-8713
B.G.&E. (EMERGENCY):	410-685-0123
STATE HIGHWAY ADMINISTRATION:	410-531-5533
COLONIAL PIPELINE CO.:	410-795-1390

4. SITE ANALYSIS:
   TOTAL PROJECT AREA: 8.89 AC.
   NET PROJECT AREA (MINUS FLOODPLAIN AND STEEP SLOPES): 8.69 AC.
   PRESENT ZONING: R-APT
   USE OF STRUCTURE: APARTMENT BUILDING WITH GARAGE
   TOTAL BUILDING COVERAGE (FOOTPRINT AREA): 130,334 SF (2.99 AC. OR 33.66% OF GROSS AREA)
   APARTMENT: 91,276 SF
   AREAWAY: 2,402 SF
   GARAGE: 36,656 SF
   BUILDING FLOOR AREAS:
   APARTMENT:
   1ST FLOOR AREA: 91,276 SF
   2ND-4TH FLOOR AREA (EACH FLOOR): 90,604 SF
   GARAGE:
   1ST-5TH FLOOR AREA (EACH FLOOR): 36,656 SF
   PAVED PARKING LOT/AREA ON SITE: 27,463 SF (0.63 AC. OR 7.09% OF GROSS AREA)
   AREA OF LANDSCAPE ISLAND: 2,792 SF (0.06 AC. OR 0.72% OF GROSS AREA)
   AREA OF STEEP SLOPES: 0.11 (PRIOR TO SDP-15-071 GRADING)
   AREA OF FLOODPLAIN: 0.09 AC.
   UNIT DENSITY:
   ALLOWABLE DENSITY (8.69 NET ACREAGE x 25 UNITS): 217 UNITS
   MAXIMUM BONUS DENSITY ALLOWED (8.69 NET ACREATE x 35 UNITS): 304 UNITS (32.64/UNIT ACTUAL BONUS DENSITY)
   TOTAL UNITS PROPOSED: 283 UNITS
   BONUS DENSITY REQUIRED (283-217): 66 UNITS
   DEVELOPMENT RIGHTS REQUIRED (66 x 0.33/UNIT): 22 UNITS
   MIHU REQUIRED (283 APARTMENT UNITS x 15%): 43 UNITS
   MIHU PROVIDED: 43 UNITS
   AMENITY AREA REQUIRED (8.69 NET ACREAGE x 10%) = 0.87 AC.
   AMENITY AREA PROVIDED: 1.07 AC.
   LIMIT OF DISTURBED AREA: 6.50 AC
   CUT: 44,206 CY FILL: 24,417 CY
5. PROJECT BACKGROUND:
   LOCATION : LAUREL, MD.; TAX MAP 46, PARCEL 126, BLOCK 05
   ZONING : R-APT
   SUBDIVISION : THE VINE
   SECTION/AREA : N/A
   SITE AREA : 8.89 AC.
   DPZ REFERENCES : L.3192/F.394, SDP-91-043, CONT. 20-1739-D, CONT. 24-4686-D, CONT. 24-4916-D, ECP-15-018, ECP-15-047, SDP-15-071, WP-15-154, BA-15-022V, CONT. 24-4916-D, PLAT 23876-8 (F-16-010), ZRA-153, L.16602/F.250, WP-16-085, PLAT 23875
6. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
7. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
8. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
9. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND AND SEWER EXTENSION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
10. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3,500 P.S.I.
11. TRAFFIC CONTROL DEVICES:
    A. THE R1-1 SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
    B. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
    C. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MdMUTCD).
    D. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT OF WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED IN TO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE)-3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
12. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
13. SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST PRIOR TO CONSTRUCTION.
14. COORDINATES AND ELEVATIONS ARE BASED ON MARYLAND COORDINATE SYSTEM - NAD83(1991) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 46BE AND 46BF.
15. THE PROPERTY LINES SHOWN HEREON IS BASED ON A FIELD-RUN BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC., DATED NOVEMBER 8, 2013.
16. EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM A FIELD RUN TOPOGRAPHIC SURVEY SURVEY WITH TWO FOOT CONTOUR INTERVALS WAS PREPARED BY BY ROBERT H. VOGEL ENGINEERING, INC.; DATED APRIL 2013. OFFSITE TOPOGRAPHY FROM HOWARD COUNTY GIS.
17. GEOTECHNICAL REPORT PREPARED BY ECS-MIDATLANTIC, LLC; DATED JULY 28, 2014.
18. THE GEOTECHNICAL ENGINEER TO CONFIRM PAVING SECTION PRIOR TO CONSTRUCTION (SEE DETAILS, SHEET 4).
19. ALL CURB AND GUTTER TO BE HOWARD COUNTY STANDARD DETAIL 3.01 UNLESS OTHERWISE NOTED (SEE DETAIL ON SHEET 4).
20. WHERE DRAINAGE FLOWS AWAY FROM CURB, CONTRACTOR TO REVERSE THE GUTTER PAN.
21. ALL ELEVATIONS ARE TO FLOWLINE/BOTTOM OF CURB UNLESS OTHERWISE NOTED.
22. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
23. CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ALL HANDICAP RAMPS AND HANDICAP ACCESS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
24. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 P.S.I.
25. ALL STORMDRAIN PIPE BEDDING IS TO BE CLASS 'C', AS REQUIRED BY AASHTO-180.
26. THE PROPOSED BUILDING TO HAVE ROOF LEADERS WHICH EMPTY INTO THE STORMWATER MANAGEMENT FACILITES, WHICH ULTIMATELY COLLECT INTO THE STORM DRAIN SYSTEM.
27. PUBLIC WATER AND SEWER AVAILABLE THROUGH CONT. 24-4916-D.
28. APFO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, DATED AUGUST 6, 2014; APPROVED 06/29/15.
29. THE SUBJECT PROPERTY IS ZONED R-APT IN ACCORDANCE WITH THE 10/06/13 COMPREHENSIVE ZONING PLAN.
30. NOISE STUDY PREPARED BY HUSS ACOUSTICS, LLC DATED JULY 10, 2014. THE 65dBa CONTOUR LINE HAS BEEN LOCATED IN CONFORMANCE WITH THIS REPORT. WINDOWS AND EXTERIOUR DOORS LOCATED ALONG THE ROUTE 29 SIDE OF THE BUILDING SHALL BE UPDGRADED TO ACHIEVE AN STC 27 OR GREATER RATING. ARCHITECTURAL SPECIFICATION AND DRAWINGS REFLECT THE EXTENTS. FURTHERMORE, NO RESIDENTIAL BALCONIES OR PATIOS HAVE BEEN LOCATED ALONG THE ROUTE 29 SIDE AND/OR WHERE THE MAXIMUM NOISE LEVELS AREA EXCEEDED.
31. THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
32. THE EXISTING PRICE MANOR WAY IS CLASSIFIED AS A LOCAL ROAD.
33. THE ENVIRONMENTAL REPORT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED AUGUST 21, 2014; UPDATED MAY 21, 2015.
34. THERE ARE STEEP SLOPES, WETLANDS, STREAMS, THEIR BUFFERS, AND 100-YEAR FLOODPLAIN LOCATED ON-SITE.
35. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHING THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION AREAS AND 100 YEAR FLOODPLAIN.
36. ANY DISTURBANCES TO THE WETLANDS, STREAMS, FLOODPLAIN OR THEIR BUFFERS WILL REQUIRE MDE APPROVAL AND PERMIT. MDE PERMIT 14-NT-3329/201461731.
37. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE, AND THE LANDSCAPE MANUAL.
38. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF $47,700 FOR THE REQUIRED 131 SHADE TREES, 14 SPECIMEN MITIGATION TREES, AND 28 EVERGREEN TREES. ALL LANDSCAPING AND AMENITY FEATURES MUST BE IN PLACE BEFORE BOND IS RELEASED FOR SDP-15-044.
39. FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONS, INC. DATED AUGUST 21, 2014; UPDATED MAY 21, 2015.
40. THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT (SDP-15-044) INCLUDING THE OFF-SITE EMERGENCY ACCESS HAS BEEN SATISFIED BY THE RETENTION OF 2.01 ACRES OF FOREST WITHIN FOUR FOREST CONSERVATION RETENTION EASEMENTS, AND BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF $22,760.10 (0.55 AC x 43560SF x 0.95). NO SURETY IS REQUIRED FOR THE ON-SITE RETENTION.
41. THERE ARE 4 SPECIMEN TREES WITHIN THE LOD, WHICH ARE TO BE REMOVED (REF. WP-15-154, SEE NOTE #60).
42. ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.
43. THERE ARE NO BURIAL GROUNDS OR CEMETERIES LOCATED ON THIS PROPERTY.
44. THERE IS A HISTORIC STRUCTURE LOCATED ON THIS PROPERTY, WHICH WILL BE DEMOLISHED. THE STRUCTURE IS LISTED ON THE HISTORIC SITES INVENTORY AS HO-685.
45. THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
46. THE REQUIRED AMENITY AREA FOR THIS PROJECT IS 0.87 ACRES. THE AMENITY AREA PROVIDED IS 1.12 ACRES.
47. THE PROPOSED BUILDING WILL HAVE AN INSIDE METER SETTING. THE BUILDING WILL ALSO HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
48. A KNOX BOX IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4-5' IN HEIGHT AND NO MORE THAN 6' LATERALLY FROMTHE DOOR. IT'S LOCATION IS SHOWN ON THESE PLANS. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
49. LANDSCAPING NOT PERMITTED WITHIN 7-1/2' OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION. PROVIDE A CLEAR UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION. NFPA-1 13.1.4
50. FIRE LANES HAVE BEEN PROVIDED IN THIS SITE TO ALLOW EMERGENCY VEHICLE ACCESS. EITHER FIRE LANE SIGNAGE SHOULD BE INSTALLED, OR THE CURBS SHOULD BE PAINTED IN RED AND STENCILED TO IDENTIFY THE ROAD AS A FIRE LANE.
51. SIGNAGE SHALL BE PROVIDED ON THE BUILDING IDENTIFYING THE BUILDING ADDRESS.
52. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
53. ALL EXTERIOR LIGHTING TO COMPLY WITH THE REQUIREMENTS FOUND IN ZONING SECTION 134.0 OF THE HOWARD COUNTY ZONING REGULATIONS. LIGHT TRESPASS ONTO ANY PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES SHALL BE LIMITED TO 0.5 FOOT CANDLES. LIGHT TRESPASS ONTO A PROPERTY IN THE RR OR MXD DISTRICTS DESIGNATED FOR DEVELOPMENT OF EQUIVALENT LAND USES AND DENSITIES SHALL BE LIMITED TO 0.1 FOOT CANDLES.
54. TRASH COLLECTION AND RECYCLABLES TO BE PRIVATE.
55. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTIONS, PERVIOUS CONCRETE, AND RAINWATER HARVESTING CISTERN AND AN INFILTRATION TRENCH. THESE FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
56. THE MODERATE INCOME HOUSING UNIT AGREEMENT FOR THE 43 DWELLING UNITS WAS RECORDED IN THE HOWARD COUNTY LAND RECORDS ON 8/9/16 BY LIBER 10730 AND FOLIO 188.
57. THE COMMUNITY MEETING FOR THIS PROJECT WAS CONDUCTED ON 08/25/14 AT 6PM AT THE NORTH LAUREL COMMUNITY CENTER.
58. THE TOTAL ACREAGE OF THIS PROJECT IS 8.89 AC, WHICH INCLUCES 6.09 AC (PARCEL 126), AND 2.80 AC. OF RIGHT-OF-WAY ACQUIRED FROM SHA (DEEDS L.16036/F410 AND L.16036/F420).
59. HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PERMIT PLANS FOR CERTAIN FACILITIES TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS SDP WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT. SUCH FACILITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE WHICH HAVE SWIMMING POOLS, OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.
60. THIS PROJECT IS SUBJECT TO WP-15-154, APPROVED 06/25/15, TO WAIVE SECTIONS 16.1205(A)(7) AND 16.1205(A)(10) WHICH REQUIRE THE RETENTION OF SPECIMEN TREES (30" DBH OR GREATER) THAT ARE NOT CONTAINED WITHIN OTHER PRIORITY FOREST RETENTION AREAS AS OUTLINED IN SECTION 16.1205(A)(1-10); A WAIVER TO SECTION 16.120(C)(1) WHICH REQUIRES THAT ALL COMMERCIAL, INDUSTRIAL OR APARTMENT LOTS TO HAVE A MINIMUM FRONTAGE OF 60 FEET ONTO AN APPROVED PUBLIC ROAD WHICH PROVIDES ACCESS TO THE PROPERTY; AND A WAIVER TO SECTION 16.116(A)(2)(II) WHICH PROHIBITS DISTURBANCE WITHIN 75' OF A PERENNIAL STREAMBANK FOR USE I STREAMS. APPROVAL SUBJECT TO THE FOLLOWING CONDITIONS:
    1. WAIVER APPROVAL IS LIMITED TO THE REMOVAL OF SPECIMEN TREES #1, #6, #9 AND #10 AS DEPICTED ON THE WAIVER EXHIBIT. ANY PROPOSAL TO REMOVE ADDITIONAL SPECIMEN TREES WILL REQUIRE A NEW WAIVER REQUEST OR AN AMENDMENT TO THIS WAIVER REQUEST.
    2. A MINIMUM OF 8 ADDITIONAL, NATIVE, 2-3" CALIPER TREES SHALL BE PROVIDED ON SITE AS PART OF THE MITIGATION FOR THE SPECIMEN TREE REMOVAL. THIS MITIGATION WILL BE ADDRESSED WITH SDP-15-044 ("THE VINE"-BUCH APARTMENTS) AND WILL BE IN ADDITION TO ANY REQUIRED LANDSCAPE OR FOREST CONSERVATION PLANTINGS. THE MITIGATION WILL BE SHOWN ON THE ASSOCIATED LANDSCAPE PLAN AND SURETY FOR THESE ADDITIONAL TREES WILL BE REQUIRED AS PART OF THE SITE DEVELOPMENT PLAN.
    3. DUE TO THEIR PROXIMITY TO THE LOD, INDIVIDUAL TREE PROTECTIVE DEVICES (TREE FENCING) SHALL BE PLACED COMPLETELY AROUND THE CRITICAL ROOT ZONES OF SPECIMEN TREE #2, SPECIMEN TREE #3, SPECIMEN TREE #4, AND SPECIMEN TREE #7 PRIOR TO THE COMMENCEMENT OF ANY GRADING. THIS SHALL BE OUTLINED IN THE PRE-CONSTRUCTION MANAGEMENT PLAN OF THE FINAL FOREST CONSERVATION PLAN (FCP) AND WITHIN THE SEQUENCE OF CONSTRUCTION PROVIDED ON THE SITE DEVELOPMENT PLAN FOR "THE VINE"-BUCH APARTMENTS".
    4. A PROPERTY MANAGEMENT COMPANY WILL BE CREATED THAT WILL BE THE RESPONSIBLE PARTY FOR THE MAINTENANCE OF THE PRIVATE ROADS AND STORMWATER CONVEYANCE AND MANAGEMENT FACILITIES. WATER AND SEWER SHALL BE PUBLIC AND BE LOCATED WITHIN A RECORDED PUBLIC EASEMENT.
    5. IMPACTS TO STREAMS AND ASSOCIATED BUFFERS AND ALL OTHER ENVIRONMENTAL AREAS SHALL BE THE LEAST NECESSARY AND SHALL BE LIMITED TO THOSE DISTURBANCES SHOWN ON THE WAIVE PETITION AND/OR OUTLINED IN MDE PERMIT 14-NT-3329/201461731.
61. THE 65dBa NOISE CONTOUR LINE DRAWN ON THIS DEVELOPMENT PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY 1992, AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65dBa NOISE EXPOSURE. THE 65dBa NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO 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.
62. THE CONSTRUCTION SHOWN ON THIS PLAN THROUGH THE POTOMAC ELECTRIC POWER COMPANY PROPERTY (TM 46, PARCEL 364 & 462) IS IN ACCORDANCE WITH THE FEE-SIMPLE AGREEMENT BETWEEN PEPCO AND BUCH LLLP (REF. L.16602/F.250; DATED 11/16/15).
63. THE SECONDARY EMERGENCY ACCESS IS CONTROLLED BY POLICE AND FIRE VIA A KNOX BOX GATE AND THE SECTURE POLICE DEPARTMENT PARKING LOT. MAINTENANCE OF THE ACCESS WITH THE HOWARD COUNTY PROPERTY WILL BE PROVIDED BY HOWARD COUNTY.

DENSITY RECEIVING TABULATION	
SECTION 112.1	
SECTION 128.0.K	
RECEIVING PARCEL INFORMATION	THE VINE - BUCH APARTMENTS SITE DEVELOPMENT PLAN (SDP-15-044) TAX MAP 46, BLOCK 4, PARCEL 126
TOTAL PARCEL ACREAGE	8.89 AC.
NET ACREAGE OF PARCEL (MINUS STEEP SLOPES AND FLOODPLAIN)	8.69 AC.
MAXIMUM DENSITY UNITS (25 UNITS/NET AC)	217
ALLOWABLE UNITS (35 UNITS/NET AC) BASED ON BONUS	304
PROPOSED DENSITY	283
NUMBER OF BONUS UNITS REQUIRED AND ALLOWED BY NEIGHBORHOOD PRESERVATION DENSITY OPTION #5	(283-217)/3 = 22 UNITS



LOCATION MAP
SCALE: 1"=100'

BENCHMARKS

HOWARD COUNTY BENCHMARK - 46BE (CONC. MONUMENT)
N 538853.83 E 1338643.54 ELEV. 443.345
LOCATION: OLD COLUMBIA PIKE AT SCAGGSVILLE PARK AND RIDE

HOWARD COUNTY BENCHMARK - 46BF (CONC. MONUMENT)
N 538448.18 E 1340010.43 ELEV. 446.602
LOCATION: MD-216 AT SCAGGSVILLE NEAR RT-29 BRIDGE

LEGEND

PROPERTY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
EXISTING CURB AND GUTTER
PROPOSED CURB AND GUTTER
MICROBIORETENTION AREA
PERVIOUS PAVING
PROPOSED 5' SIDEWALK

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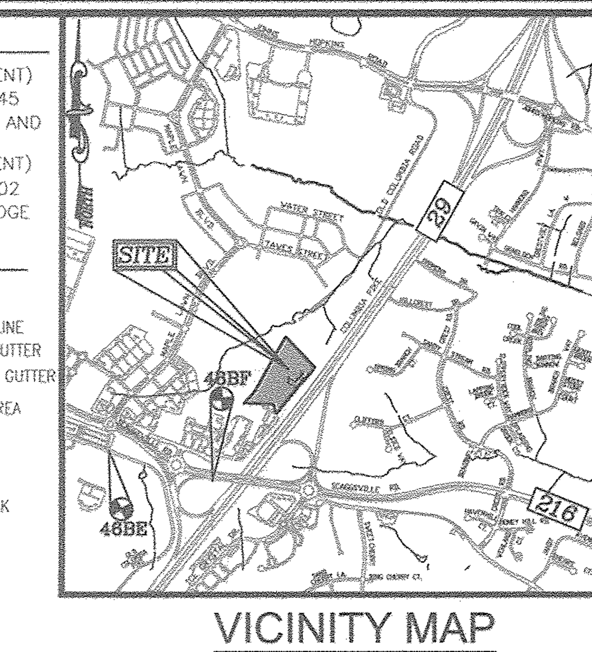
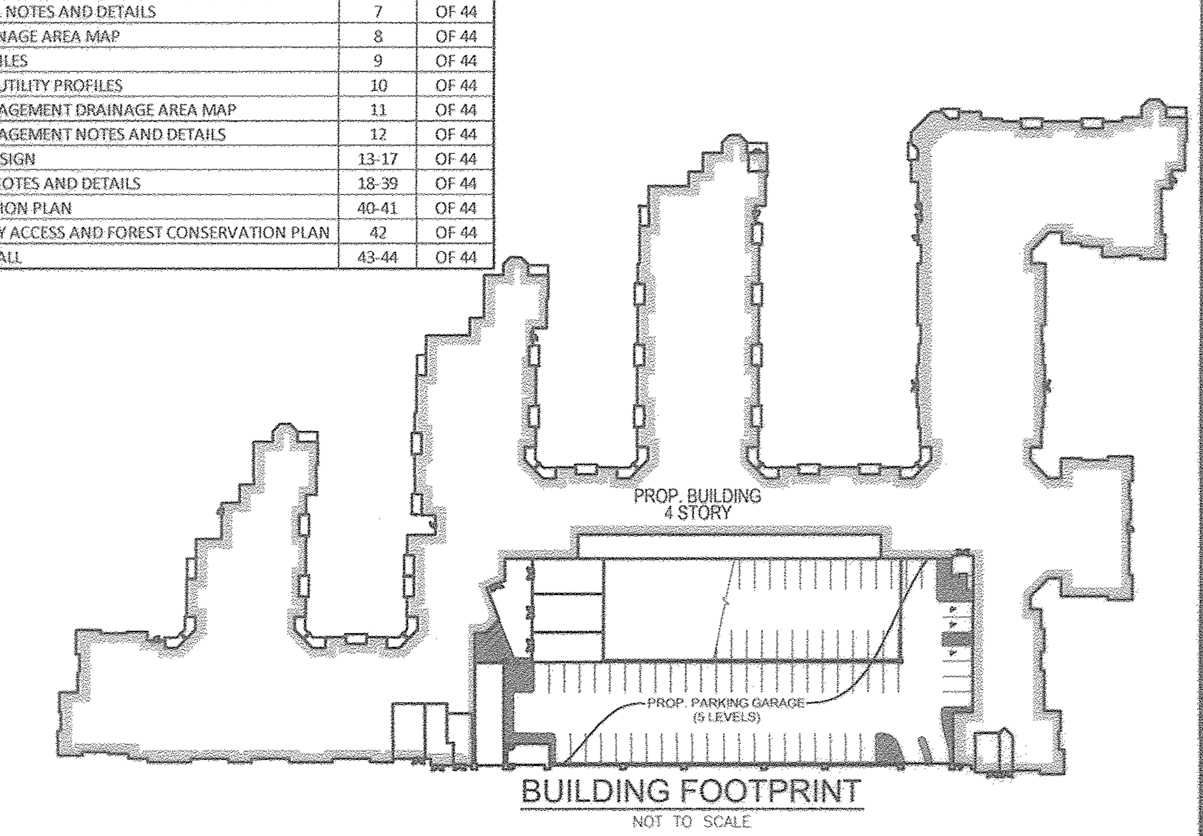


VICINITY MAP
SCALE: 1"=2000'
ADC MAP COORDINATES: 39/C-2

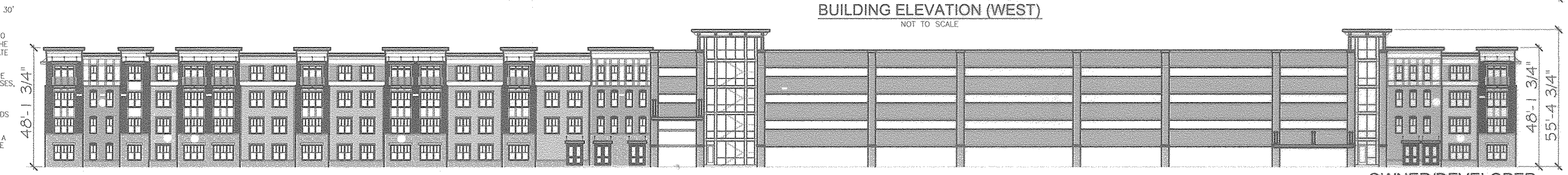


BUILDING FOOTPRINT
NOT TO SCALE

BUILDING ELEVATION (WEST)
NOT TO SCALE

GENERAL NOTES (CONTINUED):

64. THIS PLAN IS SUBJECT TO BA-15-022V; APPROVED 08/18/15; TO REDUCE THE REQUIRED 30' STRUCTURE (SIDE) AND USE SETBACK TO 2.92' FOR THE PURPOSE OF A RETAINING WALL AND 4.42' FOR THE PURPOSE OF A FIRE LANE AND SERVICE DRIVE PER SECTION 112.1.D.4.a(1)(a); TO REDUCE THE REQUIRED 20' OTHER STRUCTURE AND USE SETBACK TO 4.42' FOR THE PURPOSE OF PARKING PER SECTION 112.1.D.4.c(2)(b); AND TO REDUCE THE REQUIRED 50' APARTMENT DWELLING SETBACK TO A B-1 ZONE TO 49.38' TO ACCOMMODATE AN APARTMENT BUILDING PER SECTION 112.D.4.c(2)(a). APPROVAL GRANTED PROVIDED, HOWEVER, THAT:
    A. THE VARIANCE SHALL APPLY ONLY TO THE USE AND STRUCTURES AS DESCRIBED IN THE PETITION AS DEPICTED ON THE VARIANCE PLAN AND NOT TO ANY OTHER ACTIVITIES, USES, STRUCTURES, OR ADDITIONS ON THE PROPERTY.
    B. THE PETITIONER SHALL OBTAIN ALL REQUIRED PERMITS.
65. IN ACCORDANCE WITH SECTION 16.116 (C) OF THE SUBDIVISION REGULATIONS, NECESSARY DISTURBANCES ARE REQUIRED TO UPGRADE THE EXISTING DRIVEWAY TO CURRENT STANDARDS TO PROVIDE ACCESS TO BUCH PROPERTY (REF. SDP-15-071). THIS UPGRADE ALSO INCORPORATES THE REPLACEMENT OF THE EXISTING CULVERT WITH A BOTTOMLESS BOX CULVERT TO ACCOMMODATE THE INCREASED RUNOFF FROM MAPLE LAWN AND TO PROVIDE A SAFER INGRESS AND EGRESS. THE STREAM, WETLAND AND FLOODPLAIN DISTURBANCES HAVE BEEN PERMITTED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT. THESE ENVIRONMENTAL DISTURBANCES ARE THE MINIMUM REQUIRED AND WOULD BE REQUIRED REGARDLESS OF THE CURRENTLY PROPOSED DEVELOPMENT. WALLS HAVE BEEN UTILIZED ALONG THE DRIVE AND THE LOWER AREAS OF THE SITE TO MINIMIZE AND AVOID ENVIRONMENTAL IMPACTS. THERE IS ALSO A SMALL STREAM BUFFER DISTURBANCE PROPOSED TO ACCOMMODATE STORM DRAIN OUTFALL AND RIPRAP APRON.
    (REF. MDE PERMIT 14-NT-3329/201461731)
66. THIS PLAN IS SUBJECT TO A DESIGN MANUAL WAIVER TO THE FOLLOWING DESIGN MANUALS:
    A. THIS PLAN IS SUBJECT TO A DESIGN MANUAL WAIVER; APPROVED 07/21/15; TO SEWER SECTION 3.3.B.2.B.1 TO TEMPORARILY ALLOW A DEAD WATER MAIN UNTIL SUCH A TIME AS HOWARD COUNTY COMPLETES THE LOOP; AND TO SECTION 3.3.B.3.A.5 TO REDUCE THE COVER OVER THE PROPOSED PVC C900 WATER MAIN TO 2.7' FOR A LENGTH OF 20' IN ORDER TO ACCOMMODATE A BOTTOMLESS ARCH BOX CULVERT.
    B. DESIGN MANUAL VOLUME III, SECTION 2.3.A.3.e, WHICH REQUIRES A CUL-DE-SAC OR TEE TURNAROUND AT THE TERMINUS OF A PUBLIC ROAD. APPROVAL GRANTED ON 8/24/15, BASED ON THE ROADWAY BEYOND THE PUBLIC TEE TURNAROUND BEING PRIVATELY OWNED AND MAINTAINED.
    C. DESIGN MANUAL VOLUME III, SECTION 2.6B (TABLE 2.10), WHICH REQUIRES THE CONSTRUCTION OF A PUBLIC ROAD WHERE A SHARED RESIDENTIAL DRIVEWAY CROSSES A 100-YEAR FLOODPLAIN. APPROVAL GRANTED ON 8/24/15, SUBJECT TO THE ROAD BEING BUILT TO A COUNTY ROAD STANDARD AND THE ACCESS BEING PRIVATELY OWNED AND MAINTAINED.
    D. DESIGN MANUAL VOLUME III, SECTION 3.4.A.3.b, WHICH REQUIRES A MINIMUM 10-FOOT RETAINING WALL SETBACK FROM A BOUNDARY LINE. APPROVAL GRANTED ON 8/24/15, BASED ON THE EXPLANATION THAT THE CONSTRICTION METHODS FOR THE RETAINING WALLS WILL NOT DISTURB NEIGHBORING PROPERTIES OR ENVIRONMENTAL FEATURES. ALL CONSTRUCTION FOR THE RETAINING WALLS MUST BE LIMITED TO THE SUBJECT SITE.
    E. DESIGN MANUAL VOLUME III, APPENDIX A, WHICH REQUIRES A MINIMUM PAVEMENT WIDTH OF 26-FEET FOR ACCESS TO TOWNHOUSE, APARTMENT, OR CONDOMINIUM DEVELOPMENTS. APPROVAL GRANTED ON 12/22/15, SUBJECT TO THE SECONDARY ACCESS BE DESIGNED AND APPROVED AS PART OF THIS SDP.
    F. DESIGN MANUAL WAIVER TO DESIGN MANUAL VOLUME II, SECTION 5.4.B.5, WHICH REDUCES THE REQUIRED A 10' SEPARATION BETWEEN A STRUCTURE AND THE PUBLIC UTILITY EASEMENT TO A MINIMUM OF 2'; APPROVED 04/11/16.
    G. DESIGN MANUAL WAIVER TO DESIGN MANUAL VOLUME III, SECTION 2.3.A.3.e; APPROVED 03/24/16; WHICH REQUIRES A SECOND ACCESS WHEN THE TRAFFIC VOLUME IS PROJECTED TO EXCEED 1,000 AVERAGE DAILY TRIPS. THE PROPERTY DOES NOT HAVE ACCESSIBLE FRONTAGE ON A PUBLIC ROAD, AND THEREFORE WILL PROVIDE A SECOND ACCESS WHICH WOULD BE USED FOR "EMERGENCY" ONLY ACCESS.
67. THIS PLAN IS SUBJECT TO ZRA-153; APPROVED 08/10/15; AN ACT AMENDING THE HOWARD COUNTY ZONING REGULATIONS 'R-APT' (RESIDENTIAL: APARTMENTS) DISTRICT TO CHANGE THE MAXIMUM BUILDING LENGTH LIMITATION TO 300 FT; AND GENERALLY RELATING TO THE R-APT (RESIDENTIAL: APARTMENTS) DISTRICT. APPROVAL GRANTED PROVIDED, HOWEVER, THAT:
    A. THE DEPARTMENT OF PLANNING AND ZONING MAY APPROVE A GREATER LENGTH, UP TO A MAXIMUM OF 600 FEET, BASED ON A DETERMINATION THAT THE GREATER LENGTH IS NEEDED TO ADDRESS NOISE MITIGATION OR SITE CONSIDERATIONS AND THAT THE DESIGN OF THE BUILDING WILL MITIGATE THE VISUAL IMPACT OF THE INCREASED LENGTH BY USING ARCHITECTURAL TREATMENTS TO REDUCE THE PERCEIVED VISUAL MASS.
68. THIS PLAN IS SUBJECT TO WAIVER PETITION WP-16-085; APPROVED 01/21/16; TO WAIVE SECTION 16.1205(a)(7) AND 16.1205(a)(10) WHICH REDUCES THE RETENTION OF SPECIMEN TREES THAT ARE NOT CONTAINED WITHIN OTHER PRIORITY FOREST RETENTION AREAS. APPROVAL SUBJECT TO THE FOLLOWING CONDITIONS:
    1. A REVISED WIAVER EXHIBIT (SERVING AS THE FSD FOR THE IMPACTED AREA OF THE EMERGENCY ACCESS) SHALL BE SUBMITTED WITHIN 2 WEEKS OF WAIVER APPROVAL (ON OR BEFORE 02/04/16) AND WILL ADDRESS ALL COMMENTS.
    2. A REVISED AND COMPLETED FC WORKSHEET INDICATING AMOUNT OF PROPOSED CLEARING AND REFORESTATION/AFFORESTATION OBLIGATIONS SHALL BE SUBMITTED WITHIN 2 WEEKS OF WAIVER APPROVAL (ON OR BEFORE 02/04/16).
    3. WAIVER APPROVAL IS LIMITED TO THE REMOVAL OF SPECIMEN TREES #4, #5, #6 AS DEPICTED ON THE WAIVER EXHIBIT. ANY PROPOSAL TO REMOVE ADDITIONAL SPECIMEN TREES WILL REQUIRE A NEW WAIVER REQUEST OR AN AMENDMENT TO THIS WAIVER REQUEST.
    4. A MINIMUM OF 6 ADDITIONAL, NATIVE, 2-3" CALIPER TREES SHALL BE PROVIDED ON SITE AS PART OF THE MITIGATION FOR THE SPECIMEN TREE REMOVAL. THIS MITIGATION WILL BE ADDRESSED WITH SDP-15-044 ("THE'VINE"-BUCH APARTMENTS) AND WILL BE M ADDITION TO ANY REQUIRED LANDSCAPE OR FOREST CONSERVATION PLANTINGS. THE MITIGATION WILL BE SHOWN ON THE ASSOCIATED LANDSCAPE PLAN AND SURETY FOR THESE ADDITIONAL TREES WILL BE REQUIRED AS PART OF THE SITE DEVELOPMENT PLAN.
    5. DUE TO THEIR PROXIMITY TO THE LOD, INDIVIDUAL TREE PROTECTIVE DEVICES (TREE FENCING) SHALL BE PLACED COMPLETELY AROUND THE CRITICAL ROOT ZONES OF SPECIMEN TREE #1, SPECIMEN TREE #2 AND SPECIMEN TREE #3, PRIOR TO THE COMMENCEMENT OF ANY GRADING. THIS SHALL BE OUTLINED IN THE PRE-CONSTMCTION MANAGEMENT PLAN OF THE FINAL FOREST CONSERVATION PLAN (FCP) AND WITHIN THE SEQUENCE OF CONSTRUCTION PROVIDED ON THE SITE DEVELOPMENT PLAN FOR SDP-15-044 ("THE VINE"-BUCH APARTMENTS").
    6. THE PETITIONER SHALL REMOVE THE EXISTING CHAIN LINK SECURITY FENCE (LOCATED INSIDE THE PROPERTY LINE OF PARCEL 288). THIS SECURITY FENCING SHALL BE RELOCATED TO THE PROPERTY LINE (AS SHOWN ON THE WAIVER EXHIBIT) AND SHALL BE OF THE SAME FENCING MATERIAL AS THE EXISTING FENCING LOCATED WITHIN THE POLICE STATION PARKING LOT.
    7. SDP-15-044 ("THE VINE"-BUCH APARTMENTS") SHALL BE AMENDED (VIA DIRECT SUBMISSION) PER THE CONDITIONS SET FORTH ABOVE. A FOREST CONSERVATION FEE-IN-LIEU SHALL BE PROVIDED WITH THE SUBMISSION OF SDP-15-044 MYLARS.



BUILDING ELEVATION (EAST)
NOT TO SCALE

BUILDING ELEVATION (NORTH)
NOT TO SCALE

BUILDING ELEVATION (SOUTH)
NOT TO SCALE

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

PARKING TABULATION

	PARKING REQUIRED PER CODE
PROPOSED BUILDING 283 DWELLING UNITS @ 2.0 SPACE PER UNIT	566 SPACES
	566 SPACES
OVERFLOW PARKING 283 DWELLING UNITS @ 0.3 SPACE PER UNIT	85 SPACES
TOTAL SPACES REQUIRED (PER CODE):	651 SPACES
	PARKING PER APPROVED REDUCTION
PROPOSED BUILDING 283 DWELLING UNITS @ 1.80 SPACE PER UNIT (SEE PARKING NOTE #3 & #4)	510 SPACES
	PROVIDED PARKING
GARAGE SPACES LEVEL 1	49 SPACES
GARAGE SPACES LEVEL 2	109 SPACES
GARAGE SPACES LEVEL 3	114 SPACES
GARAGE SPACES LEVEL 4	114 SPACES
GARAGE SPACES ROOF/LEVEL 5	118 SPACES
STRIPED COMMON PARKING	30 SPACES
TOTAL SPACES PROVIDED:	534 SPACES (INCLUDING 15 IN GARAGE HANDICAP) (INCLUDING 2 ON-STREET HANDICAP)

PARKING NOTES:

1. GARAGE SHALL BE MADE AVAILABLE AND USED FOR THE PARKING OF MOTOR VEHICLES AT ALL TIMES.
2. THE USE OF THE COMMON PARKING AREAS AND GARAGES SHALL BE CONTROLLED AND MANAGED BY THE PROPERTY MANAGEMENT COMPANY AND/OR HOA AND/OR CONDO. ASSOCIATION, WHICHEVER IS APPLICABLE AND SHALL BE RESPONSIBLE FOR ADDRESSING ANY PARKING INADEQUACIES SHOULD A PARKING SHORTAGE OCCUR FOR THIS PROJECT. ANY PARKING ISSUES OR ENFORCEMENT CONCERNS WILL BE THE PROPERTY MANAGEMENT COMPANY'S RESPONSIBILITY.
3. PARKING TABULATION BASED ON PARKING NEEDS ANALYSIS PREPARED BY THE TRAFFIC GROUP, INC. DATED MAY 22, 2015.
4. ON JUNE 22, 2015, THE PLANNING DIRECTOR APPROVED THE PROPOSED PARKING REDUCTION FOR APARTMENTS FROM 2.3 SPACES PER UNIT TO 1.80 SPACES PER UNIT FOR THIS PROJECT.

ADDRESS CHART	
LOT/PARCEL#	STREET ADDRESS
BUILDING A	10945 PRICE MANOR WAY

PERMIT INFORMATION CHART

SUBDIVISION NAME		SECTION/ AREA		LOT/ PARCEL	
THE VINE		-		PARCEL 126	
PLAT REF.	BLOCK NO	ZONE	TAX MAP	ELECT DIST.	CENSUS TR.
PLAT 23876-8	4	R-APT	46	5TH	605102

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8-10-16

APPROVED : FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

BWilson for Maura Rossman 5/3/2016
COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT H.O. — DATE

NO.	REVISION	DATE

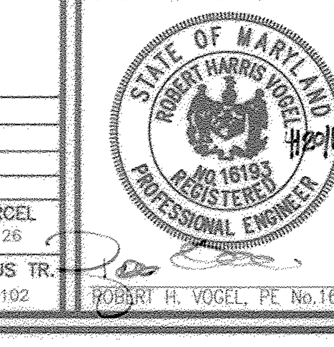
SITE DEVELOPMENTAL PLAN

COVER SHEET

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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



ROBERT H. VOGEL, PE No.16193

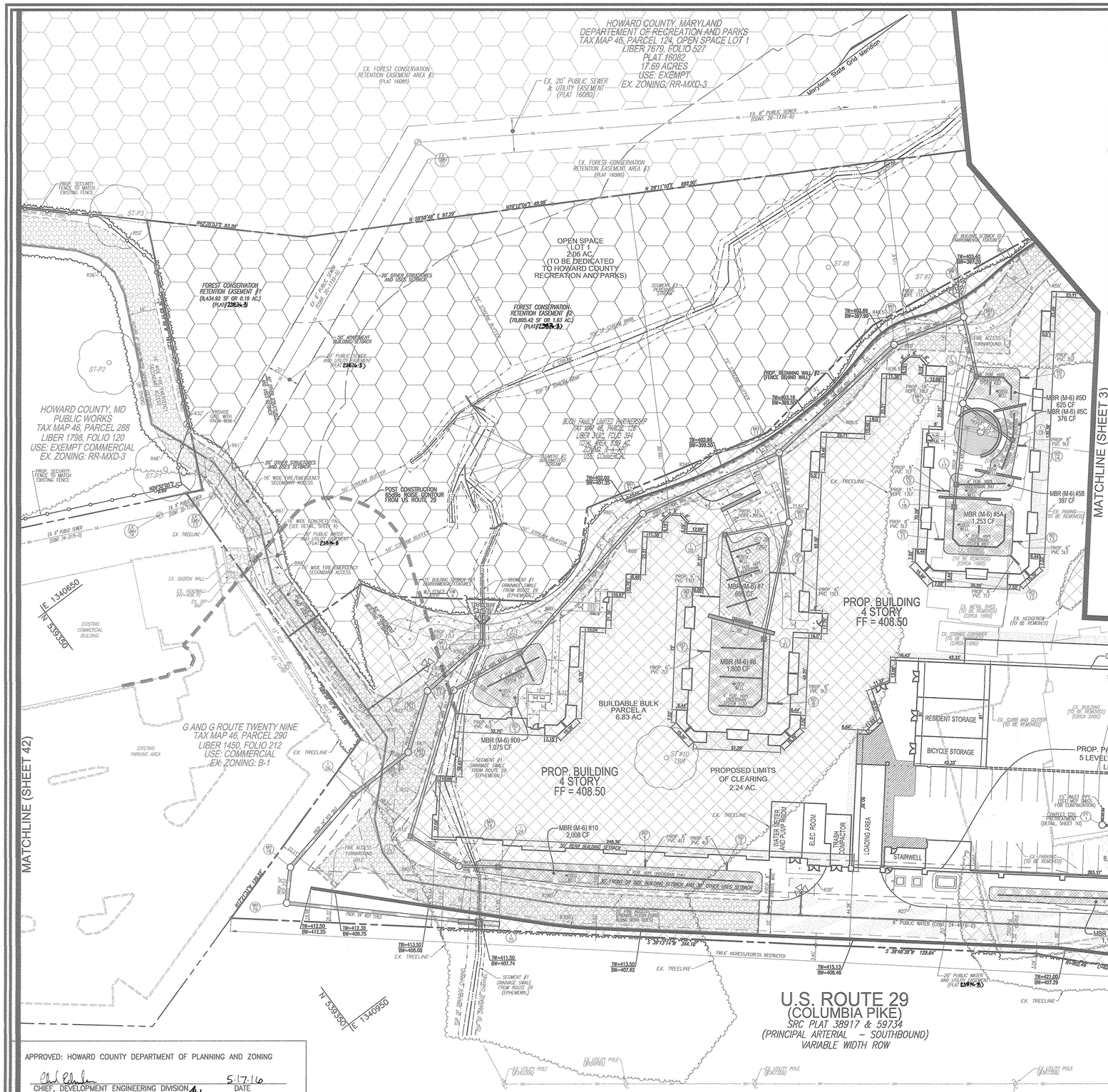
DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

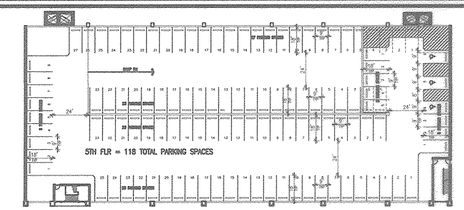
PROFESSIONAL CERTIFICATE

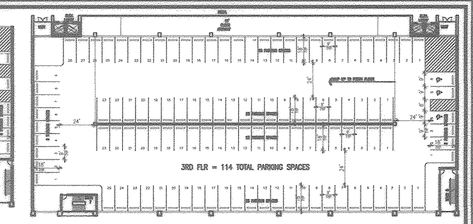
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

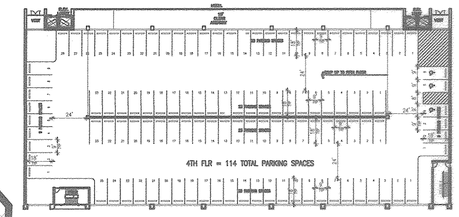
SHEET 1 OF 44

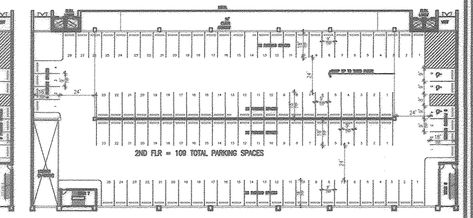
SDP-15-044

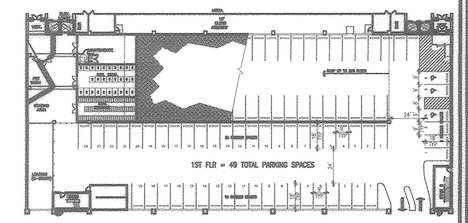












LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- CENTERLINE OF EXISTING STREAM
- EXISTING STREAM BUFFER
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FENCE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED SIDEWALK
- PROP. 20' PUBLIC WATER AND UTILITY EASEMENT
- FIRE ACCESS GRASS PAVERS
- FOREST CONSERVATION EASEMENT RETENTION
- EX. FOREST CONSERVATION EASEMENT RETENTION
- MICROBIORETENTION AREA
- EXISTING SPECIMEN TREE
- POST CONSTRUCTION NOISE CONTOUR

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE LAYOUT PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

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8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL No 16193 REGISTERED PROFESSIONAL ENGINEER 4/28/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

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SHEET 2 OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

SDP-15-044

LAYOUT PLAN
SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 8-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE LAYOUT PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 8/10/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
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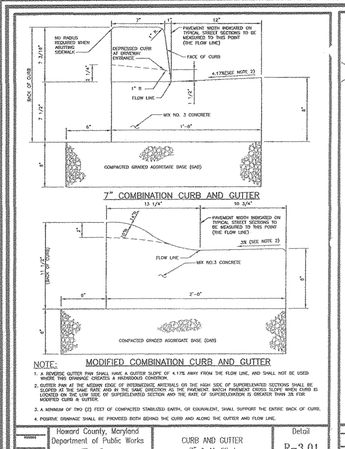
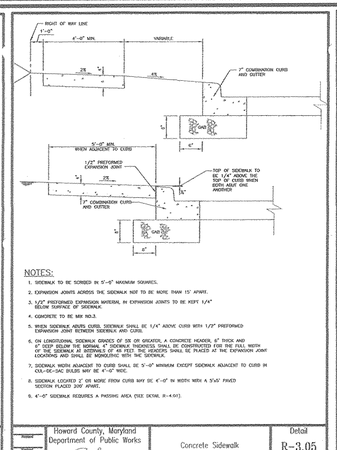
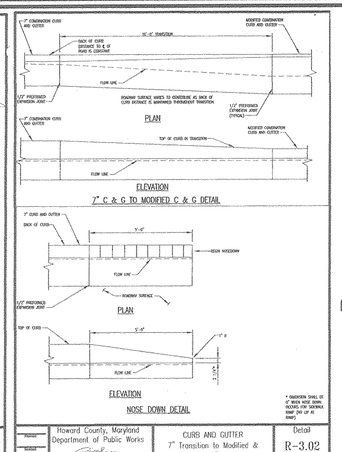
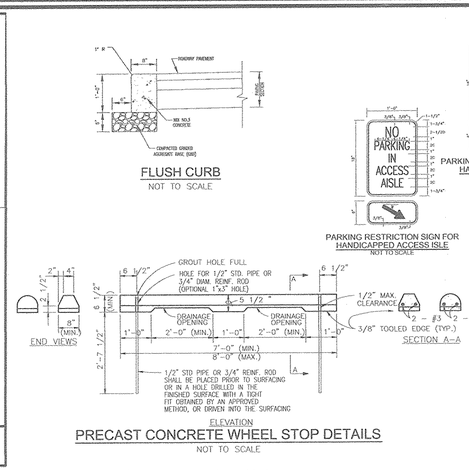
SHEET 3 OF 44

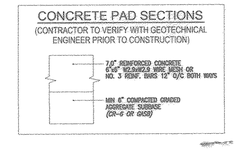
SDP-15-044

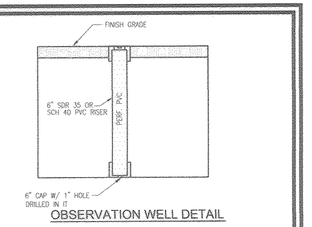


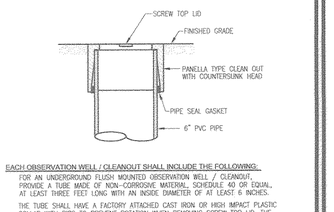










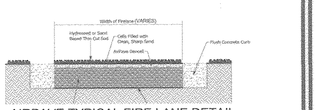


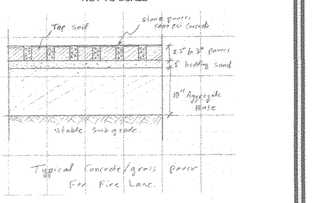
EACH OBSERVATION WELL / CLEANOUT SHALL INCLUDE THE FOLLOWING:

FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL / CLEANOUT, PROVIDE A TUBE MADE OF NON-CORRODING MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.

THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRAVIOLET RAYS.

CLEANOUT/OBSERVATION WELL CAP DETAIL
NOT TO SCALE





GEOTECHNICAL ANALYSES AND EVALUATIONS:

MASS GRADING CONSIDERATIONS

Based upon our understanding of the provided grading information, cuts of up to approximately 12 ft and fills of up to approximately 12 ft will be required to establish planned grades. The entire footprint of the parking garage, as well as the eastern portions of the apartment building, will be located within cut areas. The majority of the residential building and some of the SWM facilities will be located in fill areas.

Based on the results of the test borings, the majority of the site soils in the cut areas should be suitable to reuse as structural fill; however, soils classified as plastic SILT (MH) or plastic CLAY (CH), are not considered suitable to reuse as structural fill without chemical (lime or cement) treatment. We recommend that caution be taken when excavating as not to mix the MH/CH soils with otherwise suitable structural fill soils. In addition, depending on the time of the year when mass grading is performed, the moisture content of the on-site soils may be above optimum and would require mechanical or chemical drying.

Within the apartment building in the vicinity of Borings B-11, B-16, B-19 and B-20, plastic (MH, CH) soils are anticipated to be encountered near subgrade levels. It may also be encountered at subgrade levels at other locations. Such material is very sensitive to moisture changes and may exhibit swell/shrinkage potential. It is our opinion that such material is not suitable to directly support the slab-on-grade or pavements. Where MH/CH soils are encountered at slab-on-grade or pavement subgrade levels, the upper 12 inches of the subgrade should be undercut and replaced with suitable structural fill or chemically treated with lime or cement.

FOUNDATION CONSIDERATIONS

Based upon the results of the borings and our understanding of the anticipated construction, it is ECS' opinion that conventional footings can be used for support of the proposed residential building and parking garage. The foundations can be supported on approved natural soils, or on new engineered fill constructed over approved natural soils. However, where plastic SILT (MH) or plastic CLAY (CH) soils are encountered within 2 feet below the footing subgrades, it is recommended that exterior footings be lowered to levels at least 4 feet below final exterior grades, i.e., below levels where the MH/CH soils might be impacted by seasonal fluctuations in moisture contents. Based on the soil test boring results, it is anticipated that MH/CH soils exist at planned footing subgrade levels for the apartment building in the vicinity of Borings B-11, B, B-19 and B-20. Therefore, for the aforementioned area, lowering of the footings and undercut below slabs-on-grade should be anticipated. Such material may also be encountered in other areas of the site. Representative samples should be tested for Atterberg Limits at the time of construction to verify the soil classification.

Considering the results of the soil borings and the anticipated structural loads, it is ECS' recommendation that the residential building footings can be designed for a net allowable soil bearing pressure of 3,000 psf and the parking garage footings can be designed for a net allowable bearing pressure of 3,500 psf. The net allowable soil bearing pressure refers to the pressure which can be transmitted to the foundation bearing soils in excess of the final overburden pressure at the base of a footing.

Prior to the placement of reinforcement and concrete for footings, the bases of the footing excavations should be observed, tested, and approved by a qualified representative of the Geotechnical Engineer to verify that conditions at each footing location are suitable for the design bearing pressure. If soft or unsuitable soils are encountered at planned subgrade levels for any footing, the unsuitable soils should be undercut down to suitable bearing materials. The footing can then be directly supported on competent suitable soils at a greater depth or, alternatively, the design footing bearing level can be restored through placement of lean concrete or engineered granular fill materials. If the design bearing level is restored using granular engineered fill, then the excavation to remove the unsuitable soils should extend at least 0.5 ft laterally beyond the bottom edges of the footing for each 1 ft of vertical undercut below the footing bearing level. The engineered granular fill materials should be placed and compacted as discussed in a later report section.

Based on our experience with similar projects, the results of the borings, and empirical correlations, we estimate that total settlements of individual footings should be less than 1 inch. Maximum differential settlements within the proposed structure are not expected to be greater than approximately ½ inch over a horizontal distance of 30 feet.

In order to reduce the possibility of excessive settlement due to local shear or "punching" action, we recommend that column footings have a minimum lateral dimension of 2.5 feet and continuous wall footings have a minimum width of 2.5 feet. In addition, footings should be placed at sufficient depths to provide adequate protection against frost heave. It is recommended that exterior footings or footings in unheated areas should be placed at minimum depths of 30 inches below finished exterior grades for frost protection. Interior footings in heated areas can be located at minimum depths of 18 inches below finished floor grades, provided that architectural and structural considerations are also satisfied. However, if interior footings in future heated areas are constructed at levels less than 30 inches below surface grades and subsequently are subjected to freezing temperatures, there is a possibility for frost heave of those footings. Therefore, the Contractor should take adequate precautions to maintain temperatures above freezing around any shallow interior footings prior to enclosure and heating of the buildings.

All load-bearing wall foundations should be suitably reinforced with continuous longitudinal steel. To provide continuity and to minimize the effects of differential movements, the foundations should be constructed as continuous units to the greatest extent possible. Where top and bottom steel is provided in continuous wall foundations, a minimum footing thickness of 12 inches should be provided.

GROUND-SUPPORTED FLOOR SLABS

Building floor slabs may be ground-supported on natural soils or new engineered fill soils, provided that the subgrades are prepared in accordance with the recommendations in the sections entitled Subgrade Preparation and Fill Placement. It is important that the slab subgrade be firm and stable before the placement of the granular subbase materials, the moisture barrier, and the concrete. For areas where MH/CH soils are encountered at slab subgrade level, the upper 1 ft of the slab subgrade should be undercut and replaced with approved structural fill. For estimating design purposes, a modulus of subgrade reaction (k) of 120 pounds per cubic inch (pci) should be anticipated for the structural design of slabs, provided that a minimum of 4 inches of aggregate subbase materials are provided and the subgrade has been prepared in accordance with the recommendations of this report.

The slab subgrades should be thoroughly proofrolled with suitable equipment and/or probed and observed by a qualified representative of the Geotechnical Engineer in an effort to detect unstable or otherwise unacceptable soil conditions. Proofrolling should be concentrated in those areas where any wall and utility backfill have been placed. Soils in any excessively unstable areas should be undercut and replaced with new engineered fill, as determined by the Geotechnical Engineer. Recommendations for construction of engineered fill are presented in a later report section.

It is recommended that ground-supported slabs be underlain by a minimum of 4 inches (for the apartment building) and 6 inches (for the parking garage) of CR-6 or GA S/B dense-graded aggregate or approved equivalents. Acceptable granular subbase materials should have no aggregate size greater than 1.5 inches, 95 to 100 percent passing the 1 inch sieve, and less than 12 percent passing the Number 200 sieve. The granular subbase materials will provide a capillary break between the subgrade and the concrete slab, a higher modulus of subgrade reaction, and more uniform support conditions. All granular aggregate materials should be compacted to a minimum of 95 percent of the maximum dry density, as determined by the Modified Proctor compaction test method (ASTM D 1557).

In the event there is a significant time lag between the site grading work and the fine grading of concrete slab areas prior to the placement of the subbase stone or concrete, the Geotechnical Engineer should verify the condition of the prepared subgrade. Prior to final slab construction, the subgrade may require scarification and re-compaction to provide firm and stable conditions.

Where moisture vapor seepage through concrete slabs is a concern, a moisture vapor barrier, consisting of at least 8-mil polyethylene sheets, should be placed on top of the granular materials before the placement of the concrete. However, with the use of a moisture vapor barrier, special attention should be given to the surface curing of the slab in order to minimize uneven drying of the slab and any associated cracking and curling.

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

BELOW-GRADE WALLS AND SITE RETAINING WALLS

Based upon our understanding of the proposed construction, site retaining walls will be required to achieve planned grades. The following recommendations are provided to guide the general design of below-grade building walls and site retaining walls for lateral earth pressures, should such designs become necessary.

It is very important with regard to construction of below-grade building walls and site retaining walls that soils within the critical zones behind the walls meet certain criteria with regard to soil type. The critical zone can be considered as the zone between the bottom back edge of the wall footing or the reinforced zone for mechanically stabilized earth (MSE) retaining walls and an imaginary line extending upward and rearward from the bottom back edge of the wall footing at a 45-degree angle.

It is recommended that all natural soils and backfill soils within the critical zones of basement walls should have USCS classifications of Silty Sand (SM) or more granular. Any soils having classifications less granular than Silty Sand (SM) may need to be removed from the critical zones of the walls, as determined by the Geotechnical Engineer at the time of construction. Based upon the results of the borings and anticipated laboratory results, it would appear that most of the soils at the site should be suitable to remain in-place for use as wall backfill.

Backfill materials for below-grade walls and site retaining walls should be placed and compacted in accordance with criteria outlined in the *Earthwork* section of this report. The minimum degree of compaction for backfill soils behind below-grade building walls and conventional retaining walls should be 95 percent of the Standard Proctor maximum dry density (ASTM D 698), unless otherwise approved by the Geotechnical Engineer.

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

Below-grade building walls and other retaining walls that are rigid and not free to rotate at the top should be designed for at-rest earth pressure conditions. Based on consideration of at-rest earth pressure conditions and typical properties for Silty SAND (SM) or more granular soil types, it is recommended that equivalent fluid pressures on walls from the retained soils be calculated as 60H, in units of pounds per square foot, where H is the height of the wall retaining soils in units of feet.

Site retaining walls that are flexible and free to rotate at the top can be designed for active earth pressure conditions. Based on consideration of active earth pressures and typical properties for Silty SAND (SM) or more granular soil types, it is recommended that equivalent fluid pressures on walls from retained soils be calculated as 40H, in units of pounds per square foot, where H is the height of the wall retaining soils in units of feet.

