CEDAR GROVE

LOTS 1 THRU 12 AND O.S. LOTS 13 THRU 15

PARCEL 65 / ZONE: R-SC
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FINAL/CONSTRUCTION PLANS F-08-045

GENERAL NOTES

1.) THE SUBJECT PROPERTY IS ZONED R-SC PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER COMP. LITE ZONING AMENDMENTS EFFECTIVE 7/28/06.

2.) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.

3.) 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.

4.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" @ 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.

5.) ALL ASPECTS OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVER(S) HAVE BEEN APPROVED.

6.) THE BOUNDARY SHOWN IS BASED ON A MONUMENTED FIELD-RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC., DATED AUGUST, 2005.

7.) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, MONUMENTS 291A & 291D, WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM.

8.) EXISTING TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JULY, 2005 AND SUPPLEMENTED IN JUNE, 2007. CONTOUR INTERVAL IS 2 FEET. ADDITIONAL OFFSITE TOPOGRAPHY WAS PURCHASED FROM HOWARD COUNTY GEOGRAPHICAL INFORMATION SYSTEMS.

9.) EXISTING UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND RECORD DRAWINGS.

10.) CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND RIM ELEVATIONS AS NEEDED TO MATCH THIS PLAN.

11.) THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT PER ADMINISTRATION DECISION No.3-2006, APPROVED ON FEBRUARY 13, 2006. DRAINAGE AREA IS WITHIN THE LITTLE PATUXENT RIVER WATERSHED.

12.) FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST, 2006 AND APPROVED UNDER S-06-003.

13.) NO SPECIMEN TREES WERE FOUND ON-SITE AS PER FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED AUGUST, 2006 AND APPROVED UNDER S-06-003.

14.) NO WETLANDS OR 100-YEAR FLOODPLAIN EXIST WITHIN THE PROJECT LIMITS AS PER A CERTIFICATION LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED FEBRUARY 3, 2006 AND APPROVED UNDER S-03-006.

15.) NOISE LINE SHOWN ON PLANS FOR THIS PROJECT BASED ON DATA PROVIDED BY THE MSHA AS PER CONTRACT NO.H06625170 AND APPROVED UNDER P-07-005.

16.) THE NOISE CONTOUR LINE DRAWN ON THIS PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED, FEBRUARY 1992 AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65dBA EXPOSURE. THE 65dBA EXPOSURE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE US DEPARTMENT OF HOUSING & URBAN DEVELOPMENT.

17.) A.P.F.O. TRAFFIC STUDY WAS PREPARED BY THE MARS TRAFFIC GROUP, INC. DATED JULY, 2005 AND APPROVED UNDER S-06-003.

18.) THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. DATED AUGUST, 2006, SUPPLEMENTED IN NOVEMBER, 2006, CONSOLIDATED IN AUGUST, 2007 AND APPROVED UNDER P-07-005.

19.) THERE ARE NO EXISTING STRUCTURES LOCATED ONSITE.

20.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.

21.) UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.

22.) ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.

23.) BRL INDICATES BUILDING RESTRICTION LINE.

24.) ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.

25.) THIS PLAN IS SUBJECT TO THE AMENDED 5th EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE AMMENDED HOWARD COUNTY ZONING REGULATIONS. IT ALSO FALLS UNDER THE CRITERIA ESTABLISHED IN THE INFILL DEVELOPMENT REGULATIONS OF COUNCIL BILL 45-2003 EFFECTIVE OCTOBER 2, 2003.

26.) STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT BASED ON GUIDELINES ESTABLISHED BY THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II. QUALITY CONTROL SHALL BE PROVIDED BY; A POCKET POND (P-5) & AN UNDERGROUND STONE Rev CHAMBER. QUANTITY CONTROL SHALL BE PROVIDED WITHIN THE POCKET POND (P-5) SWM FACILITY.

27.) ALL SWM FACILITY/BMP PRATICES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.

28.) TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

29.) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE), INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) @ 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

30.) EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS; STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SEC.134 OF THE HOWARD COUNTY ZONING REGULATIONS, THE HOWARD COUNTY DESIGN MANUAL, VOL.III. (1993), AND AS MODIFIED BY GUIDLINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (1996). A MINIMUM SPACING OF TWENTY FEET (20') SHALL BE MAINTAINED ANY STREET LIGHT AND ANY TREE.

31.) PERIMETER AND SWM LANDSCAPING SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE PLAN OF THE ROAD CONSTRUCTION DRAWINGS FOR THIS FINAL PLAN IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL. TOTAL FINANCIAL SURETY IN THE AMOUNT OF $17,100.00 INCLUDING; $10,500 FOR THE REQUIRED 35 SHADE TREES AND $6,600.00 FOR THE REQUIRED 44 EVERGREEN TREES, SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN (F-08-045).

32.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
A) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
B) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH 1-1/2" MIN. TAR AND CHIP COATING.
C) GEOMETRY - MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
D) STRUCTURES(CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD)
E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
F) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
G) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.

33.) APPLICABLE HOWARD COUNTY DPZ FILE REFERENCES FOR THIS PROJECT INCLUDE: S-06-003, P-07-005, CONTR. No.24-4425-D

34.) THE FOREST CONSERVATION OBLIGATIONS OF 2.37 AC. REFORESTATION FOR THIS PROJECT WILL BE MET BY; 0.97 AC. OF REFORESTATION WHICH IS PROVIDED OFF-SITE ON PARCEL 90, TAX MAP 21, BLOCK NO. 22, EDGEWOOD FARM, PHASE 1 (F-06-108). THE REMAINING OBLIGATION OF 1.40 AC. WILL BE PROVIDED BY 2.80 AC. OFFSITE FOREST RETENTION WITHIN AN APPROVED FOREST CONSERVATION EASEMENT/MITIGATION BANK ESTABLISHED ON THE SHARP/FERGUSON PROPERTY (SDP-09-031) LOCATED AT PARCEL 1, TAX MAP 10, BLOCK No.2.

35.) ALL AREAS OF CONTROLLED FILL TO BE AT 95% COMPACTION PER AASHTO-T180 STANDARDS.

36.) SHA APPROVAL IS REQUIRED FOR THE PROPOSED 5.0' CONC. SIDWALK AND RELATED CONSTRUCTION WITHIN THE SHA RIGHT-OF-WAY.

37.) A TYPE "C" LANDSCAPING BUFFER WITHIN A 10' SETBACK IS PROVIDED ALONG THE WESTERN PROPERTY BOUNDARY, ADJACENT TO PARCEL 115, AS PER S-06-003.

38.) WRITTEN APPROVAL FROM BG&E FOR THE PROPOSED LANDSCAPING ALONG CEDAR LANE AND MD RTE. 108 (CLARKSVILLE PIKE) WAS OBTAINED BY CORRESPONDENCE DATED APRIL 20, 2007 AND APPROVED UNDER P-07-005.

39.) A DESIGN MANUAL WAIVER WAS SUBMITTED TO THE DEVELOPMENT ENGINEERING DIVISION AND APPROVED BY LETTER DATED DECEMBER 13, 2006 FOR DMV I, CHAPTER 5, SECTION 5.2.7.B.2 TO ALLOW FOR A REDUCED MINIMUM LOW-FLOW ORIFICE DIAMETER SIZE BELOW THE 1-1/2" MINIMUM STANDARD FOR A PRIVATELY OWNED AND MAINTAINED SWM FACILITY/STRUCTURE.

40.) A DESIGN MANUAL WAIVER WAS SUBMITTED TO THE DEVELOPMENT ENGINEERING DIVISION AND APPROVED BY LETTER DATED OCTOBER 11, 2007 FOR DMV IV, CHAPTER 3, STANDARD DETAIL R-5.05 TO ALLOW FOR A DEVIATION OF A STANDARD TEE TURN-AROUND WITHIN A PUBLIC RIGHT-OF-WAY.

41.) WATER SERVICE SHALL BE PUBLIC UNDER CONTR. No.24-4445-D, CONNECTING TO CONTRACT Nos.2831-W&S AND IS IN THE LITTLE PATUXENT RIVER WATERSHED.

42.) SEWER SERVICE SHALL BE PUBLIC UNDER CONTR. No.24-4445-D, CONNECTING TO CONTRACT No.24-1448-D AND IS IN THE LITTLE PATUXENT RCP SEWER SHED.

43.) FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY AND NOT TO THE PIPESTEM LOT DRIVEWAY.

SITE DATA TABULATION

1) GENERAL SITE DATA
a. PRESENT ZONING: R-SC
b. LOCATION: TAX MAP 29 - GRID 17 - PARCEL 65
c. APPLICABLE DPZ FILE REFERENCES: S-06-003, P-07-005, 24-4425-D
d. DEED REFERENCE: L.10695 / F.059
e. PROPOSED USE OF SITE: 12 SFD HOMES
f. PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

2) AREA TABULATION

a. TOTAL AREA OF SITE	3.97 Ac.±
b. AREA OF 100 YEAR FLOODPLAIN (APPROX.)	N/A
c. AREA OF STEEP SLOPES (25% OR GREATER)	N/A
d. NET AREA OF SITE	3.97 Ac.±
e. AREA OF THIS PLAN SUBMISSION	3.97 Ac.±
f. LIMIT OF DISTURBANCE (APPROX.)	4.40 Ac.±
g. AREA OF PROPOSED BUILDABLE LOTS	1.81 Ac.±
h. AREA OF OPEN SPACE LOTS	1.22 Ac.±
i. AREA OF PROPOSED PUBLIC ROAD	0.57 Ac.±
j. AREA OF PROPOSED PUBLIC R/W DEDICATION	0.37 Ac.±

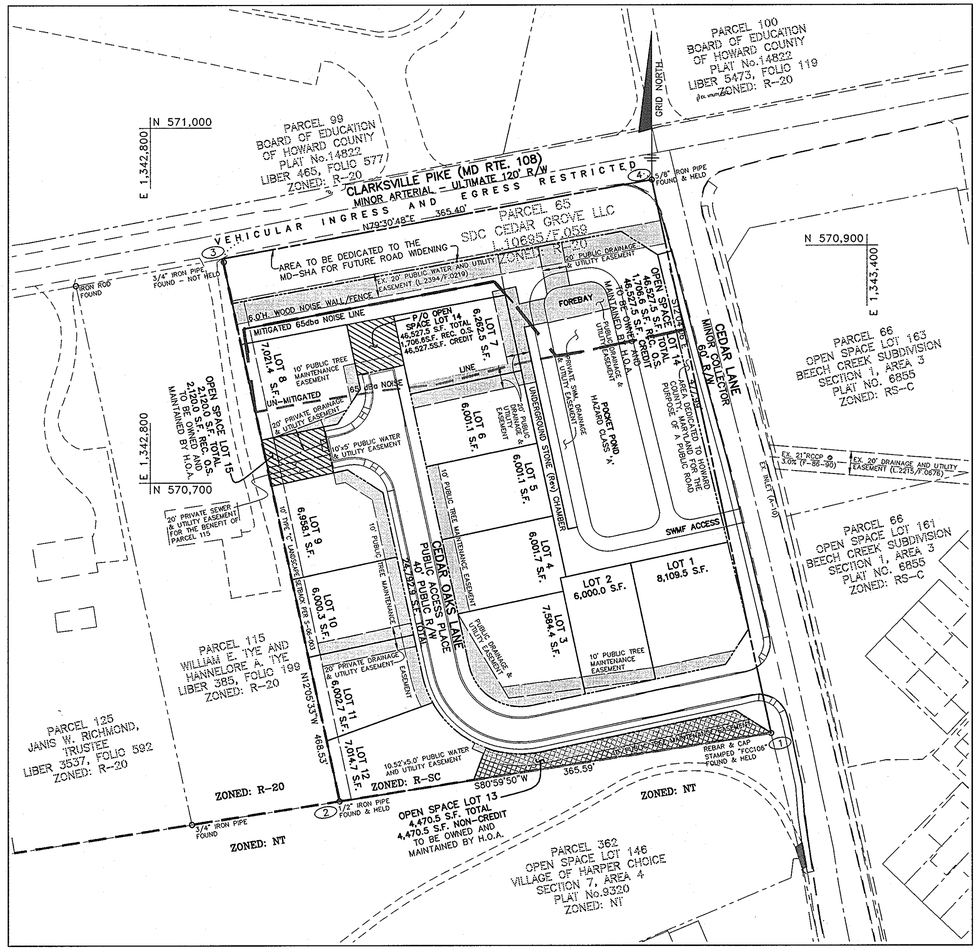
3) LOT TABULATION

a. NET AREA OF SITE	3.97 Ac.±
b. ALLOWABLE RESIDENTIAL LOT YIELD	15
c. TOTAL NUMBER OF RESIDENTIAL LOTS PROPOSED ON THIS SUBMISSION	12
d. TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED ON THIS SUBMISSION	3

4) OPEN SPACE DATA

a. MINIMUM RESIDENTIAL LOT SIZE SELECTED	6,000 S.F.
b. OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (25% OF 3.97 Ac.)	0.99 Ac.
c. TOTAL AREA OF PROPOSED OPEN SPACE LOTS PROVIDED WITH THIS SUBDIVISION	1.22 Ac.
1) OPEN SPACE AREAS LESS THAN 35' IN WIDTH (NON-CREDITED)	0.10 Ac.
2) TOTAL AREA OF OPEN SPACE MEETING MINIMUM OPEN SPACE REQUIREMENTS (CREDITED)	1.12 Ac.
d. AREA OF RECREATIONAL OPEN SPACE REQUIRED (300 SF/UNIT x 12 LOTS = 3600 SF)	0.08 Ac.
1) TOTAL AREA OF RECREATIONAL OPEN SPACE PROVIDED	0.09 Ac.

SHEET INDEX

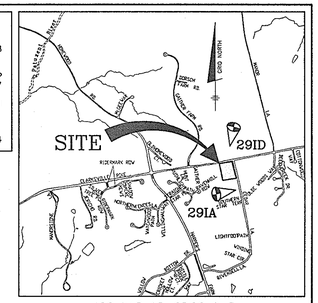


LOCATION PLAN
SCALE: 1" = 60'

BENCH MARKS (NAD '83)

HO. CO. #291D ELEV. 473.938
STANDARD DISC ON CONCRETE MONUMENT
HO. CO. BOARD OF EDUCATION ENTRANCE
1.5' NW FROM END OF SDWLK. ON NW EOP
N 571,234.369 E 1,343,193.07

HO. CO. #291A ELEV. 482.291
STANDARD DISC ON CONCRETE MONUMENT
WEST SIDE OF CEDAR LA.; 3.9' FROM EOP;
41.7' S OF FH, ±0.4MI S OF MD RTE 108
N 568,986.053 E 1,343,640.14



ADC MAP 15, GRIDS C-3
VICINITY MAP
SCALE : 1"=2000'

LEGEND

SOILS CLASSIFICATION AbC1
SOILS DELINEATION
EXISTING CONTOURS 999
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING STRUCTURE
PROPOSED STRUCTURE
CREDITED RECREATIONAL OPEN SPACE
NON-CREDITED OPEN SPACE
15' NO-WOODY VEGETATION ZONE
PROPOSED EASEMENTS
EXISTING EASMENTS
DRAINAGE AREA
DRAINAGE DIVIDE
Tc STUDY PATH A B
LIMIT OF DISTURBANCE
STABILIZED CONSTRUCTION ENTRANCE
SILT DIVERSION FENCE SDF
SUPER SILT FENCE SSF
INLET PROTECTION
REMOVABLE PUMP STATION RPS
EARTH DIKE
SOIL STABILIZATION MATTING
TEMPORARY SWALE
NOISE TESTING/ RECIEVER LOCATIONS
UN-MITIGATED 65dBa NOISE LINE
MITIGATED 65dBa NOISE LINE

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/26/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1-21-09

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-2009

STATE OF MARYLAND — BRIAN F. CLEMENT — No. 28559 — REGISTERED PROFESSIONAL ENGINEER — 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 - GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
COVER SHEET
NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007
JANUARY 8, 2009
PROJECT NO. 1793

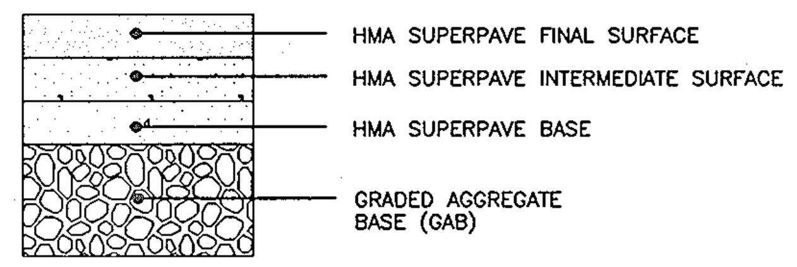
Design: MCR/MAN | Draft: MCR/EDD | Check: DAM
SCALE: AS SHOWN
DRAWING 1 OF 13

F-08-045

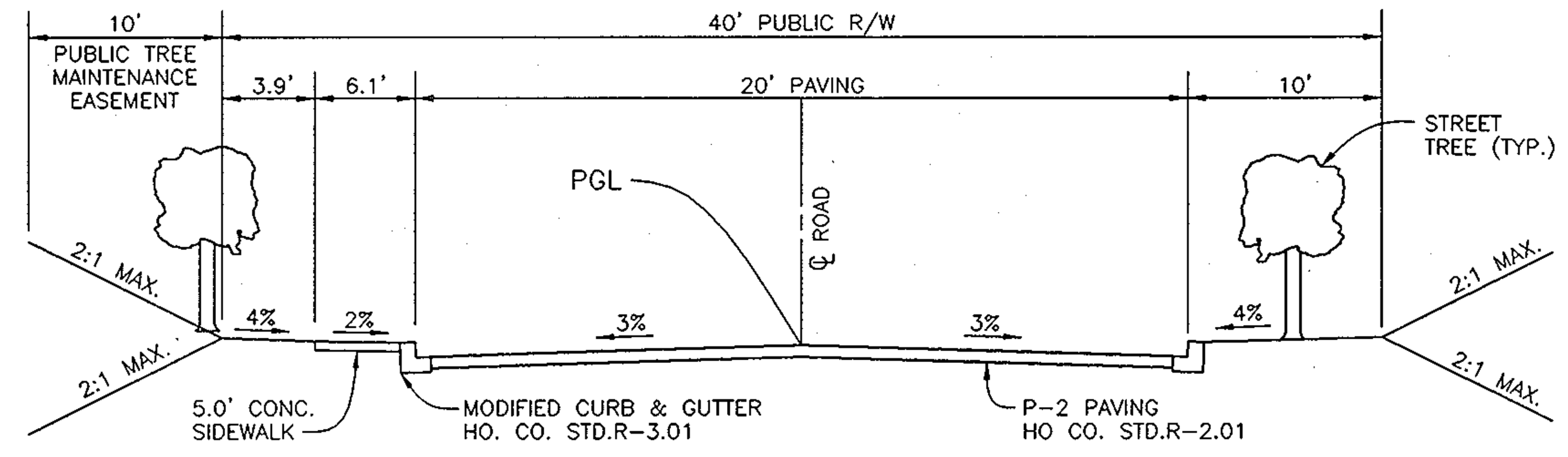
P:\1793\dwg\7009V6-F.dwg, COVER, 1/7/2009 12:54:36 PM, mcr

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 to <5	5 to <7	≥7	3 to <5	5 to <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN. HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 9.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: NON-RESIDENTIAL MINOR COLLECTORS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 9.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	6.0	3.0	6.0	6.0	5.0

PAVING SPECIFICATIONS (HO.CO. STD R-2.01)



SCHEMATIC PAVING DETAIL
NOT TO SCALE



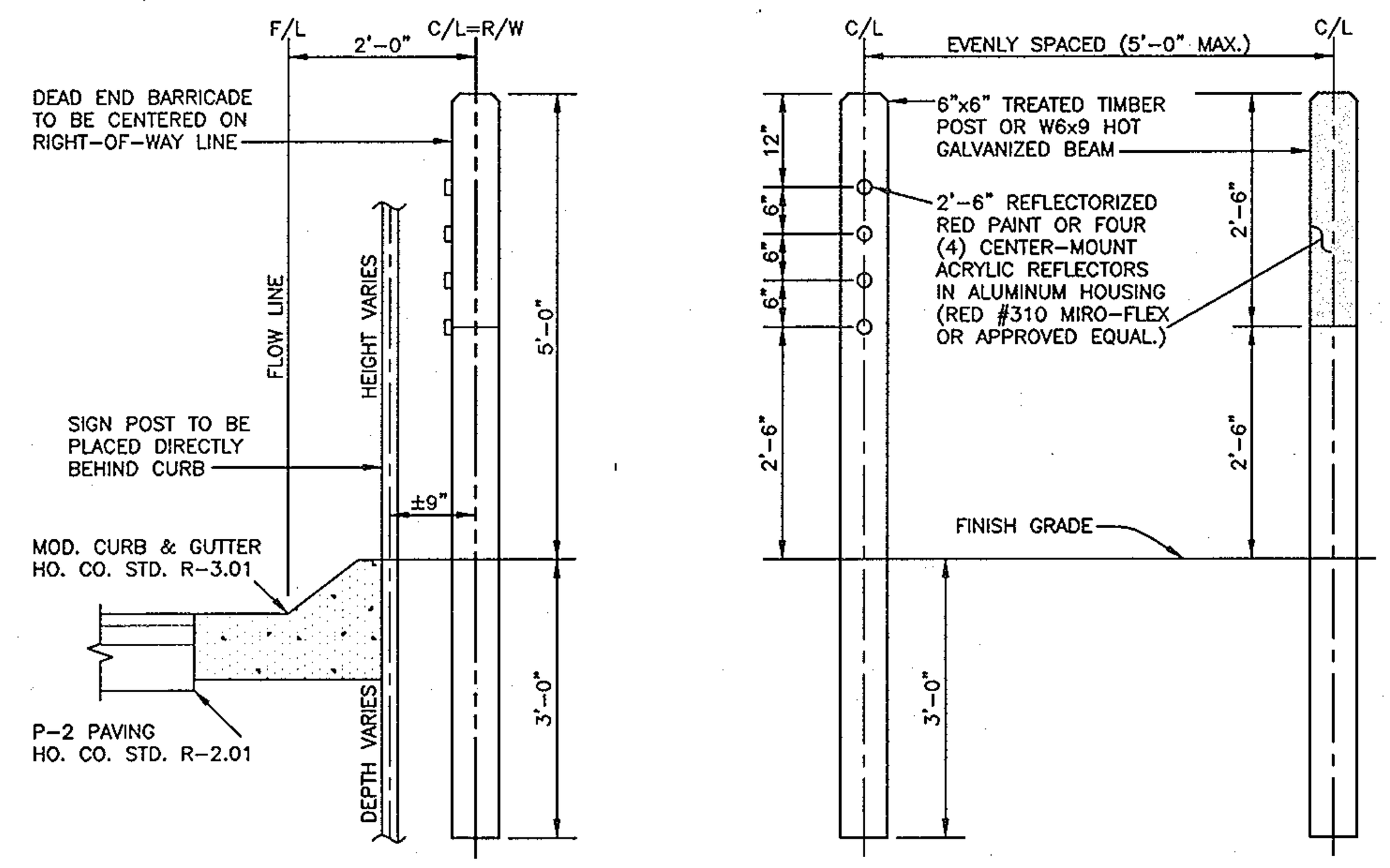
TYPICAL ROADWAY SECTION
NOT TO SCALE

CEDAR OAKS LANE
PUBLIC ACCESS PLACE – LESS THAN 200 ADT
POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH)
FROM STA. 0+14.00 (BEGIN PROP. ROADWAY @ EX. FLOWLINE)
TO STA. 4+80.19 (BEGIN PAVING WARPING)

CENTERLINE CONTROL DATA – BEARINGS			
DESCRIPTION	STATIONS	BEARING	DISTANCE
POB – P/L	0+00.00 – 0+30.62	S77°54'27"W	30.62'
P/L – PC	0+30.62 – 2+21.69	S77°54'27"W	191.07'
PT – END	3+22.22 – 5+82.19	N12°05'33"W	259.97'

