

**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 410-313-1880 at least five (5) working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs be in place prior to the placement of any asphalt.
- All plan dimensions are to face of curb unless otherwise noted.
- The existing topography is taken from aerial survey with 2' contour intervals prepared by Air Survey Corporation dated 1998.
- The coordinates shown hereon are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System. Howard County Monument Nos. 47E4 and 47G2 were used for this project.
- Water is public. Contract No.24-4120-D
- Sewer is public. Contract No.24-4120-D
- Stormwater Management for this project will be addressed with the installation of one Stormwater Management Facility which will control the runoff per the latest approved Design Standards. The facility will be a wet, extended detention pond and will be owned by the Property Owners Association (POA). Routine maintenance will be performed by the POA and non-routine maintenance will be performed by Howard County. See sheet 19 for specific maintenance requirements for each.
- Existing utilities are based on Construction Plans (contract no. and field verified manholes).
- The floodplain study for this project was prepared by Howard County, dated 1986.
- The wetlands delineation study for this project was prepared by Datt-McCune-Walker, Inc., dated September 1998, and was approved by the U.S. Army Corps of Engineers on December 19, 2001. Assigned tracking #'s 20026039101-NY-0500 for pending impacts to jurisdictional resources (wetland buffer and floodplain impacts for sewer extension)
- The traffic study for this project was prepared by Wells and Associates, and was approved with the Comprehensive Sketch Plan (S-99-12)
- Project background information:  
 Subdivision Name: Emerson, Section 2, Phase 5A and Section 3 Area 3  
 Tax Map: 47  
 Lot/Parcel: P/O: P.837, P.165  
 Zoning: R-SC-MXD-3 and PEC-MXD-3  
 Election District: 6th  
 Total Tract Area: 23.18 ± acres  
 File Numbers: S-99-12, PB 339,28 979 M, PB-359, WP-03-88 F-03-175, and F-03-13
- Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume III (1993) and as modified by "Guidelines for Street Lights in Residential Developments (June 1993)." A minimum spacing of 20' shall be maintained between lights and any tree.
- Sidewalk ramps shall meet current ADA requirements.
- All sidewalks at intersections to have handicaps ramps.
- Street trees shall be planted at least 5' from any inlet structure.
- Storm water management facility to be owned by the Property Owners Association (POA).
- Maintenance Responsibility, routine and non-routine schedule are shown on sheet 19 of 29. Routine maintenance is responsibility of POA and non-routine maintenance is responsibility of Howard County.
- On March 12, 2003 WP-03-88 was approved. WP-03-88 was a waiver of submission of a Preliminary Plan for the Stephens Road Improvements along the frontage of Emerson Section 2, Phase 5A.  
 The conditions of approval are as follows:  
 1. Compliance with the comments from DED, with the Final Plan submission.  
 2. The Final Plan for the right-of-way dedication and road improvements along Gorman Road and Stephens Road shall be submitted within 4 months of the date of this letter (by 7/12/03).  
 3. Compliance with comments from DLD, with the Final Plan submission.
- Development of Emerson 2, Section 5A under the current Forest Conservation Act proposes the clearing of approximately 0.04 forested acres, and no forest retention. When evaluated cumulatively with previous phases of the project, 2.78 acres of reforestation is required, and 0.19 acres of reforestation is proposed under this phase. Cumulative forest clearing totals 47.63 acres, cumulative retention is 51.03 acres, and cumulative reforestation provided is 8.74 acres.
- Existing utility poles to be relocated prior to beginning any work.
- On September 5, 2003 the Preliminary Plan for Emerson 2/5A and 3/3 was approved. (P-03-13).
- This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho. Co. Code. Financial surety for the required landscaping in the amount of \$38,250.00 must be posted as part of the developer's agreement. (80 shade, 95 evergreens).

# EMERSON

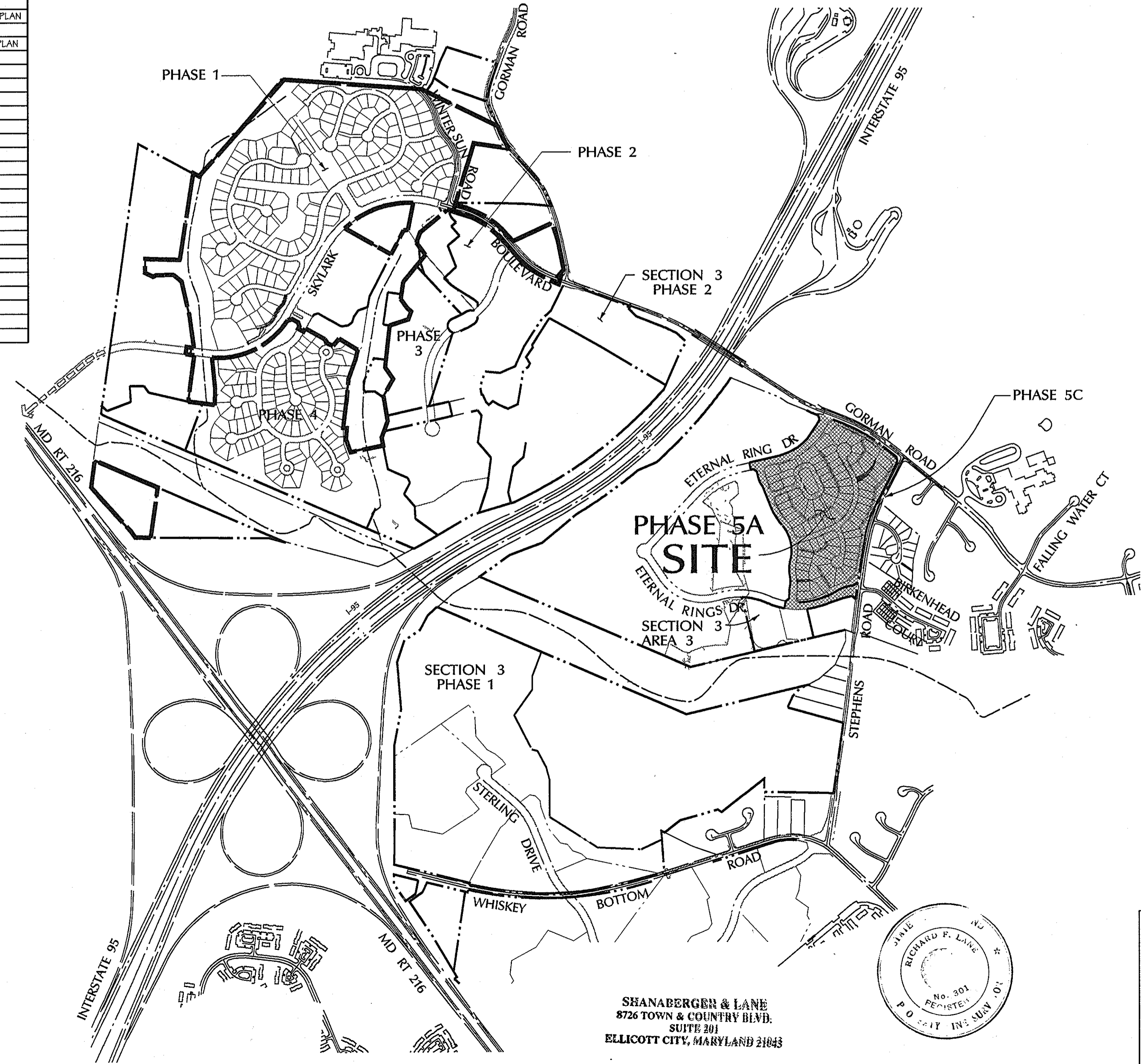
## (KEY PROPERTY)

### Emerson Section 2 – Phase 5A Section 3 – Area 3

Howard County Maryland

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28	FINAL LANDSCAPE PLAN
29	FINAL LANDSCAPE PLAN AND DETAILS



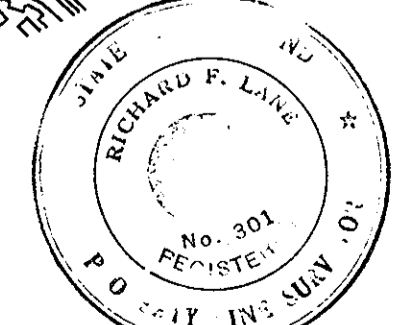
**FOREST CONSERVATION TRACKING CHART**

Section/Phase Number	Gross Area	Floodplain/Ex. Sewer	Net Tract Area	Ex. Forest Area	Forest Cleared	Forest Retained	Reforest./After Required	Reforest./After Provided	Excess Reforest./After	Future Forest Clearing	Future Reforest./After	Comments
2.1	106.20	3.90	102.70	24.70	7.95	16.77	0.61	5.03	4.42	4.48	3.41	
2.2	18.90	3.50	15.40	24.80	8.03	16.77	2.95	5.03	2.08	3.26	3.41	SEE NOTE 'A'
2.3	137.35	4.00	133.35	34.40	12.53	21.87	1.27	5.03	3.76	2.16	3.91	SEE NOTE 'B'
3.1	206.65	2.19	199.66	85.30	39.47	49.03	0.00	5.03	5.03	2.16	3.91	
3.2	222.27	2.27	199.00	87.80	41.67	49.83	0.00	5.03	5.03	2.16	3.91	SEE NOTE 'C'
2.4	264.01	26.57	238.24	99.18	47.15	91.03	0.00	5.03	5.03	2.49	5.24	
2.5/c	267.84	27.40	240.44	98.62	47.59	91.03	0.00	5.77	5.77	2.49	5.24	
2.6/a	277.66	27.40	250.26	98.62	47.59	91.03	0.00	5.77	5.77	2.49	5.24	SEE NOTE 'D'
2.4	277.66	27.40	250.26	98.62	47.59	91.03	0.00	8.55	8.55	2.49	3.91	SEE NOTE 'E'
2/5A & 3/3	306.84	27.51	279.33	98.66	47.63	91.03	2.78	8.74	5.86	2.49	3.91	

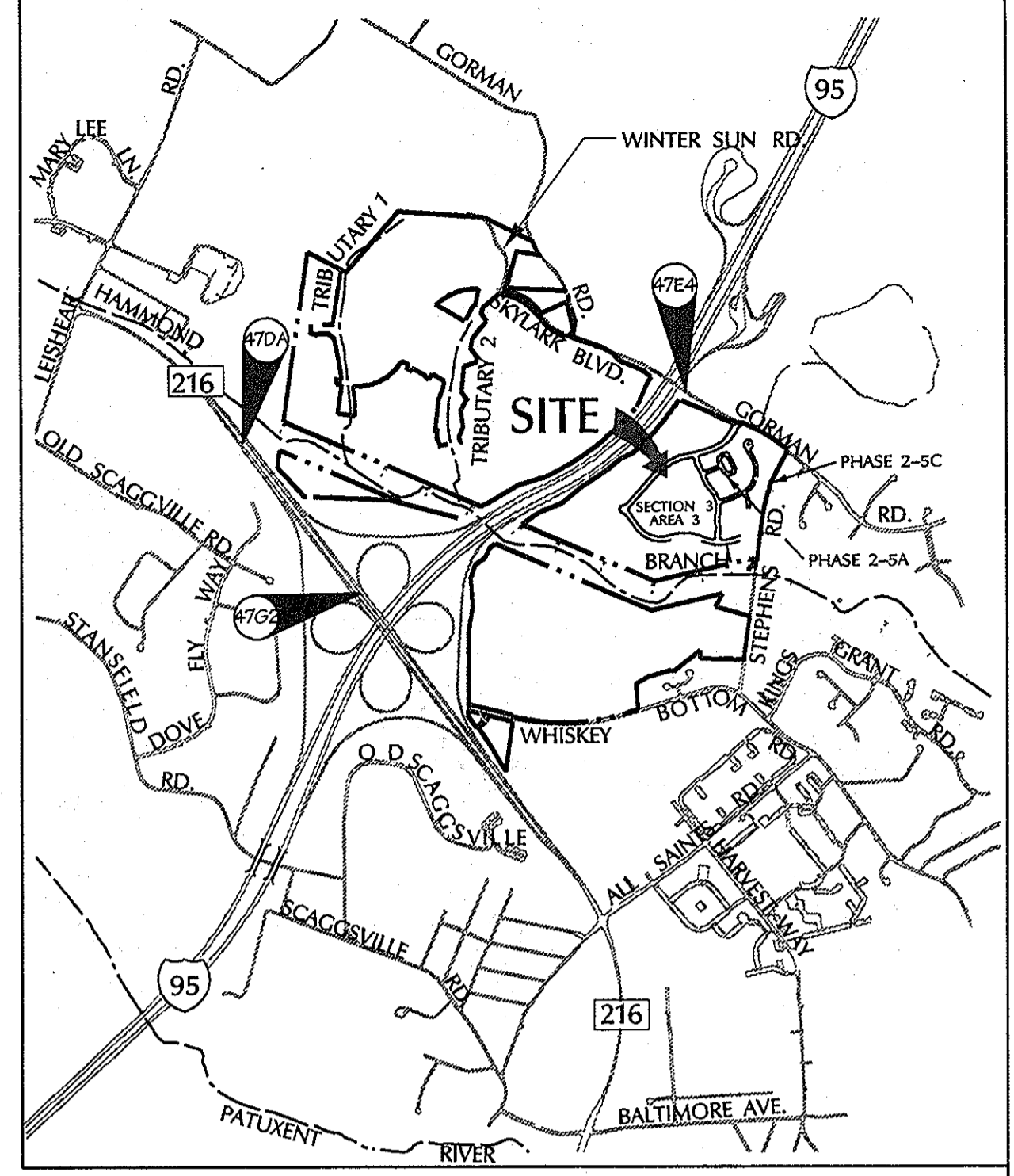
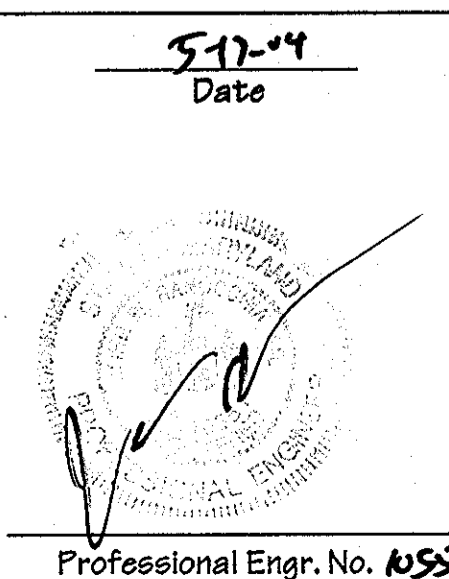
A. 1201 ACRES OF FUTURE FOREST CLEARING SHOWN ON F-03-137 WAS CLEARED FOR SWM ON OPEN SPACE LOT 17A.  
 B. 1201 ACRES OF FUTURE FOREST CLEARING SHOWN ON F-03-137 WAS CLEARED FOR SWM ON OPEN SPACE LOT 17B.  
 C. GROSS AREA INCLUDES 1074 ACRES FOR SANITARY SEWER EXTENSION AND CONTAINS 0.084 ACRES OF FLOODPLAIN.  
 D. GROSS AREA INCLUDES 0.38 ACRES FOR THE SANITARY SEWER SHOWN ON F-02-07A. GROSS AREA ALSO INCLUDES 0.07 ACRES FOR AREA PREVIOUSLY ACCOUNTED FOR UNDER F-02-07A.  
 E. THIS LINE ITEM ACCOUNTS FOR REFORESTATION PROVIDED RETROSPECTIVELY ON A PHASE THAT PREVIOUSLY ADDRESSED FOREST CONSERVATION ACT COMPLIANCE.

