

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1800 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- a) THE R-1-1 ("STOP") SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.  
b) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC CONTROL DIVISION (410-313-5752) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.  
c) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMUTCD).  
d) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1 1/2 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1 1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- BOUNDARY INFORMATION SHOWN HEREON IS BASED ON A RECORD PLAT RECORDED AS PLAT NO. 9419, FIELD RUN SURVEY PERFORMED BY FISHER, COOK AND ASSOCIATES, INC., DATED AUGUST 2006, FIELD RUN SURVEY WITH TWO FOOT INTERVALS PREPARED BY KCI TECHNOLOGIES, INC., DATED FEBRUARY 2011.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HOWARD COUNTY HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS.

CONTROL	NORTHING	EASTING	ELEV.
1861	589805.015	1367750.237	407.740
24C2	588648.373	1366038.139	354.028

- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- IN ACCORDANCE WITH THE "STORMWATER MANAGEMENT ACT OF 2007", ENVIRONMENTAL SITE DESIGN TECHNIQUES SUCH AS PERMEABLE PAVEMENT AND MICRO-BIORETENTION HAVE BEEN APPLIED TO THE SITE. ADDITIONALLY, A SURFACE SAND FILTER WILL PROVIDE WATER QUALITY TREATMENT AND QUANTITY MANAGEMENT FACILITIES WILL PROVIDE 10 AND 100 YEAR MANAGEMENT FOR THE HUDSON BRANCH WATERSHED. ALL STORMWATER MANAGEMENT FACILITIES SHOWN ON THESE PLANS WILL BE PRIVATELY OWNED MAINTAINED.
- EXISTING UTILITIES ARE BASED ON CURRENT HOWARD COUNTY DRAWINGS:  
a. EXISTING WATER CONTRACT NO. 14-1156-D, 14-3453-D & 14-3272-D  
b. EXISTING SEWER CONTRACT NO. 517-5
- NO 100-YEAR FLOODPLAIN EXISTS ON THIS PROPERTY PER FEMA F.I.R.M. MAP NO. 24-0044-0017B DATED DECEMBER 4, 1996. THE MAP INDICATES THAT THE PROPERTY SHOWN HEREON LIES WITHIN ZONE C, AREAS OF MINIMAL FLOODING.
- THERE ARE NO WETLANDS ON THIS SITE BASED ON A REPORT FROM ECO-SCIENCE PROFESSIONALS INC. DATED MARCH 15, 2007.
- A TRAFFIC IMPACT ANALYSIS WAS PREPARED BY LEE CUNNINGHAM, LTD. DATED MAY 2003 AND APPROVED WITH 503-16 ON MARCH 15, 2004.
- THIS PLAN IS SUBJECT TO ADMINISTRATIVE ADJUSTMENT AA-11-002 APPROVED MARCH 14, 2011 TO ADJUST THE FOLLOWING ZONING REGULATIONS:  
SECTION 11.2.D.(4)(A)(i) TO ALLOW A FRONT SETBACK FROM A COLLECTOR PUBLIC ROW OF 27 FEET.  
SECTION 11.2.D.(4)(A)(ii) TO ALLOW FOR REAR TO REAR SETBACK DISTANCE OF 50 FEET.  
THIS PLAN IS ALSO SUBJECT TO ALTERNATIVE COMPLIANCE REQUEST FOR HOWARD COUNTY DESIGN MANUAL VOLUME III SECTION 2.9.B.
- ZONING:  
EXISTING USE: R-A-15  
PROPOSED USE: VACANT  
AREA OF SITE: 421,102.07 S.F. OR 9.67 ACRES
- FOREST CONSERVATION OBLIGATIONS OF 1.45 AC. OF AFFORESTATION FOR THIS PROJECT WILL BE MET BY A PAYMENT OF \$47,371.50 TO THE HO. CO. FOREST CONSERVATION FUND.
- THIS PLAN IS SUBJECT TO WAIVER PETITION WP-08-023 APPROVED ON NOVEMBER 2, 2007 TO WAIVE SUBDIVISION SECTION 16.144(a)(3)(i), TO NOT BE REQUIRED TO PROVIDE SIDEWALKS ALONG BOTH SIDES OF ALL ROADS. CONDITIONS OF THIS APPROVAL ARE TO ADD SIX ADDITIONAL SMALL SECTIONS OF SIDEWALK AS SHOWN ON "MARKED UP" SHEET 2 OF THE WP-08-023 EXHIBIT PLAN.
- THE REQUIRED LANDSCAPING FOR PARCELS D-1, D-2 AND D-3 SHALL BE PROVIDED BY SOP-11-052.
- FOUR PRIVATE RANGE OF ADDRESS SIGN ASSEMBLIES SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS / OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.
- THIS PLAN IS SUBJECT TO WAIVER PETITION WP-09-093 APPROVED ON JULY 22, 2009 TO WAIVE SUBDIVISION SECTION 16.144(a)(3)(ii), REQUEST TO BE GRANTED A NINE (9) MONTH EXTENSION BASED ON THE PROPOSED 122 UNITS AND SUBDIVISION SECTION 16.106(a) FROM THE PLAN PROCESSING EXTENSION PROVISION DATE 06/30/2010 OF "THE 921" TO SUBMIT THE REQUIRED FINAL RESUBDIVISION PLAN ON OR BEFORE 03/31/11, SUBJECT TO COMPLIANCE WITH THE FOLLOWING CONDITION OF APPROVAL:  
A. THE REQUIRED FINAL PLAT PLAN FOR P-07-019 SHALL BE SUBMITTED FOR REVIEW PROCESSING ON OR BEFORE THE EXTENDED DEADLINE DATE OF 03/31/2011, OR P-07-019 (AND S-05-015) SHALL BECOME NULL AND VOID, AND THIS PROJECT SHALL LOOSE ITS TENTATIVE HOUSING UNIT ALLOCATIONS, IN ACCORDANCE WITH SUBDIVISION SECTION 16.144(a)(3)(ii).
- THIS PLAN IS SUBJECT TO WAIVER PETITION WP-11-126 APPROVED ON MARCH 2, 2011 TO WAIVE SUBDIVISION SECTION 16.144(a)(3)(ii), AND GRANTED A 180 DAY EXTENSION FROM PREVIOUS MILESTONE DATE OF 3/30/2011 (PER THE RECONSIDERATION OF WP-09-093 DATED 09/26/2011) TO SUBMIT THE REQUIRED FINAL RESUBDIVISION PLAN. THE APPROVAL OF THIS WAIVER PETITION IS SUBJECT TO COMPLIANCE WITH THE FOLLOWING CONDITIONS OF APPROVAL:  
1. THE REQUIRED FINAL RESUBDIVISION PLAN SHALL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING BY THE EXTENDED MILESTONE DATE OF 09/26/2011, OR PRELIMINARY PLAN P-07-019, SHALL BECOME NULL AND VOID, ALL PREVIOUS APPROVALS WILL BE RESCINDED, AND THIS PROJECT WILL LOSE ITS TENTATIVE ALLOCATIONS IN ACCORDANCE WITH SUBDIVISION SECTION 16.144.  
2. INDICATE THIS WAIVER PETITION FILE NUMBER, SECTION OF THE REGULATIONS, REQUEST, ACTION, CONDITION OF APPROVALS, AND APPROVAL DATE IN A DETAILED NOTE ADDED TO SHEET 1 OF ALL FUTURE PLAN AND PLAT SUBMISSIONS FOR THIS PROJECT.

**SITE ANALYSIS DATA CHART**

**GENERAL SITE DATA**

- PRESENT ZONING: R-A-15
- APPLICABLE DPZ FILE REFERENCES: F-90-030, S-03-016, P-07-019, WP-08-023, WP-09-093, WP-11-126, ECP-11-035, AA-11-002, SDP-11-052.
- PROPOSED USE OF SITE: RESIDENTIAL
- PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

**AREA TABULATIONS**

- TOTAL NUMBER OF BUILDABLE LOTS AND/OR PARCELS TO BE RECORDED: 3 LOTS
- TOTAL NUMBER OF OPEN SPACE LOTS TO BE RECORDED: 0 LOTS
- TOTAL NUMBER OF LOTS TO BE RECORDED: 3 LOTS
- TOTAL AREA OF BUILDABLE LOTS TO BE RECORDED: 7,7534 AC.
- PARCEL D-1: GROSS LOT AREA: 2,9995 AC.  
a. 100 YEAR FLOOD PLAIN AREA: 0.0000 AC.  
b. NET LOT AREA: 2,9995 AC.
- PARCEL D-2: GROSS LOT AREA: 1,7376 AC.  
a. 100 YEAR FLOOD PLAIN AREA: 0.0000 AC.  
b. NET LOT AREA: 1,7376 AC.
- PARCEL D-3: GROSS LOT AREA: 3,0163 AC.  
a. 100 YEAR FLOOD PLAIN AREA: 0.0000 AC.  
b. NET LOT AREA: 3,0163 AC.
- TOTAL AREA OF OPEN SPACE LOTS TO BE RECORDED: 0.0000 AC.
- TOTAL AREA OF RECREATION OPEN SPACE TO BE RECORDED: 0.0000 AC.
- TOTAL AREA OF 100 YEAR FLOODPLAIN TO BE RECORDED: 0.0000 AC.
- TOTAL AREA OF ROADWAYS TO BE RECORDED INCLUDING WIDENING STRIPS: 1,3157 AC.
- TOTAL AREA OF RE-SUBDIVISION TO BE RECORDED: 9.6672 AC.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwan, Acting* 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*W. J. Schwan* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

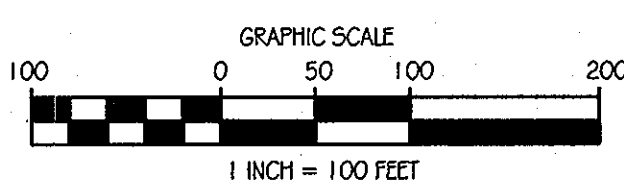
CHIEF DEVELOPMENT ENGINEERING DIVISION  
*W. J. Schwan* 11/23/11  
 DATE

**LEGEND**

EX. SANITARY MANHOLE	PROPERTY LINE
EX. STORM DRAIN MANHOLE	PROP. RIGHT OF WAY
EX. WATER METER	PROP. SETBACK LINE
EX. SIGN	PROP. BUILDING
EX. UTILITY POLE	PROP. EDGE OF PAVEMENT
EX. WATER VALVE	PROP. SIDEWALK
EX. FIRE HYDRANT	PROP. STORM DRAIN
EX. CLEANOUT	PROP. INLET / GRATE
EX. SANITARY PIPE	PROP. STORM MANHOLE
EX. STORM PIPE	

**LOCATION MAP**

SCALE: 1" = 100'

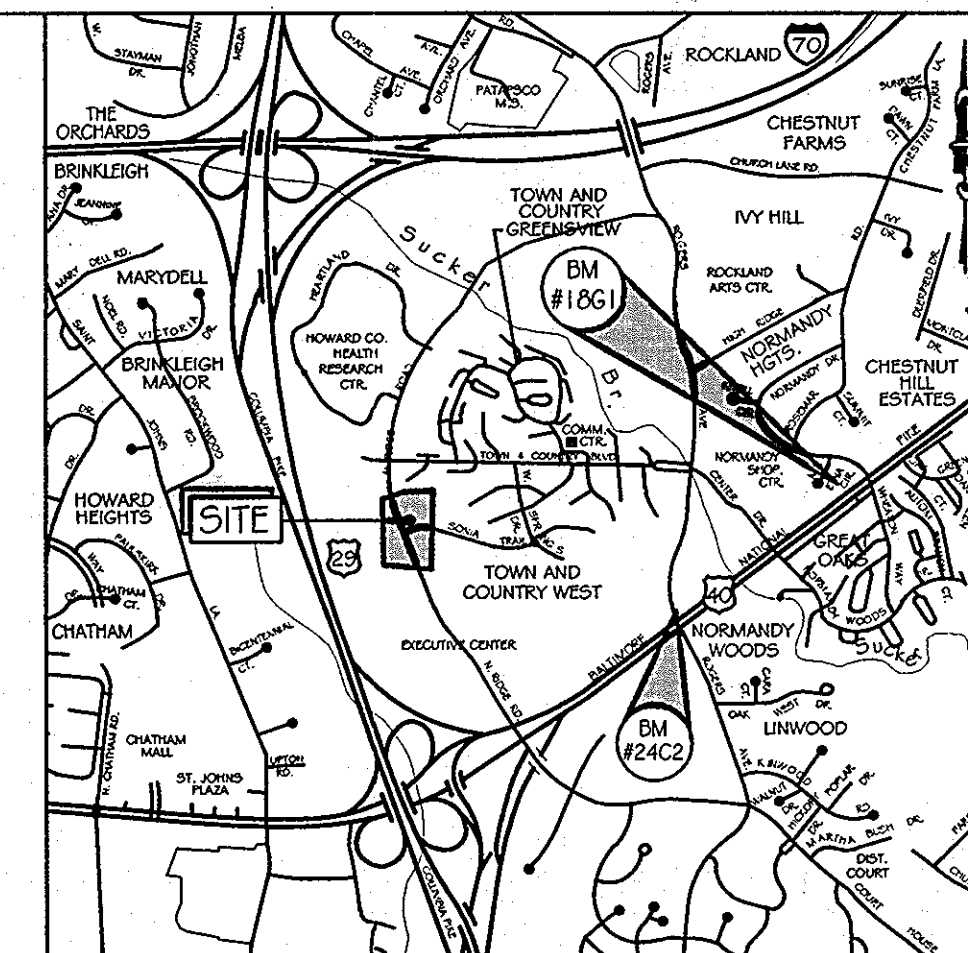


**BENCHMARK DATA**

THE HORIZONTAL AND VERTICAL DATUMS ARE BASED ON THE FOLLOWING HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS

HORIZONTAL: NAD 83/07    VERTICAL: NAVD 29

CONTROL	NORTHING	EASTING	ELEV.
1861	589805.015	1367750.237	407.740
24C2	588648.373	1366038.139	354.028



**LOCATION MAP**

SCALE: 1" = 2000'  
 ADC MAP COORDINATES: 12-7C

**INDEX OF DRAWINGS**

- FC-1 - COVER SHEET
- FC-2 - NORTH RIDGE ROAD #4 PROFILE
- FC-3 - SONIA TRAIL ROAD #4 PROFILE
- FC-4 - NORTH RIDGE ROAD # SONIA TRAIL PAVING, STRIPING & SIGNAGE PLAN
- FC-5 - MASS GRADING PLAN
- FC-6 - EROSION & SEDIMENT CONTROL PLAN
- FC-7 - EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP
- FC-8 - EROSION & SEDIMENT CONTROL SEDIMENT BASINS
- FC-9 - EROSION & SEDIMENT CONTROL DETAILS
- FC-10 - EROSION & SEDIMENT CONTROL NOTES
- FC-11 - RETAINING WALL SITE PLAN
- FC-12 - RETAINING WALL DETAILS
- FC-13 - RETAINING WALL NOTES
- FC-14 - STORM DRAIN DRAINAGE AREA MAP
- FC-15 - NORTH RIDGE ROAD # SONIA TRAIL STORM DRAIN PROFILES
- FC-16 - STORM DRAIN PROFILES
- FC-17 - NORTH RIDGE ROAD # SONIA TRAIL TREE PLANTING PLAN AND FOREST CONSERVATION WORK SHEET
- FC-18 - NORTH RIDGE ROAD # SONIA TRAIL TREE PLANTING NOTES
- FC-19 - STORMWATER MANAGEMENT PLAN - FACILITY #1
- FC-20 - STORMWATER MANAGEMENT PLAN - FACILITY #2
- FC-21 - STORMWATER MANAGEMENT PLAN - FACILITY #3
- FC-22 - STORMWATER MANAGEMENT PLAN - FACILITY #4
- FC-23 - STORMWATER MANAGEMENT - FACILITY #4 DETAILS
- FC-24 - STORMWATER MANAGEMENT - FACILITY #6 PLAN
- FC-25 - STORMWATER MANAGEMENT - FACILITY #6 PROFILES
- FC-26 - STORMWATER MANAGEMENT - FACILITY #6 DETAILS
- FC-27 - STORMWATER MANAGEMENT NOTES
- FC-28 - SOIL BORING LOGS
- FC-29 - SOIL BORING LOGS

DATE	NUMBER	REVISION DESCRIPTIONS
		<b>ORCHARD MEADOWS</b> PARCEL D-1, D-2 & D-3 TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R-A-15 ELECTION DISTRICT, NO. 2 HOWARD COUNTY, MD
TITLE		COVER SHEET
DESIGN BY: B.E.S.	SCALE: 1" = 100'	PROJECT NO.: 21101105
DRAWN BY: C.T.B.	DATE: 11-02-2011	SHEET 01 OF 29
CHECKED BY:	APPROVED:	DRAWING NUMBER FC-1

**Orchard Development Corporation**

**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 984-2354

OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

### NORTH RIDGE ROAD CURB LINE DATA

NO.	STATION	NORTHING	EASTING	ELEVATION B.C.	LENGTH
1*				MATCH EX. GRADE	
2	18+23.31	589,040.2231	1,363,330.4068	427.27	22.31' RT
3	18+30.00	589,055.1739	1,363,348.7758	427.29	24.29' RT
4	18+41.30	589,069.4834	1,363,351.8479	427.79	31.50' RT
5*				MATCH EX. GRADE	
6	18+40.92	589,055.7612	1,363,299.8575	428.85	24.62' LT
7	18+74.15	589,077.7316	1,363,287.1485	429.22	25.53' LT
8	18+84.49	589,085.1284	1,363,277.7712	429.50	31.50' LT
9	19+53.49	589,149.2236	1,363,252.2212	432.42	31.50' LT
10	19+66.47	589,164.0486	1,363,254.3751	433.12	24.01' LT
11	19+73.97	589,171.7589	1,363,253.4647	434.47	22.00' LT
12	20+23.64	589,217.9031	1,363,235.0706	435.57	22.00' LT
13	20+87.64	589,277.3530	1,363,211.3722	436.26	22.00' LT
14	21+51.56	589,344.8750	1,363,208.1400	441.24	0.00' L
15	21+57.56	589,349.2268	1,363,200.3449	441.32	6.00' LT
16	21+57.56	589,332.6703	1,363,211.4918	441.32	6.00' RT
17	21+64.46	589,366.5464	1,363,232.6145	440.99	31.50' RT
18	21+77.46	589,377.8243	1,363,220.8525	441.52	24.01' RT
19	21+84.96	589,394.0470	1,363,216.2086	441.82	22.00' RT
20	21+89.69	589,381.8101	1,363,195.8896	442.65	6.00' RT
21	22+06.62	589,393.8294	1,363,185.7773	442.89	6.00' RT
22	22+06.69	589,398.3126	1,363,193.2979	442.89	6.00' RT
23	22+13.62	589,400.3049	1,363,179.5882	443.01	6.00' LT
24	22+33.17	589,418.4659	1,363,172.3457	443.49	6.00' LT
25	22+29.03	589,424.9564	1,363,199.8891	443.01	6.00' RT
26	22+40.10	589,429.3451	1,363,180.9272	443.65	22.00' RT
27	22+43.56	589,430.3412	1,363,174.0710	443.85	0.00' L
28	23+47.03	589,534.5985	1,363,156.1949	444.88	22.00' RT
29	23+90.42	589,582.3357	1,363,137.1656	445.19	22.00' RT
30	24+05.92	589,590.0467	1,363,136.2582	445.19	24.01' RT
31	24+18.89	589,604.8718	1,363,138.4091	444.94	31.50' RT
32	24+44.64	589,608.9769	1,363,079.1787	444.83	22.00' LT
33	25+08.64	589,668.4274	1,363,055.4802	444.32	22.00' LT
34	25+23.26	589,682.0078	1,363,050.0671	443.21	22.00' LT

### NORTH RIDGE ROAD BASELINE DATA

NO.	STATION	NORTHING	EASTING	ELEVATION	LENGTH
35	25+76.76	589,730.9007	1,363,028.3894	443.06	24.01' LT
36	25+89.73	589,740.2386	1,363,016.6274	442.62	31.50' LT
37	26+73.04	589,840.0616	1,363,045.1000	440.10	31.57' RT
38	26+80.42	589,826.1679	1,362,993.3092	440.69	31.40' LT
39	26+84.57	589,846.1919	1,363,034.9654	440.84	24.59' RT
40	26+93.25	589,855.3721	1,363,030.0133	440.72	22.13' RT
41	26+95.63	589,843.8832	1,362,996.3522	440.67	22.95' LT
42	26+99.99	589,848.5185	1,362,996.0547	440.60	21.85' LT
43*				MATCH EX. GRADE	
44*				MATCH EX. GRADE	

### NORTH RIDGE ROAD BASELINE CURVE DATA

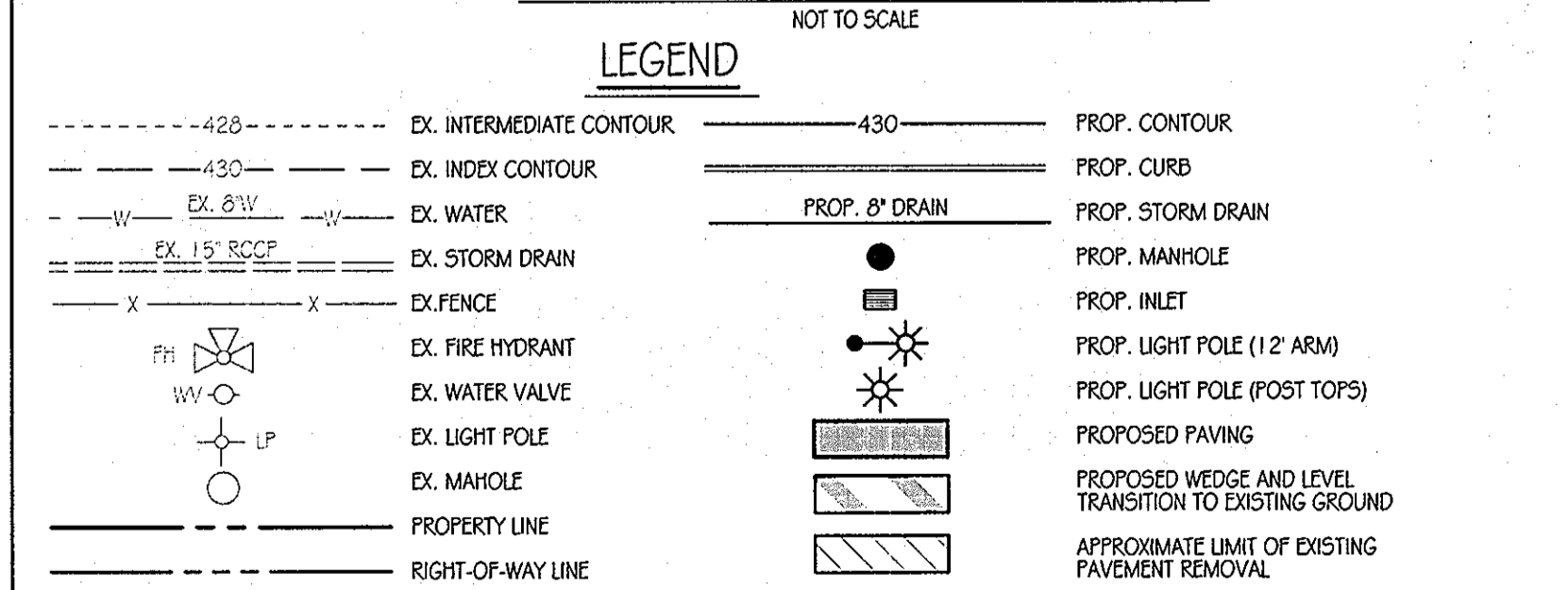
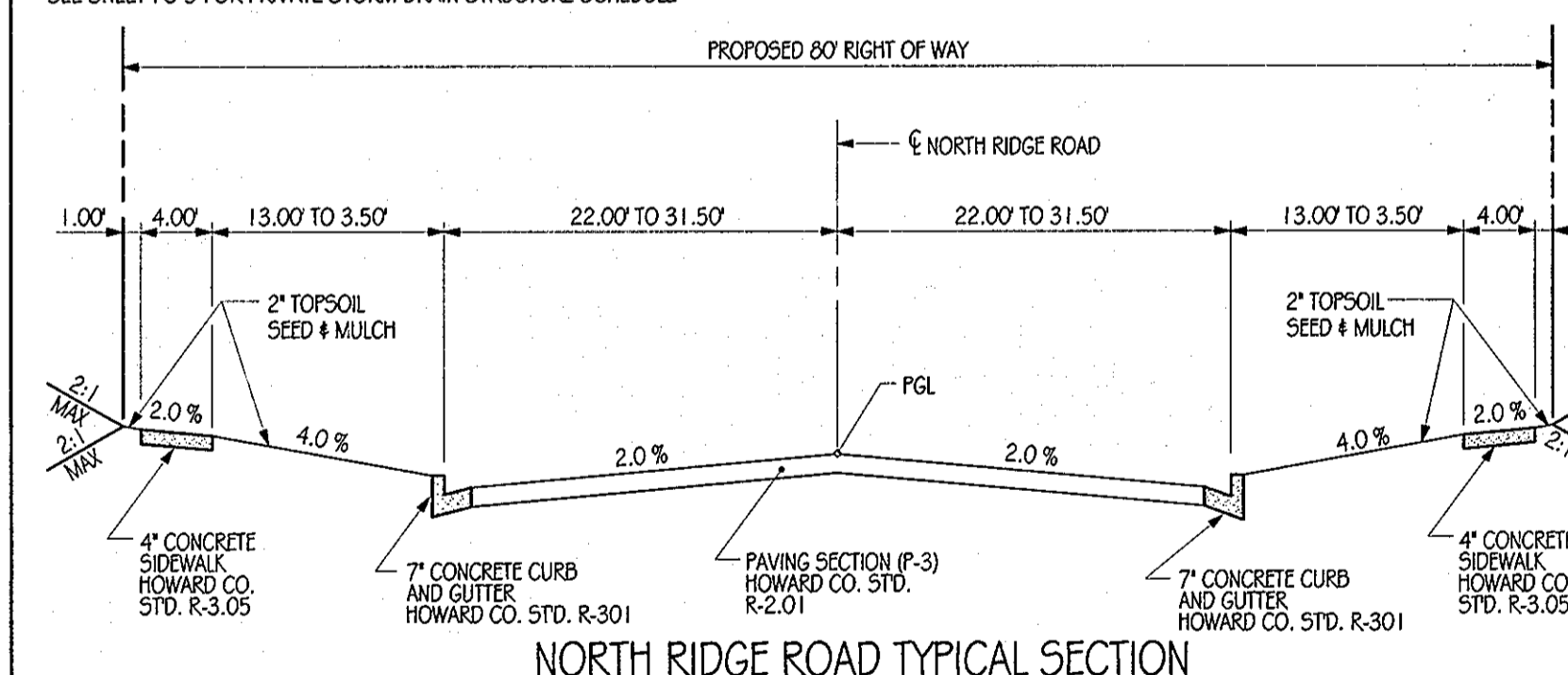
POINT #	FROM	TO	RADIUS	LENGTH	CHORD BEARING
C-1	26+49.31	27+49.31	650.00'	100.00'	N 17°19'34" W

### PUBLIC DRAIN PIPE SCHEDULE

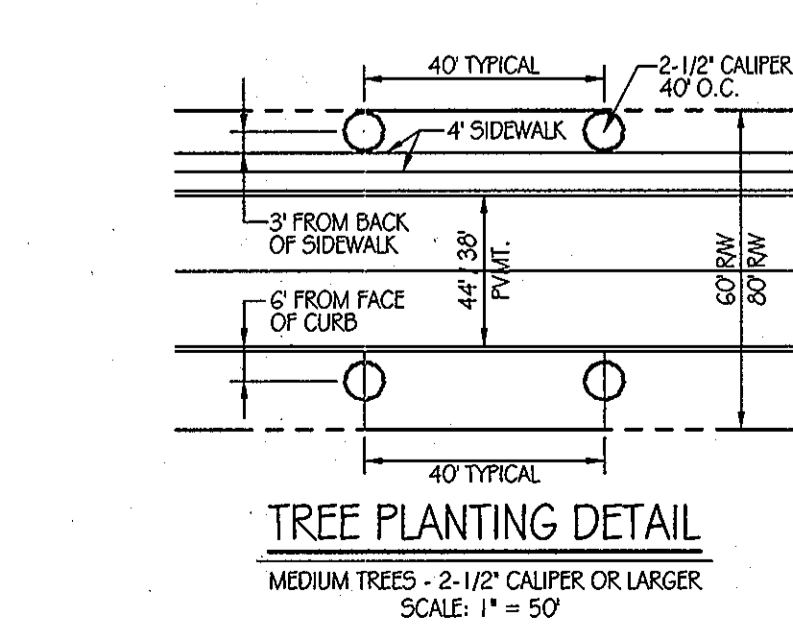
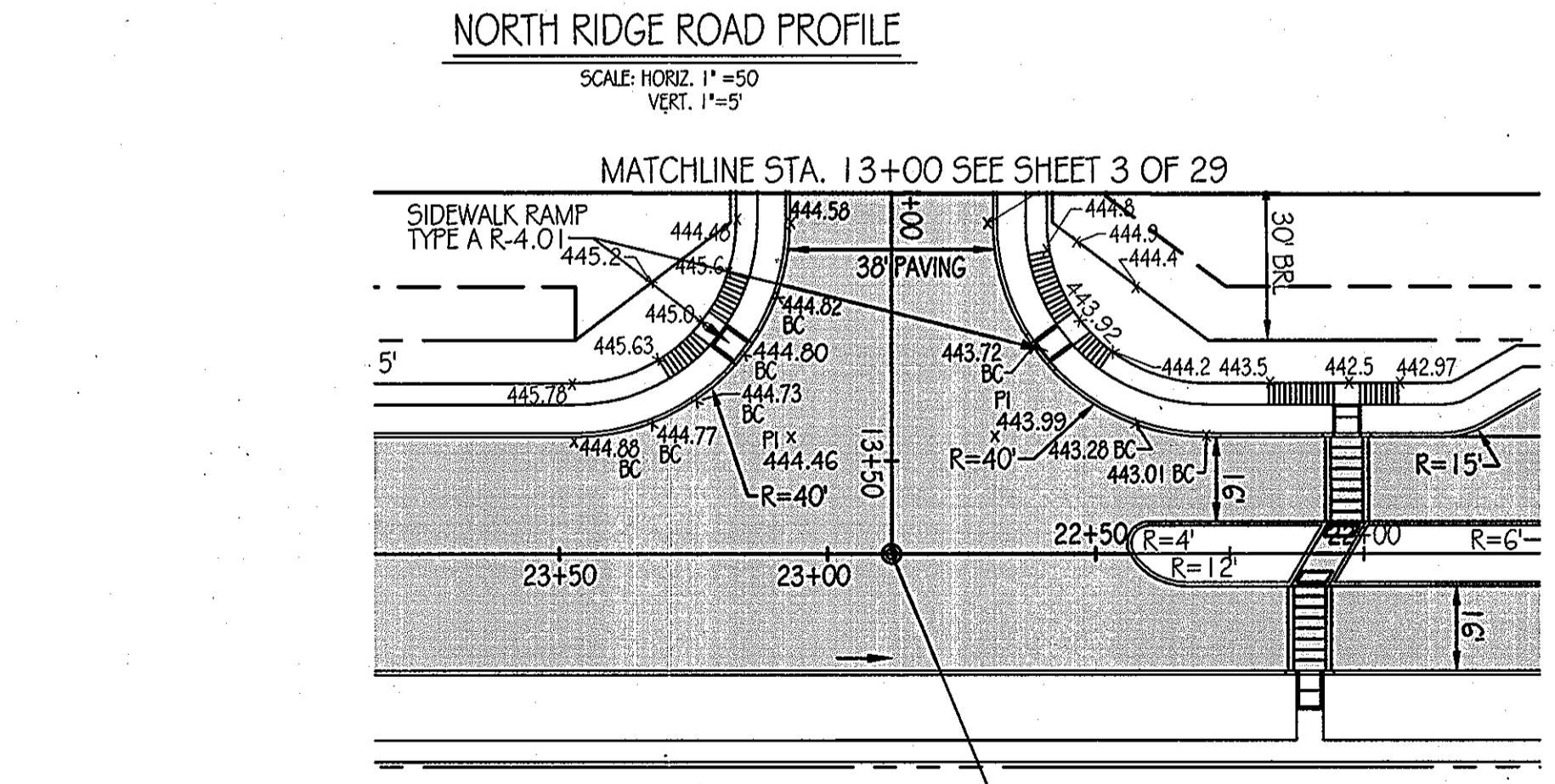
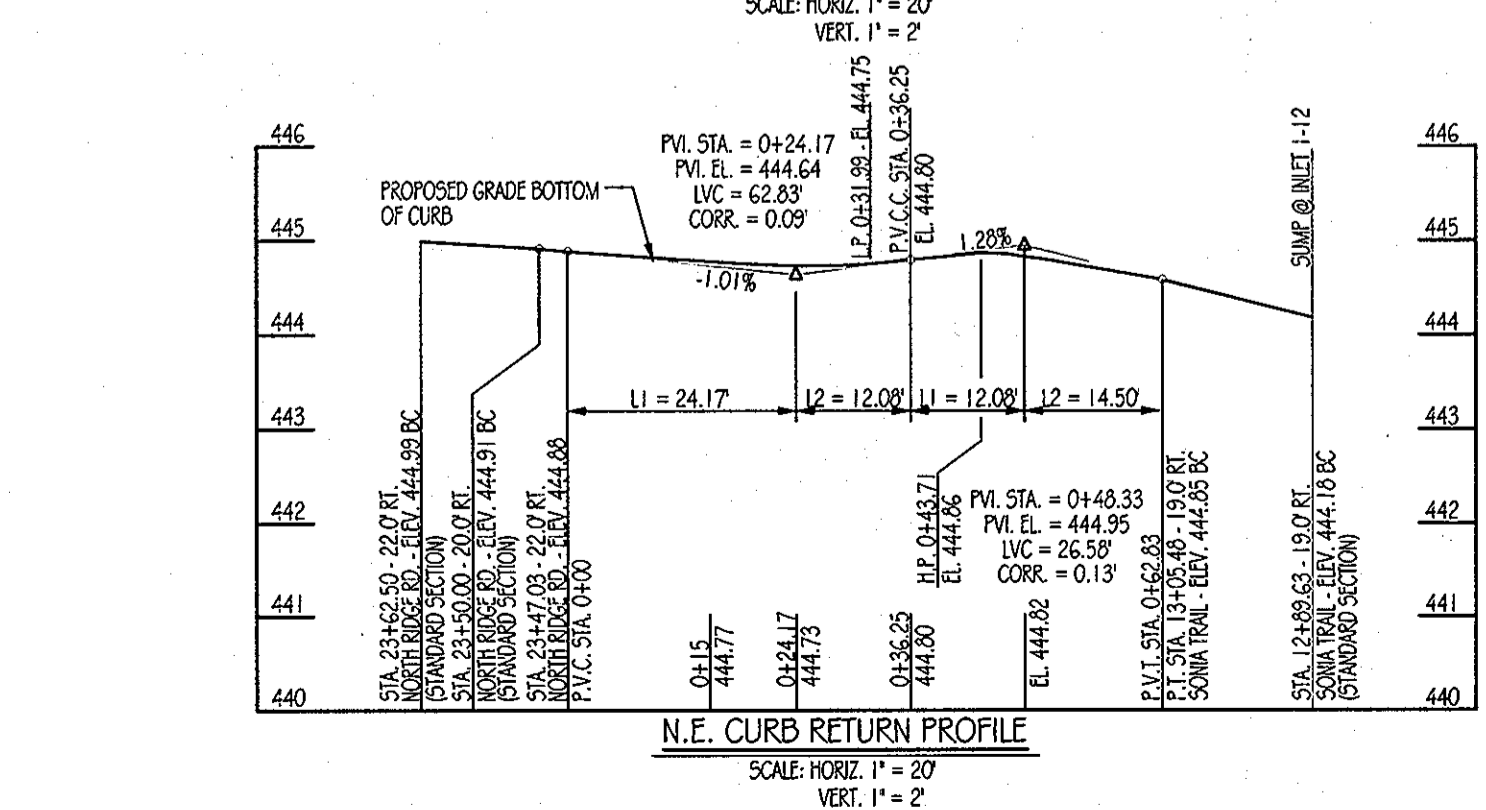
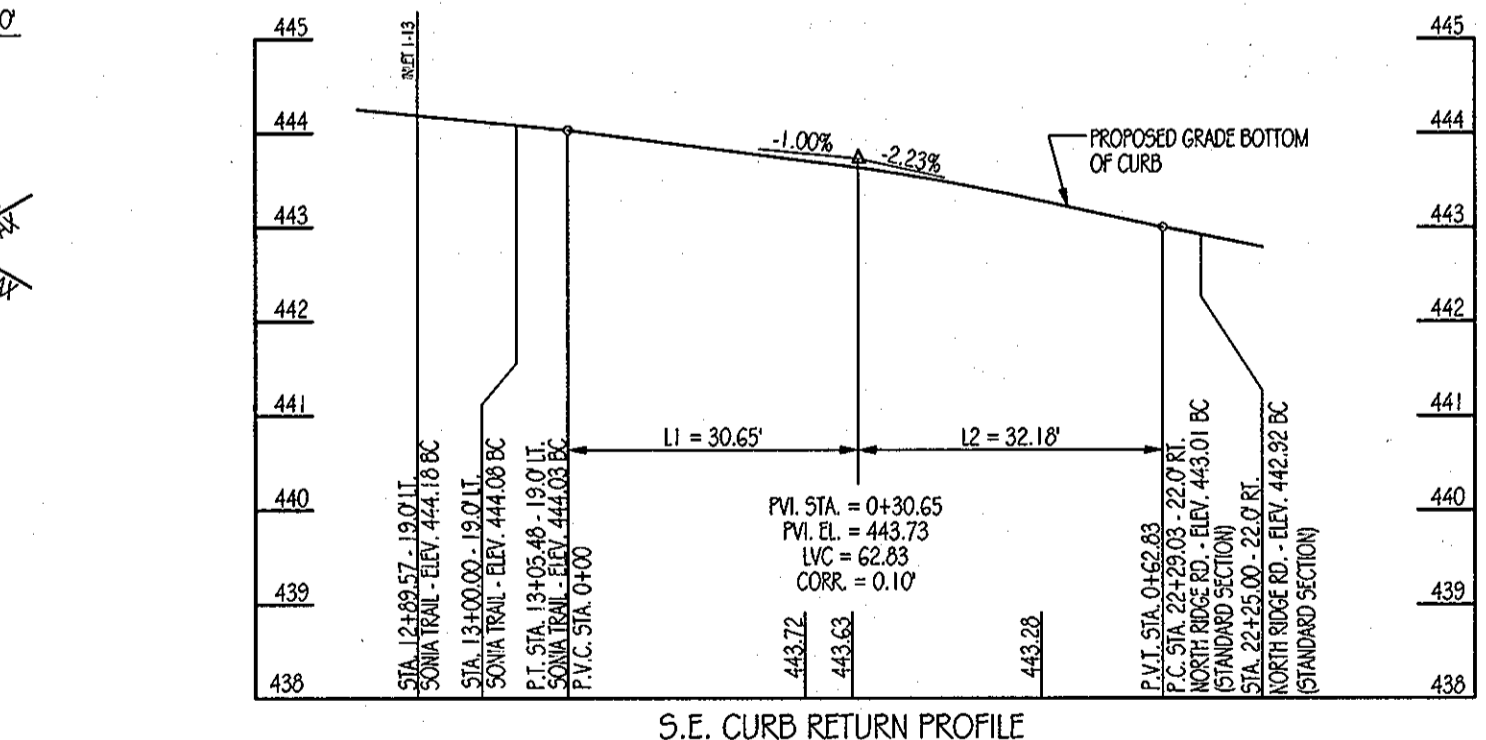
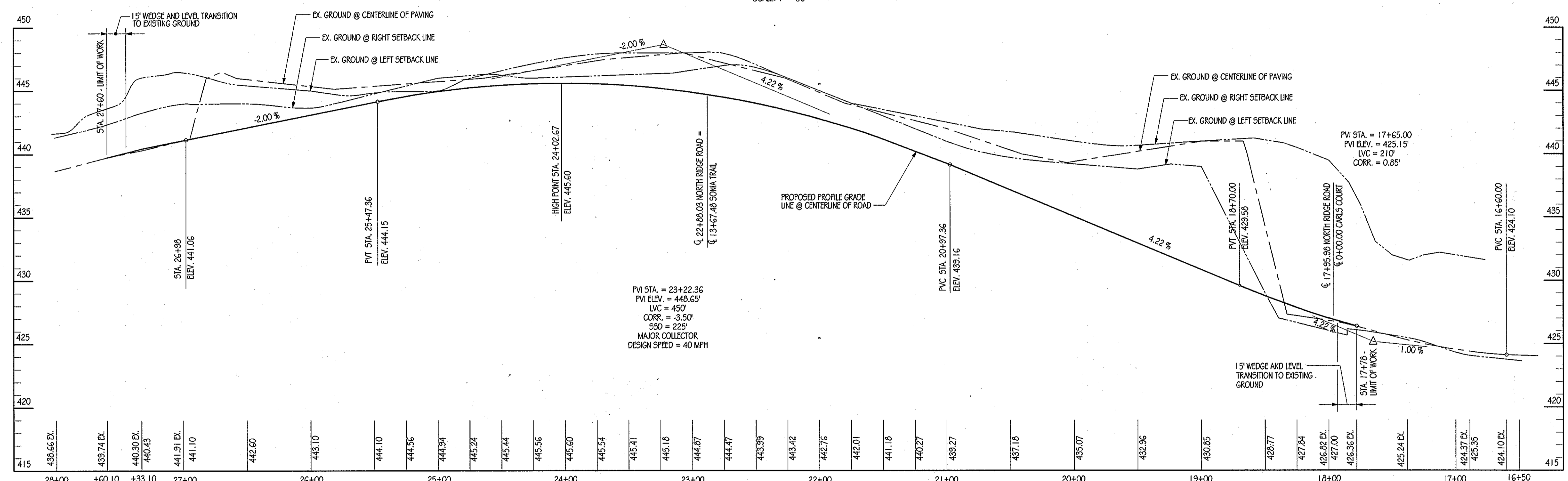
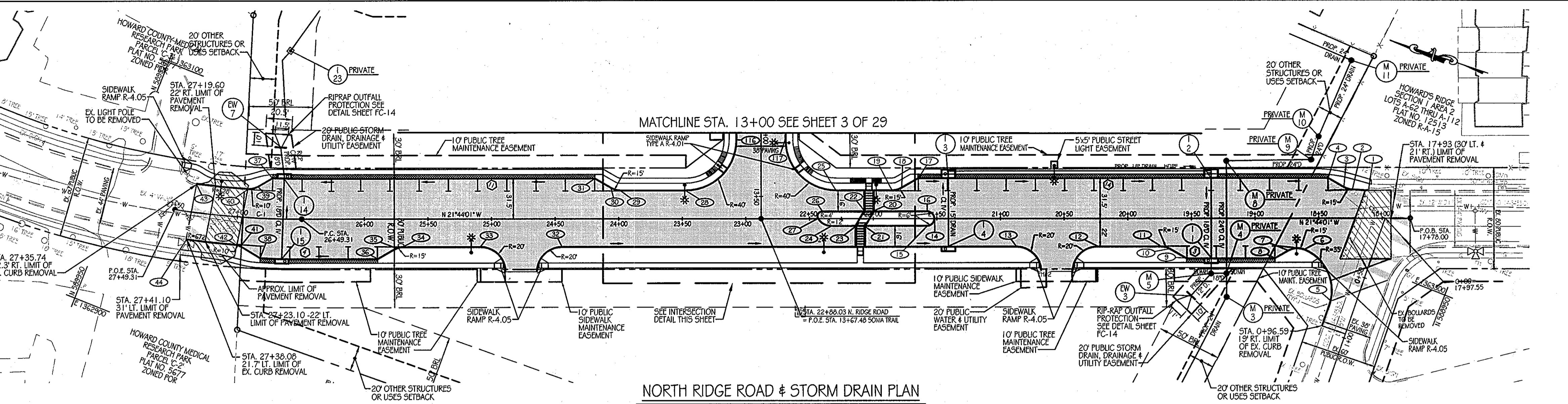
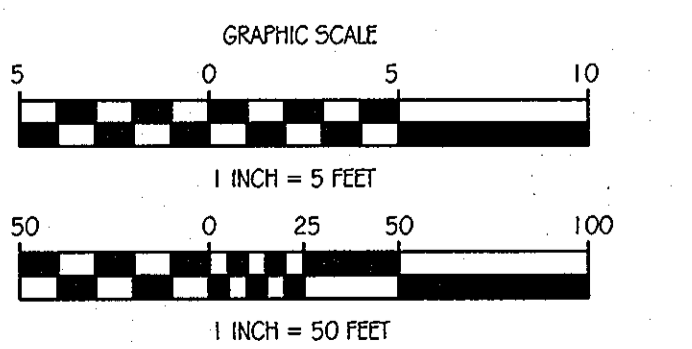
PIPE SIZE	TYPE	LINEAR FEET OF PIPE
12" DRAIN	RCP CL IV	24.00'
15" DRAIN	RCP CL IV	82.35'
18" DRAIN	RCP CL IV	208.00'

### PUBLIC STORM DRAIN STRUCTURE SCHEDULE

NO.	DESCRIPTION	WIDTH	TOP ELEV.	INV. IN.	INV. OUT.	REMARKS	COORDINATES	
							NORTHING	EASTING
M-4	STD. 4" MANHOLE	-	432.50	428.00 / 426.60	426.50	HOWARD CO. STD. DETAIL G-5.12	589,115.7886	1,363,252.5502
M-5	STD. 4" MANHOLE	-	433.00	428.25 / 426.85	426.75	SEE DETAIL SHEET FC-16	589,127.0495	1,363,247.9164
M-6	STD. 4" MANHOLE	-	434.00	427.59	427.49	HOWARD CO. STD. DETAIL G-5.12	589,148.7135	1,363,334.9862
EW-3	TYPE C INCHWALL	-	-	428.50	428.50	HOWARD CO. STD. DETAIL D-5.21	589,135.3478	1,363,225.6147
EW-7	TYPE C INCHWALL	-	-	436.30	436.30	HOWARD CO. STD. DETAIL D-5.21	589,843.9575	1,363,070.5882
I-1	TYPE A-10 INLET	2.5'	T.C. 432.21	427.75	427.50	HOWARD CO. STD. DETAIL D-4.03	589,131.3841	1,363,259.3825
I-2	TYPE A-10 INLET	6.0'	T.C. 432.21	428.85	428.60	HOWARD CO. STD. DETAIL D-4.04	589,154.7556	1,363,317.8209
I-3	TYPE A-10 INLET	6.0'	T.C. 440.75	436.24	435.99	HOWARD CO. STD. DETAIL D-4.04	589,346.5280	1,363,241.3916
I-4	TYPE A-10 INLET	2.5'	440.93	436.80	436.80	HOWARD CO. STD. DETAIL D-4.03	589,326.7175	1,363,191.6946
I-14	TYPE A-10 INLET	2.5'	440.60	436.70	436.45	HOWARD CO. STD. DETAIL D-4.03	589,831.6096	1,363,048.2356
I-15	TYPE A-10 INLET	2.5'	440.60	437.10	437.10	HOWARD CO. STD. DETAIL D-4.03	589,810.2242	1,362,968.9747



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diase Johnson*, Acting Chief, Bureau of Highways, 11/22/11  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Keith Redwood*, Chief, Division of Land Development, 11/23/11  
*William...*, Chief, Development Engineering Division, 11/23/11



**OrchardDevelopment Corporation**  
**CRP Opportunity Fund, L.P.**

**KCI TECHNOLOGIES**  
 ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS  
 8161 MARIE LAWN BOULEVARD, SUITE 150, FULFORD, MD 20759  
 TELEPHONE: (410) 92-8086, FAX: (410) 92-7419

**STATE OF MARYLAND PROFESSIONAL ENGINEER**  
 LICENSE NO. 031089, EXPIRES 11-2-11

**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3  
 TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

**NORTH RIDGE ROAD PLAN, STORM DRAIN AND ROAD PROFILE**

DESIGN BY: D.E.S. DATE: 11-02-2011  
 DRAWN BY: C.T.B.  
 CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 21101105  
 SHEET 02 OF 29  
 DRAWING NUMBER: FC-2

**LEGEND**

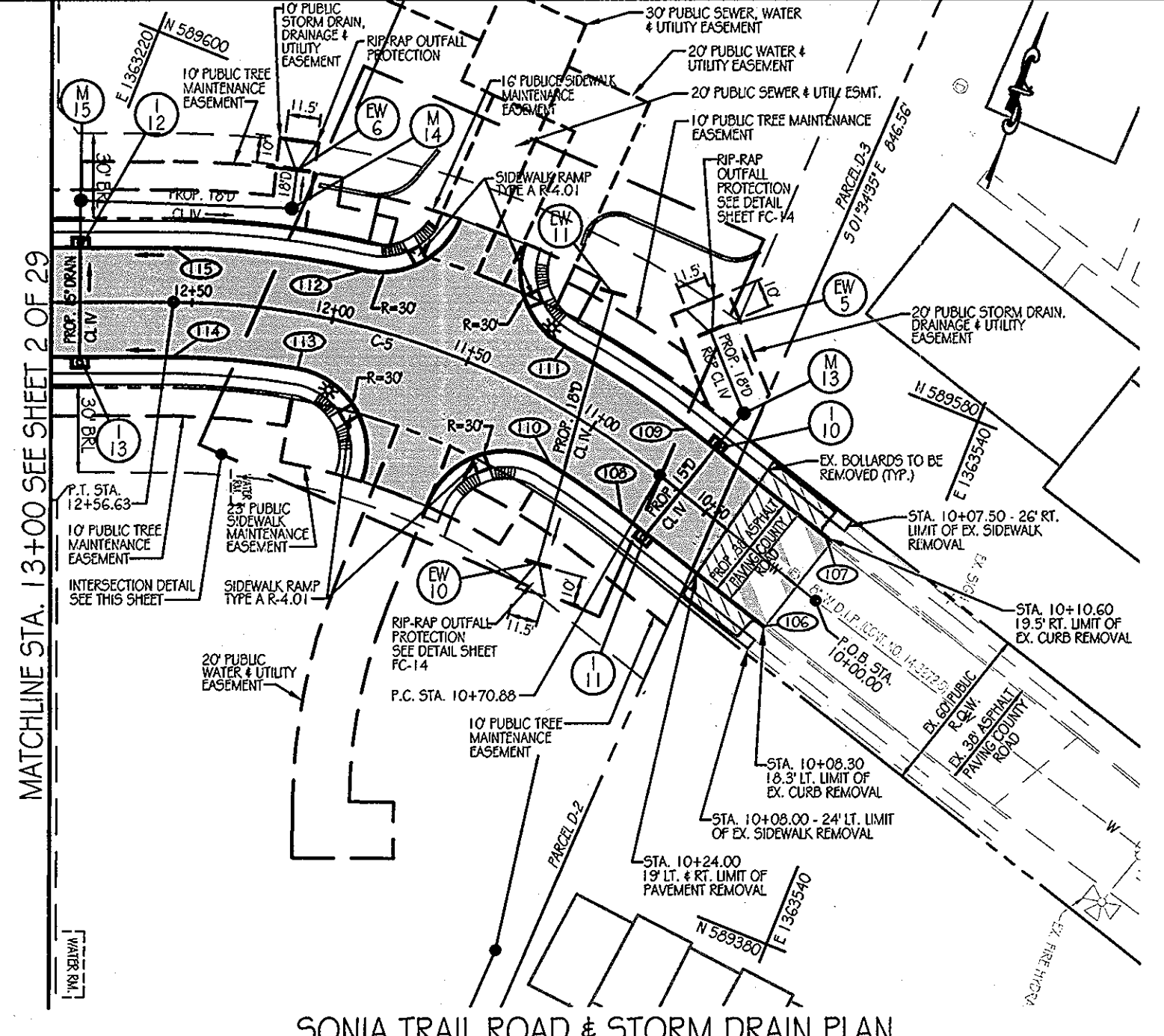
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---430---	EX. INDEX CONTOUR	---	PROP. CURB
---	EX. WATER	---	PROP. STORM DRAIN
---	EX. STORM DRAIN	---	PROP. MANHOLE
---	EX. SANITARY	---	PROP. INLET
---	EX. FENCE	---	PROP. LIGHT POLE (12' ARM)
---	EX. FIRE HYDRANT	---	PROP. LIGHT POLE (POST TOPS)
---	EX. WATER VALVE	---	PROPOSED PAVING
---	EV GAS VALVE	---	PROPOSED WEDGE AND LEVEL TRANSITION TO EXISTING GROUND
---	EX. LIGHT POLE	---	APPROXIMATE LIMIT OF EXISTING PAVEMENT REMOVAL
---	EX. MANHOLE	---	
---	PROPERTY LINE	---	
---	RIGHT-OF-WAY LINE	---	

**GENERAL NOTES**

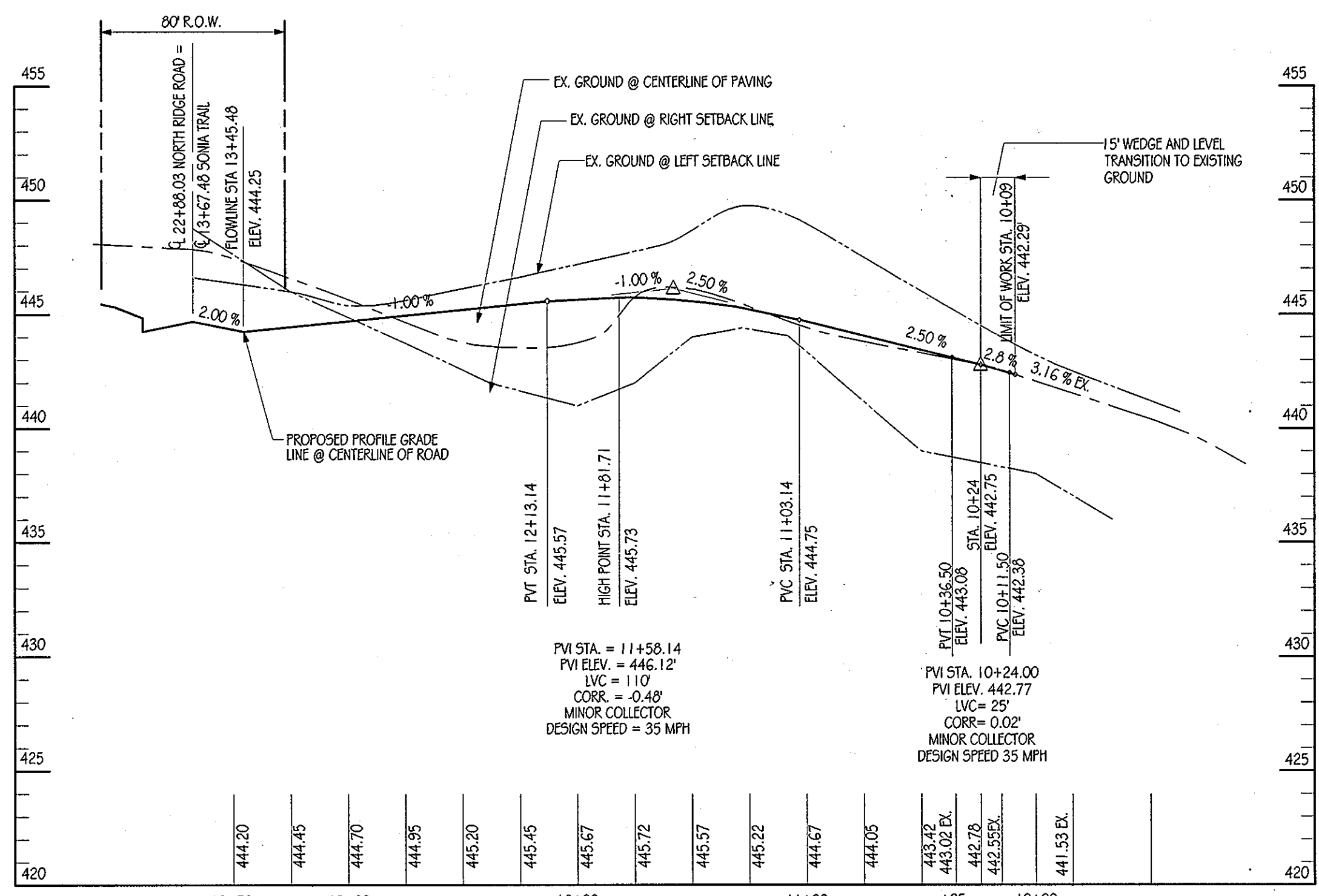
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1800 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- a) THE R-1-1 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.  
b) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC CONTROL DIVISION (410-313-5752) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.  
c) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).  
d) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1 1/4 GAUGE) INSERTED INTO A 2 1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1 1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- BOUNDARY INFORMATION SHOWN HEREON IS BASED ON A RECORD PLAT RECORDED AS PLAT NO. 9419, FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS AND CARTER INC. DATED AUGUST 2006. FIELD RUN SURVEY WITH TWO FOOT INTERVALS PREPARED BY KCI TECHNOLOGIES, INC. DATED FEBRUARY 2011.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HOWARD COUNTY HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS.
 

CONTROL	NORTHING	EASTING	ELEV.
1861	589905.015	1367750.237	407.740
242C	588648.373	1366038.139	354.028
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- STORMWATER MANAGEMENT WILL BE PROVIDED FOR IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ACT OF 2007.
- EXISTING UTILITIES ARE BASED ON CURRENT HOWARD COUNTY DRAWINGS:
  - EXISTING WATER CONTRACT NO. 14-1153-D, 14-3453-D & 14-3272-D
  - EXISTING SEWER CONTRACT NO. 14-1153-D, 14-3453-D & 14-3272-D
- NO 100-YEAR FLOODPLAIN EXISTS ON THIS PROPERTY PER FEMA F.I.R.M. MAP NO. 24-0044-0017B DATED DECEMBER 4, 1986. THE MAP INDICATES THAT THE PROPERTY SHOWN HEREON LIES WITHIN ZONE C, AREAS OF MINIMAL FLOODING.
- THERE ARE NO WETLANDS ON THIS SITE BASED ON A REPORT FROM ECO-SCIENCE PROFESSIONALS INC. DATED MARCH 15, 2007.
- A TRAFFIC IMPACT ANALYSIS WAS PREPARED BY LEE CUNNINGHAM, LTD. DATED MAY 2003 AND APPROVED WITH 503-16 ON MARCH 15, 2004.
- THIS PLAN IS SUBJECT TO ADMINISTRATIVE ADJUSTMENT AA-11-1 TO ADJUST THE FOLLOWING ZONING REGULATIONS: SECTION 112.D(4)(i)(1)(a); TO ALLOW A FRONT SETBACK FROM A COLLECTOR PUBLIC ROW OF 27 FEET. SECTION 112.D(6)(a); TO ALLOW FOR REAR TO REAR SETBACK DISTANCE OF 50 FEET.  
THIS PLAN IS ALSO SUBJECT TO ALTERNATIVE COMPLIANCE REQUEST FOR HOWARD COUNTY DESIGN MANUAL VOLUME III SECTION 2.9.B.
 

ZONING:	R-A-15
EXISTING USE:	VACANT
PROPOSED USE:	APARTMENTS
AREA OF SITE:	421,102.07 S.F. OR 9.67 ACRES



SONIA TRAIL ROAD & STORM DRAIN PLAN  
SCALE: 1" = 50'



SONIA TRAIL  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'

**SONIA TRAIL BASELINE DATA**

NO.	STATION	NORTHING	EASTING	ELEVATION D.C.	LENGTH
106	-	-	-	MATCH EX. GRADE	-
107	-	-	-	MATCH EX. GRADE	-
108	10+70.88	589,502.0940	1,363,437.118	444.32	19.00 LT
109	10+70.88	589,538.4406	1,363,448.2016	443.32	19.00 RT
110	11+06.33	589,509.6671	1,363,405.0170	444.20	19.00 LT
111	11+22.25	589,549.4633	1,363,394.4835	444.54	19.00 RT
112	11+93.75	589,547.9090	1,363,318.2713	445.08	19.00 RT
113	12+09.14	589,507.7943	1,363,309.8645	444.99	19.00 LT
114	12+56.63	589,495.1346	1,363,267.8406	444.52	19.00 LT
115	12+56.63	589,530.4334	1,363,253.7696	444.52	19.00 RT
116**	13+10.48	589,510.4020	1,363,203.5186	444.80*	19.00 RT
117**	13+10.48	589,475.1032	1,363,217.5895	444.00	19.00 LT

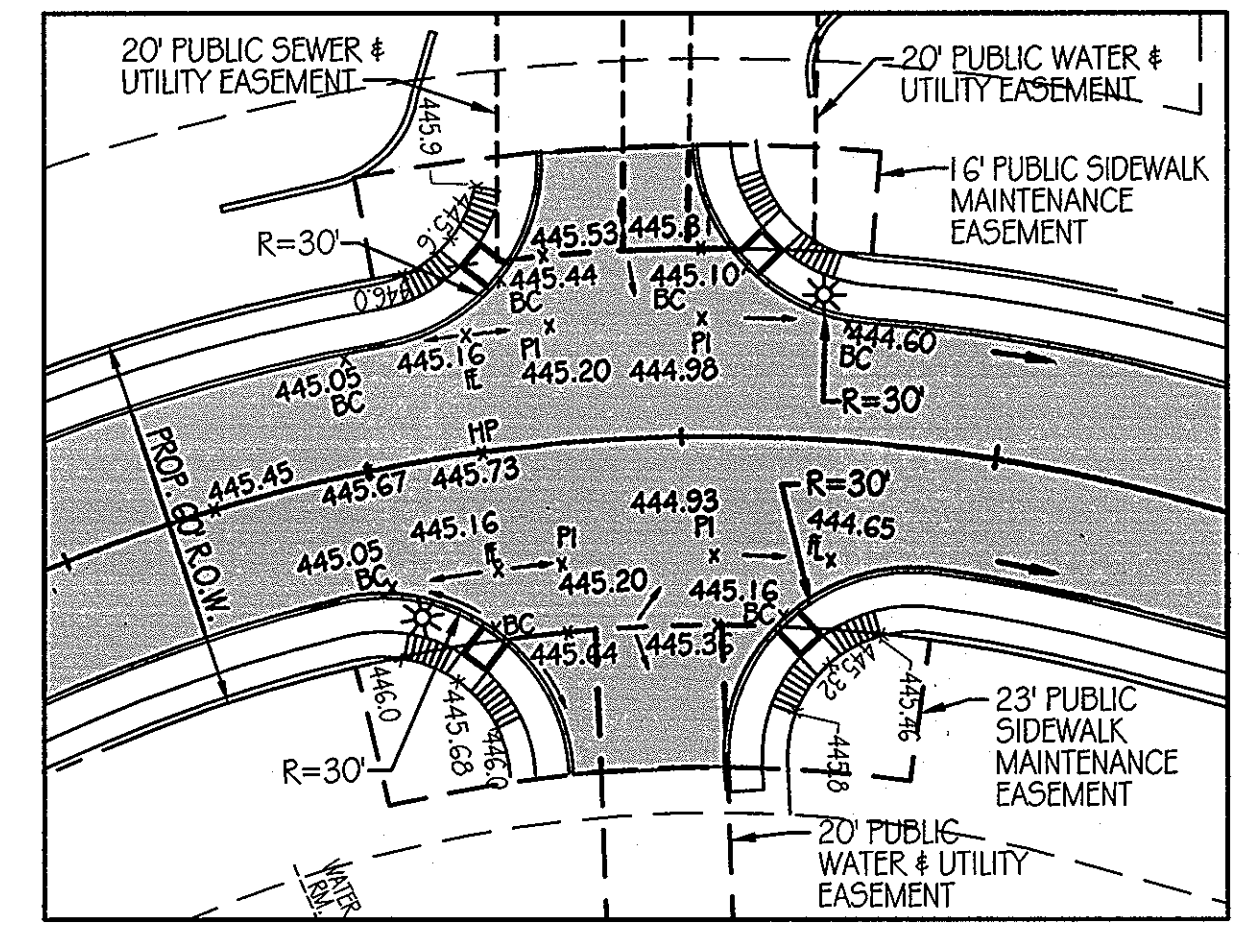
\* MODIFIED ELEV. FOR CURBS RETURN  
\*\* POINTS 116 & 117 ARE SHOWN ON SHEET 2 OF 29 NORTH RIDGE ROAD PLAN.

**SONIA TRAIL CURVE DATA**

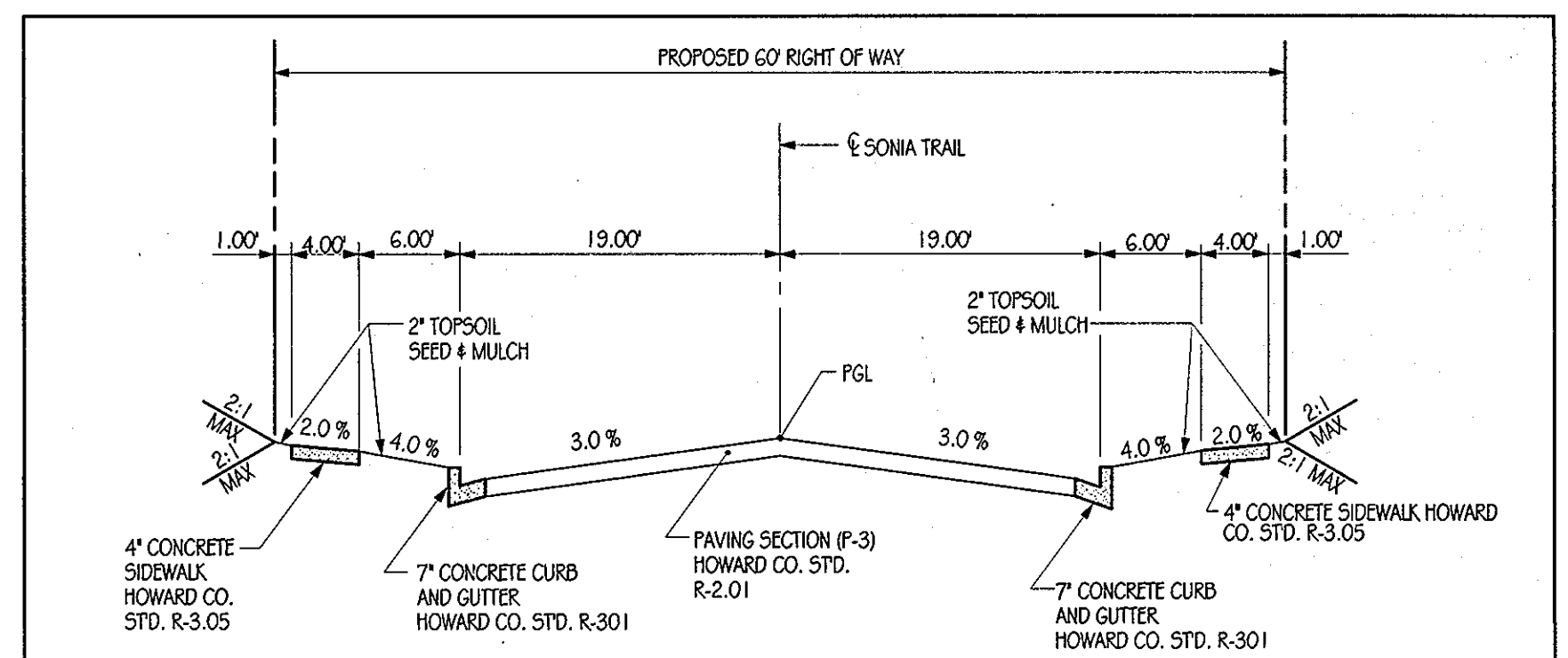
POINT #	FROM	TO	RADIUS	LENGTH	CHORD BEARING
C-5	10+70.88	12+56.63	275.00'	185.75'	S 87°37'02" W

**PUBLIC DRAIN PIPE SCHEDULE**

PIPE SIZE	TYPE	LINEAR FEET OF PIPE
15" DRAIN	RCP CL IV	82.10'
18" DRAIN	RCP CL IV	150.60'



INTERSECTION DETAIL  
SCALE: 1" = 30'

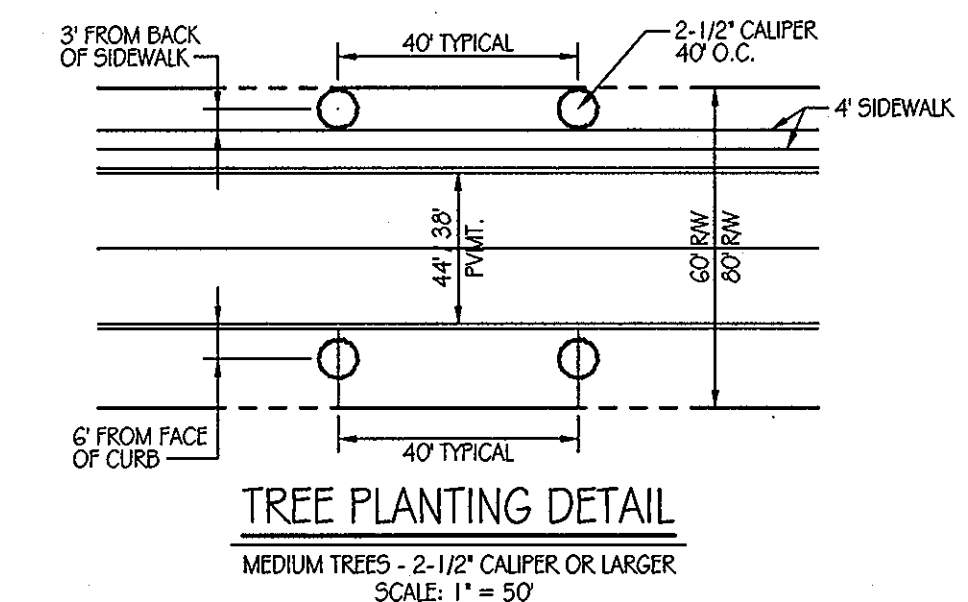


SONIA TRAIL TYPICAL SECTION  
NOT TO SCALE

**PUBLIC STORM DRAIN STRUCTURE SCHEDULE**

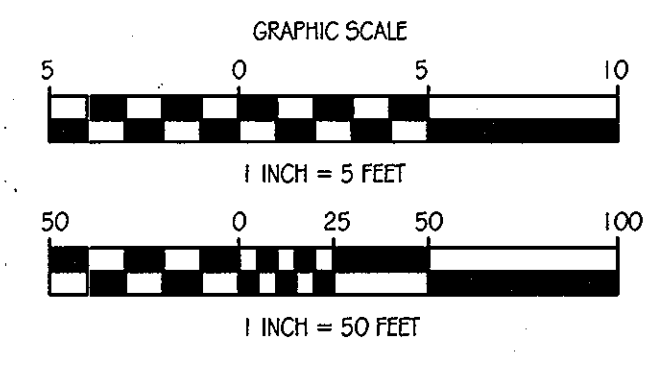
NO.	DESCRIPTION	WIDTH	TOP ELEV.	INV. IN	INV. OUT	REMARKS	COORDINATES	
							NORTHING	EASTING
M-13	STD. 4" MANHOLE	-	443.75	439.53	439.43	HOWARD CO. STD. DETAIL S-2.22	589,551.7514	1,363,462.1358
M-14	STD. 4" MANHOLE	-	444.60	439.44	439.34	HOWARD CO. STD. DETAIL S-2.22	589,559.3559	1,363,286.9261
M-15	STD. 4" MANHOLE	-	444.60	440.04/440.19	439.94	HOWARD CO. STD. DETAIL S-2.22	589,534.1485	1,363,216.7088
EW-5	TYPE C ENDWALL	-	-	-	439.00	HOWARD CO. STD. DETAIL D-5.21	589,574.5297	1,363,440.2550
EW-6	TYPE C ENDWALL	-	-	-	439.25	HOWARD CO. STD. DETAIL D-5.21	589,573.1402	1,363,203.4067
EW-10	TYPE C ENDWALL	-	-	-	436.50	HOWARD CO. STD. DETAIL D-5.21	589,474.7195	1,363,414.7128
EW-11	TYPE C ENDWALL	-	-	-	439.65	HOWARD CO. STD. DETAIL D-5.21	589,574.3503	1,363,403.3460
I-10	TYPE A-5 INLET	2.5'	T.C. 443.62	439.93	439.68	HOWARD CO. STD. DETAIL D-4.01	589,535.7194	1,363,457.1413
I-11	TYPE A-5 INLET	2.5'	T.C. 443.62	435.50	435.50	HOWARD CO. STD. DETAIL D-4.01	589,489.5429	1,363,446.1310
I-12	TYPE A-5 INLET	3.0'	T.C. 444.78	441.00	440.75	HOWARD CO. STD. DETAIL D-4.02	589,518.1652	1,363,222.9895
I-13	TYPE A-5 INLET	2.5'	T.C. 444.78	-	441.25	HOWARD CO. STD. DETAIL D-4.01	589,482.8224	1,363,236.9541

\* SEE SHEET FC-5 FOR PRIVATE STORM DRAIN STRUCTURE SCHEDULE



TREE PLANTING DETAIL  
MEDIUM TREES - 2-1/2" CALIPER OR LARGER  
SCALE: 1" = 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwary, Acting* 11/24/11  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*W. J. Shor* 11/23/11  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 APPROVED: DEPARTMENT OF ENGINEERING  
*W. J. Shor* 11/23/11  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



**Orchard Development Corporation**  
 WILDER BUILDING CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 564-2354

**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
 ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 8161 MARIE LAWN BOULEVARD  
 SUITE 150  
 FULFORD, MD 20759  
 TELEPHONE: (410) 92-8086  
 FAX: (410) 92-7419

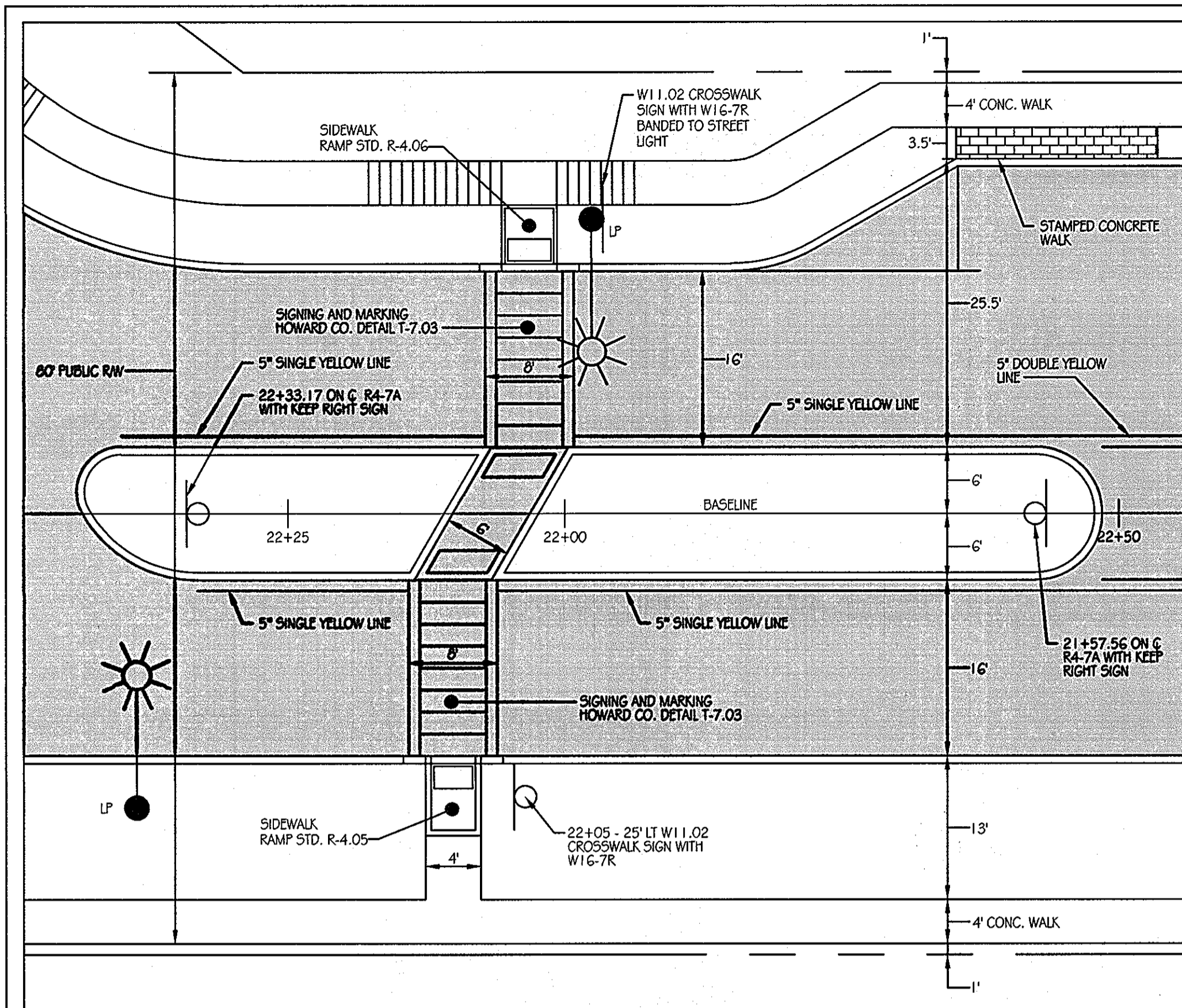
**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3  
 TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT NO. 2  
 HOWARD COUNTY, MD

**SONIA TRAIL ROAD PLAN, STORM DRAIN AND ROAD PROFILE**

DESIGN BY: B.E.S.  
 DRAWN BY: C.T.B.  
 CHECKED BY:

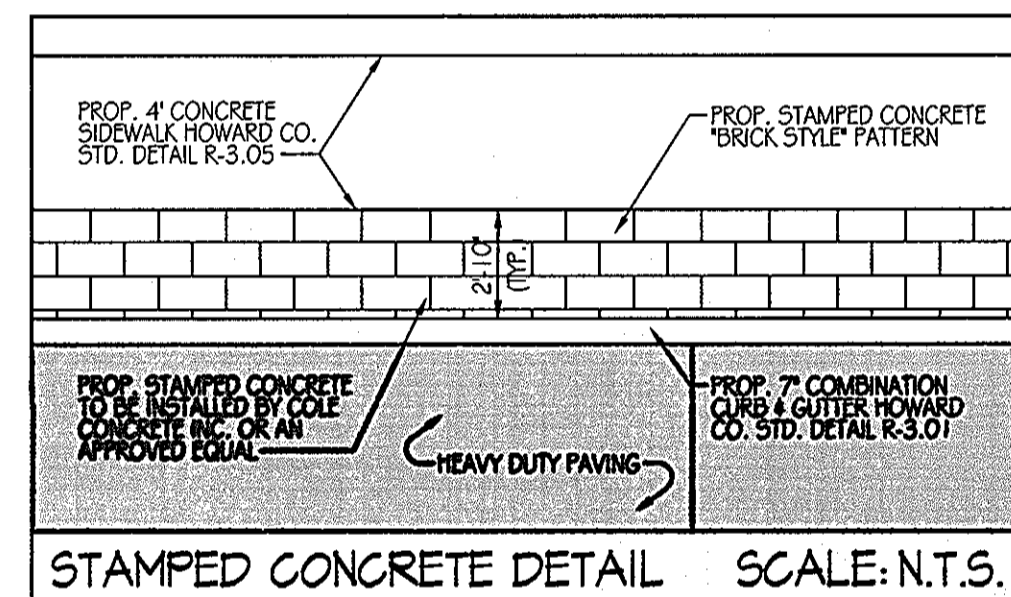
SCALE: AS SHOWN  
 DATE: 11-02-2011  
 APPROVED:

PROJECT NO.: 21101105  
 SHEET 03 OF 29  
 DRAWING NUMBER  
 FC-3

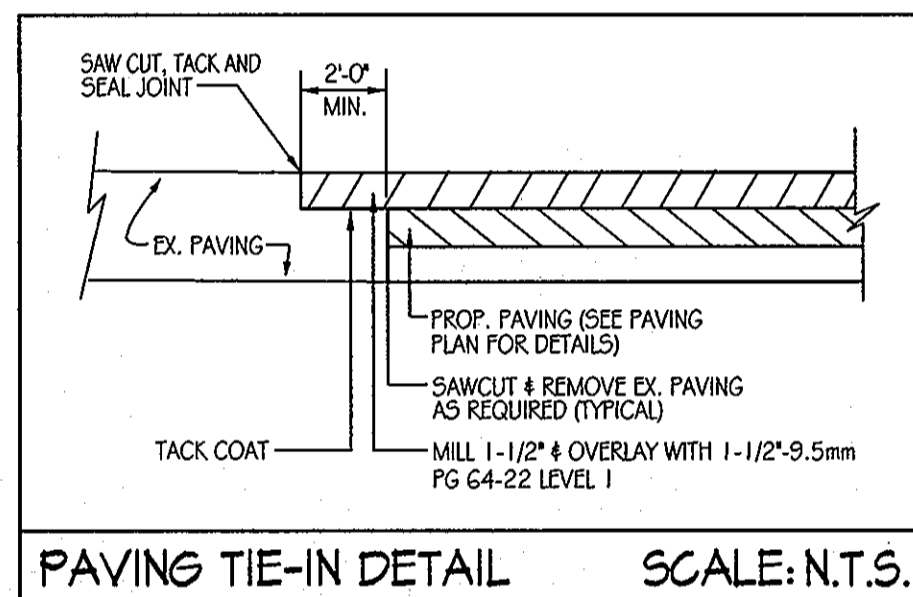


MEDIAN & CROSSWALK DETAIL

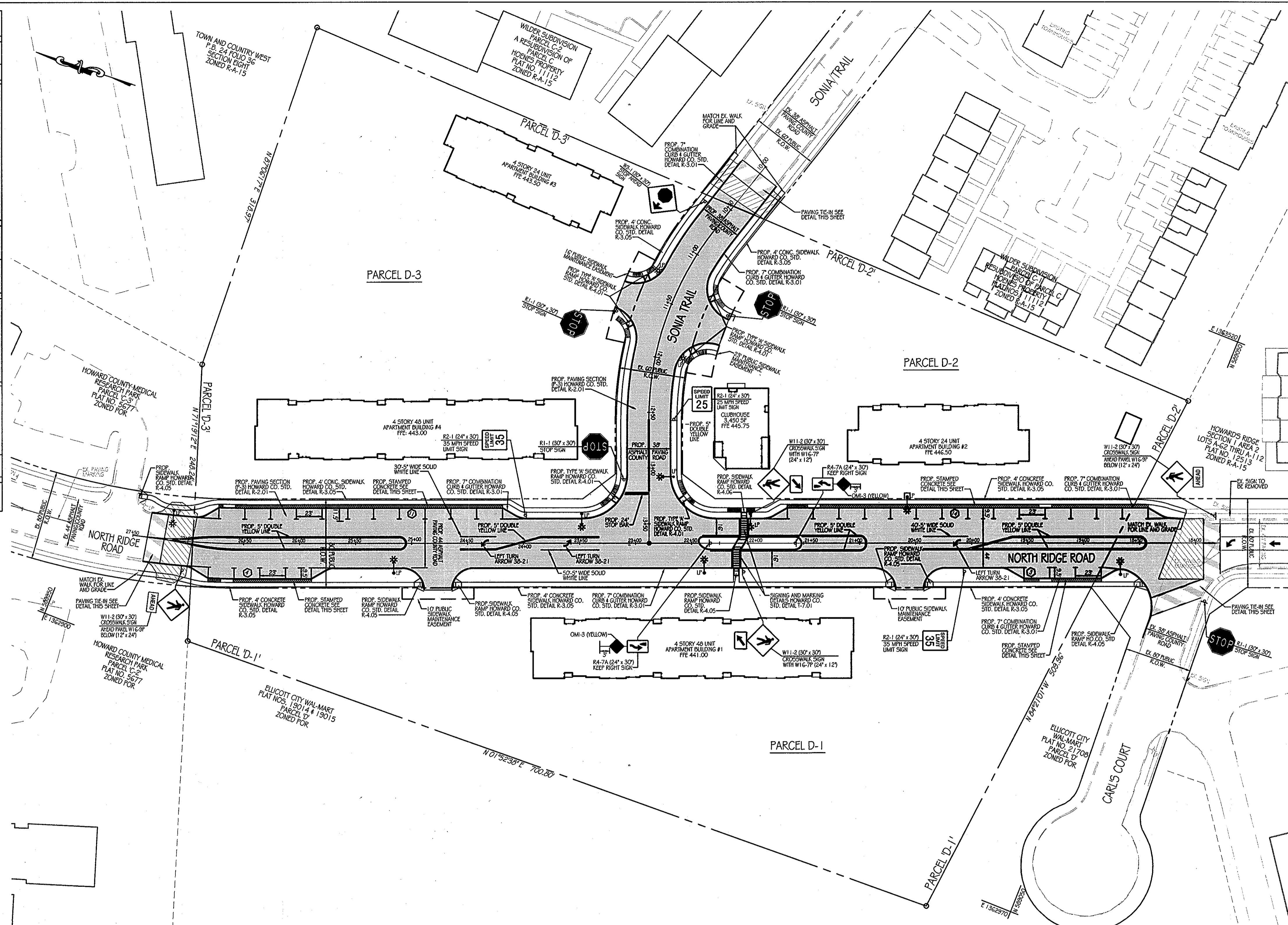
SCALE: 1" = 10'



STAMPED CONCRETE DETAIL SCALE: N.T.S.