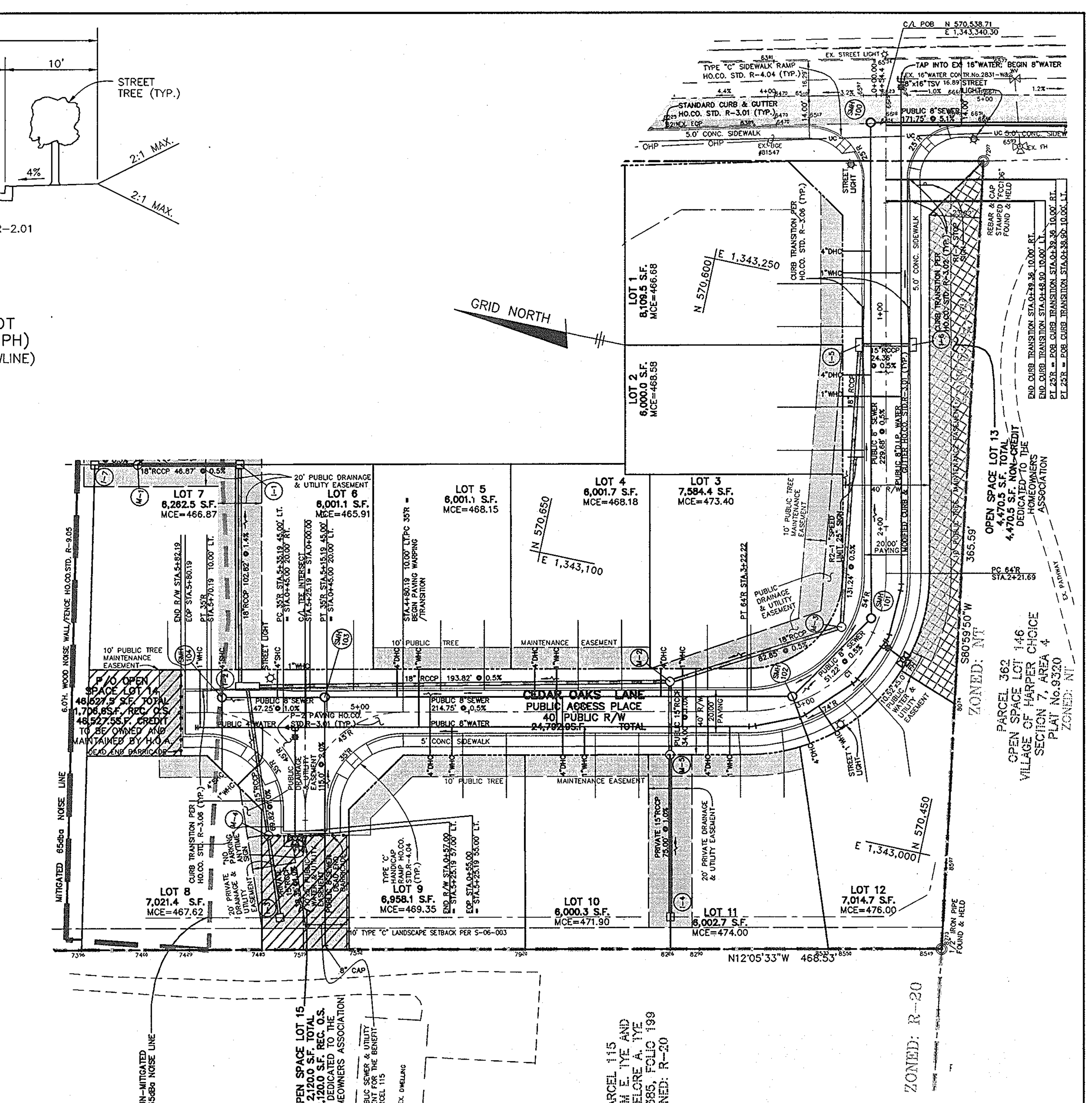
CENTERLINE CONTROL DATA – COORDINATES			
DESCRIPTION	STATION	NORTH	EAST
POB = EX. C/L CEDAR LANE	0+00.00 = 4+54.4	570,538.71	1,343,340.30
INT @ P/L	0+30.62	570,532.2916	1,343,310.3616
PC 64.0'R HC	2+21.69	570,492.2636	1,343,123.5266
PT 64.0'R HC	3+22.22	570,541.4362	1,343,047.5394
END = END PUBLIC R/W	5+82.19	570,795.6349	1,342,993.0792

CENTERLINE CURVE DATA							
CURVE	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD	
C1	PC=2+21.69 PT=3+22.22	64.00'	100.53'	90°00'00"	64.00'	S57°05'33"E	90.51'



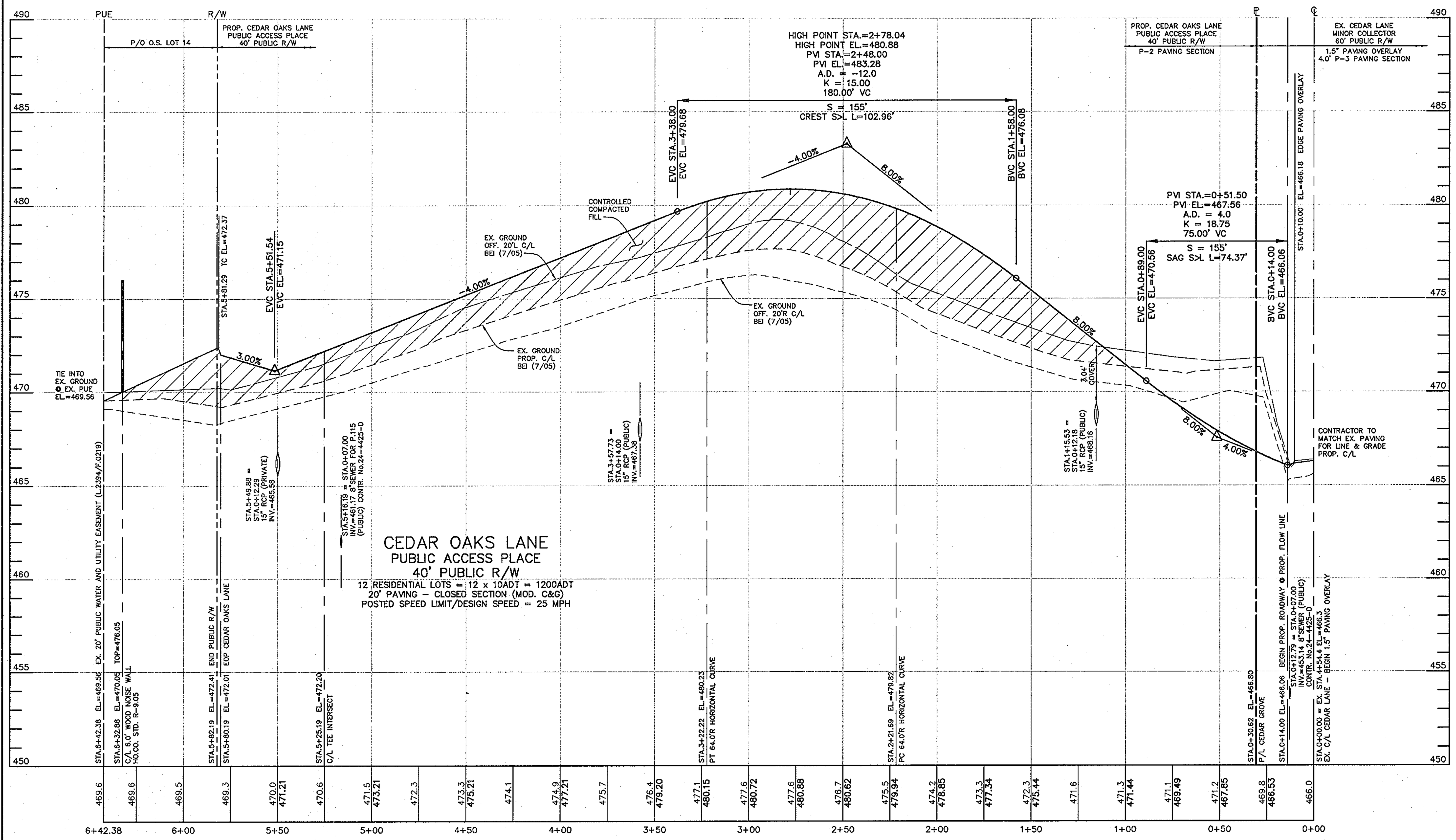
NOTE: THIS DETAIL CONFORMS TO HO.CO. STD.R-5.09

DEAD END BARRICADE DETAIL
SCALE: 1" = 2'

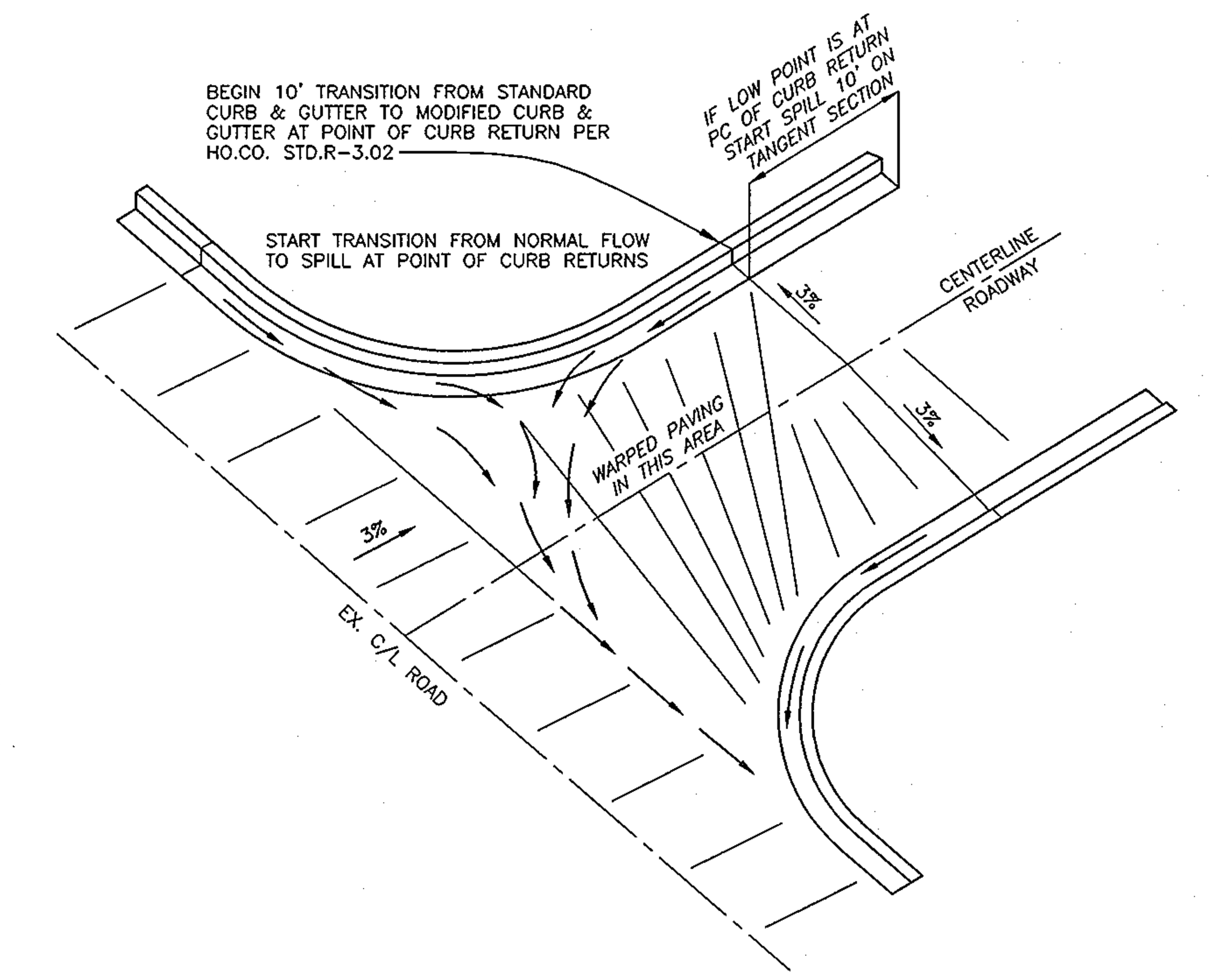


ROADWAY PLAN VIEW
SCALE: 1" =40'

CEDAR OAKS LANE – STREET LIGHT SCHEDULE		
SYMBOL	DESCRIPTION	LOCATION
✸ (filled)	150 WATT HPS PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	STA.0+32 OFFSET:16'R
☼ (open)	100 WATT HPS PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	STA.2+87 OFFSET:18'L STA.5+41 OFFSET:16'R



ROADWAY PROFILE VIEW
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



TYPICAL INTERSECTION DRAINAGE DETAIL
NOT TO SCALE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559; Expiration Date: 7-22-2009

STATE OF MARYLAND — BRIAN F. CLEARY — No. 28559 — REGISTERED PROFESSIONAL ENGINEER
1/7/2009

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/26/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1-21-9

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 – GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

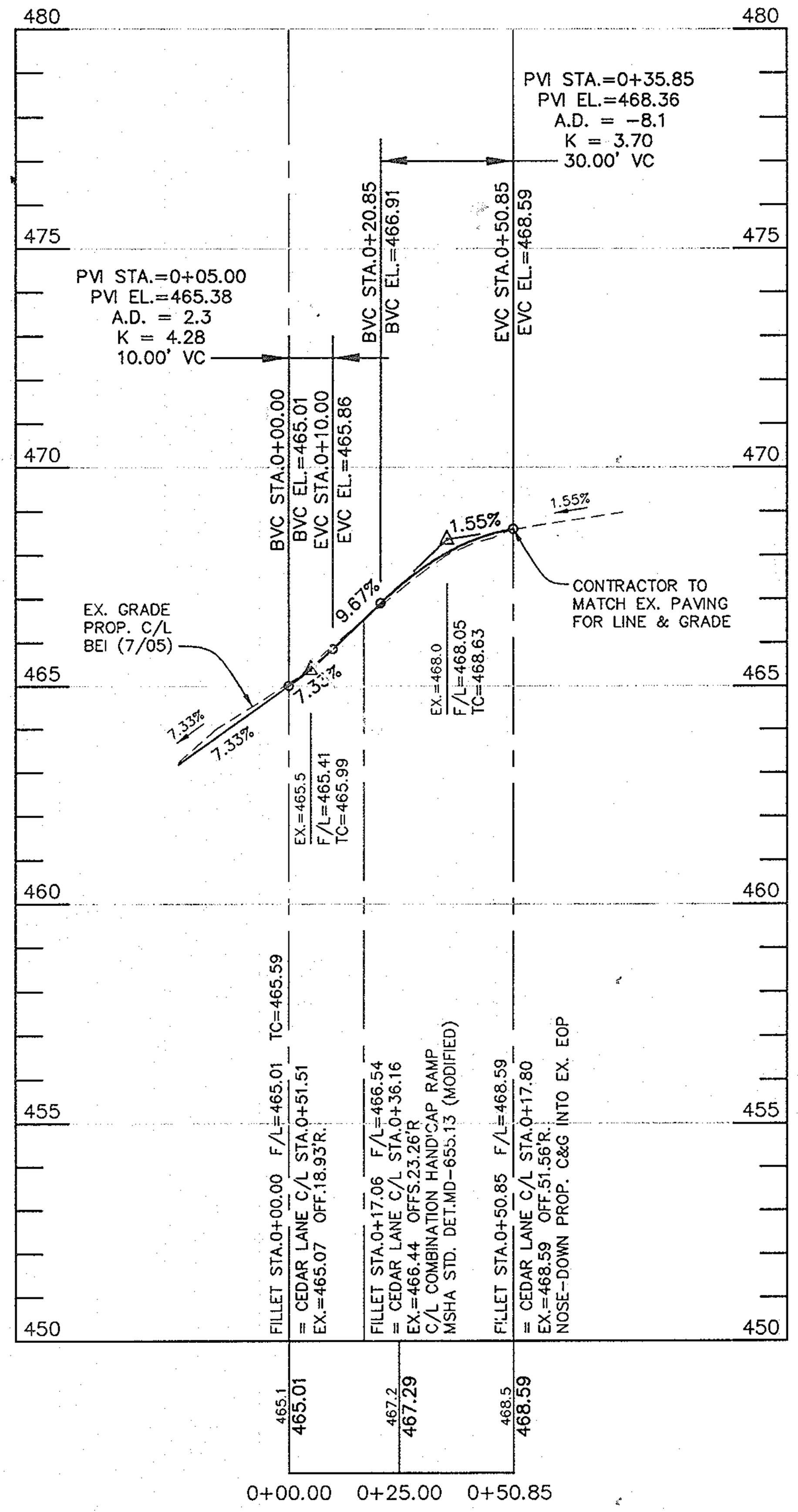
TITLE: FINAL/CONSTRUCTION PLANS
ROADWAY PLAN & PROFILE
NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 — PROJECT NO. 1793

Design: MCR/MAN — Draft: MCR/EDD — Check: DAM — SCALE: AS SHOWN — DRAWING 2 OF 13

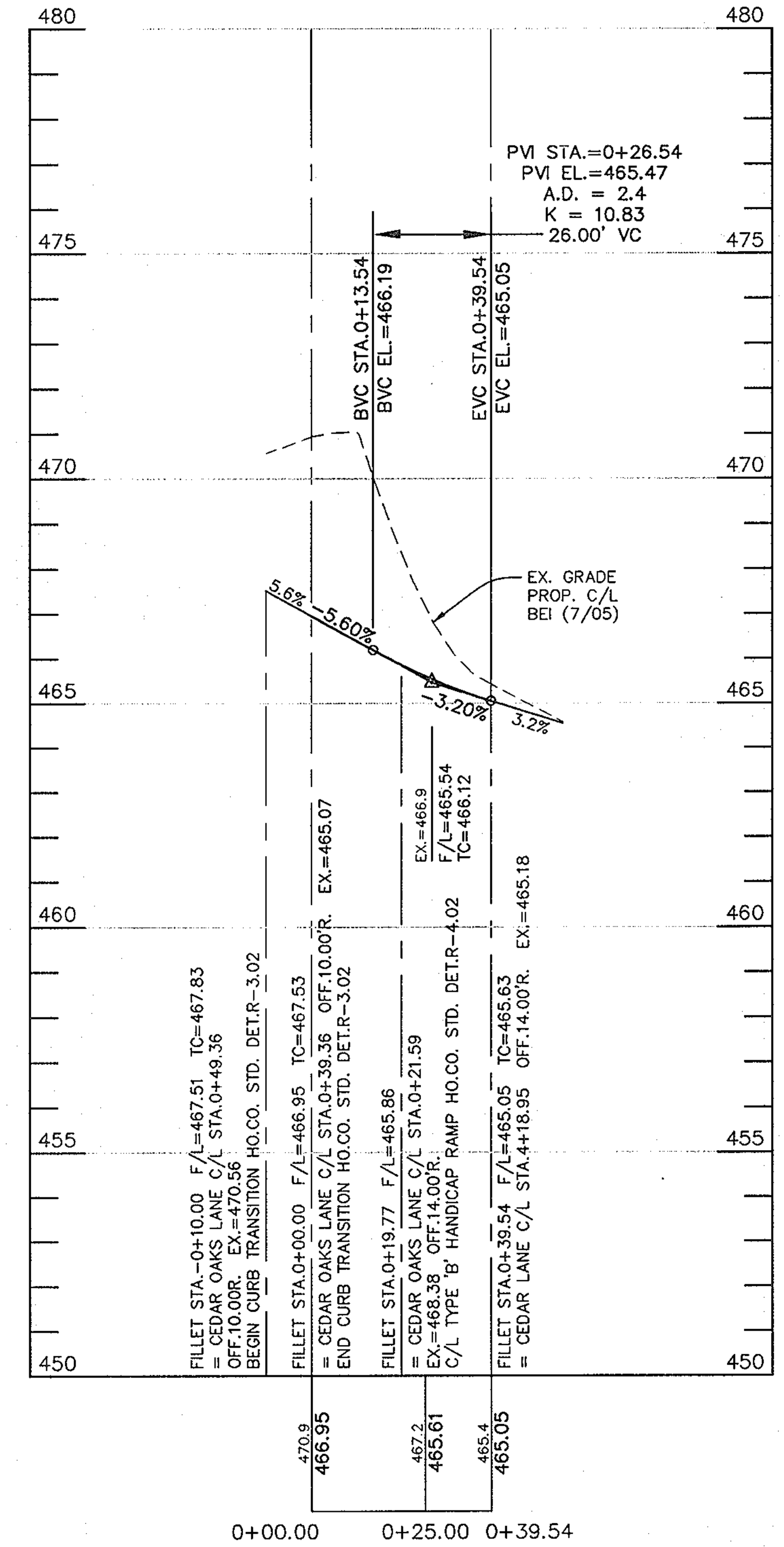
F-08-045

P:\1793\dwg\7017V6-F.dwg, ROADS-1, 1/7/2009 12:56:40 PM, mcr



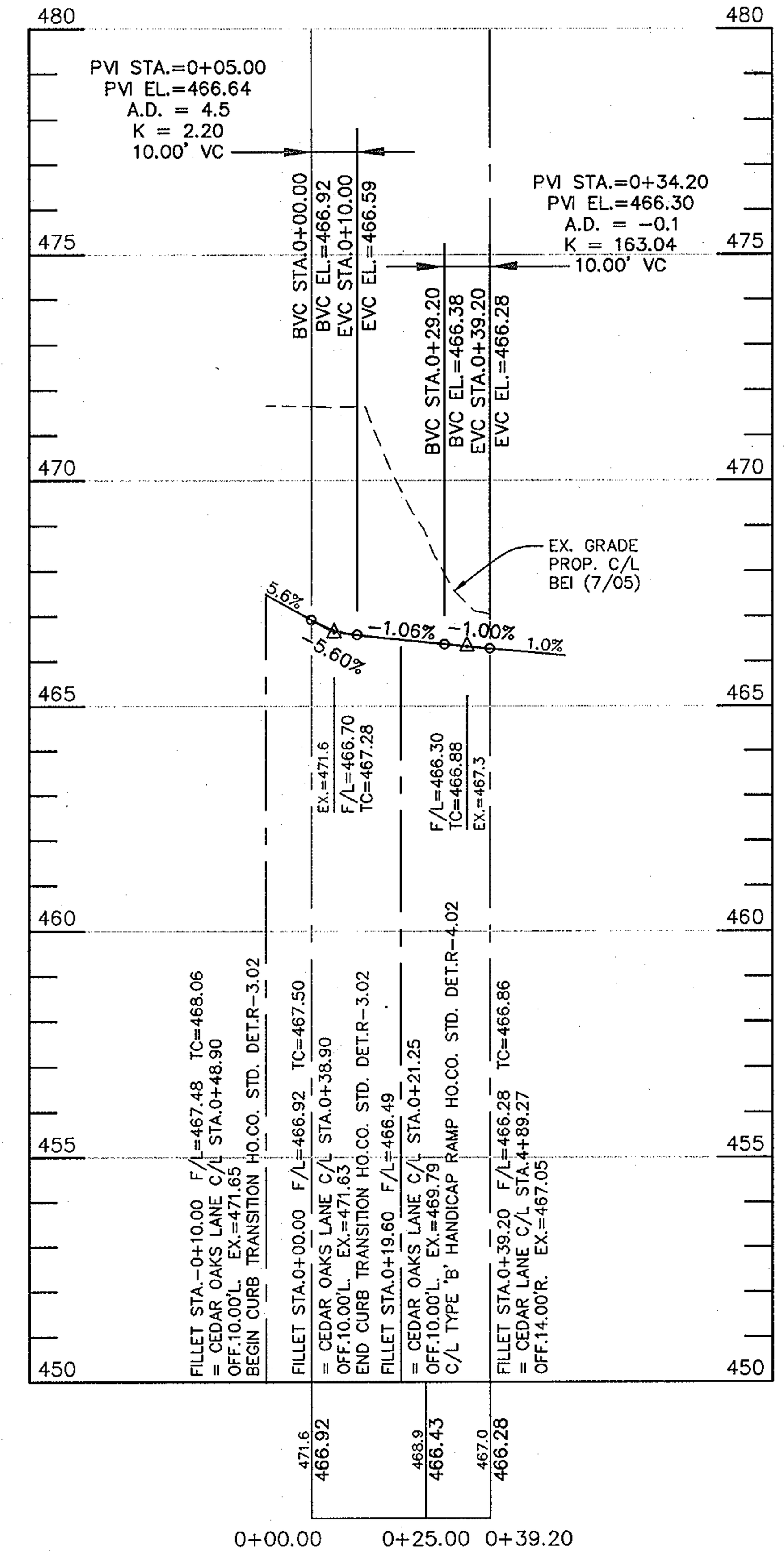
CURB RETURN – SW CORNER
INT. MD RTE. 108 & CEDAR LANE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



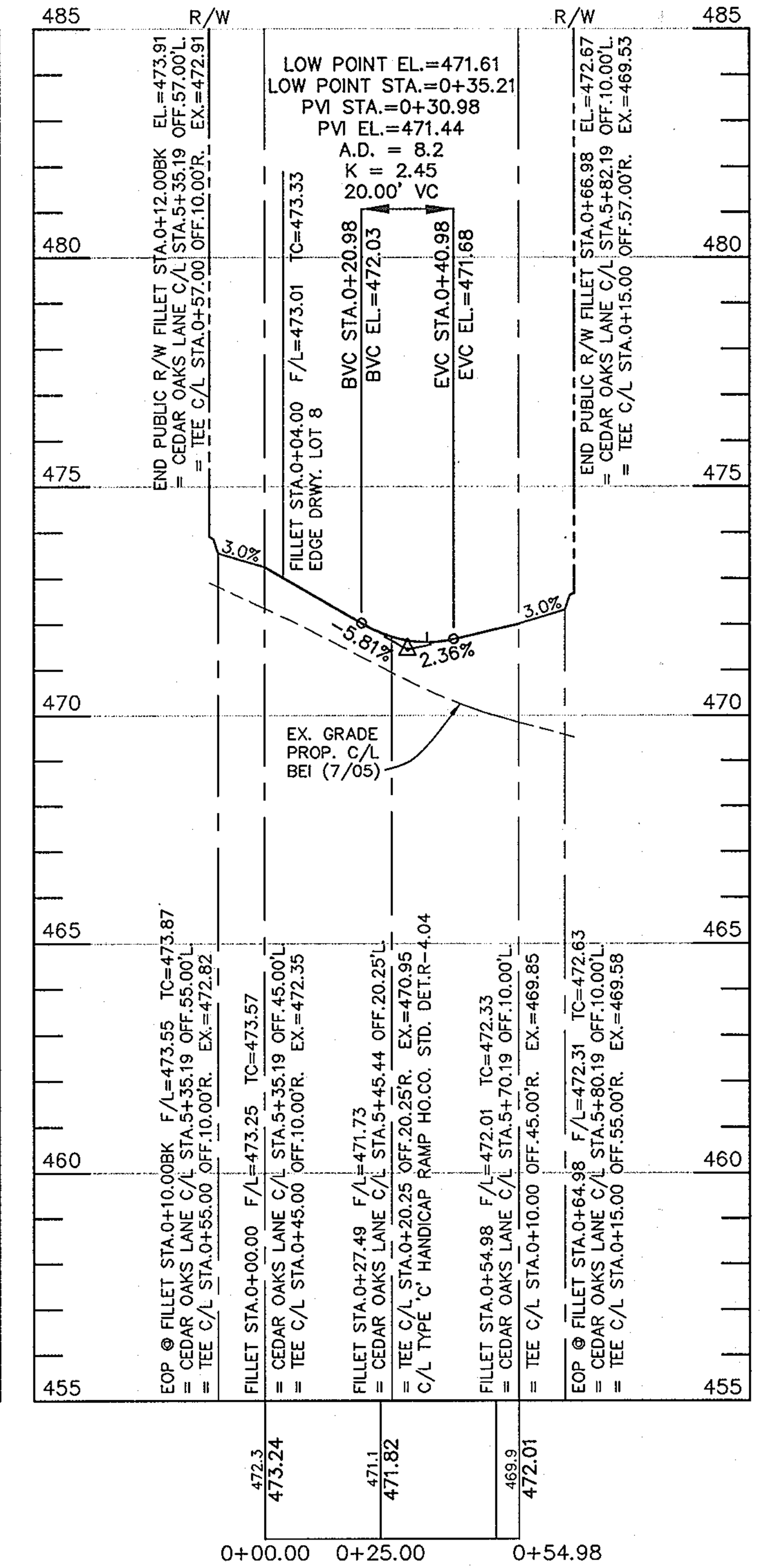
CURB RETURN
N CORNER ENTRANCE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