The design criteria presented above for evaluation of horizontal earth pressures on retaining walls are based on the assumption of level backfill conditions and the absence of free water within the wall backfill materials. Lateral pressures induced by sloping backfills and/or by any surcharge loadings adjacent to walls will also need to be considered in the wall designs. In addition, suitable drainage will need to be provided to intercept and to dispose of any surface infiltration and groundwater behind walls.

Sliding resistance for retaining wall footings can be computed using a coefficient of friction of 0.36 for granular soils and 0.30 for silty and clayey soils. Additional resistance to sliding from passive earth pressure resistance also can be considered, if the earth materials considered for passive resistance will remain in place on the low side of the retaining wall. Equivalent fluid pressures for passive earth pressure resistance can be computed as 250D, in units of pounds per square foot, where D is the depth of undisturbed natural soil or engineered fill that will remain in place above the base of the wall footing. Because the frictional and passive earth pressure resistances are based on limit strength conditions, appropriate factors of safety of at least 1.5 should be applied to the designs considering these resistances.

The Geotechnical Engineer can provide additional design guidance regarding these and other aspects of below-grade wall and retaining wall design upon request.

STORMWATER MANAGEMENT

Based on the provided information, management of stormwater will be necessary for the project. We understand that thirteen (13) stormwater management (SWM) facilities, consisting of microbioretention areas, are planned around the property. Subsurface conditions within the planned SWM facilities were evaluated with Borings SWM-1 through SWM-12 and B-12. Specific details regarding the planned SWM facilities were not provided at the time this report was prepared; however we understand that the majority of facility bottoms are planned at EL 406 with infiltration inverts near EL 402. We also understand that infiltration is desirable for the planned SWM facilities. The details about the soil strata for each boring can be seen on the soil boring logs in the Appendix.

As noted in the *Water Level Observations* section of this report, groundwater was encountered during drilling operations in Borings SWM-6, SWM-7 and SWM-9 at depths ranging from 8.0 ft to 23.0 ft below existing grades, or EL 397 to EL 404. In addition, rock was not encountered to the depths explored in the SWM borings.

Laboratory testing consisting of soil gradation by hydrometer (USDA classification) was performed on representative soil samples recovered from Borings SWM-1 through SWM-12 and B-12 near the anticipated planned facility bottoms. Visual classification per USDA was performed for the remaining recovered soil samples for Borings SWM-1 through SWM-12 and B-12. Visual USDA classifications for the encountered strata are included on these boring logs in the Appendix. Infiltration feasibility for the planned SWM facilities was evaluated based on field infiltration testing at a depth of approximately 5 ft below the planned facility bottom and on the USDA classifications for the soils at the planned facility bottoms. Howard County requirements indicate that infiltration is considered feasible when the infiltration rate for soils at SWM facility inverts exceeds 1.02 in/hr, which corresponds to a USDA classification of Sandy Loam or more granular, provided that seasonal high groundwater or the presence of an impervious layer/bedrock is at least 4 ft below the facility invert. For planned SWM facilities located in fill areas, the uppermost sample from the boring was selected for laboratory testing.

A summary of the encountered soil conditions at the SWM inverts and field infiltration test results are summarized in the table below:

Boring	Field Infiltration Test Elt.	Groundwater Encountered	Soil at Facility Invert (USDA)	Field Infiltration Rate (in/hr)	Infiltration Feasibility
SWM-1	--	No	Sandy Loam	--	Yes
SWM-2	--	No	Sand	--	Yes
SWM-3	401	No	Sandy Loam	1.6	Yes
SWM-4	--	No	Clay Loam	--	No
SWM-5	401	No	Sandy Loam	3.6	Yes
SWM-6	--	EL 397	Loamy Sand	--	Yes
SWM-7	--	EL 398	Sandy Loam	--	Yes
SWM-8	401	No	Loamy Sand	0.95	Yes
SWM-9	--	EL 404*	Loamy Sand	--	No
SWM-10	--	No	Sandy Loam	--	Yes
SWM-11	401	No	Sandy Loam	0.0	No
SWM-12	400	No	Clay Loam	0.72	No
B-12	--	No	Sandy Loam	--	Yes

*Groundwater encountered less than 4 ft from planned facility bottom

The laboratory results indicate that the soils at the anticipated facility bottoms generally consist of Clay Loam, Sandy Loam, Loamy Sand and Sand, per the USDA classification. Soils classified as Clay Loam, such as those encountered at the facility inverts in SWM-4 and SWM, do not meet the Howard County infiltration requirements of 1.02 in/hr and, therefore, infiltration does not appear to be feasible in SWM-4 and SWM-12 at the currently planned facility bottom elevations.

Where Sandy Loam soils were encountered at the facility invert in SWM-11, field infiltration testing indicated a low infiltration rate, likely due to the in-situ density of these soils. Therefore, it is ECS' opinion that infiltration is not feasible in SWM-11 at the currently planned facility bottom elevations.

Groundwater was encountered in SWM-9 at approximately EL 404, which is less than 4 ft below the planned facility bottom. Therefore, it is ECS' opinion that infiltration is not feasible in SWM-9 at the currently planned facility bottom elevation, due to the presence of groundwater less than 4 ft below the facility invert.

Based on the remaining field and laboratory test results, it is ECS' opinion that infiltration should be feasible at the currently planned facility bottoms in SWM-1, SWM-2, SWM-3, SWMthrough SWM-8, SWM-10 and SWM-13 (which was evaluated with Boring B-12).

PAVEMENT CONSTRUCTION

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

It is ECS' opinion that use of the light-duty pavement section and the medium-duty pavement section most likely will be sufficient for traffic conditions likely to occur at the development. However, traffic loading conditions are an extremely important parameter with regard to pavement design. Therefore, if the traffic condition estimates provided above are considered to be inappropriate for the project, please advise ECS so that revised pavement section designs can be determined for the final geotechnical report for this site. Final decisions regarding pavement sections can be made as project design progresses, when further input regarding likely traffic conditions can be provided by other Design Team members.

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

CBR value:	3
Traffic for Light-Duty Pavement:	15,000 ESALs
Traffic for Medium-Duty Pavement:	75,000 ESALs
Reliability:	85 percent
Overall Variance:	0.45
Initial Serviceability:	4.2
Terminal Serviceability:	2.0

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

Pavement Material	Compacted Material Thicknesses (inches)*	
	Light-Duty (15,000 ESALs)	Medium-Duty (75,000 ESALs)
Surface Course Asphalt		
HMA SuperPave - 9.5 mm **	1.5	1.5
Base Course Asphalt		
HMA SuperPave - 12.5 mm **	2.0	2.5
Graded Aggregate Base		
GAB	4.0	8.0
Total Pavement Thickness	7.5	12.0

* Compaction: Level 1 (50 Gyrations)

Final determinations of pavement sections to be used at the site may not be possible until the time of actual construction, depending on the sequence of grading and availability of materials, when the subgrade soil conditions become exposed in the various site areas. For planning and pricing considerations, however, it is anticipated that the pavement sections shown for a CBR value of 3 should provide a reasonable estimate of the average pavement sections that will be needed for the site. The standard-duty pavement section shown in the table above should only be considered for use in areas where traffic will consist primarily of automobiles and light trucks and where any regular use by heavier trucks will be prohibited, such as proposed parking lot areas. The medium-duty pavement section shown in the table above should be considered for the main site entrances and main service drives that may experience some use by heavier vehicles.

It is ECS' opinion that the suggested medium-density flexible pavement section would not be suitable for the support of heavy, concentrated wheel loads. Therefore, we recommend that rigid Portland cement concrete pavement sections should be provided for any dumpster storage areas and for any unloading zones for deliveries. The Portland cement concrete pavement section should be at least 6 inches thick and should consist of air-entrained Portland cement concrete having a minimum 28-day compressive strength of 4,000 pounds per square inch (psi). A minimum of 6 inches of compacted dense-graded aggregate subbase (CR-6 or GASB) should be placed beneath all rigid concrete pavements. For any dumpster storage areas, the Portland cement concrete slab area should be large enough to support the dumpster and at least the front wheels of the truck used to unload the dumpster.

The State of Maryland is now using pavement materials whose characteristics are based on the new SuperPave material specifications, rather than on the older Marshall mix-design specifications. We have provided specifications for Superpave materials in the tables above. Please note that it is important to specify the Compaction Level and the Binder Type for SuperPave materials.

All pavement materials and construction should be in accordance with the most current version of the *Standard Specifications for Construction and Materials* of the Maryland Department of Transportation, State Highway Administration (SHA), and any applicable Howard County standards.

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

EARTHWORK OPERATIONS

SUBGRADE PREPARATION

Subgrade preparation should generally include the stripping of any unsuitable surface materials from the areas to be developed. Caution should be taken when stripping unsuitable materials so as not to mix these materials with otherwise suitable subgrade soils. It is recommended that the stripping of topsoil or other deleterious materials be extended to a minimum of 5 feet beyond the building and pavement limits. A qualified representative of the Geotechnical Engineer should observe the removal operations to determine the necessary horizontal and vertical limits of removal. The actual depths, quantities, and quality of surface materials must be determined during the stripping operations.

Prior to the placement of any new fill materials or subbase materials for foundations, slabs, or pavements, a qualified representative of the Geotechnical Engineer should observe the exposed subgrade soils. At that time, the exposed soils should be thoroughly proofrolled by a vehicle having an axle load of at least 10 tons, such as a loaded, tandem-axle dump truck. This proofrolling procedure is intended to assist in identifying any unstable materials that may need to be improved in place or removed. If areas exist that are not accessible for proofrolling operations, the Geotechnical Engineer should evaluate the soils at the exposed subgrade levels by conducting hand auger borings and Dynamic Cone Penetrometer (DCP) tests.

Due to the fine-grained nature of the majority of the site soils, drying of soils in at-grade, cut, and fill areas may also be necessary to establish stable subgrade conditions for construction. Therefore, the Construction Documents should make contractors clearly aware of the possible need for at least some drying of the on-site soils, so that pricing received for site grading work will include consideration of the need for such drying. In addition to typical mechanical drying efforts, it is recommended to include costs for chemical drying using lime or soil cement products.

FILL PLACEMENT

Upon achieving competent subgrade materials, the exposed soils should be filled, where appropriate, to planned building subgrade levels with an approved controlled, compacted fill. All fill and backfill placed within the building and pavement areas should be placed in lifts not exceeding 8-inches in loose thickness and moisture conditioned to within 2 percentage points of the optimum moisture content. We recommend that the lifts be compacted to at least 95 percent of their maximum dry density, as determined by ASTM D 698, Standard Proctor, for the full depth of the fill.

It should be noted that prior to the commencement of fill operations and/or utilization of any off-site borrow materials, the Geotechnical Engineer should be provided with representative samples in order to determine the material's suitability for use in a controlled compacted fill and to develop moisture-density relationships. All non-select type soils to be used as controlled fill should be approved inorganic materials, free of debris, and have a liquid limit and plasticity index less than 40 and 20, respectively, in order to expedite the earthwork operations, we recommend where off-site borrow materials are required, these materials be comprised of select granular materials which will provide suitable support, and be easily compacted and free draining.

Based on our review of the soil types encountered in the test borings conducted at this site, it is our opinion that most of the soil types encountered are suitable for reuse as fill at this site; however, as noted above, the site soils will likely require mechanical and/or chemical drying efforts, prior to placement due to the fine-grained nature of the soils. In addition, MH/CH soils will require chemical treatment in order to be used as structural fill.

The footprint of all proposed structures should be well defined, including the limits of the fill zones at the time of fill placement. Grade controls should be maintained throughout the filling operations. All filling operations should be observed on a full-time basis by a qualified soils technician to determine that minimum compaction requirements are being achieved. A minimum of one compaction test per 2,500 square feet area should be made for each lift. The elevation and location of the tests should be identified at the time of fill placement.

Compaction equipment suitable to the soil type used as fill should be selected to compact the fill. Theoretically, any equipment type can be used as long as the required density is achieved. Ideally, a steel drum roller should be used for compacting and sealing the surface soils. All areas receiving fill should be graded to facilitate positive drainage away from the building pads and pavement areas to maintain subgrade conditions free of water associated with precipitation and surface run-off.

Fill materials should not be placed on frozen soils or frost-heaved soils and/or soils, which have been recently subjected to precipitation. All frozen soils should be removed prior to continuation of fill operations. Borrow fill materials, if required, should not contain frozen materials at the time of placement. All frost-heaved soils should be removed prior to placement of controlled, compacted fill, granular subbase materials, foundation or slab concrete, and asphalt pavement materials. Soil bridging lifts within the proposed building limits should not be used since excessive settlement of the structure can occur.

CONSTRUCTION CONSIDERATIONS

The near-surface, on-site soils contain appreciable amounts of fines and will be very sensitive to moisture increases and to construction disturbance. Construction activities in the presence of excessive moisture can lead to softening of the subgrade soils and loss of bearing capacity. Therefore, it will be prudent to schedule earthwork operations during the warmer and drier seasons of the year that generally occur from late spring to early fall. Measures should also be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to provide for drainage of surface water away from areas being developed. It will be advisable to designate construction traffic areas to limit areas of disturbance and to prevent construction traffic from excessively degrading sensitive subgrade soils over large portions of the site.

A firm working surface for the placement of engineered fill should be established prior to construction of new fills. The moisture content of the fill soils at the time of placement should be carefully controlled to ensure that the required compaction effort can be achieved without excessive pumping or movement of the fill mass. In the event that the earthwork operations are accomplished during the cooler and wetter periods of the year, delays and additional costs should be anticipated. At these times, reduction of soil moisture may need to be accomplished by a combination of mechanical manipulation and the use of chemical additives, such as lime or cement, in order to lower moisture contents to levels appropriate for compaction.

Because the on-site soils are moisture-sensitive and are susceptible to loss of strength upon exposure to precipitation during construction activity, all foundation excavations must be protected to prevent the disturbance of the subgrade materials and to minimize any potential loss of support capacity. Foundation concrete generally should be placed for foundations during the same day that the foundation excavations are made and approved. Should excavating and placing the foundation concrete the same day not be practical, we recommend that a concrete mud mat, 2 to 3 inches thick, be placed to protect the subgrade soils from moisture changes and disturbance. If protection of the soils is not provided, then undersutting of softened or loosened soils may be necessary prior to the placement of reinforcing steel and foundation concrete.

Prior to the placement of any foundation concrete or mud mat, the subgrade soils must be carefully examined and tested by a qualified representative of the Geotechnical Engineer to confirm the availability of the design soil bearing capacity. To minimize disturbance to the subgrade soils during excavation, we recommend that a bucket without scarifying teeth, in addition to hand excavation methods, be used during the final phases of the excavation for the foundations.

Any cuts or excavations associated with building and utility excavations may require forming or bracing, slope flattening or other physical measures to control sloughing and/or to prevent slope failures. An examination of the applicable codes (e.g. OSHA) should be made by the appropriate Contractor to ensure that adequate protection of the excavations and trench walls is provided.

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE DETAILS

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRISON VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 06-27-2016

SHEET 4 OF 44

SDP-15-044

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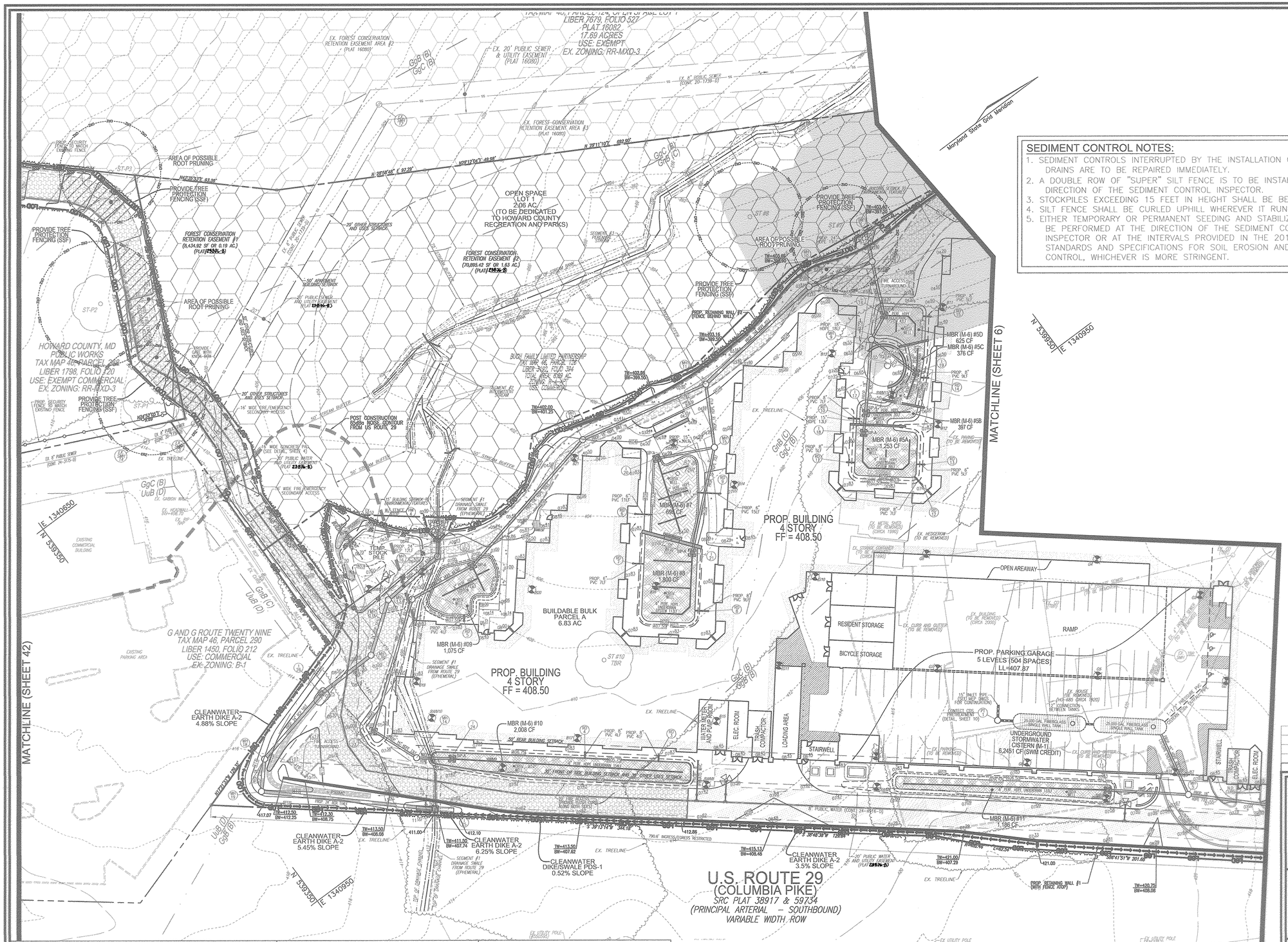

PLAN VIEW
SCALE: 1"=30'

SEDIMENT CONTROL NOTES:

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

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- CENTERLINE OF EXISTING STREAM
- EXISTING STREAM BUFFER
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT / EXISTING FENCE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED SIDEWALK
- PROP. 20' PUBLIC WATER AND UTILITY EASEMENT
- FIRE ACCESS GRASS PAVERS
- FOREST CONSERVATION EASEMENT (RETENTION)
- EX. FOREST CONSERVATION EASEMENT (RETENTION)
- MICROBIORETENTION AREA
- EXISTING SPECIMEN TREE
- POST CONSTRUCTION NOISE CONTOUR
- PROPOSED 10' CONTOUR / PROPOSED 2' CONTOUR
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- LOD — PROPOSED LIMIT OF DISTURBANCE
- COIP — PROPOSED COMBINATION INLET PROTECTION
- SIP — PROPOSED STANDARD INLET PROTECTION
- PROPOSED EARTH DIKE
- EXISTING SLOPE (MODERATE)
- M1B2 / M1D3 — SOILS BOUNDARY
- CRZ — CRITICAL ROOT ZONE
- ROOT PRUNING

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

GRADING, SOIL EROSION, AND SEDIMENT CONTROL PLAN

THE VINE

BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

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HOWARD COUNTY, MARYLAND

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8407 MAIN STREET
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 4/20/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2016

SHEET 5 OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5-9-16
DIRECTOR	DATE 5-10-16

BY THE DEVELOPER:

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

SIGNATURE OF DEVELOPER — DATE 4-20-16

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 4/20/16

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

HOWARD S.C.D. — DATE 4/20/16

SCALE 1"=30'
15' 0' 30'

SDP-15-044

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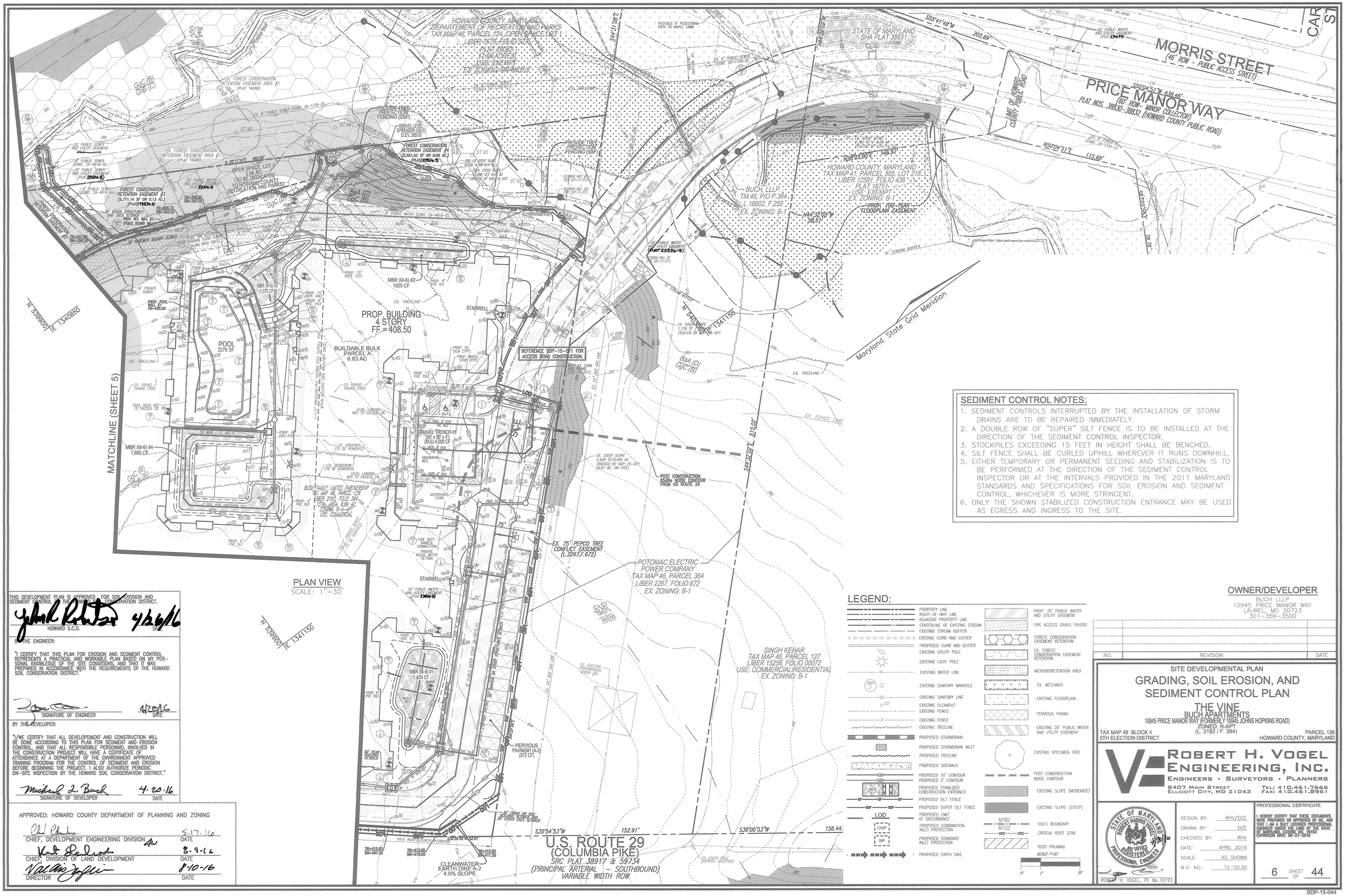


SEDIMENT CONTROL NOTES:

1. SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
2. A DOUBLE ROW OF "SUPER" SILT FENCE IS TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
3. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.
4. SILT FENCE SHALL BE CURLED UPHILL WHEREVER IT RUNS DOWNHILL.
5. EITHER TEMPORARY OR PERMANENT SEEDING AND STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS PROVIDED IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE STRINGENT.
6. ONLY THE SHOWN STABILIZED CONSTRUCTION ENTRANCE MAY BE USED AS EGRESS AND INGRESS TO THE SITE.

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

4/26/16
HOWARD S.C.D. DATE

BY THE ENGINEER:

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

4/20/16
SIGNATURE OF ENGINEER DATE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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."

4.20.16
SIGNATURE OF DEVELOPER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

LEGEND:

PROPERTY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
CENTERLINE OF EXISTING STREAM
EXISTING STREAM BUFFER
EXISTING CURB AND GUTTER
PROPOSED CURB AND GUTTER
EXISTING UTILITY POLE
EXISTING LIGHT POLE
EXISTING WATER LINE
EXISTING SANITARY MANHOLE
EXISTING SANITARY LINE
EXISTING CLEANOUT
EXISTING FENCE
EXISTING FENCE
EXISTING TREELINE
PROPOSED STORMDRAIN
PROPOSED STORMDRAIN INLET
PROPOSED TREELINE
PROPOSED SIDEWALK
PROPOSED 10' CONTOUR
PROPOSED 2' CONTOUR
PROPOSED STABILIZED CONSTRUCTION ENTRANCE
PROPOSED SILT FENCE
PROPOSED SUPER SILT FENCE
LOD — PROPOSED LIMIT OF DISTURBANCE
COIP — PROPOSED COMBINATION INLET PROTECTION
SIP — PROPOSED STANDARD INLET PROTECTION
PROPOSED EARTH DIKE
PROP. 20' PUBLIC WATER AND UTILITY EASEMENT
FIRE ACCESS GRASS PAVERS
FOREST CONSERVATION EASEMENT RETENTION
EX. FOREST CONSERVATION EASEMENT RETENTION
MICROBIORETENTION AREA
EX. WETLANDS
EXISTING FLOODPLAIN
PERVIOUS PAVING
EXISTING 20' PUBLIC WATER AND UTILITY EASEMENT
EXISTING SPECIMEN TREE
POST CONSTRUCTION NOISE CONTOUR
EXISTING SLOPE (MODERATE)
EXISTING SLOPE (STEEP)
M1B2 / M103 — SOILS BOUNDARY
CRZ — CRITICAL ROOT ZONE
ROOT PRUNING
SCALE 1"=30'
15' 0' 30'

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

GRADING, SOIL EROSION, AND SEDIMENT CONTROL PLAN

THE VINE

BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — 5TH ELECTION DISTRICT
PARCEL 126 — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — REGISTERED PROFESSIONAL ENGINEER — 4/20/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE 09-27-2016

SHEET 6 OF 44

SDP-15-044

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

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

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

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

CRITERIA
A. SOIL PREPARATION
1. TEMPORARY STABILIZATION
A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCHARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
I. SOIL PH BETWEEN 6.0 AND 7.0.
II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCEM HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

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

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

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

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

CRITERIA
1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE 8.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b
SEED MIXTURE (FROM TABLE B.1):

NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FELIZER RATE (10-20-20)	LIME RATE
1	COOL SEASON ANNUAL RYEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 AUG 1 TO OCT 15	0.5 IN.	436 LB/AC (10 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)
2	WARM SEASON FOXTAIL MILLET OR EQUAL	30 LB / AC	MAY 16 TO JUL 31	0.5 IN.		

SEDIMENT CONTROL NOTES:

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

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

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

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

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

CRITERIA
A. SEEDING
1. SPECIFICATIONS
A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE 8.1, PERMANENT SEEDING TABLE 8.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.
II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING
1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY.
NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1,
B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITHMULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6. SITE ANALYSIS:

TOTAL SITE AREA	8.98 ACRES
AREA DISTURBED	6.50 ACRES
AREA TO BE ROOFED OR PAVED	5.31 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.19 ACRES
TOTAL CUT	44,206 CY*
TOTAL FILL	24,417 CY*
OFFSITE WASTE/BORROW LOCATION	TO BE DETERMINED **

7. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
9. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

* ESTIMATE ONLY. CONTRACTOR SHALL VERIFY QUANTITIES TO HIS OWN SATISFACTION.
** TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, WITH AN APPROVED AND ACTIVE GRADING PERMIT.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

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

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

CRITERIA
A. SEED MIXTURES
1. GENERAL USE
A.SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
2. TURFGRASS MIXTURES
A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
IV. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.
NOTES:
SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".
CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.
C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
WESTEM MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)
D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1½ INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b
SEED MIXTURE (FROM TABLE B.3): 9

NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FELIZER RATE (10-20-20) N	P_2O_5	K_2O	LIME RATE
1	COOL SEASON TALL FESCUE & KENTUCKY BLUEGRASS OR EQUAL	T.F. 60 LB / AC K.B. 40 LB / AC	MAR 1 TO MAY 15 AUG 15 TO OCT 15	1/4-1/2 IN.	45 LB/AC (1 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).
1. GENERAL SPECIFICATIONS
A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TOM OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
2. SOD INSTALLATION
A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
3. SOD MAINTENANCE
A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

DEFINITION
A MOUND OR PILE OF SOIL PROTECTION BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.
PURPOSE
TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.
CONDITIONS WHERE PRACTICE APPLIES
STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.
CRITERIA
1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.
MAINTENANCE
THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate [1] lb/ac	Seeding Rate [1] lb/1000 ft²	Seeding Depth [2] (inches)	Recommended Seeding Dates by Plant Hardiness Zone [3] 5b and 6a	6b	7a and 7b	FERTILIZER RATE (10-20-20)	LIME RATE
Cool-Season Grasses								
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30	436 LB/AC (10 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30		
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30		
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30		
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15		
Warm-Season Grasses								
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14		
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14		

NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

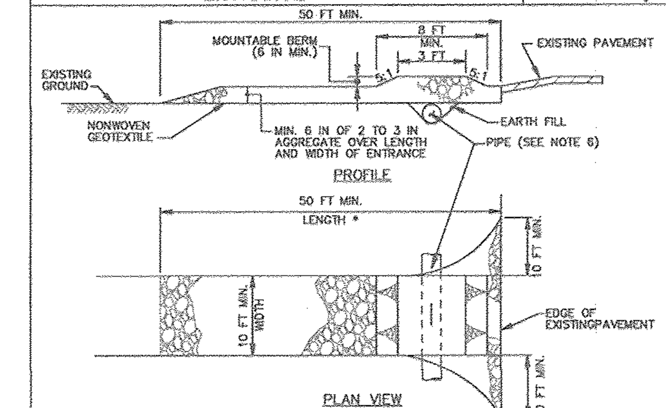
Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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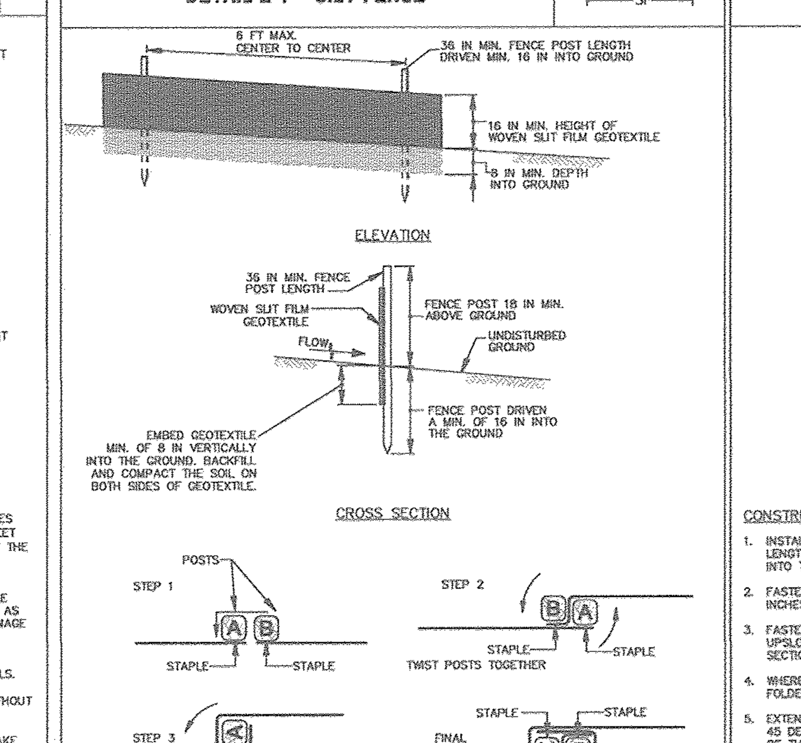
DETAIL E-1 SILT FENCE

STANDARD SYMBOL SF



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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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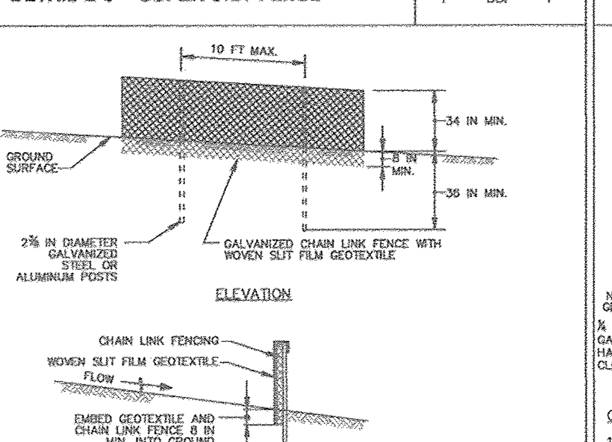
DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL SSF



CONSTRUCTION SPECIFICATIONS

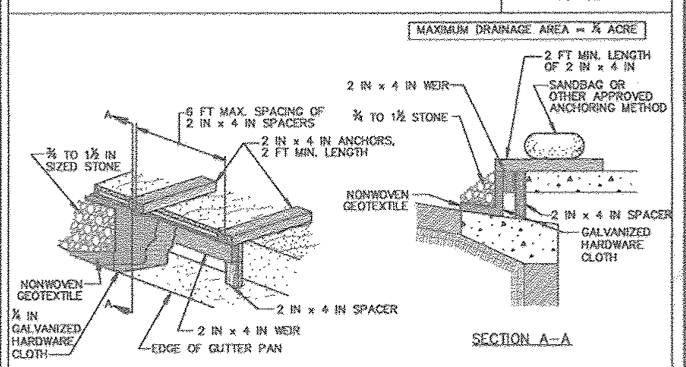
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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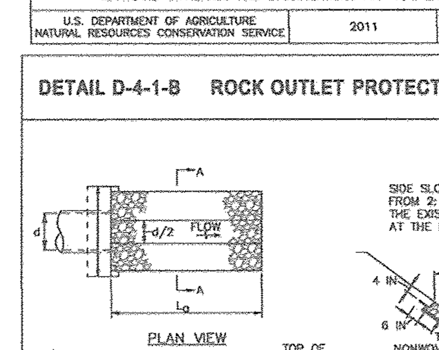
DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL ROPII



RIPRAP CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

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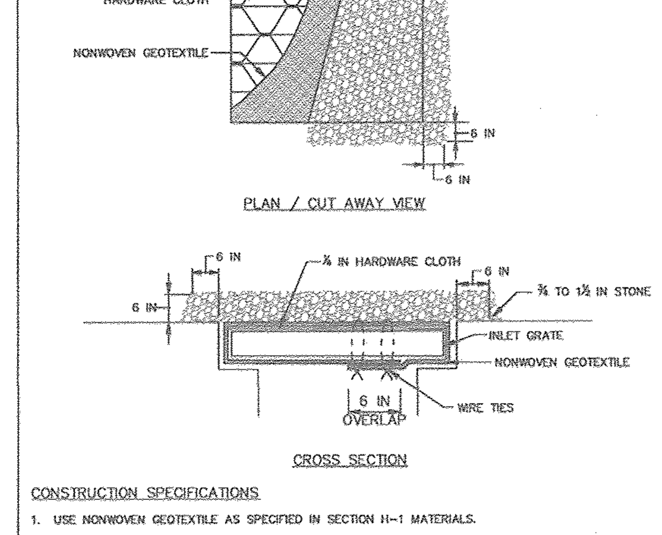
DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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DETAIL E-1 SILT FENCE

STANDARD SYMBOL SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

DEFINITION
CONTROLLING THE SUSPENSION OF DUST PARTICLES FROM CONSTRUCTION ACTIVITIES.

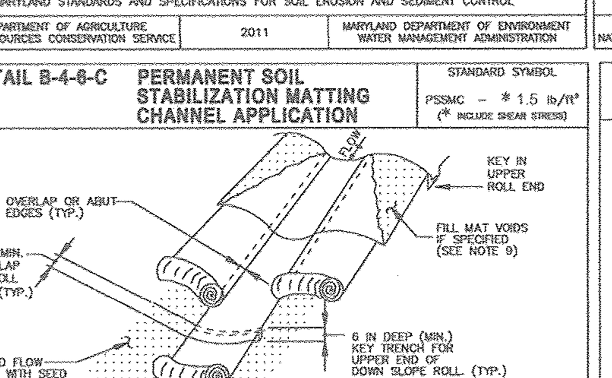
PURPOSE
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES TO REDUCE ON AND OFF-SITE DAMAGE INCLUDING HEALTH AND TRAFFIC HAZARDS.

CONDITIONS WHERE PRACTICE APPLIES
SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS
1. MULCHES: SEE SECTION B-4-2 SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS, SECTION B-4-3 SEEDING AND MULCHING, AND SECTION B-4-4 TEMPORARY STABILIZATION. MULCH MUST BE ANCHORED TO PREVENT BLOWING.
2. VEGETATIVE COVER: SEE SECTION B-4-4 TEMPORARY STABILIZATION.
3. TILLAGE: TILL TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT THAT MAY PRODUCE THE DESIRED EFFECT.
4. IRRIGATION: SPRINKLE SITE WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. THE SITE MUST NOT BE IRRIGATED TO THE POINT THAT RUNOFF OCCURS.
5. BARRIERS: SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
6. CHEMICAL TREATMENT: USE OF CHEMICAL TREATMENT REQUIRES APPROVAL BY THE APPROPRIATE PLAN REVIEW AUTHORITY.

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL PSSMC - * 1.5 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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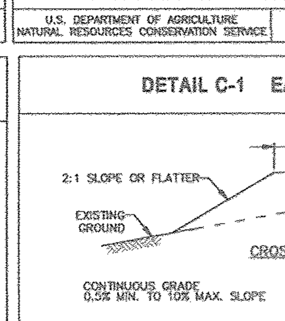
DETAIL C-1 EARTH DIKE

STANDARD SYMBOL A-1 (PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.)



DIKE TYPE

	A	B
a - DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b - DIKE WIDTH	24 IN MIN.	36 IN MIN.
c - FLOW WIDTH	4 FT MIN.	6 FT MIN.
d - FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

- A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
- A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
- A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT (1 DAY)
2. REVIEW PERMIT CONDITIONS: MDE PERMIT 14-NT-3329/201461731.
2. DEVELOPER/CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (1 DAY)
3. NOTIFY HOWARD COUNTY BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION (410-313-1880) AT LEAST 24 HRS BEFORE STARTING WORK. (1 DAY)
4. STAKEOUT LIMITS OF DISTURBANCE (2 DAYS)
5. INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM. (1 DAY)
6. CLEAR AND GRUB FOR THE INSTALLATION OF ALL PERIMETER CONTROLS. (2 DAYS)
7. INSTALL PERIMETER CONTROLS INCLUDING EARTH DIKES, DIKE/SWALES, SILT FENCE, AND SUPER SILT FENCE. PROVIDE TREE PROTECTION FENCING (SSF) FOR SPECIMEN TREES TO REMAIN AS SHOWN ON THESE PLANS (ST-2, ST-3, ST-4, ST-7, ST-P1, ST-P2, ST-P3). SEE FOREST CONSERVATION PLAN (SHEETS 40-42) FOR MORE DETAILS. (3 DAYS)
8. CONSTRUCT BY-PASS STORM DRAIN I-25 TO HW-4 TO PROVIDE OUTFALL FOR OFF-SITE CHANNEL. (1 WEEK)
9. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE. (1 WEEK)
10. BEGIN SITE ROUGH GRADING.
11. AS SITE IS BROURGHT TO PROPOSED GRADE, BEGIN CONSTRUCTION OF SITE RETAINING WALLS. (2 WEEKS)
12. BEGIN INSTALLATION OF SITE UTILITIES (SEWER, STORM DRAIN, WATER, AND MICROBIORETENTION FACILITIES). PROVIDE INLET PROTECTION AS SHOWN ON THESE PLAN. (12 WEEKS)
A. MICROBIORETENTION CONSTRUCTION:
CONSTRUCT STORM DRAIN SYSTEM INCLUDING MICROBIORETENTION UNDERDRAINS AND #57 STONE. COVER STONE WITH POLY SHEET PLASTIC TO PREVENT CONTAMINATION, AND TEMPORARILY BACKFILL.
13. INSTALL CISTERN TANKS AND PRETREATMENT. (1 WEEK)
14. BEGIN GARAGE AND BUILDING CONSTRUCTION.
15. WHEN UTILITIES AND SITE IS BROUGHT TO APPROPRIATE GRADES, BEGIN INSTALLATION OF GRAVEL TRENCH AND PERVIOUS CONCRETE SECTIONS. PROTECT PERVIOUS CONCRETE WITH PLASTIC. (2 WEEKS)
A. GRAVEL INFILTRATION TRENCH CONSTRUCTION:
CONSTRUCT GRAVEL TRENCH, INCLUDING STORM DRAIN. TEMPORARILY BLOCK DIVERSION TO GRAVEL TRENCH AT INLET I-6.
16. WITH INSPECTOR'S APPROVAL, BEGIN INSTALLATION OF BASE PAVING, FIRE LANE, PATHWAY, AND SECONDARY ACCESS FIRE LANE. (3 WEEKS)
17. AS GRADING PROGRESSES, COMPLETE RETAINING WALL CONSTRUCTION. (1 WEEK)
18. BEGIN INSTALLATION OF CURB AND GUTTER. (1 WEEK)
19. COMPLETE UTILITY CONSTRUCTION. (1 WEEK)
20. COMPLETE BASE COURSE PAVING. (3 WEEKS)
21. COMPLETE INSTALLATION CURB AND GUTTER.
22. COMPLETE CONSTRUCTION OF BUILDING (12 MONTHS)
23. COMPLETE INSTALLATION OF MICRO-BIORETENTION FACILITIES. (1 MONTH)
A. MICROBIORETENTION CONSTRUCTION:
WITH SITE CONSTRUCTION COMPLETE, REMOVE TEMPORARY FILL IN MICROBIORETENTION FACILITES AND CAREFULLY REMOVE POLY SHEET PLASTIC AND INSTALL FILTER FABRIC (SIDES ONLY), PEA GRAVEL AND PLANTING SOIL. CONTRACTOR TO PROVIDE PLANTING SOIL CERTIFICATION. IMMEDIATELY PROTECT FACILITY WITH SILT FENCE. PLACE MULCH AND INSTALL PLANTINGS. ANY COMPACTION OF THE PLANTING SOIL WILL REQUIRE REPLACEMENT OF THE PLANTING SOIL.
24. INSTALL PAVING SURFACE COURSE, AND REMOVE PLASTIC FROM PERVIOUS CONCRETE. (1 WEEK)
25. INSTALL SIDEWALKS AND SITE AMENITIES. (1 MONTH)
26. WITH INSPECTOR'S APPROVAL, FINE GRADE SITE AND STABILIZE ALL AREAS DISTURBED AREAS WITH PERMANENT SEEDING. REMOVE ALL TRASH, JUNK AND DEBRIS FROM ENTIRE PARCEL. (3 WEEKS)
27. WHEN ALL CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED, REMOVE SILT FENCE AROUND EACH MICROBIORETENTION FACILITY. REMOVE TEMPORARY DIVERSION BLOCKING TO GRAVEL TRENCH AT INLET I-6.
28. INSTALL SITE LANDSCAPING. (3 WEEKS)
28. AFTER PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR REMOVE ANY CONTROLS AND STABILIZE DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW AND MULCH (1 WEEK.)

NOTES:
1. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
2. FOLLOWING INITIAL SOIL DISTURBANCES OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
B. SEVEN (7) CALENDAR DAYS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
3. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8-9.16
DIRECTOR — DATE 8-10-16

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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."

Michael J. Buch — SIGNATURE OF DEVELOPER — DATE 4.20.16

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 4/20/16

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

HOWARD S.C.D. — DATE 4/26/16

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SEDIMENT AND EROSION CONTROL NOTES & DETAILS
THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 4/26/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV/DZE
DRAWN BY: DZE
CHECKED BY: RHV
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

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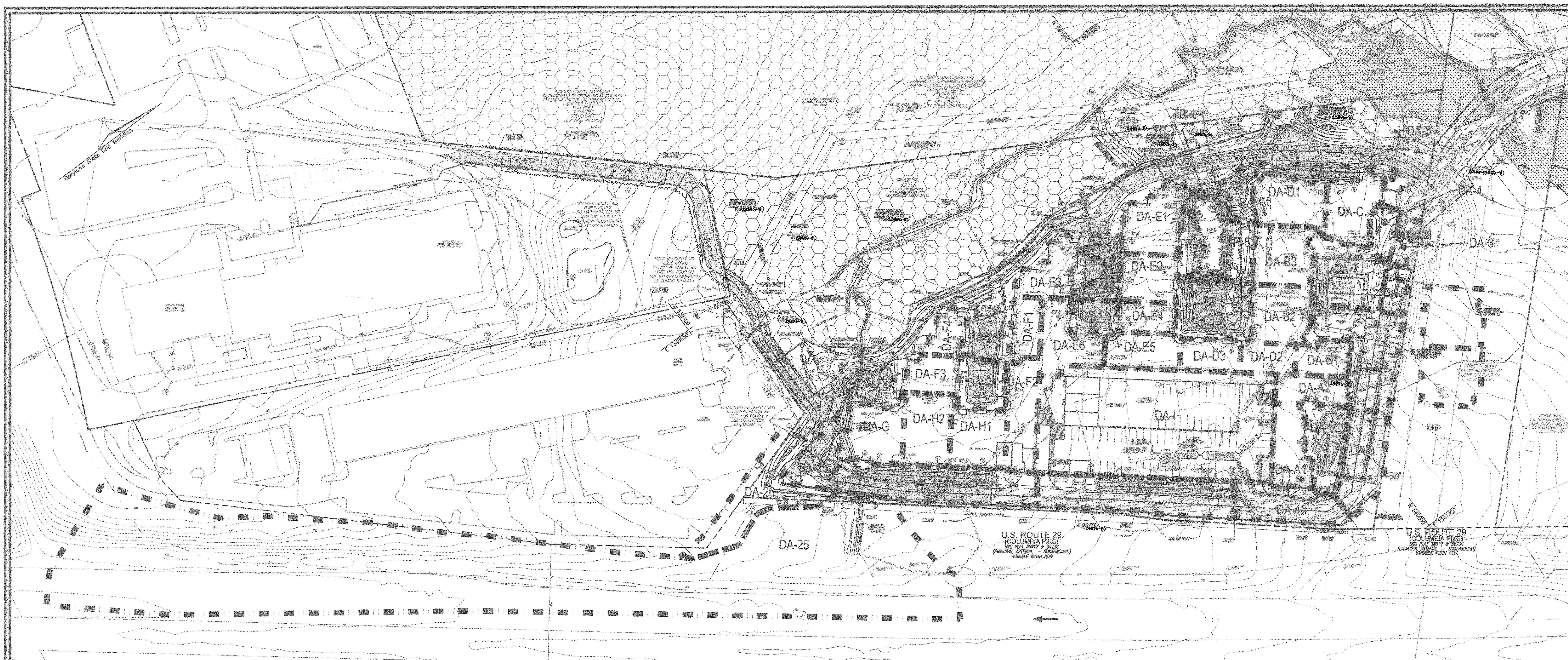

PLAN VIEW

SCALE: 1"=50'

SCALE 1"=60'

30' 0' 60'

SD Drainage Area Chart							
DRAINAGE AREA	AREA AC	C	IMP %	DRAINAGE AREA	AREA AC	C	IMP %
DA-3	0.03	0.51	50%	DA-A1	0.10	0.86	100%
DA-4	0.05	0.56	56%	DA-A2	0.07	0.86	100%
DA-5	0.02	0.16	0%	DA-B1	0.06	0.86	100%
DA-6	0.03	0.86	100%	DA-B2	0.12	0.86	100%
DA-7	0.16	0.60	63%	DA-B3	0.13	0.86	100%
DA-8	0.22	0.70	78%	DA-C	0.12	0.86	100%
DA-9	0.15	0.74	82%	DA-D1	0.13	0.86	100%
DA-10	0.13	0.75	84%	DA-D2	0.06	0.86	100%
DA-11	0.25	0.55	56%	DA-D3	0.07	0.86	100%
DA-12	0.11	0.16	0%	DA-E1	0.13	0.86	100%
DA-13	0.05	0.18	2%	DA-E2	0.10	0.86	100%
DA-14	0.16	0.41	36%	DA-E3	0.09	0.86	100%
DA-15	0.04	0.16	0%	DA-E4	0.06	0.86	100%
DA-16	0.03	0.17	0%	DA-E5	0.10	0.86	100%
DA-17	0.02	0.16	0%	DA-E6	0.12	0.86	100%
DA-18	0.06	0.16	0%	DA-F1	0.06	0.86	100%
DA-19	0.02	0.16	0%	DA-F2	0.13	0.86	100%
DA-20	0.07	0.25	9%	DA-F3	0.07	0.86	100%
DA-21	0.08	0.19	0%	DA-F4	0.05	0.86	100%
DA-22	0.06	0.27	12%	DA-G	0.12	0.86	100%
DA-23	0.09	0.17	0%	DA-H1	0.12	0.86	100%
DA-24	0.25	0.29	16%	DA-H2	0.13	0.86	100%
DA-25	2.84	0.44	36%	DA-I	0.91	0.86	100%
DA-26	0.21	0.24	0%				
TR-1	0.01	0.86	100%				
TR-2	0.01	0.86	100%				
TR-3	0.01	0.86	100%				
TR-4	0.04	0.60	62%				
TR-5	0.07	0.62	66%				
TR-6	0.01	0.86	100%				
TR-7	0.01	0.43	38%				

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED SIDEWALK
- EXISTING FLOODPLAIN
- EXISTING WETLANDS
- PROP. 20' PUBLIC WATER AND UTILITY EASEMENT
- PROPOSED PUBLIC STORM DRAIN EASEMENT
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- DRAINAGE AREA
- M1B2 / M1D3 SOILS BOUNDARY
- FIRE ACCESS GRASS PAVERS
- FOREST CONSERVATION EASEMENT (RETENTION)
- EX. FOREST CONSERVATION EASEMENT (RETENTION)
- MICROBIORETENTION AREA
- EXISTING SPECIMEN TREE
- POST CONSTRUCTION NOISE CONTOUR
- LOD PROPOSED LIMIT OF DISTURBANCE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

STORM DRAIN DRAINAGE AREA MAP

THE VINE

BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 4/20/16

ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV/DZE
DRAWN BY: DZE
CHECKED BY: RHV
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

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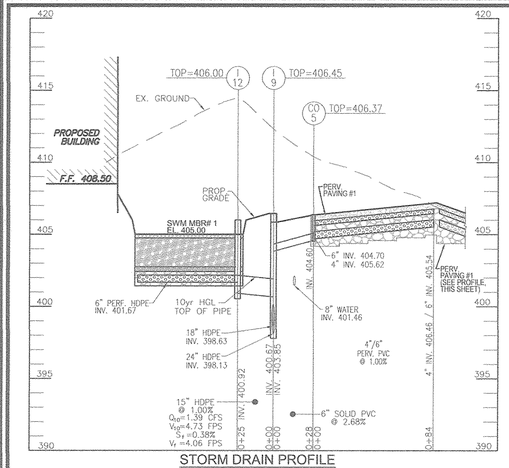
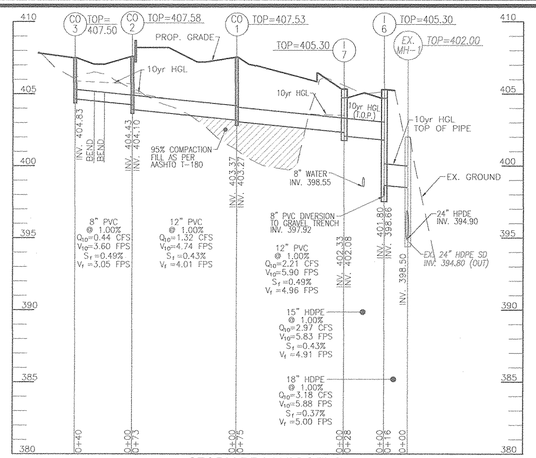


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



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SCALE : HORIZONTAL – 1"=50'
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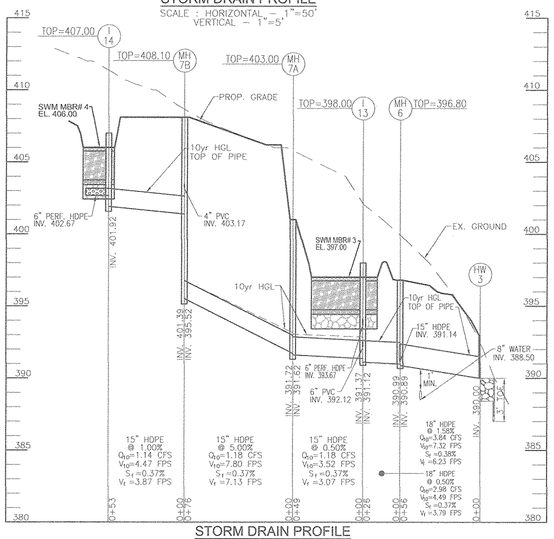

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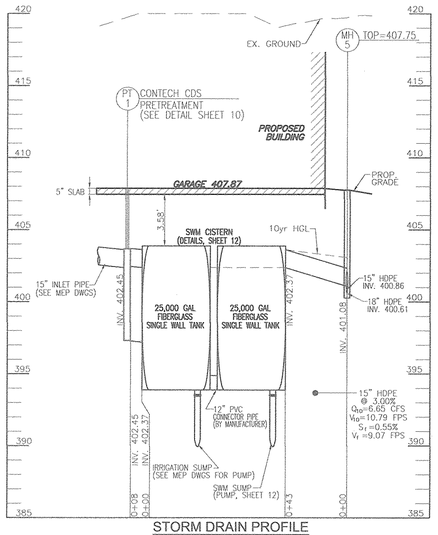
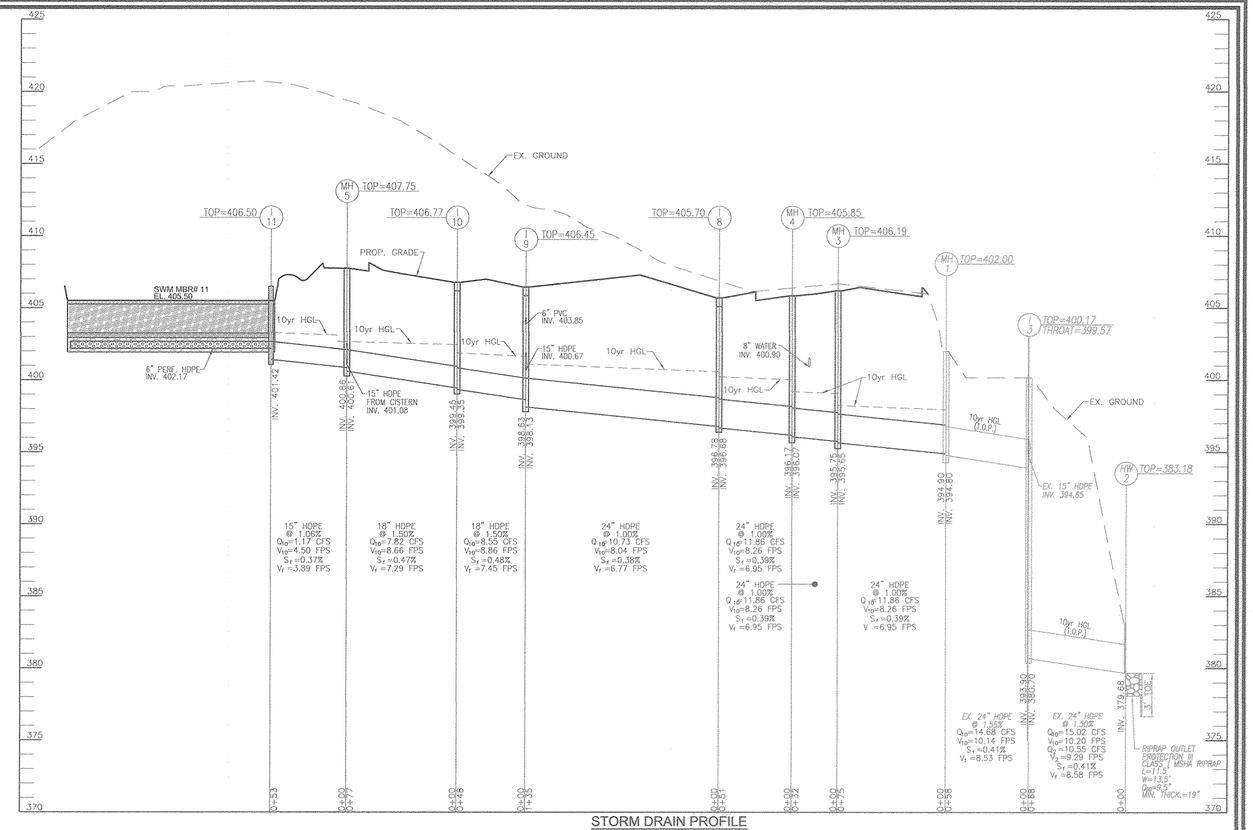
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