**Overall Property Outline**  
Scale: 1" = 600'

SHANABERGER & LANE  
8726 TOWN & COUNTRY BLVD.  
SUITE 201  
ELLICOTT CITY, MARYLAND 21143



Richard F. Lane 9/28/07  
ROAD STORM DRAIN AS-BUILT



**Vicinity Map**  
SCALE: 1" = 2000'

**BENCHMARK DESCRIPTION**

COORDINATES IN MARYLAND NAD83(91) (HORIZONTAL) AND NGVD29 (VERTICAL) DATUMS.  
 47D4 NORTHING: 163191.9104  
 EASTING: 4112665759  
 ELEVATION: 315.025 ft.  
 47E4 NORTHING: 163326.2295  
 EASTING: 418136.2550  
 ELEVATION: 338.809 ft.  
 47G2 NORTHING: 162440.1212  
 EASTING: 4116539279  
 ELEVATION: 364.210 ft.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	6-18-04
<i>William J. Whelan</i> CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	6/23/04
<i>Robert F. Lane</i> CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Robert F. Lane</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	6/22/04
DATE	NO.
REVISION	DESCRIPTION

**Emerson Section 2**  
Phase 5A  
Section 3 – Area 3

OWNER/DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

**DMW**  
Datt-McCune-Walker, Inc.  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 296 3333  
Fax 296 4705

SUBDIVISION NAME	EMERSON	SECTION AREA	PHASE 5A	LOT/PARCEL #	837
PLAT OR L.P.	572/430	ZONE	TAXZONE MAP	BLEED OFFSET	CENSUS TRACT
DATE	7/8/03	MAP	47	6 TH	-
WATER CODE		SEWER CODE			

TITLE: **Cover Sheet**

Drn By:	Scale: 1"=600'	Proj. No. 95054.G2
Des By:	Date: 5/18/04	
Chk By:	Approved:	1 of 29

CURVE DATA					
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
0+00 - 1+44.04	27°30'35"	300.00'	144.04'	73.44'	5 80°48'23" W 142.66'
2+95.86 - 7+87.80	46°58'33"	600.00'	491.93'	260.74'	N 89°27'31" W 478.27'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William Z. Madala* 6-18-04  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Neil S. ...* 6/21/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John ...* 6/22/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date: No. Revision Description

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

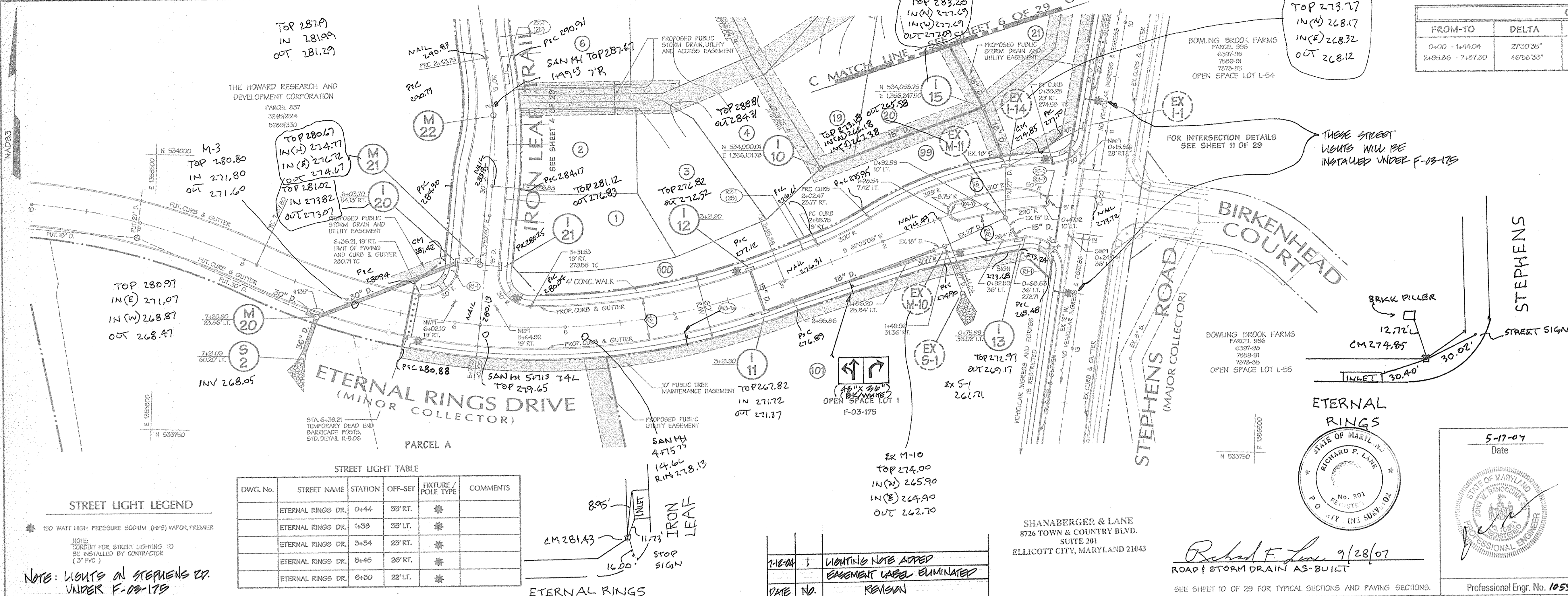
OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Daft - McConne - Walker, Inc.  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410 296 3333  
 Fax 296 4705

PROFESSIONAL ENGINEER  
 RICHARD F. LAWE  
 No. 901  
 State of Maryland  
 5-17-04  
 Date

**ROAD PLAN**  
**ETERNAL RINGS DRIVE**

Dwg. No. 85054-G  
 Scale: 1"=50'  
 Date: 5/18/04  
 Project No. 85054-G  
 2 of 29



STREET LIGHT TABLE

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	ETERNAL RINGS DR.	0+44	33' RT.	*	
	ETERNAL RINGS DR.	1+38	35' LT.	*	
	ETERNAL RINGS DR.	3+34	23' RT.	*	
	ETERNAL RINGS DR.	5+45	28' RT.	*	
	ETERNAL RINGS DR.	6+30	22' LT.	*	

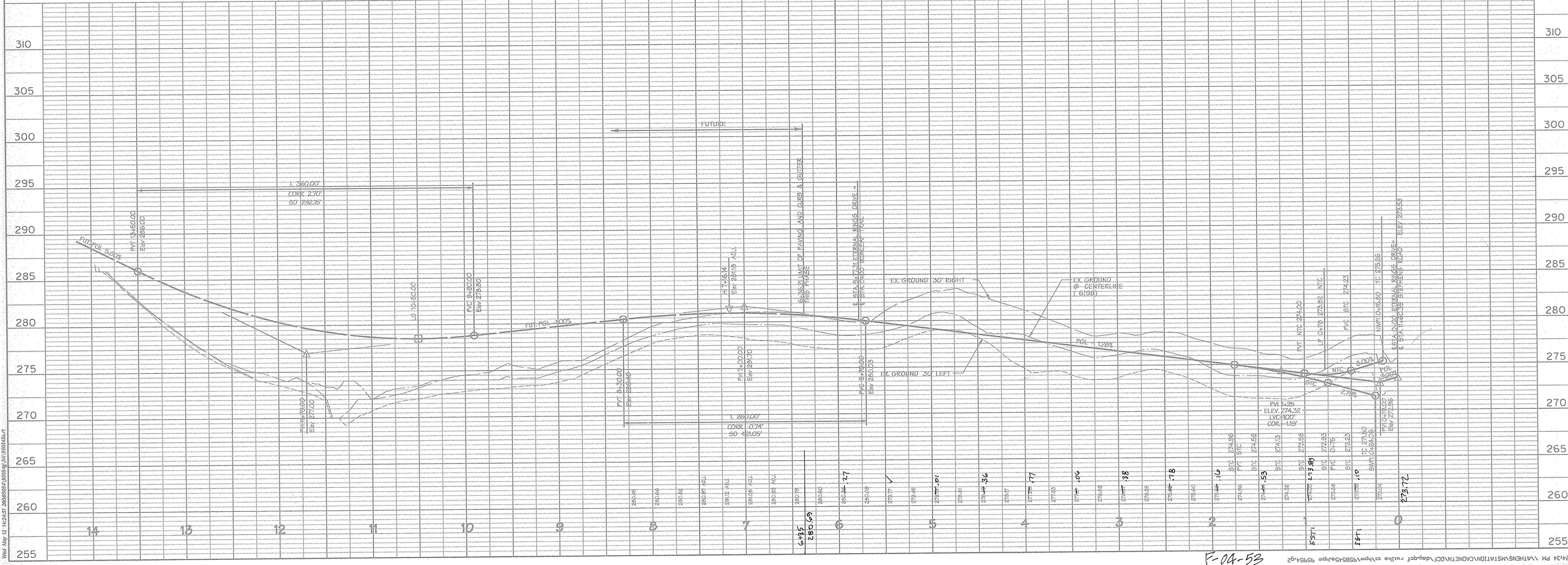
**STREET LIGHT LEGEND**

\* 150 WATT HIGH PRESSURE SODIUM (HPS) VAPOR, PREMIX

NOTE: CONDUIT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3" PVC)

NOTE: LIGHTS AT STEPHENS CR. UNDER F-03-175

DATE	NO.	REVISION
	1	LIGHTING NOTE ADDED
	2	EASEMENT LABEL ELIMINATED
	3	REVISION



F-04-53

**STREET LIGHT TABLE**

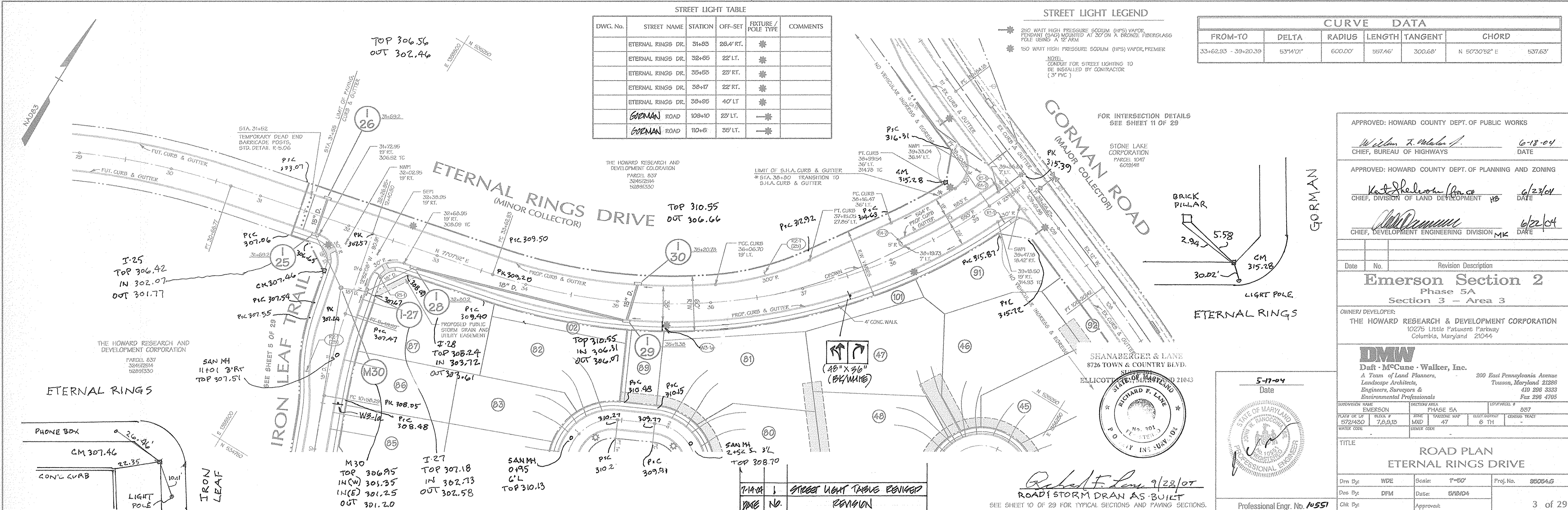
DW.C. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	ETERNAL RINGS DR.	31+83	28.4' RT.	*	
	ETERNAL RINGS DR.	32+85	22' LT.	*	
	ETERNAL RINGS DR.	35+85	22' RT.	*	
	ETERNAL RINGS DR.	38+47	22' RT.	*	
	ETERNAL RINGS DR.	38+85	40' LT.	*	
	GOEMAN ROAD	108+40	23' LT.	*	
	GOEMAN ROAD	110+6	35' LT.	*	

**STREET LIGHT LEGEND**

250 WATT HIGH PRESSURE SODIUM (HPS) VAPOR FENDIAN (SAG) MOUNTED AT 30' ON A BRACKER FIBERGLASS POLE USING A 12' ARM  
 150 WATT HIGH PRESSURE SODIUM (HPS) VAPOR, PREMIER  
 NOTE: CANNOT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3' PVC)

**CURVE DATA**

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
33+62.93 - 39+20.39	53°14'01"	600.00'	557.16'	300.68'	N 50°30'52" E 537.63'



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Malen*  
 CHIEF, BUREAU OF HIGHWAYS 6-18-04 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Kate Shelton*  
 CHIEF, DIVISION OF LAND DEVELOPMENT HB 6/23/04 DATE

*Mike Demme*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 6/22/04 DATE

Date No. Revision Description

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
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 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410 286 3333  
 Fax 286 4705

SECTION NAME	EMERSON	SECTION AREA	PHASE 5A	DATE	08/07
PLATE OR C.D.P.	1572/1430	BLOCK #	7, 8, 9, 13	TOWNSHIP MAP	MAXD
WATER CODE		DISTRICT	47	SHEET DISTRICT	8 TH

**ROAD PLAN**  
**ETERNAL RINGS DRIVE**

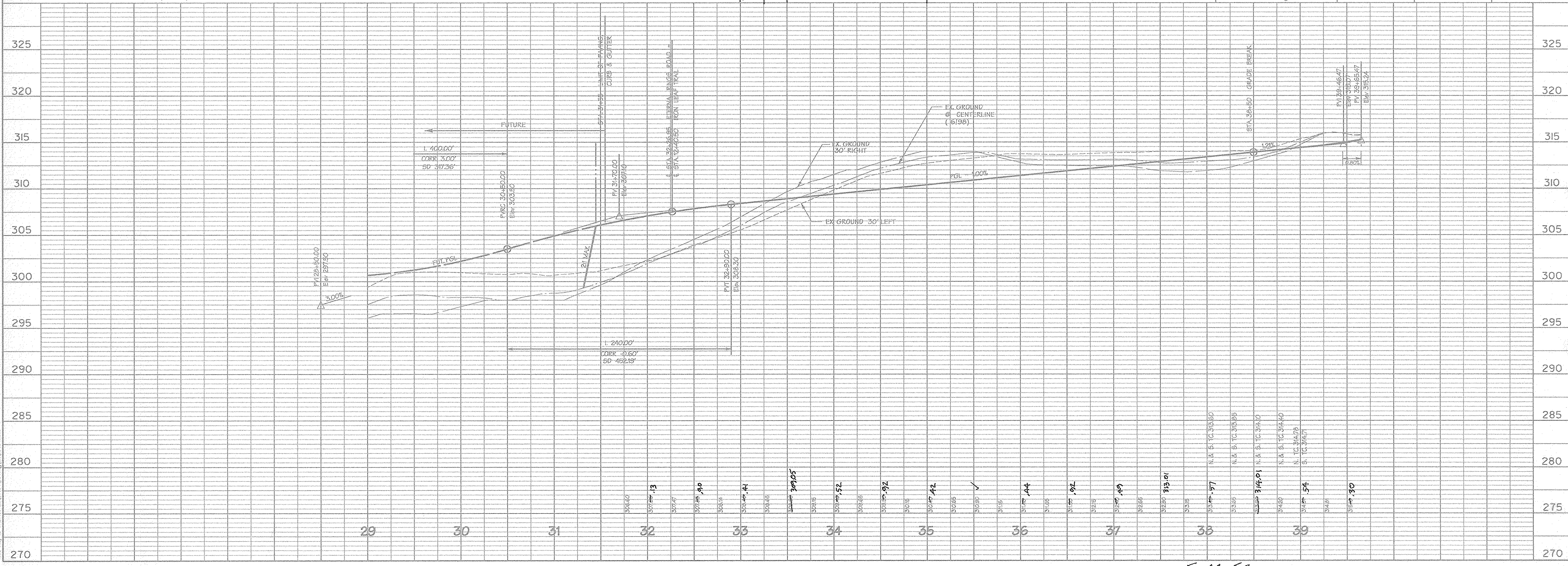
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Des By:	DFM	Date:	6/18/04	Sheet:	3 of 29
Chk By:		Approved:			

Professional Engr. No. 10551

**STREET LIGHT TABLE**

STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
307+46	20.46'	CM 307.46	PHONE BOX
307+55	22.35'	CM 307.55	CON'L CURB
307+77	10.11'	CM 307.77	LIGHT POLE

*Robert F. Lewis* 9/28/07  
 ROADISTORM DRAIN AS BUILT  
 SEE SHEET 10 OF 29 FOR TYPICAL SECTIONS AND PAVING SECTIONS.



