SITE DEVELOPMENT PLAN

THE GATHERINGS AT ELLICOTT'S RETREAT

SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. OWNER / APPLICANT: COMMERCIAL CONTRACTORS INC.
   1205 YORK ROAD
   LUTHERVILLE–TIMONIUM, MD 21093
2. TAX ACCOUNT NO.: 379643
3. PROPERTY REFERENCE: TAX MAP 24, GRID 06, PARCEL 1085
4. ZONING: POR
5. EXISTING USE: VACANT
6. PROPOSED USE: RESIDENTIAL – AGE RESTRICTED
7. AREA OF SITE: 17.12 ACRES
8. DEED REFERENCE: L.3771/ F.091
9. APPLICABLE DPZ FILE REFERENCES: F–96–01, F–96–09, F–99–208, SDP–96–01, SDP–98–29, WP 99–52, WP 98–48, WP 04–33, WP 05–22, WP 06–32, WP 00–38, GP 98–81, F 07–98
10. BOUNDARY INFORMATION SHOWN HEREON IS BASED ON AVAILABLE RECORD PLATS AND A FIELD RUN SURVEY PERFORMED BY KCI TECHNOLOGIES INC. DATED NOVEMBER 2013.
11. THERE ARE NO WETLAND AREAS OR STREAMS WHICH WILL BE AFFECTED BY THE PROPOSED CONSTRUCTION.
12. NO 100–YEAR FLOODPLAIN EXISTS ON THIS PROPERTY PER FEMA F.I.R.M. MAP NO. 24–0044–0017B DATED DECEMBER 4, 1986. THE MAP INDICATES THAT THE PROPERTY SHOWN HEREON LIES WITHIN ZONE 'C', AREAS OF MINIMAL FLOODING.
13. FOREST CONSERVATION OBLIGATIONS FOR THIS SITE WERE PREVIOUSLY ADDRESSED. SEE FINAL PLANS F–96–009, F–99–208 AND F–07–098.
14. PARKING TABULATION:

    REQUIRED
    - 1 SPACES PER UNIT: 162 UNITS X 1 SPACES = 162
    - 0.3 SPACES PER UNIT: 162 UNITS X 0.3 = 49
    - TOTAL REQUIRED: 211 SPACES

    PROVIDED
    - GARAGES IN BUILDING: 26 SPACES X 6 BLDGS. = 156
    - SPACES OUTSIDE GARAGES: 147
    - STAND–ALONE GARAGES: 5 SPACES X 4 BLDGS. = 20
    - STAND–ALONE GARAGES: 3 SPACES X 2 BLDGS. = 6
    - REGULAR PARKING SPACES: 30
    - HANDICAP SPACES: 8
    - TOTAL PROVIDED: 367 SPACES

    *ALL GARAGES ARE HANDICAP ACCESSIBLE.
15. THE DISTURBANCE TO THE STREAM BUFFER ALONG THE WEST SIDE IS NECESSARY IN ACCORDANCE WITH SUBSECTION 16.116(C). THIS DISTURBANCE IS REQUIRED TO PROVIDE MAINTENANCE ACCESS ALONG THE BASE OF THE RETAINING WALL AND TO THE STORMWATER FACILITY PER SECTION 16.116(C) OF THE SUBDIVISION REGULATIONS.
16. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
17. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" (800–257–7777) AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ANY WORK.
18. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/ BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313–1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
19. OBSTRUCTIONS SUCH AS PAVING, TREES, UNDERGROUND UTILITIES, ETC. SHOWN ON THESE DRAWINGS ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION. IN THE EVENT THAT INFORMATION IS IN CONFLICT WITH INFORMATION OUTLINED, THE CONTRACTOR SHALL IMMEDIATELY BRING IT TO THE ATTENTION OF THE ENGINEER PRIOR TO STARTING ANY WORK.
20. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES SHOWN HEREON BEFORE STARTING ANY WORK ON THESE PLANS. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES WHICH OCCUR AS A RESULT OF A FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES TO REMAIN.
21. WATER IS PUBLIC, CONNECTED TO PROJECT# 14–3444–D.
22. SEWER IS PRIVATE.
23. CONTRACTOR SHALL REMOVE DRIVEWAY ENTRANCES, STRUCTURES, AND CONCRETE WALKS TO LIMITS INDICATED ON THE DRAWING.
24. CONTRACTOR SHALL NOT PROCEED WITH ANY DEMOLITION WORK UNTIL ALL UTILITY DISCONNECTIONS ARE COMPLETED AND VERIFIED IN WRITING.
25. EXISTING CONCRETE SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT. NO PATCHING SHALL BE PERMITTED.
26. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
27. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
28. SEE ARCHITECTURAL PLANS FOR ADDITIONAL BUILDING INFORMATION.
29. SEE MECHANICAL/ELECTRICAL/PLUMBING PLANS FOR ADDITIONAL MECHANICAL/ELECTRICAL/PLUMBING DEMOLITION AND CONSTRUCTION INFORMATION.
30. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
31. ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
32. CONTRACTOR TO ADJUST TOP OF CURB GRADES AS NECESSARY TO PROVIDE SMOOTH TRANSITION TO EXISTING.
33. SAW CUT EXISTING PAVEMENT AS NEEDED TO INSTALL NEW CONSTRUCTION.
34. THE CONTRACTOR SHALL NOTE THAT IN CASE OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
35. TRENCH BACKFILL IN GRASS AREAS SHALL BE COMPACTED TO A MINIMUM 90% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH A.A.S.H.T.O. VERIFY DESIGNATION T–180, METHOD C. TRENCH BACKFILL IN STRUCTURAL AND PAVEMENT AREAS SHALL BE PLACED IN EIGHT INCH LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D–1557). IN PAVED AREAS, FILL BELOW THE TOP 12 INCHES SHOULD BE COMPACTED TO 97%.
36. CONTRACTOR SHALL ADJUST ALL EXISTING UTILITIES, I.E. MANHOLE FRAMES AND COVERS, ETC. WITHIN THE LIMITS OF THE CONTRACT TO PROPOSED GRADES AS REQUIRED.
37. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDING STRUCTURES AT ALL TIMES.
38. CONTRACTOR SHALL COORDINATE ALL DISCONNECTIONS AND REMOVAL OF EXISTING GAS, ELECTRIC AND TELEPHONE SERVICES AND EQUIPMENT WITH BALTIMORE GAS & ELECTRIC AND VERIZON.
39. CONTRACTOR SHALL INSTALL SEDIMENT CONTROLS PRIOR TO BEGINNING ANY WORK AND MAINTAIN SEDIMENT CONTROLS THROUGHOUT THE ENTIRE DURATION OF DEMOLITION AND CONSTRUCTION ACTIVITIES.
40. ALL EXCAVATION SHALL BE BACKFILLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. IN THE EVENT THAT A PORTION OF A UTILITY IS TO BE REMOVED THE CONTRACTOR SHALL TERMINATE AND CAP TO THE LIMITS INDICATED IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS.
41. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
42. STORMWATER MANAGEMENT QUANTITY AND QUALITY HAS BEEN PROVIDED IN ACCORDANCE WITH THE 2010 MARYLAND STORMWATER MANAGEMENT ORDINANCE AND REVISED 2010 STORMWATER MANAGEMENT DESIGN MANUAL. THERE ARE (19) PRACTICE M–6 MICRO BIORETENTION AREAS, (1) PRACTICE M–3 LANDSCAPE INFILTRATION, AND (3) PRACTICE A–2 PERMEABLE CONCRETE AREAS PROPOSED FOR THIS SITE. ALL PRACTICES WILL BE PRIVATELY OWNED AND MAINTAINED IN THEIR ENTIRETY.
43. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 171C AND 18G1 WERE USED FOR THIS PROJECT.
44. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY KCI TECHNOLOGIES DATED NOVEMBER 2013.
45. ALL OUTDOOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF ZONING SECTION 134.
46. 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 SLEEVE (14 GAUGE) INSERTED INTO A 2–1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) – 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
47. EXISTING UTILITIES ARE BASED ON AVAILABLE EXISTING PLANS AND FIELD RUN TOPOGRAPHY PREFORMED BY KCI TECHNOLOGIES ON OR ABOUT NOVEMBER 2013.
48. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED MAY 6, 2014, AND WAS APPROVED ON JUNE 27, 2014.
49. ALL PROPOSED BUILDING WHC'S WILL BE METERED INSIDE BUILDINGS.
50. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
51. PER ZONING REQUIREMENTS, 10% OF THE UNITS WILL BE SOLD AS MODERATE INCOME HOUSING UNITS (MIHU). THE FEE–IN LIEU WILL BE PAID TO FULFILL THE REQUIREMENT. THE EXECUTED MIHU AGREEMENT WILL BE ADDED TO THIS PLAN AS A PLAN REVISION (REDLINE).
52. THIS PLAN WAS PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF $32,700 FOR 80 SHADE TREES AND 58 EVERGREEN TREES WILL BE POSTED AS PART OF THE DPW, DEVELOPER'S AGREEMENT FOR THIS PLAN.
53. THE NOISE STUDY FOR THIS PROJECT WAS PREPARED BY MICHAEL STAIANO, DATED JUNE 27, 2014, AND WAS APPROVED ON OCTOBER 7, 2014. BUILDING CONSTRUCTION MATERIALS SHALL BE USED TO REDUCE THE INTERIOR SOUND TO 45 DBA PER APPROVED SUBDIVISION WAIVER WP–15–039.
54. TRASH SERVICE TO BE PUBLIC. DUMPSTER ENCLOSURES WILL BE PER COUNTY STANDARD R–8.05. GATES TO BE OPENED AND SECURED OPENED BY STAFF PRIOR TO COLLECTION. EACH ENCLOSURE SHALL CONTAIN ONE TRASH AND ONE RECYCLE DUMPSTER.
55. THE DECLARATION OF AGE-RESTRICTION FOR THIS PROJECT WAS RECORDED IN THE HOWARD COUNTY LAND RECORDS AS LIBER/FOLIO 16418/500 ON 9/2/15.
56. UNIVERSAL DESIGN GUIDELINES LOCATED ON SHEET C–1.02.

APPROVED: FOR PUBLIC WATER AND PRIVATE SEWERAGE SYSTEMS

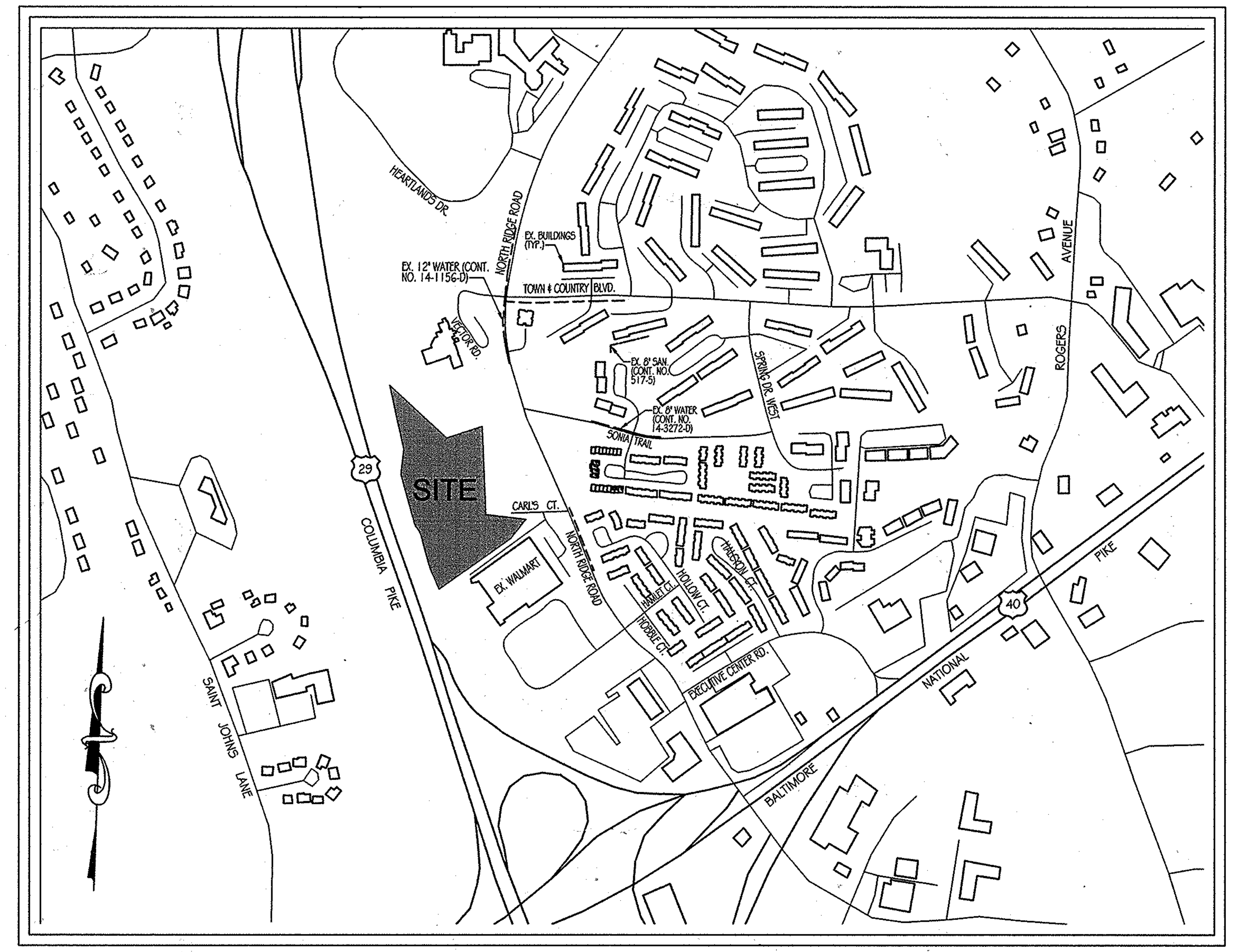
for [signature] 9/24/15
COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 9-21-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 9.17.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 9-29-15
DIRECTOR — DATE



NOTE: IN ACCORDANCE WITH THE DPZ LETTER DATED JULY 7, 2015, A PLAN REVISION (REDLINE) MUST BE SUBMITTED BETWEEN JULY 1, 2016 AND DECEMBER 31, 2016 TO INDICATE THE 54 UNITS ASSOCIATED WITH PHASE 2 FOR ALLOCATION YEAR 2019.

LOCATION MAP
SCALE: 1"=100'

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- —260— EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- —LOD— LIMIT OF DISTURBANCE
- GnB / MaC SOILS LINE
- B1 BORING LOCATION

SITE ANALYSIS DATA CHART

A. TOTAL PROJECT AREA: 17.12 AC. OR 745,747 SQ.FT
B. AREA OF PLAN SUBMISSION: 17.12 AC. OR 745,747 SQ.FT
C. LIMIT OF DISTURBED AREA: 10.10 AC OR 439,956 SQ.FT
D. PRESENT ZONING DESIGNATION: POR
E. PROPOSED USES FOR SITE AND STRUCTURES: RESIDENTIAL–AGE RESTRICTED
F. TOTAL NUMBER OF UNITS PROPOSED ON SUBMISSION: 162 UNITS
G. NUMBER OF PARKING SPACES REQUIRED BY HOWARD COUNTY ZONING REGULATIONS AND/OR FDP CRITERIA: 211 SPACES
H. NUMBER OF PARKING SPACES PROVIDED ON SITE (INCLUDE NUMBER OF HANDICAPPED PARKING SPACES): 367 SPACES
I. OPEN SPACE ON SITE: 8.80 ACRES AND 51.4% OF GROSS AREA. 20% IS REQUIRED OR 3.42 ACRES.
J. BUILDING COVERAGE ON SITE: 2.20 ACRES AND 12.9% OF GROSS AREA.
K. APPLICABLE DPZ FILE REFERENCE: F–96–01, F–96–09, F–99–208, SDP–96–01, SDP–98–29, WP 99–52, WP 98–48, WP 04–33, WP 05–22, WP 06–32, WP 00–38, GP 98–81, F 07–98

PHASE	NO. OF TENTATIVE ALLOCATIONS	ALLOCATION YEAR
1	108	2018
2	54	2019

PERMIT INFORMATION CHART

SUBDIVISION NAME: ELLICOTT CITY WALMART	SECTION/AREA: N/A	LOT / PARCEL NO.: 1085			
PLAT NUMBER: 19014&19015	GRID #: 06	ZONING: POR	TAX MAP: 24	ELECTION DISTRICT: 2ND	CENSUS: 602600
WATER CODE: F03			SEWER CODE: 1452800		

ADDRESS CHART

LOT/PARCEL #	STREET ADDRESS
BUILDING #1	8911 CARLS COURT
BUILDING #2	8910 CARLS COURT
BUILDING #3	8920 CARLS COURT
BUILDING #4	8950 CARLS COURT
BUILDING #5	8940 CARLS COURT
BUILDING #6	8930 CARLS COURT
CLUBHOUSE	8915 CARLS COURT

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74

No.	NORTHING	EASTING	ELEV
1	588971.65	1362993.12	416.20
2	589778.33	1362905.76	441.80
3	589416.22	1362495.27	418.27

INDEX OF DRAWINGS

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4–5	C–1.02 – C–1.03	BUILDING SITE PLANS
6	C–1.04	GEOMETRY PLAN
7	C–1.05	WATER & SEWER PROFILES
8	C–1.06	LANDSCAPE PLAN
9	C–1.07	LANDSCAPE DETAILS
10	C–1.08	SITE DETAILS
11	C–1.09	SITE DETAILS
12	C–2.00	STORMWATER MANAGEMENT PLAN
13	C–2.01	DRAINAGE AREA MAP
14	C–2.02	INLET DRAINAGE AREA MAP
15–16	C–2.03 – C–2.04	STORM DRAIN PROFILES
17	C–2.05	STORM DRAIN DETAILS
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27	C–2.15	LANDSCAPE INFILTRATION PLAN
28	C–2.16	SWM FACILITY DETAIL
29	C–2.17	SWM UNDERGROUND STORAGE PIPE DETAIL
30	C–2.18	PERMEABLE PAVEMENT DETAILS
31	C–3.00	SEDIMENT & EROSION CONTROL PLAN
32	C–3.01	SEC DRAINAGE AREA MAP (EXISTING)
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34	C–3.03	SEDIMENT & EROSION CONTROL NOTES AND DETAILS
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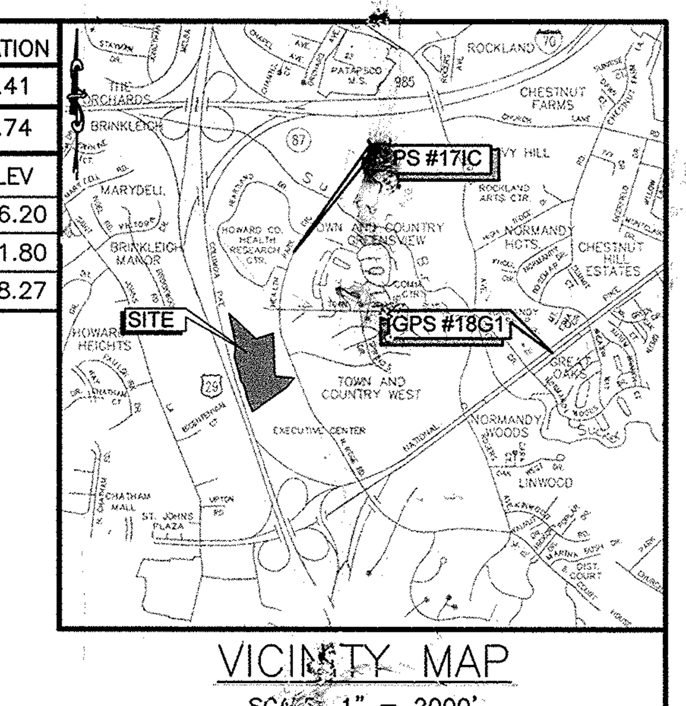
38	C–3.07	SEDIMENT & EROSION CONTROL NOTES AND DETAILS
39	C–3.08	SEDIMENT & EROSION CONTROL SECTIONS
40	C–3.09	SEDIMENT & EROSION CONTROL BORING LOGS
41	S–1	RETAINING WALL PLAN
42	S–2	RETAINING WALL PLAN
43	S–3	RETAINING WALL PLAN
44	S–4	RETAINING WALL PLAN
45	S–5	RETAINING WALL PLAN
46	S–6	RETAINING WALL PLAN
47	C–5.00	PHOTOMETRIC PLAN



VICINITY MAP
SCALE: 1" = 2000'
ADC MAP 21B6

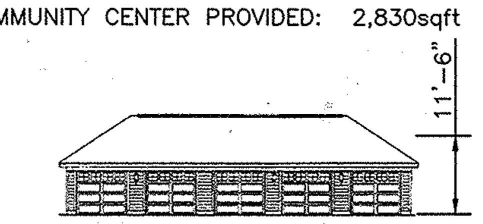
OPEN SPACE TABULATION

GROSS TRACT AREA	OPEN SPACE REQUIRED (20%)	CREDITED OPEN SPACE PROVIDED
17.12AC.	3.42AC.	8.80AC. (51.4%)

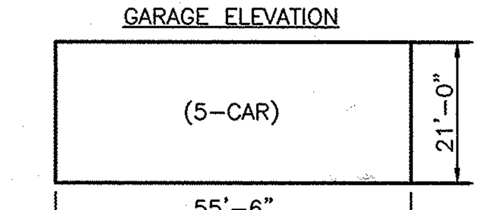
COMMUNITY CENTER

COMMUNITY CENTER REQUIRED:
20sqft FOR FIRST 99 UNITS
10sqft FOR EACH ADDITIONAL UNITS
REQUIRED @ 162 UNITS: 2,610sqft

COMMUNITY CENTER PROVIDED: 2,830sqft

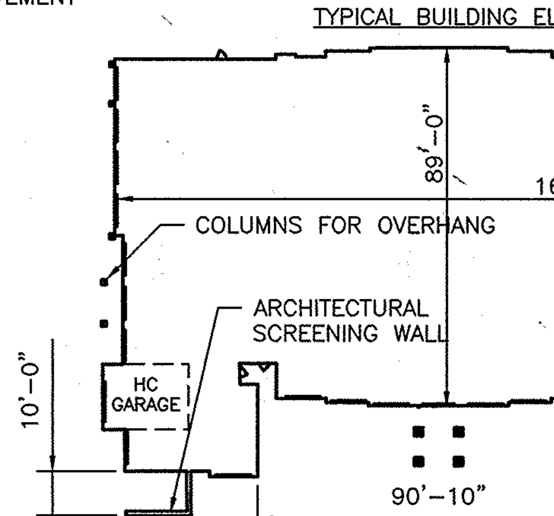


GARAGE ELEVATION



GARAGE PLAN

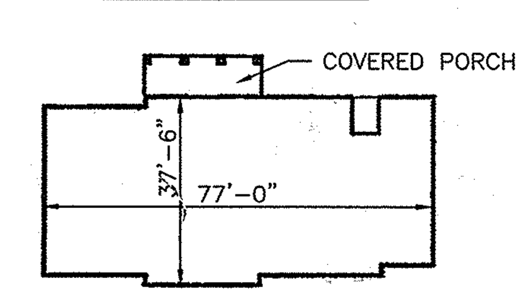
TYPICAL BUILDING ELEVATION



TYPICAL BUILDING PLAN

NOTE: BUILDINGS OVER THE MAXIMUM 50 FT. SETBACK, REQUIRE AN ADDITIONAL 2 FT. OF SETBACK FOR EACH FOOT OVER 50'. FOR THE 53'–6" HEIGHT, A SETBACK OF 57' IS REQUIRED. 58' FEET IS PROVIDED.

CLUBHOUSE ELEVATION



CLUBHOUSE PLAN

NOTE: THE MIHU FEE–IN–LIEU IS TO BE PAID AT THE BUILDING PERMIT PROCESS

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS		
NO.	DATE	BY

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER
[signature] 8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT

TITLE PAGE

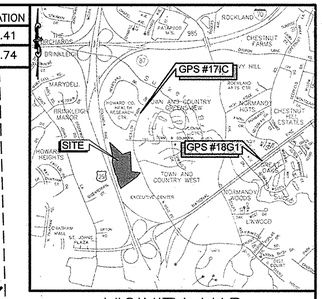
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE 1"=60'	SHEET NO. 1 OF 47	C–0.01

SDP–14–090

POINT	NORTHING	EASTING	ELEVATION
#171C	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74

EXISTING CONDITIONS
SCALE: 1"=50'



VICINITY MAP

SCALE: 1" = 2000'
ADC MAP 21B6

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- BUILDING OUTLINE
- 260 — EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- LOD — LIMIT OF DISTURBANCE
- GnB / MaC — SOILS LINE
- 25%–GREATER STEEP SLOPES
- 15–25% STEEP SLOPES
- WETLANDS

SOILS TABLE

SYMBOL	DESCRIPTION	HYDROLOGIC SOILS GROUP	K-VALUE
GgB	GLENELG LOAM, 3–8% SLOPES	B	0.20
GgC	GLENELG LOAM, 8–15% SLOPES	B	0.20
GhB	GLENELG–URBAN LAND COMPLEX 0–8% SLOPES	B	0.20
GnB	GLENVILLE–BAILE SILT LOAMS, 0–8% SLOPES	C	0.37
MaC	MANOR LOAM, 8–15% SLOPES	B	0.24
MaD	MANOR LOAM, 15–25% SLOPES	B	0.24

SOIL MAP #13 (ELLICOTT CITY SW)

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY
1	7/24/15	FOR CONSTRUCTION	NB

STATE OF MARYLAND — NICHOLAS A. BARRECA — No. 33772 — PROFESSIONAL ENGINEER — 8/17/15

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT

EXISTING CONDITIONS PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

GRAPHIC SCALE
50 0 25 50 100
SCALE: 1"=50'

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C–0.02
DRAWN	SCALE	SHEET NO. 2 OF 47	
BRA	1"=50'		

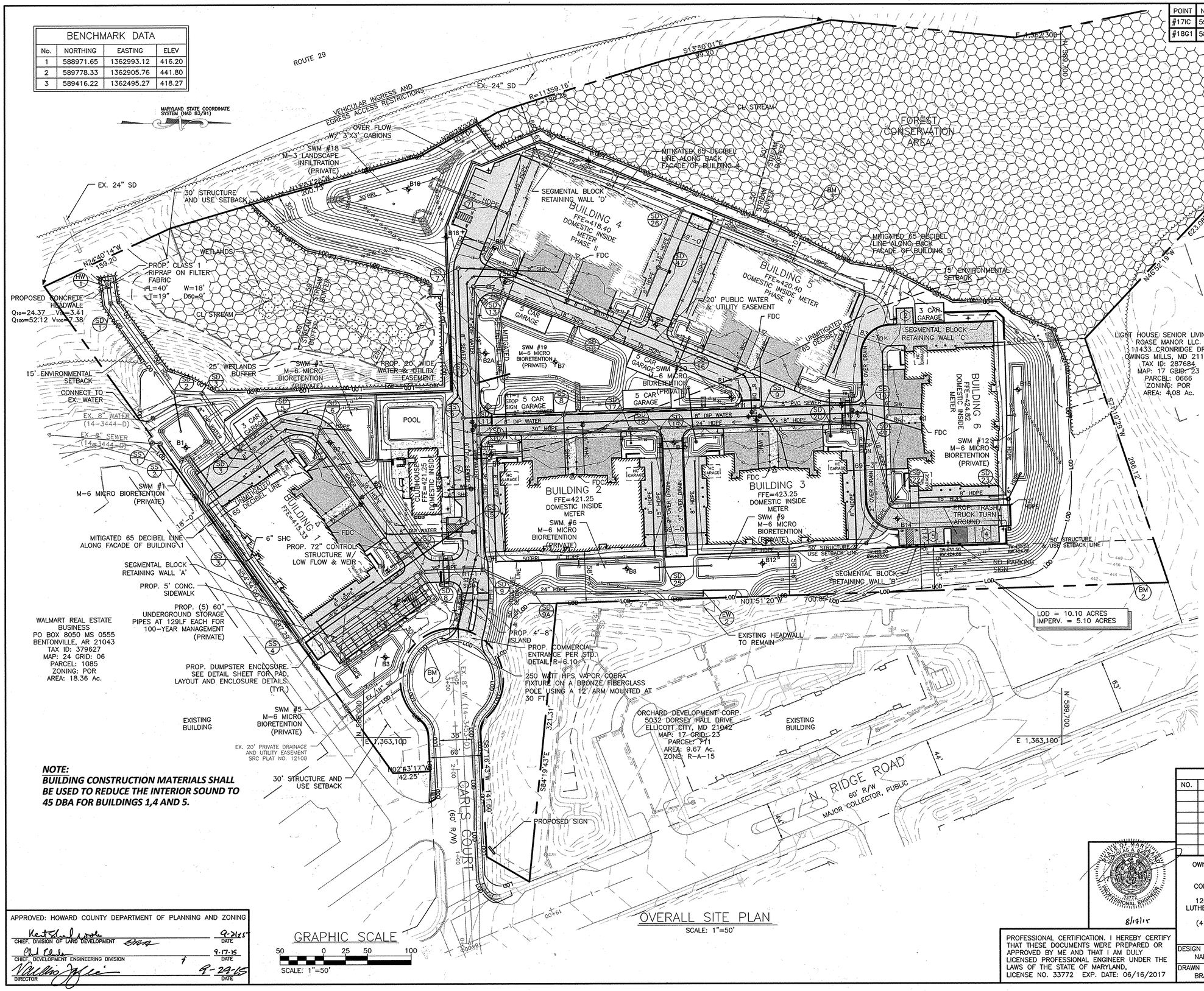
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

SDP–14–090

BENCHMARK DATA			
No.	NORTHING	EASTING	ELEV
1	588971.65	1362993.12	416.20
2	589778.33	1362905.76	441.80
3	589416.22	1362495.27	418.27

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74



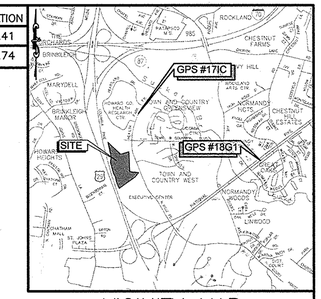
GRAPHIC SCALE

50 0 25 50 100

SCALE: 1"=50'

OVERALL SITE PLAN

SCALE: 1"=50'



VICINITY MAP

SCALE: 1" = 2000'

ADC MAP 21B6

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- 260 EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED IMPERIOUS PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- LOD LIMIT OF DISTURBANCE
- GnB / MaC SOILS LINE
- B1 BORING LOCATION

SITE NOTES:

1. SEE SHEETS S-1 THROUGH S-5 FOR DETAILS INCLUDING GRADES FOR THE PROPOSED RETAINING WALLS ON SITE.
2. ALL CURBING, PAVING, SIDEWALKS, HANDICAP RAMPS AND TRANSITIONS ARE TO BE PER HOWARD COUNTY STANDARD DETAILS. SEE SHEETS C1.10 AND C1.11 FOR DETAILS.
3. UNLESS OTHERWISE NOTED, PROPOSED SPOT ELEVATIONS ALONG CURB AND GUTTER ARE TO FLOW LINE (BOTTOM OF CURB) AT THE PC'S & PT'S, CORNERS AND TERMINUSES.
4. UNLESS OTHERWISE NOTED, ALL SIDEWALK RAMPS ARE TYPE 'C' PER HOWARD COUNTY DPW STD. DTL. R-4.04 (CURB FILLET APPLICATION) AND R-4.06 (PARALLEL TO CURB APPLICATION) DETECTABLE WARNING TRUNCATED DOMES ARE PER HOWARD COUNTY DPW STD. DTL. R-4.07.
5. ALL ON-SITE PAVING AND ROADWAYS ARE PRIVATELY OWNED AND MAINTAINED BY HOA.
6. ALL ON-SITE STORM DRAIN SYSTEMS ARE PRIVATELY MAINTAINED. ALL ON-SITE SEWERS ARE PRIVATELY MAINTAINED.
7. ALL CURB RADII ARE MEASURED FROM FACE OF CURB AT FLOW LINE. ALL DIMENSIONS ARE FROM FACE OF STRUCTURE (CURB, BLDG, ETC.) UNLESS OTHERWISE NOTED.
8. LOCATIONS OF THE P.C.'S AND P.T.'S ARE SHOWN ON SHEETS C-1.02 AND C-1.03.
9. THE SITE LIGHTING ARE 150 WATT COLONIAL STYLE LAMPS MOUNTED 14' HIGH AND PROVIDED BY BGE. SEE PHOTOMETRIC PLAN, SHEET C-5.00, FOR DETAILS.
10. DUMPSTER ENCLOSURE PER STD. DTL. R-8.05. ENCLOSURE GATES ARE TO BE INSTALLED WITH MINIMUM OPENING OF 21'-6" WHEN OPEN. NO CENTER POST IS PERMITTED. GATE LATCH TO BE FITTED WITH CANE BOLT AND HOLE IN CONCRETE PAD FOR LATCHING.

NOTE:
BUILDING CONSTRUCTION MATERIALS SHALL BE USED TO REDUCE THE INTERIOR SOUND TO 45 DBA FOR BUILDINGS 1,4 AND 5.

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REVISIONS			
NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-23-15

STATE OF MARYLAND NICHOLAS A. BRAGA No. 33772 PROFESSIONAL ENGINEER

8/19/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

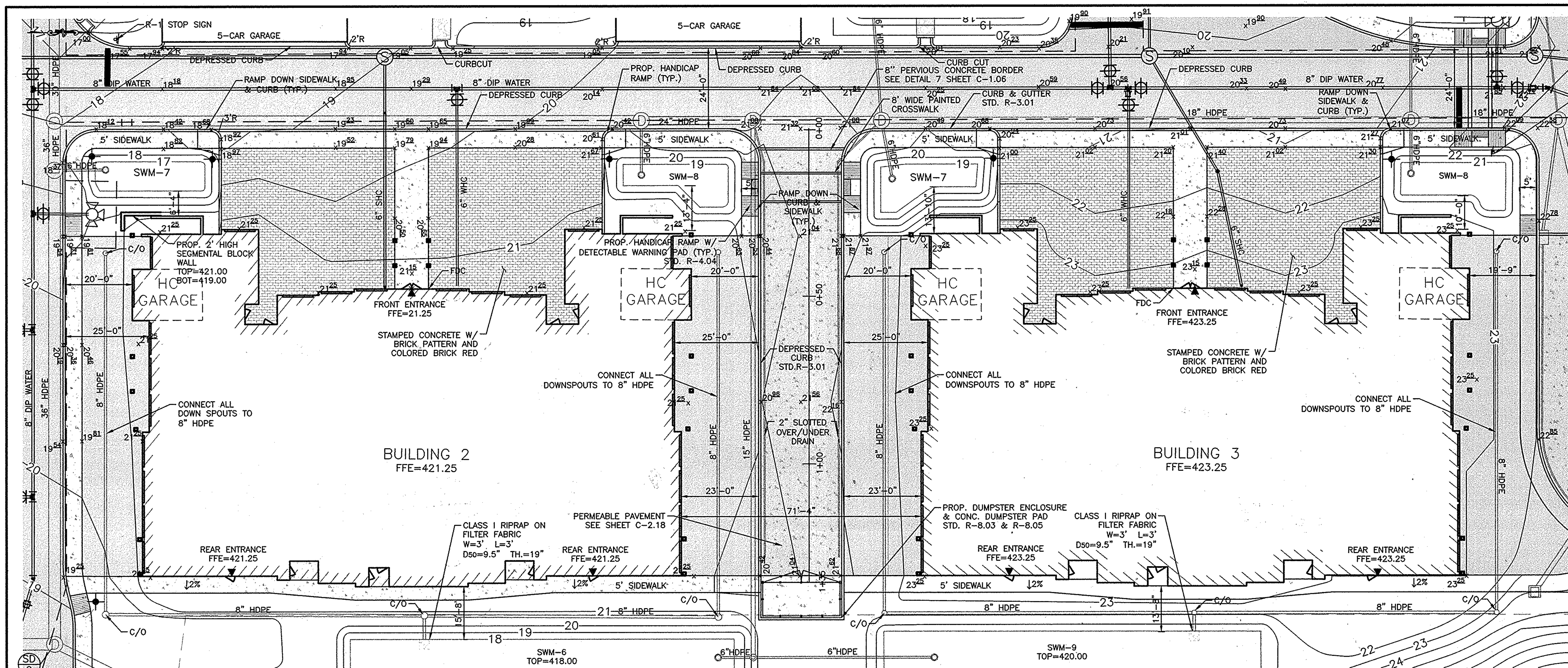
THE GATHERINGS AT ELLICOTT'S RETREAT

OVERALL SITE PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

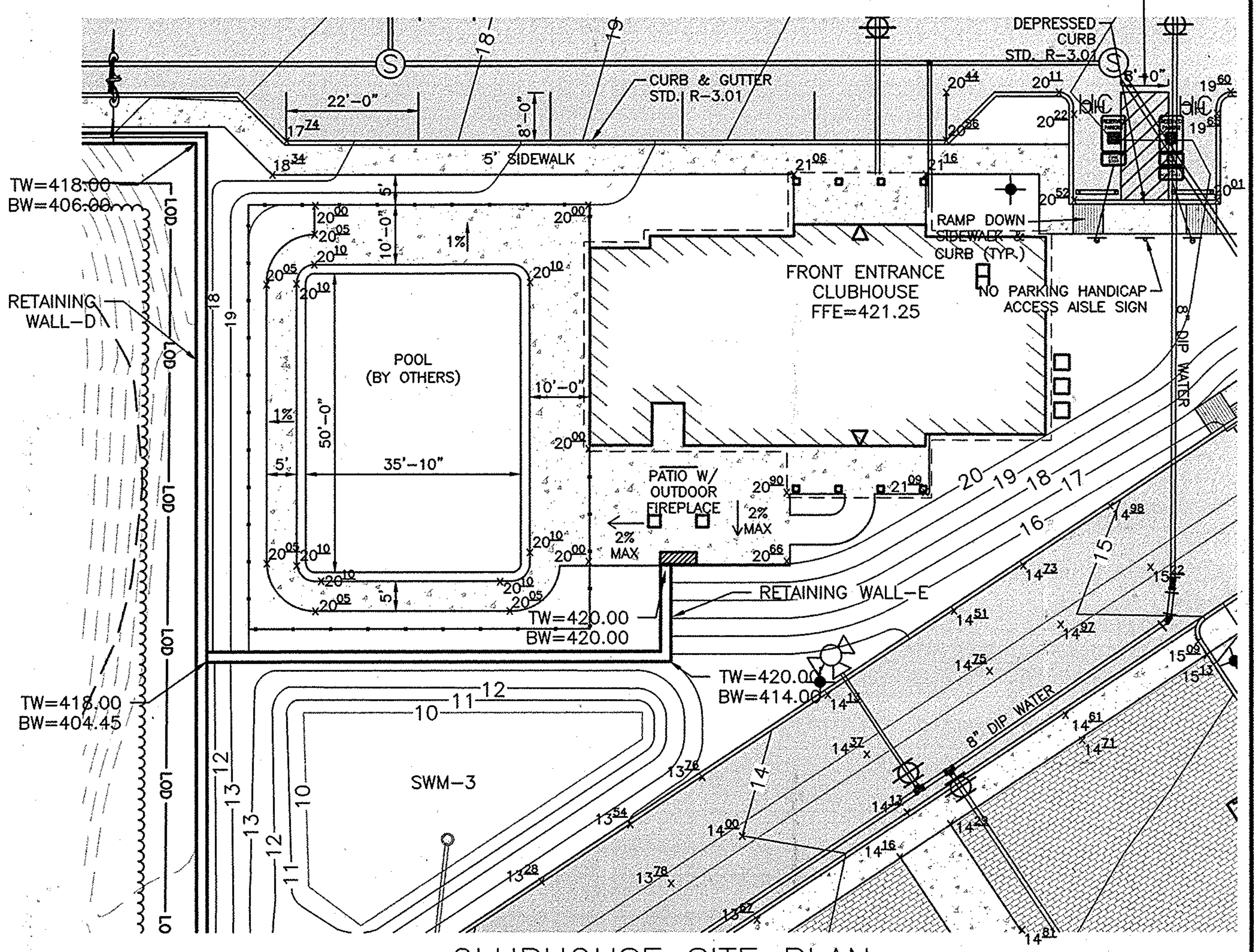
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-1.01
DRAWN BRA	SCALE 1"=50'	SHEET NO. 3 OF 47	

SDP-14-090



BUILDING 2 & 3 SITE PLAN

SCALE: 1"=20'



CLUBHOUSE SITE PLAN

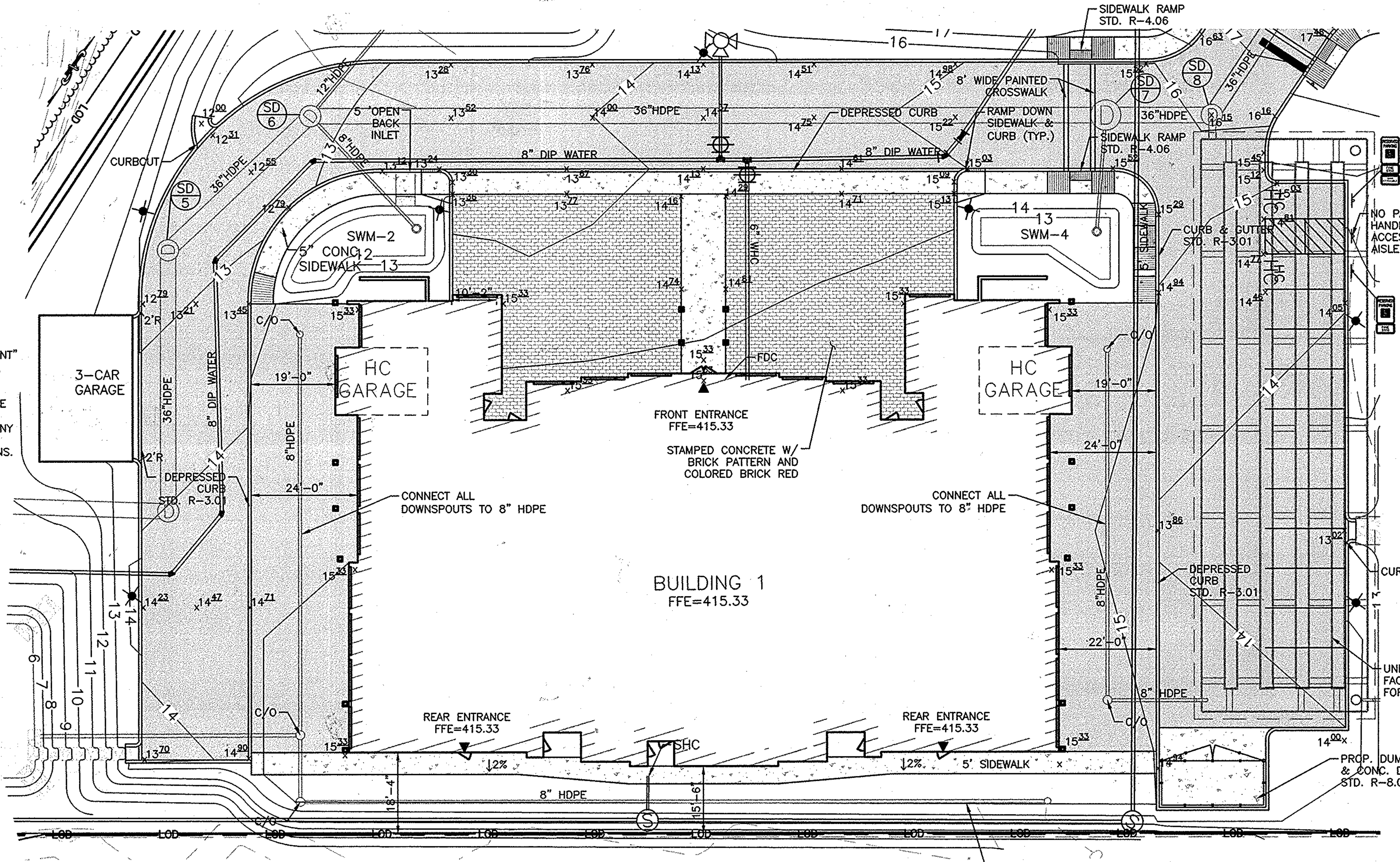
SCALE: 1"=20'

PAVEMENT LEGEND

- CONC. SIDEWALK (STD. R-3.05)
- ASPHALT PAVING (P-2)
- STAMPED CONCRETE
- PERVIOUS PAVING

NOTES:

1. ALL CURB & GUTTER ARE TYPE -A (DTC. R-G.01) UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE MEASURED FROM FACE OF CURB UNLESS OTHERWISE NOTED.
3. ALL SIDEWALKS ARE 5' WIDE FROM BACK OF CURB UNLESS OTHERWISE NOTED.
4. ALL PAVEMENT MARKINGS TO BE APPLIED USING "SETFAST PREMIUM ALKYD TRAFFIC PAINT" BY SHERWIN WILLIAMS OR APPROVED EQUAL. ALL PAVEMENT ARROWS "ONLY" MARKINGS, STOP BARS, STOP BAR MARKING AND CROSSWALK MARKINGS MUST BE INSTALLED IN THERMOPLASTIC.
5. TRAFFIC CONTROL DEVICES, WARNING, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREETS AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHAULT AND PUTTING THE ROADWAY INTO SERVICE.
6. CONNECT ALL PERVIOUS PAVEMENT IN TO STORM DRAIN TRUNK WITH FIELD CONNECTIONS.



BUILDING 1 SITE PLAN

SCALE: 1"=20'

GRAPHIC SCALE

20 0 10 20 40

SCALE: 1"=20'

UNIVERSAL DESIGN GUIDELINES FOR AGE RESTRICTED ADULT HOUSING IN HOWARD COUNTY

THE HOWARD COUNTY ZONING REGULATIONS ALLOW "ACTIVE ADULT HOUSING" AS EITHER A CONDITIONAL USE IN RESIDENTIAL ZONING DISTRICTS OR AS A PERMITTED USE IN THE PLANNED SENIOR COMMUNITY, PLANNED OFFICE RESEARCH, COMMUNITY CENTER TRANSITION, AND RESIDENTIAL INSTITUTIONAL ZONING DISTRICTS. AGE-RESTRICTED DEVELOPMENTS MUST BE APPROPRIATELY DESIGNED FOR ADULTS AT LEAST 55 YEARS OF AGE. SITE IMPROVEMENTS MUST INSURE ACCESSIBLE ROUTES BETWEEN PARKING, DWELLING UNITS AND COMMON AREAS. INDIVIDUAL DWELLINGS MUST INCORPORATE UNIVERSAL DESIGN FEATURES TO BE ADAPTABLE FOR RESIDENTS WITH MOBILITY AND FUNCTIONAL LIMITATIONS THAT OFTEN RESULT FROM AGING.

DESIGN STANDARDS FOR SITE ACCESSIBILITY AND USABLE COMMON AREAS HAVE BEEN ESTABLISHED FOR MULTI-FAMILY HOUSING BY THE AMERICANS WITH DISABILITIES ACT AND THE FAIR HOUSING ACT OF 1988. WHILE RECOGNIZED STANDARDS FOR INDIVIDUAL UNITS FOR OLDER ADULTS HAVE NOT BEEN ESTABLISHED, UNIVERSAL DESIGN IS AN EVOLVING CONCEPT THAT PROVIDES SOME GUIDANCE.

ACCORDINGLY, THE DEPARTMENT OF PLANNING AND ZONING MET WITH SEVERAL SENIOR HOUSING DEVELOPERS, REPRESENTATIVES OF THE HOMES FOR LIFE COALITION OF HOWARD COUNTY, THE OFFICE ON AGING AND THE DEVELOPMENT OF INSPECTIONS, LICENSES AND PERMITS TO DISCUSS MINIMUM REQUIREMENTS. DIVERGENT VIEWS WERE EXPRESSED REGARDING THE FEATURES THAT SHOULD BE REQUIRES VS. OPTIONAL. FEATURES VARY CONSIDERABLE IN COST, RELEVANCE FOR DIFFERENT USERS, AND ADAPTABILITY TO DIFFERENT SITES AND PROJECT TYPES. DEVELOPERS CHIEF CONCERNS WERE THAT THE CURRENT MARKET DOESN'T PERCEIVE A NEED FOR MOST UNIVERSAL DESIGN FEATURES SINCE THE OLDEST BOOMERS ARE STILL RELATIVELY YOUNG AND AREN'T FOCUSED ON HOW THEIR NEEDS MAY CHANGE OVER TIME. CONCERN WAS ALSO EXPRESSED ABOUT INCREASING THE COST OF SENIOR HOUSING IF MANY UNIVERSAL DESIGN FEATURES ARE REQUIRED RATHER THAN OPTIONAL.

THESE GUIDELINES REFLECT A MIDDLE POSITION FOCUSING ON REQUIRING THOSE FEATURES THAT ARE RELATIVELY INEXPENSIVE IF PART OF THE INITIAL CONSTRUCTION, BUT WOULD REQUIRE MAJOR RENOVATION TO RETROFIT IN THE FUTURE. ITEMS THAT ARE EITHER RELATIVELY LESS EXPENSIVE TO RETROFIT IN THE FUTURE ARE LISTED AS DESIRABLE OR OPTIONAL.

REQUIRED

- FOR MULTI-FAMILY APARTMENT OR CONDO DEVELOPMENTS, AN ACCESSIBLE PATH BETWEEN PARKING , DWELLING UNITS, AND COMMON AREAS THAT MEET ADA STANDARDS
- FOR SINGLE FAMILY DETACHED AND ATTACHED DEVELOPMENTS, A "NO-STEP" ACCESS TO THE FRONT DOOR ENTRANCE TO ALL DWELLING UNITS AND COMMUNITY BUILDINGS. IF A NO-STEP FRONT ENTRANCE IS NOT FEASIBLE, AN ALTERNATE NO-STEP SIDE OR GARAGE ENTRY TO THE FIRST FLOOR MAY BE APPROVED. (A NO-STEP IS DESIRABLE, BUT NOT REQUIRED AT OTHER ENTRANCES)
- 36" WIDE FRONT DOOR WITH EXTERIOR LIGHTING AT THE ENTRANCE (EXTERIOR DOOR SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF THE EXTERIOR DOOR; THE ILLUMINATION OF THE EXTERIOR LIGHT SHALL BE CONTROLLED FROM INSIDE THE DWELLING UNIT. EXCEPTION: LIGHTS THAT CONTINUOUSLY ILLUMINATED OR AUTOMATICALLY CONTROLLED)
- ALL INTERIOR DOORWAYS AT LEAST 32" CLEAR WIDTH IN THE OPEN POSITION (2/10 DOORS OR A 36" IS PREFERABLE)
- 36" WIDE FULLY ACCESSIBLE ROUTE MUST CONNECT THROUGH PUT THE FIRST FLOOR OF THE DWELLING UNIT. THE MAXIMUM VERTICAL FLOOR LEVEL CHANGE IS ¼ "INCH, EXCEPT WHEN TAPERED THRESHOLD IS USED, THE MAXIMUM HEIGHT IS ½"INCH. (40-42" IS PREFERABLE)
- COMPLETE LIVING AREA INCLUDING MASTER BEDROOM AND BATH ON THE FIRST LEVEL FLOOR (OR ELEVATOR ACCESS IF MULTI-STORY APARTMENTS)
- LEVER HANDLES ON INTERIOR AND EXTERIOR DOORS
- CLEAR FLOOR SPACE OF 30"X 48" INCHES CENTERED ON THE APPLIANCES OR FIXTURE SHALL BE PROVIDED AT EACH FIXTURE IN THE KITCHEN. FLOOR SPACES CAN OVERLAP. (FAIR HOUSING ACT) REINFORCED WALLS TO ALLOWS FOR THE LATER INSTALLATION OF GRAB BARS AROUND THE TOILET, TUB, AND SHOWER STALL
- MANEUVERING SPACE WITHIN THE BATHROOM TO PERMIT A PERSON USING MOBILITY AID TO ENTER THE ROOM, CLOSE AND REOPEN THE DOOR, WITH A CLEAR FLOOR SPACE OF 30" X 48" OUTSIDE OF THE DOOR SWING. IN ADDITION A CLEAR FLOOR SPACE OF 30" X 48" FLOOR SPACE SHOULD BE PROVIDED AT EACH FIXTURE AND CENTERED ON EACH FIXTURE. THE 30" X 48" FLOOR SPACES CAN OVERLAP EACH OTHER. (NOTE: THIS IS A REQUIREMENT IN THE FAIR HOUSING ACT GUIDELINES)
- WALL MOUNTED LIGHT SWITCHES, ELECTRICAL OUTLETS, OR ENVIRONMENTAL CONTROLS SHALL BE MOUNTED FOR A REACHING RANGE OF MINIMUM 15" OFF THE FLOOR AND MAXIMUM 48" ABOVE THE FLOOR.