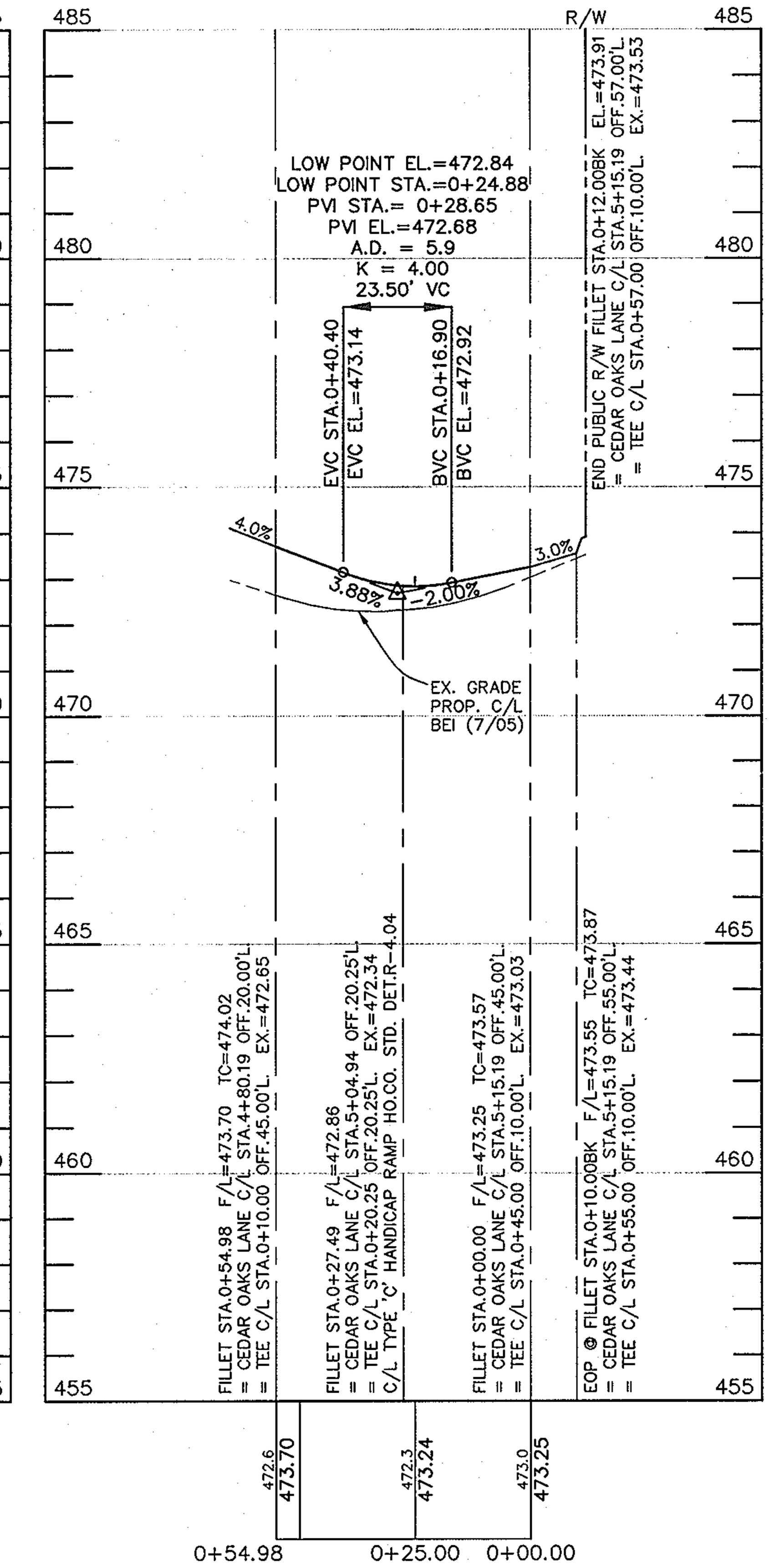
CURB RETURN
S CORNER ENTRANCE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



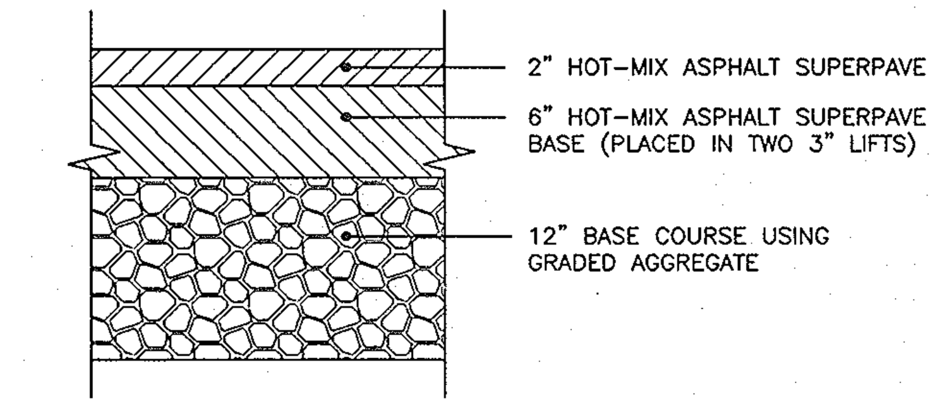
CURB RETURN
N CORNER TEE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



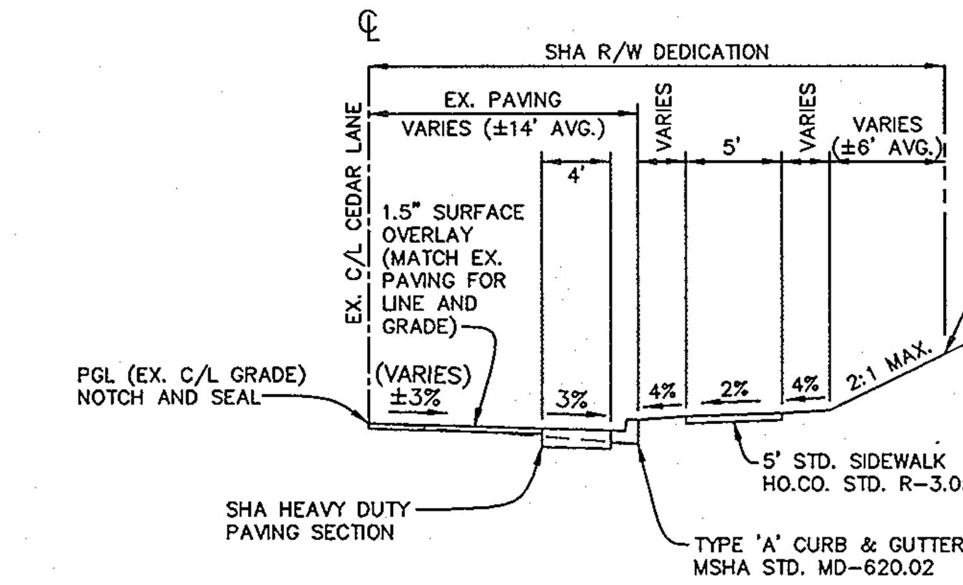
CURB RETURN
S CORNER TEE

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



MSHA HEAVY DUTY PAVING SECTION

NOT TO SCALE



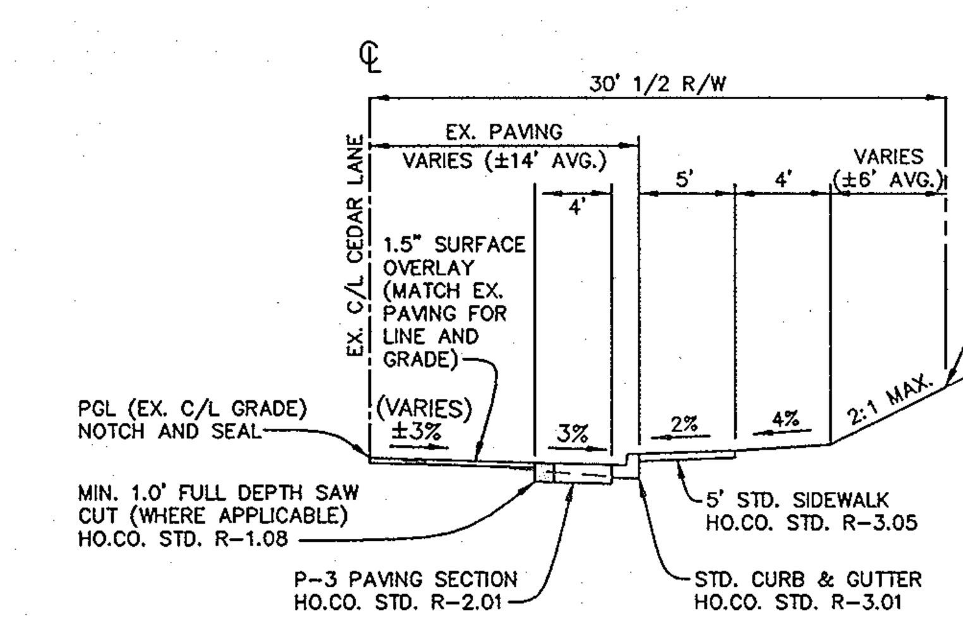
MD RTE 108 @ CEDAR LANE (SHA)

MINOR ARTERIAL – 120' R/W
MINOR COLLECTOR – 60' R/W
FROM EX. STA. 0+00 @ INT MD RTE. 108
TO EX. STA. 0+84 @ SHA DEDICATION

NOTE: THIS DETAIL CONFORMS TO HO.CO. STD. R-1.08

TYPICAL SECTION – PAVEMENT WIDENING

NOT TO SCALE



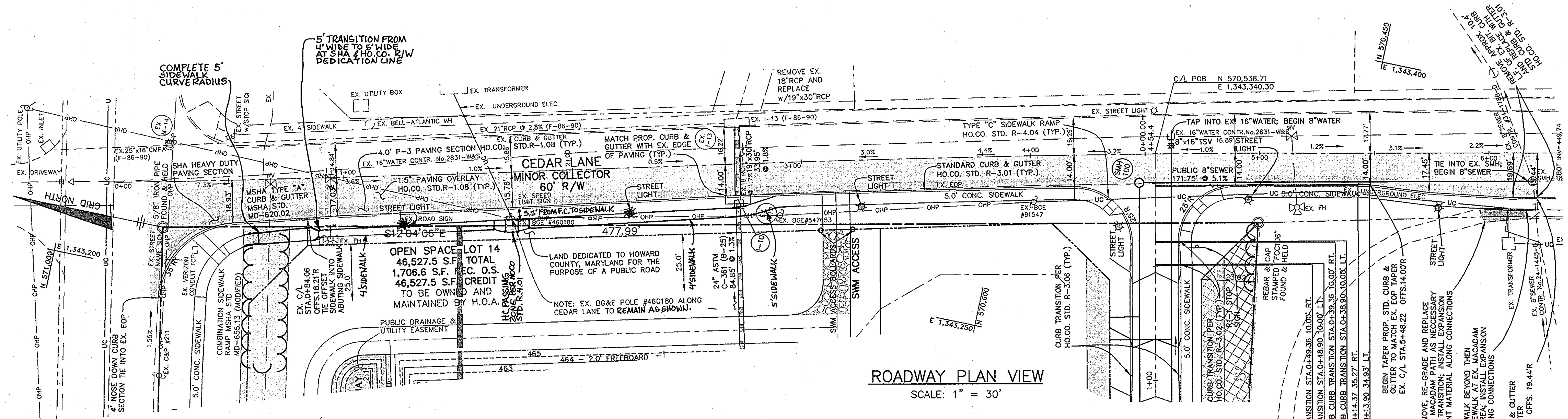
CEDAR LANE (HO.CO.)

MINOR COLLECTOR – 60' R/W
POSTED SPEED: 30 MPH
FROM EX. STA. 2+89.8
TO EX. STA. 6+08 @ EX. CURB & GUTTER

NOTE: THIS DETAIL CONFORMS TO HO.CO. STD. R-1.08

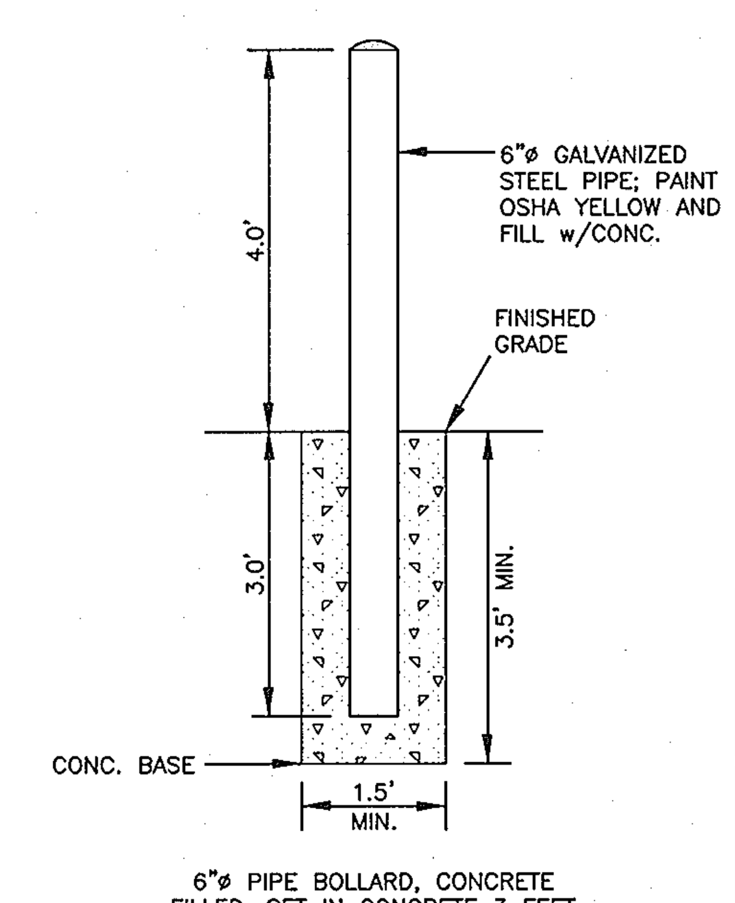
TYPICAL SECTION – PAVEMENT WIDENING

NOT TO SCALE



ROADWAY PLAN VIEW

SCALE: 1" = 30'



6"ø PIPE BOLLARD, CONCRETE FILLED. SET IN CONCRETE 3 FEET BELOW FINISHED GRADE, EXTEND 4 FEET ABOVE FINISHED GRADE AND PAINT OSHA REGULATION YELLOW

SWM BOLLARD DETAIL

SCALE: 1" = 2'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE: 1-15-09
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 1/26/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 1-21-9

CEDAR LANE – STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
☼	150-WATT HPS VAPOR PREMIERE POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	STA.1+25 OFFSET 21'R STA.2+25 OFFSET 21'R STA.3+25 OFFSET:22'R STA.4+95 OFFSET:22'R STA.5+80 OFFSET:25'R

NO.	DATE	REVISION
1	6-3-10	REVISE SDWK. ALONG CEDAR LANE; UPDATE LIGHT SCHEDULE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559; Expiration Date: 7-22-2009

STATE OF MARYLAND – BRIAN F. CLEARY – No. 28559 – REGISTERED PROFESSIONAL ENGINEER 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: **CEDAR GROVE**
LOTS 1–12 AND O.S. LOTS 13–15

LOCATION: TAX MAP 29 – GRID 17, PARCEL 65, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

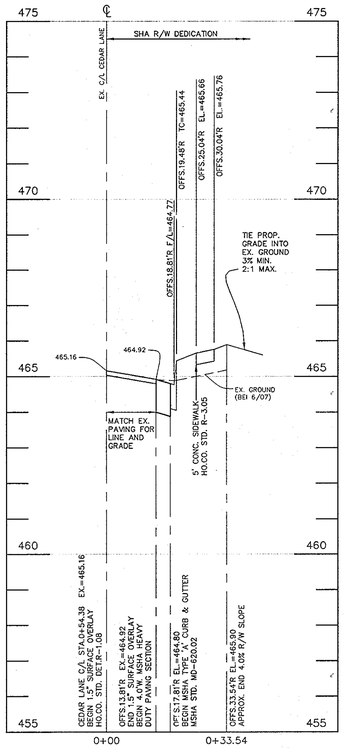
TITLE: FINAL/CONSTRUCTION PLANS
PUBLIC ROADWAY IMPROVEMENTS
PROFILES, NOTES AND DETAILS

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 — PROJECT NO. 1793

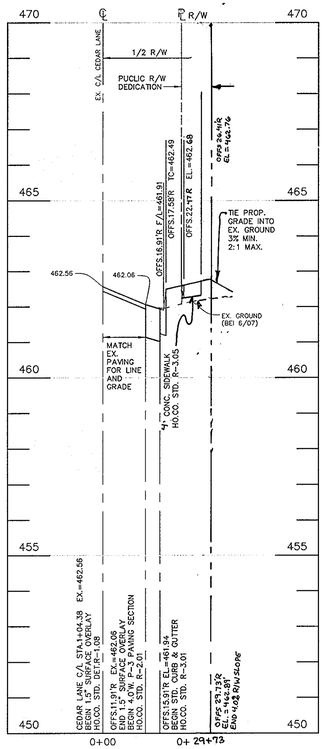
Design: MCR/MAN | Draft: MCR/EDD | Check: DAM | SCALE: AS SHOWN | DRAWING 3 OF 13

F-08-045

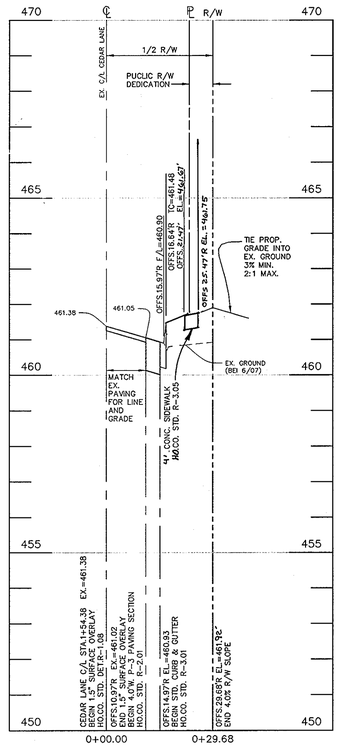
P:\1793\dwg\7018V6-F.dwg, RDWY-IMPS, 1/7/2009 12:58:36 PM, mcr



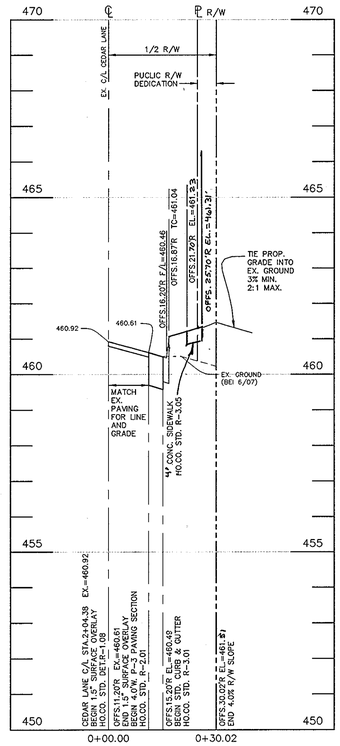
ROADWAY CROSS-SECTION (SHA)
EX. STA.0+54.4 @ Curb Return



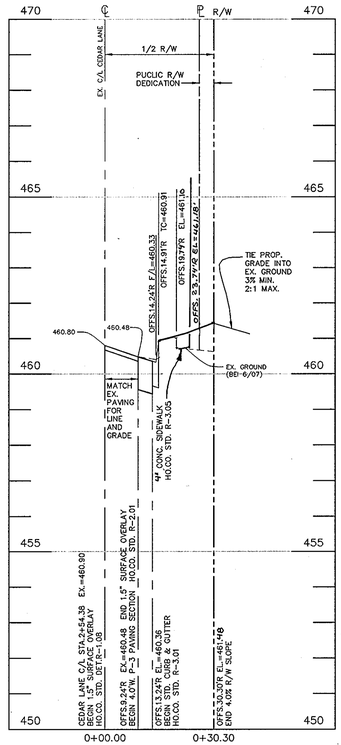
ROADWAY CROSS-SECTION
EX. STA.1+04.4



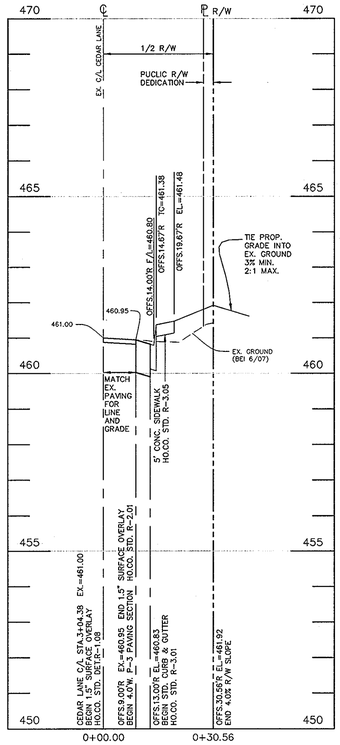
ROADWAY CROSS-SECTION
EX. STA.1+54.4



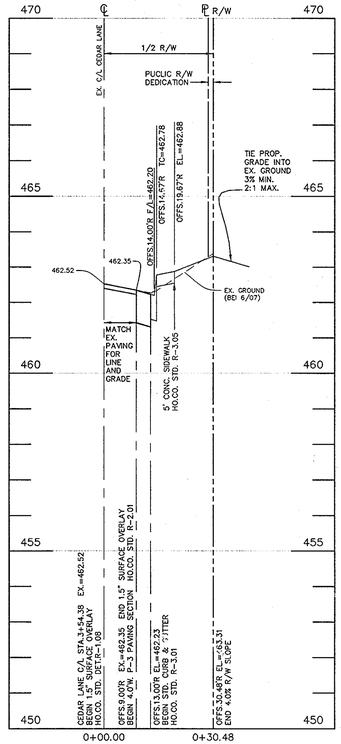
ROADWAY CROSS-SECTION
EX. STA.2+04.4



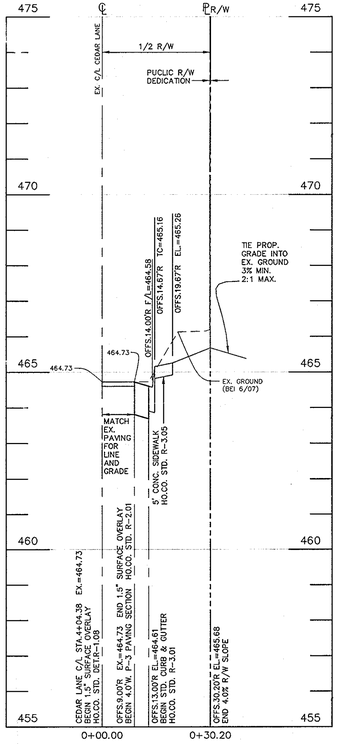
ROADWAY CROSS-SECTION
EX. STA.2+54.4



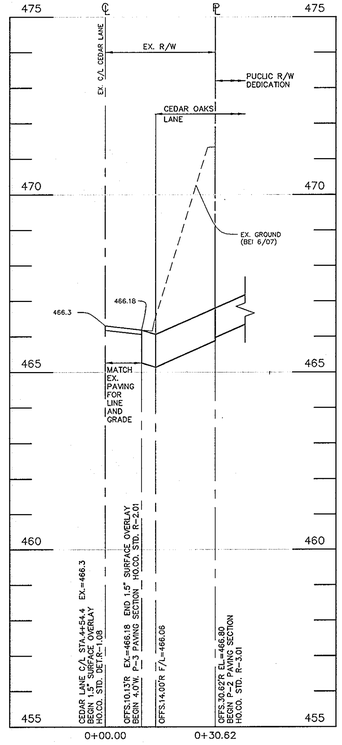
ROADWAY CROSS-SECTION
EX. STA.3+04.4



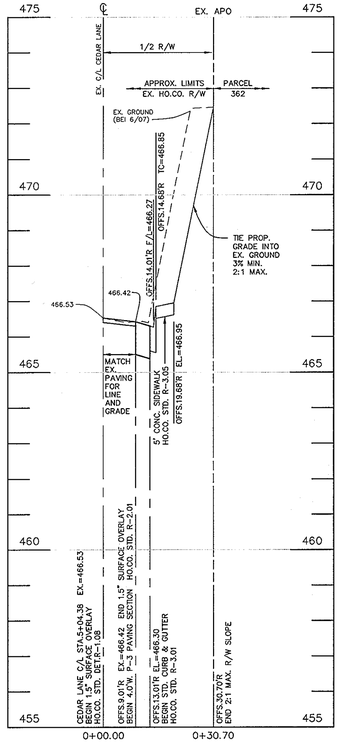
ROADWAY CROSS-SECTION
EX. STA.3+54.4



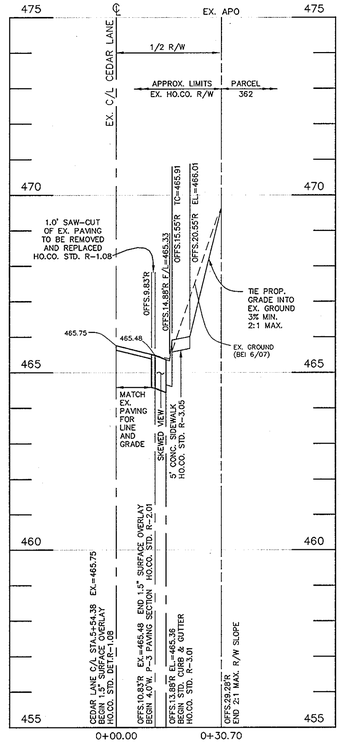
ROADWAY CROSS-SECTION
EX. STA.4+04.4



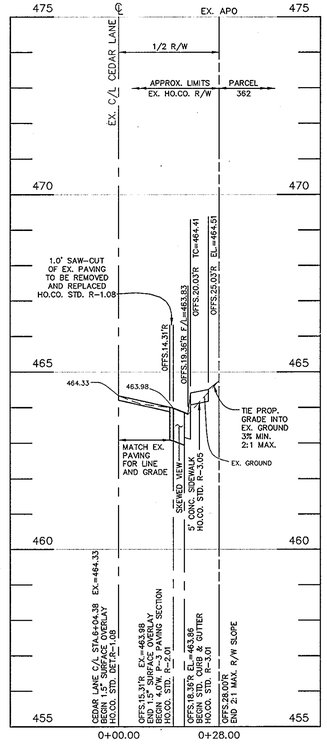
ROADWAY CROSS-SECTION
EX. STA.4+54.4 (@ Entrance)