PAVING TIE-IN DETAIL SCALE: N.T.S.



NORTH RIDGE ROAD / SONIA TRAIL PAVING, STRIPING & SIGNAGE PLAN

SCALE: 1" = 50'

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- x-x- EX. FENCE
- ⊙ EX. LIGHT POLE
- ⊙ EX. SIGN
- PROP. CURB
- ⊙ PROP. LIGHT POLE (12' ARM)
- ⊙ PROP. LIGHT POLE (POST TOP)
- ⊙ PROP. SIGN
- PROPOSED NUMBER OF PARKING SPACES
- ▨ APPROXIMATE LIMITS OF HEAVY DUTY PAVING
- ▨ APPROXIMATE LIMITS OF PAVING TIE-IN
- ▨ APPROXIMATE LIMITS OF PAVING REMOVAL

STREET LIGHT DATA

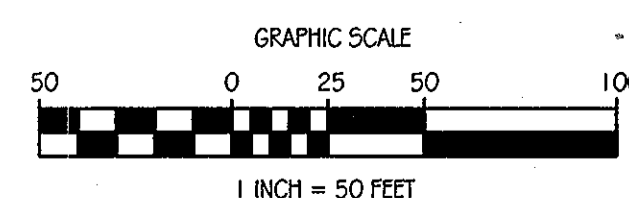
STREET	CL STA.	Q/S	STREET LIGHT DATA
NORTH RIDGE ROAD	18+67.33	Q/S 28.30' LT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	20+57.54	Q/S 41.50' RT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	21+97.56	Q/S 26.70' RT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	22+38.71	Q/S 26.70' LT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	23+48.00	Q/S 26.70' RT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	25+16.00	Q/S 26.70' LT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	27+15	Q/S 26.90' RT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM.
NORTH RIDGE ROAD	27+45	Q/S 26.00' RT.	REMOVE EXISTING LIGHT POLE
SONIA TRAIL	11+26.13	Q/S 24.73' R.	150 WATT HPS VAPOR PREMIER POST TOPS MOUNTED ON 14" BLACK FIBERGLASS POLES PLACED 3' BACK OF FACE OF CURB
SONIA TRAIL	11+97.47	Q/S 25.77' L.	150 WATT HPS VAPOR PREMIER POST TOPS MOUNTED ON 14" BLACK FIBERGLASS POLES PLACED 3' BACK OF FACE OF CURB
SONIA TRAIL	13+05.00	Q/S 23.70' LT.	250 WATT HPS VAPOR COBRA STYLE BRONZE FIXTURE (CUT OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

GENERAL NOTES

- ALL SIGNS SHALL BE MOUNTED ON A 2" SQUARE GALVANIZED METAL TUBE POSTS (14 GAUGE) INSERTED INTO A 2 1/2" SQUARE GALVANIZED METAL TUBE SLEEVE, 3' LONG (12 GAUGE). A GALVANIZED POLE CAP SHALL BE MOUNTED ON TOP.
- ALL SIGN LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS WILL BE FIELD MARKED BY TRAFFIC ENGINEER.
- ALL MARKINGS WILL BE MARKED AND APPROVED BY TRAFFIC ENGINEER, PRIOR TO INSTALLATION.
- SINGLE SIGN ON POST - 5' TO BOTTOM OF SIGN; TWO SIGN-PANELS - 4' TO BOTTOM OF SIGN; HEIGHT MEASURED FROM ROAD SURFACE, EXCEPT WHERE THERE ARE SIDEWALKS.
- FOR REFERENCE REFER TO HOWARD COUNTY DETAILS T-7.02, T-7.03, W96-3, AND OM-3C.
- FOUR PRIVATE RANGE OFF ADDRESS SIGN ASSEMBLIES SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S / OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.

TRAFFIC CONTROL DEVICES

- THE R1-1 ("STOP") SIGNS AND THE STREET NAME SIGN (SNS) ASSEMBLIES FOR THIS DEVELOPMENT INCLUDING PRIVATE SNS ASSEMBLIES AND RANGE OF ADDRESS SNS ASSEMBLIES MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
- THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
- ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (M&AUTCD).
- FOUR PRIVATE RANGE OFF ADDRESS SIGN ASSEMBLIES SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S / OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATES.



**OrchardDevelopment Corporation**  
**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER/ DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2354

OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwarz, Acting* 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Ket Sheleff* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*William Damm* 11/22/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
 ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 8161 MARLE LAWN BOULEVARD  
 SUITE 150  
 FORTON, MD 20729  
 TELEPHONE: 410-92-8086  
 FAX: (410) 922-7419

**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3

TAX MAP: 17, GRID: 23 PARCEL: 711  
 ZONED: RA-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

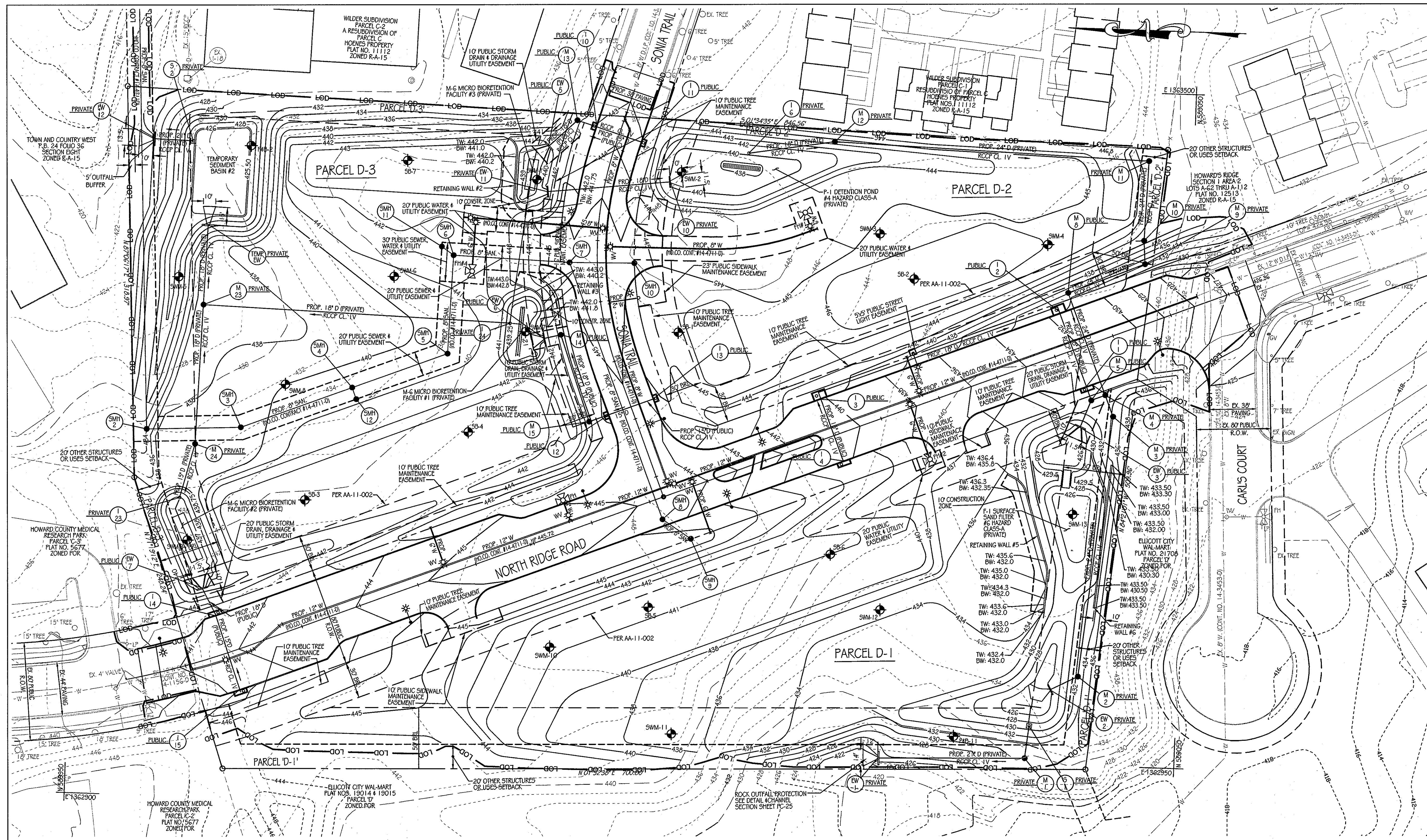
TITLE: NORTH RIDGE ROAD & SONIA TRAIL PAVING, STRIPING AND SIGNAGE PLAN

DESIGN BY: D.E.S.  
 DRAWN BY: C.T.B.  
 CHECKED BY:

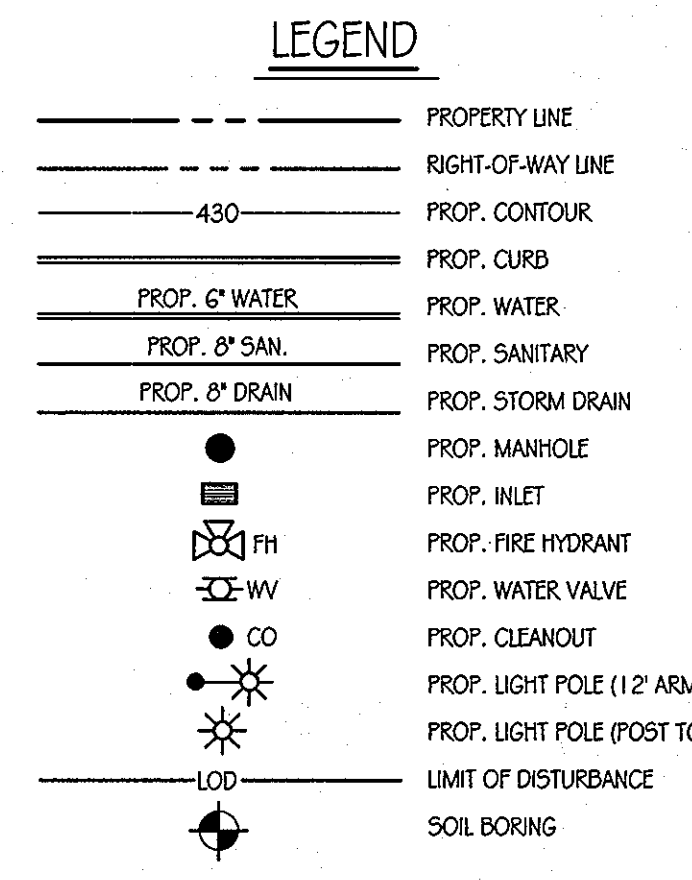
SCALE: 1" = 50'  
 DATE: 11-02-2011  
 APPROVED:

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.: 31089 EXPIRATION DATE: 1/1/2112

PROJECT NO.: 2101105  
 SHEET 04 OF 29  
 DRAWING NUMBER  
**FC-4**



- NOTES:
1. FOR MICRO-BIORETENTION FACILITY #1 SEE SHEET FC-19.
  2. FOR MICRO-BIORETENTION FACILITY #2 SEE SHEET FC-20.
  3. FOR MICRO-BIORETENTION FACILITY #3 SEE SHEET FC-21.
  4. FOR DETENTION FACILITY #4 SEE SHEETS FC-22 AND FC-23.
  5. FOR SWM FACILITY #6 SEE FC-24, FC-25 FC-26.
  6. FOR RIPRAP OUTLET PROTECTION DETAIL SEE SHEET FC-14.
  7. FOR SEDIMENT BASIN #2 SEE SHEET FC-8.



**MASS GRADING PLAN**  
SCALE: 1" = 40'

**PRIVATE DRAIN PIPE SCHEDULE**

PIPE SIZE	TYPE	LINEAR FEET OF PIPE
18" DRAIN	RCP CL IV	572.80'
24" DRAIN	RCP CL IV	817.20'

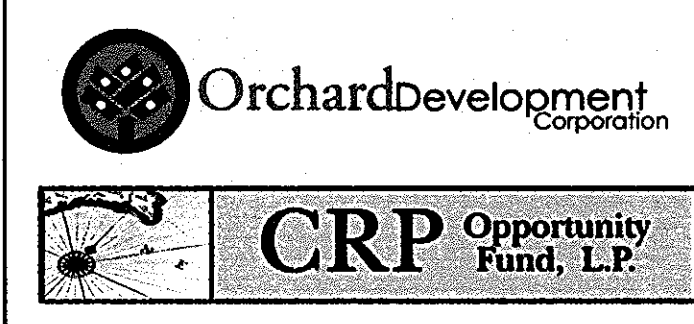
- UTILITY NOTES**
1. CONSTRUCTION OF THE PROPOSED UTILITIES WILL BE IN ACCORDANCE WITH THE HOWARD COUNTY PLUMBING CODE, BY A QUALIFIED CONTRACTOR.
  2. NO WORK IS TO COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED.
  3. ALL CONSTRUCTION SHALL FOLLOW LATEST HOWARD COUNTY DEPT. OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS OF CONSTRUCTION OR AS DETAILED ON THE DRAWINGS.
  4. GRAVEL CRADLE IS REQUIRED UNDER ALL PIPE.
  5. ALL BACKFILL SHALL BE MECHANICALLY TAMPED.
  6. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK SHOWN ON THESE DRAWINGS UNLESS OTHERWISE NOTED.
  7. ALL CHANNELS IN MANHOLES MUST BE CONSTRUCTED TO CONFORM AS CLOSE AS POSSIBLE TO THE STANDARD CHANNELS CALLED FOR IN THE PROFILES.
  8. CLEANOUTS LOCATED IN PAVED AREAS SHALL HAVE COUNTERSUNK LIDS.
  9. ALL SANITARY SEWER CONSTRUCTION SHALL BE DONE UNDER A PERMIT AND PLAN ISSUED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, WATER AND WASTEWATER ENGINEERING DIVISION.
  10. FOR UTILITY WORK OUTSIDE THE LOD SHOWN ON THIS PLAN, CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWN-SLOPE) THE TRENCH.
  11. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
  12. SEE SHEETS C-9, C-10, C-11, C-12 & C-13 FOR UTILITY PROFILES.
  13. CONTRACTOR TO COORDINATE WITH VERIZON FOR THE REMOVAL AND/OR RELOCATION OF DISTING TELEPHONE LINE.
  14. ALL WATER LINES SHALL HAVE A MINIMUM 3'-6" OF COVER.

**PRIVATE STORM DRAIN STRUCTURE SCHEDULE**  
SCALE: 1" = 40'

NO.	DESCRIPTION	TOP ELEV.	INV. IN	INV. OUT	REMARKS	COORDINATES	
						NORTHING	EASTING
M-1	STD 4' MANHOLE	430.00	422.60	422.60	HOWARD CO. STD. DETAIL G-5.12	589,171.3581	1,362,954.2875
M-2	STD 4' MANHOLE	432.60	424.65	424.55	HOWARD CO. STD. DETAIL G-5.12	589,130.3640	1,363,022.4132
M-3	STD 4' MANHOLE	434.30	426.25	426.15	HOWARD CO. STD. DETAIL G-5.12	589,108.8977	1,363,235.2917
M-4	STD 4' MANHOLE	432.50	428.00 / 426.60	426.50	HOWARD CO. STD. DETAIL G-5.12	589,115.7896	1,363,252.5502
M-6	STD 4' MANHOLE	434.00	427.59	427.49	HOWARD CO. STD. DETAIL G-5.12	589,148.7135	1,363,334.9362
M-9	STD 4' MANHOLE	432.10	428.35	428.10	HOWARD CO. STD. DETAIL G-5.12	589,087.1697	1,363,360.5576
M-10	STD 4' MANHOLE	441.10	433.48	431.08	HOWARD CO. STD. DETAIL G-5.12	589,088.4525	1,363,379.6255
M-11	STD 4' MANHOLE	442.85	436.29	433.23	HOWARD CO. STD. DETAIL G-5.12	589,086.6361	1,363,444.7890
M-12	STD 4' MANHOLE	444.59	436.56	436.04	HOWARD CO. STD. DETAIL G-5.12	589,342.2106	1,363,451.8545
M-23	STD 4' MANHOLE	436.56	431.31 / 431.56	431.21	HOWARD CO. STD. DETAIL G-5.12	589,850.1890	1,363,301.6227
M-24	STD 4' MANHOLE	438.95	432.70	432.45	HOWARD CO. STD. DETAIL G-5.12	589,853.2507	1,363,187.9828
EW-1	TYPE 'C' ENDWALL	-	-	-	HOWARD CO. STD. DETAIL D-5.21	589,290.4746	1,362,950.4937
EW-10	TYPE 'C' ENDWALL	-	436.50	-	HOWARD CO. STD. DETAIL D-5.21	589,474.7195	1,363,414.7128
EW-11	TYPE 'C' ENDWALL	-	439.65	-	HOWARD CO. STD. DETAIL D-5.21	589,574.3503	1,363,403.3460
TEMP-EW	TYPE 'C' ENDWALL	-	428.42	-	HOWARD CO. STD. DETAIL D-5.21	589,048.36	1,363,370.83
I-6	TYPE 'D' INLET	441.00	437.00	437.00	HOWARD CO. STD. DETAIL D-4.11	589,411.7818	1,363,440.1888
I-23	TYPE 'D' INLET	437.75	433.50	433.15	HOWARD CO. STD. DETAIL D-4.11	589,864.2195	1,363,143.8221
I-24	TYPE 'D' INLET	440.00	435.25	435.75	HOWARD CO. STD. DETAIL D-4.11	589,600.9615	1,363,294.9203

**STORM DRAIN PRIVATE MAINTENANCE NOTES**

1. PROPOSED 18" (RCP) STORM DRAIN FROM ENDWALL (EW-11) TO ENDWALL (EW-10) SHALL BE PRIVATELY OWNED AND MAINTAINED BY ORCHARD MEADOWS DEVELOPMENT CORPORATION.
2. PROPOSED 24" (RCP) STORM DRAIN FROM MANHOLE (M-8) TO MANHOLE (M-4) SHALL BE PRIVATELY MAINTAINED BY ORCHARD MEADOWS DEVELOPMENT CORPORATION.



CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5322 DORSETT HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwan, Acting* 11/22/11  
CHIEF - BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kurt Shulman* 11/23/11  
CHIEF - DIVISION OF LAND DEVELOPMENT

*Mark Demers* 11/23/11  
CHIEF - DEVELOPMENT ENGINEERING DIVISION

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS  
8161 Maple Lawn Boulevard Suite 150  
Fulton, MD 20759  
Telephone: (410) 92-8086 Fax: (410) 792-7419

**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: R-A-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

**PROFESSIONAL CERTIFICATION:** I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.: 31089 EXPIRATION DATE: 11/11/12

TITLE: **MASS GRADING PLAN**

DESIGN BY: D.L.S. SCALE: 1" = 40'  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 27101105  
SHEET 05 OF 29  
DRAWING NUMBER: **FC-5**

**UTILITY NOTES**

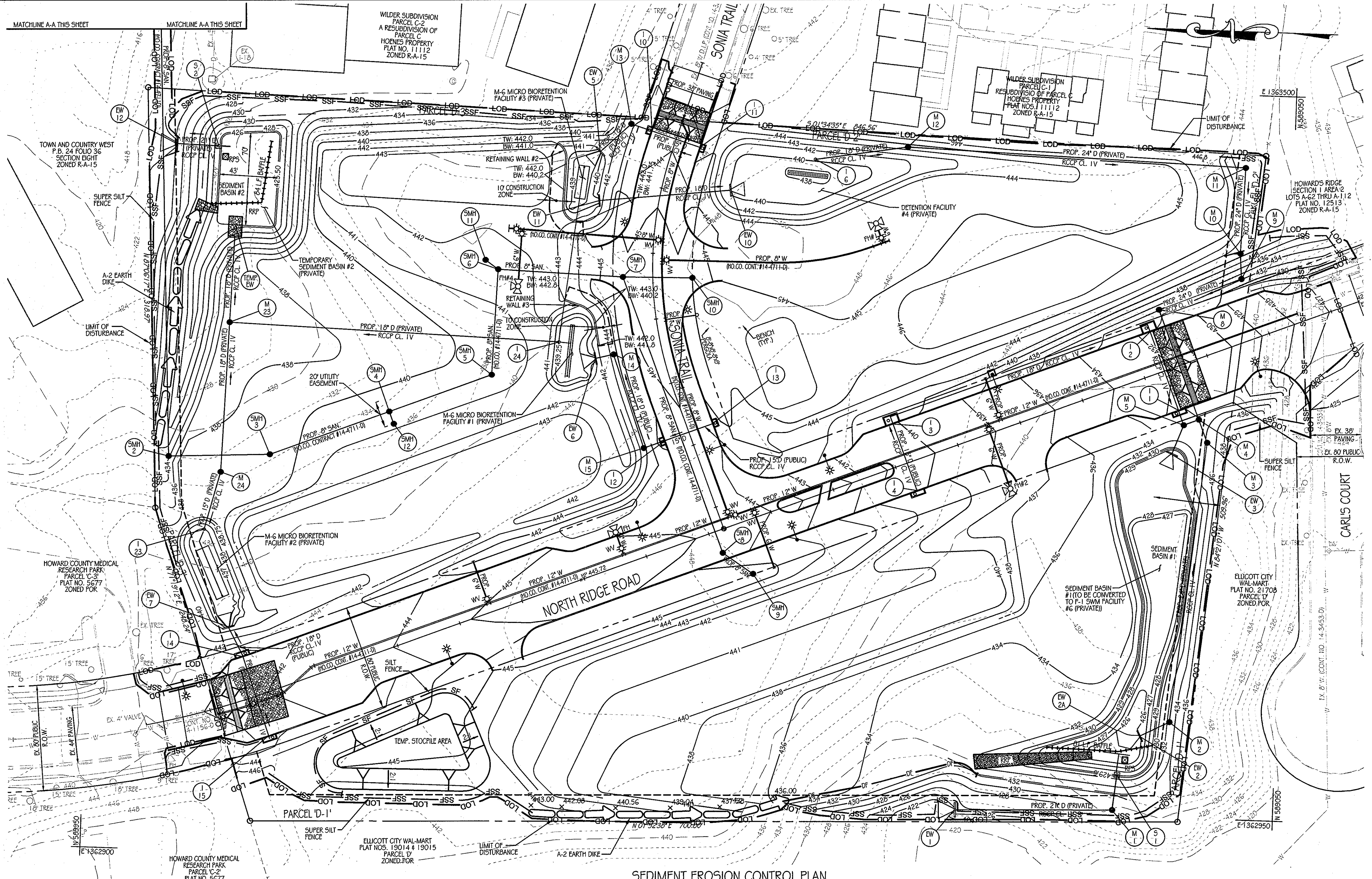
- CONSTRUCTION OF THE PROPOSED UTILITIES WILL BE IN ACCORDANCE WITH THE HOWARD COUNTY PLUMBING CODE, BY A QUALIFIED CONTRACTOR.
- NO WORK IS TO COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED.
- ALL CONSTRUCTION SHALL FOLLOW LATEST HOWARD COUNTY DEPT. OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS OF CONSTRUCTION OR AS DETAILED ON THE DRAWINGS.
- GRAVEL CRADLE IS REQUIRED UNDER ALL PIPE.
- ALL BACKFILL SHALL BE MECHANICALLY TAMPED.
- THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK SHOWN ON THESE DRAWINGS UNLESS OTHERWISE NOTED.
- ALL CHANNELS IN MANHOLES MUST BE CONSTRUCTED TO CONFORM AS CLOSE AS POSSIBLE TO THE STANDARD CHANNELS CALLED FOR IN THE PROFILES.
- CLEANOUTS LOCATED IN PAVED AREAS SHALL HAVE COUNTERSUNK UIDS.
- ALL SANITARY SEWER CONSTRUCTION SHALL BE DONE UNDER A PERMIT AND PLAN ISSUED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, WATER AND WASTEWATER ENGINEERING DIVISION.
- FOR UTILITY WORK OUTSIDE THE LOD SHOWN ON THIS PLAN, CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWN-SLOPE) THE TRENCH.
- PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
- SEE SHEETS C-9, C-10, C-11, C-12 & C-13 FOR UTILITY PROFILES.
- CONTRACTOR TO COORDINATE WITH VERIZON FOR THE REMOVAL AND/OR RELOCATION OF EXISTING TELEPHONE LINE.
- ALL WATER LINES SHALL HAVE A MINIMUM 3'-6" OF COVER.

**SEQUENCE OF CONSTRUCTION**

- OBTAIN GRADING PERMIT. CONTACT THE HOWARD COUNTY INSPECTOR AT 410-313-2433. A MINIMUM OF TWO WEEKS PRIOR TO THE START OF ANY WORK TO SCHEDULE A PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK ACTIVITIES TO THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE BEGINNING OF ANY GRADING ACTIVITIES.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE AT THE NORTH END OF NORTH RIDGE ROAD AND MOUNTABLE BERM AT ENTRANCE FOR SONIA TRAIL. ALL CONSTRUCTION ACCESS TO SITE SHALL COME FROM CONSTRUCTION ENTRANCE FOR NORTH RIDGE ROAD.
- INSTALL ALL OTHER PERIMETER SEDIMENT CONTROL DEVICES, SILT AND SUPER SILT FENCES WHICH DO NOT DRAIN TO BASINS.
- BEGIN INSTALLATION OF SEDIMENT BASIN #1. INSTALL SUPER SILT FENCE BELOW BASIN WHERE SHOWN ON PLAN AS BASIN IS CONSTRUCTED. INSTALL PERIMETER STORM DRAIN SYSTEM FROM P2-2 TO P4 AND FROM M-4 TO P-6. EW-10 TO EW-11 AND EW-3 TO P-11. ALSO INSTALL M-6 MICRO-BIORETENTION FACILITY #3 AND RETAINING WALL #2. PROVIDE TEMPORARY STABILIZATION AND M-4 WHERE NOTED ON PLAN. RAISE GRADES ALONG DIVERSION FENCE TO PROVIDE POSITIVE DRAINAGE TO BASIN.
- CONCURRENTLY BEGIN INSTALLATION OF PROPOSED SANITARY SEWER FROM EXISTING SMH-1 NORTH EAST OF SITE TO PROPOSED SMH-5. PROVIDE TEMPORARY 8" CAPS WHERE SHOWN ON PLAN. STABILIZE DAILY PER UTILITY NOTES THIS SHEET.
- INSTALL SEDIMENT BASIN #2 AS BASIN IS CONSTRUCTED. INSTALL BERM AND BARREL. INSTALL EARTH DIKE TO BASIN AND GRADE ALONG EARTH DIKE TO PROVIDE POSITIVE DRAINAGE TO BASIN.
- UPON COMPLETION OF SEDIMENT BASINS NOTIFY THE HOWARD COUNTY INSPECTOR OF COMPLETION FOR INSPECTION PRIOR TO STARTING ANY OTHER WORK.
- WITH THE APPROVAL OF THE HOWARD COUNTY INSPECTOR BEGIN ROUGH GRADING OF SITE. INSTALL REMAINDER OF STORM DRAIN SYSTEM FROM P-23 TO TEMP OUTFALL IN BASIN #2. P-15 TO EW-7, P-13 TO EW-6, AND P-24 TO M-23, AND M-6 MICRO-BIORETENTION FACILITIES #1, #2 AND RETAINING WALL IN M-6 MICRO-BIORETENTION FACILITY #1.
- UPON COMPLETION OF STORM DRAIN INSTALLATION FROM BASIN #1 & #2 RAISE GRADE THE REMAINDER OF SITE. STOCKPILE EXCESS MATERIAL WHERE SHOWN ON PLAN. CONTRACTOR SHALL MAINTAIN AND RELOCATE DAILY THE EARTH DIKE TO BASIN #2 TO MAINTAIN POSITIVE DRAINAGE TO BASIN AT ALL TIMES.
- WHEN SUBGRADE FOR ROAD HAS BEEN ESTABLISHED PROVIDE TEMPORARY STABILIZATION AND BEGIN INSTALLATION OF CURB AND GUTTER AND BASE COURSE FOR PAVED AREAS.
- FINAL GRADE INSTALL WALLS, STREET TREES, AND M-6 MICRO-BIORETENTION FACILITIES #1, #2, AND #3. FLUSH STORM DRAINS AND PERMANENTLY STABILIZE.
- WITH THE HOWARD COUNTY INSPECTOR'S APPROVAL BEGIN SEDIMENT BASIN #2 CONVERSION. EARTH DIKE TO SEDIMENT BASIN #2 SHALL REMAIN UNTIL FINAL GRADING FOR SITE DEVELOPMENT BY OTHERS HAS STARTED. FOR FINAL GRADES IN BASIN #2 SEE M-6 MICRO-BIORETENTION FACILITY #2 ON SHEET C-13/150P PLANS #1-1-052.
- CONCURRENTLY BEGIN SEDIMENT BASIN #1 CONVERSION. INSTALL RETAINING WALLS. SEE SITE GRADING PLAN FOR FINAL GRADING WITHIN BASIN #1. SEE 1" SWM FACILITY #6 ON SHEETS P-24, 25 & 26.
- ALL SEDIMENT SPILLS / MATERIALS STORM DRAIN FLUSHING AND SEDIMENT BASIN CONVERSION SHALL BE TAKEN TO A SITE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND PERMIT.
- UPON COMPLETION OF SEDIMENT BASIN CONVERSIONS REMOVE ANY REMAINING SEDIMENT CONTROLS AND STABILIZE ANY AREAS DISTURBED BY REMOVAL.

**SEDIMENT EROSION CONTROL PLAN**

SCALE: 1" = 40'



**SEDIMENT EROSION CONTROL PLAN**

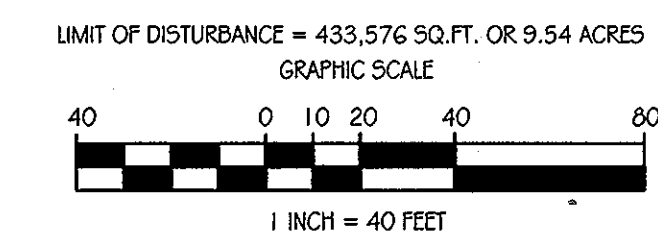
SCALE: 1" = 40'

**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- 430 --- PROP. CONTOUR
- PROP. CURB
- PROP. 6" WATER
- PROP. 8" SAN.
- PROP. 8" DRAIN
- PROP. MANHOLE
- PROP. INLET
- FH PROP. FIRE HYDRANT
- WV PROP. WATER VALVE
- CO PROP. CLEANOUT
- \* PROP. LIGHT POLE (12' ARM)
- \* PROP. LIGHT POLE (POST TOPS)
- SF --- SUPER SILT FENCE
- SF --- SILT FENCE
- DF --- DIVERSION FENCE
- LOD --- LIMIT OF DISTURBANCE
- EARTH DIKE
- STABILIZATION MATTING
- RPS □ REMOVABLE PUMPING STATION

**SEDIMENT CONTROL NOTES**

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION OR REVISIONS THERETO.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DRAINS, PERMETER SLOPES AND ALL SLOPES GREATER THAN 3:1
  - B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 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.
- 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 SEEDING (SEC. 5.1) AND TEMPORARY SEEDING (SEC. 5.2) TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 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.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
- FOR SEDIMENT BASIN DATA TABLES SEE SHEET FC-9.



**BY THE ENGINEER:**  
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."  
 Signature: *Richard L. Butt* 11-2-11  
 SIGNATURE OF ENGINEER DATE  
 PRINT NAME: **Richard L. Butt**

**BY THE DEVELOPER:**  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, 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/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."  
 Signature: *L. Scott Armiger* 11-3-11  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME: **L. Scott Armiger**

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Signature: *Diane Johnson, Acting* 11/24/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Signature: *Kurt Sheuvelson* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

Signature: *John Robertson* 11/23/11  
 HOWARD S.C.O. DATE

Signature: *John Robertson* 11/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

**Orcharddevelopment Corporation**  
**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5202 DORSET HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2334

OWNER:  
 WALTER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
 ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 8161 Maple Lawn Boulevard  
 Suite 150  
 Fulham, MD 20759  
 Telephone: (410) 92-8086  
 Fax: (410) 792-7419

**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3

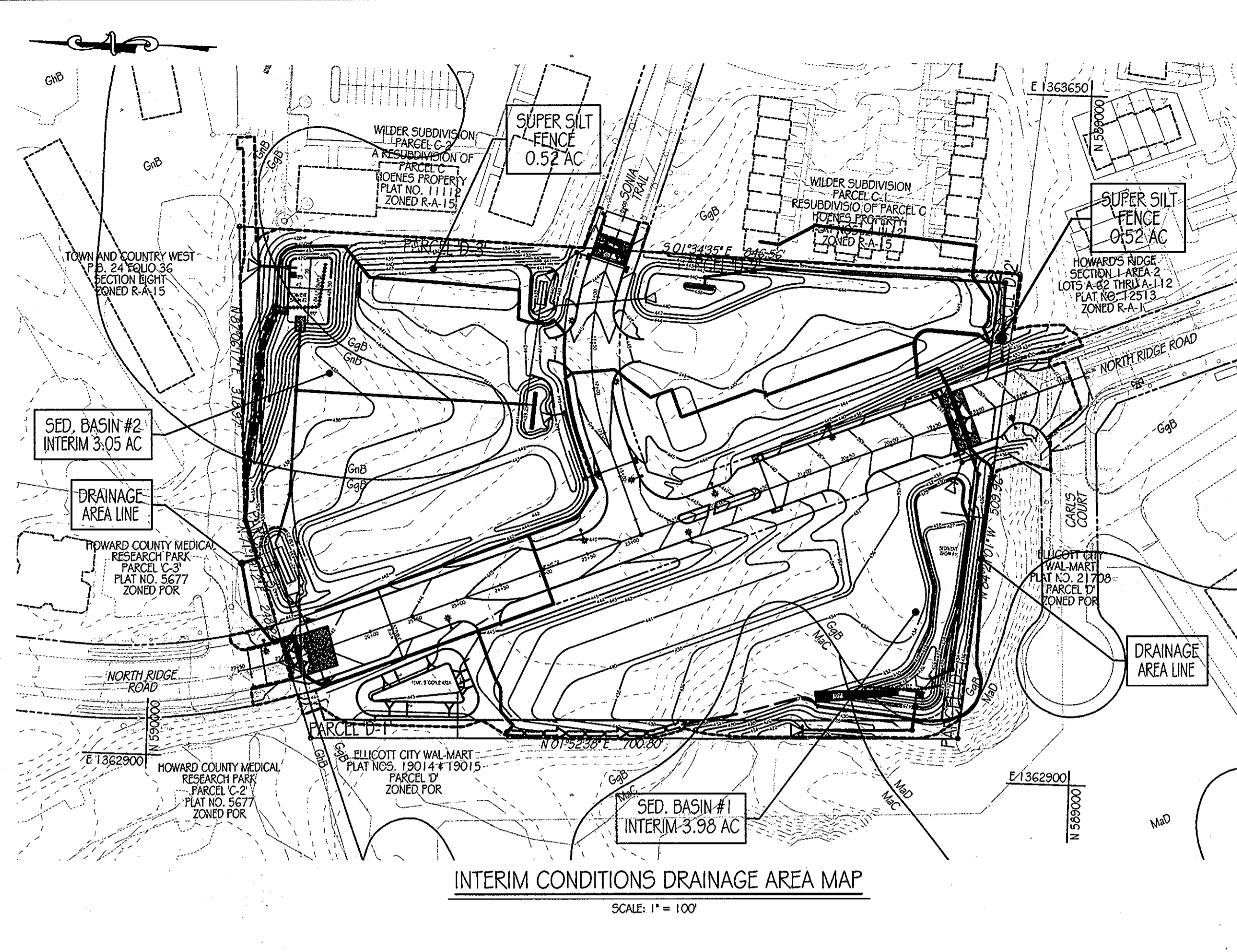
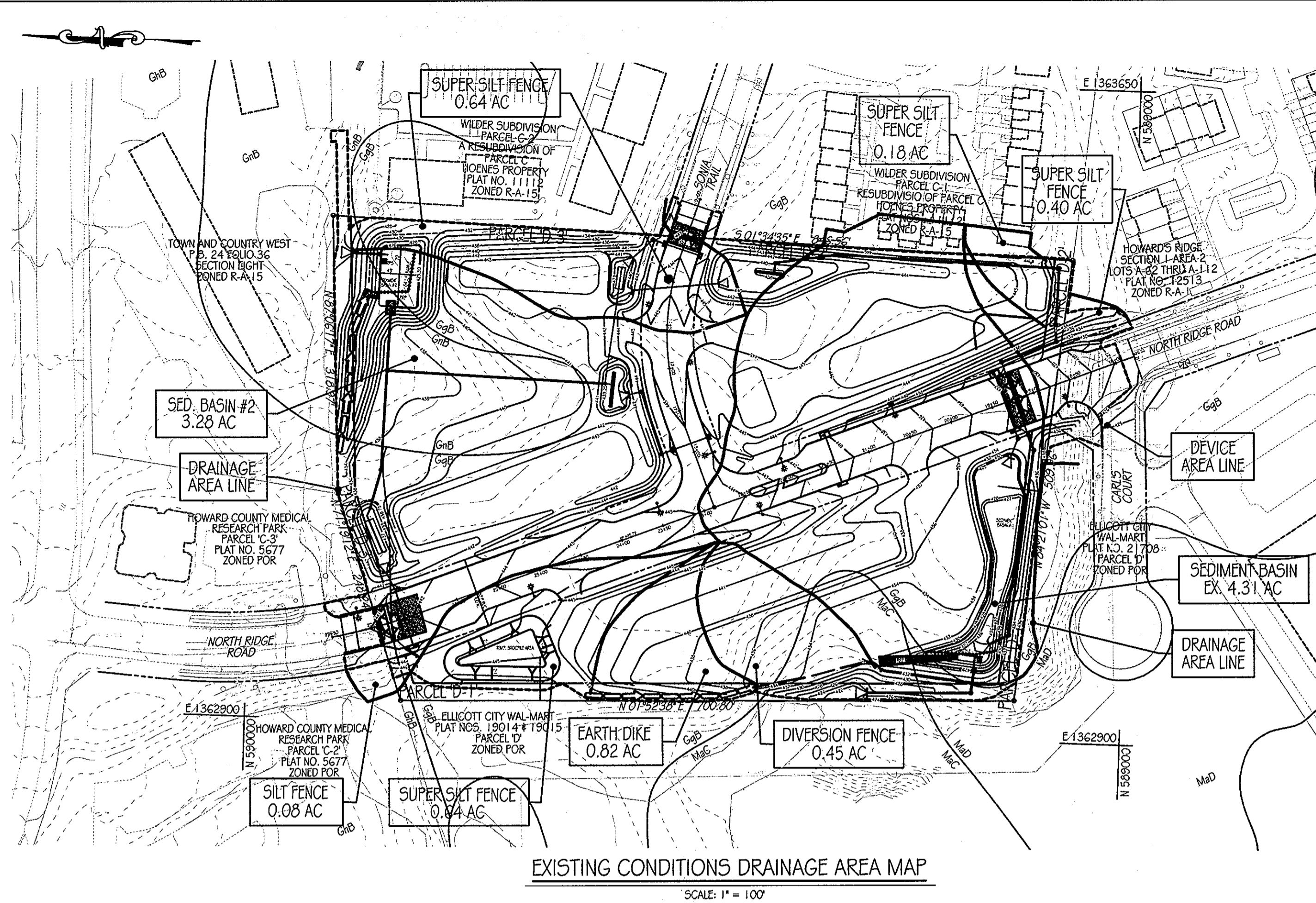
TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

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.: 31089 EXPIRATION DATE: 11/11/12

TITLE: **EROSION AND SEDIMENT CONTROL PLAN**

DESIGN BY: D.E.S. SCALE: 1" = 40'  
 DRAWN BY: C.T.B. DATE: 11-02-2011  
 CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 2710105  
 SHEET 06 OF 29  
 DRAWING NUMBER: **FC-6**



**FOREST STAND NOTES**

- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED DURING A FIELD INVESTIGATION CONDUCTED BY KCI TECHNOLOGIES, INC. ON NOVEMBER 29, 2010. A LETTER HAS BEEN SENT TO THE U.S. FISH AND WILDLIFE SERVICE AND A RESPONSE LETTER IS PENDING.
- THERE ARE NO HISTORIC BUILDINGS WITHIN OR ADJACENT TO THE SUBJECT PROPERTY AS CONFIRMED BY THE MARYLAND HISTORIC TRUST. THERE ARE NO SCENIC OR HISTORIC ROADS ON OR ADJACENT TO THE SUBJECT PROPERTY.
- NO FOREST OR SPECIMEN TREES ARE LOCATED WITHIN THE PROPERTY AS CONFIRMED BY A FIELD INVESTIGATION BY KCI TECHNOLOGIES ON NOVEMBER 29, 2010.

**GENERAL NOTES**

- BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN IS BASED UPON A SURVEY CONDUCTED BY KCI TECHNOLOGIES, INC. IN JANUARY 2011 AND AERIAL TOPO FROM VIRGINIA RESOURCE MAPPING IN APRIL 27, 2009.
- THE CONTRACTOR SHALL PROVIDE PRIVATE SUBSURFACE UTILITY LOCATION SERVICE, TO LOCATE AND MARK ANY AND ALL EXISTING UNDERGROUND UTILITIES, PRIOR TO THE START OF ANY CONSTRUCTION.
- CONTRACTOR SHALL TEST PIT, AS REQUIRED, ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION TO DETERMINE THE EXACT LOCATION AND DEPTH. CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN WHAT IS FOUND IN THE FIELD AND THAT INDICATED ON THE PLAN TO KCI TECHNOLOGIES, INC. ALL UTILITIES SHALL BE RETAINED UNLESS INDICATED OTHERWISE. DAMAGE TO EXISTING CONSTRUCTION AND UTILITIES TO REMAIN SHALL BE REPAIRED AS REQUIRED, TO THE OWNERS SATISFACTION, AT THE EXPENSE OF THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE AND REPLACE ALL DAMAGED CURB AND GUTTER, UTILITIES, SIDEWALKS, PAVEMENT, ETC., THAT ARE NOT INDICATED TO BE DEMOLISHED, AS REQUIRED FOR TIE-IN TO NEW CONSTRUCTION.
- CONTRACTOR SHALL REPAIR AND MAINTAIN SEDIMENT CONTROL DEVICES UNTIL ALL AREAS WITHIN LIMITS OF CONSTRUCTION ARE STABILIZED. WITH THE APPROVAL OF INSPECTOR, ALL SEDIMENT CONTROL DEVICES SHALL BE REMOVED AND DISTURBED AREAS RESTORED AND STABILIZED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST AND WORK REQUIRED TO ADJUST EXISTING AND PROPOSED UTILITIES AND APPURTENANCES TO FINISHED GRADES WITHIN THE LIMITS OF WORK.
- OBSTRUCTIONS SHOWN ON THESE DRAWINGS ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. KCI TECHNOLOGIES DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR OR OVER EXISTING UTILITIES.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- EXISTING CURB, GUTTER, AND SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT.
- DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- ALL CONSTRUCTION SHALL FOLLOW LATEST HOWARD COUNTY DEPT. OF PUBLIC WORKS STANDARD SPECIFICATIONS & DETAILS OF CONSTRUCTION OR AS DETAILED ON THE DRAWINGS.

**LEGEND**

---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	PROPOSED CONTOUR
---	EX. INTERMEDIATE CONTOUR
---	EX. INDEX CONTOUR
---	DRAINAGE AREA DIVIDE (BASINS)
---	DRAINAGE AREA DEVICE (SEDIMENT CONTROL DEVICES)
GgB	SOILS LINE

**SITE STATISTICS TABLE**

GROSS TRACT AREA	9.667 ACRES
EXISTING WOODLAND AREA	0 ACRES
100-YEAR FLOODPLAIN	0 ACRES

**SOILS TABLE**

KEY	DESCRIPTION	HYDRIC (Y/N)	K-VALUE
GgB	Glenelg Loam, 0 to 8 percent slopes	N	0.20
GgB	Glenelg Loam, 8-15 percent slopes	N	N/A
GgB	Glenelg-Baltimore Silty Loam, 0-8 percent slopes	PARTIALLY	0.37
MaC	Manor Loam 8-15 percent slopes	N	0.24
MaD	Manor Loam, 15-25 percent slopes	N	0.24

**BY THE ENGINEER:**  
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."  
 Signature: *Richard L. Butt* 11-2-11  
 SIGNATURE OF ENGINEER DATE  
 PRINT NAME: RICHARD L. BUTT

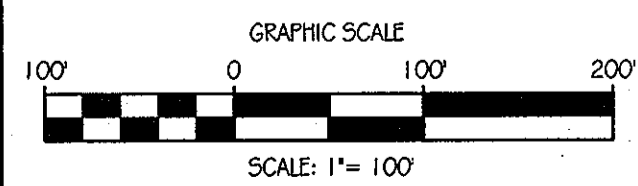
**BY THE DEVELOPER:**  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."  
 Signature: *L. Scott Armiger* 11-3-11  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME: L. SCOTT ARMIGER

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *John R. DeLoach* 11/2/11  
 HOWARD S.O.D. DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Signature: *Diane Schwan* 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Signature: *Ket Shelton* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

Signature: *Mark P. ...* 11/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE



**OrchardDevelopment Corporation**  
 CONTRACT PURCHASER / DEVELOPER  
 ORCHARD DEVELOPMENT CORPORATION  
 5332 DOUGLASS HALL DRIVE  
 ELLICOTT CITY, MD 21042  
 (410) 964-2334

**CRP Opportunity Fund, L.P.**  
 OWNER  
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 3300 SONIA TRAIL  
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DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
 ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS  
 8161 MAPLE LEAVEN BOULEVARD, SUITE 150, FULFORD, MD 20759  
 TELEPHONE: (410) 92-8086, FAX: (410) 792-7419

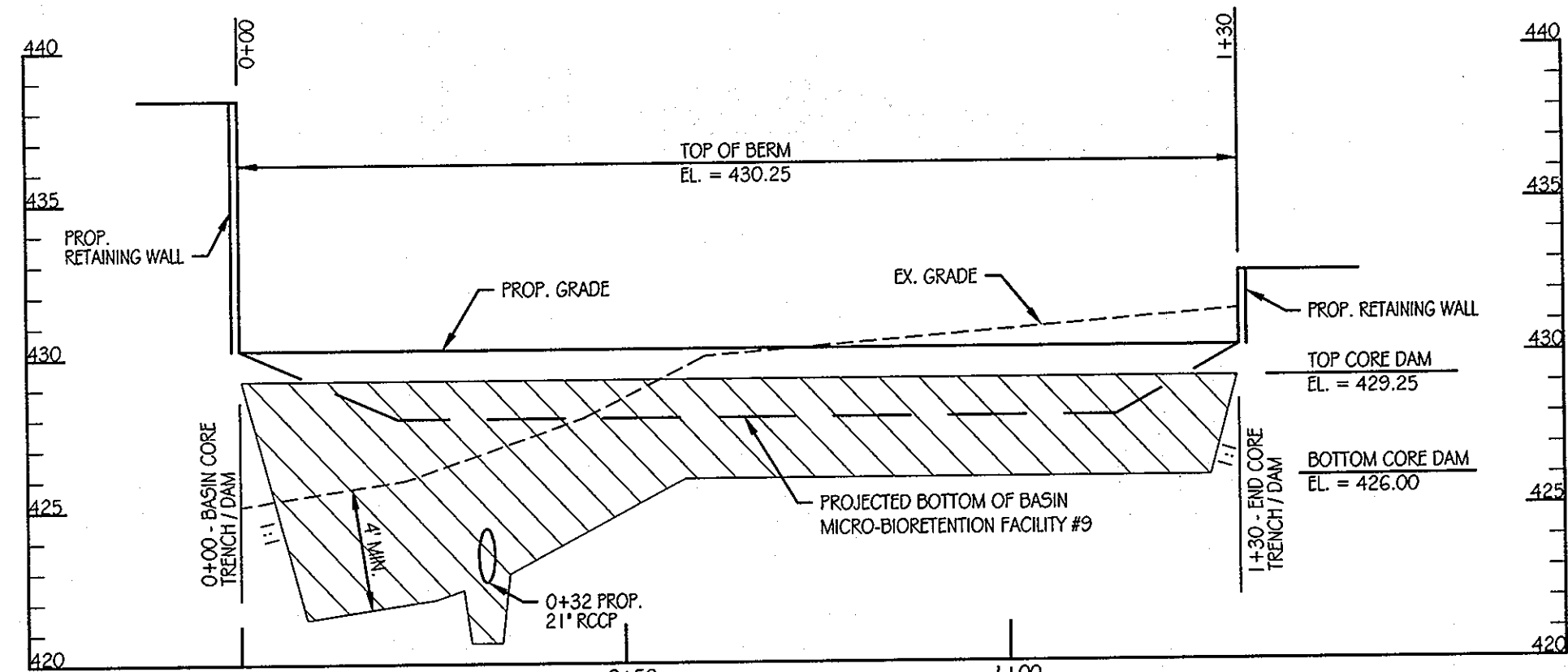
**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3  
 TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

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.: 31089, EXPIRATION DATE: 11/12/12

TITLE: **EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP**

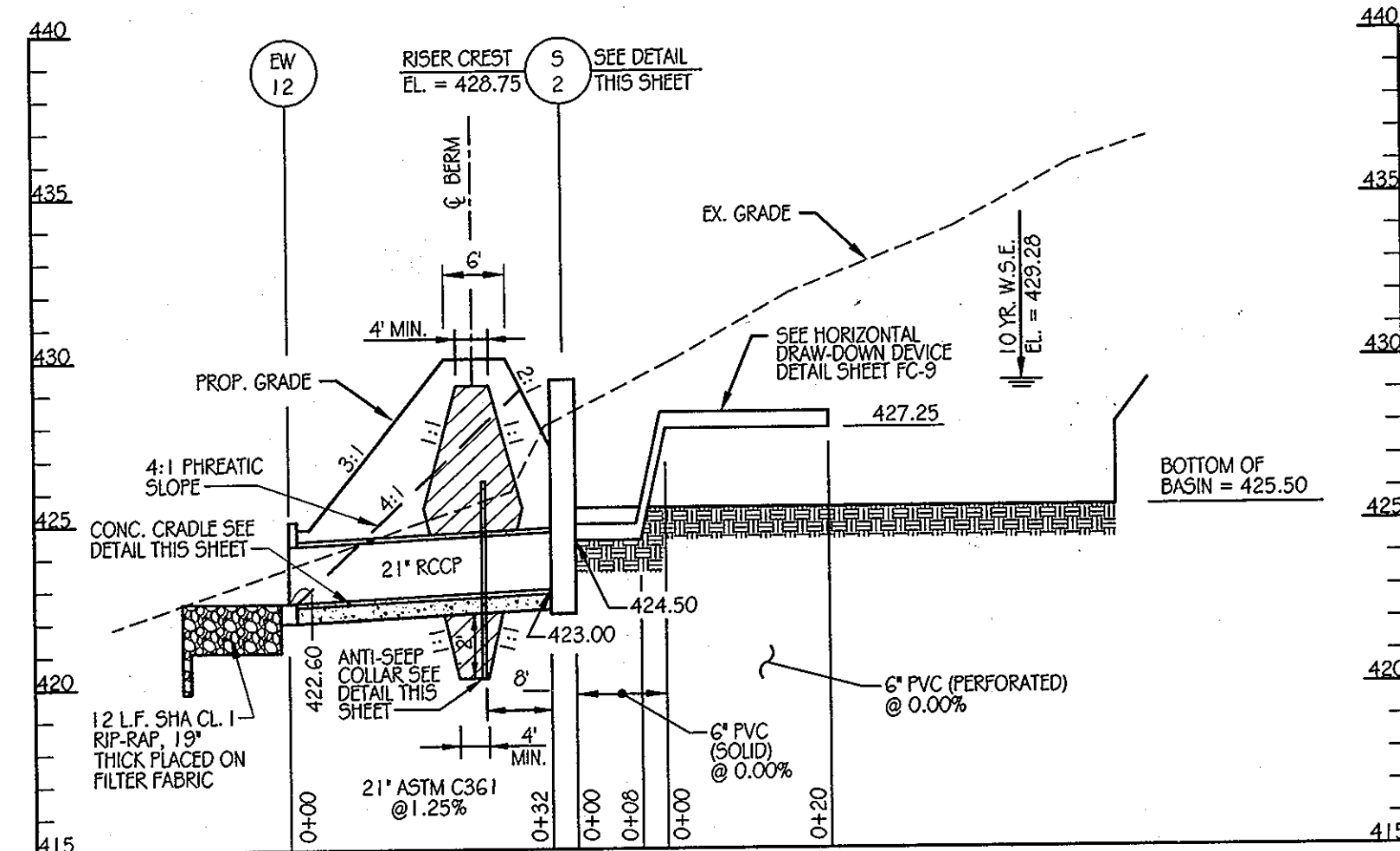
DESIGN BY: B.E.S. SCALE: 1" = 100'  
 DRAWN BY: C.T.B. DATE: 11-02-2011  
 CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 27101105  
 SHEET 07 OF 29  
 DRAWING NUMBER: FC-7



SEDIMENT BASIN #2 CENTERLINE OF DAM PROFILE

SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL



SEDIMENT BASIN #2 PRINCIPAL SPILLWAY

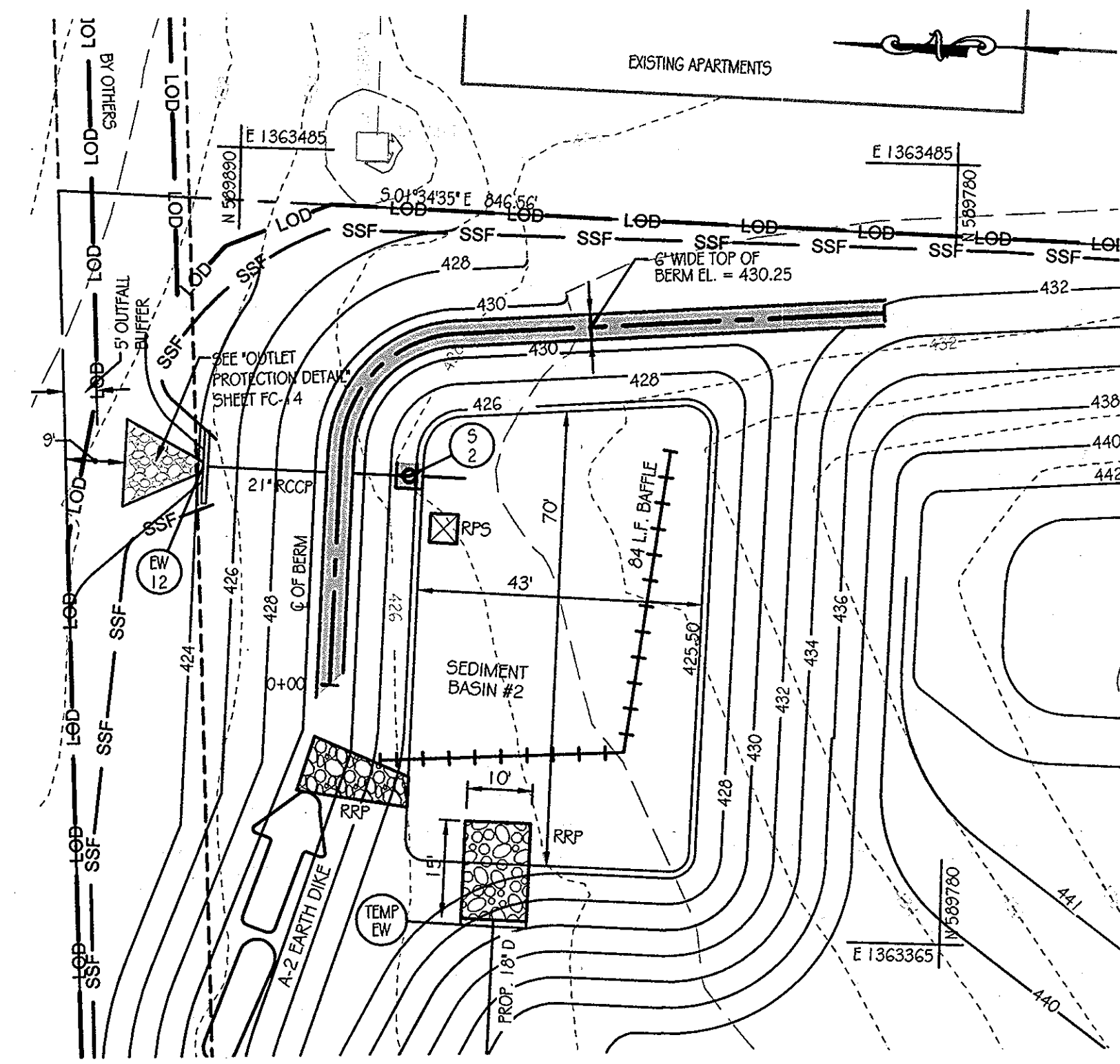
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

SEDIMENT BASIN #2  
C BERM DATA

STATION	BEARING / RADIUS	DISTANCE / ARC LENGTH	CHORD
0+00			
0+36.23	N3°23'22"E	36.23'	
0+63.88	N45°37'51"E	25.21'	
1+29.54	N87°52'40"E	65.66'	

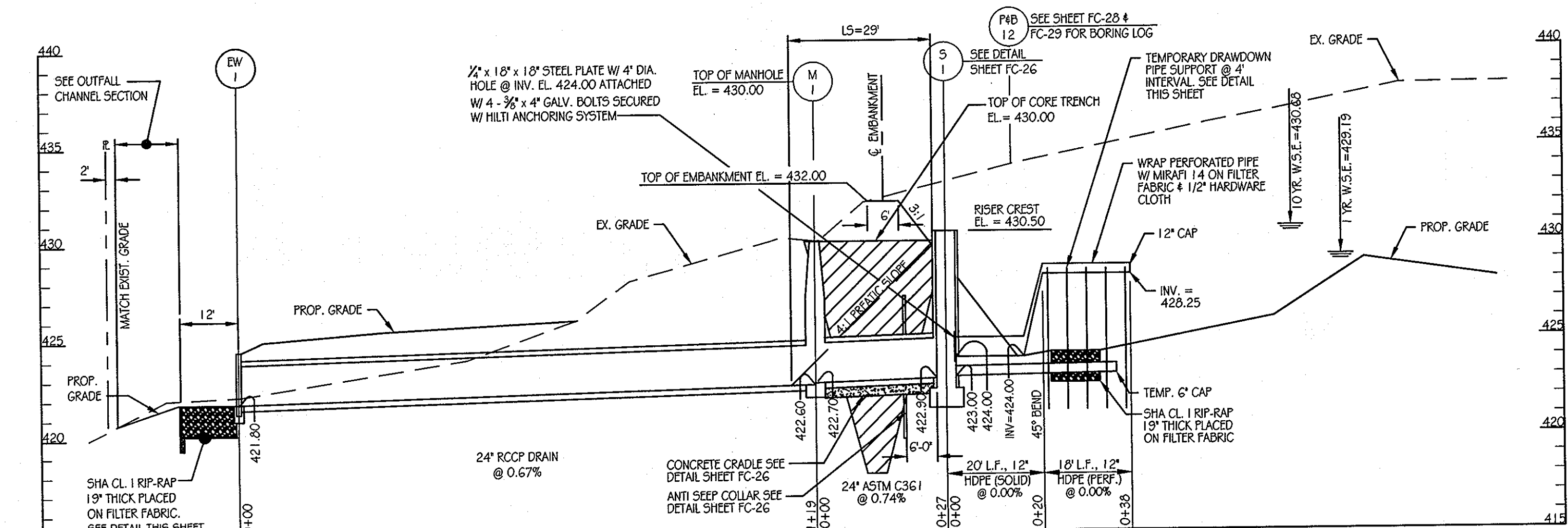
LEGEND

- EX. CONTOURS
- 441 --- PROP. CONTOURS
- 21" RCCP --- PROP. STORM DRAIN
- TOP OF BERM
- RIP-RAP OUTFALL
- RPS --- REMOVABLE PUMPING STATION



SEDIMENT BASIN #2 PLAN

SCALE: 1" = 20'

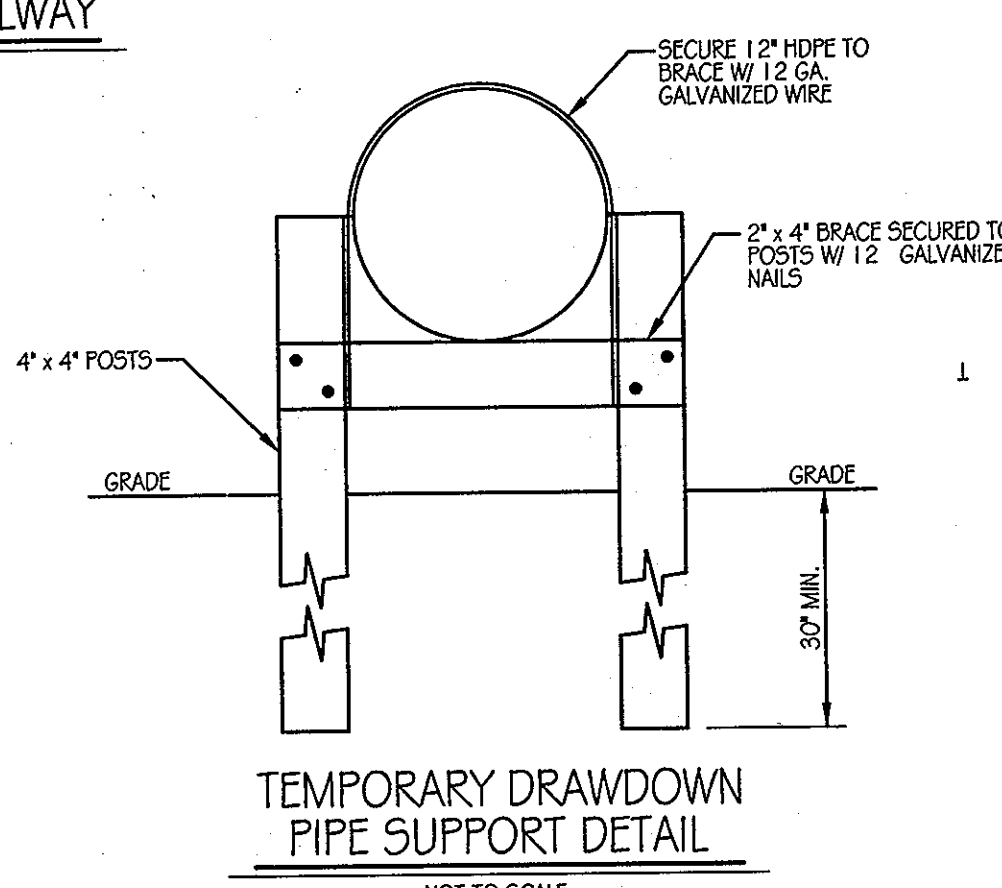


SEDIMENT BASIN #1 PRINCIPAL SPILLWAY

SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

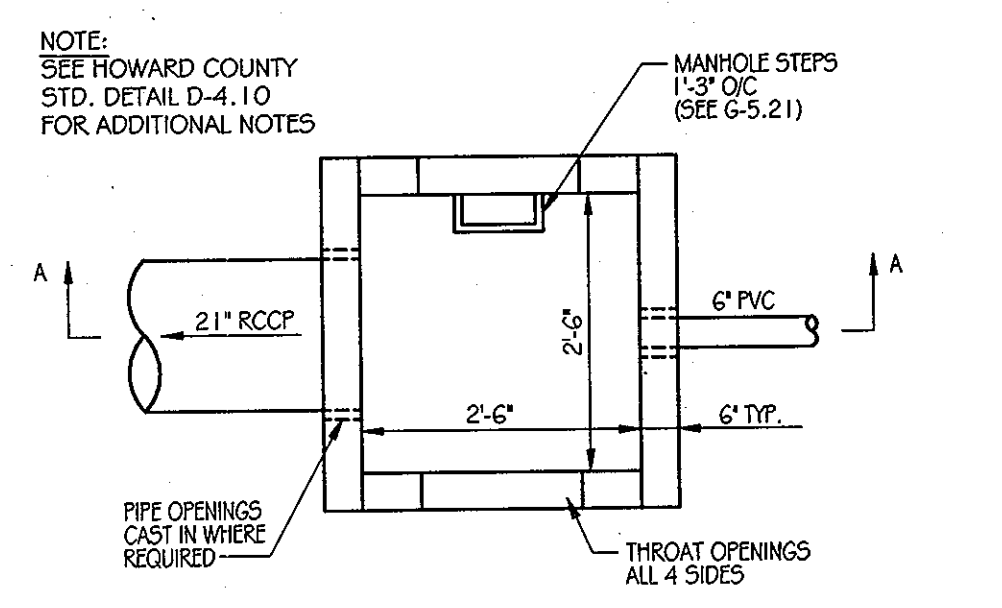
SEDIMENT BASIN #1 C BERM DATA

STATION	BEARING / RADIUS	DISTANCE / ARC LENGTH	CHORD
0+00			
0+27.33	S62°20'32"W	27.33'	
1+32.33	S82°03'39"E	105.00'	
1+88.06	35.0'	55.73'	N52°16'26"E 50.03'

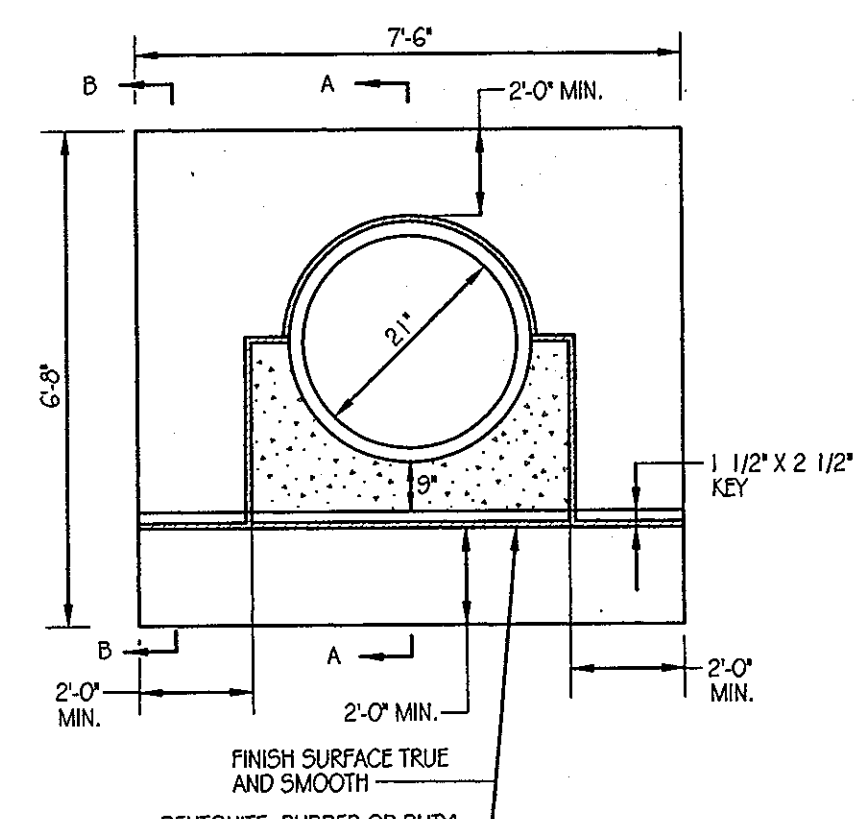


TEMPORARY DRAWDOWN PIPE SUPPORT DETAIL

NOT TO SCALE



PLAN - BELOW SLAB



SECTION A-A

SECTION B-B (SHOWING STEEL)

SEDIMENT BASIN #2 ANTI-SLEEP COLLAR DETAIL (CAST-IN-PLACE)

NOT TO SCALE

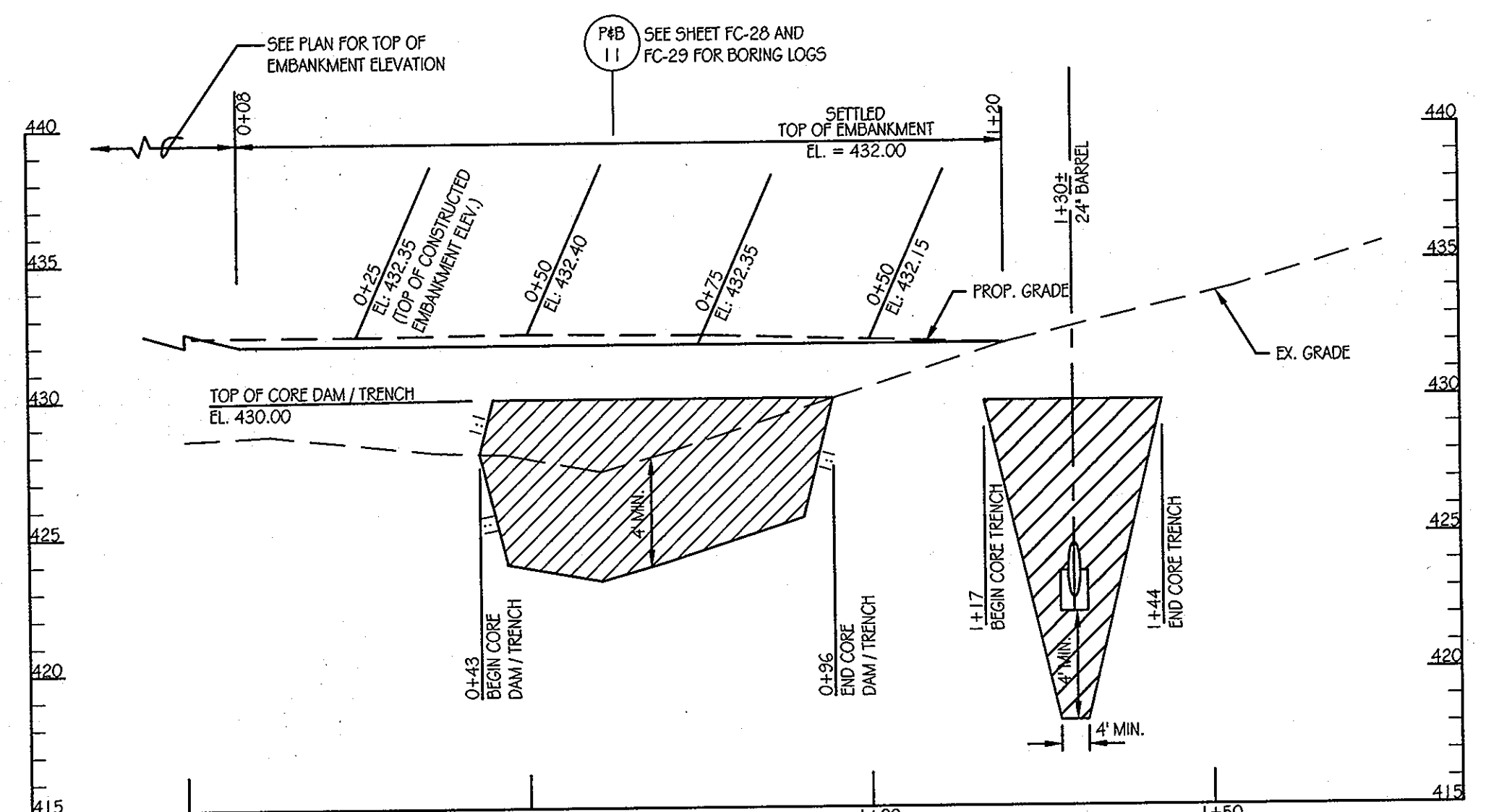
BY THE ENGINEER:  
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."  
 Richard L. Butt 11-2-11  
 SIGNATURE OF ENGINEER DATE  
 PRINT NAME

BY THE DEVELOPER:  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."  
 L. Scott Armiger 11-3-11  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Diane Johnson, Acting 11/24/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

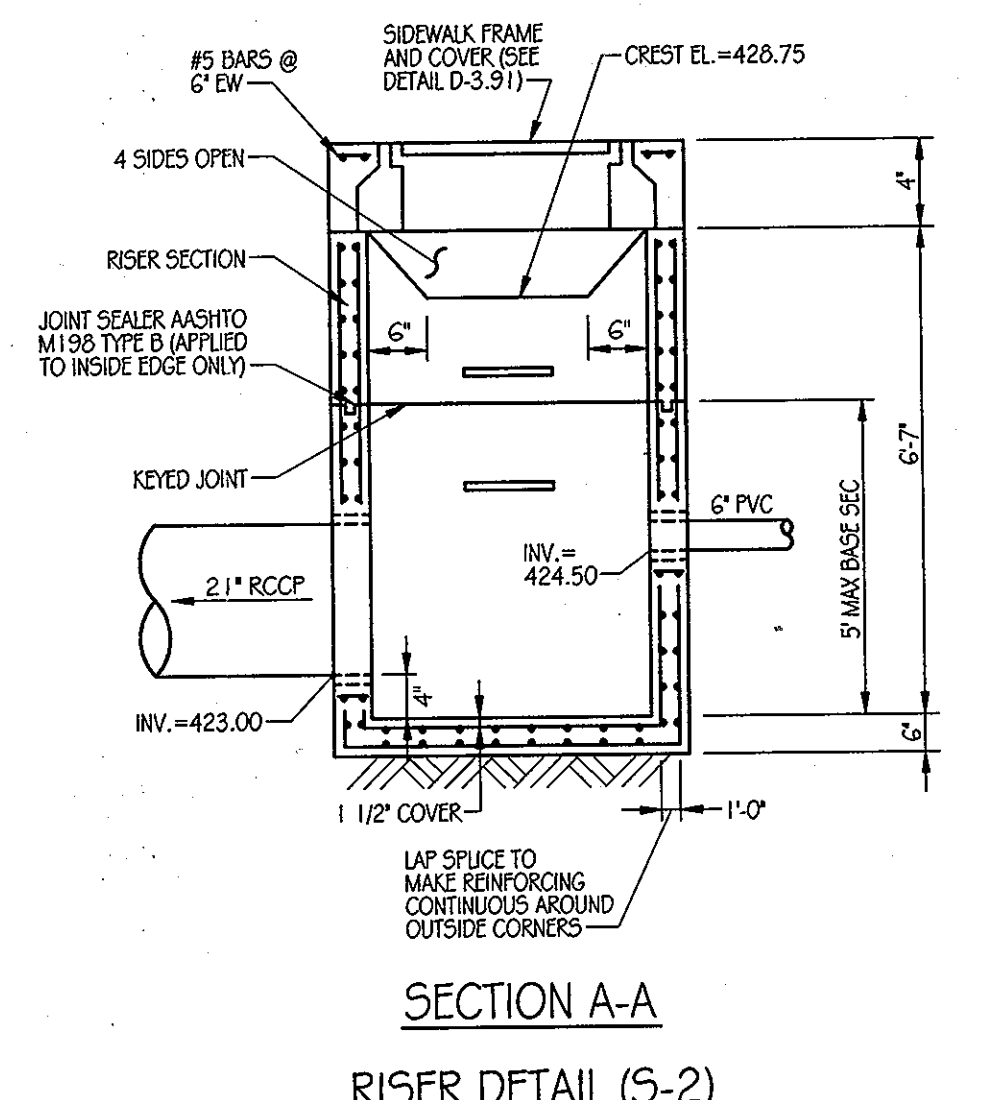
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Keith S. DeLoach 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF ENGINEERING DIVISION  
 11/24/11  
 DATE



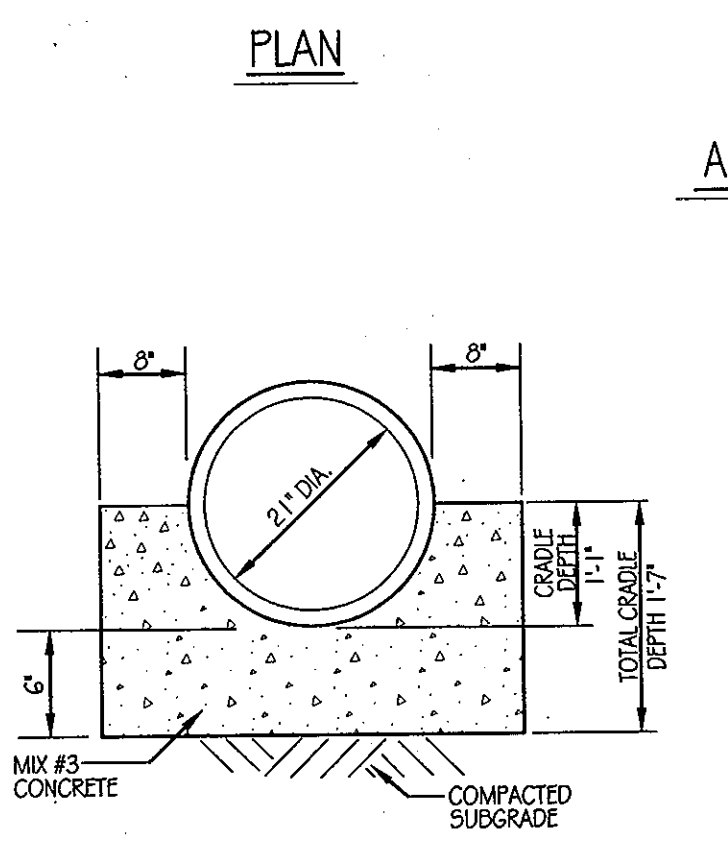
SEDIMENT BASIN #1 CENTERLINE OF DAM PROFILE

SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL



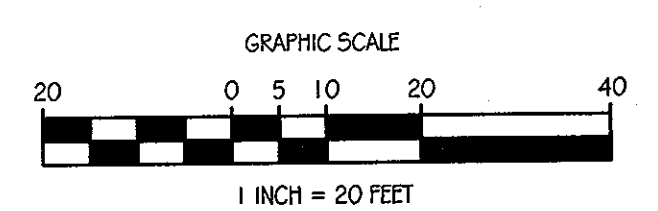
SECTION A-A RISER DETAIL (S-2)

NOT TO SCALE



SEDIMENT BASIN #2 CONCRETE CRADLE DETAIL

NOT TO SCALE



OrchardDevelopment Corporation  
 CRP Opportunity Fund, L.P.

CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 364-2334

OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS

**KCI**  
 TECHNOLOGIES  
 8161 Maple Lawn Boulevard  
 Suite 150  
 Fulton, MD 20759  
 Telephone: (410) 92-8086  
 Fax: (410) 792-7419

ORCHARD MEADOWS  
 PARCEL D-1, D-2 & D-3

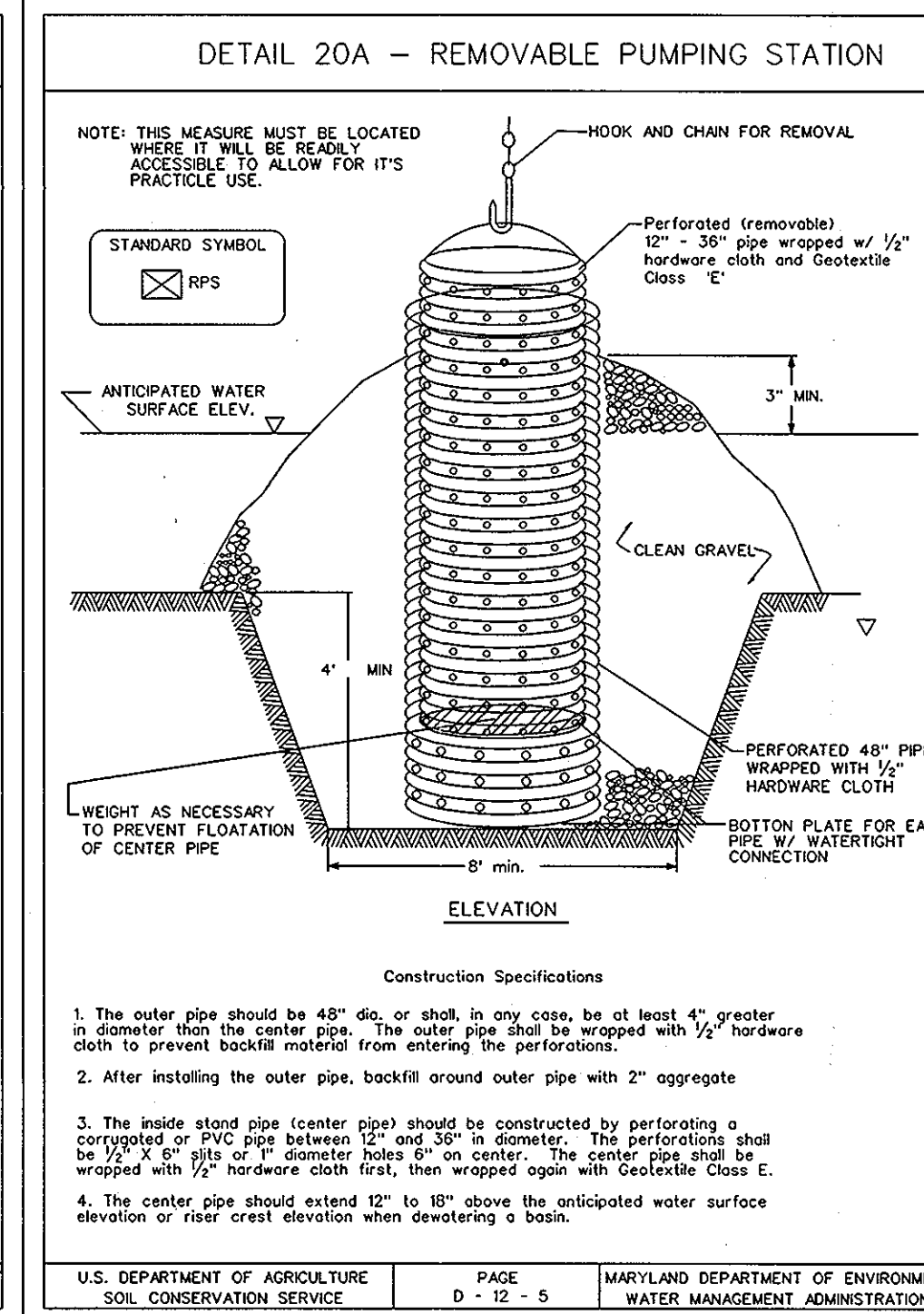
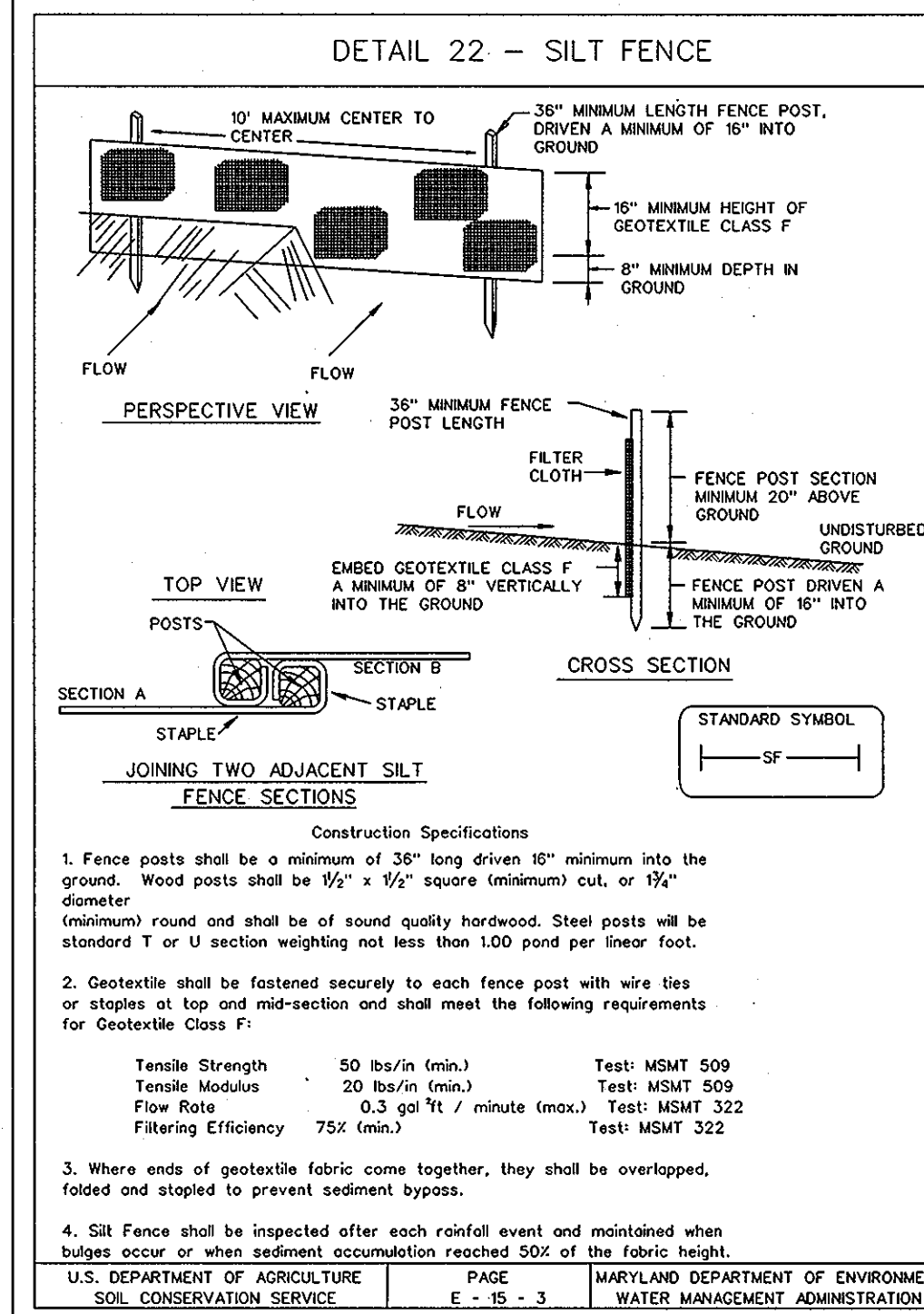
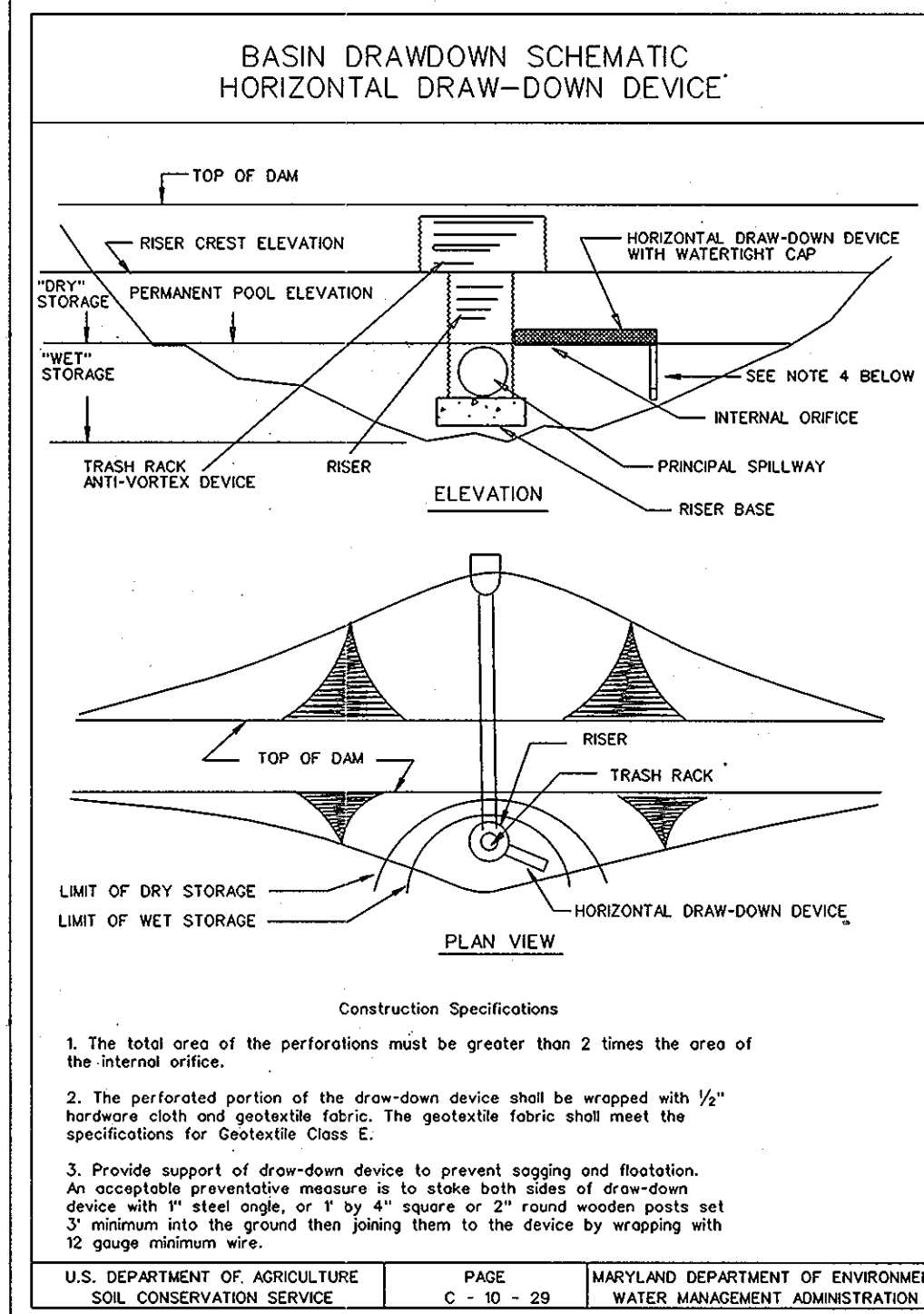
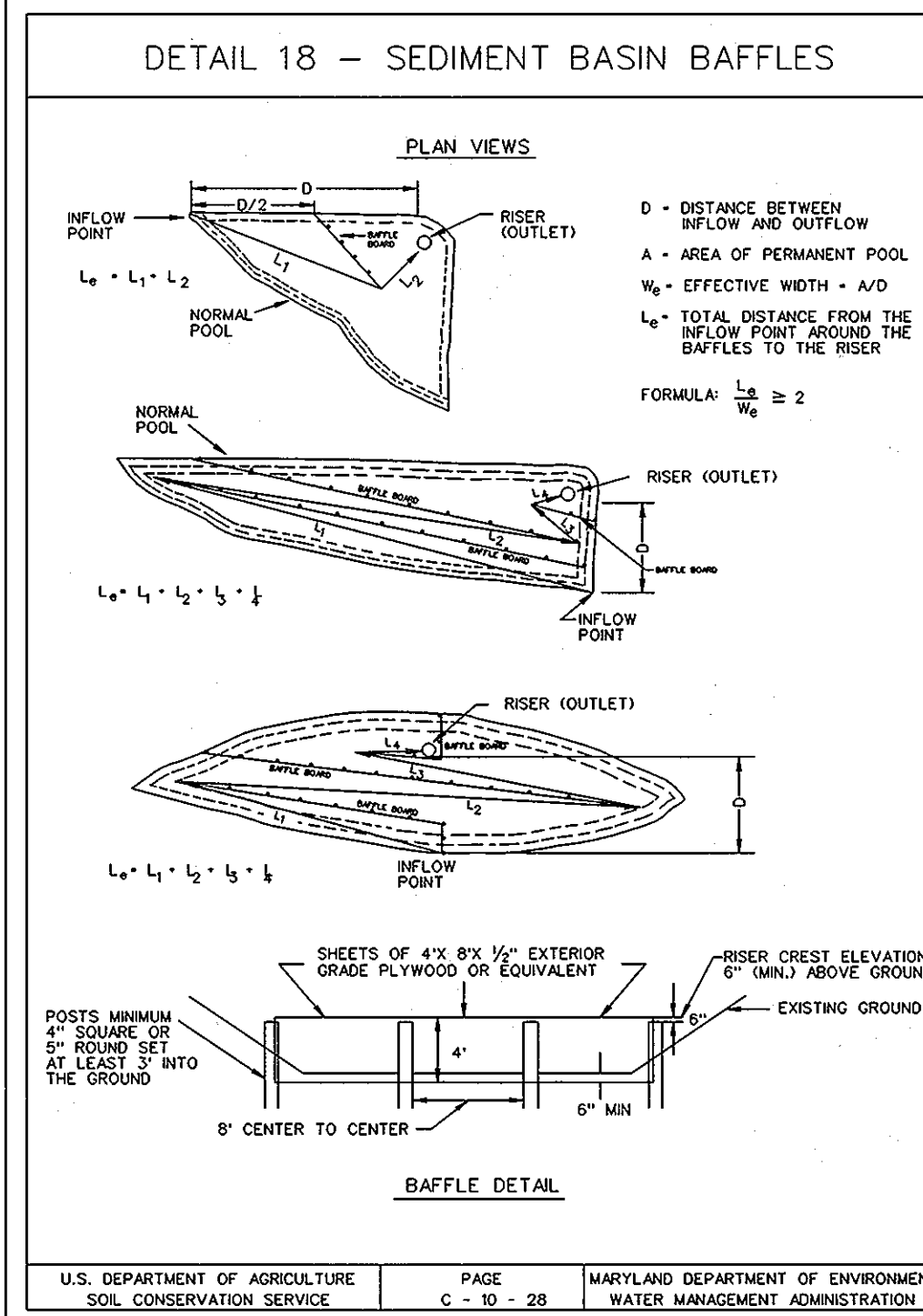
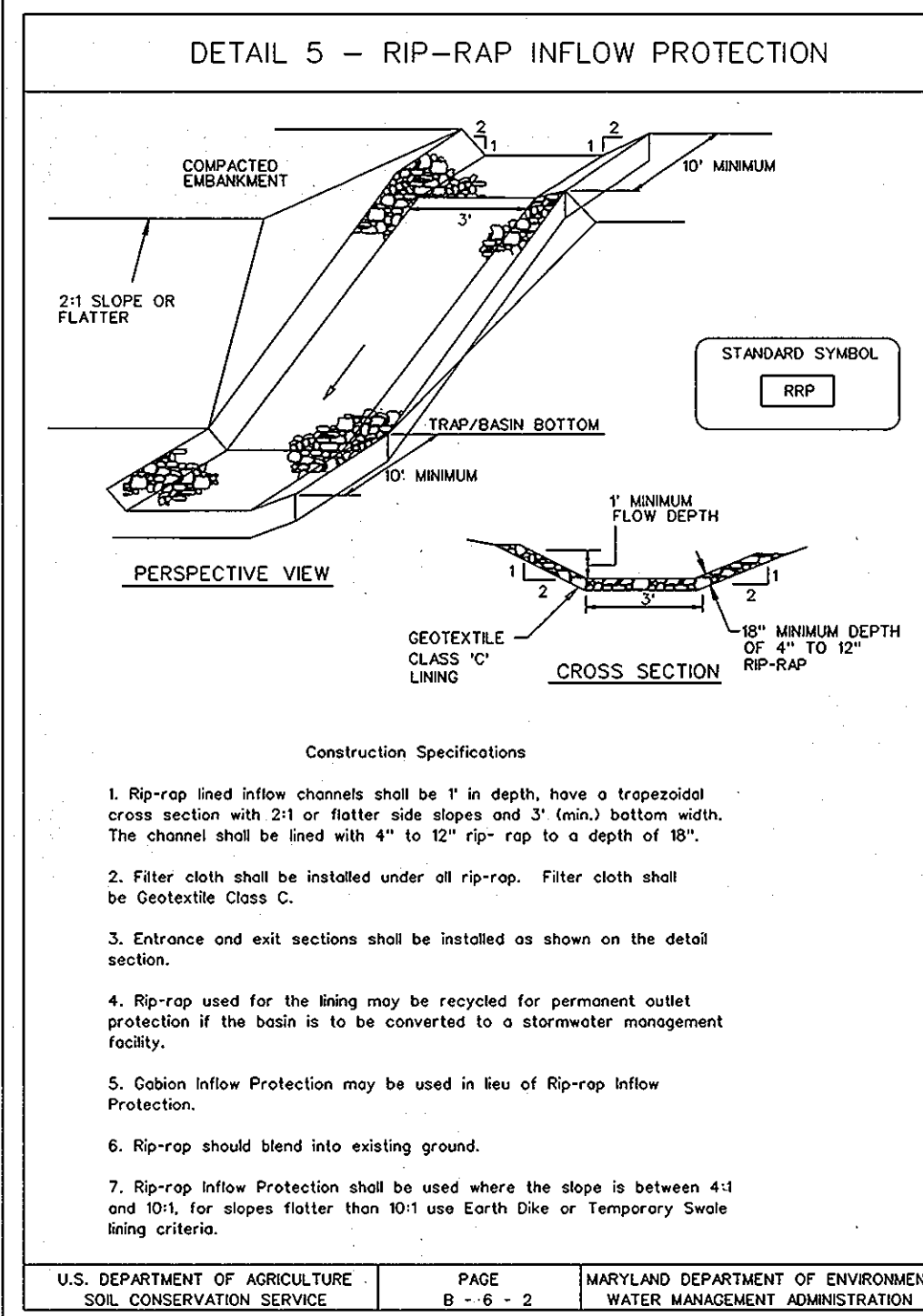
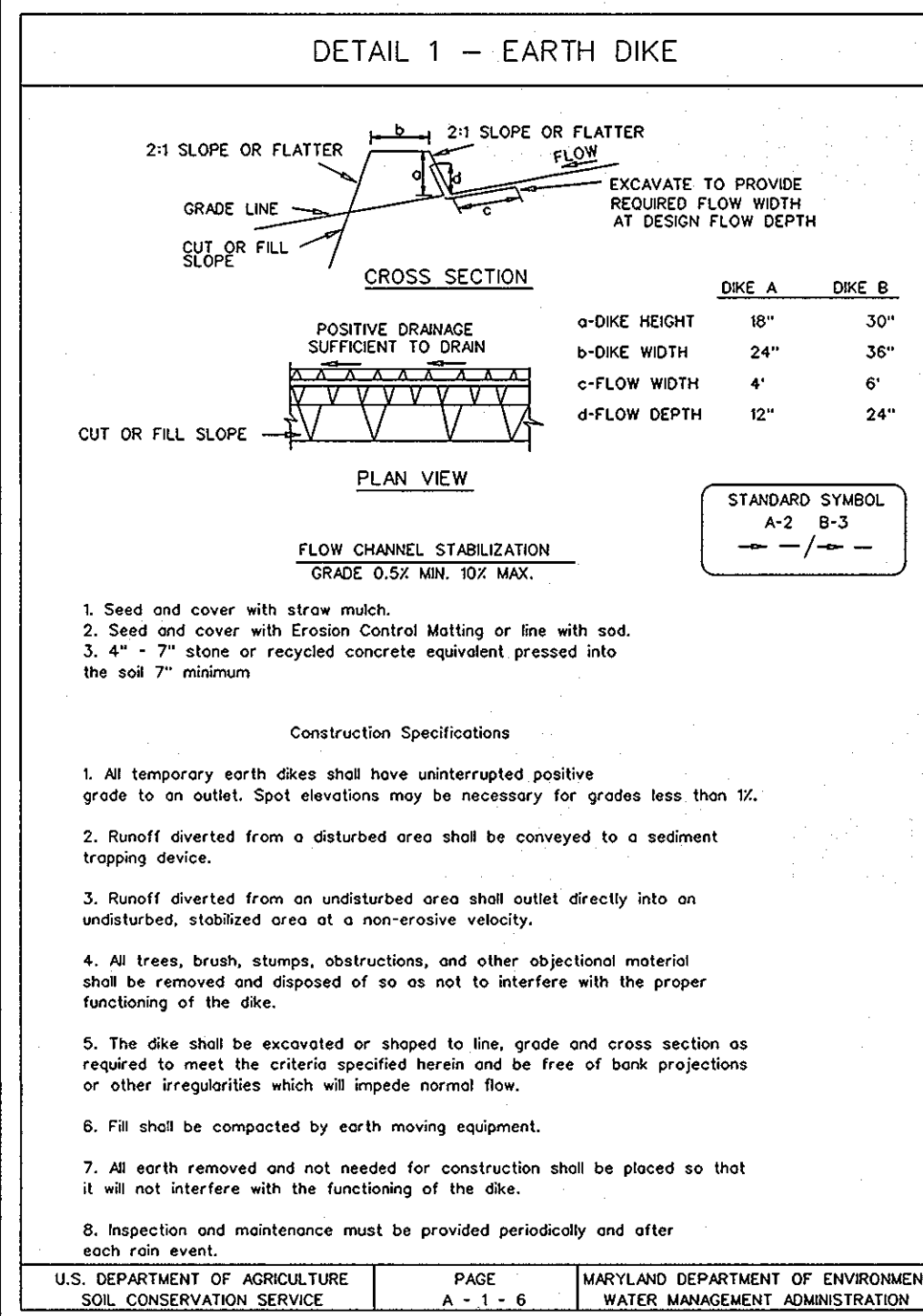
TAX MAP: 17, GRID: 23, PARCEL: 711  
 ZONED: RA-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

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.: 31009  
 EXPIRATION DATE: 1/11/21

TITLE  
 EROSION & SEDIMENT CONTROL SEDIMENT BASINS

DESIGN BY: B.E.S. SCALE: AS SHOWN PROJECT NO.: 27101105  
 DRAWN BY: C.T.B. DATE: 11-02-2011 SHEET 08 OF 29  
 CHECKED BY: APPROVED: DRAWING NUMBER  
 FC-8





#### SEDIMENT BASIN #1 DATA TABLE

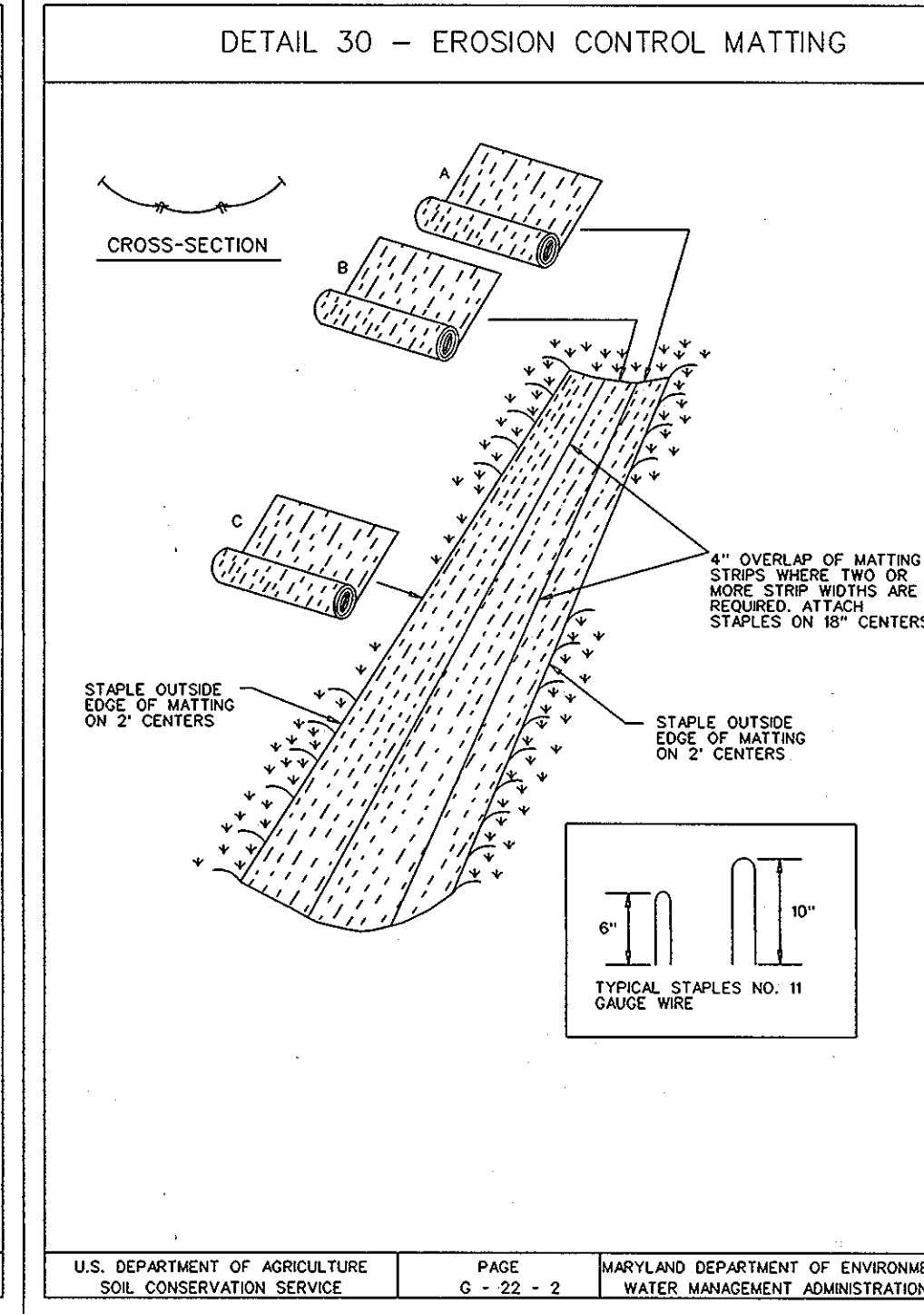
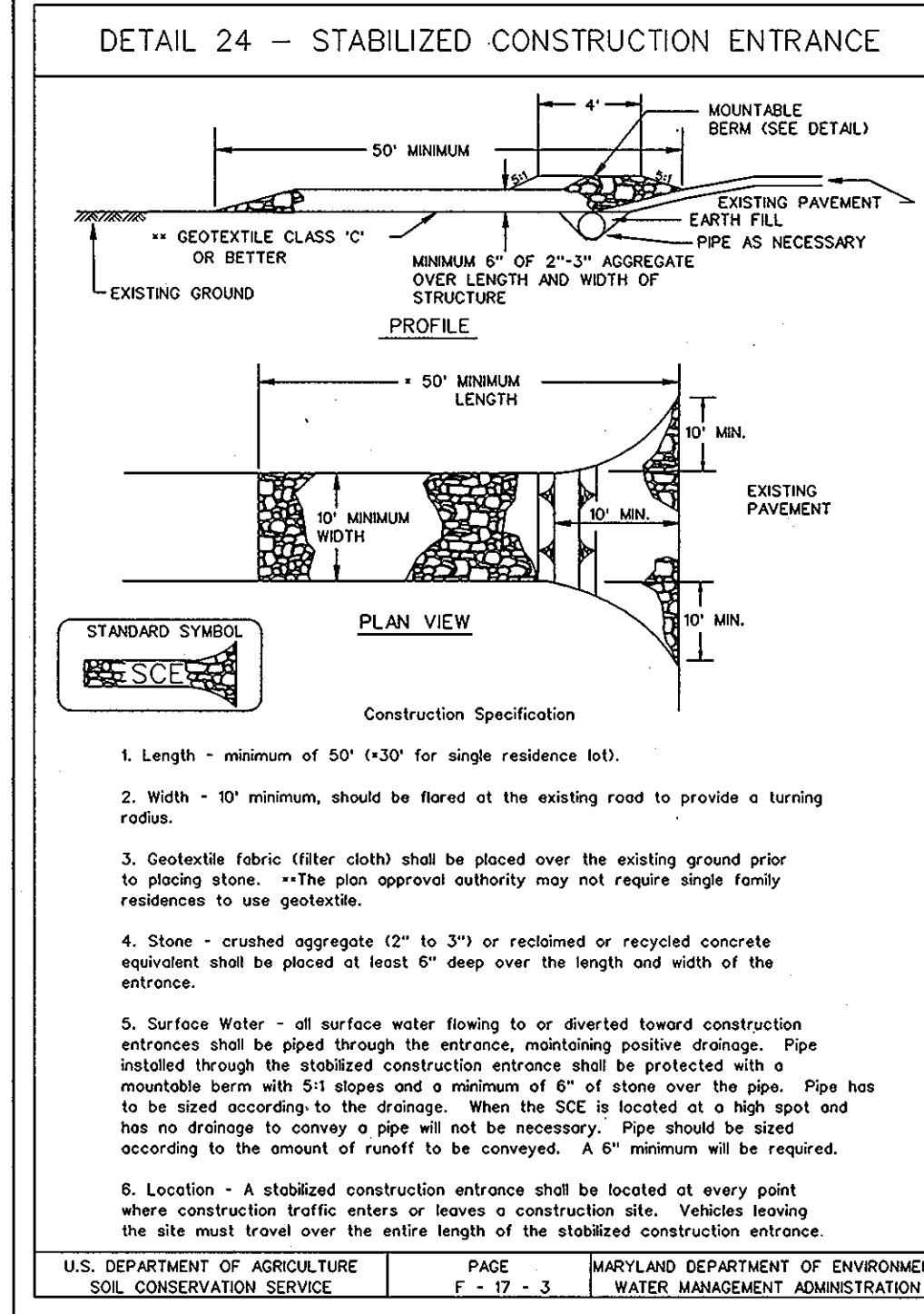
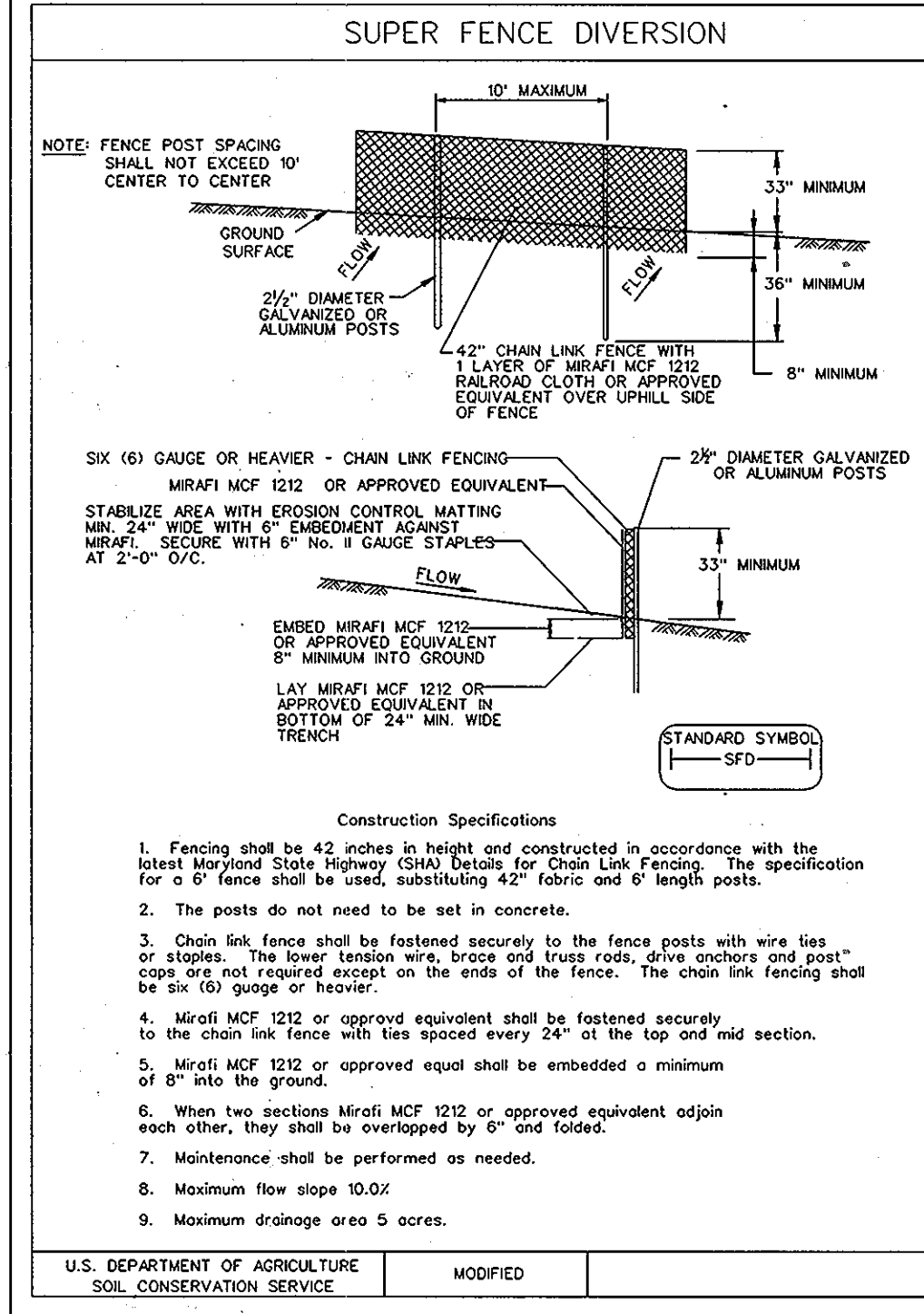
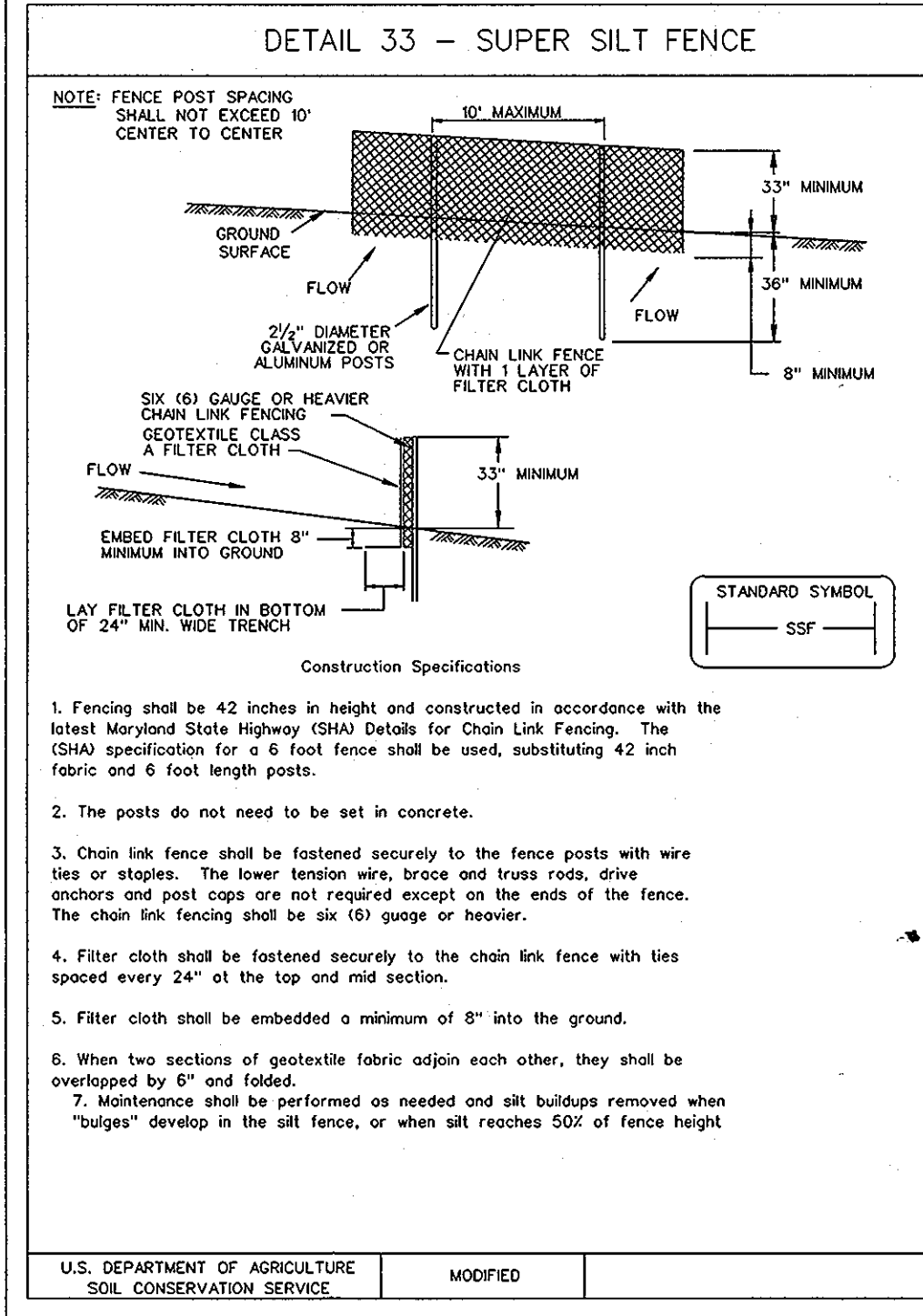
EXISTING DRAINAGE AREA (AC.)	4.31 AC.	
INTERIM DRAINAGE AREA (AC.)	3.90 AC.	
PROPOSED DRAINAGE AREA (AC.)	5.52 AC.	
STORAGE REQUIRED (C.F.)	WET	9,936 C.F.
	DRY	9,936 C.F.
	TOTAL	19,872 C.F.
STORAGE PROVIDED (C.F.)	WET	11,233 C.F.
	DRY	23,135 C.F.
	TOTAL	34,368 C.F.
EXISTING GROUND ELEV.	N/A	
TOP EMBANKMENT ELEV.	432.00	
RISER CREST ELEV.	430.50	
WET STORAGE / OUTLET ELEV.	428.25	
CLEANOUT ELEV.	427.50	
BOTTOM ELEV.	424.00	
WEIR LENGTH (RISER)	12.00'	
	BOTTOM DIMENSION (AVG.)	IRREGULAR
SIDE SLOPES	WET	2 to 1
	DRY	2 to 1
	TOTAL	2 to 1
STORAGE DEPTH	WET	4.25'
	DRY	2.25'
	TOTAL	6.50'
10 YR FIVE	WET STORAGE ELEV. RANGE	424.00 - 428.25
	DRY STORAGE ELEV. RANGE	428.25 - 430.50

\* SEE SEDIMENT BASIN #1 COMPUTATION FOR STORAGE TABLE

#### SEDIMENT BASIN #2 DATA TABLE

EXISTING DRAINAGE AREA (AC.)	3.20 AC.	
INTERIM DRAINAGE AREA (AC.)	3.05 AC.	
PROPOSED DRAINAGE AREA (AC.)	3.09 AC.	
STORAGE REQUIRED (C.F.)	WET	5,904 C.F.
	DRY	5,904 C.F.
	TOTAL	11,808 C.F.
STORAGE PROVIDED (C.F.)	WET	7,686 C.F.
	DRY	6,676 C.F.
	TOTAL	16,362 C.F.
EXISTING GROUND ELEV.	N/A	
TOP EMBANKMENT ELEV.	430.00	
RISER CREST ELEV.	428.75	
WET STORAGE / OUTLET ELEV.	427.25	
CLEANOUT ELEV.	426.25	
BOTTOM ELEV.	423.50	
WEIR LENGTH (RISER)	4.50'	
	BOTTOM DIMENSION (AVG.)	43' x 7'
SIDE SLOPES	WET	2 to 1
	DRY	1.75'
	TOTAL	3.25'
10 YR FIVE	WET STORAGE ELEV. RANGE	423.50 - 427.25
	DRY STORAGE ELEV. RANGE	427.25 - 428.75

\* SEE SEDIMENT BASIN #2 COMPUTATION FOR STORAGE TABLE



BY THE ENGINEER:

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

*Richard L. Butt* 11-2-11  
SIGNATURE OF ENGINEER DATE

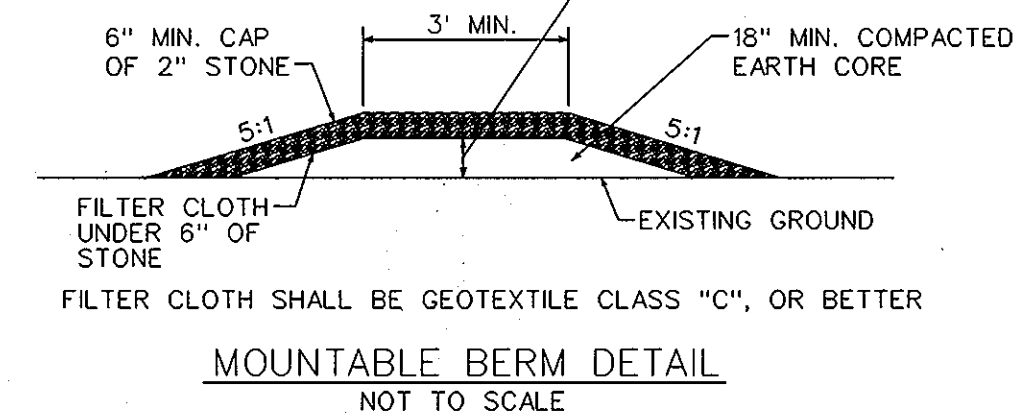
**Richard L. Butt**  
PRINT NAME

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

*L. Scott Armiger* 11-3-11  
SIGNATURE OF DEVELOPER DATE

**L. SCOTT ARMIGER**  
PRINT NAME



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

*John S. C. D.* 11/3/11  
DATE

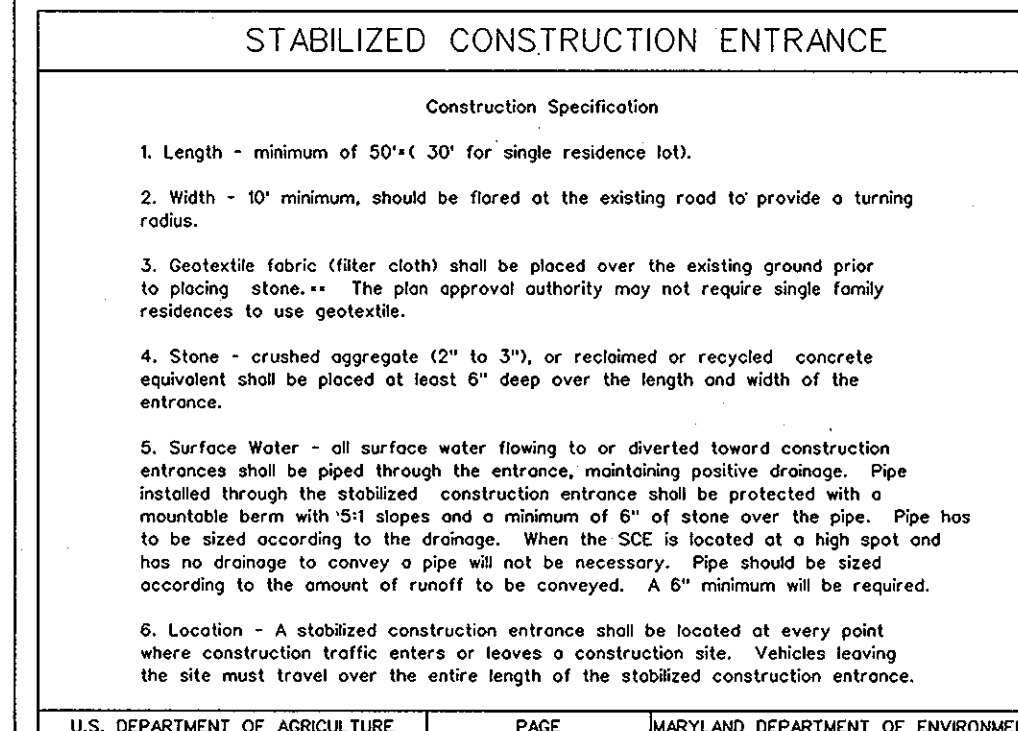
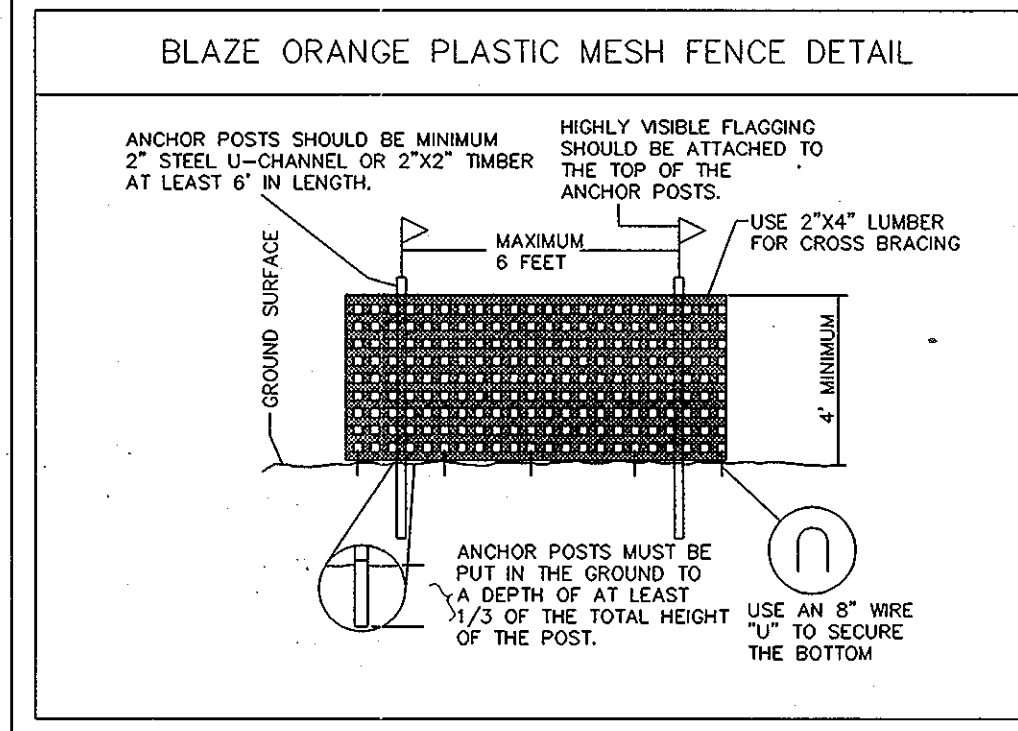
APPROVED: DEPARTMENT OF PUBLIC WORKS

*Diane Schweg* 11/23/11  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Kurt DeLorenzo* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*John S. C. D.* 11/23/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE



DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**

861 MARLE LAWN BOULEVARD  
SUITE 150  
FULTON, MD 20759  
TELEPHONE: (410) 92-8086  
FAX: (410) 792-7419

**Richard L. Butt**  
PROFESSIONAL ENGINEER

**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: RA-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

**EROSION & SEDIMENT CONTROL DETAIL SHEET**

DESIGN BY: B.E.S. SCALE: N.T.S.  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 21101105  
SHEET 09 OF 29  
DRAWING NUMBER: FC-9

**Orchard Development Corporation**

3300 SOUTHWING  
ELICOTT CITY, MD 21043  
(410) 461-2522

**CRP Opportunity Fund, LP**

CONTRACT PURCHASER/DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SOUTHWING  
ELICOTT CITY, MD 21043  
(410) 461-2522

**HOWARD COUNTY SOIL CONSERVATION DISTRICT DETAILS AND SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT**

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS FOR THE SURFACE OF ALL PERIMETER CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

- PERMANENT SEEDING:**
  - SOIL TESTS: LIME AND FERTILIZER WILL BE APPLIED PER SOIL TESTS RESULTS FOR SITES GREATER THAN 5 ACRES. SOIL TESTS WILL BE DONE AT COMPLETION OF SOIL GRADING, WATER AND ANCHORING TO THE GRADING INSPECTOR AS WELL AS THE CONTRACTOR.
    - OCCURRENCE OF ACID SULFATE SOILS (GRAYISH BLACK COLOR) WILL REQUIRE COVERING WITH A MINIMUM OF 12 INCHES OF CLEAN SOIL WITH 6 INCHES MINIMUM CAPPING OF TOP SOIL NO STOCKPILING OF MATERIAL IS ALLOWED. IF NEEDED, SOIL TESTS SHOULD BE DONE BEFORE AND AFTER A 6 WEEK INCUBATION PERIOD TO ALLOW OXIDATION OF SULFATES.
    - SEEDBED PREPARATION: AREA TO BE SEEDBED SHALL BE LOOSE AND FRABLE TO A DEPTH OF AT LEAST 3 INCHES. THE TOP LAYER SHALL BE LOOSENED BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING OCCURS. FOR SITES LESS THAN 5 ACRES, APPLY 100 POUNDS OF DOLOMITIC LIMESTONE AND 21 POUNDS OF 10-20-20 FERTILIZER PER 1,000 SQUARE FEET. HARROW OR DISK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF AT LEAST 3 INCHES ON SLOPES FLATTER THAN 3:1.
    - SEEDING: APPLY 5-6 POUNDS PER 1,000 SQUARE FEET OF TALL FESCUE BETWEEN FEBRUARY 1 AND APRIL 30 OR BETWEEN AUGUST 15 AND OCTOBER 31. APPLY SEED UNIFORMLY ON A MOIST FIRM SEEDBED WITH A CYCLONE SEEDER DRILL, CUTLIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEEDS AND FERTILIZER. RECOMMENDED ON STEEP SLOPES ONLY). MAXIMUM SEED DEPTH SHOULD BE 1/4 INCH TO 1/2 INCH IN SANDY SOILS. WHEN USING OTHER THAN THE HYDROSEEDER METHOD, IRRIGATE IF SOIL MOISTURE IS DEFICIENT TO SUPPORT ADEQUATE GROWTH UNTIL VEGETATION IS FIRMLY ESTABLISHED. IF OTHER SEED MIXES ARE TO BE USED, SELECT FROM TABLE 25. ENTITLED "PERMANENT SEEDING FOR LOW MAINTENANCE AREAS FROM THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. MIXES SUITABLE FOR THIS AREA ARE 1, 3, AND 5-7. MIXES 5-7 ARE SUITABLE IN NON-MOVABLE SITUATIONS.
    - MULCHING: MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. DURING THE TIME PERIODS WHEN SEEDING IS NOT PERMITTED, MULCH SHALL BE APPLIED IMMEDIATELY AFTER GRADING. MULCH SHALL BE UNROTATED, UNCHOPPED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 POUNDS PER 1,000 SQUARE FEET (2 BALES). IF A MULCH ANCHORING TOOL IS USED, MULCH SHALL BE APPLIED AT A RATE OF 1.5 TONS PER ACRE. MULCH SHALL BE FREE OF ALL KINDS OF WEEDS AND SHALL BE COMPLETELY FREE OF PROHIBITED NOXIOUS WEEDS. SPREAD MULCH UNIFORMLY, MECHANICALLY OR BY HAND, TO A DEPTH OF 1-2 INCHES.
    - SECURING STRAW MULCH: STRAW MULCH SHALL BE SECURED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE MOVEMENT BY WIND OR WATER. THE FOLLOWING METHODS ARE PERMITTED:
      - USE A MULCH ANCHORING TOOL WHICH IS DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE TO A MINIMUM DEPTH OF 2 INCHES. THIS IS THE MOST EFFECTIVE METHOD FOR FIBER MULCH. HOWEVER, IT IS LIMITED TO RELATIVELY FLAT AREAS WHERE EQUIPMENT CAN OPERATE SAFELY.
      - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. IF MIXED WITH WATER, USE 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      - LIQUID BINDERS MAY BE USED AND APPLIED HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH. SUCH AS IN VALLEYS AND ON CRESTS OF SLOPES. THE REMAINDER OF THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. BINDERS LISTED IN THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR APPROVED EQUIV SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURERS.
      - LIGHTWEIGHT PLASTIC NETTING MAY BE USED TO SECURE MULCH. THE NETTING WILL BE STAPLED TO THE GROUND ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- TEMPORARY SEEDING:**
  - LIME: 100 POUNDS OF DOLOMITIC LIMESTONE PER 1,000 SQUARE FEET.
  - FERTILIZER: 15 POUNDS OF 10-10-10 PER 1,000 SQUARE FEET.
  - SEED: PERENNIAL RYE - 0.92 POUNDS PER 1,000 SQUARE FEET (FEBRUARY 1 THROUGH APRIL 30 OF AUGUST 15 THROUGH NOVEMBER 1). MILLET - 0.92 POUNDS PER 1,000 SQUARE FEET (MAY 1 THROUGH AUGUST 15). SAME AS 1 D AND E ABOVE.
- NO FILLS MAY BE PLACED ON FROZEN GROUND.** ALL FILL TO BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS. EACH LAYER HAVING A MAXIMUM THICKNESS OF NOT MORE THAN 8 INCHES. ALL FILL IN ROADWAYS AND PARKING AREAS IS TO BE CLASSIFIED TYPE 2 AS PER ANNE ARUNDEL COUNTY CODE - ARTICLE 21, SECTION 2-308, AND COMPACTED TO 80% DENSITY. COMPACTION TO BE DETERMINED BY ASTM D-1557-661 (MODIFIED PROCTOR). ANY FILL WITHIN THE BUILDING AREA TO BE COMPACTED TO A MINIMUM OF 95% AS DETERMINED BY METHODS PREVIOUSLY MENTIONED. FILLS FOR POND EMBANKMENTS SHALL BE COMPACTED AS PER MD-376 CONSTRUCTION SPECIFICATIONS. ALL OTHER FILLS SHALL BE COMPACTED SUFFICIENTLY SO AS TO BE STABLE AND PREVENT EROSION AND SLIPPAGE.
- PERMANENT SOD:**

INSTALLATION OF SOD SHOULD FOLLOW PERMANENT SEEDING DATES. PERMANENT SOD IS TO BE TALL FESCUE. STATE APPROVED SOD. LIME AND FERTILIZER PER PERMANENT SEEDING SPECIFICATIONS AND LIGHTLY IRRIGATE SOIL PRIOR TO LAYING SOD. SOD IS TO BE LAID ON THE CONTOUR WITH ALL ENDS TIGHTLY ABUTTING. JOINTS ARE TO BE STAGGERED BETWEEN ROWS. WATER AND ROLL OR TAMP SOD TO INSURE POSITIVE ROOT CONTACT WITH THE SOIL. SLOPES STEEPER THAN 3:1 AS SHOWN ARE TO BE PERMANENTLY SODDED OR PROTECTED WITH AN APPROVED EROSION CONTROL NETTING. ADDITIONAL WATERING FOR ESTABLISHMENT MAY BE REQUIRED. SOD IS NOT TO BE APPLIED ON FROZEN GROUND. SOD SHALL NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT DRY MATTER AND/OR EXTREME TEMPERATURE MAY ADVERSELY AFFECT ITS SURVIVAL. IN THE ABSENCE OF ADEQUATE RAINFALL, IRRIGATION SHOULD BE PERFORMED TO INSURE ESTABLISHED SOD.
- MINING OPERATIONS:**

SEDIMENT CONTROL PLANS FOR MINING OPERATIONS MUST INCLUDE THE FOLLOWING SEEDING DATES AND MIXTURES:

FOR SEEDING DATES OF:  
 FEBRUARY 1 THROUGH APRIL 30 AND AUGUST 15 THROUGH OCTOBER 31, USE SEED MIXTURE OF TALL FESCUE AT THE RATE OF 2 POUNDS PER 1,000 SQUARE FEET AND SERICIA LESPEDEZA AT THE RATE OF 0.5 POUNDS PER 1,000 SQUARE FEET.  
 FOR SEEDING DATES OF MAY 1 THROUGH AUGUST 14, USE SEED MIXTURE OF TALL FESCUE AT THE RATE OF 2 POUNDS PER 1,000 SQUARE FEET AND WEEPING LOVEGRASS AT THE RATE OF 0.1 POUND PER 1,000 SQUARE FEET.

NOTE: USE OF THIS INFORMATION DOES NOT PRECLUDE MEETING ALL OF THE REQUIREMENTS OF THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

**2.1.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL**

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CAPACITY, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

- THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
  - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
  - 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.
  - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
  - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- 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
- 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 THE USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
  - 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 CONCRETES, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
  - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDEGE, POISON, IVY, THISTLE, OR OTHERS AS SPECIFIED.
  - 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 DISTURBED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
  - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- FOR SITE HAVING DISTURBED AREAS OVER 5 ACRES:
  - ON SITE MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRE TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
    - DEVELOPER'S CERTIFICATION:
      - I (WE) CERTIFY THAT:
        - ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS SEDIMENT AND EROSION CONTROL PLAN, AND FURTHER, AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.
        - ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
      - THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS, AND/OR RIGHTS OF WAY THAT MAY BE REQUIRED FOR THE SEDIMENT AND EROSION CONTROL PRACTICES, STORMWATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORMWATER ONTO OR ACROSS ADJACENT OR DOWNSTREAM PROPERTIES INCLUDED IN THIS PLAN. HE IS ALSO RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS AND/OR RIGHTS OF WAY THAT MAY BE REQUIRED FOR GRADING AND/OR WORK ON ADJACENT PROPERTIES INCLUDED IN THIS PLAN.
      - FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS FOR THE SURFACE OF PERIMETER CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
      - THE SEDIMENT CONTROL APPROVALS ON THE PLAN EXTEND ONLY TO AREAS AND PRACTICES IDENTIFIED AS PROPOSED WORK.
      - THE APPROVAL OF THIS PLAN FOR SEDIMENT AND EROSION CONTROL DOES NOT RELIEVE THE DEVELOPER/CONSULTANT FROM COMPLYING WITH ANY FEDERAL/STATE/COUNTY REQUIREMENTS PERTAINING TO ENVIRONMENTAL ISSUES.
      - THE DEVELOPER REQUESTS THAT THE DEPARTMENT OF INSPECTIONS AND PERMITS APPROVE WORK COMPLETED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, THE GRADING OR BUILDING PERMIT AND THE ORDINANCE.
      - ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE DEPARTMENT OF INSPECTIONS AND PERMITS SHALL BE REQUIRED ON COMPLETION 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 THE INITIAL APPROVAL BY THE DEPARTMENT OF INSPECTIONS AND PERMITS IS GIVEN.
      - APPROVAL SHALL BE REQUESTED ON FINAL STABILIZATION OF ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES BEFORE REMOVAL OF CONTROLS.

- 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.
- ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
- TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PPM SHALL BE UNACCEPTABLE. LOW MOISTURE CAPACITY SHALL NOT BE ACCEPTABLE.
- 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 DISPERSION 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 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

(TYP.) TOPSOIL APPLICATION

- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIMENSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCES AND SEDIMENT TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.
- TOPSOIL SHALL BE UNIFORMLY DISTURBED 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 SOIL 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.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SURFACE IS EXCESSIVELY WET OR IN A CONDITION THAT MY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

(TYP.) 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:

- COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO DETERMINE PERCENT AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
  - COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED TO TAKE SAMPLES OF ACQUISITION (COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
  - 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.
  - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON / 1,000 SF.
- COMPOSTED SLUDGE SHALL BE AMENDED WITH POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB. / 1,000 SF. AND 1/3 THE NORMAL LIME APPLICATION RATE.

**1. DEVELOPER'S CERTIFICATION:**

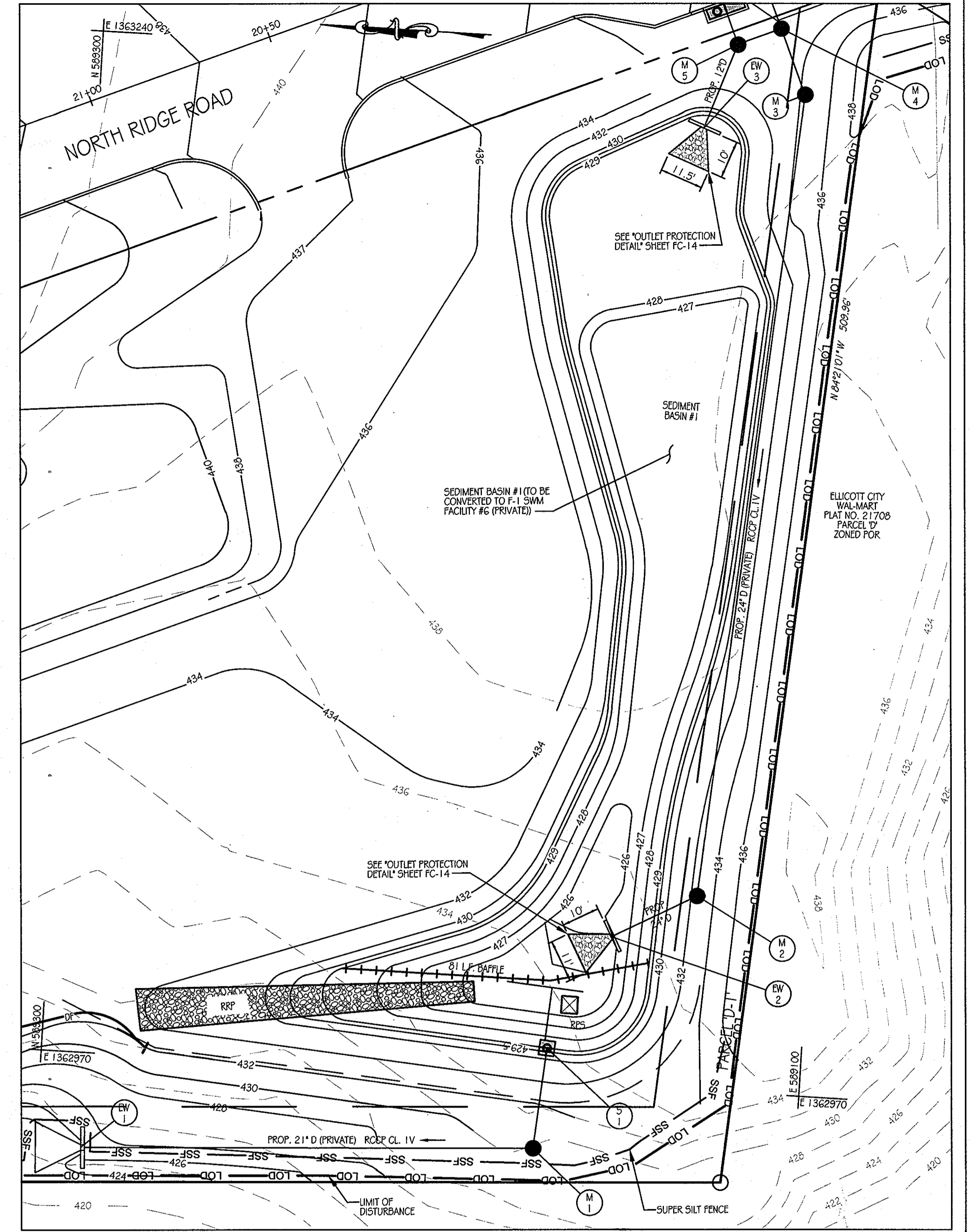
- I (WE) CERTIFY THAT:
  - ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS SEDIMENT AND EROSION CONTROL PLAN, AND FURTHER, AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.
  - ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.
- THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS, AND/OR RIGHTS OF WAY THAT MAY BE REQUIRED FOR THE SEDIMENT AND EROSION CONTROL PRACTICES, STORMWATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORMWATER ONTO OR ACROSS ADJACENT OR DOWNSTREAM PROPERTIES INCLUDED IN THIS PLAN. HE IS ALSO RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS AND/OR RIGHTS OF WAY THAT MAY BE REQUIRED FOR GRADING AND/OR WORK ON ADJACENT PROPERTIES INCLUDED IN THIS PLAN.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS FOR THE SURFACE OF PERIMETER CONTROL STRUCTURES, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- THE SEDIMENT CONTROL APPROVALS ON THE PLAN EXTEND ONLY TO AREAS AND PRACTICES IDENTIFIED AS PROPOSED WORK.
- THE APPROVAL OF THIS PLAN FOR SEDIMENT AND EROSION CONTROL DOES NOT RELIEVE THE DEVELOPER/CONSULTANT FROM COMPLYING WITH ANY FEDERAL/STATE/COUNTY REQUIREMENTS PERTAINING TO ENVIRONMENTAL ISSUES.
- THE DEVELOPER REQUESTS THAT THE DEPARTMENT OF INSPECTIONS AND PERMITS APPROVE WORK COMPLETED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, THE GRADING OR BUILDING PERMIT AND THE ORDINANCE.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE DEPARTMENT OF INSPECTIONS AND PERMITS SHALL BE REQUIRED ON COMPLETION 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 THE INITIAL APPROVAL BY THE DEPARTMENT OF INSPECTIONS AND PERMITS IS GIVEN.
- APPROVAL SHALL BE REQUESTED ON FINAL STABILIZATION OF ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES BEFORE REMOVAL OF CONTROLS.

SIGNATURE OF DEVELOPER/APPLICANT: *L. Scott Armiger* DATE: 11-4-11  
 PRINT NAME: L. SCOTT ARMIGER TITLE: V.P.  
 ADDRESS: 5032 DORSEY HALL DR. ELLICOTT CITY, MD 21042  
 TELEPHONE: 410-964-2334

THE DEVELOPER'S PLAN TO CONTROL SILT AND EROSION IS ADEQUATE TO CONTAIN THE SILT AND EROSION PROPERTY COVERED BY THE PLAN. I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THIS SITE, AND WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT PLAN SUBMITTAL GUIDELINES AND THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SEDIMENT AND EROSION CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE: *Richard L. Butt* DATE: 11-2-11  
 PRINT NAME: RICHARD L. BUTT FIRM NAME: KCI TECHNOLOGIES INC.  
 ADDRESS: 8161 MAPLE LAWN BOULEVARD FULTON, MD 20759  
 TELEPHONE: (410)792-8086 EXT. 3340

NOTE: ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.

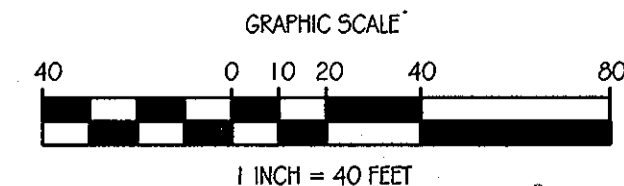


**SEDIMENT BASIN #1 PLAN**

SCALE: 1" = 20'

**LEGEND**

- 410 --- EX. CONTOURS
- 411 --- PROP. CONTOURS
- - - 21" RCP --- PROP. STORM DRAIN
- RFS [Symbol] REMOVABLE PUMPING STATION
- [Symbol] RIP-RAP OUTFALL



**BY THE ENGINEER:**

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

SIGNATURE OF ENGINEER: *Richard L. Butt* DATE: 11-2-11  
 PRINT NAME: RICHARD L. BUTT

**BY THE DEVELOPER:**

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

SIGNATURE OF DEVELOPER: *L. Scott Armiger* DATE: 11-3-11  
 PRINT NAME: L. SCOTT ARMIGER

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

SIGNATURE OF DISTRICT ENGINEER: *John K. Roberts* DATE: 11/15/11  
 HOWARD S.C.D.

APPROVED: DEPARTMENT OF PUBLIC WORKS

SIGNATURE: *Diane Schwan* DATE: 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

SIGNATURE: *Kevin Schwan* DATE: 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT

SIGNATURE: *Chris Schwan* DATE: 11/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION

**SEDIMENT CONTROL NOTES**

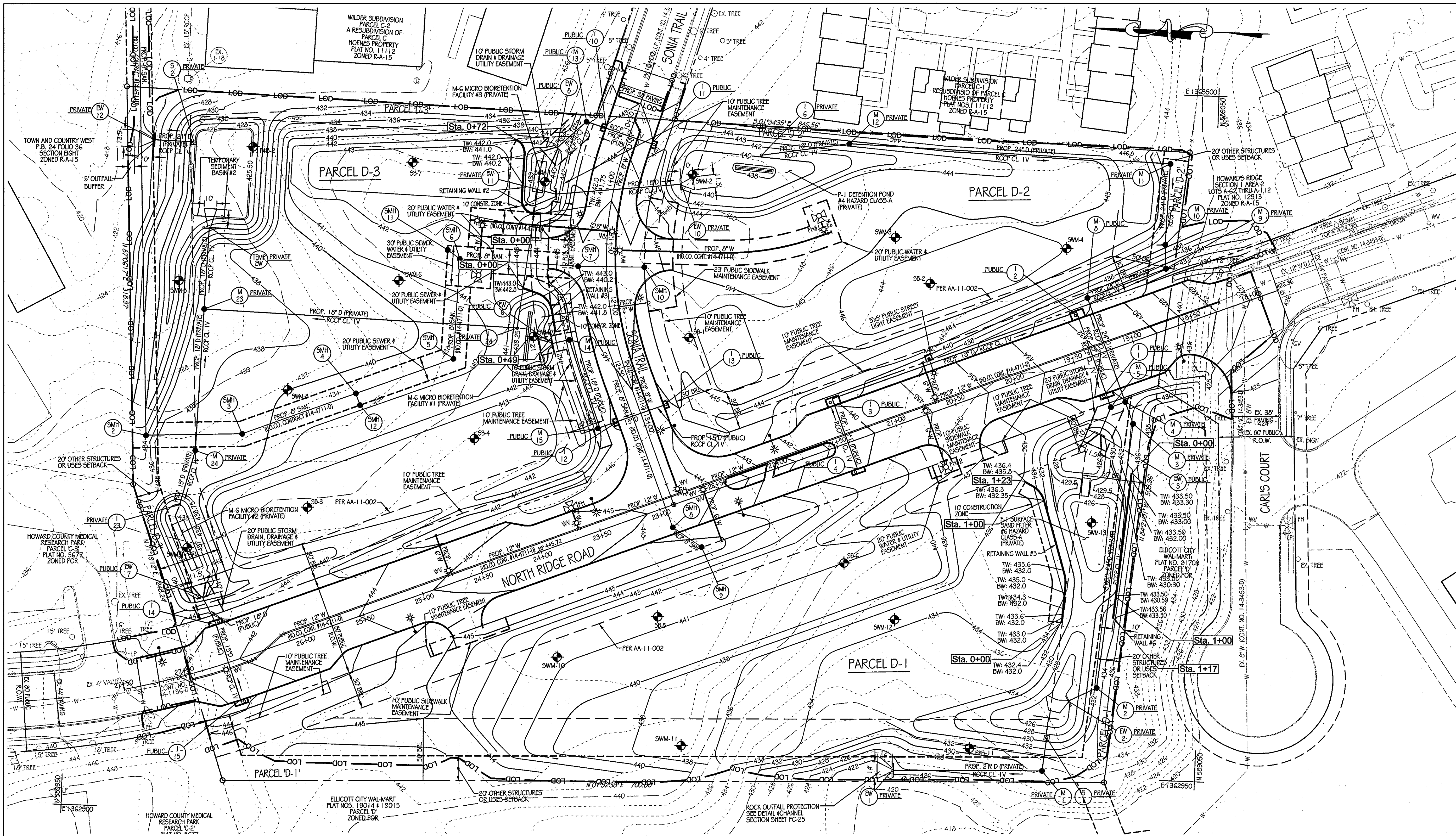
- A MINIMUM OF 24 HOURS MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (513-1859).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL, REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 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, STORMWATER.
- 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 (PER-21) SOD (PER-24) AND TEMPORARY SEEDINGS (TEMP-20) AND TEMPORARY LEOPARD STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 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.
- SITE ANALYSIS:
 

TOTAL AREA OF SITE	117.84	ACRES
AREA DISTURBED	2.42	ACRES
AREA TO BE ROOFED OR PAVED	2.42	ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.05	ACRES
TOTAL FILL	1,950	CY
OFFSITE WASTE AREA LOCATION		SITE WITH APPROVED SED. CONTROL PLAN
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION 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 THE INITIAL APPROVAL BY THE DEPARTMENT OF INSPECTIONS AND PERMITS IS GIVEN.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE FIVE LENGTHS ON THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

DATE	NUMBER	REVISION DESCRIPTIONS

<b>KCI TECHNOLOGIES</b> 8861 MAPLE LAWN BOULEVARD SUITE 150 FULTON, MD 20759 TELEPHONE: (410) 92-8086 FAX: (410) 792-7419	PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.: 31089 EXPIRATION DATE: 1/1/212
ORCHARD MEADOWS PARCEL D-1, D-2 & D-3 TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: RA-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD	EROSION & SEDIMENT CONTROL NOTES PROJECT NO.: 27101105 SHEET 10 OF 29 DRAWING NUMBER: FC-10
DESIGN BY: B.E.S. GRAN BY: C.T.B. CHECKED BY:	SCALE: N.T.S. DATE: 11-02-2011 APPROVED:



- NOTES:
- FOR MICRO-BIORETENTION FACILITY #1 SEE SHEET FC-19.
  - FOR MICRO-BIORETENTION FACILITY #2 SEE SHEET FC-20.
  - FOR MICRO-BIORETENTION FACILITY #3 SEE SHEET FC-21.
  - FOR DETENTION FACILITY #4 SEE SHEETS FC-22 AND FC-23.
  - FOR SWM FACILITY #6 SEE FC-24, FC-25 FC-26.
  - FOR RIPRAP OUTLET PROTECTION DETAIL SEE SHEET FC-14.
  - FOR SEDIMENT BASIN #2 SEE SHEET FC-8.