DESIRABLE

- LOW MAINTENANCE EXTERIOR MATERIALS
- COVERED MAIN ENTRY
- ENTRY DOOR APPROACH WITH 18"- 24" OF CLEARANCE AT THE SIDE ADJACENT TO HANDLE
- SMOOTH TRANSITIONS BETWEEN ROOMS (VERTICAL THRESHOLD OF 2" OR LESS)
- SLIP RESISTANT FLOORING
- MAXIMIZE ACCESSIBLE PATH BETWEEN MAIN LIVING ROOMS (PREFERABLY 38 - 42")
- LEVER HANDLES ON KITCHEN AND BATHROOM SINKS, PLUS SHOWER
- ANTI SCALD DEVICES ON ALL PLUMBING FIXTURES
- 5' TURNING RADIUS OR T TURN IN KITCHEN AND FIRST FLOOR BATHROOM
- PARALLEL AND FORWARD APPROACH MANEUVERING SPACE IN FRONT OF APPLIANCES AND PLUMBING FIXTURES
- MAIN ELECTRICAL BREAKER BOX LOCATED ON THE FIRST FLOOR
- SWITCHES, DOORBELLS, THERMOSTATS, AND BREAKER BOXES SHOULD BE LOCATED NO MORE THAN 48" ABOVE THE FLOOR; ELECTRICAL RECEPTACLES SHOULD BE AT LEAST 15" ABOVE THE FLOOR
- STACKING OF CLOSETS LARGER ENOUGH TO ACCOMMODATE FUTURE INSTALLATION OF AN ELEVATOR
- REINFORCING IN THE SHOWER STALL TO PERMIT FUTURE INSTALLATION OF WALL-HUNG BENCH SEAT

CUSTOM OPTIONS

- SECURITY SYSTEM
- VISUAL ID OF VISITORS
- VISUAL SMOKE DETECTORS
- HANDRAILS ON BOTH SIDES OF THE EXTERIOR AND INTERIOR STAIRS
- TASK LIGHTING IN KITCHEN, BATHE AND OTHER WORK SPACES
- ROCKER LIGHT SWITCHES
- LIGHTING IN CLOSETS AND PANTRY
- CLOSET RODS ADJUSTABLE FROM 3' TO 5'6"
- SLIP RESISTANT FLOORING IN KITCHEN AND BATH
- MULTI-LEVEL OR ADJUSTABLE KITCHEN COUNTERTOPS AND WORK SPACES
- PULL-OUT SHELVES FOR KITCHEN BASE CABINETS
- FRONT MOUNTED CONTROLS ON STOVE
- INSTALLATION OF GRAB BARS IN BATHROOM
- HAND HELD SHOWERHEAD IN SHOWER
- CURBLESS SHOWER

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REVISIONS		
NO.	DATE	BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	9-21-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-17-15 DATE
DIRECTOR	9-29-15 DATE

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:

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LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

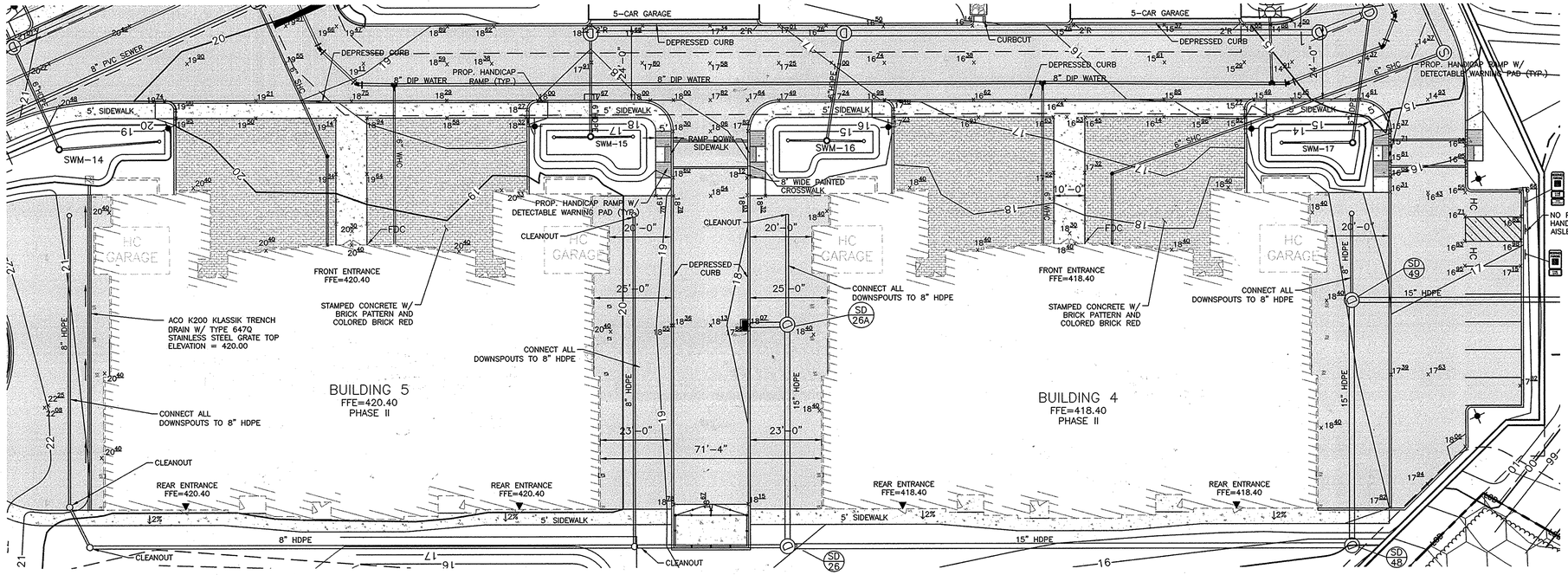
THE GATHERINGS AT ELLICOTT'S RETREAT

BUILDING SITE PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-1.02
DRAWN	SCALE	SHEET NO. 4 OF 47	
BRA	1"=20'		

SDP-14-090

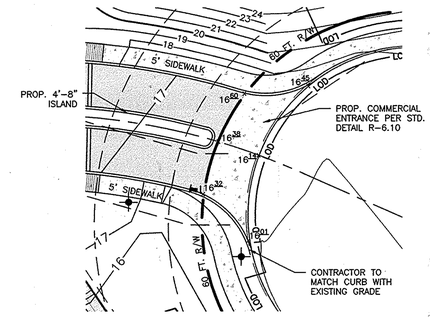


BUILDING 5 SITE PLAN

SCALE: 1"=20'

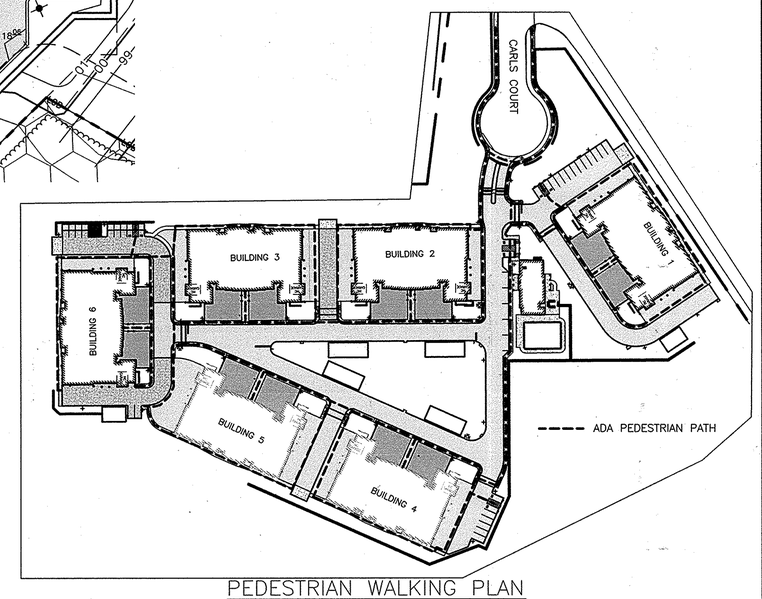
BUILDING 4 SITE PLAN

SCALE: 1"=20'



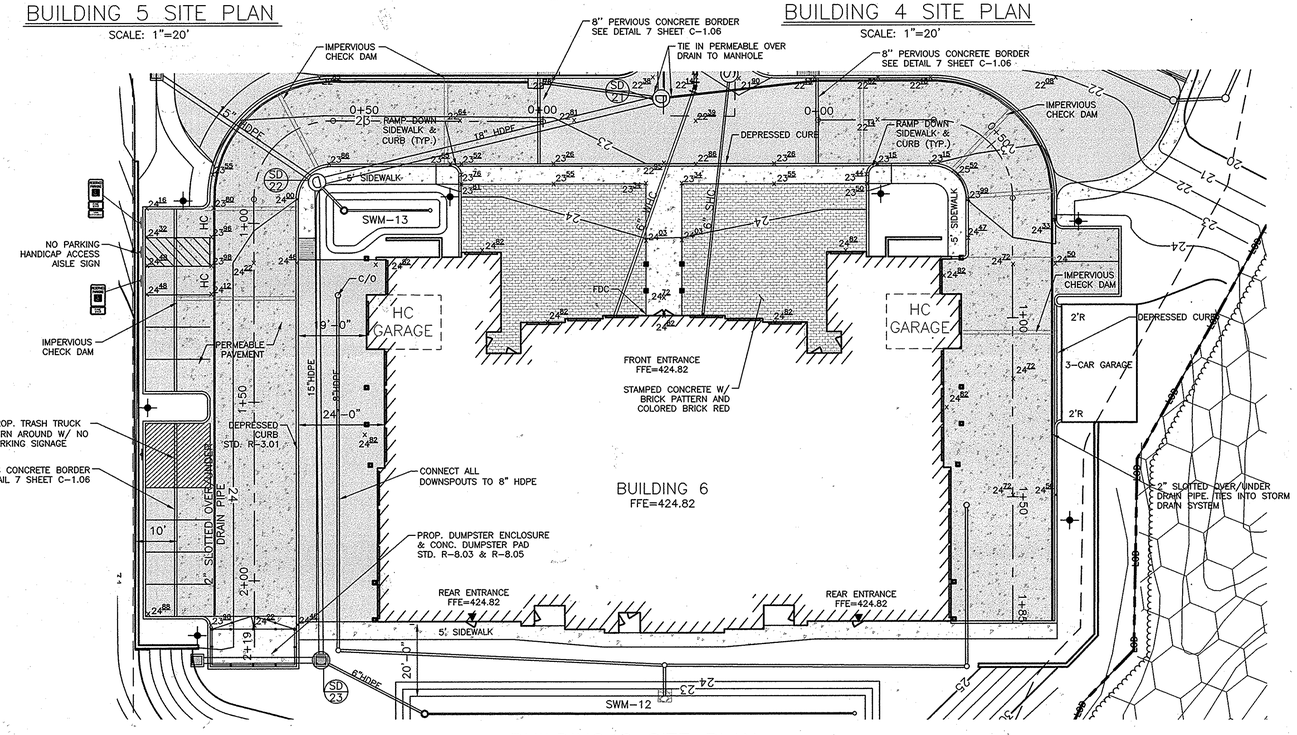
FRONT ENTRANCE

SCALE: 1"=20'



PEDESTRIAN WALKING PLAN

SCALE: 1"=20'



BUILDING 6 SITE PLAN

SCALE: 1"=20'

GRAPHIC SCALE

20 0 10 20 40

SCALE: 1"=20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-23-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

STATE OF MARYLAND NICHOLAS A. BARICKA No. 33772 PROFESSIONAL ENGINEER

8/17/15

KCI TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
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FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

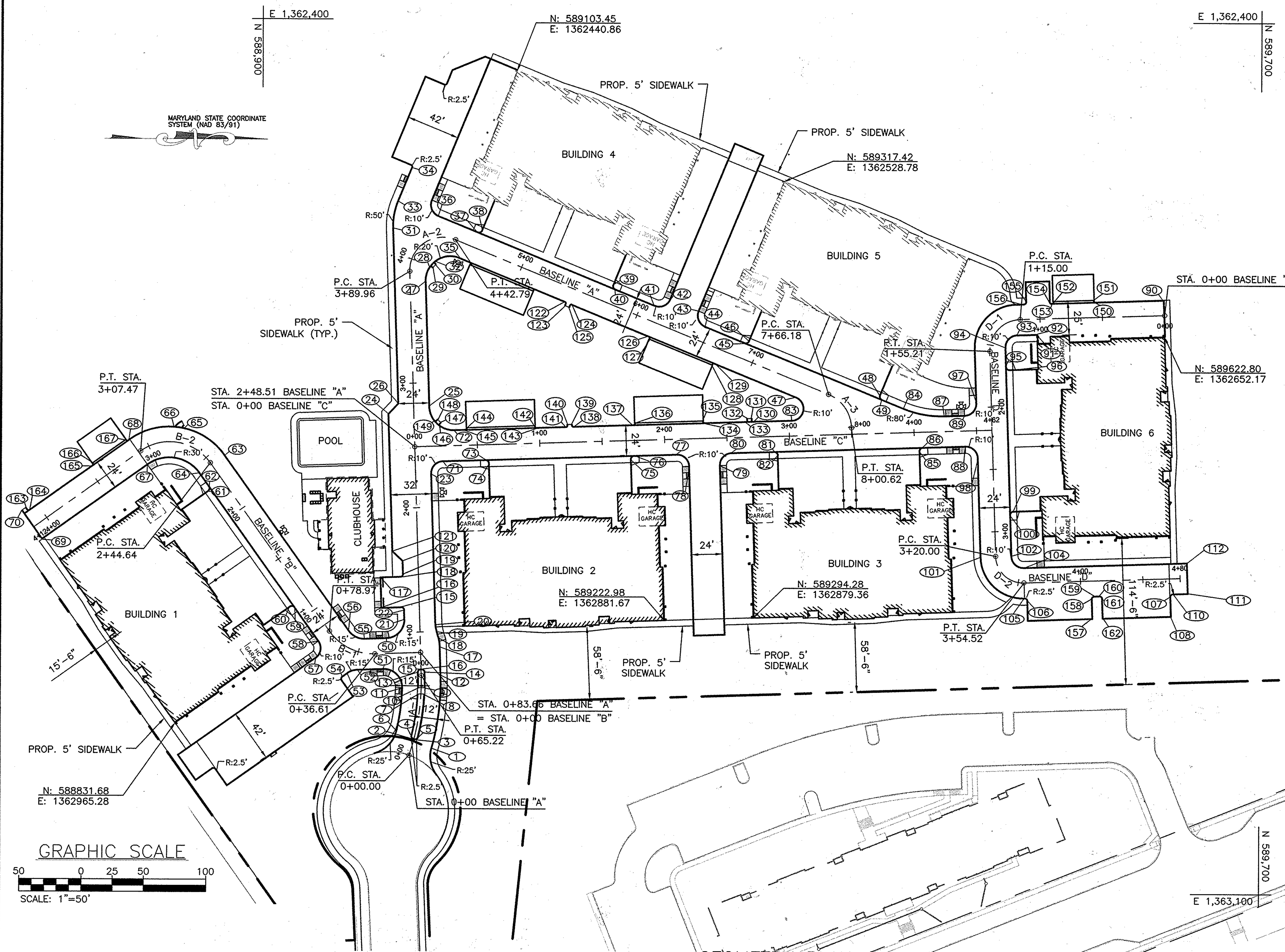
THE GATHERINGS AT ELLICOTT'S RETREAT

BUILDING SITE PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-1.03
DRAWN	SCALE	SHEET NO. 5 OF 47	
BRA	1"=20'		

SDP-14-090



GEOMETRY PLAN

SCALE: 1"=50'

BASELINE 'A' DATA

NO.	STATION	EASTING	NORTHING	LENGTH
1	0+09.93	1362984.77	589036.66	15.00'R
2	0+12.92	1362977.67	589022.25	0.75'L
3	0+12.92	1362978.01	589023.16	1.12'R
4	0+15.31	1362974.73	589020.68	3.00'L
5	0+15.40	1362976.27	589026.48	3.01'R
6	0+16.02	1362971.30	589009.16	15.00'L
7	0+50.35	1362941.40	589026.68	2.33'L
8	0+50.35	1362941.41	589030.36	2.33'L
9	0+55.40	1362936.37	589030.57	2.33'L
10	0+55.40	1362936.36	589026.90	2.33'L
11	0+54.32	1362936.55	589013.72	15.00'L
12	0+64.72	1362926.56	589043.66	15.00'R
13	0+67.31	1362924.04	589025.59	3.00'L
14	0+67.31	1362923.85	589031.59	3.00'R
15	0+69.82	1362921.46	589028.01	0.50'L
16	0+69.82	1362921.43	589029.00	0.50'R
17	0+87.34	1362903.45	589042.92	15.00'R
18	0+94.61	1362896.21	589041.79	14.10'R
19	0+99.46	1362891.45	589040.43	12.90'R
20	1+06.72	1362884.19	589039.30	12.00'R
21	1+10.57	1362881.61	589015.19	12.00'L
22	1+18.07	1362874.12	589014.95	12.00'L
23	2+26.51	1362764.45	589035.42	12.00'R
24	2+75.27	1362716.77	589001.79	20.00'L
25	2+80.46	1362710.48	589033.67	12.00'R
26	2+83.27	1362708.51	589009.52	12.00'L
27	3+81.58	1362610.43	589030.42	12.00'R
28	3+97.33	1362598.50	589033.69	15.46'R
29	3+98.75	1362598.81	589036.60	18.40'R
30	4+08.34	1362596.61	589038.64	19.13'R
31	4+09.04	1362567.33	589004.89	25.55'L
32	4+13.25	1362593.73	589038.09	16.60'R
33	4+17.30	1362545.86	589008.77	39.32'L
34	4+24.73	1362519.06	589019.78	59.00'L
35	4+29.74	1362590.98	589058.11	16.90'L
36	4+50.97	1362557.88	589040.59	12.00'R
37	4+54.89	1362570.85	589072.15	12.00'L
38	4+57.85	1362569.21	589076.07	15.00'L
39	5+71.60	1362612.19	589180.67	15.00'L
40	5+74.60	1362616.11	589182.30	12.00'L
41	6+07.12	1362629.07	589213.86	12.00'L
42	6+17.12	1362623.63	589226.91	22.00'L
43	6+41.11	1362632.75	589249.11	22.00'L
44	6+51.11	1362645.78	589254.56	12.00'L
45	6+83.60	1362658.77	589286.13	12.00'L
46	6+86.63	1362657.13	589290.04	15.00'L
47	7+42.47	1362701.83	589327.78	12.00'R
48	7+85.81	1362700.11	589394.64	26.73'L
49	7+88.07	1362704.03	589396.27	26.33'L
115	1+20.57	1362871.70	589012.37	14.50'L
116	1+20.57	1362872.21	588996.87	30.00'L
117	1+44.57	1362848.22	588996.09	30.00'L
118	1+44.57	1362847.71	589011.58	14.50'L
119	1+47.17	1362845.13	589014.00	12.00'L
120	1+57.70	1362834.45	589013.65	12.00'L
121	1+65.76	1362826.71	589005.39	20.00'L
122	5+42.69	1362625.64	589142.36	12.00'R
123	5+44.02	1362628.99	589142.61	15.00'R
124	5+48.71	1362627.92	589147.91	15.00'R
125	5+47.18	1362630.13	589145.38	12.00'R

BASELINE 'A' DATA

NO.	STATION	EASTING	NORTHING	LENGTH
126	6+25.75	1362653.14	589209.28	12.00'R
127	6+27.32	1362655.75	589210.37	13.50'R
128	6+80.93	1362676.14	589260.01	13.50'R
129	6+82.49	1362675.05	589262.62	12.50'R

BASELINE 'C' DATA

NO.	STATION	EASTING	NORTHING	LENGTH
71	0+22.01	1362754.13	589045.09	12.00'R
72	0+32.01	1362729.82	589054.31	12.00'L
73	0+59.61	1362753.03	589079.20	12.00'R
74	0+62.50	1362755.93	589082.29	15.00'R
75	1+76.25	1362752.27	589195.32	15.00'R
76	1+79.25	1362749.17	589198.22	12.00'R
77	2+11.76	1362748.07	589232.33	12.00'R
78	2+21.76	1362757.74	589242.64	22.00'R
79	2+45.76	1362756.96	589266.63	22.00'R
80	2+55.76	1362746.64	589276.30	12.00'R
81	2+88.27	1362745.54	589310.41	12.00'R
82	2+91.26	1362748.44	589313.51	15.00'R
83	3+01.95	1362721.07	589324.30	12.00'R
84	3+91.43	1362711.15	589413.61	19.00'R
85	4+05.01	1362744.78	589426.53	15.00'R
86	4+08.01	1362741.68	589429.43	12.00'R
87	4+24.24	1362717.11	589446.61	12.00'L
88	4+40.51	1362740.58	589463.54	12.00'R
89	4+40.51	1362716.59	589462.76	12.00'L
130	2+71.39	1362722.07	589293.53	12.00'L
131	2+69.93	1362719.12	589291.93	15.00'L
132	2+66.91	1362719.22	589288.93	15.00'L
133	2+65.42	1362722.26	589287.53	12.00'L
134	2+41.89	1362723.32	589254.87	12.00'L
135	2+40.41	1362721.39	589252.81	13.50'L
136	1+86.65	1362723.13	589199.17	13.50'L
137	1+85.13	1362725.19	589197.23	12.00'L
138	1+28.23	1362726.74	589149.46	12.00'L
139	1+26.79	1362724.49	589147.88	15.00'L
140	1+23.77	1362724.62	589144.89	15.00'L
141	1+22.33	1362726.93	589143.46	12.00'L
142	0+97.47	1362725.75	589118.14	12.00'L
143	0+96.02	1362727.68	589120.21	13.50'L
144	0+42.55	1362727.49	589064.50	13.50'L
145	0+41.02	1362729.55	589062.57	12.00'L
146	0+20.34	1362726.45	589042.53	15.75'L
147	0+20.50	1362723.21	589043.18	18.40'L
148	0+18.73	1362721.16	589040.99	20.85'L
149	0+15.94	1362722.01	589037.80	20.12'L

BASELINE 'B' DATA

NO.	STATION	EASTING	NORTHING	LENGTH
50	0+26.88	1362897.10	589000.69	12.00'R
51	0+30.37	1362921.19	588998.23	12.00'L
52	0+48.00	1362921.87	588977.49	14.18'L
53	0+48.11	1362924.64	588969.28	10.65'R
54	0+53.10	1362926.89	588968.36	19.18'L
55	0+54.53	1362897.67	588983.05	22.40'L
56	0+67.14	1362891.38	588970.34	10.83'R
57	0+71.71	1362913.12	588944.08	22.99'L
58	0+78.07	1362899.17	588946.43	12.00'L
59	1+10.29	1362872.18	588927.22	12.00'L
60	1+13.27	1362871.48	588923.04	15.00'L
61	2+27.03	1362779.34	588857.48	15.00'L
62	2+30.02	1362775.16	588858.18	12.00'L
63	2+42.55	1362750.55	588870.13	12.00'R
64	2+42.55	1362764.46	588850.58	12.00'L
65	2+75.14	1362729.08	588837.56	12.00'R
66	2+79.21	1362727.98	588829.86	12.00'R
67	3+07.49	1362757.41	588808.74	12.00'L
68	3+08.30	1362737.86	588794.82	12.00'R
69	4+12.48	1362817.40	588724.43	12.00'L
70	4+12.48	1362794.86	588708.39	15.00'R
163	4+08.77	1362794.89	588712.09	15.00'L
164	4+08.04	1362795.24	588714.18	12.00'L
165	3+45.15	1362759.47	588764.45	12.00'L
166	3+43.54	1362756.68	588764.92	13.50'L
167	3+11.96	1362738.32	588790.72	13.50'L

BASELINE 'D' DATA

NO.	STATION	EASTING	NORTHING	LENGTH	NO.	STATION	EASTING	NORTHING	LENGTH
90	0+00.00	1362623.19	589621.86	12.00'R	108	4+42.34	1362876.77	589628.53	30.00'R
91	1+01.69	1362651.91	589521.41	16.50'R	110	4+44.25	1362858.70	589630.44	12.00'R
92	0+70.99	1362650.50	589519.86	12.00'L	111	4+80.00	1362858.32	589641.99	8.00'R
93	0+91.06	1362651.00	589504.66	12.00'L	112	4+80.00	1362834.34	589641.21	8.00'L
94	1+20.29	1362661.31	589494.99	12.00'L	150	0+55.25	1362624.94	589567.68	12.00'R
95	1+36.79	1362676.76	589495.49	12.00'L	151	0+56.86	1362623.01	589565.61	13.45'R
96	1+39.79	1362679.67	589498.58	15.00'L	152	0+88.53	1362624.03	589533.96	13.45'R
97	1+65.68	1362706.27	589472.43	12.00'R	153	0+59.85	1362626.10	589532.01	12.00'R
98	2+09.67	1362750.25	589473.86	12.00'R	154	0+93.02	1362624.65	589530.47	15.00'R
99	2+53.51	1362792.69	589502.25	15.00'L	155	1+10.35	1362624.24	589512.14	15.00'R
100	2+56.51	1362795.79	589499.34	12.00'L	156	1+12.67	1362626.82	589509.72	12.00'R
101	2+89.02	1362829.67	589476.43	12.00'R	157	4+08.19	1362878.81	589565.56	30.00'R
102	2+90.65	1362828.89	589500.42	12.00'L	158	4+08.19	1362863.32	589565.06	15.00'R
104	3+23.57	1362838.56	589510.74	12.00'L	159	4+11.19	1362860.74	589567.47	12.00'R
105	3+54.70	1362862.55	589511.51	12.00'R	160	4+14.19	1362860.61	589571.47	12.00'R
106	3+57.20	1362864.97	589514.09	13.97'R	161	4+17.16	1362863.03	589574.05	15.00'R
107	4+42.34	1362861.28	589628.02	14.00'R	162	4+17.16	1362878.52	589574.56	30.00'R

BASELINE CURVE DATA

NO.	PC	PT	RADIUS	LENGTH	CHORD BEARING	CHORD
A–1	0+00.00	0+65.22	181.00	65.22	N81°33'13.8105"W	64.87
A–2	3+89.96	4+42.79	26.50	52.83	N34°46'11.5728"W	44.50
A–3	7+66.18	8+00.62	30.00	34.45	N55°13'48.4272"E	32.58
B–1	0+36.61	0+78.97	43.00	42.36	S26°20'41.1534"W	40.67
B–2	2+44.64	3+07.47	40.00	62.83	S09°34'00.0936"W	56.57
D–1	0+85.00	1+24.27	25.00	39.27	S46°52'37.7867"E	35.36
D–2	2+89.02	3+23.58	22.00	34.56	N43°07'22.2133"E	31.11

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.17.15

DIRECTOR — DATE 9-29-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

STATE OF MARYLAND — NICHOLAS A. PARRICK — 33772 — PROFESSIONAL ENGINEER — 8/17/15

KCI TECHNOLOGIES
Engineers Planners Scientists Construction Managers
11850 West Market Place
Suite A
Fulton, MD 20759
Telephone: (410) 792-8086
Fax: (410) 792-7419

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

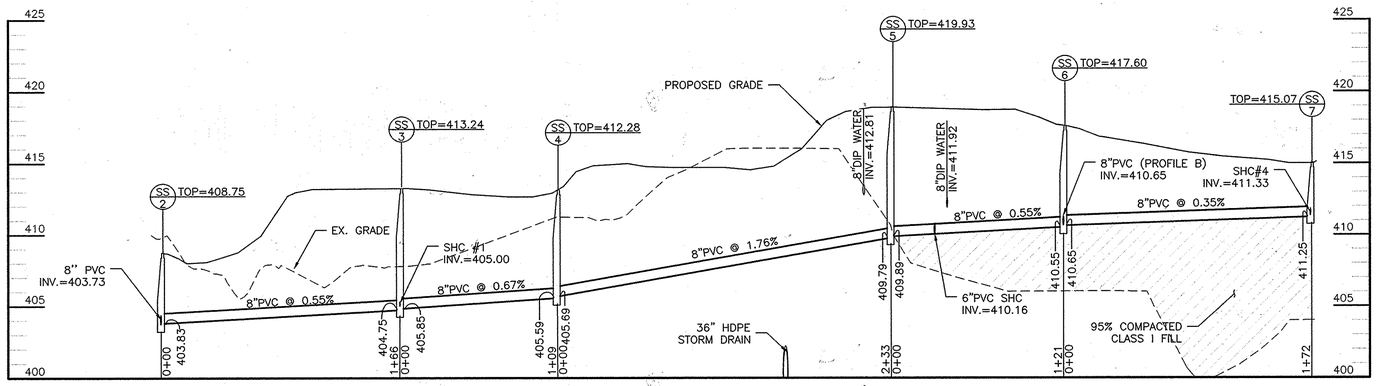
THE GATHERINGS AT ELLICOTT'S RETREAT

GEOMETRY PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

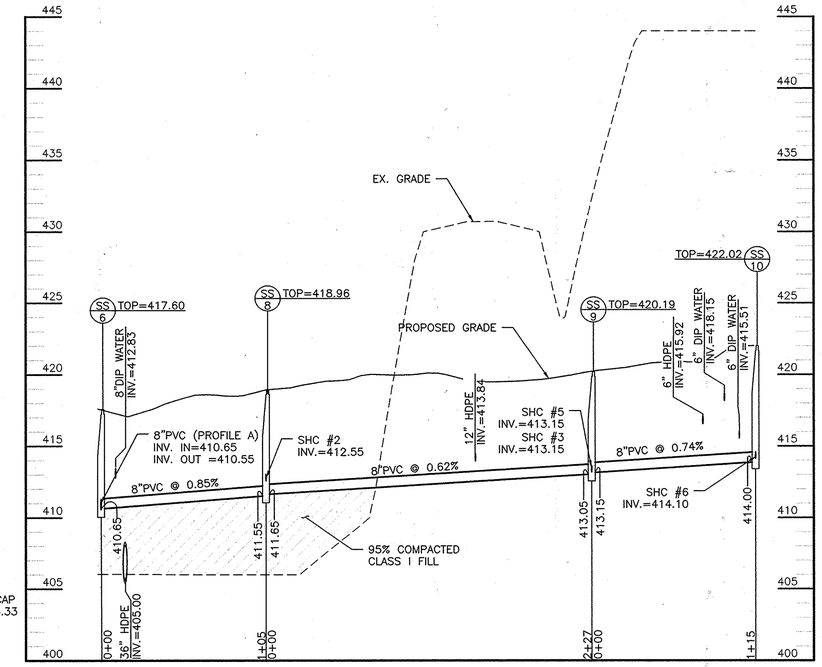
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C–1.04
DRAWN BRA	SCALE 1"=50'	SHEET NO. 6 OF 47	

SDP–14–090



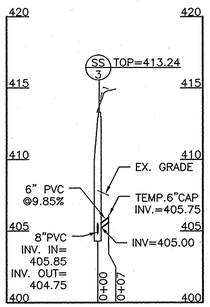
SANITARY SEWER 'A' PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



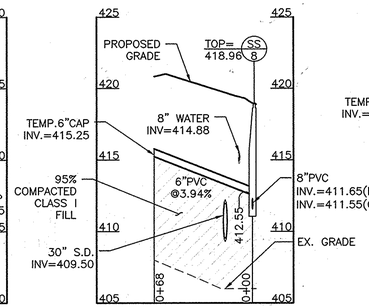
SANITARY SEWER 'B' PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



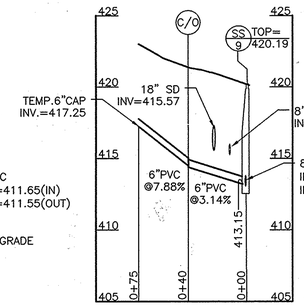
SHC BUILDING 1 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



SHC BUILDING 2 PROFILE

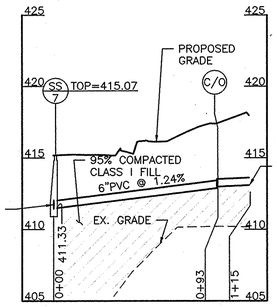
SCALE: HOR: 1"=50' VERT: 1"=5'



SHC BUILDING 3 PROFILE

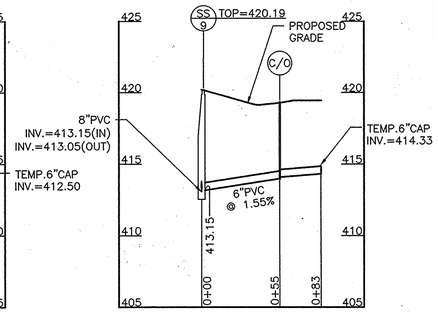
NOTE: EX. GRADE IS AT 433.00

SCALE: HOR: 1"=50' VERT: 1"=5'



SHC BUILDING 4 PROFILE

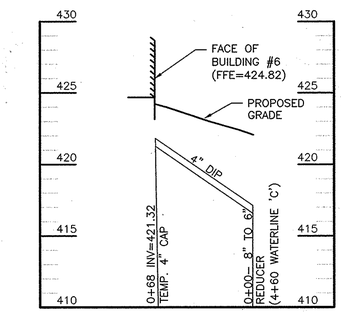
SCALE: HOR: 1"=50' VERT: 1"=5'



SHC BUILDING 5 PROFILE

NOTE: EX. GRADE IS AT 430.00

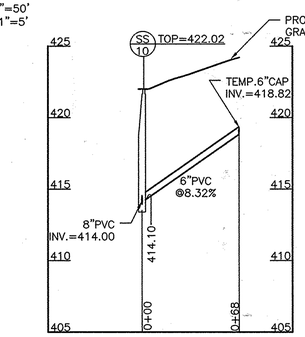
SCALE: HOR: 1"=50' VERT: 1"=5'



WHC BUILDING 6 PROFILE

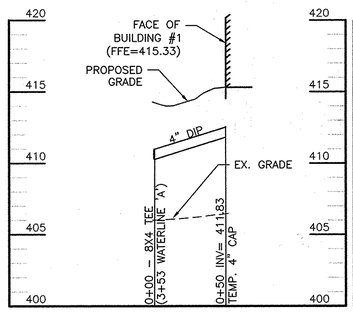
SCALE: HOR: 1"=50' VERT: 1"=5'

NOTE: EXISTING GRADE IS AT APPROXIMATELY 444'



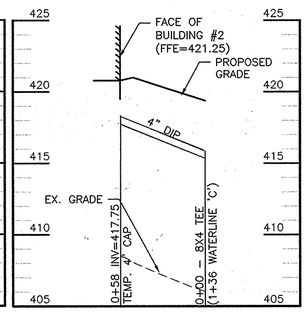
SHC BUILDING 6 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



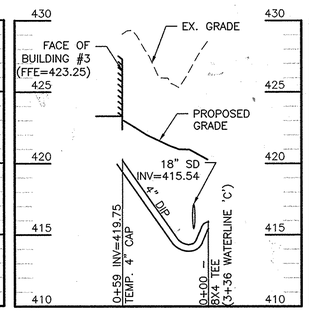
WHC BLDG 1 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



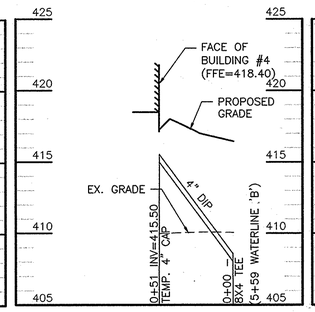
WHC BLDG 2 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



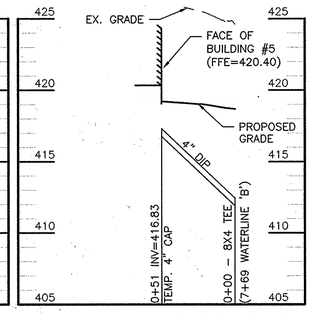
WHC BLDG 3 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



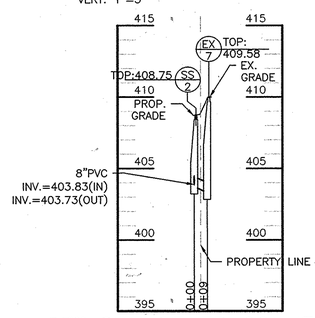
WHC BLDG 4 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



WHC BLDG 5 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



OFF SITE SEWER CONNECTION

SCALE: HOR: 1"=50' VERT: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

STATE OF MARYLAND — BRIAN R. ALBERTSON — No. 33772 — PROFESSIONAL ENGINEER

8/17/15

KCI TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT

WATER & SEWER PROFILES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

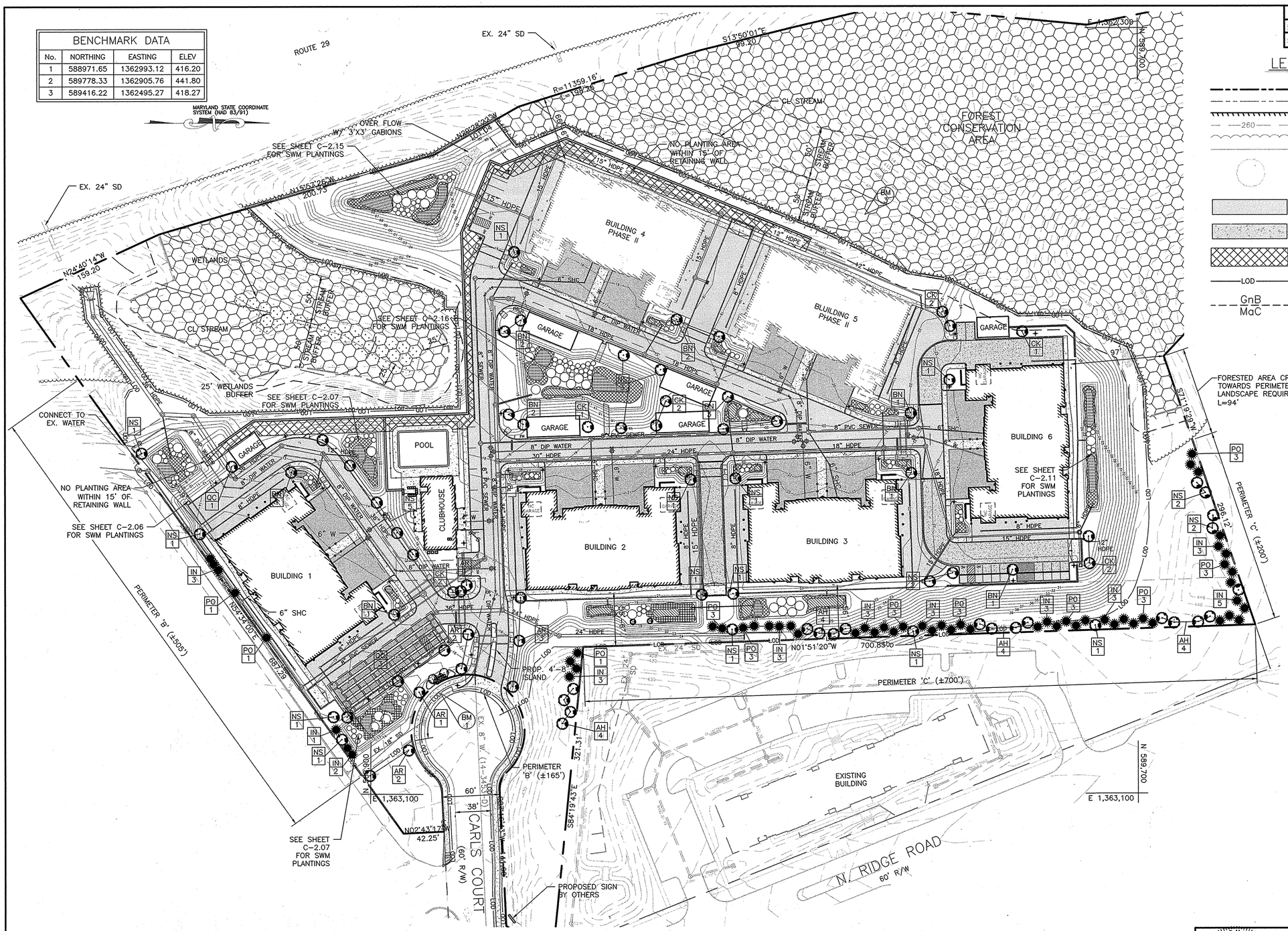
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C–1.05
DRAWN BRA	SCALE VARIES	SHEET NO. 7 OF 47	

SDP–14–090

BENCHMARK DATA			
No.	NORTHING	EASTING	ELEV
1	588971.65	1362993.12	416.20
2	589778.33	1362905.76	441.80
3	589416.22	1362495.27	418.27

MARYLAND STATE COORDINATE SYSTEM (NAD 83/91)

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74

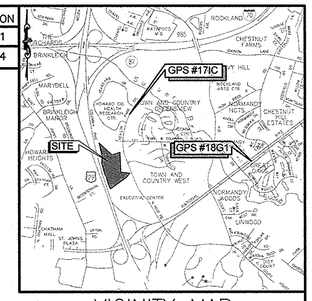


LANDSCAPING PLAN

SCALE: 1"=50'

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- 260 EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED IMPERIOUS PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- NO PLANTING AREA
- LOD LIMIT OF DISTURBANCE
- GnB MaC SOILS LINE



VICINITY MAP

SCALE: 1" = 2000'
ADC MAP 21B6

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES (NORTH & EAST)
LANDSCAPE TYPE	B	C
LINEAR FEET OF PERIMETER	670'	900'
CREDIT FOR EXISTING VEGETATION	NO	YES – 94'
NUMBER OF PLANTS REQUIRED		
–SHADE TREES	11	23
–EVERGREEN TREES	0	46
–SHRUBS	0	0
NUMBER OF PLANTS PROVIDED		
–SHADE TREES	8	24
–EVERGREEN	9	50
–SHRUBS	0	0

NOTE: THE FOREST CONSERVATION AREA ALONG THE NORTH AND WEST OF THE SITE SATISFIES THE REQUIREMENT ALONG THESE PROPERTY LINES.

DEVELOPER'S/OWNER'S LANDSCAPE 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 LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER'S / OWNER'S NAME

GRAPHIC SCALE

50 0 25 50 100

SCALE: 1"=50'

KCI TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS			
NO.	DATE		BY

STATE OF MARYLAND
NAVAL LAS FONTICOLA
No. 33772
PROFESSIONAL ENGINEER

8/17/15

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MIST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
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COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

LANDSCAPING PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-1.06
DRAWN	SCALE	SHEET NO. 8 OF 47	
BRA	1"=50'		

SDP-14-090

GENERAL PLANTING NOTES

1. THIS PLAN IS FOR LANDSCAPE PURPOSES ONLY.

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OR LANDSCAPE ARCHITECT OF ANY DEVIATION FROM THE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION OF THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER OR LANDSCAPE ARCHITECT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

3. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER OR LANDSCAPE ARCHITECT IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT WRITTEN PERMISSION OF THE ENGINEER OR LANDSCAPE ARCHITECT, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.

4. IF A CONFLICT EXISTS BETWEEN DRAWINGS (AND/OR SPECIFICATIONS), THE MORE STRINGENT AND MORE COSTLY REQUIREMENT SHALL APPLY. ITEMS SHOWN ON THE DRAWINGS, BUT NOT SPECIFIED, SHALL APPLY AND BE FURNISHED AND INSTALLED BY THE CONTRACTOR. IF ANY ITEM IS SHOWN ON THE DRAWINGS, BUT NOT INCLUDED IN THE SPECIFICATIONS, PROVIDE ITEM OF QUALITY LEVEL CONSISTENT WITH THE GENERAL QUALITY LEVEL OF THE CONTRACT REQUIREMENTS. BRING CONFLICTS BETWEEN THE DRAWINGS AND SPECIFICATIONS TO THE ATTENTION OF THE ENGINEER OR LANDSCAPE ARCHITECT IMMEDIATELY.

5. THE CONTRACTOR SHALL INSURE THAT HIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS.

6. DURING PLANTING OPERATIONS, EXCESS WASTE MATERIALS SHALL BE REMOVED DAILY FROM THE SITE. THE CONTRACTOR SHALL DISPOSE OF STUMPS AND MAJOR ROOTS OF ALL PLANTS TO BE REMOVED. DEPRESSIONS CAUSED BY REMOVAL OPERATIONS SHALL BE REFILLED WITH FERTILE, FRIABLE SOIL REPLACED AND COMPACTED SO AS TO REESTABLISH PROPER GRADE FOR NEW PLANTING.

7. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" FOR UNDERGROUND UTILITY LOCATIONS AT LEAST 72 HOURS PRIOR TO THE LANDSCAPE INSTALLATION.

8. THE CONTRACTOR SHALL NOTIFY THE FACILITY MANAGER, OR OWNER, A MINIMUM OF THREE WORKING DAYS PRIOR TO PLANTING AND CONSTRUCTION FOR AS-BUILT DRAWINGS FOR UNDERGROUND UTILITIES AND IRRIGATION SYSTEM LINES,VALVES, LATERALS AND DRIP TUBING.

9. THE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES ON THE SITE. THEIR EXACT LOCATION SHALL BE VERIFIED IN THE FIELD WITH THE OWNER OR GENERAL CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY DIGGING OPERATIONS. IN THE EVENT THEY ARE UNCOVERED, THE LANDSCAPE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO UTILITIES AND SUCH DAMAGE SHALL NOT RESULT IN ANY ADDITIONAL EXPENSES TO THE OWNER. HAND EXCAVATE TO FULL DEPTH OF INSTALLATION OR UNTIL UTILITY IS FOUND.

10. IF UTILITY LINES ARE ENCOUNTERED IN THE EXCAVATION OF TREE PITS, OTHER LOCATIONS FOR TREES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. NO CHANGES OF LOCATION SHALL BE MADE WITHOUT APPROVAL OF THE LANDSCAPE ARCHITECT.

11. EVERY POSSIBLE SAFEGUARD SHALL BE TAKEN TO PROTECT BUILDING SURFACES, LIGHTING, TRELLISES, EQUIPMENT, AND FURNISHING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONNEL OR PROPERTY WHICH MAY OCCUR AS A CONSEQUENCE OF THE EXECUTION OF THE WORK.

12. THE CONTRACTOR SHALL STAKE ALL INDIVIDUAL SPECIMEN MATERIAL LOCATED ON THE SITE FOR REVIEW AND/OR ADJUSTMENT BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. SHRUBS AND TREES SHALL BE STAKED WITH COLOR CODED WIRE SURVEY FLAGS. SURVEYOR GROUND PAINT SHALL BE USED TO MARK OUT GROUNDCOVER BEDS. ALL LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE PLANTING.

13. PLANTS SHALL CONFORM TO CURRENT "AMERICAN STANDARDS FOR NURSERY STOCK", PARTICULARLY WITH REGARD TO SIZE, GROWTH, SIZE OF BALL, AND DENSITY OF BRANCH STRUCTURE. PLANT MATERIAL SHALL BE TAGGED AT THE SOURCES BY THE LANDSCAPE ARCHITECT UNLESS THIS REQUIREMENT IS SPECIFICALLY WAVED. REFERENCE "ANS1Z60.1–2004" (OR MOST CURRENT DOCUMENT AVAILABLE AT WWW.ANLA.ORG).

TYPE 1 TREE SPECIFICATIONS, MAJOR TREES				
SPECIES EXCEPTIONS OR MODIFICATIONS MUST BE APPROVED				
CALIPER	MINIMUM NUMBER OF BRANCHES OFF OF MAIN STEM	HEIGHT RANGE	WIDTH	CLEARANCE FROM GROUND TO FIRST BRANCH
1 IN.	8	8–10 FT.	3 TO 4 FT.	3 FT.
2 IN.	16	12–14 FT.	5 TO 6 FT.	4 FT.
2.5 IN.	18	12–14 FT.	6 TO 8 FT.	5 FT.
3 IN.	36	14–16 FT.	6 TO 8 FT.	5 FT.
4 IN.	45	16–18 FT.	8 TO 10 FT	5 FT.
5 IN.	SUBJECT TO REVIEW AT PLACE OF GROWTH, OR PHOTOGRAPH			

14. ALL PLANTS (B&B OR CONTAINER) SHALL BE PROPERLY IDENTIFIED BY WEATHER–PROOF LABELS, SECURELY ATTACHED BEFORE DELIVERY TO PROJECT SITE. LABELS SHALL IDENTIFY PLANTS BY NAME, SPECIES, AND SIZE. LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTION BY THE LANDSCAPE ARCHITECT OR AGENT IN CHARGE. CONTAINERIZED GROUND COVER SHALL BE PROVIDED IN SPECIFIED SIZE CONTAINERS, FULL GROWTH TO AT LEAST CONTAINER SIZE WITH FULLY DEVELOPED, BUT NOT POT BOUND ROOT SYSTEMS AND FREE OF INSECT OR FUNGUS INFESTATIONS.

15. ANY MATERIAL AND/OR WORK MAY BY REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER IF IT DOES NOT MEET THE REQUIREMENTS OF THESE NOTES AND THE PROJECT SCOPE AND SEQUENCE. ALL REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

16. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE LANDSCAPE ARCHITECT.

17. ALL SHRUB AND GROUNDCOVER BEDS SHALL BE PLANTED IN CONTINUOUS PREPARED PLANTING BEDS.

18. ALL SHRUB BEDS AND PERENNIALS SHALL BE MULCHED WITH SHREDDED AND FULLY COMPOSTED HARDWOOD MULCH FREE OF COLOR DYE AS DETAILED AND SPECIFIED EXCEPT WHERE NOTED ON PLANS.

19. INSTALLATION CONTRACTOR MAINTENANCE SHALL BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE UNTIL 90 DAYS AFTER FINAL ACCEPTANCE BY THE ARCHITECT OR OWNER REPRESENTATIVE. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, FERTILIZING, MULCHING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY FOR THE PROPER GROWTH OF THE PLANT MATERIAL. THE CONTRACTOR MUST BE ABLE TO PROVIDE CONTINUOUS MAINTENANCE, FOR AN ADDITIONAL COST, FOR A PERIOD OF ONE YEAR AFTER THE DATE OF THE "CERTIFICATE OF SUBSTANTIAL COMPLETION." THE CONTRACTOR WILL BE RESPONSIBLE FOR ITEMS LOST BY THEFT, "ACTS OF GOD," VANDALISM OR ANY CONDITION AFFECTING THE LANDSCAPE PRODUCT NOT SPECIFICALLY RELATED TO THE OWNER OR OTHER SITE CONTRACTOR DAMAGE UP TO DATE OF THE ISSUANCE OF A "CERTIFICATE OF SUBSTANTIAL COMPLETION."

20. UPON COMPLETION OF ALL LANDSCAPING FOR EACH PHASE OF WORK, AN INSPECTION OF THE WORK SHALL BE HELD. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OR OWNER FOR SCHEDULING THE INSPECTION AT LEAST SEVEN (7) DAYS PRIOR TO THE ANTICIPATED INSPECTION DATE.

21. THE CONTRACTOR IS RESPONSIBLE FOR TESTING PROJECT SOILS. THE CONTRACTOR IS TO PROVIDE A CERTIFIED SOILS REPORT TO THE OWNER. THE CONTRACTOR SHALL NOT KNOWINGLY INSTALL PLANTS IN SOIL OR DRAINAGE CONDITIONS THAT ARE NOT CONDUCIVE TO PLANT SURVIVAL. THE CONTRACTOR SHALL VERIFY THAT THE SOILS ON SITE ARE ACCEPTABLE FOR THE PROPER GROWTH OF THE PROPOSED PLANT MATERIAL. THE CONTRACTOR SHALL SUBMIT RECOMMENDATIONS FOR SOIL TEXTURE MODIFICATIONS, SOIL PH MODIFIERS OR ADDITION OF MACRO AND MICRO NUTRIENTS WHICH MAY REQUIRE MODIFICATION OF THE SPECIFIED PLANTING MIX, SPECIFIED HEREIN.

22. QUICK SOIL TESTING AND PLANTING MIX DESIGN CAN BE PROVIDED BY A & L LABORATORIES (800–264–4522), 2790 WHITTEN ROAD, MEMPHIS, TN 38133. PROVIDE SOIL PLANTING MIX FROM SPECS AND ASK FOR COMMENTS FOR ALTERING MIX, IF APPROPRIATE. MULTIPLE SAMPLES MIGHT BE REQUIRED FOR LARGE JOBS WITH VARYING SOIL CONDITIONS. PROVIDE ONE REPORT FOR EACH 10,000 SF OF LANDSCAPE, MINIMUM. SOIL SAMPLES SHALL BE TAKEN AT 1 INCH AND 6 INCH DEPTHS FROM AT LEAST 4 LOCATIONS. THESE SAMPLES SHOULD THEN BE MIXED AND SUBMITTED TO THE LAB AS A SINGLE SAMPLE.

23. PLANTING MIX – ADJUST AS RECOMMENDED BY THE SOIL LABORATORY.

a. PLANTING MIX SHALL BE PREPARED AT APPROVED ON–SITE STAGING AREA USING APPROVED ON–SITE EXISTING SOIL. MIX MINIMUM QUANTITIES OF 20 CUBIC YARDS OR SUFFICIENT MIX FOR ENTIRE JOB IF LESS THEN 20 CUBIC YARDS IS REQUIRED.

b. THOROUGHLY MIXED IN THE FOLLOWING PROPORTIONS FOR TREE AND SHRUB PLANTING MIX:
0.5 CY EXISTING SOIL
0.2 CY SHARP SAND
0.3 CY WOOD RESIDUALS (MUST BE BROKEN DOWN BY AT LEAST TWO YEARS DECOMPOSITION)
4.5 LBS TREBLE SUPERPHOSPHATE (0–46–0)
5.0 LBS DOLOMITIC LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)

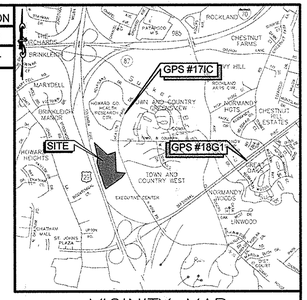
c. FOR PLANTING BEDS, SHRUB AND GROUNDCOVER INCORPORATE THE FOLLOWING INGREDIENTS PER 20 SF AND INCORPORATE INTO TOP 8 INCHES OF EXISTING SOILS BY ROTOTILLING OR SIMILAR METHOD OF INCORPORATION.
0.1 CY SHARP SAND
0.2 CY ORGANIC MATERIAL
4.5 LBS TREBLE SUPERPHOSPHATE (0–46–0)
5.0 LBS DOLMOITE LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)

d. IF SOIL TESTS RESULTS AND TESTING LAB RECOMMENDATIONS CONFLICT WITH THE SPECIFIED SOIL MIX THE CONTRACTOR SHALL BRING IT TO THE
ATTENTION OF THE LANDSCAPE ARCHITECT FOR REVIEW, ALTERATION APPROVAL.

e. THE LANDSCAPE CONSTRACTOR SHALL PROVIDE THE LANDSCAPE ARCHITECT / OWNER A 1 CF SAMPLE OF SPECIFIED MIXES AND LAB REPORTS PRIOR TO USE.

24. WARRANTY: ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWELVE MONTHS FROM THE DATE OF ACCEPTANCE IN WRITING BY THE OWNER OR BY ISSUANCE OF AN AIA STANDARD FORM "CERTIFICATE OF SUBSTANTIAL COMPLETION." THIS CERTIFICATE WILL BE ISSUED AFTER FINAL INSPECTION BY THE LANDSCAPE ARCHITECT. IF THE LANDSCAPE ARCHITECT IS SATISFIED THAT THE PROJECT IS SUBSTANTIALLY COMPLETE, THE CERTIFICATE WILL BE PREPARED WITH AN INSPECTION DATE AND CONDITIONS WHICH MUST BE SATISFIED IN A SPECIFIC PERIOD OF TIME (GENERALLY 30 DAYS). IF THESE CONDITIONS ARE NOT MET, THE CERTIFICATE MAY BE REVOKED AND A NEW INSPECTION WILL BE REQUIRED AND THE WARRANTY PERIOD SHALL BE EXTENDED ACCORDINGLY. OTHER INSPECTIONS MAY BE APPROPRIATE TO VERIFY COMPLIANCE WITH THE PUNCH LIST. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR A ONE–TIME REPLACEMENT ONLY. REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE AND QUALITY AS THE ORIGINAL SPECIES UNLESS OTHER WISE NEGOTIATED.

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74



VICINITY MAP

SCALE: 1" = 2000'
ADC MAP 21B6

MINIMUM LANDSCAPE MAINTENANCE REQUIREMENTS

1. LAWN AREAS SHALL BE MOWED TO A HEIGHT OF 2 TO 3 INCHES AND NOT ALLOWED TO REACH A HEIGHT OF 4 INCHES BEFORE MOWING.

2. ALL CURBS AND WALKS SHALL BE EDGED AS NEEDED.

3. ALL LAWN AREAS ADJACENT TO BUILDING FACES OR STRUCTURES SHALL BE TRIMMED.

4. A SLOW RELEASE NITROGEN BALANCED FERTILIZER WITH A 2–1–1 RATIO SHALL BE APPLIED AT A RATE OF 2 POUNDS OF NITROGEN PER 1000 SQUARE FEET IN SEPTEMBER, OCTOBER, AND FEBRUARY.

5. LIME SHALL BE APPLIED AT THE RATE DETERMINED BY A SOILS REPORT.

6. IT IS RECOMMENDED THAT THE LAWN AREAS BE TREATED IN MID–MARCH TO EARLY APRIL WITH PRE–EMERGENT HERBICIDE (BETASAN) OR EQUAL APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE.

7. A POST–EMERGENT HERBICIDE (TRIMEC) OR EQUAL IS RECOMMENDED TO BE SPRAYED ON LAWN AREAS IN THE LATE SPRING OR THE EARLY FALL. FOLLOW MANUFACTURER'S RATES AND RECOMMENDATIONS.

8. INSECTICIDES AND FUNGICIDES ARE RECOMMENDED FOR INSECT AND DISEASE CONTROL.

9. RE–SEED BARE AREAS OF LAWN AS NECESSARY. YEARLY AERATION IS RECOMMENDED.

10. ALL TRASH, LITTER, AND DEBRIS SHALL BE REMOVED FROM LAWN AREAS, PARKING LOTS, AND SHRUB BEDS AS NEEDED.

11. MULCH ALL SHRUB BEDS AND TREES YEARLY WITH 3 INCHES OF SHREDDED HARDWOOD BARK MULCH FREE OF COLOR DYE. BARK SHOULD BE PULLED AWAY FROM THE TRUNK / ROOT COLLAR.

12. MULCH ALL PERENNIAL, ORNAMENTAL GRASS AND ANNUAL BEDS YEARLY WITH 2 INCHES OF SHREDDED HARDWOOD BARK MULCH FREE OF COLOR DYE.

13. PERMIT SHRUBS AND TREES TO GROW AND ENLARGE TO THEIR DESIGN SIZE. CONSULT PROJECT LANDSCAPE ARCHITECT FOR DETAILS.

14. PRUNE TREES IN ACCORDANCE WITH LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE–WASHINGTON METROPOLITAN AREAS.

15. THE OWNER OF ANY PROPERTY ON WHICH LANDSCAPING HAS BEEN INSTALLED PURSUANT TO THIS CHAPTER SHALL MAINTAIN THE LANDSCAPING IN GOOD CONDITION IN PERPETUITY. A LANDSCAPE MAINTENANCE AGREEMENT SHALL BE REQUIRED. FAILURE TO REPLACE DEAD OR DYING PUS OR THE REMOVAL OF ANY INSTALLED PUS IS A VIOLATION OF THIS CHAPTER.

16. ACCEPTABLE PLANT SURVIVAL SHALL BE DEFINED AS NOT MORE THAN 1/3 MORTALITY. A 12 MONTH INSPECTION WILL BE PERFORMED BY THE COUNTY. NO INSPECTIONS SHALL BE FINALIZED FROM NOVEMBER 1ST TO MARCH 1ST.