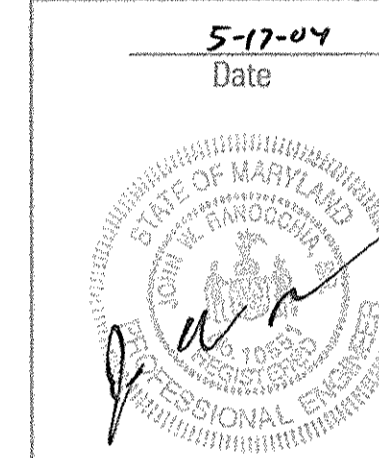
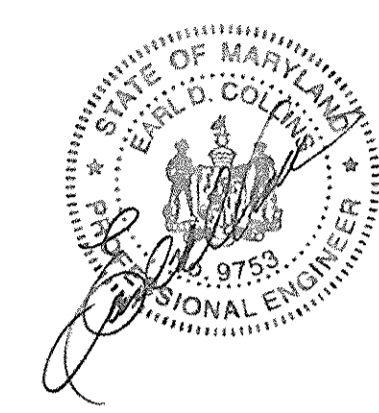
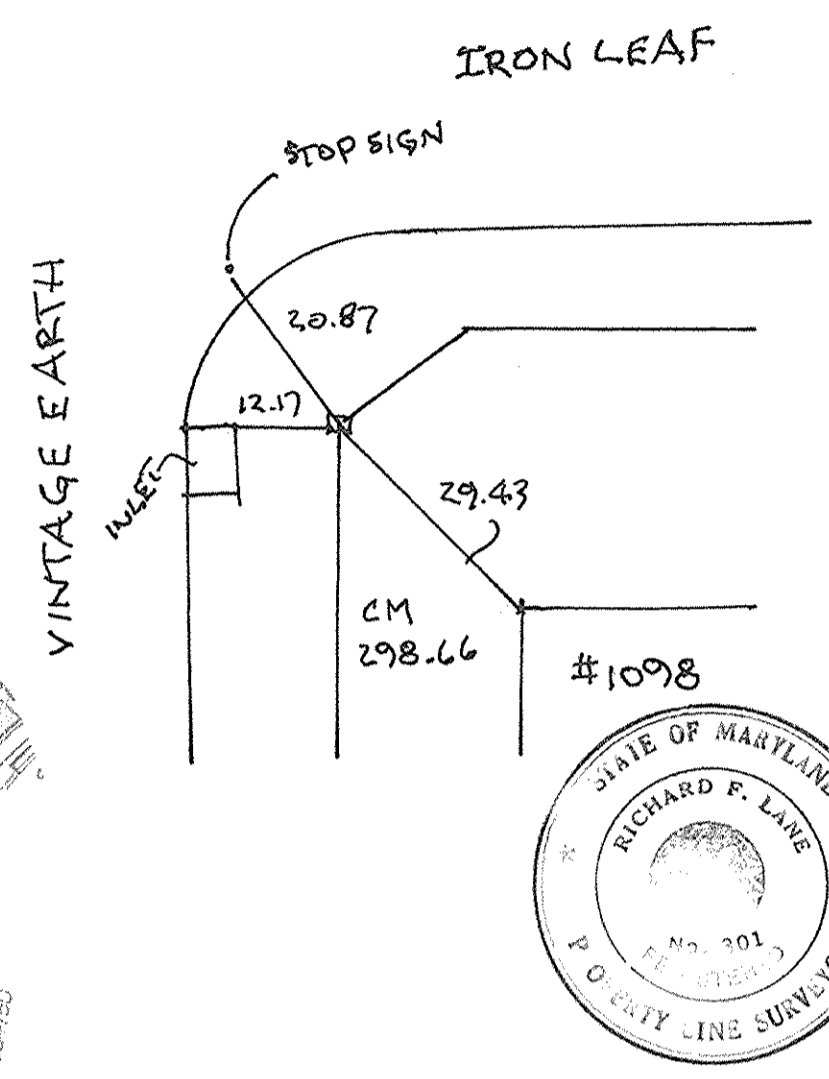
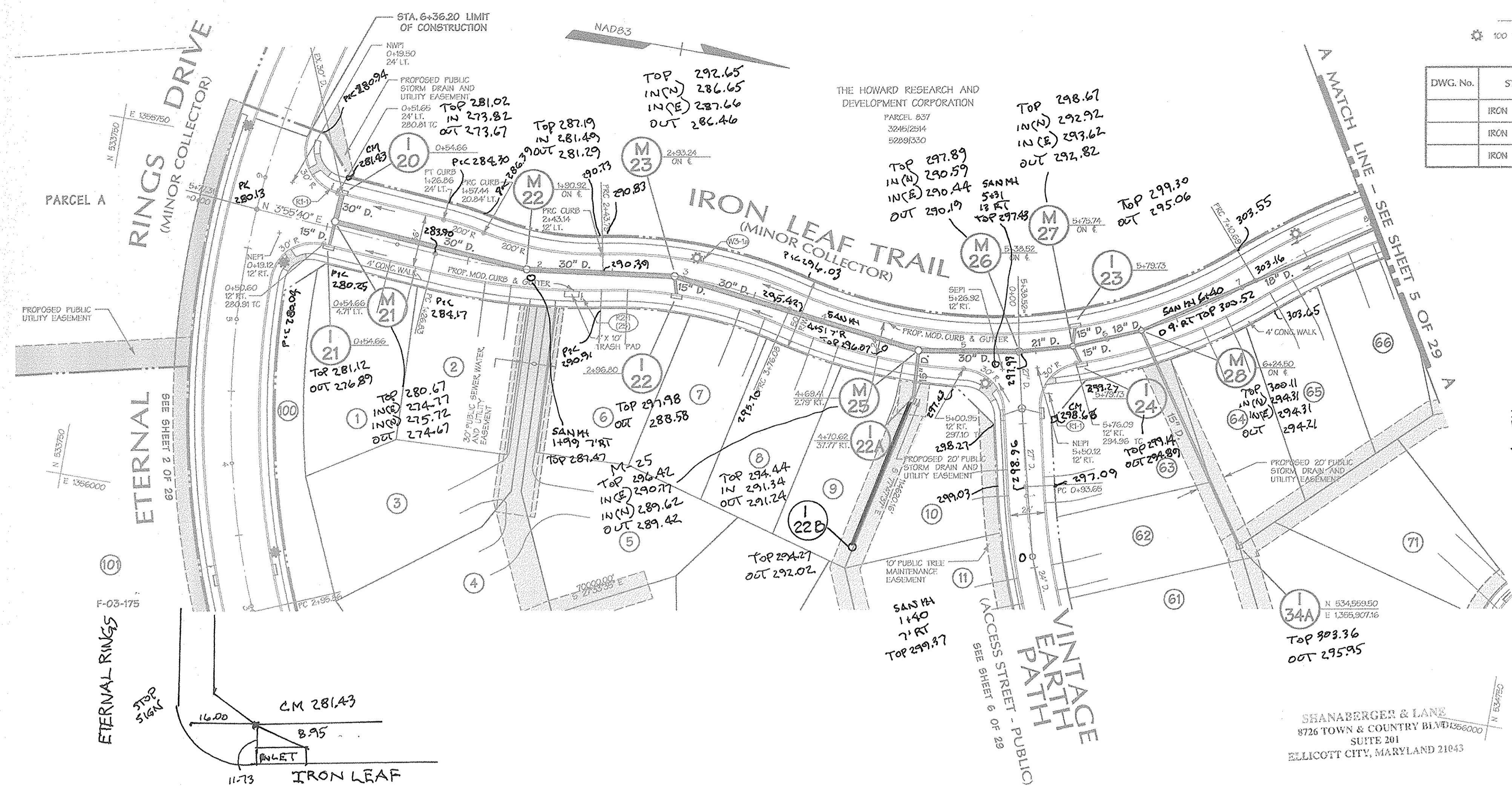
F-04-53

STREET LIGHT LEGEND

100 WATT HIGH PRESSURE SODIUM (HPS) VAPOR, PREMIER

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	IRON LEAF TRAIL	3+06	15' LT.	☼	
	IRON LEAF TRAIL	5+46	21.7' RT.	☼	
	IRON LEAF TRAIL	7+50	15' LT.	☼	

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
1+26.83 - 2+43.79	15'24'22"	436.00'	116.97'	58.84'	N 3'46'31" E 116.61'
2+43.79 - 3+176.08	25'15'54"	300.00'	132.29'	67.24'	N 1'09'16" E 131.22'
3+176.08 - 7+10.69	20'17'01"	350.00'	334.62'	181.33'	N 13'36'06" W 322.01'
7+10.69 - 8+78.51	19'24'08"	495.00'	167.62'	84.62'	N 31'17'20" W 166.82'



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William K. Mahan* 6-18-04  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Richard F. Lane* 6/23/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Richard F. Lane* 6/22/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

10-6-05 1 Add Yard Inlet 1-22B by Fisher, Collins and Carter, Inc.  
 Date No. Revision Description

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

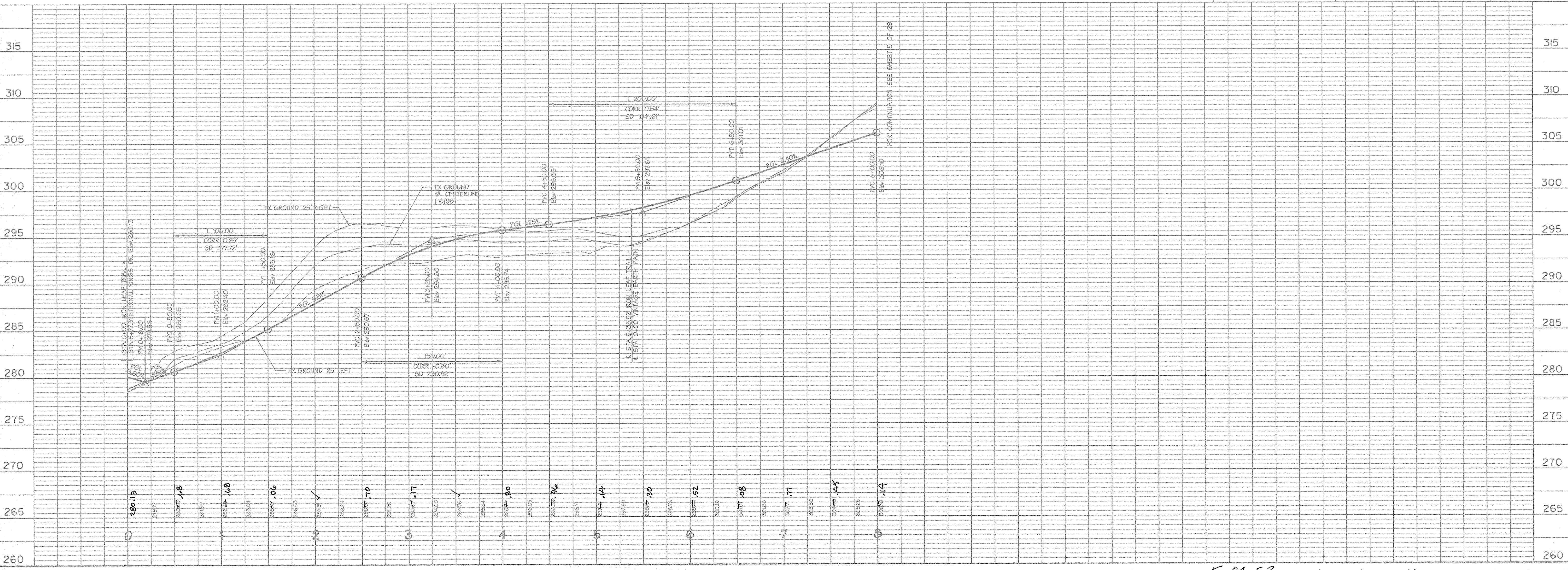
**DMW**  
 Daft · McCune · Walker, Inc.  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410 896 3333  
 Fax 410 896 4705

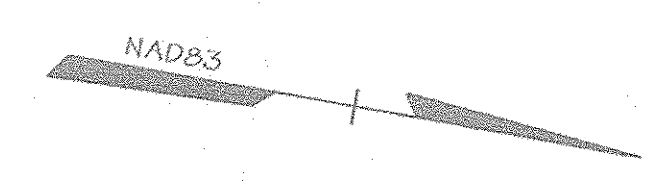
SUPPLIER NAME	EMERSON	SECTION AREA	PHASE 5A	LOT/FACIL #	837
PLANS OR LP	572/430	ZONE	1 W/STREET W/ST	INSTR. DISTRICT	6 TH
WATER CODE	7,8,9,13	MXD	.47	CENSUS TRACT	-
		SEWER CODE			

TITLE: ROAD PLAN IRON LEAF TRAIL

Drn By:	WDE	Scale:	1"=50'	Proj. No.	95054-G
Des By:	DFM	Date:	5/18/04		
Chk By:		Approv:			4 of 29

Professional Engr. No. 12551





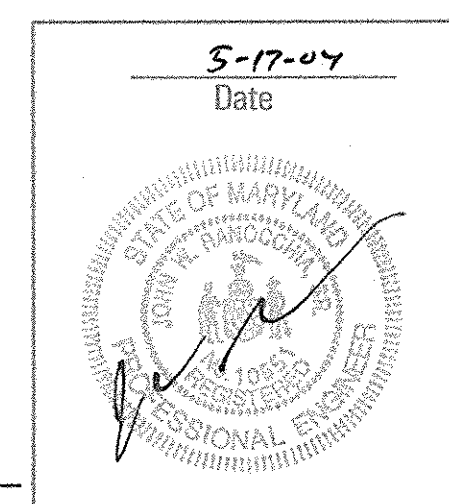
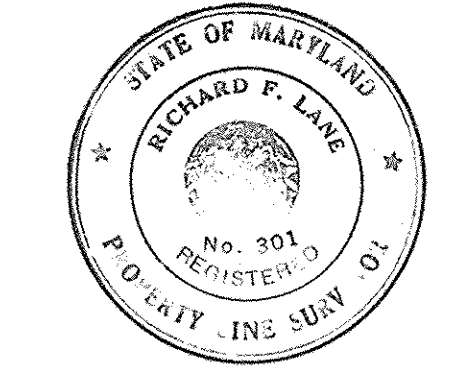
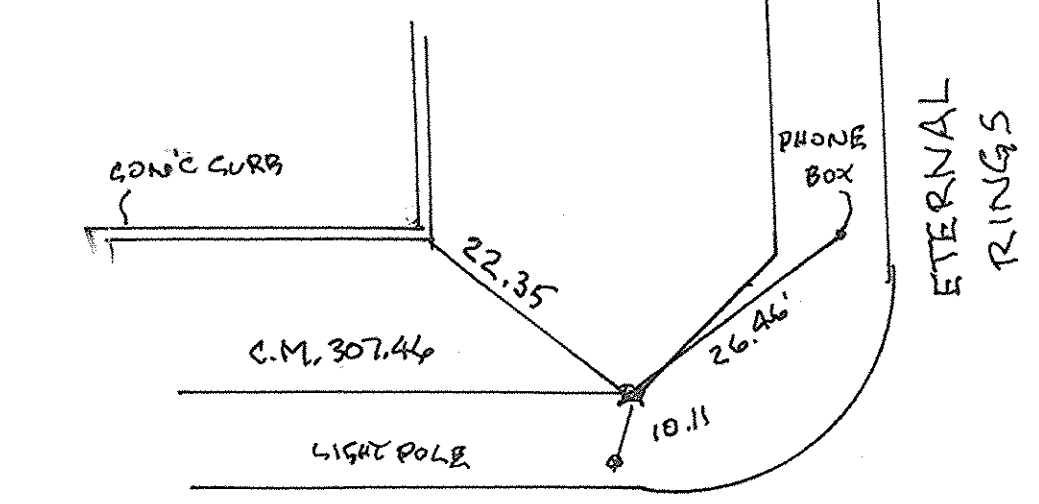
STREET LIGHT LEGEND

100 WATT HIGH PRESSURE SODIUM (HPS) VAPOR, PREMIER

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	IRON LEAF TRAIL	9+37	21.2' RT.		

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
7+10.69 - 8+75.31	19°24'08"	495.00'	167.62'	84.62'	N 31°17'20" W 166.82'
10+68.29 - 11+49.59	8°43'08"	600.00'	91.30'	45.74'	N 17°13'42" W 91.22'

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
10+21.54 TO 10+62.92	11°31'12"	200.00'	41.38'	20.76'	N 27°30'52" W 41.30'
10+62.92 TO 11+29.90	19°11'22"	200.00'	66.98'	33.81'	N 22°50'47" W 66.67'
11+29.90 TO 11+44.98	01°22'58"	624.00'	15.06'	7.53'	N 13°33'31" W 15.06'



SHANABERGER & LANE  
226 TOWN & COUNTRY BLVD.  
SUITE 201  
BELLINGHAM CITY, MARYLAND 21043

*Richard F. Lane* 9/28/07  
ROAD & STORM DRAIN AS-BUILT

SEE SHEET 10 OF 29 FOR TYPICAL SECTIONS AND PAVING SECTIONS.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William Z. Malen* 6-18-04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Keith Palumbo* 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Michael J. ...* 10/22/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION, MLC DATE

Date No. Revision Description  
**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