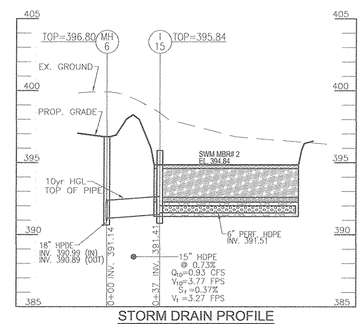


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

TRENCH DRAIN DIVERSION PIPE PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE
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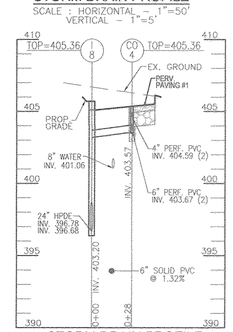
VERTICAL – 1"=5'

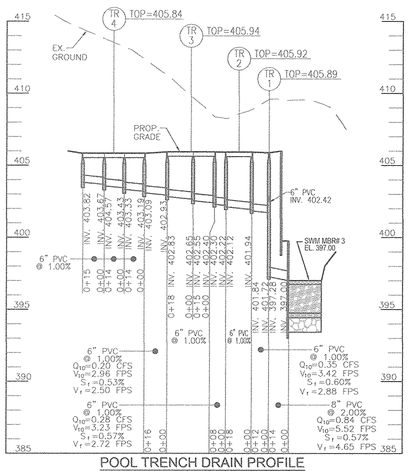


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

SCALE 1"=50'
25' 0' 50'

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500



POOL TRENCH DRAIN PROFILE
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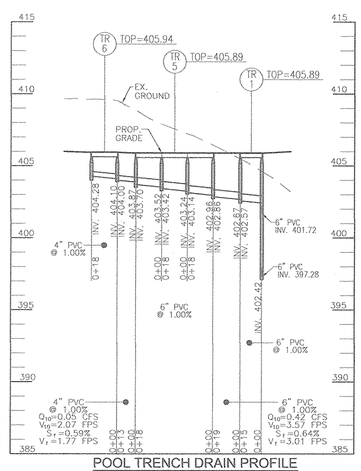
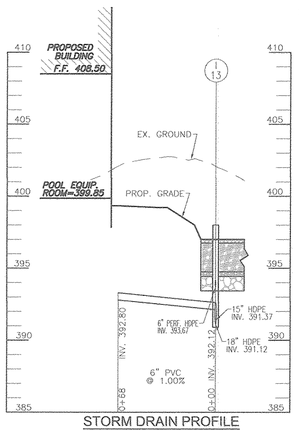
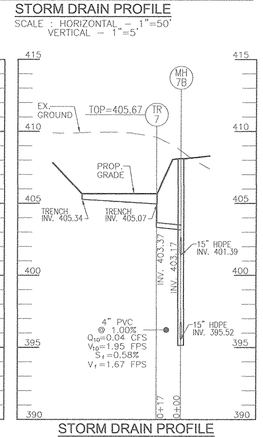
VERTICAL – 1"=5'



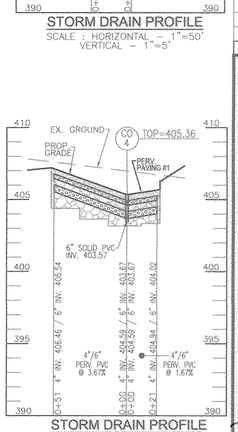
POOL TRENCH DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

STORM DRAIN PROFILES

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT
PARCEL 126
HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
4/26/16
ROBERT H. VOGEL, PE No.16193

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2016

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

SHEET 9 OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8-10-16

SDP-15-044

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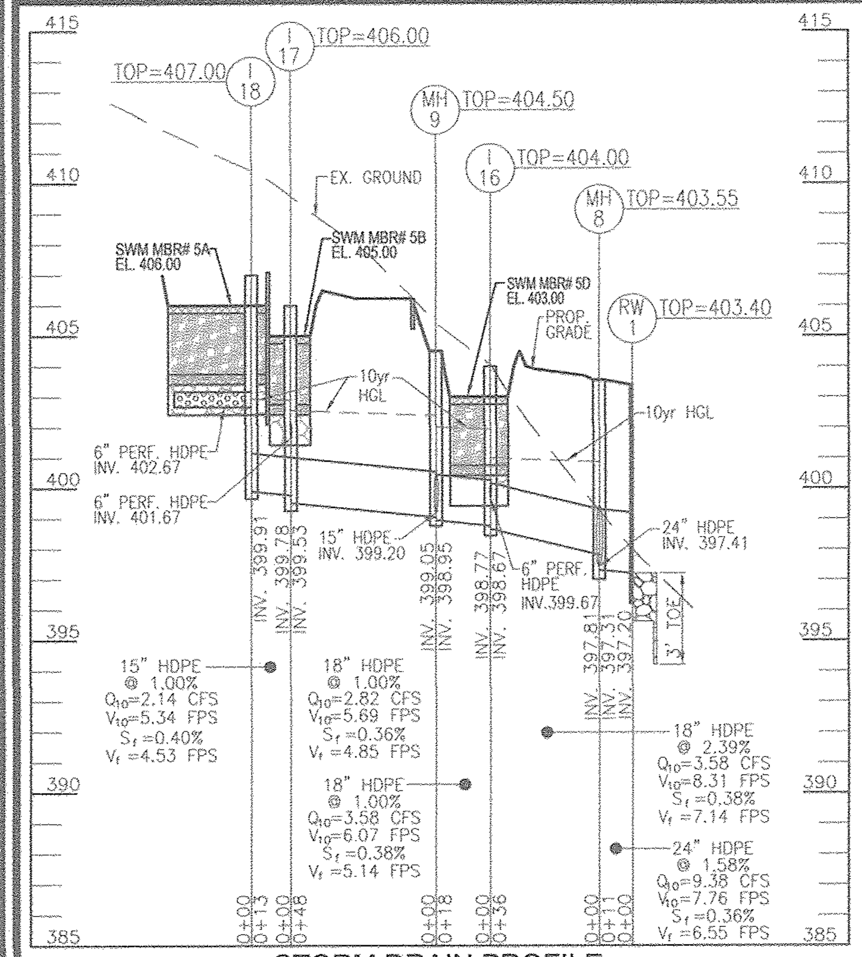
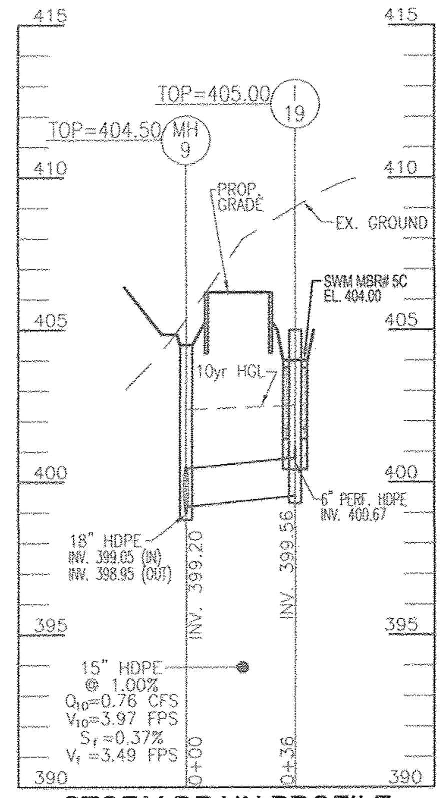


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



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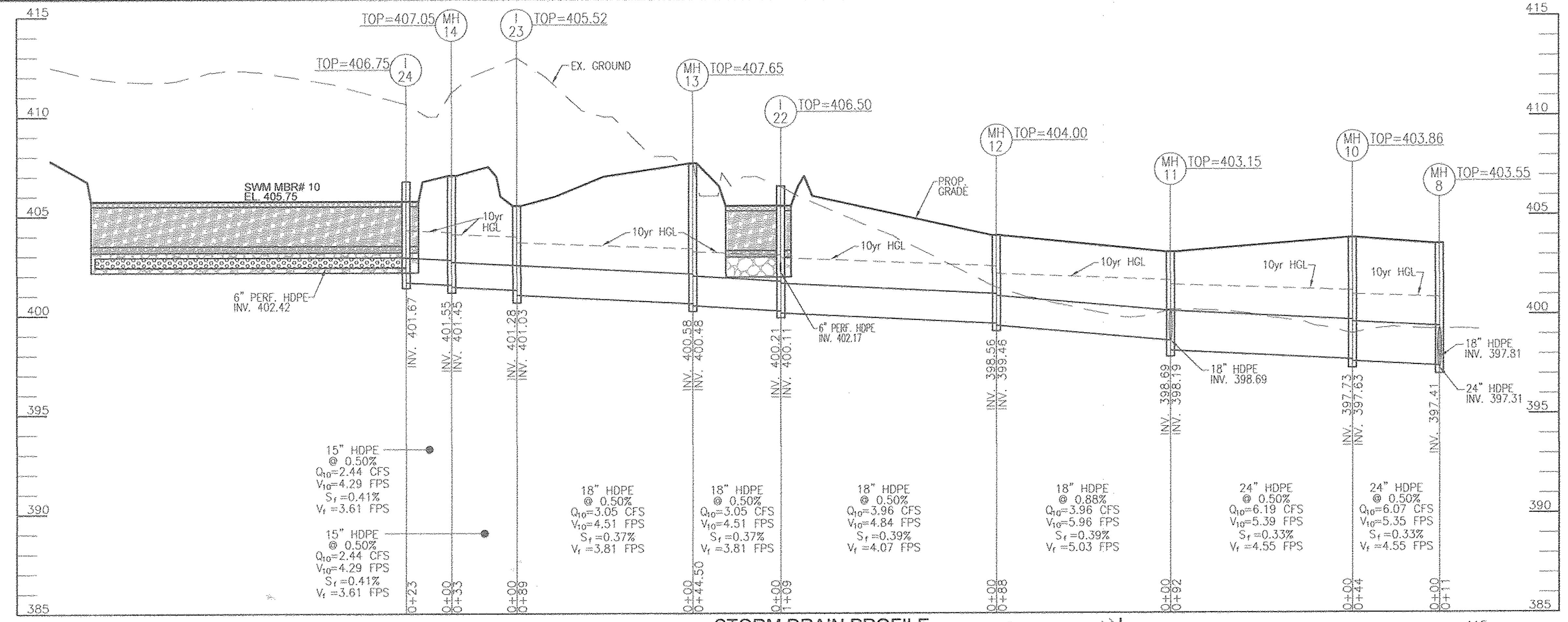

STORM DRAIN PROFILE
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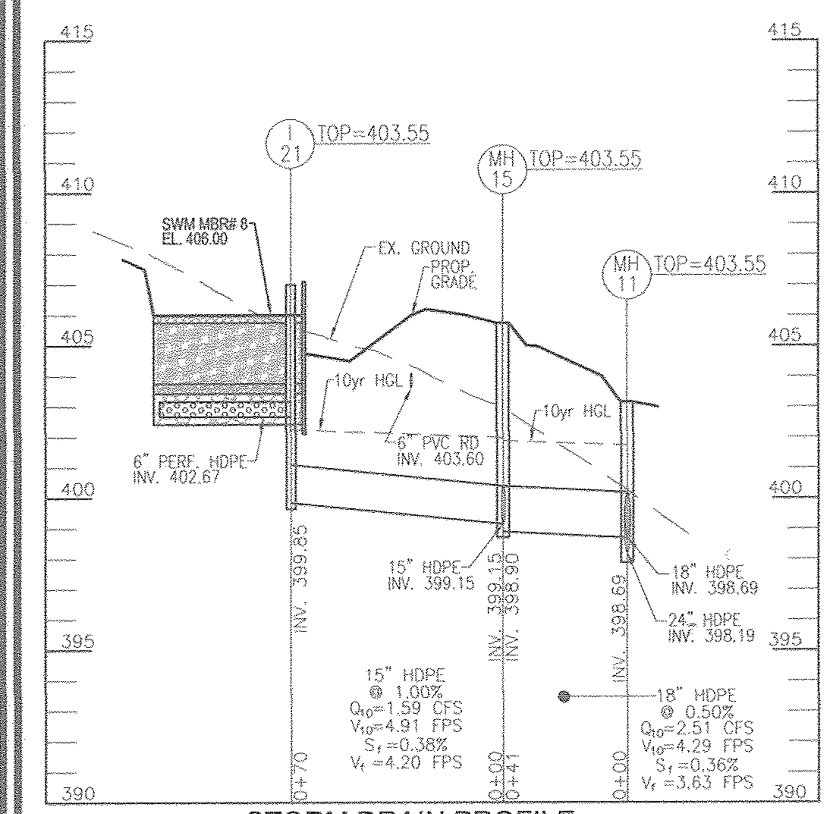
VERTICAL – 1"=5'



STORM DRAIN PROFILE
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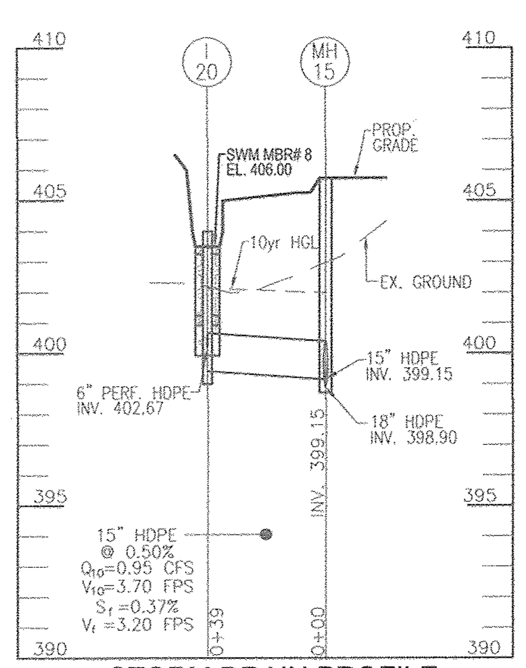
VERTICAL – 1"=5'



STORM DRAIN PROFILE
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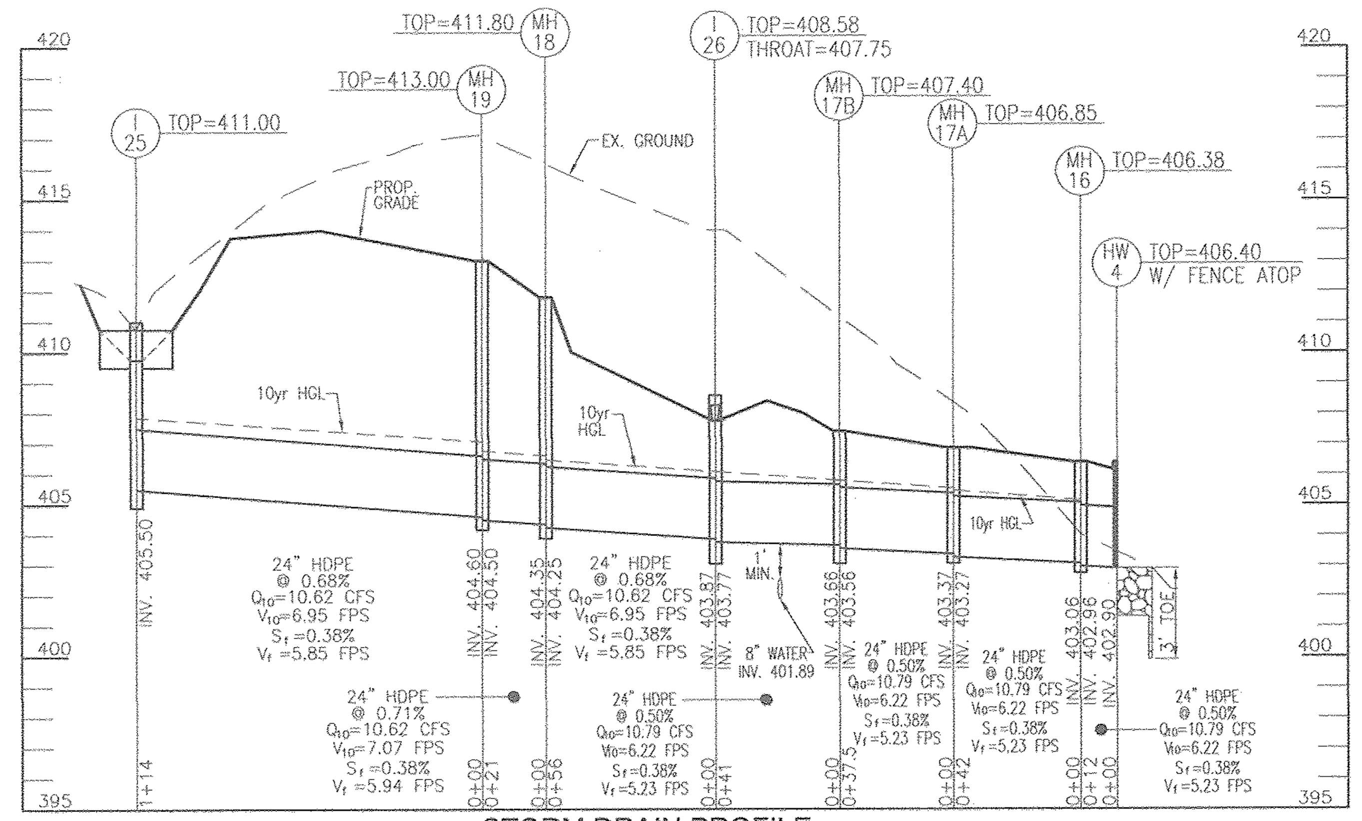
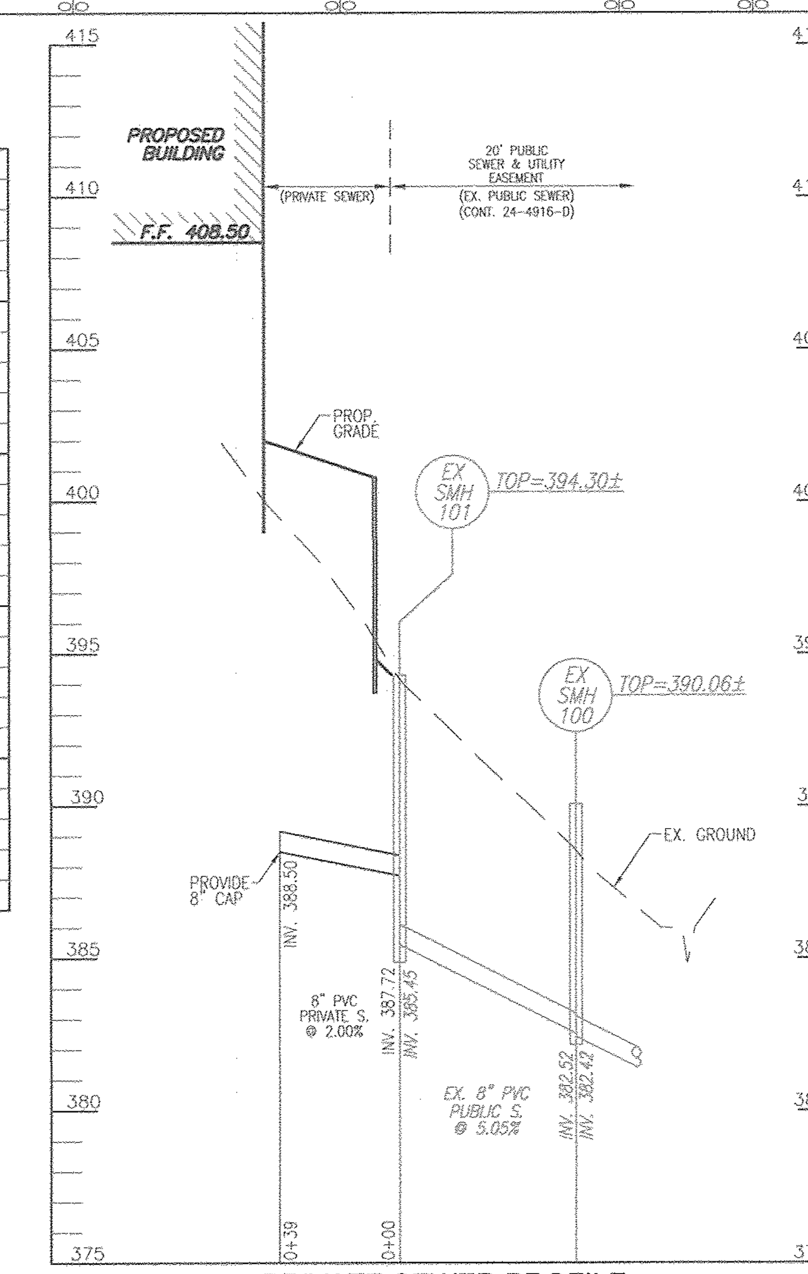
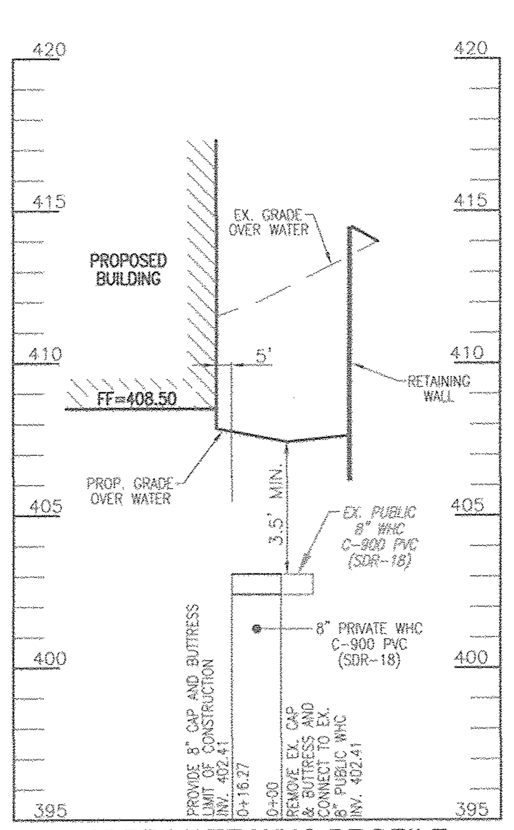
VERTICAL – 1"=5'



STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



PRIVATE SEWER PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



8" PRIVATE WHC PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

CONTECH CONSTRUCTION PRODUCTS INC.
StormFilter

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

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

Inspection and Maintenance Activity Timing
At least one scheduled inspection activity should take place per year with maintenance following as warranted.
First, inspection should be done before the winter season. During which, the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.
Second, if warranted, maintenance should be performed during periods of dry weather.
In addition, you should check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation. It may be necessary to adjust the inspection/maintenance activity schedule depending on the actual operating conditions encountered by the system.
Generally, inspection activities can be conducted at any time, and maintenance should occur when flows into the system are unlikely.

Maintenance Activity Frequency
Maintenance is performed on an as needed basis, based on inspection. Average maintenance lifecycle is 1-3 years. The primary factor controlling timing of maintenance of the StormFilter is sediment loading. Until appropriate timeline is determined, use the following:
Inspection:
One time per year
After major storms
Maintenance:
As needed
Per regulatory requirement
In the event of a chemical spill

Inspection Procedures
It is desirable to inspect during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.
Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.
To conduct an inspection:

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

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

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

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

Important: If vault entry is required, OSHA rules for confined space entry must be followed.
Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flow is occurring.
Replacement cartridges can be delivered to the site or customers facility. Contact CONTECH for more information.
Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.
To conduct cartridge replacement and sediment removal:
1. If applicable, set up safety equipment to protect workers and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:
A. This activity will require that workers enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.
Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH for suggested attachment devices.

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

B. Remove the used cartridges (up to 250 lbs.) from the vault.

Important: Avoid damaging the cartridges during removal and installation.

C. Set the used cartridge aside or load onto the hauling truck.
D. Continue steps A through C until all cartridges have been removed.

Method 2:
A. Enter the vault using appropriate confined space protocols.
B. Unscrew the cartridge cap.
C. Remove the cartridge hood screws (3) hood and float.
D. At location under structure access, tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

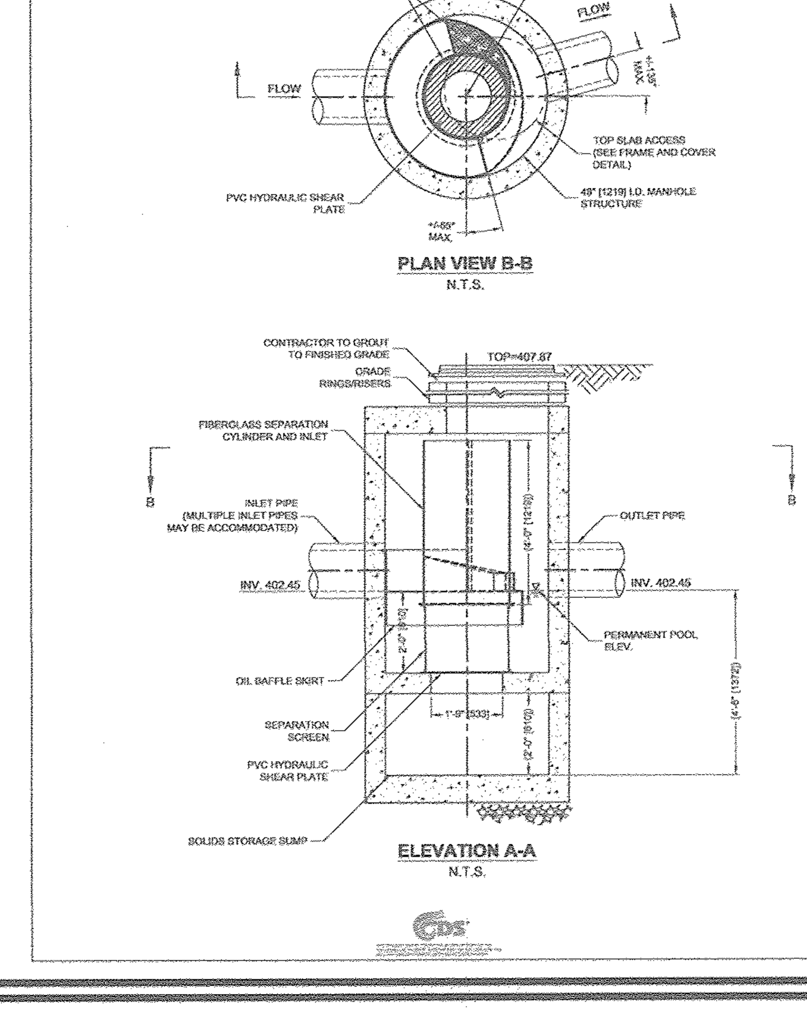
E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.
F. Set the empty, used cartridge aside or load onto the hauling truck.
G. Continue steps a through E until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. Use vacuum truck for highest effectiveness.
9. Once the sediments are removed, assess the condition of the vault and the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
a. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH.

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

OPERATION AND MAINTAINANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES

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

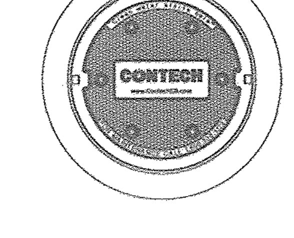


CDS2015-4-C DESIGN NOTES

CDS2015-4-C RATED TREATMENT CAPACITY IS 0.7 CFS [19.8 L/s], OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 10.0 CFS [283 L/s]. IF THE SITE CONDITIONS EXCEED 10.0 [283 L/s] CFS, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			PT-1
WATER QUALITY FLOW RATE (CFS OR L/s)			0.44
PEAK FLOW RATE (CFS OR L/s)			6.65
RETURN PERIOD OF PEAK FLOW (YRS)			10 YR
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	402.45	HDPE	15"
INLET PIPE 2	*	*	*
OUTLET PIPE	402.45	HDPE	15"
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com

CDS2015-4-C (PT-1)
INLINE CDS
STANDARD DETAIL

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	LOCATION NORTHING	LOCATION EASTING	THROAT	TOP	INV. IN	INV. OUT	COMMENTS
EX. I-3	*TYPE A-5 INLET*	*540213.13*	*1341088.73*	*399.57*	*400.17*	12" 394.65 *EX. 24" 393.90*	*EX. 24" 380.70*	*HO. CO. STD D-4.01*
EX. I-4	*TYPE A-5 INLET*	*540202.64*	*1341062.37*	*399.57*	*400.17*	395.18	*394.93*	*HO. CO. STD D-4.01*
I-6	TYPE A-5 INLET	540161.71	1341118.72	404.70	405.30	401.80	18" 398.66 8" 397.92	HO. CO. STD D-4.01
I-7	TYPE A-5 INLET	540143.67	1341096.85	404.73	405.33	402.33	402.08	HO. CO. STD D-4.01
I-8	TYPE A-5 INLET	540046.52	1341189.98	405.10	405.70	6" 403.20 24" 396.78	396.68	HO. CO. STD D-4.01
I-9	TYPE A-5 INLET	539949.58	1341284.34	405.85	406.45	6" 403.85 15" 400.67 18" 398.63	398.13	HO. CO. STD D-4.01
I-10	TYPE A-5 INLET	539901.68	1341286.66	406.17	406.67	399.45	399.35	HO. CO. STD D-4.01
I-11	YARD INLET	539805.46	1341199.35		406.50	402.17	401.42	HO. CO. STD D-4.14
I-12	YARD INLET	539932.32	1341266.63		406.00	401.67	400.92	HO. CO. STD D-4.14
I-13	YARD INLET	540070.91	1340908.32		398.00	6" 393.67 6" 392.12 15" 391.37	391.12	HO. CO. STD D-4.14
I-14	YARD INLET	539964.22	1341051.71		407.00	402.67	401.92	HO. CO. STD D-4.14
I-15	YARD INLET	540117.43	1340933.41		399.50	395.17	393.92	HO. CO. STD D-4.14
I-16	YARD INLET	539871.79	1340865.58		404.00	6" 399.67 18" 398.77	398.67	HO. CO. STD D-4.14
I-17	YARD INLET	539824.67	1340909.33		406.00	6" 401.67 18" 399.78	399.53	HO. CO. STD D-4.14
I-18	YARD INLET	539815.85	1340919.12		407.00	402.67	399.91	HO. CO. STD D-4.14
I-19	YARD INLET	539866.63	1340908.06		405.00	400.67 (2)	399.56	HO. CO. STD D-4.14
I-20	YARD INLET	539698.12	1340851.89		404.00	400.17	399.42	HO. CO. STD D-4.14
I-21	YARD INLET	539680.18	1340914.65		407.00	402.67	399.85	HO. CO. STD D-4.14
I-22	YARD INLET	539560.17	1340835.75		406.50	6" 402.17 18" 400.21	400.11	HO. CO. STD D-4.14
I-23	YARD INLET	539444.66	1340883.37		405.52	401.28	401.03	HO. CO. STD D-4.14
I-24	YARD INLET	539475.33	1340928.45		406.75	402.42	401.67	HO. CO. STD D-4.14
I-25	DOUBLE OPEN TYPE 'K' INLET (WITH 10' WINGS)	539447.00	1340947.88	409.75	411.00		405.50	MD 378.03
I-26	TYPE 'D' INLET	539432.27	1340843.71	408.58	407.75	403.87	403.77	HO. CO. STD D-4.10
TR-1	TRENCH DRAIN (NDS MINI CHANNEL)	SEE PLAN			405.89	SEE PROFILES		NDS 500
TR-2	TRENCH DRAIN (NDS MINI CHANNEL)	SEE PLAN			405.89	SEE PROFILES		NDS 500
TR-3	TRENCH DRAIN (NDS MINI CHANNEL)	SEE PLAN			405.92	SEE PROFILES		NDS 500
TR-4	TRENCH DRAIN (NDS MINI CHANNEL)	SEE PLAN			405.94	SEE PROFILES		NDS 500
TR-5	TRENCH DRAIN (NDS MINI CHANNEL)	SEE PLAN			405.89	SEE PROFILES		NDS 500
TR-6	TRENCH DRAIN (NDS MINI CHANNEL)	SEE PLAN			405.94	SEE PROFILES		NDS 500
TR-7	TRENCH DRAIN (ADO SLOPED CHANNEL DRAIN)	SEE PLAN			405.67	SEE PROFILES		KLASSIKDRAIN K1-K5
EX. MH-1	*STANDARD 4' PRECAST MANHOLE*	*540173.35*	*1341130.28*		*402.00*	18" 398.50 24" 394.90	*EX. 24" 394.80*	*HO. CO. STD. G-5.12*
MH-3	STANDARD 4' PRECAST MANHOLE	540112.35	1341174.23		406.19	395.75	395.65	HO. CO. STD. G-5.12
MH-4	STANDARD 4' PRECAST MANHOLE	540083.44	1341154.05		405.85	396.17	396.07	HO. CO. STD. G-5.12
MH-5	STANDARD 4' PRECAST MANHOLE	539845.91	1341233.16		407.75	15" 401.06 15" 400.86	400.61	HO. CO. STD. G-5.12
MH-6	STANDARD 4' PRECAST MANHOLE	540096.49	1340903.45		396.80	15" 391.14 18" 390.99	390.89	HO. CO. STD. G-5.12
MH-7A	STANDARD 4' PRECAST MANHOLE	540041.98	1340948.03		403.00	391.72	391.62	HO. CO. STD. G-5.12
MH-7B	STANDARD 4' PRECAST MANHOLE	539996.29	1341008.99		408.10	4" 403.17 15" 401.39	395.52	HO. CO. STD. G-5.12
MH-8	STANDARD 4' PRECAST MANHOLE	539886.48	1340833.22		403.55	18" 397.81 24" 397.41	397.31	HO. CO. STD. G-5.12
MH-9	STANDARD 4' PRECAST MANHOLE	539856.01	1340873.53		404.50	15" 399.20 18" 399.05	398.95	HO. CO. STD. G-5.12
MH-10	STANDARD 4' PRECAST MANHOLE	539843.90	1340821.84		403.86	397.73	397.63	HO. CO. STD. G-5.12
MH-11	STANDARD 4' PRECAST MANHOLE	539752.19	1340832.32		403.13	398.69 (2)	398.19	HO. CO. STD. G-5.12
MH-12	STANDARD 4' PRECAST MANHOLE	539666.60	1340813.31		404.00	399.56	399.46	HO. CO. STD. G-5.12
MH-13	STANDARD 4' PRECAST MANHOLE	539515.93	1340829.90		407.65	400.58	400.48	HO. CO. STD. G-5.12
MH-14	STANDARD 4' PRECAST MANHOLE	539457.13	1340914.15		407.05	401.55	401.45	HO. CO. STD. G-5.12
MH-15	STANDARD 4' PRECAST MANHOLE	539732.45	1340868.48		405.74	399.15 (2)	398.90	HO. CO. STD. G-5.12
MH-16	STANDARD 4' PRECAST MANHOLE	539545.50	1340817.61		406.38	403.06	402.96	HO. CO. STD. G-5.12
MH-17A	STANDARD 4' PRECAST MANHOLE	539503.22	1340820.95		406.85	403.37	403.27	HO. CO. STD. G-5.12
MH-17B	STANDARD 4' PRECAST MANHOLE	539472.87	1340843.07		407.40	403.66	403.56	HO. CO. STD. G-5.12
MH-18	STANDARD 4' PRECAST MANHOLE	539377.20	1340855.72		411.80	404.35	404.25	HO. CO. STD. G-5.12
MH-19	STANDARD 4' PRECAST MANHOLE	539363.00	1340871.28		413.00	404.60	404.50	HO. CO. STD. G-5.12
CO-1	CLEANOUT	540085.71	1341049.43		407.53	403.37	403.27	HO. CO. STD. S-2.22
CO-2	CLEANOUT	540039.50	1341106.40		407.58	404.43	404.10	HO. CO. STD. S-2.22
CO-3	CLEANOUT	540039.24	1341136.60		407.50		404.83	HO. CO. STD. S-2.22
CO-4	CLEANOUT	540066.17	1341210.17		405.36	4" 404.59 (2) 6" 403.67 (2)	403.57	HO. CO. STD. S-2.22
CO-5	CLEANOUT	539968.11	1341305.61		406.37	4" 405.62 6" 404.70	404.60	HO. CO. STD. S-2.22
HW-3	TYPE 'A' HEADWALL	540145.53	1340877.35		393.00	390.00		HO. CO. STD. D-5.11
HW-4	TYPE 'A' HEADWALL (PROVIDE FENCE ATOP)	539552.95	1340808.20		406.40	402.90		HO. CO. STD. D-5.21

PIPE SCHEDULE

SIZE	TYPE	LENGTH
4"	PVC (SD)	35
6"	PVC (SD)	391
8"	PVC (SD)	200
12"	PVC (SD)	180
15"	HDPE (SD)	568
18"	HDPE (SD)	704
24"	HDPE (SD)	442
12"	RCP	40
24"	RCP	322
4"	PERF. PVC (SWM)	154
6"	PERF. PVC (SWM)	154
8"	PERF. PVC (SWM)	160
6"	PERF. HDPE (SWM)	1107
8"	PVC (SEWER)	98
8"	DIP (WATER)	16

ROOF DRAIN SCHEDULE

NO.	TYPE & DETAIL #	LOCATION NORTHING	LOCATION EASTING	TOP ELEV.	INV. OUT	INV @ MBR
RD-1	CLEAN OUT (HO. CO. STD S-2.22)	539951.40	1341215.00	407.40	405.20	405.00
RD-2	CLEAN OUT (HO. CO. STD S-2.22)	539988.28	1341211.42	407.35	405.14	405.00
RD-3	CLEAN OUT (HO. CO. STD S-2.22)	539584.48	1341007.11	407.75	405.87	405.75
RD-4	CLEAN OUT (HO. CO. STD S-2.22)	539547.20	1340976.87	407.75	405.87	405.75
RD-5	CLEAN OUT (HO. CO. STD S-2.22)	539534.63	1340861.31	407.50	405.58	405.50
RD-6	CLEAN OUT (HO. CO. STD S-2.22)	539665.37	1340872.34	407.00	403.72	403.50
RD-7	CLEAN OUT (HO. CO. STD S-2.22)	539645.15	1340897.26	407.65	406.14	406.00
RD-8	CLEAN OUT (HO. CO. STD S-2.22)	539666.01	1340951.18	406.67	406.09	406.00
RD-9	CLEAN OUT (HO. CO. STD S-2.22)	539717.58	1340894.75	406.90	403.80	403.50
RD-10	CLEAN OUT (HO. CO. STD S-2.22)	539813.88	1340905.68	407.30	405.07	405.00
RD-11	CLEAN OUT (HO. CO. STD S-2.22)	539795.97	1340927.76	407.55	406.05	406.00
RD-12	CLEAN OUT (HO. CO. STD S-2.22)	539826.33	1340968.43	407.63	406.07	406.00
RD-13	CLEAN OUT (HO. CO. STD S-2.22)	539835.30	1340958.90	407.55	406.10	406.00
RD-14	CLEAN OUT (HO. CO. STD S-2.22)	539870.68	1340915.29	406.10	404.05	404.00
RD-15	CLEAN OUT (HO. CO. STD S-2.22)	539895.72	1340884.42	405.10	403.05	403.00
RD-16	CLEAN OUT (HO. CO. STD S-2.22)	539946.24	1341066.66	407.55	406.10	406.00
RD-17	CLEAN OUT (HO. CO. STD S-2.22)	539953.88	1341072.86	407.55	406.12	406.00
RD-18	CLEAN OUT (HO. CO. STD S-2.22)	540055.48	1340951.24	403.80	397.26	397.00
RD-19	CLEAN OUT (HO. CO. STD S-2.22)	540177.99	1340996.05	399.70	398.53	398.50

SCALE 1"=50'
25' 0' 50'

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

STORM DRAIN AND UTILITY PROFILES

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 PARCEL 126
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND · ROBERT HARRIS VOGEL · NO 16193 · REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV/DZE
DRAWN BY: DZE
CHECKED BY: RHV
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8-10-16

SDP-15-044

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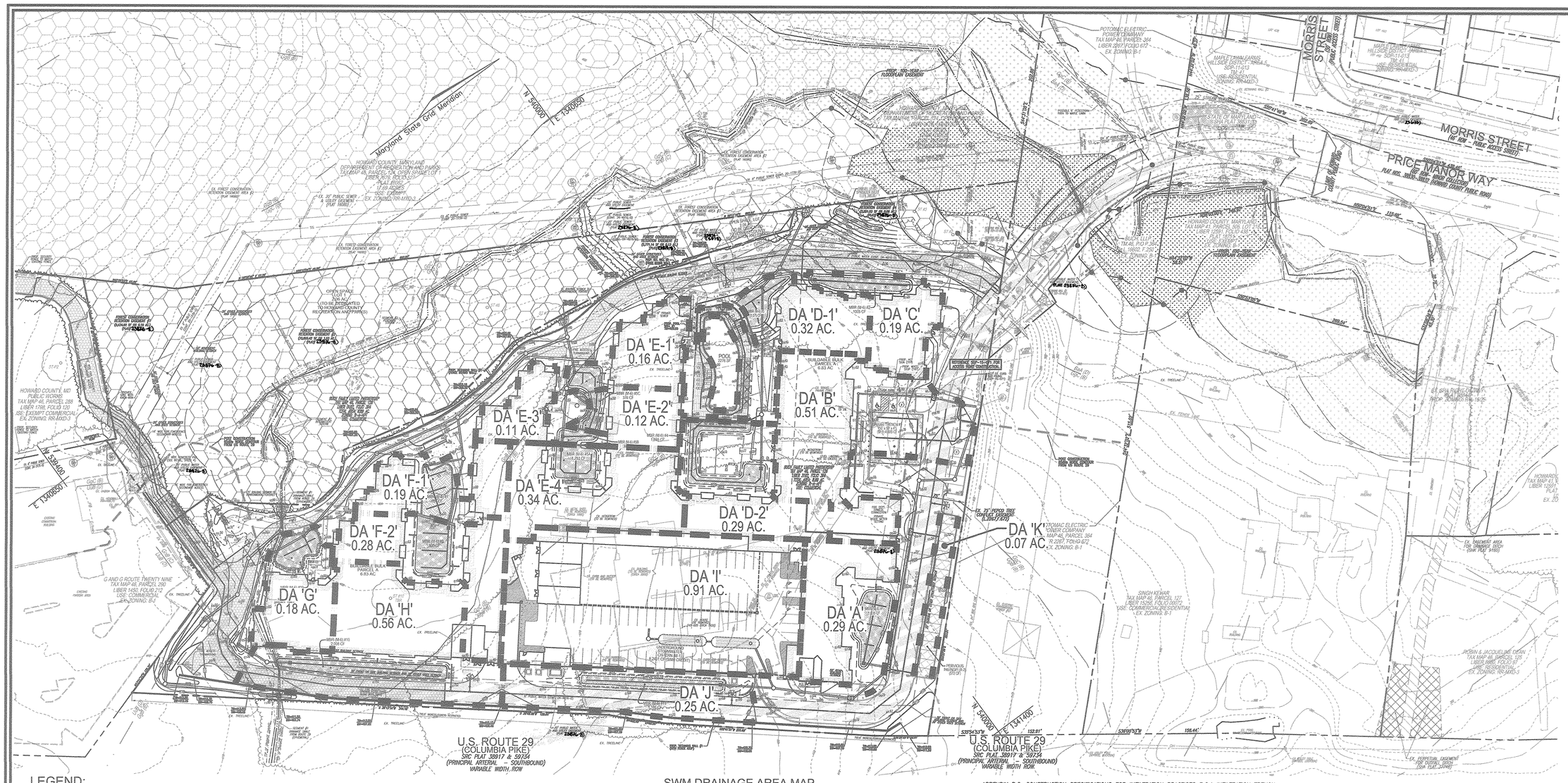


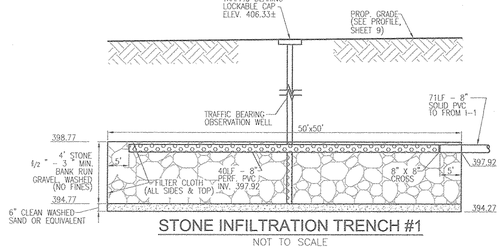
SWM DRAINAGE AREA MAP
SCALE: 1"=50'

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- CENTERLINE OF EXISTING STREAM
- EXISTING STREAM BUFFER
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FENCE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED SIDEWALK
- PROP. 20' PUBLIC WATER AND UTILITY EASEMENT
- FIRE ACCESS GRASS PAVERS
- FOREST CONSERVATION EASEMENT (RETENTION)
- EX. FOREST CONSERVATION EASEMENT (RETENTION)
- MICROBIORETENTION AREA
- EXISTING SPECIMEN TREE
- POST CONSTRUCTION NOISE CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- M1B2 / M1D3 — SOILS BOUNDARY
- DRAINAGE DIVIDE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16



STONE INFILTRATION TRENCH #1
NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (M-5)

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE xxx HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY 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.

APPENDIX B.2. CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PRACTICES B.2.A INFILTRATION TRENCH

GENERAL NOTES AND SPECIFICATIONS

AN INFILTRATION TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE INFILTRATION TRENCH

1. HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE INFILTRATION TRENCH OT MINIMIZE COMPACTION OF THE SOIL.
2. EXCAVATE THE INFILTRATION TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDE WALLS OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
3. A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0 , MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MDE, 1994) SHALL INTERFACE BETWEEN THE TRENCH SIDE WALLS AND BETWEEN THE STONE RESERVOIR AND GRAVEL FILTER LAYERS. A PARTIAL LIST OF NON-WOVEN FILTER FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
   AMOCO 4552 — CARTHAGE TX-805
   GEOLON N70 — MIRAFI 180-N
   WERITEC N07
   THE WIDTH OF THE GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FOR A 6-INCH MINIMUM TOP OVERLAP. THE FILTER FABRIC SHALL BE TUCKED UNDER THE SAND LAYER ON THE BOTTOM OF THE INFILTRATION TRENCH FOR A DISTANCE OF 6 TO 12 INCHES. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE TRENCH TO KEEP THE TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPHILL SHOULD LAP A MINIMUM OF 2 FEET OVER THE DOWNHILL ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT.
4. IF A 6-INCH SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE INFILTRATION TRENCH, THE SAND FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET AASHTO-M-43, SIZE NO. 9 OR NO. 10. ANY ALTERNATIVE SAND GRADATION MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
5. THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL (ROUNDED "BANK RUN" GRAVEL IS PREFERRED) FOR THE INFILTRATION TRENCH SHALL BE WASHED AND MEET ON OF THE FOLLOWING AASHTO-M-43, SIZE NO. 2 OR NO. 3.
6. FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 6-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.
7. CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATE. ALL CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.
8. VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.
9. VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESIONLESS SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPE TO MAINTAIN STABILITY.
10. PVC DISTRIBUTION PIPES ASHALL BE SCHEDULE 40 AND MEET ASTM-D-1785. ALL FITTINGS SHALL MEET ASTM-D-2729. PERFORATIONS SHALL BE 3/8 INCH IN DIAMETER. A PERFORATED PIPE SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE INFILTRATION TRENCH WALL. THE END OF THE PVC PIPE SHALL BE CAPPED. NOTE: PVC PIPE WITH A WALL THICKNESS CLASSIFICATION OF SDR-35 MEETING ASTM-D-3034 IS AN ACCEPTABLE SUBSTITUTE FOR THE SCHEDULE 40 PIPE.
11. THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M 278 OR F758, TYPE PS 28) WITH A CAP SET 6 INCHES ABOVE GROUND LEVEL AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER F THE INFILTRATION TRENCH. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING THE CAP. THE SCREW TOP LID SHALL BE A CLEANOUT WITH A LOCKING MECHANISM OR SPECIAL BOLT TO DISCOURAGE VANDALISM. THE DEPTH TO THE INVERT SHALL BE MARKED ON THE LID. THE PIPE SHALL BE PLACED VERTICALLY WITHIN THE GRAVEL PORTION OF THE INFILTRATION TRENCH AND A CAP PROVIDED AT THE BOTTOM OF THE PIPE. THE BOTTOM OF THE CAP SHALL REST ON THE INFILTRATION TRENCH BOTTOM.
12. CORRUGATED METAL DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, AND SHALL BE ALUMINIZED IN ACCORDANCE WITH AASHTO-M-274. ALUMINIZED PIPE CONTACT WITH CONCRETE SHALL BE COATED WITH AND INERT COMPOUND CAPABLE OF PREVENTING THE DELETERIOUS EFFECT OF THE ALUMINUM ON THE CONCRETE. PERFORATED DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, CLASS 2 AND SHALL BE PROVIDED ONLY WITHIN THE INFILTRATION TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE INFILTRATION TRENCH WALL. AN ALUMINIZED METAL PLATE SHALL BE WELDED TO THE END OF THE PIPE.
13. IF A DISTRIBUTION STRUCTURE WITH A WET WELLIES USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE INFILTRATION TRENCH DISTRIBUTION STRUCTURE. TWO (2) CUBIC FEET OF POROUS BACKFILL MEETING AASHTO-M-43, SIZE NO. 57 SHALL BE PROVIDED AT EACH DRAIN.
14. IF A DISTRIBUTION STRUCTURE IS USED, THE MANHOLE COVER SHALL BE BOLTED TO THE FRAME.

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

STORMWATER MANAGEMENT DRAINAGE AREA MAP

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO 16193 — REGISTERED PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 08-27-2018

SHEET 11 OF 44

SDP-15-044

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

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

* SOIL COMPONENT – LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
* ORGANIC CONTEN – MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
* CLAY CONTENT – MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
* PH RANGE – SHOULD BE BETWEEN 5.5 – 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION

COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

* PIPE – SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
* PERFORATIONS – IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
* GRAVEL – THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

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

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULTCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.

2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

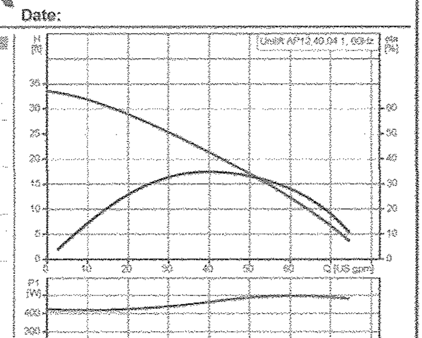
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

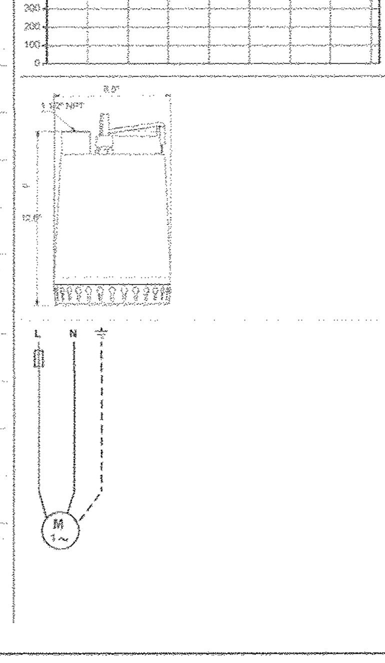
5. SHOULD SYSTEM FAIL, AND UPON DETERMINING FAILURE OF SYSTEM IS DUE TO PLANTING MEDIA, ALL PLANT MATERIAL WITHIN THE UNIT, INCLUDING TREES, SHALL BE REMOVED AND REPLACED.

GRUNDFOS

Company name:
Created by:
Phone:
Date:

Description	Value
General information:	
Product name:	Unilift AP12.40.04.1
Position	
Product No.:	96011036
EAN:	5700390525927
Price:	On request
Technical:	
Max flow:	61.6 US gpm
Head max:	32.8 ft
Type of impeller:	Semi-open
Maximum particle size:	7/16 in
Approvals on nameplate:	CSA
Materials:	
Pump housing:	Stainless steel DIN W.-Nr. 1.4301 AISI 304
Impeller:	Stainless steel DIN W.-Nr. 1.4301 AISI 304
Installation:	
Pump outlet:	1.5" NPT
Maximum installation depth:	24.9 ft
Inst dry/wet:	D/S
Installation:	horizontal or vertical
Liquid:	
Liquid temperature range:	32 .. 131 °F
Electrical data:	
Type of motor:	PSC
Power input - P1:	0.92 W
C run:	20 µF
Power input - P1:	0.7 kW
P2:	0.5 HP
Main frequency:	60 Hz
Rated voltage:	1 x 115 V
Rated current:	8 A
Starting current:	24 A
Cos phi - power factor:	0.99
Rated speed:	3350 rpm
Capacitor size - run:	20 µF/400 V
Enclosure class (IEC 34-5):	IP68
Insulation class (IEC 85):	F
Motor protection:	CONTACT
Thermal protec:	internal
Length of cable:	24.9 ft
Type of cable plug:	US
Others:	
Net weight:	53.6 lb
Shipping volume:	1.17 ft³
Sales region:	Namreg





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8-10-16

B.4.B SPECIFICATIONS FOR PERMEABLE PAVEMENTS & REINFORCED TURF

THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS AND ARE NOT EXCLUSIVE OR LIMITING. THE DESIGNER IS RESPONSIBLE FOR DEVELOPING SPECIFICATIONS FOR INDIVIDUAL PROJECTS AND SPECIFIC CONDITIONS.

1. PERVIOUS CONCRETE SPECIFICATIONS

DESIGN THICKNESS – PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED. APPLICATIONS MAY BE DESIGNED USING EITHER STANDARD PAVEMENT PROCEDURES (E.G., AASHTO, ACI 325.9R, ACI 330R) OR USING STRUCTURAL VALUES DERIVED FROM FLEXIBLE PAVEMENT DESIGN PROCEDURES.

MIX & INSTALLATION – TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 1157) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS. PHOSPHORUS ADMIXTURES MAY ALSO BE USED. MATERIALS SHOULD BE TESTED (E.G., TRIAL BATCHING) PRIOR TO CONSTRUCTION SO THAT CRITICAL PROPERTIES (E.G., SETTLING TIME, RATE OF STRENGTH DEVELOPMENT, POROSITY, PERMEABILITY) CAN BE DETERMINED.

AGGREGATE – PERVIOUS CONCRETE CONTAINS A LIMITED FINE AGGREGATE CONTENT. COMMONLY USED GRADATIONS INCLUDE ASTM C 33 NO. 67 (3/4 IN. TO NO. 4), NO. 8 (3/8 IN. TO NO.16) AND NO. 89 (3/8 IN. TO NO.50) SIEVES. SINGLE-SIZED AGGREGATE (UP TO 1 INCH) MAY ALSO BE USED.

WATER CONTENT – WATER-TO-CEMENT RATIOS BETWEEN 0.27 AND 0.30 ARE USED ROUTINELY WITH PROPER INCLUSION OF CHEMICAL ADMIXTURES. WATER QUALITY SHOULD MEET ACI 30A. AS A GENERAL RULE, POTABLE WATER SHOULD BE USED ALTHOUGH RECYCLED CONCRETE PRODUCTION WATER MEETING ASTM C 94 OR AASHTO M 157 MAY ALSO BE USED.

ADMIXTURES – CHEMICAL ADMIXTURES (E.G., RETARDERS OR HYDRATION-STABILIZERS) ARE USED TO OBTAIN SPECIAL PROPERTIES IN PERVIOUS CONCRETE. USE OF ADMIXTURES SHOULD MEET ASTM C 494 (CHEMICAL ADMIXTURES) AND ASTM C 260 (AIR ENTRAINING ADMIXTURES) AND CLOSELY FOLLOW MANUFACTURER'S RECOMMENDATIONS. BASE COURSE – THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

2. PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP)

PAVER BLOCKS – BLOCKS SHOULD BE EITHER 3? IN. OR 4 IN. THICK, AND MEET ASTM C 936 OR CSA A231.2 REQUIREMENTS. APPLICATIONS SHOULD HAVE 20% OR MORE (40% PREFERRED) OF THE SURFACE AREA OPEN. INSTALLATION SHOULD FOLLOW MANUFACTURER'S INSTRUCTIONS, EXCEPT THAT INFILL AND BASE COURSE MATERIALS AND DIMENSIONS SPECIFIED IN THIS APPENDIX SHALL BE FOLLOWED.

INFILL MATERIALS AND LEVELING COURSE – OPENINGS SHALL BE FILLED WITH ASTM C-33 GRADED SAND OR SANDY LOAM. PICP BLOCKS SHALL BE PLACED ON A ONE-INCH THICK LEVELING COURSE OF ASTM C-33 SAND.

BASE COURSE – THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

3. REINFORCED TURF

REINFORCED GRASS PAVEMENT (RGP) – WHETHER USED WITH GRASS OR GRAVEL, THE RGP THICKNESS SHALL BE AT LEAST 1-3/4" THICK WITH A LOAD CAPACITY CAPABLE OF SUPPORTING THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)

1. THE OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.

2. THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE.

3. THE OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT.

4. THE OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOWMELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND CISTERN TANK (M-1)

1. OWNER MUST RETAIN THE INSTALLATION MANUAL AND OPERATING GUIDELINES FOR FUTURE REFERENCE TO OPERATING GUIDELINES.
2. IN ADDITION TO THESE INSTALLATION INSTRUCTIONS AND OPERATING GUIDELINES, FOLLOW ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, CODES AND SAFETY PRECAUTIONS THAT PERTAIN TO UNDERGROUND STORAGE TANKS AND/OR THEIR ASSOCIATED SYSTEMS.
3. CONSULT SUPPLEMENTAL MATERIALS, TANK BROCHURES, SEPARATE PRODUCT INSTRUCTIONS (SUCH AS OIL/WATER SEPARATORS) AND SEPARATE ACCESSORY INSTRUCTIONS, WHICH ARE AVAILABLE UPON REQUEST FROM THE XERXES CUSTOMER SERVICE COORDINATOR. MOST OF THESE DOCUMENTS ARE ALSO AVAILABLE AT WWW.XERXES.COM.
4. CONSULT THE APPLICABLE LIMITED WARRANTY FOR FURTHER OPERATING GUIDELINES AND LIMITATIONS. A COPY OF THE APPLICABLE XERXES LIMITED WARRANTY IS FOUND IN THE PRINTED MATERIAL THAT ACCOMPANIES EACH TANK, IN EACH APPLICABLE PRODUCT BROCHURE AND AT WWW.XERXES.COM. IT IS ALSO AVAILABLE UPON REQUEST FROM THE XERXES CUSTOMER SERVICE COORDINATOR.
5. THE MAXIMUM TEMPORATURE FOR STORING NONPOTABLE WATER IS 150°F.
6. DO NOT ALLOW ANYONE TO ENTER THE TANK UNLESS IT HAS BEEN PROPERLY EMPTIED AND VENTED, AND UNLESS THE PERSON ENTERING THE TANK HAS BEEN TRAINED IN CONFINED-SPACE ENTRY PROCEDURES AND APPLICABLE OSHA REGULATIONS.
7. NEVER OVERFILL THE TANK.
8. IF PUMP OR PRESSURE FILLING THE TANK, OWNER/OPERATOR MUST TAKE PRECAUTIONS TO PREVENT OVERPRESSURIZATION.