MASTER PLANT SCHEDULE

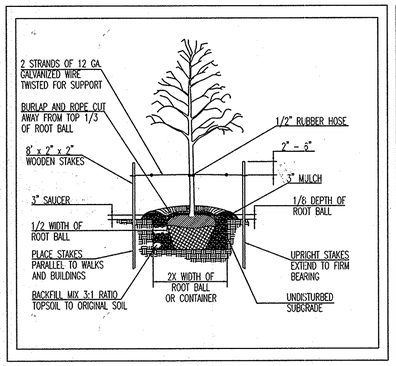
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
DECIDUOUS TREES					
AH	16	AESCULUS HIPPOCASTANUM 'BAUMANN' / BAUMANN HORSECHESTNUT	2 ½–3" CAL. MIN	B&B	CENTRAL LEADER
AR	9	ACER RUBRUM 'OCTOBER GLORY' / OCTOBER GLORY RED MAPLE	2 ½–3" CAL. MIN	B&B	CENTRAL LEADER
BN	14	BETULA NIGRA "HERITAGE" / HERITAGE RIVER BIRCH	2 ½–3" CAL. MIN	B&B	3 STEM MIN. 5 STEM MAX
CK	10	CLADRASTIS KENTUKEA / YELLOWWOOD	2 ½–3" CAL. MIN	B&B	CENTRAL LEADER
NS	27	NYSSA SYLVATICA / BLACK GUM	2–3" CAL. MIN	B&B	CENTRAL LEADER
QC	4	QUERCUS COCCINEA / SCARLET OAK	2 ½–3" CAL. MIN	B&B	CENTRAL LEADER
EVERGREEN TREES					
IN	32	ILEX 'NELLIE R. STEVENS' / NELLIE R. STEVENS HOLLY	5'–6' HT.	B&B	FULL TO GROUND
PO	26	PICEA OMORIKIA / SERBIAN SPRUCE	6'–8' HT.	B&B	SHEAR, FULL TO GROUND

SCHEDULE C
RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

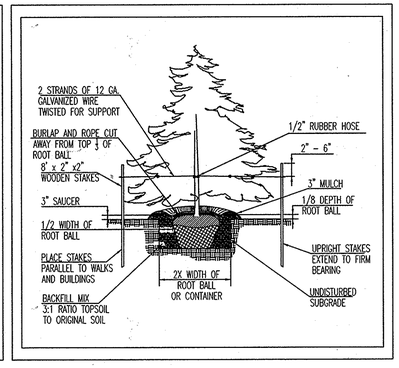
NUMBER OF DWELLING UNITS	162 UNITS
NUMBER OF TREES REQUIRED (1: DU SFA; 1:3 DU APTS)	54 SHADE TREES
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	24 SHADE TREES 60 OTHER TREES

SCHEDULE B

NUMBER OF PARKING SPACES	38 UNITS
NUMBER OF TREES REQUIRED (1 TREE PER 10 SPACES)	4 SHADE TREES
NUMBER OF TREES PROVIDED	4 SHADE TREES



DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER NAB No. 33772 PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

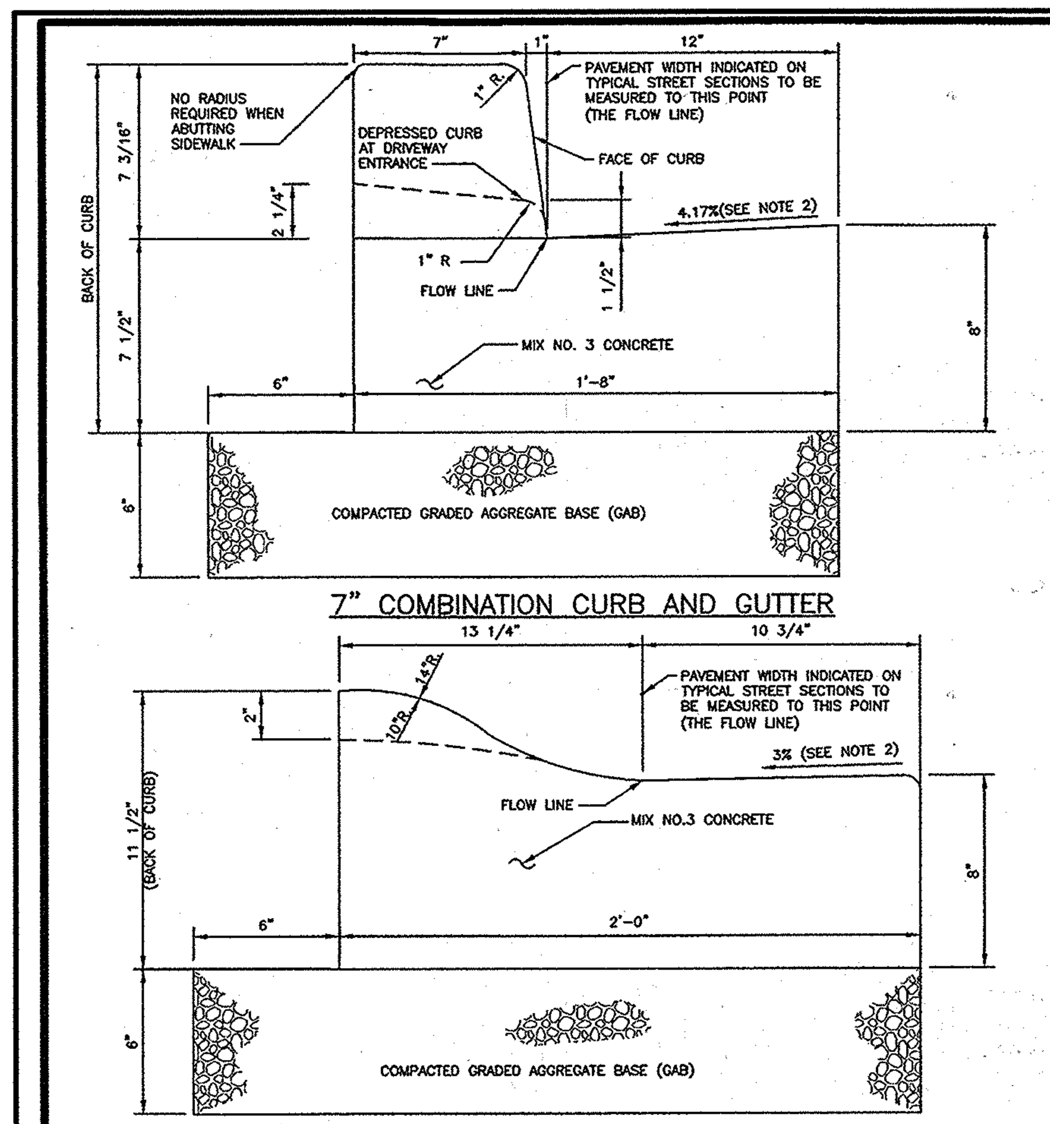
OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT
LANDSCAPING DETAILS AND NOTES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C–1.07
DRAWN BRA	SCALE VARIES	SHEET NO. 9 OF 47	

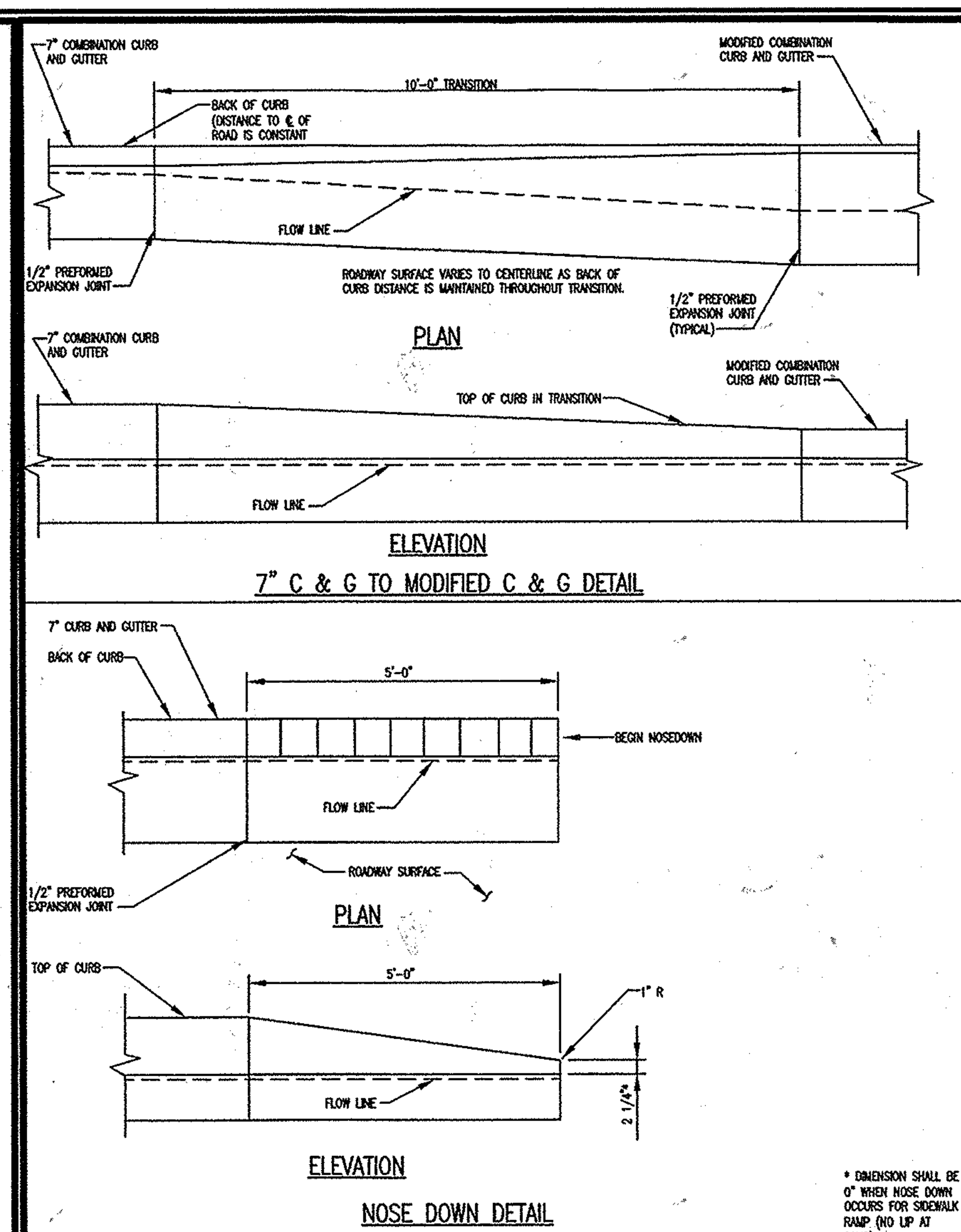
SDP–14–090



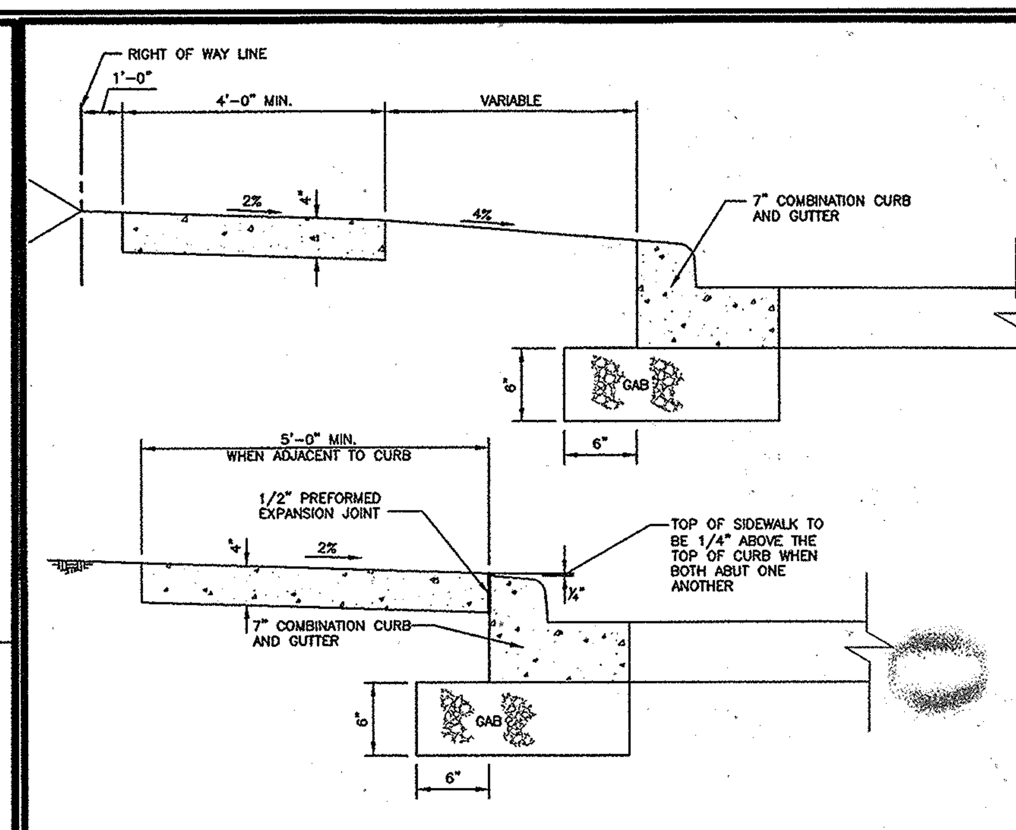
NOTE:

1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.
2. GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	CURB AND GUTTER 7" & Modified	Detail R-3.01



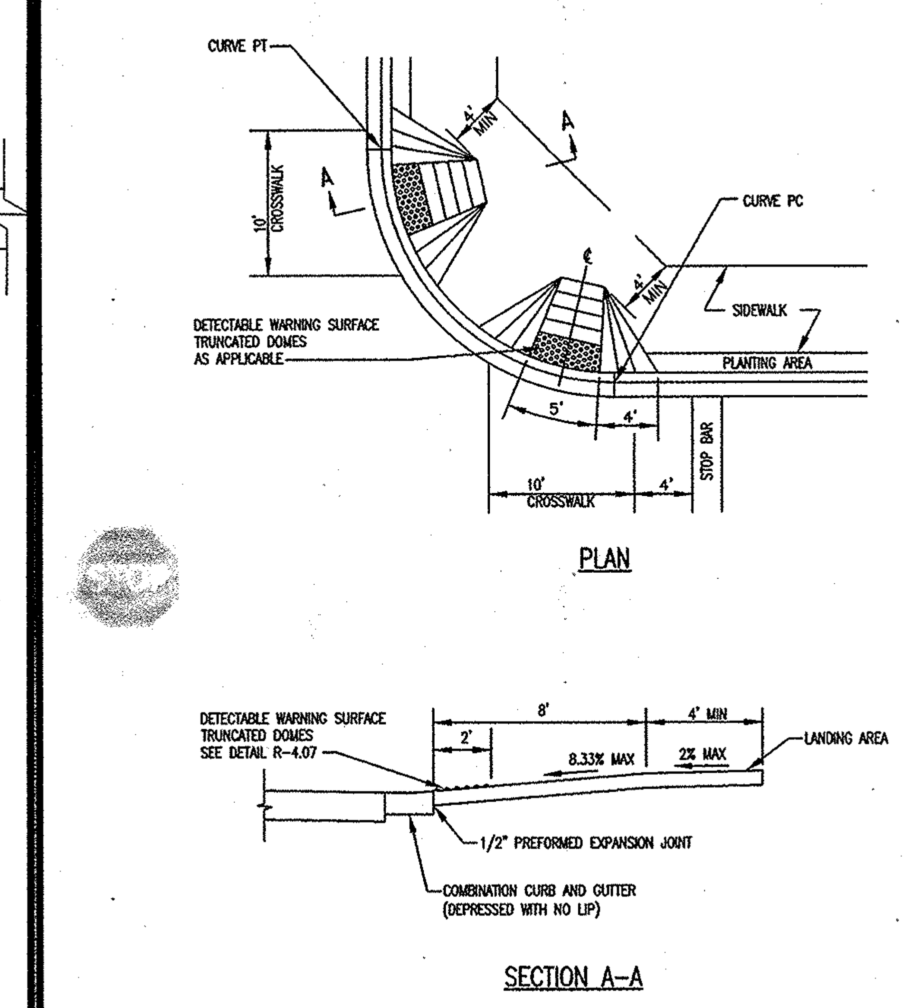
Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	CURB AND GUTTER 7" Transition to Modified & Nose Down	Detail R-3.02



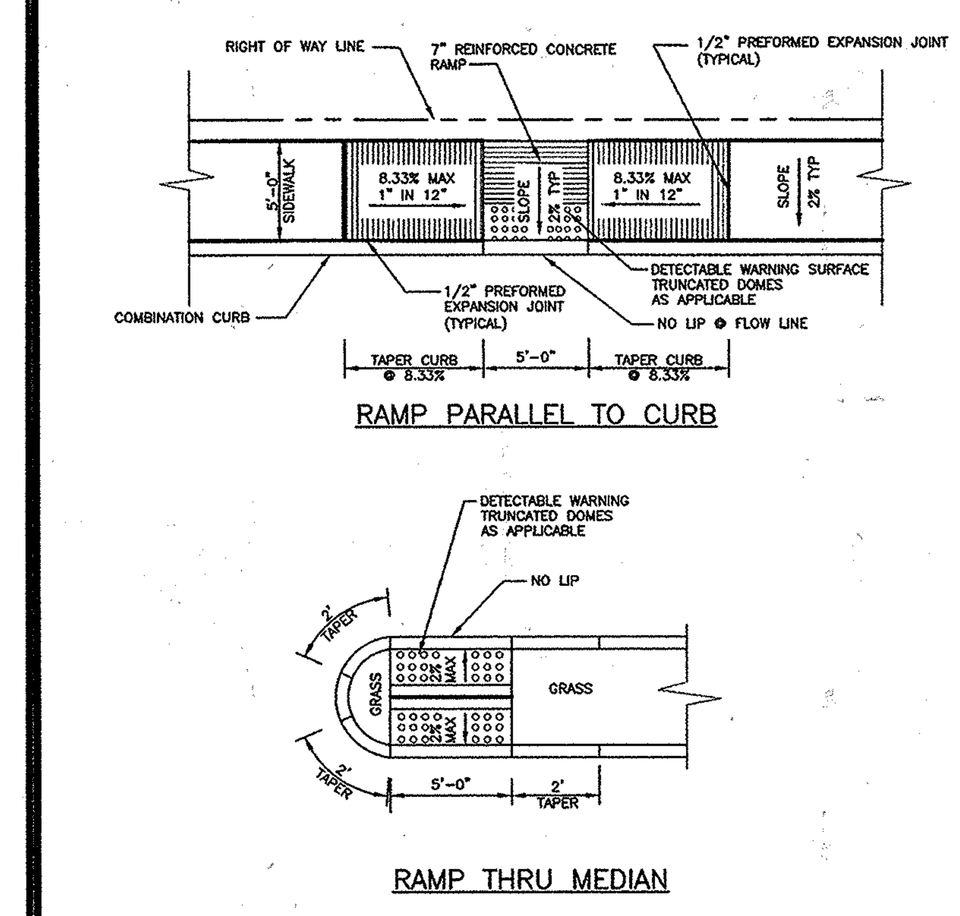
NOTES:

1. SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
4. CONCRETE TO BE MIX NO.3.
5. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MINIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
8. SIDEWALK LOCATED 2' OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'x5' PAVED SECTION PLACED 200' APART.
9. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Concrete Sidewalk	Detail R-3.05



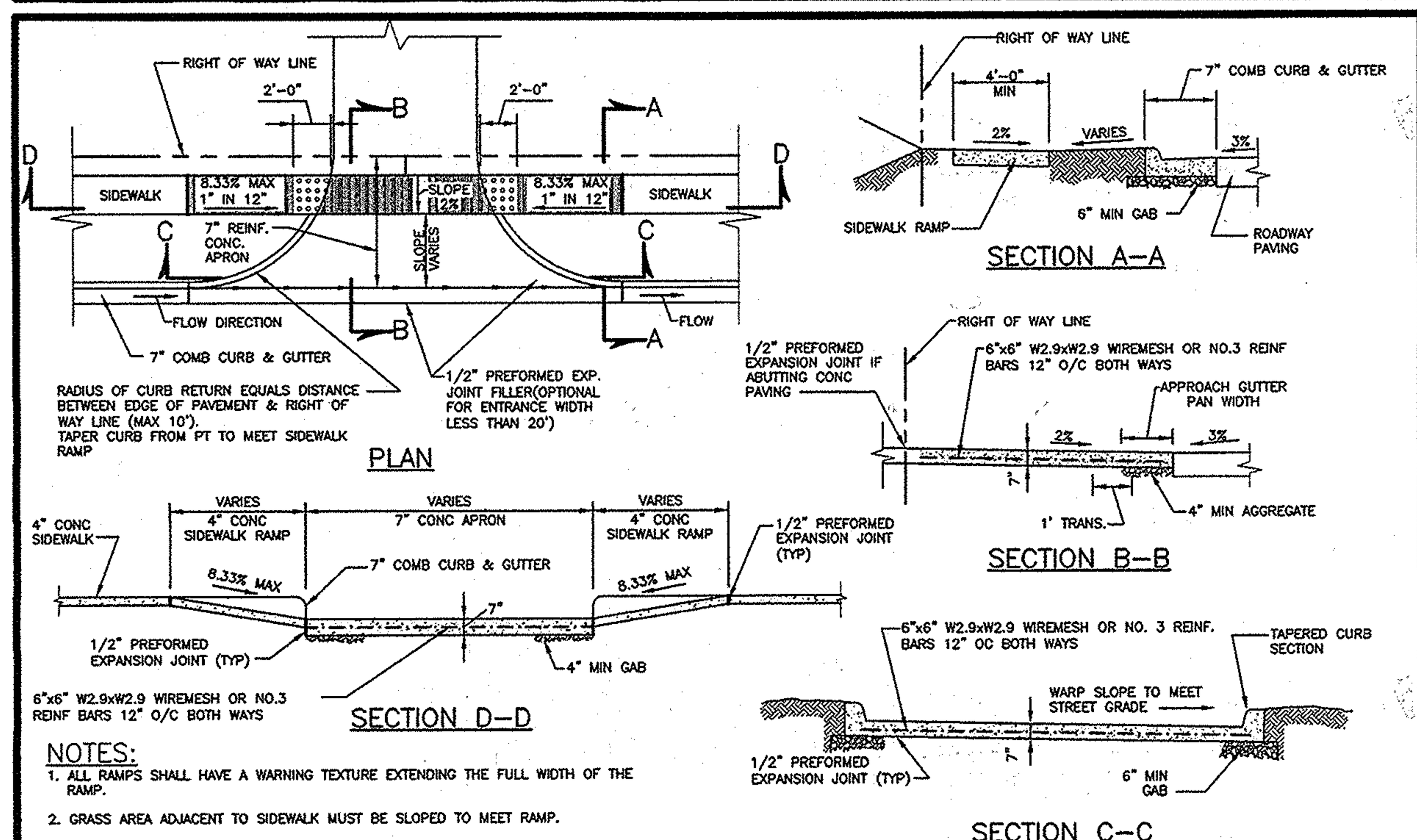
Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	SIDEWALK RAMP Type B Dual Ramp	Detail R-4.03



NOTES:

1. ALL RAMPS SHALL HAVE DETECTABLE WARNING SURFACES. SEE DETAIL R-4.07.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.

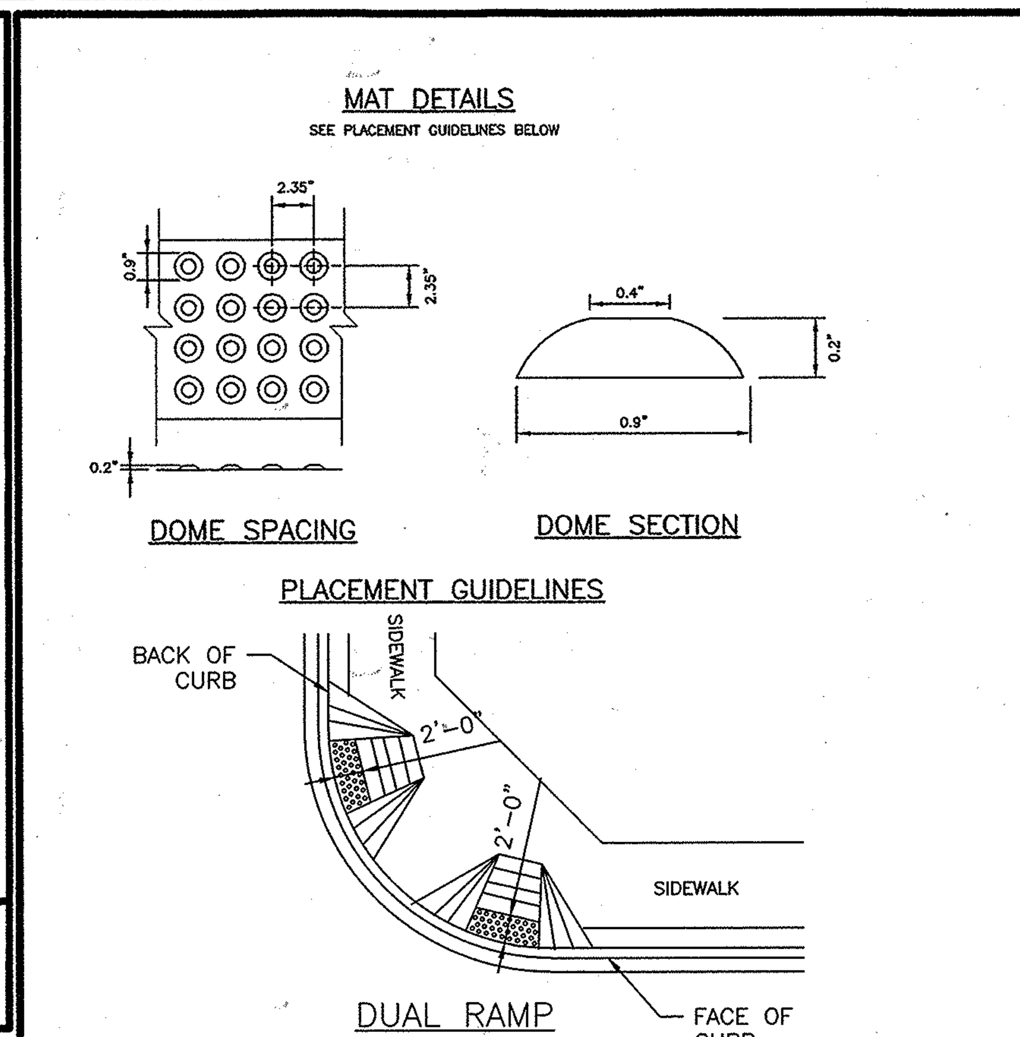
Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	SIDEWALK RAMP Layout & Grading Parallel to Curb & Thru Median	Detail R-4.06



NOTES:

1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH OF THE RAMP.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
3. 4'-0" SIDEWALK REQUIRES PASSING AREA (SEE DETAIL R-4.01).

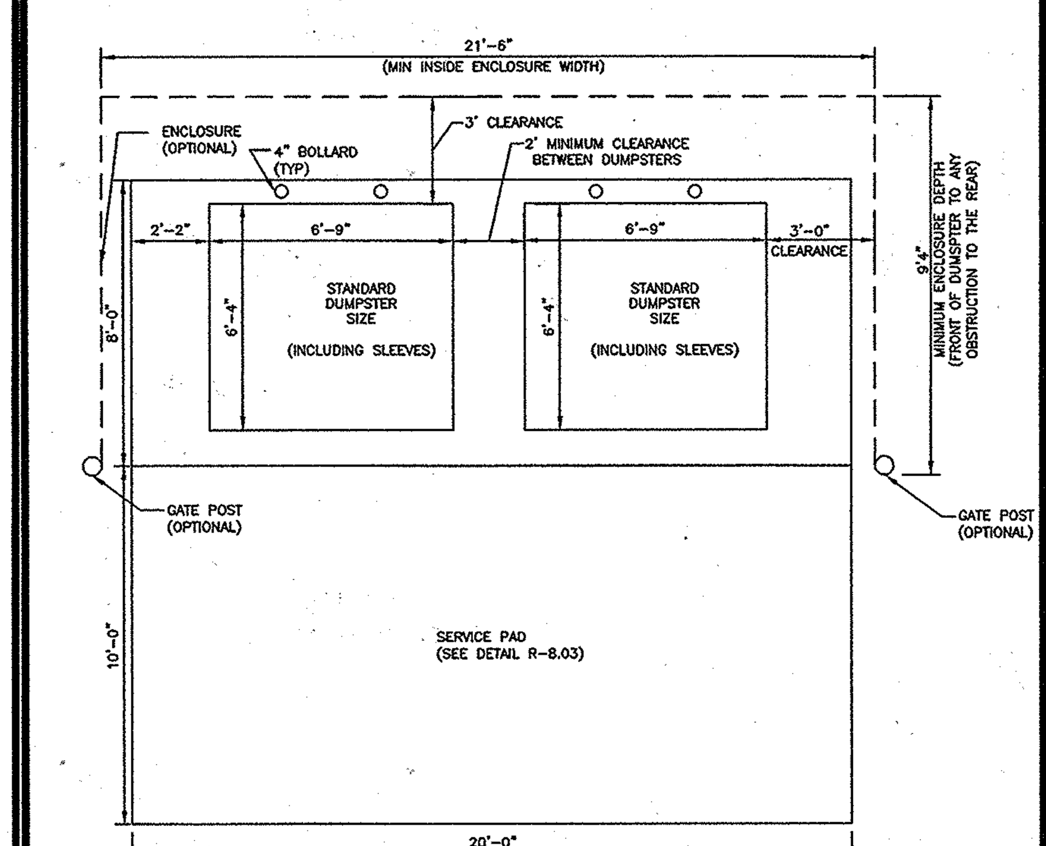
Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	COMMERICAL-INDUSTRIAL-APARTMENT Entrance Concrete Apron	Detail R-6.07



NOTES:

1. THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
2. FOR SKEWED APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOMES CLOSEST TO THE BACK OF THE CURB ARE NO LESS THAN 0.5" AND NO MORE 3.0" FROM THE BACK OF THE CURB. TRUNCATED DOME SURFACES SHALL BE FABRICATED TO PROVIDE FULL DOMES ONLY.

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	SIDEWALK RAMP Detectable Warning Truncated Domes	Detail R-4.07



NOTES:

1. ENCLOSURE GATES ARE NOT RECOMMENDED.
2. IF ENCLOSURE GATES ARE INSTALLED, MINIMUM OPENING OF 21'-6" MUST BE PROVIDED WHEN GATES ARE OPENED. ONLY 2 GATE SYSTEMS WITH NO CENTER POST ARE ALLOWED.
3. A MINIMUM OF 15' CLEAR SPACE SHALL BE PROVIDED FROM THE ENCLOUSURE TO ANY STRUCTURE.

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	SOLID WASTE Double Container Enclosure 2 Gate System	Detail R-8.05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	9-21-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9.17.15 DATE
DIRECTOR	9-29-15 DATE

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER — 8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

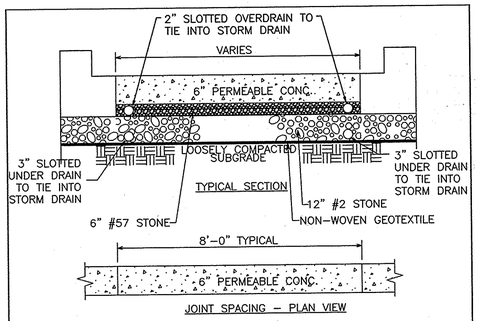
THE GATHERINGS AT ELLICOTT'S RETREAT

SITE DETAILS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

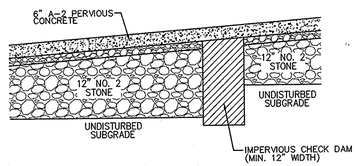
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-1.08
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 10 OF 47	

SDP-14-090



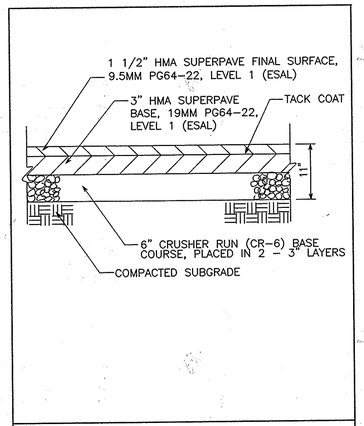
NOTES:

1. PERMEABLE CONCRETE MUST BE SUPPLIED AND INSTALLED BY NRMCA CERTIFIED TECHNICIANS
2. JOINTS TO BE CUT IN FRESH PAVEMENT WITH A PERMEABLE CONCRETE JOINT CUTTING TOOL ONLY.
3. PERMEABLE CONCRETE MUST BE COVERED WITH 6 MIL PLASTIC SECURELY FASTENED FOR SEVEN (7) DAYS

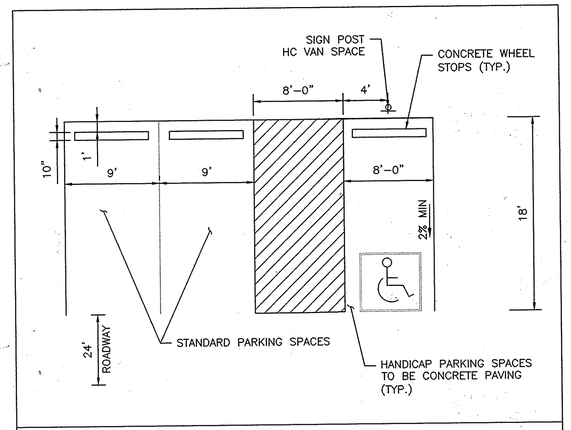


4. INSTALL CHECK CHECK DAM OF IMPERVIOUS MATERAIL (CLAY) 12 INCHES IN WIDTH AT STEPS AS NEEDED.

(1) A-2 PERMEABLE CONCRETE — NOT TO SCALE



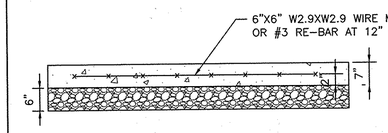
(2) PAVING DETAIL (P-2) — NOT TO SCALE



(3) TYPICAL HANDICAP&REGULAR PARKING — NOT TO SCALE

RESERVED PARKING $350 FINE	HANDICAP WITH FINE	R7-8(3)	4
RESERVED PARKING VAN ACCESSIBLE $350 FINE	VAN ACCESSIBLE WITH FINE	R7-8A	4
STOP	STOP SIGN	R1-1	4
NO PARKING IN ACCESS AISLE	NO PARKING IN ACCESS AISLE		4

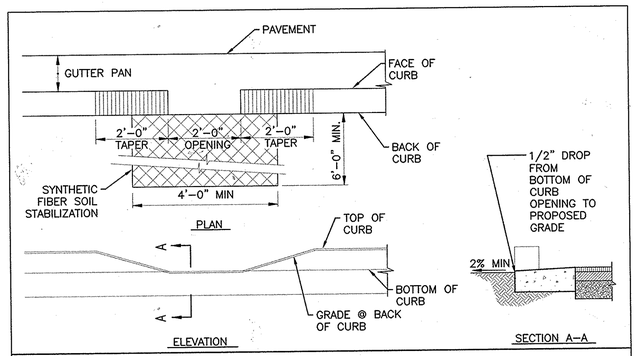
(4) SIGN SCHEDULE — NOT TO SCALE



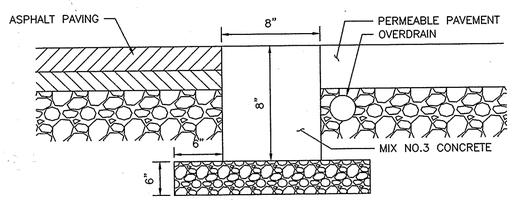
NOTE:

1. UNLESS SHOWN OTHERWISE, INSTALL EXPANSION JOINTS AT MAX 20'-0" O.C.
2. PROVIDE 1/2" PREFORMED BITUMINOUS EXPANSION JOINT WHERE CONCRETE PAVEMENT ABUTS OTHER CONCRETE STRUCTURES OR PAVEMENTS.
3. FOR REFERENCE SEE HOWARD COUNTY STD. DTL. R-5.02.

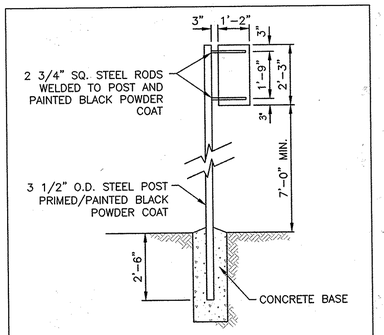
(5) STAMPED CONCRETE PAVEMENT — NOT TO SCALE



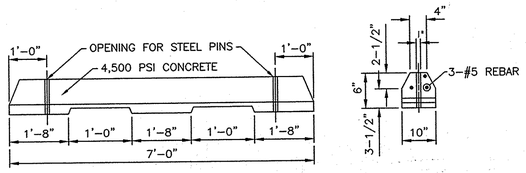
(6) CURB CUT OPENING DETAIL — NOT TO SCALE



(7) PERVIOUS CONC. BORDER — NOT TO SCALE

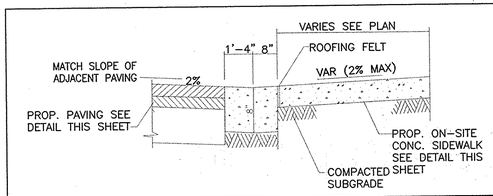


(8) SIGN POST DETAIL — NOT TO SCALE

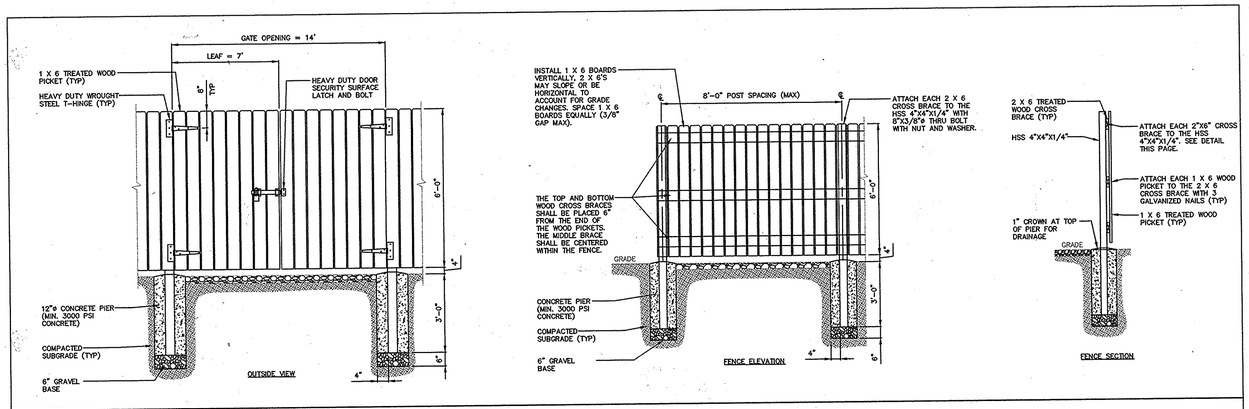


NOTE: CONTRACTOR TO PROVIDE (2) No. 8 REBARS, 16" LONG FOR EACH WHEEL STOP

(9) CONCRETE WHEEL STOP — NOT TO SCALE



(10) DEPRESSED CURB & GUTTER AT PEDESTRIAN RAMP (SECTION A-A TYPE 2) — NOT TO SCALE



(11) 6' HIGH WOOD FENCE DETAILS — NOT TO SCALE

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TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND NICHOLAS A. BARRICA No. 33772 PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

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LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

SITE DETAILS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-1.09
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 11 OF 47	

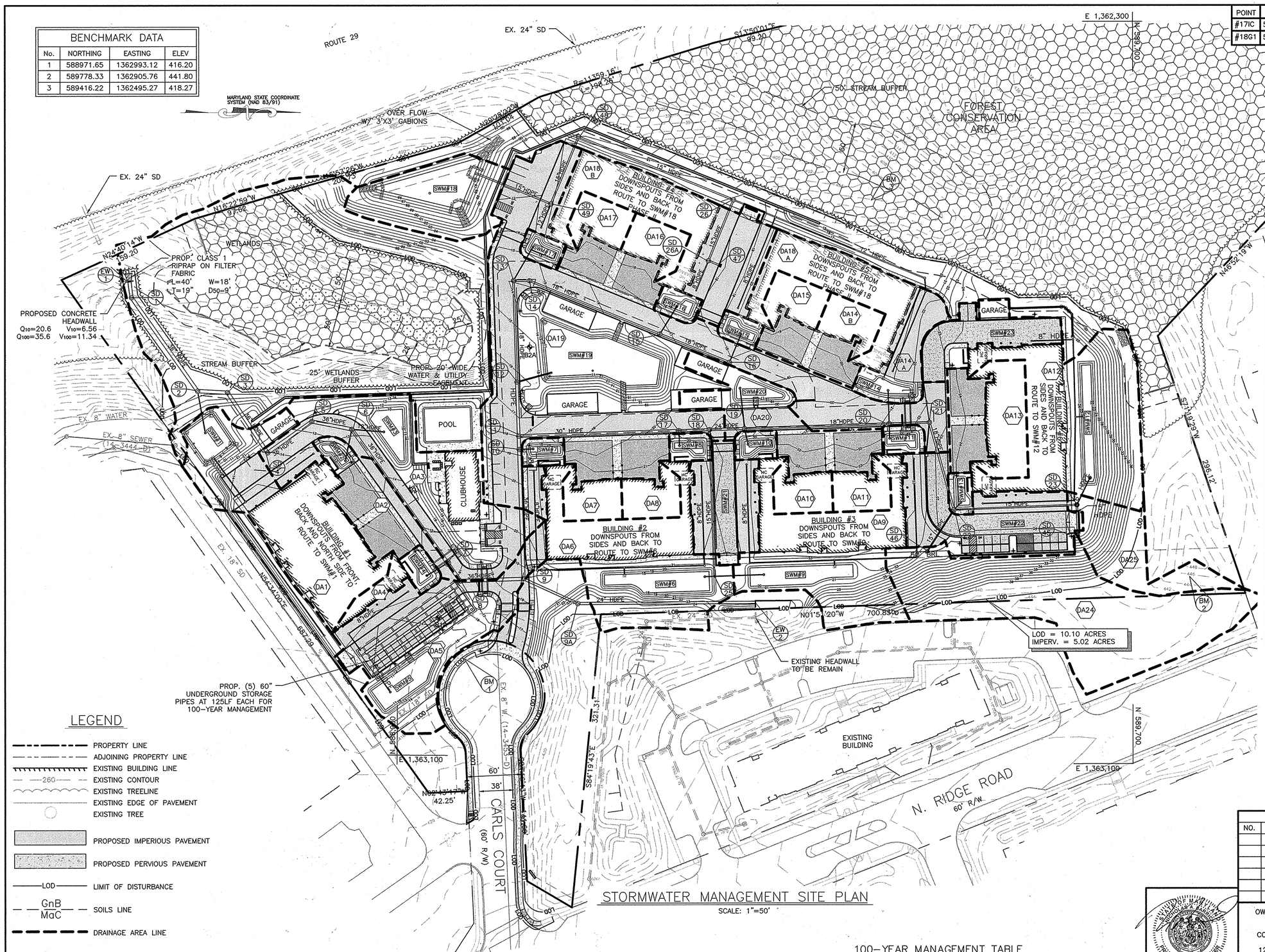
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

SDP-14-090

BENCHMARK DATA			
No.	NORTHING	EASTING	ELEV
1	588971.65	1362993.12	416.20
2	589778.33	1362905.76	441.80
3	589416.22	1362495.27	418.27

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74



VICINITY MAP

SCALE: 1" = 2000'

ADC MAP 21B6

STORMWATER MANAGEMENT FACILITY TABLE

FACILITY	DRAINAGE AREA (SF)	IMPERVIOUS AREA (S.F.)	%I	PROVIDED PE	PROVIDED ESDv (C.F.)
SWM #1 (M-6)MICRO-BIORENTION	22,598	16,461	73%	1.58	2,103
SWM #2 (M-6)MICRO-BIORENTION	8,411	7,643	91%	0.43	262
SWM #3 (M-6)MICRO-BIORENTION	23,363	14,361	61%	1.31	1,543
SWM #4 (M-6)MICRO-BIORENTION	2,898	1,907	66%	1.59	246
SWM #5 (M-6)MICRO-BIORENTION	20,925	11,488	55%	2.37	2,250
SWM #6 (M-6)MICRO-BIORENTION	20,561	9,946	48%	2.44	2,027
SWM #7 (M-6)MICRO-BIORENTION	4,424	3,336	75%	1.05	281
SWM #8 (M-6)MICRO-BIORENTION	4,297	3,321	77%	1.01	270
SWM #9 (M-6)MICRO-BIORENTION	19,754	9,820	50%	2.43	1,990
SWM #10 (M-6)MICRO-BIORENTION	4,337	3,365	78%	1.00	270
SWM #11 (M-6)MICRO-BIORENTION	4,256	3,290	77%	1.27	337
SWM #12 (M-6)MICRO-BIORENTION	23,282	9,950	43%	2.26	1,905
SWM #13 (M-6)MICRO-BIORENTION	6,917	6,132	89%	0.57	279
SWM #14 (M-6)MICRO-BIORENTION	8,836	7,282	82%	1.00	582
SWM #15 (M-6)MICRO-BIORENTION	4,275	3,317	78%	1.05	279
SWM #16 (M-6)MICRO-BIORENTION	4,212	3,255	77%	1.03	270
SWM #17 (M-6)MICRO-BIORENTION	4,176	3,244	78%	1.00	2.61
SWM #18 (M-3)LANDSCAPE INFILTRATION	37,000	26,000	70%	2.06	8,017
SWM #19 (M-6)MICRO-BIORENTION	70,313	52,546	75%	1.89	8,010
SWM #20 (M-6)MICRO-BIORENTION	11,300	9,000	80%	1.47	1,061
SWM #21 PERMEABLE PAVEMENT	7,031	7,031	100%	2.50	551
SWM #22 PERMEABLE PAVEMENT	12,043	11,225	93%	2.50	1,525
SWM #23 PERMEABLE PAVEMENT	6,140	5,387	88%	2.50	958
NON-ROOFTOP DISCONNECT	1,958	1,958	100%	1.00	155

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- 260 EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED IMPERIOUS PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- LOD LIMIT OF DISTURBANCE
- GnB / MaC SOILS LINE
- DRAINAGE AREA LINE

STORMWATER MANAGEMENT SITE PLAN

SCALE: 1"=50'

GRAPHIC SCALE

50 0 25 50 100

SCALE: 1"=50'

STORMWATER MANAGEMENT TABLE

AREA OF DISTURBANCE (AC.)	PROPOSED IMPERVIOUS (AC.)	%	PE	QE	ESDv REQUIRED (CF)	ESDv PROVIDED (CF)
10.10	5.02	50	1.80"	0.90"	32,820	32,884

100-YEAR MANAGEMENT TABLE

	CONDITION DD	AREA AC.	Q 1-YEAR	Q 50-YEAR	Q 100-YEAR
DA1	PRE-DEVELOPMENT	9.75	1.38	29.29	39.14
	DEVELOPED	5.69	1.07	9.17	18.33
DA2	PRE-DEVELOPMENT	8.96	6.54	47.23	59.69
	DEVELOPED	13.02	6.44	21.22	50.80

* NOTE: SEE SHEET ECP5 FOR OVERALL DRAINAGE AREA MAPS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

STATE OF MARYLAND NIRANJAN A. BHEDE No. 33772 PROFESSIONAL ENGINEER 8/17/15

KCI TECHNOLOGIES

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS

11850 WEST MARKET PLACE SUITE A FULTON, MD 20759 TELEPHONE: (410) 792-8086 FAX: (410) 792-7419

REVISIONS			
NO.	DATE		BY

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT SITE PLAN

AGE RESTRICTED ADULT HOUSING

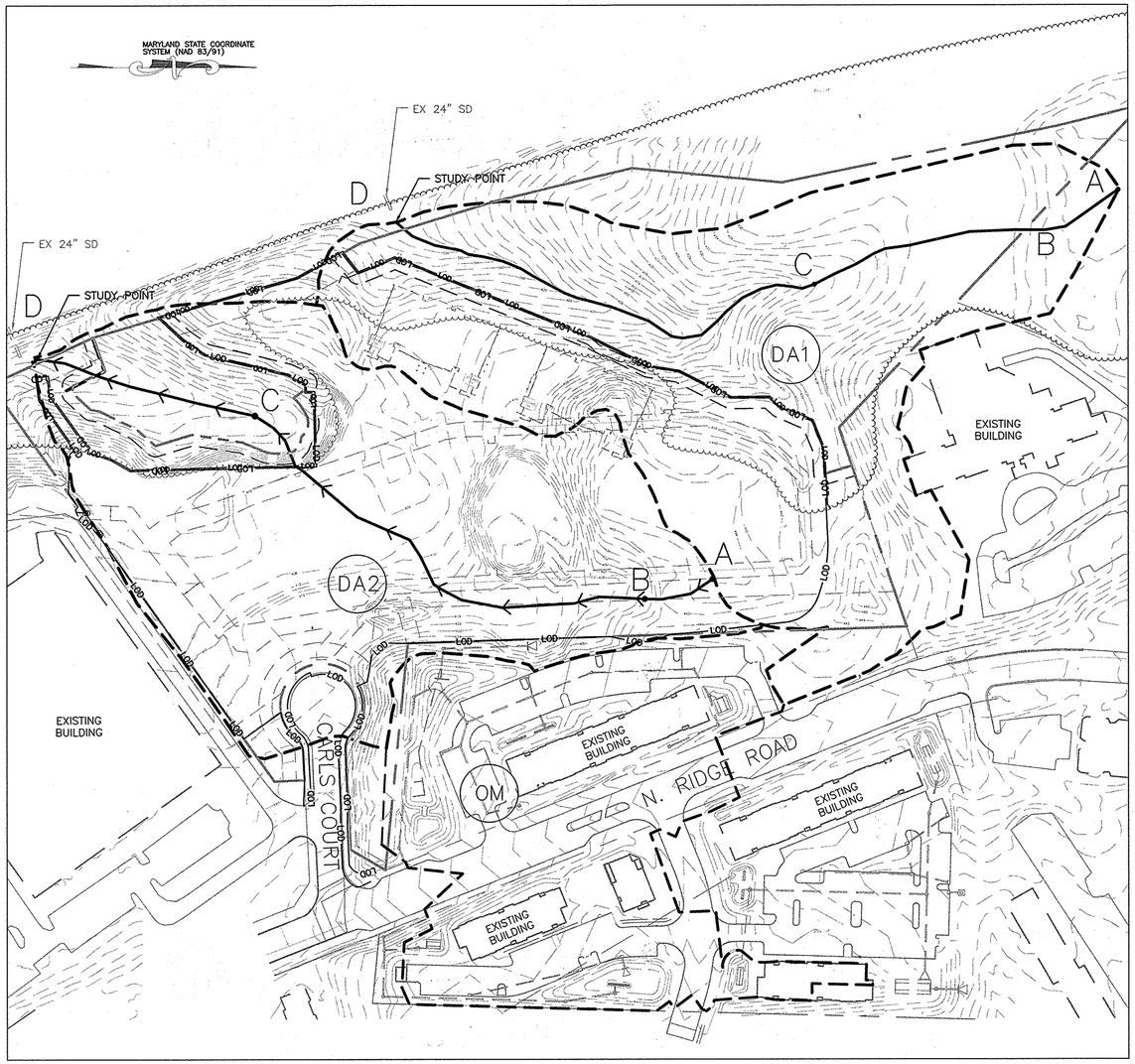
TAX MAP: 24 GRID: 06 PARCEL: 1085

ZONED: POR

ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

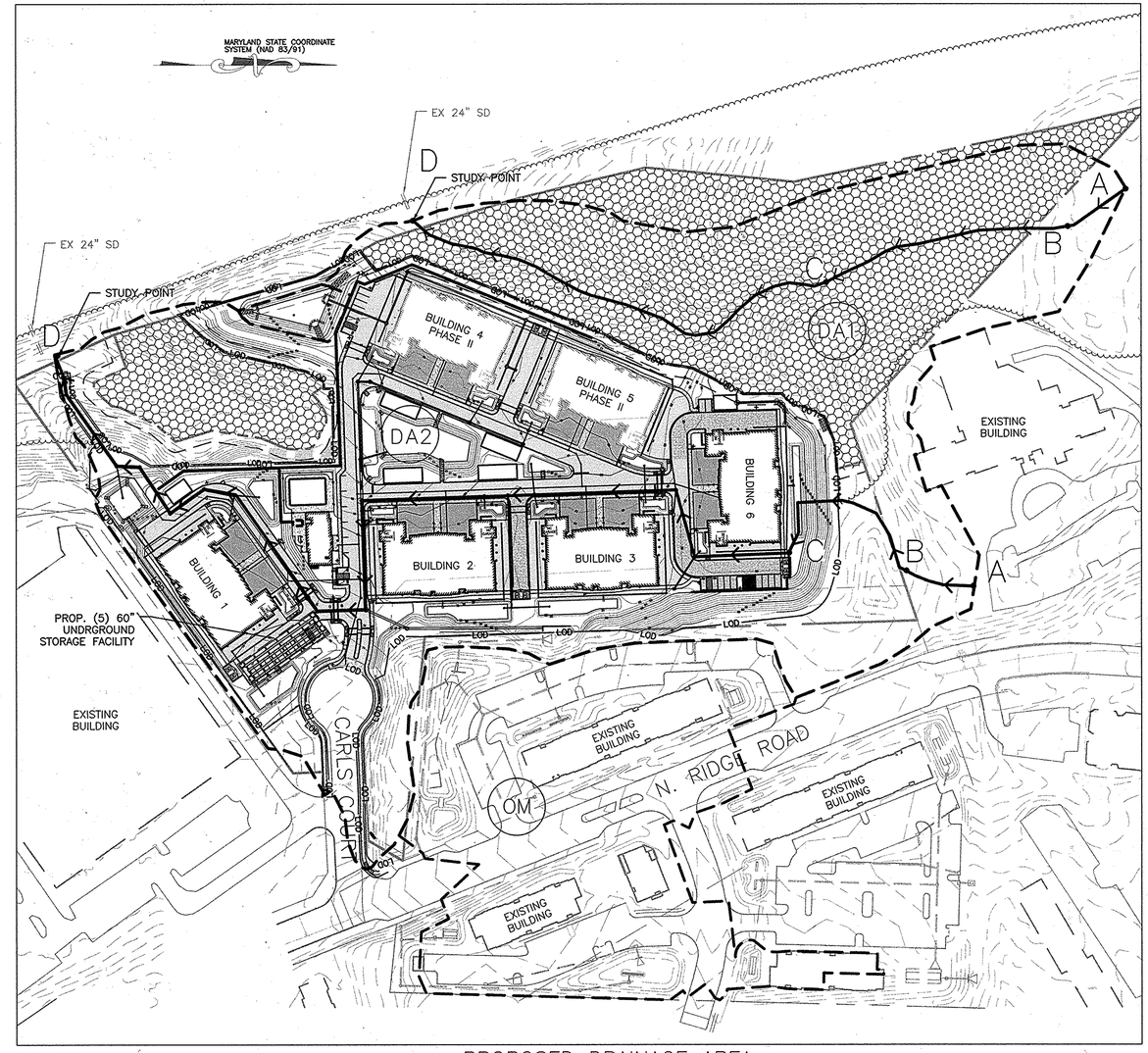
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.00
DRAWN BRA	SCALE 1"=50'	SHEET NO. 12 OF 47	

SDP-14-090



EXISTING DRAINAGE AREA

SCALE: 1"=100'



PROPOSED DRAINAGE AREA

SCALE: 1"=100'

EXISTING DRAINAGE AREA SUMMARY TABLE

DRAINAGE AREA	AREA (AC.)	IMP. AREA (AC.)	RCN	TC (HR.)	1-YR Q (cfs)	50-YR Q (cfs)	100-YR Q (cfs)
DA1	9.75	0	62	0.379	1.38	29.29	39.14
OM	6.19	3.27	63	0.100	1.65	3.39	4.25
DA2	8.96	0.16	63	0.212	6.54	47.23	59.69

NOTE: DRAINAGE AREA OM DUMPS INTO DA2. FLOWS SHOWN FROM TR-20 REPORT.

PROPOSED DRAINAGE AREA SUMMARY TABLE

DRAINAGE AREA	AREA (AC.)	IMP. AREA (AC.)	RCN	TC (HR.)	1-YR Q (cfs)	10-YR Q (cfs)	100-YR Q (cfs)
DA1	5.69	0.203	---	---	1.07	9.17	18.33
OM	6.19	3.27	---	---	1.65	3.39	4.25
DA2	13.02	1.162	---	---	6.44	21.22	50.80

NOTE: DATA SHOWN ABOVE IS FROM THE ROUTED TR-20 OUTPUT. SEE REPORT FOR ROUTING.

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11850 WEST MARKET PLACE
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TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	9-21-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9.17.15 DATE
DIRECTOR	9-29-15 DATE

GRAPHIC SCALE

100 0 50 100 200

SCALE: 1"=100'

STATE OF MARYLAND
NICHOLAS A. BARRICK
33772
PROFESSIONAL ENGINEER

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

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COMMERCIAL CONTRACTORS INC.

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THE GATHERINGS AT ELLICOTT'S RETREAT

DRAINAGE AREA MAPS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.01
DRAWN	SCALE	SHEET NO. 13 OF 47	
BRA	1"=100'		

SDP-14-090

BENCHMARK DATA			
No.	NORTHING	EASTING	ELEV
1	588971.65	1362993.12	416.20
2	589778.33	1362905.76	441.80
3	589416.22	1362495.27	418.27

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
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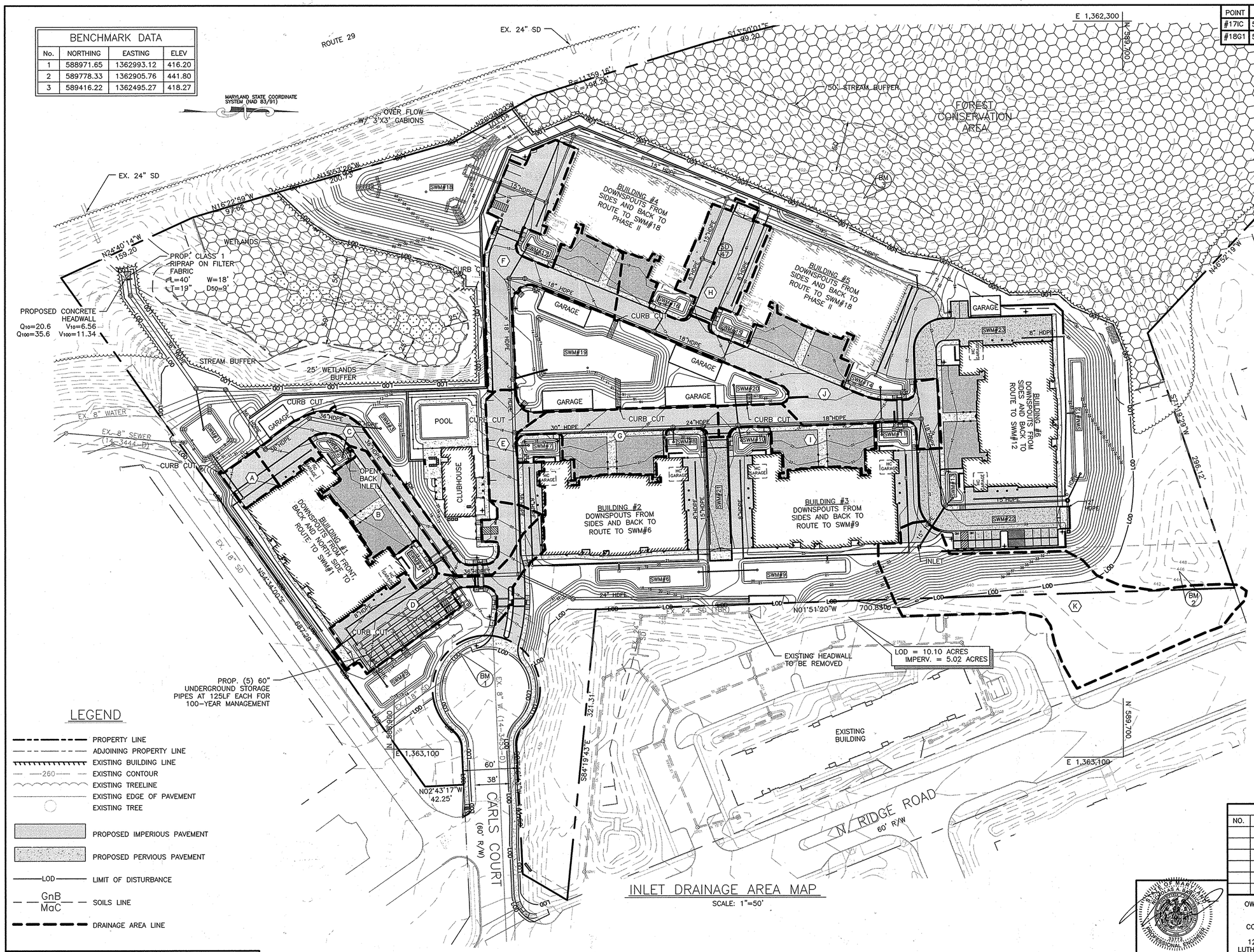
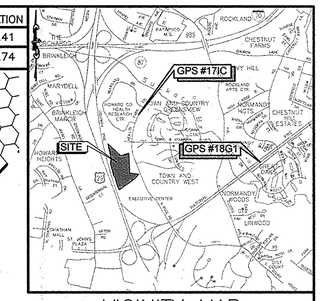


INLET DRAINAGE AREA MAP

SCALE: 1"=50'



VICINITY MAP

SCALE: 1" = 2000'

ADC MAP 21B6

DRAINAGE AREAS

DRAINAGE AREA NAME	INLET TYPE	AREA TO INLET (S.F.)	%I	'C' FACTOR
A	CURB CUT	2,095	100%	95
B	OPEN BACK INLET	7,345	100%	95
C	CURB CUT	9,465	100%	95
D	CURB CUT	11,324	100%	95
E	CURB CUT	5,828	100%	95
F	CURB CUT	17,830	100%	95
G	CURB CUT	10,222	100%	95
H	INLET	7,991	100%	95
I	CURB CUT	7,183	100%	95
J	CURB CUT	19,505	100%	95
K	INLET	31,196	97%	92

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- 260 EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED IMPERIOUS PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- LOD LIMIT OF DISTURBANCE
- GnB / MaC SOILS LINE
- DRAINAGE AREA LINE

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DIRECTOR	DATE 9-29-15

GRAPHIC SCALE

50 0 25 50 100

SCALE: 1"=50'

KCI TECHNOLOGIES

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REVISIONS			
NO.	DATE		BY

STATE OF MARYLAND BRADLEY A. BRAUN 33772 PROFESSIONAL ENGINEER

8/17/15

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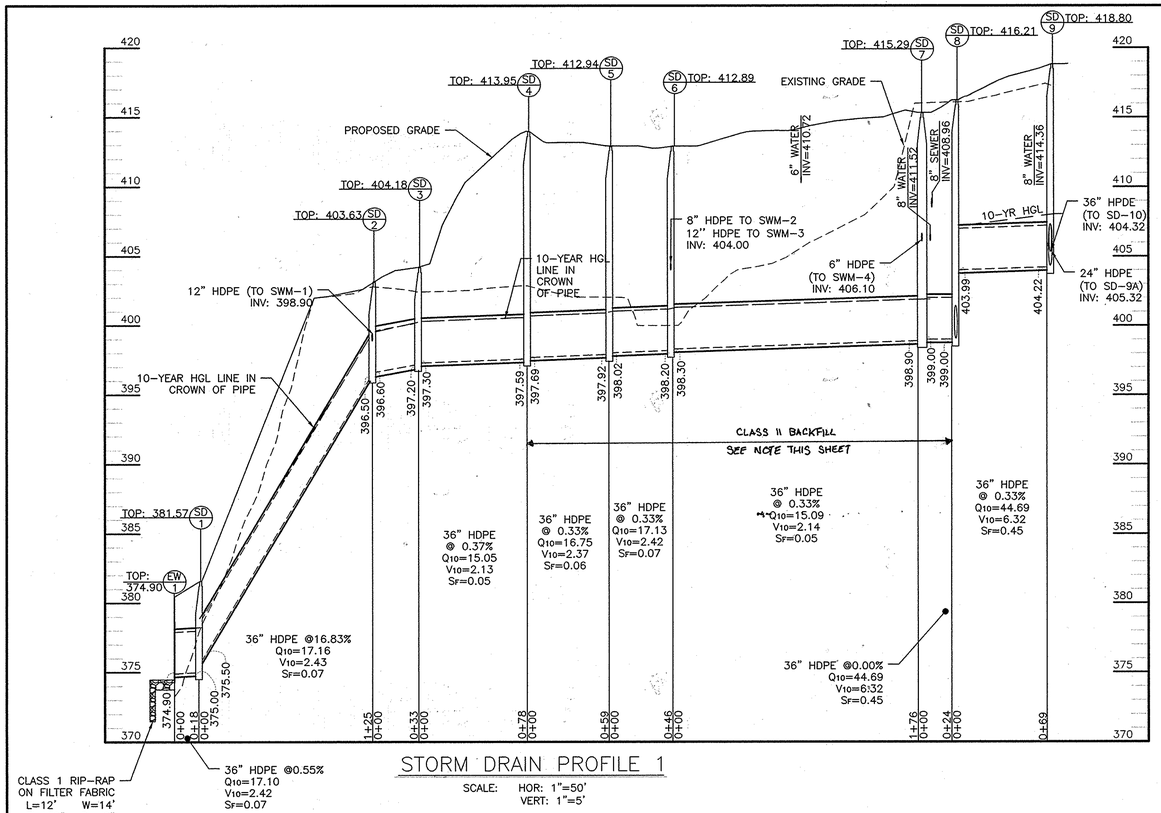
THE GATHERINGS AT ELLICOTT'S RETREAT

INLET DRAINAGE AREAS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

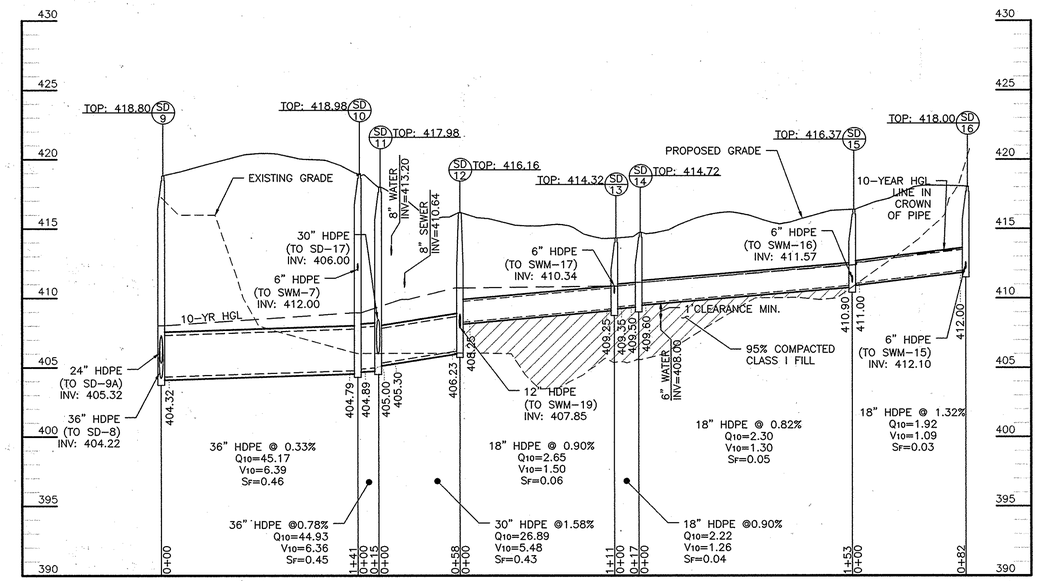
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.02
DRAWN	SCALE	SHEET NO. 14 OF 47	
BRA	1"=50'		

SDP-14-090



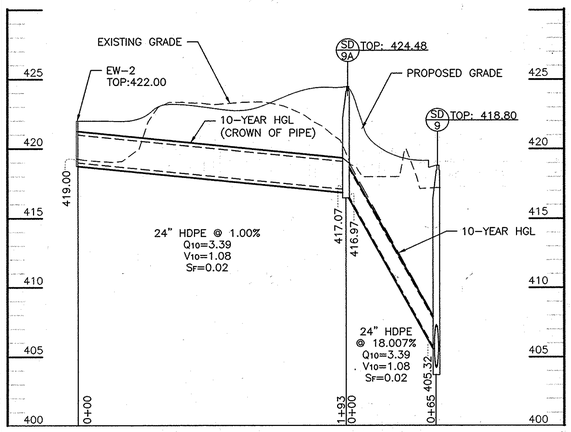
STORM DRAIN PROFILE 1

SCALE: HOR: 1"=50' VERT: 1"=5'



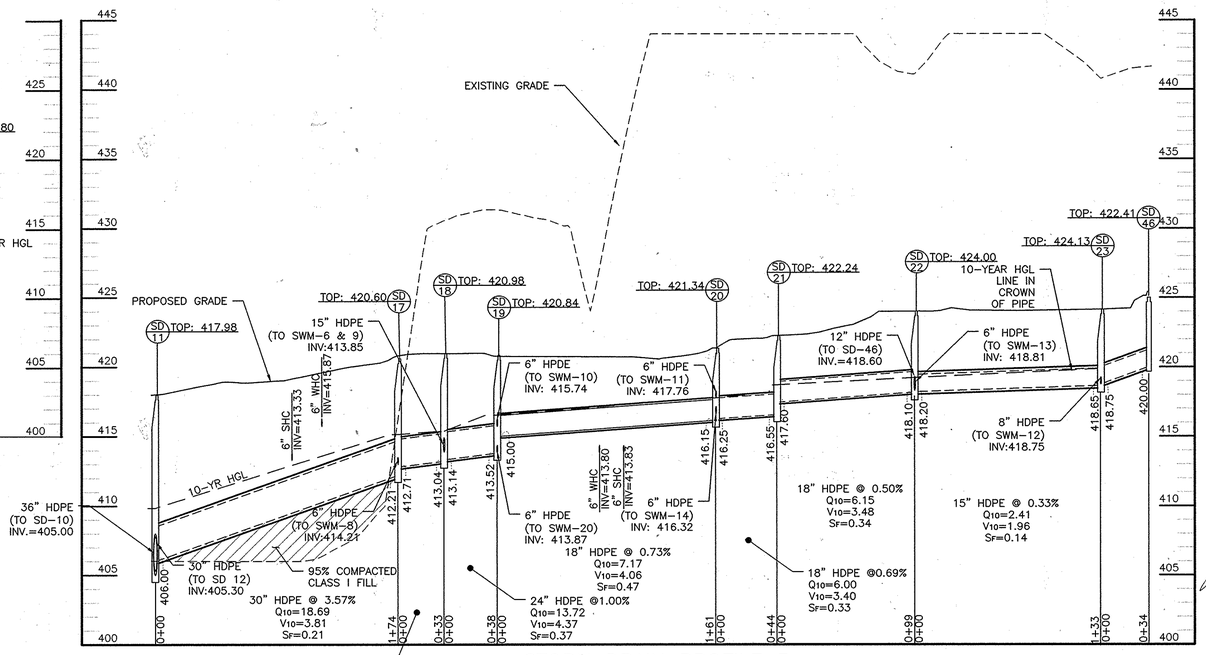
STORM DRAIN PROFILE 2

SCALE: HOR: 1"=50' VERT: 1"=5'



ORCHARD MEADOWS TO SD-9 PROFILE

SCALE: HOR: 1"=50' VERT: 1"=5'



STORM DRAIN PROFILE 3

SCALE: HOR: 1"=50' VERT: 1"=5'

NOTE:

CONTRACTOR TO BACKFILL 36" HDPE PIPE BETWEEN MANHOLES SD-4 TO SD-8 WITH CLASS II BACKFILL COMPACTED TO 95% PROCTOR. BEDDING TO BE CLASS II PLACED 6" THICK COMPACTED TO 95%, HAUNCHING AND INITIAL BACKFILL TO BE PLACED TO 12" ABOVE CROWN OF PIPE PLACED IN 6" MAXIMUM LIFTS COMPACTED TO 95% PROCTOR. REMAINING BACKFILL SHALL BE ACCEPTABLE MATERIAL PER THE SPECIFICATIONS PLACED IN 8" LIFTS AND COMPACTED.