OWNER/DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

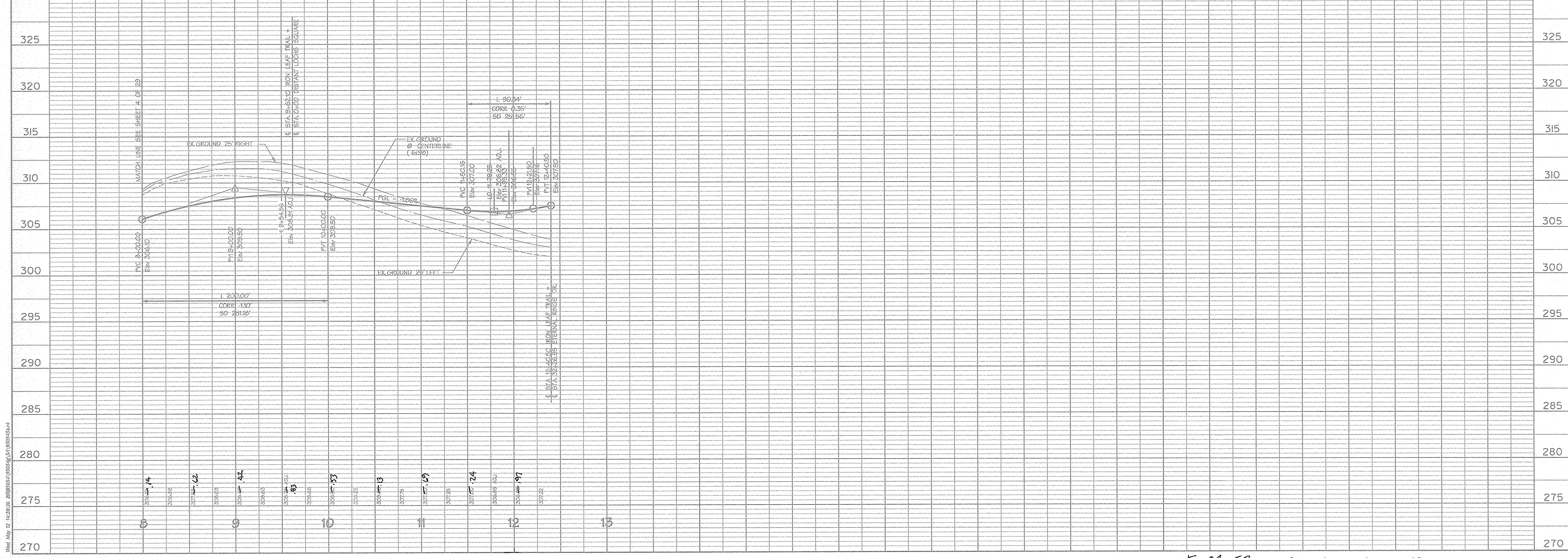
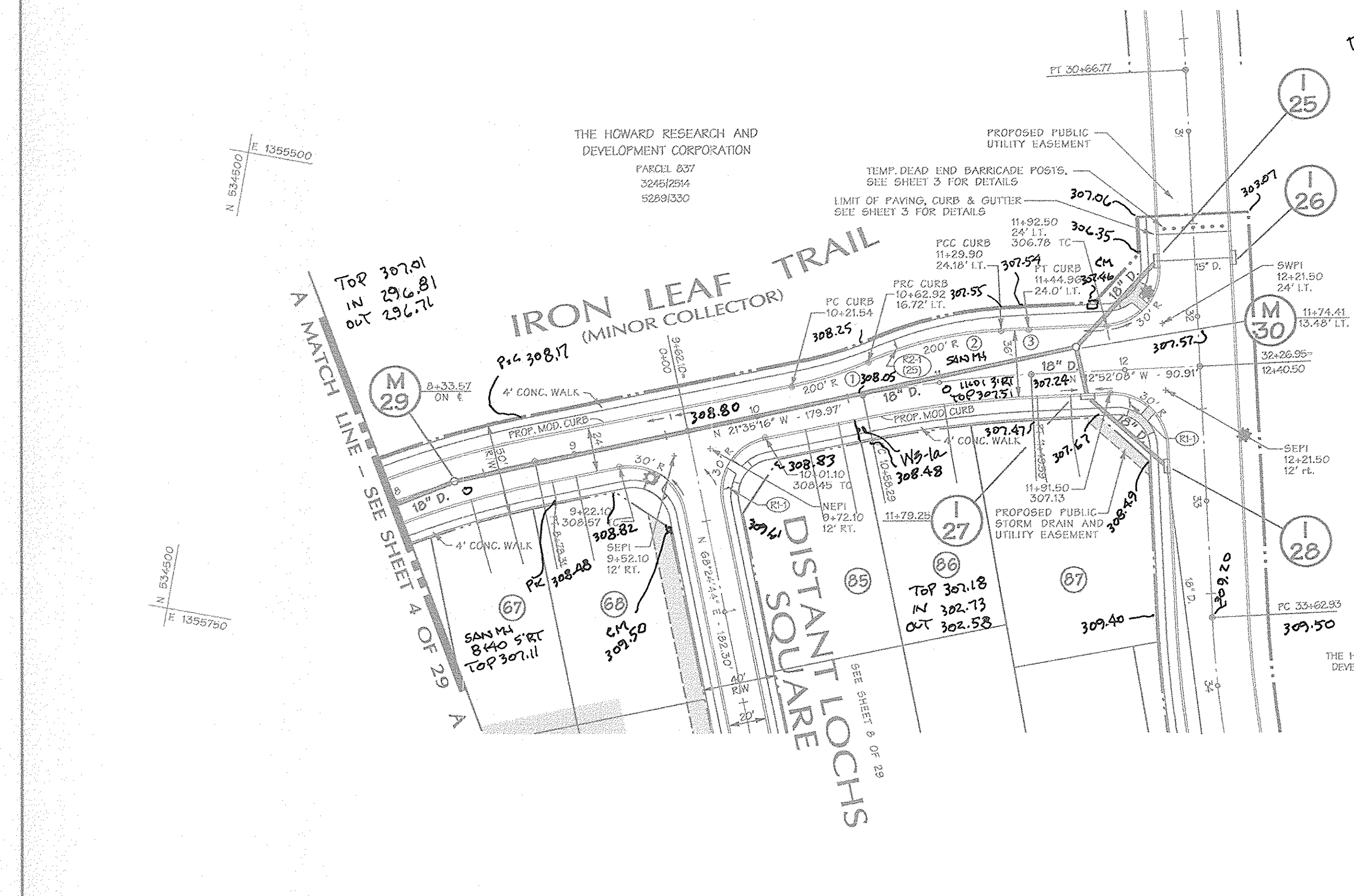
**DMW**  
Daft · McCune · Walker, Inc.  
A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

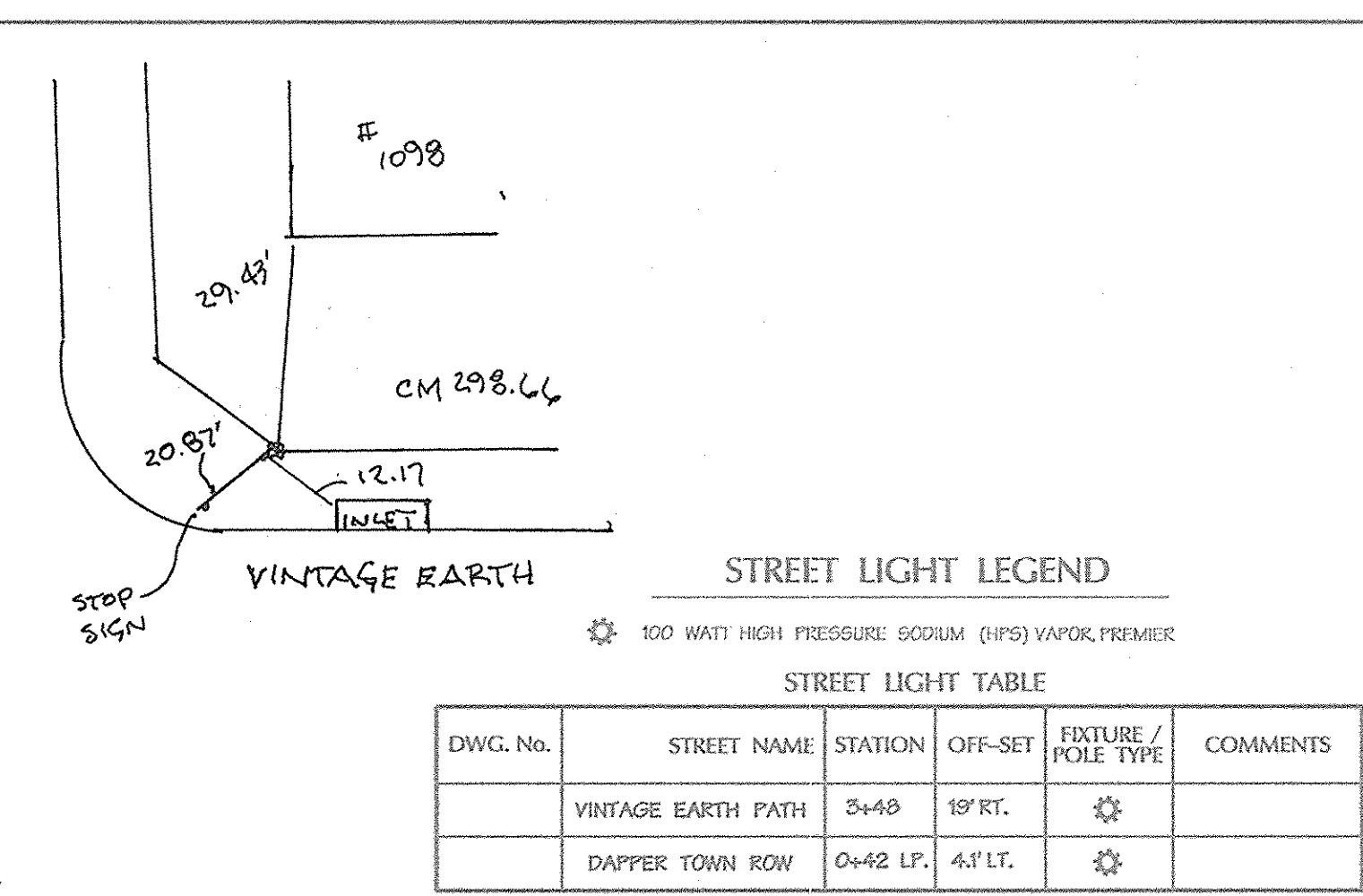
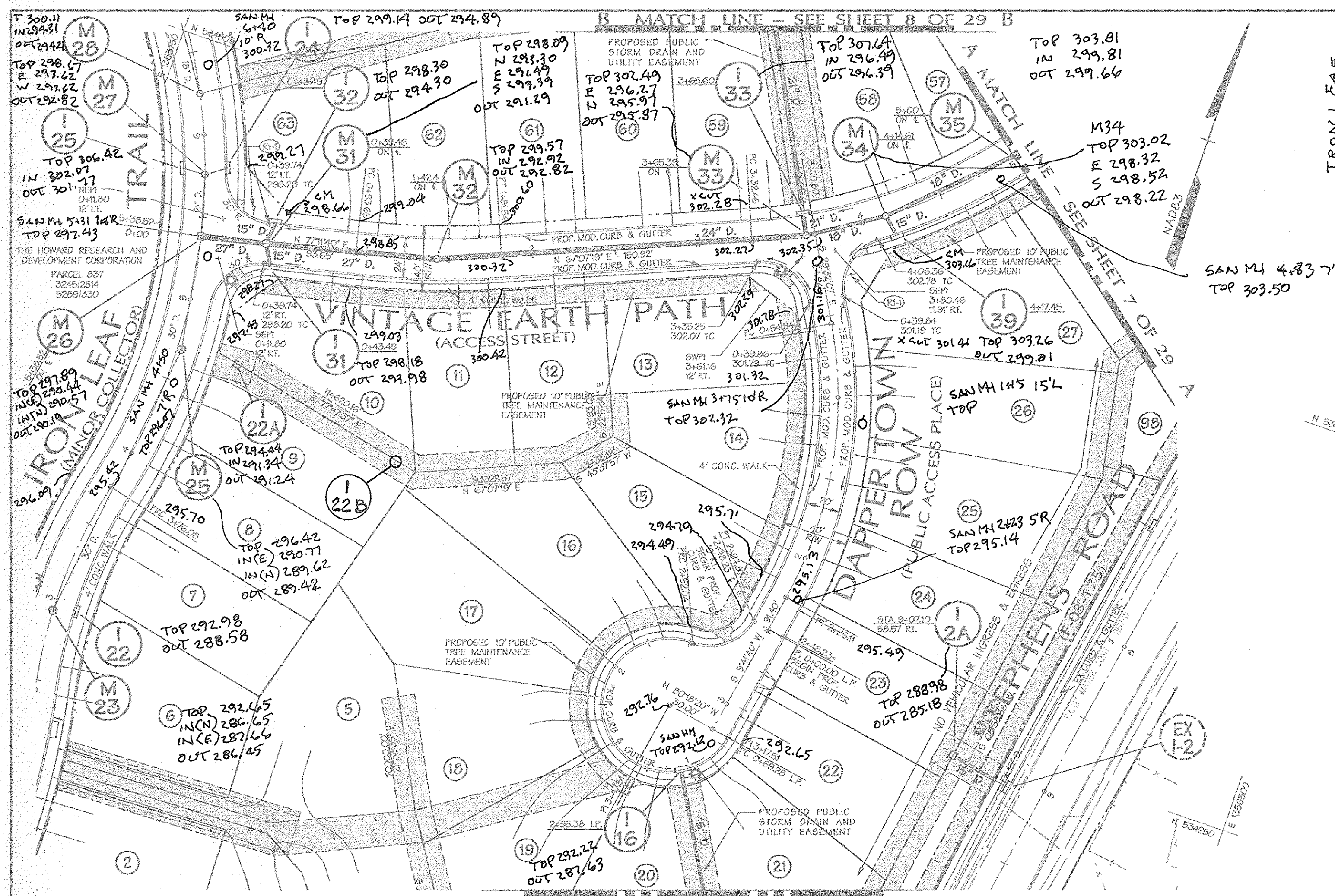
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 898 3333  
Fax 296 4705

DESCRIPTION NAME	SECTION AREA	DATE
EMERSON	PHASE 5A	6/27

TITLE  
**ROAD PLAN  
IRON LEAF TRAIL**

Drn Dwg:	WDE	Scale:	1"=50'	Proj. No.:	9506A-G
Des Dwg:	DFM	Date:	5/18/04		
Chk Dwg:		Approved:			5 of 29





CURVE DATA - VINTAGE EARTH PATH					
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
0+93.65 - 1+01.54	10°04'20"	500.00'	87.50'	44.06'	N 72°09'29" E 87.78'
3+32.46 - 8+87.34	96°20'25"	330.00'	554.88'	368.70'	N 19°57'07" E 481.75'

CURVE DATA - DAPPER TOWN ROW					
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
0+54.94 - 2+26.11	39°13'46"	250.00'	171.17'	89.09'	S 9°55'14" E 167.85'

CURVE DATA - DAPPER TOWN ROW (CUL-DE-SAC)					
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
0+69.28 - 2+52.04	261°47'12"	40.00'	182.76'	25.98'	N 39°24'44" W 60.41'
2+52.04 - 2+94.87	81°47'12"	30.00'	42.82'	42.82'	N 50°55'16" E 39.28'

VINTAGE EARTH  
SHANBERGER & LANE  
8726 TOWN & COUNTRY BLD.  
SUITE 201  
BELLICOTT CITY, MARYLAND 21113

Richard F. Lewis 9/23/07  
ROAD 1 STORM DRAIN AS-BUILT

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. Maland* 6-18-04  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*K. J. [Signature]* 6/2/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: *[Signature]* 6/22/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



1 Add Yard Inlet 1-22B by Fisher, Collins & Carter, Inc.  
 Date No. Revision Description

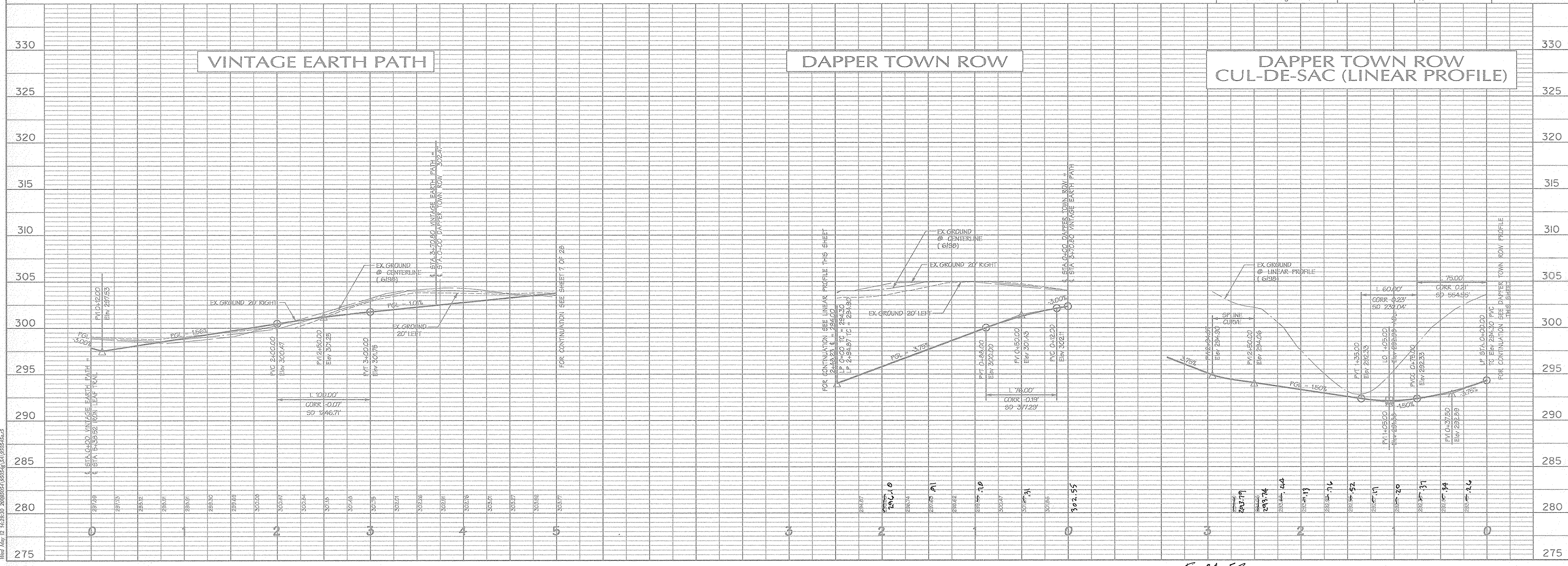
**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Daft · McCune · Walker, Inc.  
 A Team of Land Planners, 200 East Pennsylvania Avenue  
 Landscape Architects, Towson, Maryland 21286  
 Engineers, Surveyors & Environmental Professionals 410 288 3333  
 Fax 410 288 4705

5-17-04  
 Date

Professional Engr. No. 14551



F-04-53

Wed May 12 14:29:30 2009 00515050.dwg (A) 140325545

22:29:13 PM V:\ATHENS\STATISTATION\CANON\TOP\delqpf\mkh\c:\hp\m\9505\54\hpm 95054102