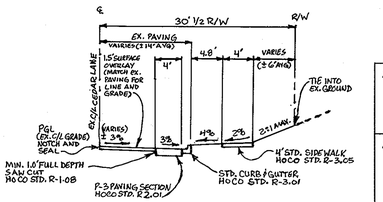
ROADWAY CROSS-SECTION
EX. STA.5+04.4



ROADWAY CROSS-SECTION
EX. STA.5+54.4



ROADWAY CROSS-SECTION
EX. STA.6+04.4



CEDAR LANE (HO. CO.)
MINOR COLLECTOR - 60' R/W
POSTED SPEED: 30 MPR
FROM EX. STA. 0+84@ SHA DEDICATION
TO EX. STA. 2+80.8 @ SIDEWALK ALONG C/G
NOTE: THIS DETAIL CONFORMS TO HOCO STD. R-1.08

TYPICAL SECTION-PAVEMENT WIDENING
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/26/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1-21-9

NO.	DATE	REVISION
1	6-3-10	REVISE SIDEWALK ALONG CEDAR LANE; FIX CROSS SEC. 1+84.4; ADD NEW T-T. SEC.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-2009

STATE OF MARYLAND — BRIAN F. CLEARY — REG. NO. 28559 — REGISTERED PROFESSIONAL ENGINEER — 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 - GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
PUBLIC ROADWAY IMPROVEMENTS
CROSS-SECTIONS AND DETAILS

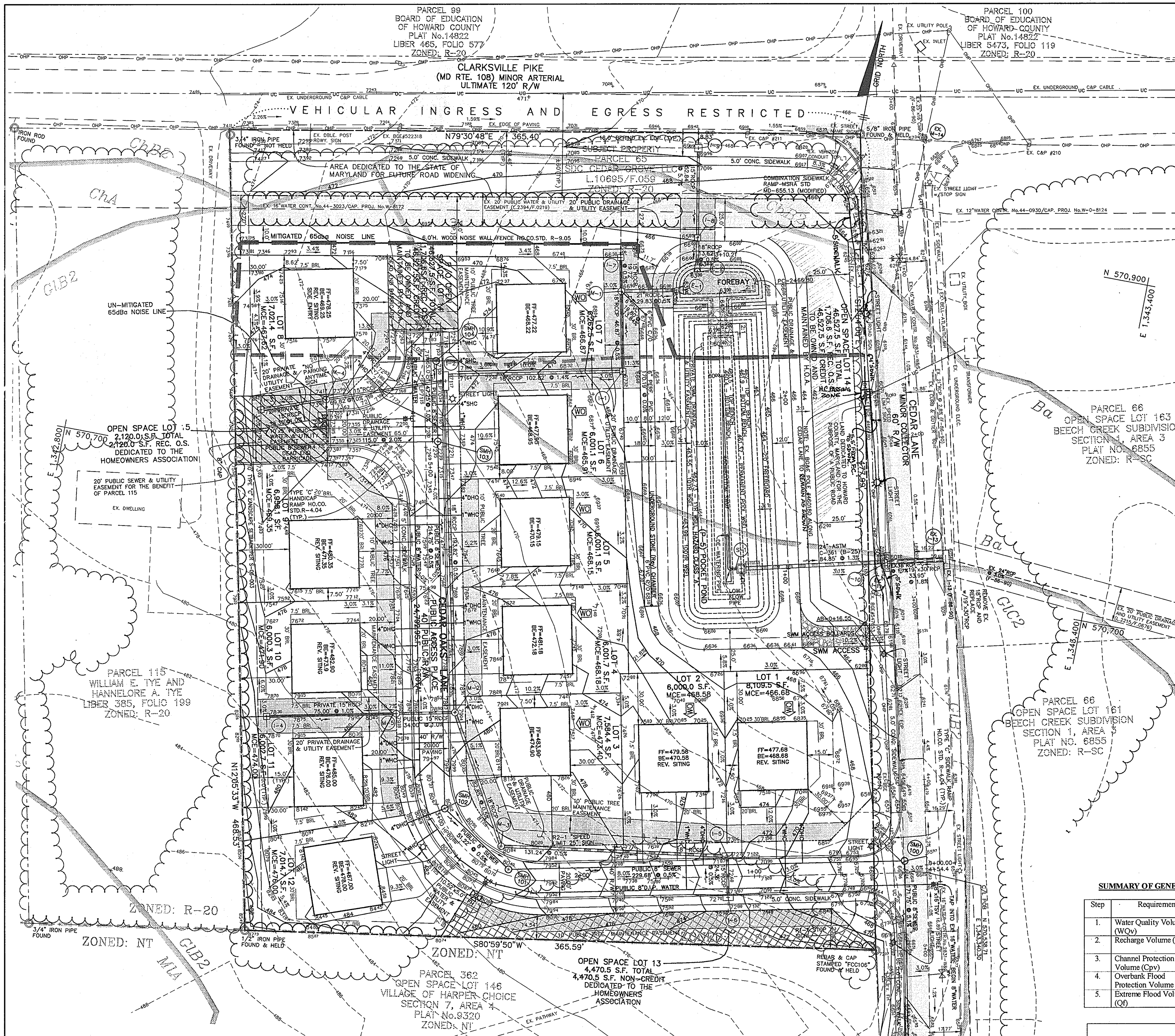
DATE: SEPTEMBER 17, 2007
JANUARY 8, 2009
PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM

SCALE: H1'=20/V1"=2'
DRAWING 4 OF 13

F-08-045

P:\1793\dwg\7018V6-F.dwg, X-SECS, 1/7/2009 12:59:01 PM, mcr



PLAN

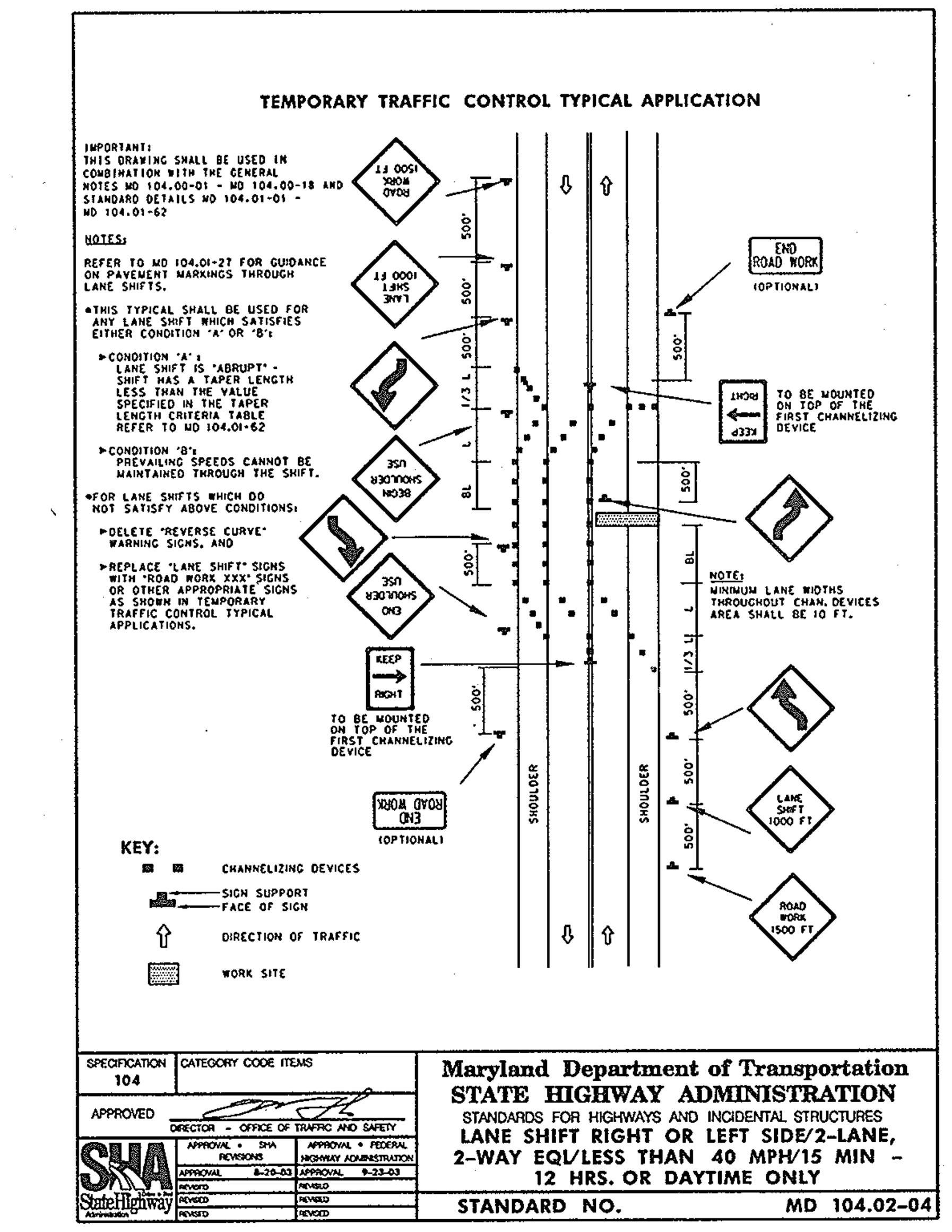
SCALE: 1" = 30'

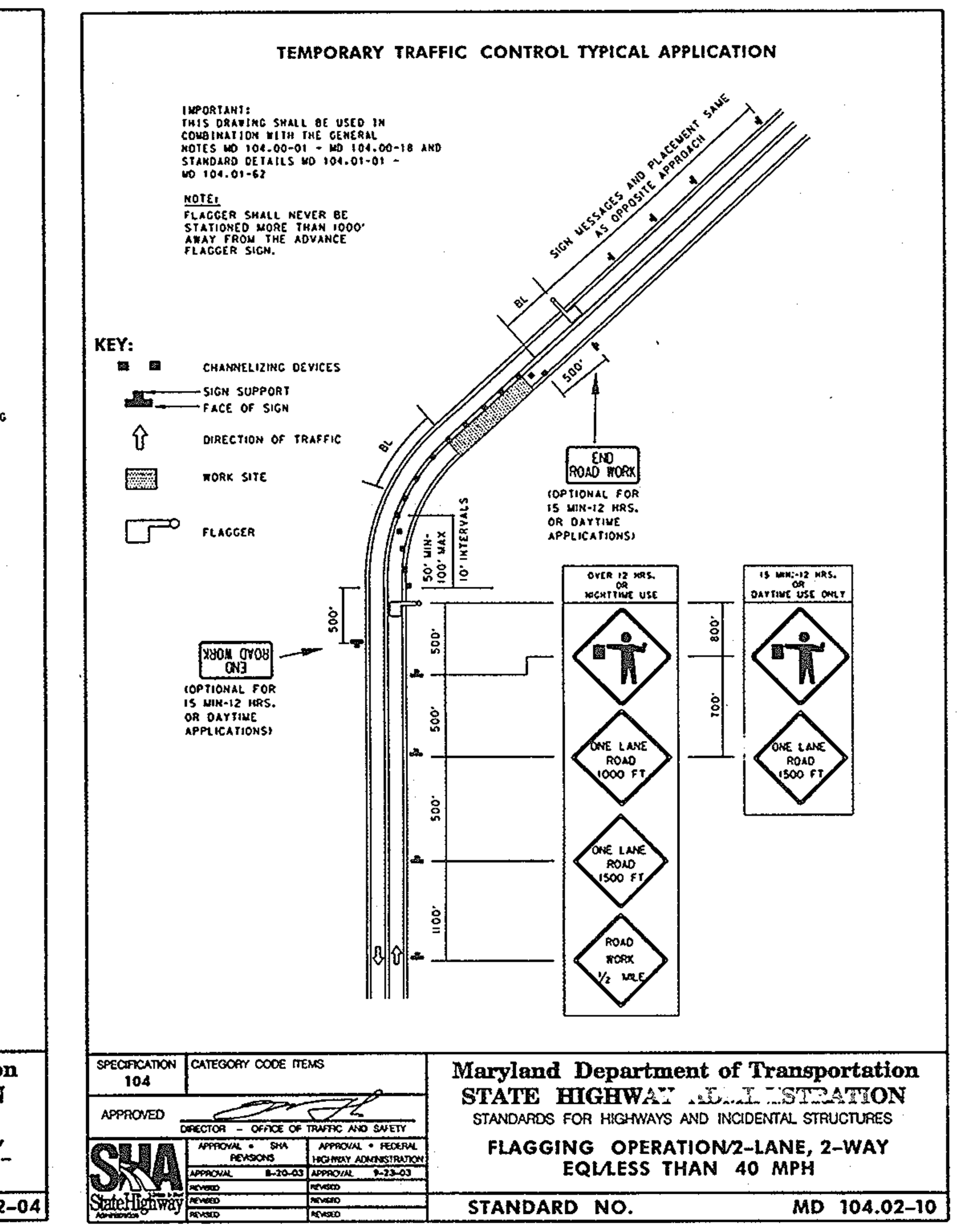
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE: 1-15-09
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 1/26/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 1-21-9

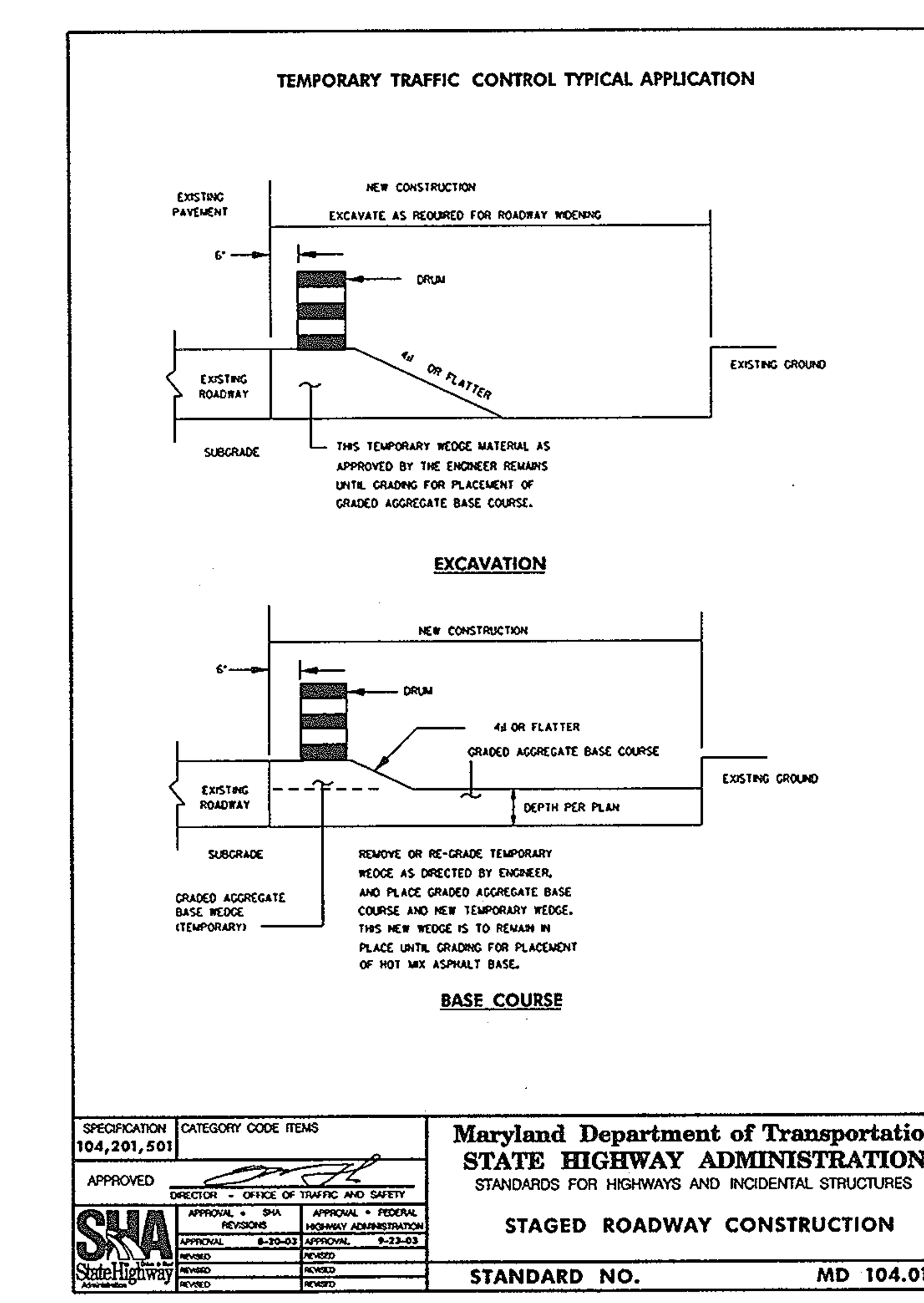
SOILS LEGEND

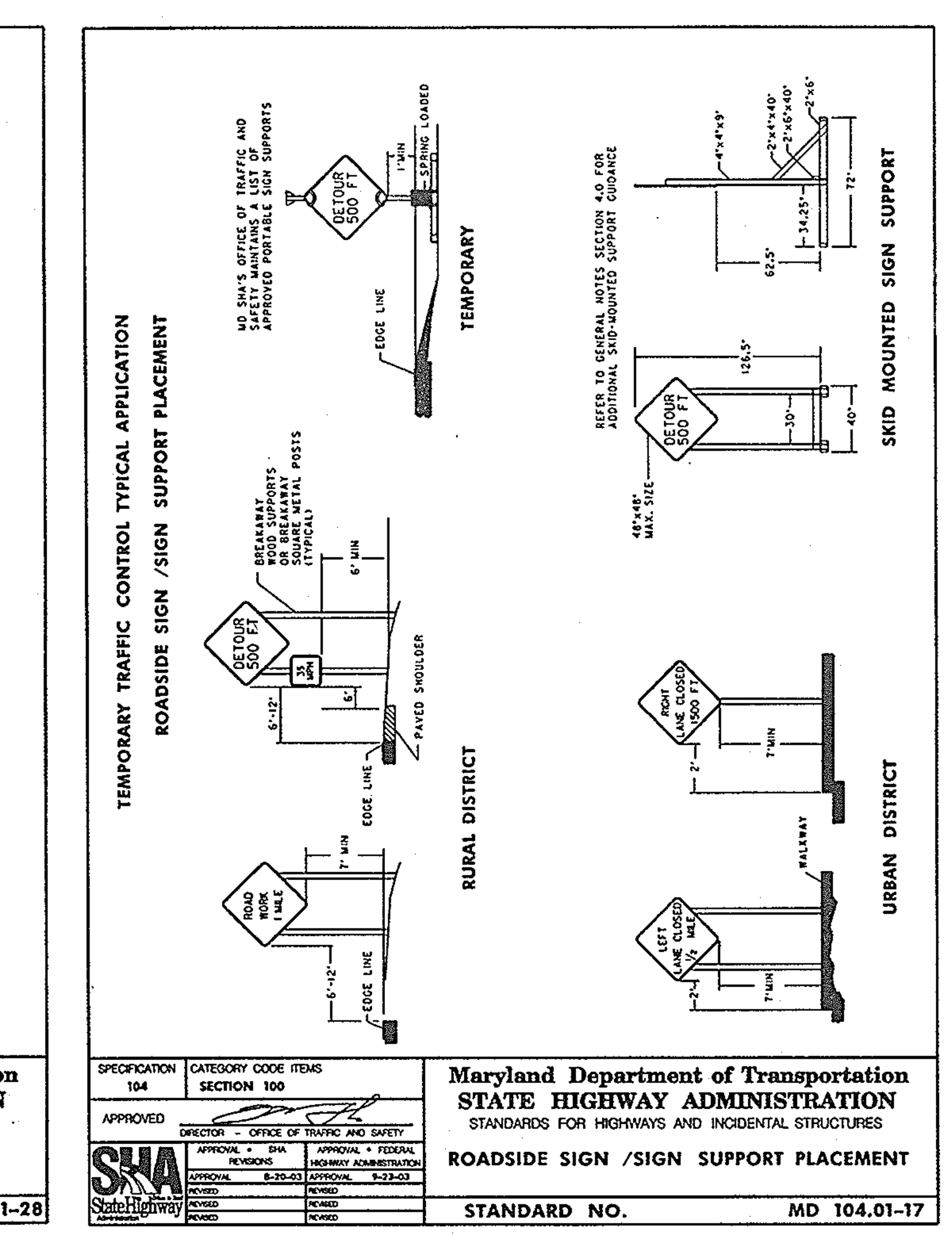
MAP SYMBOL	SOIL TYPE	MAPPING UNIT
Ba	D	BAILE SILT LOAM
ChA	B	CHESTER SILT LOAM – 0 TO 3 PERCENT SLOPES
ChB2	B	CHESTER SILT LOAM – 3 TO 8 PERCENT – MODERATELY REODED
GlB2	B	GLENELG LOAM – 3 TO 8 PERCENT SLOPES – MODERATELY ERODED
MlA	B	MANOR LOAM – 0 TO 3 PERCENT SLOPES

USDA – HOWARD COUNTY SOILS SURVEY, MAP No.19, ISSUED JULY 1968









MAINTENANCE OF TRAFFIC DETAILS

SUMMARY OF GENERAL STORAGE REQUIREMENT DRAINAGE AREA No.1

Step	Requirement	Volume Required (ac-ft.)	Notes
1.	Water Quality Volume (WQv)	0.1720 (7,492.32 c.f.)	Pocket Pond (P-5)
2.	Recharge Volume (Rev)	0.0361 (or 0.4389 acres)	Underground Stone Chamber
3.	Channel Protection Volume (Cpv)	0.1801 (7,845.16 c.f.)	Pocket Pond (P-5)
4.	Overbank Flood Protection Volume (Qp)	N/A	Not required
5.	Extreme Flood Volume (Qf)	N/A	Not Required

DISCHARGE SUMMARY TABLE

Drainage Area	Condition @ Study point	Q1-yr (*cfs*)	Q10-yr (*cfs*)	Q100-yr (*cfs*)
1	existing	1.67	13.38	26.33
1A/1B	developed (addhyd)	1.84	13.48	27.64

The slight increase in the developed condition is negligible and will not adversely impact existing downstream conditions.

FACILITY SUMMARY TABLE

Facility No.	Type	Detention Time	1-yr WSEL	10-yr WSEL	100-yr WSEL
1	P-5	23.6 hrs	462.73	463.55	463.99

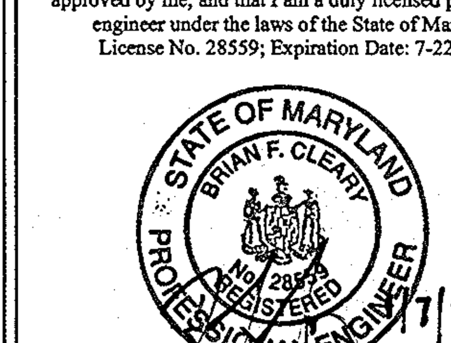
Stormwater Management for this site will be provided by using; a Pocket Pond (P-5)SWMF to provide, Water Quality Volume (WQv) and Channel Protection (Cpv) for the Design Drainage Area; and an Underground Stone Chamber to provide Groundwater Recharge (Rev) for the entire project.

NO.	DATE	REVISION
1	6-3-10	REVISE SIDEWALK ALONG CEDAR LANE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559; Expiration Date: 7-22-2009



1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 – GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
FINAL GRADING PLAN
NOTES AND DETAILS

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 | PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM | SCALE: AS SHOWN | DRAWING 5 OF 13

F-08-045

P:\1793\dwg\7021V6-F.dwg, PLAN, 1/7/2009 1:03:47 PM, mcr

PARCEL 99
BOARD OF EDUCATION
OF HOWARD COUNTY
PLAT No.14822
LIBER 465, FOLIO 577
ZONED: R-20

CLARKSVILLE PIKE
(MD RTE. 108) MINOR ARTERIAL
ULTIMATE 120' R/W

PARCEL 100
BOARD OF EDUCATION
OF HOWARD COUNTY
PLAT No.14822
LIBER 5473, FOLIO 119
ZONED: R-20

VEHICULAR INGRESS AND EGRESS RESTRICTED

LIMIT OF DISTURBANCE (TYP.)

SILT DIVERSION FENCE (TYP.)

AREA DEDICATED TO THE STATE OF MARYLAND FOR FUTURE ROAD WIDENING

SUBJECT PROPERTY
PARCEL 65
SDC CEDAR GROVE, LLC
L.10695/F.059
ZONED: R-20

A-2 TEMP. SWALE (TYP.)

5.0' CONC. SIDEWALK

COMBINATION SIDEWALK RAMP-MSHA STD MD-655.13 (MODIFIED)

EX. 12" WATER CONT. No.44-0930/CAP. PROJ. No.W-0-8124

EX. 16" WATER CONT. No.44-3023/CAP. PROJ. No.W-8172

EX. 20' PUBLIC WATER & UTILITY EASEMENT (C.2394/F.0219)

20' PUBLIC DRAINAGE & UTILITY EASEMENT

LIMIT OF DISTURBANCE (TYP.)