**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- 430 --- PROP. CONTOUR
- PROP. CURB
- PROP. C' WATER
- PROP. S' WATER
- PROP. S' SAN.
- PROP. S' DRAIN
- PROP. MANHOLE
- PROP. INLET
- PROP. FIRE HYDRANT
- PROP. WATER VALVE
- PROP. WATER METER
- PROP. CLEANOUT
- LOD --- LIMIT OF DISTURBANCE
- SOIL BORING

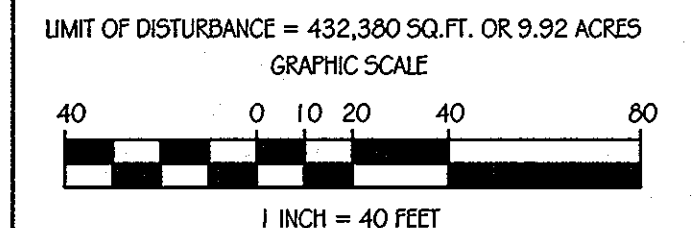
**MASS GRADING PLAN**  
SCALE: 1" = 40'

**UTILITY NOTES**

- CONSTRUCTION OF THE PROPOSED UTILITIES WILL BE IN ACCORDANCE WITH THE HOWARD COUNTY PLUMBING CODE, BY A QUALIFIED CONTRACTOR.
- NO WORK IS TO COMMENCE UNTIL ALL PERMITS HAVE BEEN OBTAINED.
- ALL CONSTRUCTION SHALL FOLLOW LATEST HOWARD COUNTY DEPT. OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS OF CONSTRUCTION OR AS DETAILED ON THE DRAWINGS.
- GRAVEL CRADLE IS REQUIRED UNDER ALL PIPE.
- ALL BACKFILL SHALL BE MECHANICALLY TAMPED.
- THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK SHOWN ON THESE DRAWINGS UNLESS OTHERWISE NOTED.
- ALL CHANNELS IN MANHOLES MUST BE CONSTRUCTED TO CONFORM AS CLOSE AS POSSIBLE TO THE STANDARD CHANNELS CALLED FOR IN THE PROFILES.
- CLEANOUTS LOCATED IN PAVED AREAS SHALL HAVE COUNTERSINK LIDS.
- ALL SANITARY SEWER CONSTRUCTION SHALL BE DONE UNDER A PERMIT AND PLAN ISSUED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, WATER AND WASTEWATER ENGINEERING DIVISION.
- FOR UTILITY WORK OUTSIDE THE LOD SHOWN ON THIS PLAN, CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) THE TRENCH.
- PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
- SEE SHEETS C-9, C-10, C-11, C-12 & C-13 FOR UTILITY PROFILES.
- CONTRACTOR TO COORDINATE WITH VERIZON FOR THE REMOVAL AND/OR RELOCATION OF EXISTING TELEPHONE LINE.
- ALL WATER LINES SHALL HAVE A MINIMUM 3'-6" OF COVER.

**PRIVATE STORM DRAIN STRUCTURE SCHEDULE**

NO.	DESCRIPTION	TOP ELEV.	INV. IN	INV. OUT	REMARKS	COORDINATES	
						NORTHING	EASTING
M-1	STD 4' MANHOLE	430.00	422.70	422.60	HOWARD CO. STD. DETAIL G-5.12	589,171.3591	1,362,954.2875
M-2	STD 4' MANHOLE	432.60	424.65	424.55	HOWARD CO. STD. DETAIL G-5.12	589,130.3640	1,363,022.4132
M-3	STD 4' MANHOLE	434.30	426.25	426.15	HOWARD CO. STD. DETAIL G-5.12	589,108.8977	1,363,235.2917
M-4	STD 4' MANHOLE	432.50	428.00/426.60	426.50	HOWARD CO. STD. DETAIL G-5.12	589,115.7896	1,363,252.5502
M-5	STD 4' MANHOLE	434.00	427.59	427.49	HOWARD CO. STD. DETAIL G-5.12	589,148.7135	1,363,334.9962
M-9	STD 4' MANHOLE	432.10	428.35	428.10	HOWARD CO. STD. DETAIL G-5.12	589,087.1697	1,363,360.5576
M-10	STD 4' MANHOLE	441.10	433.48	431.08	HOWARD CO. STD. DETAIL G-5.12	589,088.4525	1,363,379.6255
M-11	STD 4' MANHOLE	442.85	436.29	433.23	HOWARD CO. STD. DETAIL G-5.12	589,026.6361	1,363,444.7890
M-12	STD 4' MANHOLE	444.59	436.56	436.04	HOWARD CO. STD. DETAIL G-5.12	589,342.2106	1,363,451.8545
M-23	STD 4' MANHOLE	436.56	431.31/431.56	431.21	HOWARD CO. STD. DETAIL G-5.12	589,850.1890	1,363,301.6227
M-24	STD 4' MANHOLE	438.95	432.70	432.45	HOWARD CO. STD. DETAIL G-5.12	589,853.2507	1,363,187.9826
EW-1	TYPE 'C' ENDWALL	-	-	-	HOWARD CO. STD. DETAIL D-5.21	589,290.4746	1,362,950.4937
EW-10	TYPE 'C' ENDWALL	-	-	-	HOWARD CO. STD. DETAIL D-5.21	589,474.7195	1,363,414.7128
EW-11	TYPE 'C' ENDWALL	-	-	-	HOWARD CO. STD. DETAIL D-5.21	589,574.3503	1,363,403.3460
TEMP-FW	TYPE 'C' ENDWALL	-	-	-	HOWARD CO. STD. DETAIL D-5.21	589,848.38	1,363,370.83
I-6	TYPE 'D' INLET	441.00	437.00	437.00	HOWARD CO. STD. DETAIL D-4.11	589,411.7818	1,363,440.1896
I-23	TYPE 'D' INLET	437.75	433.50	433.15	HOWARD CO. STD. DETAIL D-4.11	589,854.2195	1,363,143.8221
I-24	TYPE 'D' INLET	440.00	435.25	435.75	HOWARD CO. STD. DETAIL D-4.11	589,600.9615	1,363,294.9203



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schury*, Acting, 11/24/11  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Victor Salas*, 11/23/11  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

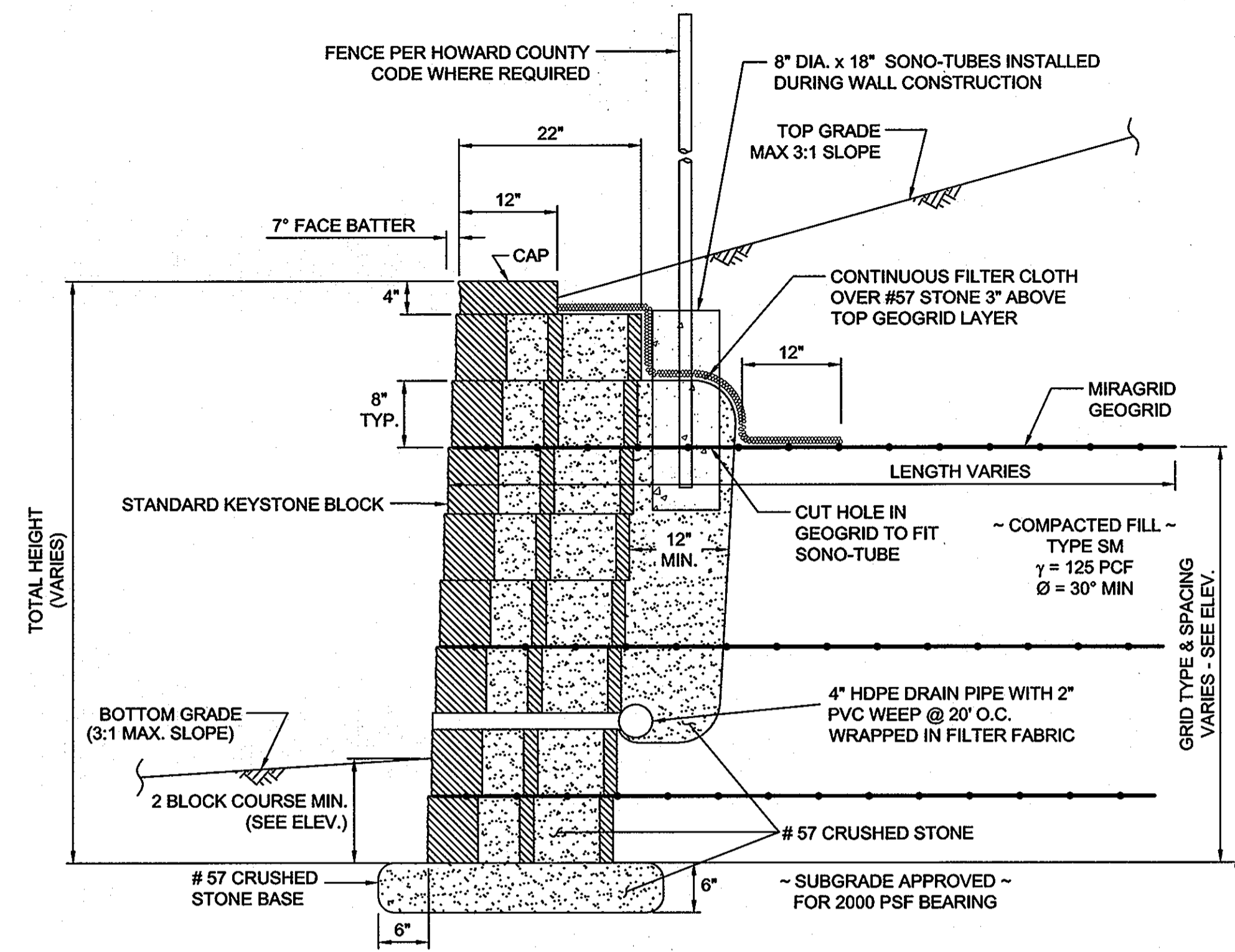
**OrchardDevelopment** Corporation  
 OWNER/DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5505 DORSET HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2334

**CRP Opportunity Fund, L.P.**

DATE	NUMBER	REVISION DESCRIPTIONS
<p><b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>          10975 Guilford Road, Suite A Annapolis Junction, MD          (410) 880-4788 Fax: (410) 880-4098</p>		
<p><b>ORCHARD MEADOWS</b>          PARCEL D-1, D-2 &amp; D-3</p>		<p>PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.: 14434 EXPIRATION DATE: 05/31/13</p>
<p>TAX MAP: 17 GRID: 23 PARCEL: 711          ZONED: RA-15          ELECTION DISTRICT: NO. 2          HOWARD COUNTY, MD</p>		
<p>TITLE: <b>RETAINING WALL LOCATION PLAN</b></p>		
DESIGN BY: AM	SCALE: 1" = 40'	PROJECT NO.: 11282-A
DRAWN BY: AM	DATE: 11-2-2011	SHEET 11 OF 29
CHECKED BY: RWS		DRAWING NUMBER: <b>FC-11</b>

# SPECIFICATIONS

## KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL



TYPICAL WALL SECTION  
N.T.S.

**NOTES:**

- No trees shall be planted within 10 feet of the top of the retaining wall.
- Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
- One soil boring shall be required every one hundred feet along the entire length of the wall. Copies of all boring reports shall be provided to the Howard County Inspector Prior to the start of construction.
- The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
- The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
- Walls shall not be constructed on uncertified fill materials.
- Walls shall not be constructed within a Howard Co. right-of-way or easement.

**PART 1: GENERAL**

- 1.01 Description  
 A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.  
 B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.  
 C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

- 1.02 Delivery, Storage and Handling  
 A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.  
 B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

**PART 2: PRODUCTS**

- 2.01 Modular Concrete Retaining Wall Units  
 A. Modular concrete units shall conform to the following architectural requirements:  
 face color - concrete gray - standard manufacturers' color may be specified by the Owner.  
 face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.  
 bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.  
 exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.  
 B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.  
 C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:  
 compressive strength = 3000 psi minimum;  
 absorption = 8% maximum (6% in northern states) for standard weight aggregates;  
 dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ± 1/16" unit height - top and bottom planes;  
 unit size - 8" (H) x 18" (W) x 22" (D) minimum;  
 unit weight - 100 lbs/unit minimum for standard weight aggregates;  
 inter-unit shear strength - 1000 pif minimum at 2 psi normal pressure;  
 geogrid/unit peak connection strength - 1000 pif minimum at 2 psi normal force.  
 D. Modular concrete units shall conform to the following constructability requirements:  
 vertical setback = 1/8" ± per course (near vertical) or 1" ± per course per the design;  
 alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;  
 maximum horizontal gap between erected units shall be - 1/2 inch.
- 2.02 Shear Connectors  
 A. Shear connectors shall be 1/2 inch diameter thermostat isophthalic polyester resin-protruded fiberglass reinforcement rods or equivalent to provide connection

between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.  
 B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material  
 A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill  
 A. Unit drainage fill shall consist of #57 crushed stone

2.05 Reinforced Backfill  
 A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-70
No. 200	0-35

Plasticity Index (PI) <10 and Liquid Limit <40 per ASTM D-4318.  
 B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement  
 A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe  
 A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

**PART 3 EXECUTION**

3.01 Excavation  
 A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad  
 A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.  
 B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation  
 A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.  
 B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.

C. Install shear/connecting devices per manufacturer's recommendations.  
 D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.  
 E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation  
 A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.  
 B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.  
 C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.  
 D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement  
 A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.  
 B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.  
 C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.  
 D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.  
 E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.  
 F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.  
 G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation  
 A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control  
 A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.  
 B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Diane Schury, Acting  
 CHIEF - BUREAU OF HIGHWAYS  
 11/22/11  
 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature]  
 CHIEF - DIVISION OF LAND DEVELOPMENT  
 11/23/11  
 DATE

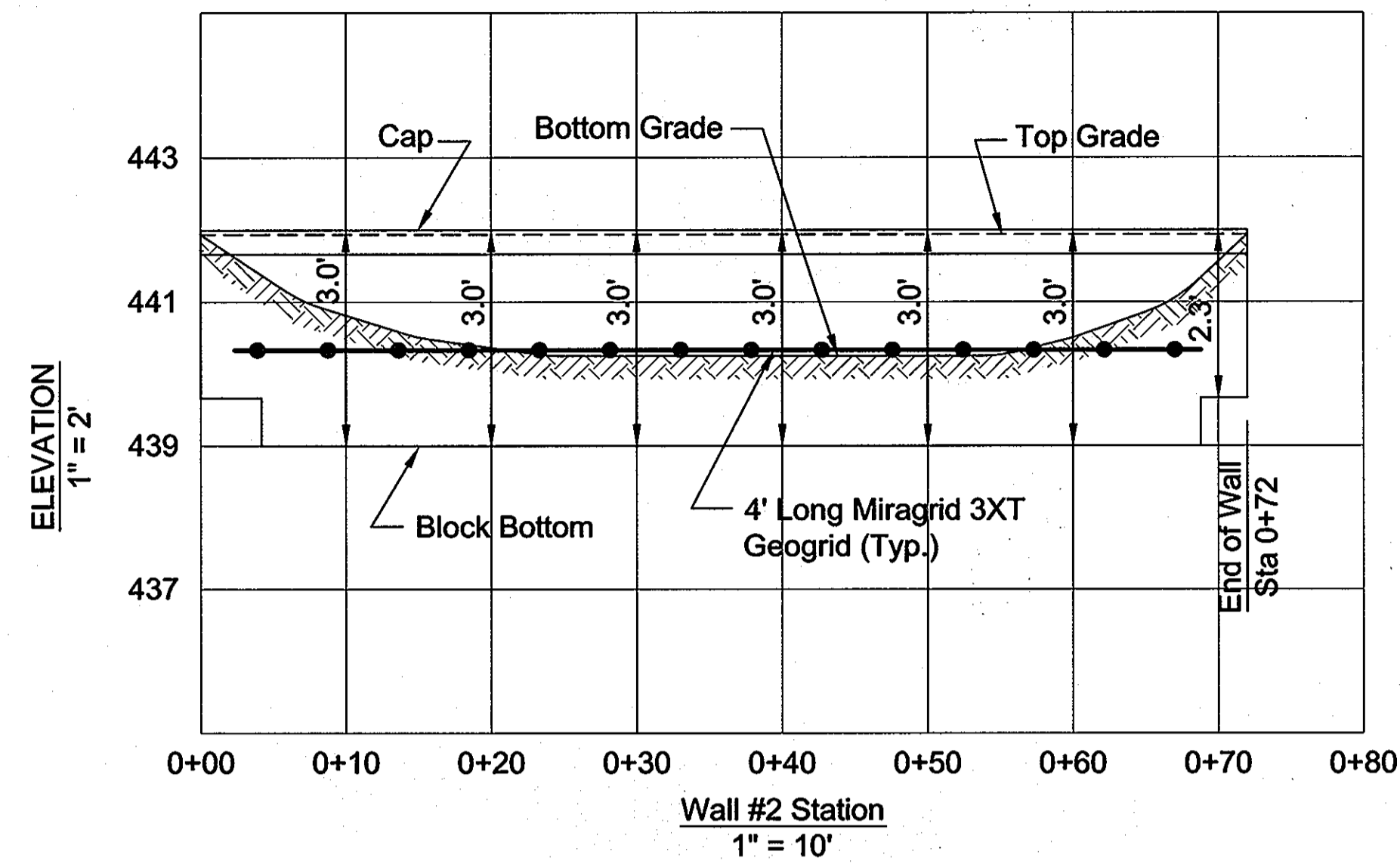
[Signature]  
 CHIEF - DEVELOPMENT ENGINEERING DIVISION  
 4/23/11  
 DATE

Orchard Development Corporation  
 5032 DORSEY HALL DRIVE  
 ELLICOTT CITY, MD 21042  
 (410) 964-2334

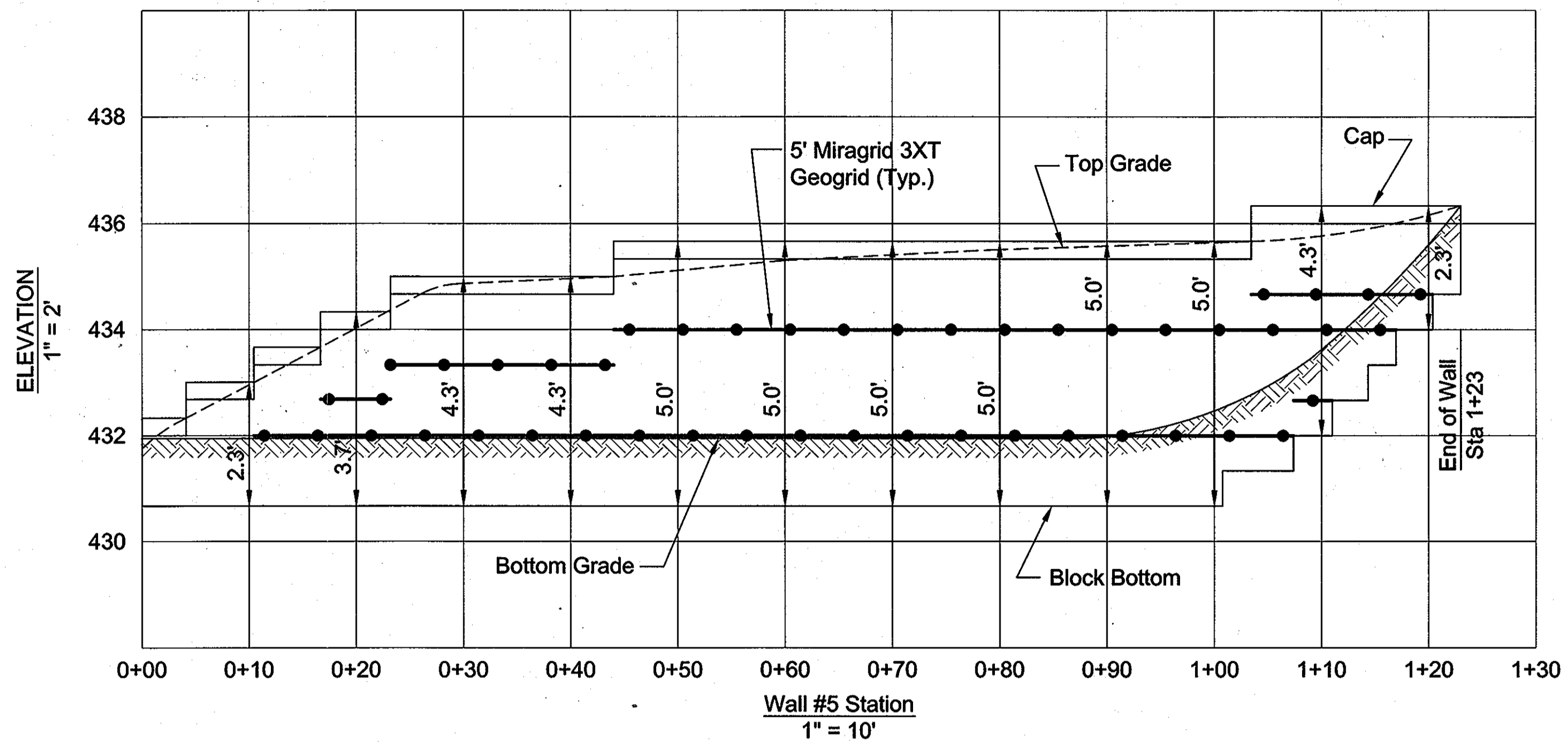
OWNER/DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELLICOTT CITY, MD 21042  
 (410) 964-2334

CRP Opportunity Fund, L.P.

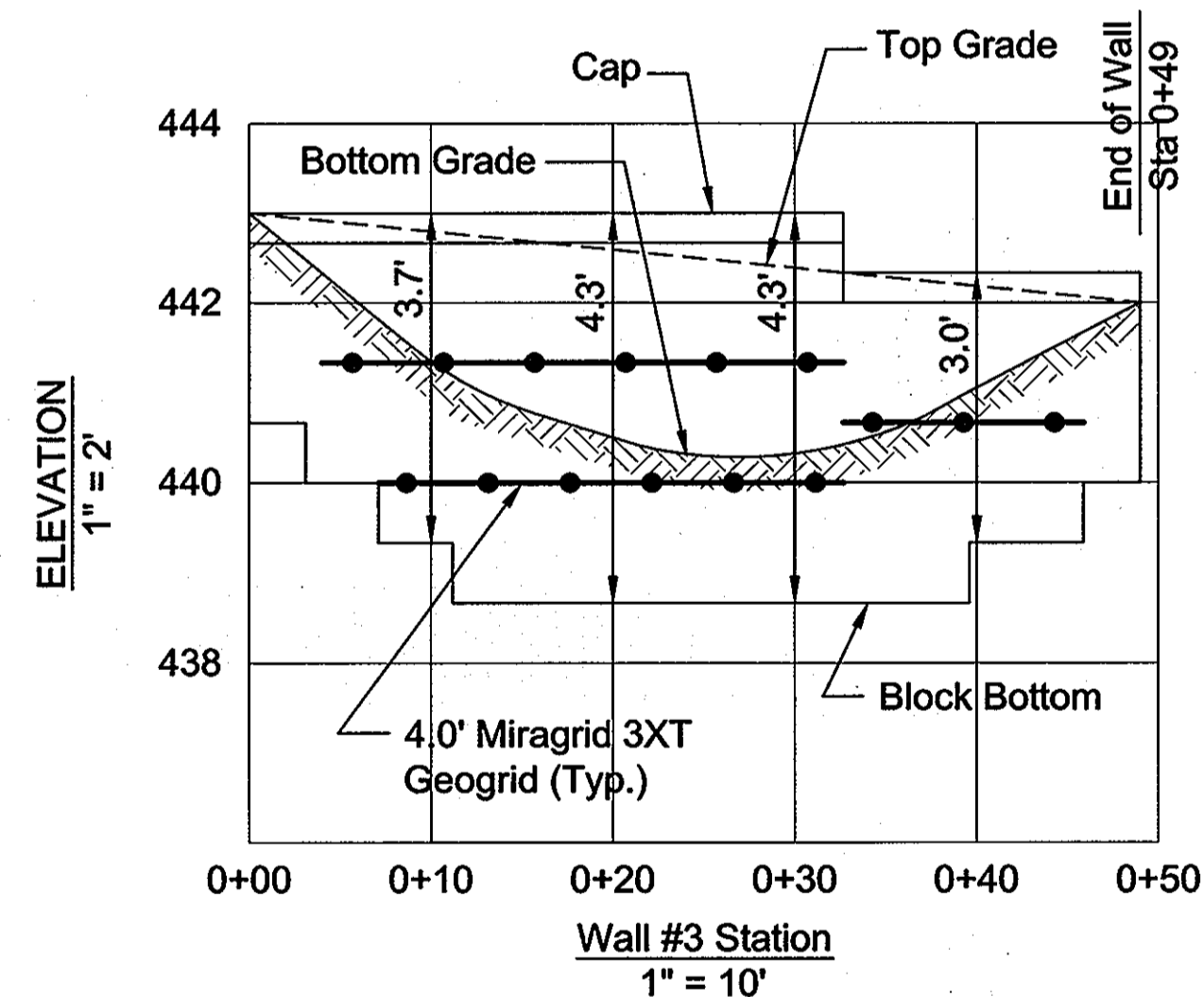
DATE	NUMBER	REVISION DESCRIPTIONS
<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b> 10975 Guilford Road, Suite A (410) 880-4788		ANNAPOLIS JUNCTION, MD (410) 880-4098
ORCHARD MEADOWS PARCEL D-1, D-2 & D-3		PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.: 14434 EXPIRATION DATE: 03/13/13
TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R-A-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD		
TITLE RETAINING WALL DETAILS		
DESIGN BY: AM	SCALE: AS SHOWN	PROJECT NO.: 11282-A
DRAWN BY: AM	DATE: 11-2-2011	SHEET 12 OF 29
CHECKED BY: RWS		DRAWING NUMBER FC-12



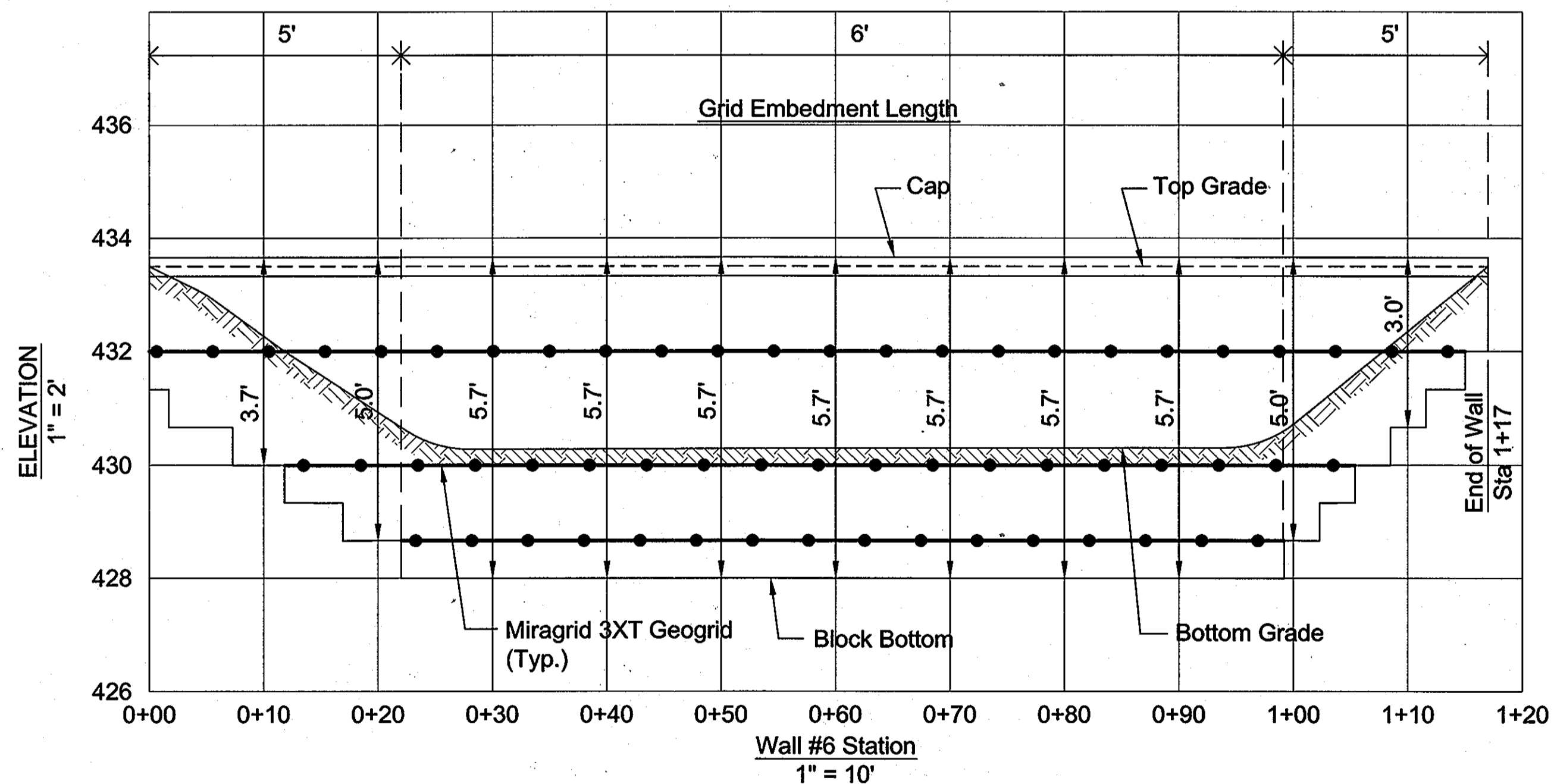
WALL #2 ELEVATION



WALL #5 ELEVATION



WALL #3 ELEVATION



WALL #6 ELEVATION

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwab*, Acting 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kurt Spaulding* 4/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 4/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

Orchard Development Corporation  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 364-2334

OWNER/DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 364-2334

CRP Opportunity Fund, L.P.

DATE	NUMBER	REVISION DESCRIPTIONS

**HILLIS-CARNES**  
 ENGINEERING ASSOCIATES  
 10975 Guilford Road, Suite A Annapolis Junction, MD  
 (410) 880-4788 Fax: (410) 880-4098

ORCHARD MEADOWS  
 PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

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.: 14434 EXPIRATION DATE: 05/31/13

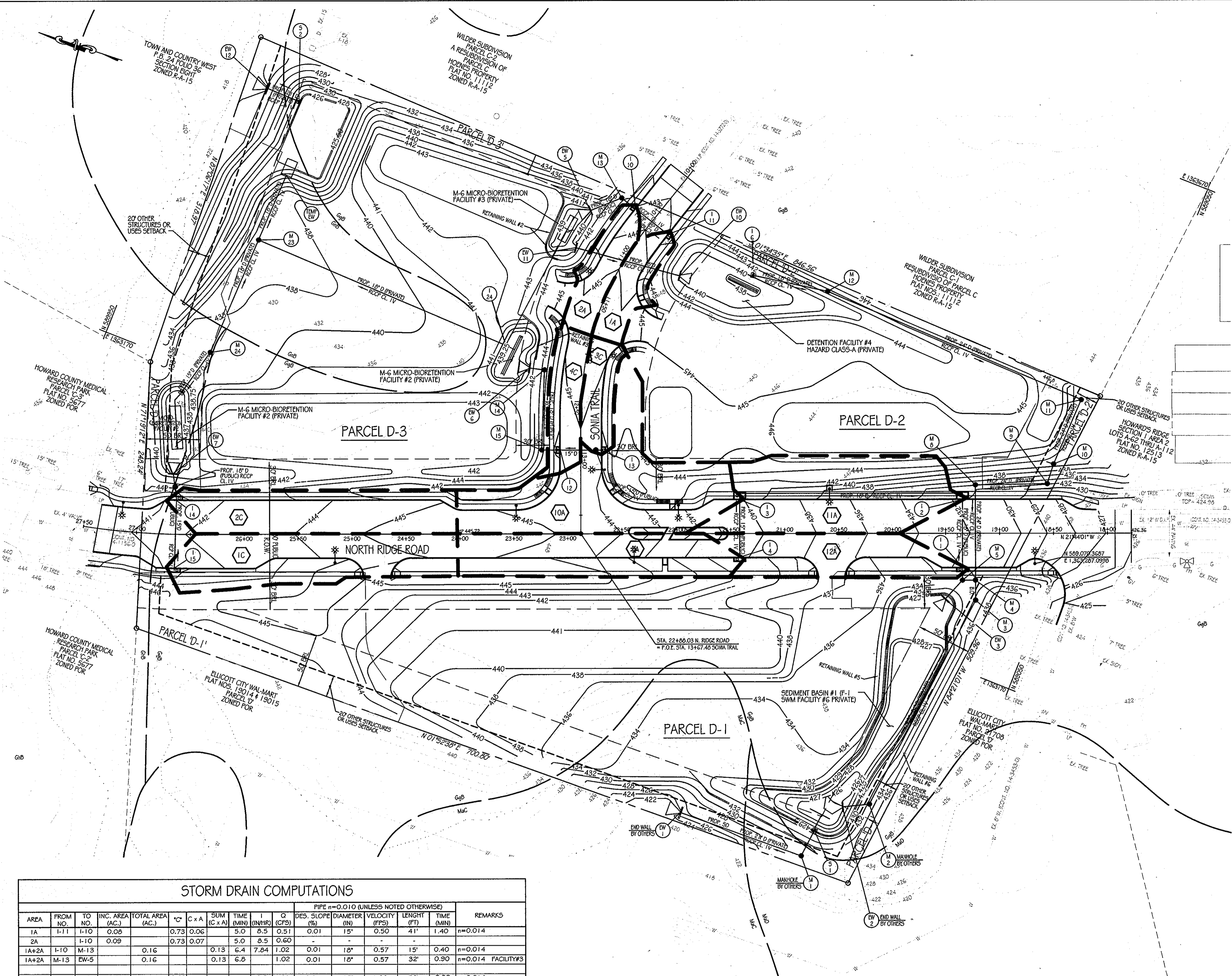
TITLE: **RETAINING WALL ELEVATIONS**

DESIGN BY: AM	SCALE: AS SHOWN	PROJECT NO.: 11282-A
DRAWN BY: AM	DATE: 11-2-2011	SHEET 13 OF 29
CHECKED BY: RMS		DRAWING NUMBER <b>FC-13</b>

DRAINAGE AREA DATA			
STRUCTURE NO.	AREA (AC)	IC	% OF IMPERVIOUS
I-1	0.19	0.67	0.70
I-2	0.33	0.54	0.50
I-3	0.39	0.57	0.54
I-4	0.23	0.63	0.63
I-10	0.09	0.73	0.81
I-11	0.08	0.73	0.79
I-12	0.09	0.71	0.76
I-13	0.07	0.76	0.82
I-14	0.24	0.68	0.85
I-15	0.27	0.78	0.71

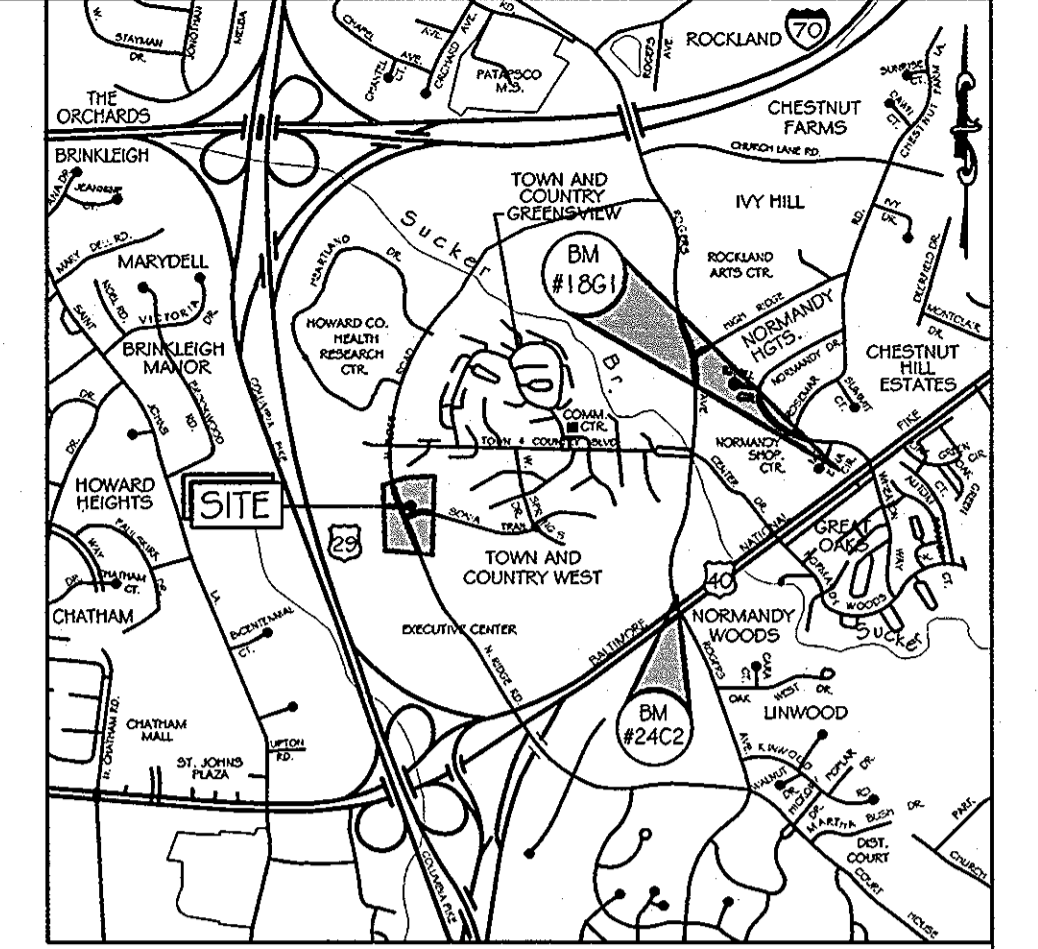
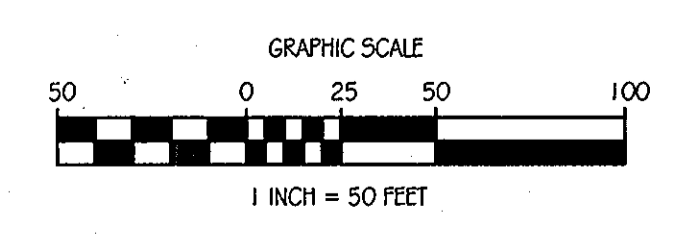
SOILS CHART	
SOILS SYMBOL	SOILS DESCRIPTION
GaB	GLENELG, 3 TO 6 PERCENT SLOPES
GbB	GLENELA-URBAN LAND COMPLEX, 0 TO 8 PERCENT
GbD	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT
MaC	MANOR LOAM, 8 TO 15 PERCENT
MaD	MANOR LOAM, 15 TO 25 PERCENT

LEGEND	
--- 420 ---	EX. INTERMEDIATE CONTOUR
--- 430 ---	EX. INDEX CONTOUR
---	EX. WATER
---	EX. 15" RCCP
---	EX. STORM DRAIN
---	EX. SANITARY
---	EX. FENCE
---	EX. FIRE HYDRANT
---	EX. WATER VALVE
---	EX. GAS VALVE
---	EX. LIGHT POLE
---	EX. MANHOLE
---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	PROP. CONTOUR
---	PROP. CURB
---	PROP. STORM DRAIN
---	PROP. MANHOLE
---	PROP. INLET
---	PROP. LIGHT POLE (12' ARM)
---	PROP. LIGHT POLE (POST TOPS)
---	DRAINAGE AREA LINE
GaB	SOILS LINE
MaC	SOILS LINE
LOD	LIMIT OF DISTURBANCE

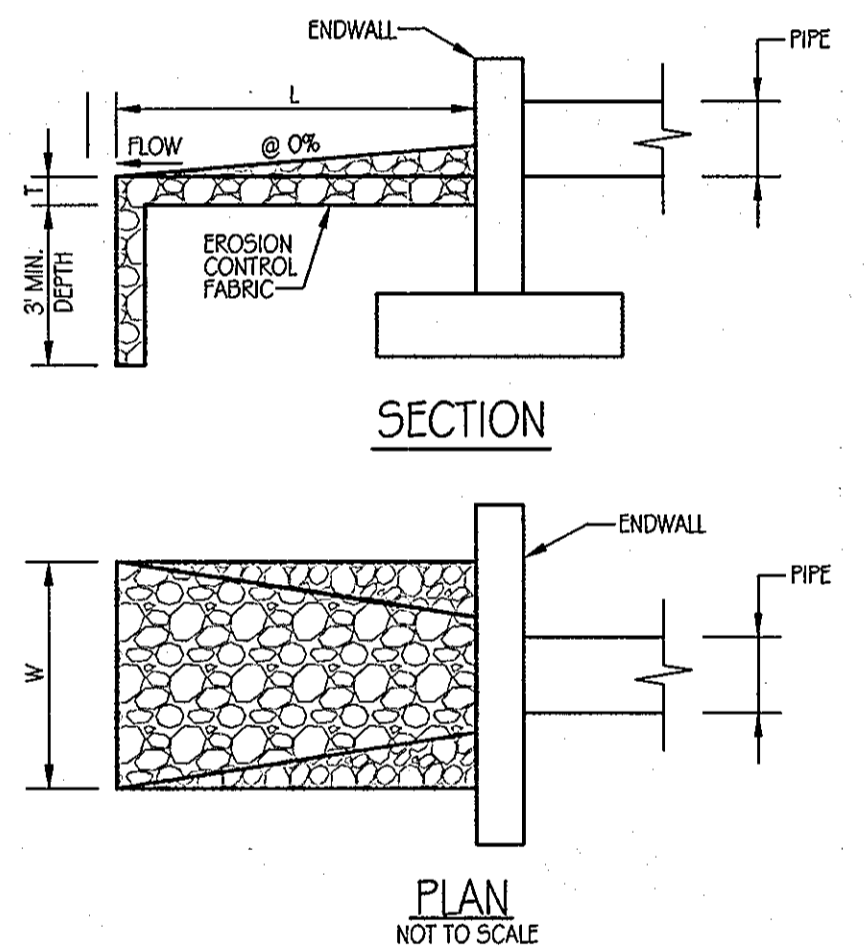


STORM DRAIN DRAINAGE AREA MAP  
SCALE: 1" = 50'

STORM DRAIN COMPUTATIONS															
AREA	FROM NO.	TO NO.	INC. AREA (AC)	TOTAL AREA (AC)	IC	C x A	SUM (C x A)	TIME (MIN)	Q (CFS)	DIES. SLOPE (%)	DIAMETER (IN)	VELOCITY (FPS)	LENGTH (FT)	TIME (MIN)	REMARKS
1A	I-11	I-10	0.09	0.73	0.06	5.0	8.5	0.51	0.01	15"	0.50	41'	1.40	n=0.014	
2A	I-10	I-09	0.09	0.73	0.07	5.0	8.5	0.60	0.01	15"	0.50	41'	1.40	n=0.014	
1A+2A	I-10	M-13	0.16	0.13	6.4	7.84	1.02	0.01	18"	0.57	15'	0.40	n=0.014		
1A+2A	M-13	EW-5	0.16	0.13	6.8	1.02	0.01	18"	0.57	32'	0.30	n=0.014	FACILITY#3		
9A	I-4	I-3	0.23	0.63	0.15	5.0	8.5	1.28	0.04	15"	1.00	56'	0.90	n=0.014	
10A	I-3	I-2	0.39	0.57	0.22	5.0	8.5	1.87	0.05	18"	1.62	206'	2.1	n=0.014	
9A+10A	I-3	I-2	0.62	0.37	9.9	8.05	2.98	0.05	18"	1.62	206'	2.1	n=0.014		
11A	I-2	I-1	0.35	0.54	0.16	5.0	8.5	1.53	0.16	18"	2.20	66'	0.50	n=0.014	
SM+11A	I-2	I-1	0.95	0.55	8.0	7.20	3.96	0.16	18"	2.20	66'	0.50	n=0.014		
12A	I-1	I-0	0.19	0.67	0.13	5.0	8.5	1.11	0.22	18"	2.70	11'	0.10	n=0.014	
9A+12A	I-1	M-5	1.14	0.68	5.0	7.05	4.79	0.22	18"	2.70	11'	0.10	n=0.014	FACILITY#6	
M-5	EW-3							0.81	0.06	12"	1.00	24'	n=0.014	FACILITY#6	
9A+12A	M-5	M-4		0.68	6.6	7.02	2.33	0.05	18"	1.30	12'	0.10	n=0.014		
1A+12A	M-4	EW-2						6.40	0.09	24"		258'	n=0.014	FACILITY#6	
1C	I-15	I-14	0.27	0.78	0.21	5.0	8.5	1.79	0.05	15"	2.00	66'	0.80	n=0.014	
2C	I-14	I-14	0.24	0.68	0.16	5.0	8.5	1.36	0.05	15"	2.00	66'	0.80	n=0.014	
1C+2C	I-14	EW-7	0.51	0.37	5.8	8.2	3.03	0.05	18"	1.75	24'	0.20	n=0.014	FACILITY#2	
3C	I-13	I-12	0.07	0.76	0.05	5.0	8.5	0.43	0.01	15"	0.50	41'	1.40	n=0.014	
4C	I-12	I-12	0.09	0.71	0.06	5.0	8.5	0.59	0.01	15"	0.50	41'	1.40	n=0.014	
1C+4C	I-12	M-15	0.16	0.11	6.4	7.84	0.86	0.01	18"	0.50	16'	0.50	n=0.014	(PRIVATE) FUTURE	
5C	ES-1	M-15	0.13	0.28	0.04	5.0	8.5	0.34	0.01	15"	0.50	30'	1.0	n=0.014	
1C+5C	M-15	M-14	0.29	0.15	7.4	7.44	1.12	0.01	18"	0.62	75'	2.0	n=0.014	FACILITY#1	
1C+5C	M-14	EW-6	0.29	0.15	9.4	7.78	1.12	0.01	18"	0.62	14'	0.40	n=0.014	FACILITY#1	



LOCATION MAP  
SCALE: 1" = 2000'  
ADC MAP COORDINATES: 12-7C



STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
EW-5	9.5	10	11.5	1.58'	1
EW-6	9.5	10	11.5	1.58'	1
EW-7	9.5	10	11.5	1.58'	1
EW-10	9.5	10	11.5	1.58'	1
EW-1	9.5	12	14	1.58'	1
EW-12	9.5	12	14	1.58'	1

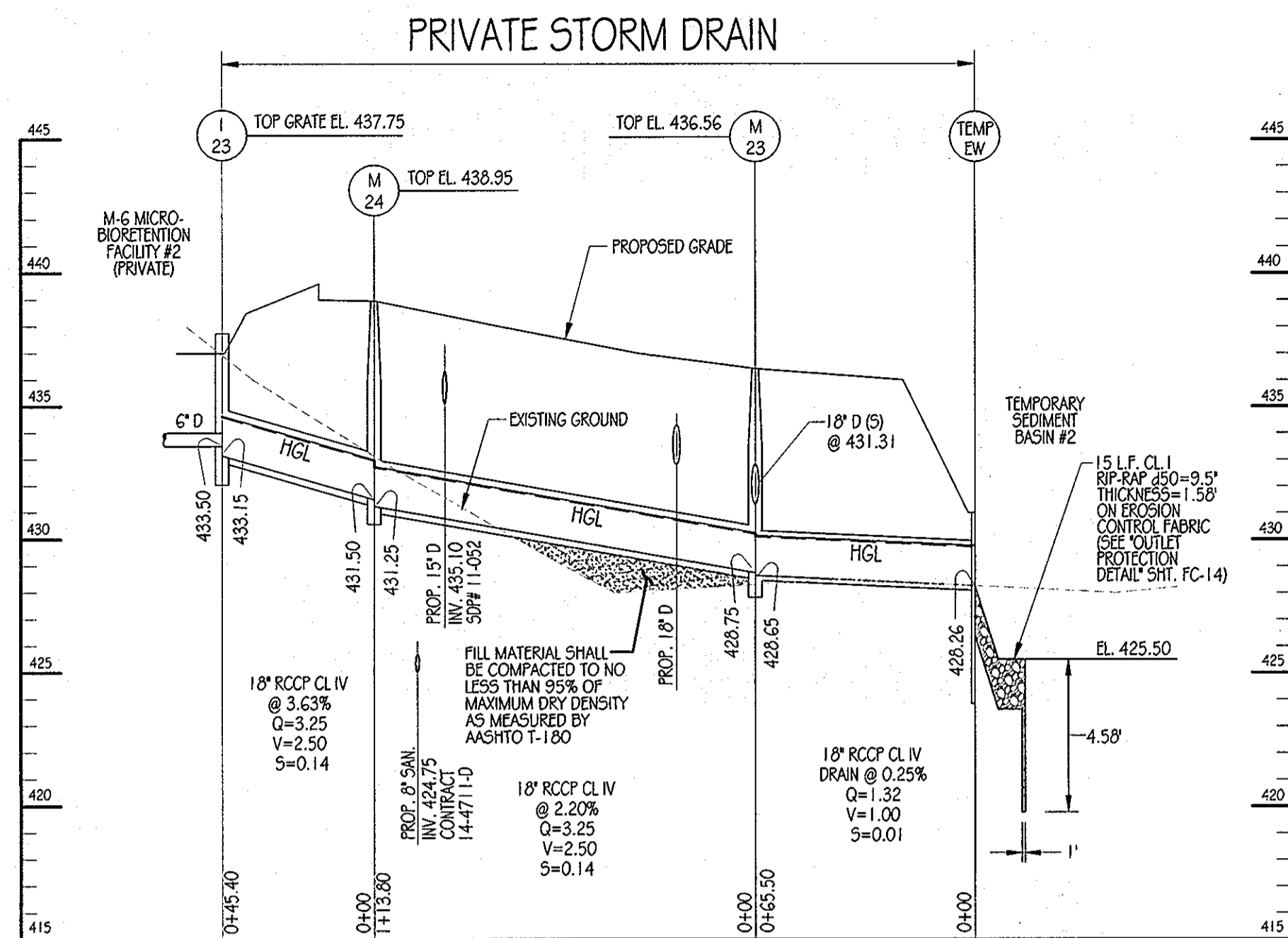
OUTLET PROTECTION DETAIL

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwon, Acting* 11/22/11  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kurt Paulsen* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT  
*Michael...* 11/28/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION

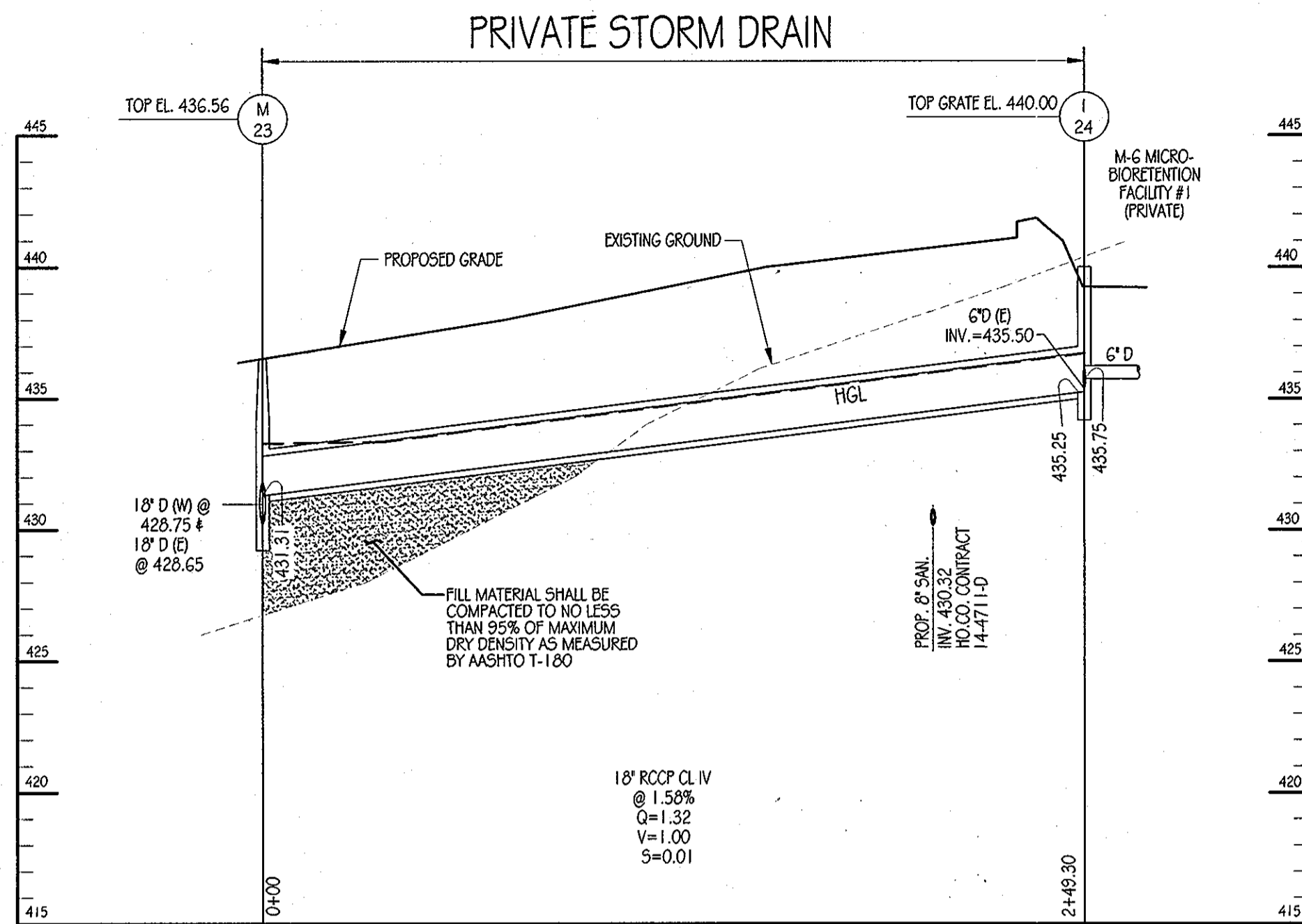
OrchardDevelopment Corporation  
CRP Opportunity Fund, L.P.

CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334  
OWNER:  
WILDER BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

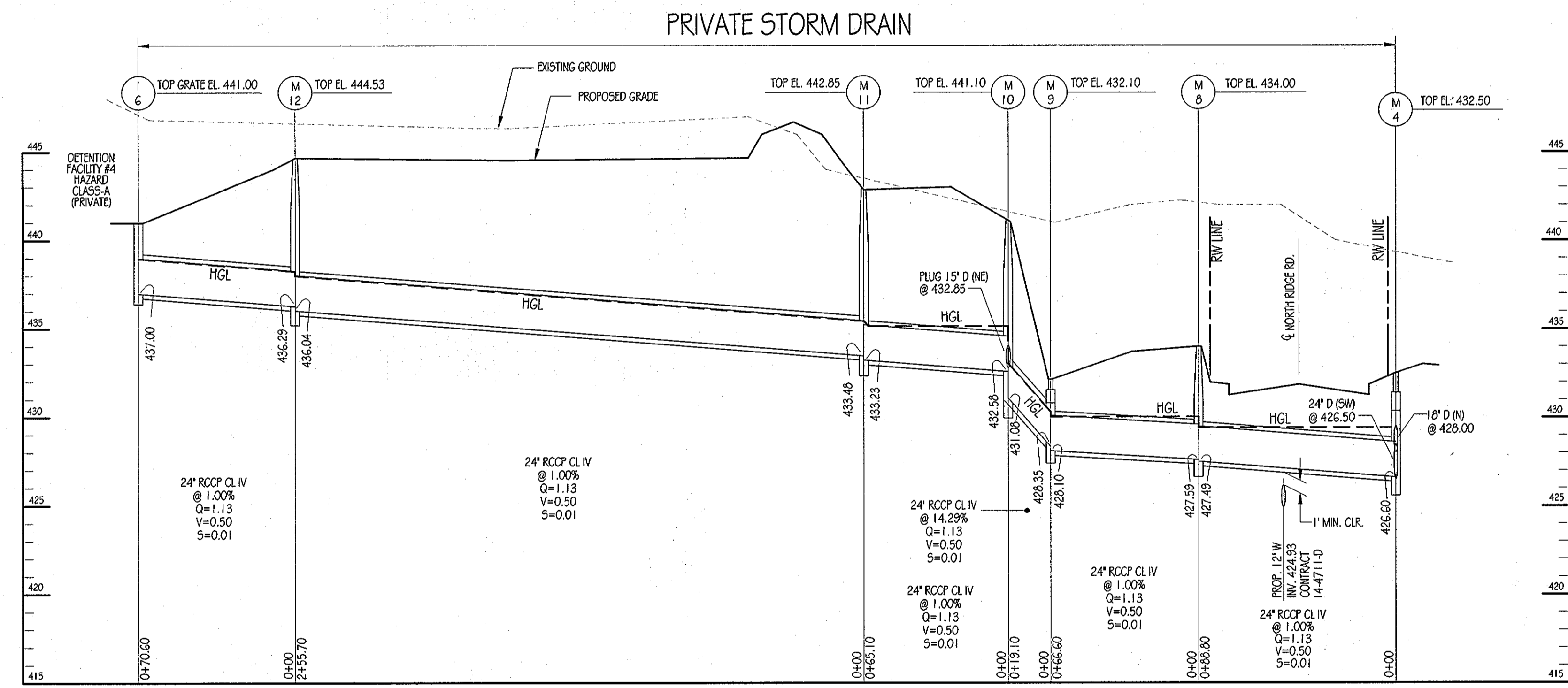
DATE: 11/22/11 NUMBER: 11-2-11 REVISION DESCRIPTIONS:  
ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS  
KCI TECHNOLOGIES  
8161 MAPLE LAWN BOULEVARD  
SUITE 150  
FULTON, MD 20759  
TELEPHONE: (410) 92-8086  
FAX: (410) 792-7419  
STATE OF MARYLAND  
RICHARD L. BERRY  
REGISTERED PROFESSIONAL ENGINEER  
NO. 031193  
11-2-11  
ORCHARD MEADOWS  
PARCEL D-1, D-2 & D-3  
TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: R-A-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD  
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.: 31069 EXPIRATION DATE: 11/12/12  
TITLE: NORTH RIDGE ROAD & SONIA TRAIL GRADING PLAN AND STORM DRAIN DRAINAGE AREA MAP  
DESIGN BY: B.E.S. SCALE: 1" = 50'  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: PROJECT NO.: 21101105 SHEET 14 OF 29 DRAWING NUMBER FC-14



STORM DRAIN PROFILE  
SCALE: HORIZ. 1"=40'  
VERT. 1"=5'

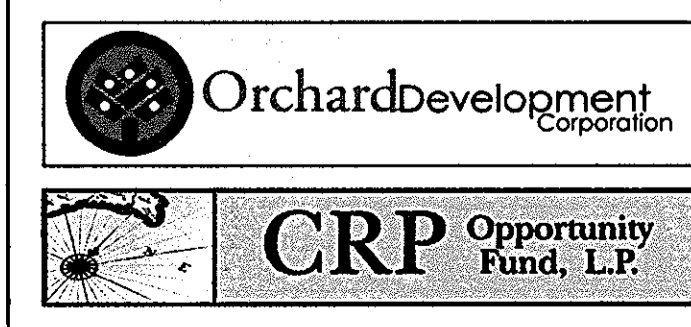
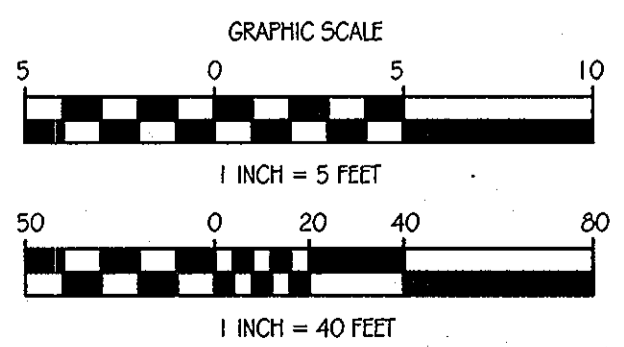


STORM DRAIN PROFILE  
SCALE: HORIZ. 1"=40'  
VERT. 1"=5'



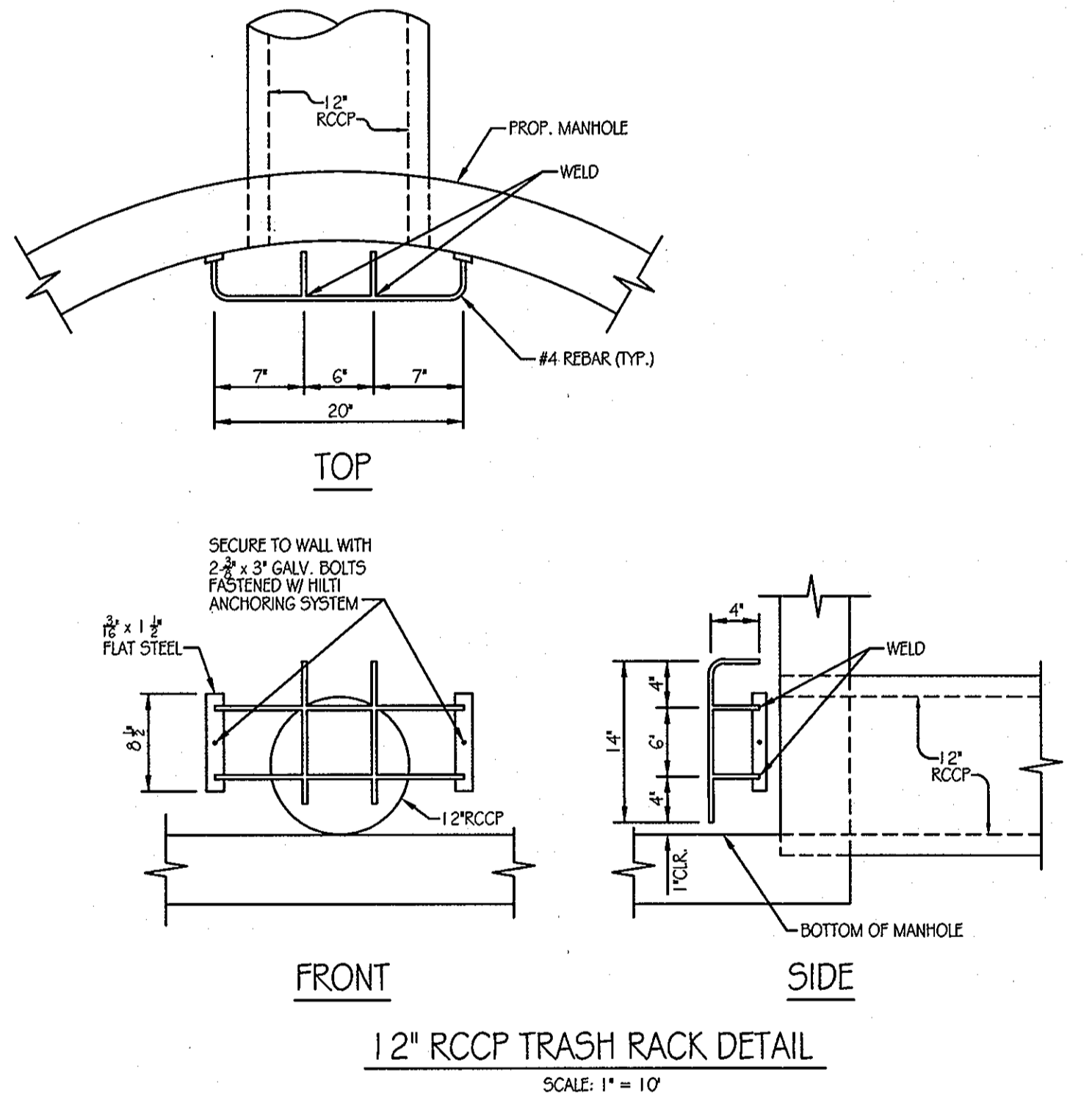
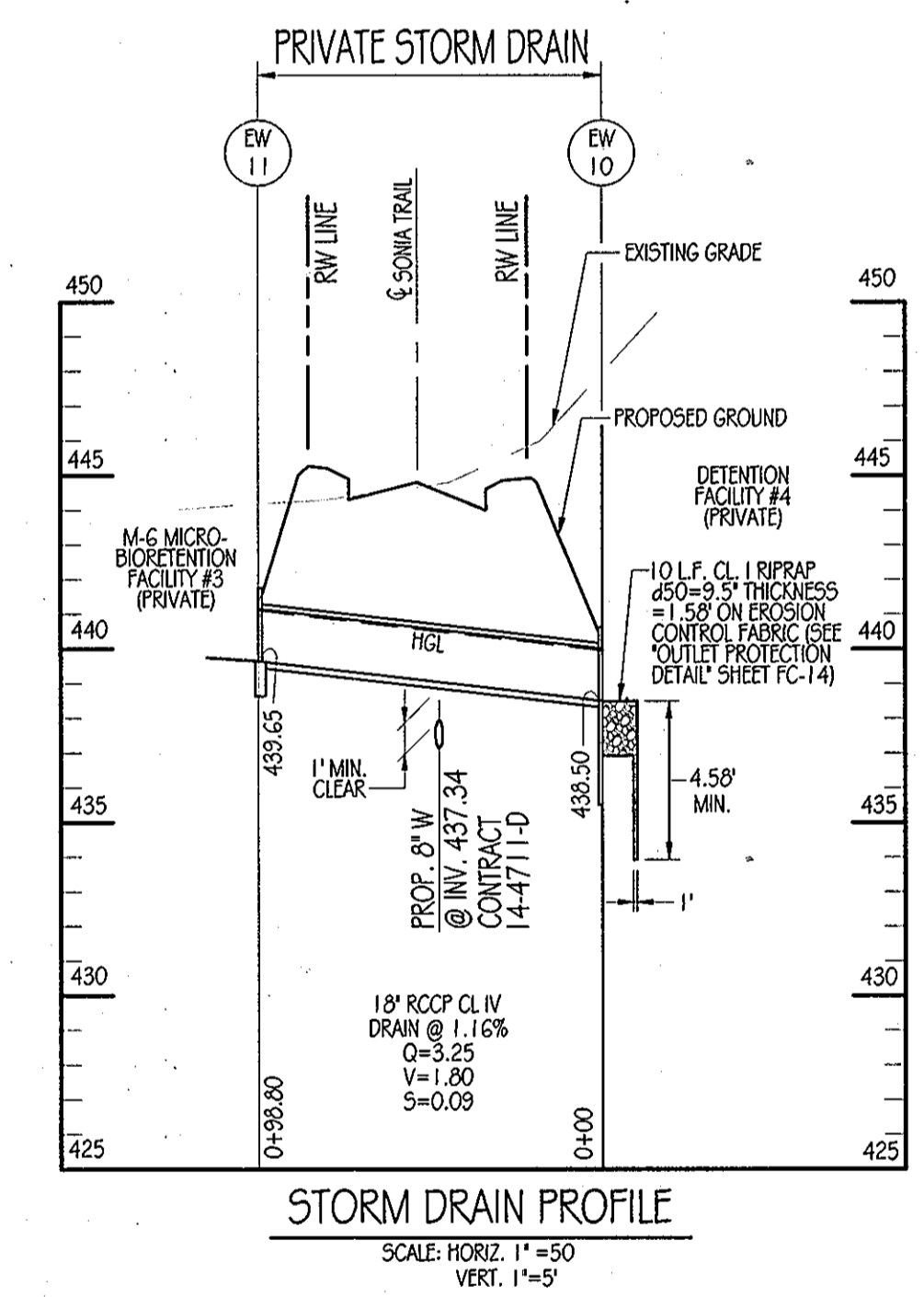
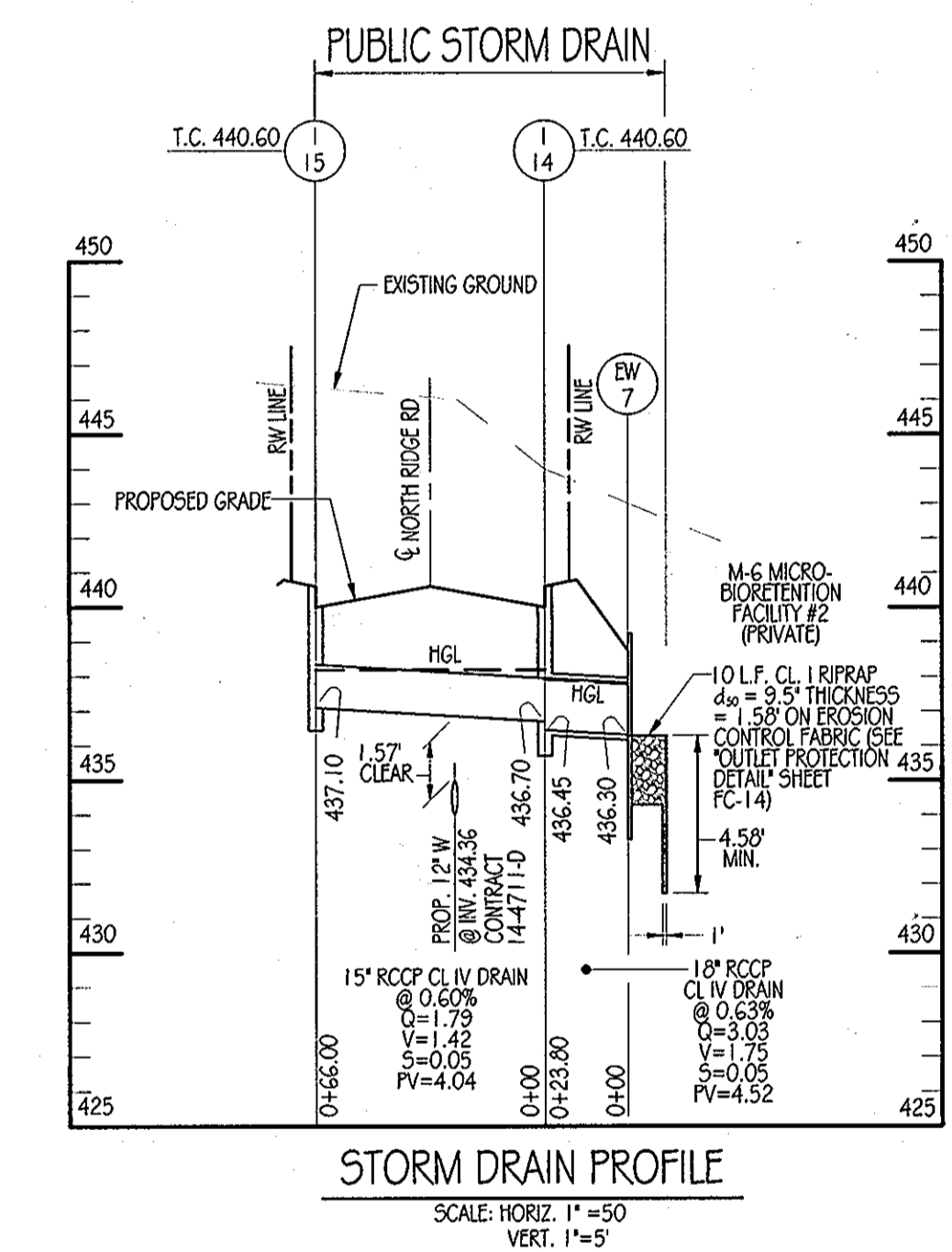
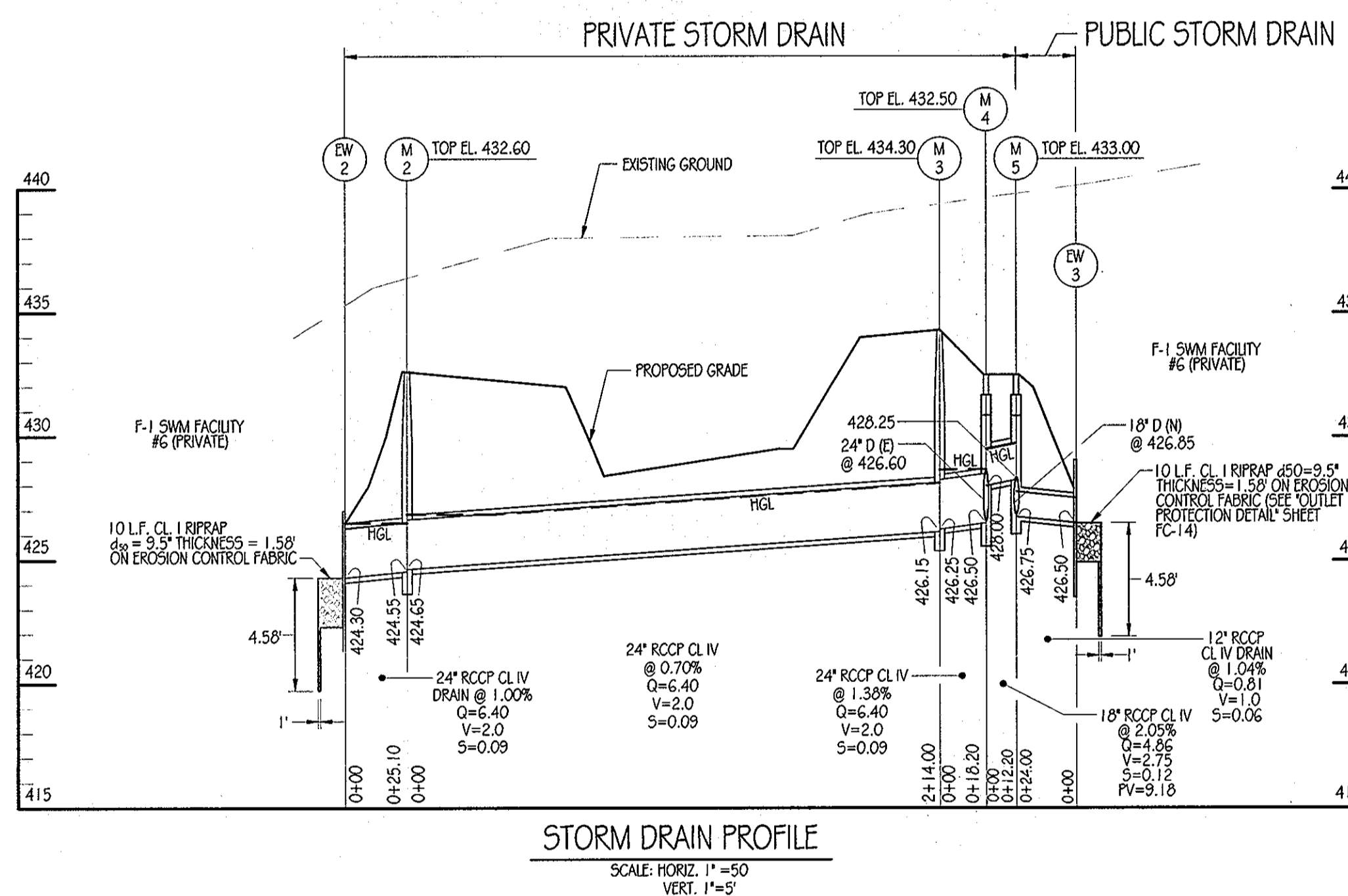
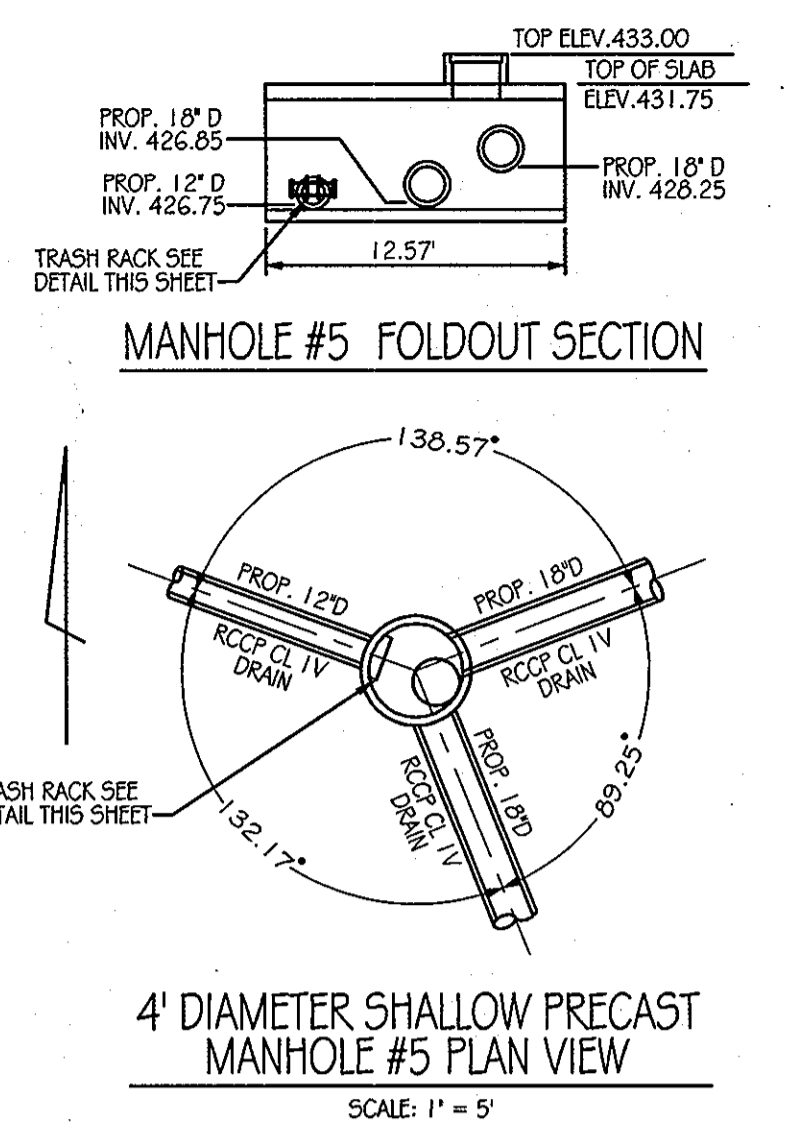
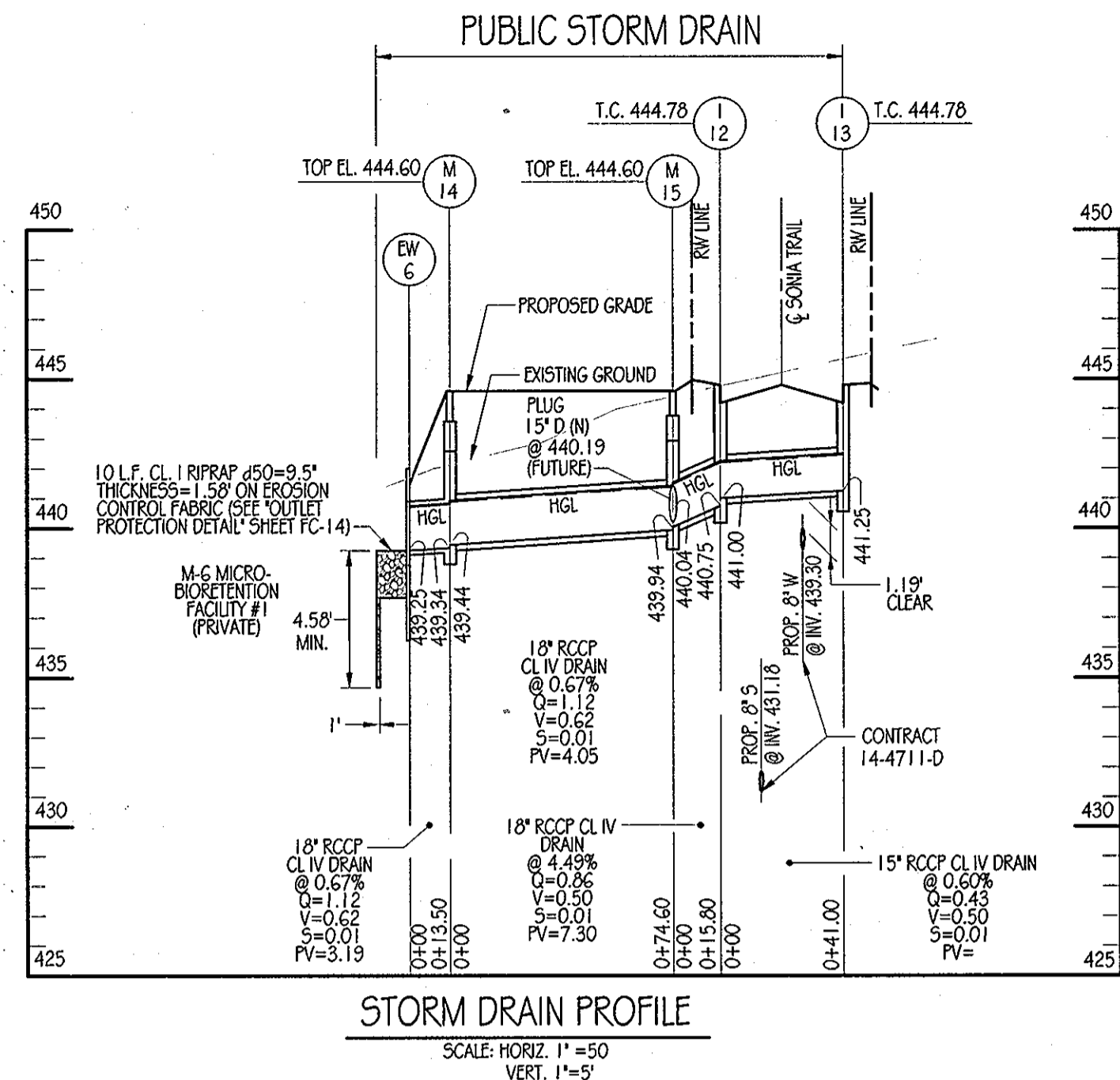
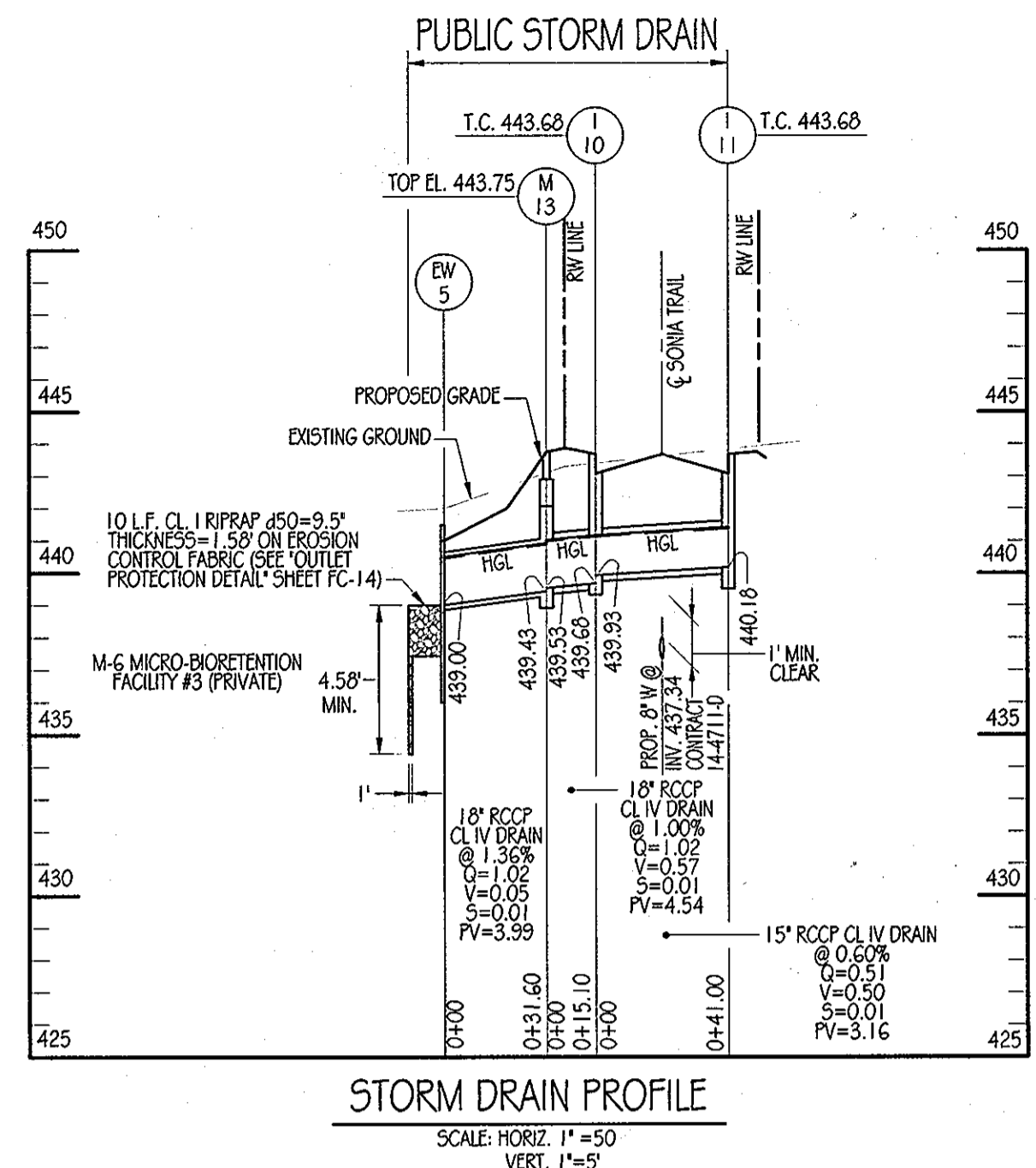
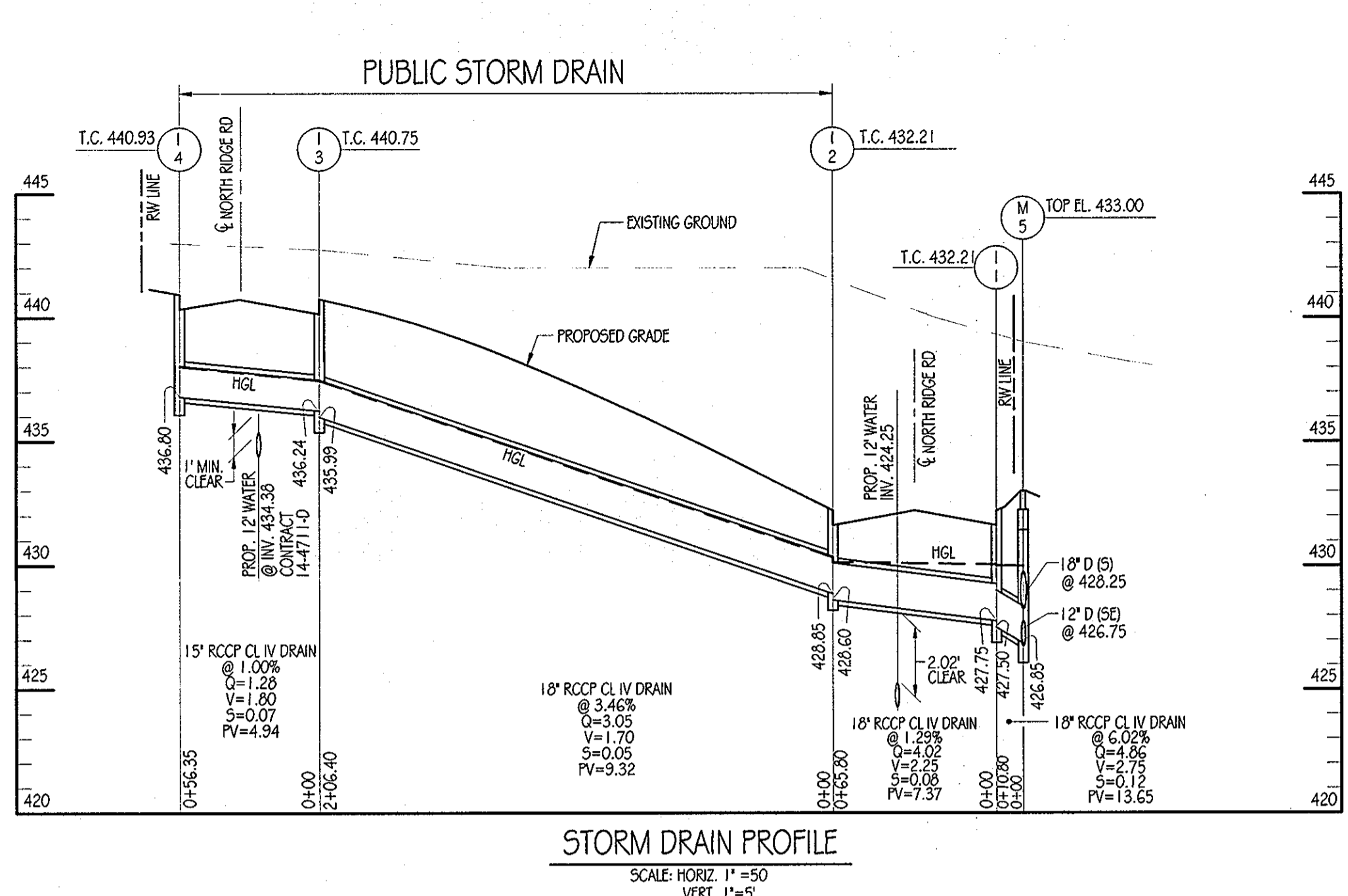
STORM DRAIN PROFILE  
SCALE: HORIZ. 1"=40'  
VERT. 1"=5'