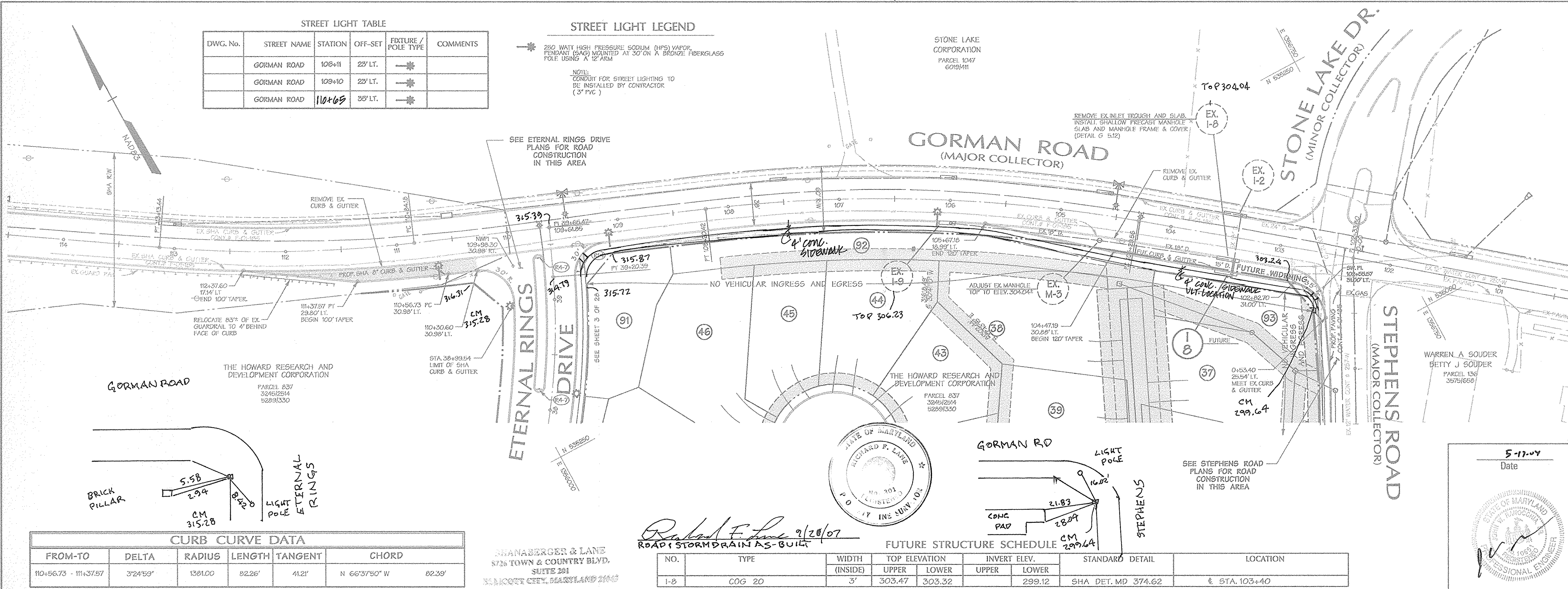


DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	GORMAN ROAD	106+11	22' LT.	☼	
	GORMAN ROAD	109+10	22' LT.	☼	
	GORMAN ROAD	110+69	35' LT.	☼	

**STREET LIGHT LEGEND**

☼ 220 WATT HIGH PRESSURE SODIUM (HPS) VAPOR FIXTURE (640) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

NOTE: CONDUIT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3" PVC)



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Walker* 6-18-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*K. Johnson* 6/28/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mike* 6/27/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Daft - McCune - Walker, Inc.  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410 296 3333  
 Fax 296 4705

PROVISION NAME	SECTION AREA	LOT/PARCEL #
EMERSON	PHASE 5A	837

DATE: 5-17-07

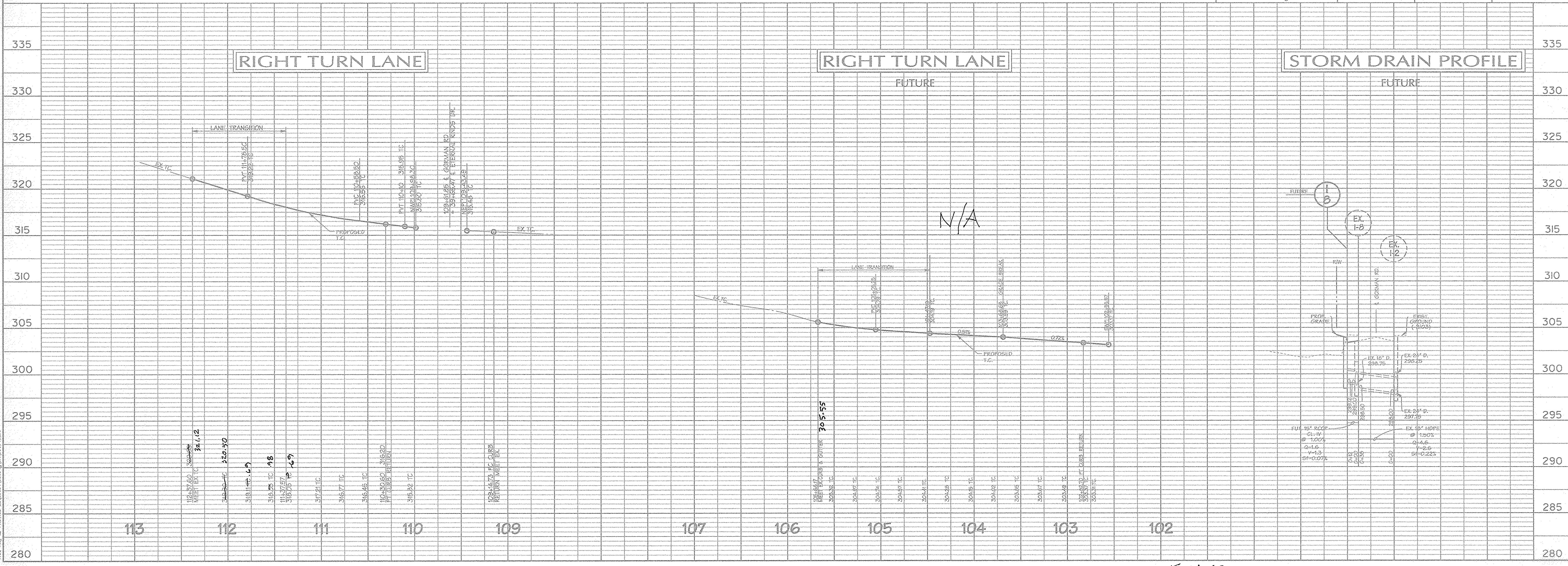
Professional Engr. No. 10557

**CURB CURVE DATA**

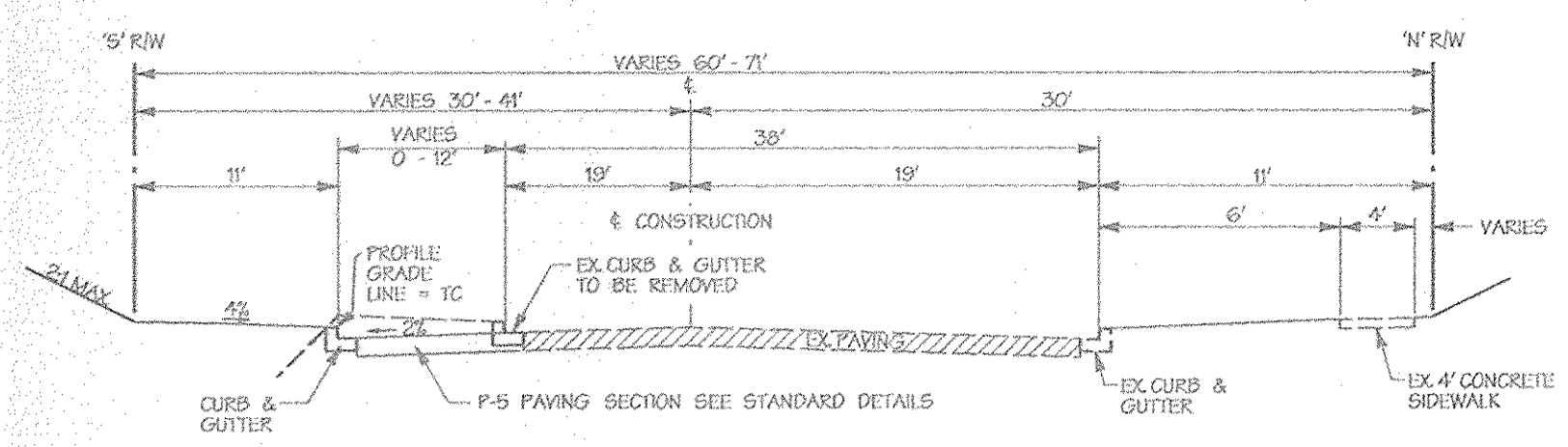
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
110+56.73 - 111+37.57	7°24'59"	1381.00	82.26'	41.21'	N 66°37'50" W 82.39'

**FUTURE STRUCTURE SCHEDULE**

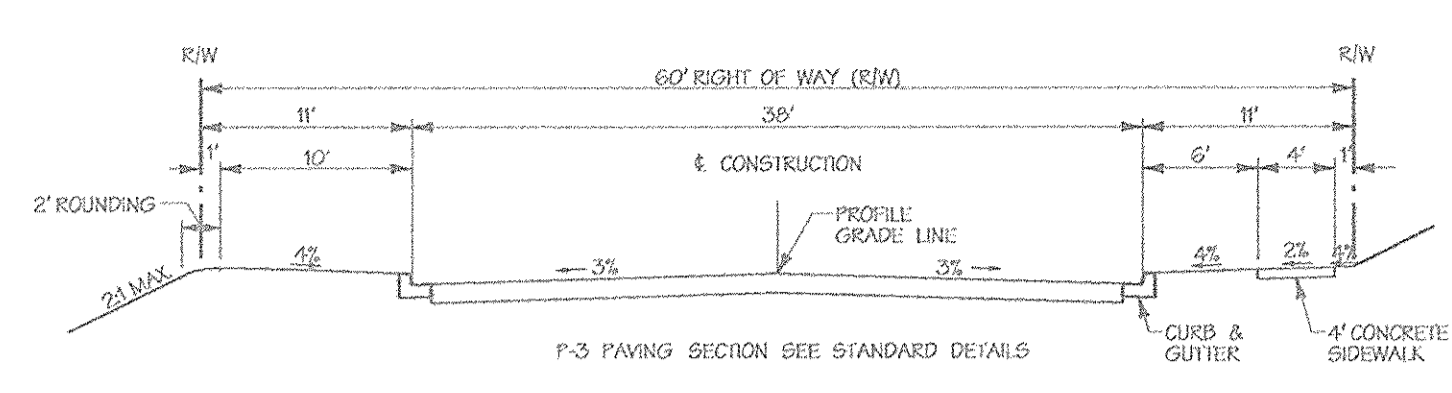
NO.	TYPE	WIDTH (INSIDE)	TOP ELEVATION		INVERT ELEV.		STANDARD DETAIL	LOCATION
			UPPER	LOWER	UPPER	LOWER		
1-8	COG 20	3'	303.47	303.32	299.12	299.12	SHA DET. MD 374.62	± STA. 103+40



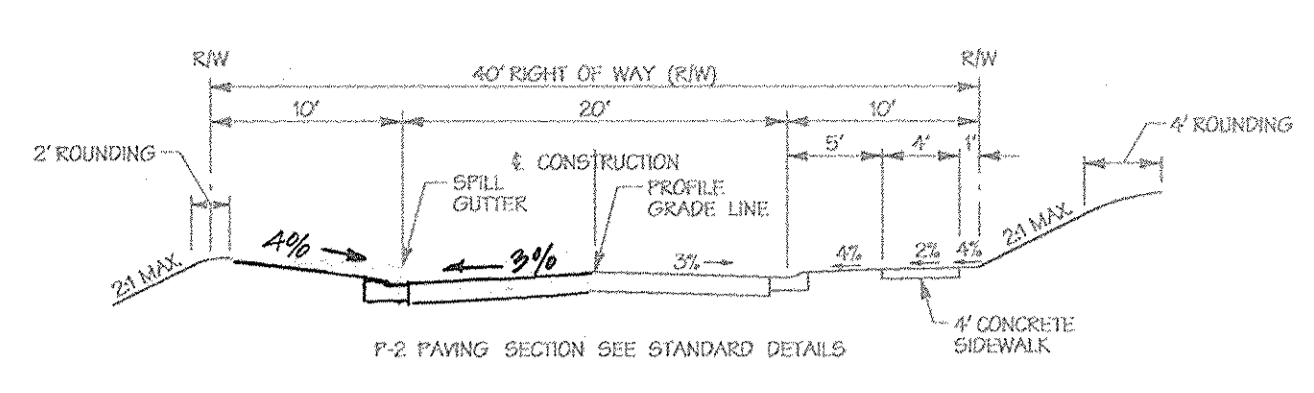
F-04-03



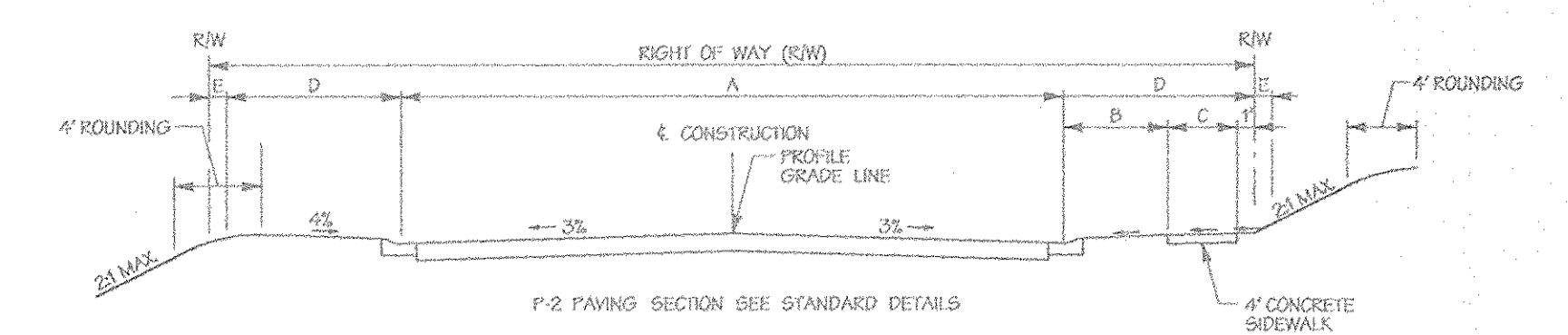
**FUTURE TYPICAL SECTION  
GORMAN ROAD AT STEPHENS ROAD**  
STA. 102+82.70 TO STA. 105+67.18  
NO SCALE



**TYPICAL SECTION  
ETERNAL RINGS DRIVE**  
NO SCALE

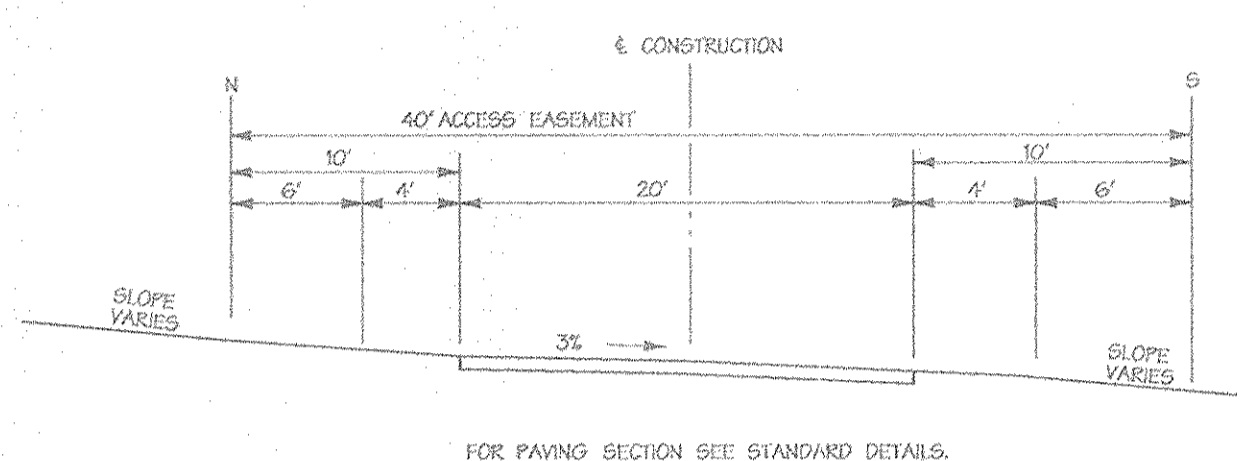


**TYPICAL SECTION  
FAIRFIELD WAY  
DAPPER TOWN ROW**  
NO SCALE

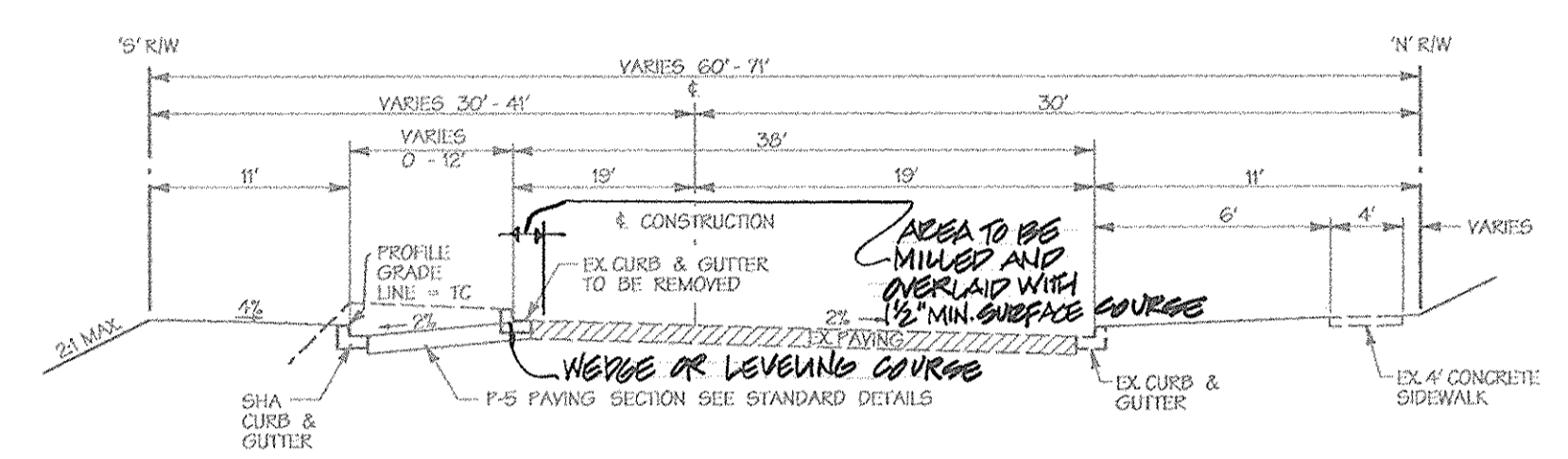


ROAD	CLASSIFICATION	A	B	C	D	E	ROW
① ACCESS STREET	600-1000 ADT	24'	30'	4'	8'	1'	40'
② MINOR COLLECTOR	1000-2000 ADT	24'	30'	4'	12'	1'	50'
③ ACCESS PLACE PUBLIC	2000 ADT	22'	30'	4'	12'	2'	40'