MITIGATED 65dBa NOISE LINE

5.0'H. WOOD NOISE WALL/FENCE TO CO.STD. R-9.05

GABION INFLOW PROTECTION

INSTALL PIPE RUN TO STA.0+13.83

UN-MITIGATED 65dBa NOISE LINE

OPEN SPACE LOT 15
2,120.0 S.F. TOTAL
2,120.0 S.F. REC. O.S.
DEDICATED TO THE
HOMEOWNERS ASSOCIATION

20' PUBLIC SEWER & UTILITY EASEMENT FOR THE BENEFIT OF PARCEL 115

EX. DWELLING

PRIVATE "NO PARKING ANYTIME" SIGNS

TYPE 'C' HANDICAP RAMP HO.CO. STD.R-4.04 (TYP.)

LOT 8
6,098.1 S.F.
MCE=466.35

LOT 7
6,782.5 S.F.
MCE=466.87

LOT 6
6,001.1 S.F.
MCE=465.91

LOT 5
6,001.1 S.F.
MCE=468.15

LOT 4
7,584.3 S.F.
MCE=473.40

LOT 3
6,000.0 S.F.
MCE=468.18

LOT 2
6,000.0 S.F.
MCE=468.58

LOT 1
8,109.5 S.F.
MCE=466.68

LOT 10
6,000.1 S.F.

LOT 11
6,000.1 S.F.

LOT 12
7,014.5 S.F.

TSWM BASIN - 1
BOTTOM EL=460.0

PROFILE ALONG C/L EMBANKMENT B-1

GABION INFLOW PROTECTION (TYP.)

OPEN SPACE LOT 14
46,527.5 S.F. TOTAL
46,527.5 S.F. REC. O.S.
TO BE OWNED AND MAINTAINED BY H.O.A.

SUPER SILT FENCE (TYP.)

PUBLIC DRAINAGE & UTILITY EASEMENT

CEDAR LANE
60' R/W
MINOR COLLECTOR

TSWM BASIN - 1
EX. DRAINAGE AREA=N/A
PROP. DRAINAGE AREA=3.65ac.
TOTAL STORAGE REQUIRED=12816c.f.
TOTAL STORAGE PROVIDED=12816c.f.
WET STORAGE PROVIDED=6408c.f.
WET STORAGE ELEVATION=460.65
DRY STORAGE PROVIDED=6408c.f.
DRY STORAGE ELEVATION=461.21
CLEANOUT ELEVATION=460.55
BOTTOM ELEVATION=460.00
BOTTOM DIMENSIONS=±191'x±52'

N 570,900
E 1,343,400

PARCEL 66
OPEN SPACE LOT 163
BEECH CREEK SUBDIVISION
SECTION 1, AREA 3
PLAT NO. 6855
ZONED: R-SC

N 570,700
E 1,345,400

PARCEL 66
OPEN SPACE LOT 161
BEECH CREEK SUBDIVISION
SECTION 1, AREA 3
PLAT NO. 6855
ZONED: R-SC

PARCEL 115
WILLIAM E. TYE AND
HANNELORE A. TYE
LIBER 385, FOLIO 199
ZONED: R-20

A-2 EARTH DIKE (TYP.) CLEANWATER DIVERSION

MATTING (TYP.)

PARCEL 362
OPEN SPACE LOT 146
VILLAGE OF HARPER'S CHOICE
SECTION 7, AREA 4
PLAT No.3320
ZONED: NT

ZONED: R-20

ZONED: NT

INLET PROTECTION (TYP.)

PUBLIC 8" SEWER

PUBLIC 8" D.I.P. WATER

OPEN SPACE LOT 13
4,470.5 S.F. TOTAL
4,470.5 S.F. NON-CREDIT
DEDICATED TO THE
HOMEOWNERS ASSOCIATION

(TYP.) A-2 EARTH DIKE CLEANWATER DIVERSION

(TYP.) LIMIT OF DISTURBANCE

STOCKPILE

TEMPORARY SWALE (TYP.)

SWM ACCESS BOLLARDS

REMOVE EX. INLET & REPLACE W/18"x30"RCP

TIE INTO EX. SEWER MH

EX. TRANSFORMER

EX. 8"SEWER CONTR. No.24-1448-D

EX. STREET LIGHT CONTR. No.44-1448-D

EX. PATHWAY

PLAN
SCALE: 1" = 30'

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION ACTIVITY

DAY 1	OBTAIN GRADING PERMIT
DAY 2-5	INSTALL CONSTRUCTION ENTRANCE; CLEAR & GRUB FOR PERIMETER SEDIMENT CONTROL DEVICES
DAY 6-8	TEST PIT AREA OF EXISTING UTILITY CONNECTIONS TO DETERMINE EXACT LOCATIONS AND ELEVATIONS, RETURN TO EXISTING CONDITIONS AS NEEDED
DAY 9-30	INSTALL PERIMETER SEDIMENT CONTROL DEVICES; INSTALL STORM DRAIN RUN FROM S-1 TO EX. I-13 (ROADWAY/OUTFALL) THIS ACTIVITY TO OCCUR WITHIN A FIVE(5) DAY CLEAR WEATHER (NO PRECIPITATION) FORECST BY THE NATIONAL WEATHER SERVICE(NWS); UPON COMPLETION INSTALL TSWM BASIN & PRELIMINARY STABILZE THE AREA
DAY 30-38	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, COMPLETE INSTALLATION OF PERIMETER DEVICES, CLEAR & GRUB REMAINDER OF SITE AND COMPLETE MASS GRADING
DAY 39-58	INSTALL SD PIPE RUN FROM M-1 TO E-1 TO STA. 0+16.0 @ EL.463.1 BEGIN INSTALLATION OF REMAINING PROPOSED UTILITIES AND BRING PROP. ROADWAY TO SUBGRADE; TIE ENTRANCE INTO EX. ROADWAY
DAY 59-60	STABILIZE SITE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES.
DAY 61-70	BRING REMAINING ROADWAY TO SUBGRADE AND FINISH INSTALLING BASE COURSE PAVING.
DAY 71-75	FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
DAY 76-85	INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THESE PLANS.
DAY 86-105	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CONVERT TSWM BASIN TO POCKET POND SWMF, INSTALL REMAINING OUTSTANDING UTILITIES AND PERMANENTLY STABILIZE SLOPES
DAY 106-110	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS.

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSES ONLY

ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION

SUPER SILT FENCE IS TO INSPECTED FREQUENTLY & CLEANED, REPAIRED AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY

SEDIMENT CONTROL LOCATION AND IMPLEMENTATION SHOWN ON THIS PLAN IS SUBJECT TO REVISIONS IN THE FIELD AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR

ALL SEDIMENT CONTROL FEATURES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS SHOWN IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

BY THE OWNER/DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SDC CEDAR GROVE LLC
BY: _____ _____ 1-7-09
OWNER/DEVELOPER STEVEN K BREEDEN Member / James R. Morley, III Member DATE:

BY THE ENGINEER:

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

_____ 1/7/2009
ENGINEER - BRIAN F. CLEARY, P.E. # 28559 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

_____ 1/12/09
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

_____ 1-15-09
CHIEF, BUREAU OF HIGHWAYS DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

_____ 1/21/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE:

_____ 1.21.9
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE:

SOILS LEGEND

MAP SYMBOL	SOIL TYPE	MAPPING UNIT
Be	D	BAILE SILT LOAM
ChA	B	CHESTER SILT LOAM - 0 TO 3 PERCENT SLOPES
ChB2	B	CHESTER SILT LOAM - 3 TO 8 PERCENT - MODERATELY ECODED
GlB2	B	GLENELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MrA	B	MAJOR LOAM - 0 TO 3 PERCENT SLOPES

USDA - HOWARD COUNTY SOILS SURVEY, MAP No.19, ISSUED JULY 1968

NO.	DATE	REVISION
1	6-3-10	REVISE SIDEWALK ALONG CEDAR LANE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-2009

STATE OF MARYLAND · BRIAN F. CLEARY · 28559 · REGISTERED PROFESSIONAL ENGINEER
1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 - GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
SEDIMENT & EROSION CONTROL AND MASS GRADING PLAN

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM | SCALE: AS SHOWN | DRAWING 6 OF 13

F-08-045

P:\1793\dwg\7023V6-F.dwg, PLAN, 1/7/2009 1:06:24 PM, mcr

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION.
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 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. 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.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	3.97	ACRES
TOTAL AREA DISTURBED	4.40	ACRES
AREA TO BE ROOFED OR PAVED	1.50	ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.90	ACRES
TOTAL CUT	–	CU. YDS.
TOTAL FILL	9500	CU. YDS.
OFFSITE FILL	*SEE NOTE	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. 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.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

* – IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY AN OFF-SITE BORROW AREA WITH AN APPROVED SEDIMENT & EROSION CONTROL PLAN AND PERMIT.

TEMPORARY SEEDBED PREPARATION

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDBED PREPARATION

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING SCHEDULES:

1. PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0- UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
2. ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable 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.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

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

d. The soil is so acidic that treatment with limestone is not feasible. II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that 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-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 ½" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

i. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall 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.

Note: 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.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation. G-21-2

VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribed amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

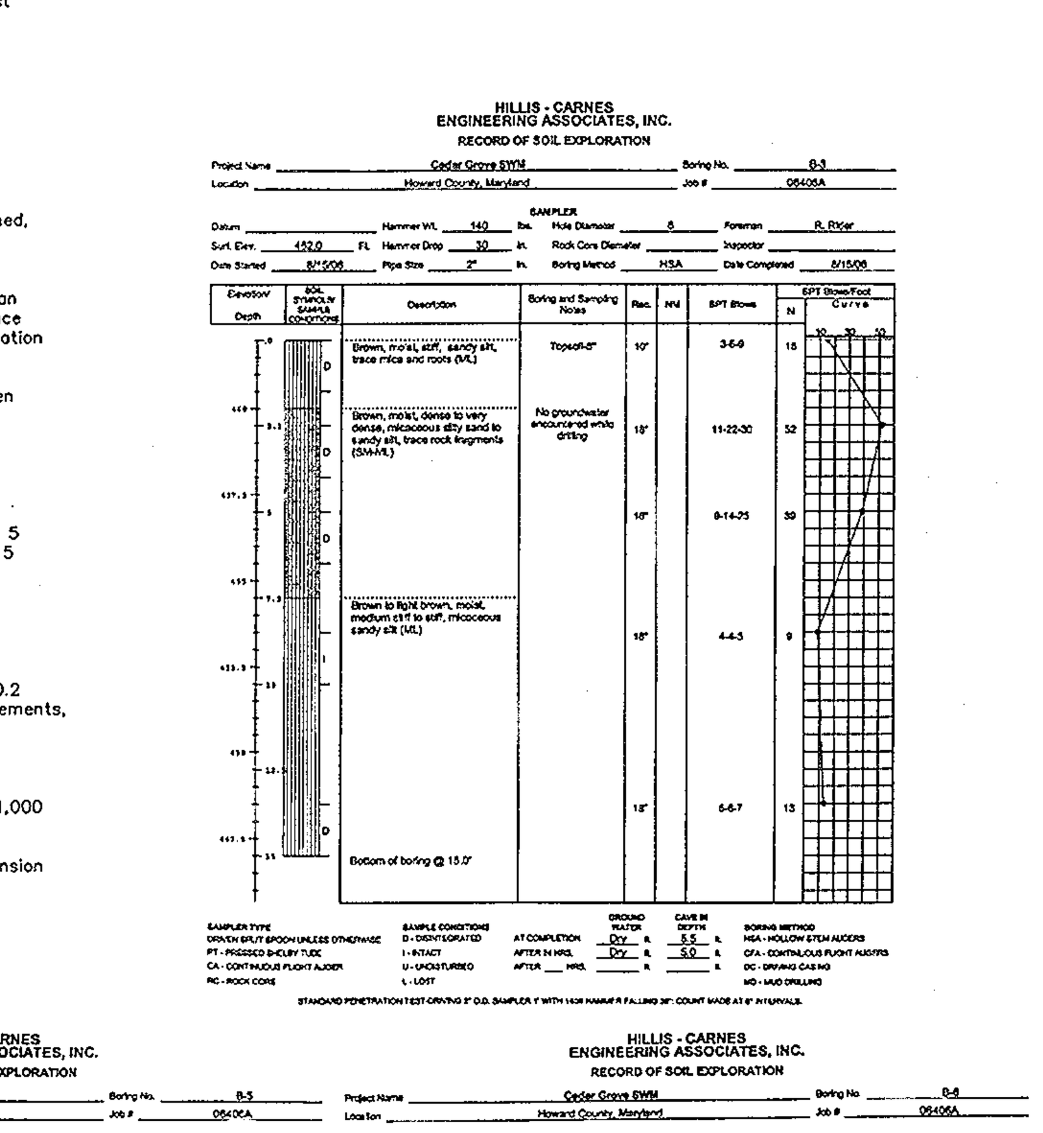
b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

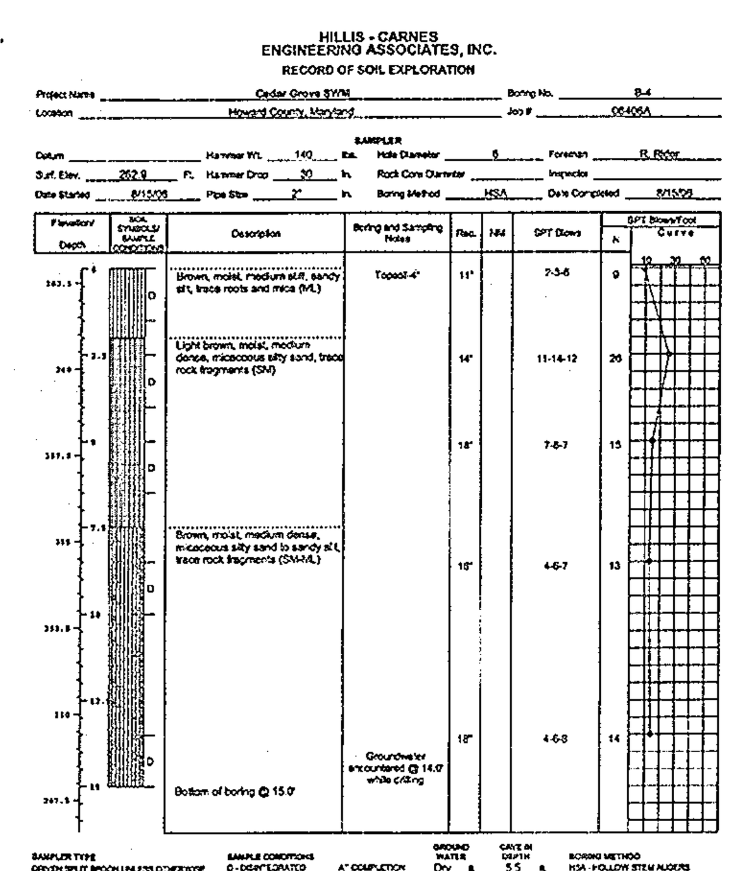
iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

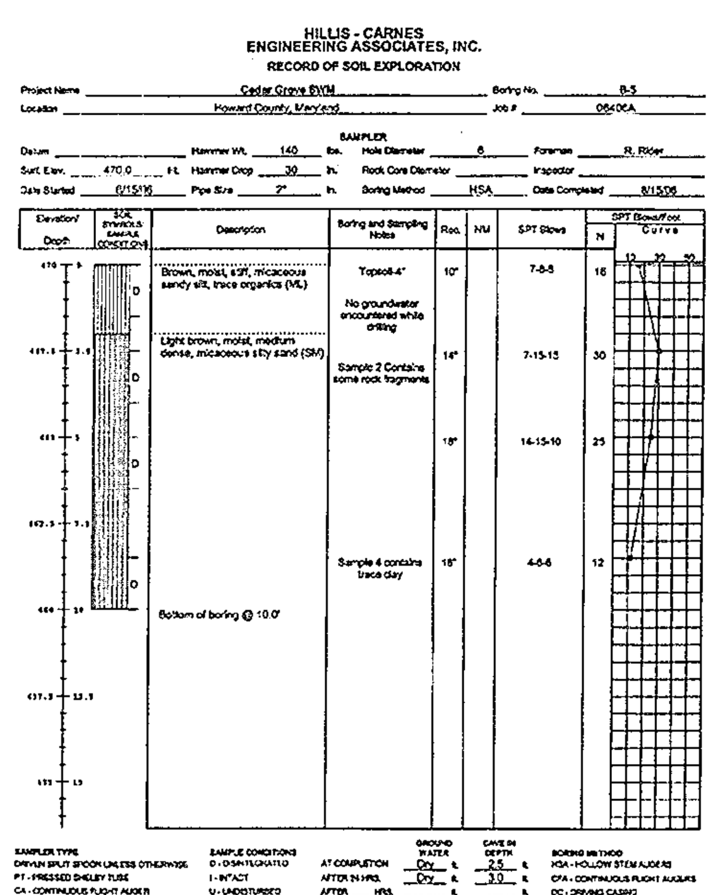
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



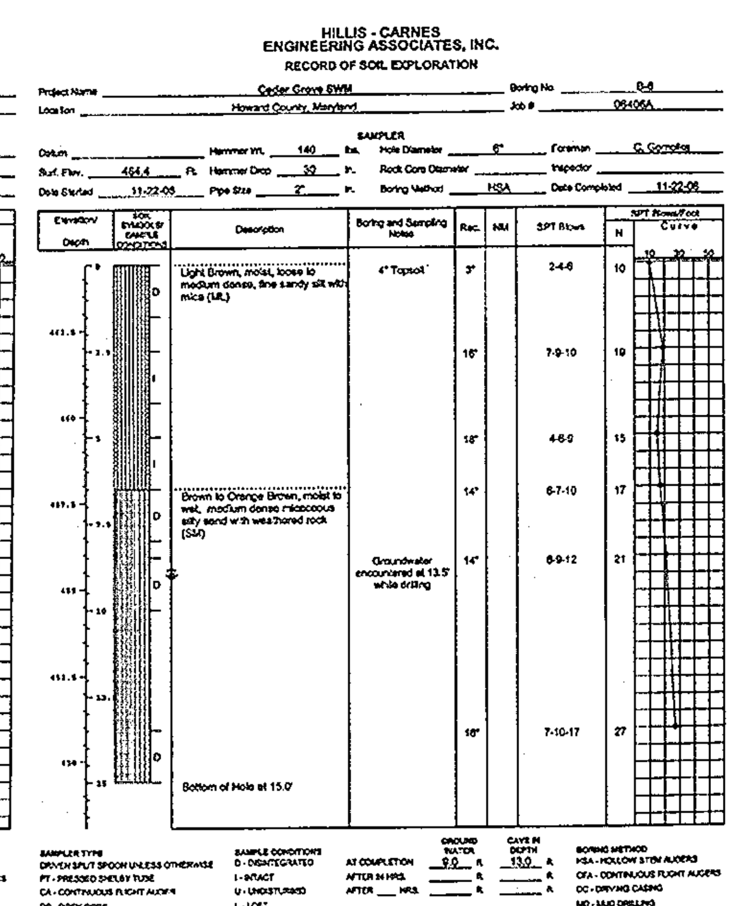
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



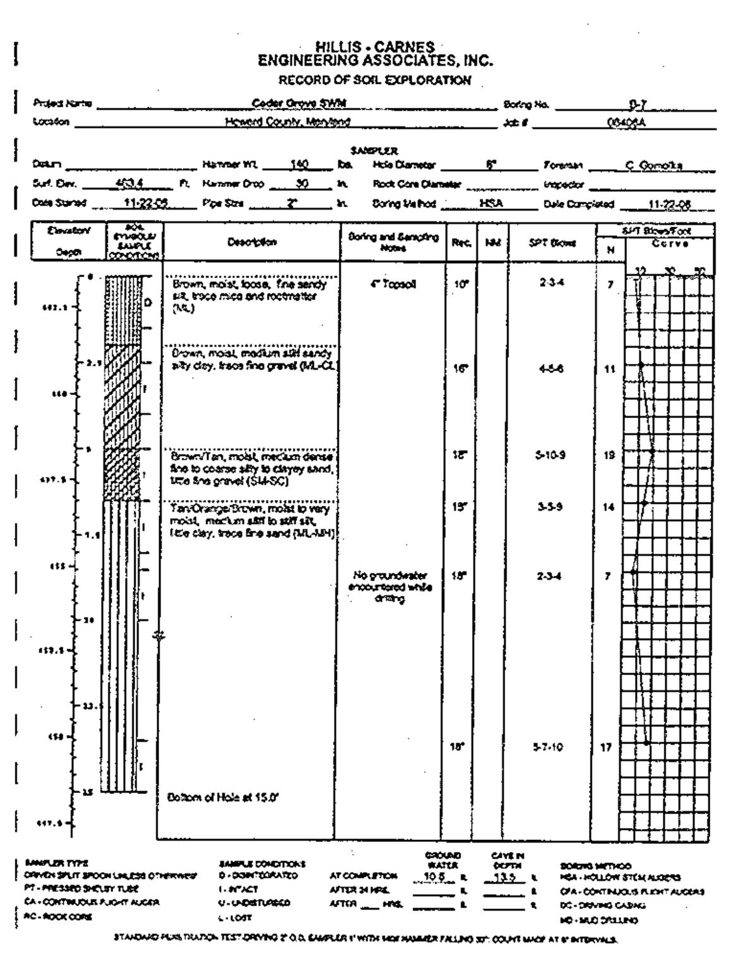
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



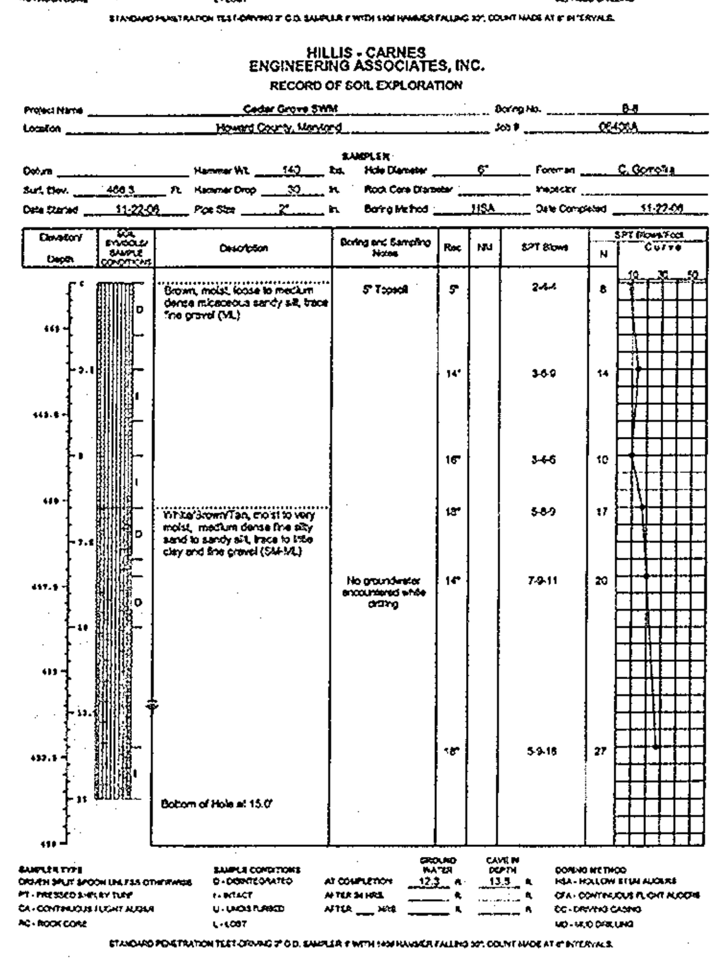
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



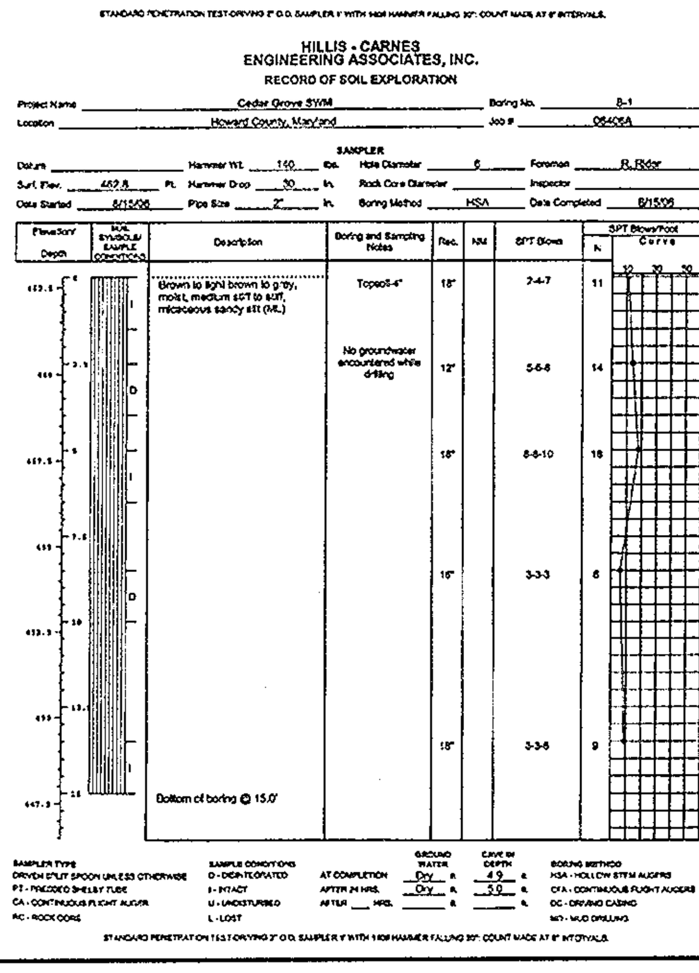
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