(M-1) RAINWATER HARVESTING (CISTERNS AND RAIN BARRELS)

CONSTRUCTION CRITERIA:
THE FOLLOWING SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH RAINWATER HARVESTING SYSTEMS:

SITE DISTURBANCE:
UNDERGROUND STORAGE TANKS SHALL BE PLACED ON OR IN NATIVE SOILS. IF PLACEMENT ON FILL MATERIAL IS NECESSARY, A GEOTECHNICAL ANALYSIS MAY BE REQUIRED BY THE APPROVING AUTHORITY.

STORAGE TANKS:
A. STORAGE TANKS SHALL BE DESIGNED TO BE WATERTIGHT AND ALL MATERIALS SHOULD BE SEALED WITH A WATER SAFE, NON-TOXIC SUBSTANCE.
B. STORAGE TANKS SHALL BE PROTECTED FROM DIRECT SUNLIGHT AND SHALL BE OPAQUE TO PREVENT THE GROWTH OF ALGAE.
C. THE TOP OF UNDERGROUND TANKS SHALL BE BENEATH THE FROST LINE.
D. CISTERNS MAY BE ORDERED FROM A MANUFACTURER OR CONSTRUCTED ON-SITE. TYPICAL MATERIALS USED TO CONSTRUCT CISTERNS ARE FIBERGLASS, WOOD, METAL, OR REINFORCED CONCRETE.
E. RAIN BARRELS CAN BE PURCHASED OR CUSTOM MADE FROM LARGE, PLASTIC (E.G., 55-GALLON) DRUMS

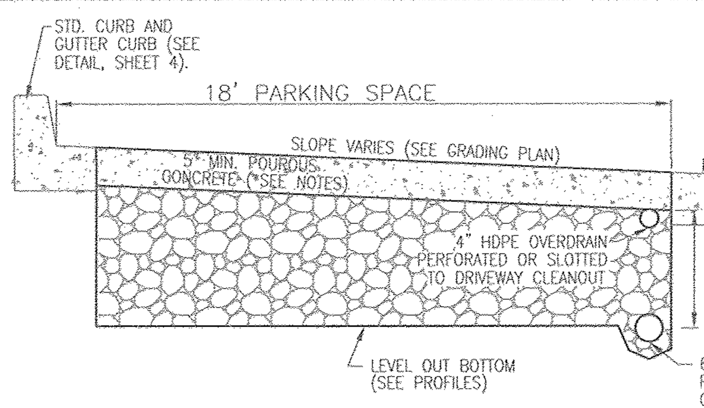
INSPECTION:
PRIOR TO OPERATION, CERTIFICATION SHALL BE REQUIRED THAT THE CONSTRUCTED SYSTEM MEETS THE CONDITIONS SPECIFIED ON THE APPROVED PLANS. ADDITIONALLY, CERTIFICATION REGARDING THE WATER TIGHTNESS OF THE UNDERGROUND STORAGE TANK SHALL BE REQUIRED AFTER ITS INSTALLATION.

MAINTENANCE CRITERIA:
THE FOLLOWING ITEMS SHOULD BE ADDRESSED TO ENSURE PROPER MAINTENANCE AND LONG-TERM PERFORMANCE OF RAINWATER HARVESTING SYSTEMS:

A. PRIVATELY OWNED PRACTICES SHALL HAVE A MAINTENANCE PLAN AND SHALL BE PROTECTED BY EASEMENT, DEED RESTRICTION, ORDINANCE, OR OTHER LEGAL MEASURES PREVENTING ITS NEGLECT, ADVERSE ALTERATION, AND REMOVAL.
B. ACCESS SHALL BE PROVIDED FOR CLEANING, INSPECTION, AND MAINTENANCE IN ALL CISTERNS. A DRAIN PLUG SHALL ALSO BE PROVIDED TO ALLOW THE SYSTEM TO BE COMPLETELY EMPTIED IF NEEDED.
C. LEAF SCREENS, GUTTERS, AND DOWNSPOUTS SHOULD BE CLEANED TO PREVENT CLOGGING. BUILT-UP DEBRIS CAN ALSO FOSTER BACTERIAL GROWTH IN GUTTERS AND DOWNSPOUTS.
D. STORAGE TANK LIDS AND MOSQUITO SCREENS SHOULD BE INSPECTED AND CLEANED.
E. DAMAGED COMPONENTS SHOULD BE REPLACED AS NEEDED.
F. TO AVOID FREEZING OF COMPONENTS, ABOVE GROUND SYSTEMS SHOULD BE DISCONNECTED, DRAINED, AND CLEANED AT THE START OF THE WINTER SEASON.
G. UNDERGROUND SYSTEM CONNECTIONS SHOULD BE CHECKED FOR FROZEN LINES AND ICE BLOCKAGES DURING WINTER.
H. INDOOR SYSTEMS MAY REQUIRE MORE SPECIFIC MAINTENANCE.

UNDERGROUND CISTERN TANK CONSTRUCTION NOTES:

1. RETENTION TANKS TO BE SINGLE-WALLED FIBERGLASS-REINFORCED UNDERGROUND STORAGE TANKS DESIGNED TO STORE NON-POTABLE WATER. TANKS SHALL BE WATERTIGHT. TANKS SHALL BE MANUFACTURED BY XERXER CORPORATION OR APPROVED EQUAL.
2. ALL RELATED MATERIALS, ACCESSORIES AND APPURTENANCES SHALL BE MANUFACTURED BY OR EXPRESSLEY APPROVED BY THE TANK MANUFACTURER.
3. TANKS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE TANK MANUFACTURER'S CURRENT SPECIFICATIONS FOR SINGLE-WALL FIBERGLASS UNDERGROUND STORAGE TANKS BY A MANUFACTURER APPROVED TANK INSTALLER.
4. ALL OPENINGS IN TANKS (IE. MANWAY, INLET PIPE, VENT PIPE, AND CROSSOVER MANIFOLD OPENINGS) SHALL BE FACTORY INSTALLED AND REINFORCED BY THE TANK MANUFACTURER. SIZES AND LOCATIONS OF OPENINGS SHALL BE AS SHOWN ON THE DRAWINGS.
5. GASKET SHALL BE PROVIDED FOR MANWAYS, INLET PIPE, VENT PIPES AND CROSSOVER MANIFOLD AND SAME SHALL BE INSTALLED TO PROVIDE WATERTIGHT SEALS.
6. TANKS, MANWAYS AND MANHOLE FRAMES AND COVERS SHALL BE DESIGNED AND INSTALLED TO WITHSTAND H-20 TRAFFIC LOADING.
7. MANWAY EXTENSIO OR MANHOLE MAY NOT TRANSMIT LOAD FROM THE CONCRETE SLAB TO THE TANK. PROVIDE A MINIMUM OF 3 INCH SPACE BETWEEN MANHOLE FRAME AND MANWAY.
8. TANKS SHALL BE SET ON A BED OF COMPACTED CRUSHED STONE PER THE MANUFACTURER'S CURRENT SPECIFICATIONS. ENTIRE EXCAVATION FOR TANKS SHALL BE BACKFILLED WITH COMPACTED CRUSHED STONE.
9. BEDDING AND BACKFILL MATERIAL SHALL CONSIST OF CRUSHED STONE MEETING THE STANDARDS FOR AASHTO NO. 7 COURSE AGGREGATE OR OTHER MATERIAL APPROVED BY THE TANK MANUFACTURER.
10. AN ACCEPTABLE GEOTEXTILE MATERIAL SHALL BE INSTALLED PRIOR TO BACKFILLING IN ACCORDANCE WITH THE TANK MANUFACTURER'S CURRENT SPECIFICATIONS IF THE GEOTECHNICAL ENGINEER DETERMINES IT APPROPRIATE BASED ON UNSTABLE IN-SITU SOIL CONDITIONS.
11. STEEL-REINFORCED CAST-IN-PLACE CONCRETE ANCHOR SLAB SHALL BE DESIGNED AND FABRICATED WITH THE TANK MANUFACTURER'S CURRENT SPECIFICATIONS FO RHTE SPECIFIC TANK DIMENSIONS AND IN-SITU SOIL CONDITIONS. THE CONTRACTOR MAY UTILIZE PRECAST CONCRETE DEADMEN SUPPLIED BY THE THE TANK MANUFACTURER IN LIEU OF ANCHOR SLAB. LOCATIONS, NUMBER AND SIZE SHALL BE AS REQUIRED BY THE TANK MANUFACTURER.
12. F.R.P. ANCHOR STRAPS, GALVANIZED ANCHOR POINTS AND HARDWARD SHALL BE SUPPLIED BY THE TANK MANUFACTURER. NUMBER AND LOCATION OF STRAPS SHALL BE AS REQUIRED BY THE TANK MANUFACTURER.
13. CAST-IN-PLACE STEEL-REINFORCED SURFACE SLAB SHALL BE DESIGNED TO WITHSTAND H-20 TRAFFIC LOADING.
14. CONTRACTOR SHALL PRESSURE TEST EACH TANK FOR LEAKAGE PRIOR TO INSTALLATION. ANY TANK(S) FAILING SUCH TEST SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
15. CONTRACTOR SHALL SUBMIT TO THE CIVIL ENGINEER SHOP DRAWINGS AND MANUFACTURER'S LITERATURE FOR TANKS PRIOR TO ORDERING.



PERMEABLE CONCRETE PARKING SPACES

(FOR ELEVATIONS AND INVERTS, SEE PROFILES)
NOT TO SCALE

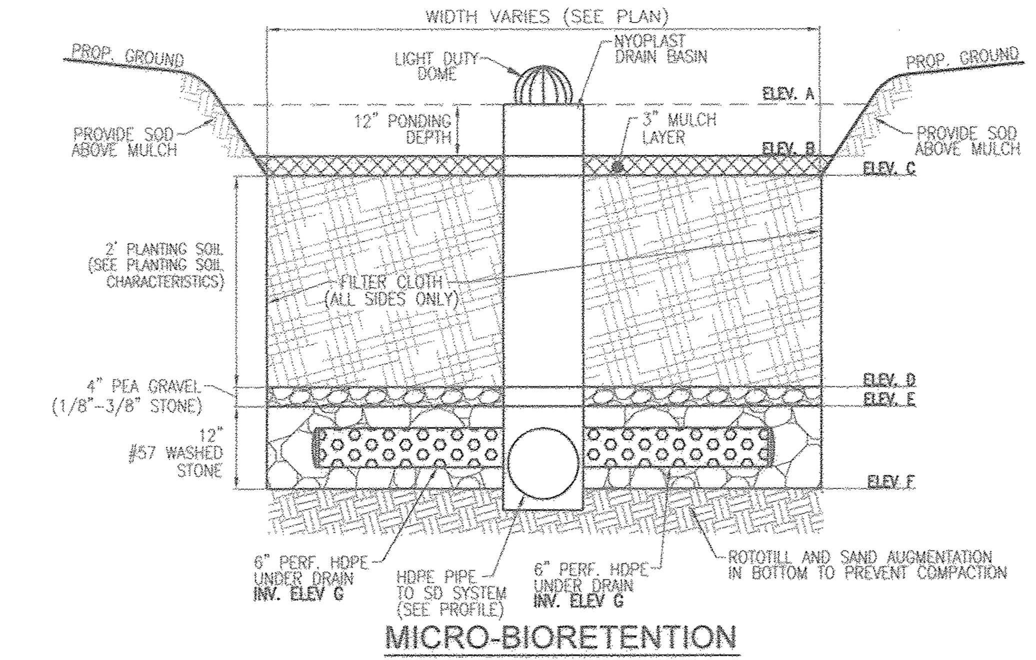
PERMEABLE CONCRETE NOTES:
1. PAVEMENT CROSS SECTION TO BE CONFIRMED BY GEOTECHNICAL ENGINEER
2. POROUS CONCRETE SECTION TO CONFORM TO APPENDIX B.4.B (SPECIFICATIONS FOR PERMEABLE PAVEMENTS) AND DESIGNED BY THE PROJECT GEOTECHNICAL ENGINEER.
3. UNDERDRAINS/OVERDRAINS SHALL CONNECT INTO A TRAFFIC BEARING CLEANOUT AS SHOWN ON THE PLANS.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

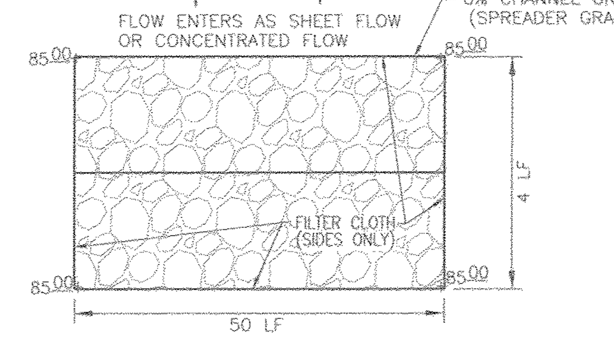
MICRO-BIORETENTION DATA CHART									
MBR Facility	Ponding Depth (ft)	Ponding Elevation ELEV. A	Top of Mulch ELEV. B	Bottom of Mulch ELEV. C	Bottom of Plant Mix ELEV. D	Bottom of Pea Gravel ELEV. E	Depth of Stone (ft.)	Invert of Underdrain INV. ELEV. G	Bottom of Stone ELEV. F
#1	1.00	406.00	405.00	404.75	402.75	402.42	1.00	401.67	401.42
#2	1.00	399.50	398.50	398.25	396.25	395.92	1.00	395.17	394.92
#3	1.00	398.00	397.00	396.75	394.75	394.42	1.00	393.67	393.42
#4	1.00	407.00	406.00	405.75	403.75	403.42	1.00	402.67	402.42
#5a	1.00	407.00	406.00	405.75	403.75	403.42	1.00	402.67	402.42
#5b	1.00	406.00	405.00	404.75	402.75	402.42	1.00	401.67	401.42
#5c	1.00	405.00	404.00	403.75	401.75	401.42	1.00	400.67	400.42
#5d	1.00	404.00	403.00	402.75	400.75	400.42	1.00	399.67	399.42
#7	0.50	404.00	403.50	403.25	401.25	400.92	1.00	400.17	399.92
#8	1.00	407.00	406.00	405.75	403.75	403.42	1.00	402.67	402.42
#9	1.00	406.50	405.50	405.25	403.25	402.92	1.00	402.17	401.92
#10	1.00	406.75	405.75	405.50	403.50	403.17	1.00	402.42	402.17
#11	1.00	406.50	405.50	405.25	403.25	402.92	1.00	402.17	401.92



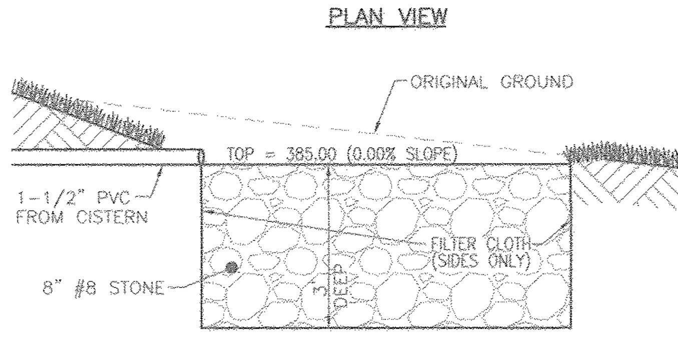
MICRO-BIORETENTION

NOT TO SCALE

MICROBIORETENTION NOTES:
1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETNTION WILL CAUSE THE MBR TO FAIL, AND THERFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.



PLAN VIEW

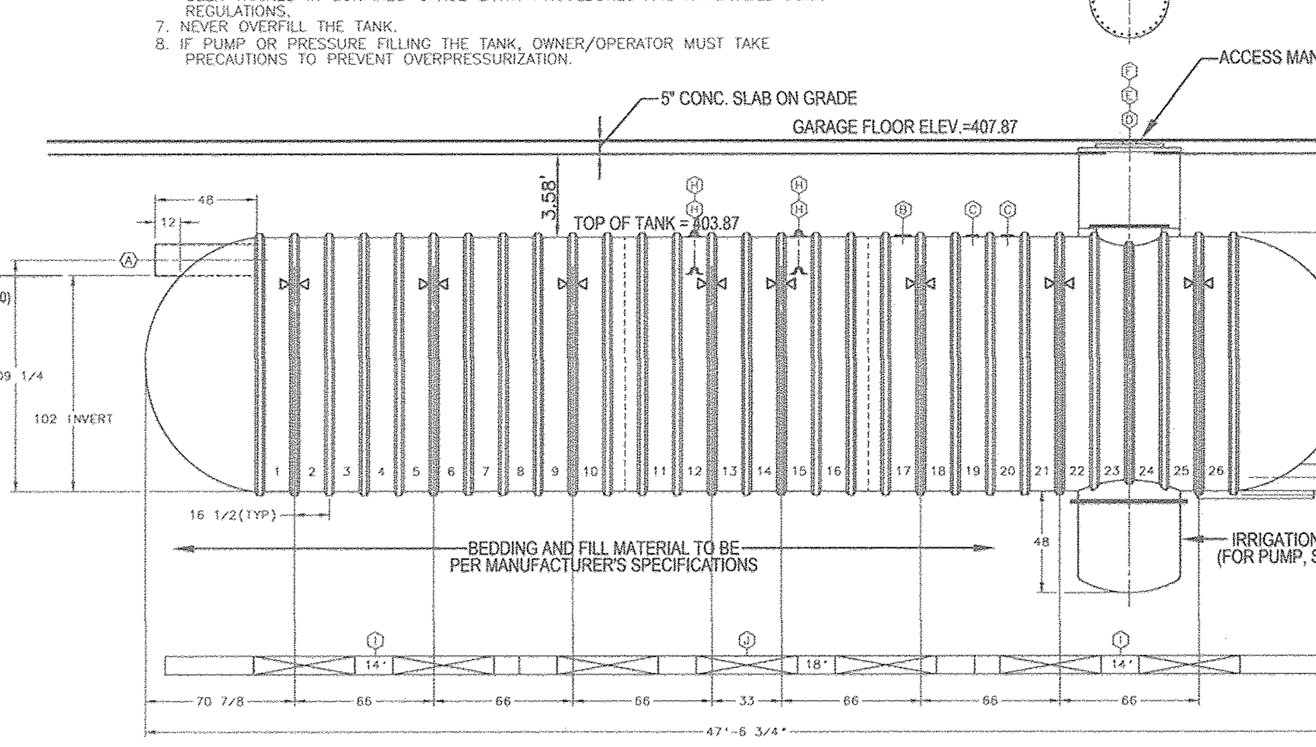


PROFILE

TYPICAL GRAVEL LEVEL SPREADER

NOT TO SCALE

NOTE:
1 – NOMINAL TANK WEIGHT: 11,100 LBS.
2 – INVERT DIMENSION FROM TANK I.D.



TANK NOTES:
1. PROVIDE MANHOLE LID AND COVER IN GARAGE WHICH MEETS H20 LOADING.
2. PROVIDE VENT FOR EACH TANK (SEE MEP DWGS FOR VENTING LOCATION).
3. BEDDING AND FILL MATERIAL TO BE PER MANUFACTURER'S SPECIFICATIONS.

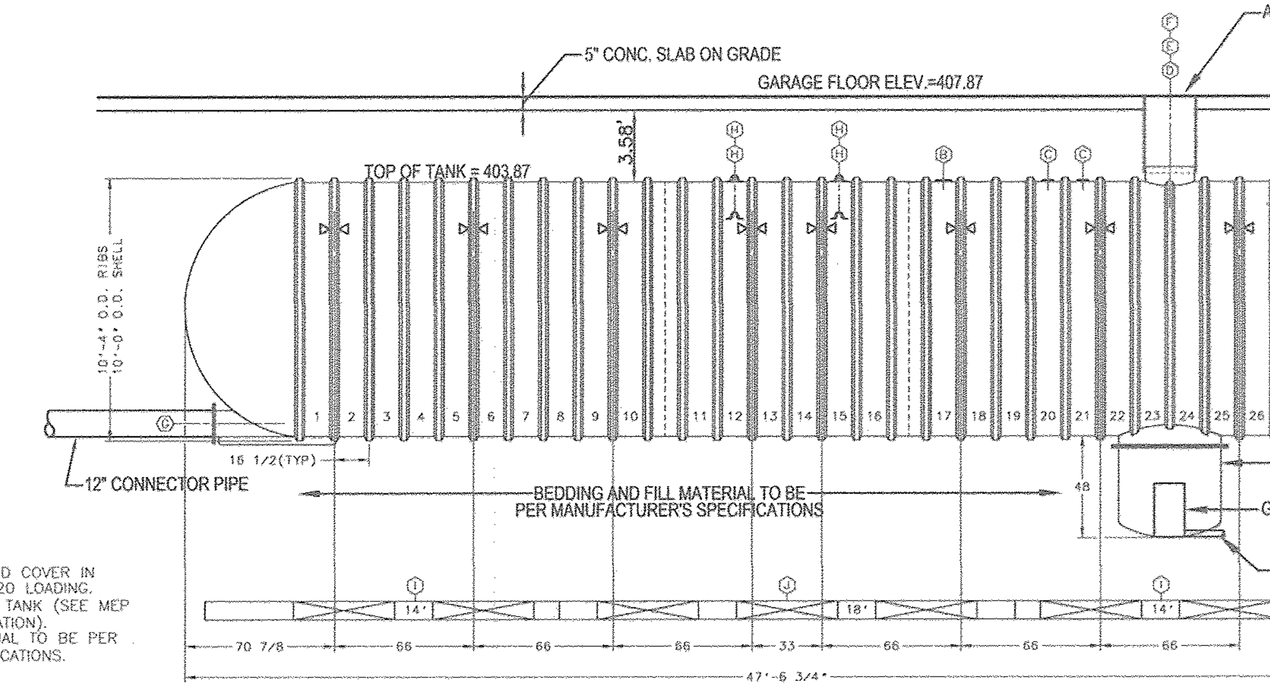
CUSTOMER DESIGNATION:
TANK #1

ITEM	QTY	DESCRIPTION
A	1	15"DIA SDR35 PVC HORIZONTAL PIPE
B	1	6"NPT SERVICE FITTING
C	2	4"NPT SERVICE FITTING
D	1	30"DIA MANWAY WITH BLANK COVER
E	1	48"DIA SW CONTAINMENT COLLAR & 36"HIGH SW SUMP WITH 32"DIA TOP OPENING & COVER
F	1	48"DIA x 48"DEEP FLANGED BOTTOM SUMP WITH LIFT LUG

ITEM	QTY	DESCRIPTION
G	1	12"DIA FLANGED TANGENTIAL NOZZLE WITH BOTTOM SUPPORT
H	4	LIFTING LUG (2 EXTRA)
I	4	14' PREFABRICATED CONCRETE DEADMEN
J	2	18' PREFABRICATED CONCRETE DEADMEN
⋈	8	HOLD DOWN STRAP LOCATION

XERXES a ZCL company — 10'DIA SW CAP. 25,000 GALLONS BUCH — D 648-588 00 — Mike Sloan — SCALE 1/2"=1'-0" — M204 WATER COLLECTION/CONSERVE

NOTE:
1 – NOMINAL TANK WEIGHT: 11,100 LBS.
2 – INVERT DIMENSION FROM TANK I.D.



CUSTOMER DESIGNATION:
TANK #2

ITEM	QTY	DESCRIPTION
A	1	15"DIA SDR35 PVC HORIZONTAL PIPE
B	1	6"NPT SERVICE FITTING
C	2	4"NPT SERVICE FITTING
D	1	RISER PIPE, 23 3/8" O.D., FOR 24"(NOMINAL) ACCESS OPENING
E	1	24"DIA x 36"HIGH PVC ACCESS RISER WITH FRP LID
F	1	48"DIA x 48"DEEP FLANGED BOTTOM SUMP WITH LIFT LUG

ITEM	QTY	DESCRIPTION
G	1	12"DIA FLANGED TANGENTIAL NOZZLE WITH BOTTOM SUPPORT
H	4	LIFTING LUG (2 EXTRA)
I	4	14' PREFABRICATED CONCRETE DEADMEN
J	2	18' PREFABRICATED CONCRETE DEADMEN
⋈	8	HOLD DOWN STRAP LOCATION

XERXES a ZCL company — 10'DIA SW CAP. 25,000 GALLONS BUCH — D 648-589 00

CISTERN TANKS - SWM USE

NOT TO SCALE

ROBERT H. VOGEL ENGINEERING, INC.
ENVIRONMENTAL SITE DESIGN PRACTICE

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	PERMEABLE PAVEMENT A-2	ADD UNDER PAVE A-2	PERVIOUS SIDEWALK A-2	LANDSCAPE INFILTRATION (M-3)	GRAVEL TRENCH (M-5)	CISTERN (M-1)	MICRO BIO RETENTION (M-6)	TOTAL ESDv VOLUME
A	12678	MBR #1	0	0	0	0	0	0	1635	1635
B	22173	TRENCH #1	0	0	0	0	4000	0	0	4000
C	7239	MBR #2	0	0	0	0	0	0	1005	1005
D-1	13817	MBR #3	0	0	0	0	0	0	1075	1075
D-2	12616	MBR #4	0	0	0	0	0	0	1685	1685
E-1	6762	MBR #5D	0	0	0	0	0	0	625	625
E-2	5308	MBR #5C	0	0	0	0	0	0	376	376
E-3	4929	MBR #5B	0	0	0	0	0	0	397	397
E-4	14650	MBR #5A	0	0	0	0	0	0	1253	1253
F-1	8063	MBR #7	0	0	0	0	0	0	695	695
F-2	12328	MBR #8	0	0	0	0	0	0	1800	1800
G	7907	MBR #9	0	0	0	0	0	0	1075	1075
H	21906	MBR #11	0	0	0	0	0	0	2008	2008
I	30813	MBR #12	0	0	0	0	0	6245	0	6245
J	10883	CISTERN #1	0	0	0	0	0	1186	0	1186
K	2916	PERV PAV #1	572	0	0	0	0	0	0	571.536
		TOTALS:	572	0	0	0	4000	7431	13629	25632

TOTAL AREA 203988 SF / 4.68 AC — TOTAL ESDv PROVIDED (CF): 25,632

Buch Apartments
Pe= 1.99
ESDv=(PexRvxA)/12
Rv=0.05+0.009xI
V min=1.0" rainfall (1.0xRvxA)/12
Vmax= 1yr rainfall=2.6" (2.6xRvxA)/12

DA	% IMPERV	Rv	DA	ESDv REQ	MINIMUM VOLUME	MAXIMUM VOLUME	VOLUME PROVIDED *	ESDv FACILITY
A	61	0.60	0.29	1258	631	1640	1635	MBR #1 (M-6)
B	88	0.84	0.51	3111	1560	4055	4000	GRAVEL TRENCH #1 (M-5)
C	71	0.69	0.17	834	418	1087	1005	MBR #2 (M-6)
D-1	71	0.69	0.32	1593	798	2076	1075	MBR #3 (M-6)
D-2	65	0.64	0.29	1341	672	1748	1685	MBR #4 (M-6)
E-1	82	0.79	0.16	887	445	1156	625	MBR #5A (M-6)
E-2	81	0.78	0.12	690	346	900	376	MBR #5B (M-6)
E-3	81	0.78	0.11	640	321	834	397	MBR #5C (M-6)
E-4	83	0.80	0.34	1942	974	2531	1253	MBR #5D (M-6)
F-1	65	0.63	0.19	846	424	1103	695	MBR #7 (M-6)
F-2	70	0.68	0.28	1398	701	1822	1800	MBR #8 (M-6)
G	72	0.70	0.18	920	461	1198	1075	MBR #9 (M-6)
H	56	0.56	0.50	2034	1019	2650	2008	MBR #10 (M-6)
I	100	0.95	0.91	6288	3152	8195	6245	CISTERN #1 (M-1)
J	53	0.53	0.25	955	479	1244	1186	MBR #11 (M-6)
K	100	0.95	0.07	461	231	600	572	PERV. PAVING #1 (A-2)
			TOTAL ESDv BY SUBAREA	25198	12631	32840	25632	

*Micro-bioretentions utilized in each subarea at the rate of 75%.

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

STORMWATER MANAGEMENT DRAINAGE AREA MAP DETAILS

THE VINE

BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO.16193 — REGISTERED PROFESSIONAL ENGINEER — 4/20/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV/DZE
DRAWN BY: DZE
CHECKED BY: RHV
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

SDP-15-044

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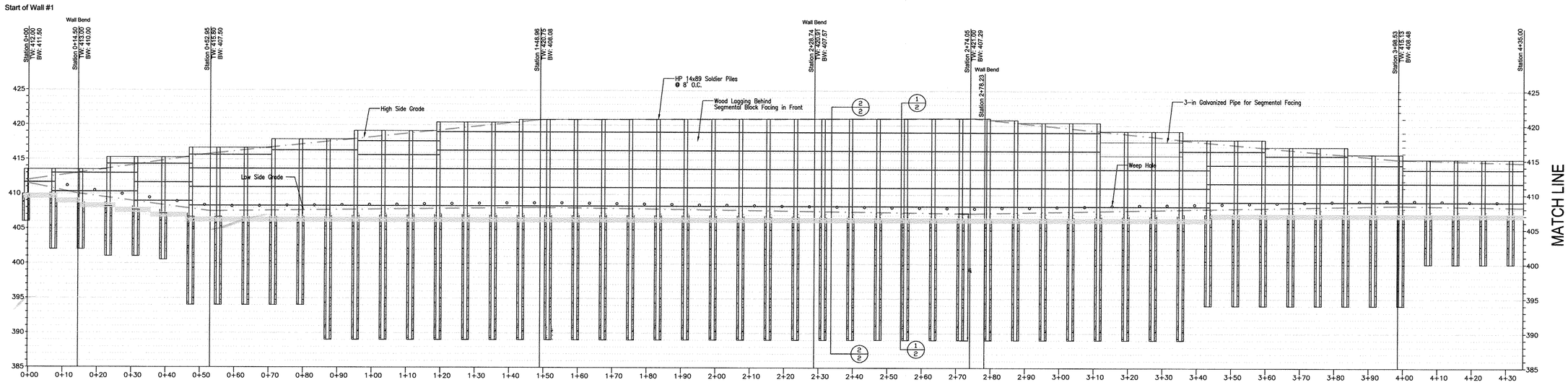
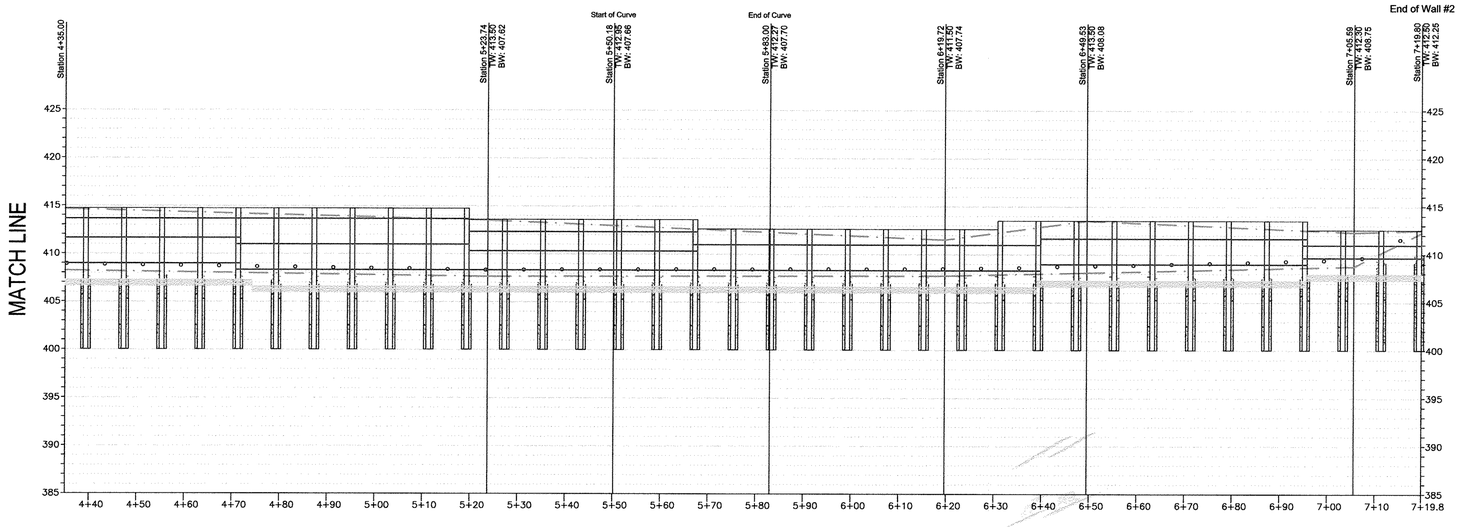


RETAINING WALL #1 PROFILE
HORIZONTAL SCALE: 1"=15'
VERTICAL SCALE: 1"=7.5'



RETAINING WALL #1 PROFILE
HORIZONTAL SCALE: 1"=15'
VERTICAL SCALE: 1"=7.5'

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE RETAINING WALLS
WALL #1 PROFILE
THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

ZONED: RR-APT
(L. 3192 / F. 394)

PARCEL 128
HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND
HASAN M. ABOUMATAR
No. 29553
PROFESSIONAL ENGINEER

HASAN M. ABOUMATAR, P.E.

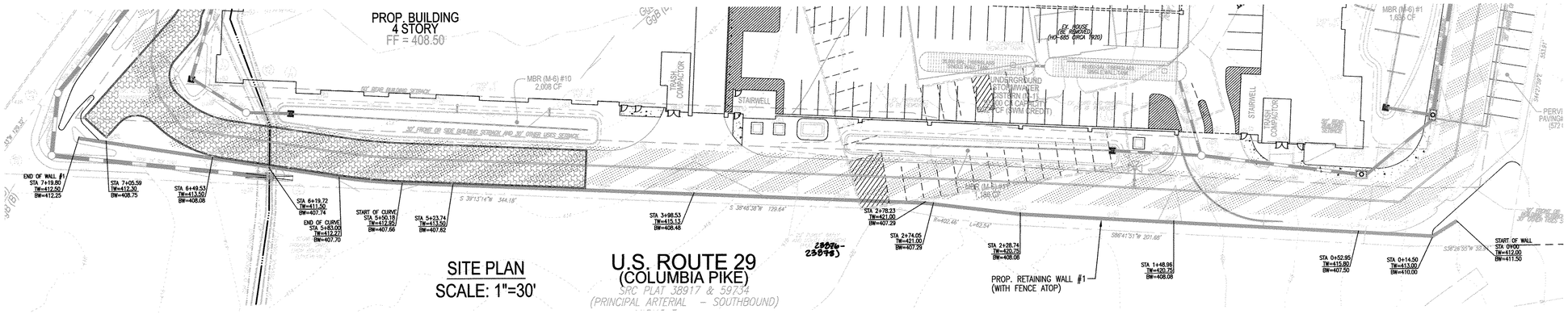
DESIGN BY:	DMA
DRAWN BY:	DMA
CHECKED BY:	HMA
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	7272-B

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 29553 EXPIRATION DATE: 12-31-2017

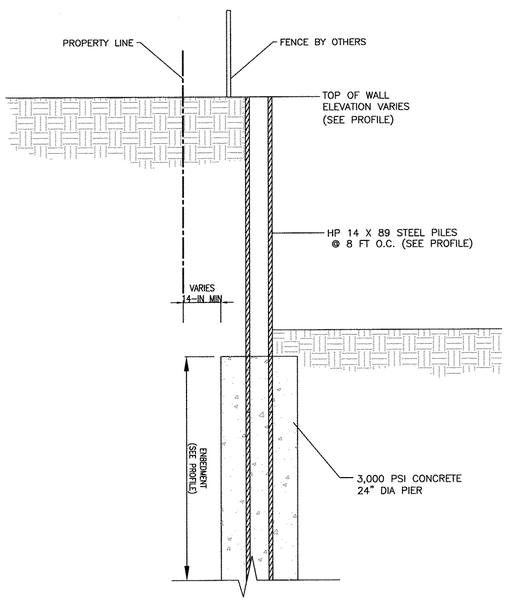
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

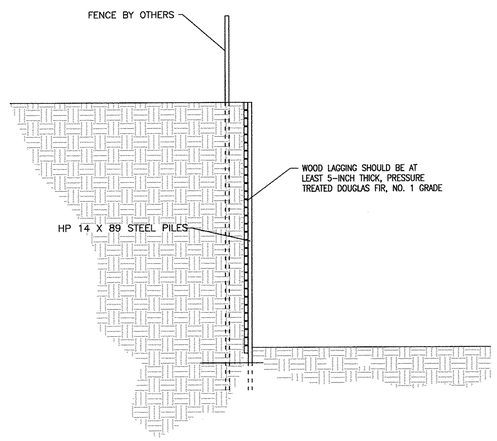


SITE PLAN
SCALE: 1"=30'

U.S. ROUTE 29
(COLUMBIA PIKE)
SRC PLAT 38917 & 59734
(PRINCIPAL ARTERIAL – SOUTHBOUND)



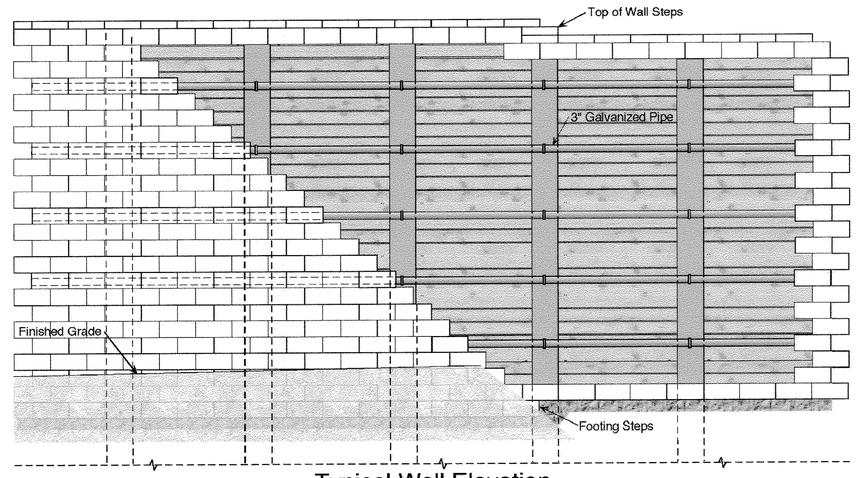
1/2 TYPICAL SOLDIER PILE DETAIL
N.T.S.



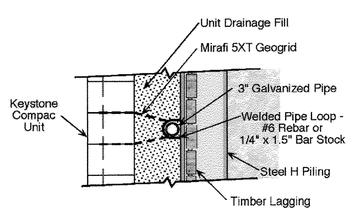
2/2 TYPICAL PANEL CROSS SECTION
N.T.S.

CONSTRUCTION NOTES FOR WALL 1:

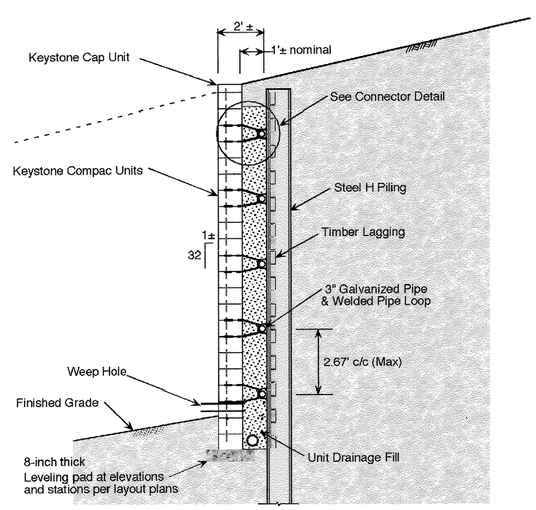
1. CONTRACTOR WILL BORE A 24-IN DIA. OPEN HOLE WITH A CONTINUOUS FLIGHT AUGER TO THE REQUIRED DEPTH. INSERT THE FULL-LENGTH SOLDIER PILE AND BACKFILL WITH FLOWABLE FILL UTILIZING A DRILL RIG THAT WILL ACCESS ALL PILE LOCATIONS FROM THE BUCH LLLP PROPERTY. THE EDGE OF THE PIER WILL BE NO LESS THAN 14 IN FROM PROPERTY LINE.
2. AFTER PILE INSTALLATION, THE FRONT FACE OF THE WALL WILL BE EXCAVATED IN 5-FT LIFTS IN ORDER TO INSTALL WOOD LAGGING. THE EXCAVATION WILL NOT EXTEND BEYOND THE PILES. ALL EXCAVATION WILL TAKE PLACE FROM THE BUCH LLLP PROPERTY.
3. AFTER WOOD LAGGING INSTALLATION IS COMPLETE, A WALL FACING CONSISTING OF SEGMENTAL BLOCK AND GEOGRID WILL BE INSTALLED ON THE FRONT FACE OF THE WALL FROM THE BUCH LLLP PROPERTY.
4. WALL MAINTENANCE WILL BE PERFORMED FROM THE FRONT SIDE OF THE WALL FROM THE BUCH LLLP PROPERTY.



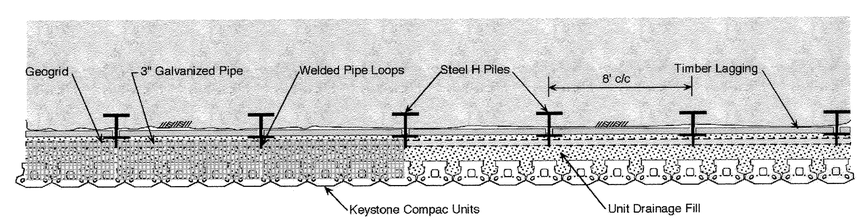
Typical Wall Elevation



Typical Connector Detail



Typical Pile & Lagging Wall Section



Typical Plan View

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE RETAINING WALLS
WALL #1 PLAN & DETAILS
THE VINE

BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT
ZONED: RR-APT
(L. 3192 / F. 394)
PARCEL 126
HOWARD COUNTY, MARYLAND

ECS
1340 CHARWOOD ROAD
SUITE A
HANOVER, MARYLAND 21076
PHONE: (410) 859 - 4300
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STATE OF MARYLAND
HASAN M. ABOUMATAR
No. 29563
PROFESSIONAL ENGINEER
HASAN M. ABOUMATAR, P.E.

DESIGN BY:	DMA
DRAWN BY:	DMA
CHECKED BY:	HMA
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	7272-B

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 29563 EXPIRATION DATE: 12-31-2015

SHEET 14 OF 44

SDP-15-044

GENERAL NOTES FOR RETAINING WALL #1

DESIGN:

1. BUILDING CODE – INTERNATIONAL BUILDING CODE 2012 EDITION

FOUNDATIONS – GENERAL:

1. DRILLED PIERS SHALL BE INSTALLED TO THE DEPTHS AND SIZE INDICATED BY THE PROFILES AND SECTIONS.
2. DRILLED PIERS SHALL BE TEMPORARILY CASED WITH APPROVED STEEL CASING, OR SLURRY BENTONITE SHOULD BE USED IF GROUNDWATER IS ENCOUNTERED OR IF SIDE WALLS COLLAPSE.
3. ALL DRILLED PIERS SHALL BE INSPECTED BY THE INDEPENDENT TESTING AGENCY PRIOR TO CONCRETE PLACEMENT. THE INDEPENDENT TESTING AGENCY SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE DRILLED PIER EMBEDMENT. EMBEDMENT ELEVATIONS SHALL BE ADJUSTED AS REQUIRED.

PIER CONCRETE AND REINFORCING STEEL:

1. CONCRETE SHALL CONFORM TO ACI BUILDING CODE (318R–95) AND SHALL HAVE A 28–DAY COMPRESSIVE STRENGTH AND DENSITY IN ACCORDANCE WITH THE FOLLOWING:

STRENGTH PSI	MIN. DENSITY PCF	MAX W/C RATIO
3000	145	0.55

2. REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
3. MINIMUM CONCRETE COVER, UNLESS NOTED OTHERWISE:

UNFORMED SURFACE IN CONTACT WITH THE GROUND.	3 IN.
FORMED SURFACES EXPOSED TO EARTH OR WEATHER.	
#6 BARS AND SMALLER	1 1/2 IN.

STRUCTURAL STEEL SOLDIER PILES:

1. STEEL SHALL CONFORM TO GRADE A992 (Fy=50 KSI)
2. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE (1992), EXCEPT AS MODIFIED IN THESE NOTES AND THE PROJECT SPECIFICATIONS.
3. STEEL SHALL BE PROVIDED WITH CORROSION PROTECTION, SUCH AS GALVANIZATION OR OTHER EQUIVALENT METHODS.
4. STRUCTURAL STEEL SOLDIER PILES SHALL BE FINISHED IN ACCORDANCE WITH ANY ARCHITECT'S SPECIFICATIONS.
5. STEEL SOLDIER PILES SHALL BE SET WITHIN 1–INCH ± OF THEIR VERTICAL ALIGNMENT.

WOOD LAGGING:

1. WOOD LAGGING SHALL BE AT LEAST 5 INCHES THICK.
2. WOOD LAGGING SHALL BE PRESSURE TREATED DOUGLAS FIR, NO. 1 GRADE.

INSTALLATION:

1. THE WOOD LAGGING SHALL BE INSTALLED AGAINST THE FRONT FLANGE OF THE STEEL PILES.
2. 4" DIAMETER WEEP HOLES SHALL BE CORED THROUGH THE SEGMENTAL BLOCK FACING ABOUT 4 INCHES ABOVE GRADE, AT THE MIDPOINT BETWEEN THE STEEL PILES.

SEGMENTAL BLOCK FACING SPECIFICATION GUIDELINES

PART 1: MATERIALS

1.01 Definitions

A. Modular Wall Units – KEYSTONE modular concrete facing and corner units, machine made from portland cement, water, and mineral aggregates.
B. Structural Geogrid – a structural geogrid formed by a regular network of integrity connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.
C. Unit Fill/Drainage Aggregate – drainage aggegrate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.

1.02 Concrete Units

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

1.03 Fiberglass Connecting Pins

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

1.04 Construction Adhesive

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

1.05 Soil Fill Materials

A. Base Leveling and Pad Material
   1. Material shall consist of crushed stone (GA S/B) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6–inches thick. MSHA No. 57 Stone or pea gravel is not permitted.
B. Unit Fill/Drainage Aggregate
   1. Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.

1.06 Structural Geogrid

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

PART 2: INSTALLATION

2.01 Foundation Preparation

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

2.02 Base Leveling Pad

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

2.03 Unit Installation

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

2.04 Geogrid Installation

A. The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.
B. Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.
C. The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and laying the grid back to the fill side.
D. A filtering, non–woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.
E. The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material.

2.05 Drainage Installation

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

2.06 Cap Installation

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301–359–3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE RETAINING WALLS WALL #1 SPECIFICATIONS

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

ZONED: RR-APT
(L. 3192 / F. 394)

PARCEL 126
HOWARD COUNTY, MARYLAND

ECS
1340 CHARWOOD ROAD
SUITE A
HANOVER, MARYLAND 21076
PHONE: (410) 859 - 4300
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STATE OF MARYLAND
HASAN M. ABOUMATAR
No. 29553
PROFESSIONAL ENGINEER

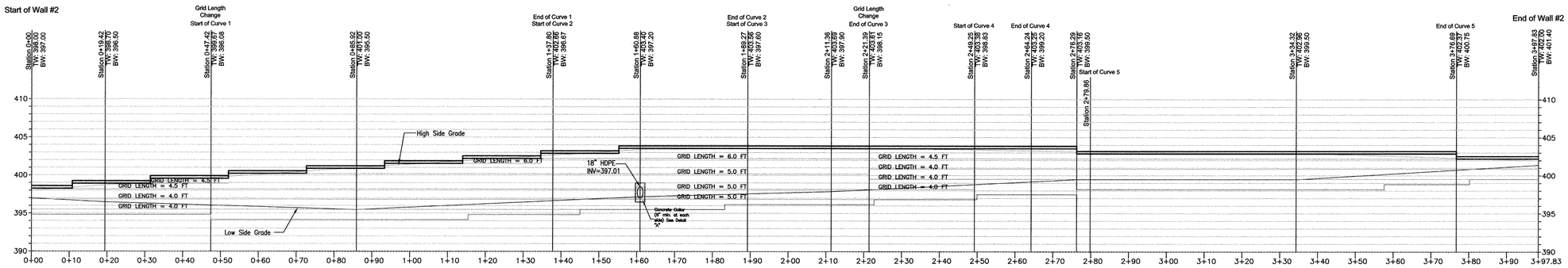
HASAN M. ABOUMATAR, P.E.

DESIGN BY:	DMA
DRAWN BY:	DMA
CHECKED BY:	HMA
DATE:	APRIL 2015
SCALE:	AS SHOWN
W.O. NO.:	7272–B

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO.: 29553 EXPIRATION DATE: 12-31-2015

SDP-15-064



RETAINING WALL #2 PROFILE

HORIZONTAL SCALE: 1"=15'

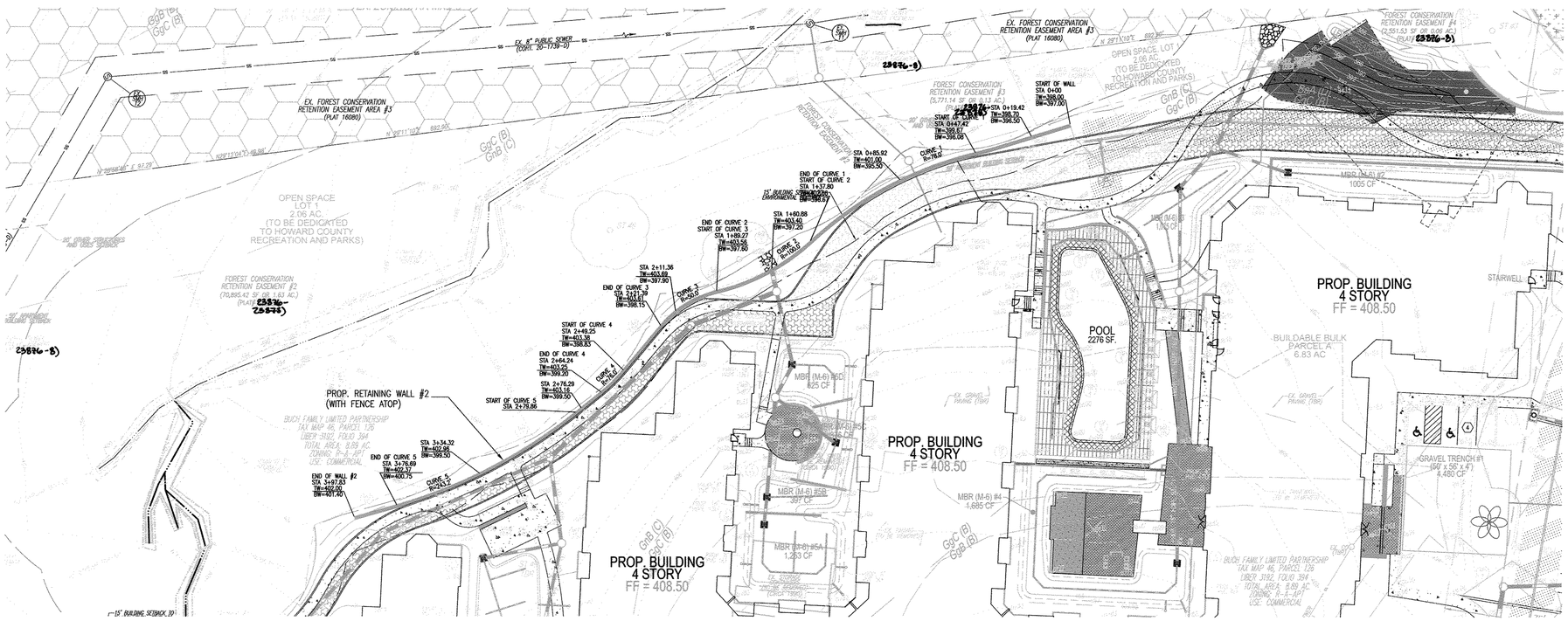
VERTICAL SCALE: 1"=7.5'

NOTES:

TW: Proposed Top Grade EL

BW: Proposed Bottom Grade EL

ALL GEOGRIDS ARE MIRAFI 5XT



SITE PLAN

SCALE: 1"=30'

CONSTRUCTION NOTES FOR WALL 2:

1. WALL 2 IS A SEGMENTAL BLOCK AND GEOGRID WALL THAT WILL BE CONSTRUCTED MAINLY IN FILL AREA.
2. CONSTRUCTION ACTIVITIES SHOULD NOT TAKE PLACE IN FRONT OF WALL FACE IN BUFFER AREA.
3. WALL CONSTRUCTION WILL TAKE PLACE FROM THE BACK SIDE OF WALL, WORKING FROM THE FACE OF WALL AND EXTENDING BACK WITH THE GEOGRIDS FROM THE BUCH LLLP PROPERTY. NO DISTURBANCE SHOULD TAKE PLACE BEYOND FACE OF WALL.
4. WALL MAINTENANCE WILL BE PERFORMED FROM THE BACK SIDE OF THE WALL FROM THE BUCH LLLP PROPERTY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.5.16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER

BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE RETAINING WALL #2 PLAN & PROFILE THE VINE

BUCH APARTMENTS

10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

ZONED: RR-APT
(L. 3192 / F. 394)

PARCEL 126
HOWARD COUNTY, MARYLAND

ECS
1340 CHARWOOD ROAD
SUITE A
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PHONE: (410) 859 - 4300
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STATE OF MARYLAND
HASAN M. ABOUMATAR
No. 29553
PROFESSIONAL ENGINEER

HASAN M. ABOUMATAR, P.E.

DESIGN BY:	DMA
DRAWN BY:	DMA
CHECKED BY:	HMA
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	7272-B

PROFESSIONAL CERTIFICATE

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SDP-15-044

MSE RETAINING WALL SPECIFICATION GUIDELINES

PART 1: GENERAL

1.01 Description

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

1.02 Reference Standards

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

1.03 Delivery, Storage and Handling

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

1.04 Quality Assurance

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

PART 2: MATERIALS

2.01 Definitions

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

2.02 Concrete Units

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

2.03 Fiberglass Connecting Pins

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

2.04 Construction Adhesive

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

2.06 Soil Fill Materials

A. Base Leveling and Pad Material
   1. Material shall consist of crushed stone (GA 5/8) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.
B. Unit Fill/Drainage Aggregate
   1. Fill for units shall be free draining crushed stone or gravel, with a maximum aggregate size of 1/2" to 3/4" and no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer. Pea gravel shall not be used. MSHA No. 57 stone may be used.
C. Reinforced Backfill
   1. Material shall consist of soil classified as SM or more granular soils per USCS with minimum soil parameters as indicated under design parameters. The backfill material shall contain no particles greater than 2.5 inches in diameter. The backfill material shall contain no more than 30 percent by weight retained on the US Standard No. 200 sieve. Other backfill materials my be approved by the Geotechnical Engineer.
D. Impervious Soil
   1. Material may be imported or site excavated soils exhibiting a USCS designation of a lean clay (CL) or clayey sand (SC). The material shall contain no less than 40 percent by weight passing the US Standard No. 200 sieve and exhibit a plasticity index no less than 4 and no greater than 20. Other materials may be approved by the Geotechnical Engineer.
E. Sample Submittal
   1. The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.
   2. Soil must meet or exceed the friction angle specified in design parameters.

2.07 Structural Geogrid

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

2.08 Geotextile

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

PART 3: INSTALLATION

3.01 Excavation

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

3.02 Foundation Preparation

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

3.03 Base Leveling Pad

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

3.04 Unit Installation

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

3.05 Geogrid Installation

A. The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer.
B. Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.
C. The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and laying the grid back to the fill side.
D. A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.
E. The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface shall be level. To tension the geogrid, backfill shall be placed over the geogrid from immediately behind the wall to the back end of the geogrid.
F. No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage. A minimum of 3 inches of soil cover is required between over lapping layers of geogrid.