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND
DOUGLAS A. BRAUNSTEIN
No. 33772
PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

STORM DRAIN PROFILES

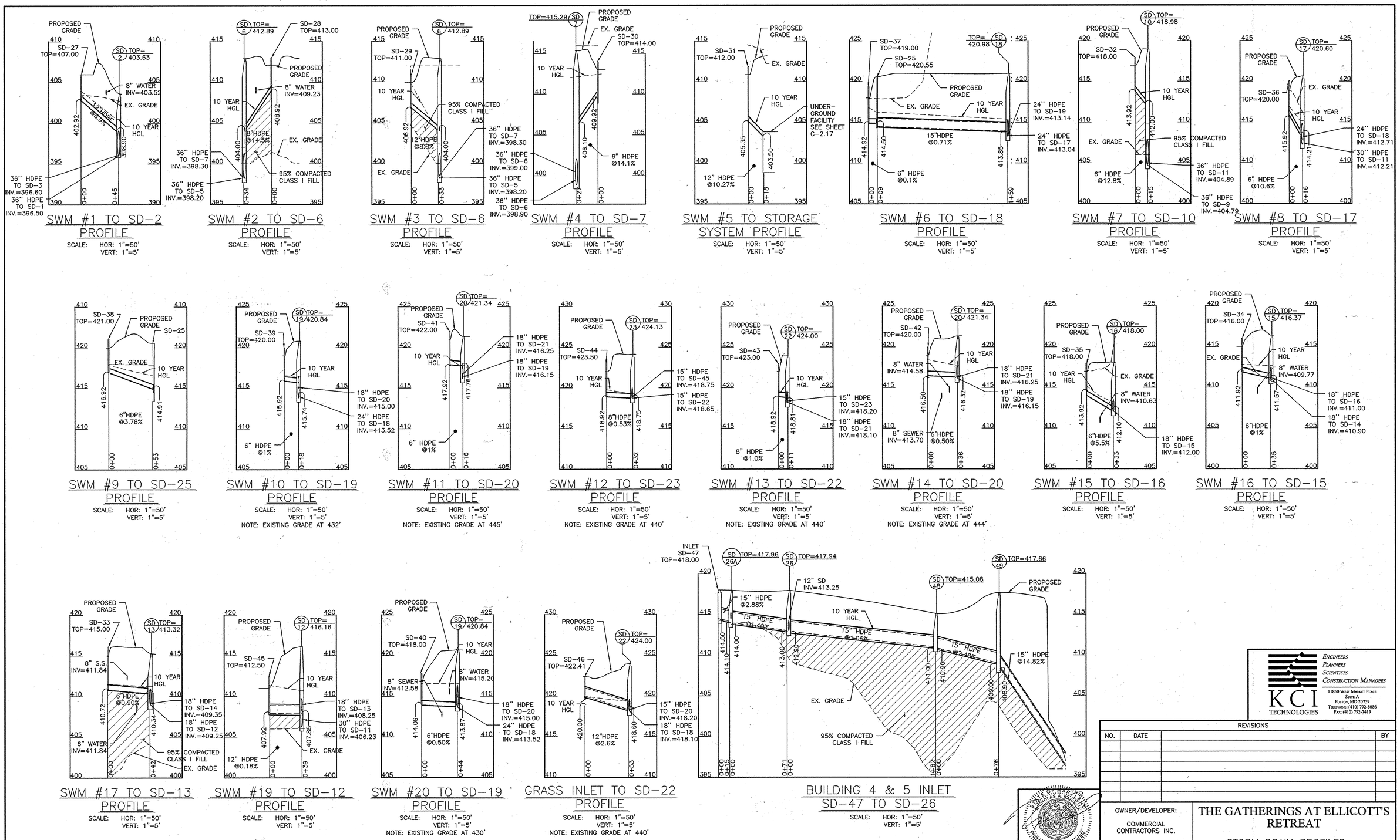
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.03
DRAWN	SCALE	SHEET NO. 15 OF 47	
BRA	VARIES		

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15

SDP-14-090


SWM #1 TO SD-2 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #2 TO SD-6 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #3 TO SD-6 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #4 TO SD-7 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #5 TO STORAGE SYSTEM PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #6 TO SD-18 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #7 TO SD-10 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #8 TO SD-17 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #9 TO SD-25 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #10 TO SD-19 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 432'
SWM #11 TO SD-20 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 445'
SWM #12 TO SD-23 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 440'
SWM #13 TO SD-22 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 440'
SWM #14 TO SD-20 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 444'
SWM #15 TO SD-16 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #16 TO SD-15 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #17 TO SD-13 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #19 TO SD-12 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
SWM #20 TO SD-19 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 430'
GRASS INLET TO SD-22 PROFILE
SCALE: HOR: 1"=50' VERT: 1"=5'
NOTE: EXISTING GRADE AT 440'
BUILDING 4 & 5 INLET SD-47 TO SD-26
SCALE: HOR: 1"=50' VERT: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE SUITE A FULTON, MD 20759 TELEPHONE: (410) 792-8086 FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND NICHOLAS A. BARBICK 33772 PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

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THE GATHERINGS AT ELLICOTT'S RETREAT

STORM DRAIN PROFILES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

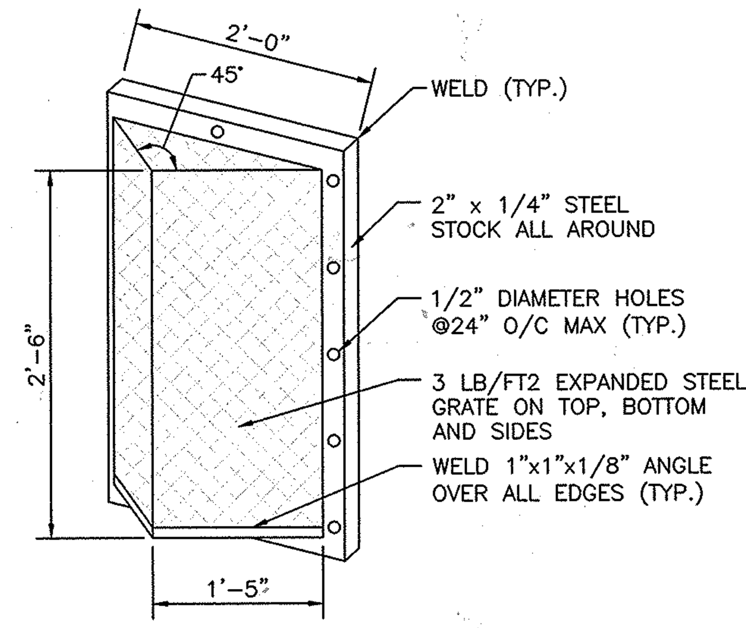
DESIGN	DATE		SHEET NO.
NAB	7/24/15	KCI PROJECT NO. 27134772	C-2.04
DRAWN BRA	SCALE VARIES	SHEET NO. 16 OF 47	

SDP-14-090

Storm Drain Structure Table						
STRUCTURE NAME	TOP ELEVATION	INVERT IN	INVERT OUT	NORTHING	EASTING	DESCRIPTION
EW-1	374.90	374.90		588609.76	1362583.37	CONC. HEADWALL (STD. DTL. D-5.11)
SD-1	381.57	375.50	375.00	588612.01	1362600.73	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-2	403.63	396.60 398.90	396.50	588683.74	1362702.84	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-3	404.18	397.30	397.20	588716.35	1362704.52	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-4	413.95	397.69	397.59	588759.80	1362770.14	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-5	412.94	398.02	397.92	588807.86	1362735.94	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-6	412.89	398.30 404.00 404.00	398.20	588851.13	1362744.54	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-7	415.29	399.00 406.10	398.90	588955.10	1362890.66	96" CONTROL STRUCTURE – SEE DETAIL THIS SHEET
SD-8	416.21	403.99	399.00	588968.96	1362910.14	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-9	418.80	404.32 405.32	404.22	589037.57	1362907.89	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-9A	424.48	417.07	416.97	589096.59	1362934.84	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-10	418.98	404.89 412.00	404.79	589032.99	1362766.72	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-11	417.98	406.00 405.30	405.00	589032.52	1362752.04	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-12	416.16	408.25 407.85	406.23	589030.61	1362693.34	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-13	414.32	409.35 410.34	409.25	589027.02	1362582.47	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-14	414.72	409.60	409.50	589044.40	1362582.69	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-15	416.37	411.00 411.57	410.90	589186.17	1362640.94	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-16	418.00	412.10	412.00	589261.75	1362671.99	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-17	420.60	412.71 414.21	412.21	589206.78	1362746.39	60" PRECAST CONC. MANHOLE (STD. DTL. G-5.13)
SD-18	420.98	413.14 413.85 413.85	413.04	589239.95	1362745.32	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-19	420.84	415.74 413.87 415.00	413.52	589278.11	1362744.08	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-20	421.34	416.25 416.32 417.76	416.15	589435.41	1362738.98	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-21	422.24	417.60	416.55	589479.12	1362737.57	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-22	424.00	418.20 418.81 418.60	418.10	589505.63	1362832.81	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-23	424.13	418.75 418.75	418.65	589639.24	1362827.52	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-25	420.55	414.91 414.91	414.50	589245.13	1362905.38	24" NYLOPLAST DRAIN BASIN W/ SOLID TOP
SD-26	417.94	413.00 413.25	412.90	589266.19	1362494.71	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-26A	417.96	414.42 414.10	414.00	589238.96	1362560.98	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-27	407.00	403.09	402.92	588692.13	1362748.16	12" NYLOPLAST INLET W/ DOME GRATE
SD-28	413.00	409.09	408.92	588844.27	1362778.74	8" NYLOPLAST INLET W/ DOME GRATE
SD-29	411.00	407.09	406.92	588885.87	1362747.31	12" NYLOPLAST INLET W/ DOME GRATE
SD-30	414.00	410.09	409.92	588932.49	1362904.22	8" NYLOPLAST INLET W/ DOME GRATE
SD-31	412.00	408.09	405.35	588892.68	1363031.07	12" NYLOPLAST INLET W/ DOME GRATE
SD-32	418.00	414.09	413.92	589048.17	1362766.11	8" NYLOPLAST INLET W/ DOME GRATE
SD-33	415.00	411.09	410.72	589048.07	1362545.75	8" NYLOPLAST INLET W/ DOME GRATE
SD-34	416.00	412.09	411.92	589204.54	1362611.04	8" NYLOPLAST INLET W/ DOME GRATE
SD-35	418.00	414.09	413.92	589274.37	1362641.29	8" NYLOPLAST INLET W/ DOME GRATE
SD-36	420.00	416.09	415.92	589207.31	1362762.65	8" NYLOPLAST INLET W/ DOME GRATE
SD-37	419.00	415.09	414.92	589234.72	1362905.72	8" NYLOPLAST INLET W/ DOME GRATE
SD-38	421.00	417.09	416.92	589298.92	1362903.62	8" NYLOPLAST INLET W/ DOME GRATE
SD-39	420.00	416.09	415.92	589281.82	1362761.36	8" NYLOPLAST INLET W/ DOME GRATE
SD-40	418.00	414.09	414.09	589273.24	1362700.26	8" NYLOPLAST INLET W/ DOME GRATE
SD-41	422.00	418.09	417.92	589435.94	1362754.92	8" NYLOPLAST INLET W/ DOME GRATE
SD-42	420.00	416.09	416.50	589434.25	1362702.85	8" NYLOPLAST INLET W/ DOME GRATE
SD-43	423.00	419.09	418.92	589513.27	1362825.03	8" NYLOPLAST INLET W/ DOME GRATE
SD-44	423.50	419.09	418.92	589653.42	1362798.16	8" NYLOPLAST INLET W/ DOME GRATE
SD-45	412.50	408.09	407.92	589640.37	1362861.98	12" NYLOPLAST INLET W/ DOME GRATE
SD-46	422.41	---	419.00	589476.64	1362878.41	YARD INLET (STD. DTL. D-4.14)
SD-47	418.00	---	414.50	589251.59	1362566.01	NR INLET PRECAST (STD. DTL. D-4.38)
SD-48	415.08	411.00	410.90	589097.85	1362425.54	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-49	417.66	409.00	408.90	589067.71	1362498.88	48" PRECAST CONC. MANHOLE (STD. DTL. G-5.12)
SD-50	412.50	408.09 408.09	408.09	589113.03	1362680.96	12" NYLOPLAST INLET W/ DOME GRATE
EW-2	422.00	---	419.00	589290.11	1362933.67	CONC. HEADWALL MDSHA DTL. 356.01 (MODIFIED)

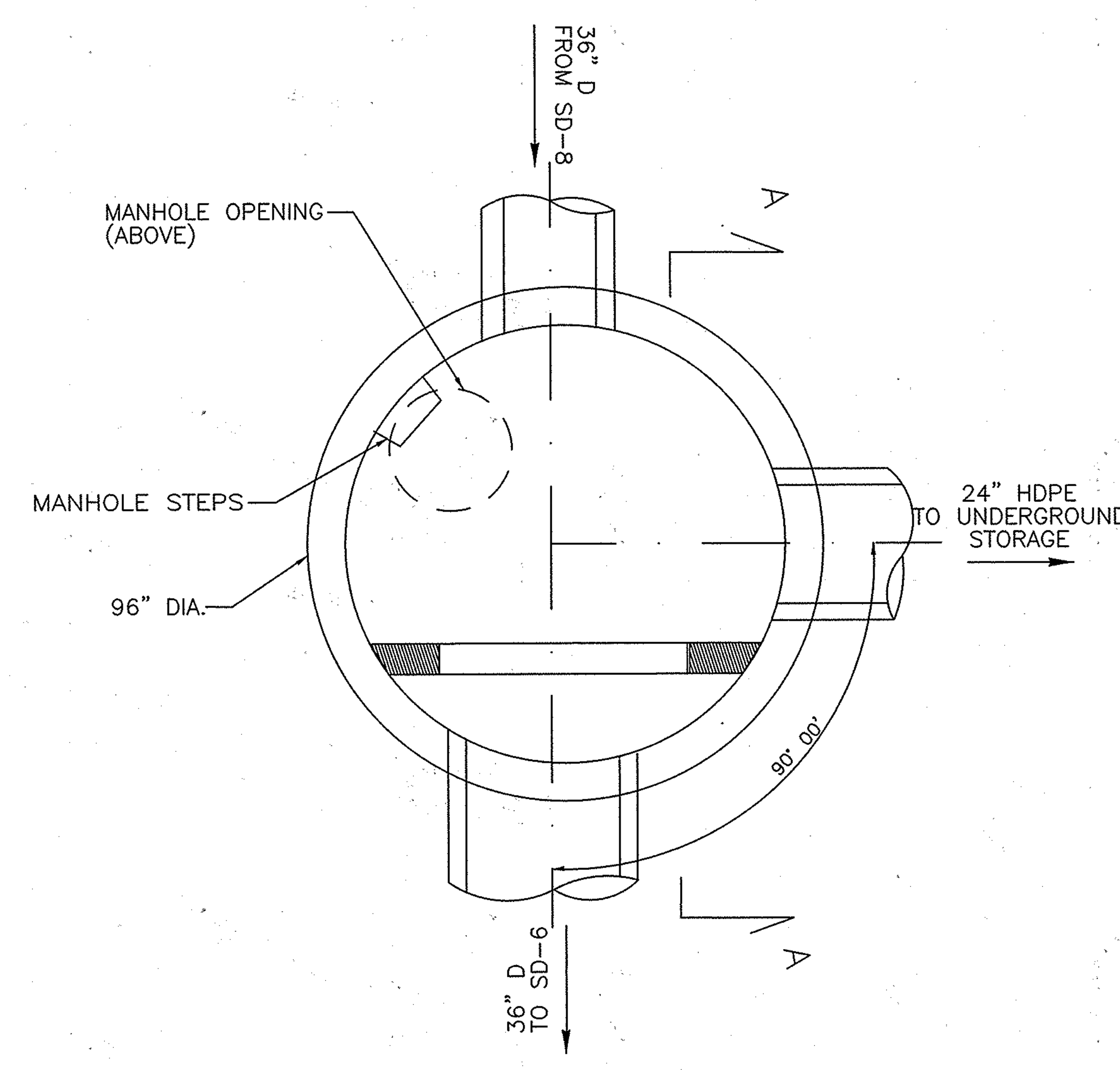
PIPE SUMMARY

TYPE	LENGTH
36" HDPE	785'
30" HDPE	223'
24" HDPE	311'
18" HDPE	308'
15" HDPE	711'
12" HDPE	220'
8" HDPE	1720'
6" HDPE	350'
4" PERF. HDPE	780'

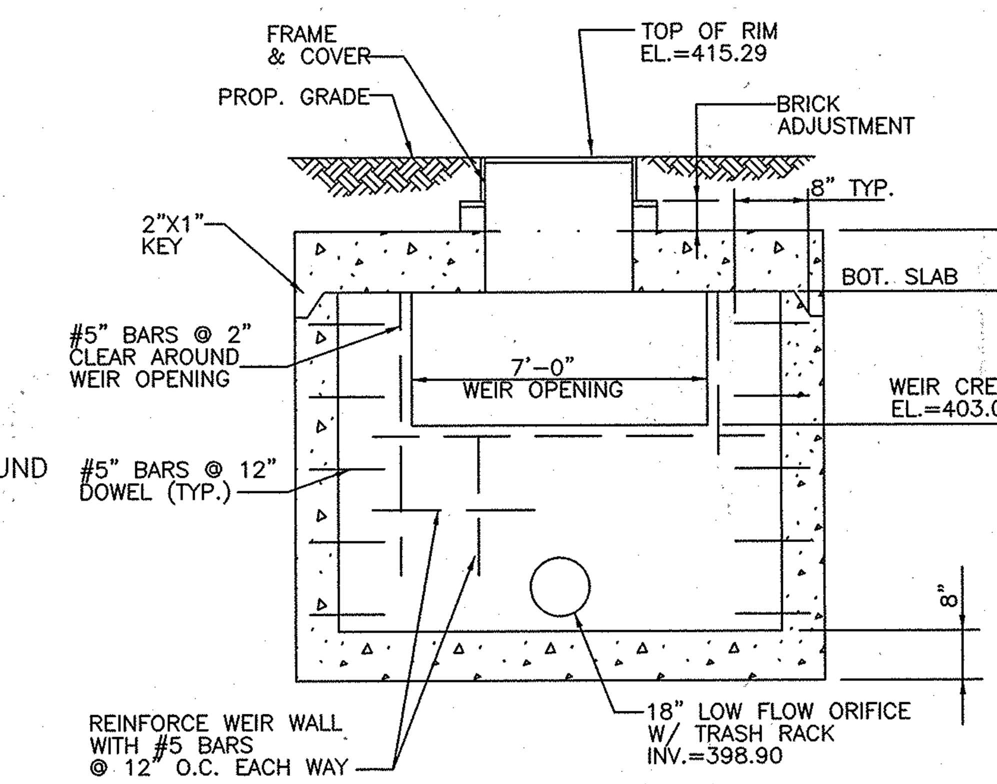


NOTES:
1. TRASH RACK TO BE CENTERED OVER OPENING.
2. STEEL TO CONFIRM TO ASTM A-36.
3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.
4. TRASH RACK TO BE FASTENED TO THE WALL WITH 1/2" MASONRY ANCHORS. TRASH RACK TO BE REMOVABLE.

TRASH RACK FOR LOW FLOW ORIFICE
NOT TO SCALE

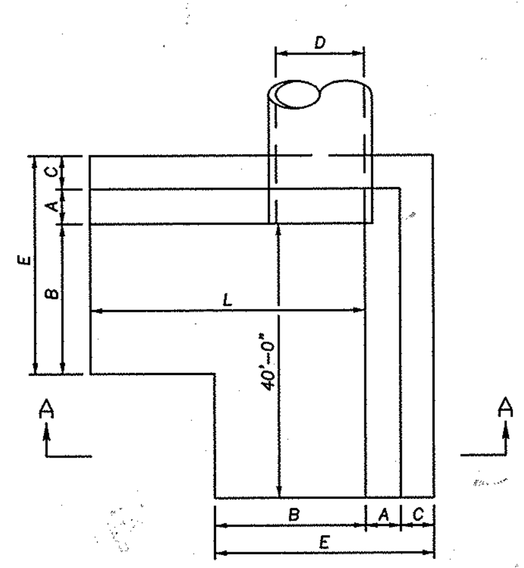


PLAN



SECTION A-A

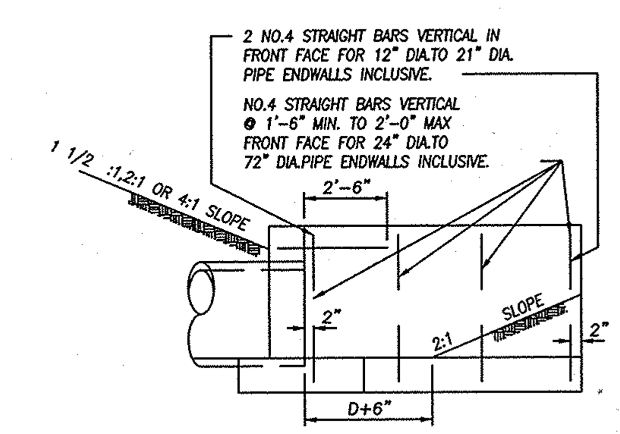
CONTROL MANHOLE DETAIL SD-7
NOT TO SCALE



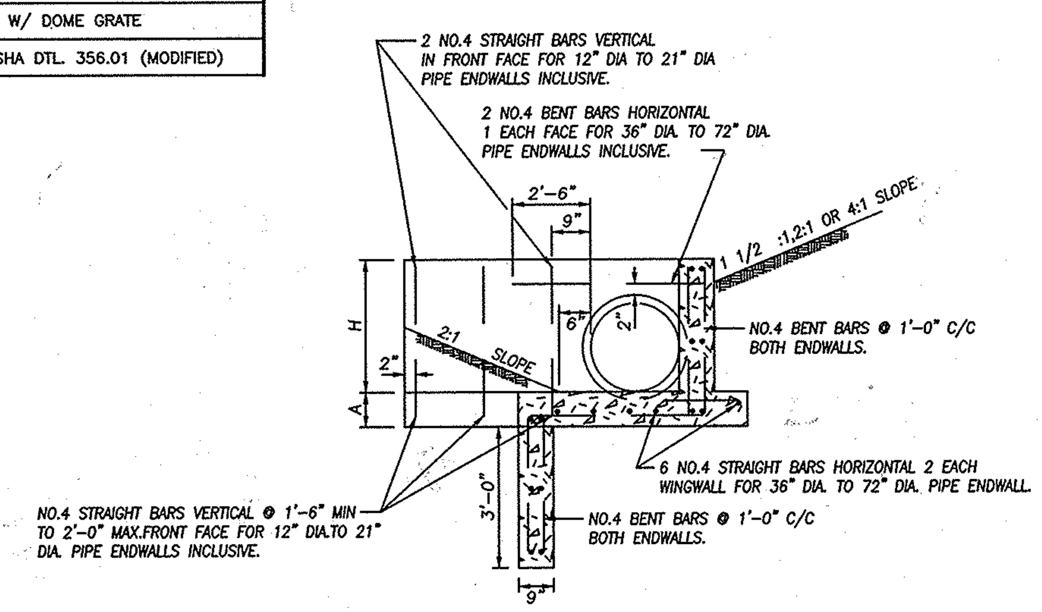
PLAN

QUANTITIES FOR ESTIMATING PURPOSES ONLY

OPENING		DIMENSIONS						QUANTITIES	
D INCHES	AREA SQ.FT	A	B	C	E	H	L	CONC. C.Y.	STEEL LBS.
24	3.14	9"	3'-6"	6"	4'-9"	2'-9"	6'-6"	12.3	315



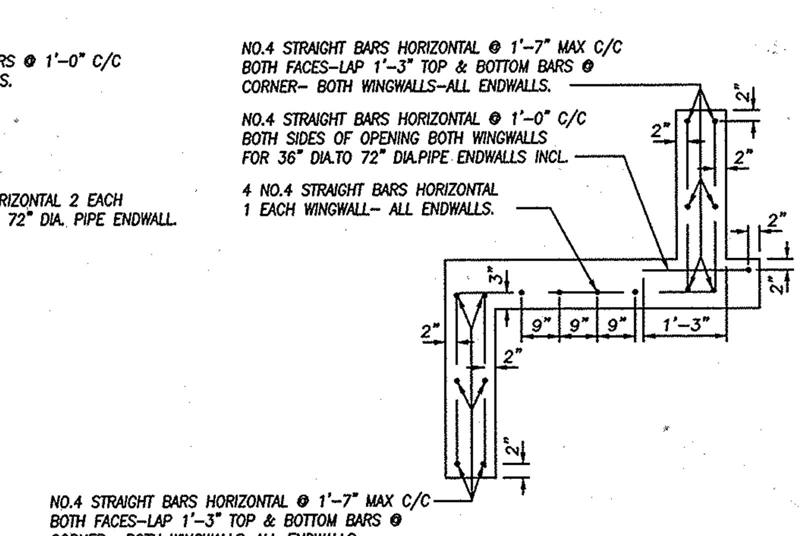
END VIEW



SECTION A-A

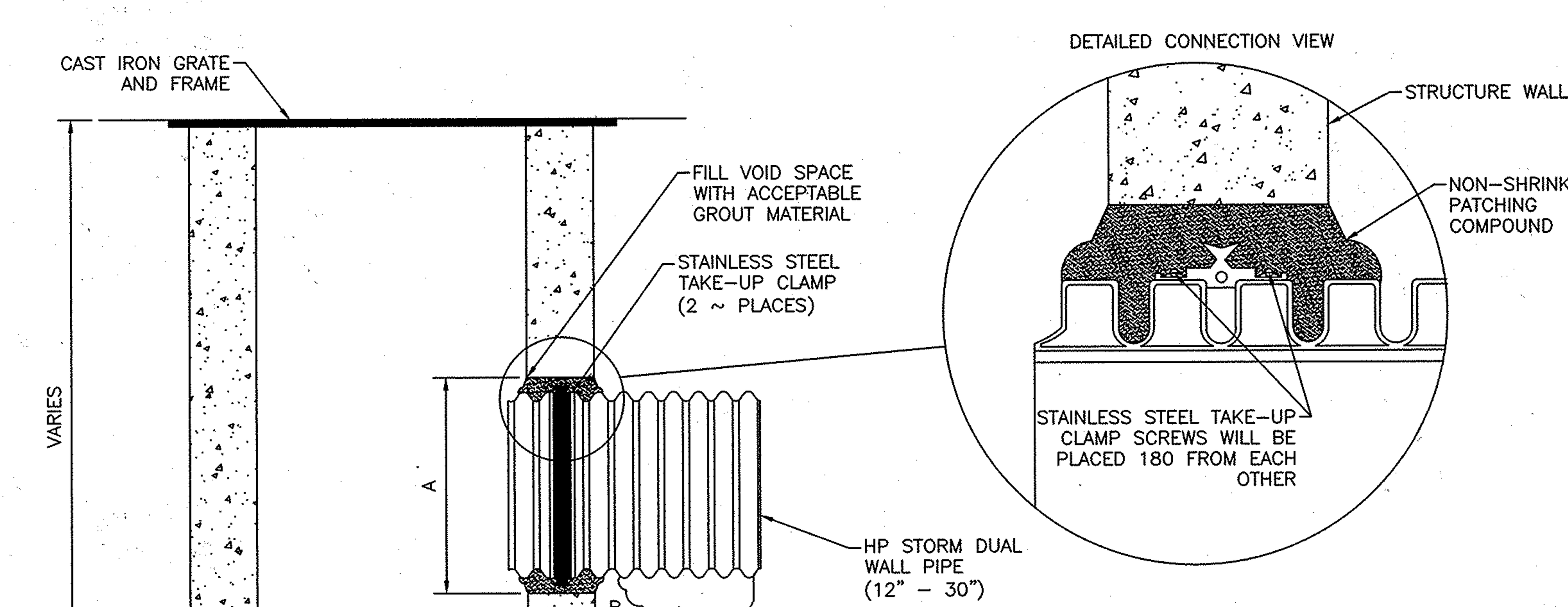
GENERAL NOTES

SPECIFICATIONS: LATEST S.H.A
CONCRETE SHALL BE MIX NO.2
REINFORCING: DEFORMED STEEL BARS – NO.4
CHAMFER: ALL EXPOSED EDGES 1"x 1" OR AS DIRECTED.



DISPOSITION OF BARS DETAIL

MDSHA DTL. 356.01 (MODIFIED)
NOT TO SCALE



NOTES:
PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05: WATERSTOP INSTALLATION

12-60" STORM WATERSTOP GROUTED MANHOLE CONNECTION
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Kent Sheubrooks — 9-21-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

Chad Edmondson — 9-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Valdis Lazdins — 9-29-15
DIRECTOR — DATE

ENGINEERS
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KCI TECHNOLOGIES

REVISIONS			
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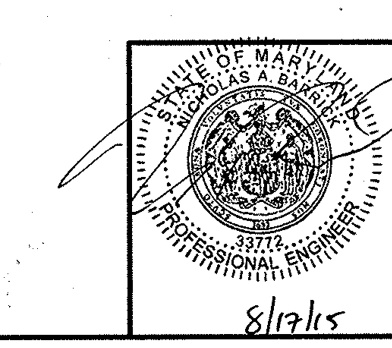

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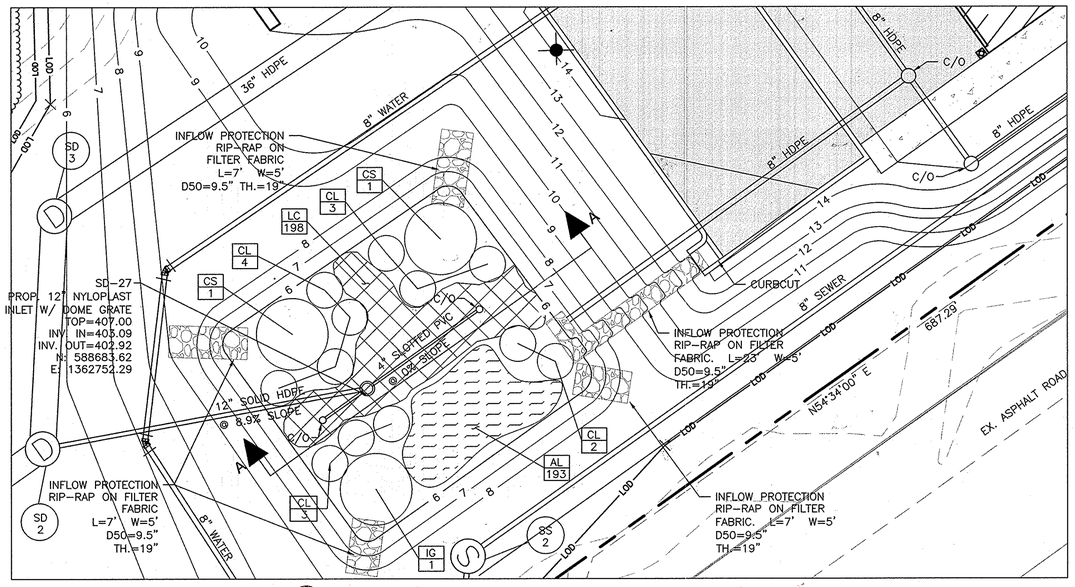
THE GATHERINGS AT ELLICOTT'S RETREAT

STORM DRAIN DETAILS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

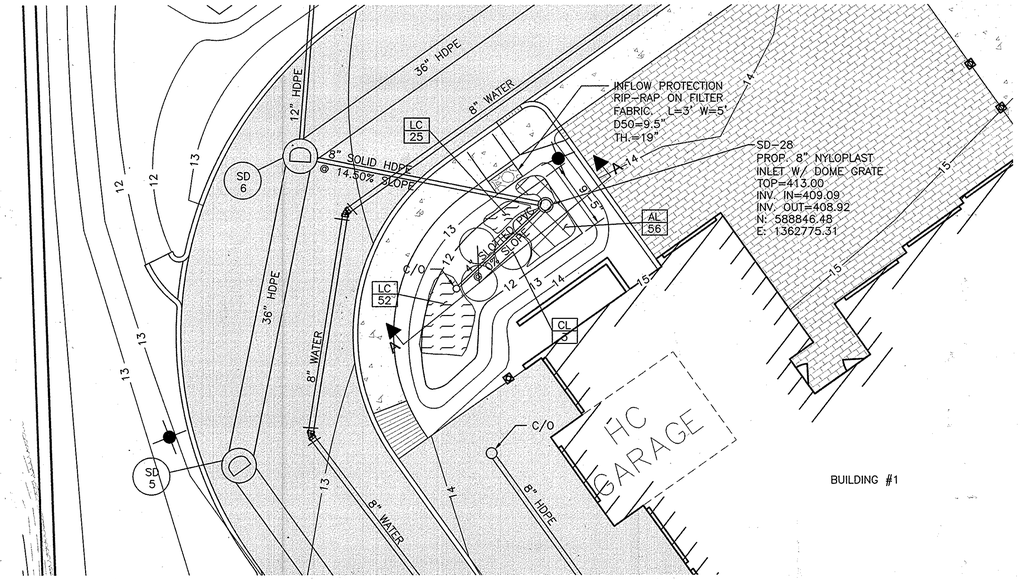
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE VARIES	SHEET NO. 17 OF 47	C-2.05

SDP-14-090



(SWM-1) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

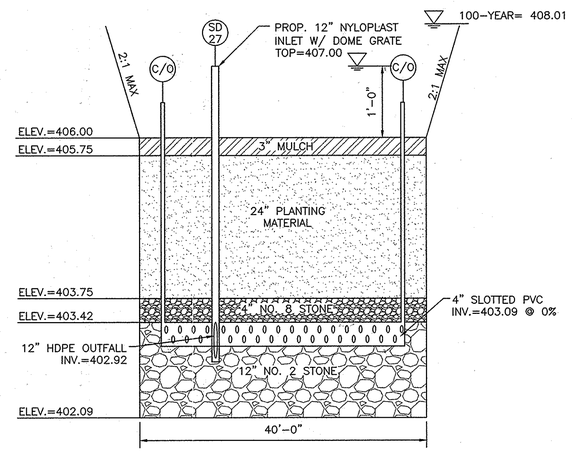


(SWM-2) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

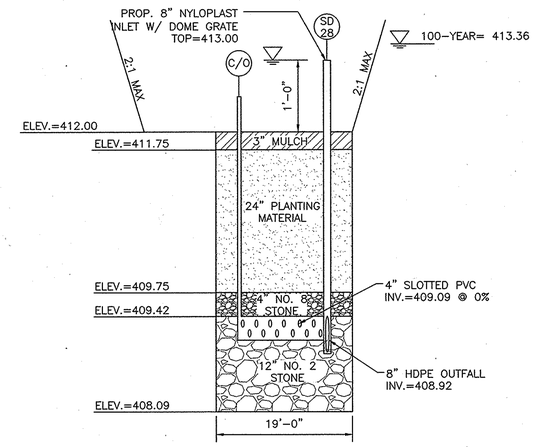
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-1
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 22,115 SQ. FT
4. BOTTOM ELEVATION: 402.09
5. TOP OF BANK ELEVATION: 409.00
6. STORAGE VOLUME PROVIDED: 1,402 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 408.01
8. DISCHARGE:
   100-YEAR: 2.37 cfs
9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-1) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-2) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-2
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 8,411 SQ. FT
4. BOTTOM ELEVATION: 408.09
5. TOP OF BANK ELEVATION: 413.50
6. STORAGE VOLUME PROVIDED: 262 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 413.36
8. DISCHARGE:
   100-YEAR: 1.64 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

(SWM-1) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
IG	1	ILEX GLABRA / INKBERRY HOLLY	18" HT.	CONT.	PLANT AT 5' O.C.
CS	2	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	193	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	198	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	12	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-2) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	55	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	77	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	3	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

STATE OF MARYLAND
BRIAN A. RAMEY
33772
PROFESSIONAL ENGINEER
8/17/15

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-24-15

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

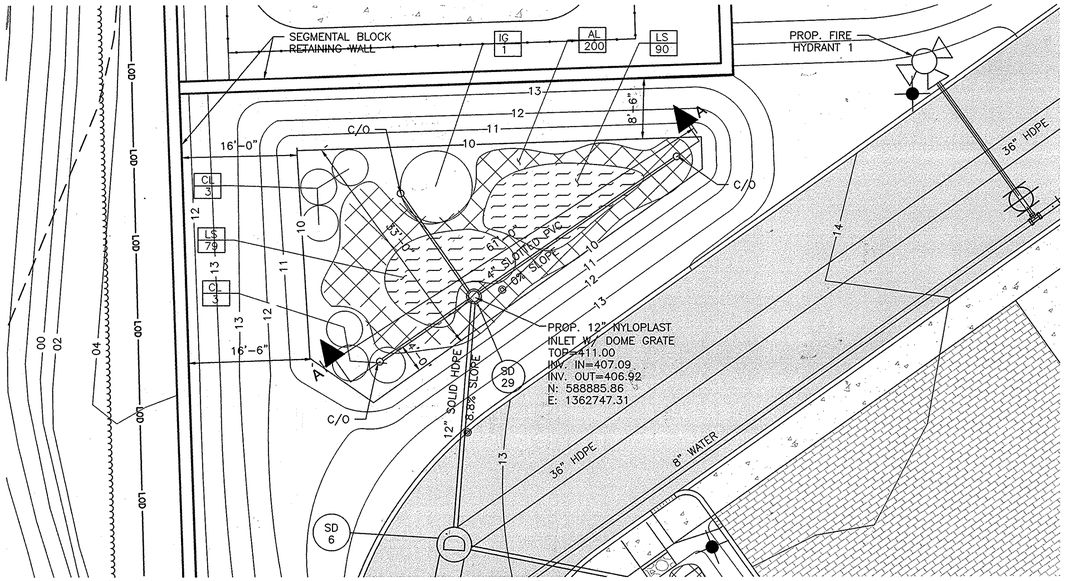
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

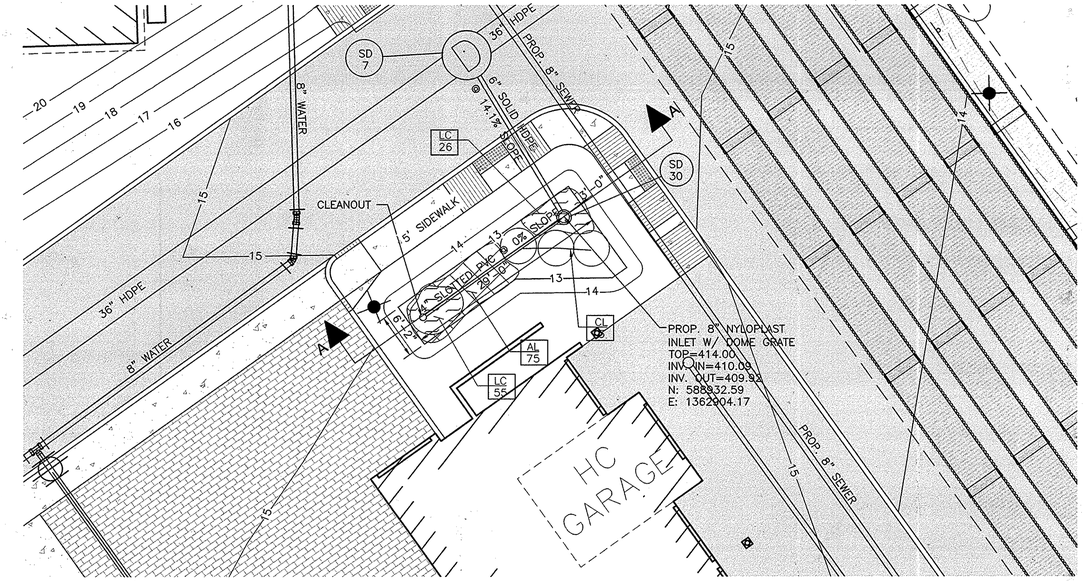
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.06
DRAWN	SCALE	SHEET NO. 18 OF 47	
BRA	AS SHOWN		

SDP-14-090



(SWM-3) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

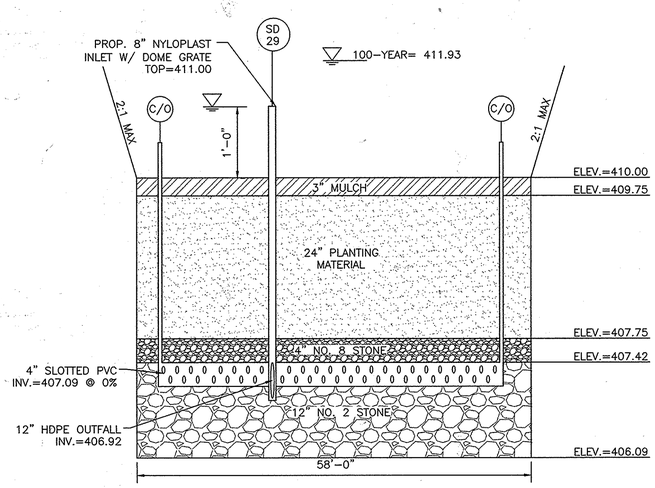


(SWM-4) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

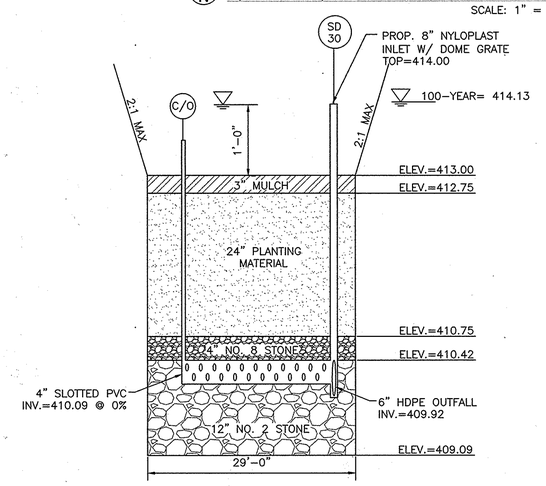
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-3
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 23,363 SQ. FT
4. BOTTOM ELEVATION: 406.09
5. TOP OF BANK ELEVATION: 412.50
6. STORAGE VOLUME PROVIDED: 1,234 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 411.93
8. DISCHARGE:
   100-YEAR: 3.71 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-3) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-4) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-4
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 2,898 SQ. FT
4. BOTTOM ELEVATION: 409.09
5. TOP OF BANK ELEVATION: 414.50
6. STORAGE VOLUME PROVIDED: 246 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 414.13
8. DISCHARGE:
   100-YEAR: 0.58 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

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SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-9086
FAX: (410) 792-7419

(SWM-3) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
IG	1	ILEX GLABRA / INKBERRY HOLLY	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	200	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	169	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	6	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-4) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	179	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	169	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	6	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

REVISIONS

NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-24-15

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

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STATE OF MARYLAND NICHOLAS A. BRAUN REGISTERED PROFESSIONAL ENGINEER 33772 8/17/15

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

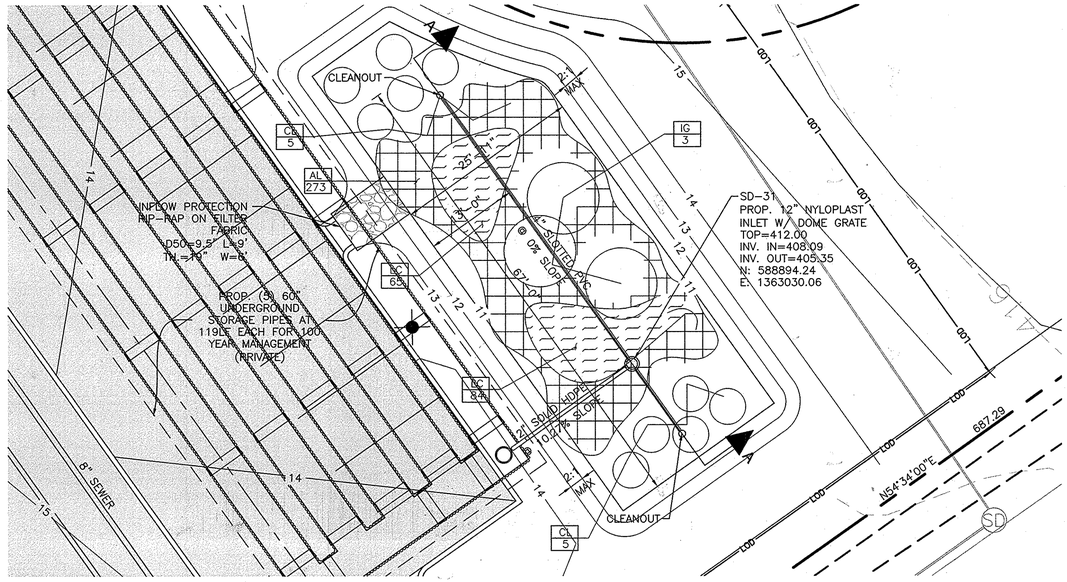
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

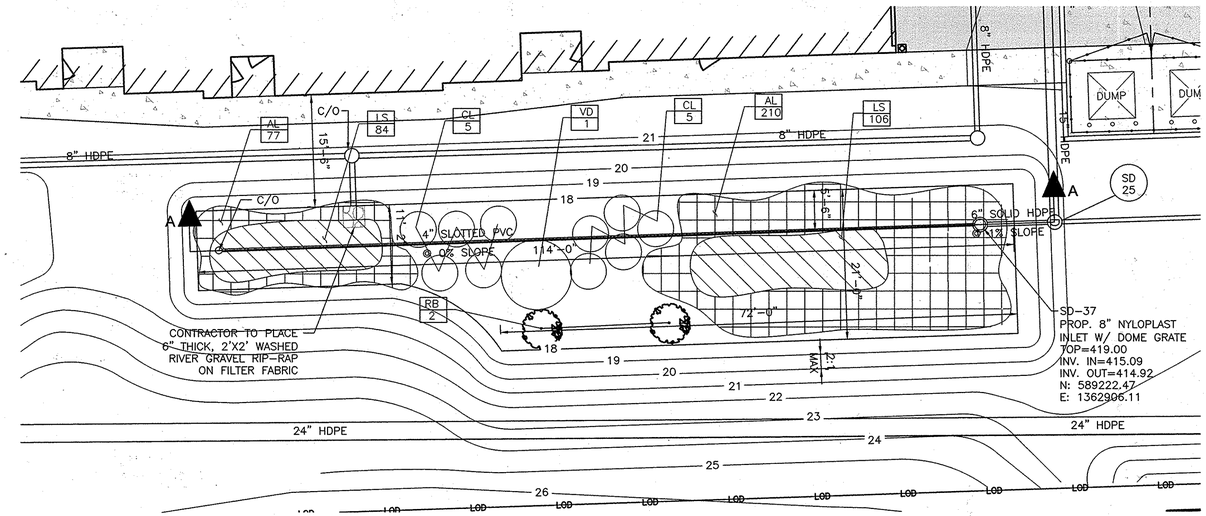
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-2.07
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 19 OF 47	

SDP-14-090



(SWM-5) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

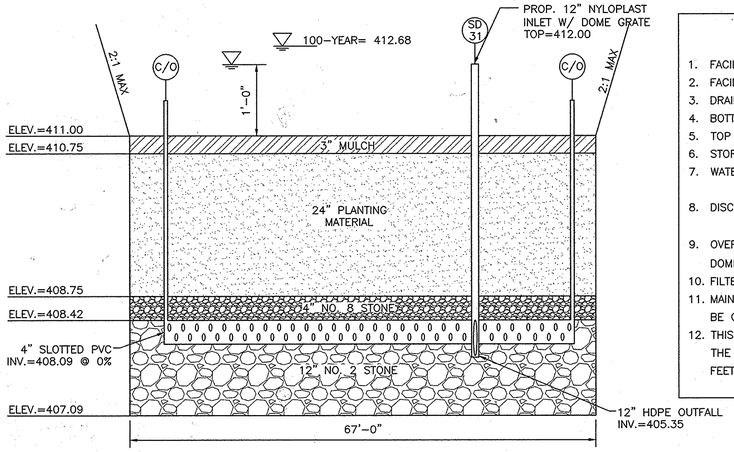


(SWM-6) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-5
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 20,493 SQ. FT
4. BOTTOM ELEVATION: 407.09
5. TOP OF BANK ELEVATION: 413.50
6. STORAGE VOLUME PROVIDED: 1,648 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 412.68
8. DISCHARGE:
   100-YEAR: 2.02 cfs
9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

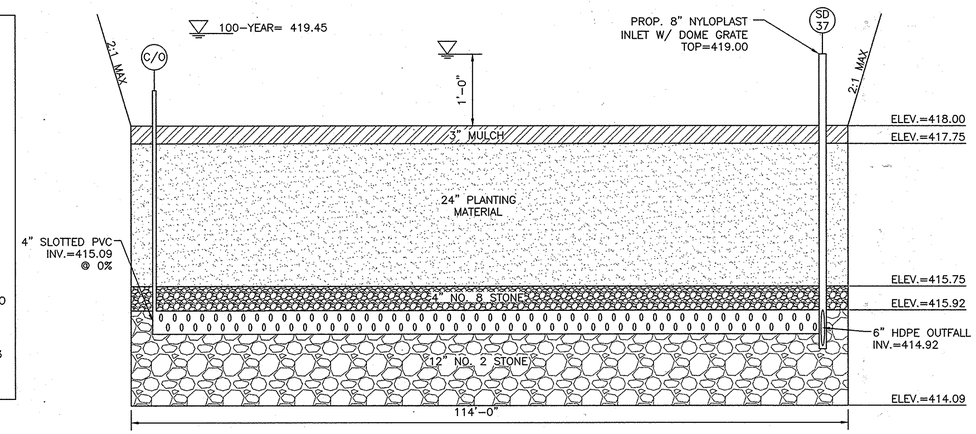


(SWM-5) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-6
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 21,365 SQ. FT
4. BOTTOM ELEVATION: 414.09
5. TOP OF BANK ELEVATION: 420.00
6. STORAGE VOLUME PROVIDED: 2,027 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 419.45
8. DISCHARGE:
   100-YEAR: 2.06 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-6) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: NOT TO SCALE

(SWM-5) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
IG	3	ILEX GLABRA / INKBERRY HOLLY	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	273	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	149	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	10	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-6) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
VD	1	VIBURNUM DENTATUM 'BLUE MUFFIN' / ARROWWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	287	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
CL	10	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.
LS	190	LIATRIS SPICATA / BLAZING STAR	2" HT.	PLUG	PLANT AT 18" O.C.
TREES					
RB	2	RIVER BIRCH	2" CAL	B&B	FULL SUN

STATE OF MARYLAND
NICHOLAS A. BRAMBLE
33772
PROFESSIONAL ENGINEER
8/17/15

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-23-15

KCI TECHNOLOGIES
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CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-9286
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

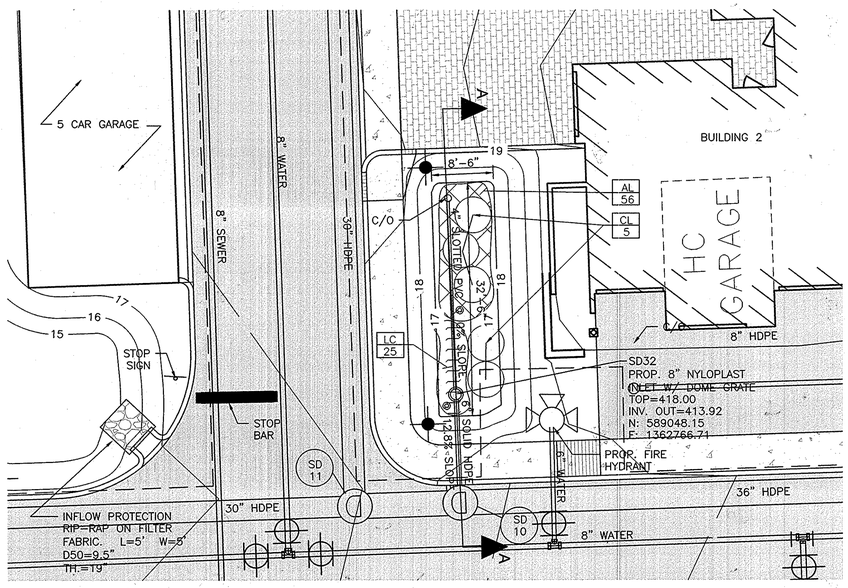
OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT
MICRO-BIORETENTION FACILITY PLANS
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

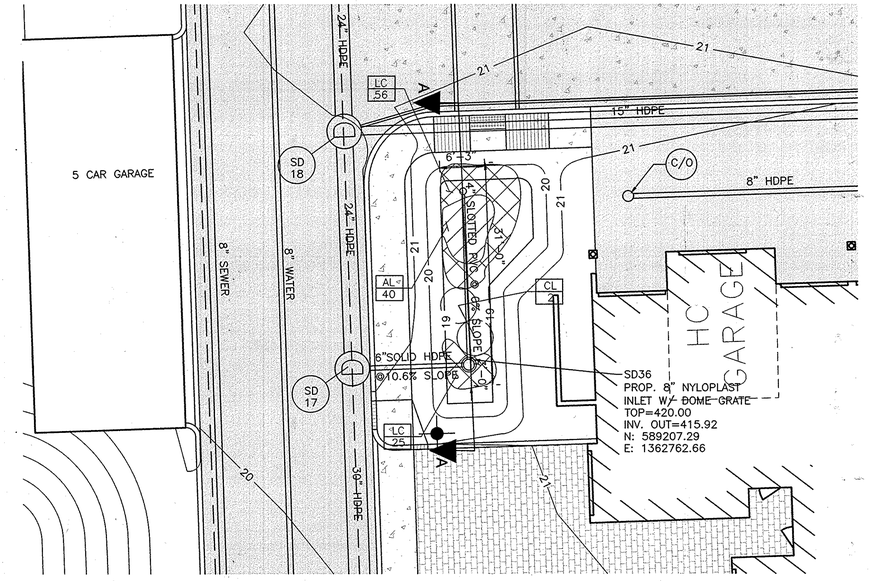
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.08
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 20 OF 47	

SDP-14-090



(SWM-7) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

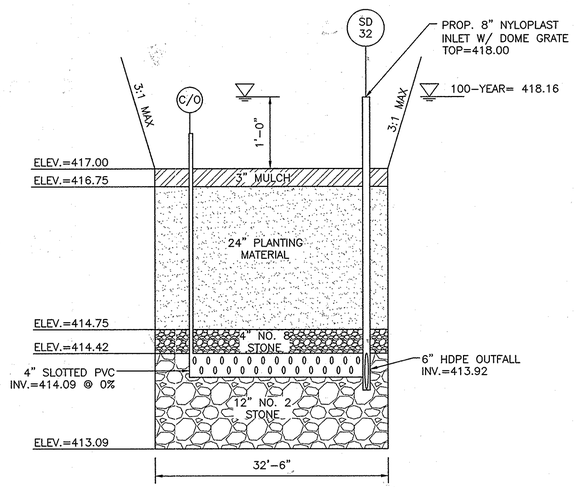


(SWM-8) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

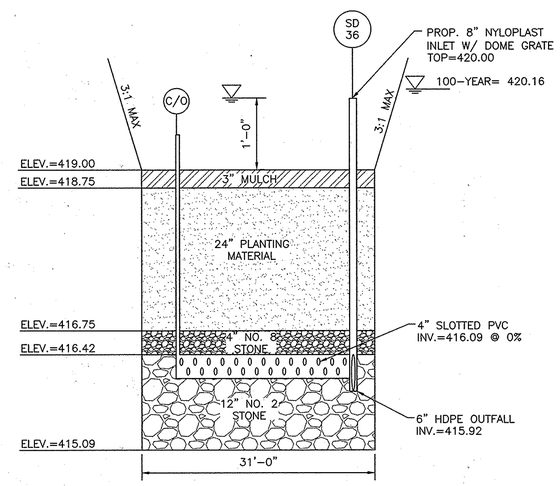
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-7
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,424 SQ. FT
4. BOTTOM ELEVATION: 413.09
5. TOP OF BANK ELEVATION: 418.50
6. STORAGE VOLUME PROVIDED: 281 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 418.16
8. DISCHARGE:
   100-YEAR: 0.75 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-7) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-8) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-8
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,297 SQ. FT
4. BOTTOM ELEVATION: 415.09
5. TOP OF BANK ELEVATION: 420.50
6. STORAGE VOLUME PROVIDED: 270 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 420.16
8. DISCHARGE:
   100-YEAR: 0.71 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
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FULTON, MD 20759
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FAX: (410) 792-7419

(SWM-7) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	56	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	25	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	5	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-8) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	40	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	81	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	2	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

STATE OF MARYLAND
BRIAN R. ALLEN
33772
PROFESSIONAL ENGINEER
8/17/15

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.21.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-24-15

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
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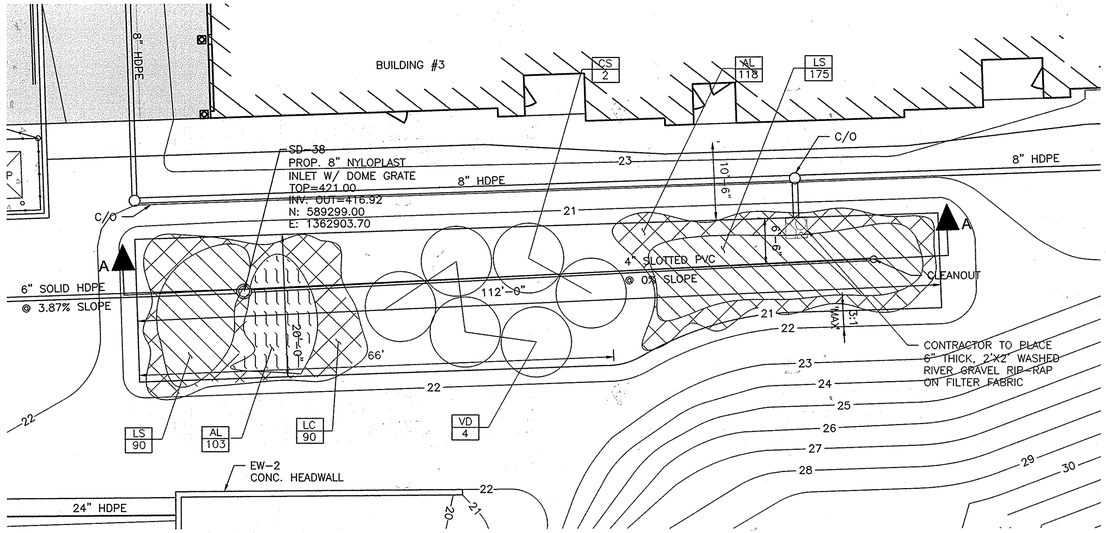
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

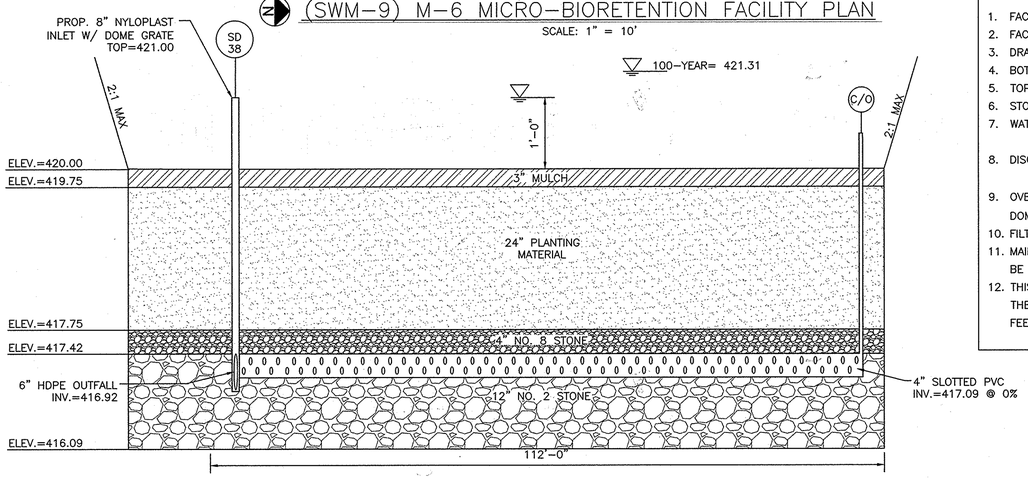
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-2.09
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 21 OF 47	

SDP-14-090



(SWM-9) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

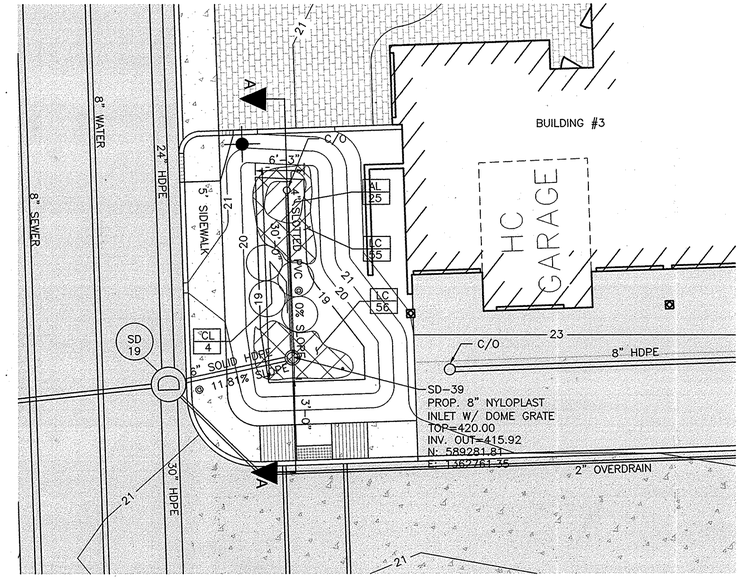


(SWM-9) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

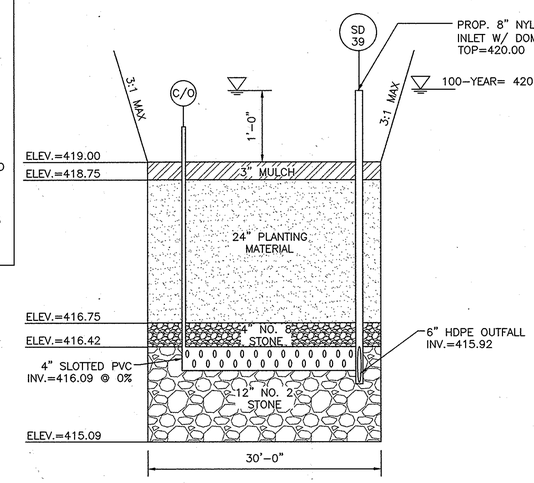
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-9
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 25,756 SQ. FT
4. BOTTOM ELEVATION: 416.09
5. TOP OF BANK ELEVATION: 422.31
6. STORAGE VOLUME PROVIDED: 1,990 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 421.31
8. DISCHARGE:
   100-YEAR: 1.62 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-10) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'



(SWM-10) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-10
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,337 SQ. FT
4. BOTTOM ELEVATION: 415.09
5. TOP OF BANK ELEVATION: 420.50
6. STORAGE VOLUME PROVIDED: 270 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 420.16
8. DISCHARGE:
   100-YEAR: 0.71 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

(SWM-9) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
CS	2	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
VD	4	VIBURNUM DENTATUM 'BLUE MUFFIN' / ARROWWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	221	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	90	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
LS	265	LIATRIS SPICATA / BLAZING STAR	2" HT.	PLUG	PLANT AT 18" O.C.