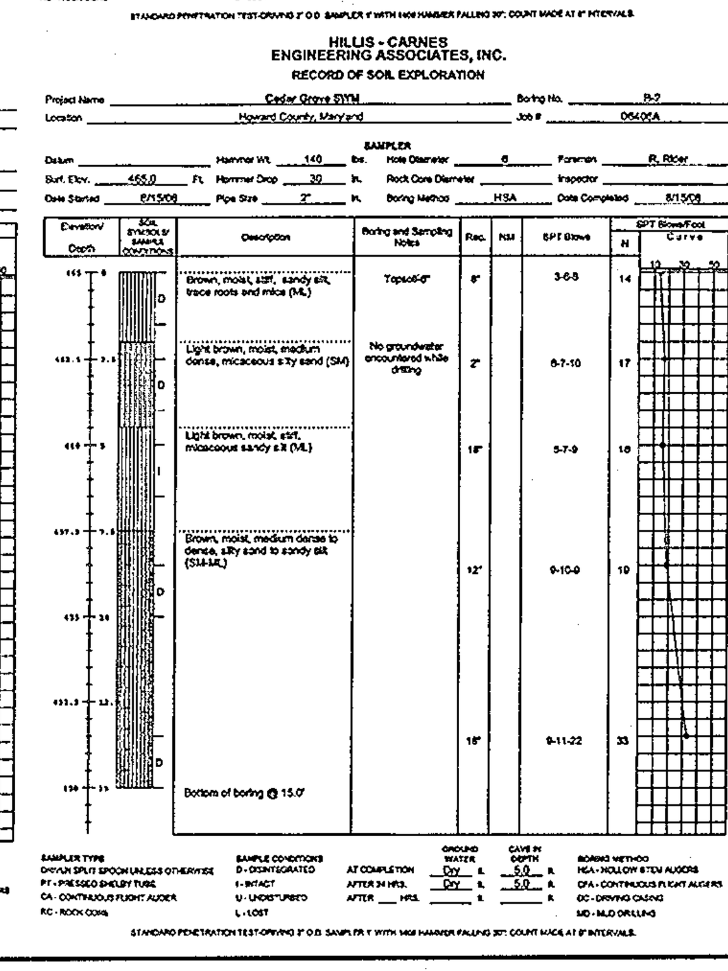
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



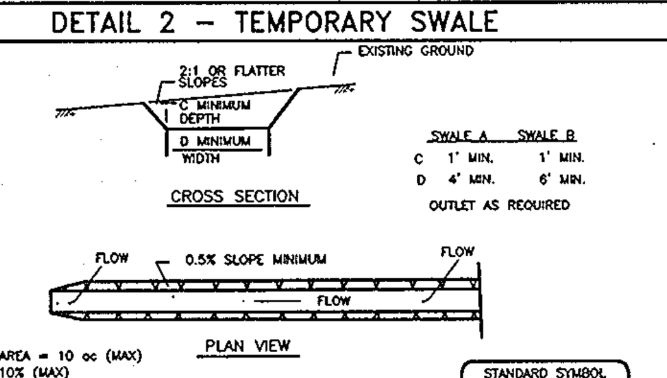
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION



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



DETAIL 2 – TEMPORARY SWALE



FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

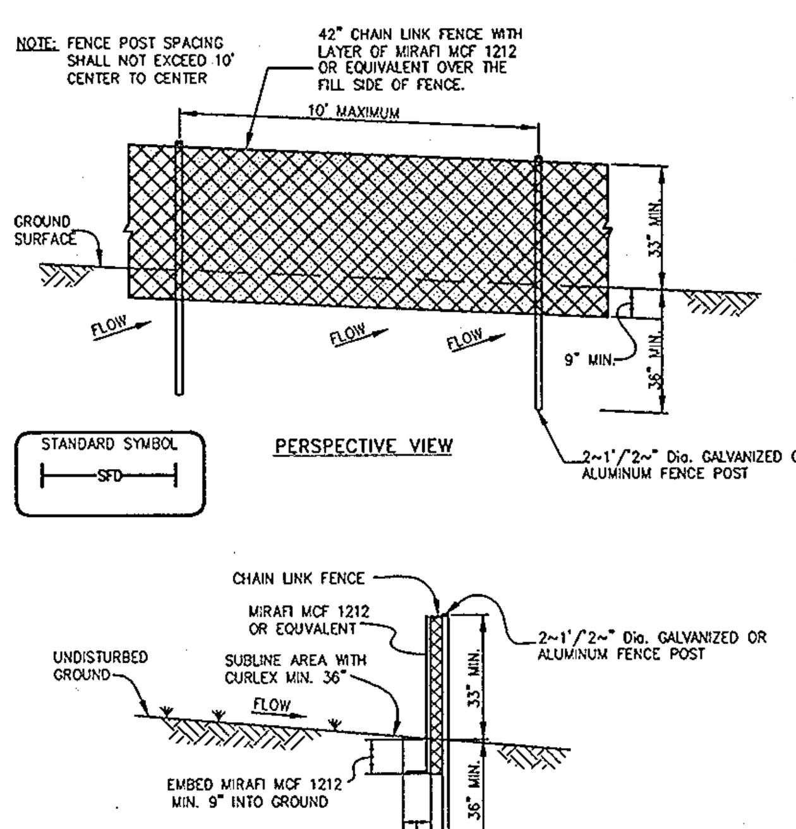
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4"–7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 2 – 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SILT FENCE DIVERSION

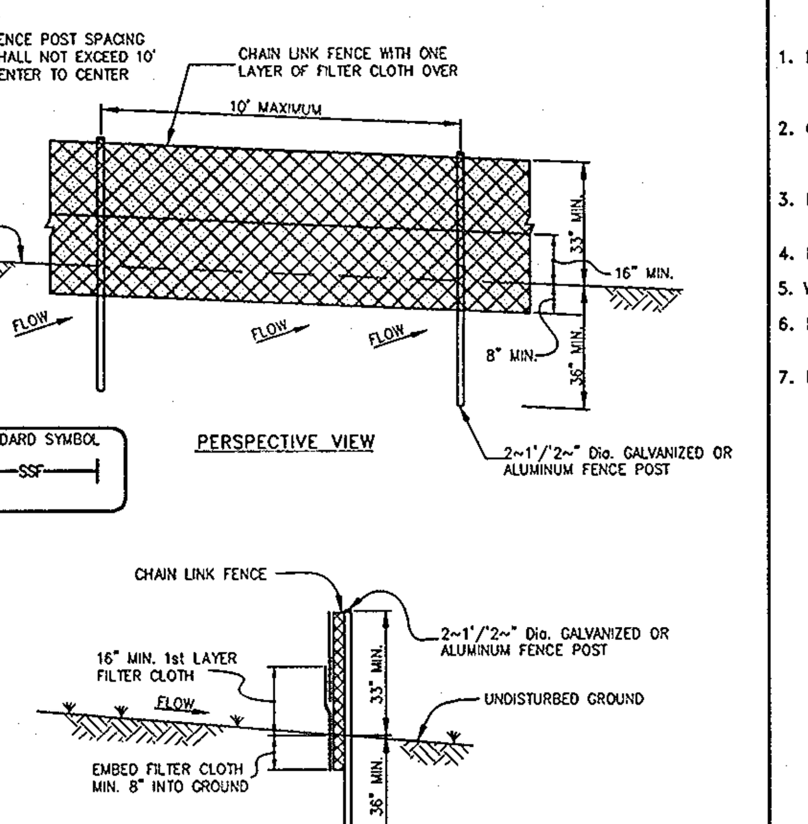


SILT FENCE DIVERSION

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Standard Details 690.01 & 690.02 for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric & 70" posts. Posts shall be placed without concrete embedment.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Diversion cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Diversion cloth shall be embedded a minimum of 9" into the ground.
5. When two sections of diversion cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed.

DETAIL 33 – SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 26 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

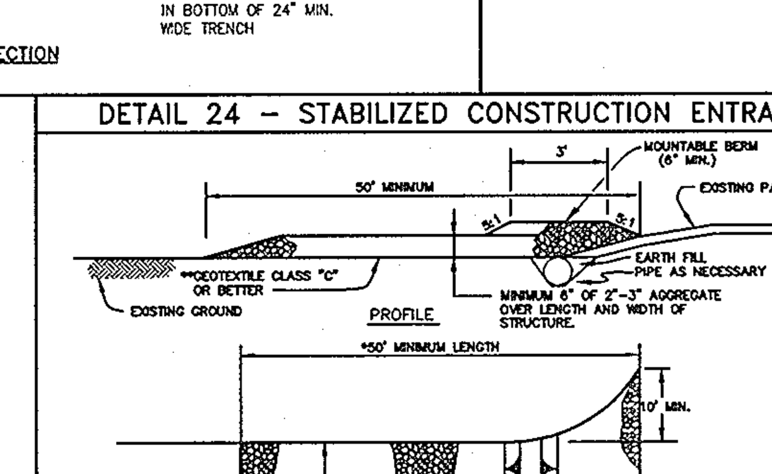
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 26 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE

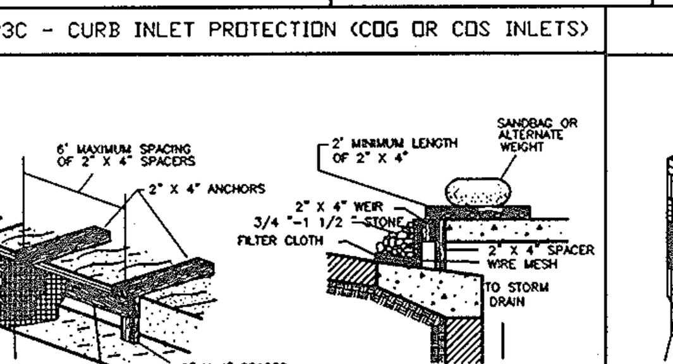


Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



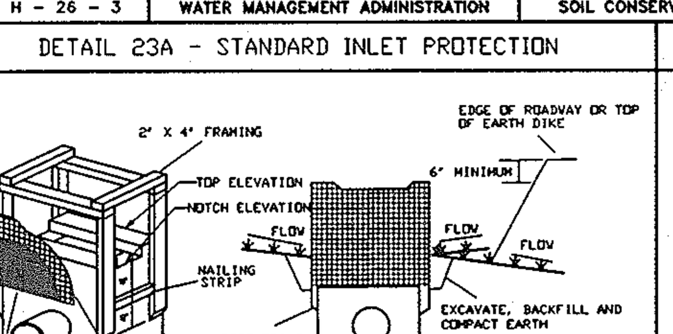
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A – STANDARD INLET PROTECTION



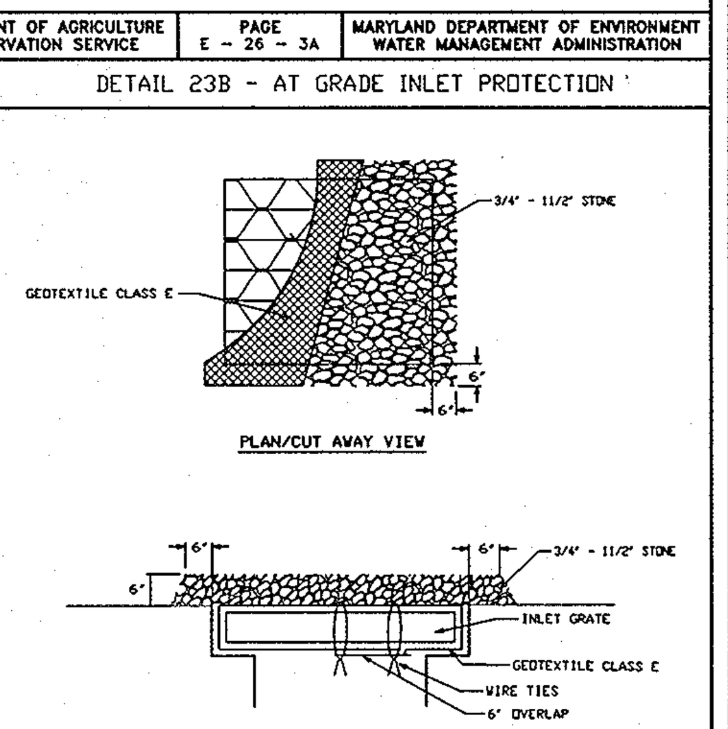
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B – AT GRADE INLET PROTECTION



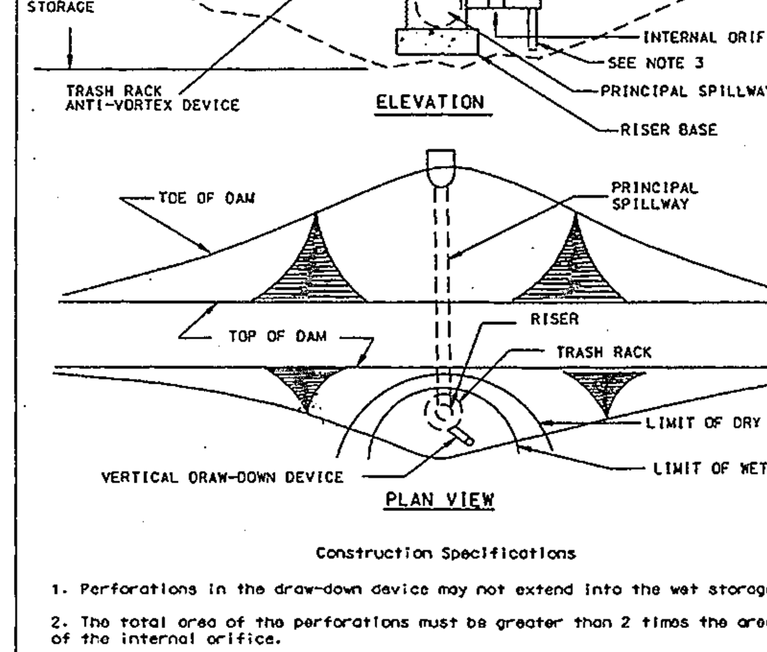
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 11/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 5A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE

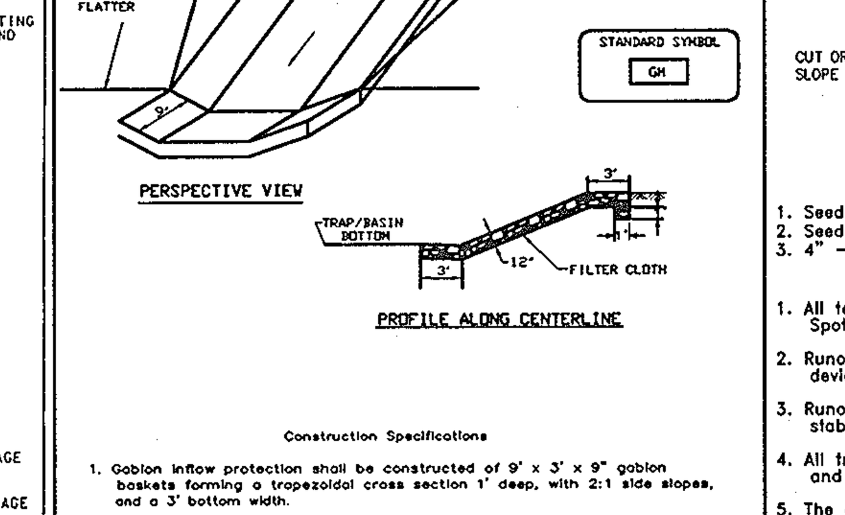


Construction Specifications

1. Perforations in the draw-down device may not extend into the wet storage.
2. The total area of the perforations must be greater than 2 times the area of the internal orifice.
3. The perforated portion of the draw-down device shall be wrapped with ½" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
4. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 10 – 30	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 – GABION INFLOW PROTECTION

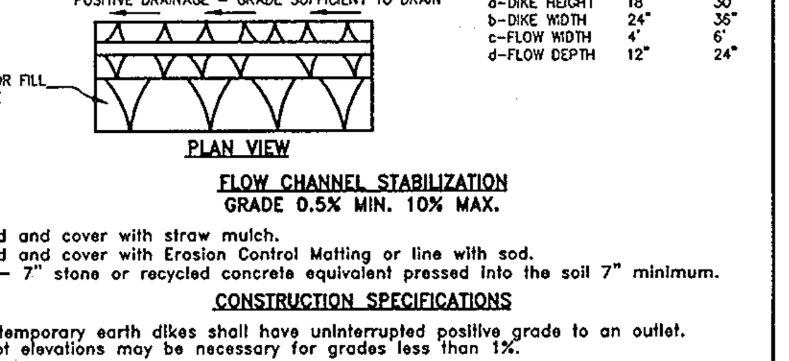


Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B – 7 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 – EARTH DIKE



FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

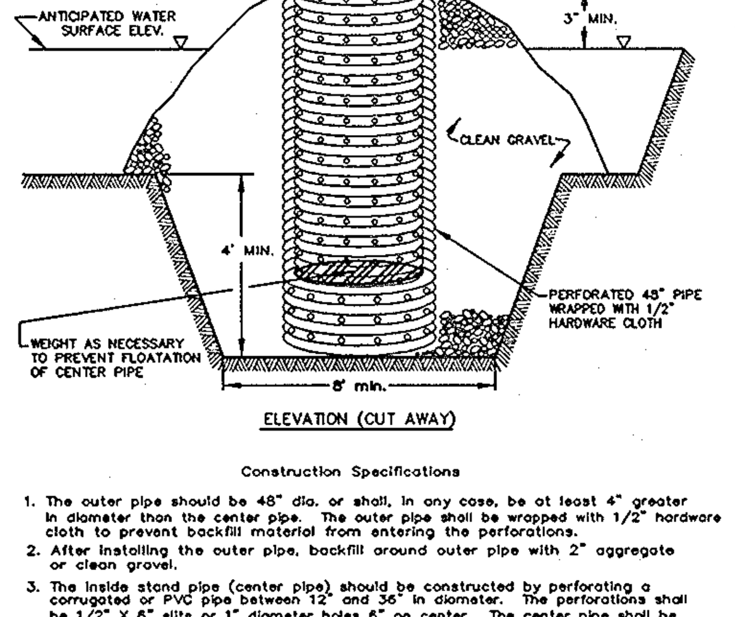
1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 1 – 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A – REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D – 12 – 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSES ONLY

ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION

ALL SEDIMENT CONTROL FEATURES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS SHOWN IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

SEDIMENT CONTROL LOCATION AND IMPLEMENTATION SHOWN ON THIS PLAN IS SUBJECT TO REVISIONS IN THE FIELD AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR

SUPER SILT FENCE IS TO INSPECTED FREQUENTLY & CLEANED, REPAIRED AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY

BY THE OWNER/DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SDC CEDAR GROVE LLC
By: [signature] [signature] 1-7-09
OWNER/DEVELOPER STEVEN K BRESLIN MEMBER James R. Moxley, III Member DATE:

BY THE ENGINEER:

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 1/7/2009
ENGINEER – BRIAN F. CLEARY, P.E. # 28559 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[signature] 1/12/09
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 1-15-09
CHIEF, BUREAU OF HIGHWAYS DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 1/26/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE:

[signature] 1-21-9
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE:

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559; Expiration Date: 7-22-2009

STATE OF MARYLAND BRIAN F. CLEARY No. 28559 REGISTERED PROFESSIONAL ENGINEER
1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 – GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
SEDIMENT & EROSION CONTROL NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 PROJECT NO. 1793

Design: MCR/MAN Draft: MCR/EDD Check: DAM SCALE: AS SHOWN DRAWING 7 OF 13

F-08-045

P:\1793\dwg\7023S2.dwg, SECNOTES, 1/7/2009 1:07:59 PM, mcr

MD-378 POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – the movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with teh equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be a least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core – The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100–200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm–cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section

Corrugated Metal Pipe – all of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials – (Aluminum Coated Steel Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti–seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti–seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re–rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12–inch wide standard lap type band with 12–inch wide by 3/8–inch thick closed cell circular neoprene gasket; and a 12–inch wide hugger type band with o–ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and longer shall be connected by a 24 inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24–inch wide by 3/8–inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

6. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe – All of 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 for their entire length. 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 a described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be places 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 form 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. Other details (anti–seep collars, valves, etc.) shall be shown on the drawings.

Plastic Pipe – The following criteria shall apply for plastic pipe:

1. Materials – 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 unstable 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.

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

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 excavated by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed 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 location 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

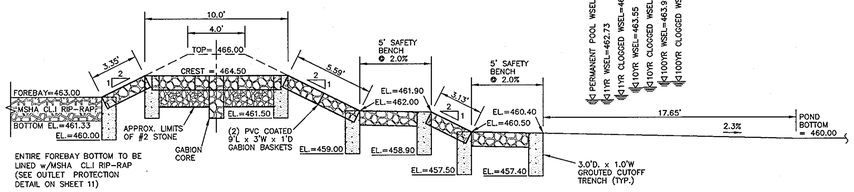
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service 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.

IN–SITU INFILTRATION

BORING NO.	DEPTH OF TEST	MEASURED RATE (IN./HR.)
B–1	6.5'	0.19
B–2	8.5'	0.38
B–3	5.5'	0.0
B–4	6.5'	0.0
B–6	7.0'	0.50
B–7	6.0'	0.25
B–8	9.0'	0.50



SECTION DETAIL – C/L FOREBAY WEIR

SCALE: 1" = 5'

SUMMARY OF GENERAL STORAGE REQUIREMENT DRAINAGE AREA No.1

Step	Requirement	Volume Required (ac-ft.)	Notes
1.	Water Quality Volume (WQv)	0.1720 (7,492.32 c.f.)	Pocket Pond (P-5)
2.	Recharge Volume (Rev)	0.0361 (or 0.4389 acres)	Underground Stone Chamber
3.	Channel Protection Volume (Cpv)	0.1801 (7,845.16 c.f.)	Pocket Pond (P-5)
4.	Overbank Flood Protection Volume (Qp)	N/A	Not required
5.	Extreme Flood Volume (Qf)	N/A	Not Required

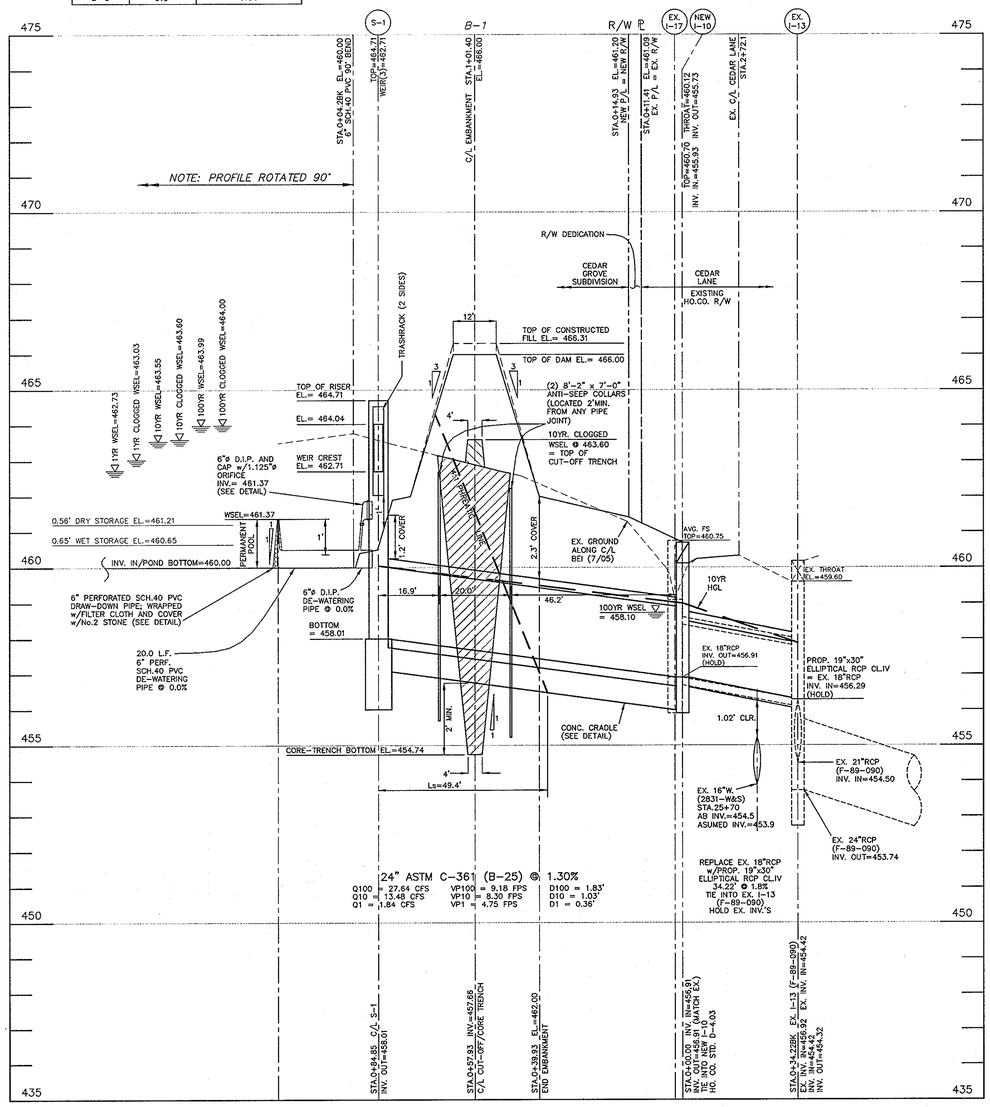
DISCHARGE SUMMARY TABLE

Drainage Area	Condition @ Study point	Q1-yr (cfs)	Q10-yr (cfs)	Q100-yr (cfs)
I	existing	1.67	13.38	26.33
IA/IB	developed (addtvd)	1.84	13.48	27.64

The slight increase in the developed condition is negligible and will not adversely impact existing downstream conditions.