3.06 Drainage Installation

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

3.07 Fill Placement

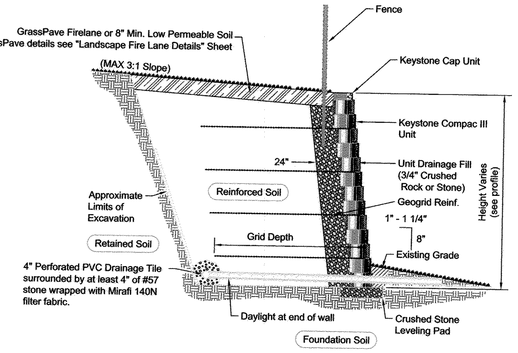
A. Backfill material shall be placed in 8 inch loose lifts and compacted to at least 95% of the maximum dry density as determined by ASTM D 698. The in-place moisture content shall be in the range of at the optimum moisture content to 2 percentage points higher than the optimum moisture content, as determined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

3.08 Cap Installation

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

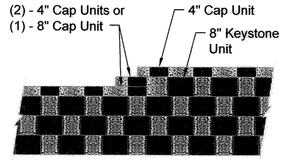
DESIGN PARAMETERS

Characteristics:		Soil Parameters: Soil Type	Minimum Friction Angle	Minimum Unit Weight (pcf)
Configuration:	Battered face wall (4 DEG.)			
Maximum Exposed Wall Height / Minimum Allowable Bearing Pressure (psf):	4'-8" / 1,500	Reinforced fill (Select granular material)	28	120
Backslope Angle:	Varies (3H:1V maximum)	Retained soils	28	120
Toe Slope Angle:	Varies (3H:1V maximum)			
Wall Embedment:	Varies (12 inches minimum) (See Profile)	Foundation soils	28	120



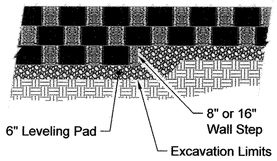
Typical Reinforced Wall Section

Compac III Unit - 1" Setback

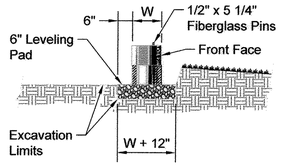


Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps

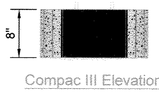


Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.

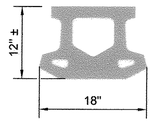


Section

Leveling Pad Detail



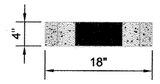
Compac III Elevation



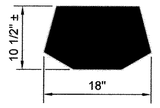
Compac III Plan

Compac III Unit

* Dimensions May Vary by Region



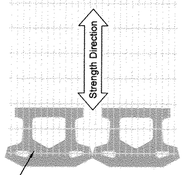
Cap Unit Elevation



Cap Unit Plan

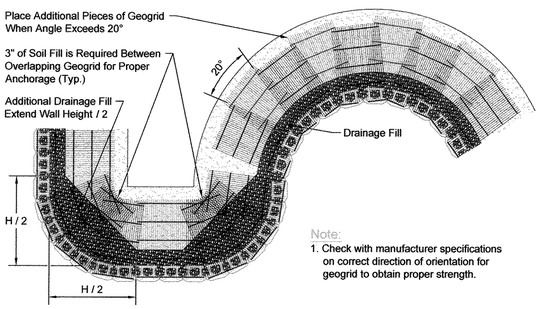
3-Plane Split Cap Unit Option

* Dimensions & Availability Will Vary by Region



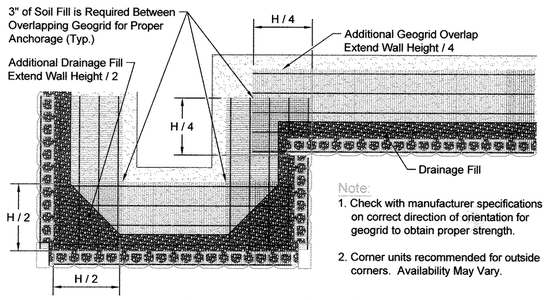
Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection



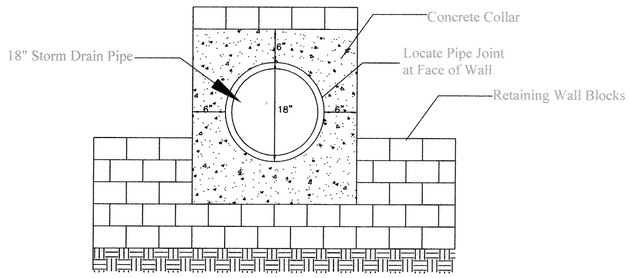
Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

Geogrid Installation on Curves



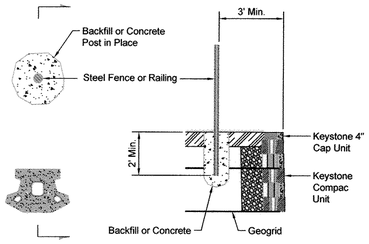
Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
2. Corner units recommended for outside corners. Availability May Vary.

Geogrid Installation at Corners



Detail "A" (NTS)

18" Storm Drain Pipe

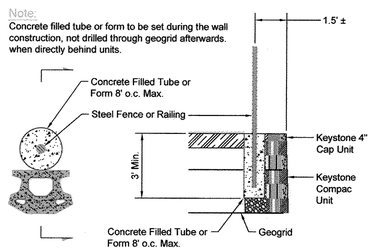


Fence Plan Detail

Fence SectionDetail

Compac Unit - Near Vertical Setback

Note:
Concrete filled tube or form to be set during the wall construction, not drilled through geogrid afterwards. when directly behind units.



Fence Plan Detail

Fence Section & Plan Detail

CompacII Unit - Near Vertical Setback

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE RETAINING WALL #2 SECTIONS & DETAILS THE VINE

BUCH APARTMENTS

10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)

TAX MAP 46 BLOCK 4, 5TH ELECTION DISTRICT — ZONED: RR-APT (L. 3192 / F. 394) — PARCEL 126, HOWARD COUNTY, MARYLAND

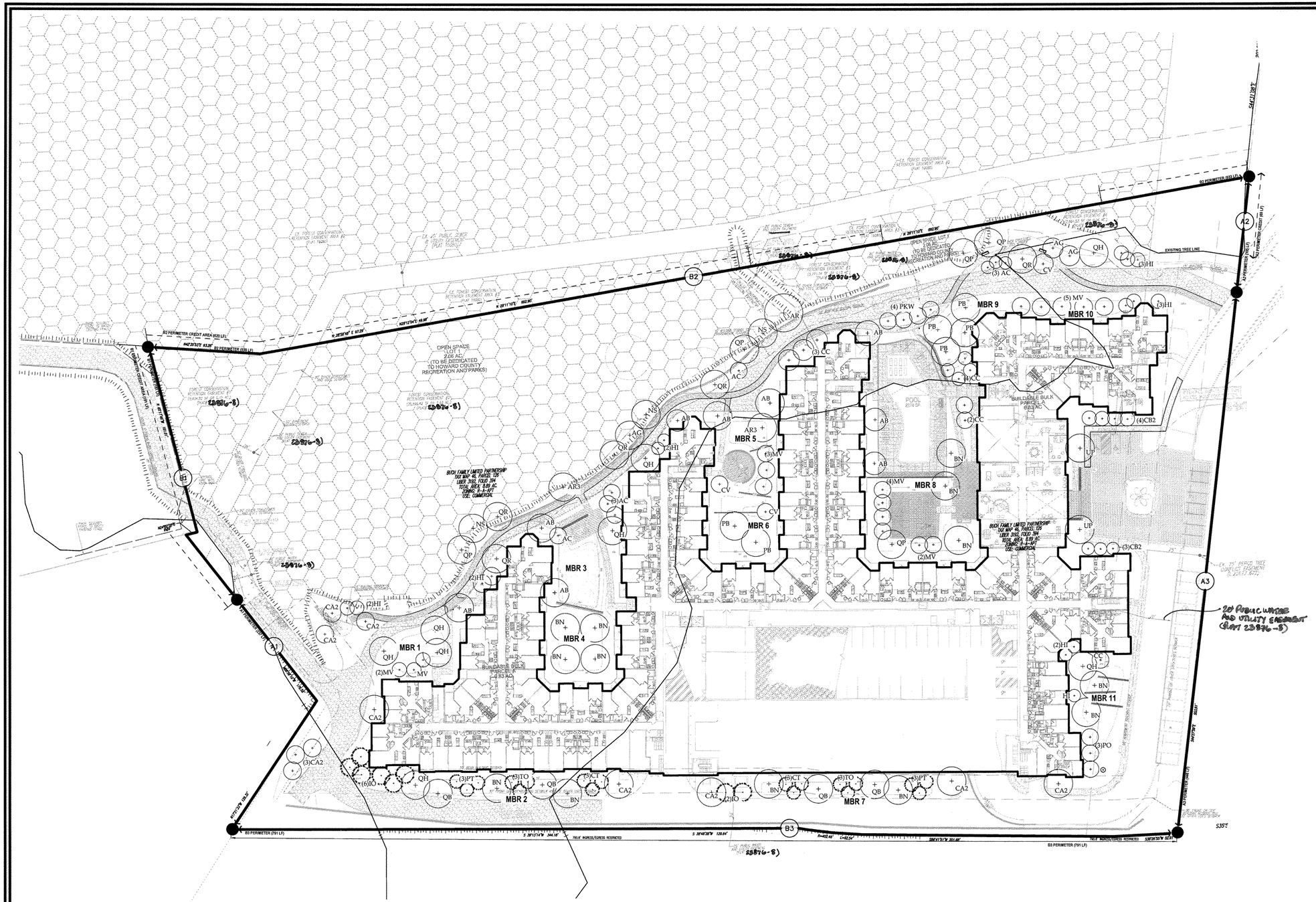
ECS
1340 CHARWOOD ROAD
SUITE A
HANOVER, MARYLAND 21076
PHONE: (410) 859 - 4300
FAX: (410) 859 - 4324

STATE OF MARYLAND — HASAN M. ABOUMATAR — No. 29653 — PROFESSIONAL ENGINEER
HASAN M. ABOUMATAR, P.E.

DESIGN BY: DMA
DRAWN BY: DMA
CHECKED BY: HMA
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 7272-B

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 29653. EXPIRATION DATE: 12-31-2017



LEGEND

- LARGE TREE
- SMALL TREE
- SHRUB
- EVERGREEN
- QH — TREE LABEL (REF. SHEET 19 FOR NAME)
- A2 — BOUNDARY LABEL
- BOUNDARY MARKER
- PROPERTY LINE
- BOUNDARY CREDIT AREA
- EXISTING TREE LINE

TREE CATEGORY KEY LEGEND

- PERIMETER A
- PERIMETER B
- APARTMENT AND PARKING
- SPECIMEN TREE MITIGATION

OWNER/DEVELOPER

BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGN COLLECTIVE

ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM

603 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242

312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=40'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 18 OF 44

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.
2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.
3. FOR AMENITY SPACES, SEE SHEET 20.
4. FOR PLANTING PLANS, SEE SHEETS 26 - 39.
5. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEET 19.
6. SEE SHEET 19 FOR OVERALL PLANT LIST.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

SDP-15-044

REFERENCE 18 FOR SCHEDULES A, B, AND C

SCHEDULE A - PERIMETER LANDSCAPE EDGE

CATEGORY							
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE	A1	A2	A3	B1	B2	B3	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	237'	105'	448'	161'	933'	791'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	YES 69'	NO	YES 161'	YES 620'	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	TOTAL
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	1:60 (4) 0 (0) 0 (0)	1:60 (1) 0 (0)	1:60 (7) 0 (0) 0 (0)	N/A	1:50 (6) 1:40 (8)	1:50 (16) 1:40 (20) -	34 28 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	(4) (*) (*) (*)	(1) (*) (*) (*)	(7) (*) (*) (*)	(*) (*) (*) (*)	6 (6) 0 (0) 0 (0) 80 (8)	(13) 26 (23) 0 (0) 0 (0)	31 23 0 8

(*) PERIMETER LANDSCAPE EDGE TYPE A2, B1 AND B2 CREDITED (NOT REQUIRED) AS A RESULT OF EXISTING VEGETATION (FOREST).

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	30
NUMBER OF TREES REQUIRED (1 TREE PER 10 SPACES)	3
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	3 0(0)
ISLAND REQUIREMENT - 200 SF MIN. - (1 TREES @ 200 SF)	
ISLAND SPACE PROVIDED - 355 SF = 355 SF PER TREE	

SCHEDULE C - RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

CATEGORY	APARTMENT
NUMBER OF DWELLING UNITS	283
NUMBER OF TREES / ISLANDS REQUIRED	1:3 DU 94
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES (2:1 SUB) OTHER TREES (2:1 SUB) SHRUB (10:1 SUB)	51 0 (0) 40 (20) 230 (23)

SCHEDULE D - SPECIMEN TREE REPLACEMENT

NUMBER OF SPECIMEN TREES TO BE REMOVED	7
NUMBER OF REPLACEMENT TREES REQUIRED (2.5-3" CAL)	1:2 PU 14
NUMBER OF PLANTS PROVIDED SHADE TREES	14

LANDSCAPE EDGE TYPE

- (A) LANDSCAPE EDGE TYPE A
- (B) LANDSCAPE EDGE TYPE B

LANDSCAPE EDGE TYPE - LENGTHS

- (A1) LENGTH = 237'
- (A2) LENGTH = 105'
- (A3) LENGTH = 448'
- (B1) LENGTH = 161'
- (B2) LENGTH = 933'
- (B3) LENGTH = 791'

LANDSCAPE SCHEDULE NOTE:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.

2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.

3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.

4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.

2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPERS AGREEMENT IN THE AMOUNT OF $47,700 FOR THE REQUIRED 131 SHADE TREES ($300ea), 14 SPECIMEN MITIGATION TREES ($300ea), AND 28 EVERGREEN TREES ($150ea). ALL LANDSCAPING AND AMENITY FEATURES MUST BE IN PLACE BEFORE BOND IS RELEASED FOR SDP-15-044.

3. MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

4. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS LISTED HEREWITH AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

5. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DUE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.

6. THE OWNER, TENANT AND/OR THEIR AGENDS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION WHEN NECESSARY, REPAIRED OR REPLACED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

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

Michael L. Buch 4.20.16
SIGNATURE OF DEVELOPER DATE

REFERENCE 18 FOR PLANT LABELS

PLANT LIST

SHADE TREES

Qty.	Key	Botanical/Common Name	Size	Root	Comments
3	AG	Acer griseum Paperbark Maple	2.5" Cal.	B&B	
12	AB	Acer rubrum ('Bowhall Red') Bowhall Red Maple	4" Cal.	B&B	
13	BN	Betula nigra 'Cully' Heritage River Birch	12' Ht.	B&B	Single Stem
7	CB2	Carpinus betulus 'Fastigiata' Upright European Hornbeam	2.5" Cal.	B&B	
11	CA2	Carpinus caroliniana American Hornbeam	4" Cal.	B&B	
3	CV	Crataegus virdis 'Winter King' Winter King Hawthorn	1.5" Cal.	B&B	
17	MV	Magnolia virginiana Sweet Bay Magnolia	10' Ht.	B&B	Specimen
3	NS	Nyssa sylvatica Black Gum	2.5" Cal.	B&B	
6	PB	Platanus x acerifolia 'Bloodgood' London Plane Tree	4" Cal.	B&B	Specimen Quality Straight Leader
4	QB	Quercus bicolor Swamp White Oak	4" Cal.	B&B	
5	QP	Quercus palustris Pin Oak	4" Cal.	B&B	
8	QH	Quercus phellos Willow Oak	4" Cal.	B&B	
5	QR	Quercus rubra Red Oak	4" Cal.	B&B	
2	UA	Ulmus americana 'Princeton' American Princeton Elm	4" Cal.	B&B	

TOTAL SHADE TREES: 99

EVERGREEN TREES

Qty.	Key	Botanical/Common Name	Size	Root	Comments
6	CT	Chamaecyparis thyoides Atlantic White Cedar	8' Ht.	B&B	
8	IO	Ilex opaca American Holly	10' Ht.	B&B	
6	PT	Pinus taeda Loblolly Pine	8' Ht.	B&B	
6	TO	Thuja occidentalis American Arborvitae	8' Ht.	B&B	

TOTAL EVERGREEN TREES: 26 (23)

FLOWERING TREES

Qty.	Key	Botanical/Common Name	Size	Root	Comments
8	AC	Amelainchier canadensis American Serviceberry	8–10' Ht.	B&B	
10	CC	Cercis canadensis Red Bud	2.5" Cal.	B&B	
15	HI	Hamamelis x intermedia 'Arnold Promise' Arnold Promise Witch Hazel	8' Ht.	B&B	Specimen
3	PO	Prunus x 'Okame' Okame Cherry	2.5" Cal.	B&B	Specimen Quality Matched
4	PKW	Prunus serrulata 'Kwanzan Kwanzan Cherry	12' Ht.	B&B	Specimen Quality Matched

TOTAL FLOWERING TREES: 40 (20)

SHRUBS

Qty.	Key	Botanical/Common Name	Size	Root	Comments
15	AX	Abelia x grandiflora Glossy Abelia	5 Gal.	Cont.	30" O.C.
35	CE	Callicarpa dichotoma 'Early Amethyst' Early Amethyst Beautyberry	5 Gal.	Cont.	
85	CB	Cornus sericea 'Baileyi' Red Twig Dogwood	5 Gal.	Cont.	
22	FG	Fothergilla gardenii Dwarf Fothergilla	5 Gal.	Cont.	30" O.C.
51	HQ	Hydrangea quercifolia Oakleaf Hydrangea	7 Gal.	Cont.	
64	RG	Rhus aromatica 'Gro–Low' Gro Low Sumac	5 Gal.	Cont.	
3	RT	Rhus typhina 'Tiger Eyes' Tiger Eyes Staghorn Sumac	5 Gal.	Cont.	
10	VC	Viburnum carlesii Korean Spice Viburnum	7 Gal.	Cont.	
25	VD2	Viburnum plicatum tom. 'Maresii' Double File Viburnum	5 Gal.	Cont.	

TOTAL SHRUBS: 310 (31)

NOTE:

ABOVE TOTAL QUANTITIES SATISFY REQUIREMENTS OF MINIMUM LANDSCAPE PLANS. FINAL QUANTITIES AND PLANTING LOCATIONS FOR PRICING ARE TO BE GENERATED FROM PLANTING SHEETS 26 THROUGH 39 AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.

REFERENCE 18 FOR MICRO BIO–RETENTION AREAS

MBR 2, 7

SEED MIX

ERNST Custom Bio–retention Seed Mix

*NOTE: THE FOLLOWING MIXTURE AMOUNTS ARE FOR 1 LB. OF SEED MIX.

.02 lb	Agrostis perennans	Autumn Bentgrass
.08 lb	Carex vulpinoidea	Fox Sedge
.30 lb	Chasmanthium latifolium	River Oats
.07 lb	Chasmanthium laxium	Slender Woodoats
.14 lb	Elymus virginicus	Virginia Wildrye
.01 lb	Juncus effusus	Soft Rush
.01 lb	Juncus tenuis	Path Rush
.11 lb	Panicum anceps	Beaked Panicgrass
.02 lb	Sisyrinchium angustifolium	Narrowleaf Blue Eyed Grass
.015 lb	Asclepias incarnata	Swamp milkweed
.02 lb	Aster laevis	Smooth Aster
.003 lb	Baptisia australis	Blue False Indigo
.025 lb	Chamaecrista fasciculata	Partridge Pea
.015 lb	Coreopsis lanceolata	Lance Leaf Coreopsis
.03 lb	Echinacea purpurea	Purple Coneflower
.01 lb	Eupatorium coelestinum	Mistflower
.015 lb	Heliopsis helianthoides	Ox–Eye Sunflower
.01 lb	Liatris spicata	Spiked Gayfeather
.005 lb	Monardo fistulosa	Wild Bergamot
.025 lb	Penstemon digitalis	Tall White Beardtongue
.014 lb	Penstemon laevigatus	Appalachian Beardtongue
.001 lb	Pycnanthemum incanum	Hoary Mountain Mint
.002 lb	Pycnanthemum tenuifolium	Narrowleaf Mountain Mint
.02 lb	Rudbeckia hirta	Blackeyed Susan
.005 lb	Senna hebecarpa	Wild Senna
.005 lb	Solidago juncea	Early Goldenrod
.005 lb	Solidago odora	Licorice Scented Goldenrod
.015 lb	Tradescantia virginiana	Virginia Spiderwort

NOTES:
*As suggested by Ernst Seeds. Apply this mix at 20 lbs/acre.
If seed of any wildflower is not available, add its percentage to the following species; CHasmanthium latifolium, Chasmanthium laxum, and/or Panicum anceps.
For a cover crop, use 30 lbs/acre of grain rye

MBR 1, 4, 5, 6, 8, 9, 10, 11

MBR 1 For planting list, see sheet 31

MBR 4 For planting list, see sheet 30

MBR 5 For planting list, see sheet 29

MBR 6 For planting list, see sheet 29

MBR 8 For planting list, see sheet 28

MBR 9 For planting list, see sheet 27

MBR 10 For planting list, see sheet 34

MBR 11 For planting list, see sheet 33

MBR 3

LAWN

Planted Sod

MICROBIORETENTION PLANTING REQUIREMENTS

MBR	AREA	STEMS REQUIRED	STEMS PROVIDED
#1	1635 SF	37	41
#2	1005 SF	23	SEEDED
#3	1075 SF	25	LAWN
#4	1685 SF	39	40
#5A	397 SF	9	13
#5B	376 SF	9	9
#5C	625 SF	14	14
6	1253 SF	29	31
#7	695 SF	32	SEEDED
#8	1800 SF	41	43
#9	1075 SF	25	28
#10	2008 SF	46	48
#11	1186 SF	27	28

NOTE: STEMS PROVIDED AS CALCULATED BASED ON QUANTITY OF SHRUBS PLANTED WITHIN THE LIMITS OF THE MICROBIORETENTION. TREES, PERENNIALS AND GROUNDCOVERS NOT INCLUDED IN ABOVE CALCULATIONS.

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS PER SQUARE FOOT).

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301–359–3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

LANDSCAPE CALCS AND PLANT LIST

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=30'–0"
W.O. NO.:	12–50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06–12–2016

SDP-15-044

SITE AMENITIES LIST

COURTYARD 'A1'
(6,433 SF)

A. SEATING AND GATHERING SPACE
B. FREESTANDING GRILL (2)
C. OUTDOOR KITCHEN
D. FIRE PLACE

COURTYARD 'A2'
(9,921 SF)

A. POOL AND POOL TERRACE
B. SEATING AND GATHERING SPACE

COURTYARD 'B'
(4,300 SF)

A. SEATING AND GATHERING SPACE
B. FREESTANDING GRILL (2)
C. DOG WALKING STATION

COURTYARD 'C'
(5,352 SF)

A. OPEN LAWN
B. SEATING AND GATHERING SPACE
C. FREESTANDING GRILL (1)
D. DOG WALKING STATION

COURTYARD 'D'
(3,729 SF)

A. SEATING AND GATHERING SPACE
B. FREESTANDING GRILL (1)
C. DOG WALKING STATION

TRAIL
(17,025 SF)

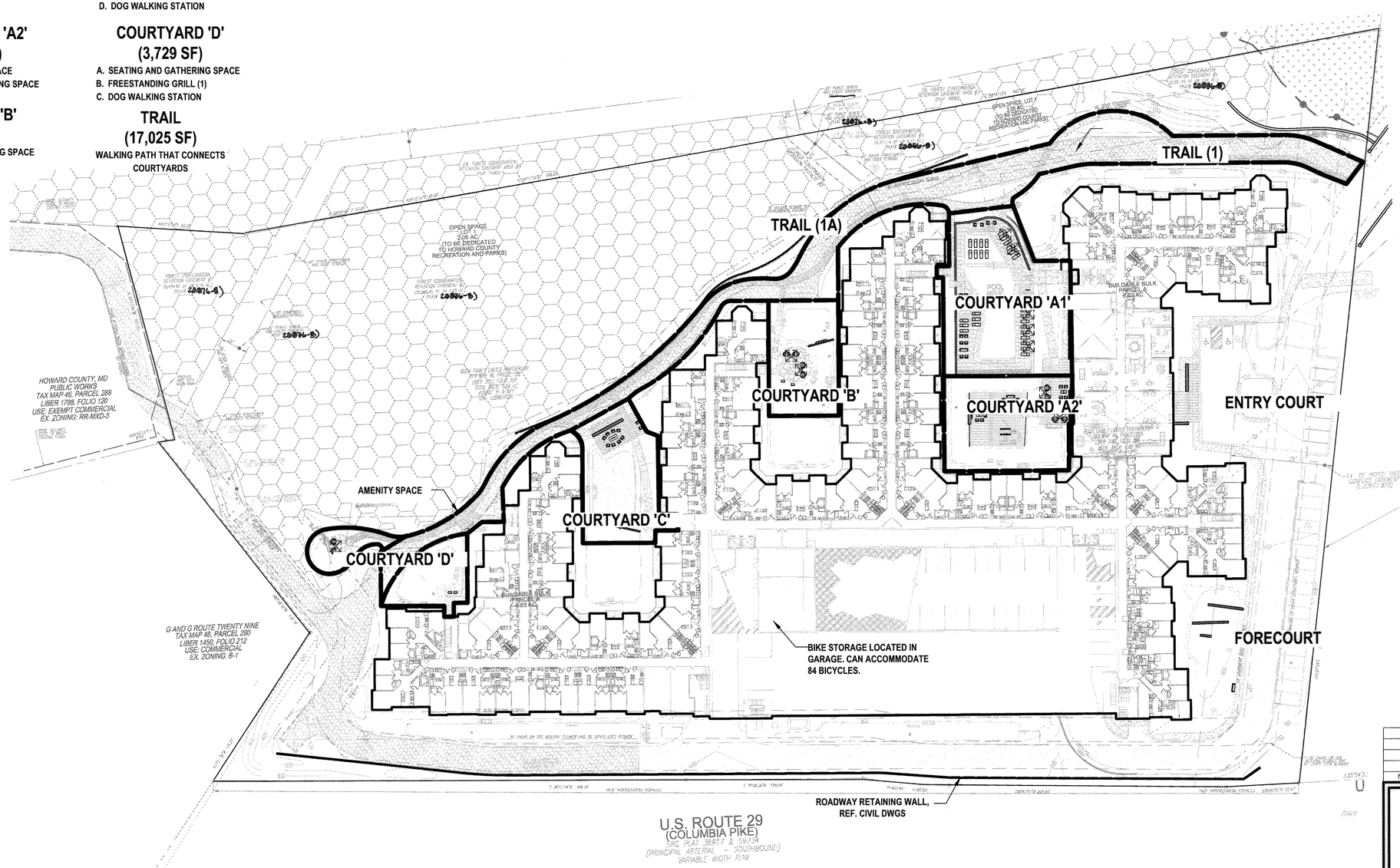
WALKING PATH THAT CONNECTS COURTYARDS

TOTAL AREA:
46,760 SF

NOTE: AMENITIES ARE LABELED ON SHEETS 26 - 34.

LEGEND

PROPERTY LINE
AMENITY SPACE BOUNDARY



OWNER/DEVELOPER

BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SITE AMENITY PLAN

THE VINE
BUCH APARTMENTS

10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
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TAX MAP 46 BLOCK 4
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STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=40'-0"
W.O. NO.:	12-50.00

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LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 20 OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

SDP-15-044

GENERAL NOTES:

1. ALL LIGHTING FIXTURES, LAMPS AND RELATED DEVICES FURNISHED UNDER THIS CONTRACT SHALL CARRY THE APPROVAL LABEL OF UL OR ETL FOR THE SPECIFIC APPLICATION IN WHICH THEY ARE USED.
2. THE STATEMENT "FINISH TO BE SELECTED BY DESIGN PROFESSIONAL" SHALL BE INTERPRETED TO MEAN THAT THE FINISH OF THE LUMINAIRE SHALL MATCH THE APPEARANCE OF A PAINT CHIP, COLOR NUMBER, OR METAL SWATCH FURNISHED BY THE DESIGN PROFESSIONAL DURING THE SUBMITTAL REVIEW PROCESS.
3. WHITE L.E.D.'S SHALL MEET, AT A MINIMUM, CHROMATICITY STANDARDS SET BY ANSI/NEMA/ANSLG C79.377-2011. L.E.D. LUMEN MAINTENANCE SHALL BE MEASURED IN ACCORDANCE WITH IESNA LM-80 STANDARDS. PHOTOMETRIC TESTING FOR SOLID STATE LUMINAIRES SHALL BE IN ACCORDANCE WITH IESNA LM-79 STANDARDS.
4. UNLESS OTHERWISE NOTED, LAMP DESIGNATIONS ARE FOR LAMPS BY OSRAM/SYLVANIA.
5. CONTRACTOR SHALL CONFIRM FIXTURE VOLTAGES, CEILING TRIMS, AND MOUNTING HARDWARE ARE COMPATIBLE WITH THEIR APPLICATION AS DETERMINED BY THE DESIGN PROFESSIONAL PRIOR TO ORDERING FIXTURES.
6. CONTRACTOR SHALL SELECT, FURNISH AND INSTALL THE CORRECT SIZE OF SECONDARY WIRING FROM REMOTE TRANSFORMERS AND/OR REMOTE BALLASTS AS REQUIRED TO KEEP VOLTAGE DROP IN THE SECONDARY WIRING BELOW 3% OF RATED VOLTAGE.
7. ALL L.E.D. LAMPS SHALL BE BURNED CONTINUOUSLY FOR 100 HOURS AT FULL OUTPUT PRIOR TO FOCUSING OF FIXTURES AND COMMISSIONING OF CONTROL SYSTEMS.
8. CONTRACTOR SHALL PROVIDE LABOR AND EQUIPMENT FOR FOCUSING OF ADJUSTABLE FIXTURES AND PRESETTING OF LIGHTING CONTROL SYSTEMS. FOCUSING AND PRESETTING SHALL BE DONE IN THE PRESENCE OF THE DESIGN PROFESSIONAL. CONTRACTOR SHALL FOCUS LIGHTING AFTER DARK IF DIRECTED BY THE OWNER'S REPRESENTATIVE. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL PROVIDE AT LEAST ONE DAY OF A FACTORY-TRAINED AND CERTIFIED TECHNICIAN TO PROVIDE WARRANTY START UP AND PROGRAMMING FOR ALL LIGHTING CONTROL SYSTEMS AND PROGRAMMABLE LIGHTING FIXTURES.
9. CONTRACTOR SHALL PROVIDE THE FOLLOWING WITH THEIR BID:
   A. THE UNIT PRICE, WITHOUT LAMP, FOR EACH LIGHTING FIXTURE TYPE LISTED WITHIN THE LIGHTING FIXTURE SCHEDULE. THE UNIT PRICE SHALL BE FOR ONE OF THE LISTED MANUFACTURER'S FOR THAT PARTICULAR FIXTURE. THE MANUFACTURER SHALL BE IDENTIFIED. SUBSTITUTIONS FOR FIXTURES PROVIDED BY MANUFACTURERS NOT LISTED IN THE SCHEDULE ARE NOT ACCEPTABLE. SEE BELOW FOR REQUIREMENTS ASSOCIATED WITH SUBMITTING LIGHTING FIXTURE SUBSTITUTIONS.
   B. THE TOTAL QUANTITY OF EACH FIXTURE TYPE WITH THE EXTENDED COST FOR THAT QUANTITY.
   C. THE UNIT PRICE, TYPE, AND QUANTITY OF LAMPS.
10. WITHIN 21 DAYS OF CONTRACT AWARD, THE CONTRACTOR SHALL FURNISH SUBMITTALS FOR ALL SPECIFIED LIGHTING FIXTURES FOR REVIEW BY THE DESIGN PROFESSIONAL. THE SUBMITTALS SHALL INCLUDE LUMINAIRE CATALOG CUTS, SUBMITTAL SHEETS, OR MANUFACTURERS SHOP DRAWINGS INDICATING THE FOLLOWING:
    A. MANUFACTURER'S NAME AND COMPLETE CATALOG NUMBER
    B. FIXTURE TYPE, DIMENSIONS AND FINISHES
    C. FIXTURE PHOTOMETRIC TEST DATA FROM AN INDEPENDENT TEST LABORATORY
    D. FIXTURE ACCESSORIES, COMPONENTS, AND HARDWARE WHEN SPECIFIED
    E. LAMP TYPE, QUANTITY, WATTAGE, LUMEN OUTPUT, RATED LIFE, COLOR TEMPERATURE, COLOR RENDERING INDEX AND BEAM SPREAD AS APPLICABLE
    F. BALLAST TYPE AND FIXTURE VOLTAGE

    SUBMITTALS FOR LIGHTING FIXTURES MOUNTED WITHIN ARCHITECTURAL COVES OR CASEWORK, VARIABLE LENGTH FIXTURES, AND FOR NON-STANDARD, OR CUSTOM FIXTURES, SHALL ALSO INCLUDE SCALED DRAWINGS SHOWING THE LAYOUT AND DIMENSIONS OF ALL FIXTURE COMPONENTS AND ACCESSORIES, THE METHOD OF INSTALLATION, AND A COMPLETE BILL OF MATERIALS.
11. LIGHTING FIXTURE SUBSTITUTION REQUESTS MUST BE SENT TO AND RECEIVED BY THE LIGHTING DESIGNER FOR REVIEW 14 DAYS PRIOR TO BID DATE. FAILURE TO SUBMIT WITHIN THIS DEADLINE SHALL CONSTITUTE A GUARANTEE THAT THE SPECIFIED FIXTURES WILL BE SUPPLIED. THE SUBMITTAL SHALL INCLUDE THE FOLLOWING:
    A. SIX HARD COPIES OF THE SUBMITTALS REQUIRED ABOVE FOR BOTH THE SPECIFIED FIXTURE AND THE PROPOSED SUBSTITUTION.
    B. ONE NON-RETURNABLE WORKING SAMPLE OF THE PROPOSED SUBSTITUTE FIXTURE WITH CORD & PLUG CONNECTION FOR 120 VOLT OPERATION, AND SPECIFIED LAMP(S).
    C. CONTRACTOR'S STATEMENT INDICATING THE EFFECT OF THE SUBSTITUTION ON THE CONSTRUCTION SCHEDULE COMPARED TO THE SCHEDULE WITHOUT THE APPROVAL OF THE PROPOSED SUBSTITUTION.
    D. CONTRACTOR'S CERTIFICATION STATING THAT THE PROPOSED SUBSTITUTION CONFORMS TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS IN EVERY RESPECT AND IS APPROPRIATE FOR THE APPLICATIONS INDICATED IN THE DOCUMENTS.
    E. CONTRACTOR'S CERTIFICATION STATING THAT ANY MODIFICATIONS TO ANY BUILDING SYSTEM OR EQUIPMENT THAT MAY RESULT FROM THE PROPOSED LIGHTING FIXTURE SUBSTITUTION WILL BE DESIGNED AND CONSTRUCTED AT THE CONTRACTOR'S EXPENSE.
    F. CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME THAT MAY BECOME NECESSARY SHOULD THE PROPOSED SUBSTITUTION FAIL TO PERFORM IN A MANNER THAT MATCHES THE SPECIFIED FIXTURE.
    G. CONTRACTOR-NET UNIT PRICE FOR THE SPECIFIED FIXTURE AND FOR THE PROPOSED SUBSTITUTE FIXTURE.

    THE LIGHTING DESIGNER SHALL BE REIMBURSED BY THE CONTRACTOR FOR ALL OF THE DESIGNER'S TIME ASSOCIATED WITH THE REVIEW OF THE PROPOSED FIXTURE SUBSTITUTION(S). PAYMENT SHALL BE MADE IN ADVANCE OF THE REVIEW, BASED ON THE DESIGNER'S ESTIMATE OF THE REQUIRED TIME. THE PAYMENT SHALL BE BASED ON THE DESIGNER'S STANDARD HOURLY RATES FOR THE PERSONNEL INVOLVED IN THE REVIEW.

SELECT DEFINITIONS:

1. CORRELATED COLOR TEMPERATURE (CCT): THE ABSOLUTE TEMPERATURE, MEASURED IN DEGREES KELVIN, OF A BLACKBODY RADIATOR HAVING CHROMATICITY RESEMBLING THAT OF AN ELECTRIC LIGHT SOURCE. FOR LED SOURCES CCT SHALL NOT DEVIATE FROM THE REFERENCE COLOR TEMPERATURE BY NO MORE THAN THREE MACADAM ELLIPSES, AS DEFINED BY NEMA/ANSI/ANSLG C38.377-2011
2. COLOR RENDERING INDEX (CRI): MEASURE OF COLOR SHIFT OBJECTS UNDERGO WHEN ILLUMINATED BY AN ELECTRIC LIGHT SOURCE AS COMPARED WITH THE COLOR OF THE SAME OBJECTS ILLUMINATED BY A REFERENCE SOURCE AT THE SAME COLOR TEMPERATURE. CRI VALUES FOR ELECTRIC LIGHT SOURCES RANGE FROM APPROXIMATELY 20 (LOW PRESSURE SODIUM) TO 99 (HALOGEN). CRI VALUES FOR LED SOURCES SHALL BE MEASURED AFTER 6000 HOURS AND SHALL NOT DEVIATE MORE THAN 3 POINTS FROM THE RATED VALUE.
3. LED LIGHT ENGINE: THE COMBINED LED LIGHT SOURCE AND ITS ASSOCIATED ELECTRONIC DRIVER. THE LED LIGHT ENGINE MAY HAVE AN INTEGRAL DRIVER OR THE DRIVER MAY BE HOUSED IN A SEPARATE ENCLOSURE.
4. LED DRIVER: CONTROL DEVICE THAT MAINTAINS CONSTANT AMOUNT OF CURRENT TO THE LED LIGHT SOURCE. LED DRIVERS GENERALLY OPERATE AT 12VDC OR 24VDC. SOME DRIVERS ARE DESIGNED TO ACCEPT BRANCH CIRCUIT VOLTAGE RANGING FROM 120VAC THROUGH 277VAC OR MAY REQUIRE A SEPARATE TRANSFORMER.
5. TRANSFORMER: ELECTROMAGNETIC OR ELECTRONIC DEVICE THAT STEPS DOWN PRIMARY VOLTAGE TO A LOWER SECONDARY VOLTAGE. GENERALLY SECONDARY VOLTAGE WILL BE 12V OR 24V
6. DIMMING: THE REDUCTION OF LIGHT INTENSITY OF A LIGHT SOURCE. ALL SOURCES SHALL HAVE A SMOOTH, FLICKER-FREE AND CONTINUOUS DIMMING CURVE FROM FULL-OFF TO 100% OUTPUT. LED SOURCES MAY BE DIMMED BY EITHER CONSTANT CURRENT REDUCTION (CCR) OR BY PULSE WIDTH MODULATION (PWM) DIMMING FOR CONSTANT CURRENT DRIVERS.
7. RATED LUMEN MAINTENANCE LIFE: THE ELAPSED OPERATING TIME OVER WHICH AN LED LIGHT SOURCE WILL MAINTAIN THE PERCENTAGE OF ITS INITIAL LUMEN OUTPUT
   L70: TIME, IN HOURS, TO 70% LUMEN MAINTENANCE
   L50: TIME, IN HOURS, TO 50% LUMEN MAINTENANCE

BUCH PROPERTIES COLUMBIA, MD						TLP PROJECT NUMBER: 14134		TLP ISSUE DATE: 12/18/2014
LIGHTING FIXTURE SCHEDULE								
TYPE	MTG.	DESCRIPTION	LAMPING QTY.	LAMPING LAMP DESIGNATION	LOAD (VA)	VOLTS	MANUFACTURER	CATALOG NUMBER
DL1	WALL	LED STEPLIGHT MOUNTED IN WALL AROUND POOL AREA	–	3000K WHITE LED	2	120	BEGA	1323LED–(FINISH)
DL2	WALL	LED STEPLIGHT MOUNTED IN WALL AT ENTRY DRIVE BRIDGE	–	3000K WHITE LED	28	120–277	BEGA	2263LED–(FINISH)
ML1	IN-GRADE	LED IN-GRADE UPLIGHT FOR STATUE AND FLAGS	–	3000K WHITE LED	19	120–277	HYDREL	M9710–SS–18LED–WHT30K–MVOLT–WFL–FLC–LP–(FINISH)
ML17	BOLLARD	LED SHORT MARKER STYLE BOLLARD	–	3000K WHITE LED	3	120	SISTEMALUX	L8875–(FINISH)
ML18	BOLLARD	LED ROAD AND SIDEWALK BOLLARD	–	4000K WHITE LED	22	120–277	FORMS+SURFACES	LBTAN–LED
ML19	BOLLARD	LED PATHWAY STYLE BOLLARD	–	3000K WHITE LED	27	120–277	BEGA	7792LED–(FINISH) + 896A
PL1	POLE	LED DOUBLE-HEADED POLE MOUNTED FLOODLIGHTS	–	3000K WHITE LED	54	120–277	SELUX	OLML–FW–C2–L27–830–(FINISH)–(VOLT) + 0–AT524–14–(FINISH)–BC3
PL2	POLE	LED PARKING AREA AND ROADWAY POLE MOUNTED AREA LIGHT	–	3000K WHITE LED	45	120–277	LITHONIA	DSXOLED–20C–700–30K–T3M–MVOLT–RPA–(FINISH) + RSA–164C–DM19AS–FBC–(FINISH)

CALCULATION NOTES:

- VALUES REPORTED HERE ARE CALCULATED AVERAGE MAINTAINED ILLUMINANCE LEVELS AT GRADE AND ATTEMPT TO ACCOUNT FOR LIGHT LOSS FACTORS, INCLUDING BUT NOT LIMITED TO LAMP LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION.
- TREE LIGHTING, DECORATIVE PENDANTS, AND LIT HANDRAIL ARE NOT INCLUDED.
- PHOTOMETRIC DATA FOR ALL LUMINAIRES IS SOURCED FROM THE LUMINAIRE MANUFACTURER. WHERE POSSIBLE, THE DESIGNER HAS USED ACTUAL PHOTOMETRIC DATA, AS TESTED BY AN INDEPENDENT TESTING LABORATORY. IN THE EVENT ACTUAL PHOTOMETRIC TEST DATA WAS UNAVAILABLE, VIRTUAL PHOTOMETRIC FILES PRODUCED USING INDUSTRY STANDARD SOFTWARE (I.E., PHOTOPIA) HAVE BEEN USED TO PROVIDE AN APPROXIMATION OF EXPECTED ILLUMINANCE LEVELS.
- ACTUAL PHOTOMETRIC DATA IS COLLECTED IN A LABORATORY ENVIRONMENT, UNDER CONTROLLED CONDITIONS. LUMINAIRE PERFORMANCE MAY BE ADVERSELY AFFECTED DUE TO AMBIENT TEMPERATURE, HUMIDITY LEVELS, MAINTENANCE/CLEANING SCHEDULES, ETC.
- WHEN PHOTOMETRY IS UNAVAILABLE FOR A SPECIFIED LUMINAIRE, THE DESIGNER HAS USED PHOTOMETRY FOR A COMPARABLE LUMINAIRE TO APPROXIMATE ILLUMINANCE VALUES.
- LIGHTING CALCULATIONS DO NOT TAKE INTO CONSIDERATION ADDITIONAL LANDSCAPE ITEMS THAT MAY IMPACT ILLUMINANCE LEVELS. ADDITIONAL ITEMS INCLUDE TREES, SHRUBS, PLANTINGS.
- CONTRIBUTION FROM DAYLIGHT OR MOONLIGHT IS NOT INCLUDED IN THIS CALCULATION.

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

LIGHTING PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
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5TH ELECTION DISTRICT

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STATE OF MARYLAND
MATTHEW ALAN D'AMICO
1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY: BR
DRAWN BY: ECC
CHECKED BY: BR
DATE: APRIL 2016
SCALE: 1"=40'-0"
W.O. NO.: 12-50.00

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LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

21 SHEET OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8-9-16
DIRECTOR — DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

Michael L. Buch — 4.20.16
SIGNATURE OF DEVELOPER — DATE

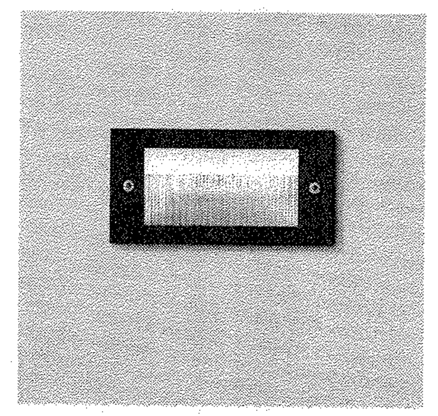
SDP-15-044

Recessed wall luminaires · LED

Housing: Constructed of die-cast and extruded aluminum with integral wiring compartment. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.
Enclosure: One piece die-cast aluminum faceplate; ⅛" thick, tempered glass, linear prismatic spread lens with translucent white ceramic mask. Faceplate is secured by two (2) socket head, stainless steel captive screws threaded into stainless steel inserts in the housing casting. Reflector is specular anodized aluminum. Continuous high temperature O-ring gasket for weather tight operation.
Electrical: 1.1W LED luminaire, 1.9 total system watts, -10° C start temperature. Integral 120V only electronic LED driver, dimming not available. The LED and driver are mounted on a removable plate for easy replacement. Standard LED color temperature is 3000K (available in 4000K; add suffix K4). Through Wiring: Maximum four (4) No. 12 AWG conductors (plus ground) suitable for 75°C. Provided with ½" NPT threaded conduit entries.
Note: Due to the dynamic nature of LED technology, LED luminaire data in this catalog is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.
Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.
UL listed for US and Canadian Standards, suitable for wet locations and for installation within 3 feet of ground. Type non-IC. Protection class: IP64.

Luminaire Lumens: 37
Tested in accordance with LM-79-08

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

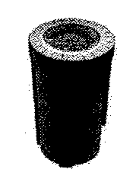


Recessed luminaires · faceplate die-cast aluminum

	Lamp	A	B	C
1323LED	1.1W LED	5	2½	4

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com
©copyright BEGA-US 2014 Updated 06/14

the lighting practice
Catalog No: 1323LED-(FINISH)
Lamp Type: 3000K WHITE LEDS BY MANUFACTURER
Date:12/17/2014
Fixture Type:
DL1
Page: 1 of 1



M9710/M9730
19W LED Monochromatic Modular In-Grade Luminaire Single Lens

CATALOG NUMBER
NOTES
TYPE

IP68

DESCRIPTION
Hydrel's M9710/M9730 Series modular in-grade lights are multi-purpose units designed for uplighting of architectural and landscape features. These units can be flushed mounted into a variety of substrates or landscape materials.
The M9710/M9730 consists of a factory-sealed lamp module and encapsulated power module. The components are secured inside a heavy-duty polymer rough-in housing designed with channeled convective cooling, an integral junction box, and finish door trim assembly.

ORDERING INFORMATION — EXAMPLE: M9710 A 18LED WHT41K 120 NSP FLC 34B IHL LP BL

Notes: Suitable For Wet Locations

HYDREL 20660 Nordhoff St., Suite B • Chatsworth, CA 91311 • www.hydrel.com ©2014 Acuity Brands Lighting, Inc. M9710_M9730_LED_MONO

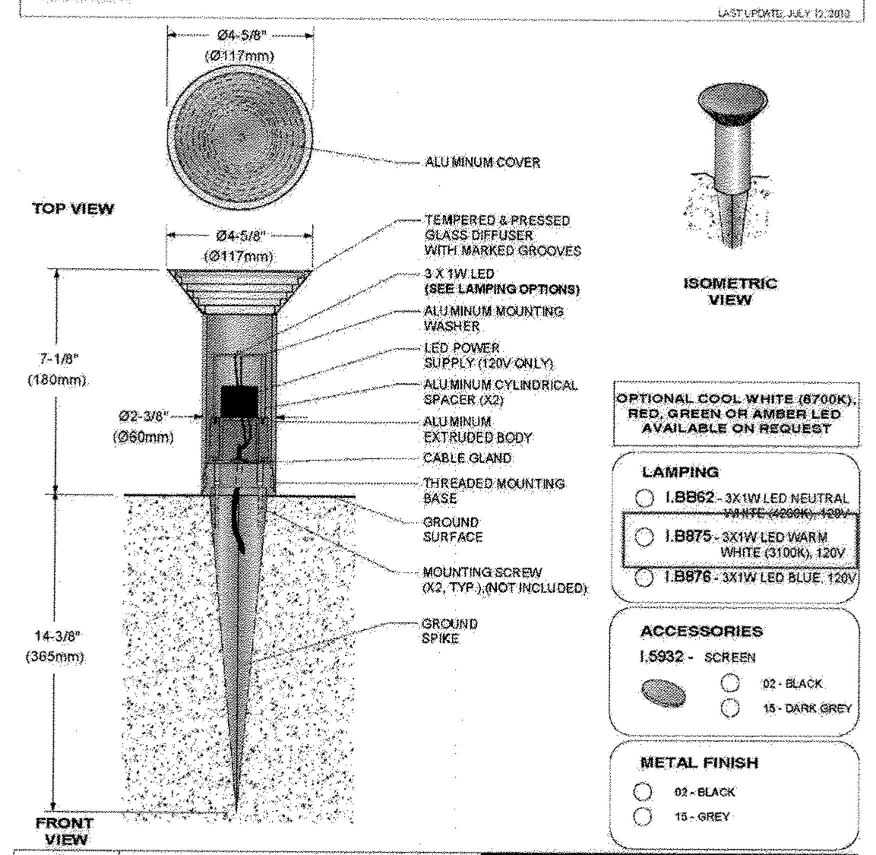
the lighting practice
Catalog No: M9710-SS-18LED-WHT30K-MVOLT-WFL-FLC-LP-(FINISH)
Lamp Type: 3000K WHITE LED BY MANUFACTURER
Date:12/17/2014
Fixture Type:
ML1
Page: 1 of 2

iGuzzini NORTH AMERICA — SPECIFICATION SHEET

TEE ON STICK # I.B - 120 -
LAMPING: 3 X 1W LED, 120V (SEE LAMPING OPTIONS)
PROJECT NAME:
TYPE: QTY.:

TEE on stick is an outdoor fixture for ground mounting. A simple design composed of extruded aluminum body with a pressed glass diffuser allows for an attractive light and shade effect.

LAST UPDATE: JULY 12, 2013



OPTIONAL COOL WHITE (6700K), RED, GREEN OR AMBER LED AVAILABLE ON REQUEST

LAMPING
I.B862 - 3X1W LED NEUTRAL WHITE (4200K), 120V
I.B875 - 3X1W LED WARM WHITE (3100K), 120V
I.B876 - 3X1W LED BLUE, 120V

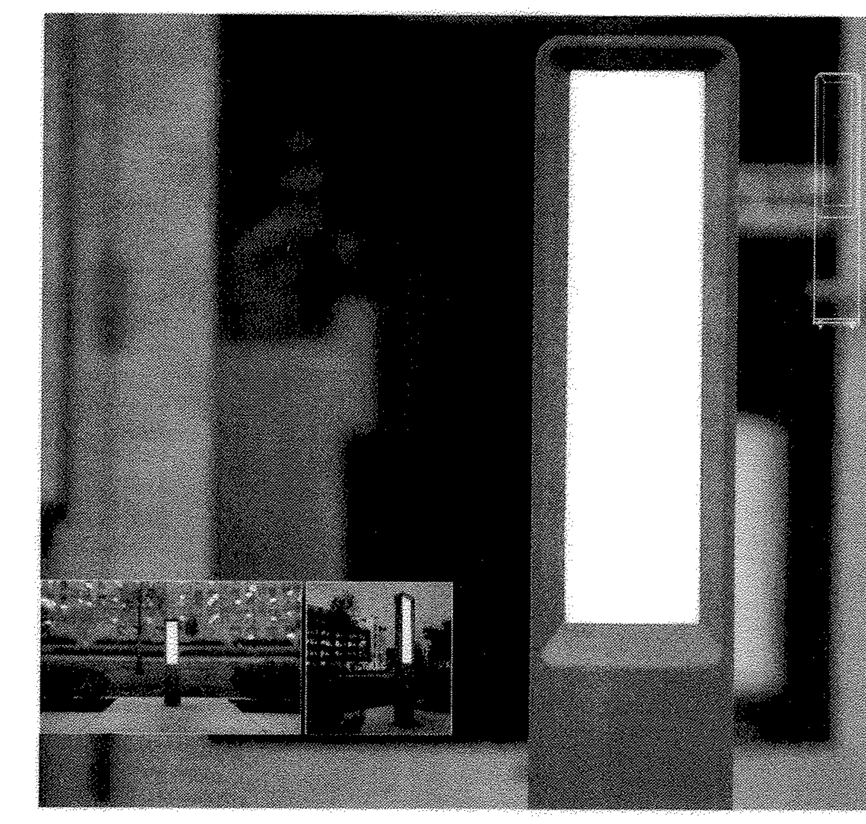
ACCESSORIES
I.5932 - SCREEN — 02 - BLACK; 15 - DARK GREY

METAL FINISH
02 - BLACK
15 - GREY

5455 de Gaspé suite 100, Montréal (Québec) Canada H2T 3B3 P.: 514.523.1339 F.: 514.525.6107 — SISTEMALUX — TEE ON STICK

the lighting practice
Catalog No: I.B875-(FINISH)
Lamp Type: 3000K WHITE LED BY MANUFACTURER
Date:12/17/2014
Fixture Type:
ML17
Page: 1 of 1

TANGENT™ BOLLARD



FORMS+SURFACES®

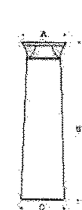
the lighting practice
Catalog No: LBTAN-LED
Lamp Type: 4000K WHITE LED BY MANUFACTURER
Date:12/17/2014
Fixture Type:
ML18
Page: 1 of 3

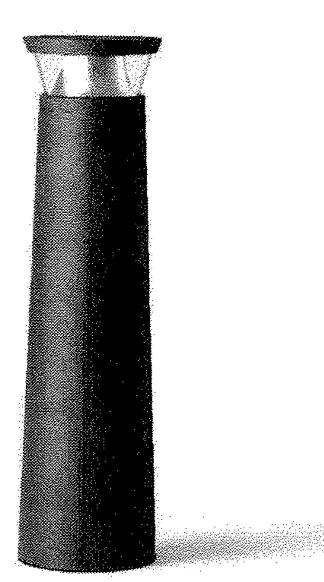
LED bollard with 360° light distribution

Post construction: One piece aluminum body with a one piece die-cast aluminum top housing and a base internally welded into an assembly. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.
Lamp enclosure: Heavy walled, die-cast aluminum cap secured interally inside bollard post. Clear 1/4" thick borosilicate glass with pure anodized reflector. Fully gasketed for weather tight operation using molded silicone rubber gaskets.
Electrical: 26.4W LED luminaire, 31 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an >80 CRI. Available in 4000K (>80 CRI); add suffix K4 to order.
Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.
Anchor base: Heavy cast aluminum, slotted for precise alignment. Mounts to BEGA #895A anchorage kit. Bollards are secured to the post with one (1) stainless steel set screw.
Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.
UL listed for US and Canadian Standards, suitable for wet locations. Protection class: IP66.
Weight: 20.9 lbs.