(SWM-10) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	25	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	111	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	4	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

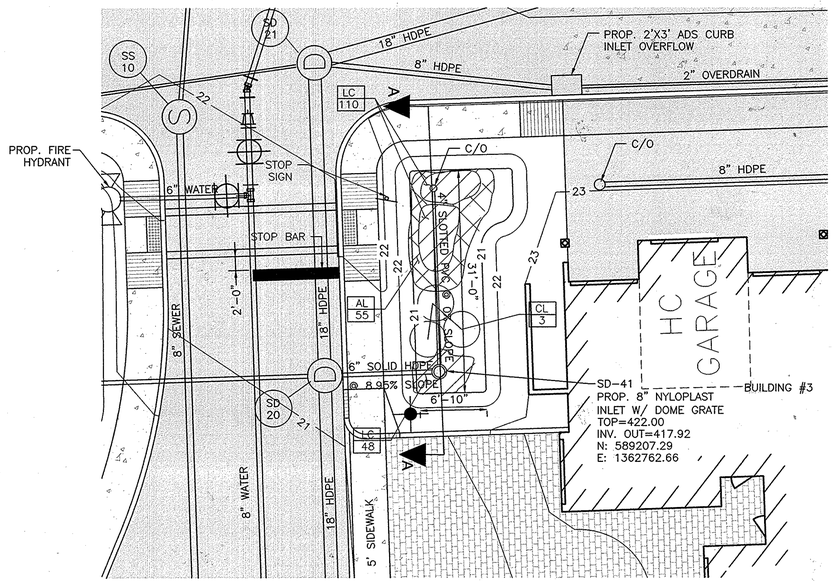
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

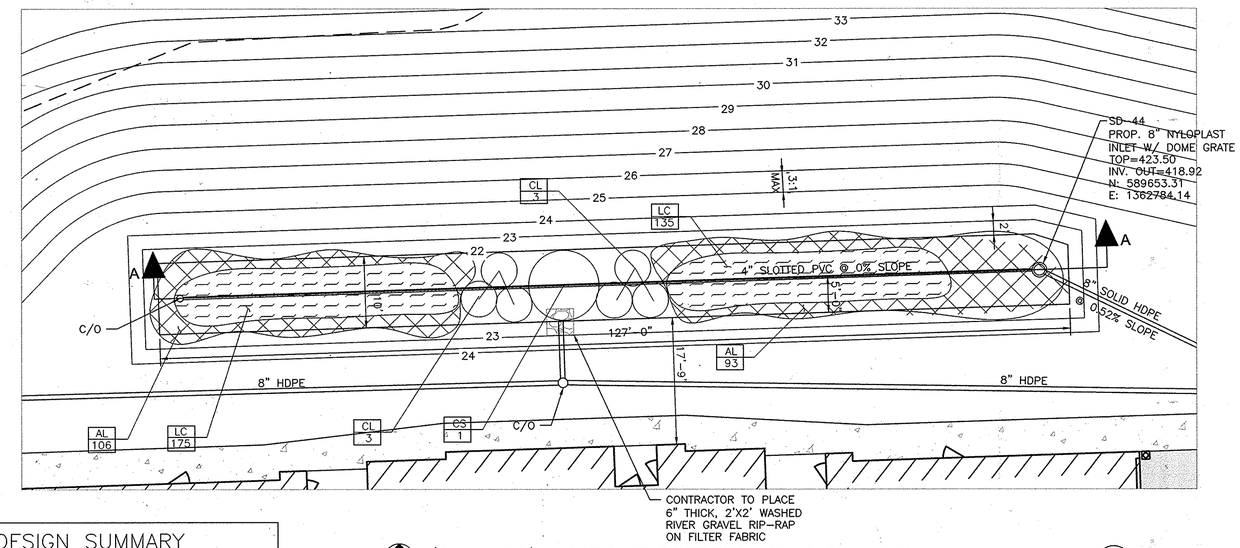
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-2.10
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 22 OF 47	

SDP-14-090



(SWM-11) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

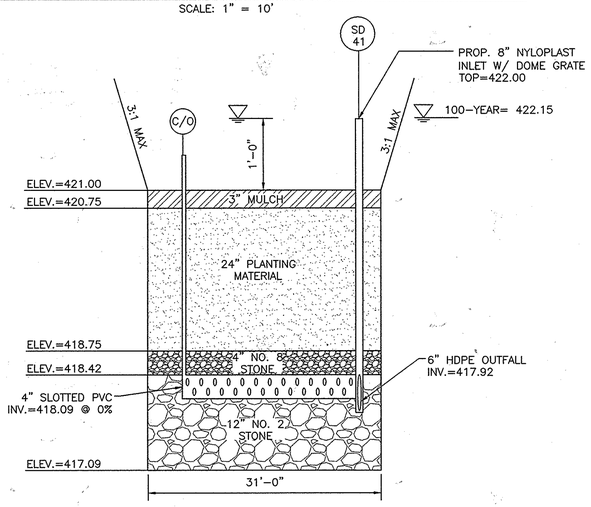


(SWM-12) MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-11
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,256 SQ. FT
4. BOTTOM ELEVATION: 417.09
5. TOP OF BANK ELEVATION: 422.50
6. STORAGE VOLUME PROVIDED: 337 FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 422.15
8. DISCHARGE:
   100-YEAR: 0.70 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

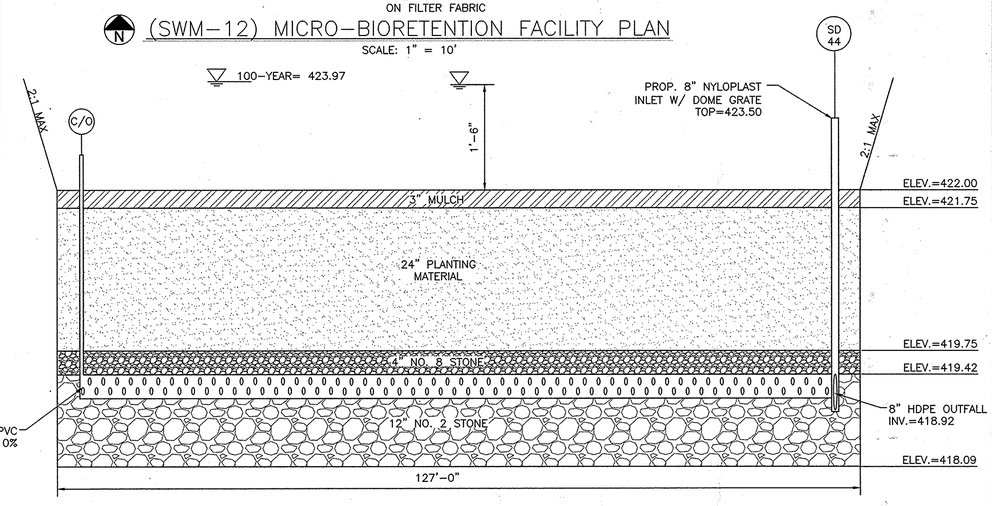


(SWM-11) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-12
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 23,282 SQ. FT
4. BOTTOM ELEVATION: 418.09
5. TOP OF BANK ELEVATION: 424.00
6. STORAGE VOLUME PROVIDED: 1,905 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 423.97
8. DISCHARGE:
   100-YEAR: 2.14 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-12) MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

KCI TECHNOLOGIES
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11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS			
NO.	DATE		BY

(SWM-11) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	55	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	158	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	3	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-12) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
CS	1	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	199	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
CL	6	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.
LC	310	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-24-15

STATE OF MARYLAND
NICHOLAS A. BARATTA
33772
PROFESSIONAL ENGINEER
6/13/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

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LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

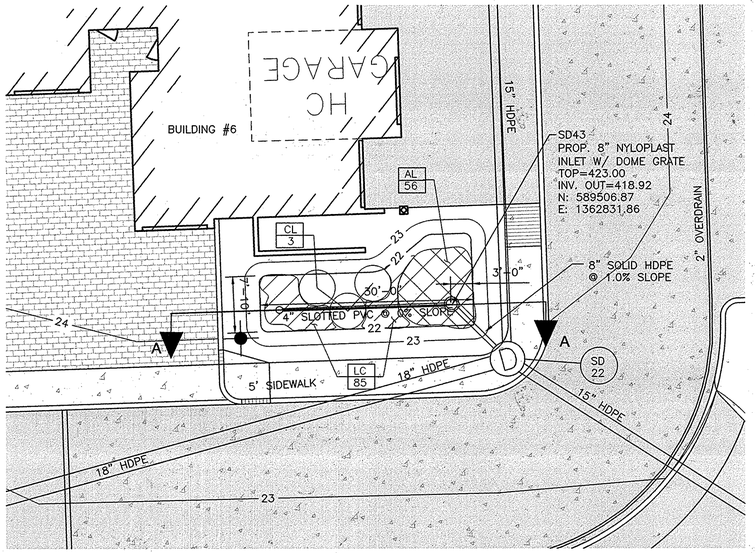
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

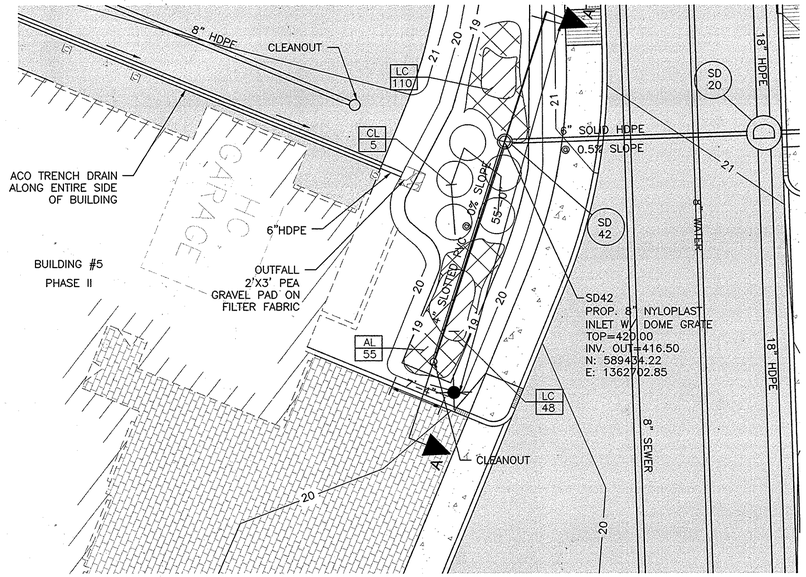
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.11
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 23 OF 47	

SDP-14-090



(SWM-13) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

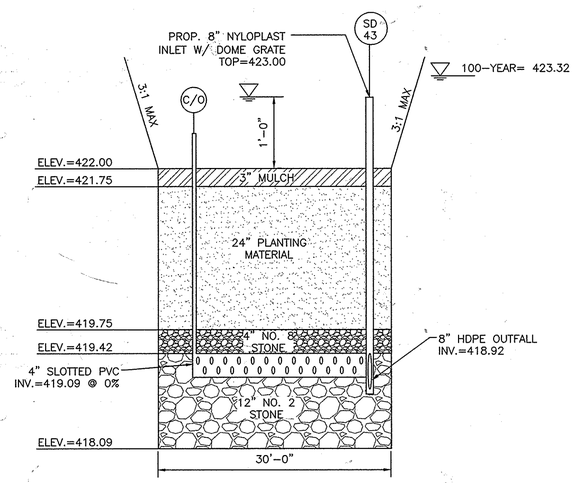


(SWM-14) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

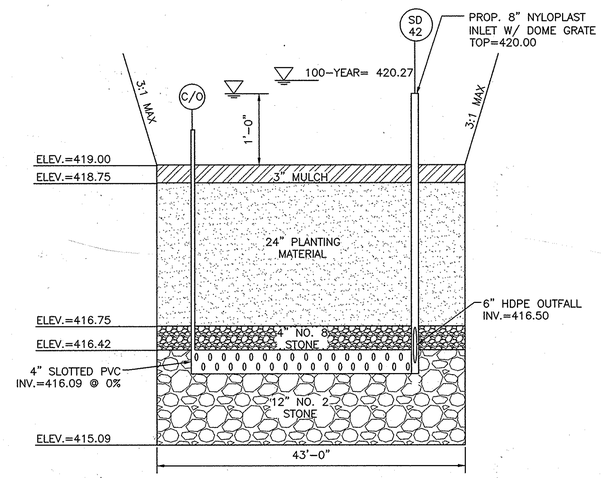
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-13
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 6,917 SQ. FT
4. BOTTOM ELEVATION: 418.09
5. TOP OF BANK ELEVATION: 423.50
6. STORAGE VOLUME PROVIDED: 279 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 423.32
8. DISCHARGE:
   100-YEAR: 1.45 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-13) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-14) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-14
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 9,002 SQ. FT
4. BOTTOM ELEVATION: 415.09
5. TOP OF BANK ELEVATION: 420.50
6. STORAGE VOLUME PROVIDED: 513 CU. FT
7. WATER SURFACE ELEVATION:
8. 100-YEAR: 420.27
9. DISCHARGE:
   100-YEAR: 1.25 cfs
10. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
11. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
12. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
13. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

(SWM-13) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	56	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	85	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	3	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-14) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	55	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	158	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	5	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

STATE OF MARYLAND
RICHARD A. BARRETT
33772
PROFESSIONAL ENGINEER
8/19/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

KCI TECHNOLOGIES
ENGINEERS
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CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

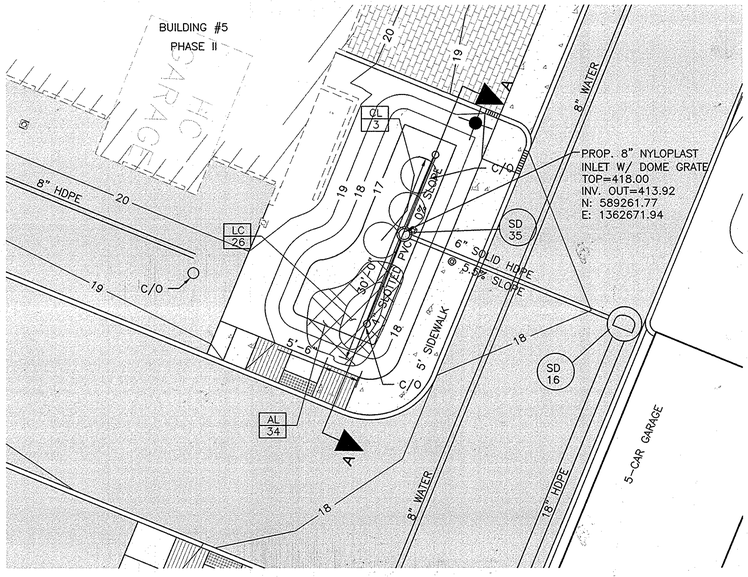
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

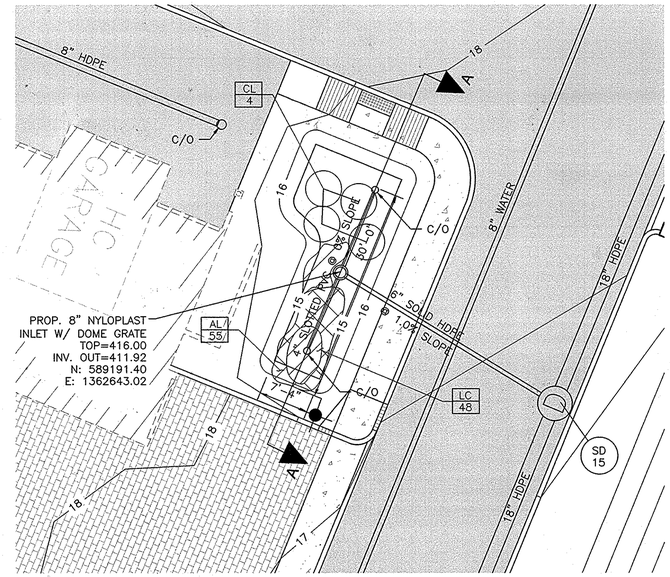
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-2.12
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 24 OF 47	

SDP-14-090



(SWM-15) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

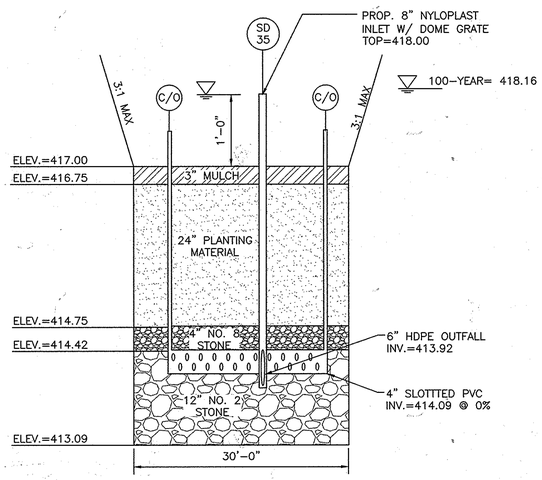


(SWM-16) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

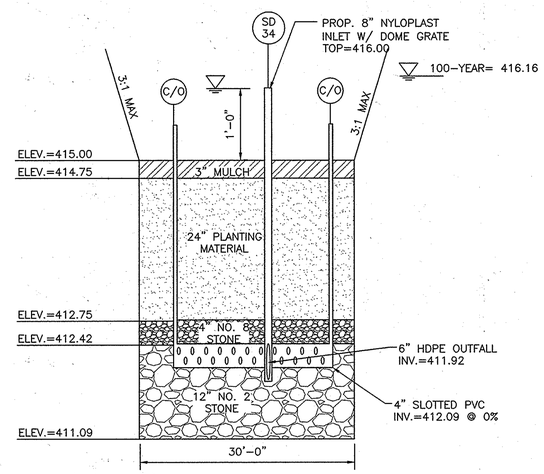
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-15
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,275 SQ. FT
4. BOTTOM ELEVATION: 413.09
5. TOP OF BANK ELEVATION: 418.50
6. STORAGE VOLUME PROVIDED: 248 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 418.16
8. DISCHARGE:
   100-YEAR: 0.72 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-15) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-16) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-16
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,212 SQ. FT
4. BOTTOM ELEVATION: 411.09
5. TOP OF BANK ELEVATION: 416.50
6. STORAGE VOLUME PROVIDED: 270 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 416.16
8. DISCHARGE:
   100-YEAR: 0.71cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

(SWM-15) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	34	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	26	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	3	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-16) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	55	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	48	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	4	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

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STATE OF MARYLAND
BRIAN RAY ALLEN
33772
PROFESSIONAL ENGINEER
8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

KCI TECHNOLOGIES
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REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

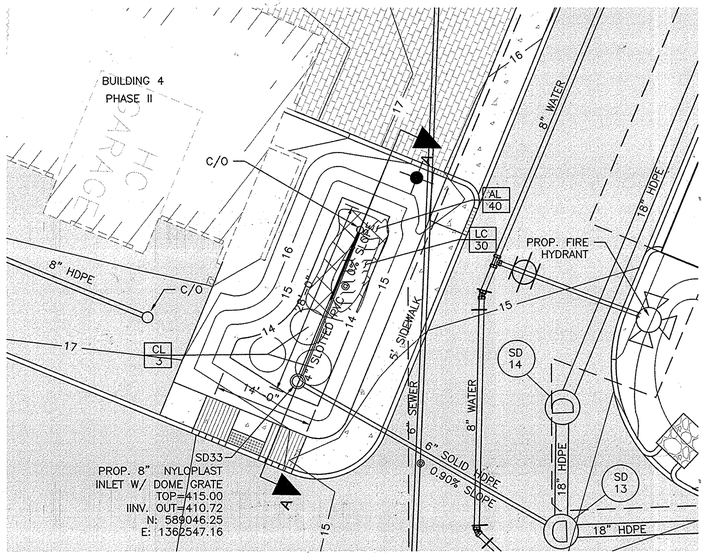
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

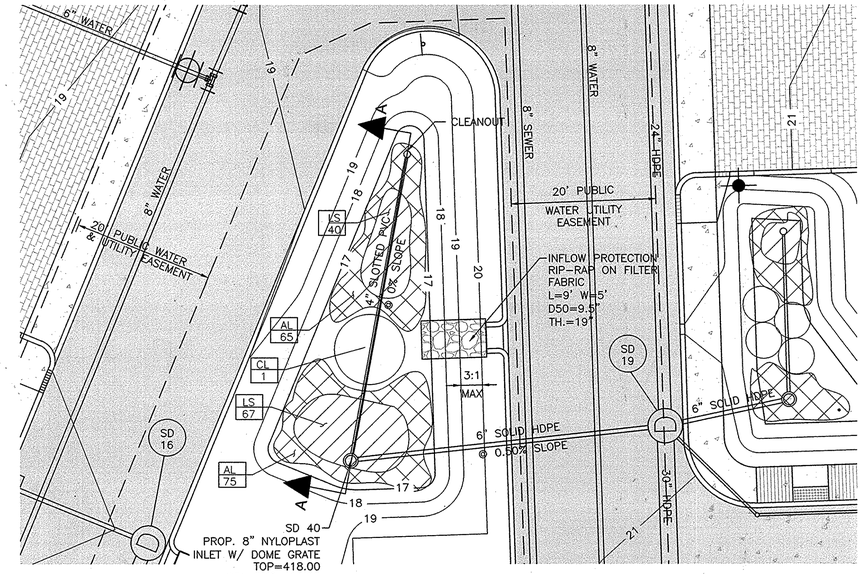
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-2.13
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 25 OF 47	

SDP-14-090



(SWM-17) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'

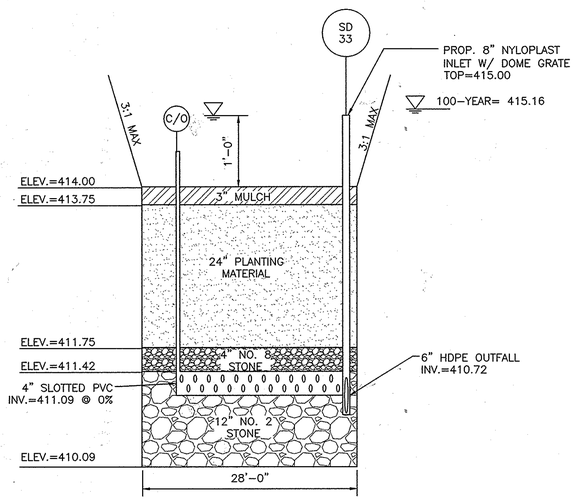


(SWM-20) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: 1" = 10'

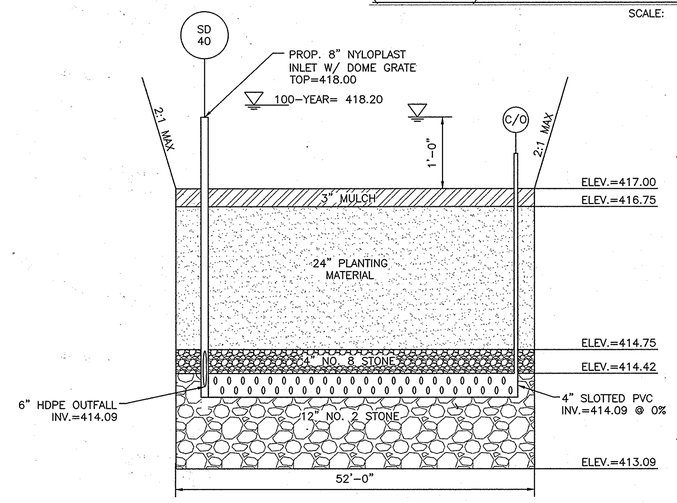
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-17
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 4,176 SQ. FT
4. BOTTOM ELEVATION: 410.09
5. TOP OF BANK ELEVATION: 415.50
6. STORAGE VOLUME PROVIDED: 261 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 415.16
8. DISCHARGE:
   100-YEAR: 0.71 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



(SWM-17) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-20) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-20
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 6,158 SQ. FT
4. BOTTOM ELEVATION: 413.09
5. TOP OF BANK ELEVATION: 418.50
6. STORAGE VOLUME PROVIDED: 707 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 418.20
8. DISCHARGE:
   100-YEAR: 0.92 cfs
9. OVERFLOW INLET SIZE & TYPE: 8" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY.
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

(SWM-17) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
PERENNIALS / ORNAMENTAL GRASSES					
AL	40	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LC	30	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
CL	3	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.

(SWM-20) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
CL	1	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	140	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
LS	107	LIATRIS SPICATA / BLAZING STAR	2" HT.	PLUG	PLANT AT 18" O.C.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

STATE OF MARYLAND — NICHOLAS A. MARCINO — No. 33772 — PROFESSIONAL ENGINEER

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

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REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

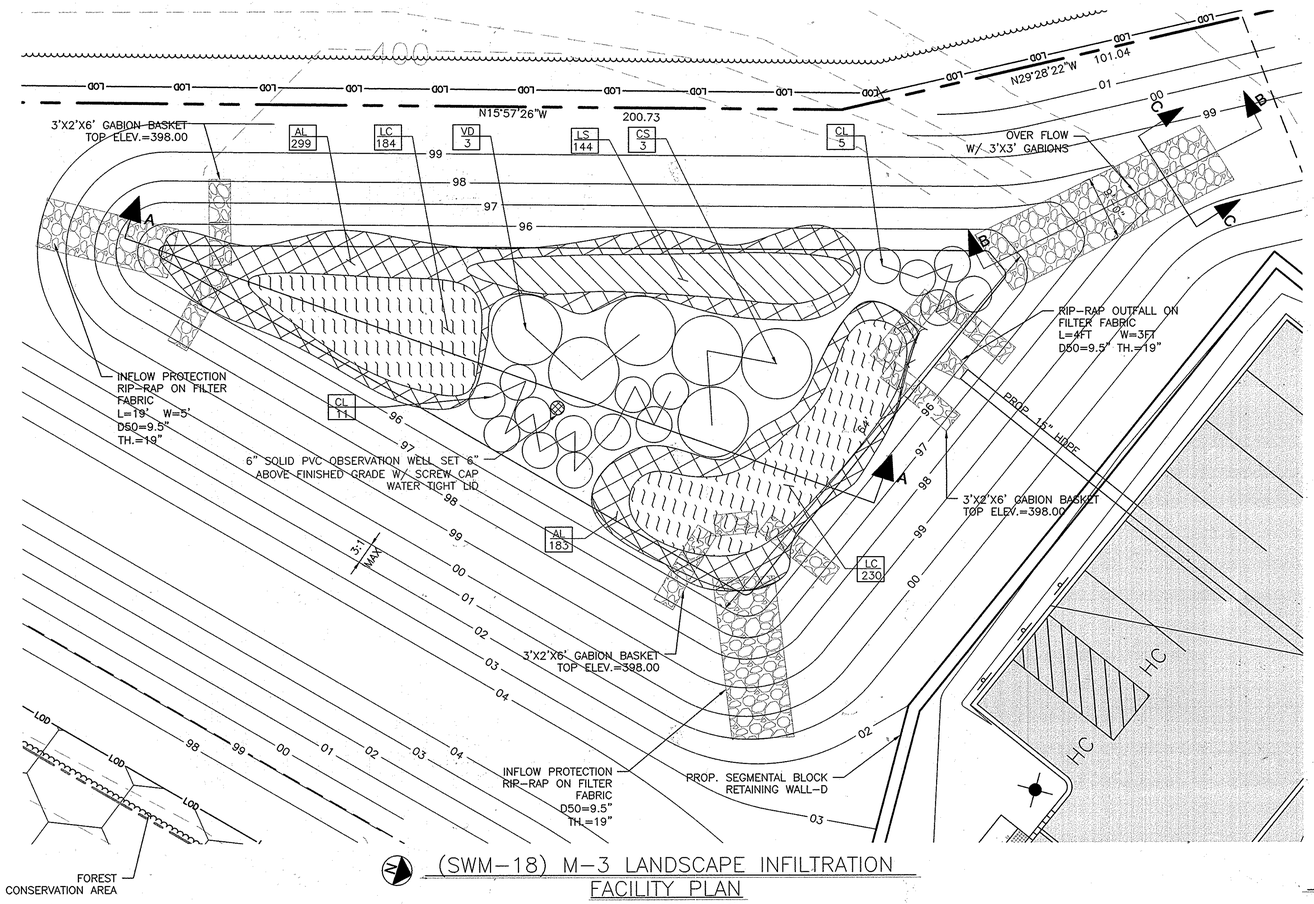
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

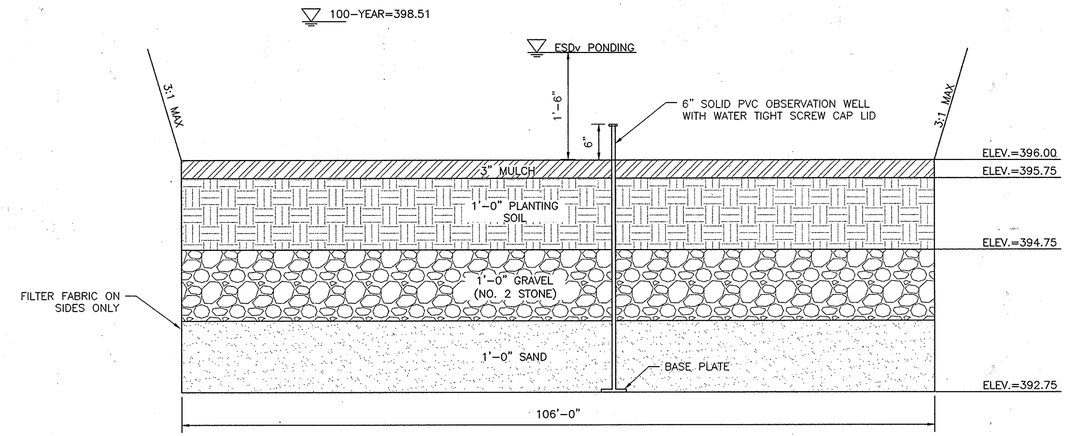
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.14
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 26 OF 47	

SDP-14-090



(SWM-18) M-3 LANDSCAPE INFILTRATION FACILITY PLAN

SCALE: HOR: 1" = 10'
VERT: 1" = 1'



(SWM-18) LANDSCAPE INFILTRATION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

(SWM-18) PLANT SCHEDULE

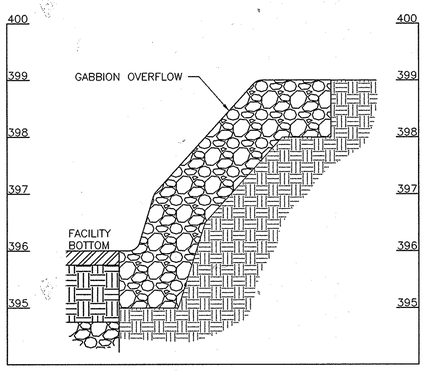
KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
CS	3	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
VD	3	VIBURNUM DENTATUM 'BLUE MUFFIN' / ARROWWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	482	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
CL	16	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.
LC	414	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
LS	144	LIATRIS SPICATA / BLAZING STAR	2" HT.	PLUG	PLANT AT 18" O.C.

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING. 2000 MARYLAND STROMWATER 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.

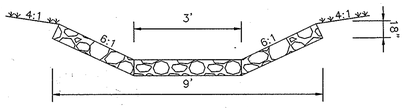
DESIGN SUMMARY

1. FACILITY NUMBER: SWM-18
2. FACILITY TYPE: M-3 LANDSCAPE INFILTRATION FACILITY
3. DRAINAGE AREA: 42,532 SQ. FT
4. BOTTOM ELEVATION: 392.75
5. TOP OF BANK ELEVATION: 396.00
6. STORAGE VOLUME PROVIDED: 10,390 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 398.51
8. DISCHARGE:
   100-YEAR: 0.14
9. OVERFLOW TO GABBION OUTFALL.
10. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
11. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT



GABION OUTFALL SECTION B-B

SCALE: NTS



GABION OUTFALL SECTION C-C

SCALE: NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

8/17/15

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REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

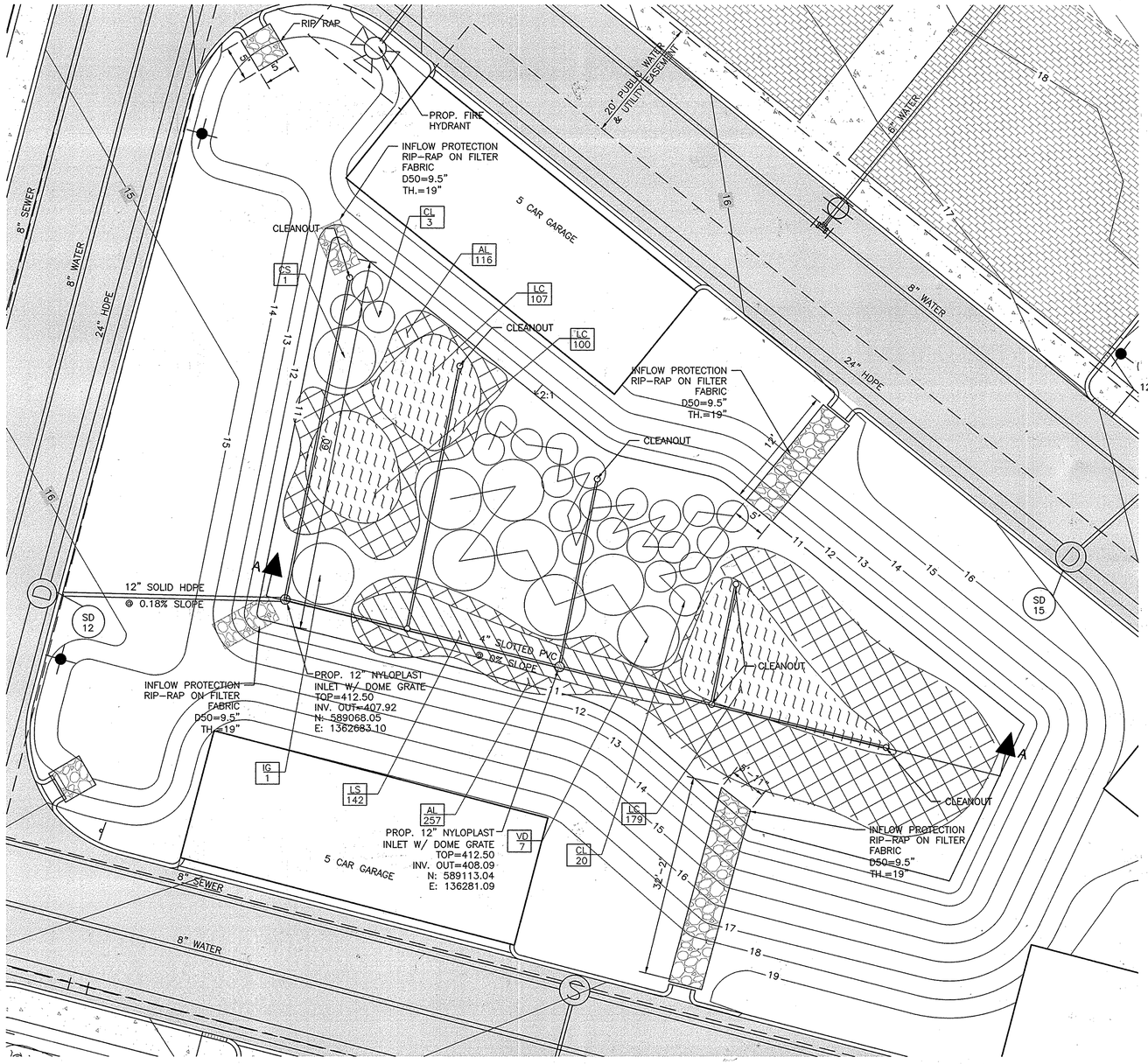
THE GATHERINGS AT ELLICOTT'S RETREAT

LANDSCAPE INFILTRATION PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

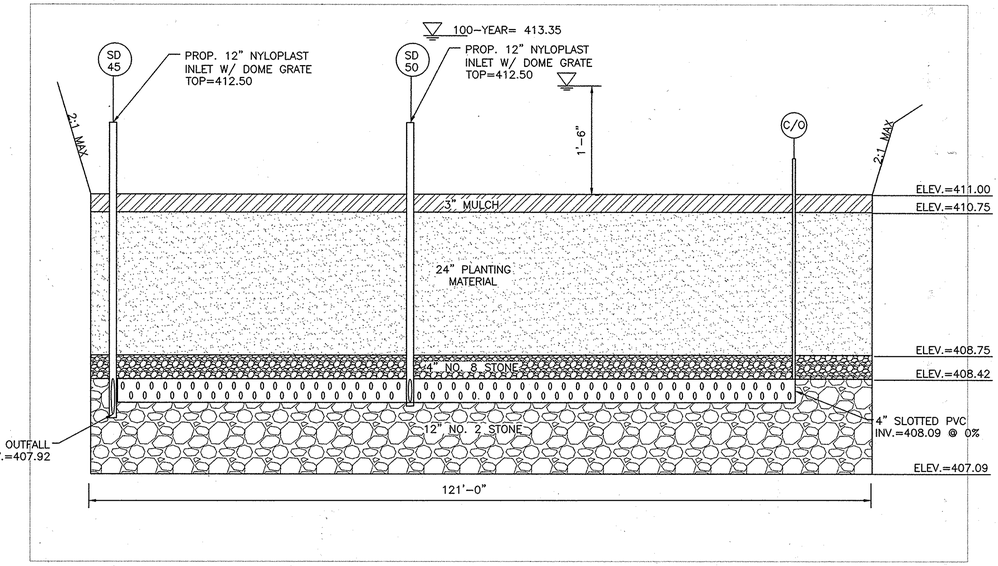
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-2.15
DRAWN	SCALE	SHEET NO. 27 OF 47	
BRA	AS SHOWN		

SDP-14-090



(SWM-19) M-6 MICRO-BIORETENTION FACILITY PLAN

SCALE: 1" = 10'



(SWM-19) M-6 MICRO-BIORETENTION FACILITY SECTION

SCALE: HOR: 1" = 10'
VERT: 1" = 1'

DESIGN SUMMARY

1. FACILITY NUMBER: SWM-19
2. FACILITY TYPE: M-6 MICRO-BIORETENTION FACILITY
3. DRAINAGE AREA: 70,313 SQ. FT
4. BOTTOM ELEVATION: 407.09
5. TOP OF BANK ELEVATION: 414.00
6. STORAGE VOLUME PROVIDED: 5,340 CU. FT
7. WATER SURFACE ELEVATION:
   100-YEAR: 413.35
8. DISCHARGE:
   100-YEAR: 5.24 cfs
9. OVERFLOW INLET SIZE & TYPE: 12" NYLOPLAST INLET WITH DOME GRATE
10. FILTER FABRIC ADDED ON SIDES OF FACILITY ONLY
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
12. THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGHWATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT

(SWM-19) PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	COMMENTS
SHRUBS					
CS	1	CORNUS SERICEA / REDOSIER DOGWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
IG	1	ILEX GLABRA / INKBERRY HOLLY	18" HT.	CONT.	PLANT AT 5' O.C.
VD	7	VIBURNUM DENTATUM 'BLUE MUFFIN' / ARROWWOOD	18" HT.	CONT.	PLANT AT 5' O.C.
PERENNIALS / ORNAMENTAL GRASSES					
AL	373	ASCLEPIAS TUBEROSA / BUTTERFLY MILKWEED	2" HT.	PLUG	PLANT AT 18" O.C.
CL	20	CHASMANTHIUM LATIFOLIUM / NORTHERN SEA OATS	1 GAL.	CONT.	PLANT AT 3' O.C.
LC	386	LOBELIA CARDINALIS / CARDINAL FLOWER	2" HT.	PLUG	PLANT AT 18" O.C.
LS	142	LIATRIS SPICATA / BLAZING STAR	2" HT.	PLUG	PLANT AT 18" O.C.

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REVISIONS

NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

GRAPHIC SCALE

10 0 5 10 20

SCALE: 1"=10'

STATE OF MARYLAND NICHOLAS A. PARISI No. 33772 PROFESSIONAL ENGINEER

8/13/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

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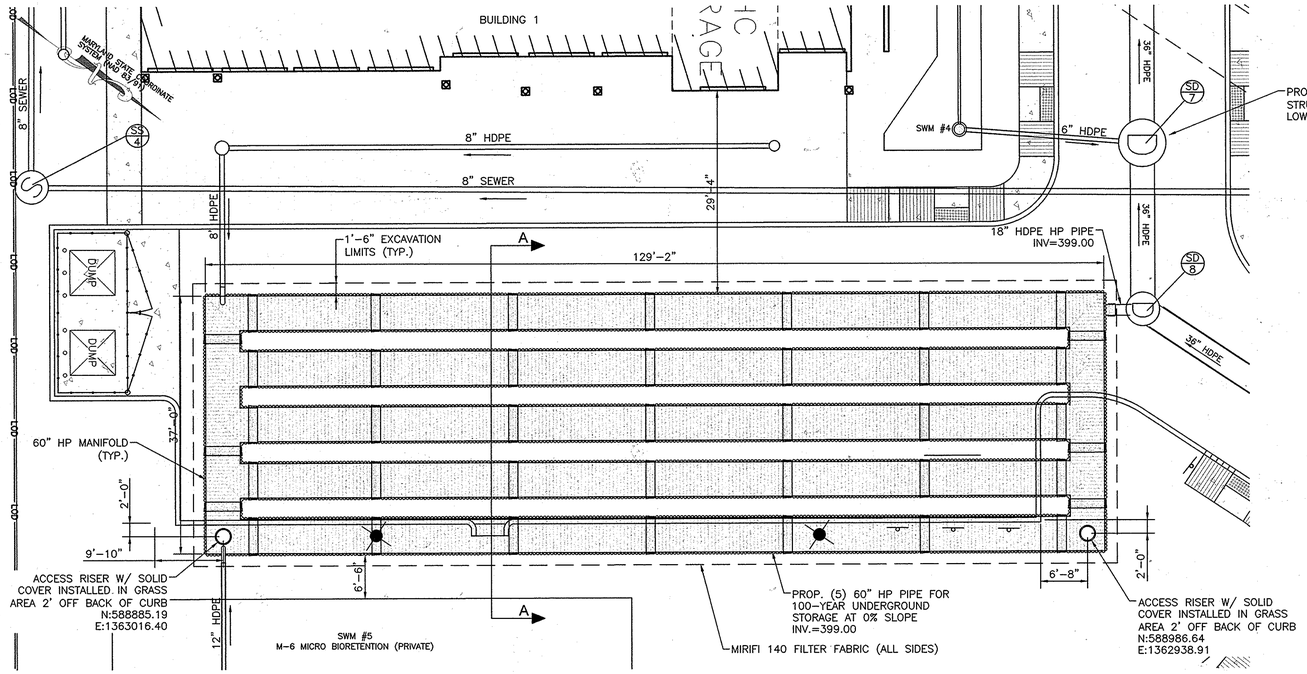
THE GATHERINGS AT ELLICOTT'S RETREAT

STORMWATER MANAGEMENT MICRO-BIORETENTION FACILITY PLANS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

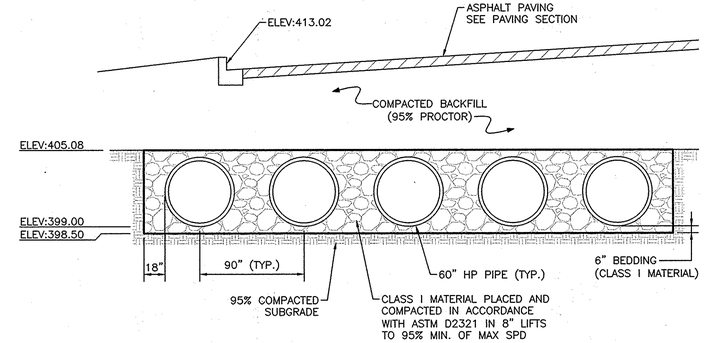
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-2.16
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 28 OF 47	

SDP-14-090



UNDERGROUND STORAGE PIPES – PLAN VIEW

SCALE: 1"=10'

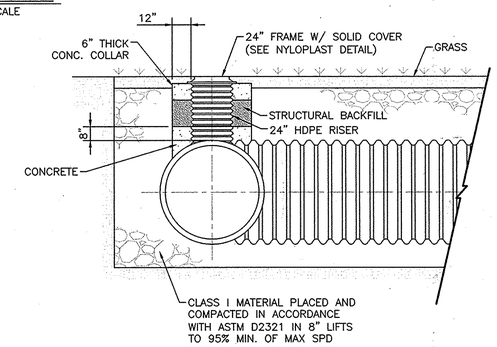


SECTION A–A

NOT TO SCALE

GENERAL NOTES

1. ALL REFERENCES TO CLASS I MATERIAL ARE PER ASTM D2321"STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.
3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.
4. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY BEFORE PROCEEDING WITH WORK.
5. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" FOR 4"–24"; 6" FOR 30–60".
6. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
7. COVER: MINIMUM COVER OVER ALL RETENTION/DETENTIONSYSTEMS IN NON–TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM TOP OF PIPE TO GROUND SURFACE.ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" UP TO 36" DIAMETER PIPE AND 24" OF COVER FOR 42–60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. MAXIMUM FILL HEIGHT LIMITED TO 8 FT OVER FITTINGS FOR STANDARD INSTALLATIONS. CONTACT A SALES REPRESENTATIVE WHEN MAXIMUM FILL HEIGHTS EXCEED 8 FT FOR INSTALLATION CONSIDERATIONS.
8. DURING CONSTRUCTION: ALL DEBRIS IS TO BE KEPT OUT OF THE FACILITY DURING AND AFTER CONSTRUCTION.



RISER TYPICAL SECTION

NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES

1. 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 ITS OPERATION AND FUNCTION.
2. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
3. WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.
4. 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.
5. THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORMWATER MANAGEMENT FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PR

ADS HP RETENTION/DETENTION PIPE SYSTEM SPECIFICATION

PIPE REQUIREMENTS
ADS RETENTION/DETENTION SYSTEMS MAY UTILIZE ANY OF THE VARIOUS PIPE PRODUCTS BELOW:
- HP STORM AND SANITITE HP PIPE SHALL MEET ASTM F2736 FOR APPLICABLE DIAMETERS
- HP STORM AND SANITITE HP PIPE SHALL MEET ASTM F2764 FOR APPLICABLE DIAMETERS

ALL PRODUCTS SHALL HAVE A SMOOTH INTERIOR AND EITHER ANNULAR EXTERIOR CORRUGATIONS OR SMOOTH EXTERIOR WITH ANNULAR INNER CORRUGATIONS. PRODUCT–SPECIFIC PIPE SPECIFICATIONS ARE AVAILABLE IN THE DRAINAGE HANDBOOK SECTION 1 "SPECIFICATIONS".

JOINT PERFORMANCE
HP PIPE PRODUCTS PIPE SHALL BE JOINED USING A BELL AND SPIGOT JOINT. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. SPIGOTS SHALL HAVE GASKETS MEETING THE REQUIREMENTS OF ASTM F477. 12–60 INCH DIAMETERS SHALL HAVE A BELL REINFORCED WITH A POLYMER COMPOSITE BAND. THE BELL TOLERANCE DEVICE SHALL BE INSTALLED BY THE MANUFACTURER. PIPE AND FITTING CONNECTIONS SHALL UTILIZE A SPUN–ON, WELDED OR INTEGRAL BELL AND SPIGOT. DETENTION SYSTEMS ARE SUBJECT TO GREATER LEAKAGE THAN TYPICAL STORM SEWER APPLICATIONS AND THEREFORE ARE NOT APPROPRIATE FOR APPLICATIONS REQUIRING LONG–TERM FLUID CONTAINMENT OR HYDROSTATIC PRESSURE.

FITTINGS
FITTINGS SHALL CONFORM TO ASTM F2736 FOR APPLICABLE DIAMETERS AND MEET JOINT PERFORMANCE INDICATED ABOVE FOR FITTING CONNECTIONS. CUSTOM FITTINGS ARE AVAILABLE AND MAY REQUIRE SPECIAL INSTALLATION CRITERION.

INSTALLATION
INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 AND ADS RECOMMENDED INSTALLATION GUIDELINES, WITH THE EXCEPTION THAT MINIMUM COVER IN NON–TRAFFIC AREAS FOR 12–60 INCH DIAMETERS SHALL BE 1 FT. MINIMUM COVER IN TRAFFICKED AREAS FOR 12–36 INCH DIAMETERS SHALL BE 1 FT AND FOR 42–60 INCH DIAMETERS, THE MINIMUM COVER SHALL BE 2 FT. BACKFILL SHALL CONSIST OF CLASS I (COMPACTED), OR CLASS II (MINIMUM 90% SPD) MATERIAL, WITH THE EXCEPTION THAT 60 INCH SYSTEMS SHALL USE CLASS I MATERIAL ONLY. MINIMUM COVER HEIGHTS DO NOT ACCOUNT FOR PIPE BUOYANCY. REFER TO ADS TECHNICAL NOTE 5.05 "PIPE FLOTATION" FOR BUOYANCY DESIGN CONSIDERATIONS. MAXIMUM COVER OVER SYSTEM USING STANDARD BACK FILL IS 8 FT; CONTACT A REPRESENTATIVE WHEN MAXIMUM FILL HEIGHT MAY BE EXCEEDED.

ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

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REVISIONS

NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

GRAPHIC SCALE

10 0 5 10 50

SCALE: 1"=10'

STATE OF MARYLAND NICHOLAS A. BRAGUNIER III No. 33772 PROFESSIONAL ENGINEER

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT

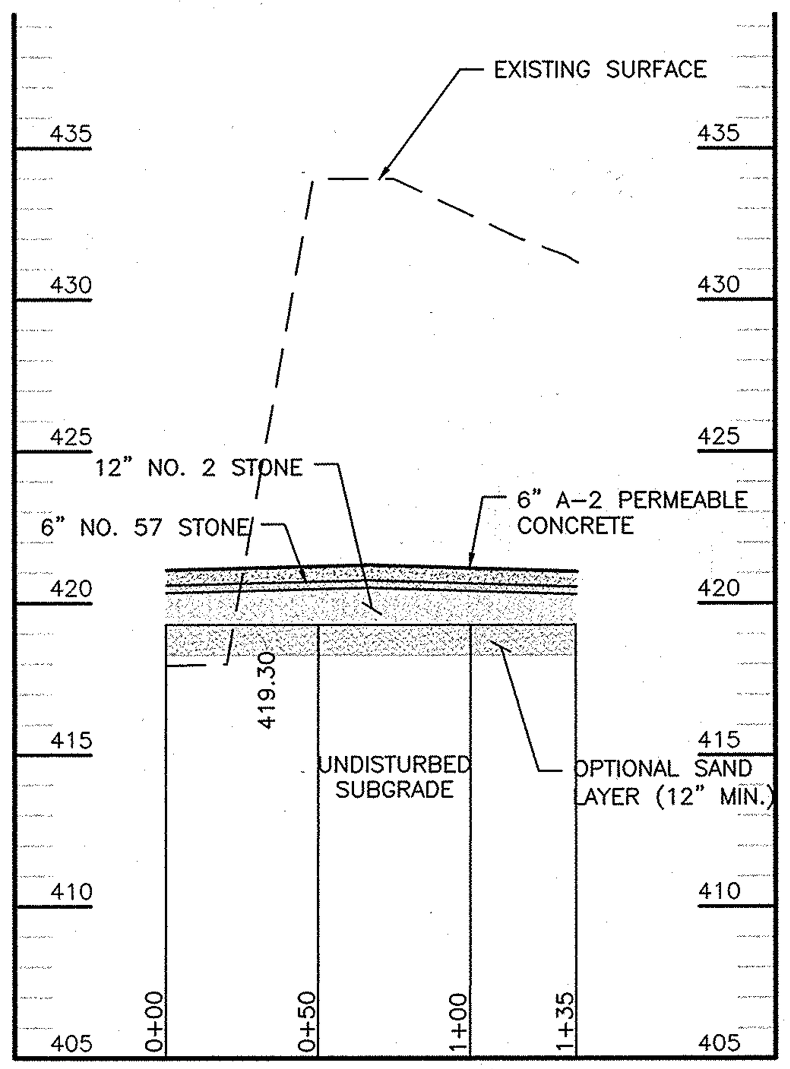
STORMWATER MANAGEMENT UNDERGROUND STORAGE PIPE DETAIL

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

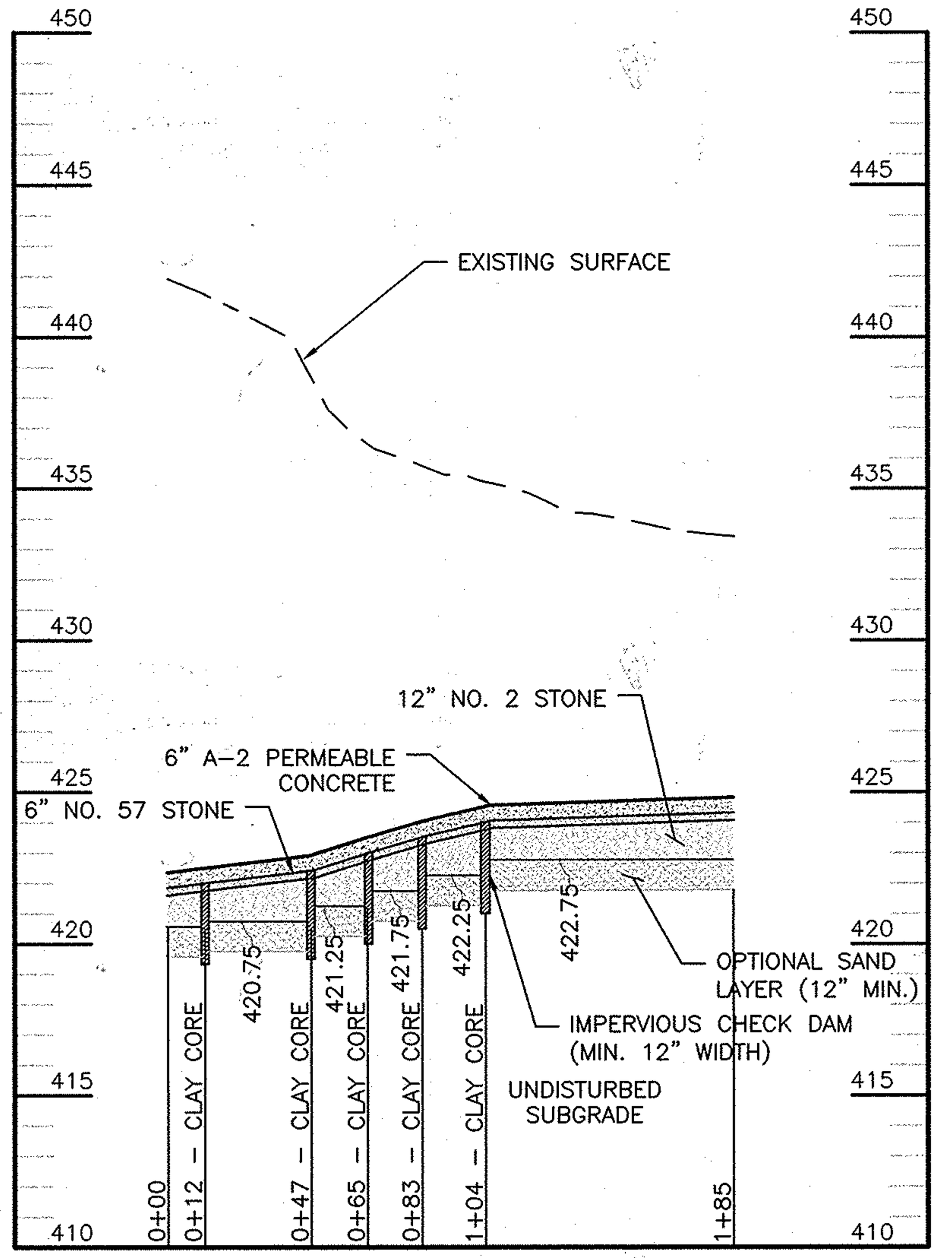
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C–2.17
DRAWN BRA	SCALE 1"=50'	SHEET NO. 29 OF 47	

SDP–14–090

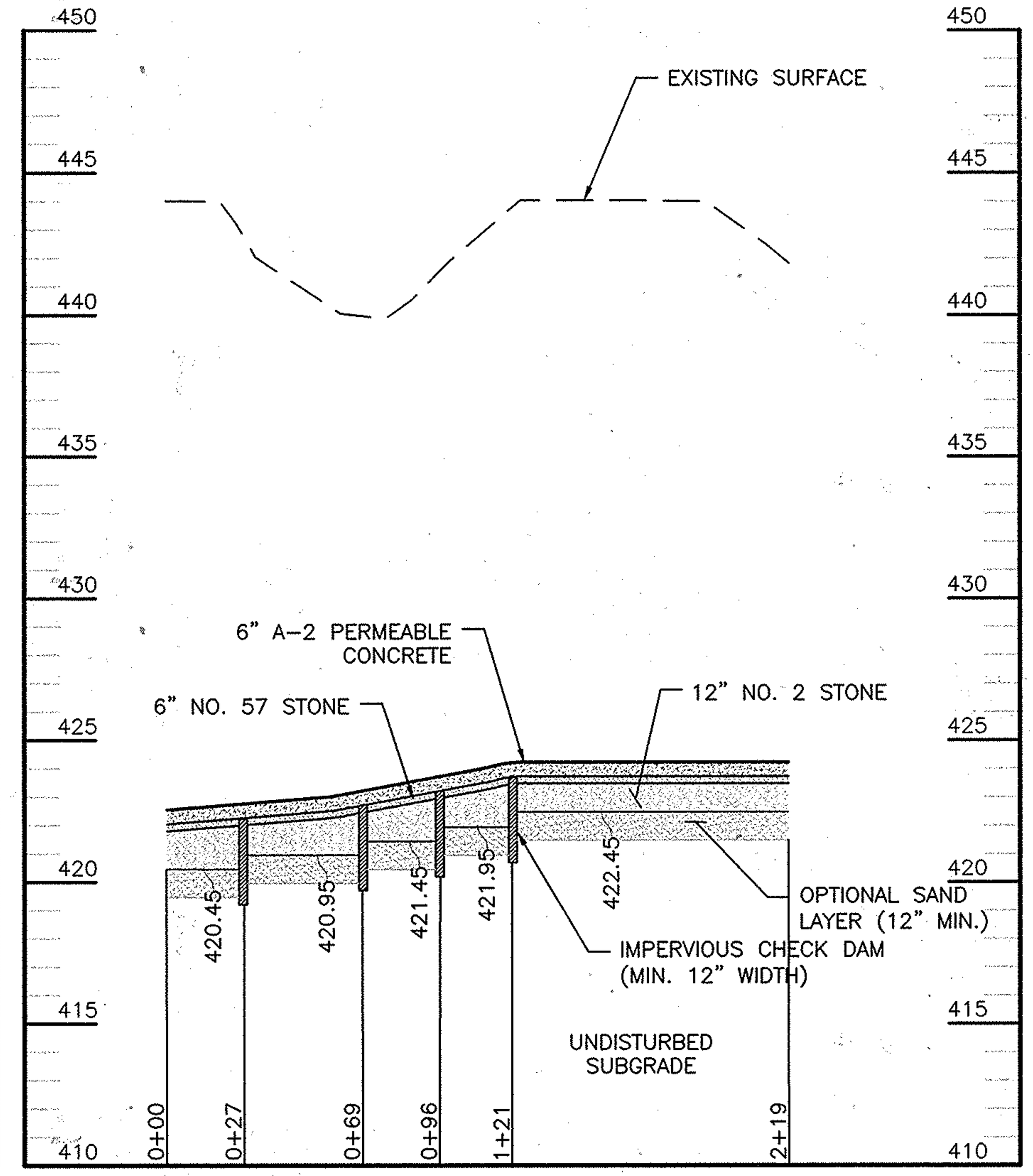
NOTE: PAVEMENT DETAIL
LOCATED ON SHEET C-1.09



PERMEABLE PAVEMENT PROFILE
SCALE: NOT TO SCALE



PERMEABLE PAVEMENT PROFILE
SCALE: NOT TO SCALE



PERMEABLE PAVEMENT PROFILE
SCALE: HOR: 1"=50'
VERT: 1"=5'

POND CONSTRUCTION SPECIFICATIONS

REMOVAL AND REPLACEMENT OF DEFECTIVE FILL
FILL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITY OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED ACCEPTABLE RANGE OF MOISTURE CONTENT OR OTHERWISE NOT CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE REWORKED TO MEET THE REQUIREMENTS OR REMOVED AND REPLACED BY ACCEPTABLE FILL. THE BOTTOMS OF SUCH EXCAVATIONS SHALL BE FINISHED FLAT OR GENTLY CURVING AND AT THE SIDES OF SUCH EXCAVATIONS THE ADJACENT SOUND FILL SHALL BE TRIMED TO A SLOPE NOT STEEPER THAN 3 FEET HORIZONTALLY TO 1 FOOT VERTICALLY EXTENDING FROM THE BOTTOM OF THE EXCAVATION TO THE FILL SURFACE.