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwarz, Acting* 11/22/11  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Victor Steinhilber* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT  
APPROVED: DEPARTMENT OF ENGINEERING  
*William* 11/23/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION

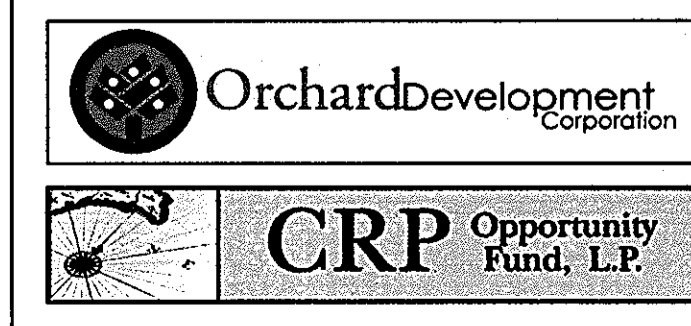
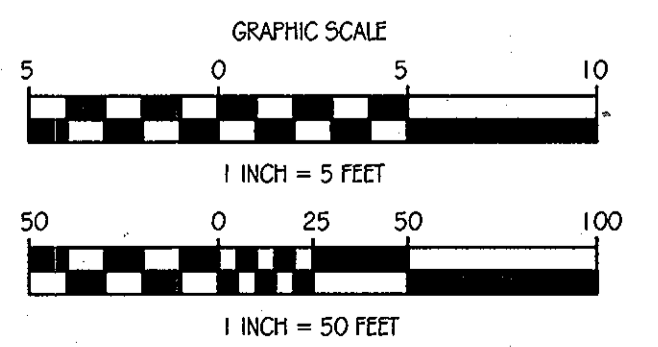


CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 564-2354  
OWNER:  
WILDER BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS
<b>ORCHARD MEADOWS</b> PARCEL D-1, D-2 & D-3		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.: 31089 EXPIRATION DATE: 11/12/12
TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R-A-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD		
<b>TITLE</b> NORTH RIDGE ROAD & SONIA TRAIL STORM DRAIN PROFILE SHEET		
DESIGN BY: D.E.S.	SCALE: AS SHOWN	PROJECT NO.: 21101105
DRAWN BY: C.T.B.	DATE: 11-02-2011	SHEET 15 OF 29
CHECKED BY:	APPROVED:	DRAWING NUMBER <b>FC-15</b>



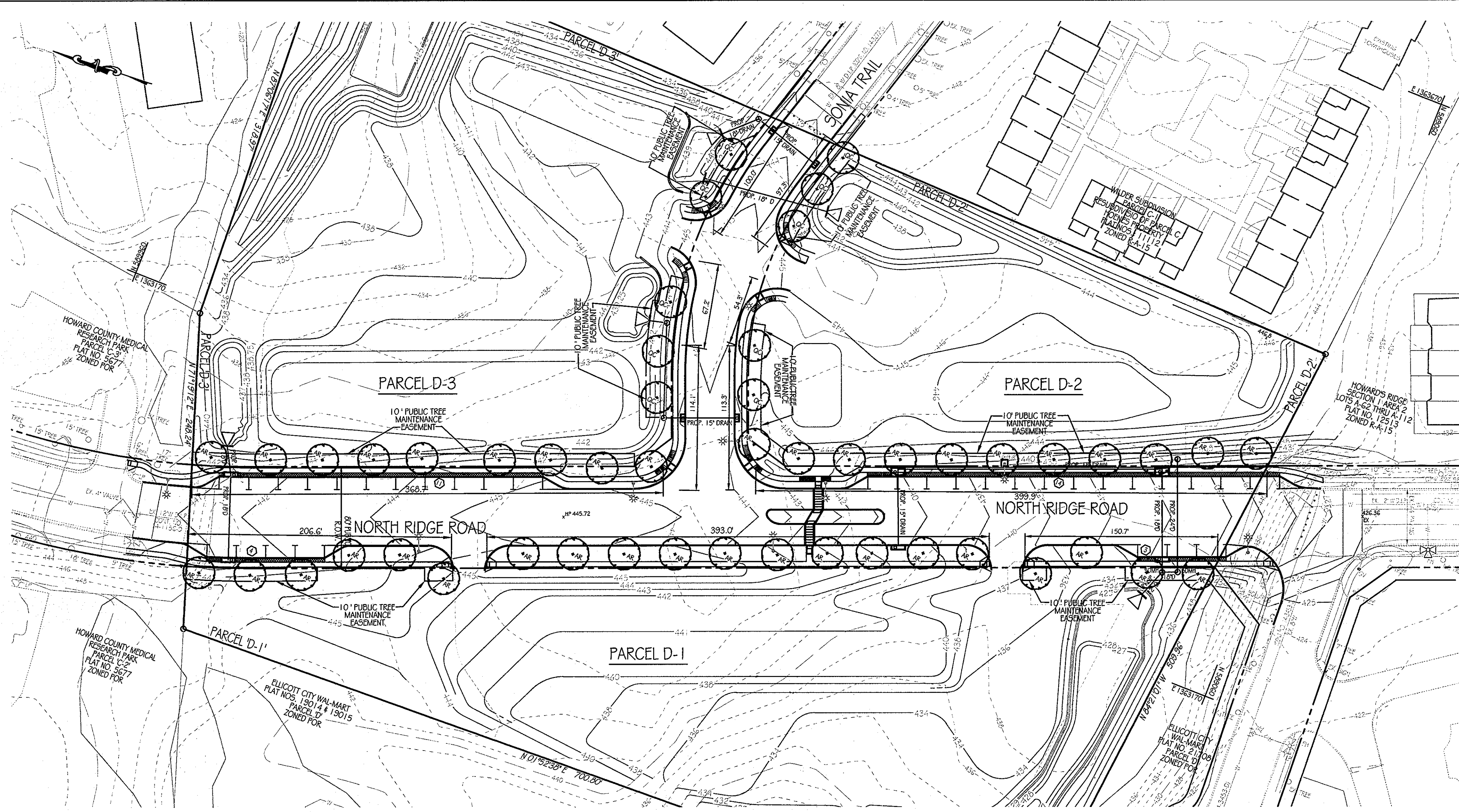
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwab*, Acting Chief - Bureau of Highways, 11/22/11  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kit Redwood*, Chief - Division of Land Development, 11/23/11  
*McDonnell*, Chief - Development Engineering Division, 11/23/11



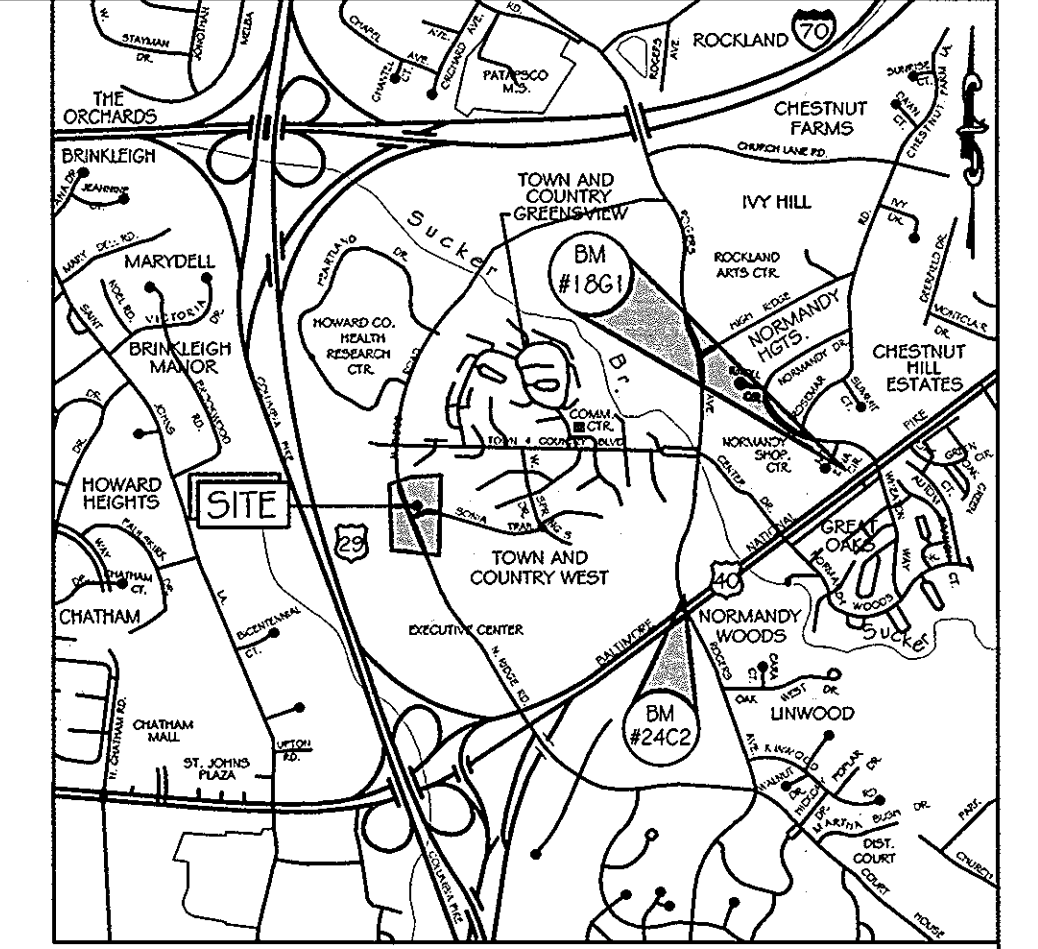
CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 BLOTT CITY, MD 21042  
 (410) 364-2334  
 OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 BLOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS
		ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
		KCI TECHNOLOGIES 8161 MAPLE LAWN BOULEVARD SUITE 150 FULTON, MD 20759 TELEPHONE: (410) 92-8086 FAX: (410) 792-7419
		ORCHARD MEADOWS PARCEL D-1, D-2 & D-3
		TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: RA-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD
		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.: 31089 EXPIRATION DATE: 11/1/212
		TITLE: NORTH RIDGE ROAD & SONIA TRAIL STORM DRAIN PROFILE SHEET
DESIGN BY: D.E.S.	SCALE: AS SHOWN	PROJECT NO.: 2710105
DRAWN BY: C.T.B.	DATE: 11-02-2011	SHEET 16 OF 29
CHECKED BY:	APPROVED:	DRAWING NUMBER: FC-16





**STREET TREE PLANTING PLAN**  
SCALE: 1" = 50'



**LOCATION MAP**  
SCALE: 1" = 2000'  
ADC MAP COORDINATES: 12-7C

**LEGEND**

- EX. INTERMEDIATE CONTOUR
- EX. INDEX CONTOUR
- EX. WATER
- EX. STORM DRAIN
- EX. SANITARY
- EX. FENCE
- EX. FIRE HYDRANT
- EX. WATER VALVE
- EV GAS VALVE
- EX. LIGHT POLE
- EX. MAHOLE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROP. CONTOUR
- PROP. CURB
- PROP. STORM DRAIN
- PROP. WATER
- PROP. SANITARY
- PROP. MANHOLE
- PROP. INLET
- PROP. FIRE HYDRANT
- PROP. WATER VALVE
- PROP. WATER METER
- PROP. CLEANOUT
- PROP. LIGHT POLE
- MAJOR DECIDUOUS TREE

PROPOSED ROADS	LINEAR STREET FOOTAGE OF PROP. ROAD EDGE	STREET TREES REQUIRED (1:40LF)	STREET TREES PROVIDED
NORTH RIDGE ROAD	1544 LF	38	38
SONJA TRAIL	546.2 LF	13	12*

\* PLEASE SEE NOTES ON THIS PAGE EXPLAINING STREET TREE PLANTINGS.

**NOTES**

- 1) THE REQUIRED LANDSCAPING FOR PARCELS D-1, D-2, AND D-3 SHALL BE PROVIDED BY SOP-11-052.
- 2) THERE ARE NO EGE EASEMENTS LOCATED ON-SITE.
- 3) NORTH RIDGE ROAD AND SONJA TRAIL HAVE STORM DRAIN EASEMENTS WITHIN AND ADJACENT TO THE ROAD EDGE. THE PLACEMENT OF SAID EASEMENTS PROHIBITS THE PLACEMENT OF REQUIRED STREET TREE PLANTINGS.
- 4) THE SURROUNDING LOTS D-1, D-2 AND D-3 PLAN ON INSTALLING 4 DRIVEWAY ENTRANCES FOR VEHICULAR ACCESS TO THE SITE. THE DRIVEWAY ENTRANCES WILL BE INSTALLED ALONG THE WEST EDGE NORTH RIDGE ROAD AND THE NORTH AND SOUTH SIDE OF SONJA TRAIL. THE PLACEMENT OF STREET TREES HAS BEEN LIMITED PER THE LOCATION OF THE FUTURE DRIVEWAY ENTRANCES AND PROHIBITS THE REQUIRED PLANTINGS.
- 5) STREET TREES THAT FALL OUTSIDE OF THE RIGHT-OF-WAY HAVE BEEN GIVEN A 10' LANDSCAPE MAINTENANCE EASEMENT.

**FOREST CONSERVATION WORKSHEET**

NET TRACT AREA:

A. TOTAL TRACT AREA..... = 9.67 AC.  
 B. AREA WITHIN 100 YEAR FLOODPLAIN..... = 0.00  
 C. AREA TO REMAIN AGRICULTURAL PRODUCTION..... = 0.00  
 D. NET TRACT AREA..... = 9.67 AC.

LAND USE CATEGORY: ( FROM TABLE 3.2.1, PAGE 40, MANUAL )

INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.

ARA	MDR	IDA	HDR	MFD	CIA
0	0	0	0	0	0

E. AFFORESTATION THRESHOLD..... 15% X D = 1.45 AC.  
 F. CONSERVATION THRESHOLD..... 20% X D = 1.93 AC.

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)..... = 0.00  
 H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD..... = 0.00  
 I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD..... = 0.00

BREAK EVEN POINT:

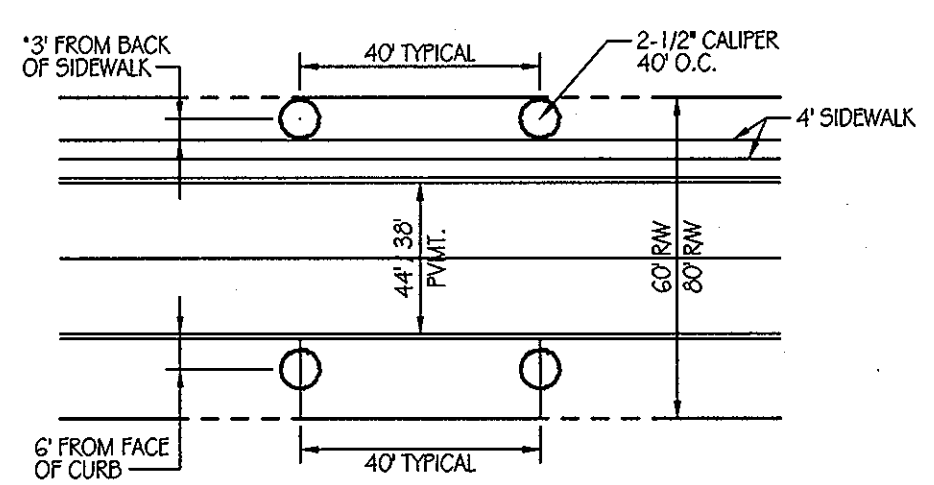
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION..... = 0.00  
 K. CLEARING PERMITTED WITH OUT MITIGATION..... = 0.00

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED..... = 0.00  
 M. TOTAL AREA OF FOREST TO BE RETAINED..... = 0.00

PLANTING REQUIREMENTS

N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD..... = 0.00  
 O. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD..... = 0.00  
 P. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD..... = 0.00  
 Q. TOTAL REFORESTATION REQUIRED..... = 0.00  
 R. TOTAL AFFORESTATION REQUIRED..... = 1.45  
 S. TOTAL REFORESTATION AND AFFORESTATION REQUIRED..... = 1.45



**TREE PLANTING DETAIL**

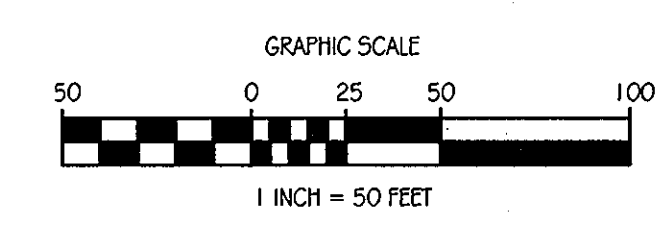
MEDIUM TREES - 2-1/2" CALIPER OR LARGER  
SCALE: 1" = 50'  
\* IN A CASE WHERE THE CLEARANCE FROM BACK OF SIDEWALK TO ROW IS LESS THAN 3', A TREE EASEMENT WILL BE REQUIRED.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Highway, Acting* 11/22/11  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Vest Stankovic* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Michael...* 11/23/11  
CHIEF DEVELOPMENT ENGINEERING DIVISION

NOTE:  
THE FOREST CONSERVATION OBLIGATION OF 1.45 ACRES OF AFFORESTATION FOR THIS PROJECT WILL BE MET BY A PAYMENT OF \$47,371.50 TO THE HOWARD COUNTY FOREST CONSERVATION FUND.



**Orcharddevelopment Corporation**

**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 564-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SONJA TRAIL  
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DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS  
8161 MARLE LANE BOULEVARD  
SUITE 150  
FULFORD, MD 20759  
Telephone: (410) 92-8086  
Fax: (410) 792-7159

**STATE OF MARYLAND**  
REGISTERED PROFESSIONAL ENGINEER  
11-2-11

**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: RA-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

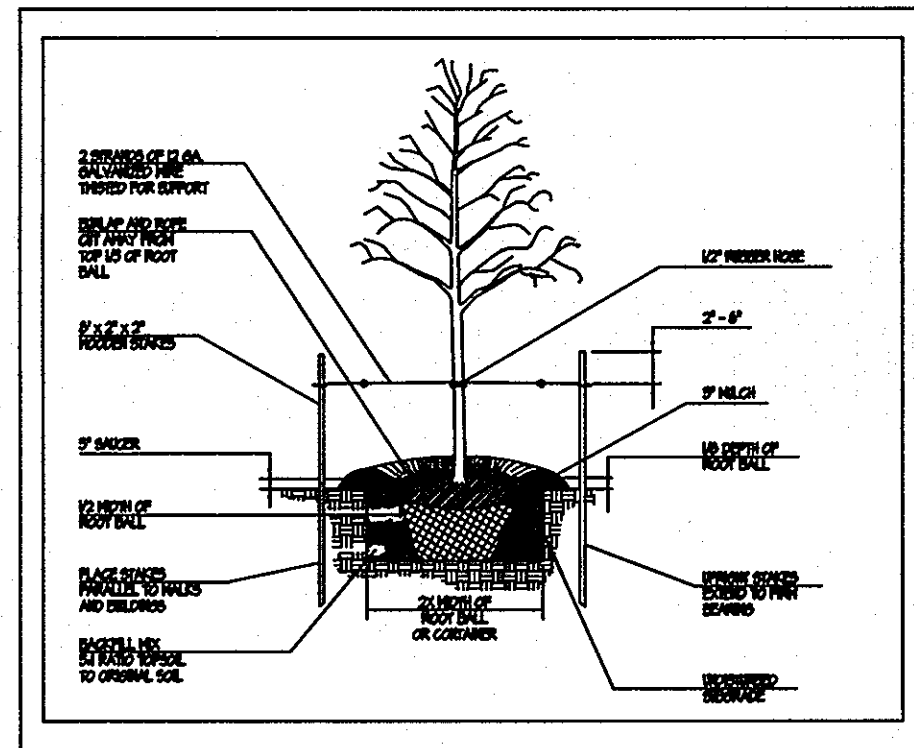
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO.: 654 EXPIRATION DATE: 10-08-2011

TITLE: **NORTH RIDGE ROAD & SONJA TRAIL TREE PLANTING PLAN**

DESIGN BY: N.V.F. SCALE: 1" = 50'  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 27101105  
SHEET 17 OF 29  
DRAWING NUMBER: **FC-17**

GENERAL PLANTS NOTES



DECIDUOUS TREE PLANTING DETAIL  
B & D  
NOT TO SCALE

- THIS PLAN IS FOR LANDSCAPE PURPOSES ONLY.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OR LANDSCAPE ARCHITECT OF ANY DEVIATION FROM THE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION OF THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER OR LANDSCAPE ARCHITECT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER OR LANDSCAPE ARCHITECT IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT WRITTEN PERMISSION OF THE ENGINEER OR LANDSCAPE ARCHITECT, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- IF A CONFLICT EXISTS BETWEEN DRAWINGS (AND/OR SPECIFICATIONS), THE MORE STRINGENT AND MORE COSTLY REQUIREMENT SHALL APPLY. ITEMS SHOWN ON THE DRAWINGS, BUT NOT SPECIFIED, SHALL APPLY AND BE FURNISHED AND INSTALLED BY THE CONTRACTOR. IF ANY ITEM IS SHOWN ON THE DRAWINGS, BUT NOT INCLUDED IN THE SPECIFICATIONS, PROVIDE ITEM OF QUALITY LEVEL CONSISTENT WITH THE GENERAL QUALITY LEVEL OF THE CONTRACT REQUIREMENTS. BRING CONFLICTS BETWEEN THE DRAWINGS AND SPECIFICATIONS TO THE ATTENTION OF THE ENGINEER OR LANDSCAPE ARCHITECT IMMEDIATELY.
- THE CONTRACTOR SHALL INSURE THAT HIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS.
- DURING PLANTING OPERATIONS, EXCESS WASTE MATERIALS SHALL BE REMOVED DAILY FROM THE SITE. THE CONTRACTOR SHALL DISPOSE OF STUMPS AND MAJOR ROOTS OF ALL PLANTS TO BE REMOVED. DEPRESSIONS CAUSED BY REMOVAL OPERATIONS SHALL BE FILLED WITH FERTILE, FRABLE SOIL REPLACED AND COMPACTED SO AS TO REESTABLISH PROPER GRADE FOR NEW PLANTING.
- THE CONTRACTOR SHALL CONTACT "MISS UTILITY" FOR UNDERGROUND UTILITY LOCATIONS AT LEAST 72 HOURS PRIOR TO THE LANDSCAPE INSTALLATION.
- THE CONTRACTOR SHALL NOTIFY THE FACILITY MANAGER, OR OWNER, A MINIMUM OF THREE WORKING DAYS PRIOR TO PLANTING AND CONSTRUCTION FOR AS-BUILT DRAWINGS FOR UNDERGROUND UTILITIES AND IRRIGATION SYSTEM LINES, VALVES, LATERALS AND DRIP TUBING.
- THE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES ON THE SITE. THEIR EXACT LOCATION SHALL BE VERIFIED IN THE FIELD WITH THE OWNER OR GENERAL CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY DIGGING OPERATIONS. IN THE EVENT THEY ARE UNCOVERED, THE LANDSCAPE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO UTILITIES AND SUCH DAMAGE SHALL NOT RESULT IN ANY ADDITIONAL EXPENSES TO THE OWNER. HAND EXCAVATE TO FULL DEPTH OF INSTALLATION OR UNTIL UTILITY IS FOUND.
- IF UTILITY LINES ARE ENCOUNTERED IN THE EXCAVATION OF TREE PITS, OTHER LOCATIONS FOR TREES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. NO CHANGES OF LOCATION SHALL BE MADE WITHOUT APPROVAL OF THE LANDSCAPE ARCHITECT.
- EVERY POSSIBLE SAFEGUARD SHALL BE TAKEN TO PROTECT BUILDING SURFACES, LIGHTING, TRELISES, EQUIPMENT, AND FURNISHING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONNEL OR PROPERTY WHICH MAY OCCUR AS A CONSEQUENCE OF THE EXECUTION OF THE WORK.
- THE CONTRACTOR SHALL STAKE ALL INDIVIDUAL SPECIMEN MATERIAL LOCATED ON THE SITE FOR REVIEW AND/OR ADJUSTMENT BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. SHRUBS AND TREES SHALL BE STAKED WITH COLOR CODED WIRE SURVEY FLAGS. SURVEYOR GROUND PAINT SHALL BE USED TO MARK OUT GROUNDCOVER BEDS. ALL LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE PLANTING.
- PLANTS SHALL CONFORM TO CURRENT "AMERICAN STANDARDS FOR NURSERY STOCK", PARTICULARLY WITH REGARD TO SIZE, GROWTH, SIZE OF BALL, AND DENSITY OF BRANCH STRUCTURE. PLANT MATERIAL SHALL BE TAGGED AT THE SOURCES BY THE LANDSCAPE ARCHITECT UNLESS THIS REQUIREMENT IS SPECIFICALLY WAIVED. REFERENCE "ANSI Z60.1-2004" (OR MOST CURRENT DOCUMENT AVAILABLE AT WWW.ANLA.ORG).

TYPE 1 TREE SPECIFICATIONS, MAJOR TREES				
SPECIES EXCEPTIONS OR MODIFICATIONS MUST BE APPROVED				
CALIPER	MINIMUM NUMBER OF BRANCHES OFF OF MAIN STEM	HEIGHT RANGE	WIDTH	CLEARANCE FROM GROUND TO FIRST BRANCH
1 IN.	8	8-10 FT.	3 TO 4 FT.	3 FT.
2 IN.	16	12-14 FT.	5 TO 6 FT.	4 FT.
2.5 IN.	18	12-14 FT.	6 TO 8 FT.	7 FT.
3 IN.	36	14-16 FT.	6 TO 8 FT.	7 FT.
4 IN.	45	16-18 FT.	8 TO 10 FT.	7 FT.
5 IN.	SUBJECT TO REVIEW AT PLACE OF GROWTH, OR PHOTOGRAPH			

- ALL PLANTS (B&B OR CONTAINER) SHALL BE PROPERLY IDENTIFIED BY WEATHER-PROOF LABELS, SECURELY ATTACHED BEFORE DELIVERY TO PROJECT SITE. LABELS SHALL IDENTIFY PLANTS BY NAME, SPECIES, AND SIZE. LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTION BY THE LANDSCAPE ARCHITECT OR AGENT IN CHARGE. CONTAINERIZED GROUND COVER SHALL BE PROVIDED IN SPECIFIED SIZE CONTAINERS, FULL GROWTH TO AT LEAST CONTAINER SIZE WITH FULLY DEVELOPED, BUT NOT FOT BOUND ROOT SYSTEMS AND FREE OF INSECT OR FUNGUS INFESTATIONS.
- ANY MATERIAL AND/OR WORK MAY BE REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER IF IT DOES NOT MEET THE REQUIREMENTS OF THESE NOTES AND THE PROJECT SCOPE AND SEQUENCE. ALL REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
- NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE LANDSCAPE ARCHITECT.
- ALL SHRUB AND GROUNDCOVER BEDS SHALL BE PLANTED IN CONTINUOUS PREPARED PLANTING BEDS.
- ALL SHRUB BEDS AND PERENNIALS SHALL BE MULCHED WITH SHREDDED AND FULLY COMPOSTED HARDWOOD MULCH FREE OF COLOR DYE AS DETAILED AND SPECIFIED EXCEPT WHERE NOTED ON PLANS.
- INSTALLATION CONTRACTOR MAINTENANCE SHALL BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE UNTIL 90 DAYS AFTER FINAL ACCEPTANCE BY THE ARCHITECT OR OWNER REPRESENTATIVE. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, FERTILIZING, MULCHING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY FOR THE PROPER GROWTH OF THE PLANT MATERIAL. THE CONTRACTOR MUST BE ABLE TO PROVIDE CONTINUOUS MAINTENANCE, FOR AN ADDITIONAL COST, FOR A PERIOD OF ONE YEAR AFTER THE DATE OF THE "CERTIFICATE OF SUBSTANTIAL COMPLETION." THE CONTRACTOR WILL BE RESPONSIBLE FOR ITEMS LOST BY THEFT, "ACTS OF GOD," VANDALISM OR ANY CONDITION AFFECTING THE LANDSCAPE PRODUCT NOT SPECIFICALLY RELATED TO THE OWNER OR OTHER SITE CONTRACTOR DAMAGE UP TO DATE OF THE ISSUANCE OF A "CERTIFICATE OF SUBSTANTIAL COMPLETION."
- UPON COMPLETION OF ALL LANDSCAPING FOR EACH PHASE OF WORK, AN INSPECTION OF THE WORK SHALL BE HELD. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OR OWNER FOR SCHEDULING THE INSPECTION AT LEAST SEVEN (7) DAYS PRIOR TO THE ANTICIPATED INSPECTION DATE.
- THE CONTRACTOR IS RESPONSIBLE FOR TESTING PROJECT SOILS. THE CONTRACTOR IS TO PROVIDE A CERTIFIED SOILS REPORT TO THE OWNER. THE CONTRACTOR SHALL NOT KNOWINGLY INSTALL PLANTS IN SOIL OR DRAINAGE CONDITIONS THAT ARE NOT CONDUCIVE TO PLANT SURVIVAL. THE CONTRACTOR SHALL VERIFY THAT THE SOILS ON SITE ARE ACCEPTABLE FOR THE PROPER GROWTH OF THE PROPOSED PLANT MATERIAL. THE CONTRACTOR SHALL SUBMIT RECOMMENDATIONS FOR SOIL TEXTURE MODIFICATIONS, SOIL PH MODIFIERS OR ADDITION OF MACRO AND MICRO NUTRIENTS WHICH MAY REQUIRE MODIFICATION OF THE SPECIFIED PLANTING MIX, SPECIFIED HEREIN.
- QUICK SOIL TESTING AND PLANTING MIX DESIGN CAN BE PROVIDED BY A & L LABORATORIES (600-264-4522), 2790 WHITTEN ROAD, MEMPHIS, TN 38133. PROVIDE SOIL PLANTING MIX FROM SPECS AND ASK FOR COMMENTS FOR ALTERING MIX, IF APPROPRIATE. MULTIPLE SAMPLES MIGHT BE REQUIRED FOR LARGE JOBS WITH VARYING SOIL CONDITIONS. PROVIDE ONE REPORT FOR EACH 10,000 SF OF LANDSCAPE. MINIMUM SOIL SAMPLES SHALL BE TAKEN AT 1 INCH AND 6 INCH DEPTHS FROM AT LEAST 4 LOCATIONS. THESE SAMPLES SHOULD THEN BE MIXED AND SUBMITTED TO THE LAB AS A SINGLE SAMPLE.

- PLANTING MIX - ADJUST AS RECOMMENDED BY THE SOIL LABORATORY.
  - PLANTING MIX SHALL BE PREPARED AT APPROVED ON-SITE STAGING AREA USING APPROVED ON-SITE EXISTING SOIL. MIX MINIMUM QUANTITIES OF 20 CUBIC YARDS OR SUFFICIENT MIX FOR ENTIRE JOB IF LESS THEN 20 CUBIC YARDS IS REQUIRED.
  - THOROUGHLY MIXED IN THE FOLLOWING PROPORTIONS FOR TREE AND SHRUB PLANTING MIX:
    - 0.5 CY EXISTING SOIL
    - 0.2 CY SHARP SAND
    - 0.5 CY WOOD RESIDUALS (MUST BE BROKEN DOWN BY AT LEAST TWO YEARS DECOMPOSITION)
    - 4.5 LBS TREBLE SUPERPHOSPHATE (0-46-0)
    - 5.0 LBS DOLOMITIC LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
  - FOR PLANTING BEDS, SHRUB AND GROUNDCOVER INCORPORATE THE FOLLOWING INGREDIENTS PER 20 SF AND INCORPORATE INTO TOP 8 INCHES OF EXISTING SOILS BY ROTOTILLING OR SIMILAR METHOD OF INCORPORATION.
    - 0.1 CY SHARP SAND
    - 0.2 CY ORGANIC MATERIAL
    - 4.5 LBS TREBLE SUPERPHOSPHATE (0-46-0)
    - 5.0 LBS DOLOMITIC LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
  - IF SOIL TESTS RESULTS AND TESTING LAB RECOMMENDATIONS CONFLICT WITH THE SPECIFIED SOIL MIX THE CONTRACTOR SHALL BRING IT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR REVIEW, ALTERATION APPROVAL.
  - THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE LANDSCAPE ARCHITECT / OWNER A 1 CF SAMPLE OF SPECIFIED MIXES AND LAB REPORTS PRIOR TO USE.
- WARRANTY: ALL PLANT MATERIAL SHALL BE GUARANTEED FOR TWELVE MONTHS FROM THE DATE OF ACCEPTANCE IN WRITING BY THE OWNER OR BY ISSUANCE OF AN AIA STANDARD FORM "CERTIFICATE OF SUBSTANTIAL COMPLETION." THIS CERTIFICATE WILL BE ISSUED AFTER FINAL INSPECTION BY THE LANDSCAPE ARCHITECT. IF THE LANDSCAPE ARCHITECT IS SATISFIED THAT THE PROJECT IS SUBSTANTIALLY COMPLETE, THE CERTIFICATE WILL BE PREPARED WITH AN INSPECTION DATE AND CONDITIONS WHICH MUST BE SATISFIED IN A SPECIFIC PERIOD OF TIME (GENERALLY 30 DAYS). IF THESE CONDITIONS ARE NOT MET, THE CERTIFICATE MAY BE REVOKED AND A NEW INSPECTION WILL BE REQUIRED AND THE WARRANTY PERIOD SHALL BE EXTENDED ACCORDINGLY. OTHER INSPECTIONS MAY BE APPROPRIATE TO VERIFY COMPLIANCE WITH THE PUNCH LIST. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR A ONE-TIME REPLACEMENT ONLY. REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE AND QUALITY AS THE ORIGINAL SPECIES UNLESS OTHERWISE NEGOTIATED.
- THE REQUIRED LANDSCAPING FOR PARCELS D-1, D-2 AND D-3 SHALL BE PROVIDED BY SDP-11-052.

MINIMUM LANDSCAPE MAINTENANCE REQUIREMENTS

- LAWN AREAS SHALL BE MOWED TO A HEIGHT OF 2 TO 3 INCHES AND NOT ALLOWED TO REACH A HEIGHT OF 4 INCHES BEFORE MOWING.
- ALL CURBS AND WALKS SHALL BE EDGED AS NEEDED.
- ALL LAWN AREAS ADJACENT TO BUILDING FACES OR STRUCTURES SHALL BE TRIMMED.
- A SLOW RELEASE NITROGEN BALANCED FERTILIZER WITH A 2-1-1 RATIO SHALL BE APPLIED AT A RATE OF 2 POUNDS OF NITROGEN PER 1000 SQUARE FEET IN SEPTEMBER, OCTOBER AND FEBRUARY.
- LIME SHALL BE APPLIED AT THE RATE DETERMINED BY A SOILS REPORT.
- IT IS RECOMMENDED THAT THE LAWN AREAS BE TREATED IN MID-MARCH TO EARLY APRIL WITH PRE-EMERGENT HERBICIDE (BETASAN) OR EQUAL APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE.
- A POST-EMERGENT HERBICIDE (TRIMEC) OR EQUAL IS RECOMMENDED TO BE SPRAYED ON LAWN AREAS IN THE LATE SPRING OR THE EARLY FALL. FOLLOW MANUFACTURER'S RATES AND RECOMMENDATIONS.
- INSECTICIDES AND FUNGICIDES ARE RECOMMENDED FOR INSECT AND DISEASE CONTROL.
- RE-SEED BARE AREAS OF LAWN AS NECESSARY. YEARLY AERATION IS RECOMMENDED.
- ALL TRASH, LITTER, AND DEBRIS SHALL BE REMOVED FROM LAWN AREAS, PARKING LOTS, AND SHRUB BEDS AS NEEDED.
- MULCH ALL SHRUB BEDS AND TREES YEARLY WITH 3 INCHES OF SHREDDED HARDWOOD BARK. MULCH FREE OF COLOR DYE. BARK SHOULD BE PULLED AWAY FROM THE TRUNK / ROOT COLLAR.
- MULCH ALL PERENNIAL, ORNAMENTAL GRASS AND ANNUAL BEDS YEARLY WITH 2 INCHES OF SHREDDED HARDWOOD BARK. MULCH FREE OF COLOR DYE.
- PERMIT SHRUBS AND TREES TO GROW AND ENLARGE TO THEIR DESIGN SIZE. CONSULT PROJECT LANDSCAPE ARCHITECT FOR DETAILS.
- PRUNE TREES IN ACCORDANCE WITH LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS.
- THE OWNER OF ANY PROPERTY ON WHICH LANDSCAPING HAS BEEN INSTALLED PURSUANT TO THIS CHAPTER SHALL MAINTAIN THE LANDSCAPING IN GOOD CONDITION IN PERPETUITY. A LANDSCAPE MAINTENANCE AGREEMENT SHALL BE REQUIRED. FAILURE TO REPLACE DEAD OR DYING PUS OR THE REMOVAL OF ANY INSTALLED PUS IS A VIOLATION OF THIS CHAPTER.
- ACCEPTABLE PLANT SURVIVAL SHALL BE DEFINED AS NOT MORE THAN 1/3 MORTALITY. A 12 MONTH INSPECTION WILL BE PERFORMED BY THE COUNTY. NO INSPECTIONS SHALL BE FINALIZED FROM NOVEMBER 1ST TO MARCH 1ST.

MASTER PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
DECIDUOUS TREES					
AR	38	ACER RUBRUM 'OCTOBER GLORY' / OCTOBER GLORY RED MAPLE	2 1/2-3" CAL. MIN	B&B	CENTRAL LEADER
OC	12	QUERCUS COCCINEA / SCARLET OAK	2 1/2-3" CAL. MIN	B&B	CENTRAL LEADER

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diase Schwon Acting* 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kat Sho Duvola* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 11/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

Orchard Development Corporation  
 3032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 364-2334

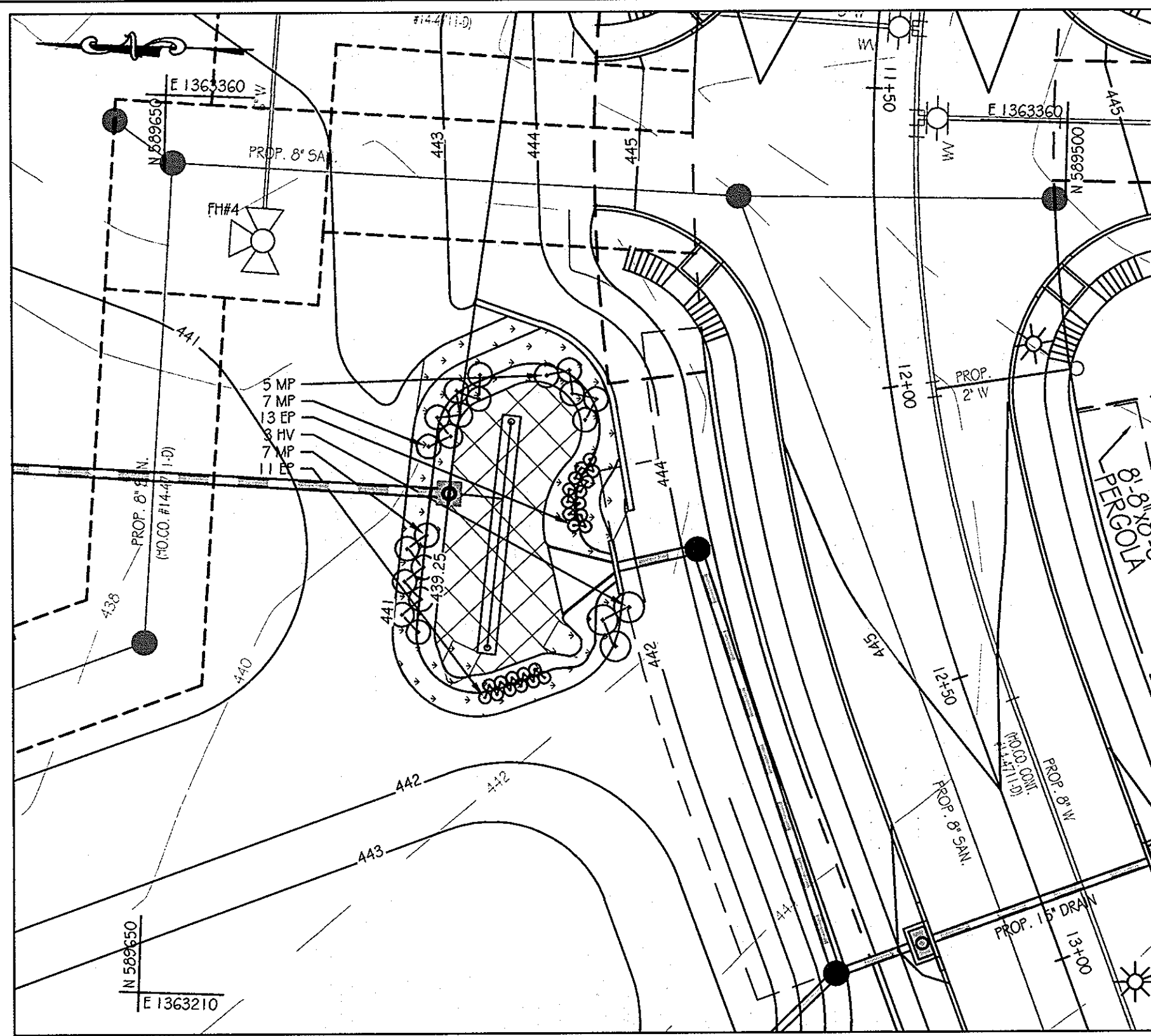
OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

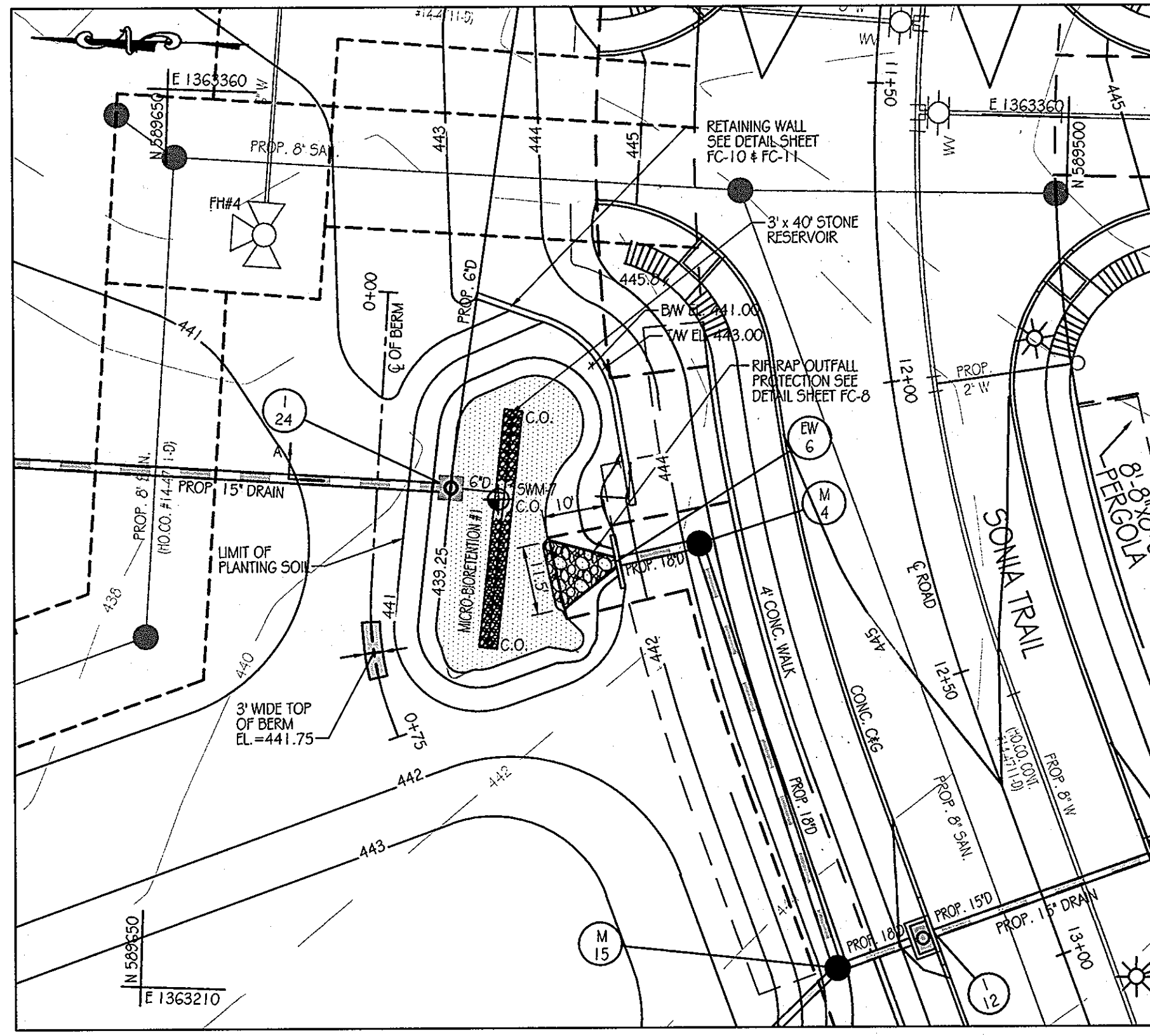
**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3  
 TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD  
 PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO.: 654 EXPIRATION DATE: 10-08-2011

**TITLE**  
 NORTH RIDGE ROAD & SONIA TRAIL  
 TREE PLANTING NOTES  
 PROJECT NO.: 21101105  
 SHEET 10 OF 23  
 DRAWING NUMBER  
**FC-18**

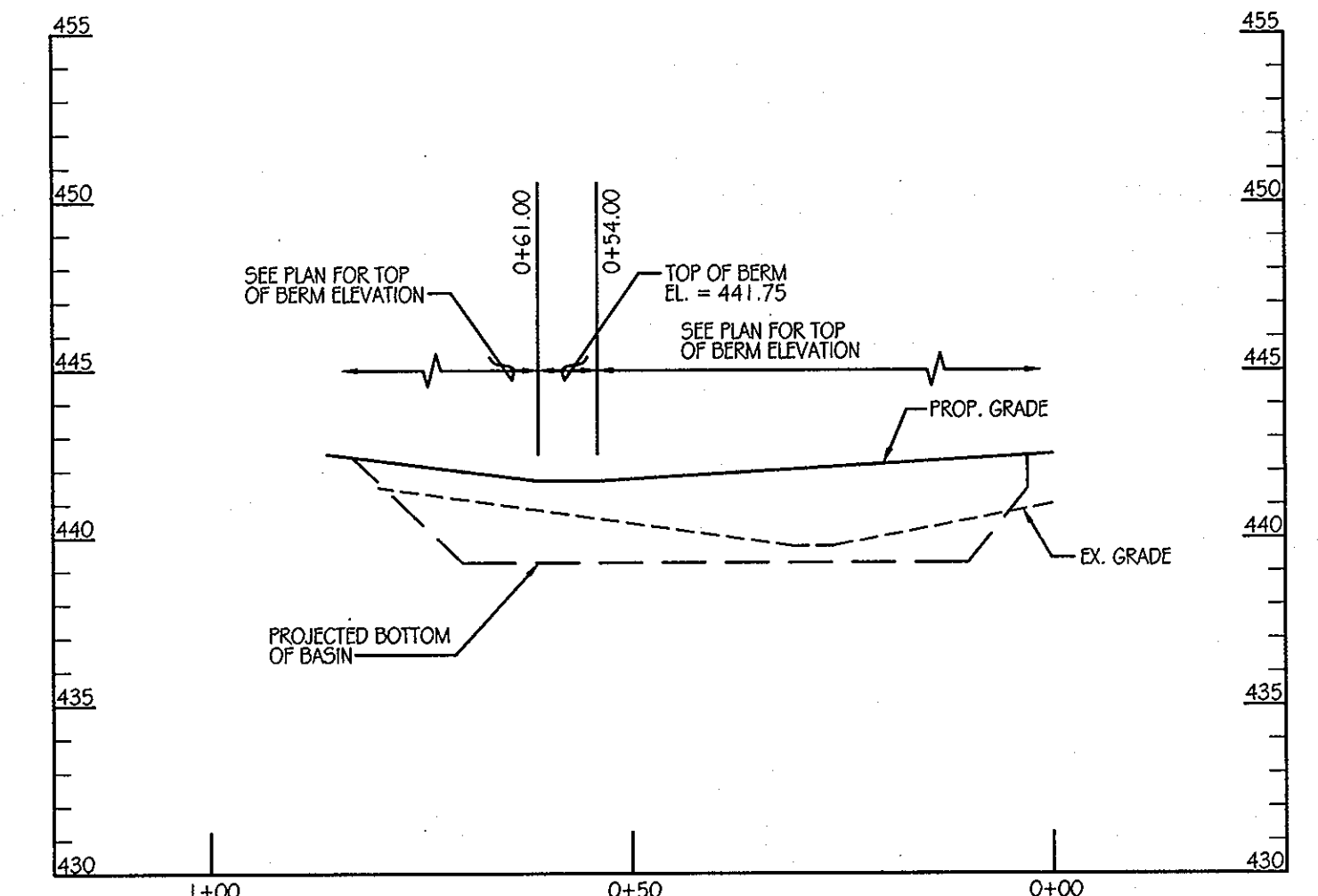
DESIGN BY: N.V.P. SCALE: AS SHOWN  
 DRAWN BY: C.T.B. DATE: 11-02-2011  
 CHECKED BY: APPROVED:



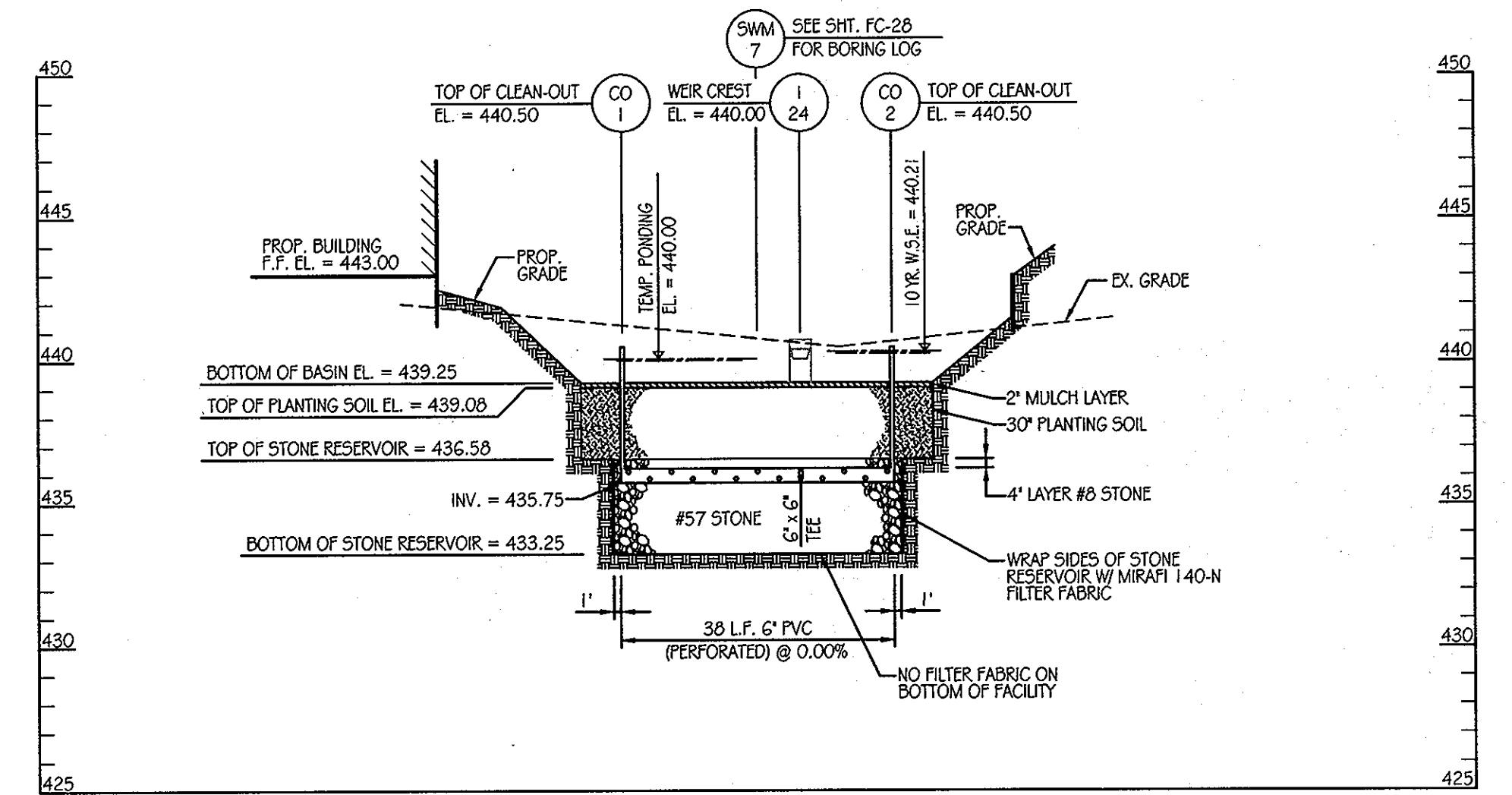
FACILITY #1 LANDSCAPE PLAN  
SCALE: 1" = 20'



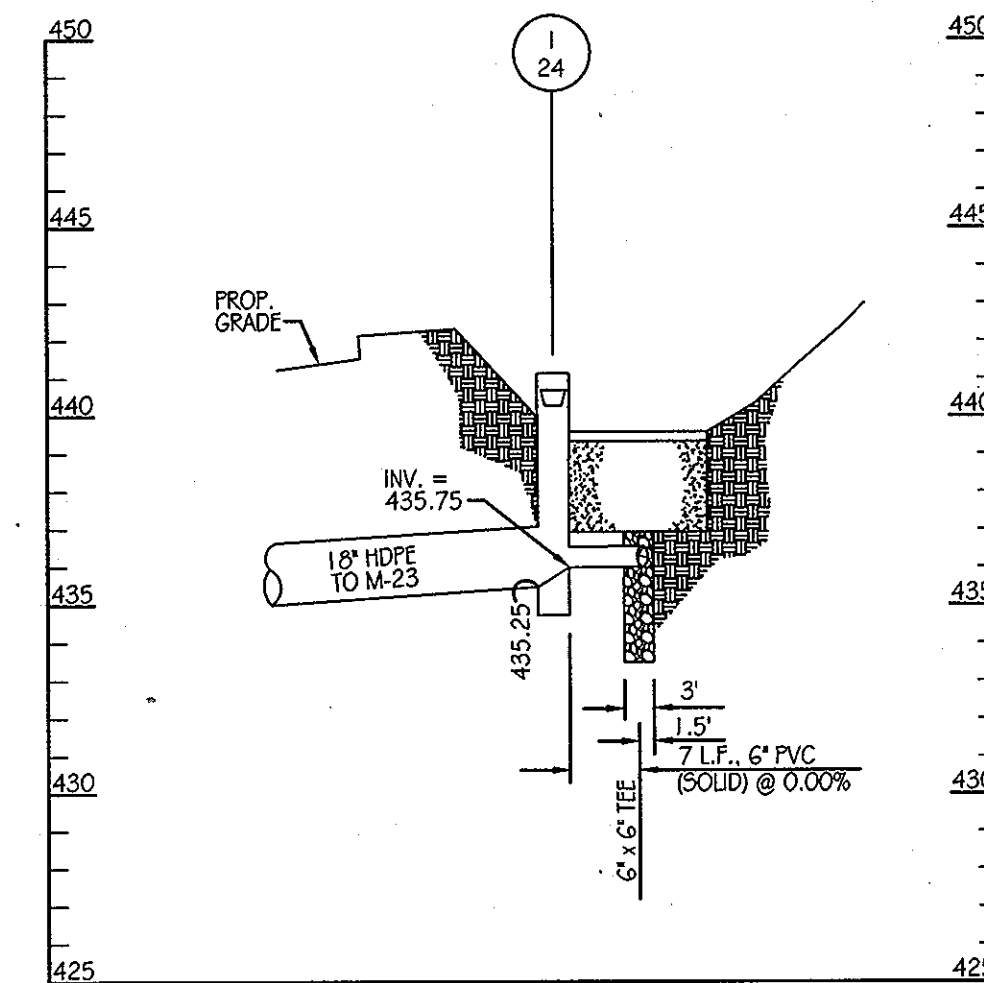
MICRO-BIORETENTION FACILITY #1 PLAN  
SCALE: 1" = 20'



CENTERLINE OF BERM PROFILE  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL



UNDERDRAIN PROFILE  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL



SECTION A-A  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

Q BERM DATA

STATION	BEARING/RADIUS	DISTANCE/ARC LENGTH	CHORD
0+00	N69°27'34"W	50.16'	
0+50.16			
0+70.50	S0°0'	20.34'	579°53'15"W 20.20'
0+75	S68°14'4"W	4.50'	

LEGEND

- SOIL BORING
- EX. CONTOURS
- PROP. CONTOURS
- PROP. STORM DRAIN
- TOP OF BERM
- LIMIT OF PLANTING SOIL
- RIP-RAP OUTFALL
- STONE RESERVOIR
- SEED MIX #1
- SEED MIX #2

INSPECTION SCHEDULE

- THE DEVELOPER SHALL NOTIFY THE COUNTRY AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
- AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION.
  - DURING EXCAVATION TO SUBGRADE;
  - DURING PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEM;
  - DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA;
  - DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS DIVERSION STRUCTURES, PRE-FILTERS, FILTERS, OUTLETS AND FLOW DISTRIBUTION STRUCTURES; AND
  - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
- INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
- WRITTEN INSPECTION REPORTS SHALL INCLUDE:
  - DATE AND LOCATION OF THE INSPECTION;
  - WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
  - ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
  - ANY VIOLATIONS THAT EXIST.
- ONCE CONSTRUCTION IS COMPLETE, AN AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY THE APPROPRIATE DESIGN PROFESSIONAL LICENSED IN THE STATE OF MARYLAND TO ENSURE THE CONSTRUCTED STORMWATER MANAGEMENT PRACTICE AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED.

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-G)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN NEEDED BASIS. INSPECTIONS SHALL BE PERFORMED A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

DESIGN SUMMARY

- FACILITY NUMBER: 1
- FACILITY TYPE: MICRO-BIORETENTION (M-G)
- DRAINAGE AREA = 0.61 AC.
- BOTTOM ELEVATION = 439.25
- TOP OF DAM ELEVATION = 441.75
- STORAGE VOLUME PROVIDED: 975 C.F.
- WATER SURFACE ELEV.: 1 YEAR = 440.05  
10 YEAR = 440.21
- DISCHARGE: 1 YEAR = 0.14 CFS  
10 YEAR = 1.32 CFS
- RISER TYPE: TYPE 'D' INLET
- BARREL TYPE: 15' HDPE
- MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER
- THIS FACILITY IS EXEMPT FROM MD376 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGH WATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT.

FACILITY #1 TREATMENT SUMMARY TABLE

DRAINAGE AREA	TARGET		PROVIDED		TREATED ESD <sub>v</sub>
	R <sub>v</sub>	ESD <sub>v</sub>	R <sub>v</sub>	ESD <sub>v</sub>	
0.61 AC.	0.49	557 C.F.	0.66	975 C.F.	1,300 C.F.

PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
EP	24	EUPATORIUM PURPUREUM / LITTLE JOE PEEWEE	18" - 24" HT.	CONT.	PLANT 2' O.C.
HV	3	HAMAMELIS VIRGINIANA / WITCH HAZEL	3" - 4" HT.	CONT.	PLANT 9' O.C.
MP	19	MYRTICA PENNSYLVANICA / BANBERRY	30" - 36" HT.	CONT.	PLANT 4' O.C.
SWM-1		ERIKM-122 FACW WETLAND MEADOW SEED MIX	1/3 - 1/2 LB. PER 1000 SF		
SWM-2		ERIK-180 RAIN GARDEN MIX	1/3 - 1/2 LB. PER 1000 SF		

STORMWATER MANAGEMENT FACILITY SEQUENCE OF CONSTRUCTION

- NOTIFY CERTIFYING ENGINEER FIVE (5) WORKING DAYS PRIOR TO BEGINNING STORM WATER MANAGEMENT FACILITY CONSTRUCTION.
- NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO DOING ANY WORK.
- CLEAR, GRUB & INSTALL PERIMETER SEDIMENT CONTROL MEASURES AS SHOWN ON THE SEDIMENT CONTROL PLAN.
- STORM DRAIN OUTFALL FROM I-24 TO EW-8 MUST BE INSTALLED PRIOR TO BEGINNING EXCAVATION OF FACILITY BELOW ELEVATION 439.25 (MIN. 437.75) SHALL NOT OCCUR UNTIL AREA DRAINING TO FACILITY IS PERMANENTLY STABILIZED. (1-DAY)
- UPON STABILIZATION OF DRAINAGE AREA EXCAVATE FOR INSTALLATION OF STONE RESERVOIR AND PLANTING SOIL. (1-DAY)
- INSTALL STONE RESERVOIR, UNDERDRAINS AND PLANTING SOIL. (2-DAYS)
- FINE GRADE AND PERMANENTLY STABILIZE DISTURBED AREA. (1-DAY)

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

HOWARD S.C.D. DATE  
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schuyler, Acting* 11/22/11  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Vest Schuchman* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT  
*John P. ...* 11/22/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
8161 MARLE LAWN BOULEVARD  
SUITE 150  
FULTON, MD 20759  
TELEPHONE: (410) 92-8086  
FAX: (410) 792-7419

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
11-2-11

**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: RA-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

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.: 31089  
EXPIRATION DATE: 11/1/212

**STORMWATER MANAGEMENT PLAN - FACILITY #1**

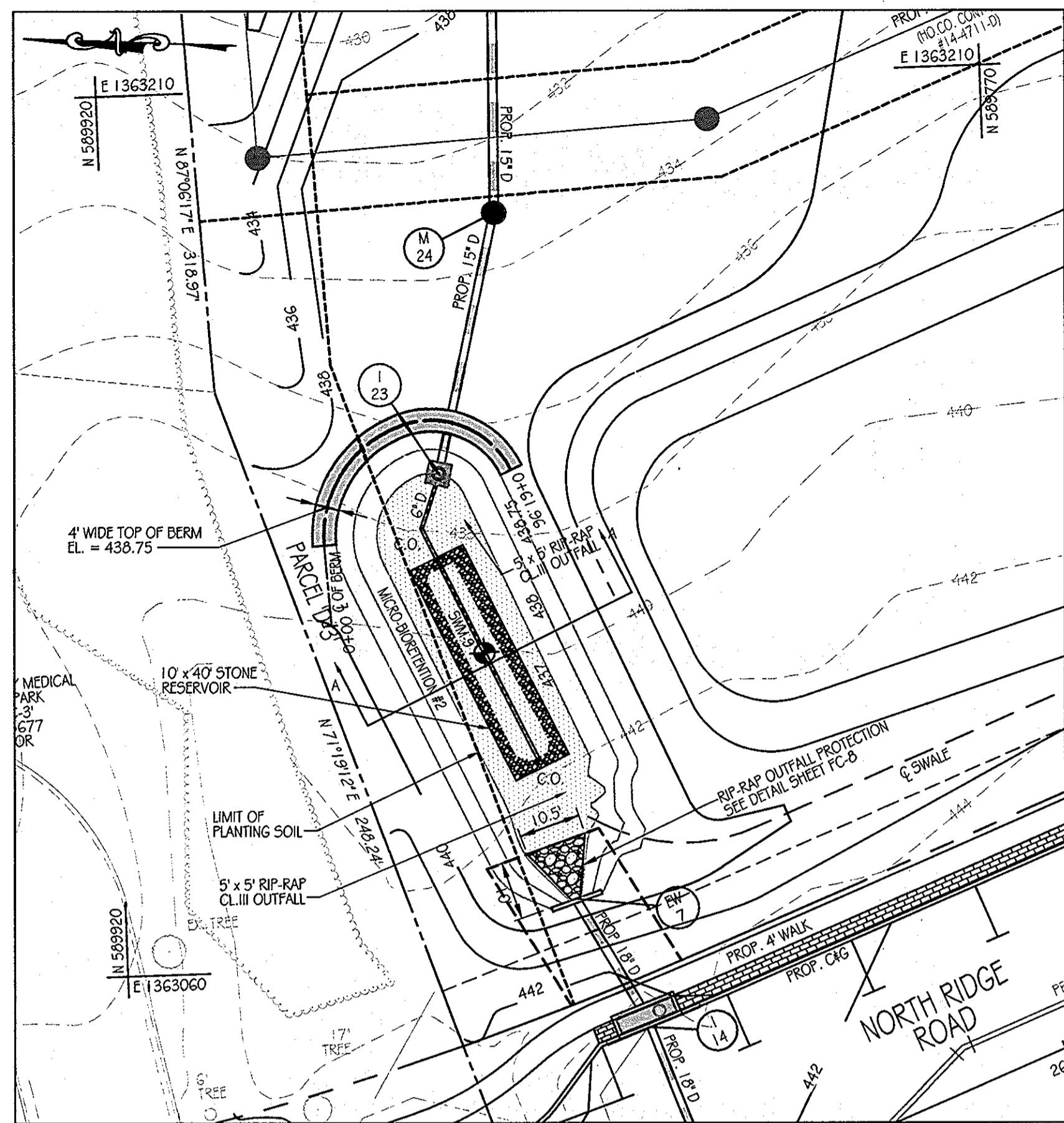
DESIGN BY: B.E.S. SCALE: AS SHOWN  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 27101105  
SHEET 19 OF 29  
DRAWING NUMBER  
**FC-19**

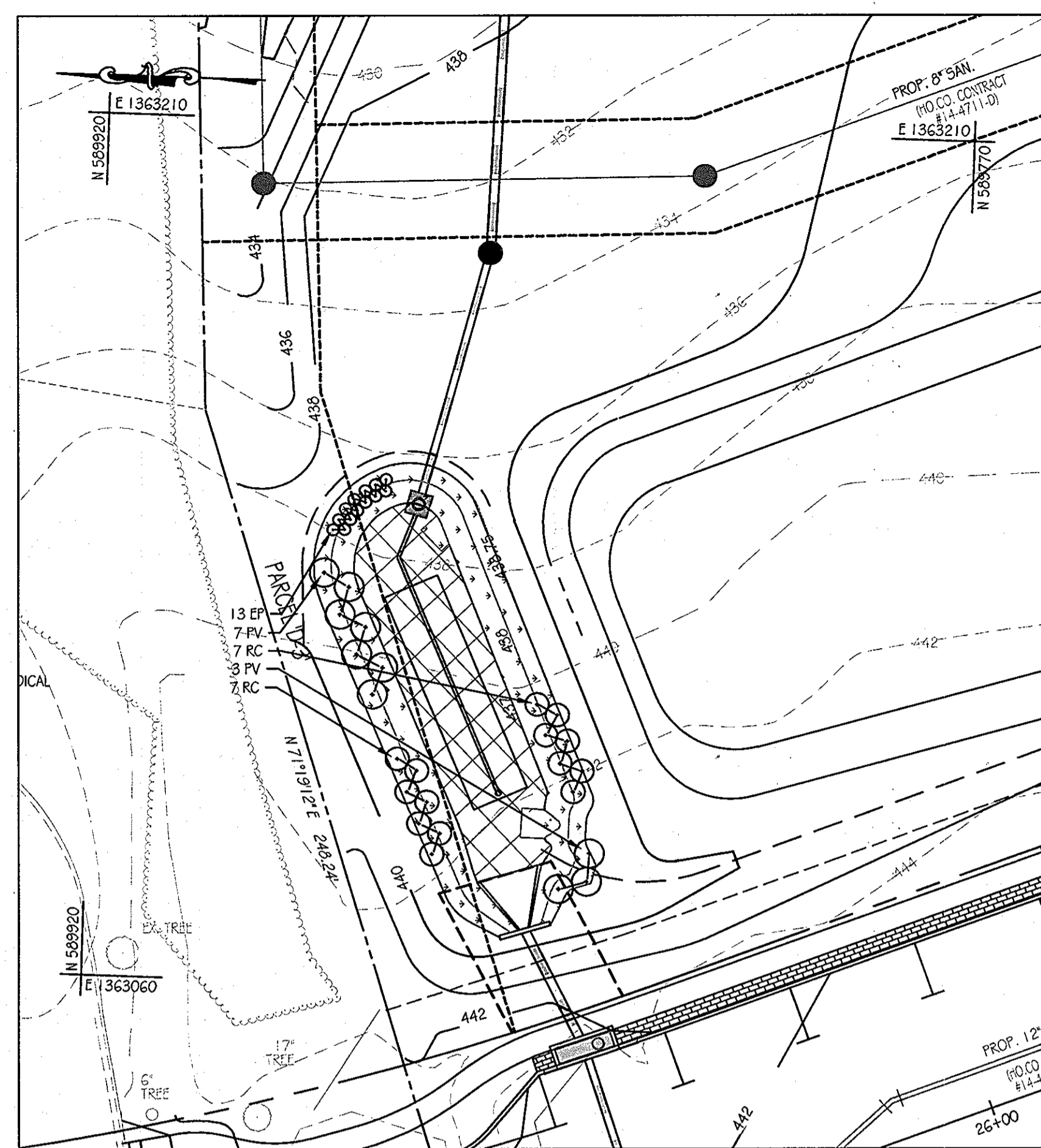
**Orchard Development Corporation**  
CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 864-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

**CRP Opportunity Fund, L.P.**



**SWM FACILITY #2 PLAN**  
SCALE: 1" = 20'



**FACILITY #2 LANDSCAPE PLAN**  
SCALE: 1" = 20'

**DESIGN SUMMARY**

1. FACILITY NUMBER: 2
2. FACILITY TYPE: MICRO-BIORETENTION (M-G)
3. DRAINAGE AREA = 0.92 AC.
4. BOTTOM ELEVATION = 437.00
5. TOP OF DAM ELEVATION = 438.75
6. STORAGE VOLUME PROVIDED: 1,422 C.F.
7. WATER SURFACE ELEV.:  
1 YEAR = 437.90  
10 YEAR = 438.13
8. DISCHARGE: 1 YEAR = 0.77 CFS  
10 YEAR = 3.25 CFS
9. RISER TYPE: TYPE 'D' INLET
10. BARREL TYPE: 15" HDPE
11. MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THIS OWNER.
12. THIS FACILITY IS EXEMPT FROM MD376 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGH WATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT.