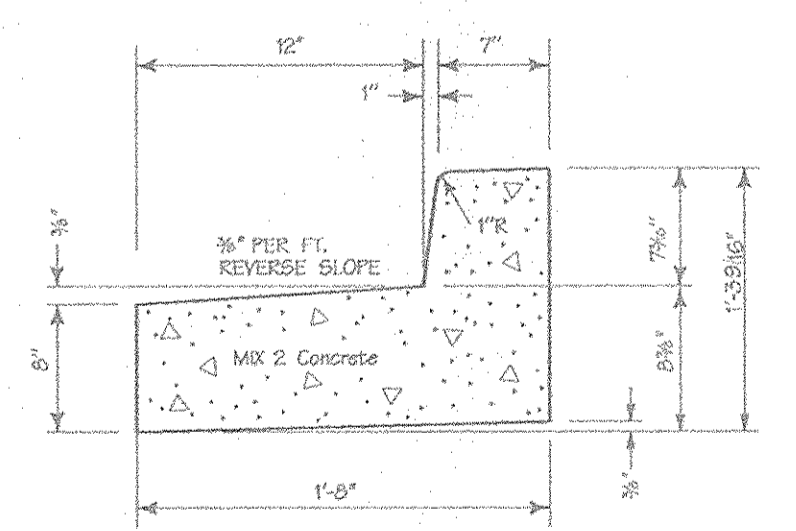
**TYPICAL SECTION**  
NO SCALE  
① VINTAGE EARTH PATH (PUBLIC ACCESS STREET)  
② IRONLEAF TRAIL (MINOR COLLECTOR)  
③ DISTANT LOGS SQUARE (PUBLIC ACCESS PLACE)



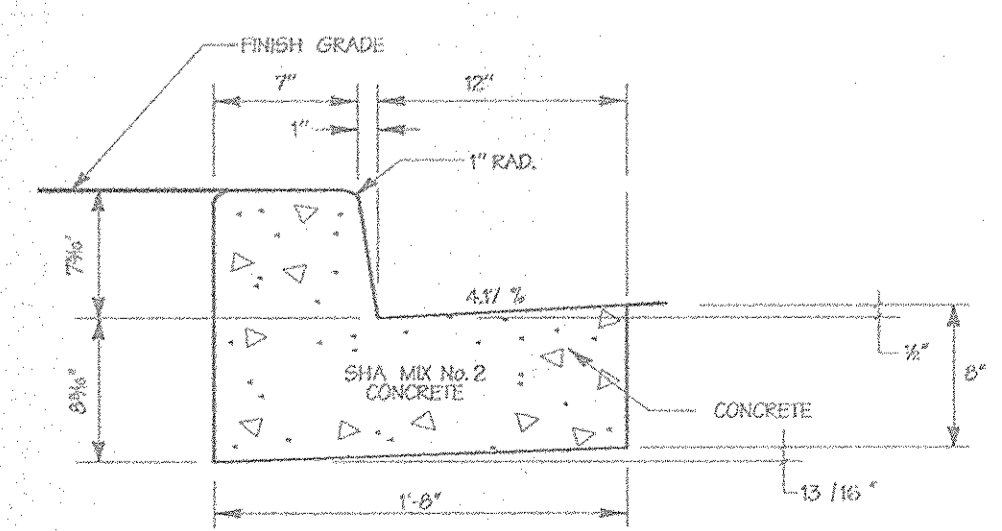
**PRIVATE ACCESS PLACE**  
NO SCALE



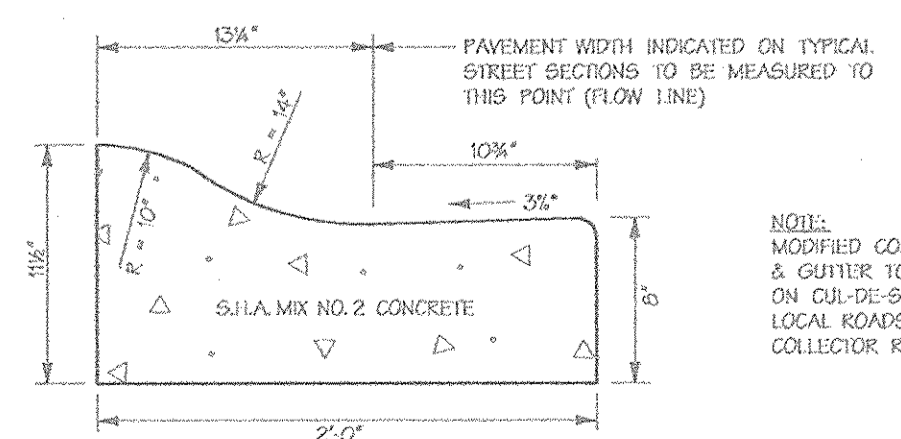
**TYPICAL SECTION  
GORMAN ROAD AT ETERNAL RINGS DR.**  
STA. 109+61.85 TO STA. 112+37.60  
NO SCALE



**REVERSE 7<sup>th</sup> COMBINATION  
CURB & GUTTER**  
NO SCALE

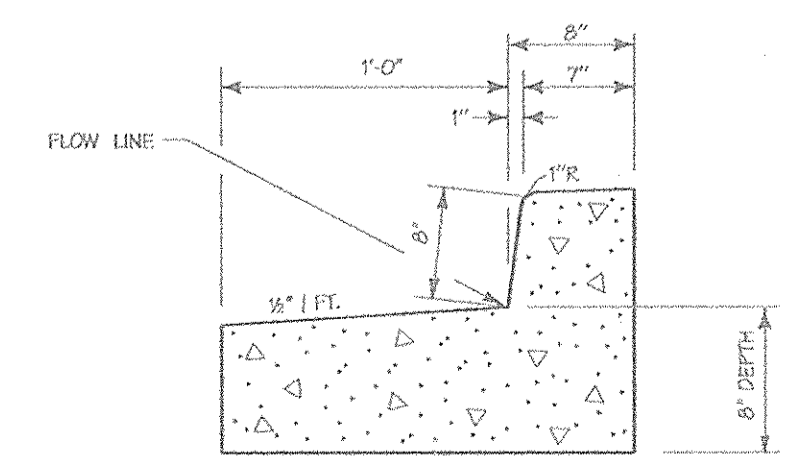


**SECTION  
TYPE "A" CURB AND GUTTER**  
NO SCALE



\* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

**SECTION  
MODIFIED COMBINATION CURB AND GUTTER**  
NO SCALE



**SHA TYPE 'A'  
CURB & GUTTER**  
NO SCALE

DATE	NO.	REVISION DESCRIPTION
7/14/04	1	TYPICAL SECTION FAIRFIELD & DAPPER TOWN REVISED, TRANSITION NOTES FOR ETERNAL RINGS ADDED

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. ...* 6-18-04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Ken ...* 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 6/22/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

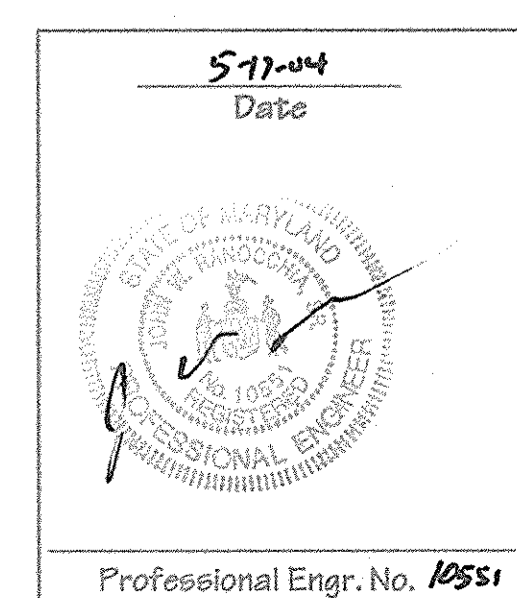
OWNER/DEVELOPER:  
**THE HOWARD RESEARCH & DEVELOPMENT CORPORATION**  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

**DMW**  
Dart - McCune - Walker, Inc.  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 286 3333  
Fax 286 4705

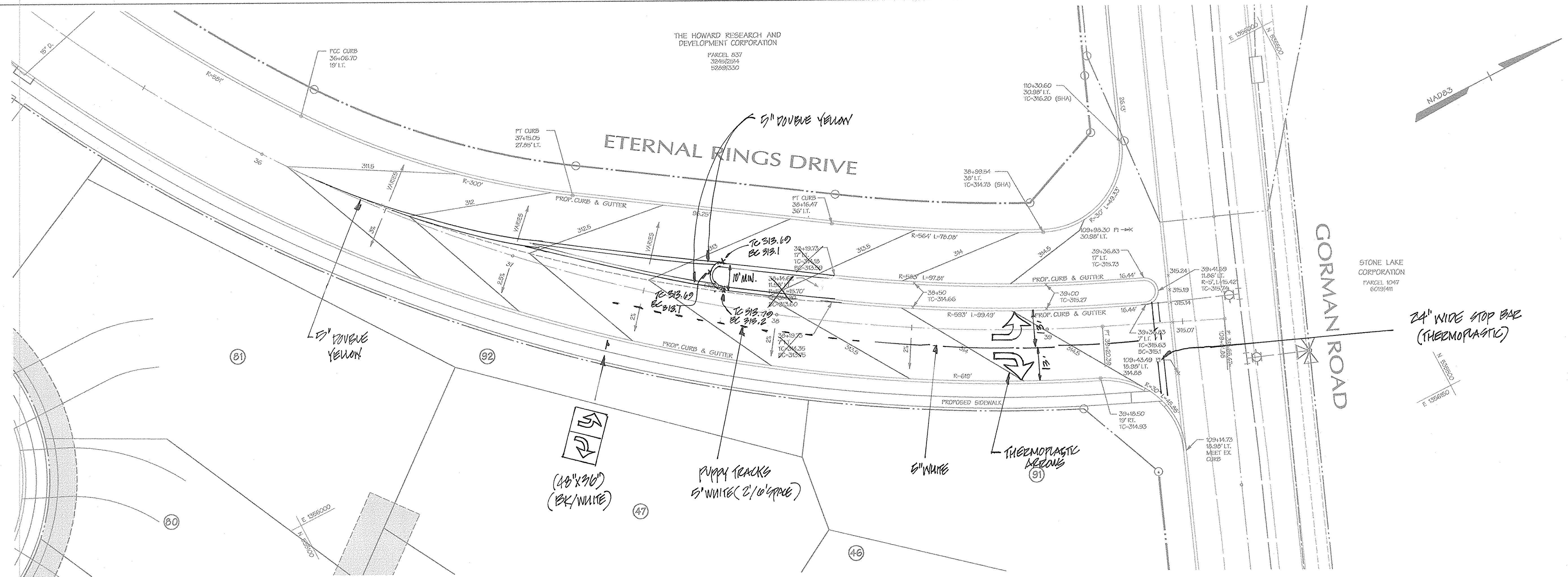
SUBDIVISION NAME	SECTION AREA	LOT/PARCEL #
EMERSON	PHASE 5A	857
PLAN OR LA 572/430	REVISION 7,8,9,13	MDX 47
WATER CODE	SEWER CODE	6 TH

TITLE  
**ROAD PLANS  
DETAILS**

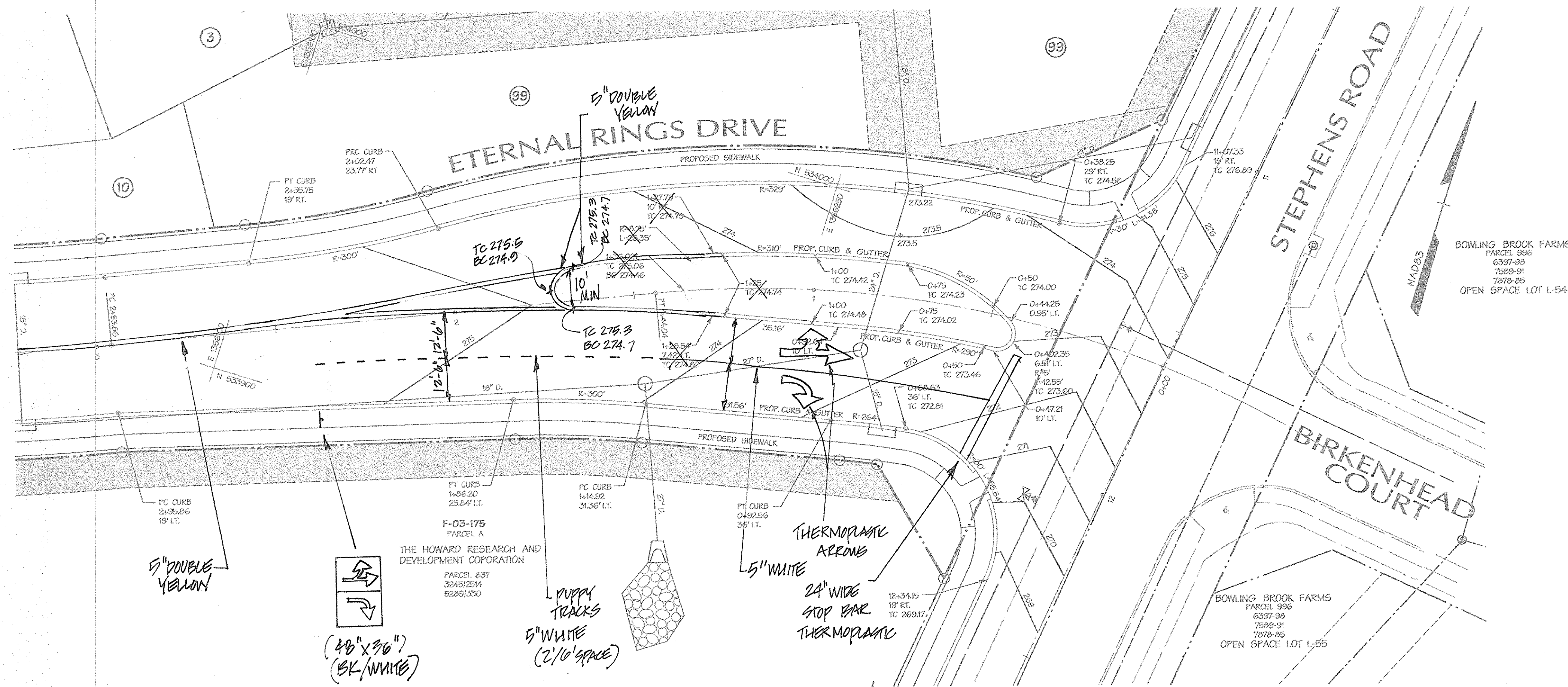
Drawn By:	Scale:	Project No.:
WDE	AS SHOWN	96054-G2
Des. By:	Date:	Checked By:
DFM	5/18/04	
Appr.:	Professional Engr. No.:	10 of 29
	10551	



F-04-53



ETERNAL RINGS DRIVE AT GORMAN ROAD



ETERNAL RINGS DRIVE AT STEPHENS ROAD

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. Balala</i> CHIEF, BUREAU OF HIGHWAYS	6-18-04 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Kate Sheehy</i> CHIEF, DIVISION OF LAND DEVELOPMENT	6/23/04 DATE
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>Chris Williams</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	6/22/04 DATE
Date	No.
Revision Description	
Emerson Section 2 Phase 5A and Section 3 Area 3 (Key Property)	
OWNER/ DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Patuxent Parkway Columbia, Maryland 21044	
<b>DMW</b> Daft · McCune · Walker, Inc. A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals 200 East Pennsylvania Avenue Towson, Maryland 21286 410 286 3333 Fax 296 4705	
DATE	NO.
5-17-04	
Date	
Professional Engr. No. 1551	
TITLE INTERSECTION DETAILS	
Des. By: WDE	Scale: 1"=20'
Des. By: DFM	Date: 5/18/04
Chk. By:	Approved:
Proj. No. 96054-G	11 of 29

SEE SHEET 10 OF 29 FOR TYPICAL SECTIONS AND PAVING SECTIONS.