PIPE CONDUITS
ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

ALL PERFORATED PIPES SHALL HAVE A MINIMUM OF 1 1/2 SQUARE INCHES OF OPENING PER LINEAR FOOT OF PIPE.

REINFORCED CONCRETE PIPE

THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.
2. BEDDING – REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE IF NOTED ON PLANS. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
5. CONNECTIONS – ALL CONNECTIONS (TO ANTI-SEEP COLLARS, RISER, ETC.) SHALL BE WATER TIGHT.
6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE PLANS.

PLASTIC PIPE

THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIAL – PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4"-10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.
2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.
3. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL". 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF THE MARYLAND STATE HIGHWAY ADMINISTRATION (SHA) "SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS", ARE THOSE DATED JANUARY, 2001;SECTION 420 AND 920, MIX NO. 3.

CAST IN PLACE CONCRETE STRUCTURES (ANTI-SEEP COLLAR)

1. SPECIFICATIONS: MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION. AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION, FOR DESIGN. CONCRETE DESIGN BY THE "SERVICE LOAD DESIGN METHOD".
2. CONCRETE: SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 420 AND 920, MIX NO. 3.
3. CONTRACTOR MAY ADD COLOR MIX (IF SPECIFIED ON PLAN) AT PLANT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATION "C-12 MESA BEIGE" AS MANUFACTURED BY L. M. SCOFIELD COMPANY 213) 723-5285. CONTRACTOR SHALL SUPPLY MIX DESIGN FOR APPROVAL PRIOR TO APPLICATION. LOAD AND MIX TICKETS SHALL BE SUPPLIED FOR EACH TRUCK DELIVERY. NO PARTIAL FIELD MIXES SHALL BE ALLOWED. ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS. DESIGN FC = 1,200 PSI. ALL CONSTRUCTION KEYS SHALL BE 3/4" UNLESS OTHERWISE NOTED.ALL CONSTRUCTION KEYS ARE SHOWN NOMINAL SIZE.
4. REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60. WHERE NOT INDICATED, BAR LAP SPLICES SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS. THE MINIMUM CONCRETE COVER SHALL BE 2 INCHES UNLESS OTHERWISE NOTED. DESIGN FS = 24,000 PSI.
5. FOUNDATION: PRESUMED SOIL BEARING CAPACITY = 2,500 PSF. THE ENGINEER MUST APPROVE ALL FOUNDATIONS PRIOR TO CONCRETE PLACEMENT. IF UNSUITABLE MATERIAL IS ENCOUNTERED, THE MATERIAL SHALL BE UNDERCUT AND BACKFILLED WITH STRUCTURAL BACKFILL.
6. STRUCTURAL BACKFILL: CAST-IN-PLACE CONCRETE STRUCTURES AND PIPE SHALL BE BACKFILLED WITH MATERIAL OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. STRUCTURAL FILL SHALL BE PLACED IN LOOSE LIFTS OF APPROXIMATELY 6 INCHES, AND COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO T=180. THE STATIC WEIGHT OF EQUIPMENT USED ADJACENT TO WALLS SHALL NOT EXCEED 3,000 POUNDS. NO BACKFILL SHALL BE PLACED AGAINST THE CAST-IN-PLACE WALLS UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED 28 DAY STRENGTH.

PRE-CAST CONCRETE STRUCTURES

SHOP DRAWINGS FOR PRE-CAST STRUCTURES MEETING ASTM REQUIREMENTS FOR PRE-CAST STRUCTURES WITH SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER) MUST BE SUBMITTED TO THE ENGINEER, AND THE APPROVING AGENCY (BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT) FOR APPROVAL PRIOR TO FABRICATION.

GABIONS

ALL GABIONS SHALL BE PVC COATED WOVEN WIRE BASKETS. STONE SIZE SHALL BE 4 INCHES TO 7 INCHES (CLASS IV GABIONS).

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OR WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES. ALL DISTURBED AREAS SHALL BE CONTROLLED BY AN EROSION AND SEDIMENT CONTROL PLAN WHICH HAS BEEN APPROVED BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

FILTER CLOTH

ALL FILTER CLOTH SHALL CONFORM TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, OR THE LATEST EDITION.

CONSTRUCTION INSPECTION BY DESIGNATED ENGINEERS

THE CONSTRUCTION OF THE POND AND EMBANKMENT, AND CERTIFICATION THAT THE POND AND EMBANKMENT HAVE BEEN BUILT IN ACCORDANCE WITH THE PLANS SHALL BE UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER. THE ENGINEER SHALL BE NOTIFIED SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ARRANGEMENTS CAN BE MADE FOR (1) INSPECTION OF PIPE TRENCH AND BEDDING, (2) INSPECTION OF RISER AND ANTI-SEEP COLLARS AND (3) SUPERVISION OF EMBANKMENT CONSTRUCTION AND COMPACTION TESTING. THE ENGINEER SHALL DIRECT THE HANDLING OF WATER DURING CONSTRUCTION, MINOR CHANGES NOT AFFECTING THE INTEGRITY OF THE DAM IN ORDER TO COMPENSATE FOR UNUSUAL SOIL CONDITIONS, AND THE REMOVAL AND REPLACEMENT OF DEFECTIVE FILL.

PERFORATED PIPE SCHEDULE 40 PVC OR SDR35

PERFORATED PIPE SHALL COMPLY WITH AASHTO M278 OR ASTM F-758 HIGHWAY UNDERDRAIN SPECIFICATIONS. WRAP PIPE WITH 1/4" MESH (OR SMALLER) GALVANIZED HARDWARE CLOTH.

HDPE: 4" & 6" PERFORATED PIPE SHALL HAVE 3 ROWS (@120 DEGREES) OF 0.12" x 0.875" SLOTS THAT PROVIDE A MINIMUM OPEN AREA OF 1 SQ.IN. PER LINEAR FOOT OF PIPE. PIPE SHALL BE PLACED WITH PERFORATIONS DOWN. PIPE WITH SLOTTED PERFORATIONS IS NOT REQUIRED TO BE WRAPPED WITH HARDWARE CLOTH.

MATERIAL SPECIFICATIONS FOR STORMWATER MANAGEMENT FACILITIES

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4 IN MD 2000 SWM DESIGN MANUAL	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2' TO 4' DEEP)	LOAMY SAND (60%-65%) & COMPOST (35%-40%) OR SANDY LOAM (30%), COURSE SAND (30%) & COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT LESS THAN 5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D2974)	N/A	N/A
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PEA GRAVEL	PEA GRAVEL ASTM D448	NO.8 OR NO.9 (1/8"-3/8")	N/A
GEOTEXTILE	CLASS "C" – APPARENT OPENING SIZE (ASTM D-4751), GRAB TENSILE STRENGTH (ASTM D-4632) PUNCTURE RESISTANCE (ASTM D-4883)	N/A	FOR USE ON SIDES, BOTTOM & BENEATH UNDERDRAINS
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 2 AGGREGATE (3/8"-3/4")	N/A
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR ASSHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	SLOTTED PVC

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3) AND MICRO-BIORETENTION (M-6)

A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
B. 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.
C. 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.
D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

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

A. 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. POWER-WASHING CAN BE USED TO PERFORM SURFACE CLEANING.
B. THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE.
C. THE OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT.
D. 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.

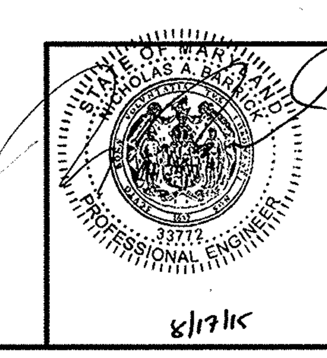
NOTES

1. SUBGRADE MUST BE LEVEL. INSTALL STEPS AS NEEDED TO MAINTAIN MINIMUM 12" OF AGGREGATE.
2. INSTALL CHECK DAM OF IMPERVIOUS MATERIAL (CLAY) MIN. 12" IN WIDTH AT STEPS AS NEEDED.

GRAPHIC SCALE
50 0 25 50 100
SCALE: 1"=50'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15



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KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

PERMEABLE PAVEMENT DEATAILS

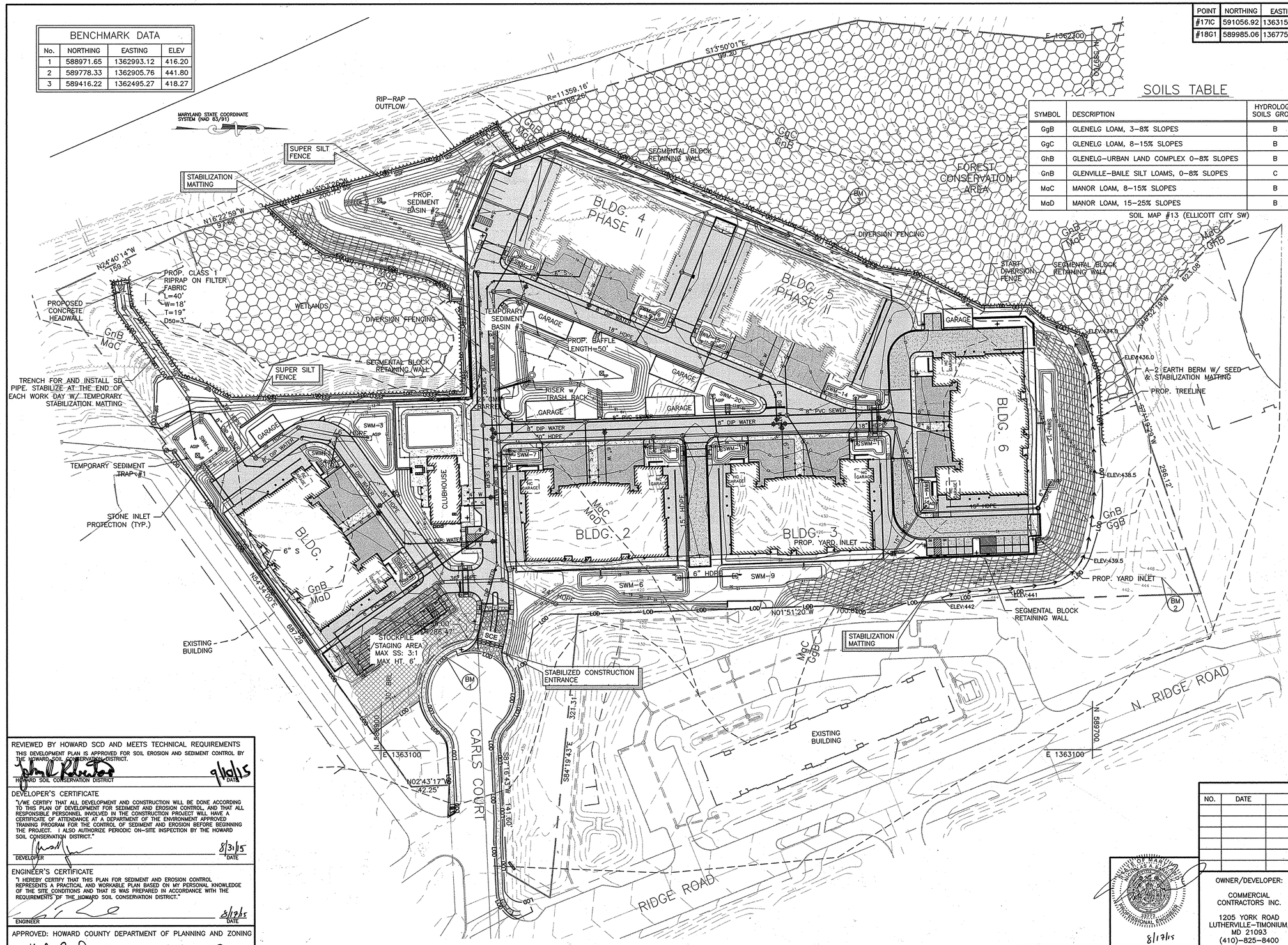
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE 1"=50'	SHEET NO. 30 OF 47	C-2.18

SDP-14-090

BENCHMARK DATA			
No.	NORTHING	EASTING	ELEV
1	588971.65	1362993.12	416.20
2	589778.33	1362905.76	441.80
3	589416.22	1362495.27	418.27

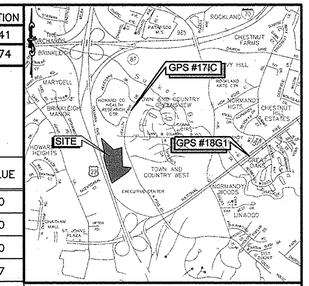
POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74



SOILS TABLE

SYMBOL	DESCRIPTION	HYDROLOGIC SOILS GROUP	K-VALUE
GgB	GLENELG LOAM, 3-8% SLOPES	B	0.20
GgC	GLENELG LOAM, 8-15% SLOPES	B	0.20
GhB	GLENELG-URBAN LAND COMPLEX 0-8% SLOPES	B	0.20
GnB	GLENVILLE-BAILE SILT LOAMS, 0-8% SLOPES	C	0.37
MaC	MANOR LOAM, 8-15% SLOPES	B	0.24
MaD	MANOR LOAM, 15-25% SLOPES	B	0.24

SOIL MAP #13 (ELLICOTT CITY SW)



VICINITY MAP

SCALE: 1" = 2000'
ADC MAP 21B6

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- BUILDING OUTLINE
- 260 — EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT
- EXISTING TREE
- PROPOSED IMPERIOUS PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- PROPOSED STABILIZATION MATTING
- LOD — LIMIT OF DISTURBANCE
- GnB / MaC — SOILS LINE
- AGIP — AT GRADE INLET PROTECTION

NOTE: CONSTRUCTION CANNOT BEGIN UNTIL ALL MATERIALS NEEDED TO CONSTRUCT THE BASINS ARE ON SITE.

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/16/15

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — DATE 8/31/15

ENGINEER'S CERTIFICATE

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

ENGINEER — DATE 8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-17-15

DIRECTOR — DATE 9-29-15

SEDIMENT & EROSION CONTROL PLAN

SCALE: 1"=50'

NOTE: IF THE STOCK PILE AREA EXCEEDS 15 FEET IN HEIGHT, IT IS TO BE BENCHED.

GRAPHIC SCALE

50 0 25 50 100

SCALE: 1"=50'

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DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
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BRA	1"=50'		

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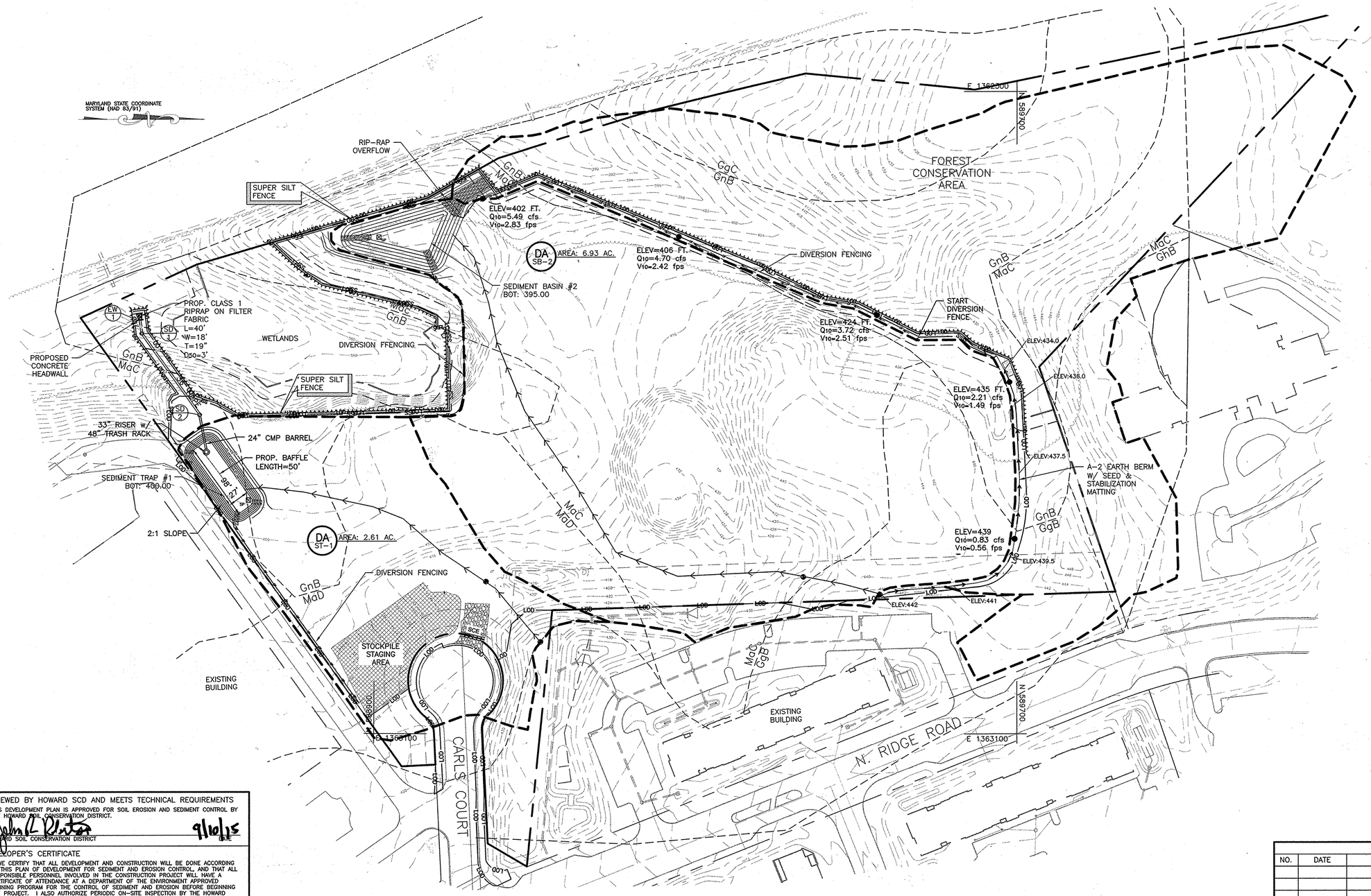


SEDIMENT & EROSION CONTROL EXISTING DRAINAGE AREA MAP

SCALE: 1"=60'

GRAPHIC SCALE

60 0 30 60 120

SCALE: 1"=60'

NOTE: CONSTRUCTION SHALL NOT BEGIN UNTIL PIPE MATERIALS FOR TRAPS ARE ON SITE.

PIPE OUTLET SEDIMENT TRAP ST-I, TRAP NO. 1	
DRAINAGE AREA – INITIAL:	2.61 ACRES
DRAINAGE AREA – INTERIM:	2.63 ACRES
DRAINAGE AREA – FINAL:	2.63 ACRES
TOTAL STORAGE REQUIRED:	9,468 CF
TOTAL STORAGE PROVIDED:	10,112 CF
WET STORAGE REQUIRED:	4,734 CF
WET STORAGE PROVIDED:	5,056 CF
DRY STORAGE REQUIRED:	4,734 CF
DRY STORAGE PROVIDED:	5,056 CF
TRAP BOTTOM ELEVATION:	400 FT
TRAP BOTTOM DIMENSIONS:	27'x98'
RISER CREST (DRY STORAGE) ELEVATION:	402.84 FT
OUTLET (WET STORAGE) ELEVATION:	401.57 FT
CLEANOUT ELEVATION:	400.79 FT
TOP OF EMBANKMENT ELEVATION:	405 FT
SIDE SLOPE:	2:1
EMBANKMENT TOP WIDTH	4 FT
PRINCIPAL SPILLWAY MATERIAL	CMP
RISER DIAMETER	33 IN
BARREL DIAMETER	24 IN
TRASH RACK DIAMETER	48 IN
TRASH RACK HEIGHT	25 IN
ANTI-SEEP COLLAR DIMENSIONS	6'x6'

SEDIMENT BASIN #2

TYPE: TEMPORARY SEDIMENT BASIN

DESIGN VOLUMES AND ELEVATIONS	
TOTAL AREA DRAINING TO BASIN:	6.93 ACRES
REQUIRED TOTAL STORAGE VOLUME:	24948 CF
REQUIRED WET STORAGE VOLUME:	12474 CF
REQUIRED DRY STORAGE VOLUME:	12474 CF
BASIN BOTTOM ELEVATION:	395.00 FT
RISER OR WEIR CREST ELEVATION:	399.60 CF
PROVIDED TOTAL STORAGE VOLUME:	24948 CF
WET STORAGE ELEVATION:	397.89 FT
PROVIDED WET STORAGE VOLUME:	12474 CF
PROVIDED DRY STORAGE VOLUME:	12474 CF
BASIN CLEANOUT ELEVATION:	396.45 FT
DISTANCE FROM RISER CREST ELEVATION TO CLEANOUT ELEVATION:	4.60 FT

SURFACE AREA DESIGN

Q_{10} 12.19 CFS

MINIMUM BASIN SURFACE AREA

$> 0.0035 \times Q_{10} = 0.043$ AC < 0.075 AC

PRINCIPLE SPILLWAY (Q_{PS})

DESIGN Q_{PS} CAPACITY: 12.19 CFS

WIDTH = 10 FT

CHANNEL SLOPE = 1.070

CREST ELEVATION = 397.89 FT

DESIGN HIGH WATER = 399.00 FT

TOP OF EMBANKMENT = 400 FT

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/10/15

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — DATE 8/31/15

ENGINEER'S CERTIFICATE

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

ENGINEER — DATE 8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-17-15

DIRECTOR — DATE 9-29-15

KCI TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS			
NO.	DATE		BY

STATE OF MARYLAND — NICHOLAS A. PAPPAS — 33772 — PROFESSIONAL ENGINEER

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

SEDIMENT AND EROSION CONTROL EXISTING DRAINAGE AREA MAP

AGE RESTRICTED ADULT HOUSING

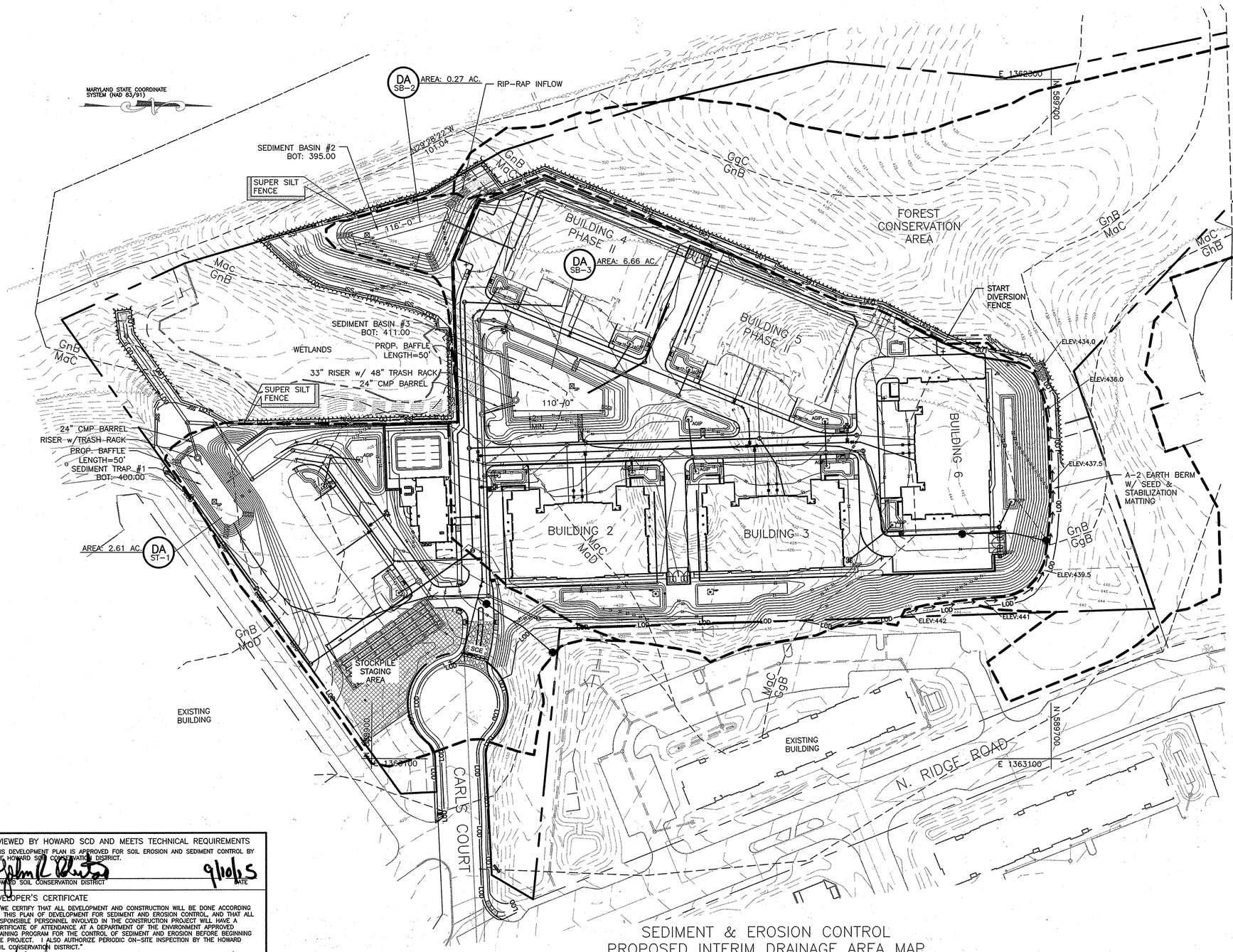
TAX MAP: 24 GRID: 06 PARCEL: 1085

ZONED: FOR

ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-3.01
DRAWN	SCALE	SHEET NO. 32 OF 47	
BRA	1"=60'		

SDP-14-090



SEDIMENT & EROSION CONTROL
PROPOSED INTERIM DRAINAGE AREA MAP
SCALE: 1"=60'

GRAPHIC SCALE
60 0 30 60 120
SCALE: 1"=60'

PIPE OUTLET SEDIMENT TRAP ST-I, TRAP NO. 1	
DRAINAGE AREA – INITIAL:	2.61 ACRES
DRAINAGE AREA – INTERIM:	2.63 ACRES
DRAINAGE AREA – FINAL:	2.63 ACRES
TOTAL STORAGE REQUIRED:	9,468 CF
TOTAL STORAGE PROVIDED:	10,112 CF
WET STORAGE REQUIRED:	4,734 CF
WET STORAGE PROVIDED:	5,056 CF
DRY STORAGE REQUIRED:	4,734 CF
DRY STORAGE PROVIDED:	5,056 CF
TRAP BOTTOM ELEVATION:	400 FT
TRAP BOTTOM DIMENSIONS:	27'x98'
RISER CREST (DRY STORAGE) ELEVATION:	402.84 FT
OUTLET (WET STORAGE) ELEVATION:	401.57 FT
CLEANOUT ELEVATION:	400.79 FT
TOP OF EMBANKMENT ELEVATION:	405 FT
SIDE SLOPE:	2:1
EMBANKMENT TOP WIDTH	4 FT
PRINCIPAL SPILLWAY MATERIAL	CMP
RISER DIAMETER	33 IN
BARREL DIAMETER	24 IN
TRASH RACK DIAMETER	48 IN
TRASH RACK HEIGHT	25 IN
ANTI-SEEP COLLAR DIMENSIONS	6'x6'

SEDIMENT BASIN #3

TYPE: TEMPORARY SEDIMENT BASIN

DESIGN VOLUMES AND ELEVATIONS	
TOTAL AREA DRAINING TO BASIN:	6.66 ACRES
REQUIRED TOTAL STORAGE VOLUME:	23,976 CF
REQUIRED WET STORAGE VOLUME:	11,988 CF
REQUIRED DRY STORAGE VOLUME:	11,988 CF
BASIN BOTTOM ELEVATION:	411 FT
RISER OR WEIR CREST ELEVATION:	413.89 CF
PROVIDED TOTAL STORAGE VOLUME:	23,976 CF
WET STORAGE ELEVATION:	412.60 FT
PROVIDED WET STORAGE VOLUME:	11,988 CF
PROVIDED DRY STORAGE VOLUME:	11,988 CF
BASIN CLEANOUT ELEVATION:	411.80 FT
DISTANCE FROM RISER CREST ELEVATION TO CLEANOUT ELEVATION	1.50 FT
SURFACE AREA DESIGN	
Q_{10}	32.00 CFS
MINIMUM BASIN SURFACE AREA > 0.0035 xQ_{10} = 0.112 AC < 0.16 AC	
PRINCIPLE SPILLWAY (Q_{PS})	
DESIGN Q_{PS} FOR BARREL:	32.00 CFS
BARREL HEAD, H= 8FT ; BARREL LENGTH, L = 30FT	
BARREL DIA =	24 IN
Q_{PS}=31.2 x 1.24 = 38.7 CFS	
RISER DIA = 33 IN ; RISER HEIGHT = 3 FT	
RISER HEAD = 1 FT	
TRASH RACK DIA = 48 IN ; TRASH RACK HT= 25 IN	

SEDIMENT BASIN #2

TYPE: TEMPORARY SEDIMENT BASIN

DESIGN VOLUMES AND ELEVATIONS	
TOTAL AREA DRAINING TO BASIN:	0.27 ACRES
REQUIRED TOTAL STORAGE VOLUME:	972 CF
REQUIRED WET STORAGE VOLUME:	486 CF
REQUIRED DRY STORAGE VOLUME:	486 CF
BASIN BOTTOM ELEVATION:	395 CF
RISER OR WEIR CREST ELEVATION:	399.50 CF
PROVIDED TOTAL STORAGE VOLUME:	24948 CF
WET STORAGE ELEVATION:	395.52 FT
PROVIDED WET STORAGE VOLUME:	14420 CF
PROVIDED DRY STORAGE VOLUME:	14420 CF
BASIN CLEANOUT ELEVATION:	395.51 FT
DISTANCE FROM RISER CREST ELEVATION TO CLEANOUT ELEVATION	0.01 FT
SURFACE AREA DESIGN	
Q_{10}	1.29 CFS
MINIMUM BASIN SURFACE AREA > 0.0035 xQ_{10} = 0.005 AC < 0.075 AC	
PRINCIPLE SPILLWAY (Q_{PS})	
DESIGN Q_{PS} CAPACITY:	12.19 CFS
WIDTH = 10 FT	
CHANNEL SLOPE = 1.070	
CREST ELEVATION = 397.89 FT	
DESIGN HIGH WATER = 399.00 FT	
TOP OF EMBANKMENT = 400 FT	

SEDIMENT BASIN #3

TYPE: TEMPORARY SEDIMENT BASIN

BAFFLE BOARD DESIGN	
A=SURFACE AREA AT WET STORAGE EL	11988 SQFT
EFFECTIVE WIDTH, We:	78 FT
FLOW LENGTH FROM INFLOW PT TO OUTLET:	60 FT
EFFECTIVE FLOW LENGTH:	160 FT
DRAW DOWN DEVICE	
Qd-d:	0.333 CFS
CALCULATED Ao:	0.069 FT
CALCULATED Do:	0.030 IN
MAXIMUM DIAMETER FROM TABLE G.10	4 IN
DESIGN Do:	0.030 IN
DRAW DOWN DEVICE PIPE DIA	6 IN
MINIMUM At=4Ao=	0.276 SQ FT
PERFORATION DIAMETER:	1 IN
MIN NUMBER OF PERFORATIONS:	50
NUMBER OF LONGITUDINAL ROWS:	3
PERFORATED PIPE LENGTH:	7 FT
ACTUAL Ar	3.85 SQ FT

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/10/15

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — DATE 8/31/15

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ENGINEER — DATE 8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-17-15

DIRECTOR — DATE 9-29-15

KCI TECHNOLOGIES
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CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND — NICHOLAS A. BRUNO — No. 33772 — PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
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1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
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THE GATHERINGS AT ELLICOTT'S RETREAT

SEDIMENT AND EROSION CONTROL
PROPOSED INTERIM DRAINAGE AREA MAP

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-3.02
DRAWN	SCALE	SHEET NO. 33 OF 47	
BRA	1"=60'		

SDP-14-090

SEQUENCE OF CONSTRUCTION

CONTRACTOR TO NOTIFY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, FIVE (5) DAYS PRIOR TO CONTRACTOR'S ANTICIPATED DATE TO BEGIN CONSTRUCTION.
FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERMANENT PERIMETER CONTROLS. DIKES, SWALES, DITCHES, PERIMETER SLOPES GREATER THAN 3:1, AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREA ON THE PROJECT SITE.

1. NOTIFY MISS UTILITY AT LEAST 48 HOURS IN ADVANCE OF BEGINNING WORK ON SITE. — 1 DAYS
2. CLEAR FOR AND INSTALL PERIMETER SEDIMENT CONTROL MEASURES (IE. SILT FENCE, SUPER SILT FENCE, TREE PROTECTION FENCING AND STONE CONSTRUCTION ENTRANCE). CONTRACTOR SHALL CLEAR FOR AND INSTALL SEDIMENT TRAP #1 AND SEDIMENT BASIN #2, CONNECT TRAP #1 TO STORM DRAIN TRUNK. CONNECT THE NEW 24" STORM DRAIN TO THE EXISTING MANHOLE ON THE ORCHARD MEADOWS PROPERTY AND ABANDON THE EXISTING OUTFALL. NOTIFY INSPECTOR UPON COMPLETION OF SEDIMENT CONTROL MEASURES INSTALLATION. *Simultaneously commence construction of retaining wall in front of sediment trap #3 to expedite construction of sediment trap #3* — 10 DAYS
3. UPON INSTALLATION OF THE SEDIMENT CONTROL DEVICES, CONTRACTOR SHALL BEGIN TO CLEAR AND GRUB AND ROUGH GRADE THE SITE. — 45 DAYS
4. AS THE SITE IS BEING ROUGH GRADED, ~~BEGIN~~ *continue* CONSTRUCTION OF RETAINING WALL. AS RETAINING WALL IS BEING CONSTRUCTED, INSTALL UTILITIES AS SHOWN ON THE PLAN. CONSTRUCT SEDIMENT BASIN #3. NOTIFY SEDIMENT CONTROL INSPECTOR UPON COMPLETION OF BASIN. — 90 DAYS
5. BEGIN GRADING FOR AND CONSTRUCT BUILDING PADS, ROAD SUBBASE, CURBING, AND OTHER SITE FEATURES AS SHOWN ON THE PLANS. — 120 DAYS
6. EROSION AND SEDIMENT CONTROL PRACTICES AND SITE IN GENERAL MUST BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR OR OTHER RESPONSIBLE PERSON AND ANY NEEDED MAINTENANCE PERFORMED IMMEDIATELY. — ON-GOING
7. ONCE 95% GRASS COVER IA ATTAINED, REMOVE SEDIMENT CONTROLS — 3 DAYS
8. SEDIMENT AND EROSION CONTROLS CANNOT BE REMOVED UNTIL THE SITE HAS ADEQUATE STABILIZATION. ONCE VEGETATION HAS BEEN ESTABLISHED, THE SITE SHALL HAVE 95% GROUND COVER TO BE CONSIDERED ADEQUATELY STABILIZED AND THE SEDIMENT CONTROL INSPECTOR HAVE APPROVED SUCH REMOVAL. ALL AREAS WHERE SEDIMENT AND EROSION CONTROL DEVICES HAVE BEEN REMOVED SHALL BE STABILIZED IMMEDIATELY WITH SEED AND MULCH. . — 1 DAY

STANDARD SEDIMENT CONTROL NOTES

1. 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 WITH MULCH 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 AREA OF SITE 17.12 ACRES
   - AREA DISTURBED 10.10 ACRES
   - AREA TO BE ROOFED OR PAVED 5.02 ACRES
   - AREA TO BE VEGETATIVELY STABILIZED 5.08 ACRES
   - TOTAL CUT 64,972 CU. YDS.
   - TOTAL FILL 64,972 CU. YDS.
   - OFFSITE WASTE/BORROW ARE LOCATION N/A .
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 SHALL 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 BE 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.

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

[signature] 9/10/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

DEVELOPER'S CERTIFICATE

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[signature] 8/31/15
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[signature] 8/17/15
ENGINEER — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 9-21-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 9-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 9-29-15
DIRECTOR — DATE

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

PURPOSE

TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES.

ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY

STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS. PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH. VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE. SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT

INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUNDCOVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUNDCOVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUNDCOVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

PURPOSE

TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES

ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA

1. INCREMENTAL STABILIZATION - CUT SLOPES
   - A. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
   - B. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
     - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
     - b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
     - c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
     - d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

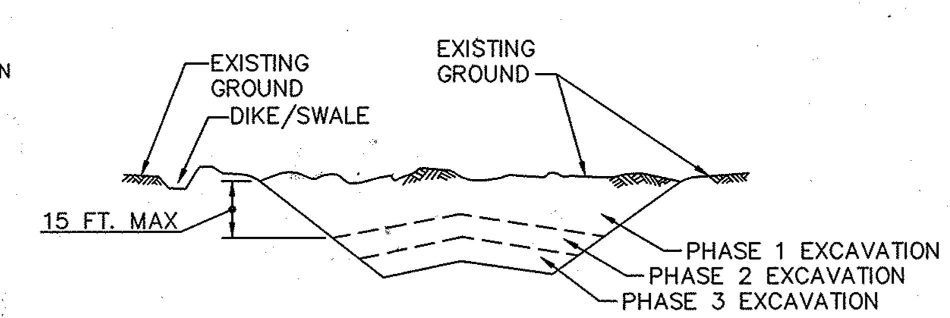
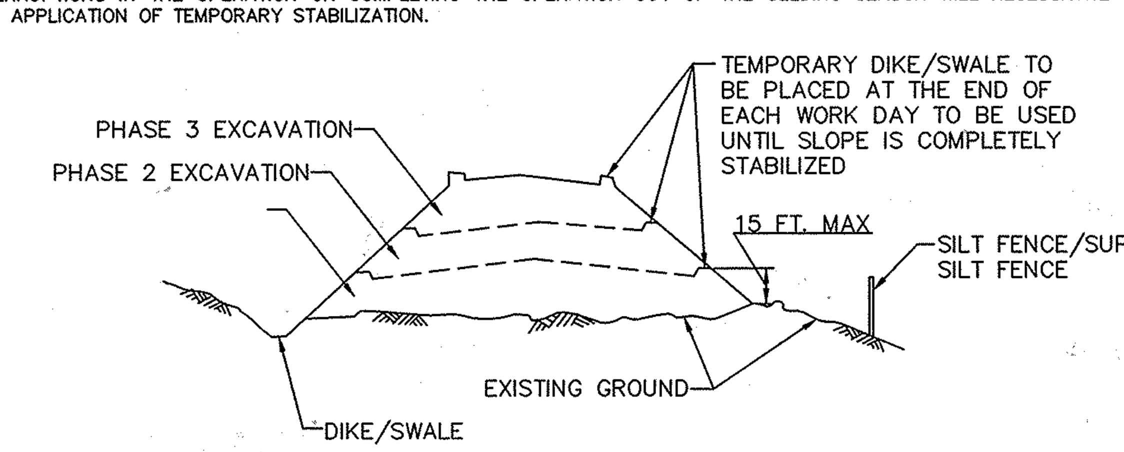


FIGURE B.1: INCREMENTAL STABILIZATION - CUT

1. INCREMENTAL STABILIZATION - FILL SLOPES
   - A. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
   - B. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
   - C. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
   - D. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
     - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
     - b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
     - c. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
     - d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
     - e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



PHASE 1 EXCAVATION
FIGURE B.2: INCREMENTAL STABILIZATION - FILL

STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

1. SOIL PREPARATION
   - A. 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 DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
     - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
     - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE 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:
     - a. SOIL PH BETWEEN 6.0 AND 7.0.
     - b. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
     - c. 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.
     - d. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
     - e. 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.
     - f. 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.
2. TOPSOILING
   - A. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
   - B. 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.
   - C. 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.
     - e. 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.
     - f. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
     - g. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
   - D. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
   - E. 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.
   - F. 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 GRADINGAND SEEDBED PREPARATION.
3. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
   - A. 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.
   - B. 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.
   - C. 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.
   - D. 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.
   - E. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE
   - F. RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.
   - G.

STANDARDS AND SPECIFICATIONS FOR LAND GRADING

DESIGN CRITERIA

THE GRADING PLAN SHOULD BE BASED ON THE INCORPORATION OF BUILDING DESIGNS AND STREET LAYOUTS THAT FIT AND UTILIZE EXISTING TOPOGRAPHY AND DESIRABLE NATURAL SURROUNDINGS TO AVOID EXTREME GRADE MODIFICATIONS. INFORMATION SUBMITTED MUST PROVIDE SUFFICIENT TOPOGRAPHIC SURVEYS AND SOIL INVESTIGATIONS TO DETERMINE LIMITATIONS THAT MUST BE IMPOSED ON THE GRADING OPERATION RELATED TO SLOPE STABILITY, ADJACENT PROPERTIES, DRAINAGE PATTERNS, MEASURES FOR WATER REMOVAL, AND VEGETATIVE TREATMENT, ETC.

MANY JURISDICTIONS HAVE REGULATIONS AND DESIGN PROCEDURES ALREADY ESTABLISHED FOR LAND GRADING THAT MUST BE FOLLOWED. THE PLAN MUST SHOW EXISTING AND PROPOSED CONTOURS FOR THE AREA(S) TO BE GRADED INCLUDING PRACTICES FOR EROSION CONTROL, SLOPE STABILIZATION, AND SAFE CONVEYANCE OF RUNOFF (E.G., WATERWAYS, LINED CHANNELS, REVERSE BENCHES, GRADE STABILIZATION STRUCTURES). THE GRADING/CONSTRUCTION PLANS ARE TO INCLUDE THE PHASING OF THESE PRACTICES AND CONSIDERATION OF THE FOLLOWING:

1. PROVISIONS TO SAFELY CONVEY SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR STABLE WATER COURSES TO ENSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.
2. CUT AND FILL SLOPES, STABILIZED WITH GRASSES, NO STEEPER THAN 2:L. (WHERE THE SLOPE IS TO BE MOWED, THE SLOPE SHOULD BE NO STEEPER THAN 3:L, BUT 4:L IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES.) SLOPES STEEPER THAN 2:L REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS TO BE SHOWN ON THE PLANS.
3. BENCHING PER DETAIL B-3-1 WHENEVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:L SLOPE EXCEEDS 20 FEET; FOR 3:L SLOPES, WHEN IT EXCEEDS 30 FEET; AND FOR 4:L SLOPES, WHEN IT EXCEEDS 40 FEET. LOCATE BENCHES TO DIVIDE THE SLOPE FACE AS EQUALLY AS POSSIBLE AND TO CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, ROCK OUTCROPS, ETC. ARE TO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.
   - A. PROVIDE BENCHES WITH A MINIMUM WIDTH OF SIX FEET FOR EASE OF MAINTENANCE.
   - B. DESIGN BENCHES WITH A REVERSE SLOPE OF 6:L OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. GRADE THE LONGITUDINAL SLOPE OF THE BENCH BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.
   - C. THE MAXIMUM ALLOWABLE FLOW LENGTH WITHIN A BENCH IS 800 FEET UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.
4. DIVERSION OF SURFACE WATER FROM THE FACE OF ALL CUT AND FILL SLOPES USING EARTH DIKES OR SWALES. CONVEY SURFACE WATER DOWN SLOPE USING A DESIGNED STRUCTURE, AND:
   - A. PROTECT THE FACE OF ALL GRADED SLOPES FROM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.
   - B. DO NOT SUBJECT THE SLOPE'S FACE TO ANY CONCENTRATED FLOW OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGE WAYS, GRADED SWALES, DOWNSPOUTS, ETC.
   - C. PROTECT THE FACE OF THE SLOPE BY SPECIAL EROSION CONTROL MATERIALS TO INCLUDE, BUT NOT BE LIMITED TO, APPROVED VEGETATIVE STABILIZATION PRACTICES, RIPRAP OR OTHER APPROVED STABILIZATION METHODS.
5. SERRATED SLOPE AS SHOWN IN DETAIL B-3-2. THE STEEPEST ALLOWABLE SLOPE FOR RIPABLE ROCK IS 1.5:1. FOR NON ROCK SURFACES, THE SLOPES ARE TO BE 2:1 OR FLATTER. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THUS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION.
6. SUBSURFACE DRAINAGE PROVISIONS. PROVIDE SUBSURFACE DRAINAGE WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.
7. PROXIMITY TO ADJACENT PROPERTY. SLOPES MUST NOT BE CREATED CLOSE TO PROPERTY LINES WITHOUT ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED DAMAGES.
8. QUALITY OF FILL MATERIAL. FILL MATERIAL MUST BE FREE OF BRUSH, RUBBISH, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIAL. DO NOT PLACE FROZEN MATERIALS IN THE FILL NOR PLACE THE FILL MATERIAL ON A FROZEN FOUNDATION.
9. STABILIZATION. STABILIZE ALL DISTURBED AREAS STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH SECTION B-4 STANDARDS AND SPECIFICATIONS FOR STABILIZATION PRACTICES.

MAINTENANCE

THE LINE, GRADE, AND CROSS SECTION OF BENCHING AND SERRATED SLOPES MUST BE MAINTAINED. BENCHES AND SERRATED SLOPES MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

STOCKPILE AREA

PURPOSE

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

CRITERIA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE
2. EROSION AND SEDIMENT CONTROL PLAN.
   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.

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REVISIONS

NO.	DATE		BY

[Seal: STATE OF MARYLAND, NICHOLAS A. BARRICK, PROFESSIONAL ENGINEER, 33772] 8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT
SEDIMENT AND EROSION CONTROL NOTES & DETAILS
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-3.03
DRAWN	SCALE	SHEET NO. 34 OF 47	
BRA	1"=50'		

SDP-14-090

STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

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

1. SEEDING
   A. 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.

   B. 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 B.1, PERMANENT SEEDING TABLE B.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; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (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.

2. MULCHING
   A. MULCH MATERIALS (IN ORDER OF PREFERENCE)
      a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
      b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO 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.
   B. 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.
   C. 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.

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/10/15

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — DATE 8/31/15

ENGINEER'S CERTIFICATE

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

ENGINEER — DATE 8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.17.15

DIRECTOR — DATE 9-29-15

STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

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

TEMPORARY SEEDING TABLE

HARDINESS ZONE (FROM FIGURE B.3): 6B					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
1	BARLEY	96	3/1-5/31 8/1-10/15	1.0"	436 LB/AC (10LB/1000SF)	2 TONS/AC (90LB/1000SF)
2	CEREAL RYE	112	3/1-5/15 8/1-11/15	1.0"		
3	FOXTAIL MILLET	30	5/16-7/31	0.5"		

STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

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

1. SEED MIXTURES
   A. GENERAL USE
      a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.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 ½ 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.
   B. 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 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
      ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE 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
         WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
         CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
         SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15,
         AUGUST 15 TO OCTOBER 15
         (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 (½ 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 TABLE

HARDINESS ZONE (FROM FIGURE B.3): 6B					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
4	DEERTONGUE CREEPING RED FESCUE VIRGINIA WILD RYE	15 20 5	3/1-5/15 5/16-6/15	0.5"	45LB/AC (1LB/1000SF)	90LB/AC (2LB/1000SF)	90LB/AC (2LB/1000SF)	2 TONS/AC (90LB/1000SF)
6	TALL FESCUE PERENNIAL RYEGRASS WHITE CLOVER	40 25 5	3/1-5/15 8/1-10/15	0.5"				
9	TALL FESCUE KENTUCKY BLUEGRASS	60 40	3/1-5/15 8/1-10/15	0.5"				

2. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).
   A. 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 ¾ INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN 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.
   B. 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.
   C. 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 ⅓ 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.

GEOTEXTILE FABRICS

		WOVEN SILT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE[1]					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM D-4632	200 LB	200 LB	370 LB	250 LB	200 LB	200 LB
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 LB	75 LB	100 LB	60 LB	80 LB	80 LB
PUNCTURE STRENGTH	ASTM D-6241	450 LB		900 LB		450 LB	
APPARENT OPENING SIZE[2]	ASTM D-4751	U.S. SIEVE 30 (0.59 mm)		U.S. SIEVE 70 (0.21 mm)		U.S. SIEVE 70 (0.21 mm)	
PERMITTIVITY	ASTM D-4491	0.05 SEC^{-1}		0.28 SEC^{-1}		1.1 SEC^{-1}	
ULTRAVIOLET RESISTEANCE RETAINED AT 500 HOURS	ASTM D-4355	70% STRENGTH		70% STRENGTH			

ALL NUMERIC VALUES EXCEPT APPARENT OPENING SIZE (AOS) REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.

VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.

GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO THE VALUES IN TABLE H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT.

TABLE H.2: STONE SIZE

TYPE	SIZE RANGE	D_{50}	D_{100}	AASHTO	MIDSIZE WEIGHT[3]
NUMBER 57[1]	3/8 TO 1-1/2 INCH	1/2 IN	1-1/2 IN	M-43	N/A
NUMBER 1	2 TO 3 INCH	2-1/2 IN	3 IN	M-43	N/A
RIPRAP[2] (CLASS 0)	4 TO 7 INCH	5-1/2 IN	7 IN	N/A	N/A
CLASS I	N/A	9-1/2 IN	15 IN	N/A	40 LB
CLASS II	N/A	16 IN	24 IN	N/A	200 LB
CLASS III	N/A	23 IN	34 IN	N/A	600 LB

1 THIS CLASSIFICATION IS TO BE USED ON THE UPSTREAM FACE OF STONE OUTLETS AND CHECK DAMS.

2 THIS CLASSIFICATION IS TO BE USED FOR GABIONS.

3 OPTIMUM GRADATION IS 50 PERCENT OF THE STONE BEING ABOVE AND 50 PERCENT BELOW THE MIDSIZE.

STONE MUST BE COMPOSED OF A WELL GRADED MIXTURE OF STONE SIZED SO THAT FIFTY (50) PERCENT OF THE PIECES BY WEIGHT ARE LARGER THAN THE SIZE DETERMINED BY USING THE CHARTS. A WELL GRADED MIXTURE, AS USED HEREIN, IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE SIZES BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE IN SUCH A MIXTURE MUST NOT EXCEED THE RESPECTIVE D100 SELECTED FROM TABLE H.2. THE D50 REFERS TO THE MEDIAN DIAMETER OF THE STONE. THIS IS THE SIZE FOR WHICH 50 PERCENT, BY WEIGHT, WILL BE SMALLER AND 50 PERCENT WILL BE LARGER.

NOTE: RECYCLED CONCRETE EQUIVALENT MAY BE SUBSTITUTED FOR ALL STONE CLASSIFICATIONS FOR TEMPORARY CONTROL MEASURES ONLY. CONCRETE BROKEN INTO THE SIZES MEETING THE APPROPRIATE CLASSIFICATION, CONTAINING NO STEEL REINFORCEMENT, AND HAVING A MINIMUM DENSITY OF 150 POUNDS PER CUBIC FOOT MAY BE USED AS AN EQUIVALENT.

KCI TECHNOLOGIES
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SCIENTISTS
CONSTRUCTION MANAGERS
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REVISIONS

NO.	DATE		BY

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

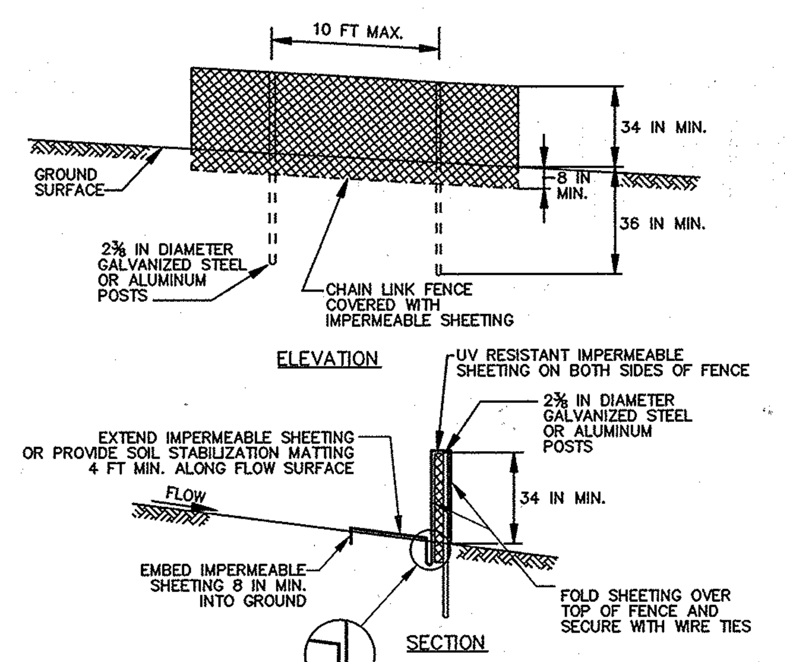
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-3.04
DRAWN BRA	SCALE AS SHOWN	SHEET NO. 35 OF 47	

SDP-14-090

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL
|—— DF ——|

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

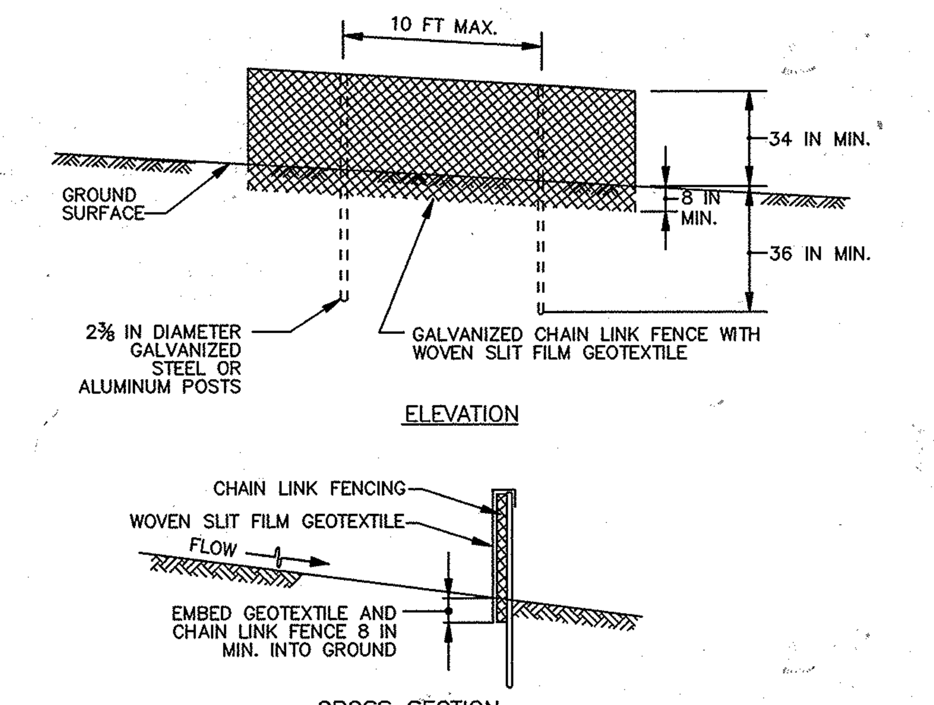
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

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-3 SUPER SILT FENCE

STANDARD SYMBOL
|—— SSF ——|



CONSTRUCTION SPECIFICATIONS

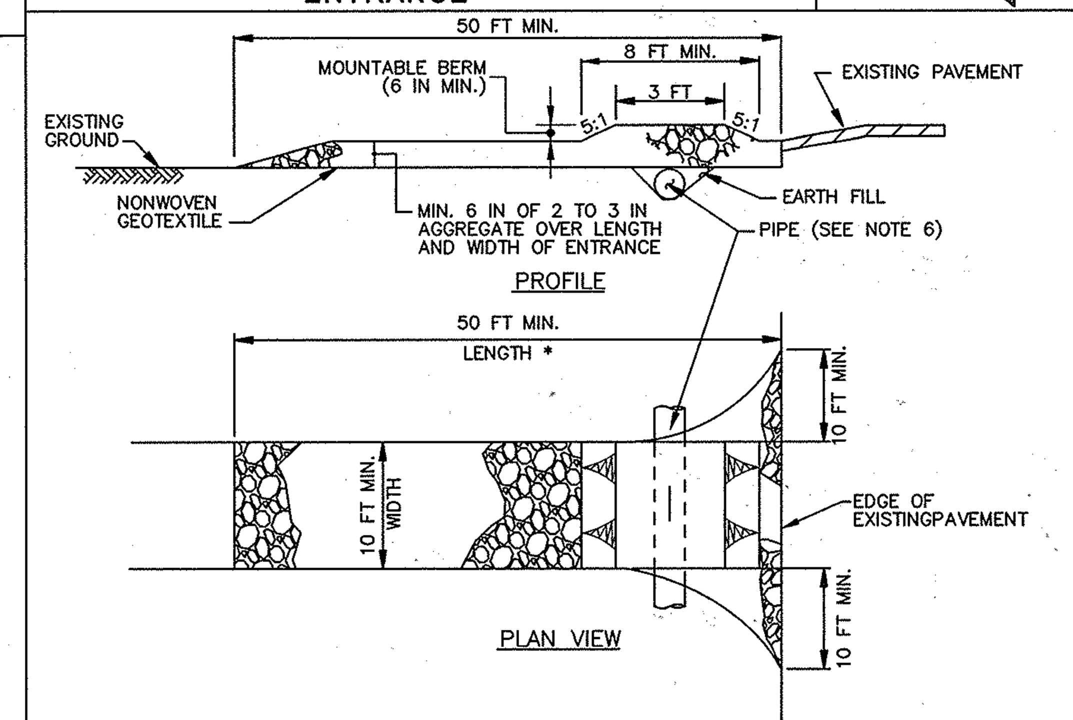
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY 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 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.