**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-G)**

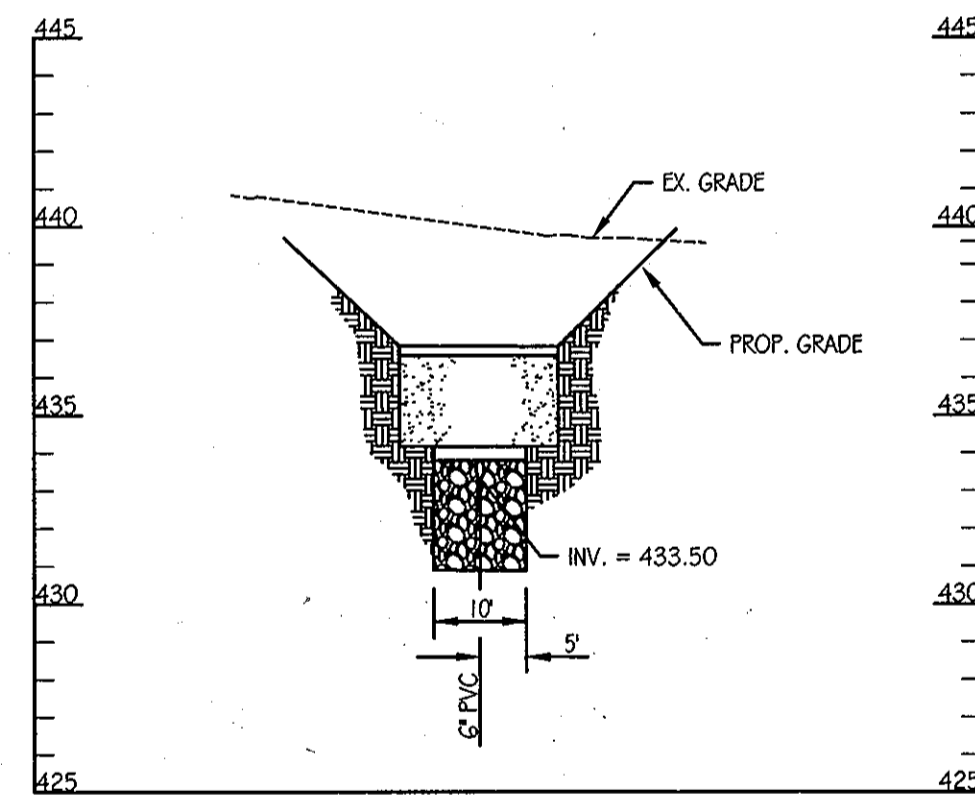
1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN NEEDED BASIS. INSPECTIONS SHALL BE PERFORMED A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

**INSPECTION SCHEDULE**

1. THE DEVELOPER SHALL NOTIFY THE COUNTRY AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
2. AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION.
  - (A) DURING EXCAVATION TO SUBGRADE;
  - (B) DURING PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEM;
  - (C) DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA;
  - (D) DURING CONSTRUCTION OF AFFURDAMENT CONVEYANCE SYSTEMS SUCH AS DIVERSION STRUCTURES, PRE-FILTERS, FILTERS, OUTLETS AND FLOW DISTRIBUTION STRUCTURES; AND
  - (E) UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
3. INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
4. WRITTEN INSPECTION REPORTS SHALL INCLUDE:
  - (A) DATE AND LOCATION OF THE INSPECTION;
  - (B) WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
  - (C) ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
  - (D) ANY VIOLATIONS THAT EXIST.
5. ONCE CONSTRUCTION IS COMPLETE, AN AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY THE APPROPRIATE DESIGN PROFESSIONAL LICENSED IN THE STATE OF MARYLAND TO ENSURE THE CONSTRUCTED STORMWATER MANAGEMENT PRACTICE AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED.

**STORMWATER MANAGEMENT FACILITY SEQUENCE OF CONSTRUCTION**

1. NOTIFY CERTIFYING ENGINEER FIVE (5) WORKING DAYS PRIOR TO BEGINNING STORM WATER MANAGEMENT FACILITY CONSTRUCTION.
2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO DOING ANY WORK.
3. CLEAR, GRUB & INSTALL PERIMETER SEDIMENT CONTROL MEASURES AS SHOWN ON THE SEDIMENT CONTROL PLAN.
4. STORM DRAIN OUTFALL FROM I-23 TO EW-8 MUST BE INSTALLED PRIOR TO BEGINNING EXCAVATION OF FACILITY BELOW ELEVATION 437.00 SHALL NOT OCCUR UNTIL AREA DRAINING TO FACILITY IS PERMANENTLY STABILIZED. (1-DAY)
5. UPON STABILIZATION OF DRAINAGE AREA EXCAVATE FOR INSTALLATION OF STONE RESERVOIR AND PLANTING SOIL. (1-DAY)
6. INSTALL STONE RESERVOIR, UNDERDRAINS AND PLANTING SOIL. (2-DAYS)
7. FINE GRADE AND PERMANENTLY STABILIZE DISTURBED AREA. (1-DAY)



**SECTION A-A**

SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

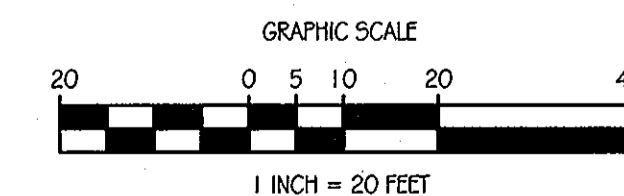
**Ç BERM DATA**

STATION	BEARING/RADIUS	DISTANCE / ARC LENGTH	CHORD
0+00			
0+13.69	N1°51'14"W	13.69'	
0+37.98	20.0'	24.29'	N33°41'9"E 22.82'
0+38.40	N6°28'33"E	0.42'	
0+61.96	15.0'	23.56'	S66°31'27"E 21.21'

**PLANT SCHEDULE**

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
EP	13	EUPATORIUM PURPUREUM LITTLE JOE / LITTLE JOE PEEWEED	18" - 24" HT.	CONT.	PLANT 2' O.C.
PV	10	PANICUM VIRGATUM HEAVY METAL / HEAVY METAL SWITCHGRASS	3" - 4" HT.	CONT.	PLANT 5' O.C.
RC	14	RHODODENDRON CATAWBIENSE ROSEUM ELEGANS / ROSEUM ELEGANS RHODODENDRON	30" - 36" HT.	CONT.	PLANT 4' O.C.
SWM-1		ERNAX-122 FACV WETLAND MEADOW SEED MIX	1/3 - 1/2 LB. PER 1000 SF		
SWM-2		ERNX-180 RAIN GARDEN MIX	1/3 - 1/2 LB. PER 1000 SF		

DRAINAGE AREA	TARGET		PROVIDED		TREATED ESDV
	P	ESDV	P	ESDV	
0.92 AC.	0.36	885 C.F.	0.61	1,422 C.F.	1,896 C.F.

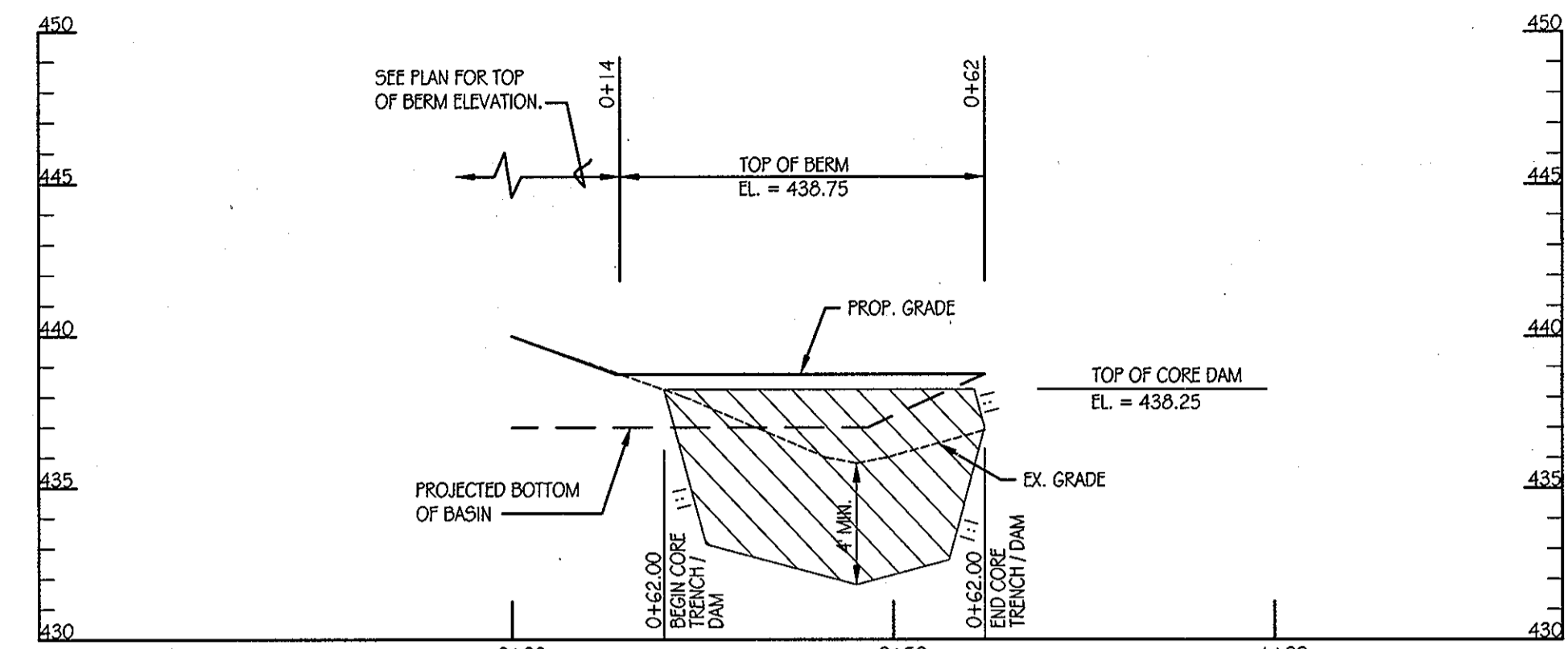


**OrchardDevelopment Corporation**  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

**CRP Opportunity Fund, L.P.**

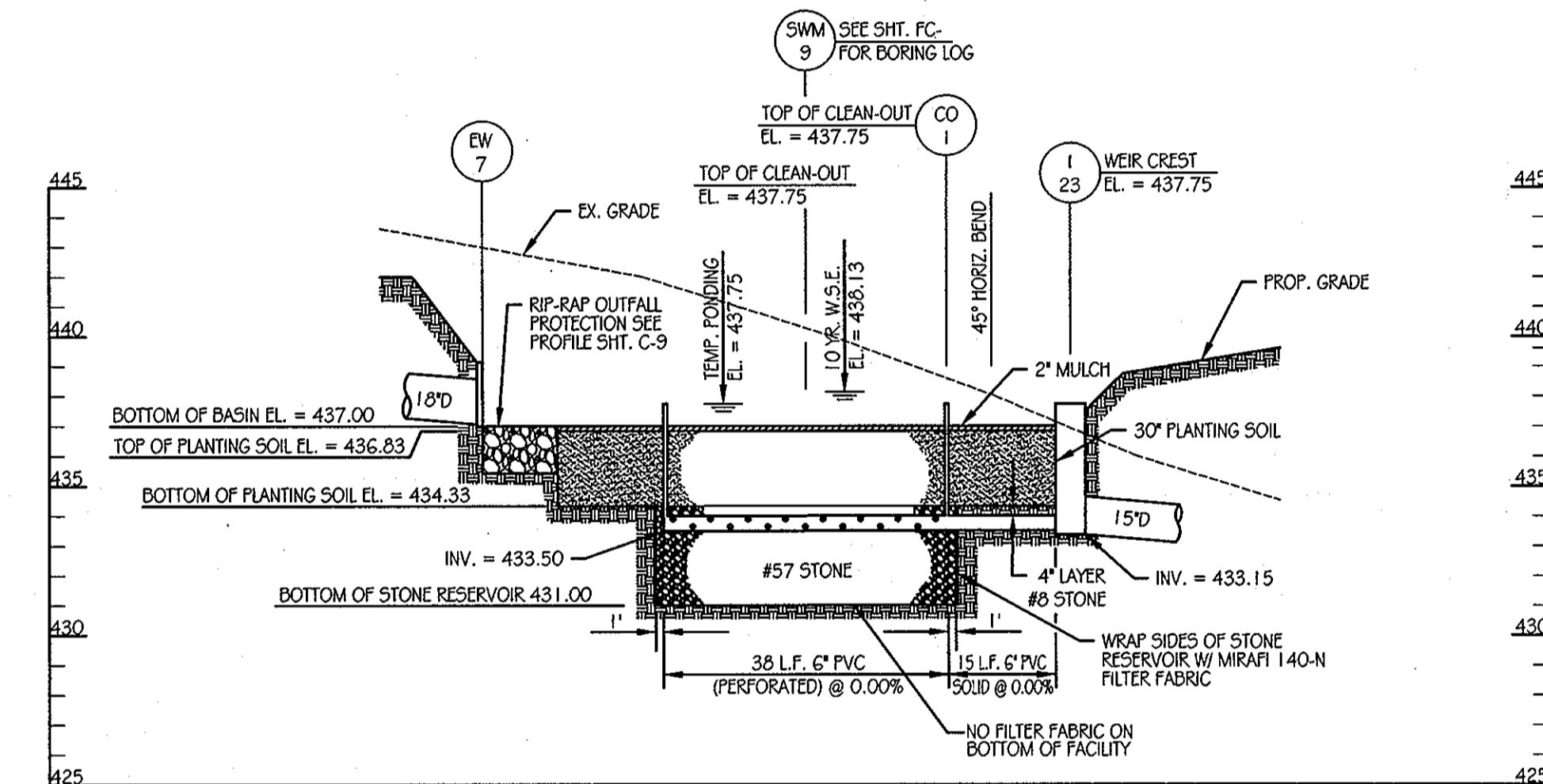
CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522



**CENTERLINE OF DAM PROFILE**

SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL



**UNDERDRAIN PROFILE**

SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

**LEGEND**

- SOIL BORING
- EX. CONTOURS
- PROP. CONTOURS
- PROP. STORM DRAIN
- TOP OF BERM
- LIMIT OF PLANTING SOIL
- RIP-RAP OUTFALL
- STONE RESERVOIR
- SEED MIX #1
- SEED MIX #2

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schuman, Acting* 11/23/11  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*W.A. Schuman* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*W.A. Schuman* 11/23/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

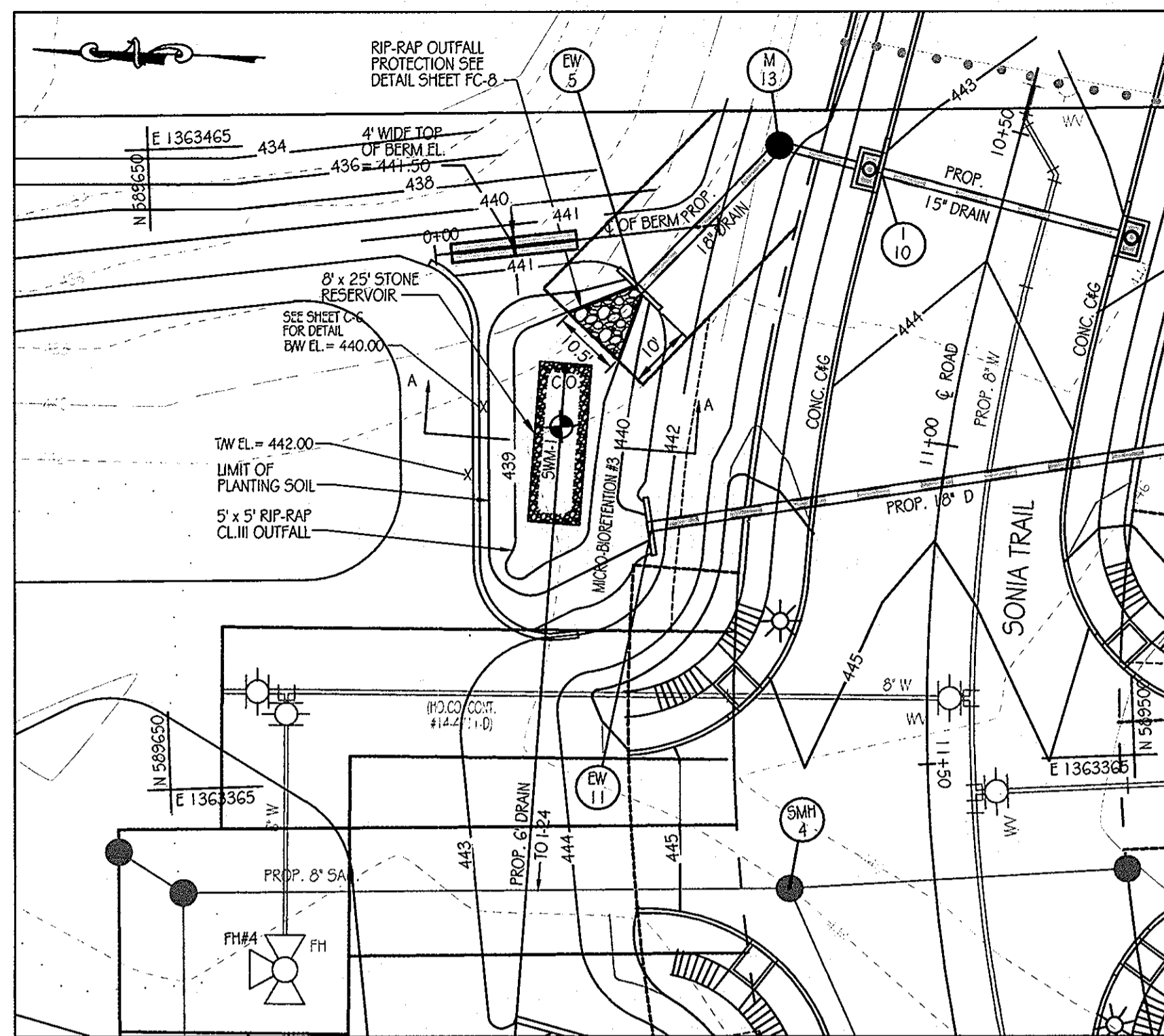
DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS  
8161 MARLE LAWN BOULEVARD  
SUITE 150  
FULTON, MD 20759  
TELEPHONE (410) 52-8086  
FAX (410) 792-7419

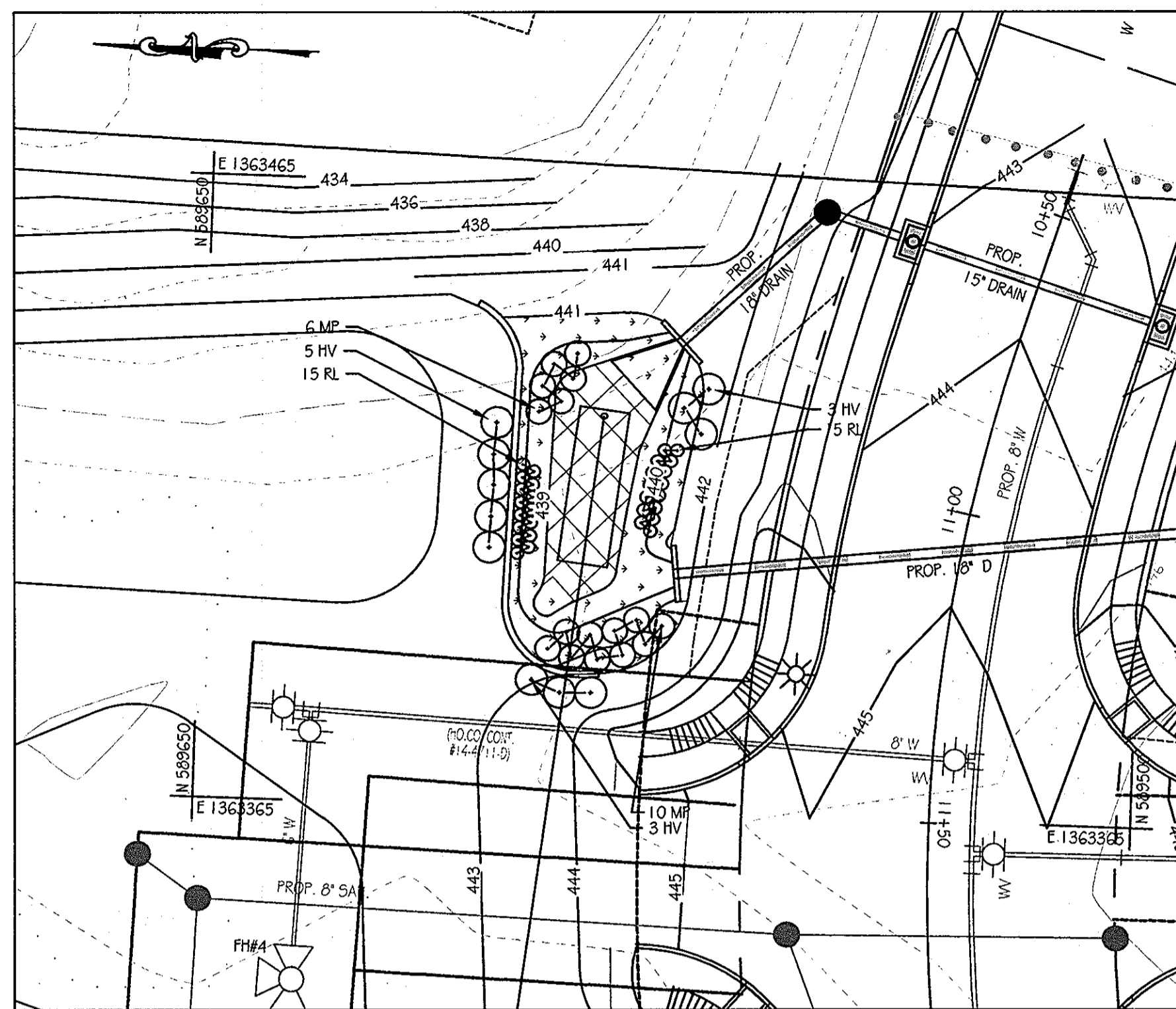
**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3  
TAX MAP: 17, GRID: 23, PARCEL: 711  
ZONED: RA-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

**STORMWATER MANAGEMENT PLAN - FACILITY #2**

DESIGN BY: D.E.S. SCALE: AS SHOWN  
DRAWN BY: C.T.D. DATE: 11-02-2011  
CHECKED BY: APPROVED: PROJECT NO.: 21101105  
SHEET 20 OF 29  
DRAWING NUMBER  
FC-20



**SWM FACILITY #3 PLAN**  
SCALE: 1" = 20'

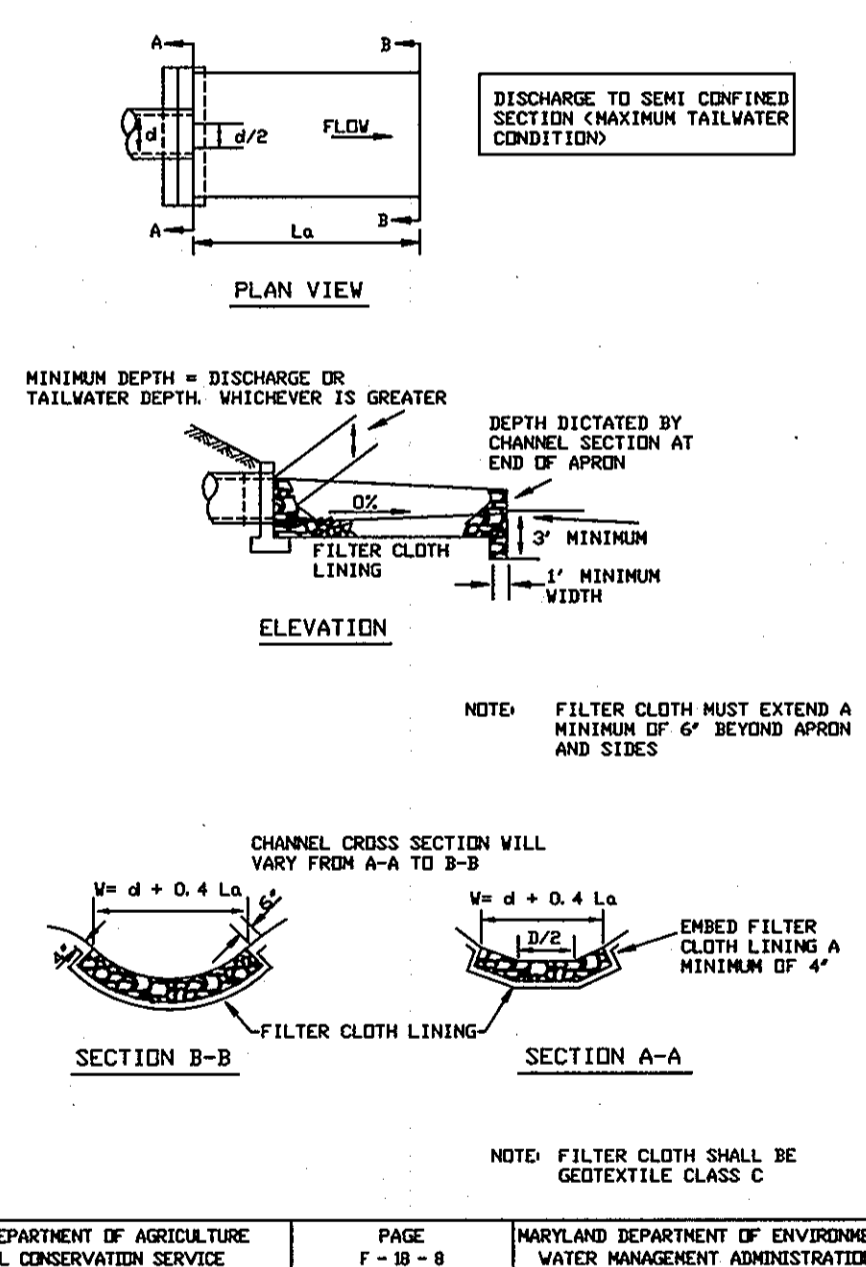


**FACILITY #3 LANDSCAPE PLAN**  
SCALE: 1" = 20'

**OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-G)**

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN NEEDED BASIS. INSPECTIONS SHALL BE PERFORMED A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

**DETAIL 25 - ROCK OUTLET PROTECTION I**



**ROCK OUTLET PROTECTION I**

- Construction Specifications**
- 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.
  - The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
  - Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
  - 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 rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous 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. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
  - The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high than the flow will be forced out of the channel and scour adjacent to the stone will occur.

**DESIGN SUMMARY**

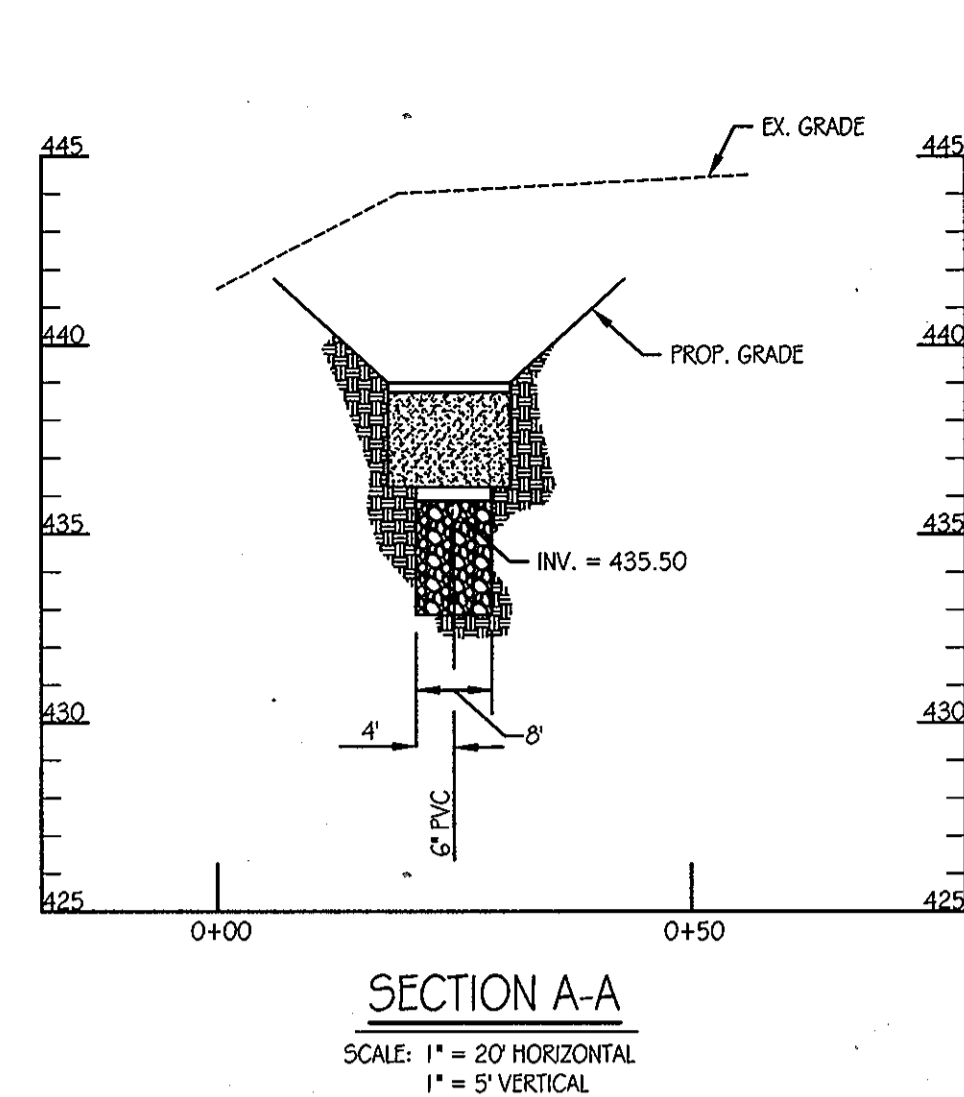
- FACILITY NUMBER: 3
- FACILITY TYPE: MICRO-BIORETENTION (M-G)
- DRAINAGE AREA = 0.40 AC.
- BOTTOM ELEVATION = 439.00
- TOP OF DAM ELEVATION = 441.50
- STORAGE VOLUME PROVIDED: 600 C.F.
- WATER SURFACE ELEV.: 1 YEAR = 439.92  
10 YEAR = 440.22
- DISCHARGE: 1 YEAR = 0.77 CFS  
10 YEAR = 3.25 CFS
- RISER TYPE: NONE
- BARREL TYPE: 18" RCCP
- MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER.
- THIS FACILITY IS EXEMPT FROM MD376 GUIDELINES IN THAT THE IMPOUNDED DESIGN HIGH WATER DEPTH IS LESS THAN 3 FEET AT THE EMBANKMENT.

**Q BERM DATA**

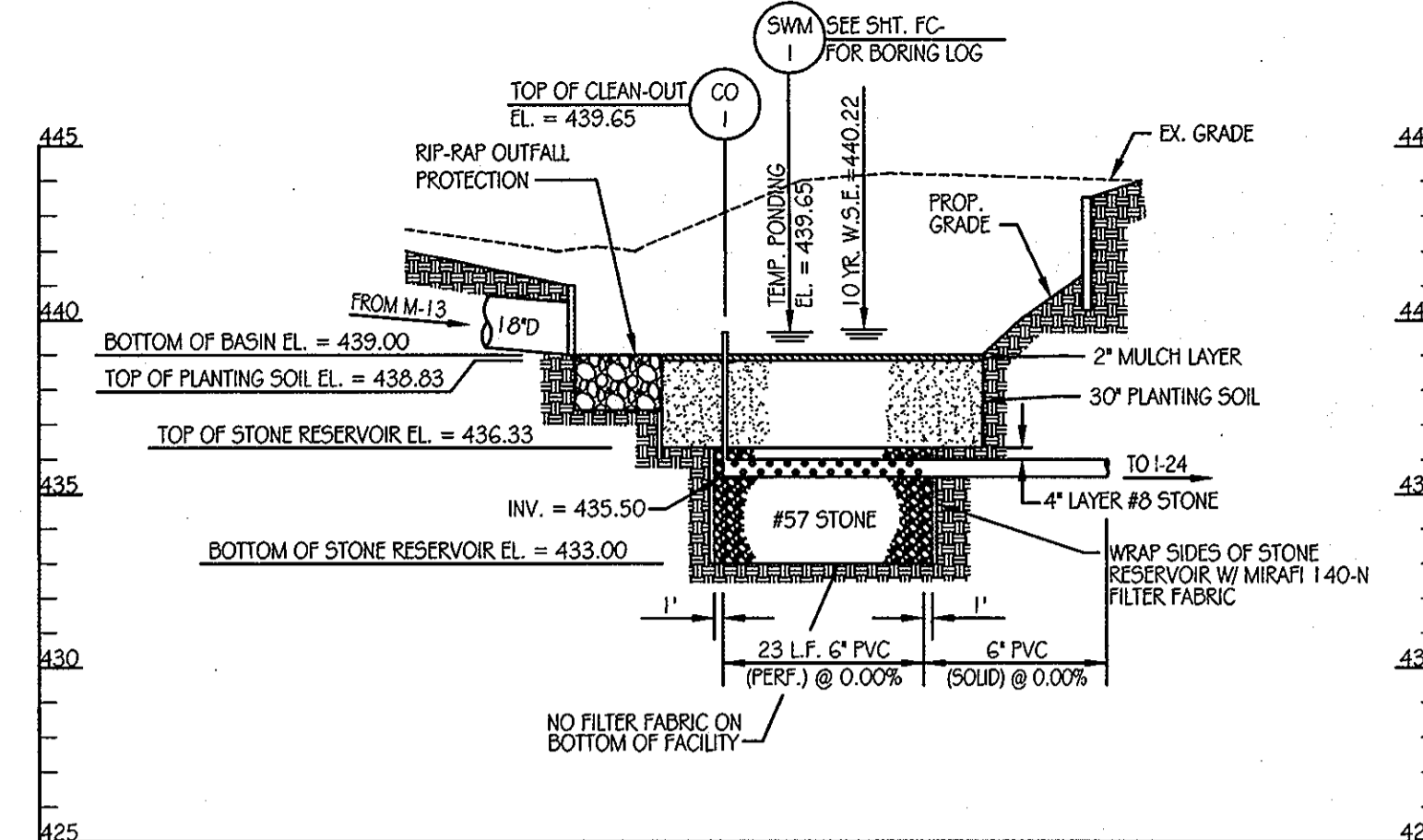
STATION	BEARING/RADIUS	DISTANCE/ARC LENGTH	CHORD
0+00	S47°20'E	44.31'	
0+44.31			

**PLANT SCHEDULE**

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
HV	11	HAMAMELIS VIRGINIANA / WITCHHAZEL	3" - 4" HT.	CONT.	PLANT 5' O.C.
MP	16	MYRICA PENNSYLVANICA / BAYBERRY	30" - 36" HT.	CONT.	PLANT 4' O.C.
RL	30	RUDBECKIA LACINIATA / TALL CONIFLOWER	18" - 24" HT.	CONT.	PLANT 2' O.C.
SWM-1		ERNIX-122 FACW WETLAND MEADOW SEED MIX	1/3 - 1/2 LB. PER 1000 SF		
SWM-2		ERNX-180 RAIN GARDEN MIX	1/3 - 1/2 LB. PER 1000 SF		



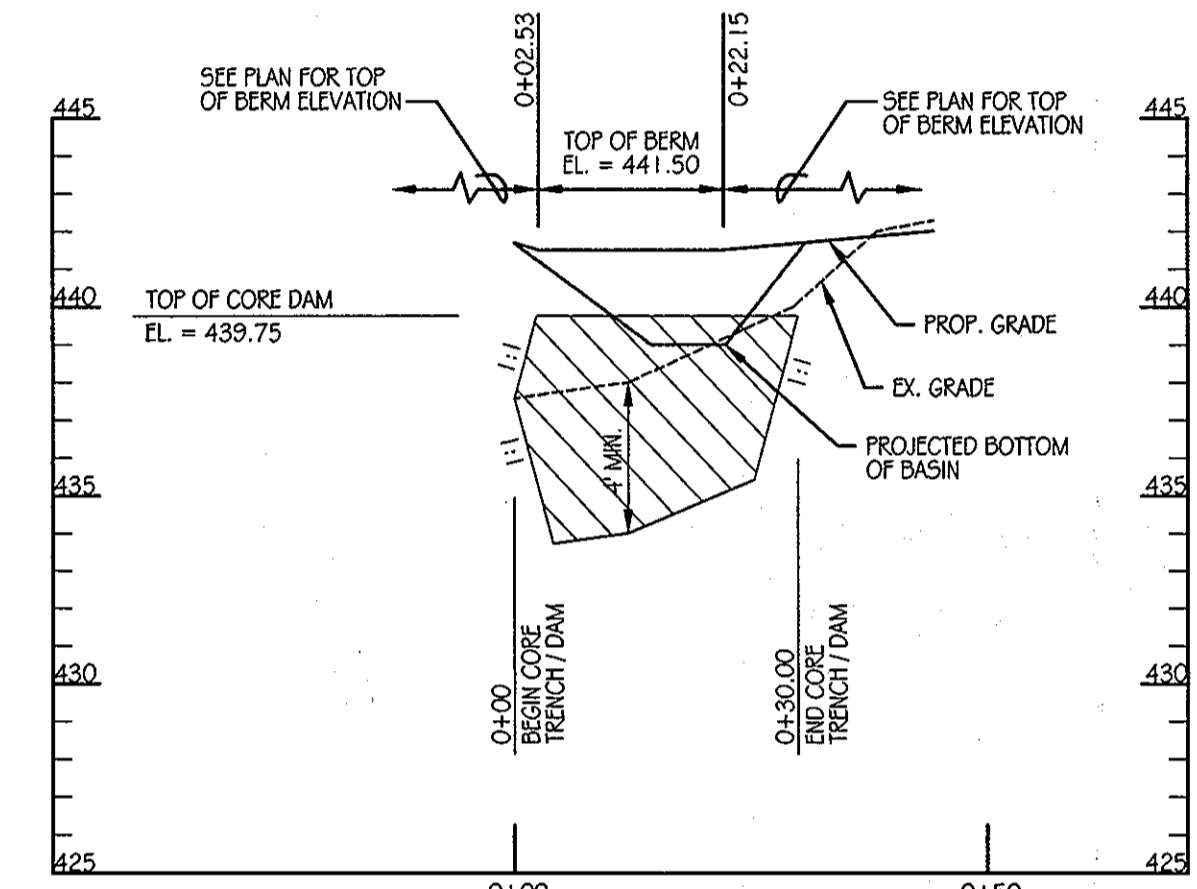
**SECTION A-A**  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL



**UNDERDRAIN PROFILE**  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

**INSPECTION SCHEDULE**

- THE DEVELOPER SHALL NOTIFY THE COUNTRY AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
- AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION.
  - DURING EXCAVATION TO SUBGRADE;
  - DURING PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEM;
  - DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA;
  - DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS DIVERSION STRUCTURES, PRE-FILTERS, FILTERS, OUTLETS AND FLOW DISTRIBUTION STRUCTURES; AND
  - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
- INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
- WRITTEN INSPECTION REPORTS SHALL INCLUDE:
  - DATE AND LOCATION OF THE INSPECTION;
  - WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
  - ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
  - ANY VIOLATIONS THAT EXIST.
- ONCE CONSTRUCTION IS COMPLETE, AN AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY THE APPROPRIATE DESIGN PROFESSIONAL LICENSED IN THE STATE OF MARYLAND TO ENSURE THE CONSTRUCTED STORMWATER MANAGEMENT PRACTICE AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED.

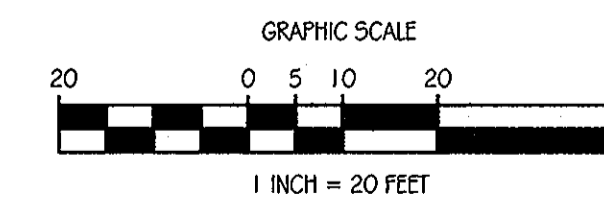


**CENTERLINE OF DAM PROFILE**  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

**STORMWATER MANAGEMENT FACILITY SEQUENCE OF CONSTRUCTION**

- NOTIFY CERTIFYING ENGINEER FIVE (5) WORKING DAYS PRIOR TO BEGINNING STORM WATER MANAGEMENT FACILITY CONSTRUCTION.
- NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO DOING ANY WORK.
- CLEAR, GRUB & INSTALL PERIMETER SEDIMENT CONTROL MEASURES AS SHOWN ON THE SEDIMENT CONTROL PLAN.
- STORM DRAIN OUTFALL FROM EW-11 TO EW-10 MUST BE INSTALLED PRIOR TO BEGINNING EXCAVATION OF FACILITY TO ELEVATION 439.00 SHALL NOT OCCUR UNTIL AREA DRAINING TO FACILITY IS PERMANENTLY STABILIZED. (1-DAY)
- UPON STABILIZATION OF DRAINAGE AREA EXCAVATE FOR INSTALLATION OF STONE RESERVOIR AND PLANTING SOIL. STORM DRAIN FROM 1-24 TO EW-8 MUST BE COMPLETED TO ALLOW FOR TIE-IN OF UNDERDRAIN. (1-DAY)
- INSTALL STONE RESERVOIR, UNDERDRAINS AND PLANTING SOIL. (2-DAYS)
- FINE GRADE AND PERMANENTLY STABILIZE DISTURBED AREA. (1-DAY)

DRAINAGE AREA	TARGET		PROVIDED		TREATED ESD <sub>v</sub>
	R	ESD <sub>v</sub>	R	ESD <sub>v</sub>	
0.40 AC.	0.40	416 C.F.	0.65	600 C.F.	907 C.F.



**LEGEND**

- SOIL BORING
- EX. CONTOURS
- PROP. CONTOURS
- PROP. STORM DRAIN
- TOP OF BERM
- LIMIT OF PLANTING SOIL
- RIP-RAP OUTFALL
- STONE RESERVOIR
- SEED MIX #1
- SEED MIX #2

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

*John Robert* 11/21/11  
HOWARD S.O.D. DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schurz*, Acting 11/23/11  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Pat Schlueter* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*John Robert* 11/21/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS

8161 MARIE LAWN BOULEVARD Suite 150  
FULTON, MD 20759  
Telephone: (410) 92-8086 Fax: (410) 792-7419

**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: R-A-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

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.: 31089 EXPIRATION DATE: 11/1/2112

TITLE: **STORMWATER MANAGEMENT PLAN - FACILITY #3**

PROJECT NO.: 27101105  
SHEET 21 OF 29  
DRAWING NUMBER: **FC-21**

DESIGN BY: D.E.S. SCALE: AS SHOWN  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: \_\_\_\_\_

**Orchard Development Corporation**

CONTRACT PURCHASER / DEVELOPER:

ORCHARD DEVELOPMENT CORPORATION  
5032 DORSET HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WALCO BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2322

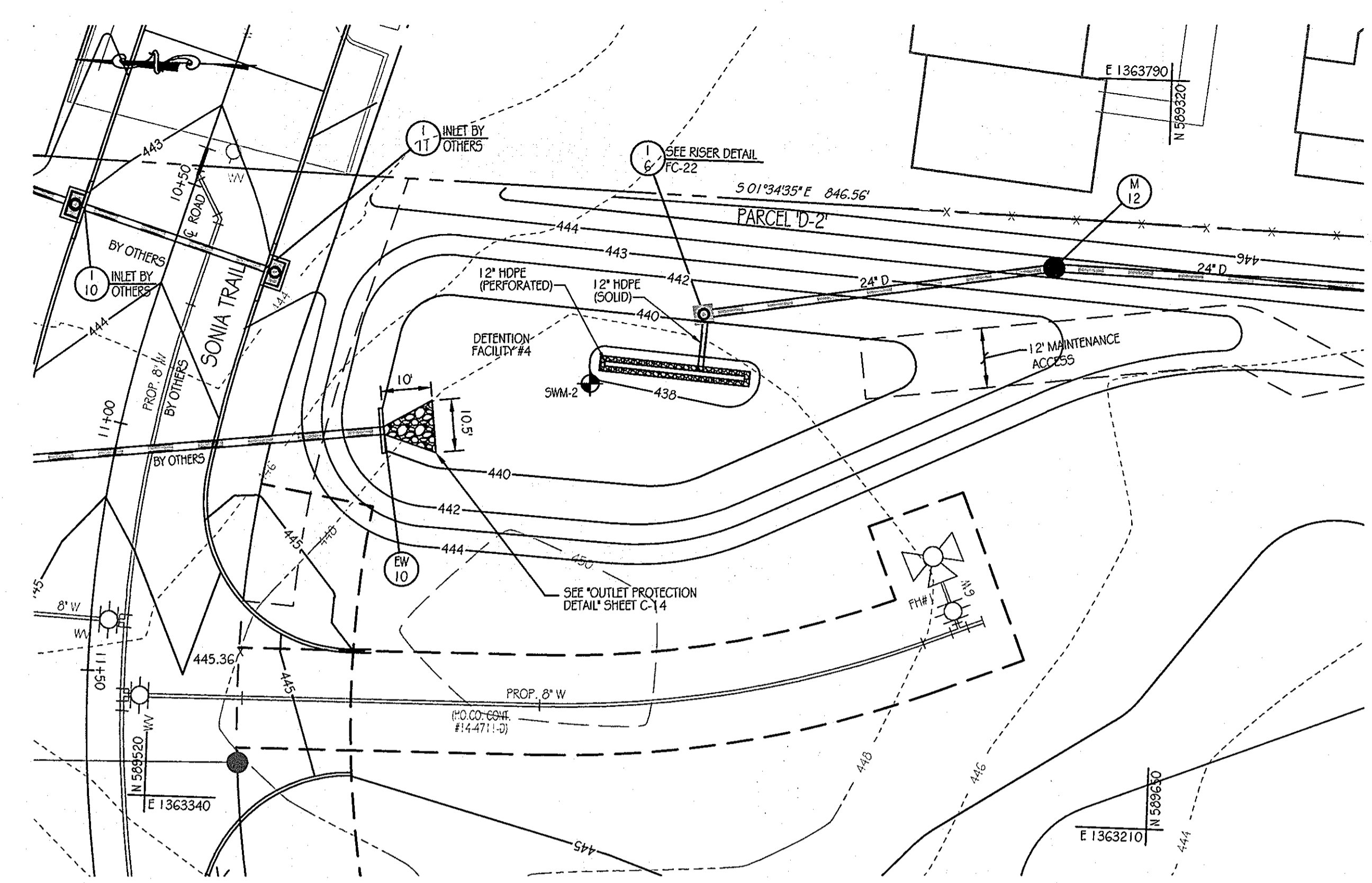
**CRP Opportunity Fund, L.P.**

**DESIGN SUMMARY**

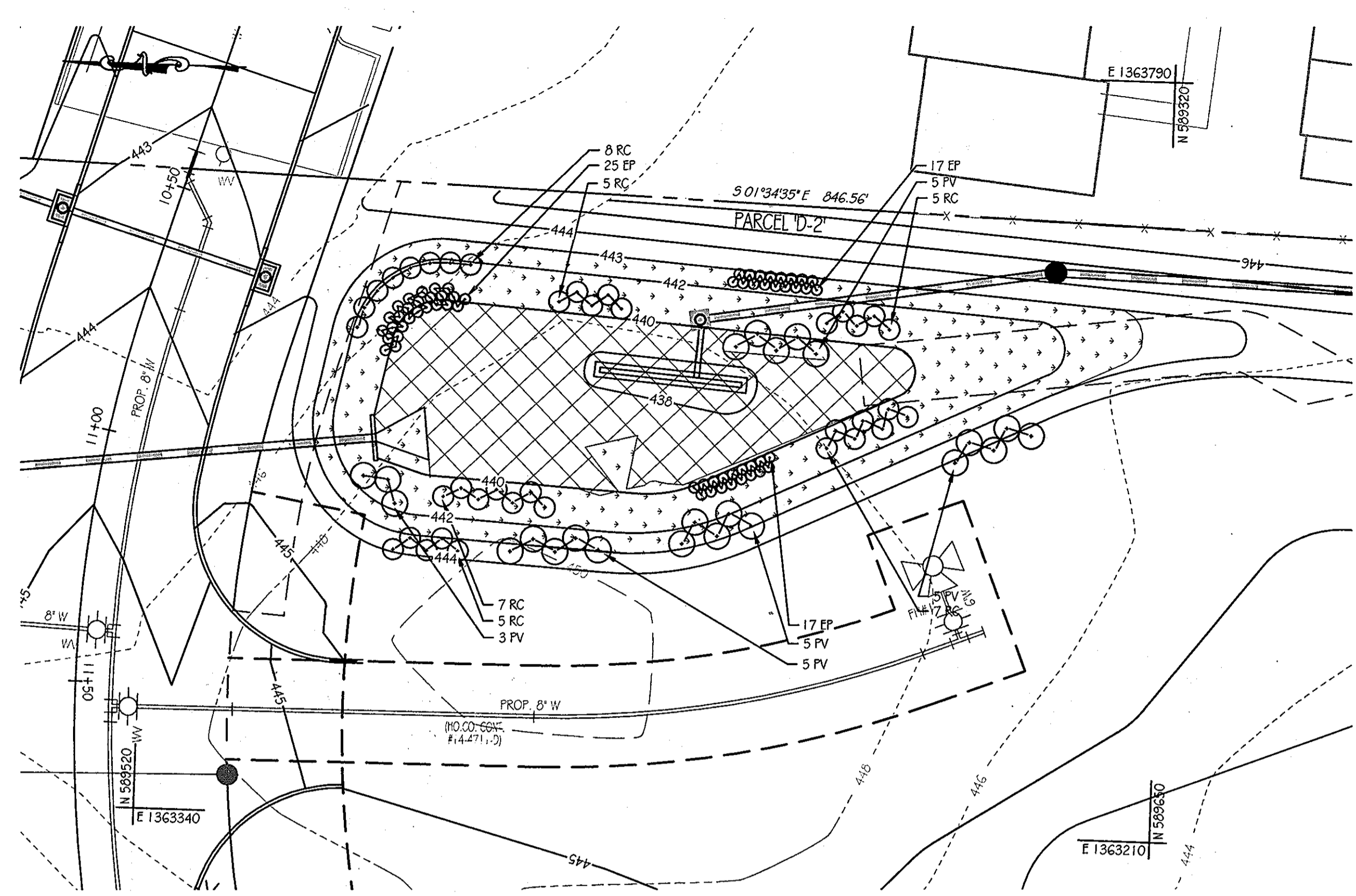
- FACILITY NUMBER: 4
- FACILITY TYPE: DETENTION (QUANTITY MANAGEMENT)
- DRAINAGE AREA = 1.34 AC.
- BOTTOM ELEVATION = 437.80
- TOP OF DAM ELEVATION = 443.40
- STORAGE VOLUME PROVIDED: 0.056 AC. FT.
- WATER SURFACE ELEV.: 10 YEAR = 439.53  
100 YEAR = 440.51
- DISCHARGE: 10 YEAR = 1.13 CFS  
100 YEAR = 1.47 CFS
- RISER TYPE: TYPE 'D' INLET
- BARREL TYPE: 15" HDPE
- MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED & MAINTAINED BY THE OWNER
- THIS IS AN EXCAVATED FACILITY AND EXEMPT FROM MD378 GUIDELINES. (MD-378 HAZARD CLASS - A)
- WATER QUALITY TREATMENT IS PROVIDED IN DRAINAGE AREAS E-1 & E-2 PRIOR TO FLOWS ENTERING FACILITY #4, THEREFORE NO FOREBAY IS BEING PROPOSED.
- THIS IS A QUANTITY MANAGEMENT FACILITY THAT FUNCTIONS IN TANDEM WITH FACILITY NO. 6 TO PROVIDE QUANTITY MANAGEMENT WITHIN THE HUDSON BRANCH WATERSHED. THE FOLLOWING TABLE SHOWS THE DISCHARGE REDUCTIONS THAT WILL BE PROVIDED AS RUNOFF LEAVES THE SITE AT THE HUDSON BRANCH WATERSHED DESIGN POINT.

**FACILITY #4 QUANTITY MANAGEMENT SUMMARY TABLE**

WATERSHED	10 YEAR STORM EVENT			100 YEAR STORM EVENT		
	EXIST. COND.	DEV. COND.	DIFF.	EXIST. COND.	DEV. COND.	DIFF.
HUDSON BRANCH	7.63 CFS	885 C.F.	0.61	16.97 CFS	7.24 CFS	-9.73 CFS



**SWM FACILITY #4 PLAN**  
SCALE: 1" = 20'



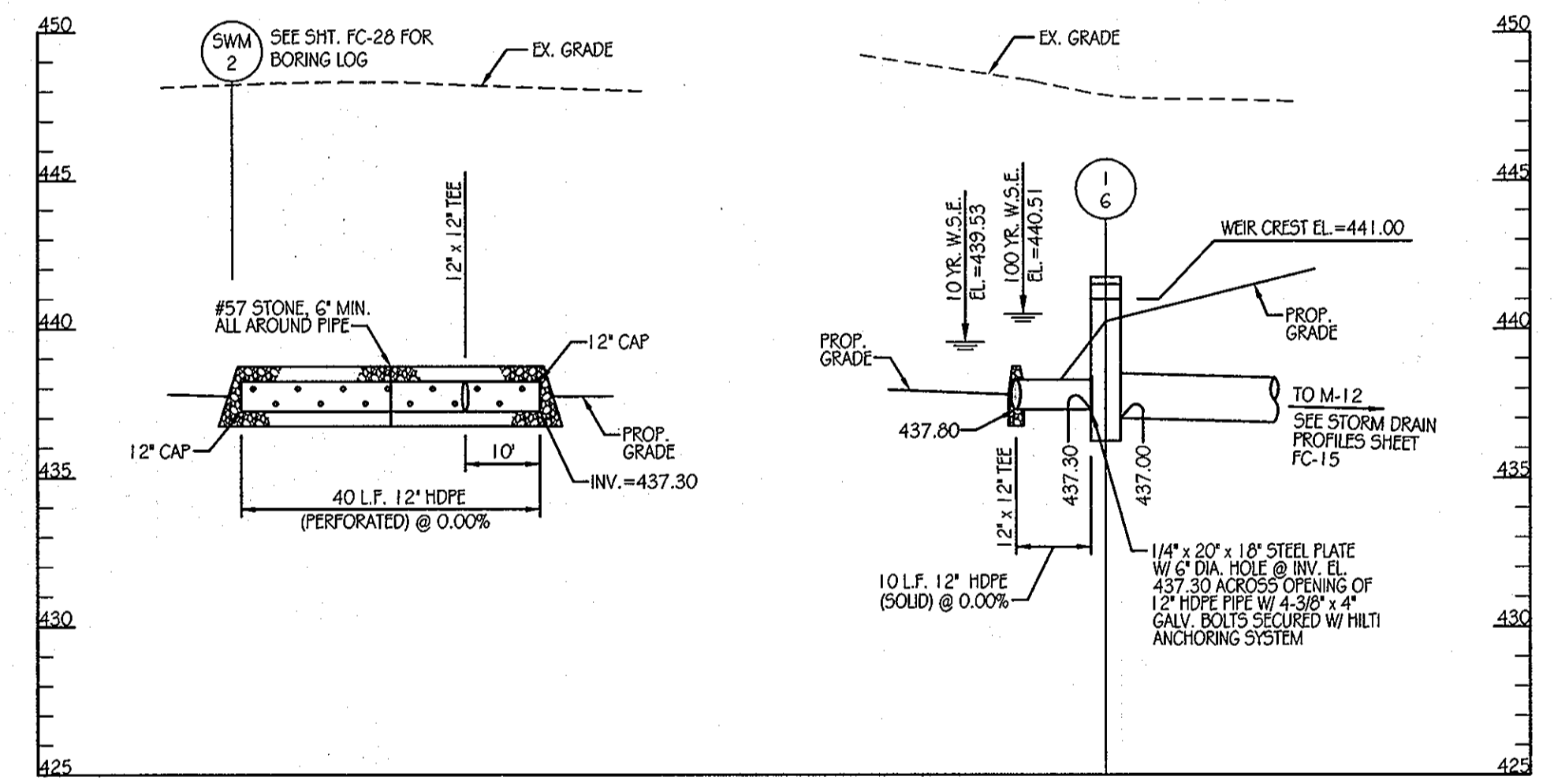
**SWM FACILITY #4 PLAN**  
SCALE: 1" = 20'

**INSPECTION SCHEDULE**

- THE DEVELOPER SHALL NOTIFY THE COUNTRY AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
- AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION.
  - (A) DURING EXCAVATION TO SUBGRADE;
  - (B) DURING INSTALLATION OF DRAIN SYSTEM;
  - (C) DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS DIVERSION STRUCTURES, PRE-FILTERS, FILTERS, OUTLETS AND FLOW DISTRIBUTION STRUCTURES; AND
  - (D) UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
- INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
- WRITTEN INSPECTION REPORTS SHALL INCLUDE:
  - (A) DATE AND LOCATION OF THE INSPECTION;
  - (B) WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
  - (C) ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
  - (D) ANY VIOLATIONS THAT EXIST.
- ONCE CONSTRUCTION IS COMPLETE, AN AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY THE APPROPRIATE DESIGN PROFESSIONAL LICENSED IN THE STATE OF MARYLAND TO ENSURE THE CONSTRUCTED STORMWATER MANAGEMENT PRACTICE AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AN AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED.

**LEGEND**

- SOIL BORING
- EX. CONTOURS
- PROP. CONTOURS
- PROP. STORM DRAIN
- TOP OF BERM
- LIMIT OF PLANTING SOIL
- RIP-RAP OUTFALL
- STONE RESERVOIR
- SEED MIX #1
- SEED MIX #2



**DRAIN PROFILES**  
SCALE: 1" = 20' HORIZONTAL  
1" = 5' VERTICAL

**STORMWATER MANAGEMENT FACILITY SEQUENCE OF CONSTRUCTION**

- NOTIFY CERTIFYING ENGINEER FIVE (5) WORKING DAYS PRIOR TO BEGINNING STORM WATER MANAGEMENT FACILITY CONSTRUCTION.
- NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO DOING ANY WORK.
- CLEAR, GRUB & INSTALL PERIMETER SEDIMENT CONTROL MEASURES AS SHOWN ON THE SEDIMENT CONTROL PLAN.
- STORM DRAIN OUTFALL FROM I-6 TO EW-2 MUST BE INSTALLED PRIOR TO BEGINNING EXCAVATION OF FACILITY TO ELEVATION 437.80 SHALL NOT OCCUR UNTIL AREA DRAINING TO FACILITY IS PERMANENTLY STABILIZED. (1-DAY)
- INSTALL DEWATERING DRAIN. (1-DAY)
- FINE GRADE AND PERMANENTLY STABILIZE DISTURBED AREA. (1-DAY)

**PLANT SCHEDULE**

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
EP	59	EUPATORIUM PURPUREUM LITTLE JOE / LITTLE JOE PEEWEED	18" - 24" HT.	CONT.	PLANT 2' O.C.
PV	23	PANICUM VIRGATUM HEAVY METAL / HEAVY METAL SWITCHGRASS	3' - 4' HT.	CONT.	PLANT 5' O.C.
RC	37	RHOODENDRON CATAWBIENSE ROSEUM ELEGANS / ROSEUM ELEGANS RHOODENDRON	30" - 36" HT.	CONT.	PLANT 4' O.C.
SWM-1		ERNX-122 FACON WETLAND MEADOW SEED MIX	1/8 - 1/2 LB. PER 1000 SF		
SWM-2		ERNX-180 RAIN GARDEN MIX	1/8 - 1/2 LB. PER 1000 SF		

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER PONDS (P-1 THROUGH P-5)**

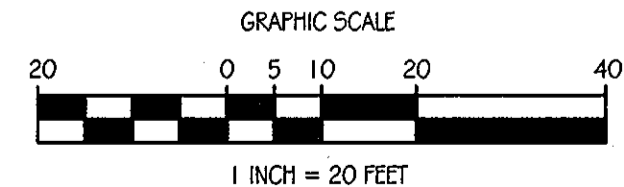
- ROUTINE MAINTENANCE:**
- FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
  - TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
  - DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
  - 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:**
- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DRAINAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
  - SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN 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.

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

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diare Schwarz, Acting* 11/22/11  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*K. J. ...* 11/23/11  
CHIEF-DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*...* 11/23/11  
CHIEF-DEVELOPMENT ENGINEERING DIVISION



**Orchard Development Corporation**

**CRP Opportunity Fund, LP**

CONTRACT PURCHASER / DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5052 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WILCO BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
8161 MAIZE LEVIN BOULEVARD  
SUITE 150  
FULTON, MD 20759  
TELEPHONE: (410) 92-8086  
FAX: (410) 792-7419

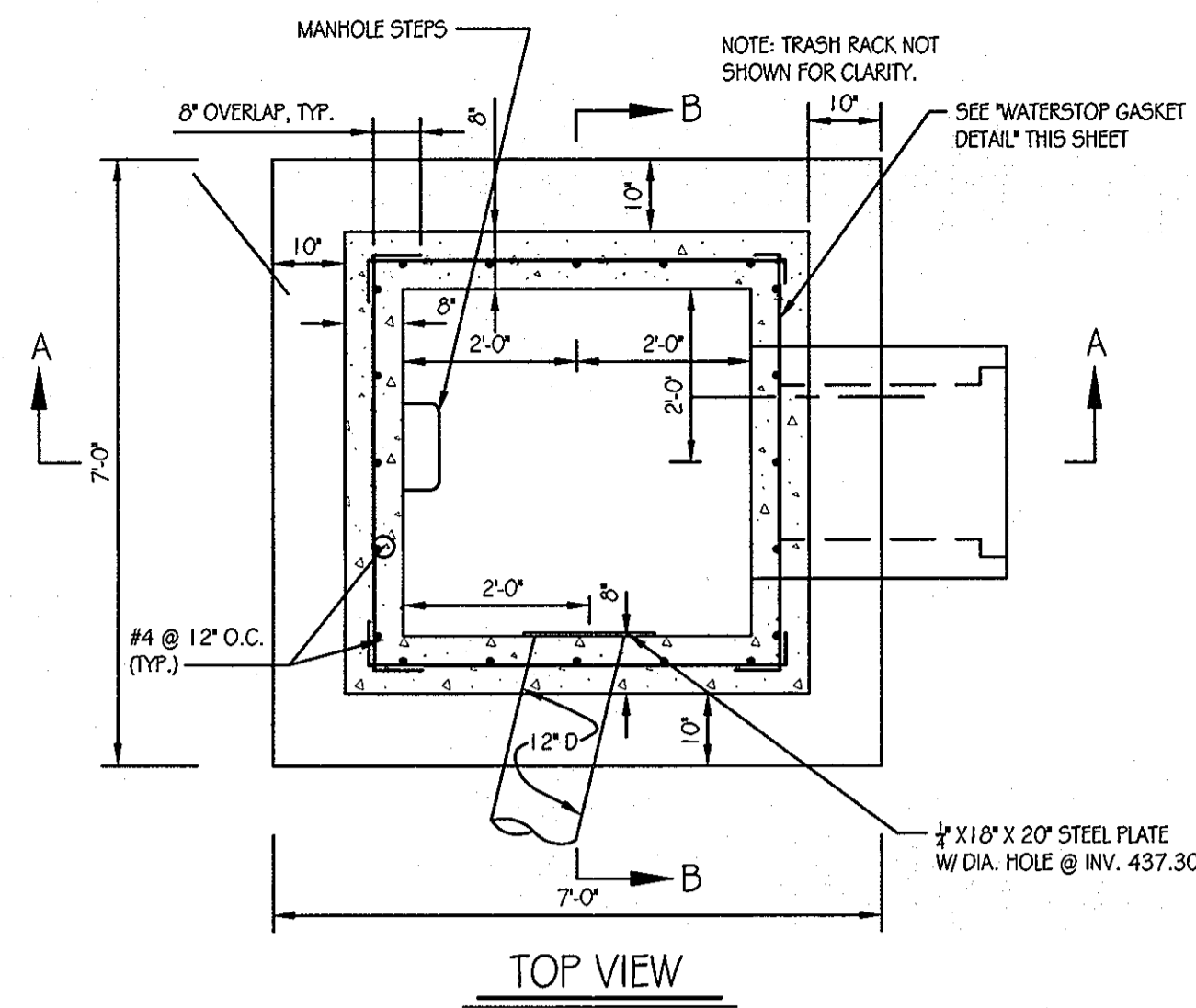
**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: R-A-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

**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.: 31089 EXPIRATION DATE: 11/12/12

TITLE: **STORMWATER MANAGEMENT PLAN - FACILITY #4**

PROJECT NO.: 27101105  
DESIGN BY: B.E.S. SCALE: AS SHOWN SHEET 22 OF 29  
DRAWN BY: C.T.B. DATE: 11-02-2011 DRAINING NUMBER  
CHECKED BY: APPROVED: FC-22



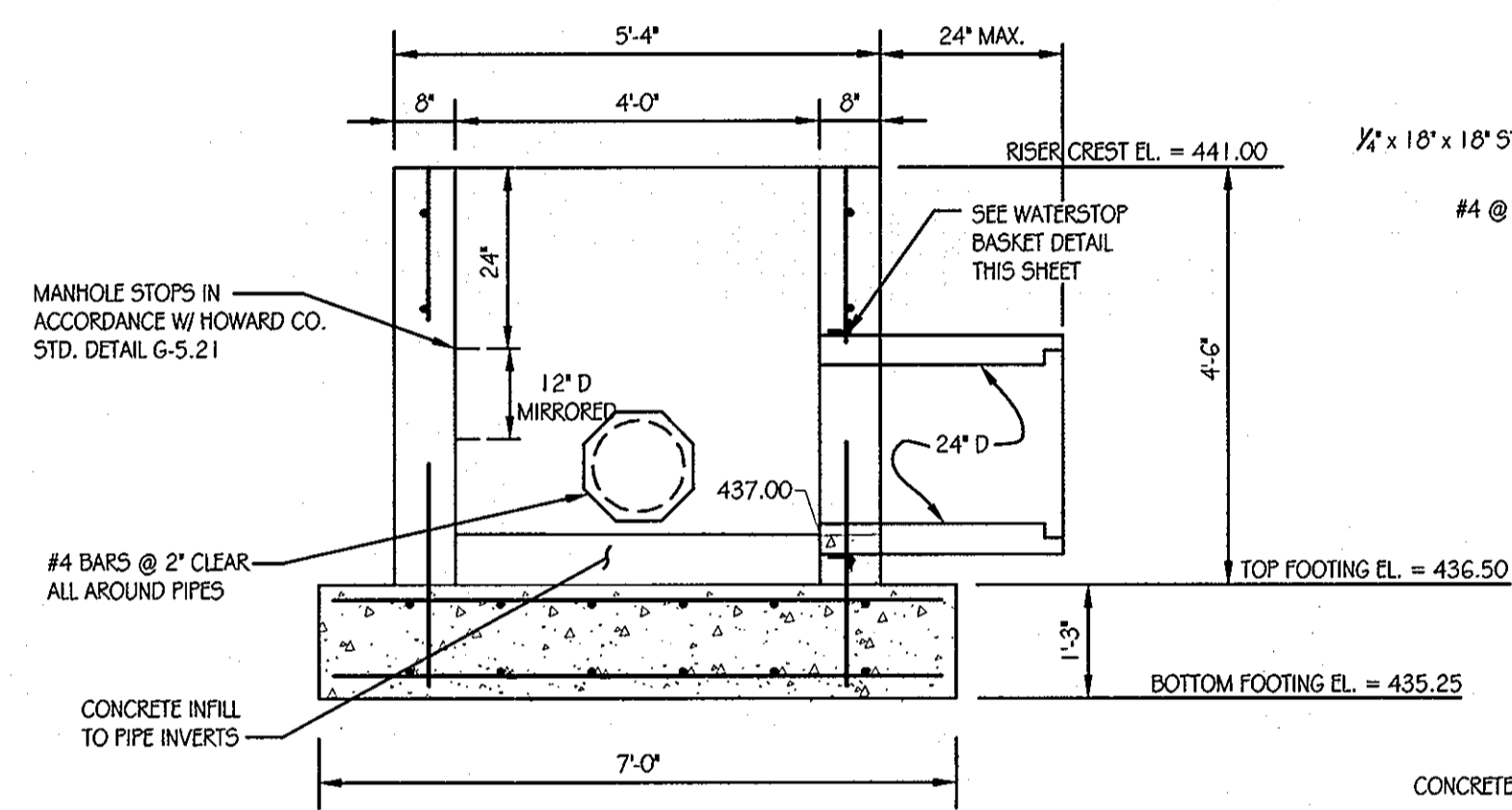
**PRE-CAST CONCRETE AND PRE-FABRICATED STEEL STRUCTURE NOTES**

THE CONTRACTOR IS RESPONSIBLE TO PROVIDE STRUCTURAL DESIGN COMPUTATIONS FOR FABRICATED CONCRETE AND STEEL COMPONENTS AS REQUIRED TO ENSURE THE STRUCTURAL INTEGRITY OF THE PRE-CAST CONCRETE RISER AND WELDED STEEL TRASH RACK, IN CONFORMANCE WITH THE INFORMATION AND DIMENSIONAL CRITERIA ON THIS SHEET. SHOP DRAWINGS FOR THE TRASH RACK AND THE PRE-CAST STRUCTURES (MEETING ASTM REQUIREMENTS), WITH THE SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER), MUST BE SUBMITTED TO THE ENGINEER, AND THE APPROVING AGENCY, FOR APPROVAL PRIOR TO FABRICATION.

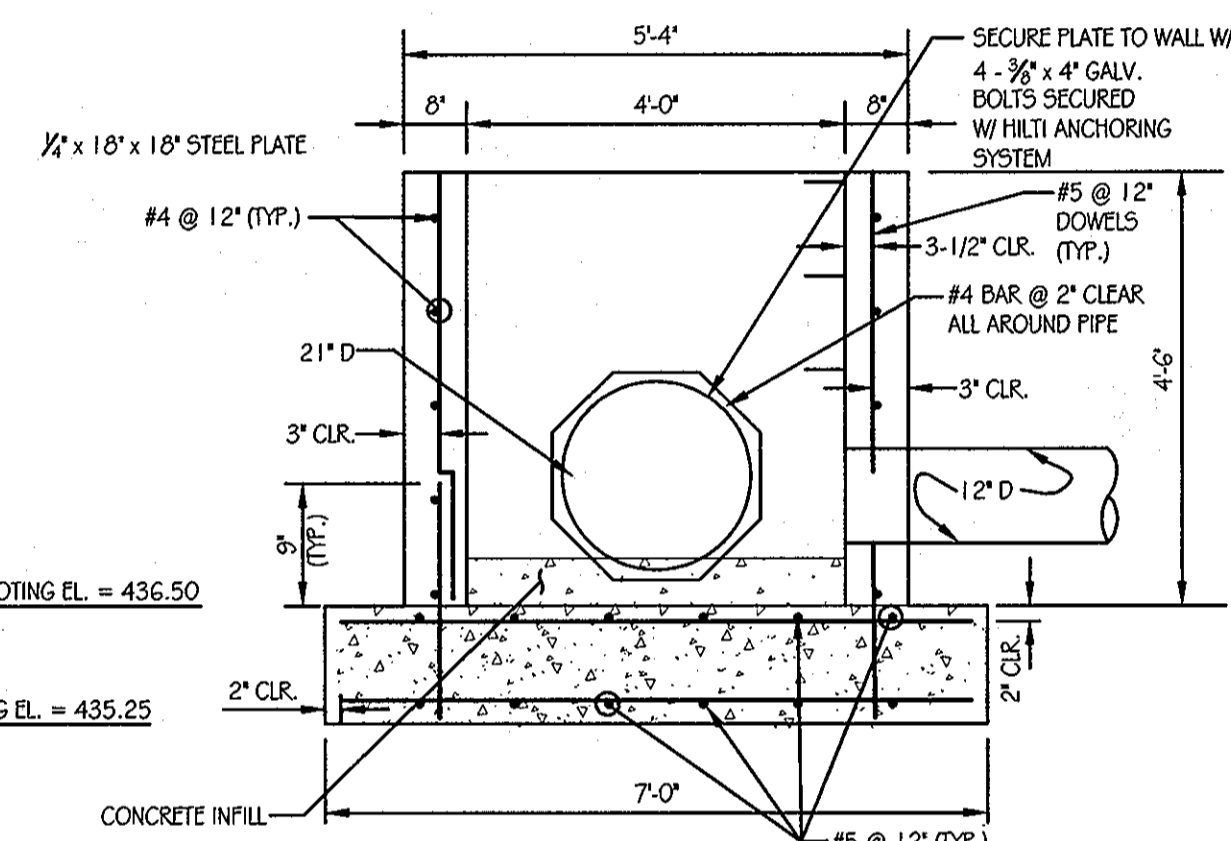
IF ANY STRUCTURE DIMENSIONS VARY FROM THOSE ORIGINALLY REVIEWED/ APPROVED, THEN THE HYDRAULICS, FLOTATION AND STRUCTURAL INTEGRITY WILL HAVE TO BE RE-ANALYZED.

ALL JOINTS AND CONNECTIONS SHALL BE WATER TIGHT. METHOD OF ACHIEVING A WATER TIGHT SEAL BETWEEN THE RISER STRUCTURE, AND ALL CONDUITS (I. E., BARREL AND LOW FLOW PIPES) SHALL BE APPROVED BY THE ENGINEER IN CHARGE, PRIOR TO FABRICATION.

TOP VIEW



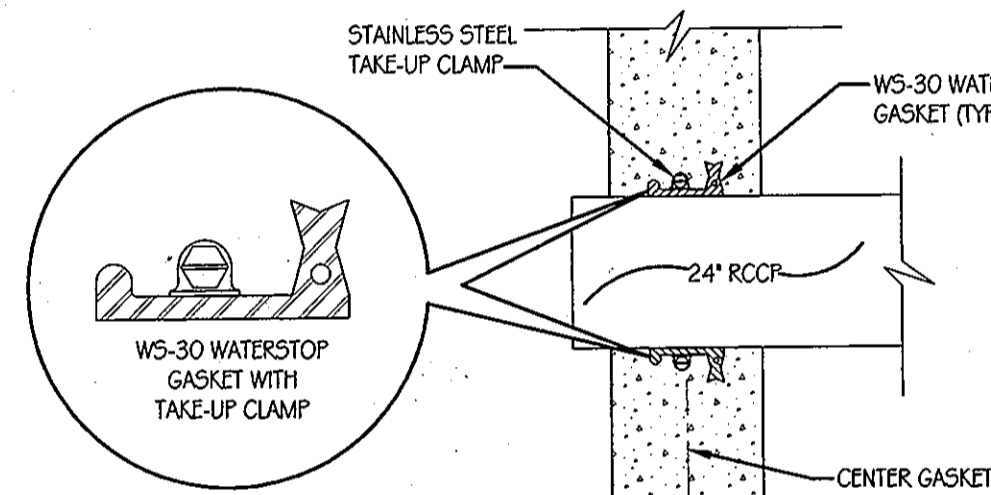
SECTION A-A



SECTION B-B

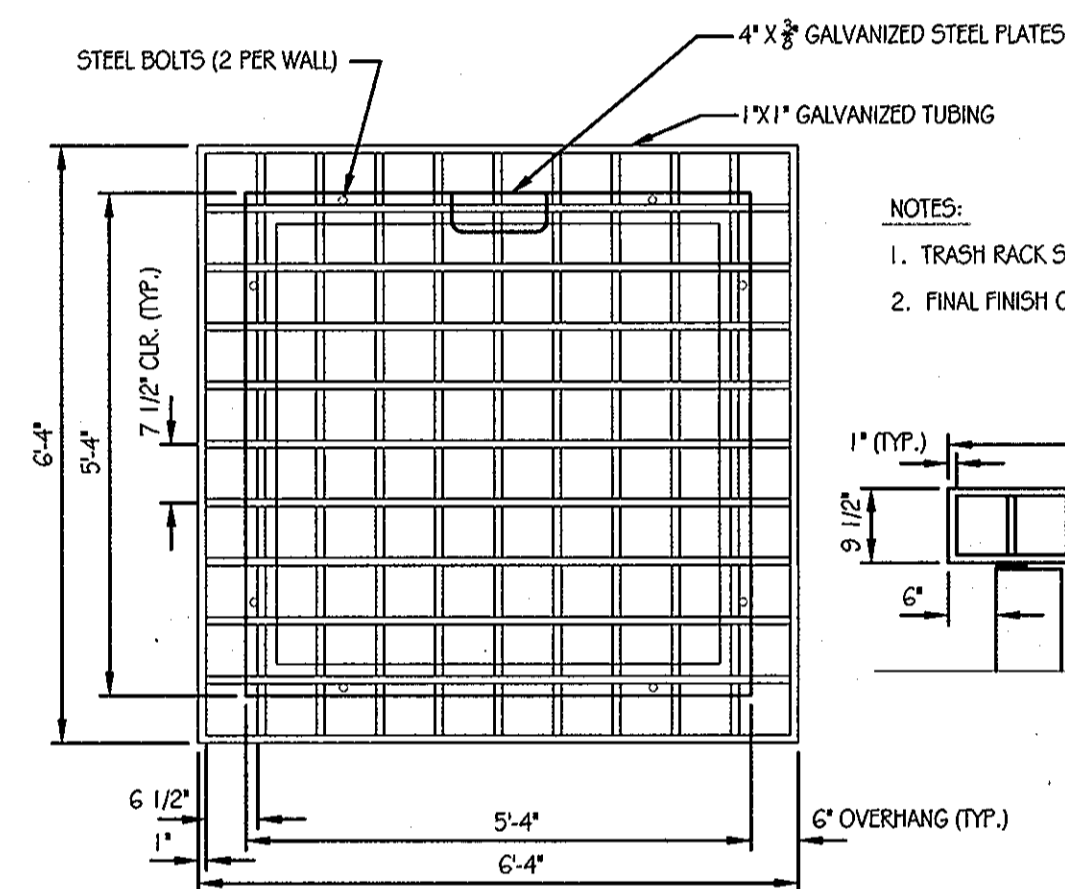
RISER DETAIL (1-6)

SCALE: 1/2" = 1'-0"



WS-30 WATERSTOP GASKET DETAIL

SCALE: NOT TO SCALE



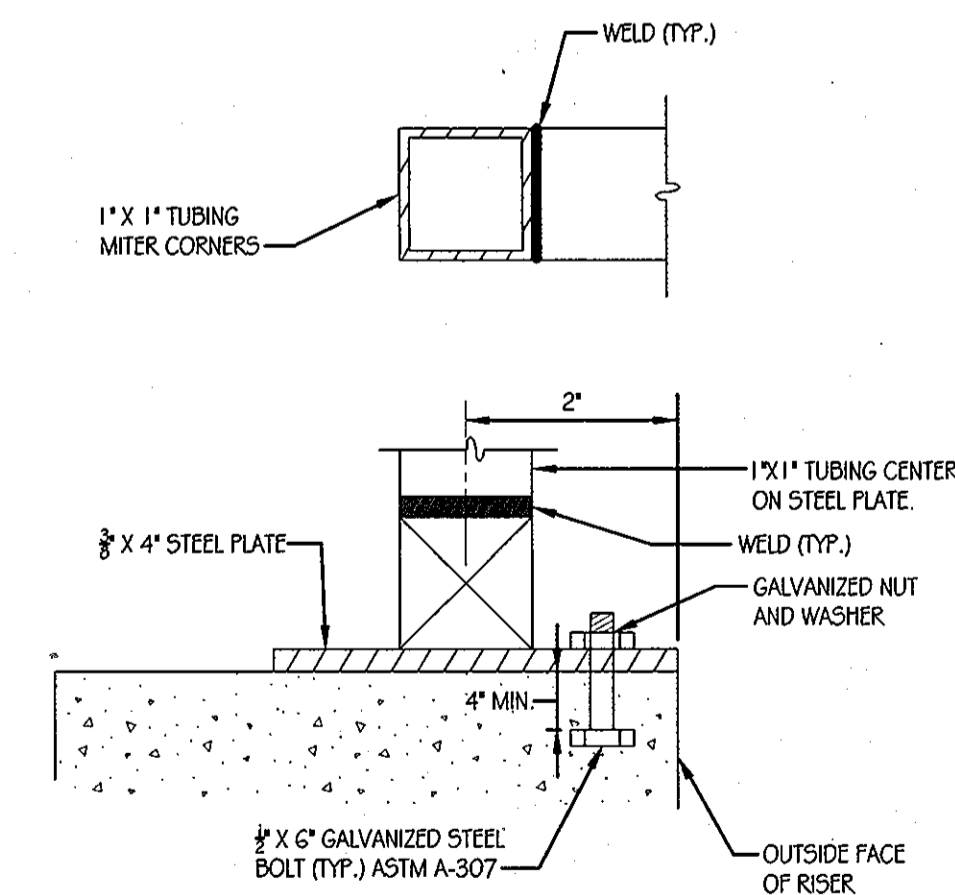
TOP VIEW

ELEVATION

TRASH RACK DETAIL

SCALE: 1/2" = 1'-0"

- NOTES:  
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION.  
2. FINAL FINISH OF TRASH RACK SHALL BE "PAINTED BATTLESHIP GREY"



TRASH RACK WELDING DETAIL

SCALE: NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS	
<i>Diane Schwab, Acting</i>	11/22/11
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
<i>Keith Shedd</i>	11/23/11
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>John Williams</i>	11/23/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE

**Orchard Development Corporation**  
3300 SENECA TRAIL  
ELICOTT CITY, MD 21042  
(410) 964-2334

**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER/DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SENECA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS
<b>ORCHARD MEADOWS</b> PARCEL D-1, D-2 & D-3		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.: 31089 EXPIRATION DATE: 11/12/12
TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R-A-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD		<b>TITLE</b> STORMWATER MANAGEMENT - FACILITY #4 DETAILS
<b>DESIGN BY:</b> D.E.S.		<b>PROJECT NO.:</b> 27101105
<b>DRAWN BY:</b> C.T.B.		<b>SHEET 23 OF 23</b>
<b>CHECKED BY:</b>		<b>DRAWING NUMBER</b> FC-23
<b>DATE:</b> 11-02-2011		<b>APPROVED:</b>

**INSPECTION SCHEDULE**

- THE DEVELOPER SHALL NOTIFY THE COUNTY AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH THE STORMWATER MANAGEMENT PLAN AND UPON COMPLETION OF A PROJECT WHEN A FINAL INSPECTION WILL BE CONDUCTED.
- AT A MINIMUM, REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED AT THE FOLLOWING SPECIFIED STAGES OF CONSTRUCTION:
  - DURING EXCAVATION TO SUBGRADE;
  - DURING PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEM;
  - DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA;
  - DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS DIVERSION STRUCTURES, PRE-FILTERS, FILTERS, OUTLETS, AND FLOW DISTRIBUTION STRUCTURES; AND
  - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
- INSPECTIONS SHALL BE CONDUCTED BY THE DEPARTMENT OF PUBLIC WORKS OR ITS AUTHORIZED REPRESENTATIVE. WRITTEN INSPECTION REPORTS SHALL BE MADE OF THE PERIODIC INSPECTIONS NECESSARY DURING CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS TO ENSURE COMPLIANCE WITH THE APPROVED PLANS.
- WRITTEN INSPECTION REPORTS SHALL INCLUDE:
  - DATE AND LOCATION OF INSPECTION;
  - WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN;
  - ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS; AND
  - ANY VIOLATIONS THAT EXIST.
- ONCE CONSTRUCTION IS COMPLETE, AN AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY THE APPROPRIATE DESIGN PROFESSIONAL LICENSED IN THE STATE OF MARYLAND TO ENSURE THE CONSTRUCTED STORMWATER MANAGEMENT PRACTICE AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED.