F-04-53

STATE OF MARYLAND PROFESSIONAL ENGINEERS AND SURVEYORS



A=1.07 AC IMP=26%	A=0.40	A=1.05 AC IMP=40%	Q=0.50
A=0.45 AC IMP=62%	B=0.67	A=0.15 AC IMP=80%	R=0.80
A=0.22 AC IMP=58%	C=0.64	A=0.46 AC IMP=45%	S=0.49
A=0.95 AC IMP=43%	D=0.52	A=0.51 AC IMP=24%	S1=0.33
A=0.22 AC IMP=70%	E=0.73	A=1.02 AC IMP=39%	T=0.46
A=0.24 AC IMP=65%	E1=0.69	A=0.33 AC IMP=63%	U=0.67
A=0.22 AC IMP=64%	F=0.68	A=0.53 AC IMP=38%	FUT V=0.49
A=0.75 AC IMP=38%	G=0.49	A=0.40 AC IMP=65%	FUT W=0.67
A=0.45 AC IMP=51%	H=0.58	A=0.40 AC IMP=63%	FUT X=0.67
A=1.05 AC IMP=34%	I=0.46	A=0.78 AC IMP=22%	AA=0.37
A=0.27 AC IMP=55%	J=0.61	A=1.73 AC IMP=31%	BB=0.43
A=0.59 AC IMP=55%	K=0.61	A=0.63 AC IMP=27%	DD=0.40
A=0.78 AC IMP=46%	K1=0.55	A=0.70 AC IMP=34%	GG=0.46
A=0.85 AC IMP=44%	L=0.51	A=0.36 AC IMP=20%	II=0.36
A=1.26 AC IMP=39%	M=0.49	A=0.21 AC IMP=67%	MM=0.70
A=1.16 AC IMP=27%	N=0.40	A=0.77 AC IMP=49%	KK=0.57
A=1.20 AC IMP=17%	O=0.33	A=1.32 AC IMP=42%	JJ=0.54
A=0.20 AC IMP=0%	P=0.20	A=0.29 AC IMP=73%	NN=0.75
A=0.32 AC IMP=15%	P1=0.31	A=0.94 AC IMP=47%	OO=0.55
A=0.27 AC IMP=27%	N1=0.40	A=0.42 AC IMP=16.9%	PP=0.33

**Legend**

EX CURB & GUTTER	-----	DRAINAGE AREA LIMIT	-----
EX MAJOR CONTOURS	-----	DRAINAGE AREA DEFINITION	-----
EX MINOR CONTOURS	-----	PROPERTY LINE	-----
EX STORM DRAIN	-----	ROADWAY RIGHT-OF-WAY	-----
EX SEWER	-----	PROPOSED LOT LINE	-----
EX WATER	-----	PROPOSED EASEMENT	-----
EXISTING TREE LINE	-----	PROPOSED CURB & GUTTER	-----
EXISTING WETLAND LIMIT	-----	PROPOSED SIDEWALK	-----
PROP. EASEMENT	-----		
PROP. EASEMENT	-----		

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*Howard County Seal*  
 CHIEF, BUREAU OF HIGHWAYS DATE 6-18-04

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Howard County Seal*  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/23/04

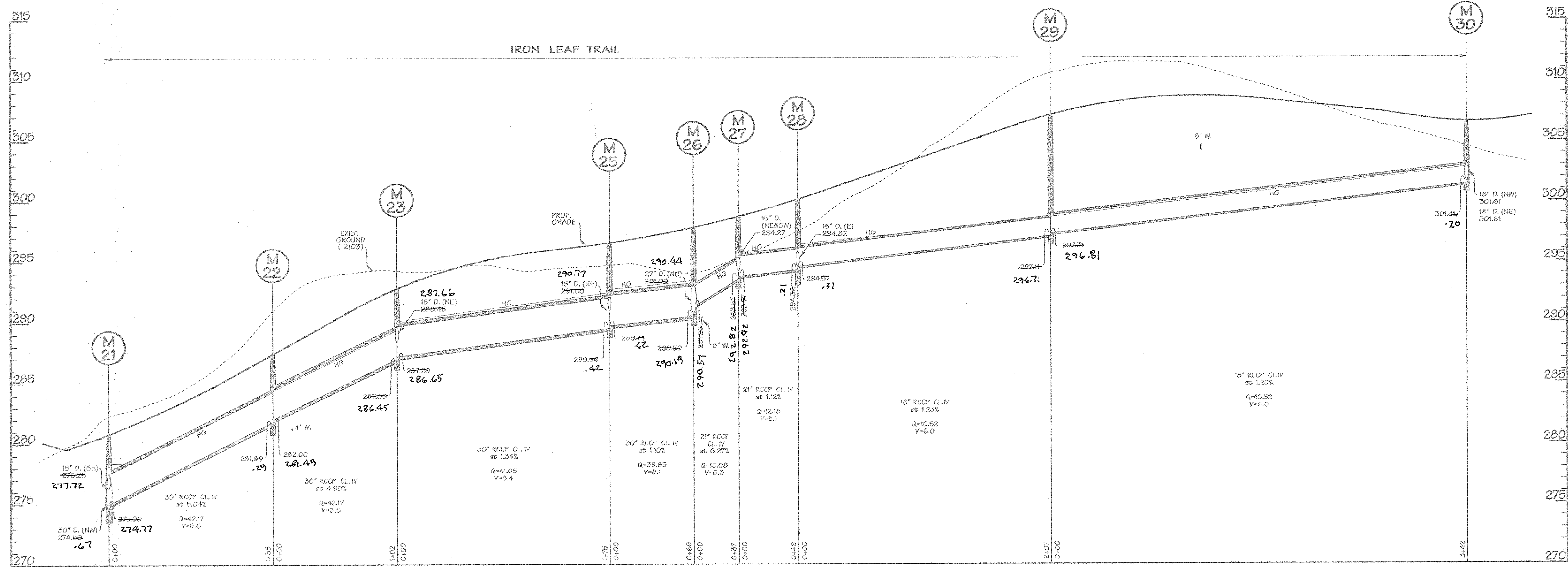
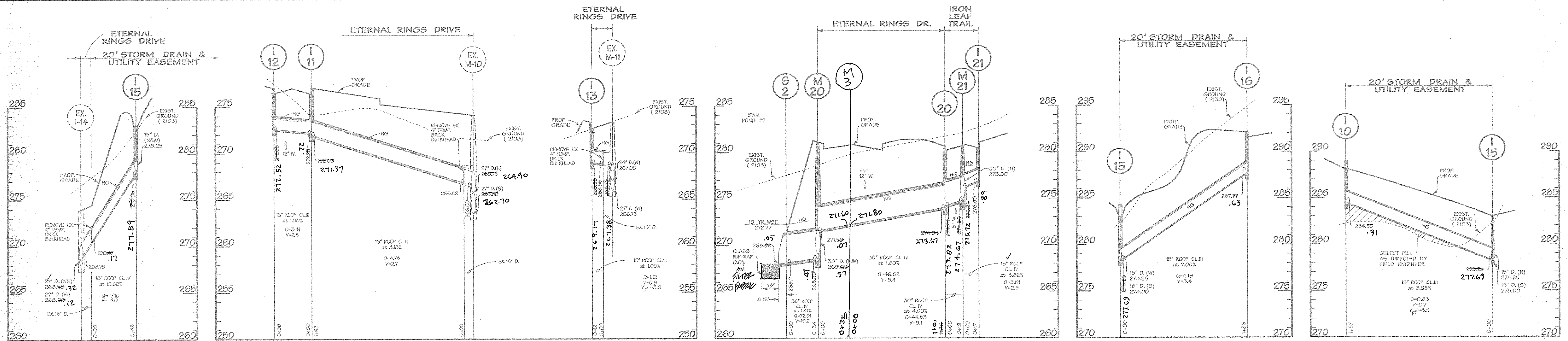
*DMW Seal*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 6/22/04



10-6-05	2	Rev. Drainage Areas, Add Yard Inlet 1-22 B by Fisher, Collins & Carter, Inc.
7-12-04	1	ADDED I-39A, REVISED DRAINAGE AREA N, ADDED DRAINAGE AREA N1
Date	No.	Revision Description
<b>Emerson Section 2 Section 3 Area 3 (Key Property)</b>		
OWNER/DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Pasture Parkway Columbia, Maryland 21044		
<b>DMW</b> Daft · McCune · Walker, Inc. A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals 200 East Pennsylvania Avenue Towson, Maryland 21286 410 286 3333 Fax 286 4705		
TITLE STORM DRAIN DRAINAGE AREA MAP		
Drn By: WDE	Scale: 1"=100'	Proj. No. 95054-G
Des By: DFM	Date: 5/18/04	
Chk By:	Approved:	12 of 29

5-11-04  
Date

Professional Engr. No. 14351



NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS	LOCATION
I-10	TYPE 'D' INLET	274.72	274.72	274.72	HO. CO. STD. SD.4.11	N 534,000.01 E 1,356,101.78
I-11	A-5 (2'-6\"/>					

SIZE	TYPE	LENGTH
15"	RCCP-CL-IV	495
18"	RCCP-CL-IV	2083
21"	RCCP-CL-IV	191
27"	RCCP-CL-IV	150
30"	RCCP-CL-IV	636
36"	RCCP-CL-IV	34
15"	RCCP-CL-III	343
18"	RCCP-CL-III	103

**PROFILES**  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. ...* 6-18-04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Kathleen ...* 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 6/22/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

14-04 / FILTER CATCH ADDED @ S-2  
Date No. Revision Description

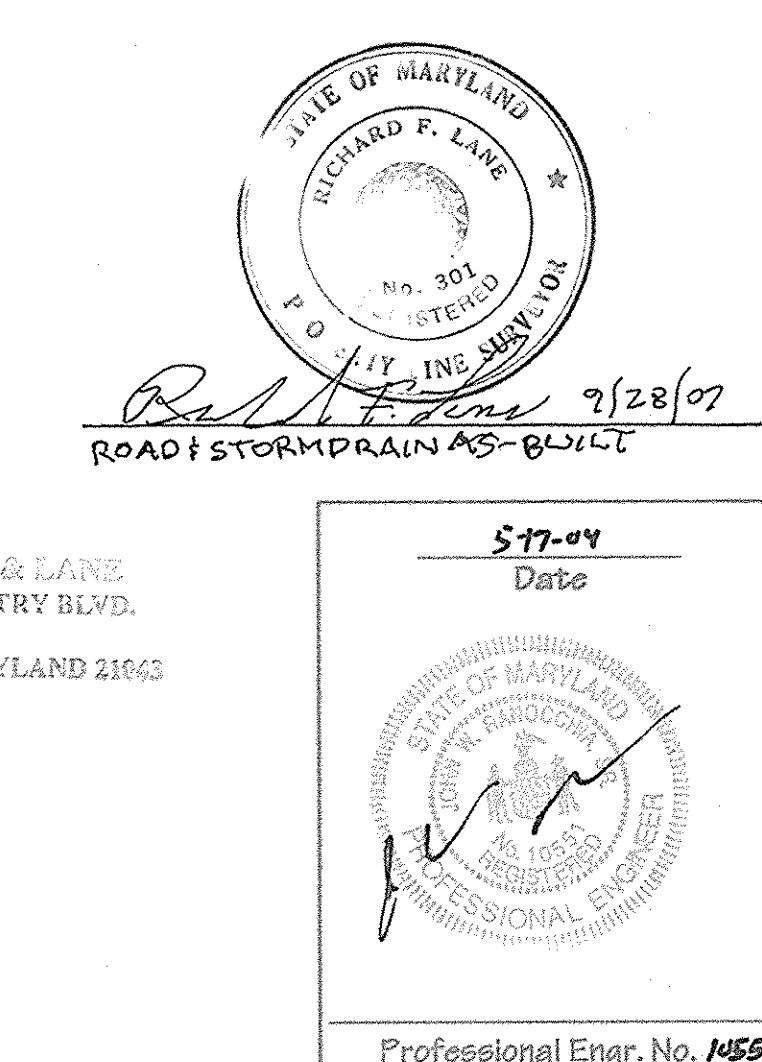
**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