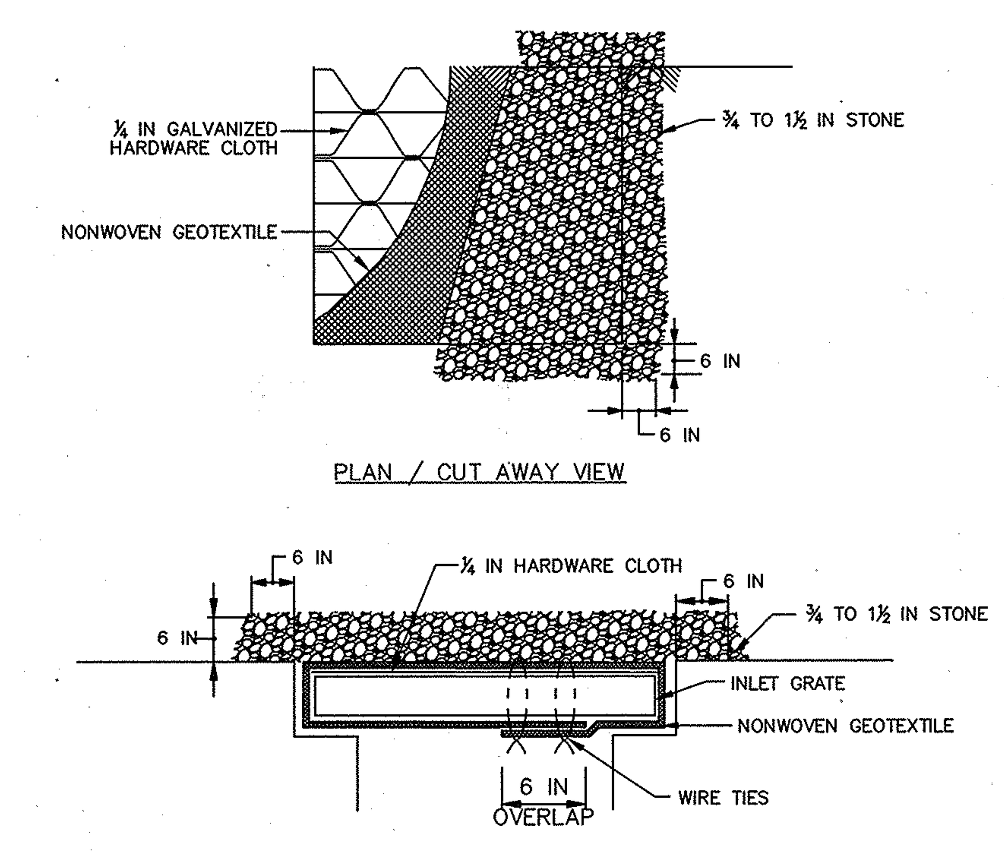
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL
AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

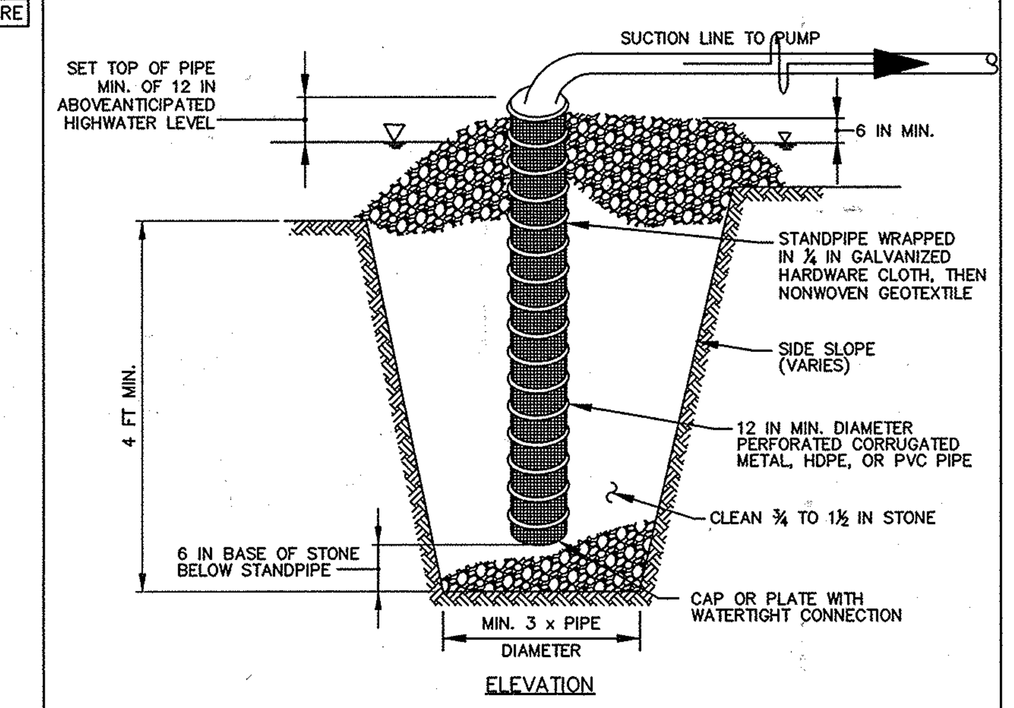
1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM 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.

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 F-2 SUMP PIT

STANDARD SYMBOL
☒SP



CONSTRUCTION SPECIFICATIONS

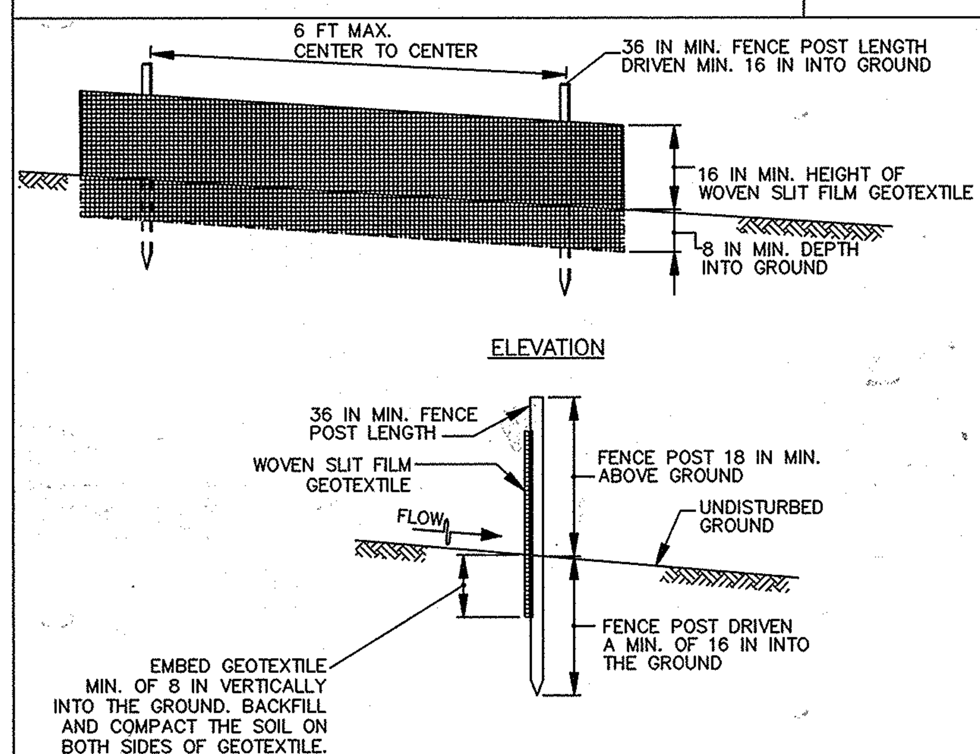
1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

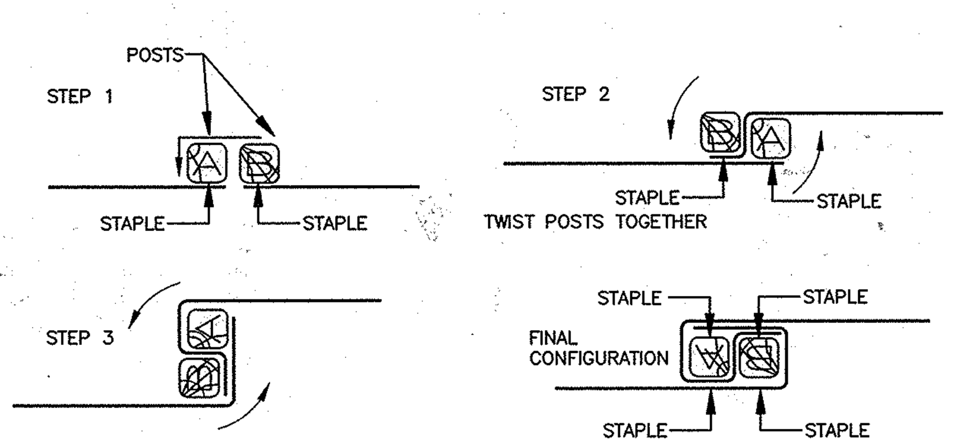
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-1 SILT FENCE

STANDARD SYMBOL
|—— SF ——|





JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

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-1 SILT FENCE

STANDARD SYMBOL
|—— SF ——|

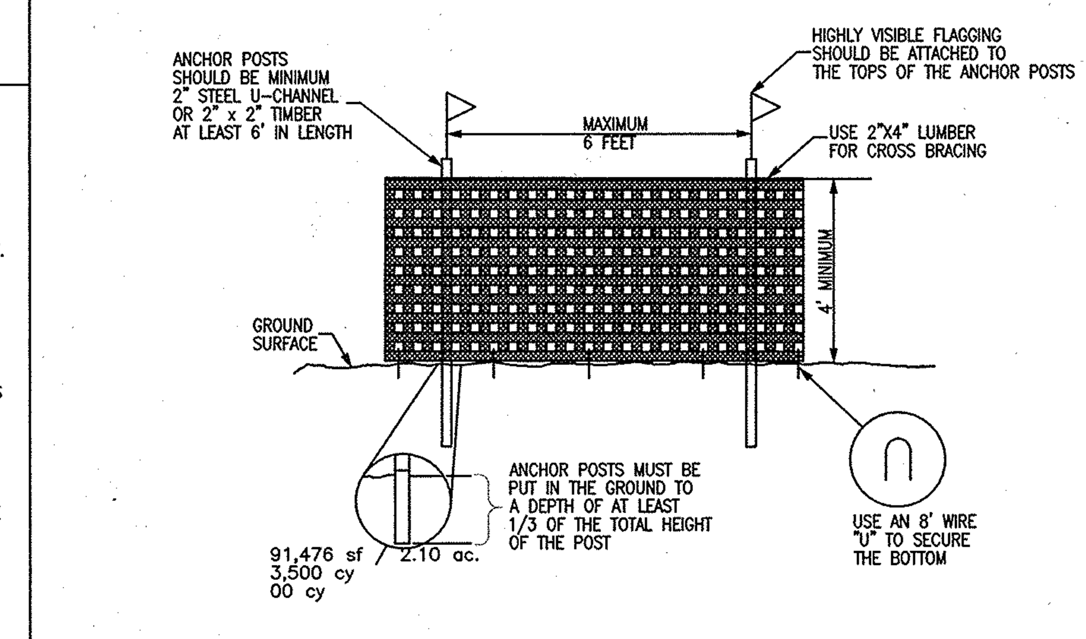
CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 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.

2 OF 2

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



91,476 sf / 2.10 ac.
3,500 cy
00 cy

GENERAL NOTES

1. Limits of disturbance will be set as part of the review process for an approved TCP.
2. The boundaries of the limits of disturbance should be staked or flagged prior to erecting the protection device.
3. Anchor posts should be placed to avoid severing or damaging large tree roots.
4. Fencing material shall be fastened securely to the anchor posts, cross bracing and ground.

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — 9/10/15 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — 8/31/15 DATE

ENGINEER'S CERTIFICATE

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

ENGINEER — 8/17/15 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9.21.15 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9.17.15 DATE

DIRECTOR — 9-29-15 DATE

8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

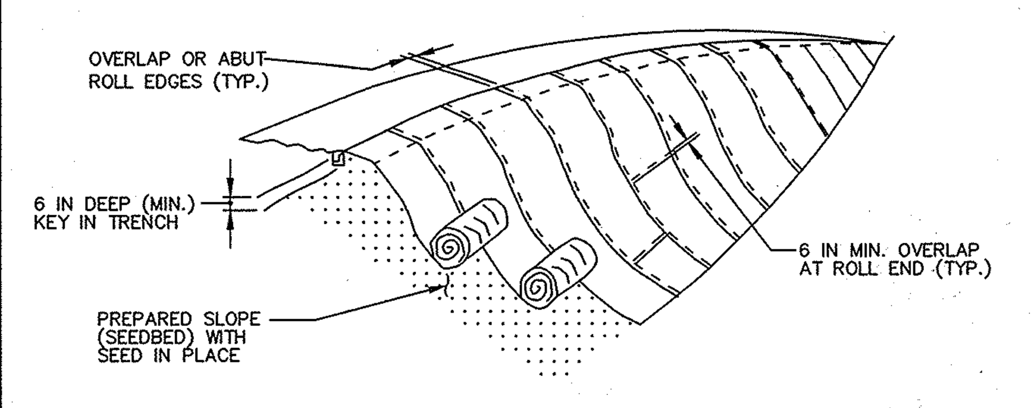
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE 1"=50'	SHEET NO. 36 OF 47	C-3.05

SDP-14-090

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
TSSMS – * lb/ft²
(* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

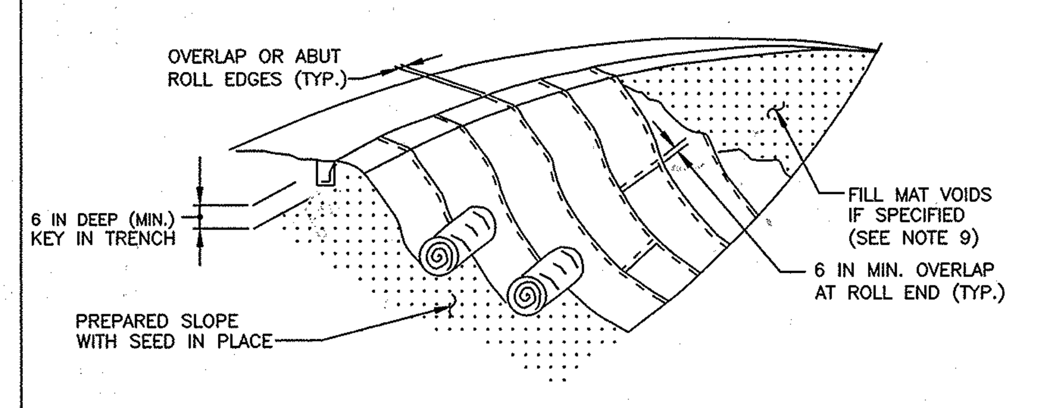
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN–MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. 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, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. 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 1½ 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 A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH–SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED 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 & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE 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. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION.

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 B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL
PSSMS – * lb/ft²
(* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

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 1½ 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 DOWN SLOPE. 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 DOWNSLOPE 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.

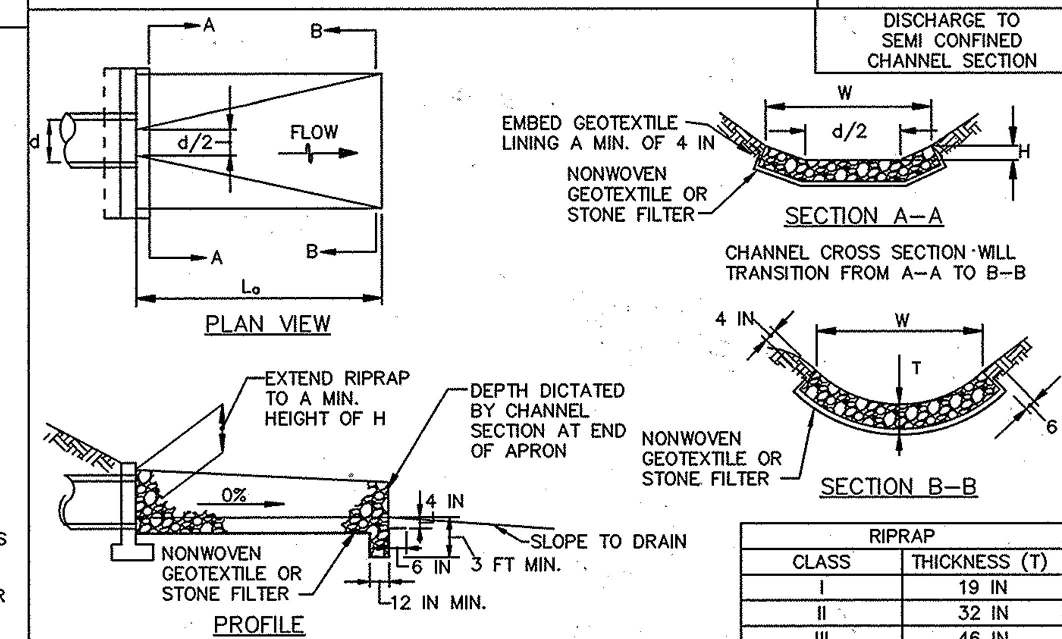
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL D-4-1-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL
ROP1

DISCHARGE TO SEMI CONFINED CHANNEL SECTION



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

CONSTRUCTION SPECIFICATIONS

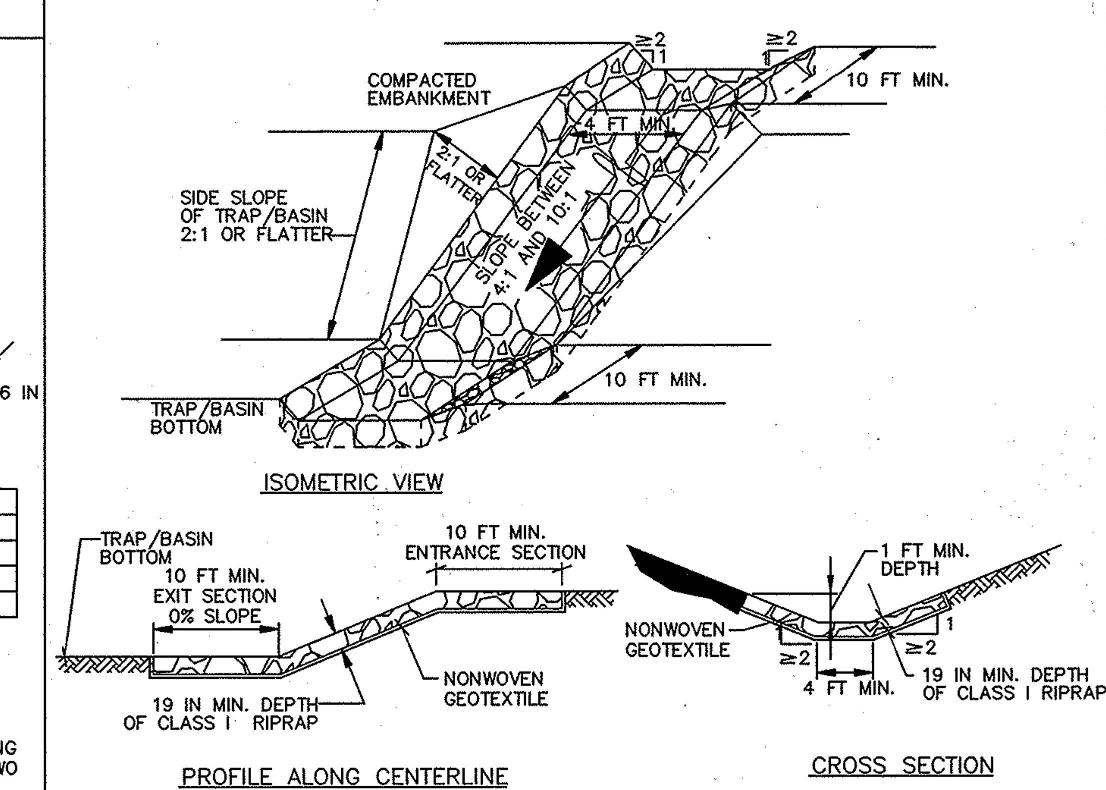
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY 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 THE 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.

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 D-3-1 RIPRAP INFLOW PROTECTION

STANDARD SYMBOL
RRP



CONSTRUCTION SPECIFICATIONS

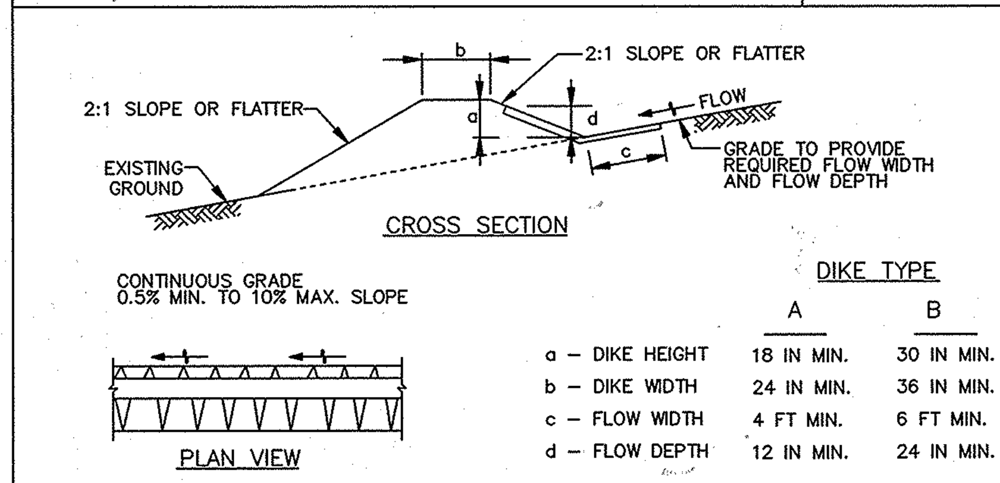
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES (2 x D_{50}) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

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 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.

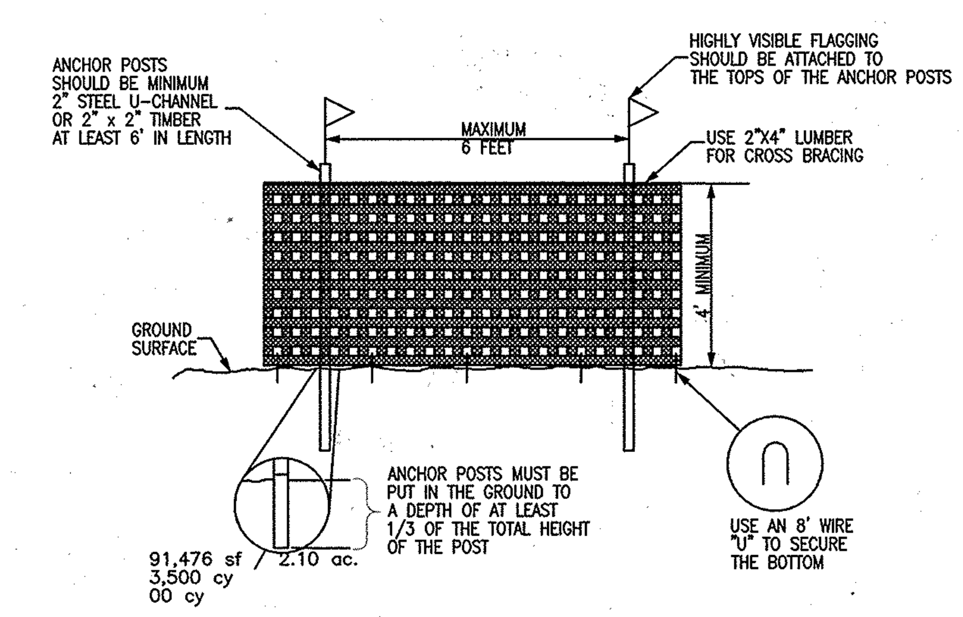
A–3/B–3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

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.

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



GENERAL NOTES

1. Limits of disturbance will be set as part of the review process for an approved TCP.
2. The boundaries of the limits of disturbance should be staked or flagged prior to erecting the protection device.
3. Anchor posts should be placed to avoid severing or damaging large tree roots.
4. Fencing material shall be fastened securely to the anchor posts, cross bracing and ground.

BLAZE ORANGE TREE PROTECTION FENCE DETAIL

NOT TO SCALE

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — 9/10/15 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — 8/31/15 DATE

ENGINEER'S CERTIFICATE

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

ENGINEER — 8/17/15 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 9-21-15 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9.17.15 DATE

DIRECTOR — 9-29-15 DATE

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS			
NO.	DATE		BY

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT
SEDIMENT AND EROSION CONTROL NOTES & DETAILS

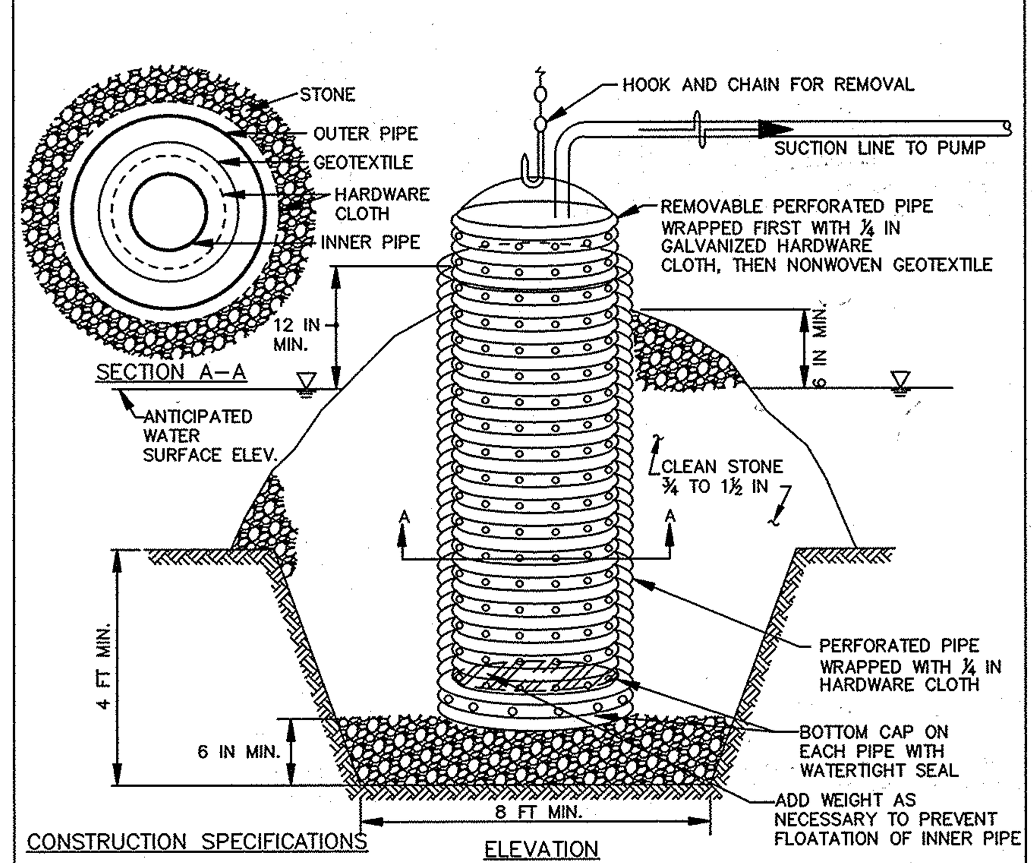
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE	SHEET NO. 37 OF 47	C–3.06

SDP–14–090

DETAIL F-1 REMOVABLE PUMPING STATION

☒RPS



CONSTRUCTION SPECIFICATIONS

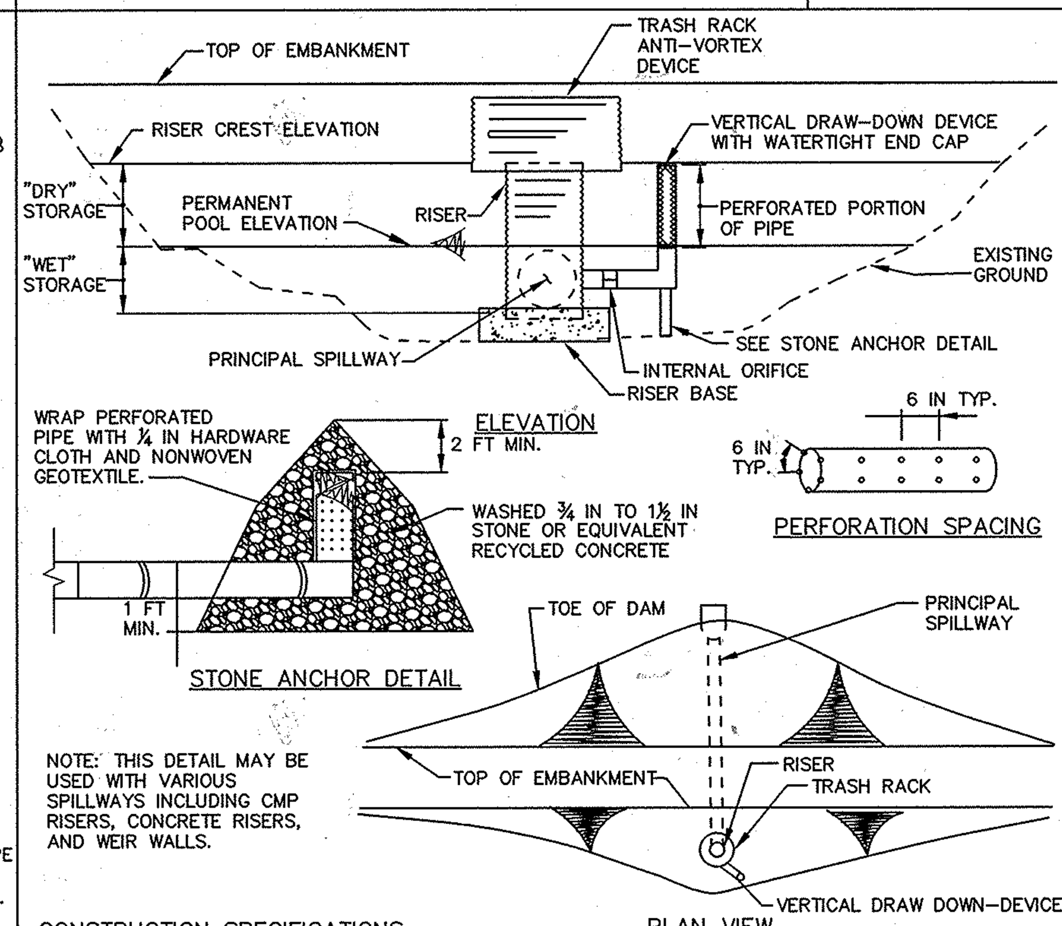
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

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 G-2-7 SEDIMENT BASIN SCHEMATIC VERTICAL DRAW-DOWN DEVICE

STANDARD SYMBOL VDDD



CONSTRUCTION SPECIFICATIONS

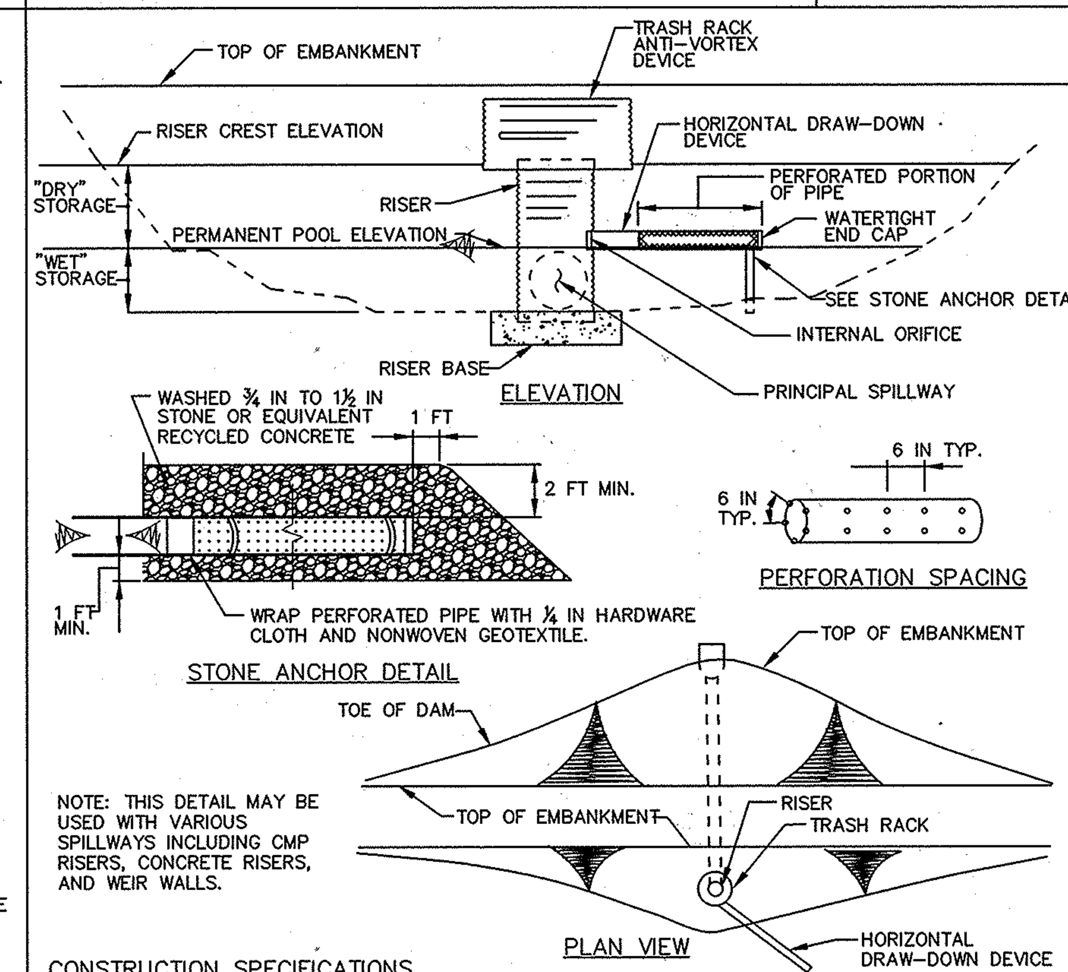
1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. DO NOT EXTEND PERFORATIONS IN THE DRAW–DOWN DEVICE INTO WET STORAGE.
3. WRAP THE PERFORATED PORTION OF THE DRAW–DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
4. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW–DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW–DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
5. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

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 G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

STANDARD SYMBOL HDDD



CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW–DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW–DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW–DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

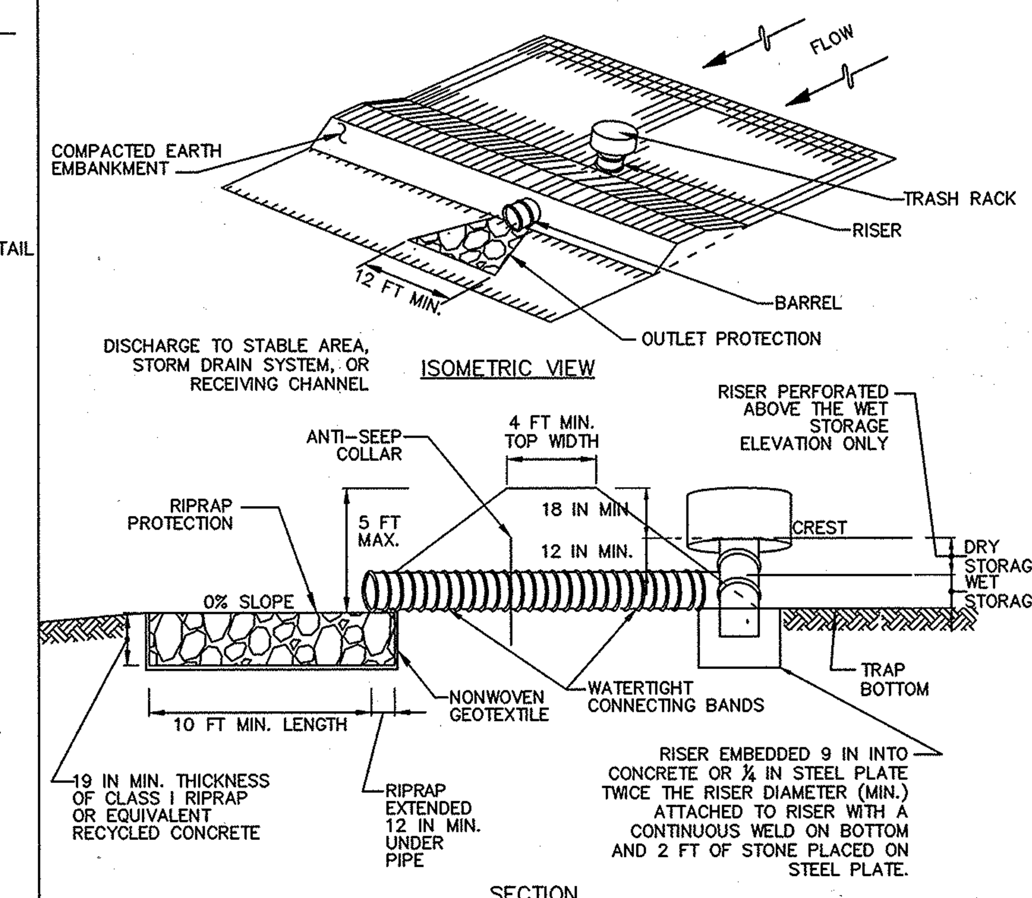
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

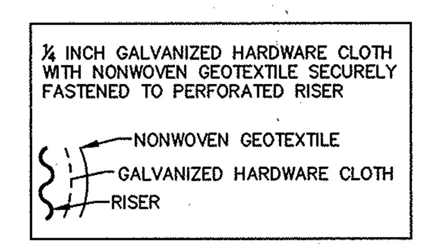
DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL ST–I

MAXIMUM DRAINAGE AREA = 5 ACRES



NOTE:
REFER TO DETAIL G–2–1 – TYPICAL ANTI–SEEP COLLARS
REFER TO DETAIL G–2–2 – RISER BASE
REFER TO DETAIL G–2–3 – CONCENTRIC TRASH RACK AND ANTI–VORTEX DEVICE



1 OF 3

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. PERFORATE THE RISER WITH 1 INCH DIAMETER HOLES SPACED 6 INCHES ON CENTER WITH THE LOWEST PERFORATIONS AT THE WET STORAGE ELEVATION OR PROVIDE A HORIZONTAL OR VERTICAL DRAW–DOWN DEVICE PERFORATED ACCORDING TO APPROVED PLAN. DO NOT PERFORATE THE RISER WITHIN 6 INCHES OF THE TOP OF THE HORIZONTAL BARREL.
4. SET RISER/BARREL ASSEMBLY PRIOR TO EMBANKMENT CONSTRUCTION. MAKE ALL PIPE CONNECTIONS WATERTIGHT. OFFSET RISER FROM EMBANKEMENT TO ACCOMODATE PLACEMENT OF THE TRASH RACK. ANCHOR THE RISER WITH EITHER A REINFORCED CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
5. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
6. HAND COMPACT IN 4 INCH LAYERS FILL MATERIAL AROUND THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 FEET OF HAND COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
7. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
8. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
9. WRAP THE RISER WITH ¼ INCH GALVANIZED HARDWARE CLOTH THEN WRAP WITH NONWOVEN GEOTEXTILE. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE. EXTEND HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE ENDS OF GEOTEXTILE COME TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT CLOGGING.
10. USE STRAPS OR CONNECTING BANDS AT THE TOP AND BOTTOM OF THE GEOTEXTILE TO HOLD THE GEOTEXTILE AND HARDWARE CLOTH IN PLACE.
11. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
12. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
13. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO THE APPROVED PLAN AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
14. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.
15. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
16. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

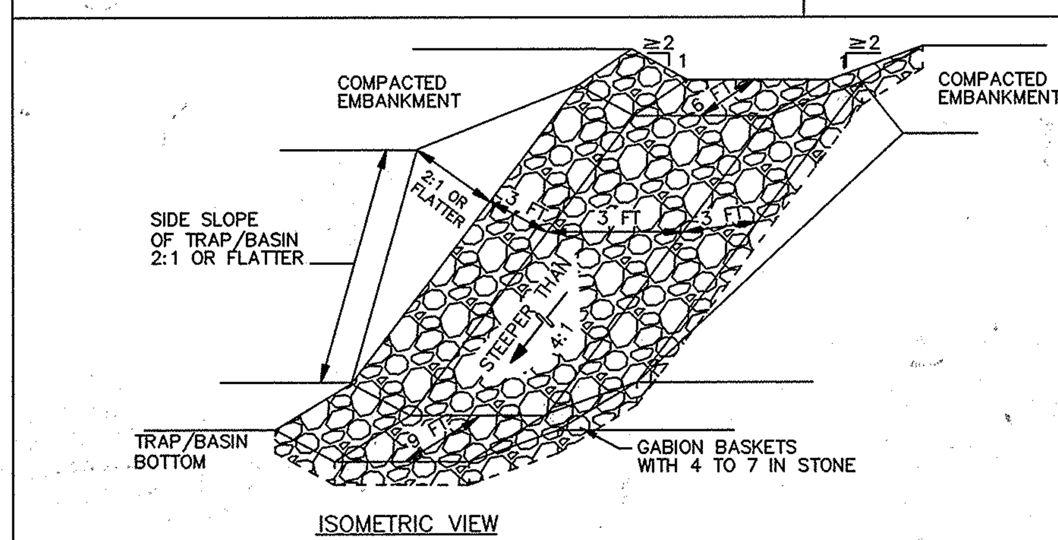
2 OF 3

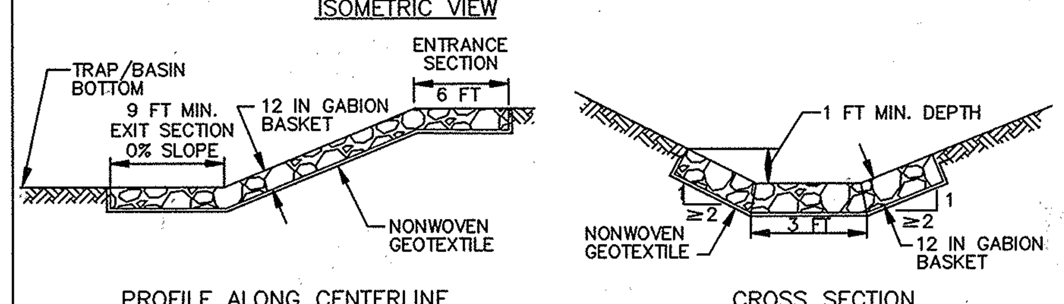
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL GP





CONSTRUCTION SPECIFICATIONS

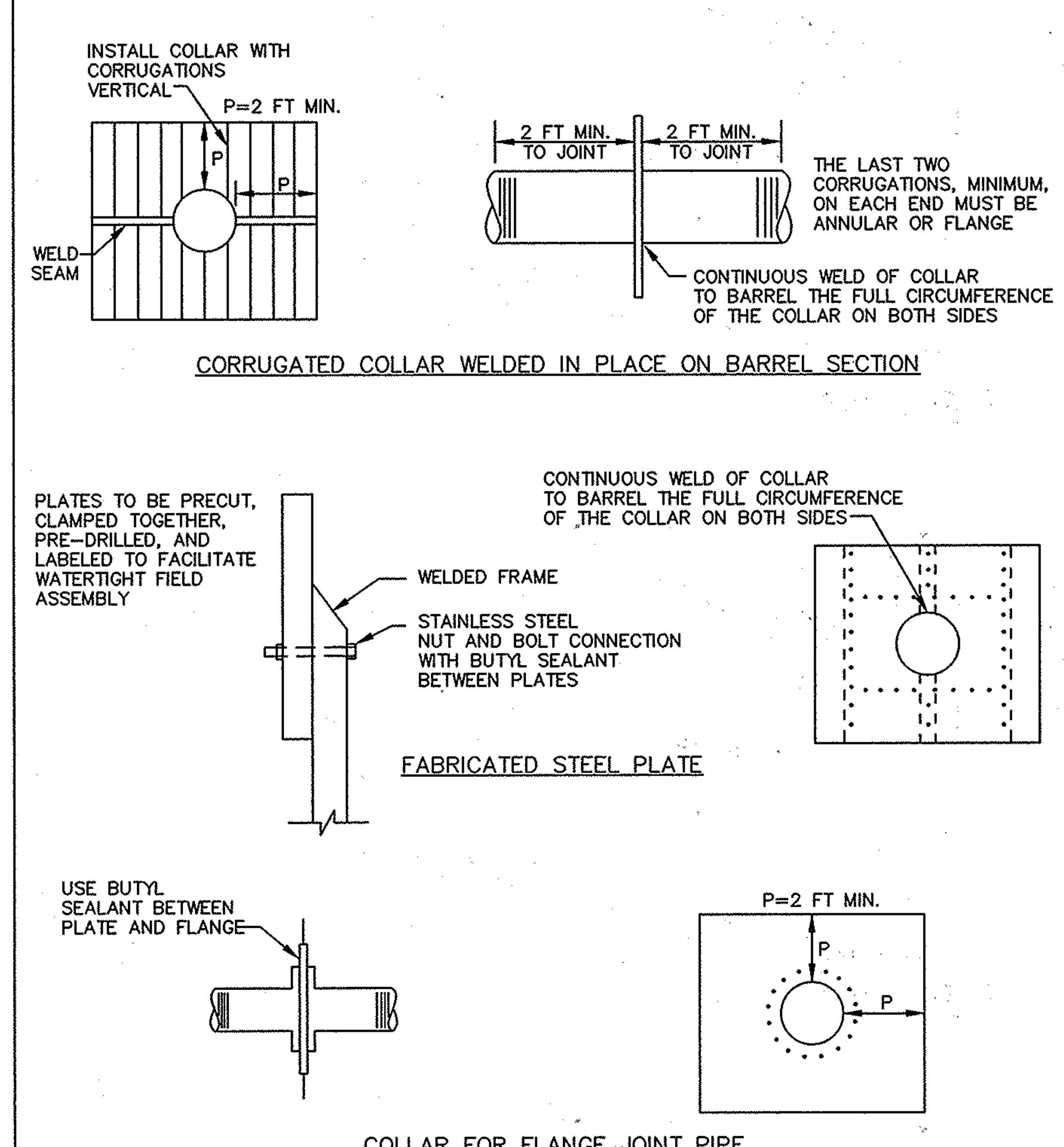
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

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 G-2-1 TYPICAL ANTI-SEEP COLLARS

STANDARD SYMBOL

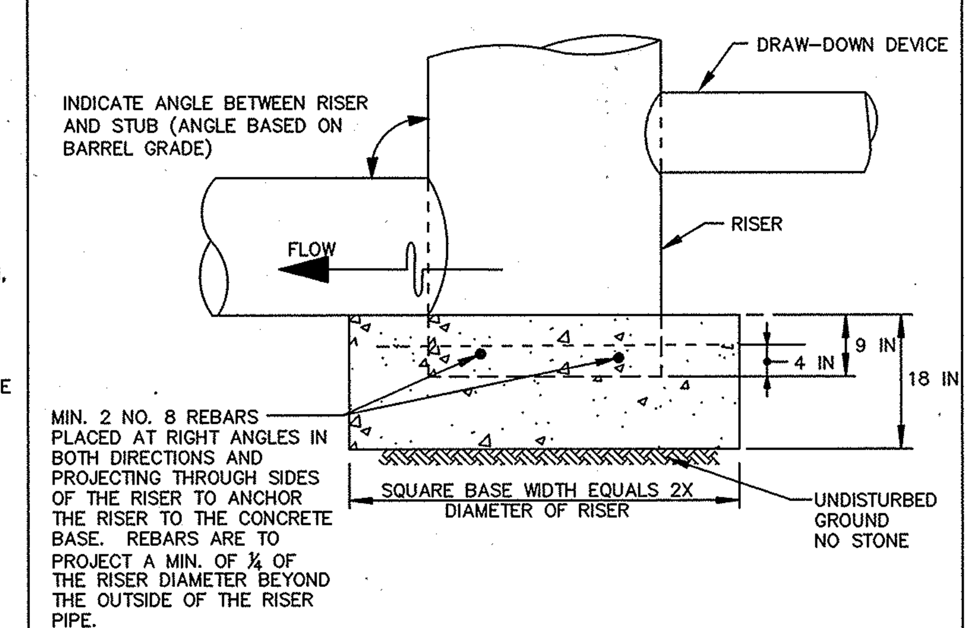


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL G-2-2 CORRUGATED RISER BASE

STANDARD SYMBOL



CONSTRUCTION SPECIFICATIONS

1. BOTTOM OF CONCRETE BASE TO BE PLACED ON UNDISTURBED, NATURAL GROUND.
2. NO STONE IS ALLOWED UNDER BASE. IF NECESSARY, TO ACHIEVE STABILITY INCREASE DEPTH OF CONCRETE BASE.

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

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/10/15

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — DATE 8/31/15

ENGINEER'S CERTIFICATE

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

ENGINEER — DATE 8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.17.15

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REVISIONS			
NO.	DATE		BY

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER

8/17/15

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OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

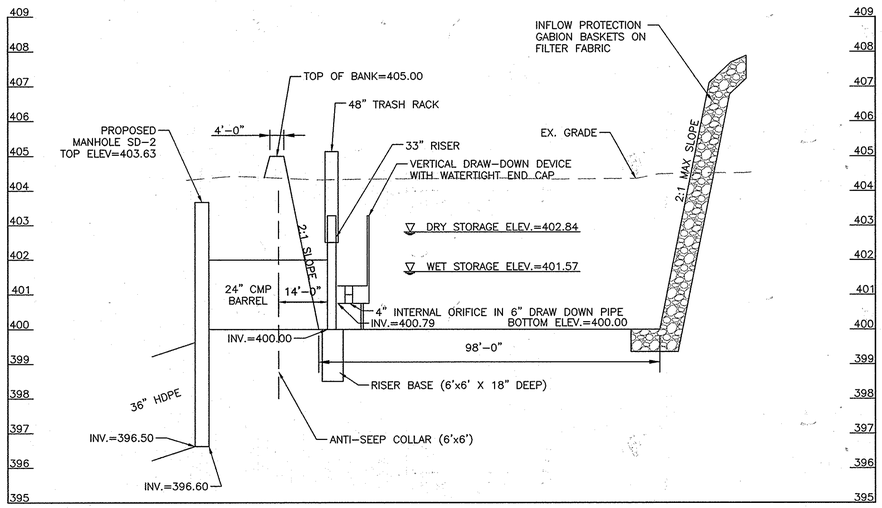
THE GATHERINGS AT ELLICOTT'S RETREAT

SEDIMENT AND EROSION CONTROL NOTES & DETAILS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

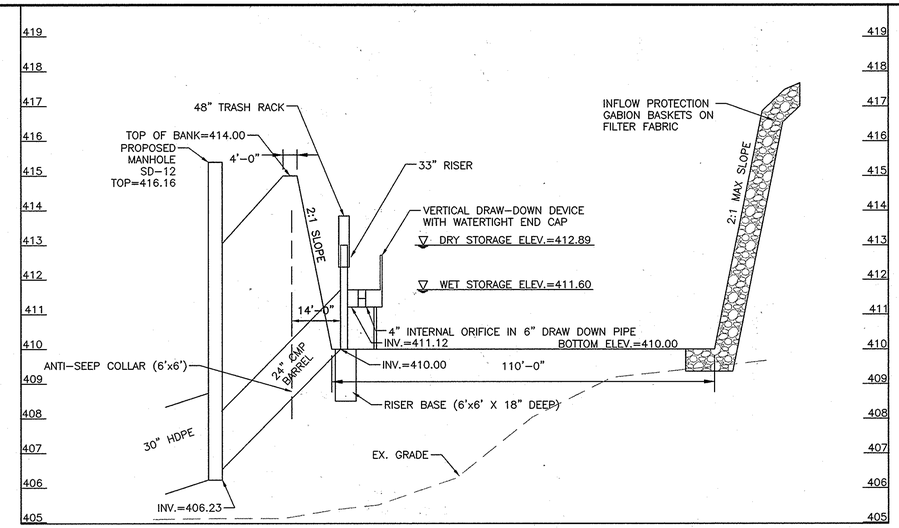
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE	SHEET NO. 38 OF 47	C–3.07

SDP–14–090



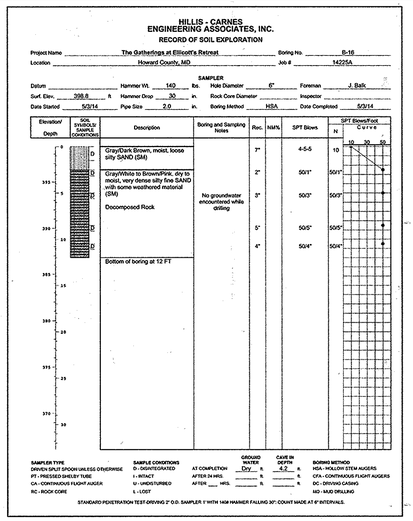
SEDIMENT TRAP '1' SECTION

SCALE: HOR: 1" = 20'
VERT: 1" = 2'



SEDIMENT BASIN '3' SECTION

SCALE: HOR: 1" = 20'
VERT: 1" = 2'



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-16
Location: Howard County, MD — Job #: 14225A

SAMPLER
Datum: — Hammer Wt. 140 lbs. — Hole Diameter 6" — Foreman: J. Belk
Surf. Elev.: 598.8 ft — Hammer Drop 30 in. — Rock Core Diameter — Inspector
Date Started 5/3/14 — Pipe Size 2.0 in. — Boring Method HSA — Date Completed 5/3/14

Elevation/ Depth	SOIL SYMBOL SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	RMT	SPT Blows	SPT Blows/Foot Curve N	10	30	50
0	D	Gray/Dark Brown, moist, loose silty SAND (SM)	No groundwater encountered while drilling	7"		4-5-5	10			
355 5	D	Gray/White to Brown/Pink, dry to moist, very dense silty fine SAND with some weathered material (SM)		2"		50/1"	50/1"			
		Decomposed Rock		3"		50/3"	50/3"			
350 10	D			5"		50/5"	50/5"			
				4"		50/4"	50/4"			
345 15		Bottom of boring at 12 FT								
340 20										
335 25										
330 30										

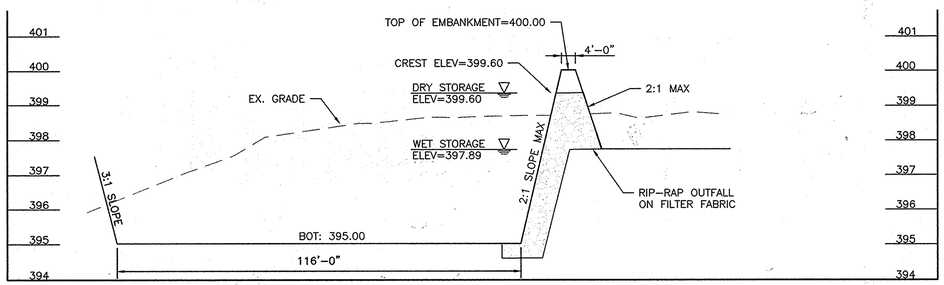
SAMPLER TYPE
DRIVEN SPLIT SPOON UNLESS OTHERWISE
PT - PRESSED SHELBY TUBE
CA - CONTINUOUS FLIGHT AUGER
RC - ROCK CORE

SAMPLE CONDITIONS
D - DISAGREGATED
I - INTACT
U - UNDISTURBED
L - LOST

GROUND WATER: AT COMPLETION Dry ft; AFTER 24 HRS. ft; AFTER ___ HRS. ft
CAVE IN DEPTH: 4.2 ft; ft; ft

BORING METHOD
HSA - HOLLOW STEM AUGERS
CFA - CONTINUOUS FLIGHT AUGERS
DC - DRIVING CASING
MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER, 1" WITH 140# HAMMER FALLING 30", COUNT MADE AT 6" INTERVALS.



SEDIMENT BASIN '2' SECTION

SCALE: HOR: 1" = 20'
VERT: 1" = 2'

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/10/15

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."