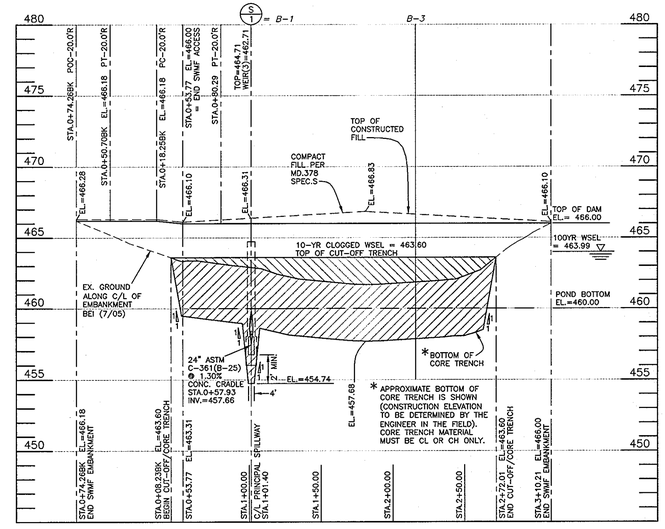
FACILITY SUMMARY TABLE

Facility No.	Type	Detention Time	1-yr WSEL	10-yr WSEL	100-yr WSEL
1	P-5	23.6 hrs	462.73	463.55	463.99



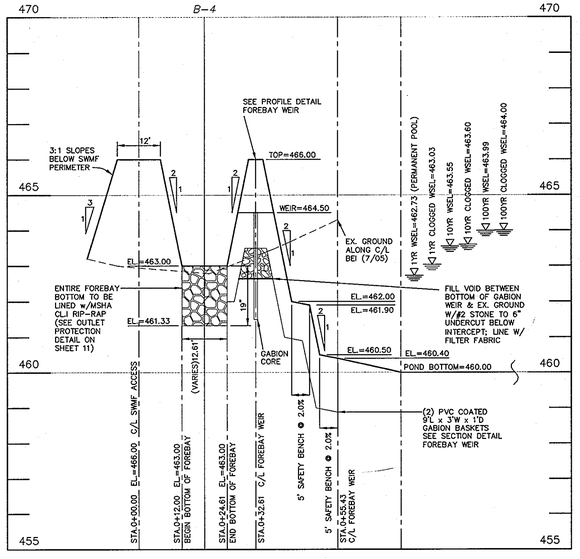
SECTION THRU C/L PRINCIPAL SPILLWAY

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



PROFILE ALONG C/L EMBANKMENT

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



SECTION THRU C/L FOREBAY DAM

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP–RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON–ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 28559

BRIAN F. CLEARY

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE THE CONTRACTOR FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE OWNER/DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SDC CEDAR GROVE LLC

BY: _____ 1-9-09

OWNER/DEVELOPER STEVEN K BREEDEN James R. Moxley, III Member DATE: _____

BY THE ENGINEER:

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH ANY "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER – BRIAN F. CLEARY, P.E. # 28559 — DATE 1/12/2009

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 1/12/09

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1-15-09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/13/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1-21-9

GEOTECHNICAL ENGINEER RECOMMENDATIONS:

EMBANKMENT AND CUT–OFF TRENCH CONSTRUCTION

THE AREAS OF THE PROPOSED SWM FACILITIES SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREAS IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE–ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT–OFF TRENCH. IN ACCORDANCE WITH NRCS–MD CODE NO. 378 POND STANDARDS/SPECIFICATIONS, SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE, A FINE–GRAINED SOIL, INCLUDING SILT(ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH NRCS–MD CODE NO. 378 SPECIFICATIONS.

HOWARD SCD – OPERATION, MAINTENANCE, AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA–NRCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD–378). THE POND(S) OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND(S) OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING, OR SLUMPING.

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410–465–6105 FAX: 410–465–6644
E–MAIL: bei@bei–civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559; Expiration Date: 7-22-2009

STATE OF MARYLAND BRIAN F. CLEARY 28559 REGISTERED PROFESSIONAL ENGINEER 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410–465–4244

PROJECT: CEDAR GROVE
LOTS 1–12 AND O.S. LOTS 13–15

LOCATION: TAX MAP 29 – GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

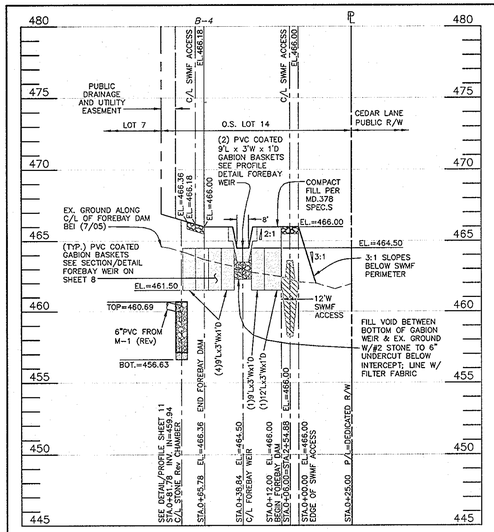
TITLE: FINAL/CONSTRUCTION PLANS
STORMWATER MANAGEMENT
PROFILES, NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007
JANUARY 8, 2009
PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM | SCALE: AS SHOWN | DRAWING 8 OF 13

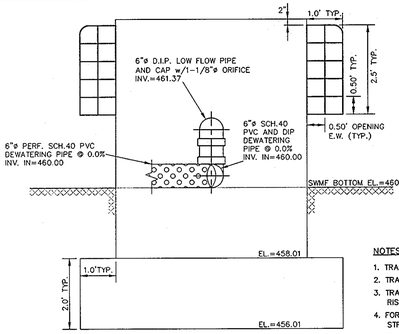
F–08–045

P:\1793\dwg\0724V6-F.dwg, SWM-1, 1/7/2009 1:09:03 PM, mcr



PROFILE ALONG C/L FOREBAY DAM

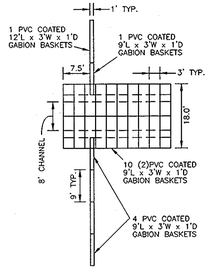
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



FRONT VIEW

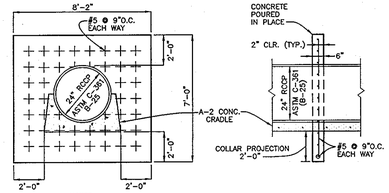
NOTES:

1. TRASH RACKS SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACKS SHALL BE PAINTED BATTLESHIP GRAY.
3. TRASH RACKS SHALL BE PLACED ON TWO (2) SIDES OF RISER AT WEIR OPENINGS
4. FOR ALL INVERTS, ELEVATIONS, AND LOCATIONS, REFER TO STRUCTURE SCHEDULE.
5. TRASH RACKS TO BE A MINIMUM OF 6" FROM FACE OF STRUCTURE.
6. TRASH RACKS SHALL BE REMOVABLE FROM STRUCTURE.
7. TRASH RACKS SPACING SHALL BE 8"o/c MAX.



GABION BASKET LAYOUT

NOT TO SCALE



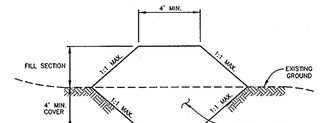
NOTES:

1) LOCATE COLLARS A MINIMUM OF 2' FROM ANY PIPE JOINT
2) USE ASPHALT JOINT FILLER MATERIAL BETWEEN ALL CONCRETE EXCEPT BETWEEN THE PIPE AND CRADLE

COLLAR SIZE: 8'-2"L x 7'-0"H x 6"W

ANTI-SEEP COLLAR

NOT TO SCALE

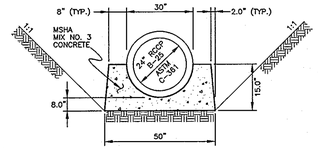


NOTES:

1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (GC, SC, CL, CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

TYPICAL SECTION CUT-OFF/CORE TRENCH

NOT TO SCALE



TYPE A-2 CONCRETE CRADLE

NOT TO SCALE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 28559

BRIAN F. CLEARY

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE OWNER/DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SDC CEDAR GROVE LLC

BY: James R. Morley, III 1-7-09

OWNER/DEVELOPER STOCKBRIDGE FREEDOM MEMBER James R. Morley, III Member DATE:

BY THE ENGINEER:

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER -- BRIAN F. CLEARY, P.E. # 28559 1/7/2009 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT 1/12/09 DATE

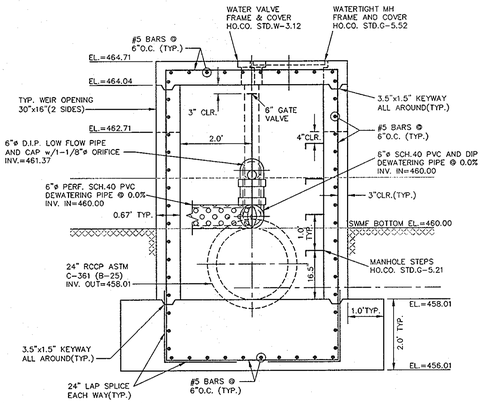
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS 1-15-09 DATE

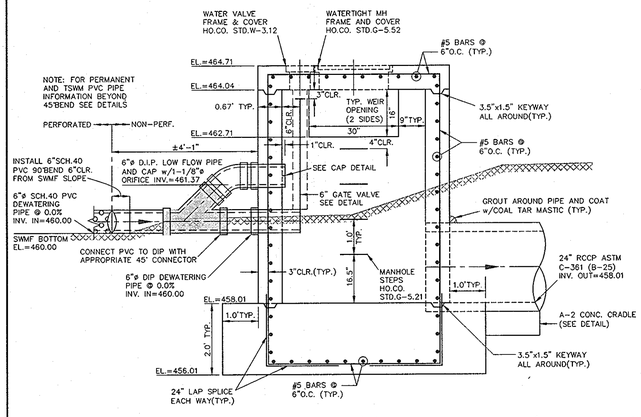
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 1/28/09 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 1.21.9 DATE



SECTION B-B



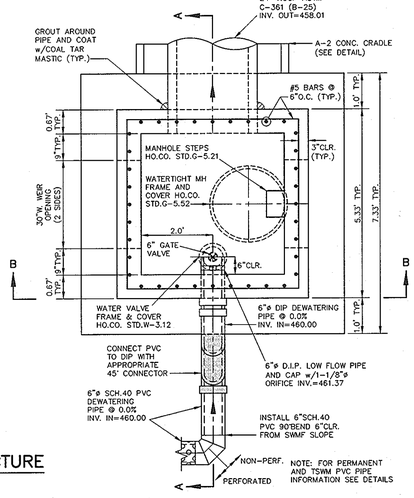
SECTION A-A

CONTROL/OUTLET STRUCTURE

SCALE: 1"=2'

NOTES

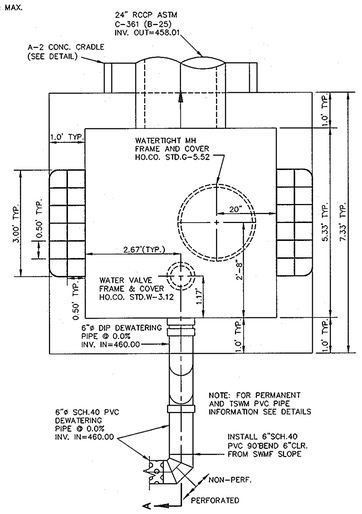
1. ENTIRE STRUCTURE TO BE MSHA MIX NO.3 CONCRETE.
2. FOR ALL INVERTS, ELEVATIONS, AND LOCATIONS, REFER TO STRUCTURE SCHEDULE.



PLAN - BELOW SLAB

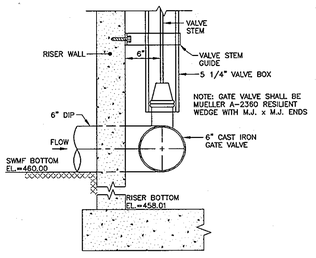
TRASH RACK DETAIL

SCALE: 1"=2'



SIDE VIEW

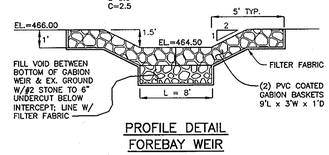
TOP VIEW



NOTE: GATE VALVE SHALL BE MUELLER A-2360 RESILIENT WEDGE WITH M.J. x M.J. ENDS

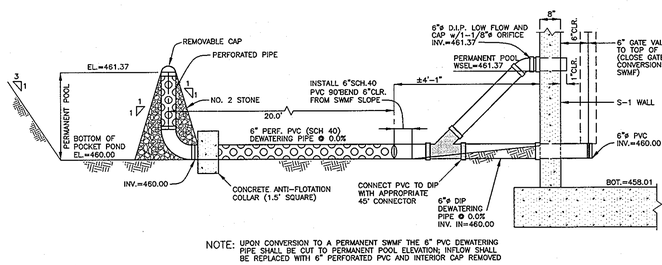
ANCHOR DETAIL FOR VALVE STEM

NOT TO SCALE



PROFILE DETAIL FOREBAY WEIR

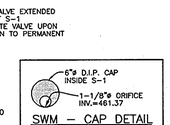
NOT TO SCALE



NOTE: UPON CONVERSION TO A PERMANENT SWMF THE 6" PVC DEWATERING PIPE SHALL BE CUT TO PERMANENT POOL ELEVATION; INFLOW SHALL BE REPLACED WITH 6" PERFORATED PVC AND INTERIOR CAP REMOVED

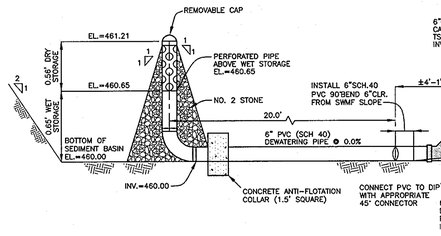
6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

NOT TO SCALE



SWM - CAP DETAIL

N.T.S.

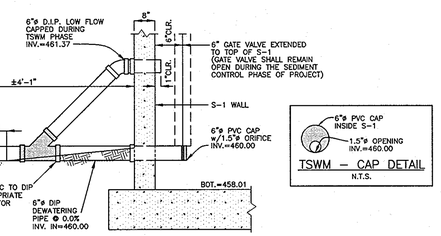


NOTE: UPON CONVERSION TO A PERMANENT SWMF THE 6" PVC DEWATERING PIPE SHALL BE CUT TO PERMANENT POOL ELEVATION; INFLOW SHALL BE REPLACED WITH 6" PERFORATED PVC AND INTERIOR CAP REMOVED

THIS PRACTICE CONFORMS TO MDE DETAIL C-10-30 (SEE SHEET 7 OF 14)

6" TSWM BASIN VERTICAL DRAW-DOWN DEVICE

NOT TO SCALE



TSWM - CAP DETAIL

N.T.S.

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-02-2009

STATE OF MARYLAND BRIAN F. CLEARY No. 28559 REGISTERED PROFESSIONAL ENGINEER 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT:
CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 - GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
STORMWATER MANAGEMENT
PROFILES, NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007
JANUARY 8, 2009

PROJECT NO. 1793

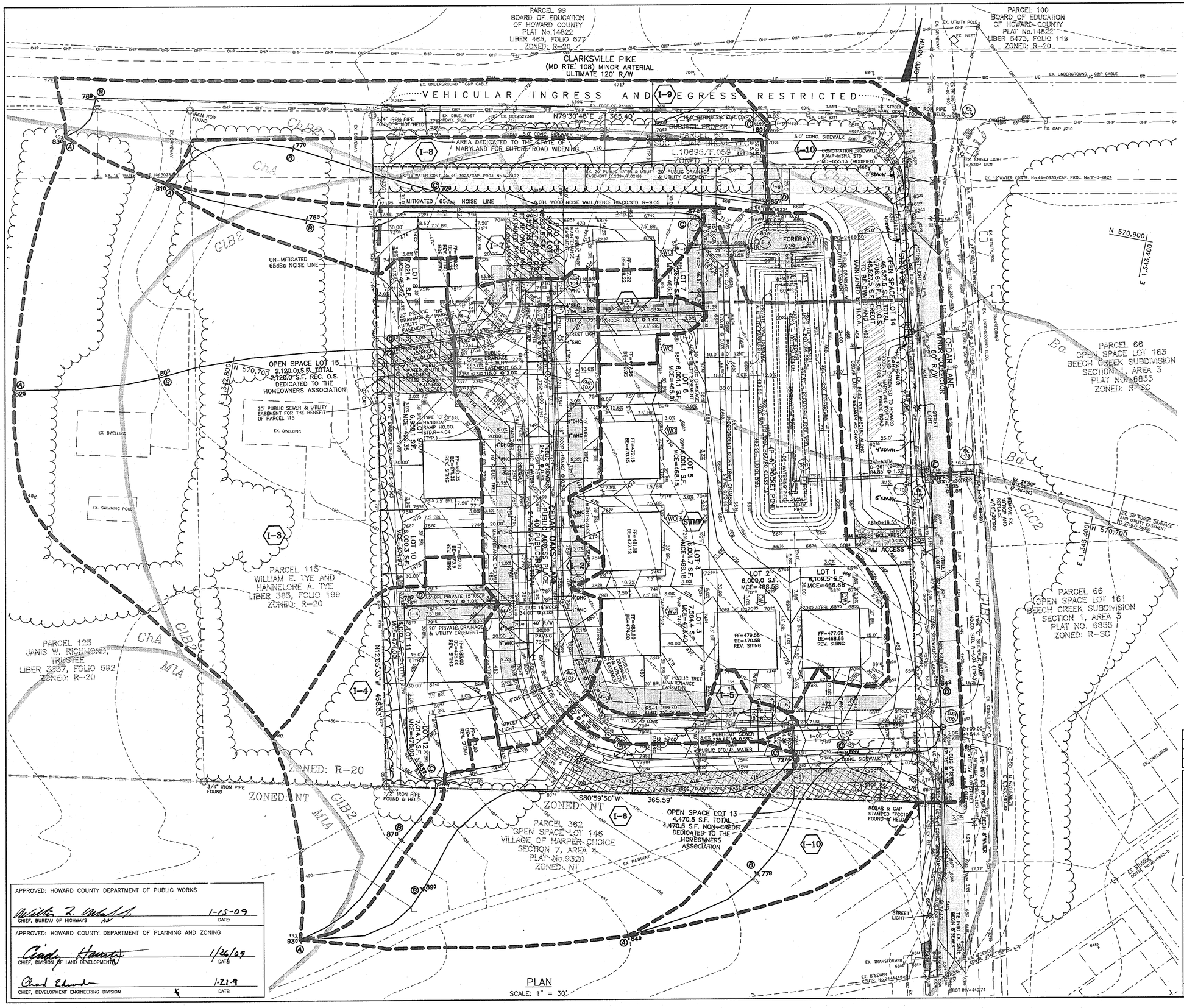
SCALE: AS SHOWN

DRAWING 9 OF 13

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM

F-08-045

P:\1793\dwg\7024V6-F.dwg, SWM-2, 1/7/2009 1:10:00 PM, mcr



AREA AND "C" FACTOR TABULATION

PROJECT: CEDAR GROVE — DATE: 12/19/2007 — BEI JOB # 1793

PHASE	INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR <25yrs (C)	"C" FACTOR ≥25yrs(C)	% IMPERVIOUS (P)
	I-1	R-20		0.0763	0.30	0.39	0.65
	I-2	R-20		0.5954	0.61	0.71	0.66
	I-3	R-20		1.9390	0.24	0.33	0.30
	I-4	R-20		0.5468	0.26	0.35	0.42
	I-5	R-20		0.0868	0.74	0.84	0.93
	I-6	R-20		0.7181	0.24	0.29	0.15
	I-7	R-20		0.3094	0.27	0.35	0.37
	I-8	R-20		0.4208	0.41	0.48	0.37
	I-9	R-20		0.4663	0.68	0.75	0.79
	I-10	R-20		1.1524	0.57	0.65	0.59
	SWMF	R-20		1.2265	0.27	0.34	0.37
	12	R-20		0.0000	0.00	0.00	0.00

SOILS LEGEND

MAP SYMBOL	SOIL TYPE	MAPPING UNIT
Bs	D	BALE SILT LOAM
ChA	B	CHESTER SILT LOAM – 0 TO 3 PERCENT SLOPES
ChB2	B	CHESTER SILT LOAM – 3 TO 8 PERCENT – MODERATELY ERODED
GlB2	B	GLENELG LOAM – 3 TO 8 PERCENT SLOPES – MODERATELY ERODED
MrA	D	MANOR LOAM – 0 TO 3 PERCENT SLOPES

USDA – HOWARD COUNTY SOILS SURVEY, MAP No.19, ISSUED JULY 1968

NO.	DATE	REVISION
1	6-3-10	REVISE SIDEWALK ALONG CEDAR LANE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/26/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1-21-9

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559; Expiration Date: 7-22-2009

STATE OF MARYLAND — BRIAN F. CLEARY — No. 28559 — REGISTERED PROFESSIONAL ENGINEER — 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 – GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
STORM DRAINAGE AREA AND SOILS MAP

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 — PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM | SCALE: AS SHOWN | DRAWING 10 OF 13

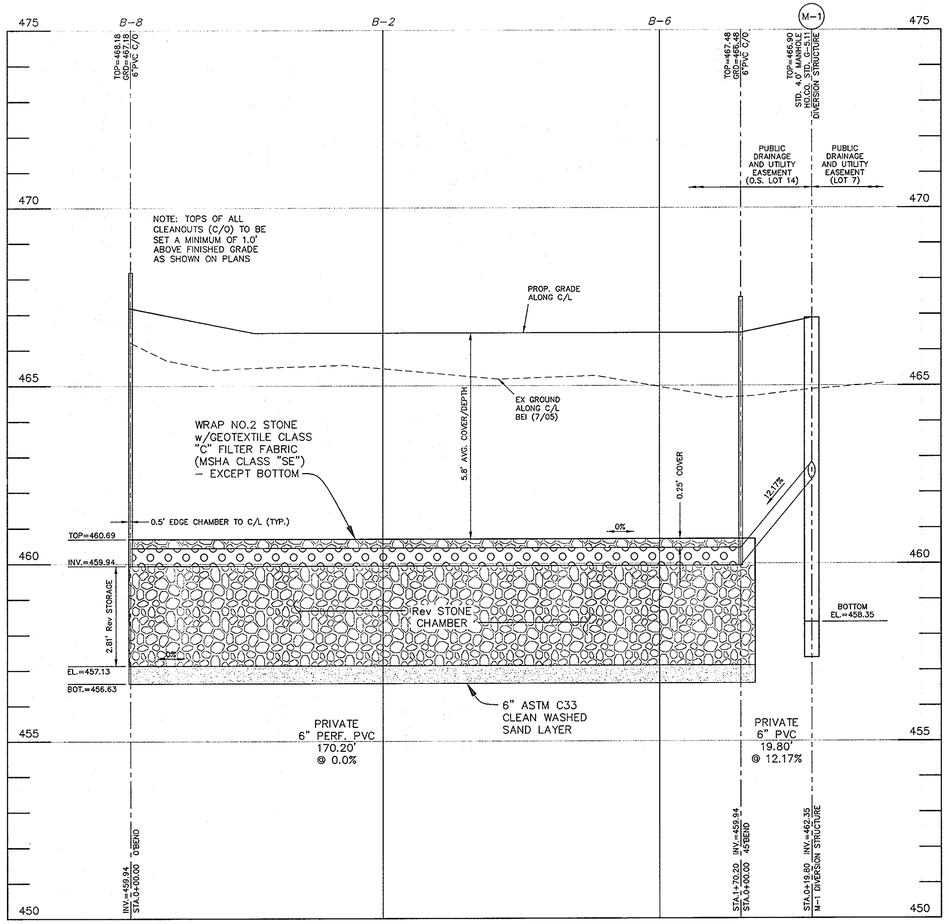
F-08-045

P:\1793\dwg\7025V6-F.dwg, PLAN, 1/7/2009 1:10:40 PM, mcr

STRUCTURE SCHEDULE

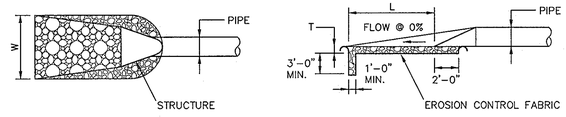
NO.	TYPE	LOCATION	COORDINATES	INVERT IN	INVERT IN	INVERT OUT	INVERT OUT	TOP ELEV.	THROAT EL.	HO. CO. STD.	REMARKS	INTERIOR DIMS.	MAINT.
I-1	PRE-CAST TYPE "D"	CEDAR OAKS LANE STA.5+55.04 OFF-115.00'R	N 570,793.1808 E 1,343,111.2146	463.82	–	463.62	–	468.15	467.32	D-4.10	OPEN ON FOUR SIDES	30" x 30"	PUBLIC
I-2	PRE-CAST A-10	CEDAR OAKS LANE STA.5+51.54 OFF-12.18'R	N 570,768.2189 E 1,343,011.4093	465.46	465.46	465.26	–	471.17	470.34	D-4.04	OFFSET 18" RCP OUT	2'-6" x 10'-0"	PUBLIC
I-3	PRE-CAST TYPE "D"	CEDAR OAKS LANE STA.5+36.94 OFF-95.00'L	N 570,731.4875 E 1,342,909.6665	–	–	466.74	–	472.91	472.08	D-4.10	OPEN ON FOUR SIDES	30" x 30"	PRIVATE
I-4	PRE-CAST TYPE "D"	CEDAR OAKS LANE STA.3+57.73 OFF-95.00'L	N 570,556.2596 E 1,342,947.2078	–	–	466.92	–	478.30	479.13	D-4.10	OPEN ON FOUR SIDES	30" x 30"	PRIVATE
I-5	PRE-CAST A-5	CEDAR OAKS LANE STA.1+15.53 OFF-12.18'R	N 570,526.4127 E 1,343,224.7799	468.10	–	467.90	–	472.70	471.87	D-4.01	–	2'-6" x 5'-0"	PUBLIC
I-6	PRE-CAST A-5	CEDAR OAKS LANE STA.1+15.53 OFF-12.18'L	N 570,502.5933 E 1,343,229.8830	–	–	468.22	–	472.70	471.87	D-4.01	–	2'-6" x 5'-0"	PUBLIC
I-7	PRE-CAST TYPE "D"	CEDAR OAKS LANE STA.6+21.63 OFF-115.00'R	N 570,858.2927 E 1,343,097.2649	–	–	463.48	–	467.13	466.30	D-4.10	OPEN ON FOUR SIDES	30" x 30"	PUBLIC
I-8	PRE-CAST TYPE "D"	CEDAR OAKS LANE STA.1+25.91 OFF-373.95'R	N 570,877.9788 E 1,343,138.8424	463.30	–	463.10	–	466.68	465.85	D-4.10	OPEN ON FOUR SIDES	30" x 30"	PUBLIC
I-9	MSHA YARD INLET	CEDAR OAKS LANE STA.1+24.43 OFF-426.77'R	N 570,929.9376 E 1,343,129.2258	–	–	466.31	–	469.09	–	SHA MD-378.03	SHA R/W – FUTURE COG INLET	24" x 24"	PUBLIC
I-10	PRE-CAST A-10	CEDAR OAKS LANE STA.0+19.41 OFF-182.08'R	N 570,712.6748 E 1,343,283.1772	456.91	–	456.91	–	460.70	459.87	D-4.04	POCKET POND (P-5) SWMF – OUTFALL	2'-6" x 10'-0"	PUBLIC
M-1	STD. 4.0' PRE-CAST	CEDAR OAKS LANE STA.6+01.91 OFF-115.00'R	N 570,839.0105 E 1,343,101.3960	463.38	463.38	463.18	461.18 (Rev)	466.90	–	G-5.11	DIVERSION STRUCTURE	4.0' DIA.	PRIVATE
M-2	STD. 4.0' PRE-CAST	CEDAR OAKS LANE STA.3+57.73 OFF-14.00'R	N 570,579.0939 E 1,343,053.7892	466.63	466.63	466.43	–	479.04	–	G-5.11	–	4.0' DIA.	PUBLIC
M-3	STD. 4.0' PRE-CAST	CEDAR OAKS LANE STA.2+54.92 OFF-14.00'R	N 570,507.1985 E 1,343,094.9550	467.24	–	467.04	–	480.84	–	G-5.11	–	4.0' DIA.	PUBLIC
M-4	STD. 4.0' PRE-CAST	CEDAR OAKS LANE STA.5+42.12 OFF-57.00'L	N 570,744.5104 E 1,342,945.7388	466.36	–	466.16	–	473.98	–	G-5.11	–	4.0' DIA.	PUBLIC
M-5	STD. 4.0' PRE-CAST	CEDAR OAKS LANE STA.3+57.73 OFF-20.00'L	N 570,571.9713 E 1,343,020.5436	467.17	–	466.97	–	479.18	–	G-5.11	–	4.0' DIA.	PUBLIC
E-1	21" CONC. END SEC.	CEDAR OAKS LANE STA.6+01.91 OFF-147.00'R	N 570,845.2595 E 1,343,130.5641	463.03	–	463.00	–	464.77	–	D-5.51	POCKET POND (P-5) SWMF – FOREBAY	–	PRIVATE
E-2	18" CONC. END SEC.	CEDAR OAKS LANE STA.6+15.22 OFF-159.30'R	N 570,864.5863 E 1,343,141.3211	463.03	–	463.00	–	464.27	–	D-5.51	POCKET POND (P-5) SWMF – FOREBAY	–	PRIVATE
S-1	OUTLET STRUCTURE	CEDAR OAKS LANE STA.4+37.96 OFF-173.78'R	N 570,691.0073 E 1,343,193.2146	460.00	461.37	458.96	–	464.71	(3)462.71	–	POCKET POND (P-5) SWMF	4'-0" (4 SIDES)	PRIVATE

NOTES:
1. STRUCTURE LOCATION FOR INLETS IS AT THE TOP AND CENTER OF STRUCTURE.
2. STRUCTURE LOCATION FOR ENDSECTIONS IS AT THE CONNECTION OF PIPE AND END SECTION.
3. STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE STRUCTURE.