**STORMWATER MANAGEMENT FACILITY SEQUENCE OF CONSTRUCTION**

- NOTIFY CERTIFYING ENGINEER FIVE (5) WORKING DAYS PRIOR TO BEGINNING STORM WATER MANAGEMENT FACILITY CONSTRUCTION.
- NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO DOING ANY WORK.
- CLEAR, GRUB, AND INSTALL PERIMETER SEDIMENT CONTROL MEASURES AS SHOWN ON THE SEDIMENT CONTROL PLAN.
- REFER TO SEDIMENT CONTROL PLAN FOR SEDIMENT BASIN CONSTRUCTION.
- UPON STABILIZATION OF DRAINAGE AREA EXCAVATE FOR INSTALLATION OF SAND FILTER (2-DAYS)
- INSTALL SAND FILTER AND UNDERDRAINS. (3-DAYS)
- FINE GRADE AND PERMANENTLY STABILIZE DISTURBED AREA. (2-DAYS)

**CL BERM 'A' DATA**

STATION	BEARING/ RADIUS	DISTANCE / ARC LENGTH	CHORD
0+00			
0+27.33	S62°20'32"W	27.33'	
1+32.33	S82°16'39"E	105.00'	
1+86.06	35.0'	55.73'	N52°16'26"E 50.03'

**PLANT SCHEDULE**

KEY	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	COMMENTS
EP	72	EUPATORIUM PURPUREUM LITTLE JOE / LITTLE JOE PYREWEED	18" - 24" HT.	CONT.	PLANT 2' O.C.
IG	13	ILEX GLABRA SHAMROCK / SHAMROCK INKBERRY	3' - 4' HT.	CONT.	PLANT 5' O.C.
MP	25	MYRICA PENNSYLVANICA / BAYBERRY	30" - 36" HT.	CONT.	PLANT 4' O.C.
PV	25	PANICUM VIRGATUM 'HEAVY METAL' HEAVY METAL SWITCHGRASS	3' - 4' HT.	CONT.	PLANT 5' O.C.

**DESIGN SUMMARY**

- FACILITY NUMBER: 6
- FACILITY TYPE: SURFACE SAND FILTER / DETENTION
- DRAINAGE AREA = 5.12 AC.
- BOTTOM ELEVATION = 424.00
- TOP OF DAM ELEVATION = 432.00
- STORAGE VOLUME PROVIDED = 0.391 AC. FT.
- WATER SURFACE ELEVATION:
  - 10 YEAR = 428.45
  - 100 YEAR = 429.83
- DISCHARGE:
  - 10 YEAR = 3.41 CFS
  - 100 YEAR = 3.94 CFS
- RISER TYPE: SEE DETAILS
- BARREL TYPE: 21" RCCP

- MAINTENANCE RESPONSIBILITY: THIS IS A PRIVATE FACILITY TO BE OWNED AND MAINTAINED BY THE OWNER.
- THIS FACILITY IS EXEMPT FROM MD378 GUIDELINES IN THAT THE STORAGE AT DESIGN HIGH WATER DOES NOT EXCEED 40,000 CF AND THE EMBANKMENT HEIGHT IS LESS THAN 6 FEET. (MD-378 HAZARD CLASS - A)
- THIS FACILITY PROVIDES QUALITY TREATMENT & QUANTITY MANAGEMENT WITHIN THE HUDSON BRANCH WATERSHED. THE FOLLOWING TABLE SHOWS THE MANAGEMENT PROVISIONS FOR THIS FACILITY.

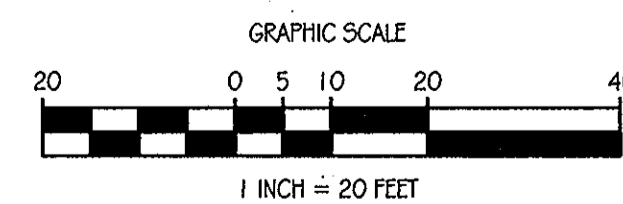
DRAINAGE AREA	PROVIDED		QUANTITY @ HUDSON BRANCH DESIGN POINT			
	R	ESD <sub>v</sub>	10 YEAR STORM EVENT	100 YR. STORM		
1.43 AC.	1.77	5,410 C.F.	7.63 CFS	5.26 CFS	-2.37 CFS	16.97 CFS
		7,213 C.F.				7.24 CFS
						-9.73 CFS

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

- THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
- THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHED 18" IN HEIGHT OR AS NEEDED.
- FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.
- A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE FILTRATION 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.

**LEGEND**

- SOIL BORING
- EX. CONTOURS
- PROP. CONTOURS
- PROP. STORM DRAIN
- TOP OF BERM
- LIMIT OF SAND FILTER
- RIP-RAP OUTFALL

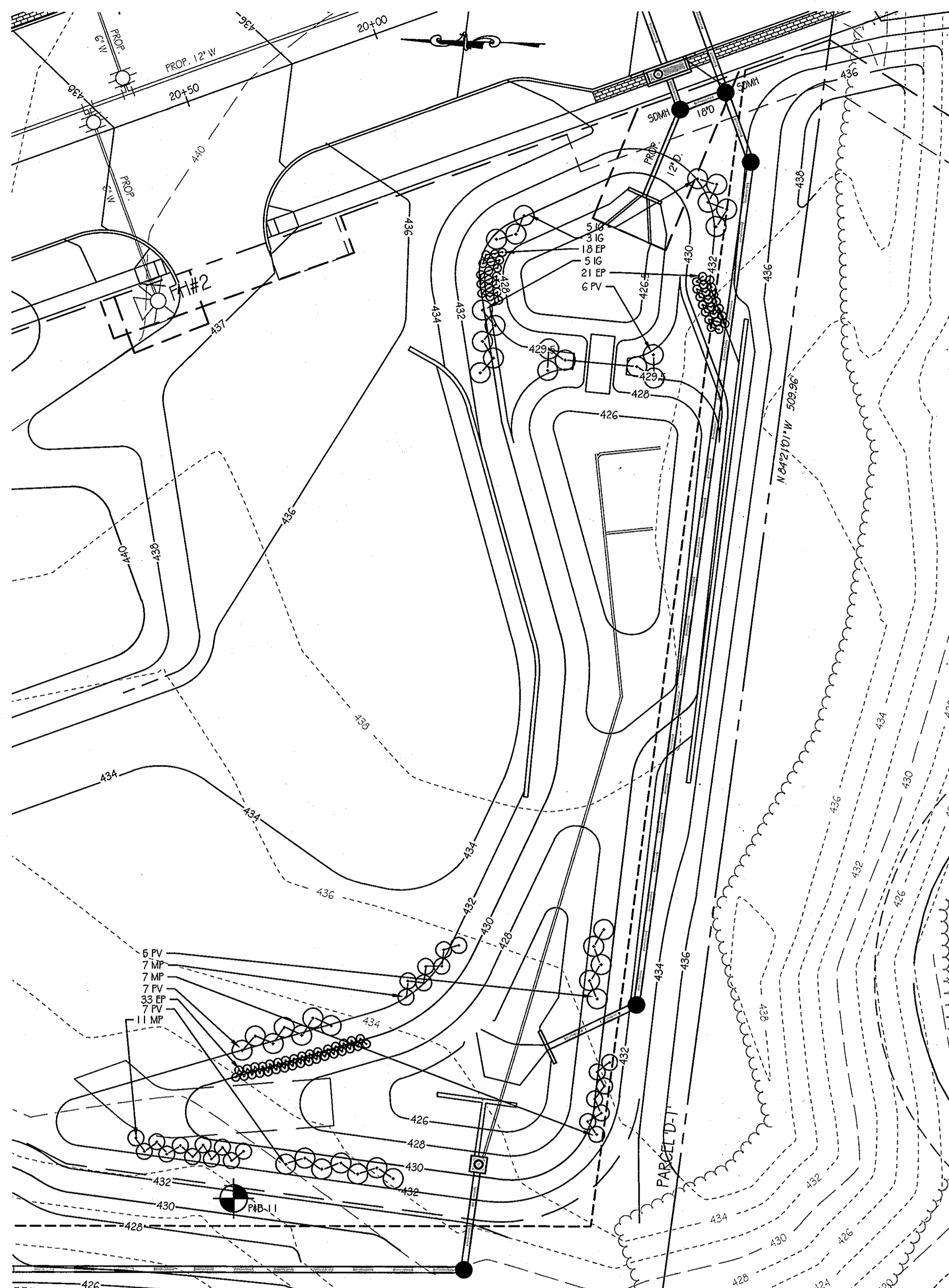


THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schroy, Acting*  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE: 11/22/11

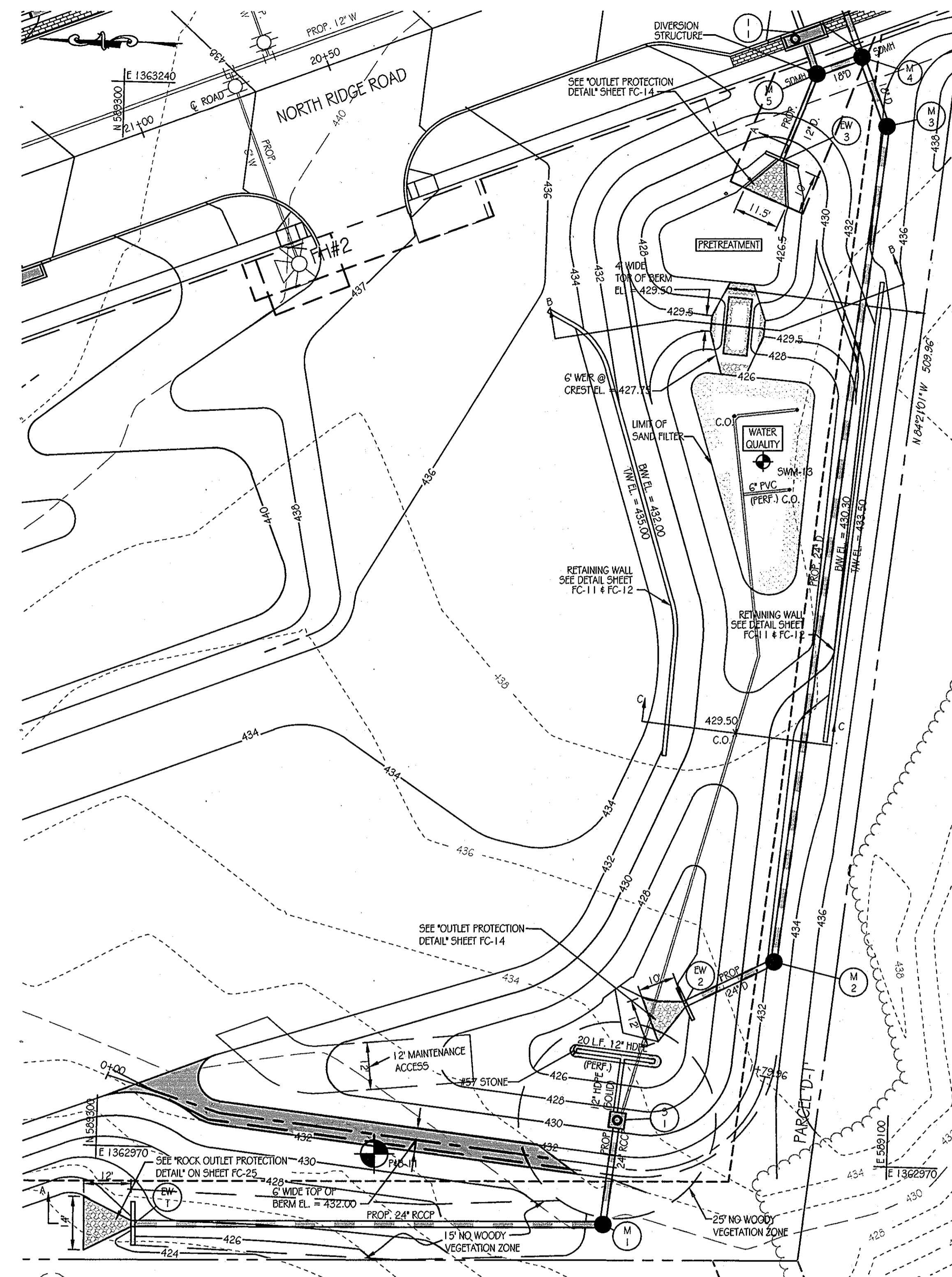
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kat Rindfleisch*  
 CHIEF-DIVISION OF LAND DEVELOPMENT  
 DATE: 11/23/11

CHIEF-DEVELOPMENT ENGINEERING DIVISION  
 DATE: 11/23/11



**FACILITY #6 LANDSCAPE PLAN**

SCALE: 1" = 20'



**SWM FACILITY #6 PLAN**

SCALE: 1" = 20'

**OrchardDevelopment Corporation**

**CRP Opportunity Fund, L.P.**

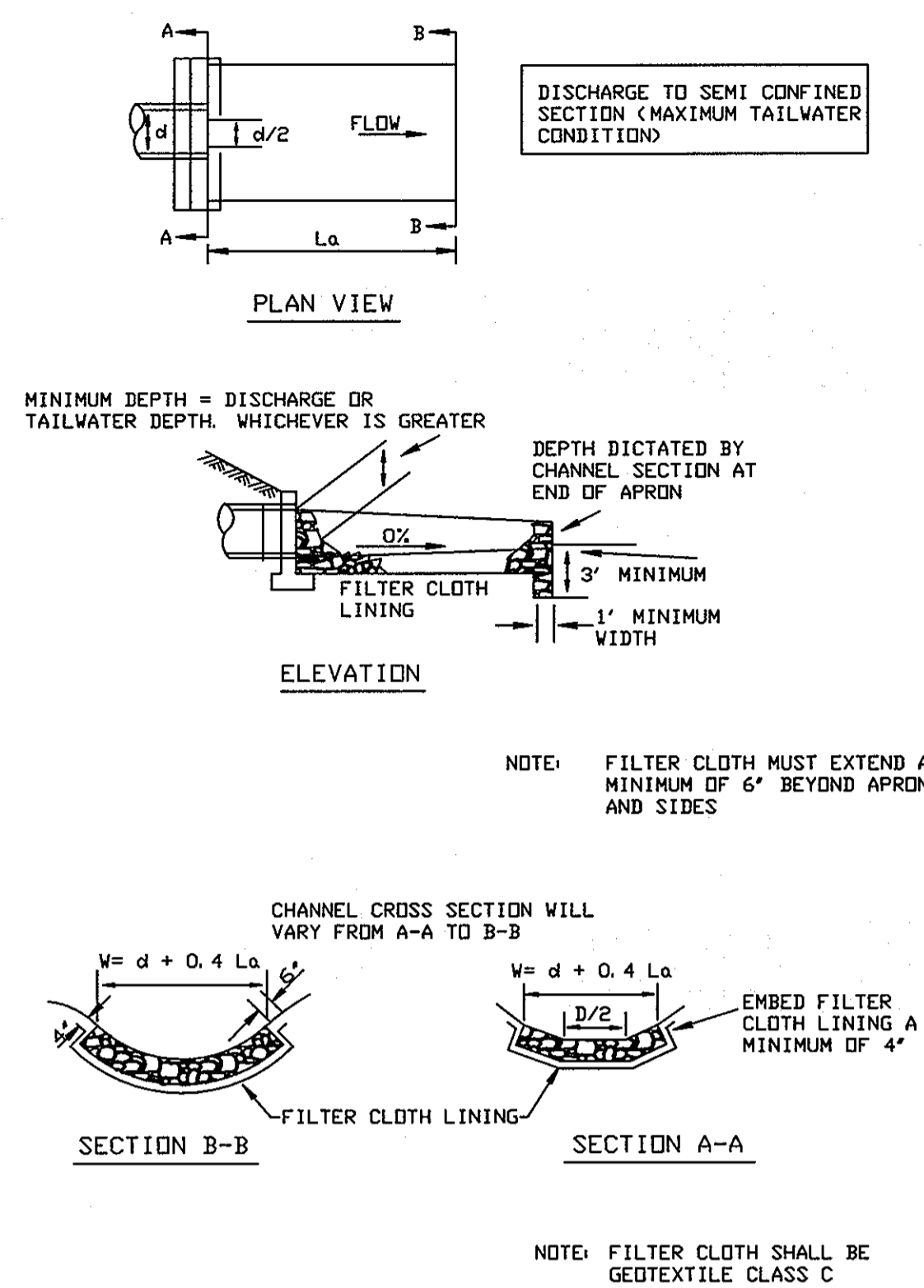
CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5333 DOBSON HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2334

OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SONIA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS
		ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
		<b>KCI TECHNOLOGIES</b> 8161 MARLE LANE BOULEVARD SUITE 150 FULTON, MD 20759 TELEPHONE: (410) 92-8086 FAX: (410) 92-7493
		<b>STATE OF MARYLAND</b> PROFESSIONAL ENGINEER 11-2-11
<b>ORCHARD MEADOWS</b> PARCEL D-1, D-2 & D-3 TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R-A-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD		
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.: 31069 EXPIRATION DATE: 11/12/12		
<b>TITLE</b> STORMWATER MANAGEMENT - FACILITY #6 PLAN		
DESIGN BY: B.E.S.	SCALE: AS SHOWN	PROJECT NO.: 2710105
DRAWN BY: C.T.B.	DATE: 11-02-2011	SHEET 24 OF 29
CHECKED BY:	APPROVED:	DRAWING NUMBER <b>FC-24</b>



DETAIL 25 - ROCK OUTLET PROTECTION I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-8 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION I

Construction Specifications

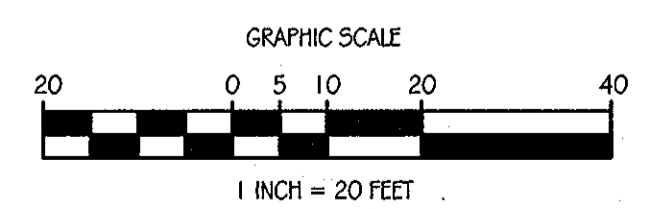
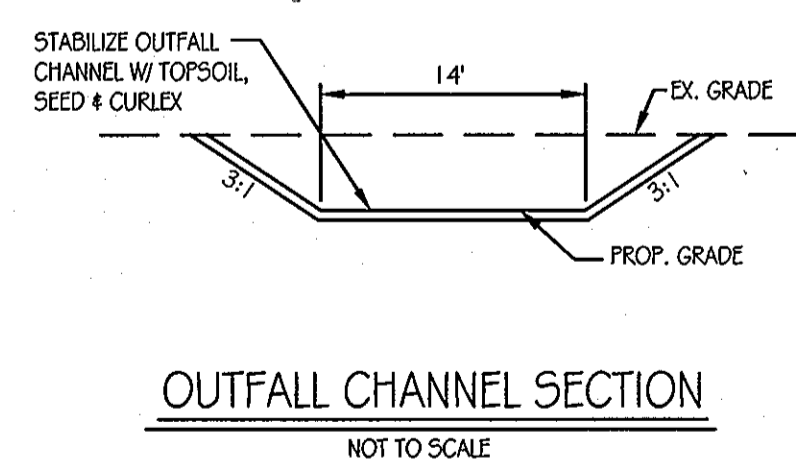
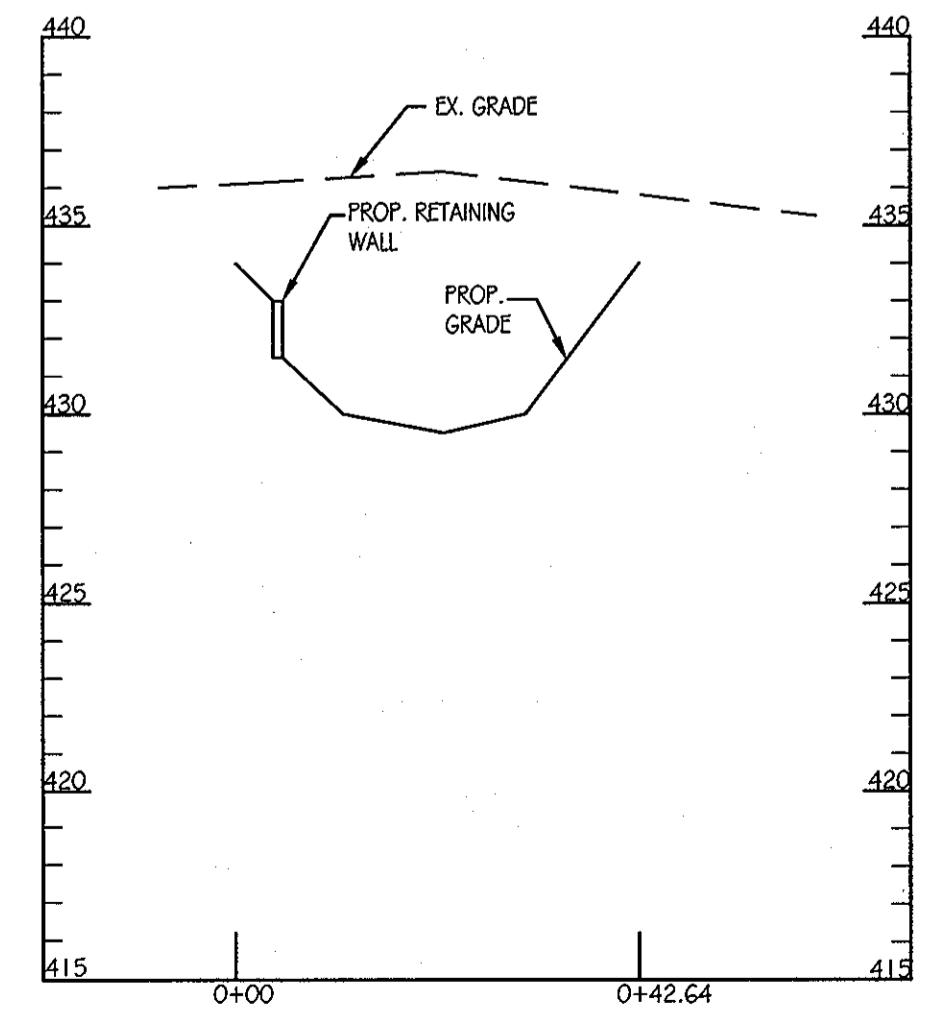
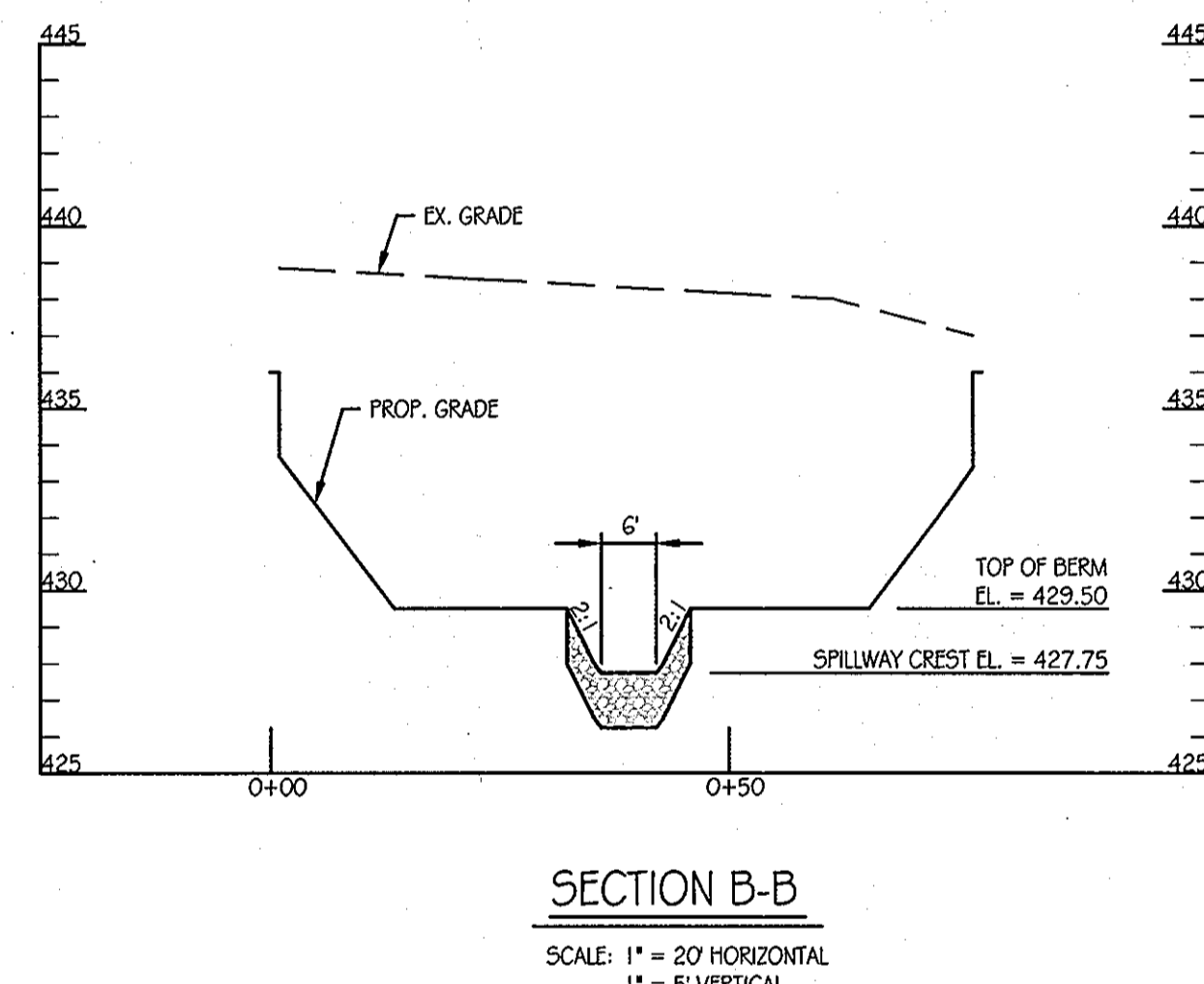
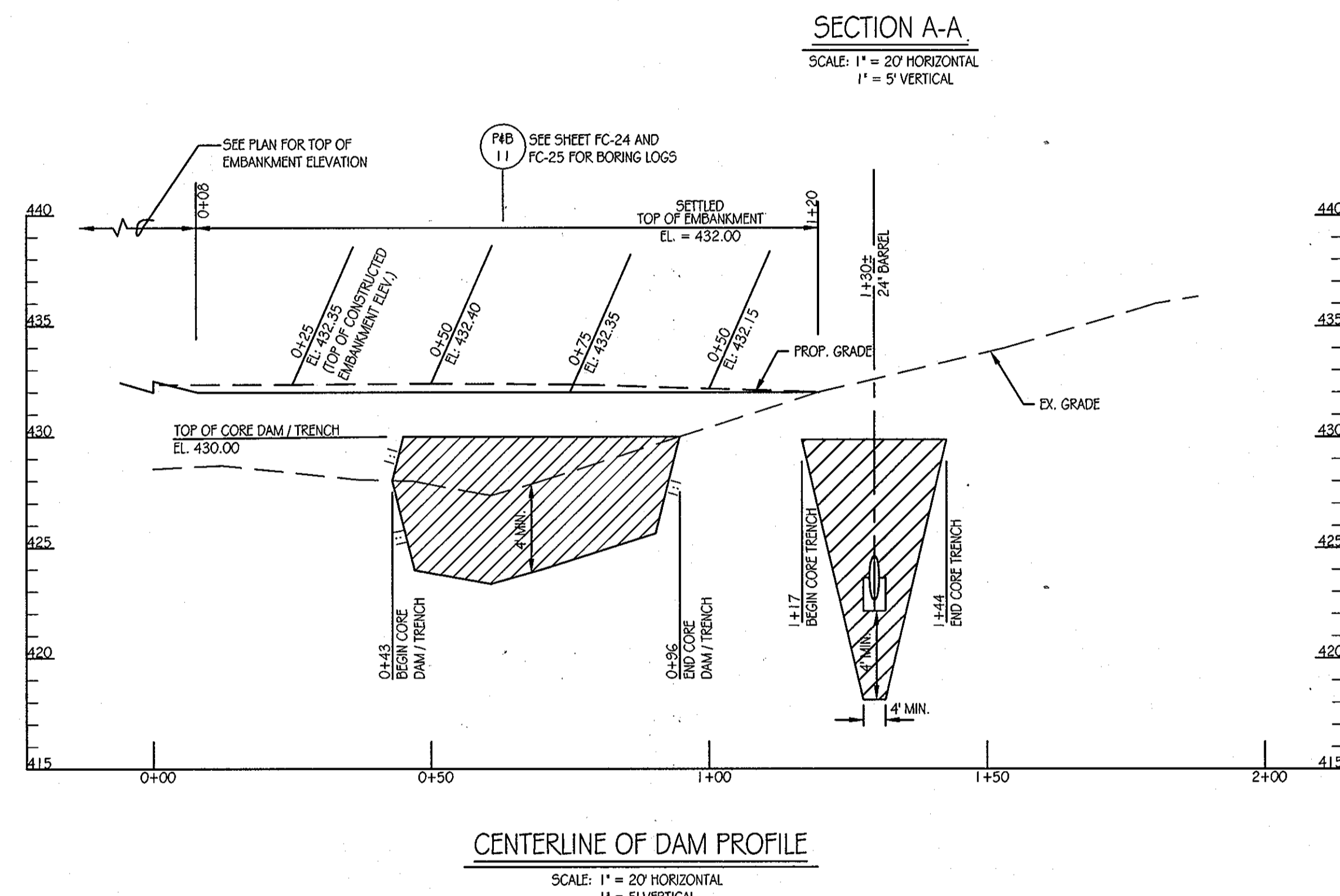
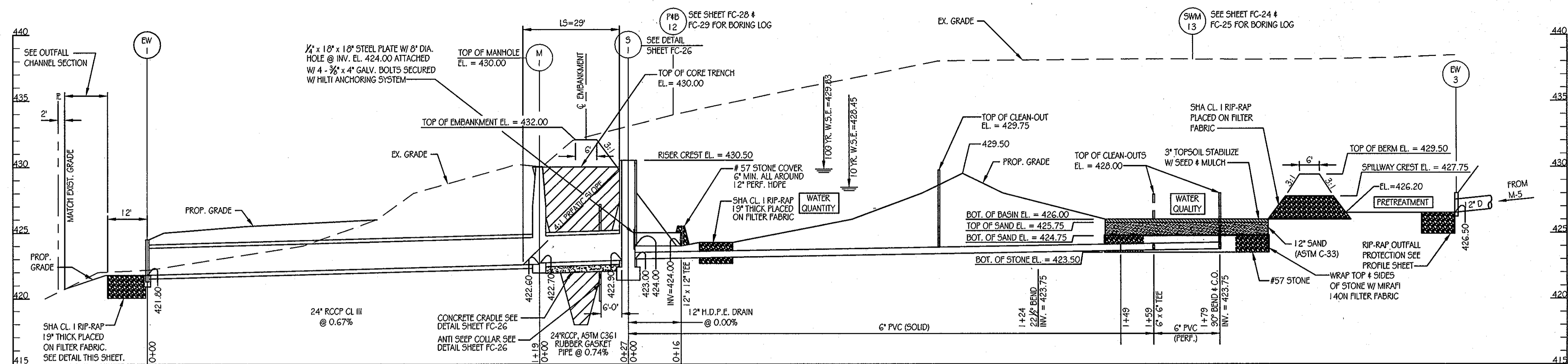
- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- 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 rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous 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. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
- 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-18-8A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diary Schwab, Acting* 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Karl She... ..* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE

*...* 11/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE



**Orchard Development Corporation**  
 CRP Opportunity Fund, L.P.

CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSETT HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2334

OWNER:  
 WILDER BUILDING CORPORATION  
 3300 SOMA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
 ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS  
 8161 MARLE LAWN BOULEVARD, SUITE 150, FULFORD, MD 20759  
 TELEPHONE: (410) 92-8086, FAX: (410) 792-7419

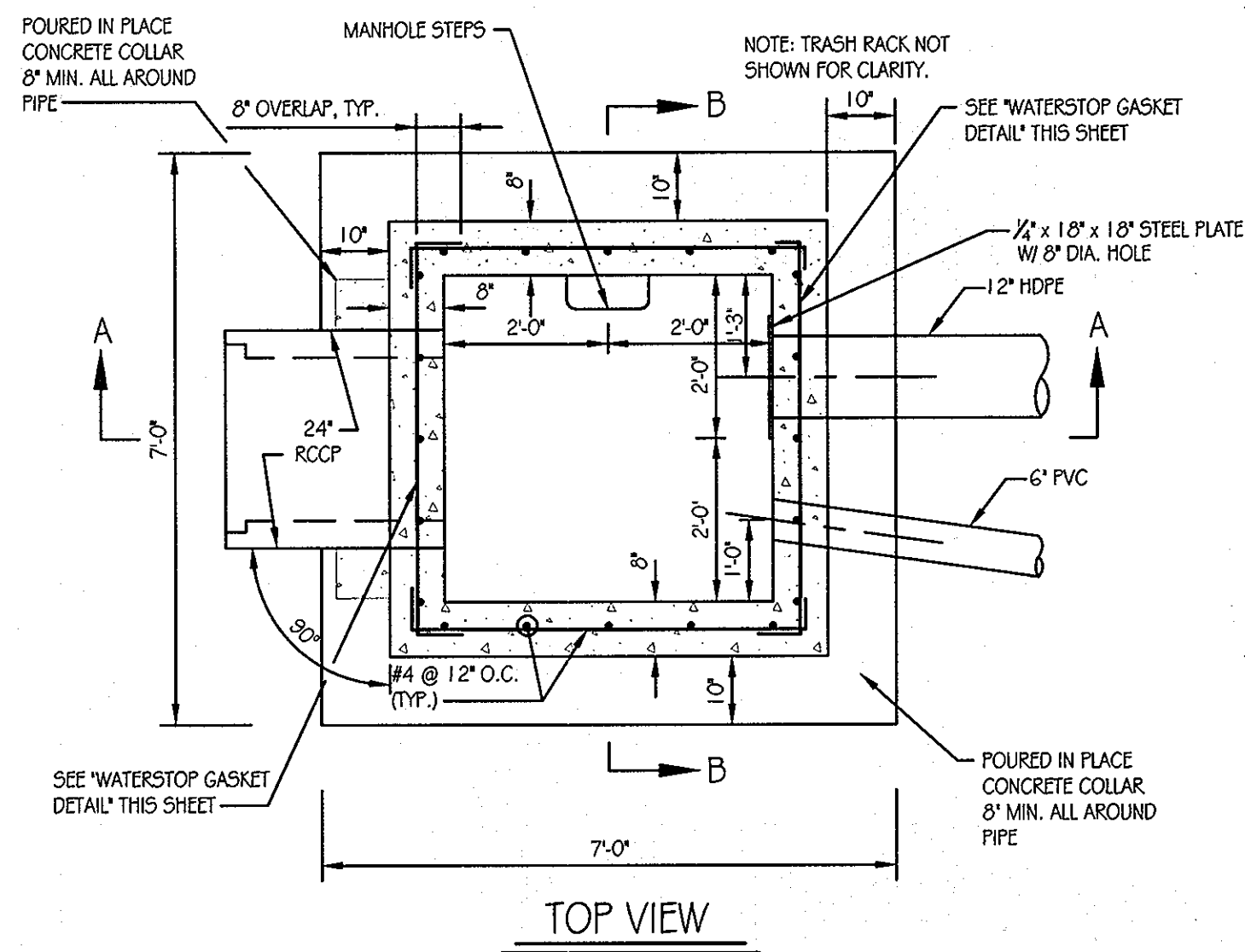
**ORCHARD MEADOWS**  
 PARCEL D-1, D-2 & D-3  
 TAX MAP: 17 GRID: 23 PARCEL: 711  
 ZONED: R-A-15  
 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD

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.: 31089, EXPIRATION DATE: 11/12/12

TITLE: **STORMWATER MANAGEMENT - FACILITY #6 PROFILES**

DESIGN BY: B.L.S. SCALE: AS SHOWN SHEET 25 OF 29  
 DRAWN BY: C.T.B. DATE: 11-02-2011 DRAWING NUMBER  
 CHECKED BY: APPROVED: FC-25

PROJECT NO.: 2101105

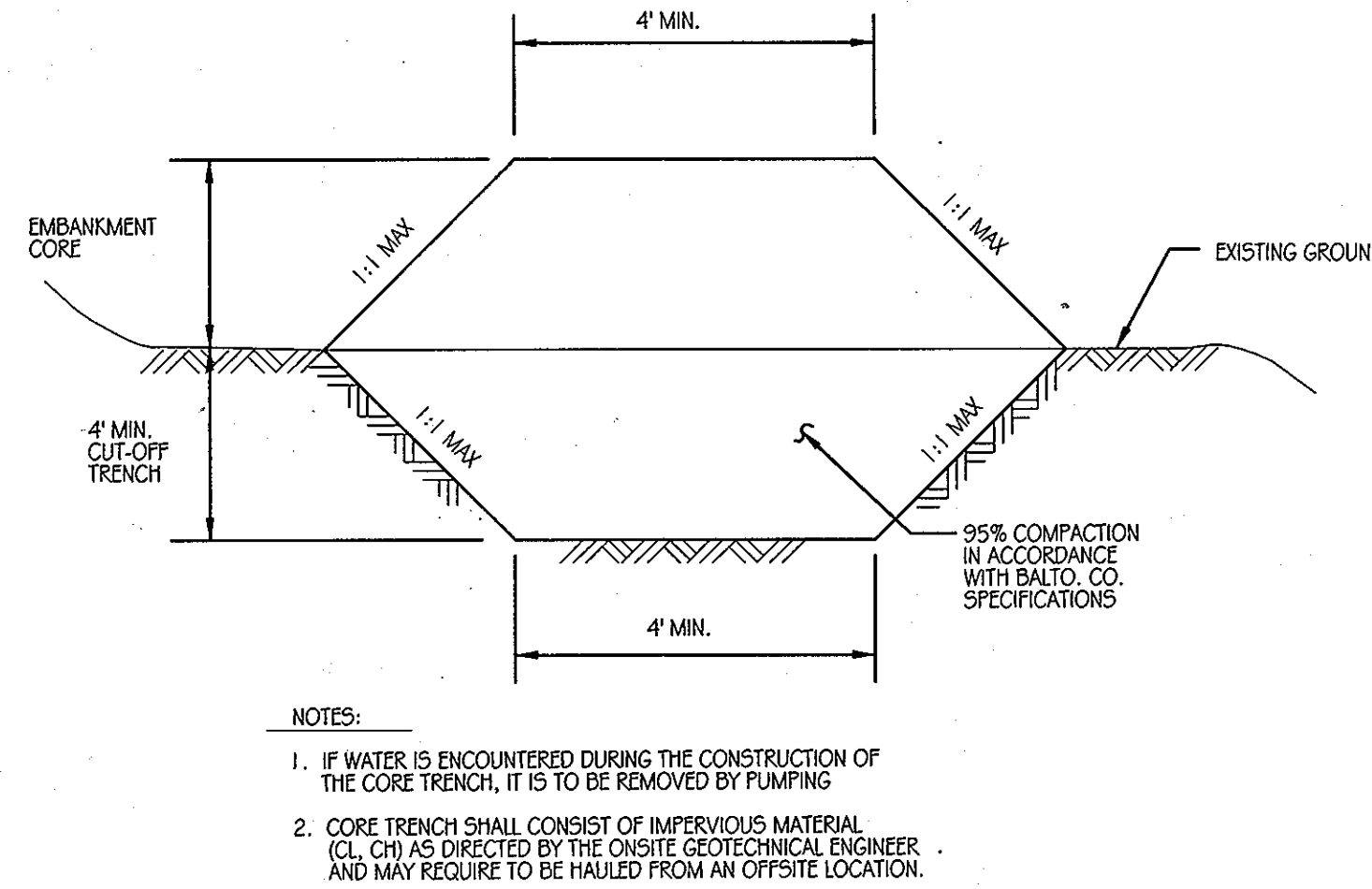


**PRE-CAST CONCRETE AND PRE-FABRICATED STEEL STRUCTURE NOTES**

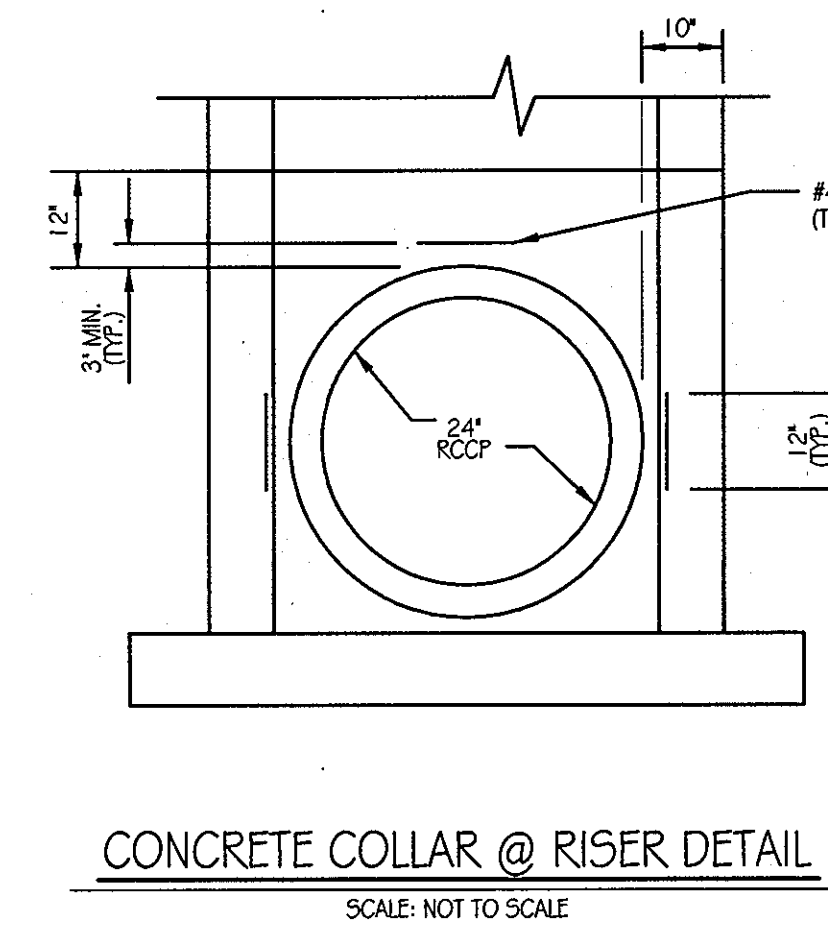
THE CONTRACTOR IS RESPONSIBLE TO PROVIDE STRUCTURAL DESIGN COMPUTATIONS FOR FABRICATED CONCRETE AND STEEL COMPONENTS AS REQUIRED TO ENSURE THE STRUCTURAL INTEGRITY OF THE PRE-CAST CONCRETE RISER AND WELDED STEEL TRASH RACK, IN CONFORMANCE WITH THE INFORMATION AND DIMENSIONAL CRITERIA ON THIS SHEET. SHOP DRAWINGS FOR THE TRASH RACK AND THE PRE-CAST STRUCTURES (MEETING ASTM REQUIREMENTS), WITH THE SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER), MUST BE SUBMITTED TO THE ENGINEER, AND THE APPROVING AGENCY, FOR APPROVAL, PRIOR TO FABRICATION.

IF ANY STRUCTURE DIMENSIONS VARY FROM THOSE ORIGINALLY REVIEWED/ APPROVED, THEN THE HYDRAULICS, FLOTATION AND STRUCTURAL INTEGRITY WILL HAVE TO BE RE-ANALYZED.

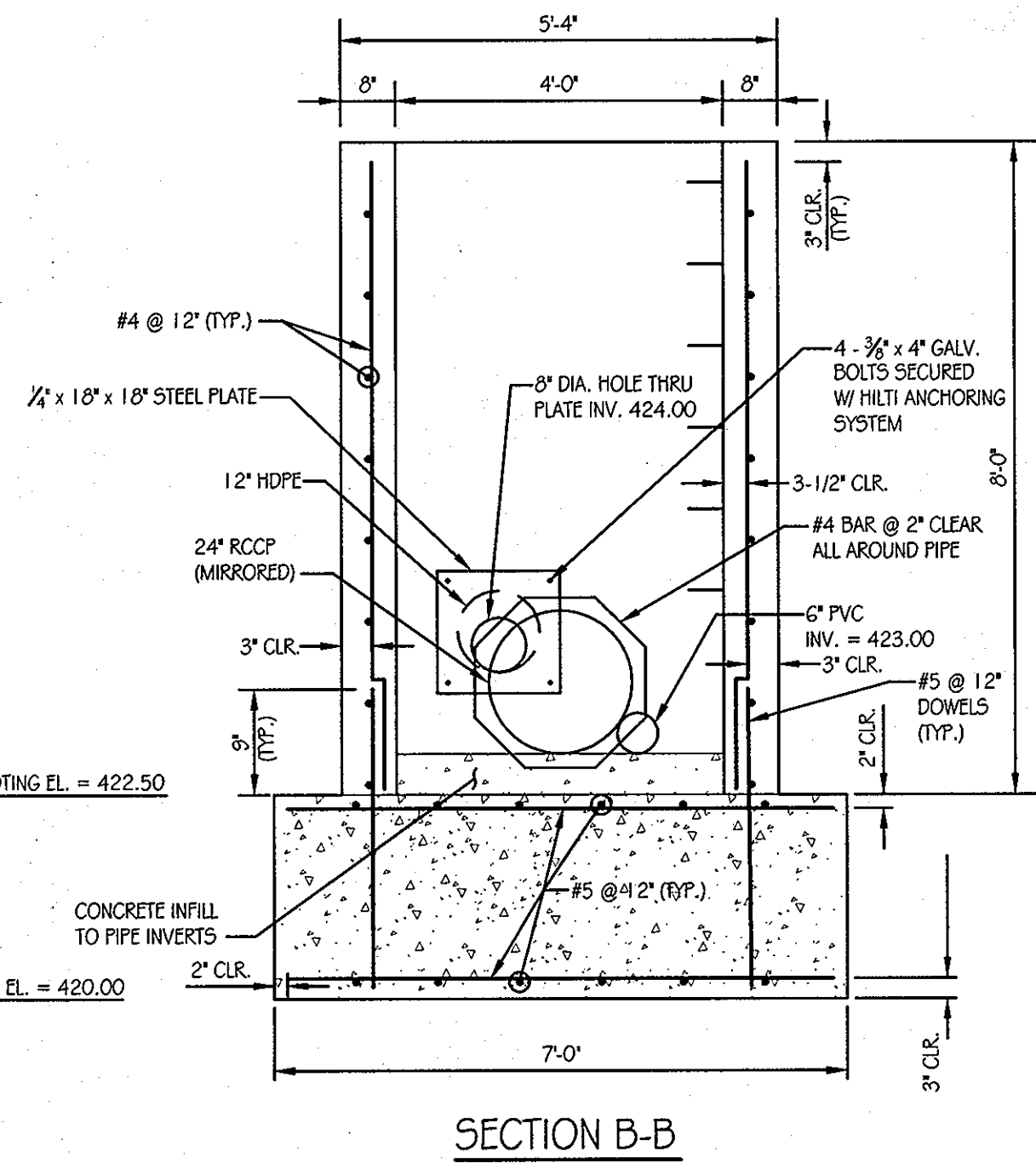
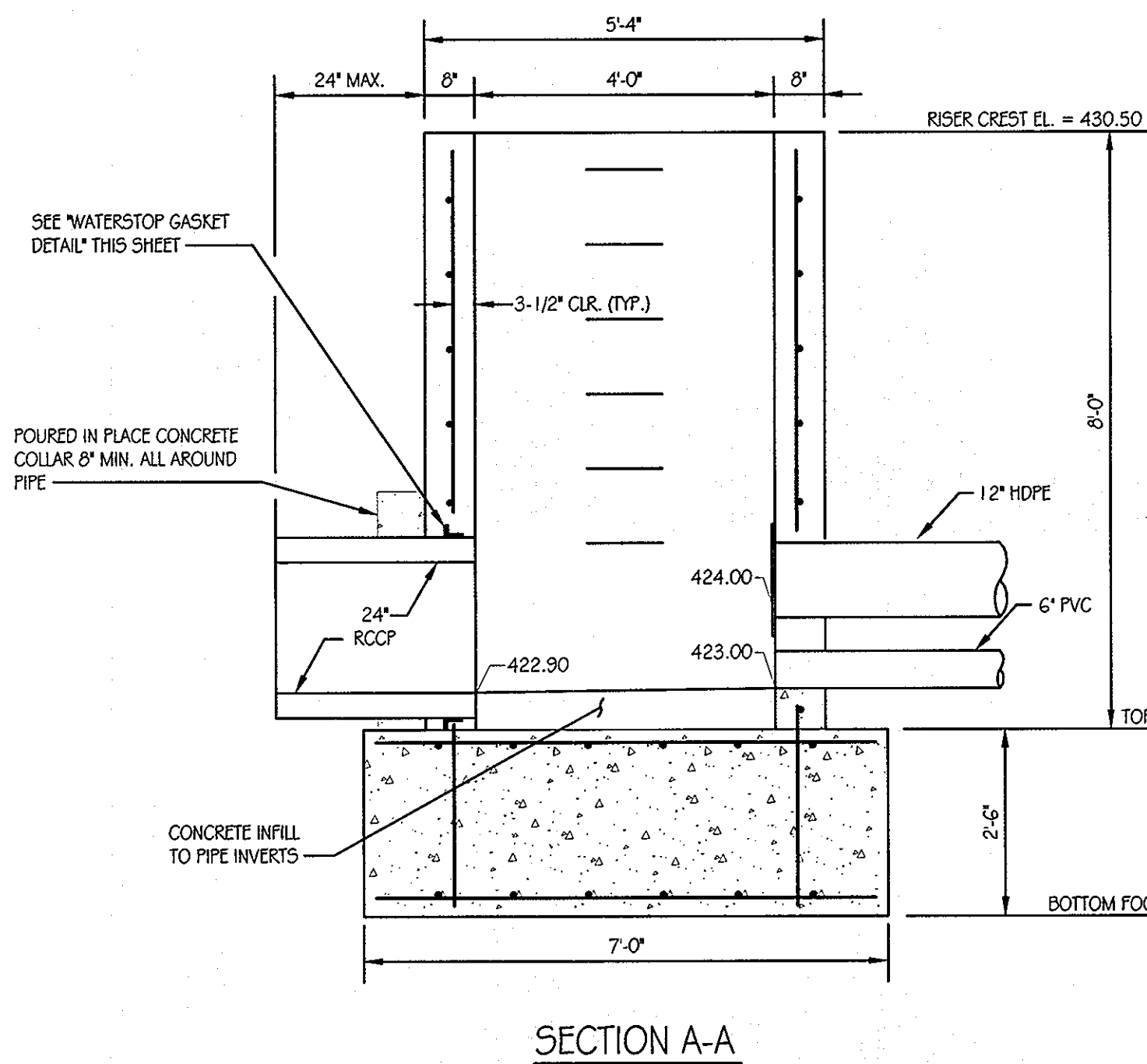
ALL JOINTS AND CONNECTIONS SHALL BE WATER-TIGHT. METHOD OF ACHIEVING A WATER-TIGHT SEAL BETWEEN THE RISER STRUCTURE, AND ALL CONDUITS (I. E. BARREL AND LOW FLOW PIPES) SHALL BE APPROVED BY THE ENGINEER IN CHARGE, PRIOR TO FABRICATION.



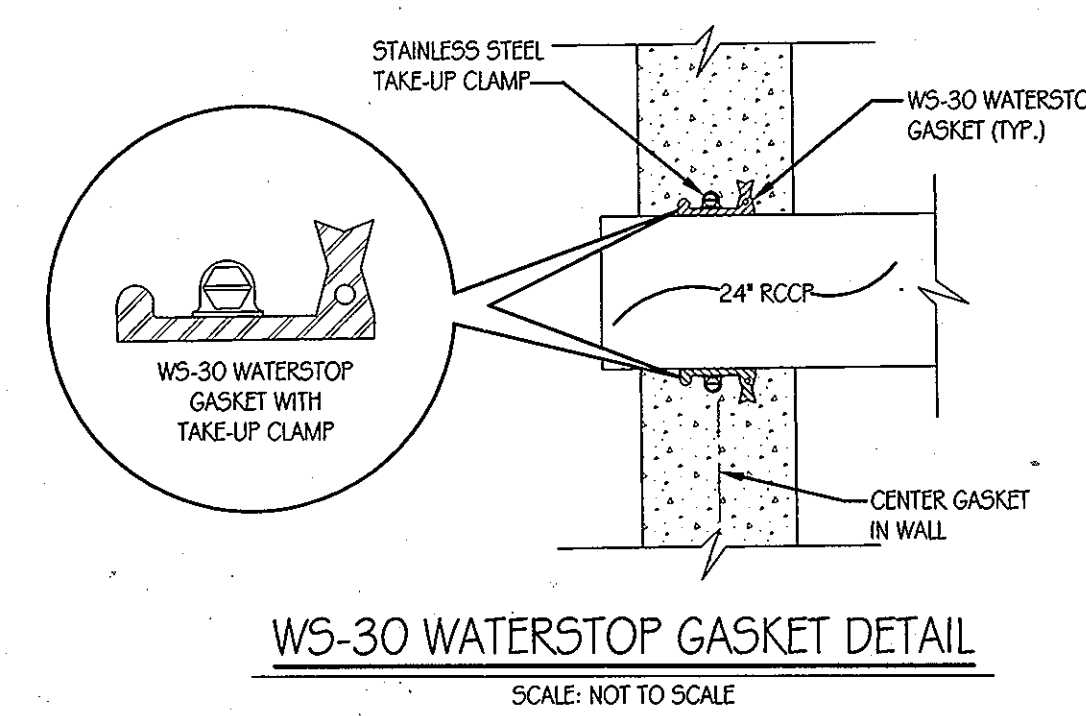
**CORE DAM / TRENCH SECTION**  
SCALE: NOT TO SCALE



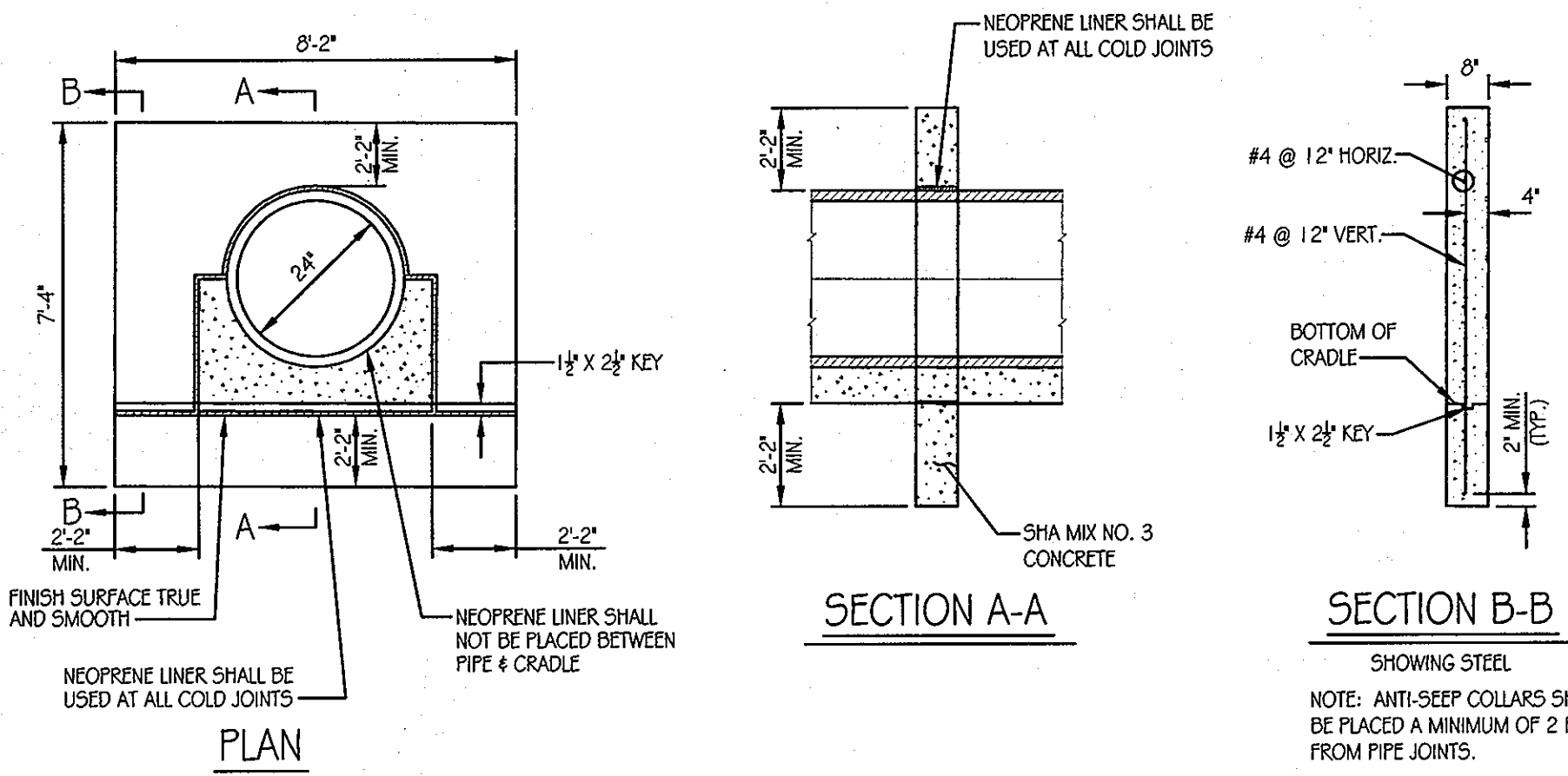
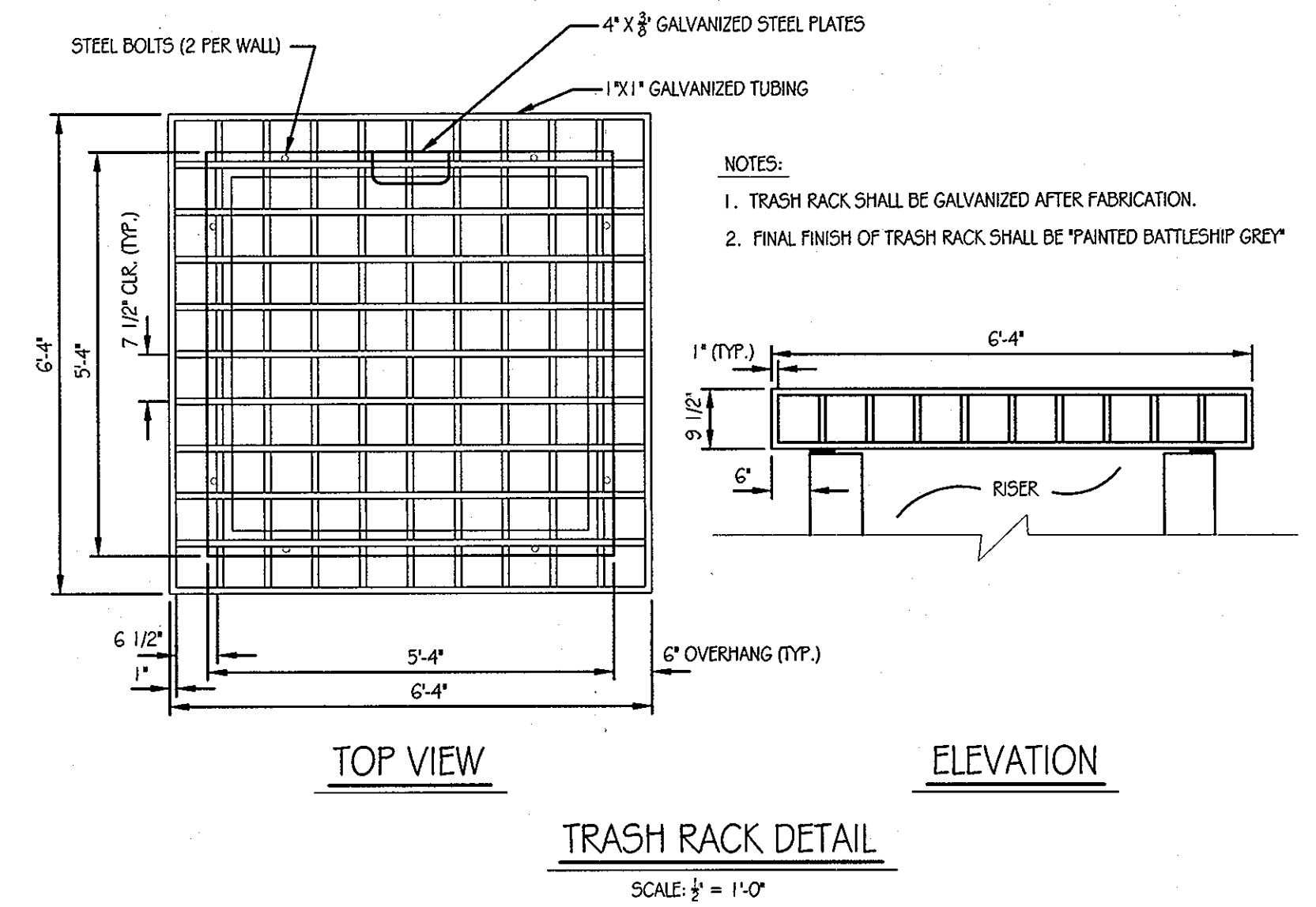
**CONCRETE COLLAR @ RISER DETAIL**  
SCALE: NOT TO SCALE



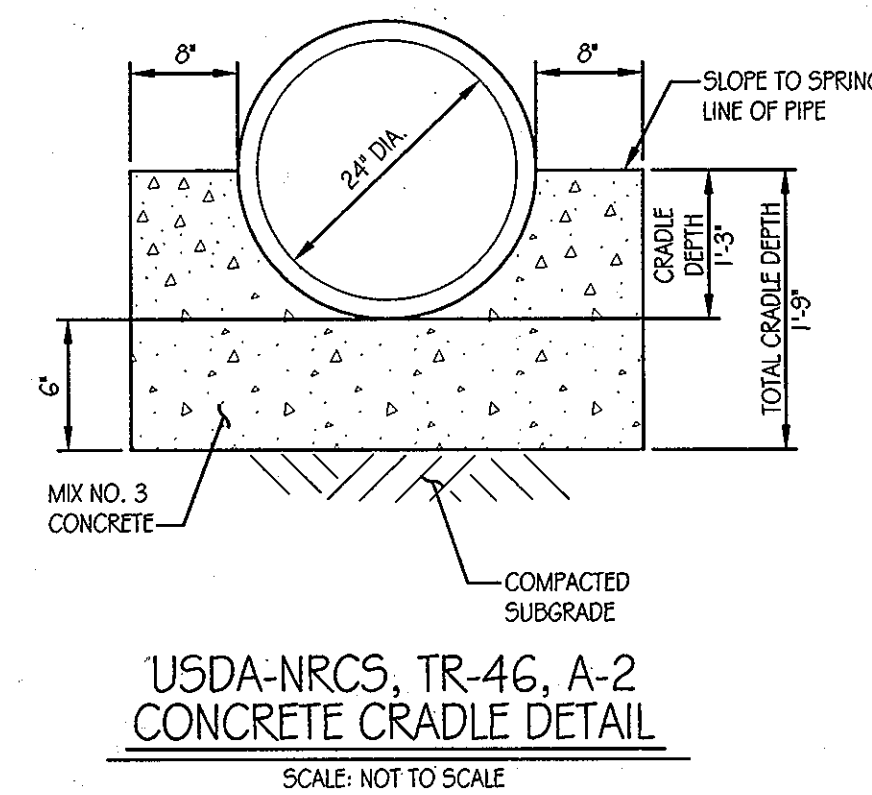
**WATER QUALITY RISER DETAIL (S-1)**  
SCALE: 1/2" = 1'-0"



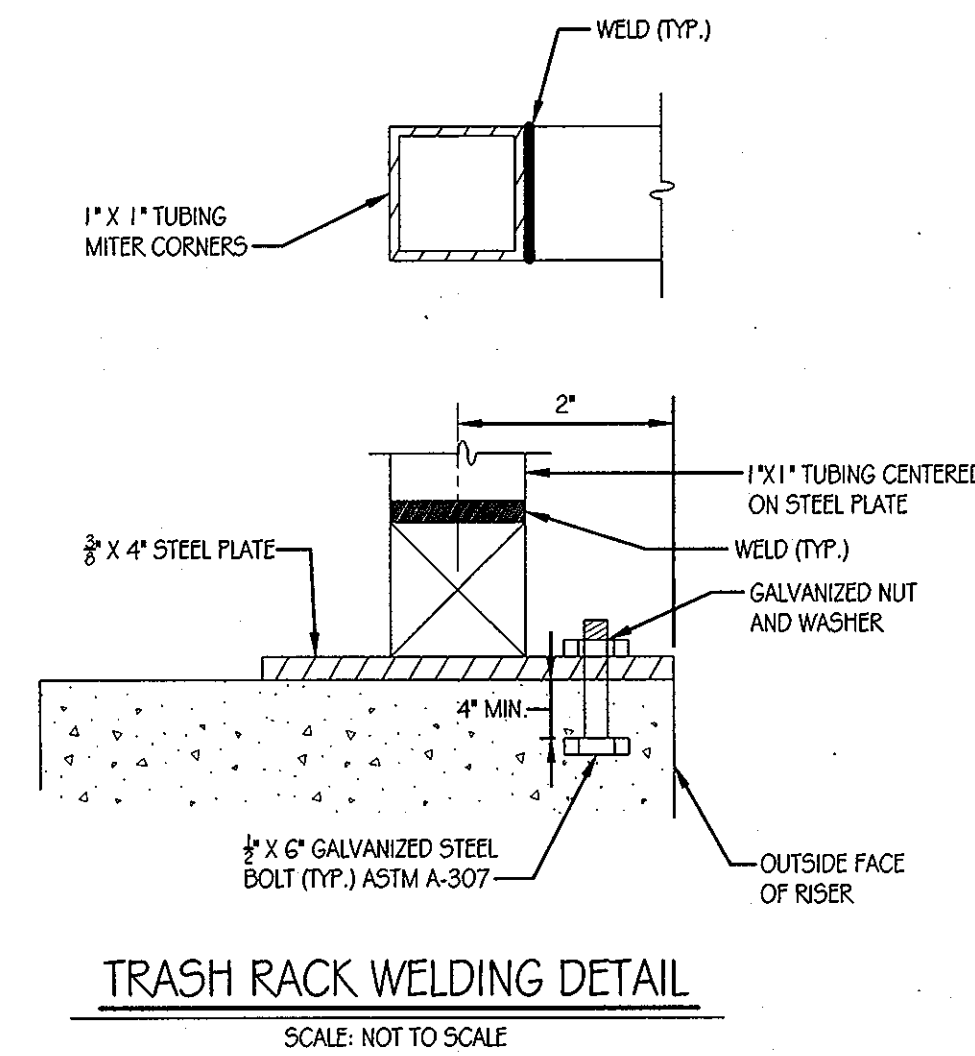
**WS-30 WATERSTOP GASKET DETAIL**  
SCALE: NOT TO SCALE



**ANTI-SEEP COLLAR DETAIL (CAST-IN-PLACE)**  
SCALE: NOT TO SCALE



**USDA-NRCS, TR-46, A-2 CONCRETE CRADLE DETAIL**  
SCALE: NOT TO SCALE



**TRASH RACK WELDING DETAIL**  
SCALE: NOT TO SCALE

BY THE ENGINEER:

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

*Richard L. Bost*  
SIGNATURE OF ENGINEER

11-2-2011  
DATE

Richard L. BOST  
PRINT NAME

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

*L. Scott Kermace*  
SIGNATURE OF DEVELOPER

11-3-11  
DATE

L. SCOTT KERMACE  
PRINT NAME

APPROVED: DEPARTMENT OF PUBLIC WORKS

*Diane Schwan*  
CHIEF, BUREAU OF HIGHWAYS

11/22/11  
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Scott Schwan*  
CHIEF-DIVISION OF LAND DEVELOPMENT

11/23/11  
DATE

*L. Scott Kermace*  
CHIEF-DEVELOPMENT ENGINEERING DIVISION

11/23/11  
DATE

**OrchardDevelopment Corporation**

**CRP Opportunity Fund, L.P.**

CONTRACT PURCHASER/ DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5032 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WILDER BUILDING CORPORATION  
3300 SONIA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2522

TITLE

STORMWATER MANAGEMENT - FACILITY #6 DETAILS

DESIGN BY: D.E.S.

SCALE: AS SHOWN

DRAWN BY: C.T.B.

DATE: 11-02-2011

CHECKED BY:

APPROVED:

DATE	NUMBER	REVISION DESCRIPTIONS
		ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
		8161 MARLE LANE BOULEVARD SUITE 150 FULTON, MD 20759 TELEPHONE: (410) 92-8086 FAX: (410) 792-7419
		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.: 31089 EXPIRATION DATE: 11/12/12
		TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R.A-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD
		PROJECT NO.: 27101105
		SHEET 26 OF 29
		DRAWING NUMBER <b>FC-26</b>

**POND CONSTRUCTION SPECIFICATIONS**

**GENERAL**

ALL STORMWATER MANAGEMENT FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND THE N.R.C.S. MARYLAND STANDARDS AND SPECIFICATIONS FOR PONDS (MARYLAND CODE 37B POND - JANUARY 2000)

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS SHOWN ON THESE PLANS. 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 OF 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.

**FARTH FILL**

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6" FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION 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. IF REQUIRED, CUTOFF TRENCH WILL BE SHOWN ON PLANS.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL MATERIALS. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 6" THICK LAYERS (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 TIRE OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE 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.

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 GEOTECHNICAL 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 (NOT REQUIRED UNLESS SHOWN ON PLANS) SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET, SHALL COVER THE BOTTOM WIDTH OF THE TRENCH. THE DEPTH SHALL BE AT 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 (NOT REQUIRED UNLESS SHOWN ON PLANS) SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENTS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION 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.

CORE DAM / TRENCH MATERIAL SHALL BE 'CL', 'SC', 'CH' OR 'GC' ONLY. CONTRACTOR SHALL ASSUME CORE DAM / TRENCH MATERIAL IS NOT AVAILABLE ON-SITE & MUST BE OBTAINED FROM AN OFF-SITE LOCATION.

**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 FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE, UNDER NO 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 MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI, 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM FH 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 SIDES 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.

**REMOVAL AND REPLACEMENT OF DEFECTIVE FILL**

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

**PIPE CONDUITS**

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

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

**REINFORCED CONCRETE PIPE**

ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE.

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

**PLASTIC PIPE** - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

- MATERIAL - PVC PIPE SHALL BE PVC-1 1/2" OR PVC-1 220 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 M225, TYPE 5, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M225, TYPE 5.
- JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.
- BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
- BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
- OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

**CONCRETE**

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

**CAST IN PLACE CONCRETE STRUCTURES (ANTI-SEEP COLLAR)**

1. SPECIFICATIONS: MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION.

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION, FOR DESIGN. CONCRETE DESIGN BY THE "SERVICE LOAD DESIGN METHOD".

2. CONCRETE: SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 420 AND 920, MIX NO. 3.

3. CONTRACTOR MAY ADD COLOR MIX (IF SPECIFIED ON PLAN) AT PLANT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATION "C-12 MESA BEIGE" AS MANUFACTURED BY L. M. SCOFIELD COMPANY 21 3) 723-5265.

CONTRACTOR SHALL SUPPLY MIX DESIGN FOR APPROVAL PRIOR TO APPLICATION. LOAD AND MIX TICKETS SHALL BE SUPPLIED FOR EACH TRUCK DELIVERY. NO PARTIAL FIELD MIXES SHALL BE ALLOWED.

ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS. DESIGN FC = 1,200 PSI.

ALL CONSTRUCTION KEYS SHALL BE 3/4" UNLESS OTHERWISE NOTED. ALL CONSTRUCTION KEYS ARE SHOWN NOMINAL SIZE.

4. REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60. WHERE NOT INDICATED, BAR LAP SPLICES SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATIONS. THE MINIMUM CONCRETE COVER SHALL BE 2 INCHES UNLESS OTHERWISE NOTED. DESIGN FS = 24,000 PSI.

5. FOUNDATION: PRESUMED SOIL BEARING CAPACITY = 2,500 PSF. THE ENGINEER MUST APPROVE ALL FOUNDATIONS PRIOR TO CONCRETE PLACEMENT. IF UNSUITABLE MATERIAL IS ENCOUNTERED, THE MATERIAL SHALL BE UNDERCUT AND BACKFILLED WITH STRUCTURAL BACKFILL.

6. STRUCTURAL BACKFILL: CAST-IN-PLACE CONCRETE STRUCTURES AND PIPE SHALL BE BACKFILLED WITH MATERIAL OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. STRUCTURAL FILL SHALL BE PLACED IN LOOSE LIFTS OF APPROXIMATELY 6 INCHES, AND COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO T-100. THE STATIC WEIGHT OF EQUIPMENT USED ADJACENT TO WALLS SHALL NOT EXCEED 3,000 POUNDS. NO BACKFILL SHALL BE PLACED AGAINST THE CAST-IN-PLACE WALLS UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED 28 DAY STRENGTH.

**PRE-CAST CONCRETE STRUCTURES**

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

**GABIONS**

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

**CARE OF WATER DURING CONSTRUCTION**

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

**STABILIZATION**

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

**EROSION AND SEDIMENT CONTROL**

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

**FILTER CLOTH**

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

**CONSTRUCTION INSPECTION BY DESIGNATED ENGINEERS**

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

**PERFORATED PIPE**

SCHEDULE 40 PVC OR SDR35 PERFORATED PIPE SHALL COMPLY WITH AASHTO M278 OR ASTM F-756 HIGHWAY UNDERDRAIN SPECIFICATIONS.

WRAP PIPE WITH 1/4" MESH (OR SMALLER) GALVANIZED HARDWARE CLOTH.

**HDPE**

4" x 6" PERFORATED PIPE SHALL HAVE 3 ROWS (@ 120°) OF 0.12" x 0.875" SLOTS THAT PROVIDE A MINIMUM OPEN AREA OF 1 SQ. IN. PER LINEAR FOOT OF PIPE.

PIPE SHALL BE PLACED WITH PERFORATIONS DOWN.

PIPE WITH SLOTTED PERFORATIONS IS NOT REQUIRED TO BE WRAPPED WITH HARDWARE CLOTH.