Luminaire Lumens: 1819

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:



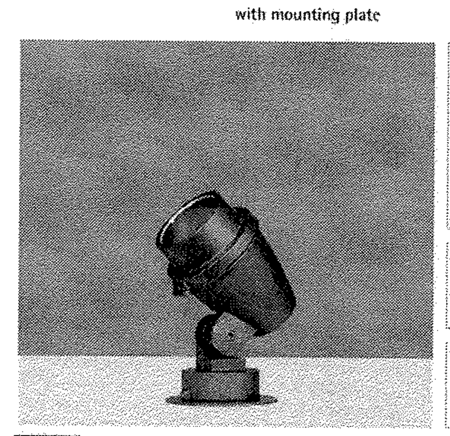


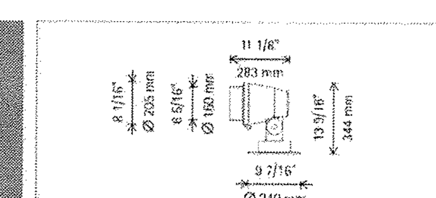
	Lamp	A	B	C	Anchorage
7792LED	26.4W LED	8½	31⅛	8⅛	896A

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com
©copyright BEGA-LS 2014 Updated 10/14

the lighting practice
Catalog No: 7792LED-(FINISH) + 896A
Lamp Type: 3000K WHITE LED BY MANUFACTURER
Date: 12/17/2014
Fixture Type:
ML19
Page: 1 of 1

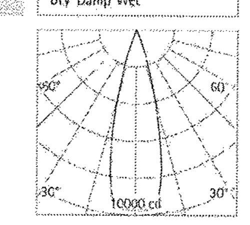
ERCO
Beamer Projector
with mounting plate





LED
Outdoor
Dry Damp Wet

34404.023 Graphit m
LED 36W 3600lm 3000K warm white
Switchable
Version 4
Connected load 41W
Spherolit lens, flood



LED 36W 3600lm 3000K warm white

h(ft)	E(fc)	D 27°
6	269	2'11"
12	67	5'9"
18	30	8'8"
24	17	11'6"
30	11	14'5"

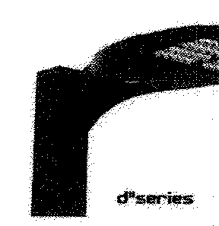
Product description
Housing and hinge: corrosion-resistant, cast aluminum, No-rinse surface treatment, Double powder-coated. Optimized surface for reduced accumulation of dirt. Hinge with internal wiring, 120° tilt. Luminaire rotatable through 240°. Graduated disc and mounting plate: corrosion-resistant aluminum.
Electronic control gear 120V/277V, 60Hz. 2 cable entries. Through-wiring possible. 3-pole terminal block.
LED module: high-power LEDs on metal-core PCB. SDCM<2. CRI>90. L80/B10 50000h. Collimating lens made of optical polymer.
Screw-mounted snoot with safety glass: corrosion-resistant cast aluminum, double powder-coated. Without spill light.
Suitable for wet location (IP65): dust-proof and water jet-proof.
Weight 17.42lbs / 7.90kg
Maximum wind load area 0.85ft² / 0.06m²

ERCO Lighting Inc.
160 Raritan Center Parkway
Suite 10
Edison, NJ 08837
USA
Tel.: +1 732 225 8856
Fax: +1 732 225 8857
info.us@erco.com

Technical region: 120V/60Hz, 277V/60Hz
We reserve the right to make technical and design changes.
Edition: 06.11.2014
Current version under www.erco.com/34404.023

1/4

the lighting practice
Catalog No: ERCO: (2) 34404.023-(FINISH) + ERCO: (2) 34953.000-(FINISH) + VALMONT: DS340-R300V140-D2-(FINISH)
Lamp Type: 3000K WHITE LEDS BY MANUFACTURER
Date:02/16/2015
Fixture Type:
PL1
Page: 1 of 5



D-Series Size 0
LED Area Luminaire

d"series

Catalog Number
Notes
Type

Specifications
EPA: 0.8 ft²
Length: 26"
Width: 13"
Height: 7"
Weight (max): 16 lbs

Introduction
The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment.
The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information — EXAMPLE: DSX0 LED 40C 1000 40K T3M MVOLT SPA DDBXD

Drilling — Accessories — Tenon Mounting Slipfitter — NOTES

LITHONIA LIGHTING One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com © 2011-2014 Acuity Brands Lighting, Inc. All rights reserved.

the lighting practice
Catalog No: DSX0LED-20C-700-30K-T3M-MVOLT-RPA-(FINISH) + RSA-164C-DM19AS-FBC-(FINISH)
Lamp Type: 3000K WHITE LEDS BY MANUFACTURER
Date:12/17/2014
Fixture Type:
PL2
Page: 1 of 5

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	5.17.16 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	8.9.16 DATE
DIRECTOR	8-10-16 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — 4.20.16 DATE

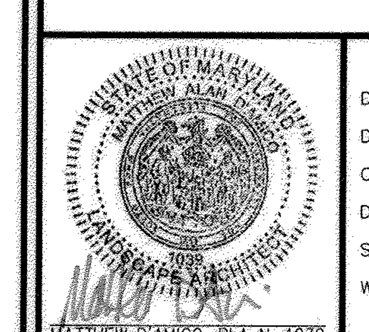
OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN
LIGHTING SPECS

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)
TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DESIGN COLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300 BALTIMORE, MARYLAND 21202 T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100 DURHAM, NORTH CAROLINA 27701 T: 919.381.9322 F: 919.381.9323



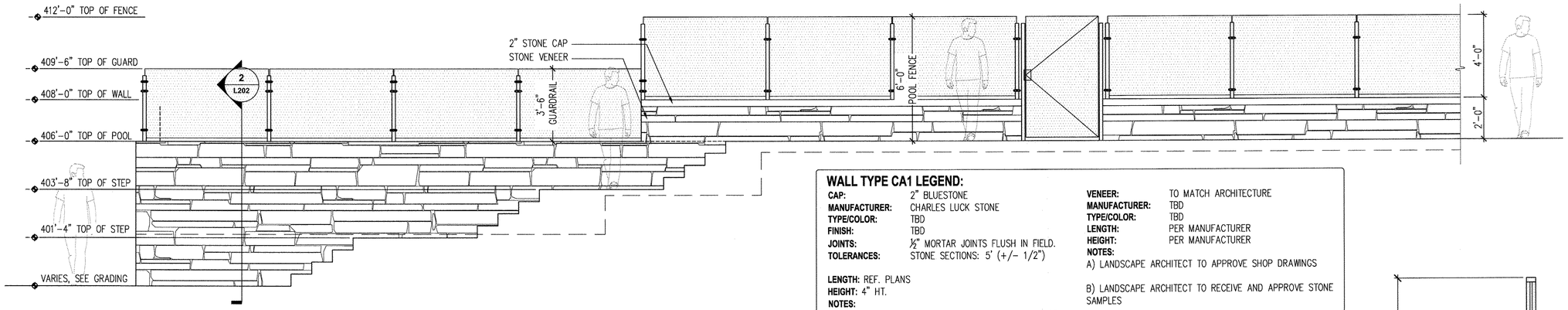
MATTHEW D'AMICO, RLA No.1039

DESIGN BY: BR
DRAWN BY: ECC
CHECKED BY: BR
DATE: APRIL 2016
SCALE: N.A.
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 1039 EXPIRATION DATE: 06-12-2016

22 SHEET OF 44

SDP-15-044



1 WALL TYPE CA1 ELEVATION

3/8" = 1'-0"

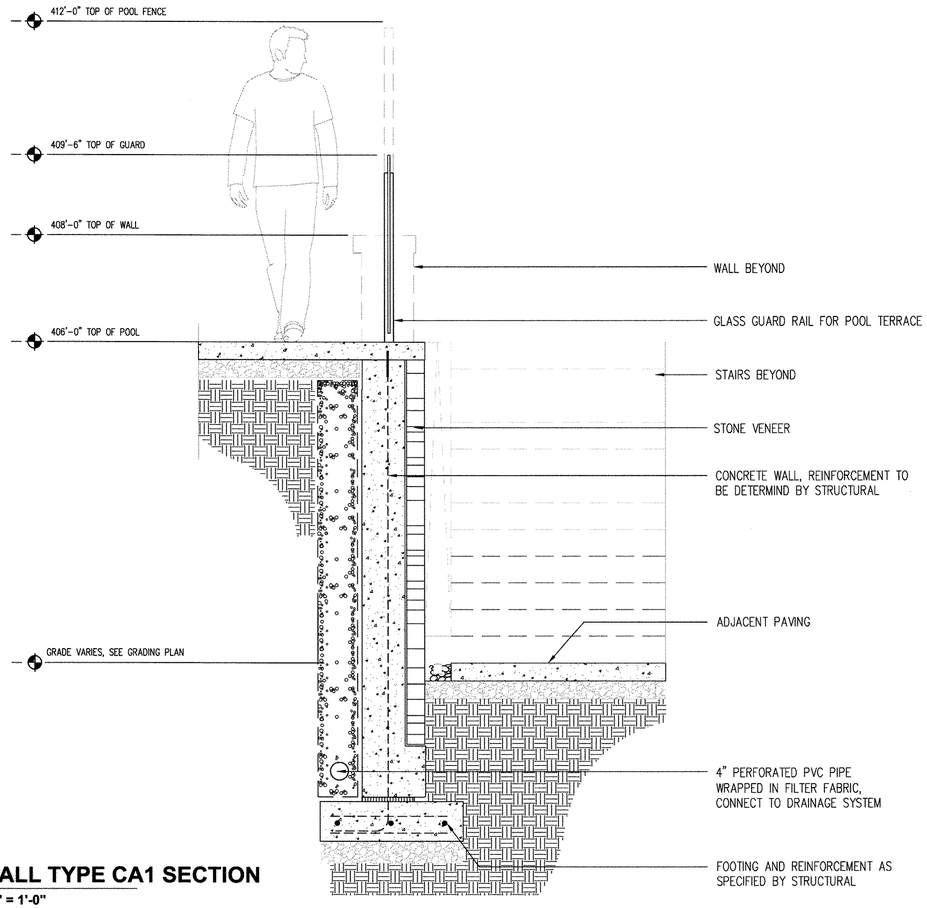
WALL TYPE CA1 LEGEND:

CAP: 2" BLUESTONE
MANUFACTURER: CHARLES LUCK STONE
TYPE/COLOR: TBD
FINISH: TBD
JOINTS: ½" MORTAR JOINTS FLUSH IN FIELD.
TOLERANCES: STONE SECTIONS: 5' (+/- 1/2")

LENGTH: REF. PLANS
HEIGHT: 4" HT.
NOTES:
A) LANDSCAPE ARCHITECT TO APPROVE SHOP DRAWINGS

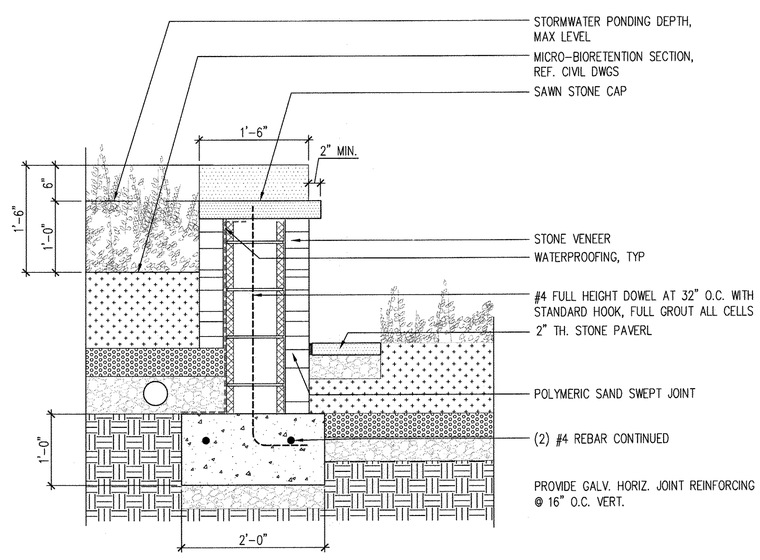
VENEER: TO MATCH ARCHITECTURE
MANUFACTURER: TBD
TYPE/COLOR: TBD
LENGTH: PER MANUFACTURER
HEIGHT: PER MANUFACTURER
NOTES:
A) LANDSCAPE ARCHITECT TO APPROVE SHOP DRAWINGS

B) LANDSCAPE ARCHITECT TO RECEIVE AND APPROVE STONE SAMPLES



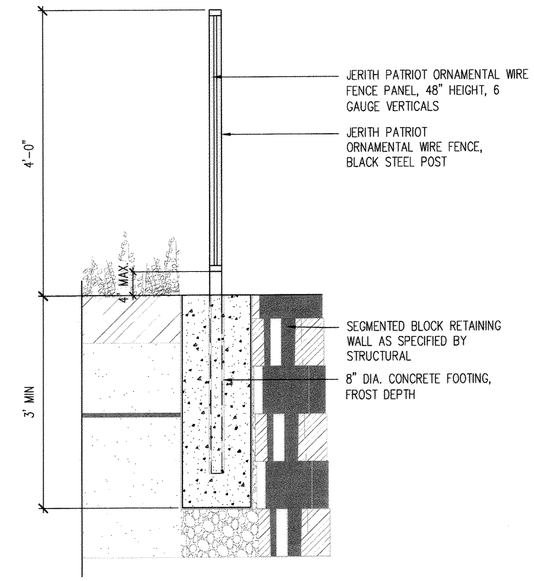
2 WALL TYPE CA1 SECTION

3/4" = 1'-0"



3 MICROBIORETENTION RETAINING WALL TYP

1" = 1'-0"



4 FENCE AT SEGMENTED BLOCK WALL

1" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

WALL DETAILS

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
603 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

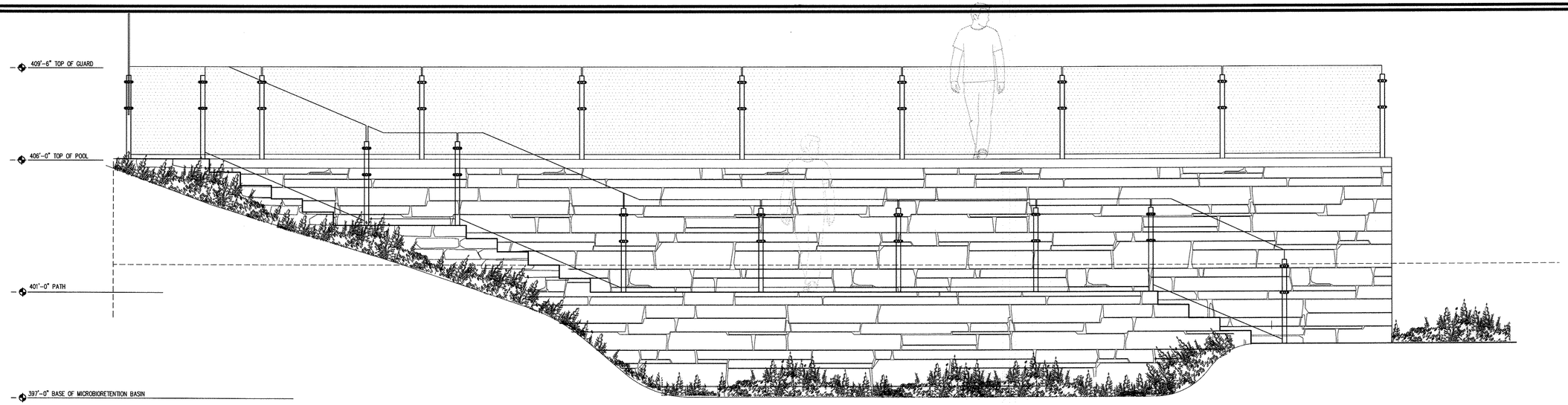
STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

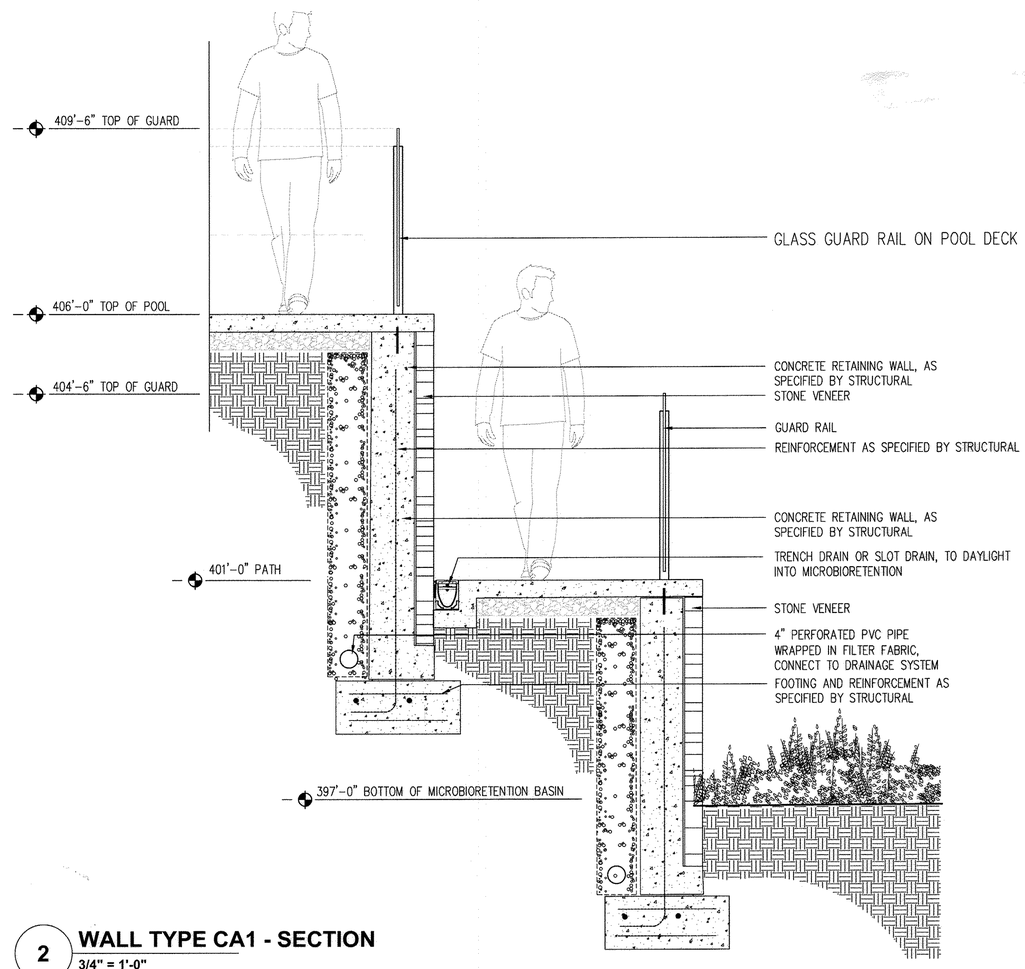
PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044



1 **WALL TYPE CA1 - ELEVATION**
1/2" = 1'-0"



2 **WALL TYPE CA1 - SECTION**
3/4" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN
WALL DETAILS

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGN COLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

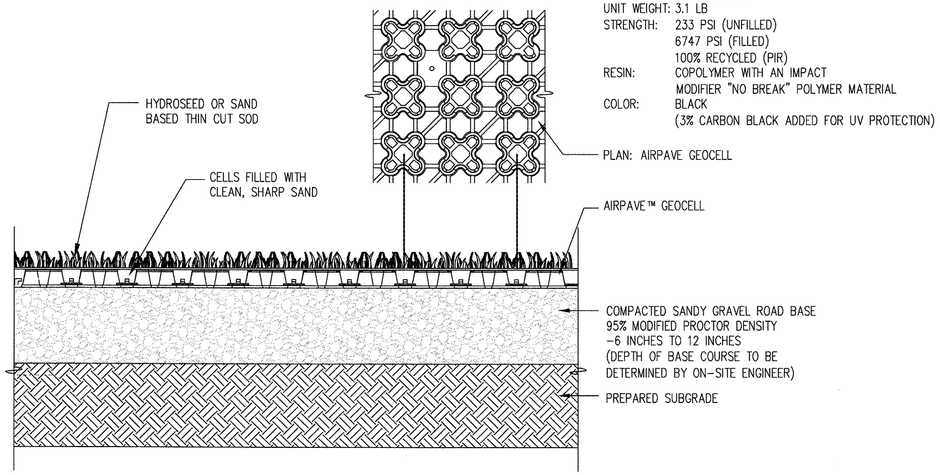
STATE OF MARYLAND
MATTHEW D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	N.A.
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

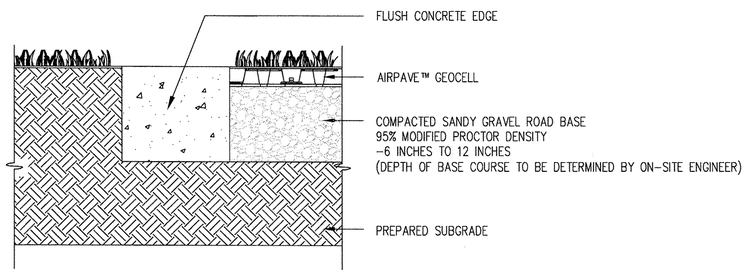
SHEET 24 OF 44

SDP-15-044



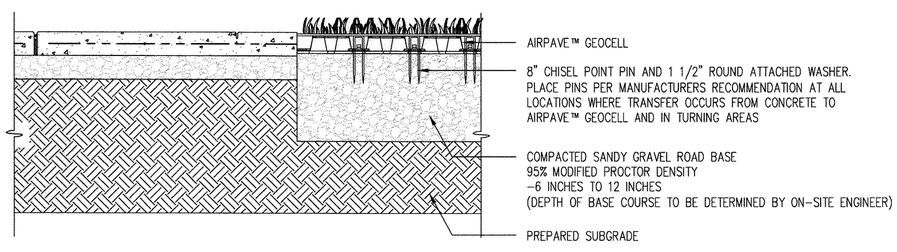
1 FIRELANE (GRASS PAVE)

1" = 1'-0"



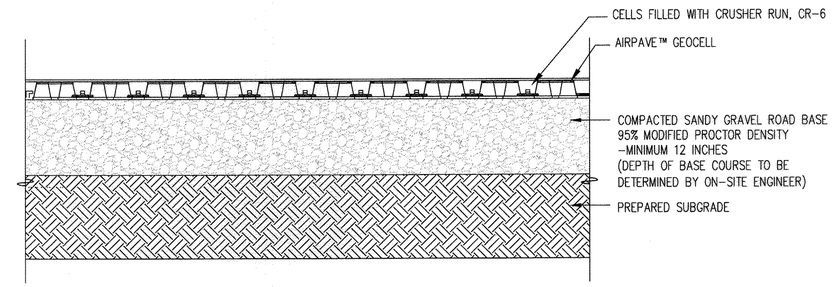
2 FIRELANE (GRASS PAVE EDGE)

1" = 1'-0"



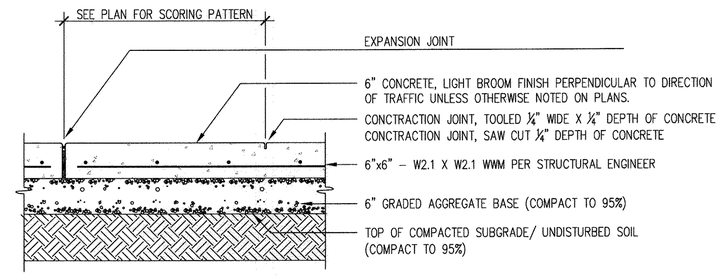
3 FIRELANE (GRASS PAVE - GRASS TO CONC. TRANSFER)

1" = 1'-0"



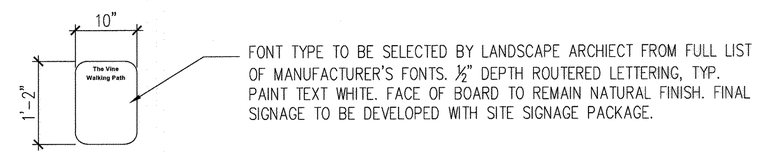
4 FIRELANE (EMERGENCY SECONDARY ACCESS)

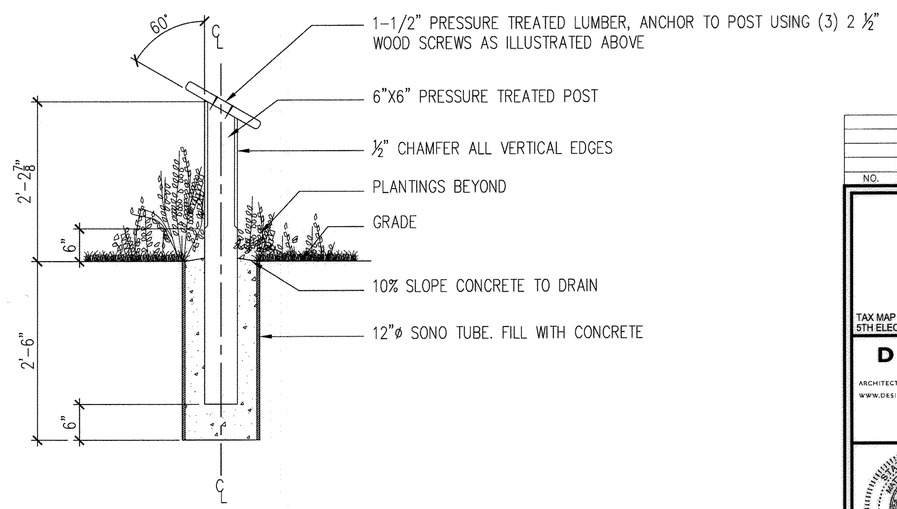
1" = 1'-0"



5 CONCRETE (VEHICULAR SECTION)

1" = 1'-0"





6 TRAIL SIGNAGE

1" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

FIRE LANE DETAILS

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
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BALTIMORE, MARYLAND 21202
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312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

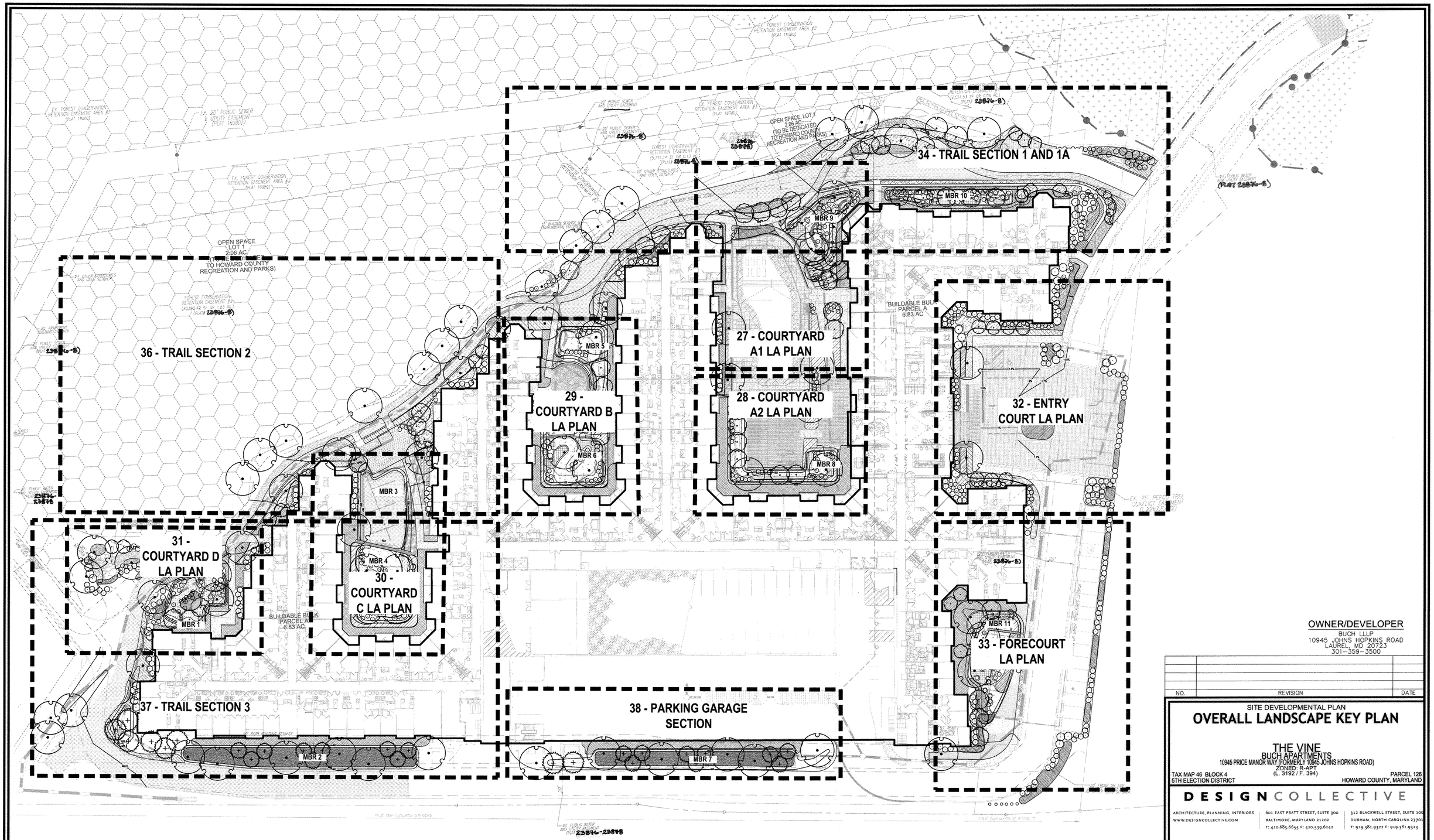
STATE OF MARYLAND
MATTHEW D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	AS NOTED
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 25 OF 44

SDP-15-044



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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Michael J. Buch — SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

OVERALL LANDSCAPE KEY PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
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312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

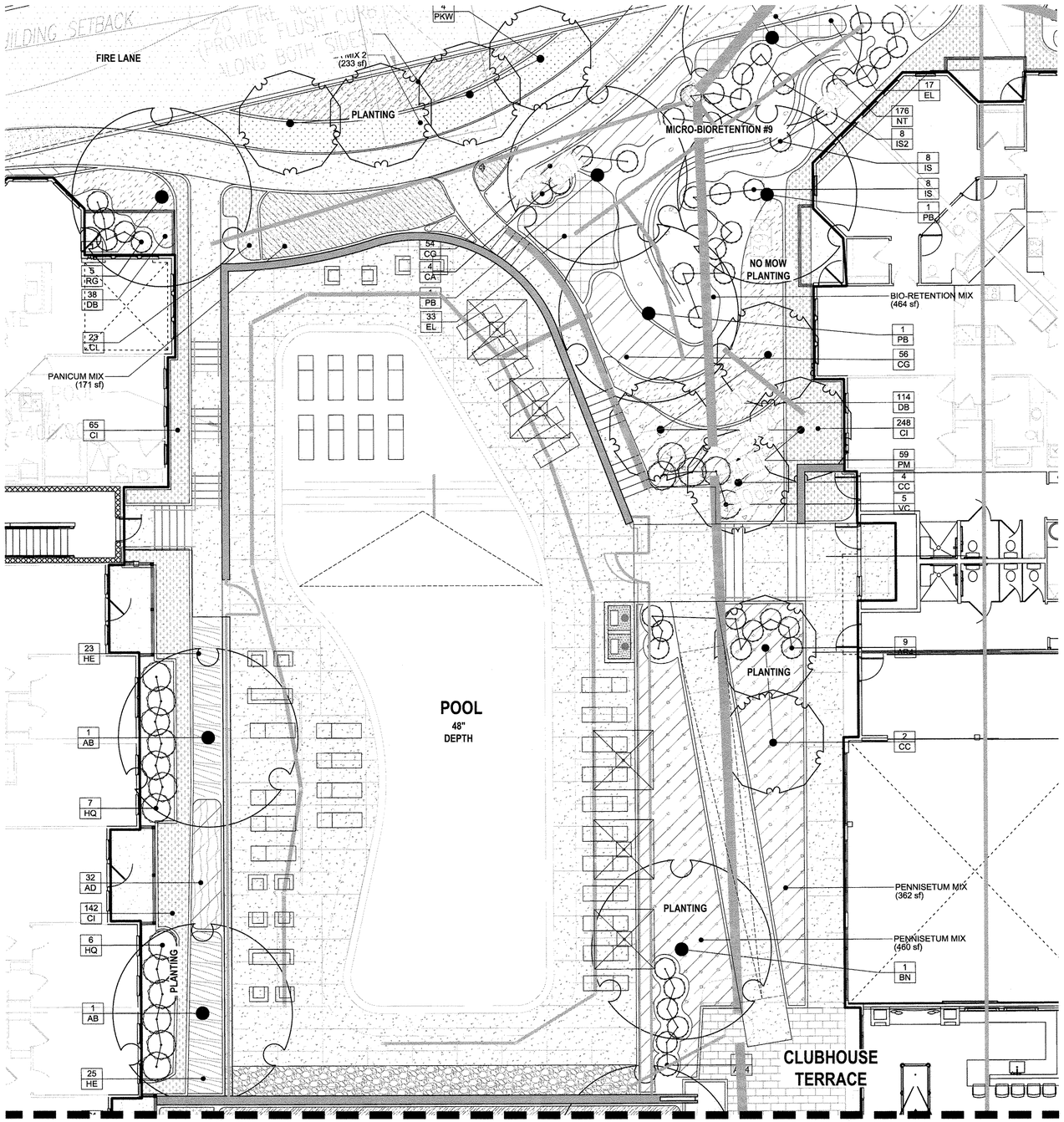
STATE OF MARYLAND — MATTHEW ALAN D'AMICO — No. 1039 — LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=30'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 26 OF 44

SDP-15-044



MATCHLINE - SEE SHEET 28

PLANT SCHEDULE COURTYARD A1

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	REMARKS
AB	3	Acer rubrum `Bowhall Red`	Red Maple	4" cal.	
BN	1	Betula nigra `Cully` TM	Heritage Birch	4" cal.	Single Stem
CC	6	Cercis canadensis	Eastern Redbud	2.5" cal.	
PB	4	Platanus x acerifolia `Bloodgood`	London Plane Tree	4" cal.	
PKW	4	Prunus serrulata `Kwanzan`	Flowering Cherry	2.5" cal.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
AR4	15	Abelia x grandiflora `Rose Creek`	Rose Creek Abelia	5 gal	36" o.c.	
CA	4	Clethra alnifolia	Summersweet Clethra	5 gal	36" o.c.	
HQ	13	Hydrangea quercifolia	Oakleaf Hydrangea	7 gal	48" o.c.	
IS2	8	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.	
IS	16	Ilex verticillata `Sparkleberry`	Winterberry	5 gal	36" o.c.	
RG	5	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	5 gal	48" o.c.	
VC	5	Viburnum carlesii	Korean Spice Viburnum	7 gal	48" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	REMARKS
AD	32	Astilbe x arendsii `Deutschland`	Deutschland False Spiraea	1 gal	18" o.c.	
CI	478	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
CG	110	Chelone glabra	White Turtle-head	1 qt	18" o.c.	
DB	152	Dryopteris erythrosora `Brilliance`	Autumn Fern	1 qt	18" o.c.	
EL	50	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt	24" o.c.	
HE	48	Hosta x `Elegans`	Plantain Lily	1 gal	24" o.c.	
NT	181	Nassella tenuissima	Texas Needle Grass	1 qt	18" o.c.	
PM	59	Pycnanthemum muticum	Clustered Mountainmint	1 qt	24" o.c.	

CONCEPT PLANT SCHEDULE COURTYARD A1

BIO-RETENTION MIX	464 sf	
Asclepias incarnata / Swamp Milkweed	43	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	65	30% @ 18" oc
Iris versicolor / Blue Flag	65	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	43	20% @ 18" oc
NASELLA MIX 2	233 sf	
Echinacea purpurea `Magnus` / Magnus Purple Coneflower	20	25% @ 21" oc
Nassella tenuissima / Texas Needle Grass	81	75% @ 18" oc
PANICUM MIX	186 sf	
Panicum virgatum `Shenendoah` / Burgundy Switch Grass	24	75% @ 30" oc
Solidago rugosa `Fireworks` / Wrinkleleaf Goldenrod	22	25% @ 18" oc
PENNISETUM MIX	1,745 sf	
Allium giganteum / Giant Allium	202	25% @ 18" oc
Pennisetum alopecuroides `Karlay Rose` / Fountain Grass	341	75% @ 24" oc
PYCNANTHEMUM MIX	164 sf	
Actaea racemosa / Black Cohosh	19	25% @ 18" oc
Pycnanthemum muticum / Clustered Mountainmint	57	75% @ 18" oc

NOTE:
FOR ALL TREE LOCATIONS, ALSO SEE SHEET 18.

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.
2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.
3. FOR COMPLETE PLANT SCHEDULE, PLEASE SEE SHEET 39.
4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

N

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

COURTYARD A1 LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW D. AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY: BR
DRAWN BY: ECC
CHECKED BY: BR
DATE: APRIL 2016
SCALE: 1"=1'-0"
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

27 SHEET OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

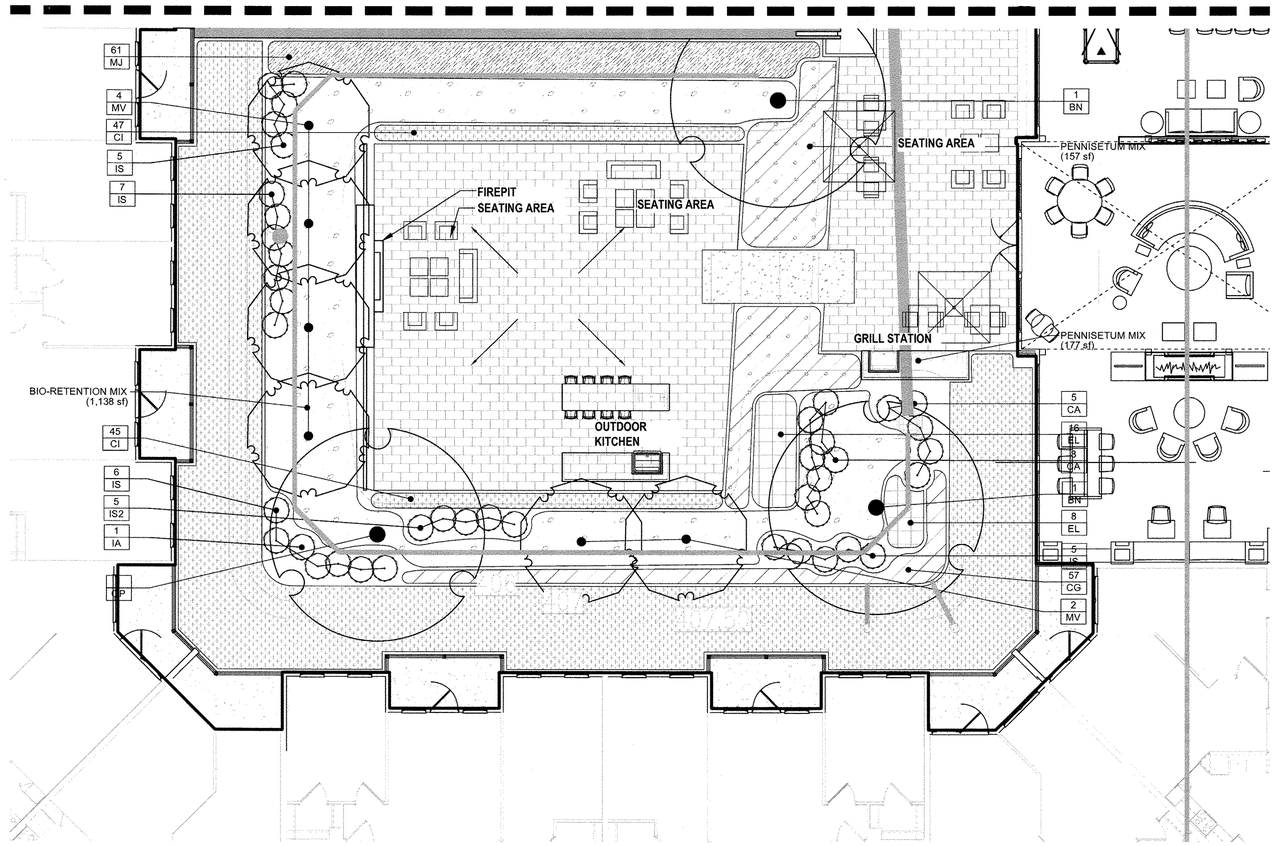
DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

SDP-15-044

MATCHLINE - SEE SHEET 27



PLANT SCHEDULE COURTYARD A2

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT		REMARKS
BN	2	Betula nigra `Cully` TM	Heritage Birch	4" cal.		Single Stem
MV	6	Magnolia virginiana	Sweet Bay	10` ht.		
QP	1	Quercus palustris	Pin Oak	4" cal.		
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**REMARKS**
CA	13	Clethra alnifolia	Summersweet Clethra	5 gal	36" o.c.	
IS2	5	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.	
IA	1	Ilex verticillata `Apollo`	Winterberry	5 gal	36" o.c.	
IS	23	Ilex verticillata `Sparkleberry`	Winterberry	5 gal	36" o.c.	
GROUND COVERS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**SPACING**	**REMARKS**
CI	1,139	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
CG	57	Chelone glabra	White Turtle-head	1 qt	18" o.c.	
EL	24	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt	24" o.c.	
MJ	61	Monarda didyma `Jacob Cline`	Jacob Cline Bee Balm	1 gal	24" o.c.	

CONCEPT PLANT SCHEDULE COURTYARD A2

BIO-RETENTION MIX	1,138 sf	
Asclepias incarnata / Swamp Milkweed	106	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	158	30% @ 18" oc
Iris versicolor / Blue Flag	158	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	106	20% @ 18" oc
PENNISETUM MIX	335 sf	
Allium giganteum / Giant Allium	39	25% @ 18" oc
Pennisetum alopecuroides `Karlay Rose` / Fountain Grass	66	75% @ 24" oc

NOTE:
FOR ALL TREE LOCATIONS, SEE SHEET 18.

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

COURTYARD A2 LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE

ARCHITECTURE, PLANNING, INTERIORS
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DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1/8"=1'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 28 OF 44

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.
2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.
3. FOR COMPLETE SITE PLANT SCHEDULE, PLEASE SEE SHEET 39.
4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

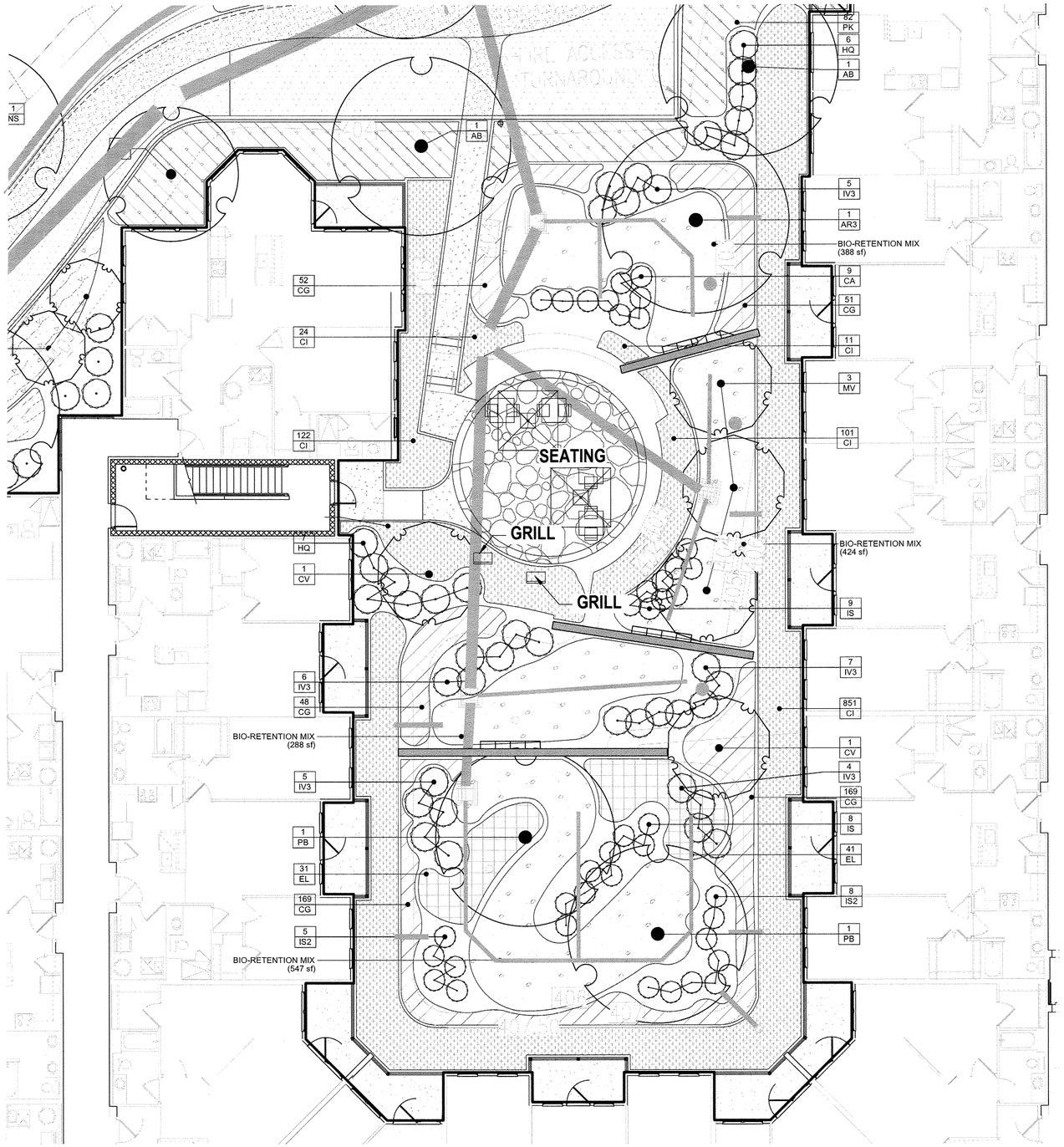
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

SDP-15-044



PLANT SCHEDULE COURTYARD B

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT		REMARKS
AR3	1	Acer rubrum	Red Maple	4" cal.		
AB	2	Acer rubrum `Bowhall Red`	Red Maple	4" cal.		
CV	2	Crataegus viridis `Winter King`	`Winter King` Hawthorn	2.5" cal.		
MV	3	Magnolia virginiana	Sweet Bay	10` ht.		
PB	2	Platanus x acerifolia `Bloodgood`	London Plane Tree	4" cal.		
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**REMARKS**
CA	9	Clethra alnifolia	Summersweet Clethra	5 gal	36" o.c.	
HQ	13	Hydrangea quercifolia	Oakleaf Hydrangea	7 gal	48" o.c.	
IS2	13	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.	
IA	1	Ilex verticillata `Apollo`	Winterberry	5 gal	36" o.c.	
IS	17	Ilex verticillata `Sparkleberry`	Winterberry	5 gal	36" o.c.	
IV3	27	Itea virginica	Virginia Willow	5 gal	48" o.c.	
GROUND COVERS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**SPACING**	**REMARKS**
CI	1,227	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
CG	320	Chelone glabra	White Turtle-head	1 qt	18" o.c.	
EL	72	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt	24" o.c.	
PK	120	Pennisetum alopecuroides `Karley Rose`	Fountain Grass	1 qt	24" o.c.	

CONCEPT PLANT SCHEDULE COURTYARD B

BIO-RETENTION MIX	1,648 sf	
Asclepias incarnata / Swamp Milkweed	153	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	229	30% @ 18" oc
Iris versicolor / Blue Flag	229	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	153	20% @ 18" oc
LAWN/SOD	346 sf	
-		

NOTE:
FOR ALL TREE LOCATIONS, SEE SHEET 18.

GENERAL NOTES:

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3. FOR COMPLETE SITE PLANTING SCHEDULE, PLEASE SEE SHEET 39.

4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

N

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.4.16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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Michael L. Buch — SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

COURTYARD B LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6742
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND — MATTHEW DAVID D'AMICO — LANDSCAPE ARCHITECT — No. 1039
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=8'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
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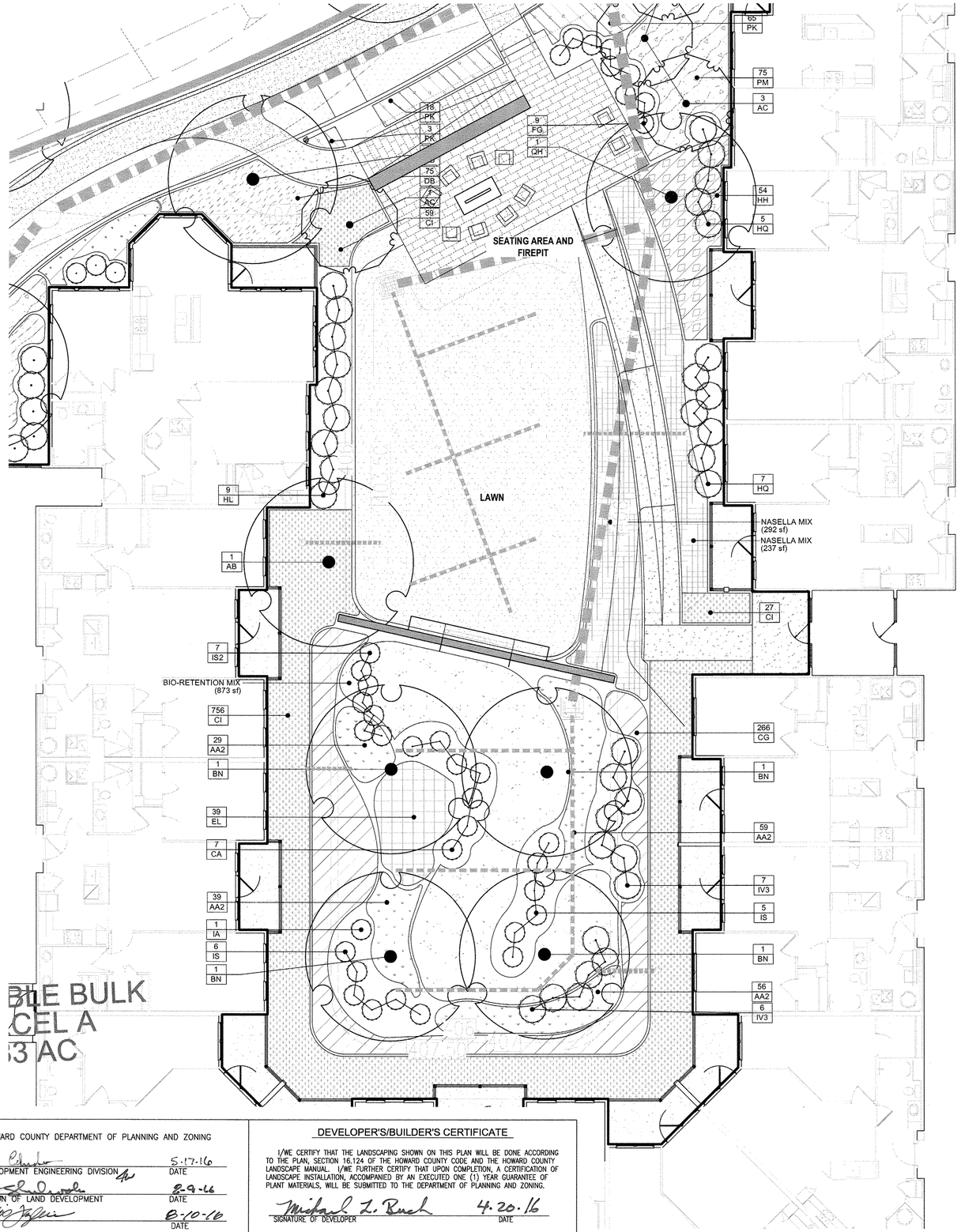
LICENSE NUMBER: 1039
EXPIRATION DATE: 06-12-2016



PLANT SCHEDULE COURTYARD C

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT		REMARKS
AB	2	Acer rubrum `Bowhall Red`	Red Maple	4" cal.		
AC	4	Amelanchier canadensis	Shadblow Serviceberry	10` ht.		
BN	4	Betula nigra `Cully` TM	Heritage Birch	4" cal.		Single Stem
QH	1	Quercus phellos	Willow Oak	4" cal.		
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**REMARKS**
CA	7	Clethra alnifolia	Summersweet Clethra	5 gal	36" o.c.	
FG	9	Fothergilla gardenii	Dwarf Fothergilla	5 gal	36" o.c.	
HL	9	Hydrangea paniculata `Little Lime`	Hardy Hydrangea	5 gal	48" o.c.	
HQ	12	Hydrangea quercifolia	Oakleaf Hydrangea	7 gal	48" o.c.	
IS2	7	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.	
IA	2	Ilex verticillata `Apollo`	Winterberry	5 gal	36" o.c.	
IS	11	Ilex verticillata `Sparkleberry`	Winterberry	5 gal	36" o.c.	
IV3	13	Itea virginica	Virginia Willow	5 gal	48" o.c.	
GROUND COVERS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**SPACING**	**REMARKS**
AA2	183	Acorus americanus	Sweet Flag	1 qt	18" o.c.	
CI	842	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
CG	266	Chelone glabra	White Turtle-head	1 qt	18" o.c.	
DB	75	Dryopteris erythrosora `Brilliance`	Autumn Fern	1 qt	18" o.c.	
EL	39	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt	24" o.c.	
HH	54	Hypericum patulum `Hidcote`	St. John`s Wort	1 qt	24" o.c.	
PK	86	Pennisetum alopecuroides `Karley Rose`	Fountain Grass	1 qt	24" o.c.	
PM	75	Pycnanthemum muticum	Clustered Mountainmint	1 qt	24" o.c.	

CONCEPT PLANT SCHEDULE COURTYARD C

BIO-RETENTION MIX	**873 sf**	
Asclepias incarnata / Swamp Milkweed	81	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	121	30% @ 18" oc
Iris versicolor / Blue Flag	121	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	81	20% @ 18" oc
LAWN/SOD	**1,922 sf**	
-		
NASELLA MIX	**529 sf**	
Allium sphaerocephalon / Drumstick Allium	62	25% @ 18" oc
Nassella tenuissima / Texas Needle Grass	62	25% @ 18" oc
Perovskia atriplicifolia `Little Spire` TM / Little Spire Russian Sage	62	25% @ 18" oc
Salvia nemorosa `Caradonna` / Cardonna Perennial Salvia	62	25% @ 18" oc

NOTE:
FOR ALL TREE LOCATIONS, SEE 18.

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.

2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.

3. FOR COMPLETE SITE PLANT SCHEDULE, SEE SHEET 39.

4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

COURTYARD C LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND
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No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
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DATE:	APRIL 2016
SCALE:	1/8" = 1'-0"
W.O. NO.:	12-50.00

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LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044

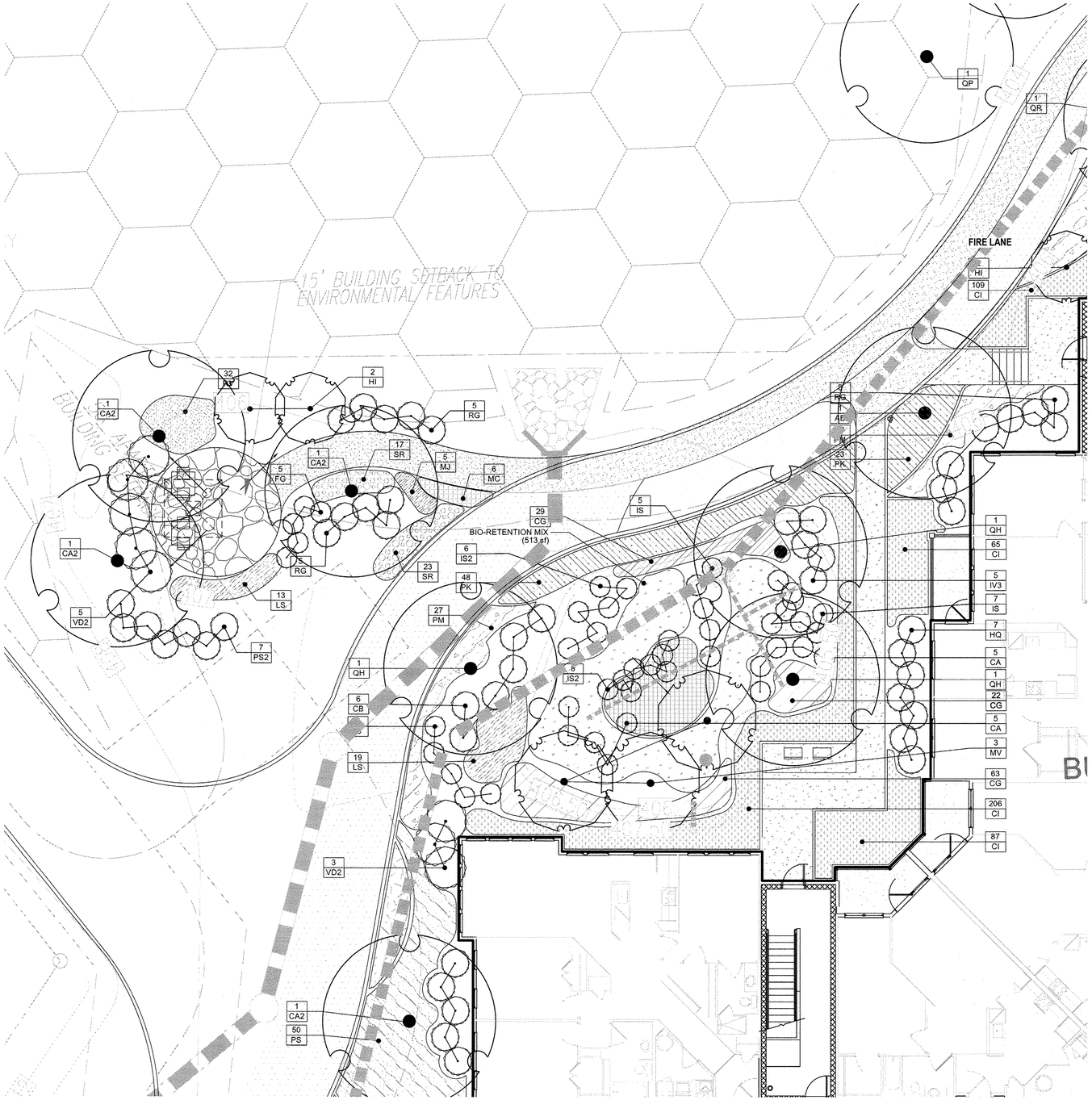
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16



PLANT SCHEDULE COURTYARD D

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL		REMARKS
AB	1	Acer rubrum `Bowhall Red`	Red Maple	4" cal.			
CA2	3	Carpinus caroliniana	American Hornbeam	4" cal.			
HI	2	Hamamelis x intermedia `Arnold Promise`	Arnold Promise Hybrid Witch Hazel	8` ht.			
MV	3	Magnolia virginiana	Sweet Bay	10` ht.			
QH	3	Quercus phellos	Willow Oak	4" cal.			
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**SPACING**	**REMARKS**
CA	10	Clethra alnifolia	Summersweet Clethra	5 gal		36" o.c.	
CB	6	Cornus sericea `Bailey's Redtwig`	Red Twig Dogwood	5 gal		48" o.c.	
FG	5	Fothergilla gardenii	Dwarf Fothergilla	5 gal		36" o.c.	
HQ	7	Hydrangea quercifolia	Oakleaf Hydrangea	7 gal		48" o.c.	
IS2	14	Ilex glabra `Shamrock`	Inkberry	5 gal		36" o.c.	
IS	17	Ilex verticillata `Sparkleberry`	Winterberry	5 gal		36" o.c.	
IV3	5	Itea virginica	Virginia Willow	5 gal		48" o.c.	
PS2	7	Prunus laurocerasus `Schipkaensis`	Schipka Laurel	5 gal		48" o.c.	
RG	18	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	5 gal		48" o.c.	
VD2	8	Viburnum plicatum tomentosum `Mariesii`	Mariesii Double File Viburnum	5 gal		72" o.c.	
GROUND COVERS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**SPACING**	**SPACING**	**REMARKS**
CI	358	Carex x `Ice Dance`	Ice Dance Sedge	1 qt		15" o.c.	
CG	114	Chelone glabra	White Turtle-head	1 qt		18" o.c.	
EL	36	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt		24" o.c.	
LS	32	Ligularia stenocephala `Little Rocket`	Little Rocket Ligularia	1 qt		24" o.c.	
MJ	5	Monarda didyma `Jacob Cline`	Jacob Cline Bee Balm	1 gal		24" o.c.	
MC	6	Muhlenbergia capillaris	Pink Muhly	1 qt		24" o.c.	
PK	71	Pennisetum alopecuroides `Karley Rose`	Fountain Grass	1 qt		24" o.c.	
PM	44	Pycnanthemum muticum	Clustered Mountainmint	1 qt		24" o.c.	
RV	32	Rudbeckia fulgida fulgida	Orange Coneflower	1 qt		18" o.c.	
SR	40	Solidago rugosa `Fireworks`	Wrinkleleaf Goldenrod	1 qt	18" O.C.	18" o.c.	