STORM DRAIN PROFILE FROM M-1 TO STONE Rev CHAMBER

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



STRUCTURE	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
ES-1	9.5"	*41.5'± @ 0%	*12.6'± @ 0%	19"	I
ES-2	9.5"	*41.5'± @ 0%	*12.6'± @ 0%	19"	I

* = ENTIRE POCKET POND (P-5) FOREBAY TO BE LINED WITH RIP-RAP

OUTLET PROTECTION DETAIL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.

3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.

4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR HE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

PRIVATE PIPE SCHEDULE		
SIZE	LENGTH	TYPE & CLASS
6"	19.8	PVC
6"	170.2	PERF. PVC
8"	9.4	DIP
15"	113.4	RCP

PUBLIC PIPE SCHEDULE		
SIZE	LENGTH	TYPE & CLASS
15"	200.7	RCP
18"	571.2	RCP
21"	29.8	RCP
24"	84.9	ASTM C-361(B-25)
19"x30"	34.0	ELLIPTICAL RCP

NOTES:
1) PIPES LABELED AS RCP SHALL BE CL.IV
2) ALL PIPES ARE PUBLIC UNLESS OTHERWISE LABELED

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND SWM RECHARCE CHAMBERS

1. THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAWDOWN TIMES WITHIN THE CHAMBER EXCEEDS 36 HOURS.
2. DEBRIS & LITTER SHALL BE REMOVED AS NECESSARY TO INSURE PROPER OPERATION OF THE SYSTEM.
3. SEDIMENT SHALL BE CLEANED-OUT OF THE RECHARGE CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 6 INCHES.
4. WHEN WATER PONDS WITHIN THE CHAMBER FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUIDS MUST BE FOLLOWED. BY THE OWNER.
5. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
6. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
7. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/26/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1.21.09

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-2009

STATE OF MARYLAND — BRIAN F. CLEARY — No. 28559 — REGISTERED PROFESSIONAL ENGINEER — 1/7/2009

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 – GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
STORM DRAIN PROFILES
NOTES, AND DETAILS

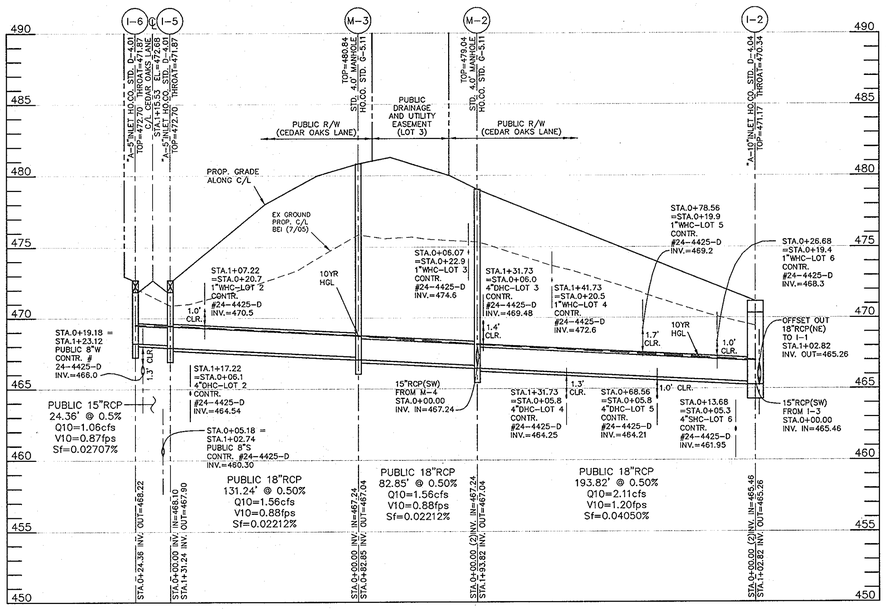
DATE: SEPTEMBER 17, 2007
JANUARY 8, 2009
PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM

SCALE: AS SHOWN
DRAWING 11 OF 13

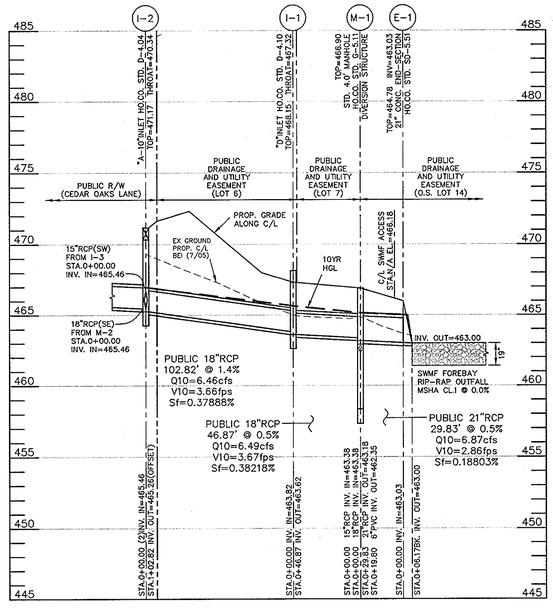
F-08-045

P:\1793\dwg\7044V6-F.dwg, SD-PROS1, 1/7/2009 1:14:02 PM, mer



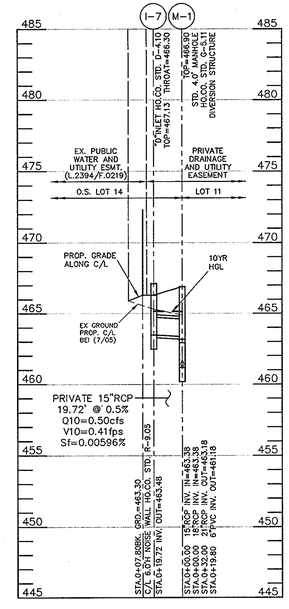
STORM DRAIN PROFILE
FROM I-6 TO I-2

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



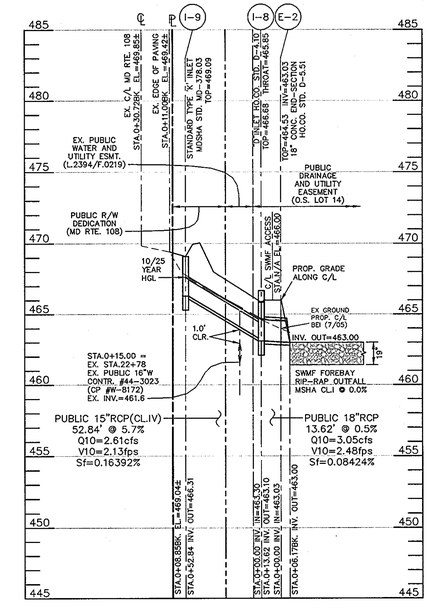
STORM DRAIN PROFILE
FROM I-2 TO E-1

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



STORM DRAIN PROFILE
FROM I-7 TO M-1

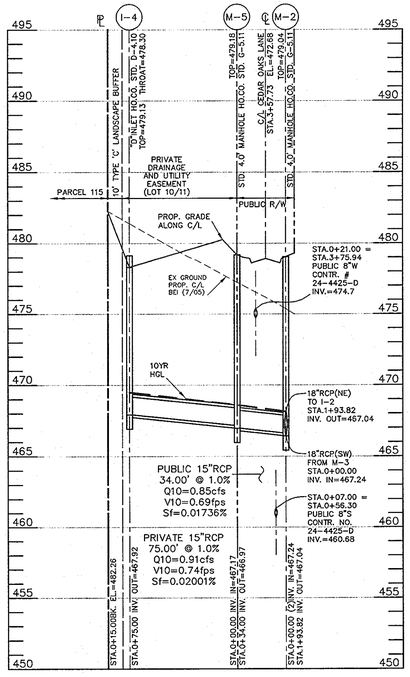
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



STORM DRAIN PROFILE
FROM I-9 TO E-2

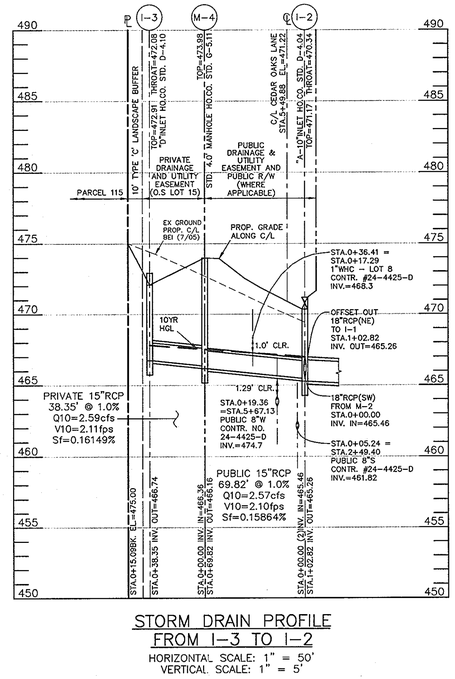
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

NOTE: FOR STORM DRAIN PROFILE FROM SWMF TO EX I-13 SEE PRINCIPAL SPILLWAY SECTION ON SHEET 8 OF 14



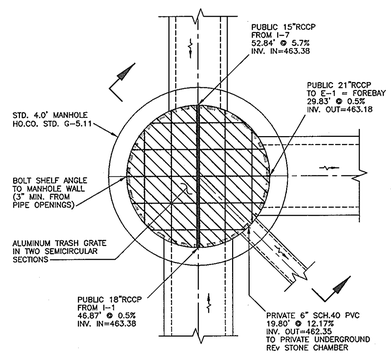
STORM DRAIN PROFILE
FROM I-4 TO M-2

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

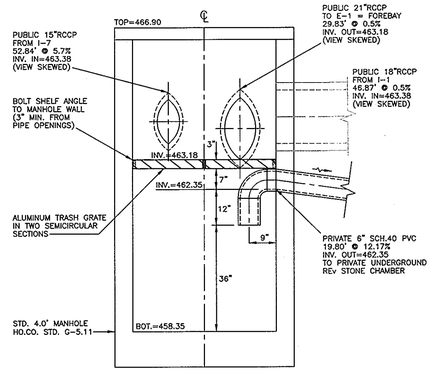


STORM DRAIN PROFILE
FROM I-3 TO I-2

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



PLAN VIEW



SECTION VIEW

NOTES:

1. THIS STRUCTURE COMFORMS TO MDE APPENDIX D-8; DETAIL 6 AND HO. CO. STD. DETAIL G-5.11

2. DIVERSION STRUCTURE SHALL BE PRIVATELY OWNED AND MAINTAINED

DIVERSION STRUCTURE (M-1)
SCALE: 1" = 2'

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28559, Expiration Date: 7-22-2009

STATE OF MARYLAND BRIAN F. CLEARY REG. NO. 28559 REGISTERED PROFESSIONAL ENGINEER
1/7/2009

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/20/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1-21-09

OWNER/DEVELOPER:
SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 - GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
STORM DRAIN PROFILES
NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007
JANUARY 8, 2009
PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM
SCALE: AS SHOWN
DRAWING 12 OF 13

F-08-045

P:\1793\dwg\7044V6-F.dwg, SD-PROS2, 1/7/2009 1:39:15 PM, mcr

STREET TREE PLANTING LIST

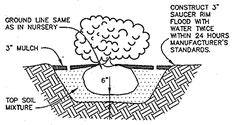
SYMBOL	QUANTITY	NAME	REMARKS
	37	PRUNUS SARGENTII "SARGENT CHERRY"	2.5"-3.0" MIN. CAL. B & B FULL HEAD
	14	MAGNOLIA STELLATA "STAR MAGNOLIA"	6.0'-8.0' MIN. HT. UNSHEARED

SWMF PERIMETER PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
	15	ACER RUBRA "RED MAPLE"	2.5"-3.0" MIN. CAL. B & B FULL HEAD
	19	CUPPRESSOCYPARIS LEYLANDI "LELAND CYPRESS"	5.0'-6.0' MIN. HT. UNSHEARED

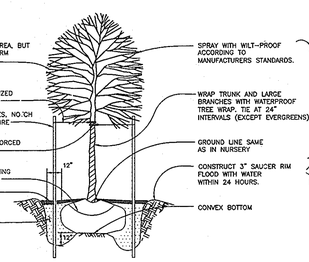
PERIMETER PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
	20	ACER SACCHARUM "SUGAR MAPLE"	2.5"-3.0" MIN. CAL. B & B FULL HEAD
	25	PINUS STROBUS "EASTERN WHITE PINE"	6.0'-8.0' MIN. HT. UNSHEARED



SHRUB PLANTING DETAIL

NOT TO SCALE



TREE PLANTING DETAIL

NOT TO SCALE

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

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SDC CEDAR GROVE LLC

By: James D. Magley III — 1/7/09

STEVEN K. BIRESOFF, James R. Magley, III, Member, Member — DEVELOPER/CONTRACT PURCHASER — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 1-15-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 1/26/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 1.21.09

PARCEL 99
BOARD OF EDUCATION
OF HOWARD COUNTY
PLAT No.14822
LIBER 465, FOLIO 577
ZONED: R-20

PARCEL 100
BOARD OF EDUCATION
OF HOWARD COUNTY
PLAT No.14822
LIBER 5473, FOLIO 119
ZONED: R-20

CLARKSVILLE PIKE
(MD RTE. 108) MINOR ARTERIAL
ULTIMATE 120' R/W

VEHICULAR INGRESS AND EGRESS RESTRICTED

RON ROD FOUND

3/4" IRON PIPE FOUND — NOT HELD

EX. DBLE. POST & RWY. SIGN

EX. BGE#522318

N79°30'48"E 365.40'

SUBJECT PROPERTY
PARCEL 65
SDC CEDAR GROVE LLC
L.10695, F.059
ZONED: R-20

AREA DEDICATED TO THE STATE OF MARYLAND FOR FUTURE ROAD WIDENING

5/8" IRON PIPE FOUND & HELD

EX. C&P #211

EX. C&P #210

EX. STREET LIGHT W/STOP SIGN

EX. 12"WATER CONTR. No.44-0930/CAP. PROJ. No.W-0-8124

EX. 16"WATER CONT. No.44-3023/CAP. PROJ. No.W-8172

EX. 20' PUBLIC WATER & UTILITY EASEMENT

20' PUBLIC DRAINAGE & UTILITY EASEMENT

5.0' CONC. SIDEWALK

COMBINATION SIDEWALK RAMP MSHA STD MD-655.13 (MODIFIED)

5'SDWK

230.1' CREDIT

137.6' CREDIT

249.8' CREDIT

MITIGATED 65dBa NOISE LINE

6.0'H. WOOD NOISE WALL/FENCE MSHA STD. R-9.05

UN-MITIGATED 65dBa NOISE LINE

TYPE "C" LANDSCAPING BUFFER WITHIN A 10' SETBACK PER S-06-003

OPEN SPACE LOT 15
2,120.0 S.F. TOTAL
2,120.0 S.F. REC. O.S.
DEDICATED TO THE HOMEOWNERS ASSOCIATION

20' PUBLIC SEWER & UTILITY EASEMENT FOR THE BENEFIT OF PARCEL 115

EX. DWELLING

PARCEL 115
WILLIAM E. IYE AND HANNELORE A. IYE
LIBER 385, FOLIO 199
ZONED: R-20

ZONED: R-20

ZONED: NT

5' IRON PIPE IND

IRON PIPE FOUND & HELD

S80°59'50"W 365.59'

ZONED: NT

PARCEL 362
OPEN SPACE LOT 146
VILLAGE OF HARPER CHOICE
SECTION 7, AREA 4
PLAT No.9320
ZONED: NT

OPEN SPACE LOT 13
4,470.5 S.F. TOTAL
4,470.5 S.F. NON-CREDIT
DEDICATED TO THE HOMEOWNERS ASSOCIATION

EX. PATHWAY

REBAR & CAP STAMPED "TC0365" FOUND & HELD

LOT 1 — 6,000.3 S.F. — MCE=471.90
LOT 2 — 6,000.0 S.F. — MCE=468.58
LOT 3 — 7,584.4 S.F. — MCE=473.40
LOT 4 — 6,109.5 S.F. — MCE=466.68
LOT 5 — 6,001.1 S.F. — MCE=468.15
LOT 6 — 6,001.1 S.F. — MCE=465.91
LOT 7 — 6,262.5 S.F. — MCE=466.87
LOT 8 — 6,958.1 S.F. — MCE=469.35
LOT 9 — 7,000.0 S.F. — MCE=467.62
LOT 10 — 6,000.3 S.F. — MCE=471.90
LOT 11 — 6,000.0 S.F. — MCE=474.50
LOT 12 — 7,000.0 S.F. — MCE=476.00

46,527.5 S.F. OPEN SPACE LOT 8 TO BE OWNED AND MAINTAINED BY H.O.A.

PUBLIC DRAINAGE & UTILITY EASEMENT TO BE MAINTAINED BY H.O.A.

FOREBAY

SWM #103

SWM #104

SWM ACCESS BOLLARDS

SWM ACCESS

(F-5) POCKET POND

LOW FLOW PIPE

UNDERGROUND STONE BED (UNDERDRAIN SYSTEM)

CEDAR LANE
60' R/W
MINOR COLLECTOR
STREET CLASSIFICATION AS SHOWN ON CEDAR LANE PLAT

DEDICATION TO HOWARD COUNTY FOR PUBLIC ROAD

NOTE: EX. UTILITIES SHOWN ARE APPROXIMATE LOCATIONS ONLY. CONTRACTOR TO VERIFY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.

EX. UTILITY POLE

EX. INLET

EX. UNDERGROUND C&P CABLE

EX. TRANSFORMER

EX. UNDERGROUND ELEC.

EX. BELL-ATLANTIC MH

EX. 20' PRIVATE DRAINAGE & UTILITY EASEMENT (L.237, F.0676)

EX. 8"SEWER CONTR. No.24-1448-D

EX. 24"RCP (C-06-90)

REMOVE EX. RIPRAP AND REPLACE W/15"CMP

PARCEL 66
OPEN SPACE LOT 161
BEECH CREEK SUBDIVISION
SECTION 1, AREA 3
PLAT NO. 6855
ZONED: R-SC

N 570,900
E 1,343,400
N 570,700
E 1,343,400

PLAN

SCALE: 1" = 30'

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY					
	ADJACENT TO ROADWAY	YES	YES	NO	NO
	ADJACENT TO PERIMETER PROPERTIES	NO	NO	YES	YES
PERIMETER NO. / LANDSCAPE TYPE		(1) B	(2) B	(3) A	(4) C*
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)		367.7	324.9	365.0	468.5
CREDIT FOR EXISTING VEGETATION: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		YES 137.6 SWMF	NO –	NO –	NO –
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		YES 230.1 WALL	YES 249.8 SWMF	NO –	NO –
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING		0.0	75.1	365.6	468.5
NUMBER OF PLANTS REQUIRED:	SHADE TREES	0	2	6	12
	EVERGREEN TREES	0	2	0	23
	OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–
	SHRUBS	–	–	–	–
NUMBER OF PLANTS PROVIDED:	SHADE TREES	0	2	6	12
	EVERGREEN TREES	0	2	0	23
	OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–
	SHRUBS (10:1 SUBSTITUTE)	–	–	–	–
	(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	–	–	–	–

* – A TYPE "C" LANDSCAPE BUFFER WITHIN A 10' SETBACK HAS BEEN PLACED ALONG LS PERIMETER #4 AS PER S-06-003.

STREET TREE REQUIREMENTS

ROADWAY NAME:	C. OAKS	MD 108	C. LANE
LINEAR FEET OF PERIMETER	1160.4	367.7	414.8
STREET TREES REQUIRED	29	9	**14
NUMBER OF PLANTS PROVIDED: SHADE TREES	29	9	**14
EVERGREEN TREES	–	–	–
OTHER TREES (2:1 SUBSTITUTE)	–	–	–
SHRUBS (10:1 SUBSTITUTE)	–	–	–
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	–	–	–

** – SMALL STREET TREES AT 30' O/C ARE TO BE PLANTED ALONG CEDAR LANE IN COMPLIANCE WITH THE BG&E "GREEN ZONE"

SCHEDULE D
SWMF AREA LANDSCAPING
TYPE "B" BUFFER

STORMWATER MANAGEMENT FACILITY No.	1
LINEAR FEET OF PERIMETER	763.4
CREDIT FOR EXISTING VEGETATION: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO –
CREDIT FOR OTHER LANDSCAPING: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO –
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING	763.4
NUMBER OF PLANTS REQUIRED: SHADE TREES	15
EVERGREEN TREES	19
OTHER TREES (2:1 SUBSTITUTE)	–
SHRUBS	–
NUMBER OF PLANTS PROVIDED: SHADE TREES	15
EVERGREEN TREES	19
OTHER TREES (2:1 SUBSTITUTE)	–
SHRUBS (10:1 SUBSTITUTE)	–
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	–

LANDSCAPING NOTES

1.) THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS.

2.) THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS; THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION; AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.

3.) TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.

4.) A MINIMUM DISTANCE OF TWENTY(20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.

5.) TREE MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE ACCESSS STRIP AND TEN(10) FEET FROM A DRIVEWAY.

6.) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC.-16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.

7.) STREET TREES SHALL BE PLANTED SIX(6) FEET BEHIND FACE OF CURB WHEN THERE ARE NO SIDEWALKS

8.) ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.

9.) NO TREES SHALL BE PLACED WITHIN 10' BEHIND RETAINING WALLS OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.

10.) A TYPE "C" LANDSCAPE BUFFER WITHIN A 10' SETBACK HAS BEEN PLACED ALONG LS PERIMETER #4 AS PER S-06-003.

11.) SMALL STREET TREES AT 30' O/C ARE TO BE PLANTED ALONG CEDAR LANE IN COMPLIANCE WITH THE BG&E "GREEN ZONE".

12.) NO SPECIMEN TREES WERE FOUND ON-SITE AS PER FOREST STAND DELINEATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED AUGUST, 2006 AND APPROVED UNDER S-06-003.

13.) PERIMETER AND SWM LANDSCAPING SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE PLAN OF THE ROAD CONSTRUCTION DRAWINGS FOR THIS FINAL PLAN IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL. TOTAL FINANCIAL SURETY IN THE AMOUNT OF $17,100.00 INCLUDING: $10,500 FOR THE REQUIRED 35 SHADE TREES AND $6,600.00 FOR THE REQUIRED 44 EVERGREEN TREES, SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN (F-08-045).

NO.	DATE	REVISION
1	6-3-10	REVISE SIDEWALK ALONG CEDAR LANE; RELOCATE LANDSCAPING

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 · FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21538, Expiration Date: 7-22-2009

STATE OF MARYLAND — BRIAN F. CLEARY — No. 21538 — REGISTERED PROFESSIONAL ENGINEER — 1/7/2009

OWNER/DEVELOPER:

SDC CEDAR GROVE, L.L.C.
8480 BALT. NAT. PIKE
SUITE 415
ELLICOTT CITY, MD 21043
PHONE: 410-465-4244

PROJECT: CEDAR GROVE
LOTS 1-12 AND O.S. LOTS 13-15

LOCATION: TAX MAP 29 - GRID 17
PARCEL 65
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLANS
LANDSCAPING PLAN
NOTES, AND DETAILS

DATE: SEPTEMBER 17, 2007 / JANUARY 8, 2009 — PROJECT NO. 1793

Design: MCR/MAN | Draft: MCR/EDD | Check: DAM

SCALE: AS SHOWN — DRAWING 13 OF 13

F-08-045

P:\1793\dwg\7022V6-F.dwg, PLAN, 1/7/2009 1:04:40 PM, mcr