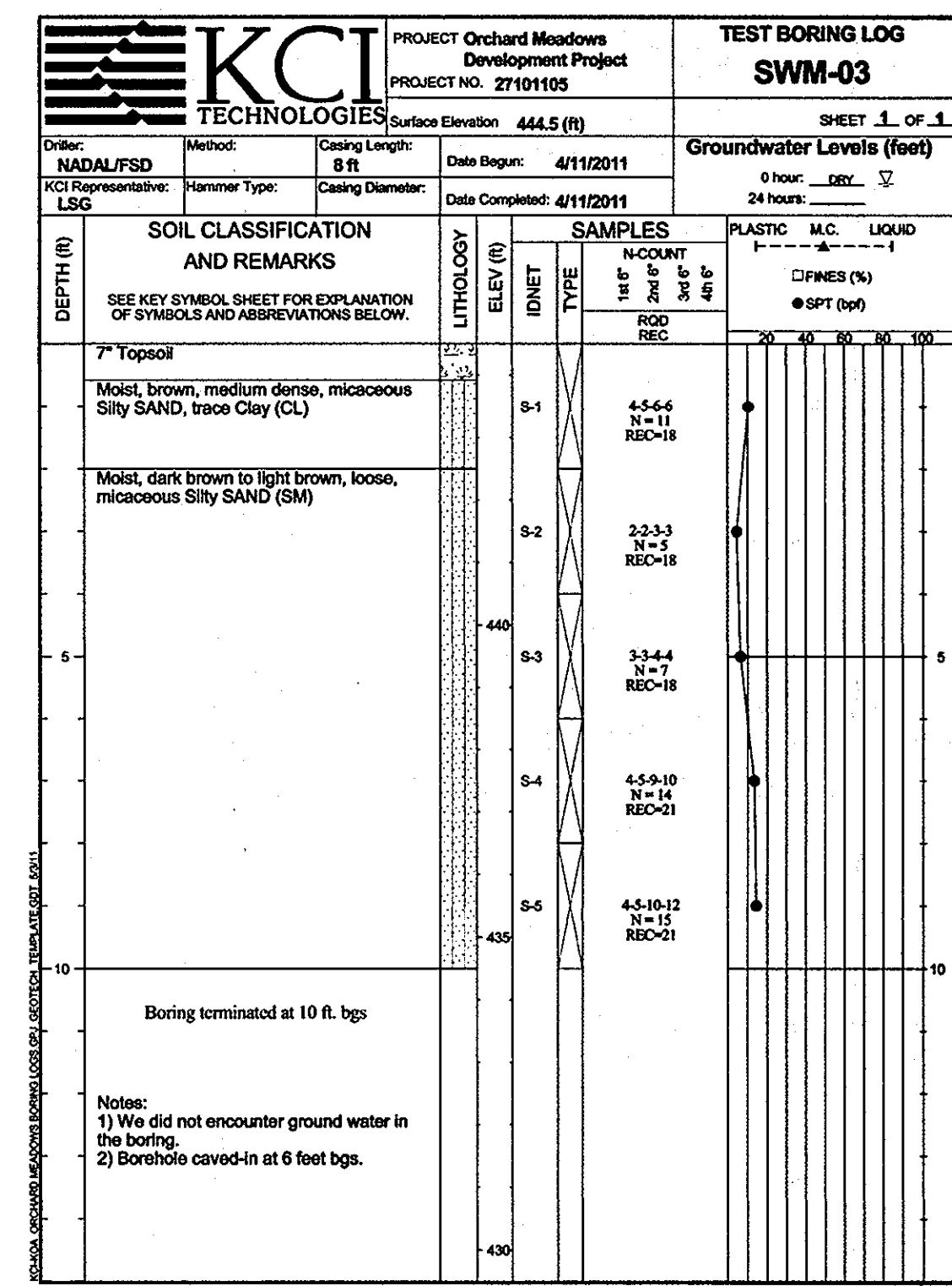
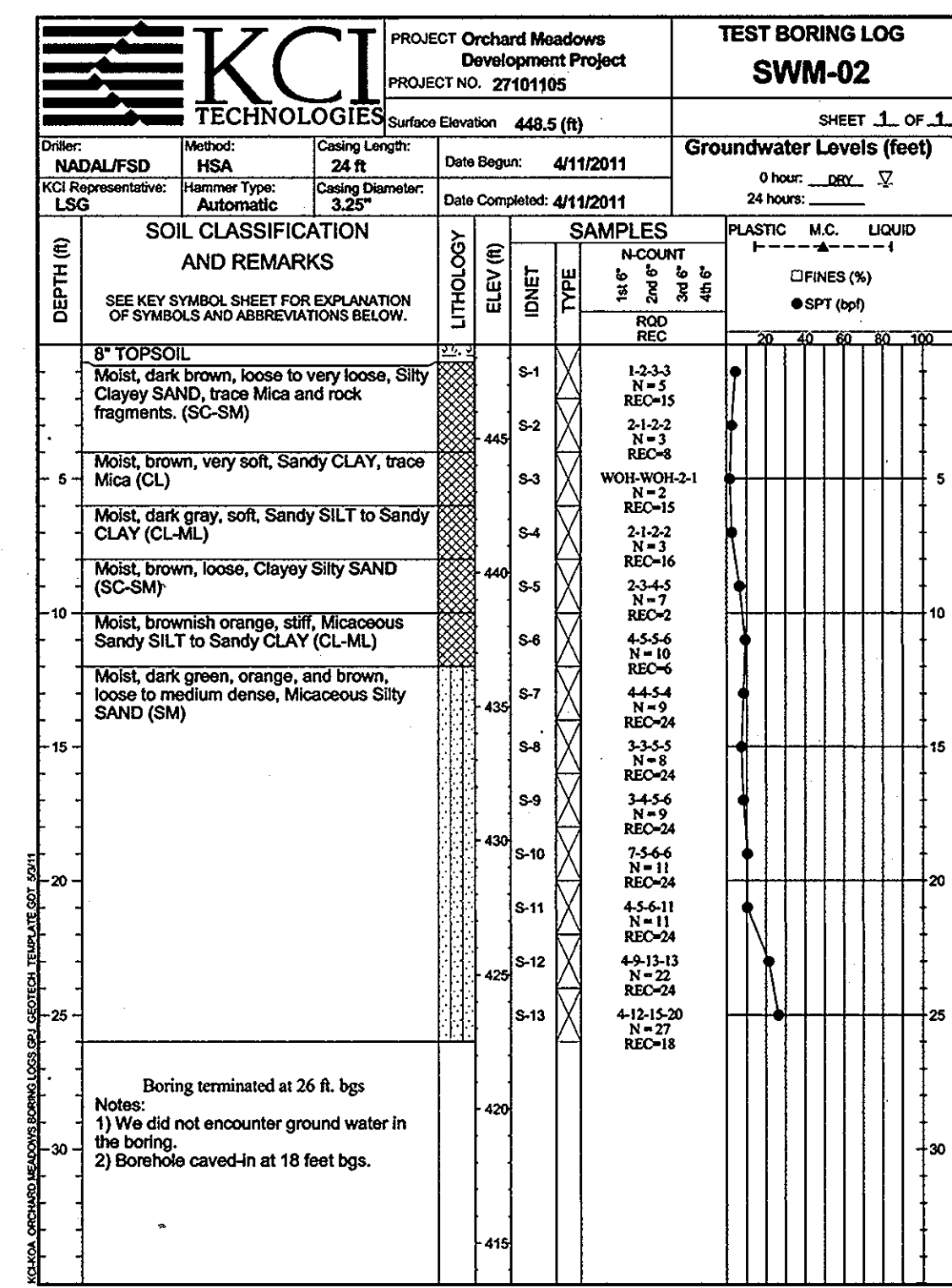
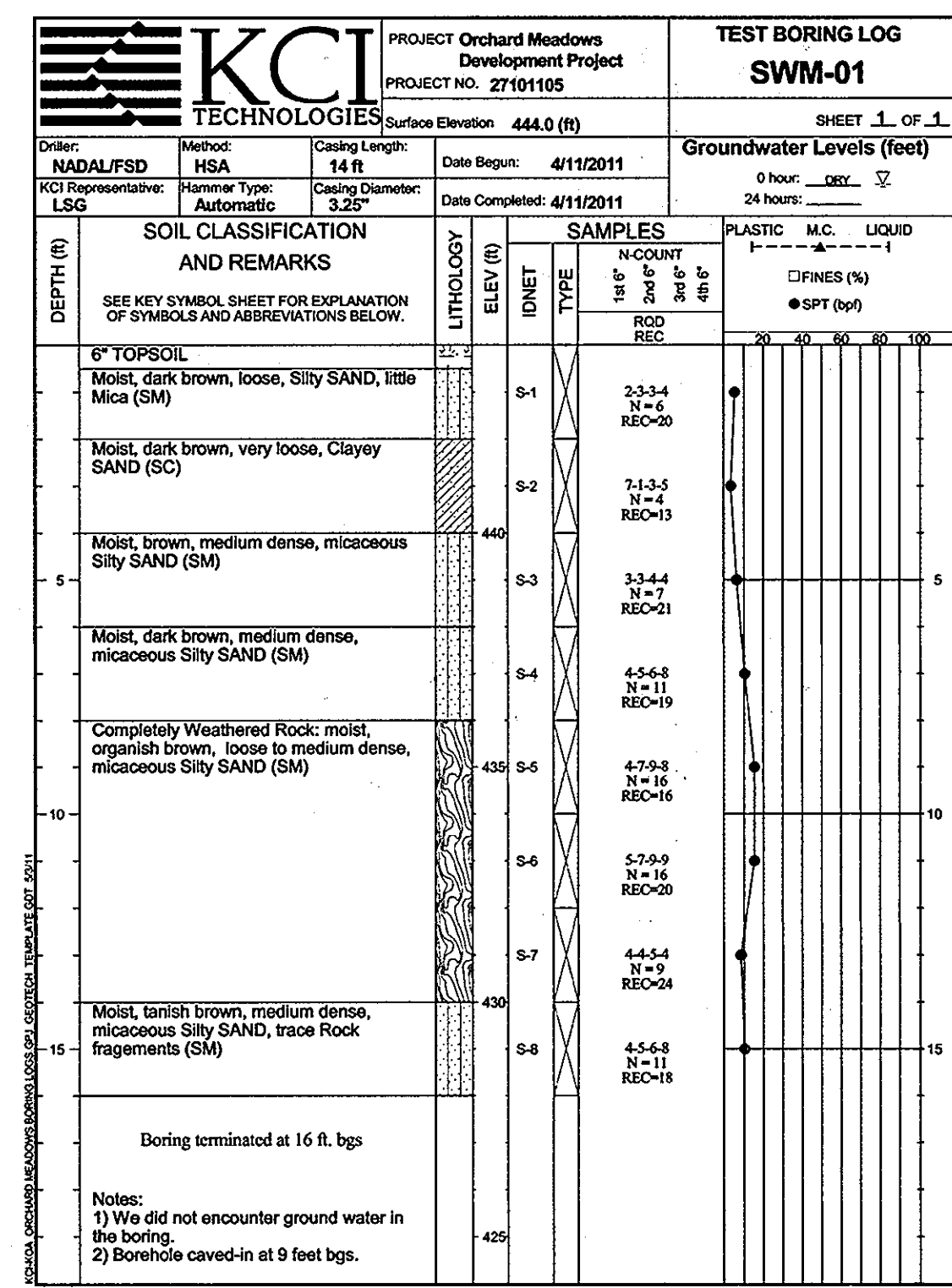
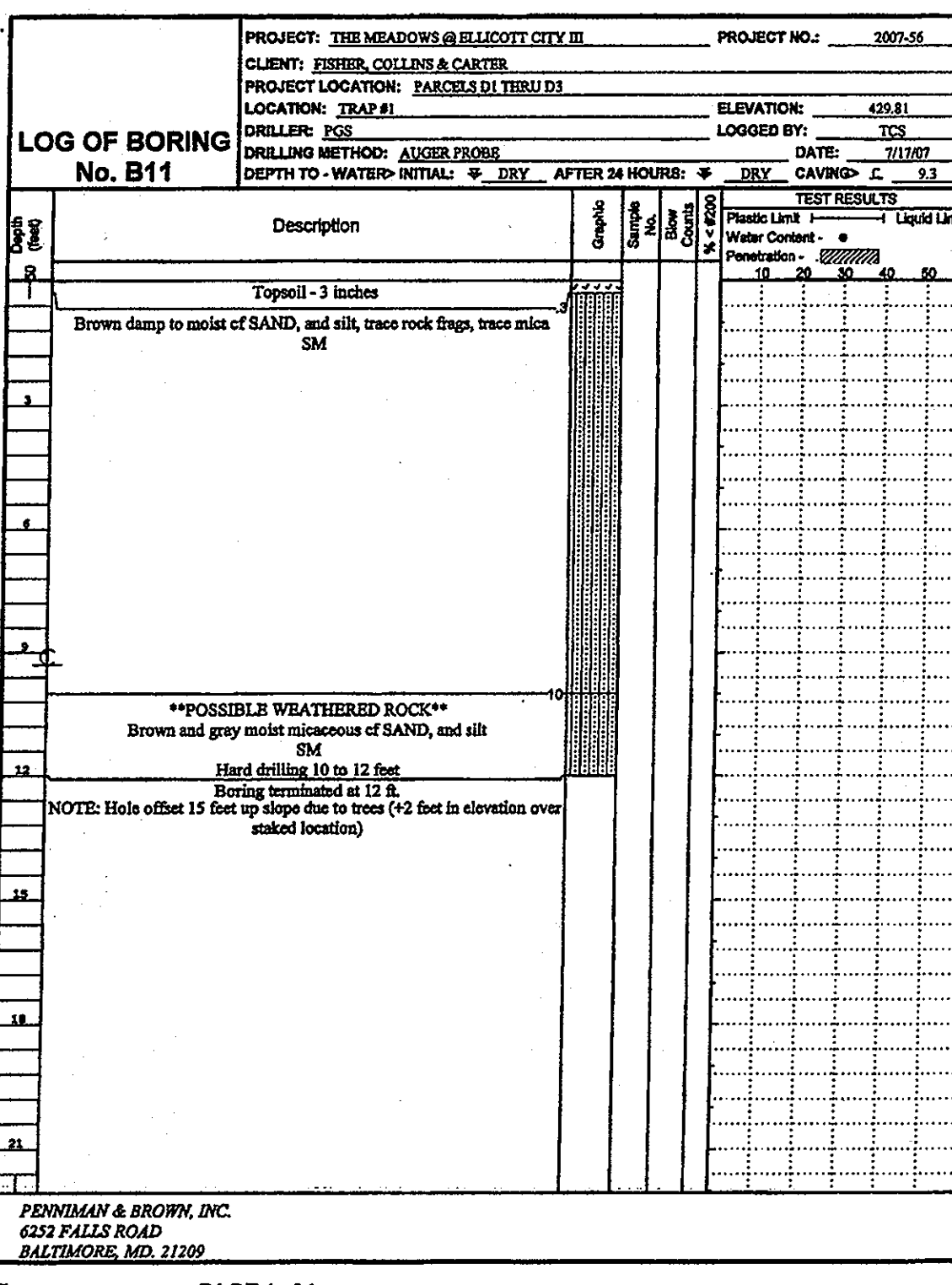
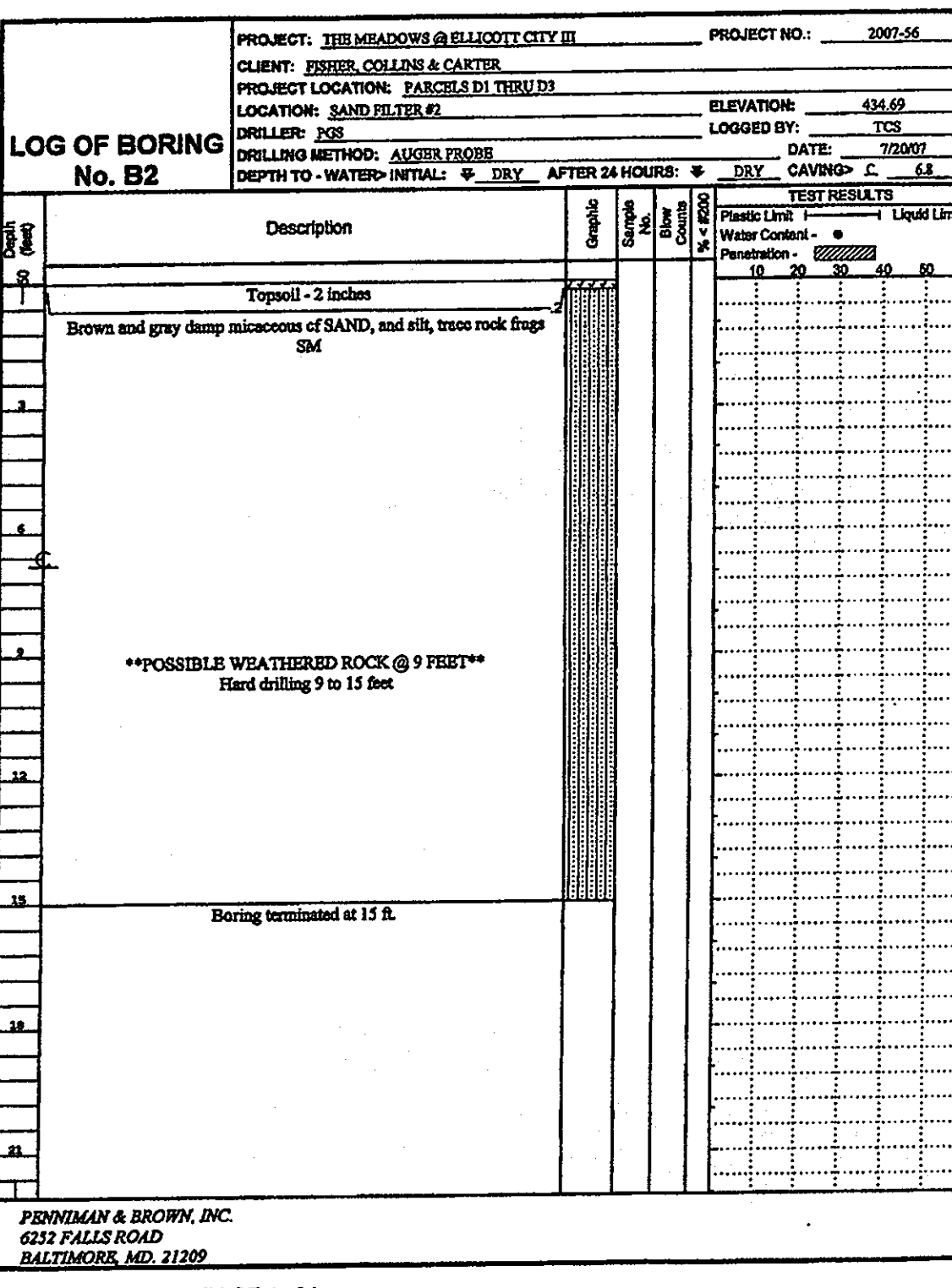
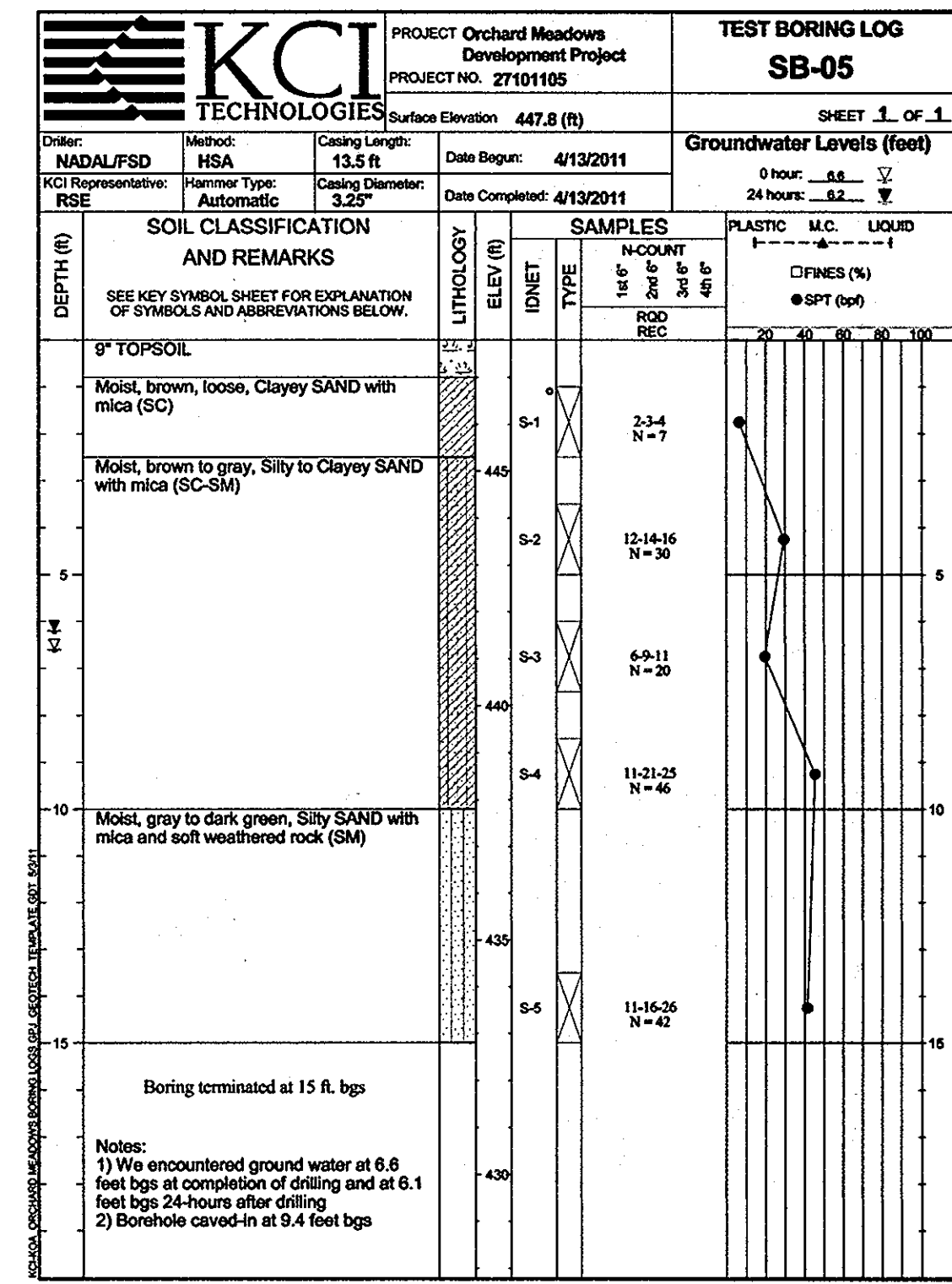
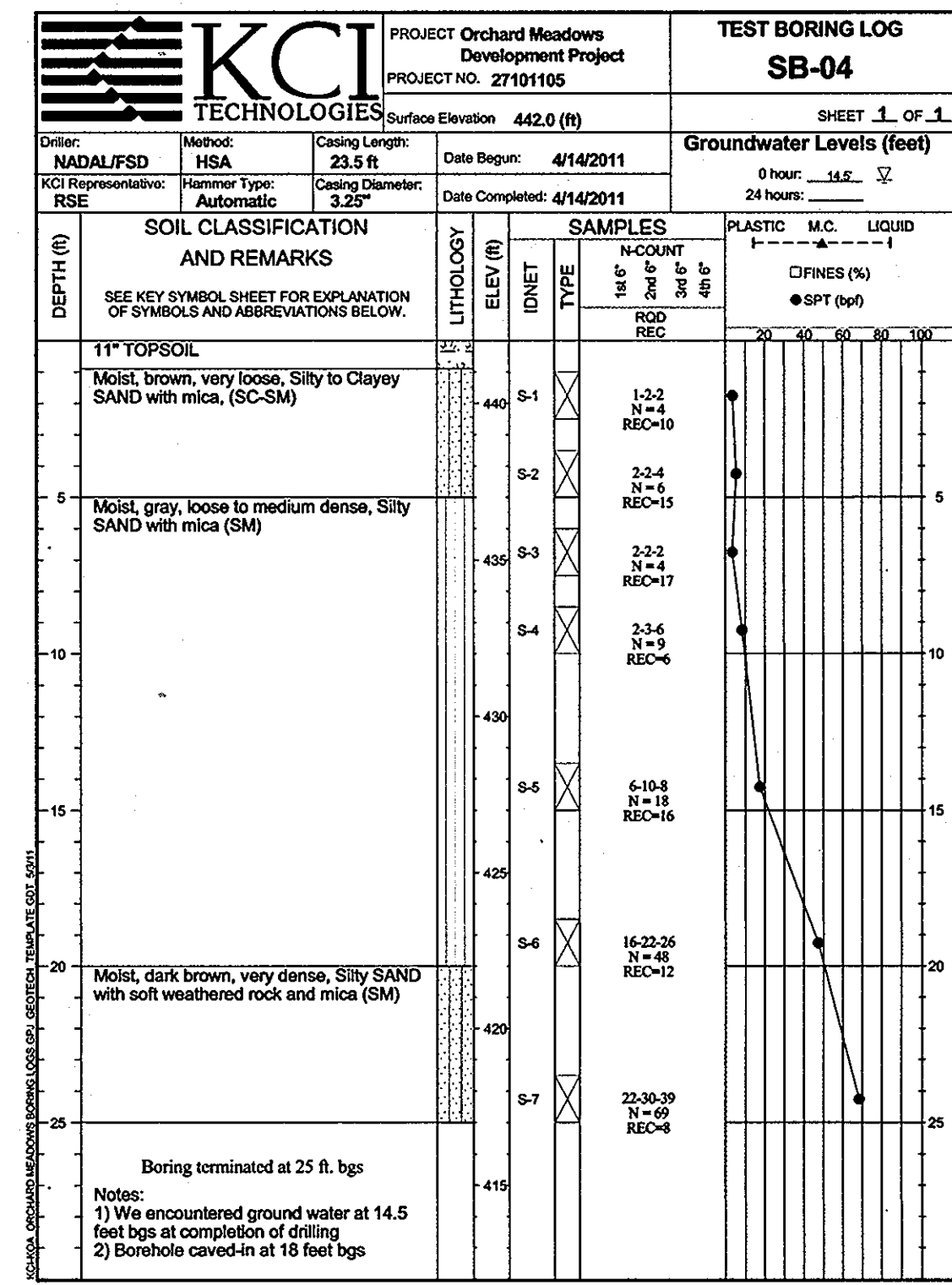
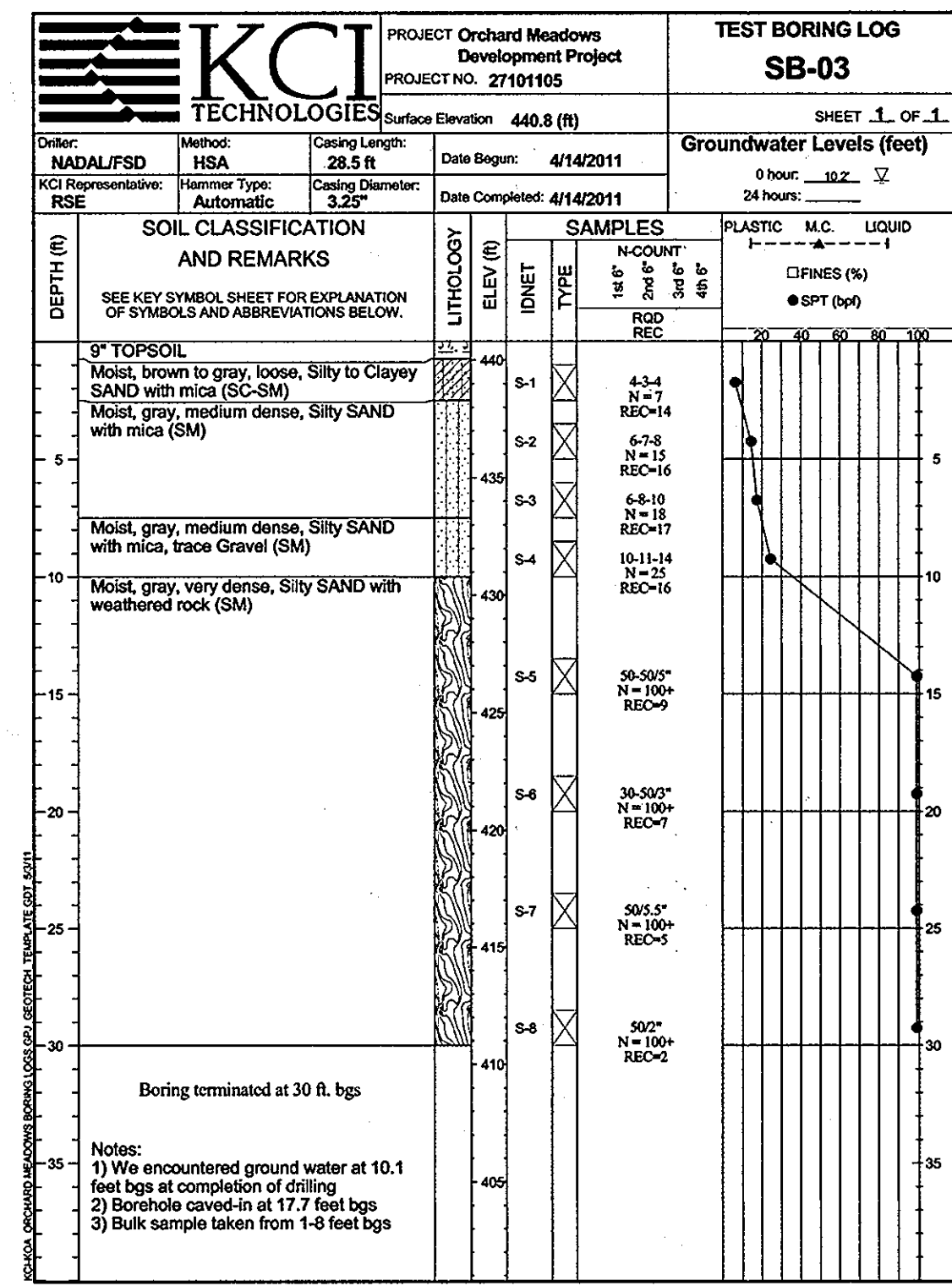
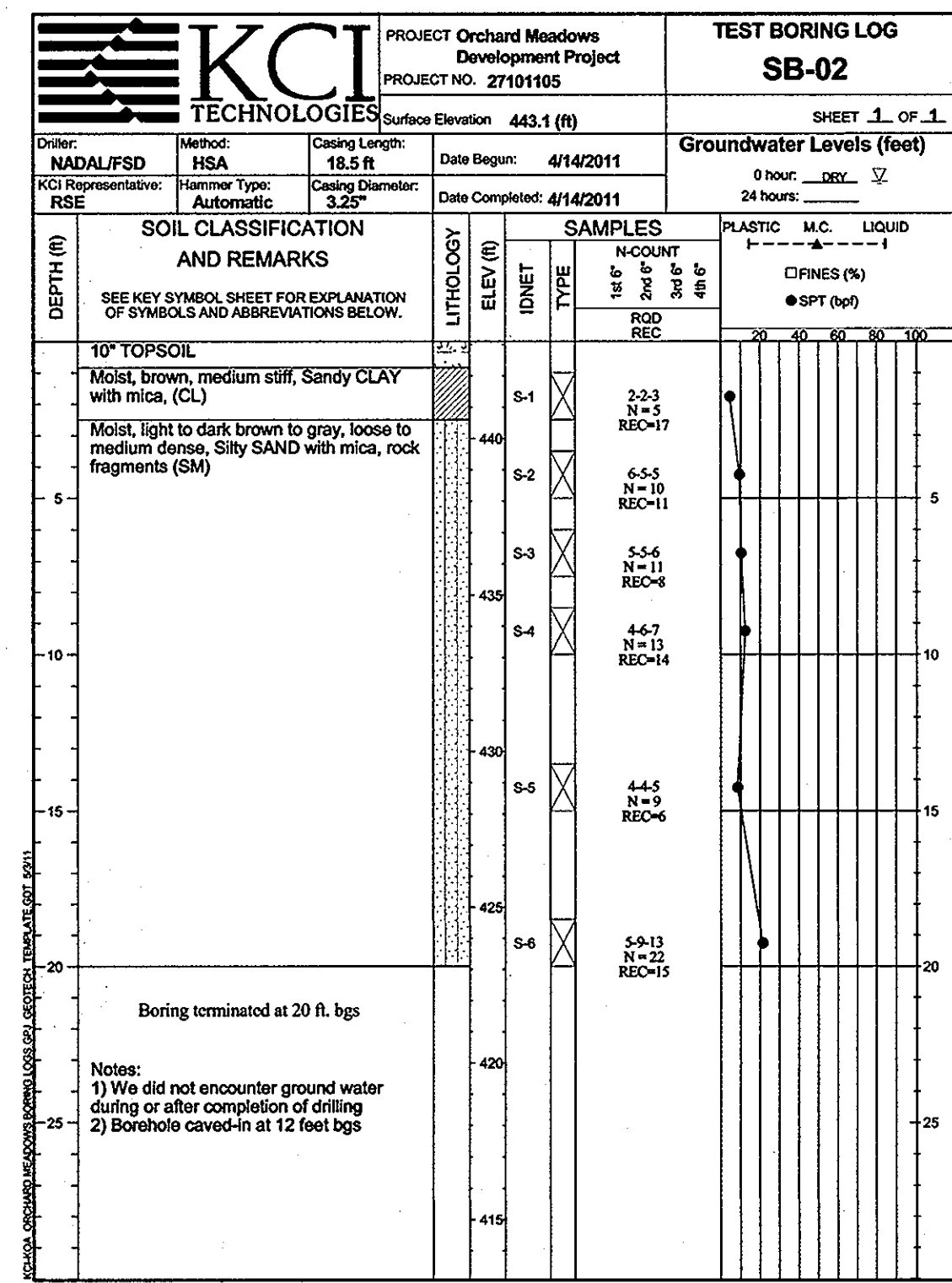
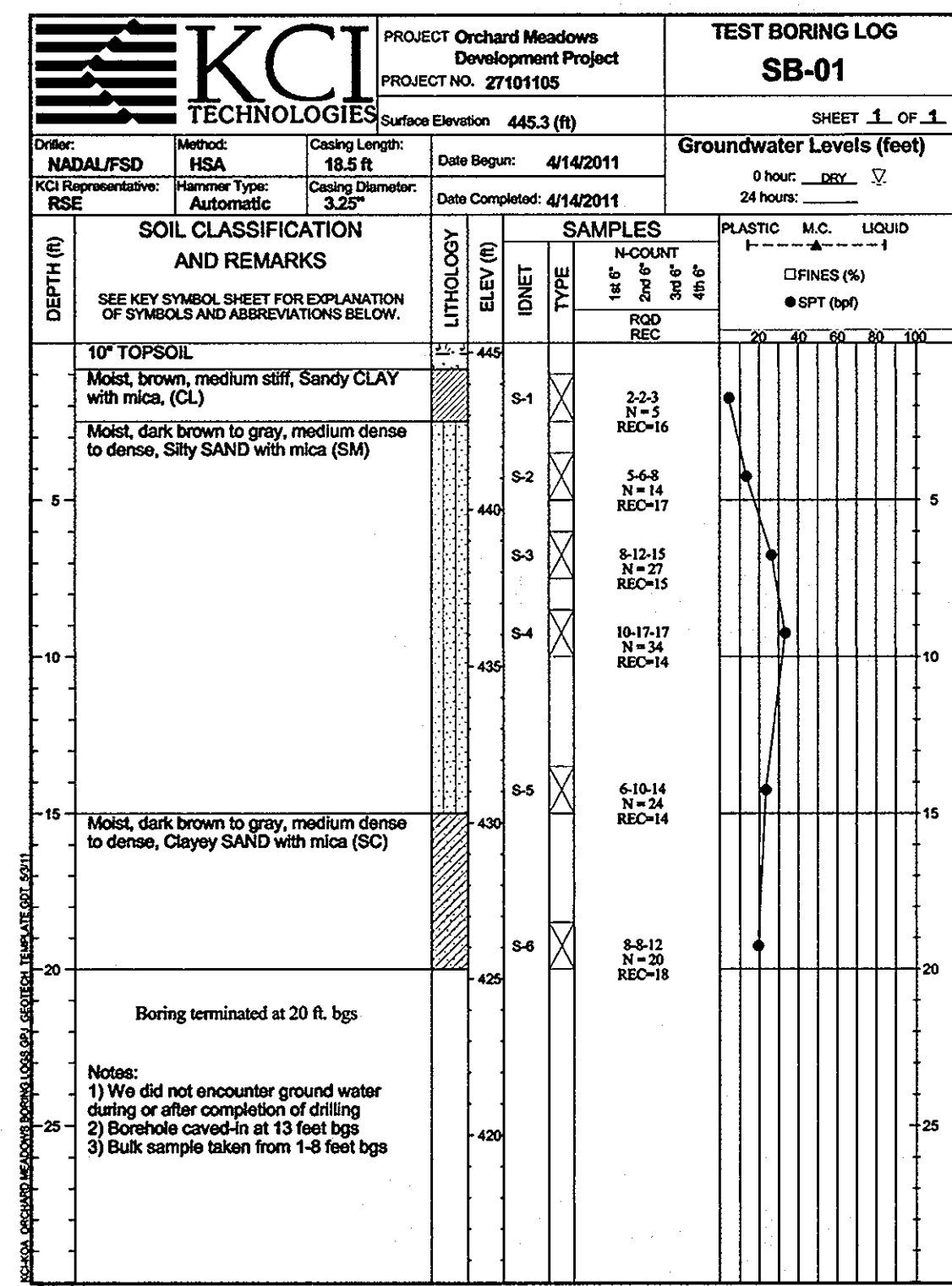
APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwarz Acting* 11/22/11  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Vest Sanderlin* 11/23/11  
 CHIEF-DIVISION OF LAND DEVELOPMENT DATE  
*[Signature]* 11/23/11  
 CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

**Orchard Development Corporation**  

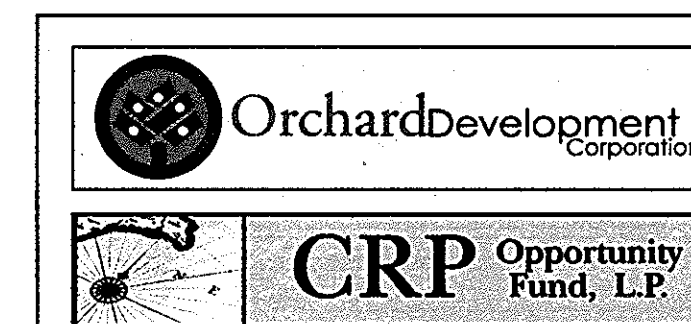
 CONTRACT PURCHASER / DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5332 DORSETT HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2334  
 OWNER:  
 WALDIS BUILDING CORPORATION  
 3300 SONA TRAIL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

TITLE  
**STORMWATER MANAGEMENT NOTES**  
 PROJECT NO.: 27101105  
 DESIGN BY: D.E.S. SCALE: N.T.S. SHEET 27 OF 29  
 DRAWN BY: C.T.B. DATE: 11-02-2011 DRAWING NUMBER  
 CHECKED BY: APPROVED: \_\_\_\_\_ FC-27

DATE	NUMBER	REVISION DESCRIPTIONS
 8161 MARLE LAWN BOULEVARD Suite 150 FULTON, MD 20759 Telephone (410) 92-8086 Fax: (410)792-7419		 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.: 31089 EXPIRATION DATE: 11/12/12
TAX MAP: 17 GRID: 23 PARCEL: 711 ZONED: R-A-15 ELECTION DISTRICT: NO. 2 HOWARD COUNTY, MD		ORCHARD MEADOWS PARCEL D-1, D-2 & D-3



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schway, Acting* 11/27/11  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Veit DeLoach* 11/23/11  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*...* 11/23/11  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

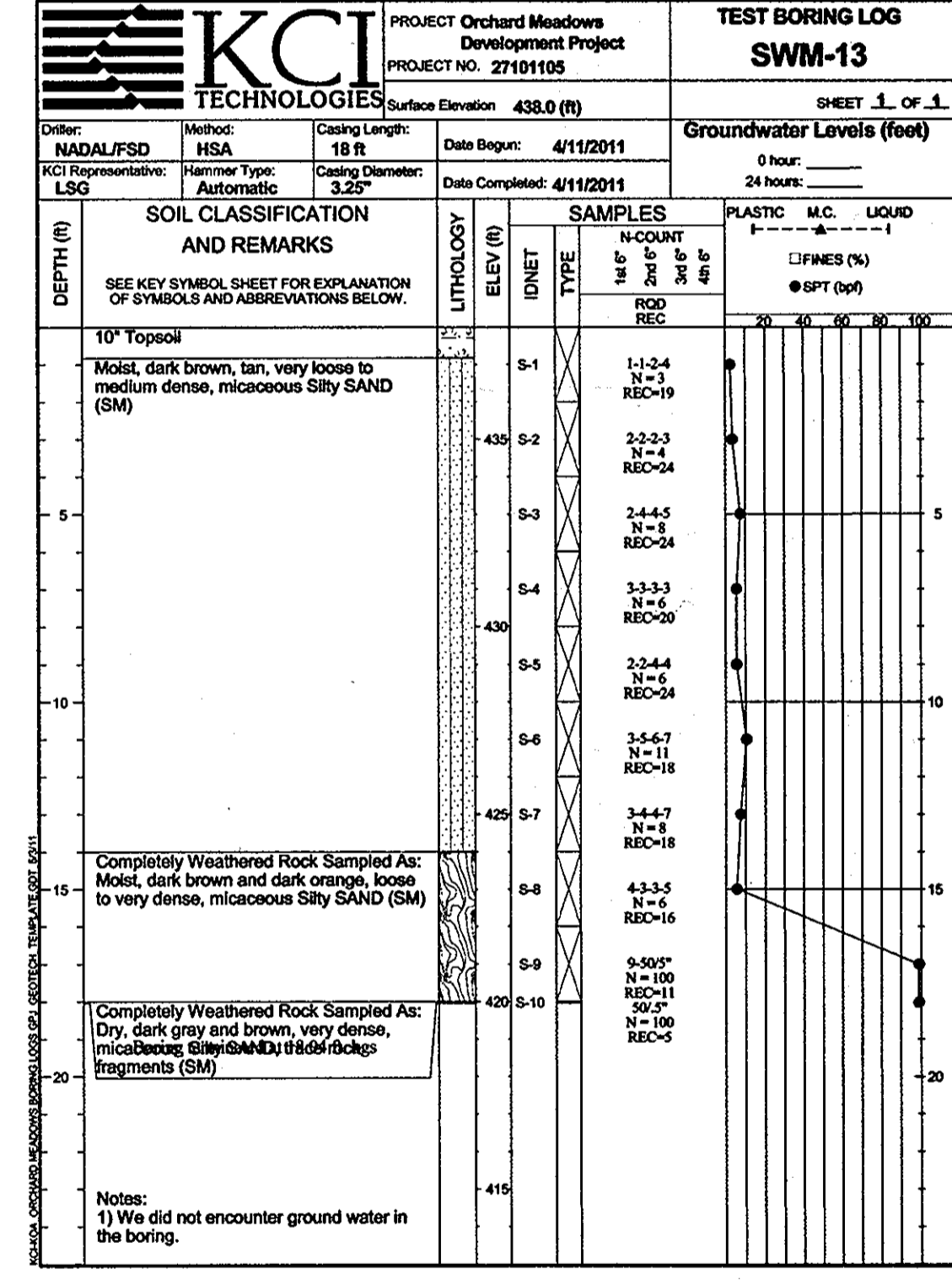
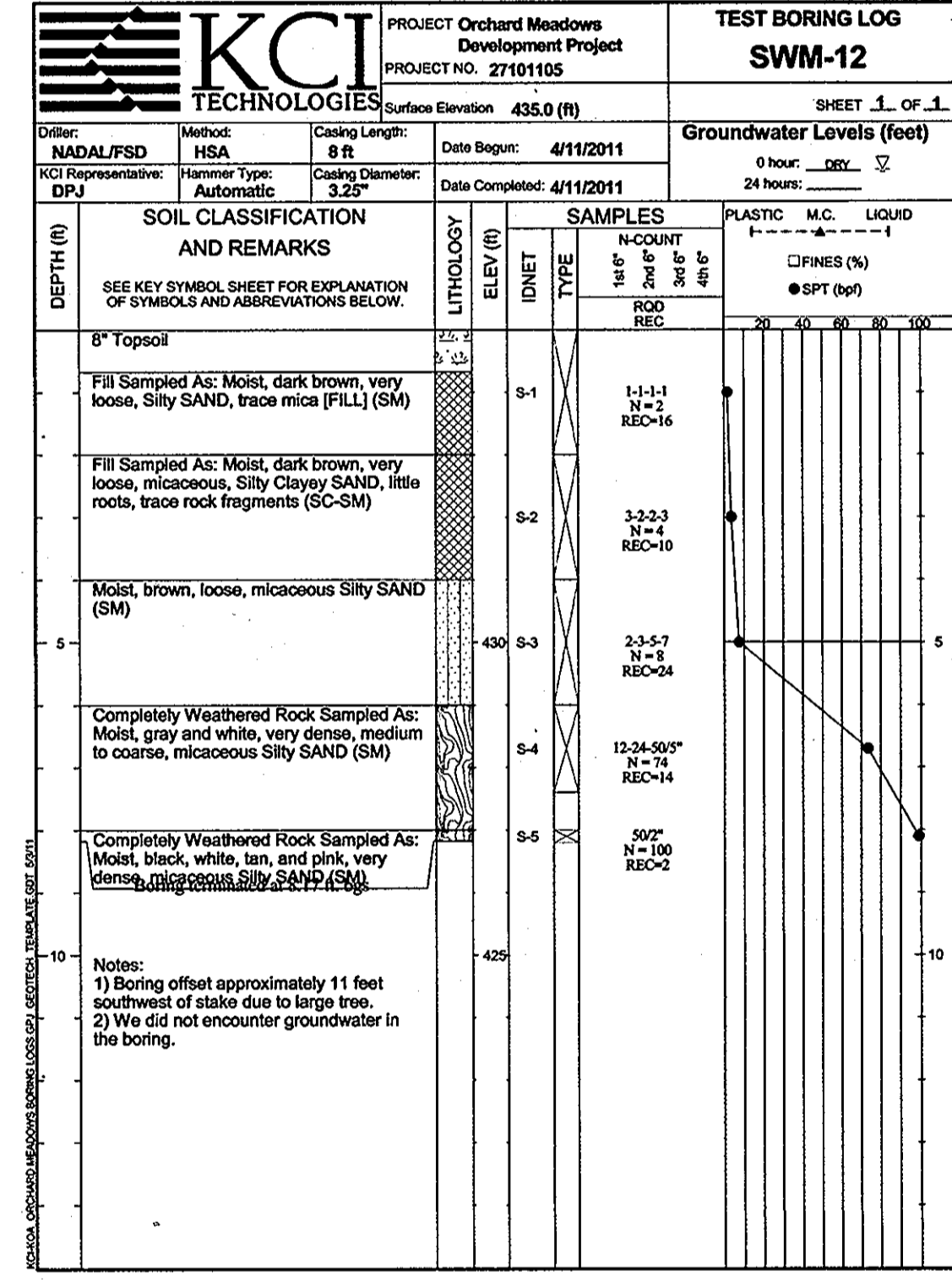
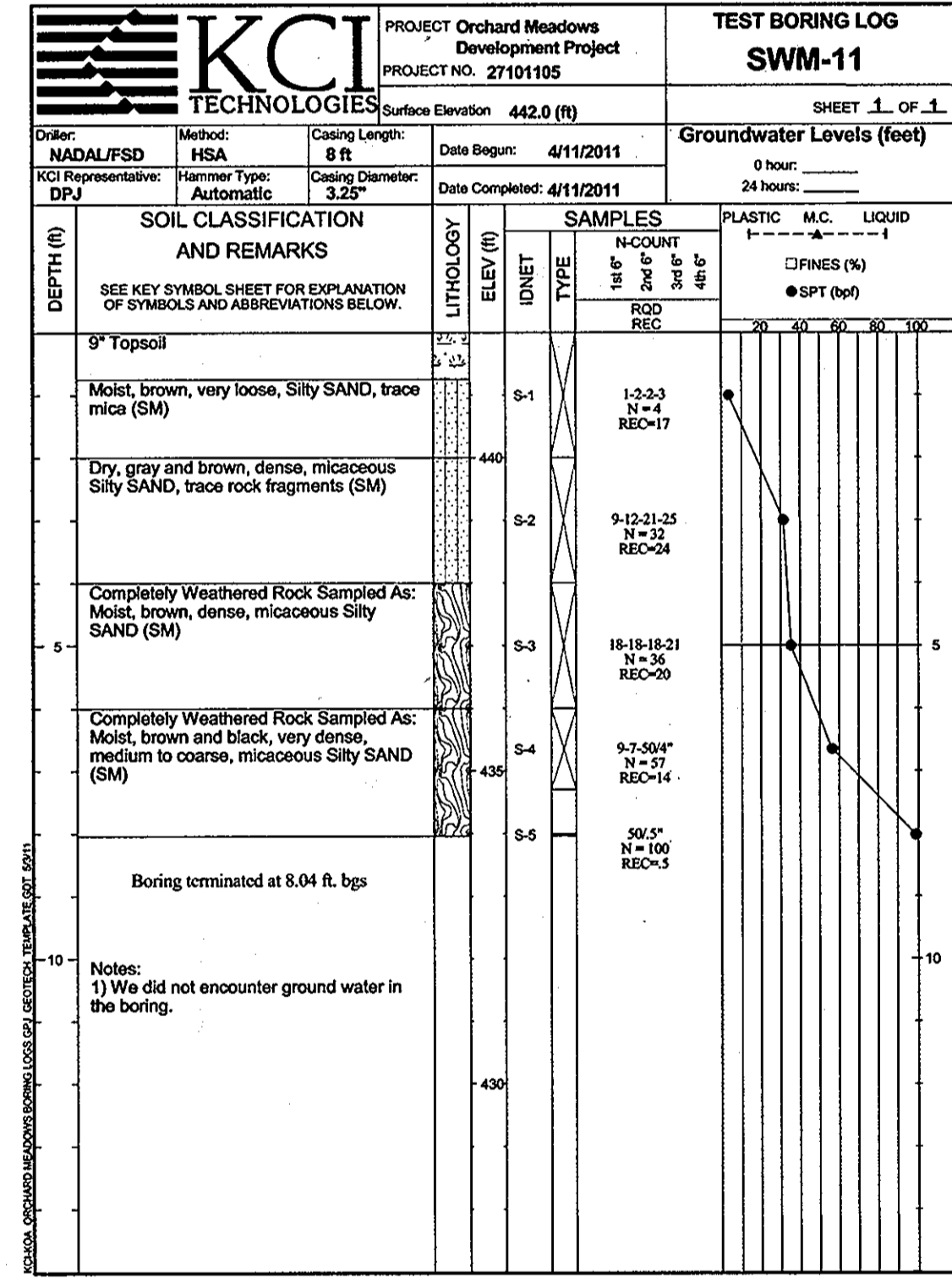
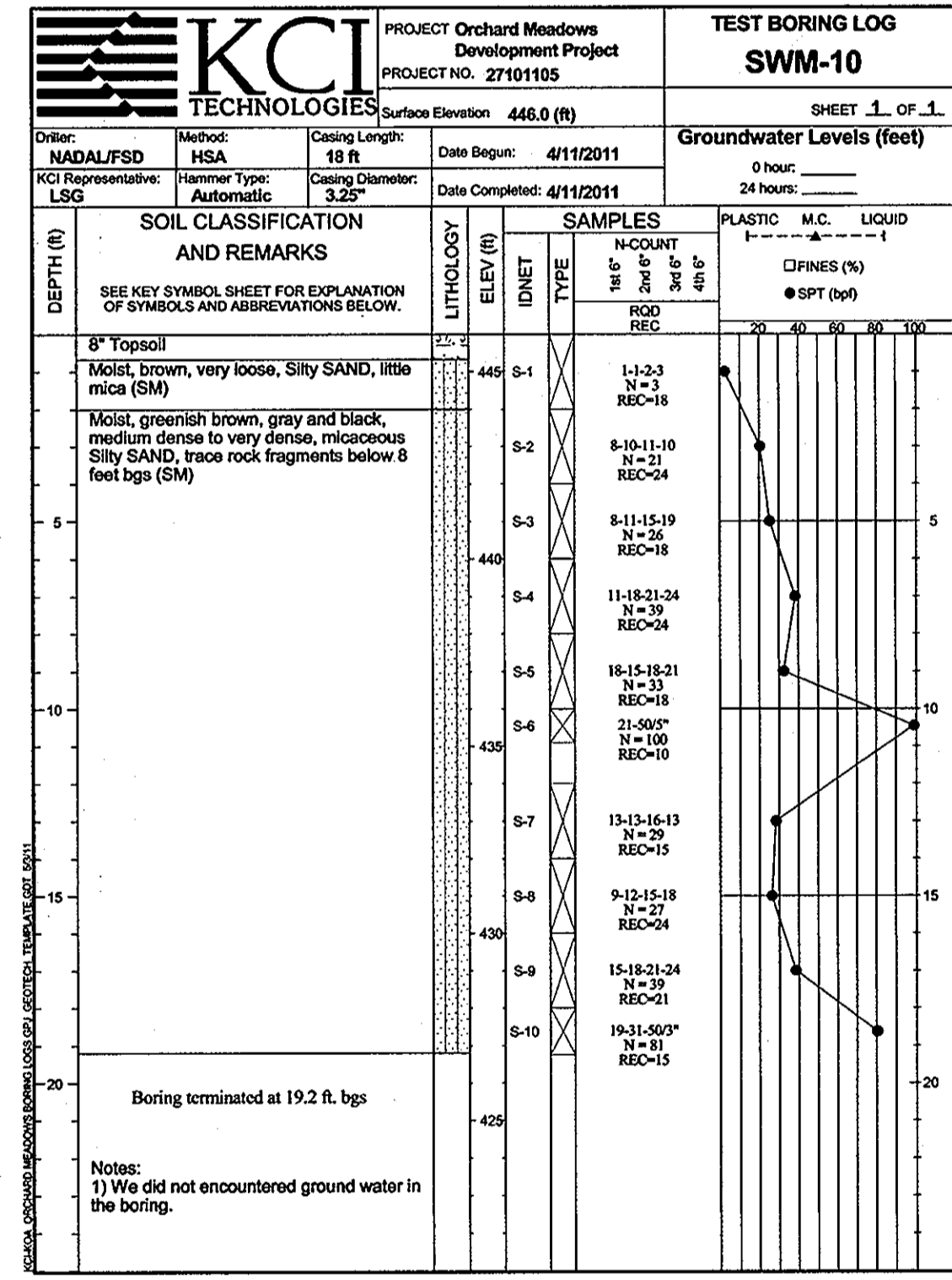
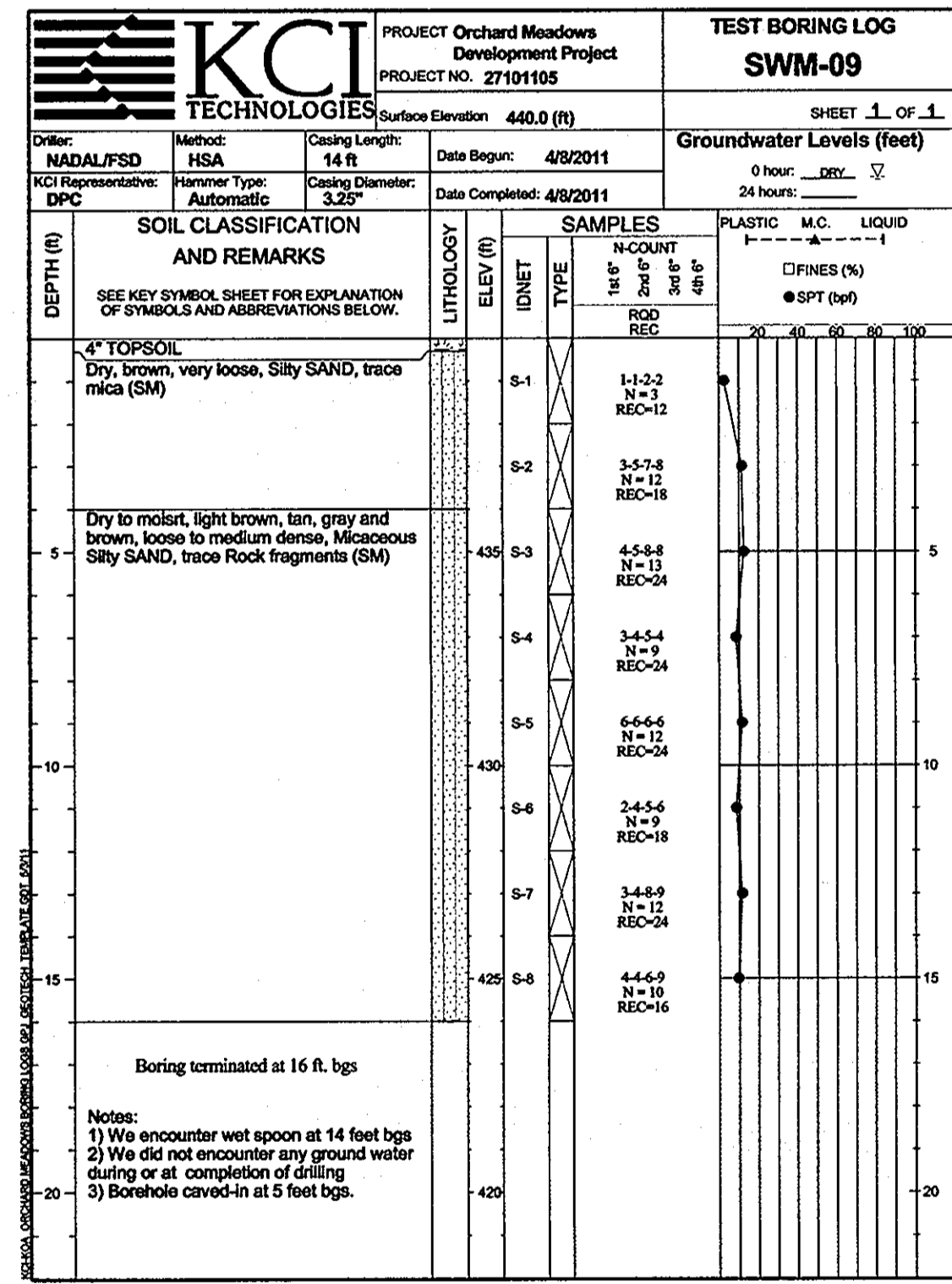
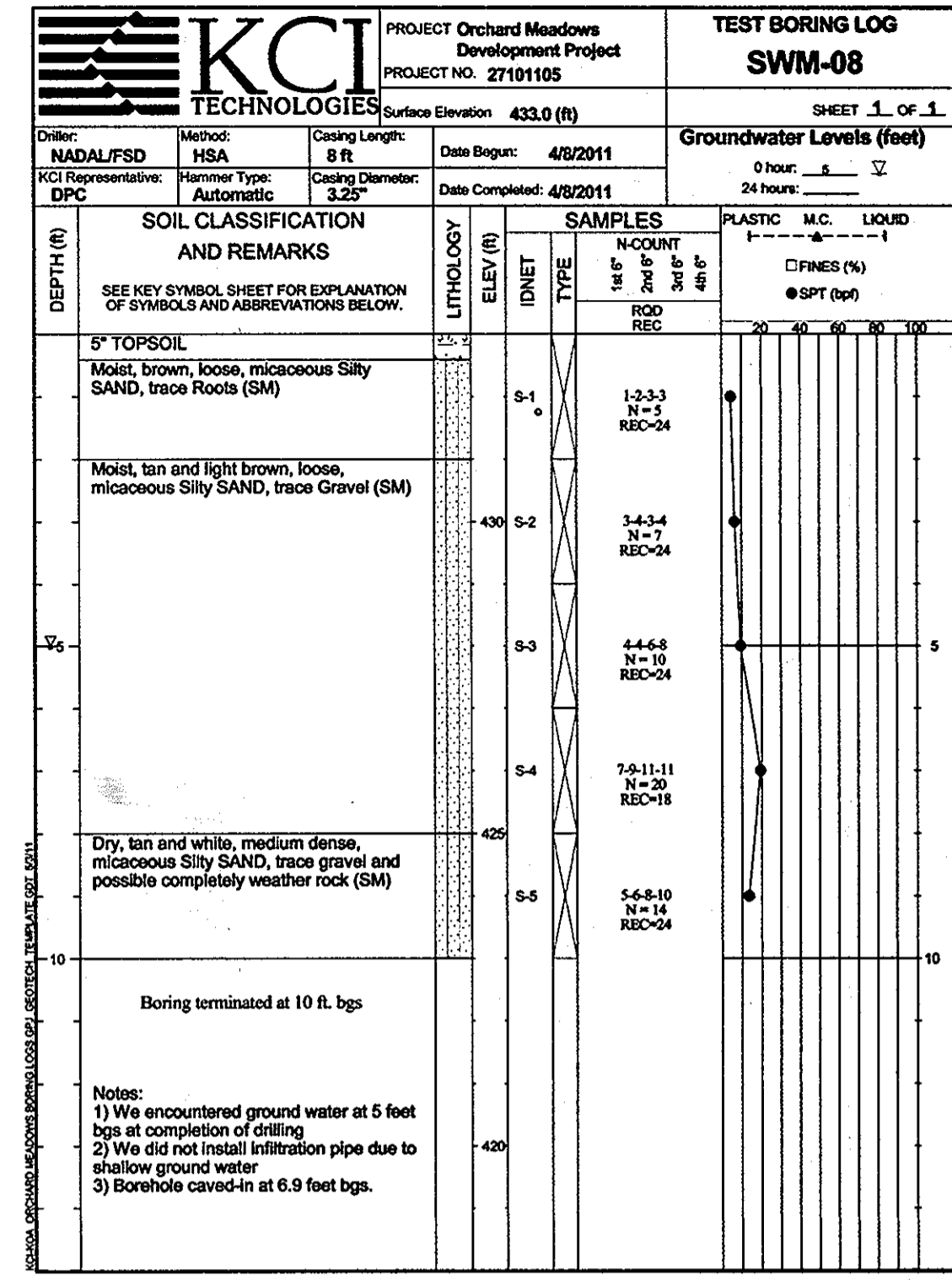
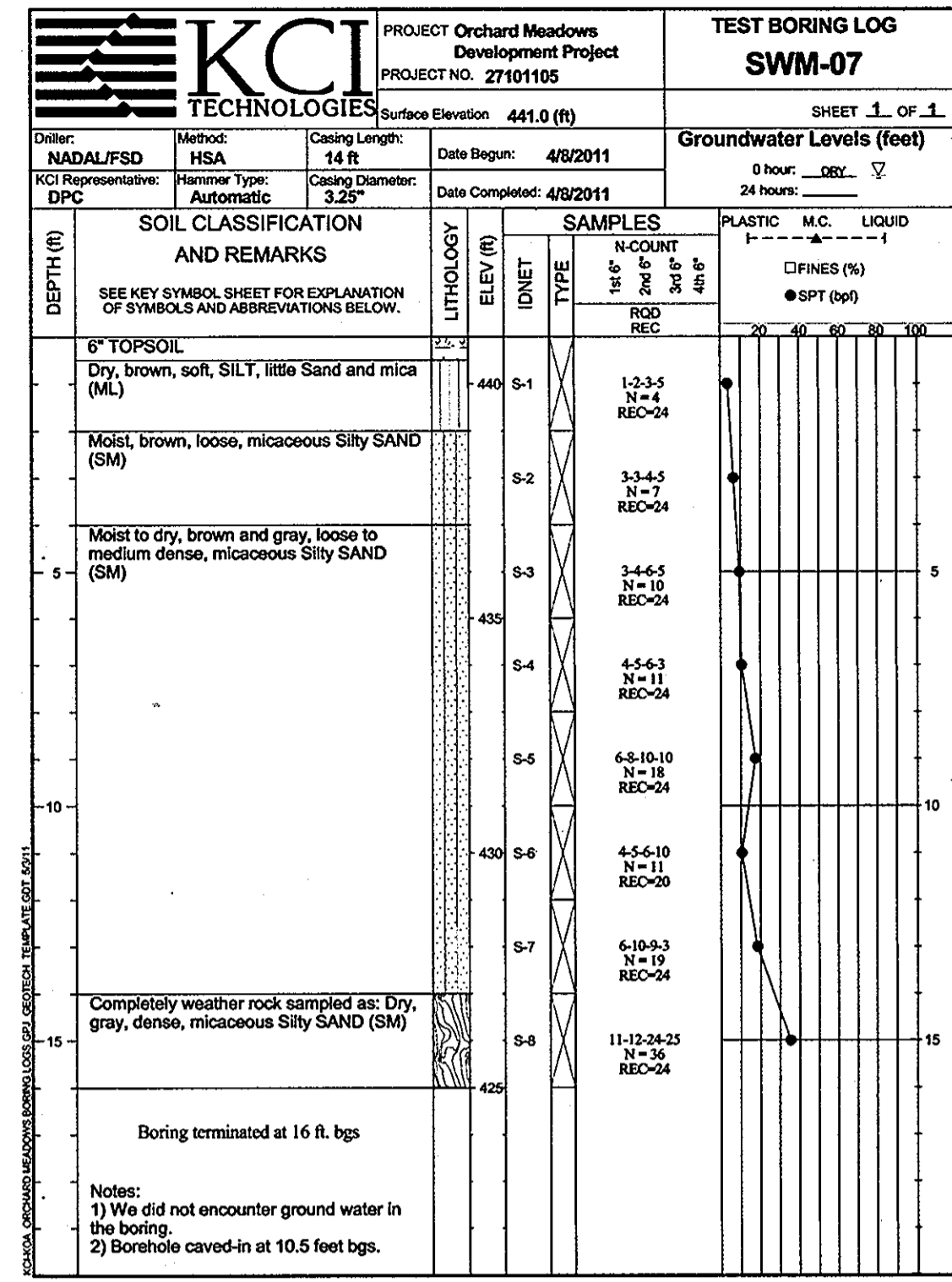
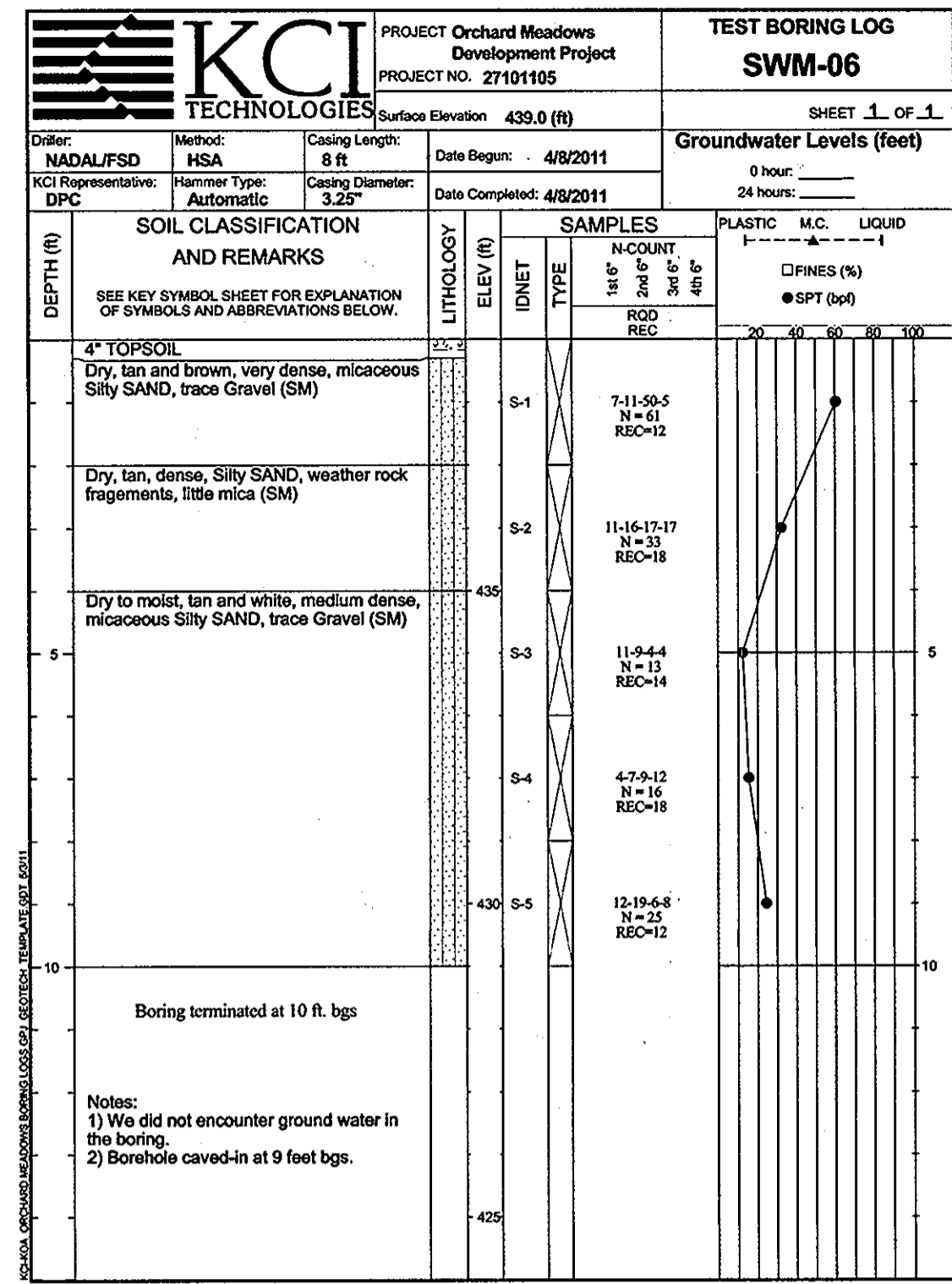
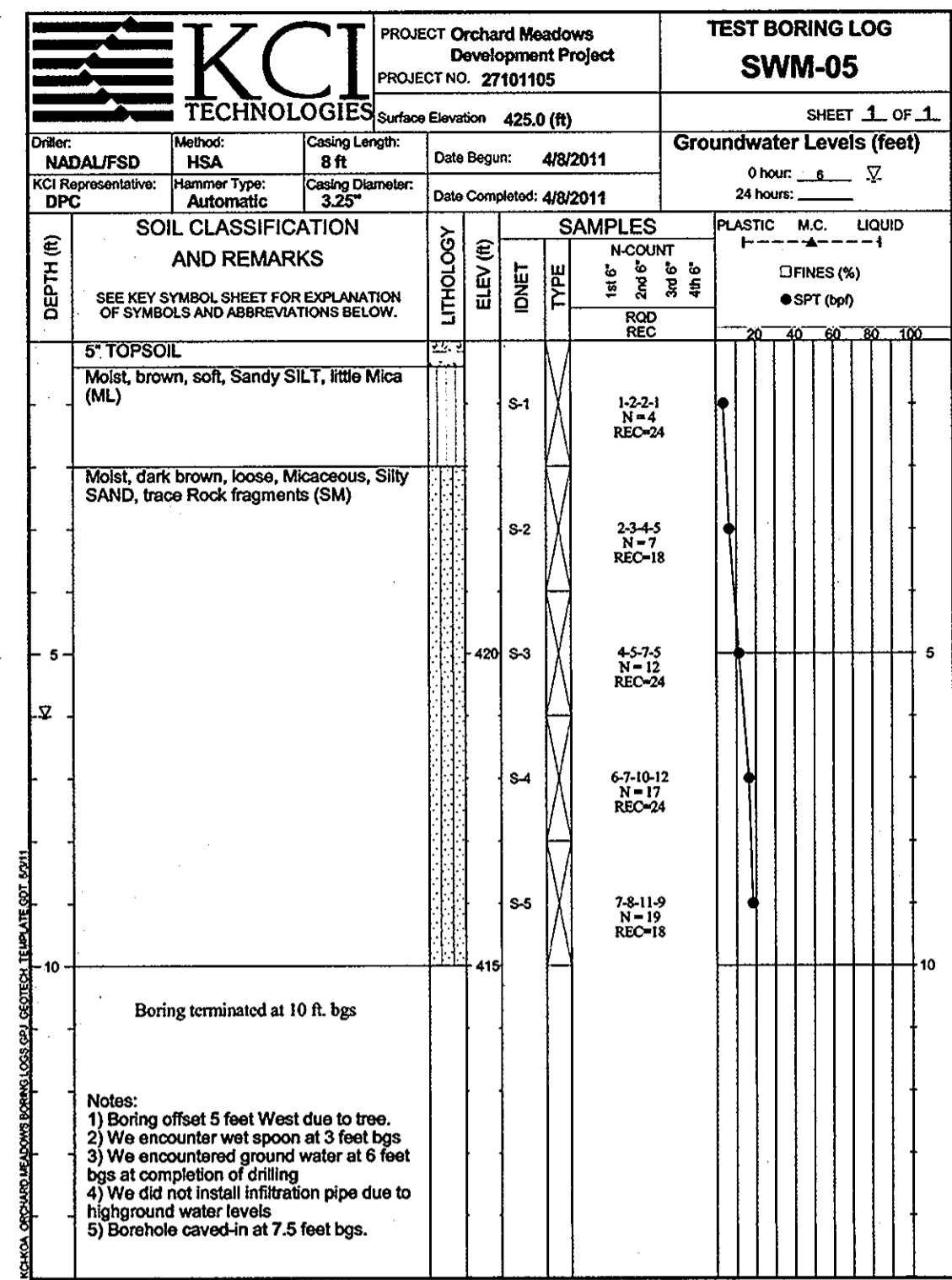
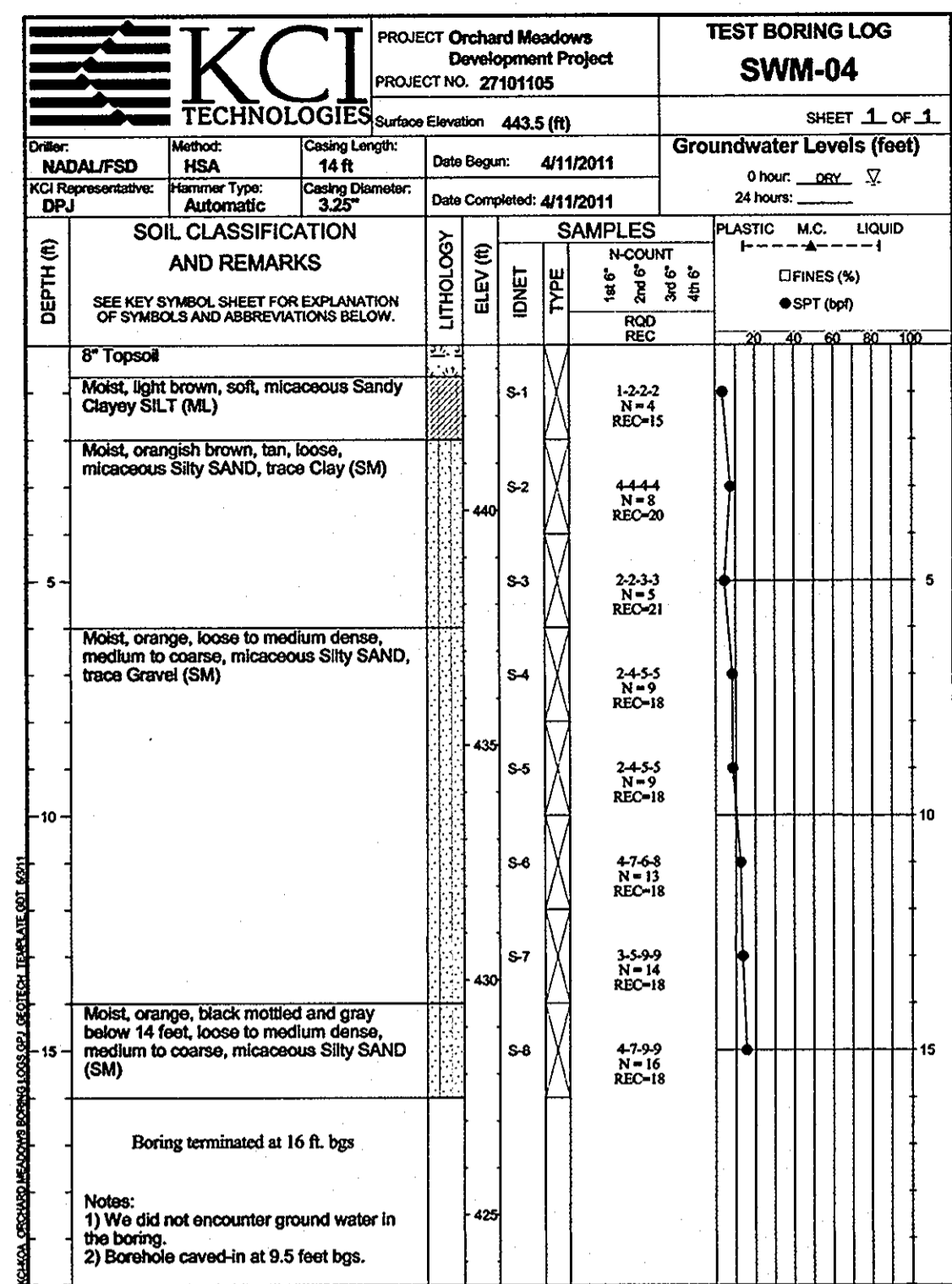


CONTRACT PURCHASER/DEVELOPER:  
 ORCHARD DEVELOPMENT CORPORATION  
 5032 DORSEY HALL DRIVE  
 ELICOTT CITY, MD 21042  
 (410) 964-2334  
 OWNER:  
 WATER BUILDING CORPORATION  
 3300 SONA TRL  
 ELICOTT CITY, MD 21043  
 (410) 461-2522

DATE	NUMBER	REVISION DESCRIPTIONS

ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
 8161 MADE LAWN BOULEVARD  
 SUITE 150  
 FULTON, MD 20759  
 TELEPHONE: (410) 92-8086  
 FAX: (410) 792-7419

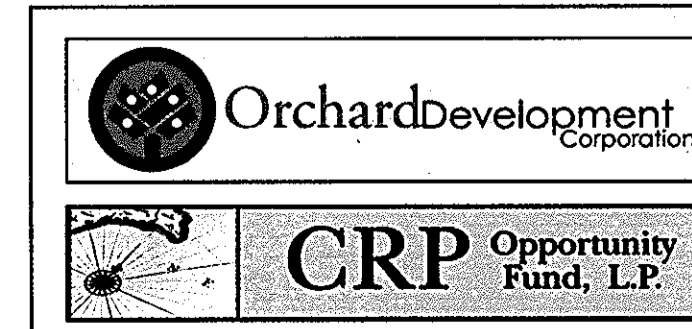
ORCHARD MEADOWS  
 PARCEL D-1, D-2 & D-3  
 TAX MAP: 17 GRID: 23 PARCEL: 711  
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 ELECTION DISTRICT: NO. 2  
 HOWARD COUNTY, MD  
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 TITLE: BORING LOGS  
 PROJECT NO.: 27101105  
 SHEET 28 OF 29  
 DRAWING NUMBER: FC-28



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Arway* Acting 11/22/11  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*West Skowronek* 11/23/11  
CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]* 11/23/11  
CHIEF, DEVELOPMENT ENGINEERING DIVISION



CONTRACT PURCHASER/DEVELOPER:  
ORCHARD DEVELOPMENT CORPORATION  
5332 DORSEY HALL DRIVE  
ELICOTT CITY, MD 21042  
(410) 964-2334

OWNER:  
WALDER BUILDING CORPORATION  
3300 SONJA TRAIL  
ELICOTT CITY, MD 21043  
(410) 461-2322

DATE	NUMBER	REVISION DESCRIPTIONS

**KCI TECHNOLOGIES**  
8861 MARLE LANE BOULEVARD  
SUITE 150  
FULTON, MD 20759  
TELEPHONE: (410) 92-8086  
FAX: (410) 792-7419

**ORCHARD MEADOWS**  
PARCEL D-1, D-2 & D-3

TAX MAP: 17 GRID: 23 PARCEL: 711  
ZONED: R-A-15  
ELECTION DISTRICT: NO. 2  
HOWARD COUNTY, MD

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TITLE: BORING LOGS

DESIGN BY: B.E.S. SCALE: N.T.S.  
DRAWN BY: C.T.B. DATE: 11-02-2011  
CHECKED BY: APPROVED: \_\_\_\_\_

PROJECT NO.: 27101105  
SHEET 29 OF 29  
DRAWING NUMBER: FC-29