CONCEPT PLANT SCHEDULE COURTYARD D

BIO-RETENTION MIX	513 sf	
Asclepias incarnata / Swamp Milkweed	48	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	72	30% @ 18" oc
Iris versicolor / Blue Flag	72	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	48	20% @ 18" oc
LAWN/SOD	212 sf	
-		

NOTE:
FOR ALL TREE LOCATIONS, SEE SHEET 18.

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.
2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.
3. FOR COMPLETE SITE PLANT SCHEDULE, PLEASE SEE SHEET 39.
4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

N

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER

BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

COURTYARD D LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

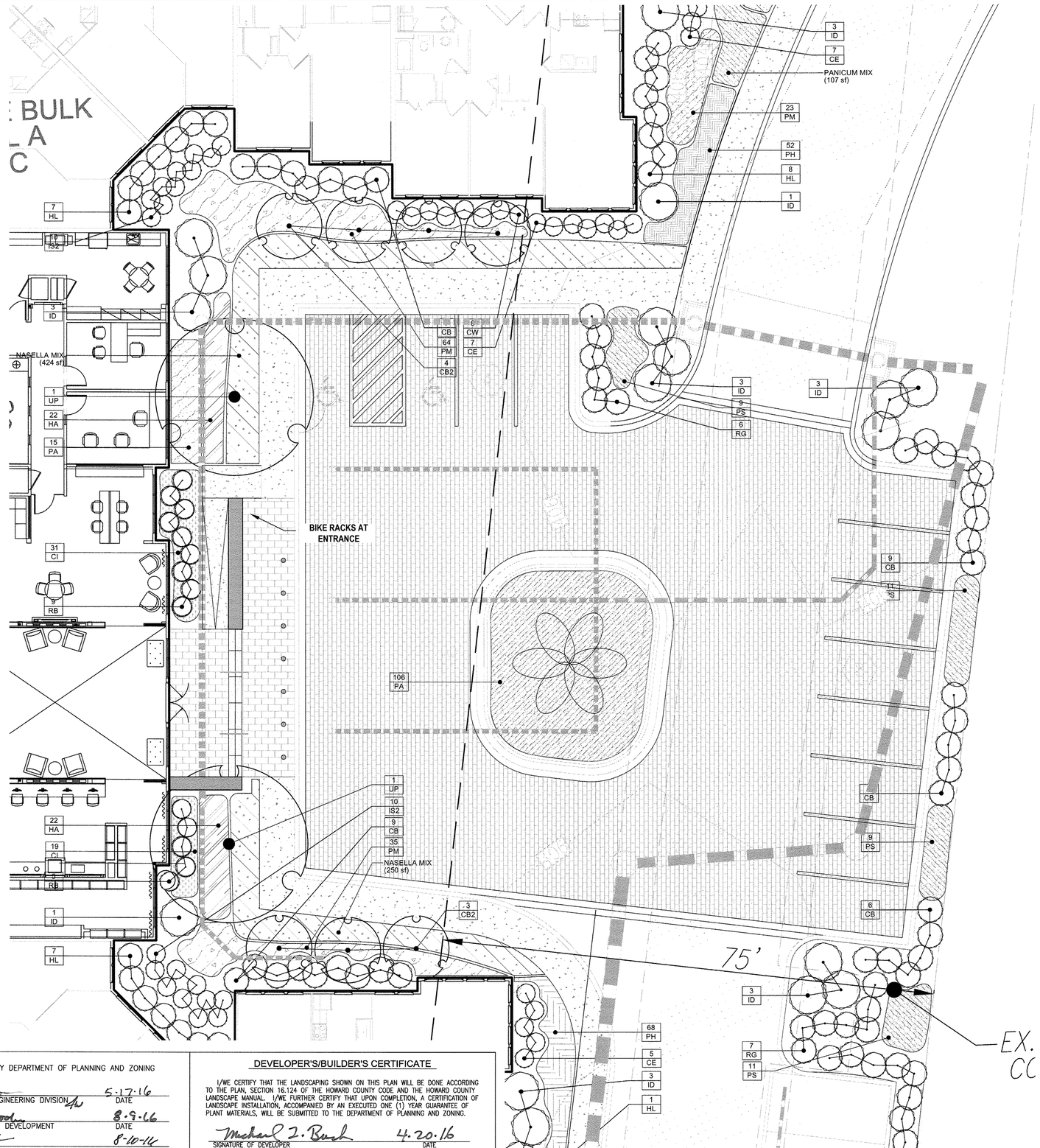
STATE OF MARYLAND — MATTHEW ALAN D'AMICO — LICENSED LANDSCAPE ARCHITECT — No. 1039
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=1'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 31 OF 44

SDP-15-044



PLANT SCHEDULE ENTRY COURT

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT		REMARKS
CB2	7	Carpinus betulus `Fastigiata`	Pyramidal European Hornbean	2.5" cal.		
UP	2	Ulmus americana `Princeton`	American Elm	4" cal.		
SHRUBS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**SPACING**	**REMARKS**
CE	18	Callicarpa dichotoma `Early Amethyst`	Beautyberry	5 gal	36" o.c.	
CW	8	Camellia x `Winter`s Snowman`	Camellia	5 gal	36" o.c.	
CB	46	Cornus sericea `Bailey`s Redtwig`	Red Twig Dogwood	5 gal	48" o.c.	
HL	23	Hydrangea paniculata `Little Lime`	Hardy Hydrangea	5 gal	48" o.c.	
ID	19	Ilex aquipernyi `Dragon Lady`	`Dragon Lady` Holly	5` Ht.	72" o.c.	
IS2	20	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.	
RG	13	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	5 gal	48" o.c.	
RB	14	Rosa x `Blushing Knockout`	Rose	7 gal	36" o.c.	
GROUND COVERS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**SPACING**	**REMARKS**
CI	50	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
HA	44	Hosta x `Sum and Substance`	Plantain Lily	1 gal	24" o.c.	
PS	40	Panicum virgatum `Shenendoah`	Burgundy Switch Grass	1 gal	30" o.c.	
PA	121	Pennisetum alopecuroides	Fountain Grass	1 qt	30" o.c.	
PH	120	Pennisetum alopecuroides `Hameln`	Hameln Dwarf Fountain Grass	1 qt	18" o.c.	
PM	122	Pycnanthemum muticum	Clustered Mountainmint	1 qt	24" o.c.	

CONCEPT PLANT SCHEDULE ENTRY COURT

NASELLA MIX	674 sf	
Allium sphaerocephalon / Drumstick Allium	78	25% @ 18" oc
Nassella tenuissima / Texas Needle Grass	78	25% @ 18" oc
Perovskia atriplicifolia `Little Spire` TM / Little Spire Russian Sage	78	25% @ 18" oc
Salvia nemorosa `Caradonna` / Cardonna Perennial Salvia	78	25% @ 18" oc

PANICUM MIX	107 sf	
Panicum virgatum `Shenendoah` / Burgundy Switch Grass	14	75% @ 30" oc
Solidago rugosa `Fireworks` / Wrinkleleaf Goldenrod	13	25% @ 18" oc

NOTE:
FOR ALL TREE LOCATIONS, SEE 18.

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.

2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.

3. FOR COMPLETE PLANT SCHEDULE, PLEASE SEE SHEET 39.

4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

ENTRY COURT LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT

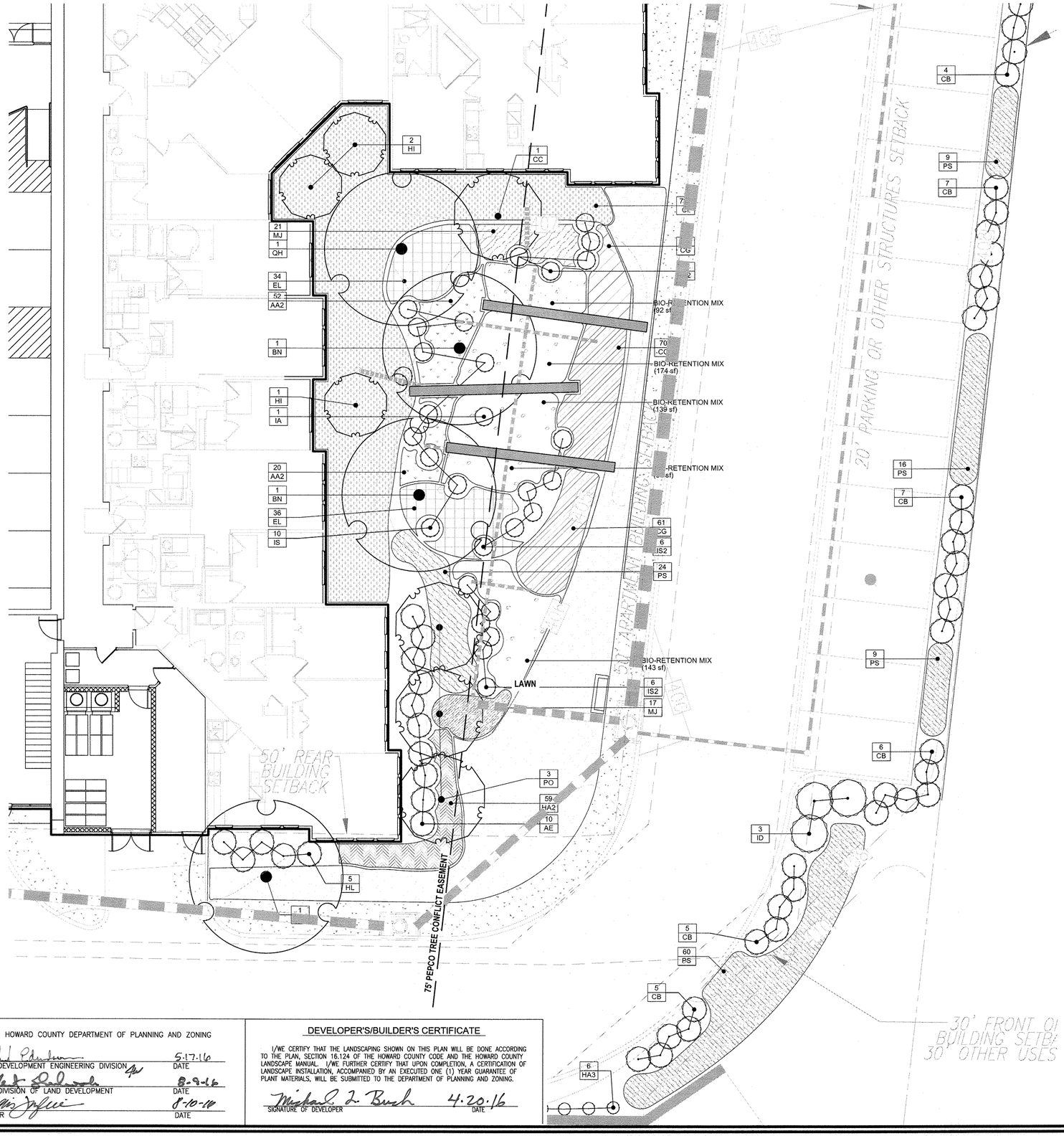
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=1'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044



PLANT SCHEDULE FORE COURT

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	REMARKS
BN	2	Betula nigra `Cully` TM	Heritage Birch	4" cal.	Single Stem
CA2	1	Carpinus caroliniana	American Hornbeam	4" cal.	
CC	1	Cercis canadensis	Eastern Redbud	2.5" cal.	
HI	3	Hamamelis x intermedia `Arnold Promise`	Arnold Promise Hybrid Witch Hazel	8` ht.	
PO	3	Prunus x okame	Okame Cherry	2.5" cal.	
QH	1	Quercus phellos	Willow Oak	4" cal.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
AE	10	Abelia x grandiflora `Edward Goucher`	Glossy Abelia	5 gal	48" o.c.	
CB	31	Cornus sericea `Bailey`s Redtwig`	Red Twig Dogwood	5 gal	48" o.c.	
HA3	6	Hydrangea anomala petiolaris	Climbing Hydrangea	5 gal	24" o.c.	
HL	5	Hydrangea paniculata `Little Lime`	Hardy Hydrangea	5 gal	48" o.c.	
ID	3	Ilex aquipernyi `Dragon Lady`	`Dragon Lady` Holly	5` Ht.	72" o.c.	
IS2	17	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.	
IA	1	Ilex verticillata `Apollo`	Winterberry	5 gal	36" o.c.	
IS	11	Ilex verticillata `Sparkleberry`	Winterberry	5 gal	36" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	REMARKS
AA2	72	Acorus americanus	Sweet Flag	1 qt	18" o.c.	
CI	789	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
CG	161	Chelone glabra	White Turtle-head	1 qt	18" o.c.	
EL	70	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt	24" o.c.	
HA2	59	Heuchera villosa `Autumn Bride`	Autumn Bride Heuchera	1 qt	18" o.c.	
MJ	38	Monarda didyma `Jacob Cline`	Jacob Cline Bee Balm	1 gal	24" o.c.	
PS	118	Panicum virgatum `Shenendoah`	Burgundy Switch Grass	1 gal	30" o.c.	

CONCEPT PLANT SCHEDULE FORE COURT

BIO-RETENTION MIX	612 sf	
Asclepias incarnata / Swamp Milkweed	57	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	85	30% @ 18" oc
Iris versicolor / Blue Flag	85	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	57	20% @ 18" oc

LAWN/SOD	1,250 sf
-	

NOTE:
FOR ALL TREE LOCATIONS, SEE 18.

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.
2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.
3. FOR COMPLETE PLANT SCHEDULE, PLEASE SEE SHEET 39.
4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

FORECOURT LANDSCAPE PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1/8"=1'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SHEET 33 OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

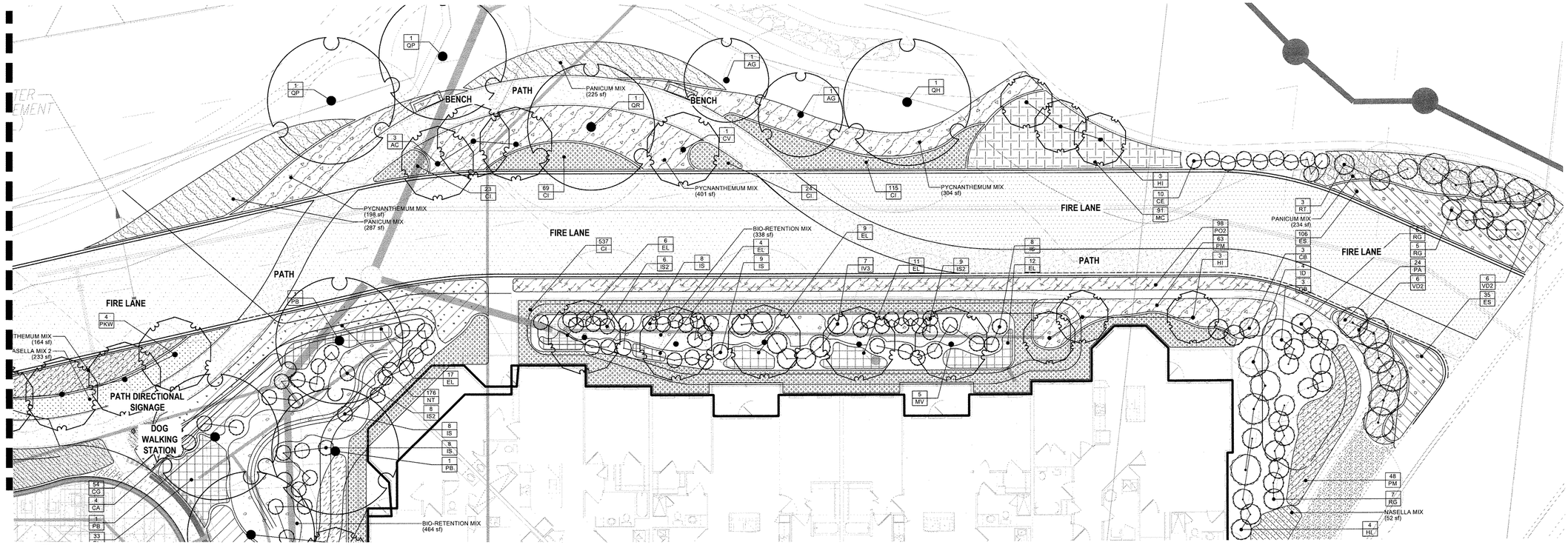
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

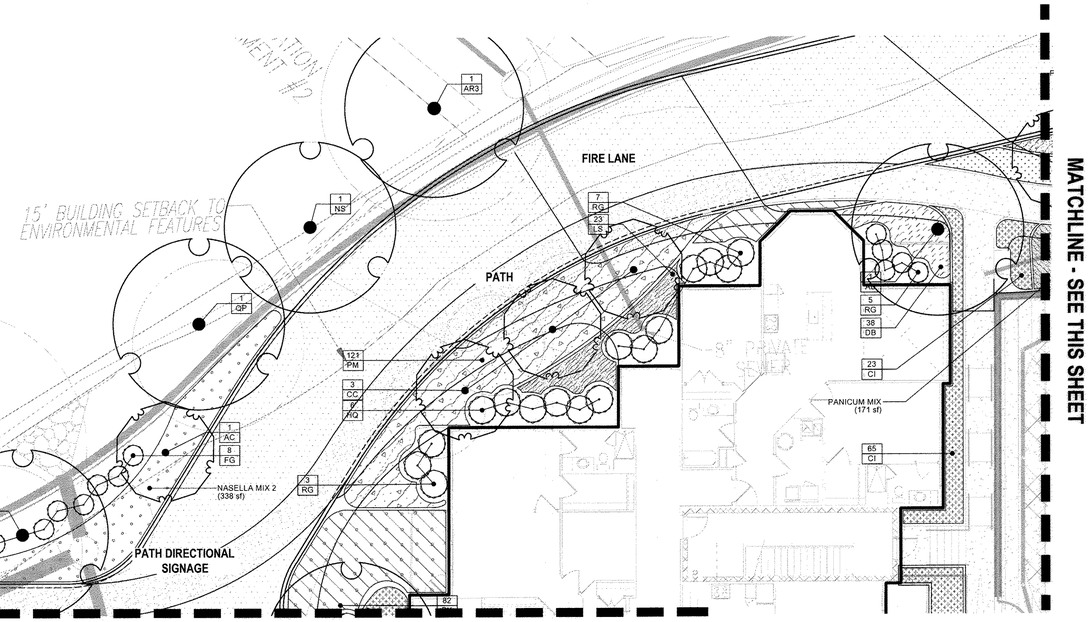
SIGNATURE OF DEVELOPER — DATE 4.20.16

SDP-15-044



1 TRAIL SECTION 1

AS NOTED



2 TRAIL SECTION 1A

AS NOTED

MATCHLINE - SEE SHEET 36

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

NOTE: FOR PLANT SCHEDULE, SEE SHEET 35

FOR FULL SITE PLANT SCHEDULE, PLEASE REFER TO SHEET 39.

N

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

TRAIL - SECTION 1 AND 1A

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
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DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND — MATTHEW ALAN D'AMICO — No. 1039 — LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=10'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044

PLANT SCHEDULE TRAIL SECTION 1 &1A

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT
AG	2	Acer griseum	Paperbark Maple	2.5" cal.
AR3	1	Acer rubrum	Red Maple	4" cal.
AC	4	Amelanchier canadensis	Shadblow Serviceberry	10` ht.
CC	3	Cercis canadensis	Eastern Redbud	2.5" cal.
CV	1	Crataegus viridis `Winter King`	`Winter King` Hawthorn	2.5" cal.
HI	6	Hamamelis x intermedia `Arnold Promise`	Arnold Promise Hybrid Witch Hazel	8` ht.
MV	5	Magnolia virginiana	Sweet Bay	10` ht.
NS	1	Nyssa sylvatica	Black Gum	2.5" cal.
QP	3	Quercus palustris	Pin Oak	4" cal.
QH	1	Quercus phellos	Willow Oak	4" cal.
QR	2	Quercus rubra	Red Oak	4" cal.

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
CE	10	Callicarpa dichotoma `Early Amethyst`	Beautyberry	5 gal	36" o.c.
CB	6	Cornus sericea `Bailey`s Redtwig`	Red Twig Dogwood	5 gal	48" o.c.
FG	8	Fothergilla gardenii	Dwarf Fothergilla	5 gal	36" o.c.
HL	4	Hydrangea paniculata `Little Lime`	Hardy Hydrangea	5 gal	48" o.c.
HQ	6	Hydrangea quercifolia	Oakleaf Hydrangea	7 gal	48" o.c.
ID	4	Ilex aquipernyi `Dragon Lady`	`Dragon Lady` Holly	5` Ht.	72" o.c.
IS2	15	Ilex glabra `Shamrock`	Inkberry	5 gal	36" o.c.
IS	25	Ilex verticillata `Sparkleberry`	Winterberry	5 gal	36" o.c.
IV3	7	Itea virginica	Virginia Willow	5 gal	48" o.c.
RG	28	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	5 gal	48" o.c.
RT	3	Rhus typhina `Tiger Eyes`	Tiger Eyes Sumac	5 gal	48" o.c.
VD2	12	Viburnum plicatum tomentosum `Mariesii`	Mariesii Double File Viburnum	5 gal	72" o.c.

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING
CI	768	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.
ES	141	Eragrostis spectabilis	Purple Love Grass	1 qt	21" o.c.
EL	42	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt	24" o.c.
LS	23	Ligularia stenocephala `Little Rocket`	Little Rocket Ligularia	1 qt	24" o.c.
MC	91	Muhlenbergia capillaris	Pink Muhly	1 qt	24" o.c.
PA	24	Pennisetum alopecuroides	Fountain Grass	1 qt	30" o.c.
PK	13	Pennisetum alopecuroides `Karley Rose`	Fountain Grass	1 qt	24" o.c.
PO2	98	Pennisetum orientale	Oriental Fountain Grass	1 qt	24" o.c.
PM	255	Pycnanthemum muticum	Clustered Mountainmint	1 qt	24" o.c.
RV	92	Rudbeckia fulgida fulgida	Orange Coneflower	1 qt	18" o.c.

CONCEPT PLANT SCHEDULE TRAIL SECTION 1

BIO-RETENTION MIX	338 sf	
Asclepias incarnata / Swamp Milkweed	32	20% @ 18" oc
Chasmanthium latifolium / Wood Oats	47	30% @ 18" oc
Iris versicolor / Blue Flag	47	30% @ 18" oc
Lobelia cardinalis / Cardinal Flower	32	20% @ 18" oc
LAWN/SOD	6,974 sf	
-		
NASELLA MIX	52 sf	
Allium sphaerocephalon / Drumstick Allium	6	25% @ 18" oc
Nassella tenuissima / Texas Needle Grass	6	25% @ 18" oc
Perovskia atriplicifolia `Little Spire` TM / Little Spire Russian Sage	6	25% @ 18" oc
Salvia nemorosa `Caradonna` / Cardonna Perennial Salvia	6	25% @ 18" oc
NASELLA MIX 2	675 sf	
Echinacea purpurea `Magnus` / Magnus Purple Coneflower	58	25% @ 21" oc
Nassella tenuissima / Texas Needle Grass	234	75% @ 18" oc
PANICUM MIX	745 sf	
Panicum virgatum `Shenendoah` / Burgundy Switch Grass	93	75% @ 30" oc
Solidago rugosa `Fireworks` / Wrinkleleaf Goldenrod	87	25% @ 18" oc
PYCNANTHEMUM MIX	903 sf	
Actaea racemosa / Black Cohosh	105	25% @ 18" oc
Pycnanthemum muticum / Clustered Mountainmint	313	75% @ 18" oc

NOTE: FOR FULL SITE PLANT SCHEDULE, PLEASE REFER TO SHEET 39.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

Michael L. Buch 4.20.16
SIGNATURE OF DEVELOPER DATE

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

TRAIL SECTION 1 AND 1A PLANT SCHEDULE

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=1'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044

PLANT SCHEDULE TRAIL SECTION 2

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	REMARKS
AG	1	Acer griseum	Paperbark Maple	2.5" cal.	
AR3	1	Acer rubrum	Red Maple	4" cal.	
AB	2	Acer rubrum `Bowhall Red`	Red Maple	4" cal.	
HI	4	Hamamelis x intermedia `Arnold Promise`	Arnold Promise Hybrid Witch Hazel	8` ht.	
NS	2	Nyssa sylvatica	Black Gum	2.5" cal.	
QP	1	Quercus palustris	Pin Oak	4" cal.	
QH	1	Quercus phellos	Willow Oak	4" cal.	
QR	3	Quercus rubra	Red Oak	4" cal.	

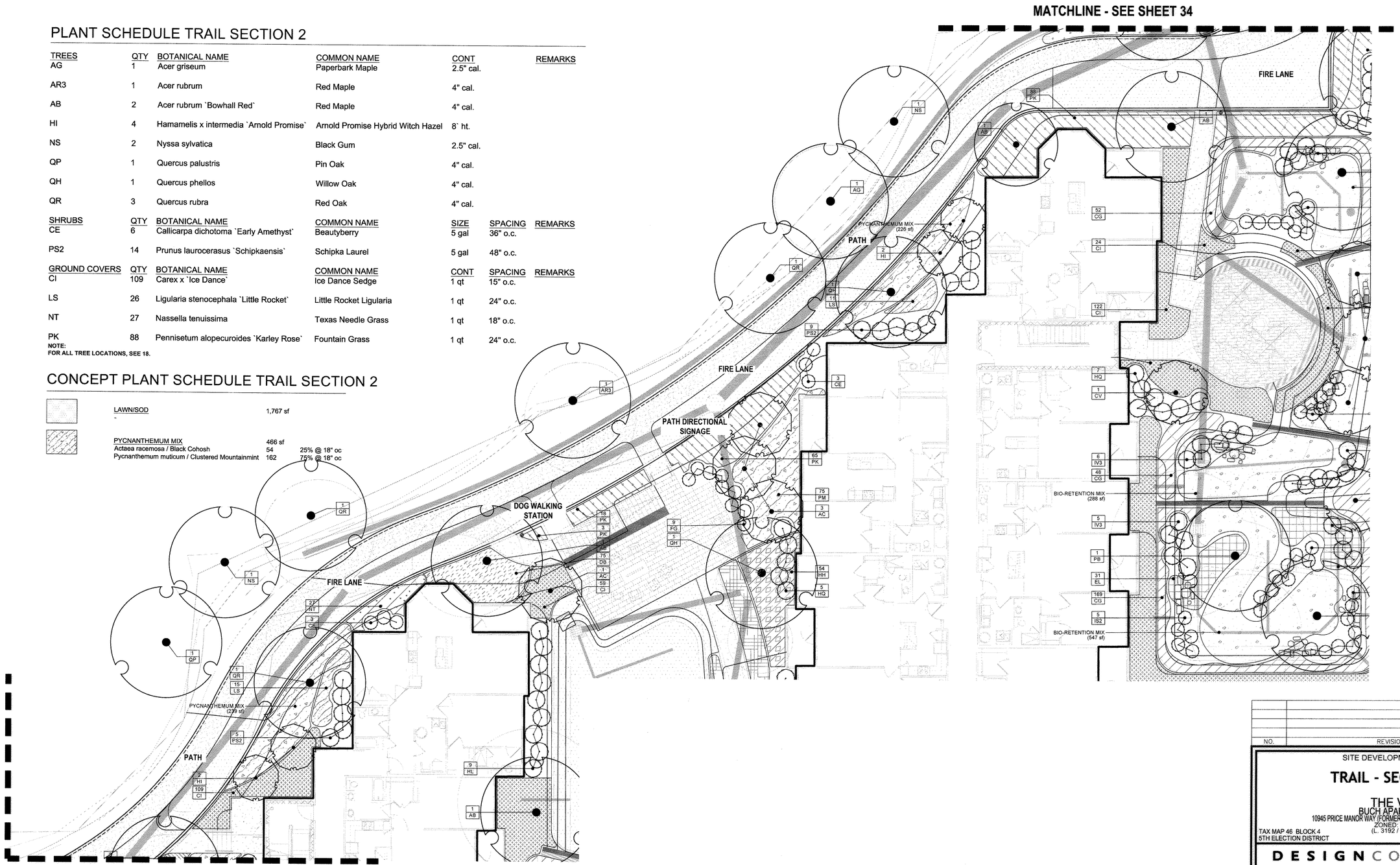
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
CE	6	Callicarpa dichotoma `Early Amethyst`	Beautyberry	5 gal	36" o.c.	
PS2	14	Prunus laurocerasus `Schipkaensis`	Schipka Laurel	5 gal	48" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	REMARKS
CI	109	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
LS	26	Ligularia stenocephala `Little Rocket`	Little Rocket Ligularia	1 qt	24" o.c.	
NT	27	Nassella tenuissima	Texas Needle Grass	1 qt	18" o.c.	
PK	88	Pennisetum alopecuroides `Karley Rose`	Fountain Grass	1 qt	24" o.c.	

NOTE:
FOR ALL TREE LOCATIONS, SEE 18.

CONCEPT PLANT SCHEDULE TRAIL SECTION 2

LAWN/SOD	1,767 sf	
PYCNANTHEMUM MIX	466 sf	
Actaea racemosa / Black Cohosh	54	25% @ 18" oc
Pycnanthemum muticum / Clustered Mountainmint	162	75% @ 18" oc



OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

TRAIL - SECTION 2

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

DESIGN COLLECTIVE

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312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27703
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LICENSED LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=10'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

36 SHEET OF 44

GENERAL NOTES:

1. THIS SHEET IS FOR LANDSCAPE PURPOSES ONLY.
2. FOR OVERALL SITE LAYOUT AND GRADING, SEE CIVIL DRAWINGS.
3. FOR COMPLETE PLANT SCHEDULE, PLEASE SEE SHEET 39.
4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

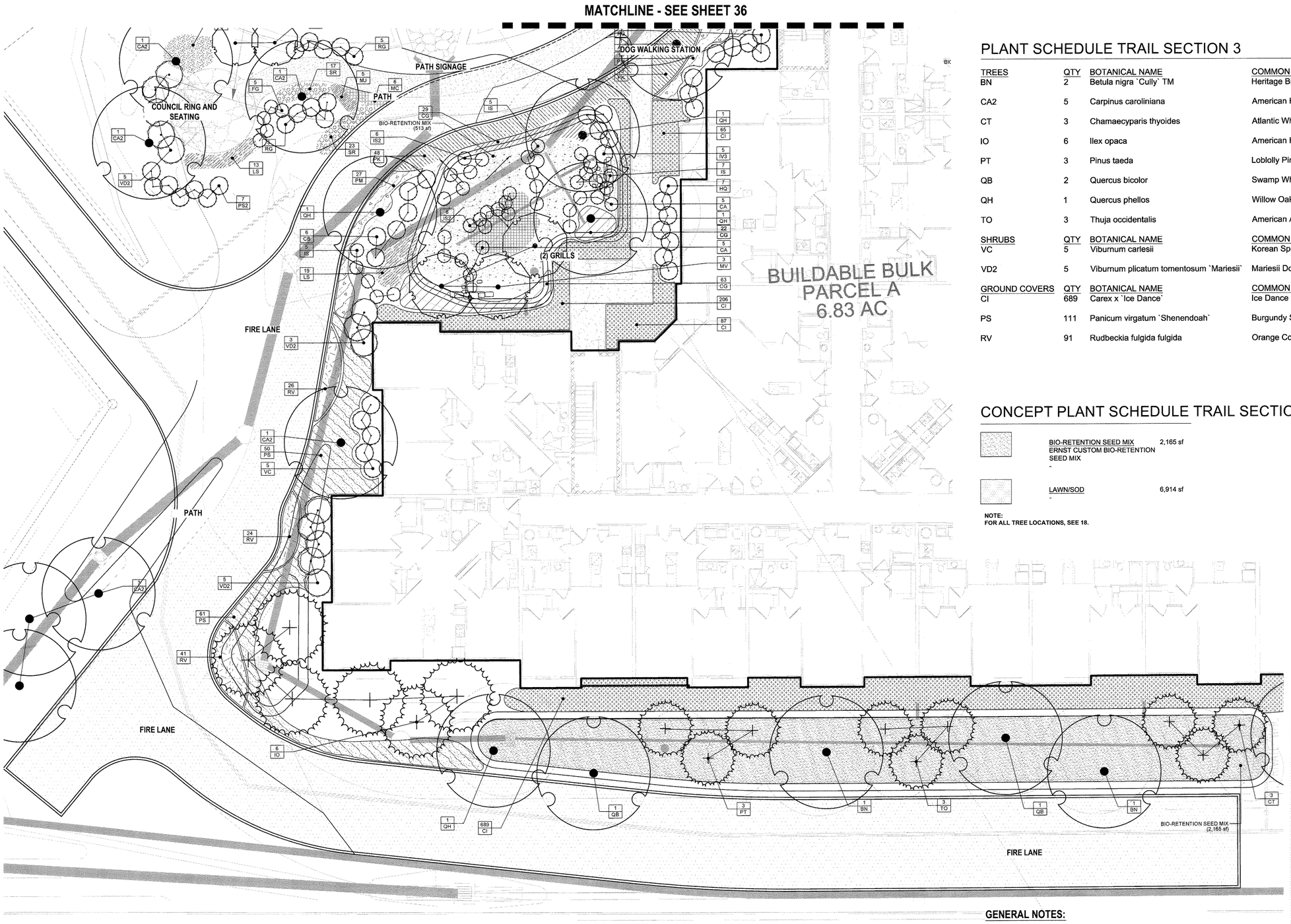
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

SDP-15-044



PLANT SCHEDULE TRAIL SECTION 3

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	REMARKS
BN	2	Betula nigra `Cully` TM	Heritage Birch	4" cal.	Single Stem
CA2	5	Carpinus caroliniana	American Hornbeam	4" cal.	
CT	3	Chamaecyparis thyoides	Atlantic White Cedar	8` ht.	
IO	6	Ilex opaca	American Holly	10` ht.	
PT	3	Pinus taeda	Loblolly Pine	8` ht.	
QB	2	Quercus bicolor	Swamp White Oak	4" cal.	
QH	1	Quercus phellos	Willow Oak	4" cal.	
TO	3	Thuja occidentalis	American Arborvitae	8` ht.	

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
VC	5	Viburnum carlesii	Korean Spice Viburnum	7 gal	48" o.c.	
VD2	5	Viburnum plicatum tomentosum `Mariesii`	Mariesii Double File Viburnum	5 gal	72" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	REMARKS
CI	689	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	
PS	111	Panicum virgatum `Shenendoah`	Burgundy Switch Grass	1 gal	30" o.c.	
RV	91	Rudbeckia fulgida fulgida	Orange Coneflower	1 qt	18" o.c.	

CONCEPT PLANT SCHEDULE TRAIL SECTION 3

	BIO-RETENTION SEED MIX ERNST CUSTOM BIO-RETENTION SEED MIX -	2,165 sf
	LAWN/SOD -	6,914 sf

NOTE:
FOR ALL TREE LOCATIONS, SEE 18.

GENERAL NOTES:

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3. FOR COMPLETE PLANT SCHEDULE, PLEASE SEE SHEET 39.
4. MBR PLANTING AND MINIMUM LANDSCAPE REQUIREMENTS CAN BE FOUND ON SHEETS 18 AND 19.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

TRAIL - SECTION 3

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
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312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

STATE OF MARYLAND — MATTHEW ALAN D'AMICO — LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	1"=10'-0"
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE
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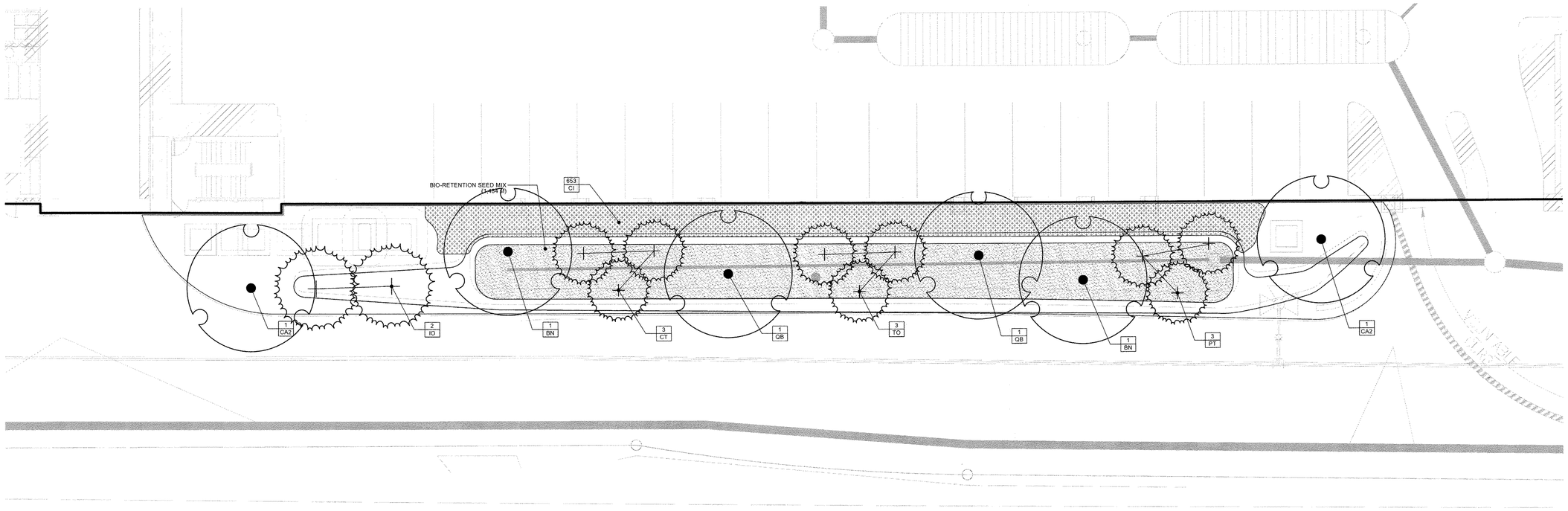
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016



PLANT SCHEDULE GARAGE SECTION

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT		REMARKS
BN	2	Betula nigra `Cully` TM	Heritage Birch	4" cal.		Single Stem
CA2	2	Carpinus caroliniana	American Hornbeam	4" cal.		
CT	3	Chamaecyparis thyoides	Atlantic White Cedar	8` ht.		
IO	2	Ilex opaca	American Holly	10` ht.		
PT	3	Pinus taeda	Loblolly Pine	8` ht.		
QB	2	Quercus bicolor	Swamp White Oak	4" cal.		
TO	3	Thuja occidentalis	American Arborvitae	8` ht.		
GROUND COVERS	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	**SPACING**	**REMARKS**
CI	653	Carex x `Ice Dance`	Ice Dance Sedge	1 qt	15" o.c.	

NOTE:
FOR ALL TREE LOCATIONS, SEE SHEET 17.

CONCEPT PLANT SCHEDULE GARAGE SECTION

BIO-RETENTION SEED MIX 1,484 sf
ERNST CUSTOM BIO-RETENTION
SEED MIX
-

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
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3. FOR COMPLETE PLANT SCHEDULE, PLEASE SEE SHEET 39.
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N

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

PARKING GARAGE SECTION

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND
MATTHEW ALAN D'AMICO
No. 1039
LANDSCAPE ARCHITECT
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
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LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044

PLANT SCHEDULE OVERALL

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	REMARKS
AG	3	Acer griseum	Paperbark Maple	2.5" cal.		
AR3	3	Acer rubrum	Red Maple	4" cal.		
AB	9	Acer rubrum `Bowhall Red`	Red Maple	4" cal.		
AC	8	Amelanchier canadensis	Shadblow Serviceberry	10` ht.		
BN	13	Betula nigra `Cully` TM	Heritage Birch	4" cal.		Single Stem
CB2	7	Carpinus betulus `Fastigiata`	Pyramidal European Hornbean	2.5" cal.		
CA2	11	Carpinus caroliniana	American Hornbeam	4" cal.		
CC	10	Cercis canadensis	Eastern Redbud	2.5" cal.		
CT	6	Chamaecyparis thyoides	Atlantic White Cedar	8` ht.		
CV	3	Crataegus viridis `Winter King`	`Winter King` Hawthorn	2.5" cal.		
HI	15	Hamamelis x intermedia `Arnold Promise`	Arnold Promise Hybrid Witch Hazel	8` ht.		
IO	8	Ilex opaca	American Holly	10` ht.		
MV	17	Magnolia virginiana	Sweet Bay	10` ht.		
NS	3	Nyssa sylvatica	Black Gum	2.5" cal.		
PT	6	Pinus taeda	Loblolly Pine	8` ht.		
PB	6	Platanus x acerifolia `Bloodgood`	London Plane Tree	4" cal.		
PKW	4	Prunus serrulata `Kwanzan`	Flowering Cherry	2.5" cal.		
PO	3	Prunus x okame	Okame Cherry	2.5" cal.		
QB	4	Quercus bicolor	Swamp White Oak	4" cal.		
QP	5	Quercus palustris	Pin Oak	4" cal.		
QH	8	Quercus phellos	Willow Oak	4" cal.		
QR	5	Quercus rubra	Red Oak	4" cal.		
TO	6	Thuja occidentalis	American Arborvitae	8` ht.		
UP	2	Ulmus americana `Princeton`	American Elm	4" cal.		

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	SPACING	REMARKS
AE	10	Abelia x grandiflora `Edward Goucher`	Glossy Abelia	5 gal		48" o.c.	
AR4	15	Abelia x grandiflora `Rose Creek`	Rose Creek Abelia	5 gal		36" o.c.	
CE	35	Callicarpa dichotoma `Early Amethyst`	Beautyberry	5 gal		36" o.c.	
CW	8	Camellia x `Winter`s Snowman`	Camellia	5 gal		36" o.c.	
CA	43	Clethra alnifolia	Summersweet Clethra	5 gal		36" o.c.	
CB	93	Cornus sericea `Bailey`s Redtwig`	Red Twig Dogwood	5 gal		48" o.c.	
FG	22	Fothergilla gardenii	Dwarf Fothergilla	5 gal		36" o.c.	
HA3	6	Hydrangea anomala petiolaris	Climbing Hydrangea	5 gal		24" o.c.	
HL	41	Hydrangea paniculata `Little Lime`	Hardy Hydrangea	5 gal		48" o.c.	
HQ	51	Hydrangea quercifolia	Oakleaf Hydrangea	7 gal		48" o.c.	
ID	27	Ilex aquipernyi `Dragon Lady`	`Dragon Lady` Holly	5` Ht.		72" o.c.	
IS2	99	Ilex glabra `Shamrock`	Inkberry	5 gal		36" o.c.	
IA	5	Ilex verticillata `Apollo`	Winterberry	5 gal		36" o.c.	
IS	120	Ilex verticillata `Sparkleberry`	Winterberry	5 gal		36" o.c.	
IV3	52	Itea virginica	Virginia Willow	5 gal		48" o.c.	
PS2	21	Prunus laurocerasus `Schipkaensis`	Schipka Laurel	5 gal		48" o.c.	
RG	64	Rhus aromatica `Gro-Low`	Gro-Low Fragrant Sumac	5 gal		48" o.c.	
RT	3	Rhus typhina `Tiger Eyes`	Tiger Eyes Sumac	5 gal		48" o.c.	
RB	14	Rosa x `Blushing Knockout`	Rose	7 gal		36" o.c.	
VC	10	Viburnum carlesii	Korean Spice Viburnum	7 gal		48" o.c.	
VD2	25	Viburnum plicatum tomentosum `Mariesii`	Mariesii Double File Viburnum	5 gal		72" o.c.	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SPACING	REMARKS
AA2	255	Acorus americanus	Sweet Flag	1 qt		18" o.c.	
AD	32	Astilbe x arendsii `Deutschland`	Deutschland False Spiraea	1 gal		18" o.c.	
CI	7,102	Carex x `Ice Dance`	Ice Dance Sedge	1 qt		15" o.c.	
CG	1,028	Chelone glabra	White Turtle-head	1 qt		18" o.c.	
DB	227	Dryopteris erythrosora `Brilliance`	Autumn Fern	1 qt		18" o.c.	
ES	141	Eragrostis spectabilis	Purple Love Grass	1 qt		21" o.c.	
EL	333	Eupatorium dubium `Little Joe`	Joe-Pye Weed	1 qt		24" o.c.	
HA2	59	Heuchera villosa `Autumn Bride`	Autumn Bride Heuchera	1 qt		18" o.c.	
HE	48	Hosta x `Elegans`	Plantain Lily	1 gal		24" o.c.	
HA	44	Hosta x `Sum and Substance`	Plantain Lily	1 gal		24" o.c.	
HH	54	Hypericum patulum `Hidcote`	St. John`s Wort	1 qt		24" o.c.	
LS	81	Ligularia stenocephala `Little Rocket`	Little Rocket Ligularia	1 qt		24" o.c.	
MJ	104	Monarda didyma `Jacob Cline`	Jacob Cline Bee Balm	1 gal		24" o.c.	
MC	97	Muhlenbergia capillaris	Pink Muhly	1 qt		24" o.c.	
NT	208	Nassella tenuissima	Texas Needle Grass	1 qt		18" o.c.	
PS	280	Panicum virgatum `Shenendoah`	Burgundy Switch Grass	1 gal		30" o.c.	
PA	145	Pennisetum alopecuroides	Fountain Grass	1 qt		30" o.c.	
PH	120	Pennisetum alopecuroides `Hameln`	Hameln Dwarf Fountain Grass	1 qt		18" o.c.	
PK	378	Pennisetum alopecuroides `Karley Rose`	Fountain Grass	1 qt		24" o.c.	
PO2	98	Pennisetum orientale	Oriental Fountain Grass	1 qt		24" o.c.	
PM	555	Pycnanthemum muticum	Clustered Mountainmint	1 qt		24" o.c.	
RV	215	Rudbeckia fulgida fulgida	Orange Coneflower	1 qt		18" o.c.	
SR	40	Solidago rugosa `Fireworks`	Wrinkleleaf Goldenrod	1 qt	18" O.C.	18" o.c.	

CONCEPT PLANT SCHEDULE OVERALL

	BIO-RETENTION MIX	5,584 sf	
	Asclepias incarnata / Swamp Milkweed	516	20% @ 18" oc
	Chasmanthium latifolium / Wood Oats	774	30% @ 18" oc
	Iris versicolor / Blue Flag	774	30% @ 18" oc
	Lobelia cardinalis / Cardinal Flower	516	20% @ 18" oc
	BIO-RETENTION SEED MIX	3,649 sf	
	ERNST CUSTOM BIO-RETENTION SEED MIX		
	-		0% -
	LAWN/SOD	19,516 sf	
	-		0% -
	NASELLA MIX	1,347 sf	
	Allium sphaerocephalon / Drumstick Allium	156	25% @ 18" oc
	Nassella tenuissima / Texas Needle Grass	156	25% @ 18" oc
	Perovskia atriplicifolia `Little Spire` TM / Little Spire Russian Sage	156	25% @ 18" oc
	Salvia nemorosa `Caradonna` / Cardonna Perennial Salvia	156	25% @ 18" oc
	NASELLA MIX 2	909 sf	
	Echinacea purpurea `Magnus` / Magnus Purple Coneflower	78	25% @ 21" oc
	Nassella tenuissima / Texas Needle Grass	315	75% @ 18" oc
	PANICUM MIX	1,038 sf	
	Panicum virgatum `Shenendoah` / Burgundy Switch Grass	130	75% @ 30" oc
	Solidago rugosa `Fireworks` / Wrinkleleaf Goldenrod	120	25% @ 18" oc
	PENNISETUM MIX	2,080 sf	
	Allium giganteum / Giant Allium	241	25% @ 18" oc
	Pennisetum alopecuroides `Karlay Rose` / Fountain Grass	406	75% @ 24" oc
	PYCNANTHEMUM MIX	1,532 sf	
	Actaea racemosa / Black Cohosh	177	25% @ 18" oc
	Pycnanthemum muticum / Clustered Mountainmint	531	75% @ 18" oc

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 4.20.16

OWNER/DEVELOPER
BUCH LLLP
10945 JOHNS HOPKINS ROAD
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

OVERALL PLANT SCHEDULE

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DESIGNCOLLECTIVE
ARCHITECTURE, PLANNING, INTERIORS
WWW.DESIGNCOLLECTIVE.COM
601 EAST PRATT STREET, SUITE 300
BALTIMORE, MARYLAND 21202
T: 410.685.6655 F: 410.539.6242
312 BLACKWELL STREET, SUITE 100
DURHAM, NORTH CAROLINA 27701
T: 919.381.9322 F: 919.381.9323

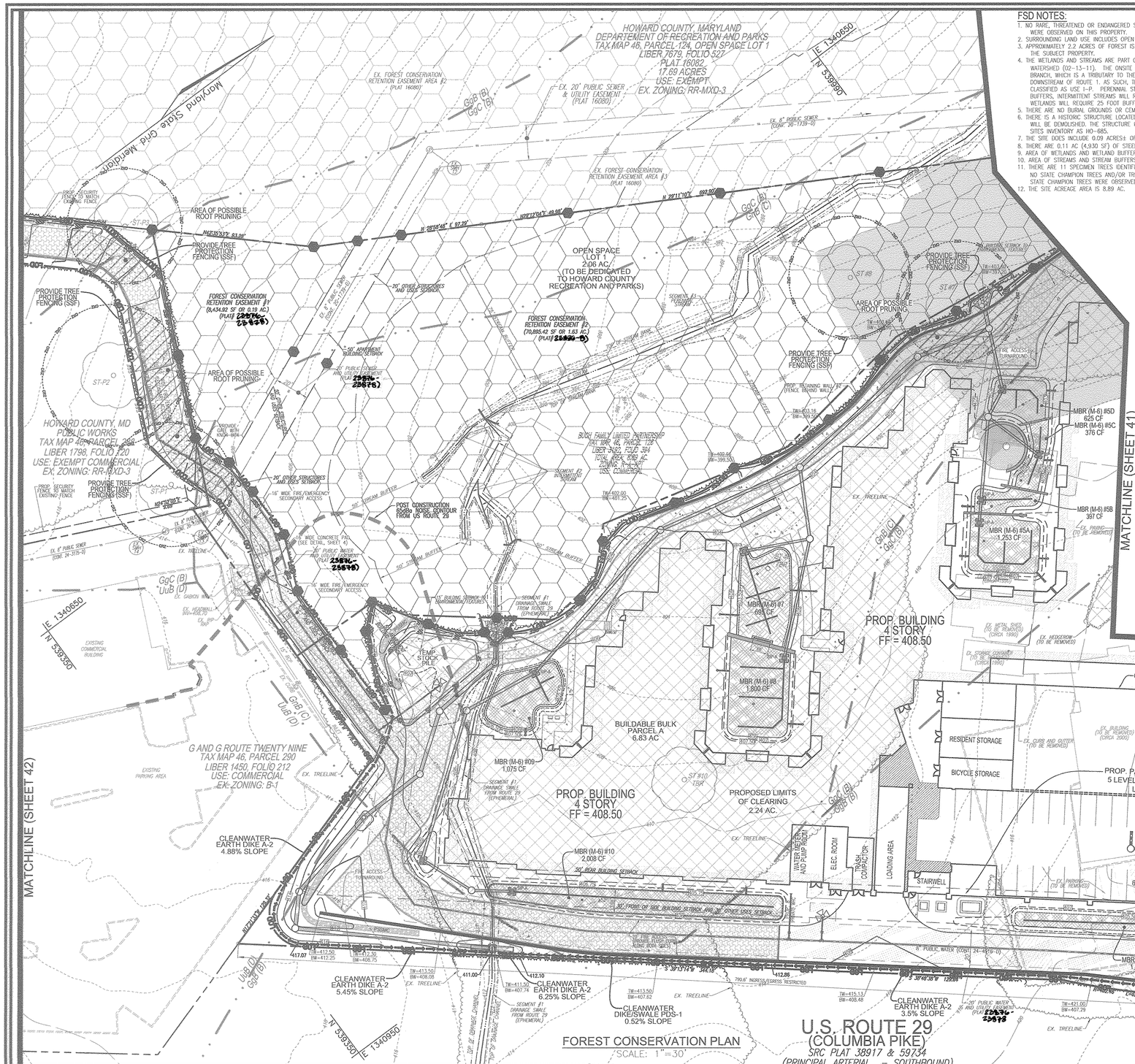
STATE OF MARYLAND — MATTHEW D'AMICO — LANDSCAPE ARCHITECT — No. 1039
MATTHEW D'AMICO, RLA No.1039

DESIGN BY:	BR
DRAWN BY:	ECC
CHECKED BY:	BR
DATE:	APRIL 2016
SCALE:	
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 1039
EXPIRATION DATE: 06-12-2016

SDP-15-044



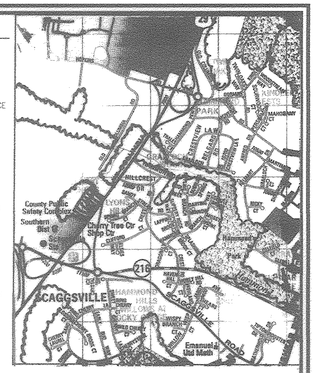
FOREST CONSERVATION PLAN
SCALE: 1"=30'

FSD NOTES:

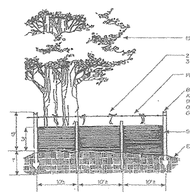
1. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THIS PROPERTY.
2. SURROUNDING LAND USE INCLUDES OPEN SPACE AND COMMERCIAL USES.
3. APPROXIMATELY 2.2 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
4. THE WETLANDS AND STREAMS ARE PART OF THE PATUXENT RIVER WATERSHED (02-13-11). THE ONSITE WATERS DRAIN TO HAMMOND BRANCH, WHICH IS A TRIBUTARY TO THE LITTLE PATUXENT RIVER, DOWNSTREAM OF ROUTE 1. AS SUCH, THE ONSITE WATERS ARE CLASSIFIED AS USE I-P. PERENNIAL STREAMS WILL REQUIRE 75 FOOT BUFFERS, INTERMITTENT STREAMS WILL REQUIRE 50 FOOT BUFFERS AND WETLANDS WILL REQUIRE 25 FOOT BUFFERS.
5. THERE ARE NO BURIAL GROUNDS OR CEMETERIES ON THE PROPERTY.
6. THERE IS A HISTORIC STRUCTURE LOCATED ON THIS PROPERTY, WHICH WILL BE DEMOLISHED. THE STRUCTURE IS LISTED ON THE HISTORIC SITES INVENTORY AS HO-685.
7. THE SITE DOES INCLUDE 0.09 ACRES± OF 100 YEAR FLOODPLAIN.
8. THERE ARE 0.11 AC (4,930 SF) OF STEEP SLOPES PRESENT ON SITE.
9. AREA OF WETLANDS AND WETLAND BUFFER: 5,980 S.F. OR 0.14 AC.
10. AREA OF STREAMS AND STREAM BUFFERS: 69,237 S.F. OR 1.59 AC.
11. THERE ARE 11 SPECIMEN TREES IDENTIFIED WITHIN THE SITE BOUNDARY. NO STATE CHAMPION TREES AND/OR TREES 75% OF THE SIZE OF STATE CHAMPION TREES WERE OBSERVED ON THE SITE.
12. THE SITE ACREAGE AREA IS 8.89 AC.

LEGEND:

PROPERTY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
CENTERLINE OF EXISTING STREAM
EXISTING STREAM BUFFER
EXISTING CURB AND GUTTER
PROPOSED CURB AND GUTTER
EXISTING UTILITY POLE
EXISTING LIGHT POLE
EXISTING TREELINE
PROPOSED STORMDRAIN
PROPOSED STORMDRAIN INLET
PROPOSED TREELINE
PROPOSED CONTOUR
EXISTING CONTOUR
EXISTING OVERHEAD LINES
EXISTING WATERLINE LINE
EXISTING GAS LINE
EXISTING GUARD RAIL
EXISTING METAL FENCE
EXISTING WOOD FENCE
PROPOSED SANITARY LINE
PROPOSED WATER LINE
EXISTING ELECTRICAL BOX
EXISTING POLE
EXISTING LIGHT POLE WITH CONCRETE BASE
EXISTING MAILBOX
EXISTING SIGN
EXISTING SANITARY MANHOLE
EXISTING CLEANOUT
EXISTING FIRE HYDRANT
PROPOSED PARKING COUNT
PROPOSED WHEEL STOP
EXISTING SPECIMEN TREE
POST CONSTRUCTION NOISE CONTOUR
PROPOSED STABILIZED CONSTRUCTION ENTRANCE
PROPOSED SILT FENCE
PROPOSED SUPER SILT FENCE
PROPOSED LIMIT OF DISTURBANCE
PROPOSED COMBINATION INLET PROTECTION
PROPOSED STANDARD INLET PROTECTION
PROPOSED EARTH DIKE
EXISTING SLOPE (MODERATE)
EXISTING SLOPE (STEEP)
PROPOSED SIDEWALK
20' PUBLIC WATER AND UTILITY EASEMENT
FIRE ACCESS GRASS PAVERS
FOREST CONSERVATION EASEMENT (RETENTION)
EX. FOREST CONSERVATION EASEMENT (RETENTION)
MICROBIORETENTION AREA
EX. WETLANDS
EXISTING FLOODPLAIN
PERVIOUS PAVING
FOREST CONSERVATION SIGNS
CRITICAL ROOT ZONE
AREA SUBJECT TO ROOT PRUNING

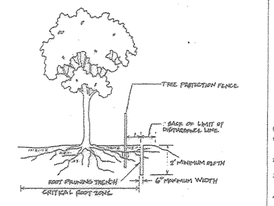


SITE VICINITY MAP
1"=2000'



Notes:
1. Silt fence to be heeled into the soil.
2. Wire, snow fence, etc. for tree protection only.
3. Boundaries of Retention Areas will be established as part of the forest conservation plan review process.
4. Boundaries of Retention Area should be staked and flagged prior to installing device.
5. Avoid root damage when placing anchor points.
6. Device should be properly maintained throughout construction.
7. Protection signs are also required, see Figure C-4.
8. Locate fence outside the Critical Root Zone.