DEVELOPER — DATE 8/31/15

ENGINEER'S CERTIFICATE

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

ENGINEER — DATE 8/28/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9-17-15
DIRECTOR — DATE 9-23-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND — SHOLAR T. BRAMBLE — 33772 — PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

SEDIMENT AND EROSION CONTROL PROFILES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-3.08
DRAWN BRA	SCALE 1"=20'	SHEET NO. 39 OF 47	

SDP-14-090

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-1
Location: Howard County, MD — Job # 14225A

SAMPLER — Datum: ___ Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk
Surf. Elev. 400.81 ft Hammer Drop 30 in. Rock Core Diameter ___ Inspector ___
Date Started 5/3/14 Pipe Size 2.0 in. Boring Method HSA Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown, very moist to moist, loose to medium dense silty SAND (SM)	No groundwater encountered while drilling	6"		2-3-3	6
		10"		8-11-15	26
Bottom of boring at 5 FT					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 3.0 ft.; AFTER 24 HRS. ___ ft. ___ ft.; AFTER ___ HRS. ___ ft. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-2

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-2 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 399.9 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown, moist, loose silty SAND (SM)		12"		3-4-6	10
Dark Brown/Black, moist, medium dense silty SAND with fragmented rock (SM)		9"		18-13-7	20
Dark Brown/Black, moist, silty very dense GRAVEL and SAND (GM-SM)	No groundwater encountered while drilling	3"		50/3"	50/3"
Dark Brown/Brown/Beige to Beige, moist to dry, medium dense silty SAND (SM)		10"		6-6-8	14
		12"		7-8-15	23
Bottom of boring at 15 FT	Backfilled after 24 hours				

Ground water / Cave in depth: At completion Dry ft. 6.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-3

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-3 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 415.1 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown/Orange, moist, very loose sandy SILT to silty SAND with fine roots (SM-ML)	1" of Topsoil	7"		2-2-3	5
Dark Brown/Beige, moist, medium dense silty SAND with fragmented rock (SM)		5"		9-10-9	19
Light Brown/Orange, moist, medium dense to dense sandy SILT to silty SAND with fragmented rock (SM-ML)	No groundwater encountered while drilling	11"		5-5-7	12
		12"		8-11-27	38
Tan, dry, very dense silty SAND with some weathered material (SM) Decomposed Rock	Backfilled after 24 hours	1"		50/1"	50/1"
Bottom of boring at 13.6 FT					

Ground water / Cave in depth: At completion Dry ft. 6.5 ft.; After 24 hrs. 6.0 ft. 8.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-4

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-4 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 416.9 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Brown, moist, medium dense silty GRAVEL and SAND (GM-SM)		7"		3-5-6	11
Brown, moist, medium dense silty SAND (SM)		8"		4-5-6	11
	No groundwater encountered while drilling	10"		5-6-5	11
Gray/Light Brown, moist, very dense silty fine to coarse SAND (SM) Decomposed Rock		3"		50/5"	50/5"
Orange-Brown/Brown, moist, very dense silty SAND with weathered material (SM) Decomposed Rock	Backfilled after 24 hours	4"		50/4"	50/4"
Bottom of boring at 13.8 FT First try refusal at 2.5 FT					

Ground water / Cave in depth: At completion Dry ft. 6.3 ft.; After 24 hrs. Dry ft. 4.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-5

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-5 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 405.88 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown/Brown, moist, loose sandy SILT to silty SAND (SM-ML) with some fragmented rock		8"		2-3-5	8
Dark Brown/Gray/Tan, moist, medium dense silty GRAVEL and SAND (GM-SM) with fragmented rock		10"		22-16-11	27
Brown/Orange/Black, moist, medium to very dense silty SAND (SM)	No groundwater encountered while drilling	14"		5-9-12	21
		12"		11-25-29	54
Bottom of boring at 10 FT	Backfilled after 24 hours				

Ground water / Cave in depth: At completion Dry ft. 4.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-6

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-6 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 400.9 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Brown/Orange, moist, loose to very loose silty SAND with fine roots (SM)		10"		2-3-4	7
		11"		2-2-3	5
Orange/Brown/Gray, very moist, medium dense sandy SILT to silty SAND (SM-ML) with fragmented rock	No groundwater encountered while drilling	10"		11-7-9	16
		14"		7-14-16	30
Brown/Tan/White/Black, moist, very dense silty SAND (SM) Decomposed Rock		14"		32-38-43	81
		5"		50/5"	50/5"
Bottom of boring at 18.9 FT					

Ground water / Cave in depth: At completion Dry ft. 9.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-7

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-7 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 406.0 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown, moist, loose, silty SAND (SM) with fragmented rock and some trace clay		7"		2-2-4	6
Dark Brown/Black, moist, loose, sandy SILT to silty SAND (SM-ML)	No groundwater encountered while drilling	8"		3-3-5	8
Bottom of boring at 5 FT					

Ground water / Cave in depth: At completion ___ ft. ___ ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-8

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-8 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 421.1 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Brown/Orange/White, moist, medium dense silty SAND and GRAVEL, with fragmented rock (GM-SM)	0" Topsoil	7"		4-9-10	19
Brown/White/Black, moist, very dense silty SAND with some fragmented rock (SM)		10"		17-20-37	57
Brown/Orange/White, moist, dense silty SAND and GRAVEL (GM-SM) with fragmented rock	Groundwater encountered at 5 FT while drilling	14"		12-13-18	31
Dark Brown/Orange, moist, dense silty SAND with some fragmented rock (SM)		11"		11-20-28	48
Dark Brown, moist, dense SILT with some find sand (ML)		8"		11-17-31	48
Bottom of boring at 12 FT	Backfilled after 24 hours				

Ground water / Cave in depth: At completion 2.5 ft. 6.0 ft.; After 24 hrs. 3.0 ft. 5.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-9

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-9 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 415.3 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Brown/Tan, moist, loose silty SAND (SM) Possible Fill	No groundwater encountered while drilling	8"		2-3-4	7
Orange-Brown/Light Brown, moist, medium stiff silty CLAY with some sand (CL-ML) Possible Fill		11"		4-4-5	9
Bottom of boring at 5 FT					

Ground water / Cave in depth: At completion Dry ft. 3.3 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-10

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-10 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 432.2 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown, moist, very loose, silty SAND with fragmented rock (SM) Fill Material		12"		1-1-3	4
Dark Brown, moist, medium dense to loose silty SAND with fine roots (SM) Fill Material		12"		4-4-7	11
	No groundwater encountered while drilling	14"		3-4-6	10
Dark Brown/Brown, moist, loose silty SAND with fragmented rock (SM) Fill Material		6"		6-3-3	6
Dark Brown/Black, moist, medium dense silty SAND and GRAVEL (GM-SM)		10"		16-17-5	22
Dark Orange/Tan, moist, medium dense clayey SAND with some silt and fragmented rock (SC)	Backfilled after 24 hours	10"		20-7-12	19
Bottom of boring at 20 FT					

Ground water / Cave in depth: At completion Dry ft. 15.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-11

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-11 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 425.1 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown/Dark Gray, moist, loose silty SAND (SM) Possible Fill		8"		2-2-4	6
Dark Brown/Dark Gray, moist, medium dense silty SAND with fragmented rock (SM) Possible Fill		14"		6-5-8	13
Dark Brown/Dark Gray, moist, medium dense silty SAND with fragmented rock (SM)	No groundwater encountered while drilling	8"		5-8-20	28
		14"		3-4-24	28
Dark Orange-Brown, moist, medium dense silty SAND(SM)		10"		2-3-8	11
Bottom of boring at 15 FT First refusal at 7.5 FT Offset 4 FT toward B-10	Backfilled after 24 hours				

Ground water / Cave in depth: At completion Dry ft. 12.6 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-12

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-12 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 421.5 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Dark Brown/Brown/Black, moist, loose clayey SILT with roots (CL-ML)	1" of Topsoil	6"		1-2-4	6
Dark Brown/Orange, moist, medium dense sandy SILT to silty SAND with some clay and fragmented rock (SM-ML)		10"		7-10-11	21
Dark Brown/Orange, moist, medium dense sandy SILT to silty fine to coarse SAND with some clay (SM-ML)	No groundwater encountered while drilling	14"		5-6-8	16
Tan/Orange-Brown, moist, medium dense silty fine to coarse SAND (SM)	Backfilled after 24 hours	18"		6-8-9	17
Bottom of boring at 10 FT					

Ground water / Cave in depth: At completion Dry ft. 5.0 ft.; After 24 hrs. Dry ft. 4.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-13

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-13 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 433.3 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Mottled Dark Brown/Orange, moist, very loose to medium dense sandy SILT to silty SAND (SM-ML) Possible Fill	3" Topsoil	14"		1-2-3	5
		18"		4-4-5	9
		16"		6-6-8	14
	No groundwater encountered while drilling	12"		3-4-6	10
		14"		6-7-8	15
Orange-Brown/Black/Gray, moist, medium dense silty SAND (SM)		16"		9-12-15	27
Brown/Orange/Beige, moist, medium dense silty SAND with trace clay and fragmented rock (SM)		16"		11-12-17	29
Bottom of boring at 22 FT					

Ground water / Cave in depth: At completion Dry ft. 17.2 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-14

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-14 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 433.5 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Brown, moist, very soft clayey SILT with fine roots (CL-ML) Possible Fill	1" of Topsoil	8"		1-1-1	2
Dark Gray, moist, very dense, silty SAND (SM) Decomposed Rock	No groundwater encountered while drilling	7"		6-50/5"	50/5"
Pink/White, dry, very dense GRAVEL (GP) Decomposed Rock	Backfilled after 24 hours	1"		50/1"	50/1"
Bottom of boring at 5.1 FT Auger refusal at 4 FT first try, refusal at 5.1FT second try. Offset 6'					

Ground water / Cave in depth: At completion Dry ft. 3.0 ft.; After 24 hrs. Dry ft. 2.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION — B-15

Project Name: The Gatherings at Ellicott's Retreat — Boring No. B-15 — Location: Howard County, MD — Job # 14225A
Hammer Wt. 140 lbs. Hole Diameter 6" Foreman J. Balk; Surf. Elev. 438.2 ft; Hammer Drop 30 in.; Date Started 5/3/14; Pipe Size 2.0 in.; Boring Method HSA; Date Completed 5/3/14

Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	N
Brown/Dark Brown/Orange/White, moist, loose silty SAND (SM)	1" of Topsoil	5"		1-4-3	7
Dark Brown/Black to Gray, moist to dry, very dense silty SAND (SM) Decomposed Rock		7"		50/2"	50/2"
	No groundwater encountered while drilling	1"		50/1"	50/1"
		5"		50/5"	50/5"
Bottom of boring at 12 FT Auger refusal at 12 FT	Backfilled after 24 hours				

Ground water / Cave in depth: At completion Dry ft. 5.0 ft.; After 24 hrs. Dry ft. 4.0 ft.

REVIEWED BY HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 9/10/15

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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."
DEVELOPER — DATE 8/3/15

ENGINEER'S CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IS WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
ENGINEER — DATE 8/17/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.17.15
DIRECTOR — DATE 9-29-15

STATE OF MARYLAND — NICHOLAS A. BARRICK — 33772 — PROFESSIONAL ENGINEER — 8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE, SUITE A, FULTON, MD 20759
TELEPHONE: (410) 792-8086 FAX: (410) 792-7419

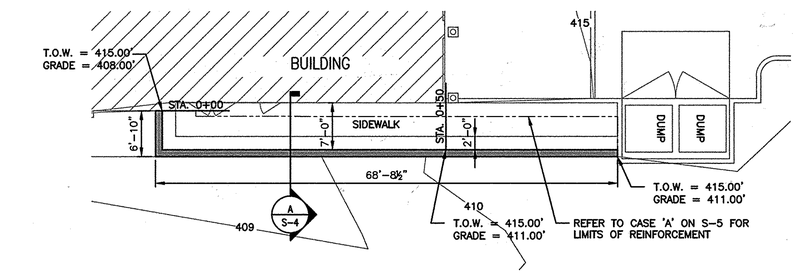
REVISIONS		
NO.	DATE	BY

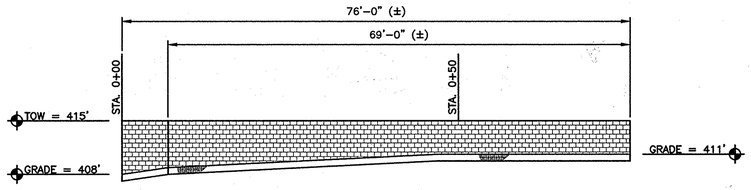
OWNER/DEVELOPER: COMMERCIAL CONTRACTORS INC. 1205 YORK ROAD LUTHERVILLE-TIMONIUM, MD 21093 (410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT
SEDIMENT AND EROSION CONTROL BORING LOGS
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

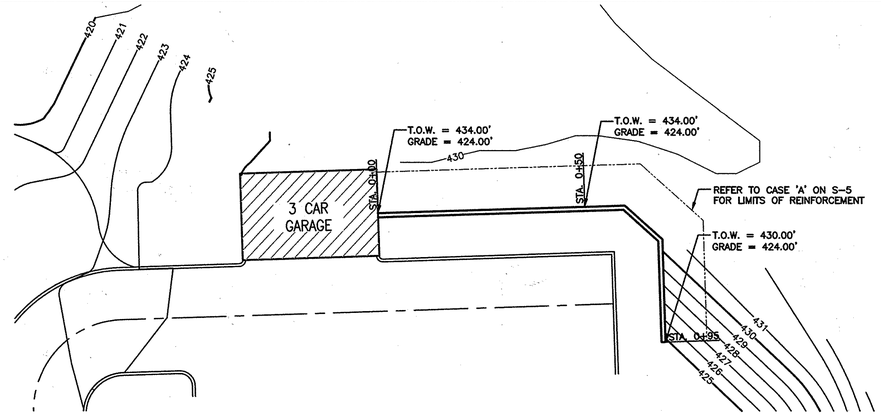
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. C-3.09
DRAWN BRA	SCALE 1"=20'	SHEET NO. 40 OF 47	

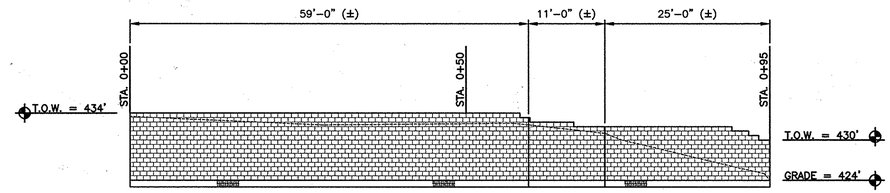
SDP-14-090



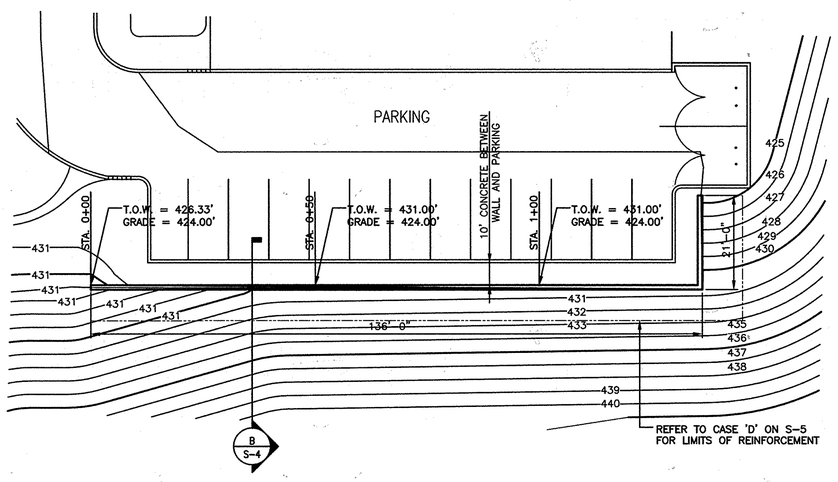


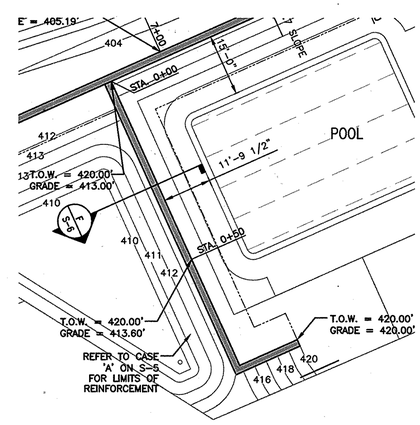
WALL A
SCALE: 3/32" = 1'-0"

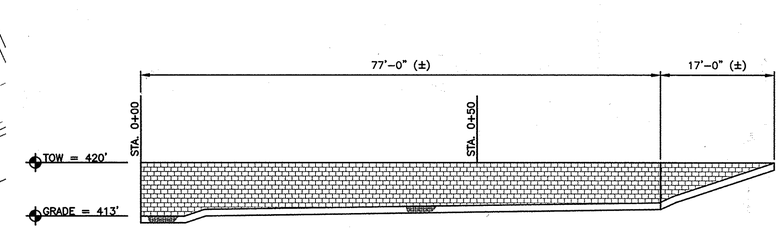




WALL C
SCALE: 3/32" = 1'-0"



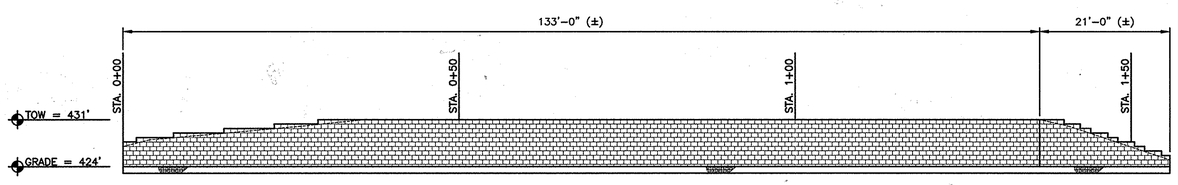




WALL E
SCALE: 3/32" = 1'-0"

PLAN NOTES:

1.) REFER TO C1.01 FOR WALL LOCATIONS
2.) ALL WALLS WILL HAVE A 4" CAP AND ARE NOT SHOWN ON PROFILES.



WALL B
SCALE: 3/32" = 1'-0"

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-8086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.21.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15

STATE OF MARYLAND
LEONARD HERBERT BRAUN
No. 17372
REGISTERED PROFESSIONAL ENGINEER
1/27/2015 8-12-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17372 EXP. DATE: 06/03/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

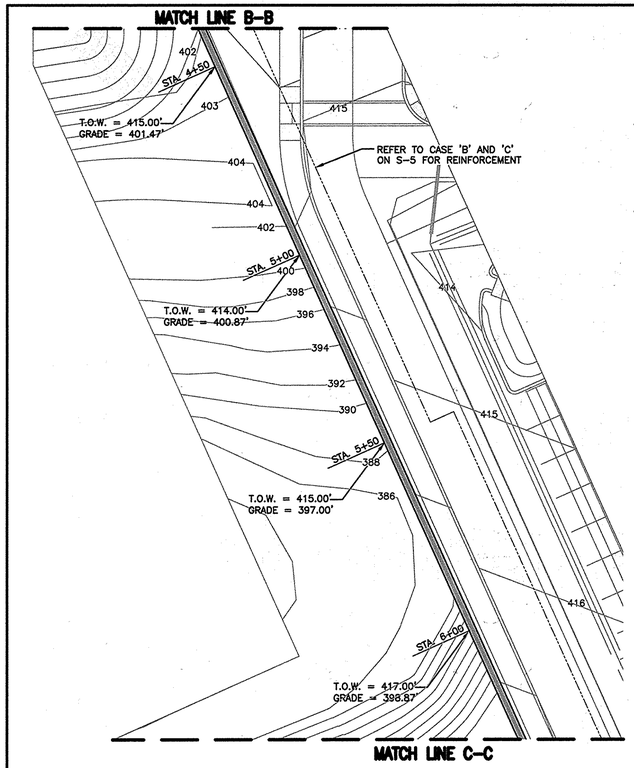
THE GATHERINGS AT ELLICOTT'S RETREAT

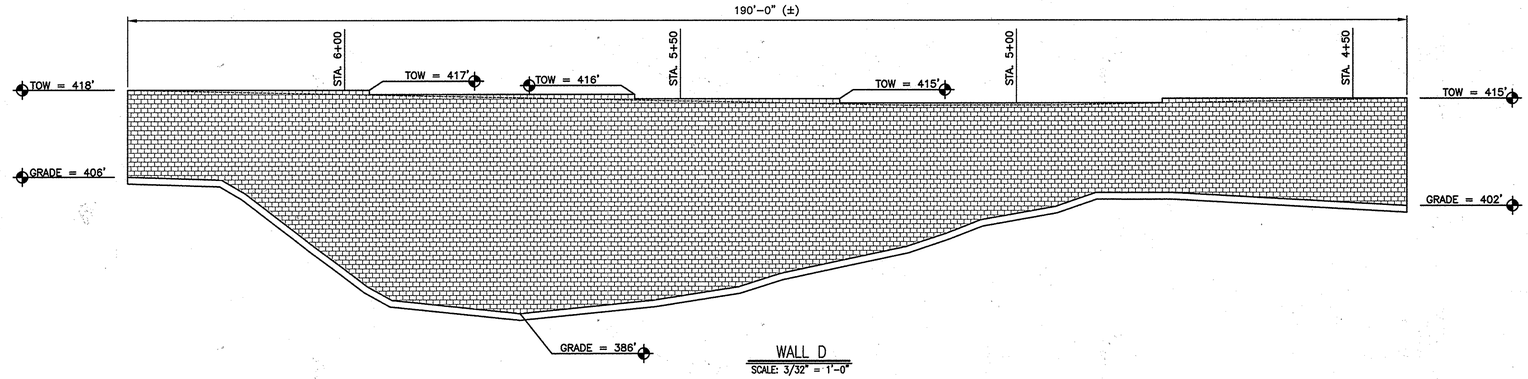
WALL PROFILES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

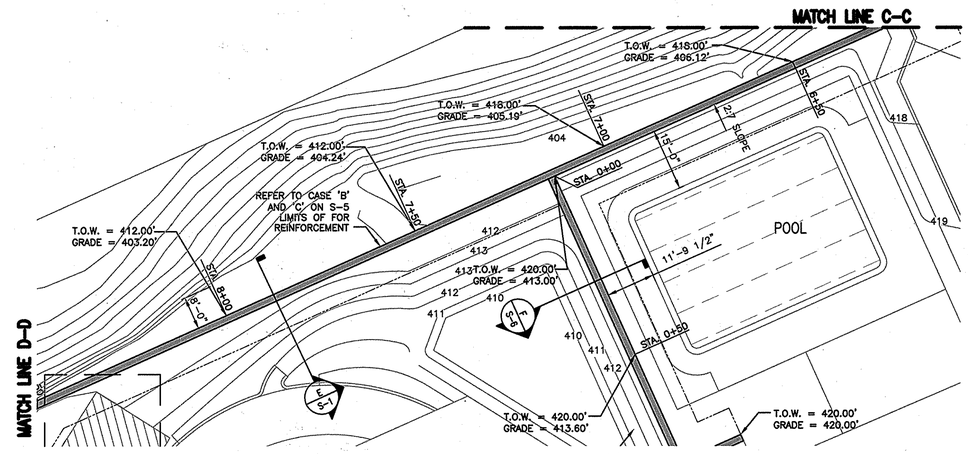
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		S-1
DRAWN	SCALE	SHEET NO. 41 OF 47	
BRA			

SDP-14-090





WALL D
SCALE: 3/32" = 1'-0"



PLAN NOTES:
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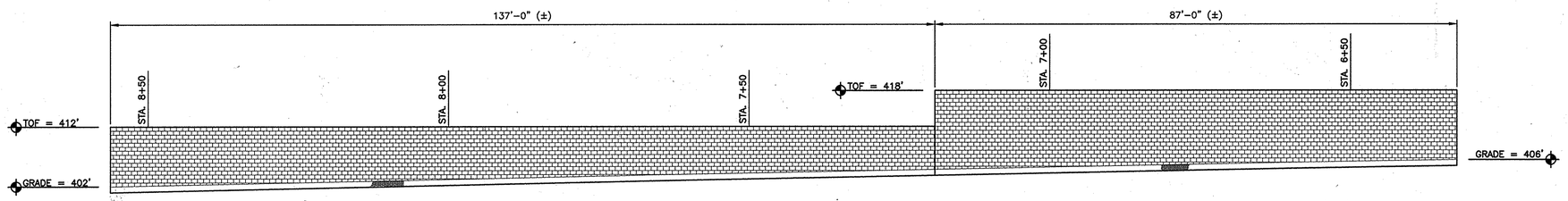
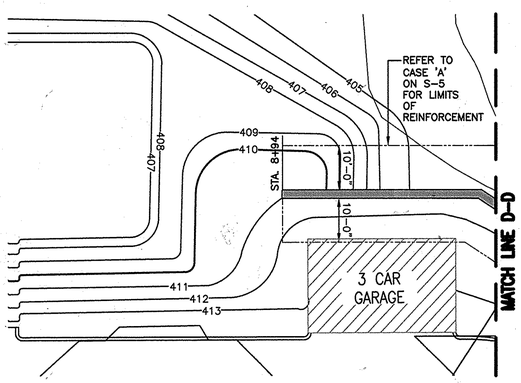
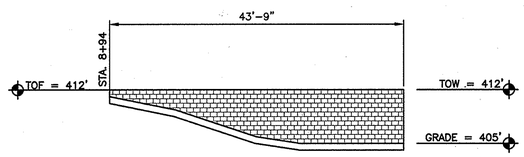


WALL D
SCALE: 3/32" = 1'-0"





WALL D
SCALE: 3/32" = 1'-0"

KCI TECHNOLOGIES
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REVISIONS			
NO.	DATE		BY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-24-15

STATE OF MARYLAND
KEVIN A. STUTZ
No. 17372
REGISTERED PROFESSIONAL ENGINEER

1/27/2014

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17372 EXP. DATE: 06/03/2017

OWNER/DEVELOPER:
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1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

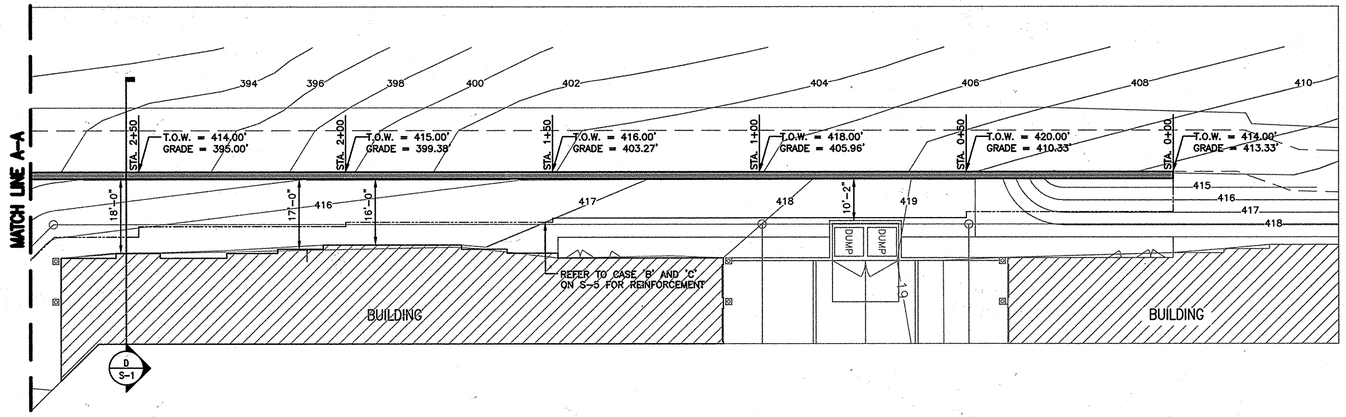
THE GATHERINGS AT ELLICOTT'S RETREAT

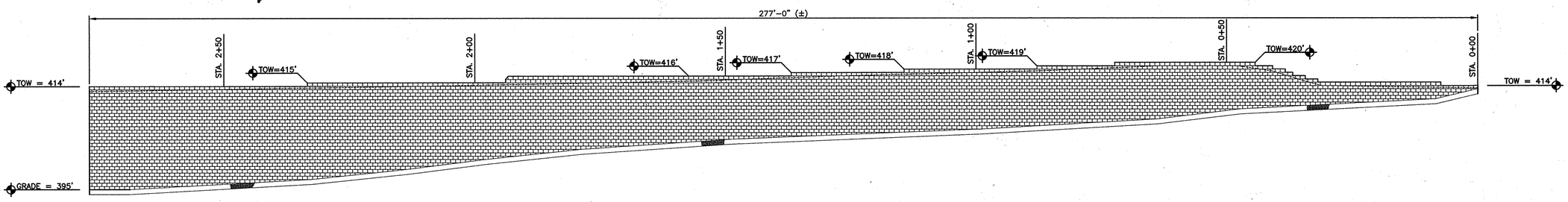
WALL PROFILES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

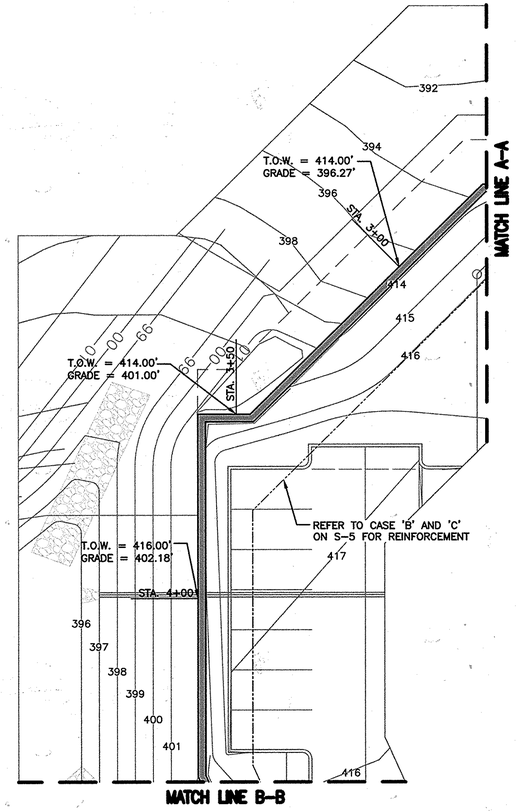
DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. S-2
DRAWN BRA	SCALE	SHEET NO. 42 OF 47	

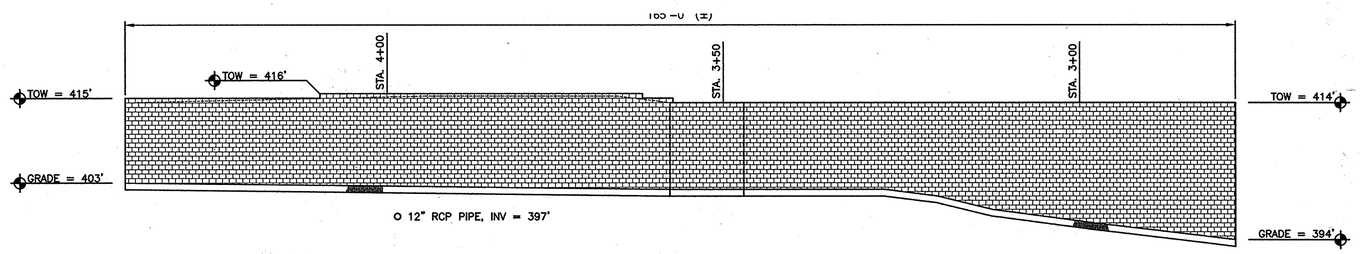
SDP-14-090





WALL D
SCALE: 3/32" = 1'-0"





WALL D
SCALE: 3/32" = 1'-0"

PLAN NOTES:
1.) REFER TO C1.01 FOR WALL LOCATIONS
2.) ALL WALLS WILL HAVE A 4" CAP AND ARE NOT SHOWN ON PROFILES.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	9-21-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9-17-15 DATE
DIRECTOR	9-29-15 DATE

KCI TECHNOLOGIES
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CONSTRUCTION MANAGERS
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TELEPHONE: (410) 792-8086
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REVISIONS

NO.	DATE		BY

STATE OF MARYLAND
LEONARD HEREDGEN
NO. 17372
REGISTERED PROFESSIONAL ENGINEER
8-12-15

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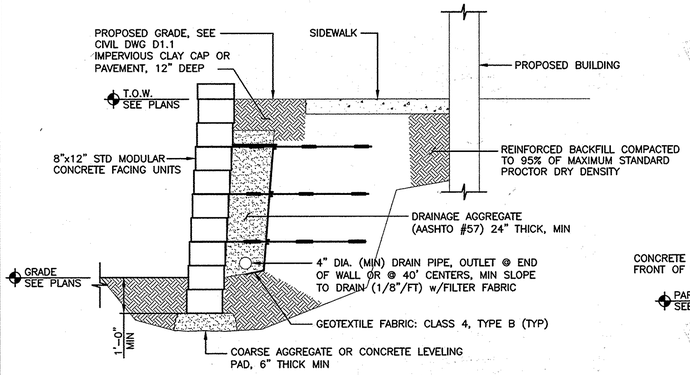
THE GATHERINGS AT ELLICOTT'S RETREAT

WALL PROFILES

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

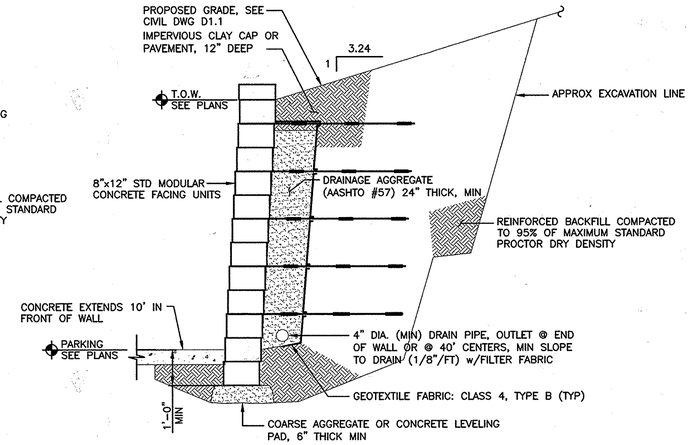
DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		S-3
DRAWN	SCALE	SHEET NO. 43 OF 47	
BRA			

SDP-14-090



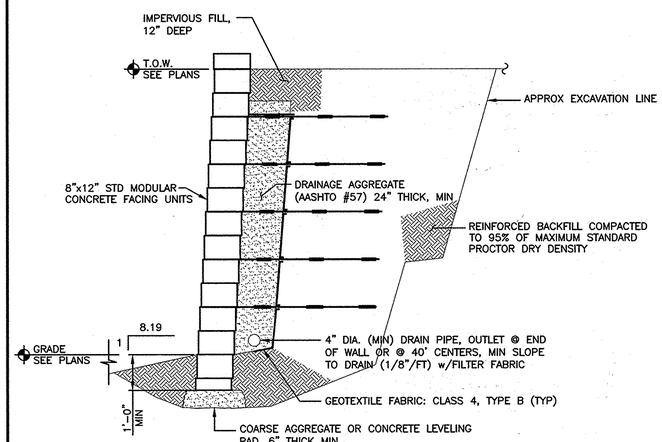
WALL A:

NOTE: REFER TO CASE 'A' ON S-5 FOR REINFORCEMENT



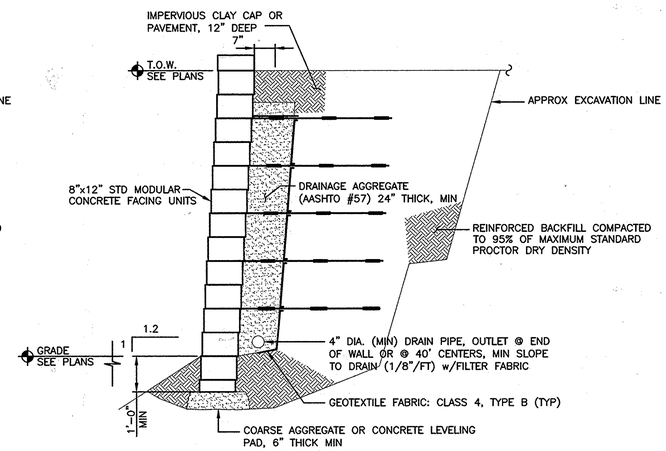
WALL B:

NOTE: REFER TO CASE E ON S-5 FOR REINFORCEMENT



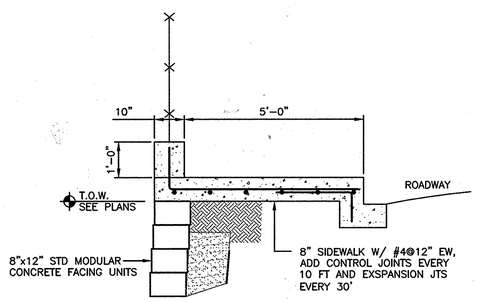
WALL C:

NOTE: REFER TO CASE 'A' ON S-5 FOR REINFORCEMENT



WALL E:

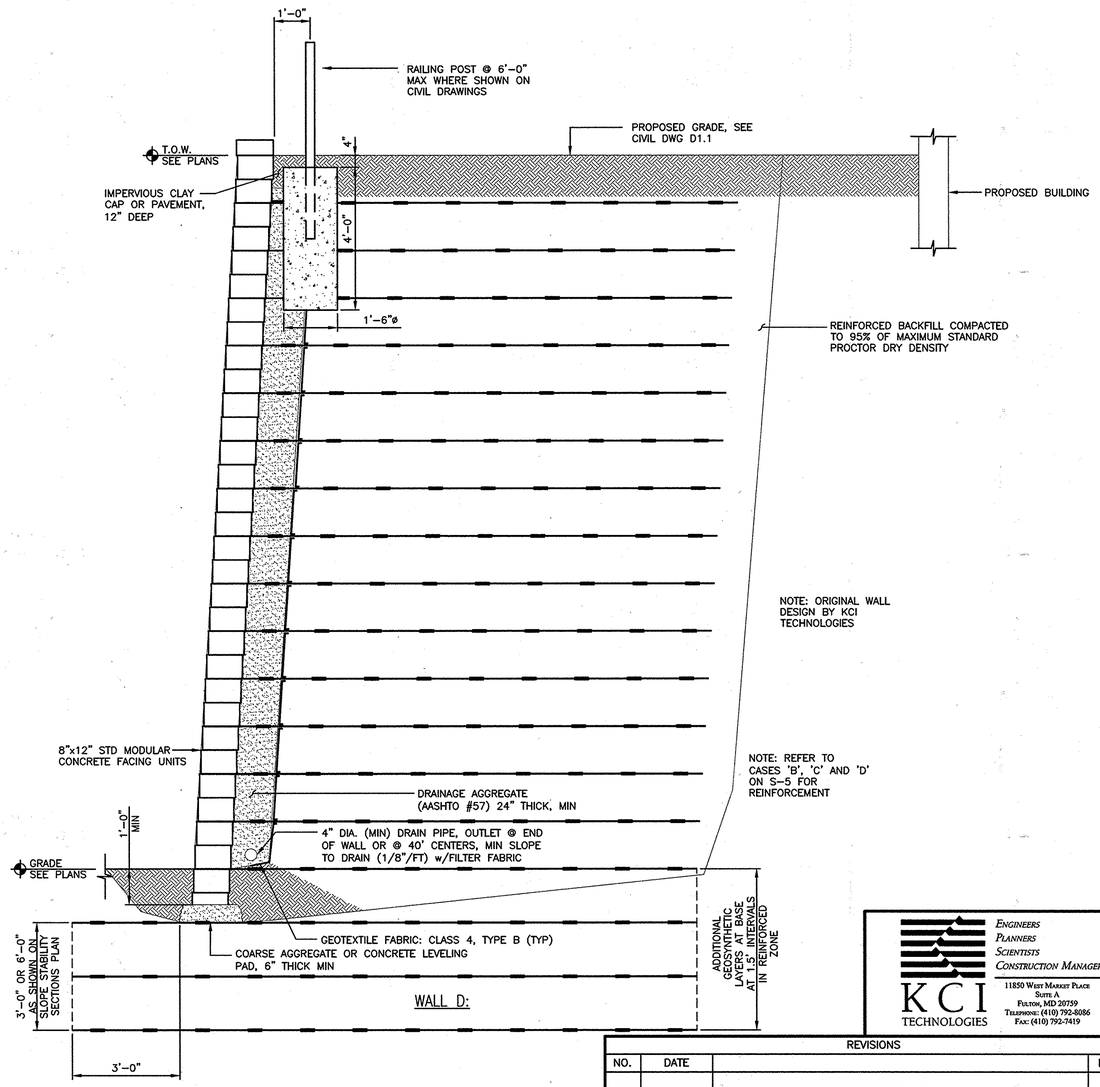
NOTE: REFER TO CASE 'A' ON S-5 FOR REINFORCEMENT



NOTES:

1.) LOCATED ALONG DRIVE AISLE BETWEEN STATION 3+75 AND 6+25
2.) 4" CAP TO BE REPLACED WITH TURNUP WALL

WALL TURNUP WALL D:



WALL D:

KCI TECHNOLOGIES

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CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

STATE OF MARYLAND
LEONARD HERSHBERGER
NO. 17372
REGISTERED
PROFESSIONAL ENGINEER

1/27/2015 8-12-15

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THE GATHERINGS AT ELLICOTT'S RETREAT

SECTIONS

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 - HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO. S-4
DRAWN BRA	SCALE	SHEET NO. 44 OF 47	

SDP-14-090

WALL CASE 'A': WALL CASE WITH FLAT BACKFILL

WALL HEIGHT	LAYER	LAYER HEIGHT	REIN. LENGTH
2'-0"	1	8"	4'-0"
3'-0"	1	2'-0"	5'-6"
4'-0"	1	8"	4'-0"
	2	2'-8"	4'-6"
5'-0"	1	2'-0"	5'-0"
	2	4'-0"	5'-6"
6'-0"	1	8"	4'-0"
	2	2'-8"	4'-0"
	3	4'-8"	6'-0"
7'-0"	1	2'-0"	4'-6"
	2	4'-0"	5'-0"
	3	6'-0"	6'-6"
8'-0"	1	8"	5'-0"
	2	2'-8"	5'-0"
	3	4'-8"	5'-6"
	4	6'-8"	7'-0"

WALL CASE 'C': TYPICAL FOR WALL D, EXCEPT AREAS ADJACENT TO PARKING

WALL HEIGHT	LAYER	LAYER HEIGHT	REIN. LENGTH
FOR WALL HEIGHTS LESS THEN 8'-0" REFER TO WALL CASE 'A'			
8'-0"	1	8"	5'-0"
	2	2'-8"	5'-0"
	3	4'-8"	5'-6"
	4	6'-8"	7'-0"
10'-0"	1	8"	6'-0"
	2	2'-8"	6'-0"
	3	4'-8"	6'-0"
	4	6'-8"	6'-6"
	5	8'-8"	8'-0"
12'-0"	1	8"	7'-6"
	2	2'-8"	7'-6"
	3	4'-8"	7'-6"
	4	6'-8"	7'-6"
	5	8'-8"	7'-6"
	6	10'-8"	9'-6"
14'-0"	1	8"	8'-6"
	2	2'-8"	8'-6"
	3	4'-8"	8'-6"
	4	6'-8"	8'-6"
	5	8'-8"	8'-6"
	6	10'-8"	8'-6"
	7	12'-8"	10'-6"
16'-0"	1	8"	10'-0"
	2	2'-8"	10'-0"
	3	4'-8"	10'-0"
	4	6'-8"	10'-0"
	5	8'-8"	10'-0"
	6	10'-8"	10'-0"
	7	12'-8"	10'-0"
	8	14'-8"	11'-6"
18'-0"	1	8"	11'-0"
	2	2'-0"	11'-0"
	3	3'-4"	11'-0"
	4	4'-8"	11'-0"
	5	6'-8"	11'-0"
	6	8'-8"	11'-0"
	7	10'-8"	11'-0"
	8	12'-8"	11'-0"
	9	14'-8"	11'-0"
	10	16'-8"	13'-0"
20'-0"	1	8"	12'-0"
	2	1'-4"	12'-0"
	3	2'-8"	12'-0"
	4	4'-0"	12'-0"
	5	5'-4"	12'-0"
	6	6'-8"	12'-0"
	7	8'-8"	12'-0"
	8	10'-8"	12'-0"
	9	12'-8"	12'-0"
	10	14'-8"	12'-0"
	11	16'-8"	12'-0"
	12	18'-8"	14'-0"

WALL CASE 'B': WALL D FOR PARKING SURCHARGE

WALL HEIGHT	LAYER	LAYER HEIGHT	REIN. LENGTH
FOR WALL HEIGHTS LESS THEN 17'-0" AND NO SURCHARGE REFER TO WALL CASE 'C'			
17'-0"	1	8"	10'-6"
	2	2'-0"	10'-6"
	3	3'-4"	10'-6"
	4	5'-4"	10'-6"
	5	7'-4"	10'-6"
	6	9'-4"	10'-6"
	7	11'-4"	10'-6"
	8	13'-4"	10'-6"
	9	15'-4"	11'-6"
20'-0"	1	8"	13'-0"
	2	2'-0"	13'-0"
	3	3'-4"	13'-0"
	4	4'-8"	13'-0"
	5	6'-0"	13'-0"
	6	7'-4"	13'-0"
	7	9'-4"	13'-0"
	8	11'-4"	13'-0"
	9	13'-4"	13'-0"
	10	15'-4"	13'-0"
	11	17'-4"	13'-0"
	12	19'-4"	13'-6"
30'-0"	1	8"	18'-0"
	2	1'-4"	18'-0"
	3	2'-0"	18'-0"
	4	2'-8"	18'-0"
	5	3'-4"	18'-0"
	6	4'-0"	18'-0"
	7	4'-8"	18'-0"
	8	5'-4"	18'-0"
	9	6'-0"	18'-0"
	10	6'-8"	18'-0"
	11	7'-4"	18'-0"
	12	8'-0"	18'-0"
	13	8'-8"	18'-0"
	14	9'-4"	18'-0"
	15	10'-0"	18'-0"
	16	11'-4"	18'-0"
	17	12'-8"	18'-0"
	18	14'-0"	18'-0"
	19	15'-4"	18'-0"
	20	16'-8"	18'-0"
	21	18'-8"	18'-0"
	22	20'-8"	18'-0"
	23	22'-8"	18'-0"
	24	24'-8"	18'-0"
	25	26'-8"	18'-0"
	26	28'-8"	19'-6"

WALL CASE 'D': WALL B FOR SLOPING BACKFILL

WALL HEIGHT	LAYER	LAYER HEIGHT	REIN. LENGTH
FOR WALL HEIGHTS LESS THEN 8'-0" REFER TO WALL CASE 'A'			
8'-0"	1	8"	5'-0"
	2	2'-8"	5'-0"
	3	4'-8"	5'-0"
	4	6'-8"	6'-0"

STRUCTURAL NOTES:

1.BUILDING CODES

A. THE 2012 INTERNATIONAL BUILDING CODE (IBC) AND ALL SUBSEQUENT SUPPLEMENTS
B. GOVERNING LOCAL BUILDING CODE

2.DESIGN LOADS

A. THE STRUCTURE IS DESIGNED FOR THE FOLLOWING SURCHARGE LOADS:

TRAFFIC SURGHARGE LOADING: 125 PSF – WALL AT PARKING
2000 PSF – 2'-0" WIDE AT PARKING GARAGE

B. THE CONTRACTOR SHALL NOT STORE ANY CONSTRUCTION MATERIALS OR UNDERTAKE ANY CONSTRUCTION OPERATION WHICH WILL EXCEED THE DESIGN LIVE LOADINGS NOTED.

3.SEGMENTAL RETAINING WALLS

A. REFER TO "SEGMENTAL RETAINING WALL UNITS" SECTION FOR APPLICABLE CODES AND STANDARDS.

B. ASSUMED PARAMETERS FOR DESIGN ARE AS FOLLOWS:

1. ASSUMED NET ALLOWABLE BEARING CAPACITY = 2000 PSF
2. EQUVILENT FLUID LATERAL EARTH PRESSURE = 41 PCF

C. CONTRACTOR TO SUPPLY OR VERIFY BACKFILL MATERIALS WITH THE FOLLOWING CHARACTERISTICS:

1. DRY SOIL DENSITY: 125 PCF
2. INTERNAL FRICTION ANGLE: 30 DEGREES
3. COHESION (C): 0
4. ACTIVE PRESSURE CONSTANT (Ka): 0.33

D. ALL RETAINING WALLS ARE DESIGNED USING THE FOLLOWING FACTORS OF SAFETY:

1. SLIDING = 1.5
2. OVERTURNING = 2.0

E. THE ALLOWABLE SOIL BEARING PRESSURE SHALL BE FIELD VERIFIED BY A REGISTERED GEOTECHNICALENGINEER AND APPROVED PRIOR TO PLACING FOUNDATIONS. SHOULD THE ACTUAL SOIL BEARING PRESSURE BE LESS THAN 2000 PSF, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.

4. SEGMENTAL RETAINING WALL (SRW) UNITS:

A. CODES AND STANDARDS:
1. NCMA "SEGMENTAL RETAINING WALL DESIGN MANUAL"

B. SUBMITTALS:

1. MATERIAL CERTIFICATES FOR SRW UNITS AND GEOSYNTHETIC REINFORCEMENT, UNLESS BASIS OFDESIGN MANUFACTURER IS UTILIZED.
2. ADDITIONAL SAMPLE SUBMITTALS MAY BE REQUIRED BY ARCHITECT/OWNER. REFER TO ARCHITECTURALDRAWINGS.

C. MATERIALS:

1. SRW UNITS SHALL BE SELECTED BY OWNER, CONSISTING OF MACHINE–FORMED PORTLAND CEMENT CONCRETE BLOCK (ASTM C 1372), 8" HIGH.
2. NORMAL WEIGHT SRW UNITS: ASTM C 140 USING CONCRETE MEETING 28–DAY COMPRESSIVESTRENGTH OF 3000 PSI.
3. GEOSYNTHETIC REINFORCEMENT WITH MINIMUM LONG TERM DESIGN TENSILE STRENGTH OF 1250 PLF PER ASTM D 4595 AND ASTM D 5262.
4. LEVELING PAD: COMPACTED SAND, GRAVEL, OR COMBINATION THEREOF (USCS SOIL TYPES GP, GW, SP, AND SW), OR CONCRETE.

D. INSTALLATION:

1. FOLLOW APPLICABLE PROVISIONS OF MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTENSPECIFICATIONS.
2. EXCAVATION:
   a. STRIP VEGETATION AND ORGANIC SOIL FROM WALL AND GEOSYNTHETIC ALIGNMENT.
   b. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE OVER–EXCAVATION. OVER–EXCAVATION SHALLBE FILLED WITH COMPACTED BACKFILL MATERIAL AND CONTRACTOR'S EXPENSE.
3. LEVELING PAD SHALL BE COMPACTED TO FORM A SMOOTH, LEVEL BEARING SURFACE.
4. ALL SRW UNITS TO BE INSTALLED WITH A MINIMUM EMBEDMENT OF 1'–0". COMPACT FILL IN FRONT OF EMBEDDED UNITS AT THE SAME TIME AS FILL BEHIND UNITS.
5. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR UNIT INSTALLATION.
6. ALL GEOSYNTHETIC REINFORCEMENT SHALL BE PLACED WITH THE STRONGEST DIRECTION PERPENDICULAR TO THE WALL. FOLLOW MANUFACTURER'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS.
7. SRW CAPS SHALL BE PROPERLY ALIGNED AND GLUED TO UNDERLYING UNITS WITH CONCRETE ADHESIVE OR APPROVED EQUAL. CAPS SHALL OVERHANG THE TOP COURSE BY 3/4 TO 1 INCH, MAX.

5. MISCELLANEOUS

A. THE CONTRACTOR SHALL LOCATE ALL UTILITIES IN THE AREA OF CONSTRUCTION AND PREVENT DAMAGE TO THEM. SHOULD DAMAGE OCCUR TO ANY UTILITIES, THE CONTRACTOR IS REQUIRED TO REPAIR THE DAMAGE TO THE SATISFACTION OF THE OWNER AT HIS OWN EXPENSE.

B. THE CONTRACTOR SHALL REVIEW THE ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION AND DIMENSION OF CHASES, INSERTS, OPENINGS, SLEEVES, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS WHICH IMPACT THE STRUCTURAL COMPONENTS.

C. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS BEFORE PROCEEDING WITH CONSTRUCTION.

D. SCALES SHOWN ON THE STRUCTURAL CONTRACT DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DIMENSIONAL INFORMATION SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.

E. FIELD VERIFY WALL HEIGHTS AND LENGTHS.

F. REFER TO CIVIL DRAWINGS FOR ELEVATIONS, STATIONS, OFFSETS AND WALL GEOMETRY.

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REVISIONS			
NO.	DATE		BY

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER NO. 17372 NABIL A. BITAR

1/27/2014

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17372 EXP. DATE: 06/03/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
1205 YORK ROAD
LUTHERVILLE–TIMONIUM, MD 21093
(410)–825–8400

THE GATHERINGS AT ELLICOTT'S RETREAT

NOTES AND TABLES

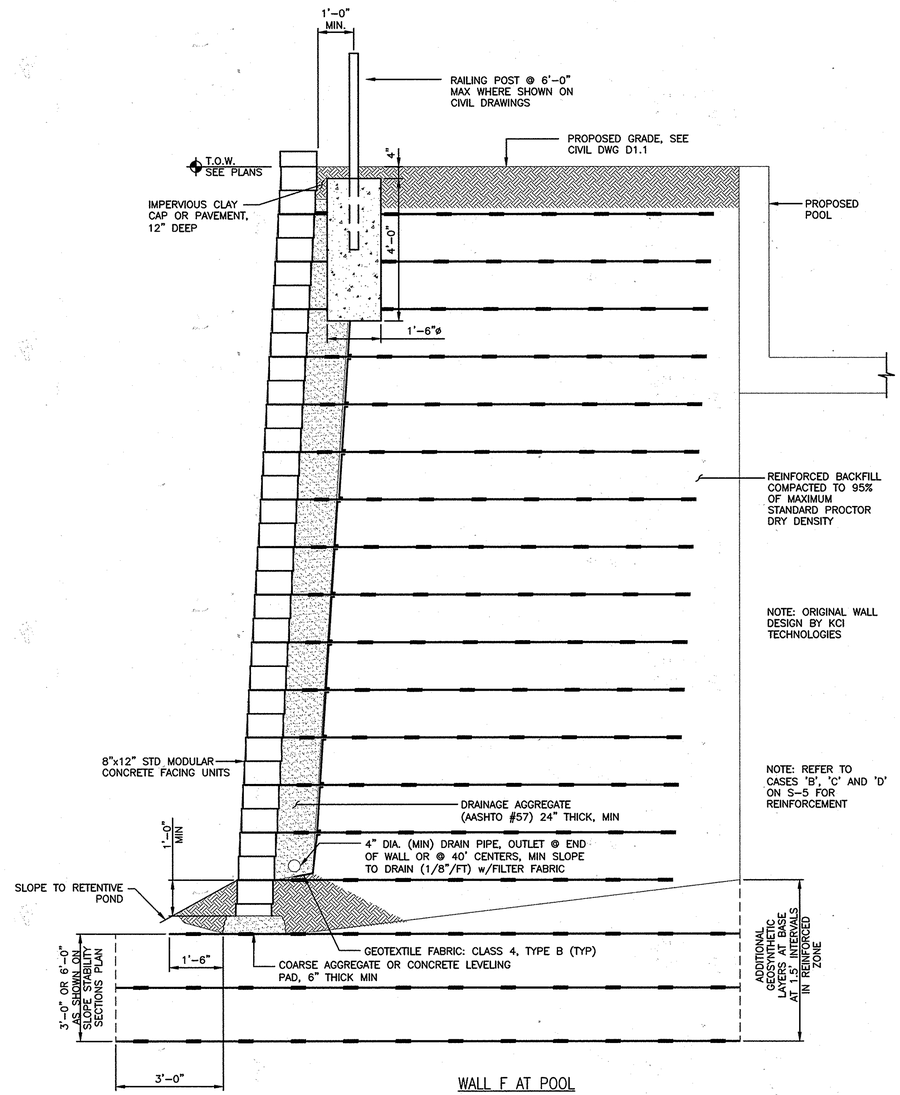
AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		S–5
DRAWN BRA	SCALE	SHEET NO. 45 OF 47	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9.21.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15

SDP–14–090



WALL F AT POOL

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9.17.15
DIRECTOR	DATE 9-29-15

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
11850 WEST MARKET PLACE
SUITE A
FULTON, MD 20759
TELEPHONE: (410) 792-9086
FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

STATE OF MARYLAND LICENSED PROFESSIONAL ENGINEER NO. 17372 REGISTERED PROFESSIONAL ENGINEER 8-17-15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17372 EXP. DATE: 06/03/2017

OWNER/DEVELOPER:

COMMERCIAL CONTRACTORS INC.

1205 YORK ROAD
LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

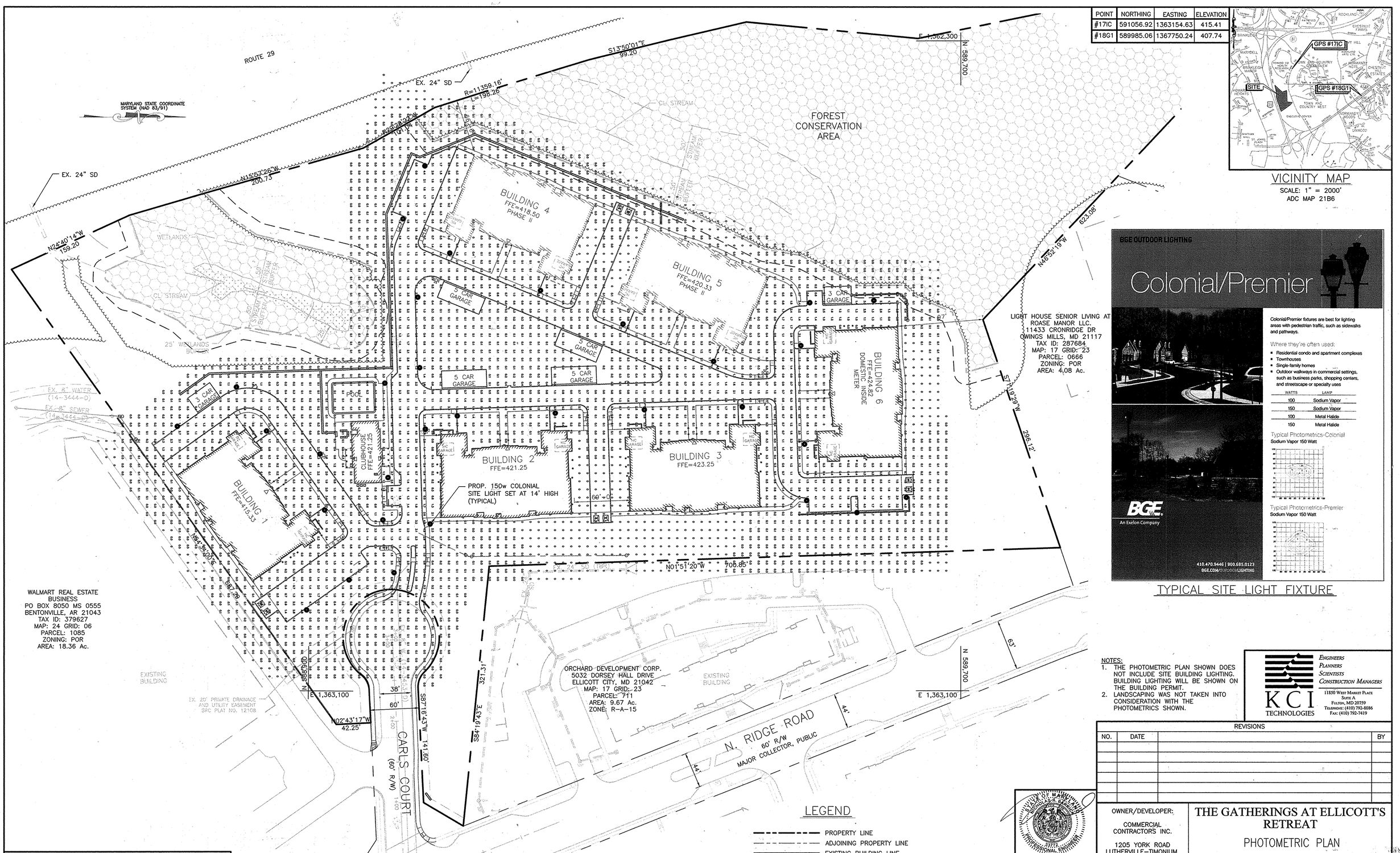
SECTION AT POOL

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN NAB	DATE 7/24/15	KCI PROJECT NO. 27134772	SHEET NO.
DRAWN BRA	SCALE	SHEET NO. 46 OF 47	S-6

SDP-14-090

POINT	NORTHING	EASTING	ELEVATION
#17IC	591056.92	1363154.63	415.41
#18G1	589985.06	1367750.24	407.74



VICINITY MAP
SCALE: 1" = 2000'
ADC MAP 21B6

TYPICAL SITE LIGHT FIXTURE

NOTES:
1. THE PHOTOMETRIC PLAN SHOWN DOES NOT INCLUDE SITE BUILDING LIGHTING. BUILDING LIGHTING WILL BE SHOWN ON THE BUILDING PERMIT.
2. LANDSCAPING WAS NOT TAKEN INTO CONSIDERATION WITH THE PHOTOMETRICS SHOWN.

KCI TECHNOLOGIES
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FAX: (410) 792-7419

REVISIONS

NO.	DATE		BY

LEGEND

- PROPERTY LINE
- ADJOINING PROPERTY LINE
- EXISTING BUILDING LINE
- EXISTING TREELINE
- EXISTING EDGE OF PAVEMENT

PHOTOMETRIC PLAN
SCALE: 1"=50'

GRAPHIC SCALE
50 0 25 50 100
SCALE: 1"=50'

STATE OF MARYLAND
NICHOLAS A. BARBERA
33772
PROFESSIONAL ENGINEER
8/17/15

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33772 EXP. DATE: 06/16/2017

OWNER/DEVELOPER:
COMMERCIAL CONTRACTORS INC.
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LUTHERVILLE-TIMONIUM, MD 21093
(410)-825-8400

THE GATHERINGS AT ELLICOTT'S RETREAT

PHOTOMETRIC PLAN

AGE RESTRICTED ADULT HOUSING
TAX MAP: 24 GRID: 06 PARCEL: 1085
ZONED: POR
ELECTION DISTRICT NO. 02 – HOWARD COUNTY MARYLAND

DESIGN	DATE	KCI PROJECT NO. 27134772	SHEET NO.
NAB	7/24/15		C-5.00
DRAWN	SCALE	SHEET NO. 47 OF 47	
BRA	1"=50'		

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 9-21-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9-17-15
DIRECTOR	DATE 9-29-15

SDP-14-090