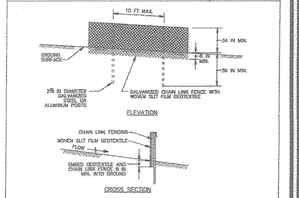
TYPICAL TREE PROTECTION FENCE DETAIL
NOT TO SCALE



Notes:
1. Retention Areas will be set as part of the review process
2. Boundaries of Retention Areas should be staked flagged prior to trenching
3. Exact location of trench should be identified
4. Trench should be immediately backfilled with soil removed or other high organic soil
5. Roots should be cleanly cut using vibratory knife or other acceptable equipment

ROOT PRUNING DETAIL
NOT TO SCALE

DETAIL E-3 SUPER SILT FENCE
STANDARD SYMBOL SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2½ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 12 FEET APART. DRIVE THE POSTS A MINIMUM OF 24 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2½ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SEQUENTLY TO THE FENCE POSTS WITH WIRE TIES OR HOG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SEQUENTLY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND SEWN TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SPECIMEN TREE CHART

KEY	SPECIES	SIZE	CRZ	COMMENTS
1	TULIP POPLAR	39.5	59.25	GOOD CONDITION – TO BE REMOVED
2	TULIP POPLAR	32	48	FAIR CONDITION, VINE COVERED; PROVIDE TREE PROTECTION FENCING (SSF)
3	TULIP POPLAR	34	51	GOOD CONDITION; PROVIDE TREE PROTECTION FENCING (SSF)
4	RED OAK	30	45	GOOD CONDITION; PROVIDE TREE PROTECTION FENCING (SSF)
5	BLACK OAK	31.5	47.25	GOOD CONDITION
6	TULIP POPLAR	34	51	GOOD CONDITION – TO BE REMOVED
7	WHITE OAK	34.5	51.75	GOOD CONDITION; PROVIDE TREE PROTECTION FENCING (SSF)
8	TULIP POPLAR	35	52.5	GOOD CONDITION; PROVIDE TREE PROTECTION FENCING (SSF)
9	TULIP POPLAR	32	48	GOOD CONDITION – TO BE REMOVED
10	TULIP POPLAR	35	52.5	POOR CONDITION, SIGNIFICANT LIMB DIEBACK – TO BE REMOVED
11	TULIP POPLAR	34	51	GOOD CONDITION

SCALE 1"=30'
15' 0' 30'

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

FOREST CONSERVATION PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)
TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 2006 Glen Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 838-2488

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER
4/20/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RHV/DZE
DRAWN BY: DZE
CHECKED BY: RHV
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

SHEET 40 OF 44

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

FOREST STAND DATA

KEY	COMMUNITY TYPE	ACREAGE (NTA)	DOMINANT VEGETATION	GENERAL CONDITION	PRIORITY ACREAGE
F1	OAK /POPLAR	4.73	LIRIODENDRON/ACER NEGUNDO, TULIPFERA, QUERCUS ALBA QUERCUS RUBRA, ACER RUBRUM PRUNUS SEROTINA	GOOD	2.4± BUFFER\WETLANDS

SEE ACCOMPANYING REPORT FOR COMPLETE STAND DESCRIPTIONS

WETLAND DATA

WETLAND SYSTEM	COWARDIN CLASSIFICATION	DOMINANT VEGETATION
A	PFO1C R3/4UB	ACER RUBRUM, FRAXINUS PENNSYLVANICA, VIBURNUM DENTATUM, SYMPLOCARPUS FOETIDUS, BIDENS/IMPA CYLINDRICA, CANA ARUNDINACEA, IMPATIENS CAPENSIS ONOCEA SENSIBILIS, ONOCLEA CINNAMOMEA

SOILS LEGEND

SYMBOL	DESCRIPTION	TYPE	HYDRIC	HYDRIC INCLUSIONS	K FACTOR	PRIME FARMLAND	CLOSE SLOPE W/ ERODIBLE POTENTIAL
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	YES	YES	0.32	–	YES
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	NO	0.20	–	NO
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B			0.20	–	
GnB	GLENVILLE-BAILE SILT LOAMS, 0-8 PERCENT	C	PARTIAL*	PARTIAL*	0.37	–	PARTIAL*
UuB	URBAN LAND-LEDOCHT COMPLEX, 0-8 PERCENT	D		–	0.37	–	–

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
*BAILE COMPONENT OF GnB, ERODIBILITY FACTOR IS 0.32 AND IS CONSIDERED HYDRIC
NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

4/20/16
JOHN P. CANOLES
MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610462

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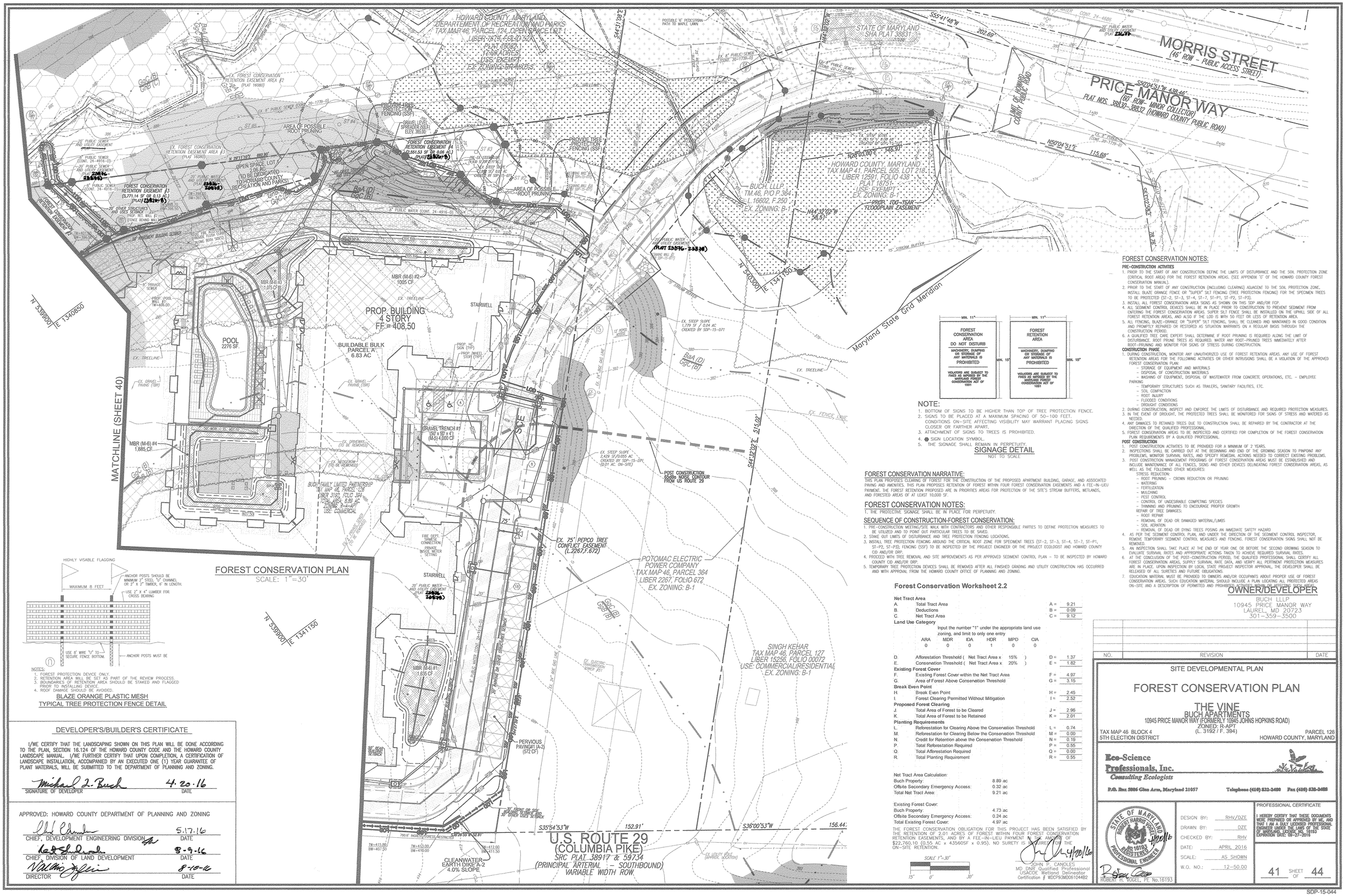
SDP-15-044



NOTE:

1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED AT A MAXIMUM SPACING OF 50-100 FEET. CONDITIONS ON-SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
4. ● SIGN LOCATION SYMBOL.
5. THE SIGNAGE SHALL REMAIN IN PERPETUITY.

SIGNAGE DETAIL
NOT TO SCALE

FOREST CONSERVATION NARRATIVE:

THIS PLAN PROPOSES CLEARING OF FOREST FOR THE CONSTRUCTION OF THE PROPOSED APARTMENT BUILDING, GARAGE, AND ASSOCIATED PARKING AND AMENITIES. THIS PLAN PROPOSES RETENTION OF FOREST WITHIN FOUR FOREST CONSERVATION EASEMENTS AND A FEE-IN-LIEU PAYMENT. THE FOREST RETENTION PROPOSED ARE IN PRIORITIES AREAS FOR PROTECTION OF THE SITE'S STREAM BUFFERS, WETLANDS, AND FORESTED AREAS OF AT LEAST 10,000 SF.

FOREST CONSERVATION NOTES:

1. THE PROTECTIVE SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.

SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION:

1. PRE-CONSTRUCTION MEETING/SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
3. INSTALL TREE PROTECTION FENCING AROUND THE CRITICAL ROOT ZONE FOR SPECIMENT TREES (ST-2, ST-3, ST-4, ST-7, ST-P1, ST-P2, ST-P3); FENCING (SSF) TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY CID AND/OR DRP.
4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY CID AND/OR DRP.
5. TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

FOREST CONSERVATION NOTES:

PRE-CONSTRUCTION ACTIVITIES

1. PRIOR TO THE START OF ANY CONSTRUCTION DEFINE THE LIMITS OF DISTURBANCE AND THE SOIL PROTECTION ZONE (CRITICAL ROOT AREA) FOR THE FOREST RETENTION AREAS. (SEE APPENDIX 'C' OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL).
2. PRIOR TO THE START OF ANY CONSTRUCTION (INCLUDING CLEARING) ADJACENT TO THE SOIL PROTECTION ZONE, INSTALL BLAZE ORANGE FENCE OR "SUPER" SILT FENCING (TREE PROTECTION FENCING) FOR THE SPECIMEN TREES TO BE PROTECTED (ST-2, ST-3, ST-4, ST-7, ST-P1, ST-P2, ST-P3).
3. INSTALL ALL FOREST CONSERVATION AREA SIGNS AS SHOWN ON THIS SDP AND/OR FCP.
4. ALL SEDIMENT CONTROL DEVICES SHALL BE IN PLACE PRIOR TO CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING THE FOREST CONSERVATION AREAS. SUPER SILT FENCE SHALL BE INSTALLED ON THE UPHILL SIDE OF ALL FOREST RETENTION AREAS, AND ALSO IF THE LOD IS WITHIN 50 FEET OR LESS OF RETENTION AREA.
5. ALL FENCING, BLAZE-ORANGE OR "SUPER" SILT FENCING, SHALL BE CLEANED AND MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS SITUATION WARRANTS ON A REGULAR BASIS THROUGH THE CONSTRUCTION PERIOD.
6. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE

1. DURING CONSTRUCTION, MONITOR ANY UNAUTHORIZED USE OF FOREST RETENTION AREAS. ANY USE OF FOREST RETENTION AREAS FOR THE FOLLOWING ACTIVITIES OR OTHER INTRUSIONS SHALL BE A VIOLATION OF THE APPROVED FOREST CONSERVATION PLAN:
   - STORAGE OF EQUIPMENT AND MATERIALS
   - DISPOSAL OF CONSTRUCTION MATERIALS
   - WASHING OF EQUIPMENT, DISPOSAL OF WASTEWATER FROM CONCRETE OPERATIONS, ETC. - EMPLOYEE PARKING
   - TEMPORARY STRUCTURES SUCH AS TRAILERS, SANITARY FACILITIES, ETC.
   - SOIL COMPACTION
   - ROOT INJURY
   - FLOODED CONDITIONS
   - DROUGHT CONDITIONS
2. DURING CONSTRUCTION, INSPECT AND ENFORCE THE LIMITS OF DISTURBANCE AND REQUIRED PROTECTION MEASURES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.
4. ANY DAMAGES TO RETAINED TREES DUE TO CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT THE DIRECTION OF THE QUALIFIED PROFESSIONAL.
5. FOREST CONSERVATION AREAS TO BE INSPECTED AND CERTIFIED FOR COMPLETION OF THE FOREST CONSERVATION PLAN REQUIREMENTS BY A QUALIFIED PROFESSIONAL.

POST CONSTRUCTION

1. POST CONSTRUCTION ACTIVITIES TO BE PROVIDED FOR A MINIMUM OF 2 YEARS.
2. INSPECTIONS SHALL BE CARRIED OUT AT THE BEGINNING AND END OF THE GROWING SEASON TO PINPOINT ANY PROBLEMS, MONITOR SURVIVAL RATES, AND SPECIFY REMEDIAL ACTIONS NEEDED TO CORRECT EXISTING PROBLEMS.
3. POST CONSTRICTION MANAGEMENT PROGRAMS OF FOREST CONSERVATION AREAS MUST BE ESTABLISHED AND INCLUDE MAINTENANCE OF ALL FENCES, SIGNS AND OTHER DEVICES DELINEATING FOREST CONSERVATION AREAS, AS WELL AS THE FOLLOWING OTHER MEASURES:
   STRESS REDUCTION:
   - ROOT PRUNING - CROWN REDUCTION OR PRUNING
   - WATERING
   - FERTILIZATION
   - MULCHING
   - PEST CONTROL
   - CONTROL OF UNDESIRABLE COMPETING SPECIES
   - THINNING AND PRUNING TO ENCOURAGE PROPER GROWTH

   REPAIR OF TREE DAMAGES:
   - ROOT REPAIR
   - REMOVAL OF DEAD OR DAMAGED MATERIAL/LIMBS
   - SOIL AERATION
   - REMOVAL OF DEAD OR DYING TREES POSING AN IMMEDIATE SAFETY HAZARD
4. AS PER THE SEDIMENT CONTROL PLAN, AND UNDER THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE TEMPORARY SEDIMENT CONTROL MEASURES AND FENCING. FOREST CONSERVATION SIGNS SHALL NOT BE REMOVED.
5. AN INSPECTION SHALL TAKE PLACE AT THE END OF YEAR ONE OR BEFORE THE SECOND GROWING SEASON TO EVALUATE SURVIVAL RATES AND APPROPRIATE ACTIONS TAKEN TO ACHIEVE REQUIRED SURVIVAL RATES.
6. AT THE CONCLUSION OF THE POST-CONSTRUCTION PERIOD, THE QUALIFIED PROFESSIONAL SHALL CERTIFY ALL FOREST CONSERVATION AREAS, SUPPLY SURVIVAL RATE DATA, AND VERIFY ALL PERTINENT PROTECTION MEASURES ARE IN PLACE. UPON INSPECTION BY LOCAL STATE PROJECT INSPECTOR APPROVAL, THE DEVELOPER SHALL BE RELEASED OF ALL SURETIES AND FUTURE OBLIGATIONS.
7. EDUCATION MATERIAL MUST BE PROVIDED TO OWNERS AND/OR OCCUPANTS ABOUT PROPER USE OF FOREST CONSERVATION AREAS. SUCH EDUCATION MATERIAL SHOULD INCLUDE A PLAN LOCATING ALL PROTECTED AREAS ON-SITE AND A DESCRIPTION OF PERMITTED AND PROHIBITED ACTIVITIES.

Forest Conservation Worksheet 2.2

Net Tract Area			
A.	Total Tract Area	A =	9.21
B.	Deductions	B =	0.09
C.	Net Tract Area	C =	9.12
Land Use Category			
	Input the number "1" under the appropriate land use zoning, and limit to only one entry		
	ARA 0 / MDR 0 / IDA 0 / HDR 1 / MPD 0 / CIA 0		
D.	Afforestation Threshold (Net Tract Area x 15%)	D =	1.37
E.	Conservation Threshold (Net Tract Area x 20%)	E =	1.82
Existing Forest Cover			
F.	Existing Forest Cover within the Net Tract Area	F =	4.97
G.	Area of Forest Above Conservation Threshold	G =	3.15
Break Even Point			
H.	Break Even Point	H =	2.45
I.	Forest Clearing Permitted Without Mitigation	I =	2.52
Proposed Forest Clearing			
J.	Total Area of Forest to be Cleared	J =	2.96
K.	Total Area of Forest to be Retained	K =	2.01
Planting Requirements			
L.	Reforestation for Clearing Above the Conservation Threshold	L =	0.74
M.	Reforestation for Clearing Below the Conservation Threshold	M =	0.00
N.	Credit for Retention above the Conservation Threshold	N =	0.19
P.	Total Reforestation Required	P =	0.55
Q.	Total Afforestation Required	Q =	0.00
R.	Total Planting Requirement	R =	0.55

Net Tract Area Calculation:

Buch Property:	8.89 ac
Offsite Secondary Emergency Access:	0.32 ac
Total Net Tract Area:	9.21 ac

Existing Forest Cover:

Buch Property:	4.73 ac
Offsite Secondary Emergency Access:	0.24 ac
Total Existing Forest Cover:	4.97 ac

THE FOREST CONSERVATION OBLIGATION FOR THIS PROJECT HAS BEEN SATISFIED BY THE RETENTION OF 2.01 ACRES OF FOREST WITHIN FOUR FOREST CONSERVATION RETENTION EASEMENTS, AND BY A FEE-IN-LIEU PAYMENT IN THE AMOUNT OF $22,760.10 (0.55 AC x 43560SF x 0.95). NO SURETY IS REQUIRED FOR THE ON-SITE RETENTION.

SCALE 1"=30'
15' 0' 30'

4/20/16
JOHN P. CANOLES
MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93M006104B2

DEVELOPER'S/BUILDER'S CERTIFICATE

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

Michael J. Buch — 4.20.16
SIGNATURE OF DEVELOPER — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

FOREST CONSERVATION PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

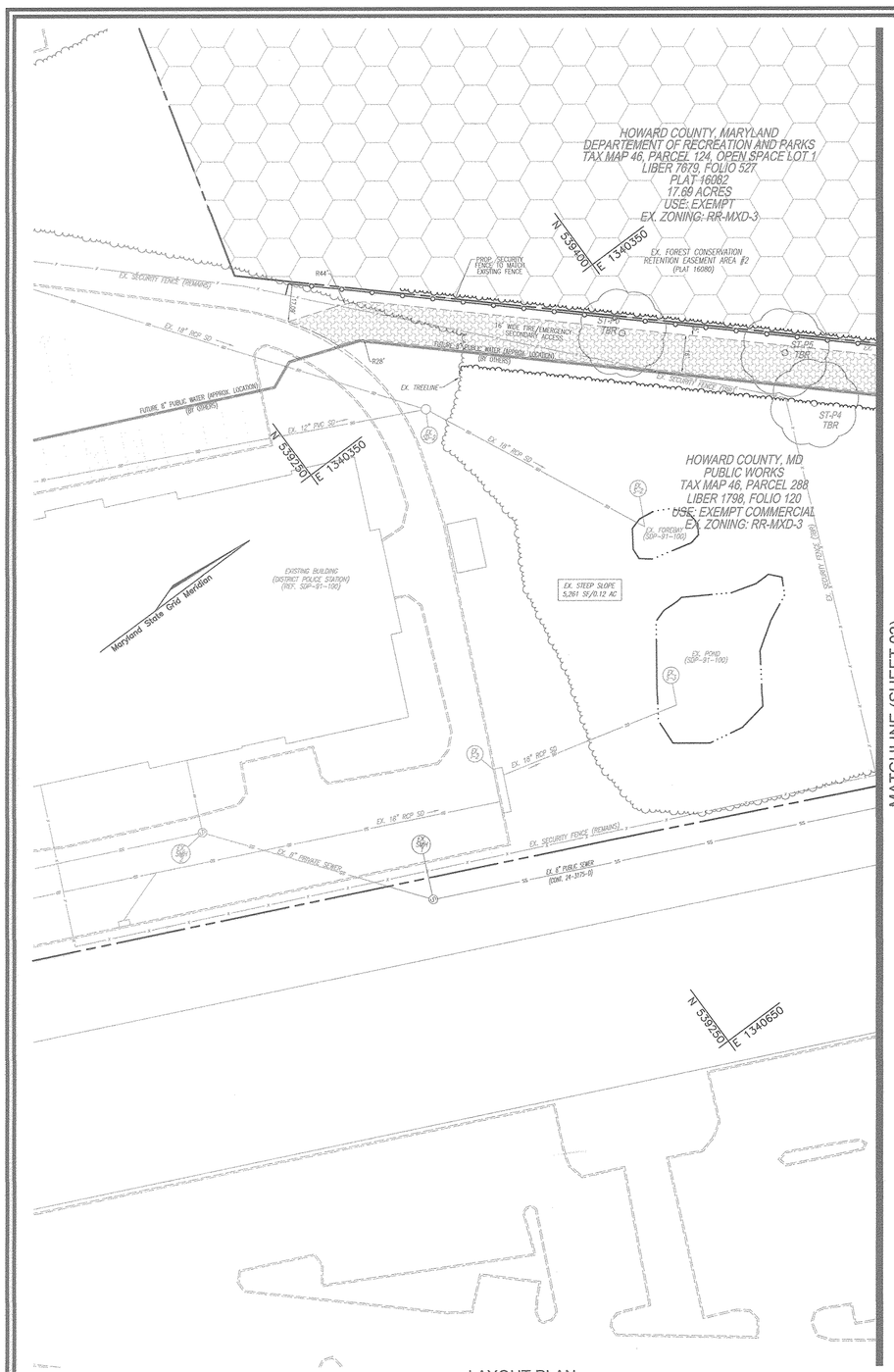
Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057 — Telephone (410) 832-3480 — Fax (410) 838-3488

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER — 4/20/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

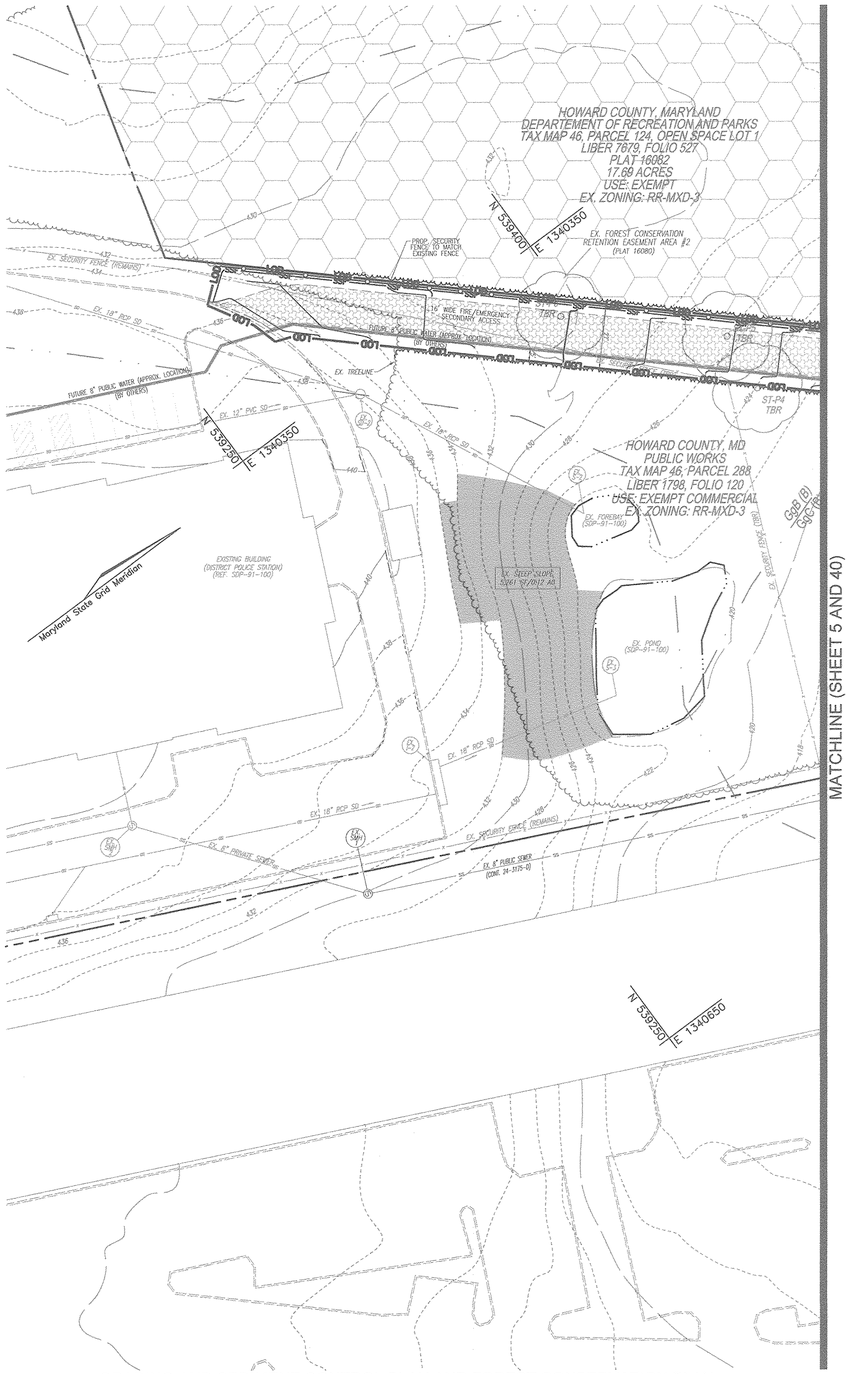
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16193 EXPIRATION DATE: 09-27-2016

SDP-15-044



LAYOUT PLAN
SCALE: 1"=30'

MATCHLINE (SHEET 02)



GRADING AND SEDIMENT CONTROL PLAN AND FOREST CONSERVATION PLAN
SCALE: 1"=30'

MATCHLINE (SHEET 5 AND 40)

FSD NOTES:

1. THIS PLAN HAS BEEN PREPARED TO SUPPLEMENT THE FOREST STAND DELINEATION ON THE BUCH PROPERTY AND INCLUDES A 0.32 ACRE OFFSITE AREA TO BE UTILITZED FOR EMERGENCY ACCESS.
2. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THIS PROPERTY.
2. SURROUNDING LAND USE INCLUDES HIGH DENSITY RESIDENTIAL DEVELOPMENT AND COMMERCIAL USES AGRICULTURE.
3. THE WETLANDS AND STREAMS ON THE BUCH PROPERTY ARE PART OF THE PATUXENT RIVER WATERSHED (02-13-11). THE ONSITE WATERS DRAIN TO HAMMOND BRANCH, WHICH IS A TRIBUTARY TO THE LITTLE PATUXENT RIVER, DOWNSTREAM OF ROUTE 1. AS SUCH, THE ONSITE WATERS ARE CLASSIFIED AS USE I-P. PERENNIAL STREAMS WILL REQUIRE 75 FOOT BUFFERS, INTERMITTENT STREAMS WILL REQUIRE 50 FOOT BUFFERS AND WETLANDS WILL REQUIRE 25 FOOT BUFFERS. NO WETLANDS, STREAMS OR BUFFERS ARE PRESENT ON THE 0.32 ACRE OFFSITE EMERGENCY ACCESS.
5. NO HISTORIC ELEMENTS OR CEMETERIES ARE KNOWN TO OCCUR ON THE PROPERTY.
6. THE BUCH PROPERTY INCLUDES 0.09 ACREAS +/- OF 100 YEAR FLOODPLAIN. NO FLOODPLAIN IS PRESENT ON THE OFFSITE EMERGENCY ACCESS.
7. THE OFFSITE EMERGENCY ACCESS INCLUDES 0.24 ACRES OF FOREST.
8. THERE ARE 6 SPECIMEN TREES IDENTIFIED WITHIN LIMITS OF DISTURBANC FOR THE OFFSITE EMERGENCY ACCESS. NO STATE CHAMPION TREES AND/OR TREES 75% OF THE SIZE OF STATE CHAMPION TREES WERE OBSERVED.
9. THE ACREAGE OF THE OFFSITE EMERGENCY ACCESS AND THE EXISTING FOREST WITHIN THE LIMITS OF DISTURBANCE WILL BE ADDED TO THE FOREST CONSERVATION ACT CALCULATIONS/REQUIREMENTS FOR THE OVERALL BUCH PROPERTY. ADDING THIS ACREAGE TO THE ONSITE PROPERTY CREATES A NET TRACT AREA OF 9.23 AC. WITH 4.97 AC OF EXISTING FOREST. THE BREAK EVEN POINT HAS BEEN CALCULATED TO BE 2.46 ACRES.

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FENCE
- EXISTING TREELINE
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED SIDEWALK
- PROP. 20' PUBLIC WATER AND UTILITY EASEMENT
- FIRE ACCESS GRASS PAVERS
- FOREST CONSERVATION EASEMENT (RETENTION)
- EX. FOREST CONSERVATION EASEMENT (RETENTION)
- MICROBIORETENTION AREA
- EXISTING SPECIMEN TREE
- POST CONSTRUCTION NOISE CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMIT OF DISTURBANCE
- EXISTING SLOPE (MODERATE)
- SOILS BOUNDARY

SPECIMEN TREE CHART					
Key	Species	Size (in.dbh)	CRZ (feet radius)	Comments	Remove or Remain
ST-P1	Tulip poplar	35.5	35.5	fair condition, limb damage noted	Remain
ST-P2	Tulip poplar	40.5	40.5	good condition	Remain
ST-P3	Tulip poplar	33	33	good condition	Remain
ST-P4	Tulip poplar	38	38	good condition	Remove
ST-P5	White oak	34	34	good condition	Remove
ST-P6	Tulip poplar	46	46	good condition	Remove

FOREST STAND DATA

KEY	COMMUNITY TYPE	ACREAGE (NTA)	DOMINANT VEGETATION	GENERAL CONDITION	PRIORITY ACREAGE
F1	OAK-POPLAR	0.24 W/IN OFFSITE EMERGENCY ACCESS 4.97 TOTAL SITE	LIRIODENDRON CER TULIPIFERA, QUERCUS ALBA, QUERCUS RUBRA, ACER RUBRUM, PRUNUS SEROTINA	GOOD	0 W/IN OFFSITE EMERGENCY ACCESS 2.46 ACRES ON TOTAL SITE

SEE ACCOMPANYING REPORT FOR COMPLETE STAND DESCRIPTIONS

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 832-3480 Fax (410) 832-3485

4/20/16
JOHN P. CANOLES
MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD06104482

OWNER/DEVELOPER
BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

SECONDARY EMERGENCY ACCESS AND FOREST CONSERVATION PLAN

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4 — PARCEL 126
5TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5.17.16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8.9.16
DIRECTOR	DATE 8.10.16

BY THE DEVELOPER:

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

BY THE ENGINEER:

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

SIGNATURE OF ENGINEER — DATE 4/20/16

SCALE 1"=30'
15' 0' 30'

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

HOWARD S.C.D. — DATE 4/26/16

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 4.20.16

STATE OF MARYLAND — ROBERT HARRIS VOGEL — NO. 16193 — REGISTERED PROFESSIONAL ENGINEER — 4/20/16
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/DZE
DRAWN BY:	DZE
CHECKED BY:	RHV
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

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SHEET 42 OF 44

SDP-15-044

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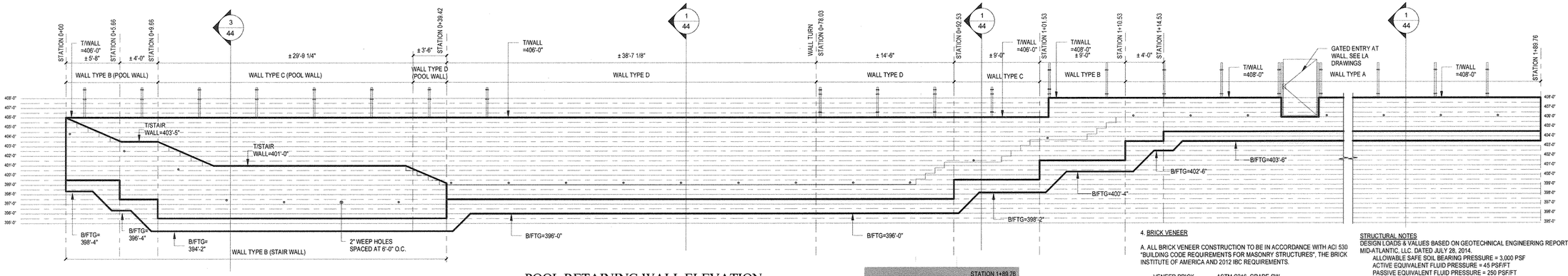
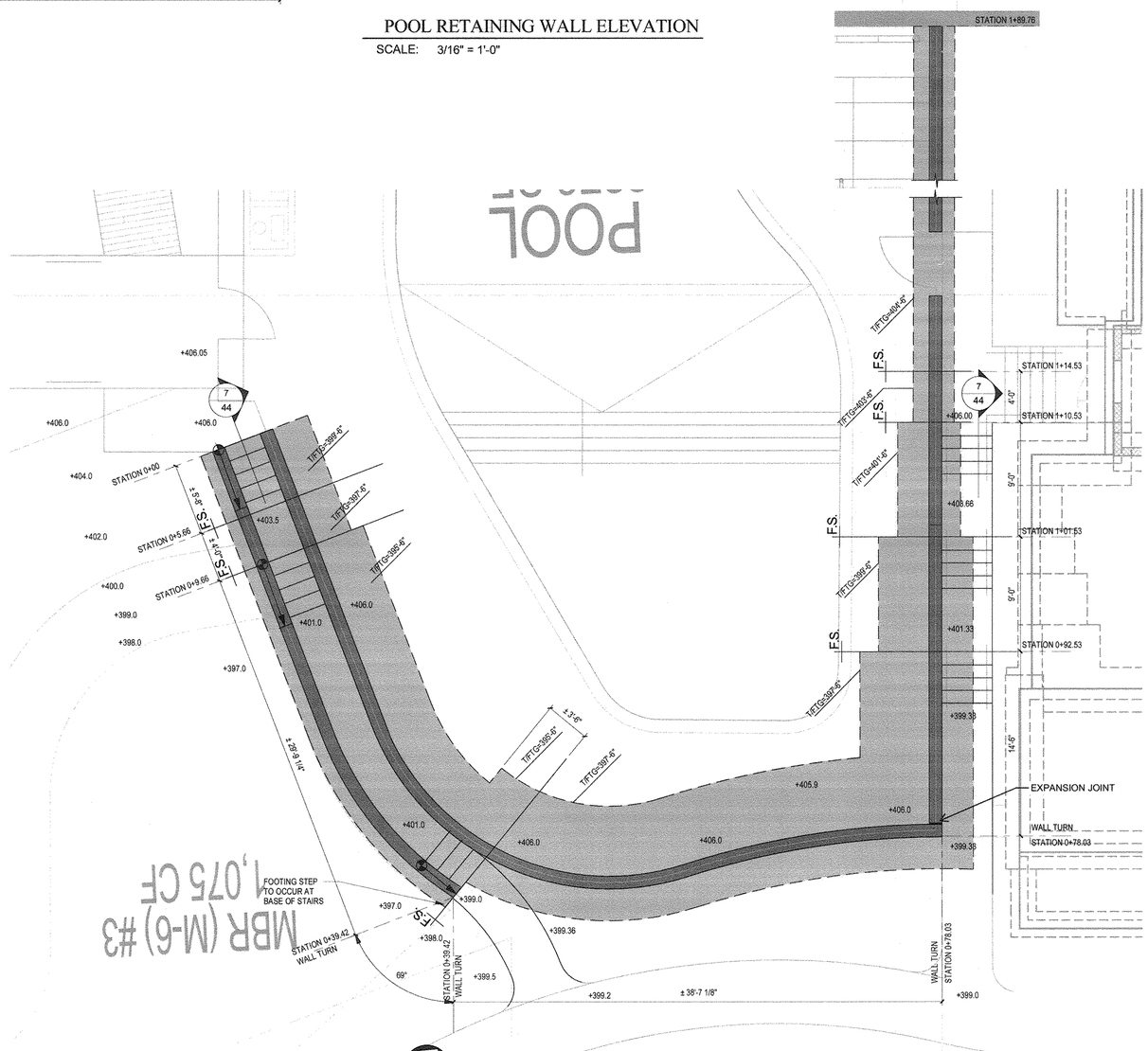


POOL RETAINING WALL ELEVATION

SCALE: 3/16" = 1'-0"



POOL RETAINING WALL PLAN

SCALE: 3/16" = 1'-0"

CONCRETE STRENGTH AND DURABILITY REQUIREMENTS

LOC.	STRUCTURAL MEMBERS	EXPOSURE CLASS (1)	MINIMUM 28 DAY COMPRESSIVE STRENGTH (PSI) (3)	MAXIMUM WATER/CEMENT RATIO (PERCENT)	RECOMMENDED MINIMUM SLUMP (INCHES)(4)
BELOW GRADE	FOOTINGS				
	WITH BOTTOM OF FOOTING POURED AT REQUIRED FROST DEPTH	F2	4500	0.45	3
	FOUNDATION/RETAINING WALLS				
	UNPROTECTED WALLS IN CONTACT WITH SOIL	F2	4500	0.45	3
	SLABS ON GRADE AND SOIL SUPPORTED STAIRS				
	EXTERIOR, IN DIRECT CONTACT WITH SOIL, EXPOSED TO DE-ICING CHEMICALS	F3/C2	5000	0.40	3

1. EXPOSURE CLASS DESCRIPTIONS:
   F0: CONCRETE NOT EXPOSED TO FREEZING AND THAWING CYCLES AND PROTECTED FROM MOISTURE.
   F1: CONCRETE EXPOSED TO FREEZING AND THAWING CYCLES AND OCCASIONAL EXPOSURE TO MOISTURE.
   F2: CONCRETE EXPOSED TO FREEZING AND THAWING CYCLES AND IN CONTINUOUS CONTACT WITH MOISTURE.
   F3: CONCRETE EXPOSED TO FREEZING AND THAWING CYCLES AND IN CONTINUOUS CONTACT WITH MOISTURE AND EXPOSED TO DEICING CHEMICALS
   C2: CONCRETE EXPOSED TO MOISTURE AND DEICING CHEMICALS.
2. CONCRETE WHICH CAN BE EXPOSED TO CYCLES OF FREEZING-AND-THAWING DURING CONSTRUCTION SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH THE TABLE BELOW WITH THE SAME AIR CONTENT AS FOR EXPOSURE CLASS F1.
3. THE CONCRETE STRENGTHS SPECIFIED ARE THE CODE REQUIRED MINIMUM, SEE THE PLANS AND DETAILS FOR HIGHER CONCRETE STRENGTH REQUIREMENTS.
4. RECOMMENDED SLUMP APPLY WHEN VIBRATION IS USED TO CONSOLIDATE THE CONCRETE AND MAY BE INCREASED BY 1" FOR OTHER CONSOLIDATION METHODS. SLUMP MAY BE INCREASED WHEN CHEMICAL ADMIXTURES ARE USED. PROVIDED THAT THE ADMIXTURE TREATED CONCRETE HAS THE SAME OR LOWER WATER/CEMENT RATIO AND DOES NOT SHOW SEGREGATION POTENTIAL OR EXCESSIVE BLEEDING. CONCRETE SLUMP SHALL NOT BE LESS THAN 1 INCH. MEASURED SLUMP TOLERANCE SHALL BE +/- 1.5 MAXIMUM.

CONCRETE STRENGTH AND DURABILITY REQUIREMENTS (cont.)

TOTAL AIR CONTENT FOR CONCRETE EXPOSED TO CYCLES OF FREEZING-AND-THAWING

NOMINAL MAXIMUM AGGREGATE SIZE, (INCHES)	AIR CONTENT, PERCENT	
	EXPOSURE CLASS, F1	EXPOSURE CLASSES, F2 AND F3
3/8	6.0%	7.5%
1/2	5.5%	7.0%
3/4	5.0%	6.0%
1	4.5%	6.0%

AGGREGATE SHALL CONFORM TO ASTM C33 AND MAY RANGE FROM 3/8" TO 3/4" IN SIZE. CONCRETE IN EXPOSURE CLASSES F1, F2, OR F3 SHALL BE AIR ENTRAINED ACCORDING TO TABLE 4.4.1, ACI-318. THIS TABLE SHOWN IS FOR USUSL MAXIMUM AGGREGATE SIZES USED IN STRUCTURAL CONCRETE. MEASURED AIR CONTENT TOLERANCE SHALL BE +/- 1.5 MAXIMUM.

THIS SIGNATURE BLOCK REQUIRED ON BOTH SHEETS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5-17-16
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8-9-16
DIRECTOR	DATE 8-10-16

4. BRICK VENEER

A. ALL BRICK VENEER CONSTRUCTION TO BE IN ACCORDANCE WITH ACI 530 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", THE BRICK INSTITUTE OF AMERICA AND 2012 IBC REQUIREMENTS.

VENEER BRICK	ASTM C216, GRADE SW
MORTAR	ASTM C270, TYPE S EXT. OR BELOW GRADE

b. PROVIDE BRICK TIES AT 16"O.C VERTICALLY AND 24"O.C. HORIZONTALLY. TIES SHALL BE 7/8" x 3 1/2" LONG x 22 GAGE STANDARD CORRUGATED TIES IN DOVETAIL SLOTS WITH A MAXIMUM SPACING OF 1" BETWEEN THE INSIDE FACE OF VENEER AND OUTSIDE FACE OF CONCRETE WALL. ALL TIES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION CONFORMING TO ASTM A-153 CLASS B2. PLACE ANCHORS WITHIN 12" OF END OF WALL OR WALL STEPS. CONTRACTOR TO SUBMIT ANCHOR SPECIFICATION TO SER FOR APPROVAL. ALTERNATE TIES OR ANCHORS MAY BE PROVIDED FOR APPROVAL. VERTICAL JOINTS IN VENEER SHALL ALIGN WITH JOINTS IN CONCRETE WALL.

5. CONSTRUCTION OBSERVATION AND TESTING

A. THE REQUIRED FOOTING SUBGRADE BEARING CAPACITY SHALL BE CERTIFIED BY A MARYLAND LICENSED PROFESSIONAL ENGINEER (TESTING AGENCY) PRIOR TO LEVELING PAD PLACEMENT.
B. CONSTRUCTION OF RETAINING WALL SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND LICENSED PROFESSIONAL ENGINEER (TESTING AGENCY). UPON COMPLETION OF THE WORK, TESTING AGENCY SHALL SUBMIT TO THE CITY OF GAITHERSBURG DEPARTMENT OF PUBLIC WORKS A SIGNED AND SEALED REPORT STATING THAT THE RETAINING WALL WAS CONSTRUCTED IN ACCORDANCE WITH PLANS, SPECIFICATIONS AND ACCEPTED MODIFICATIONS (IF APPLICABLE), AND THAT THE RETAINING WALL AS-BUILT IS ADEQUATE TO WITHSTAND DESIGN SERVICE LOADS AND PRESSURES TO WHICH IT MAY BE SUBJECTED.
C. THIS WALL IS LOCATED ENTIRELY ON PRIVATE PROPERTY AND SHALL BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.

STRUCTURAL NOTES

DESIGN LOADS & VALUES BASED ON GEOTECHNICAL ENGINEERING REPORT PREPARED BY ECS MID-ATLANTIC, LLC. DATED JULY 28, 2014.
ALLOWABLE SAFE SOIL BEARING PRESSURE = 3,000 PSF
ACTIVE EQUIVALENT FLUID PRESSURE = 45 PSF/FT
PASSIVE EQUIVALENT FLUID PRESSURE = 250 PSF/FT
SOIL WEIGHT = 120 PCF
COEFFICIENT OF FRICTION = 0.35

1. GENERAL
A. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE PROVISIONS OF THE 2012 IBC, STATE AND LOCAL COUNTY REQUIREMENTS, AND THE FOLLOWING CRITERIA:

2. FOUNDATIONS
A. THE ASSUMED ALLOWABLE SAFE BEARING PRESSURE IS 3,000 PSF. TO BE VERIFIED BY AN ON-SITE GEOTECHNICAL ENGINEER OR BUILDING OFFICIAL. ALL FOOTINGS SHALL PROJECT AT LEAST 1'-0" INTO UNDISTURBED NATURAL SOIL OR COMPACTED STRUCTURAL FILL.
B. BOTTOMS OF FOOTINGS TO BE AT LEAST 2'-6" BELOW FINISHED GRADE OR TO FROST LINE DETERMINED BY BUILDING OFFICIAL. ALL BEARING STRATA SHALL BE ADEQUATELY DRAINED BEFORE PLACING CONCRETE. NO EXCAVATION SHALL BE CLOSER THAN AT LEAST A SLOPE OF TWO HORIZONTAL TO ONE VERTICAL (2 HORIZ.: 1 VERT.) TO UNDERSIDE EDGE OF ANY EXISTING FOOTINGS WITHOUT THE WRITTEN AND CERTIFIED PERMISSION OF A GEOTECHNICAL ENGINEER. STEP FOOTINGS WITH A RATIO OF TWO HORIZ. TO ONE VERTICAL.
C. PROVIDE SHORING AND PROTECTION FOR EXCAVATION BANKS AS NECESSARY TO PREVENT CAVING AND COMPLY WITH ALL APPLICABLE OSHA RULES AND REGULATIONS.

3. CONCRETE
A. CONCRETE MATERIAL, QUALITY CONTROL, DESIGN AND CONSTRUCTION SHALL CONFIRM WITH REQUIREMENTS OF CHAPTER 19, INTERNATIONAL BUILDING CODE (IBC), AND WITH BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI-318).
B. MINIMUM SPECIFIED 28 DAYS CONCRETE DESIGN STRENGTH SHALL BE AS SHOWN ON THE CONCRETE STRENGTH AND DURABILITY REQUIREMENTS TABLE LOCATED BELOW UNLESS A HIGHER STRENGTH IS SHOWN ON THE CONSTRUCTION DRAWINGS. EXPOSURE CATEGORIES ARE PER ACI-318, CHAPTER 4. CEMENTITIOUS MATERIALS CONTENT SHALL BE LIMITED AS PER ACI-318, TABLE 4.2.2. ALL CEMENTITIOUS MATERIALS SHALL BE INCLUDED IN CALCULATING WATER/CEMENT RATIO.
C. MIXING, TRANSPORTING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 301.
D. HIGH STRENGTH GROUT SHALL BE NON-SHRINK, NON-METALLIC CONFORMING TO ASTM C 827 AND SHALL HAVE A COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS.
E. ALL REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 60 (60,000 PSI). WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A-185. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE ACI'S "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" (ACI-315). DETAILS OF REINFORCEMENT SHALL CONFORM TO ACI 318-LATEST EDITION. ACI 315 AND CRSI STANDARDS.
F. CONCRETE PROTECTION FOR REINFORCEMENT: PROVIDE THE MINIMUM CLEARANCES (COVER) FOR REINFORCEMENT AS FOLLOWS:

FOOTINGS AND OTHER CONCRETE POURED AGAINST EARTH	3"
FORMED CONCRETE EXPOSED TO EARTH	2"
SLABS ON GROUND, UNLESS OTHERWISE NOTED	MID-DEPTH

G. PROVIDE 3' X 3' CORNER AND "T" BARS TO MATCH ALL HORIZONTAL REINFORCING IN WALLS AND FOOTINGS. ALL LAPS SHALL BE A MINIMUM OF 30 BAR DIAMETERS. PROVIDE DOWELS BETWEEN ALL FOOTINGS, WALLS AND PIERS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING.
E. WALL TO HAVE VERTICAL CONTROL JOINTS SPACED AT NO MORE THAN 25'-0" HORIZONTALLY AS REQUIRED AND EXPANSION JOINTS AT 75'-0" O.C. OR WHERE SHOWN ON PLAN.
F. CHAMFER ALL EXPOSED CONCRETE CORNERS, 3/4"x3/4" UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS.
G. MAXIMUM PERMISSIBLE WATER CEMENTIOUS MATERIALS RATIOS FOR CONCRETE WHEN STRENGTH DATA FROM FIELD EXPERIENCE OR TRIAL MIXTURES ARE NOT AVAILABLE SHALL BE IN ACCORDANCE WITH ACI 318.
H. PLACE CONCRETE FOR FOUNDATIONS ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER.
I. PROTECT CONCRETE FROM FREEZING DURING PLACING AND FOR A PERIOD OF NOT LESS THAN FIVE DAYS AFTERWARD.
J. CAST IN PLACE ALL SLEEVES AND INSERTS.

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-359-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

POOL RETAINING WALL

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

ZONED: R-APT
(L. 3192 / F. 394)

PARCEL 126
HOWARD COUNTY, MARYLAND

CATES ENGINEERING STRUCTURAL CONSULTING
13575 Heathcote Blvd. Suite 170 Gaithersburg, VA 20155
Tel:571.261.9280 Fax:571.261.9286 www.catesengr.com

CATES ENGINEERING, LLC RETAINS ALL LEGAL RIGHTS TO THESE DRAWINGS. THESE DRAWINGS ARE PREPARED FOR THIS PROJECT ONLY AND SHALL NOT BE USED FOR ANOTHER PROJECT WITHOUT THE WRITTEN CONSENT OF CATES ENGINEERING, LLC. DO NOT SCALE DRAWINGS. USE DIMENSIONS.

DESIGN BY:	MRP
DRAWN BY:	MRP
CHECKED BY:	BLC
DATE:	APRIL 2016
SCALE:	AS SHOWN
W.O. NO.:	12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16270
EXPIRATION DATE: 11-20-2016

43 SHEET OF 44

SDP-15-044

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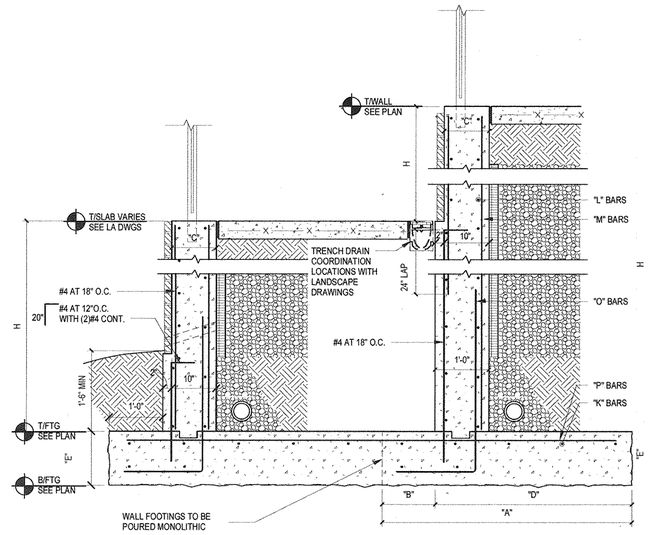
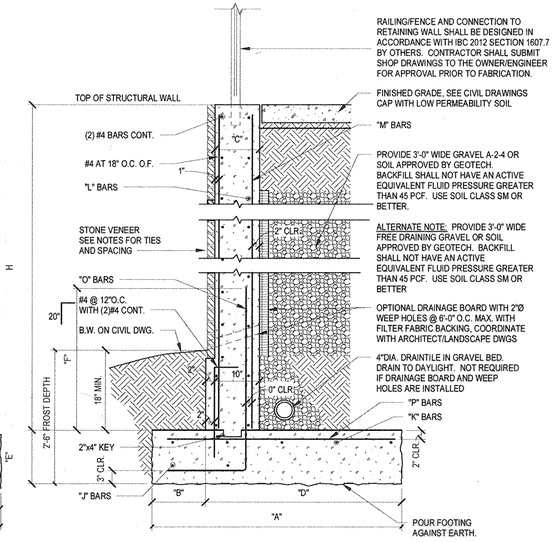


3/44 CONCRETE CANTILEVERED RETAINING WALL

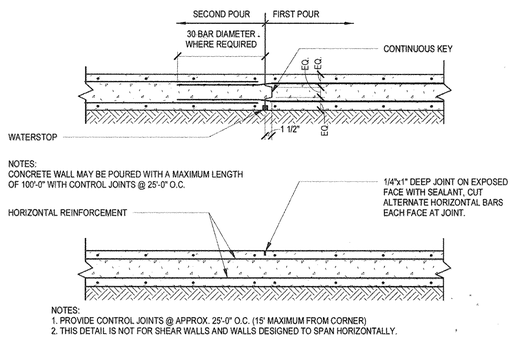
SCALE: N.T.S.



1/44 CONCRETE CANTILEVERED RETAINING WALL

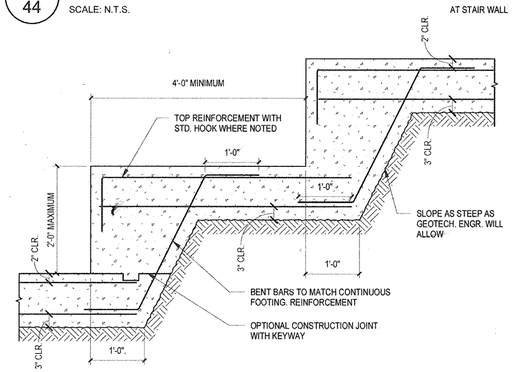
SCALE: N.T.S.

EXTERIOR CONCRETE RETAINING WALL (ACTIVE PRESSURE = 45 PCF)						
WALL HEIGHT	DIMENSIONS					
H	A	B	C	D	E	F
WALL TYPE A 0'-0" TO 4'-0"	3'-6"	1'-0"	10"	2'-6"	1'-0"	1'-3"
WALL TYPE B 4'-1" TO 6'-0"	6'-0"	2'-0"	10"	4'-0"	1'-2"	2'-0"
WALL TYPE C 6'-1" TO 7'-0"	7'-0"	2'-0"	10"	5'-0"	1'-4"	2'-6"
WALL TYPE D 7'-1" TO 8'-6"	9'-0"	2'-6"	10"	6'-6"	1'-6"	3'-0"
WALL HEIGHT	REINFORCING					
H	J	K	L	M	O	P
WALL TYPE A 0'-0" TO 4'-0"	2 #4	3 #4	#4 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 18"
WALL TYPE B 4'-1" TO 6'-0"	2 #4	5 #4	#4 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 18"
WALL TYPE C 6'-1" TO 7'-0"	3 #4	6 #5	#4 @ 12"	#5 @ 12"	#5 @ 12"	#4 @ 18"
WALL TYPE D 7'-1" TO 8'-6"	3 #4	9 #5	#4 @ 12"	#5 @ 12"	#6 @ 12"	#5 @ 12"



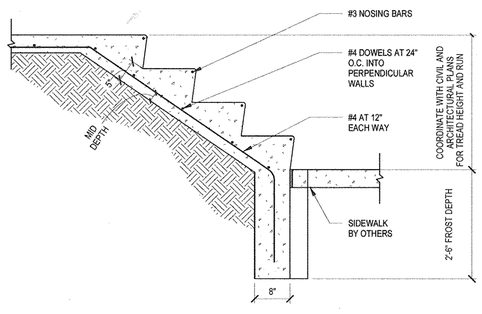
6/44 WALL CONSTRUCTION AND CONTROL JOINTS

SCALE: N.T.S.



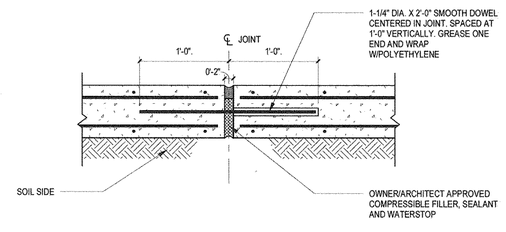
4/44 STEPPED FOOTING DETAIL

SCALE: N.T.S.



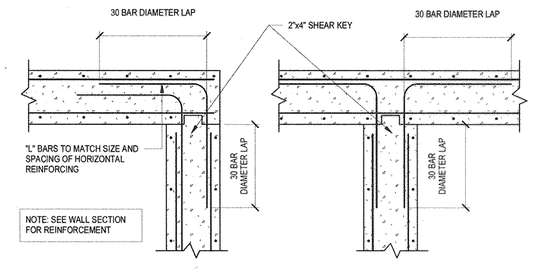
7/44 TYPICAL SOIL SUPPORTED STAIR

SCALE: N.T.S.



5/44 CONCRETE WALL EXPANSION JOINT

SCALE: N.T.S. PLAN VIEW



2/44 TYPICAL REINFORCING AT WALL CORNERS

SCALE: N.T.S. PLAN VIEW

THIS SIGNATURE BLOCK REQUIRED ON BOTH SHEETS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5.17.16

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5-9-16

DIRECTOR — DATE 8-10-16

OWNER/DEVELOPER

BUCH LLLP
10945 PRICE MANOR WAY
LAUREL, MD 20723
301-350-3500

NO.	REVISION	DATE

SITE DEVELOPMENTAL PLAN

POOL RETAINING WALL

THE VINE
BUCH APARTMENTS
10945 PRICE MANOR WAY (FORMERLY 10945 JOHNS HOPKINS ROAD)
ZONED: R-APT
(L. 3192 / F. 394)

TAX MAP 46 BLOCK 4
5TH ELECTION DISTRICT

PARCEL 126
HOWARD COUNTY, MARYLAND

CATES ENGINEERING
STRUCTURAL CONSULTING
13575 Heathcote Blvd. Suite 370 Gaithersburg, VA 20155
Tel:571.261.9380 Fax:571.261.9286 www.catesengr.com

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DESIGN BY: MRP
DRAWN BY: MRP
CHECKED BY: BLC
DATE: APRIL 2016
SCALE: AS SHOWN
W.O. NO.: 12-50.00

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16270
EXPIRATION DATE: 11-26-2016

4-15-16

SHEET 44 OF 44

SDP-15-044

5/22/2015 3:29:21 PM
C:\Users\mpocian\Documents\876-009-14 - S14 - BUCH APARTMENTS - CENTRAL_MPocius.rvt