OWNER/DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

**DMW**  
DaB · McCune · Walker, Inc.  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 296 3333  
Fax 296 4705

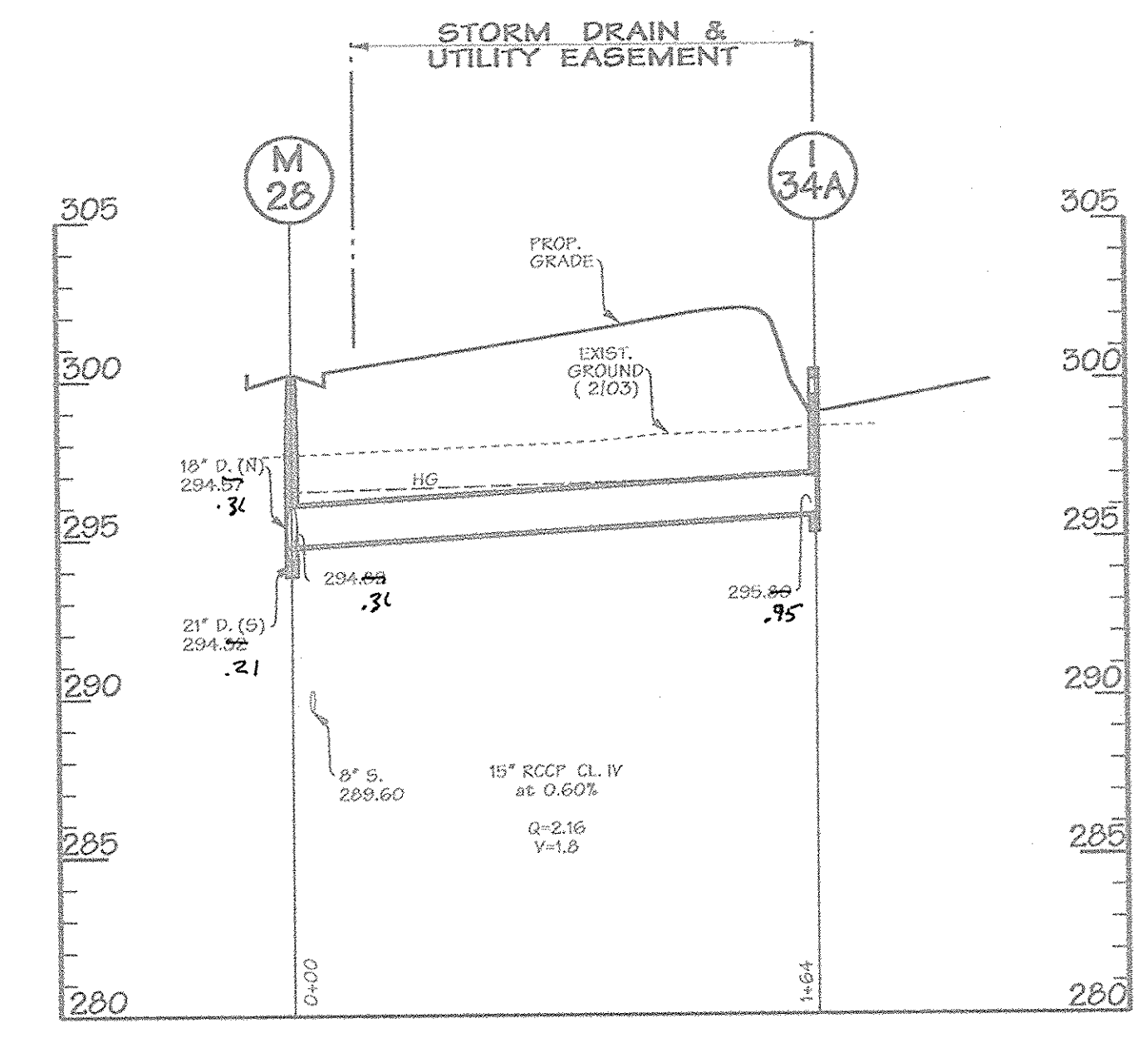
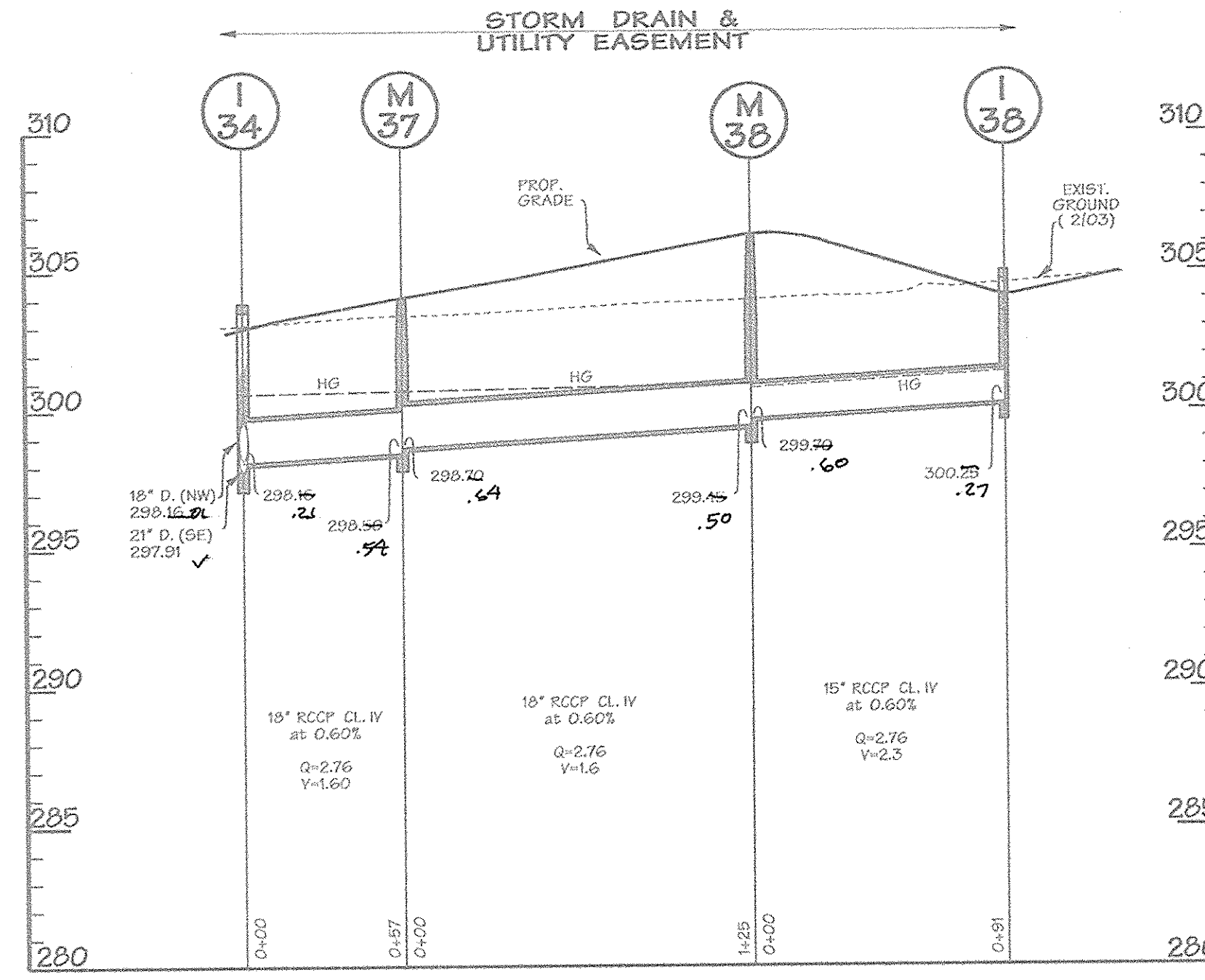
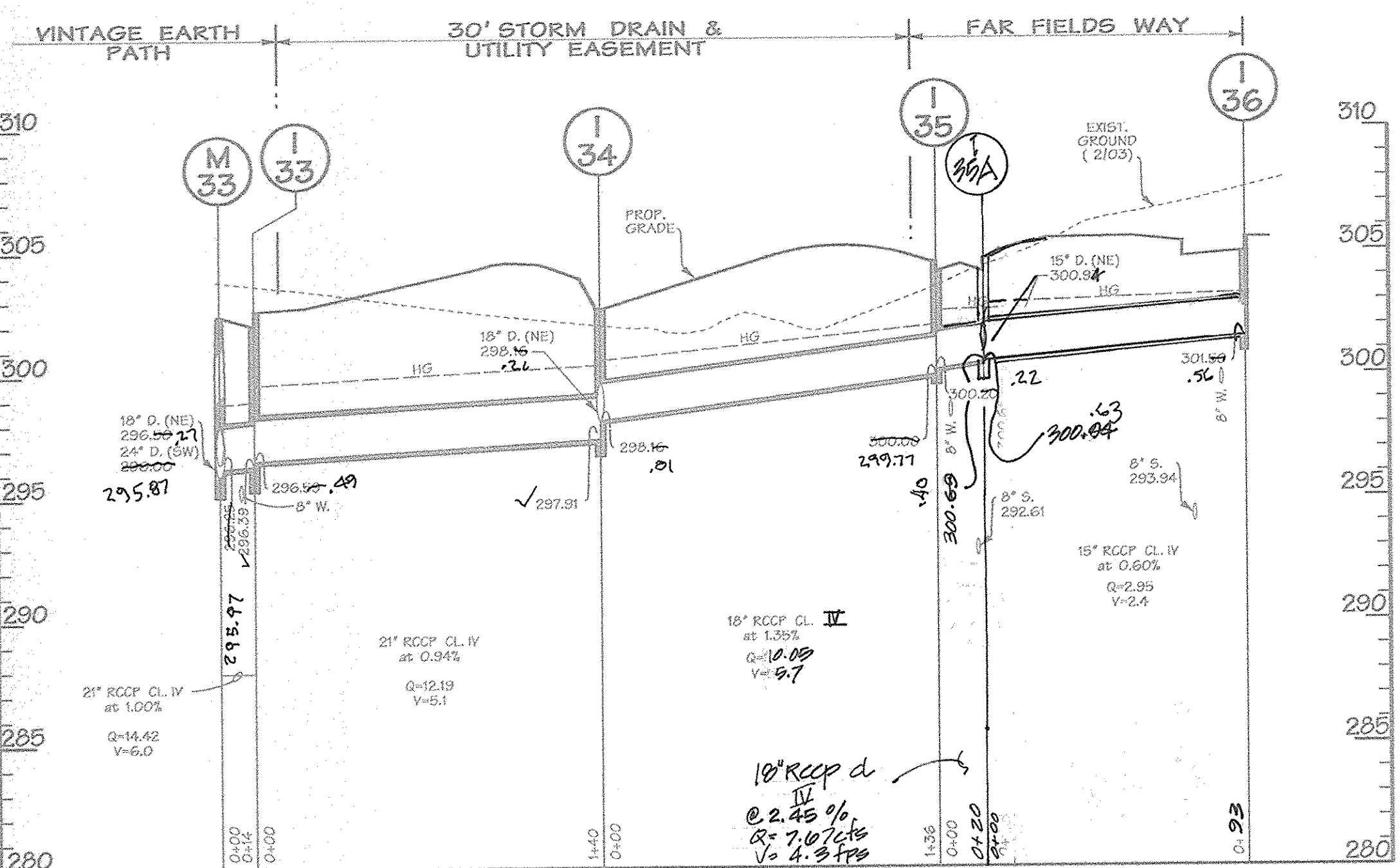
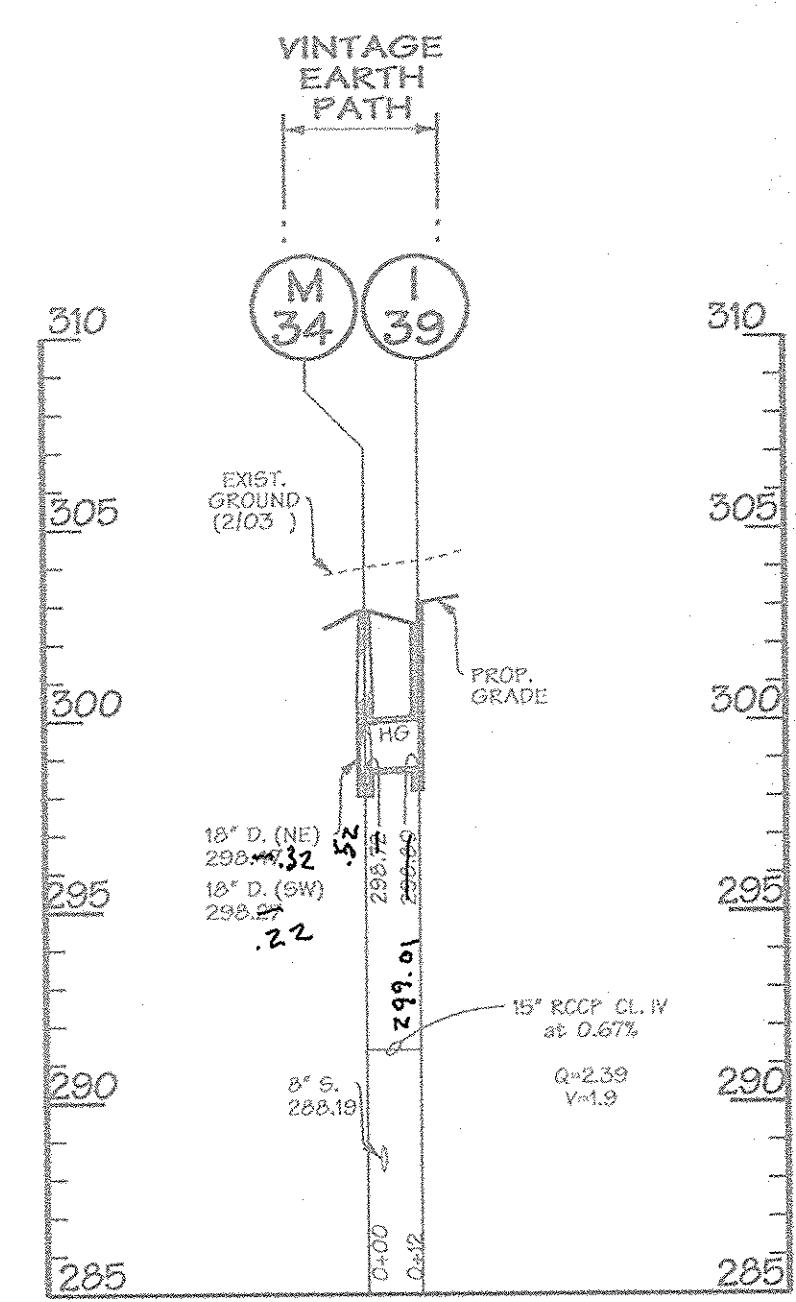
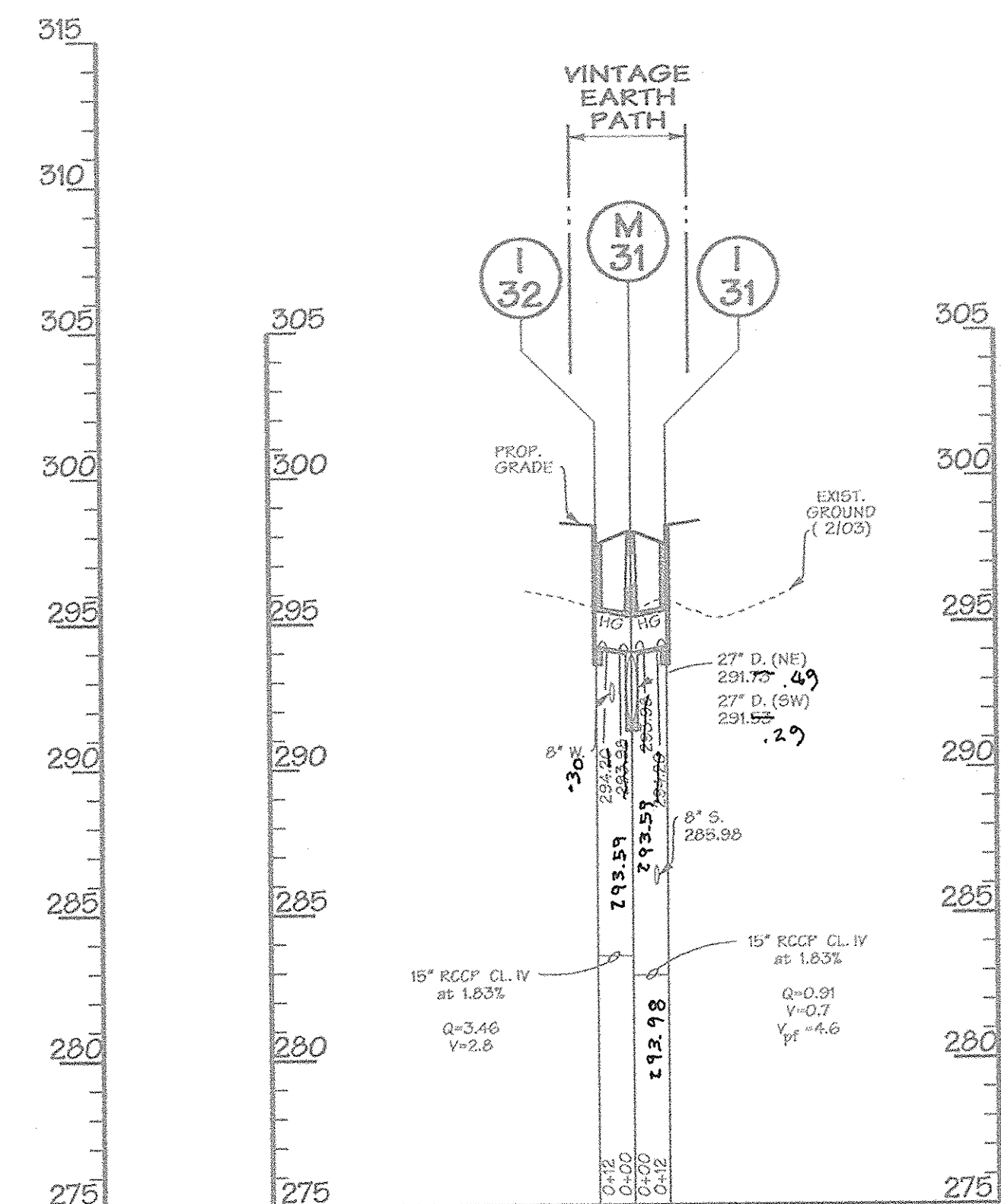
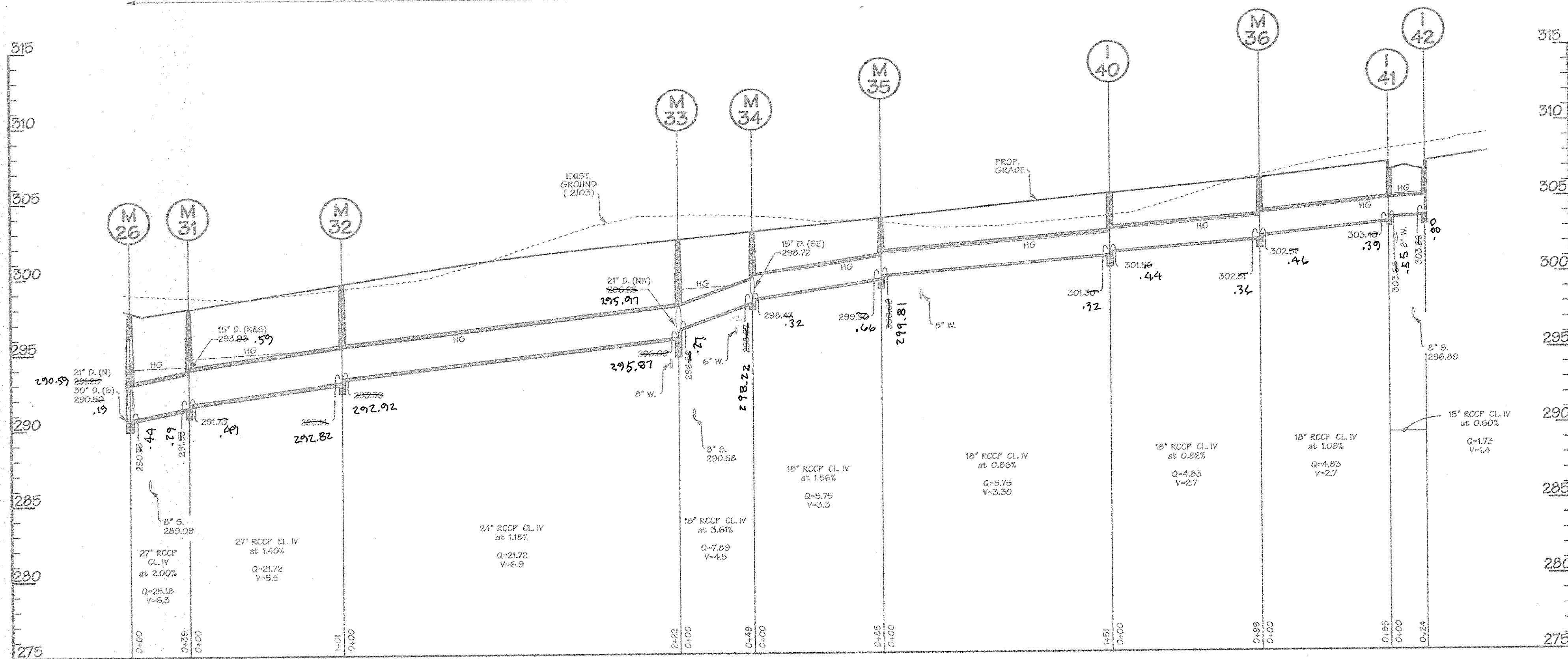
DATE: 5-17-04

Professional Engr. No. 14551





VINTAGE EARTH PATH



**STRUCTURE SCHEDULE**

NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS	LOCATION
I-31	A-5 (2'-6" WIDE)	294.20	298.55	1.18	HQ.CO.STD.SD.4.01	STA. 0+43.41
I-32	A-10 (2'-6" WIDE)	294.20	298.25	.30	HQ.CO.STD.SD.4.02	STA. 0+43.49
I-33	A-10 (2'-6" WIDE)	296.59	302.65		HQ.CO.STD.SD.4.02	STA. 3+65.60
I-34	TYPE D INLET	298.16	302.76		HQ.CO.STD.SD.4.11	N 534,642.35, E 1,356,073.61
I-34A	TYPE 'D' INLET	295.80	303.36		HQ.CO.STD.SD.4.11	N 534,559.50, E 1,356,907.16
I-35	A-10 (2'-6" WIDE)	300.20	305.50	.42	HQ.CO.STD.SD.4.02	STA. 5+03.19
I-36	A-10 (2'-6" WIDE)	301.50	305.40	.41	HQ.CO.STD.SD.4.02	STA. 5+99.03
I-38	TYPE D INLET	300.27	305.50		HQ.CO.STD.SD.4.11	N 534,874.34, E1,356,154.42
I-39	A-10 (2'-6" WIDE)	298.80	303.70	.26	HQ.CO.STD.SD.4.02	STA. 4+17.45
I-40	A-5 (2'-6" WIDE)	301.20	305.50	.55	HQ.CO.STD.SD.4.01	STA. 6+54.87
I-41	A-10 (2'-6" WIDE)	303.20	307.52		HQ.CO.STD.SD.4.02	STA. 8+47.39
I-42	A-5 (2'-6" WIDE)	303.20	307.52	.50	HQ.CO.STD.SD.4.01	STA. 8+47.39
I-39A	A-10 (2'-6" WIDE)	300.02	304.20	.40	HQ.CO.STD.SD.4.02	STA. 5+12.10
M-31	SHALLOW MH (48")	291.20	295.20	.80	HQ.CO.STD.G.12	STA. 0+39.46 ON#
M-32	SHALLOW MH (48")	293.20	297.20	.80	HQ.CO.STD.G.12	STA. 1+42.40 ON#
M-33	SHALLOW MH (60")	296.50	300.50	.80	HQ.CO.STD.G.13	STA. 3+65.49 ON#
M-34	SHALLOW MH (48")	298.40	302.40	.80	HQ.CO.STD.G.12	STA. 4+14.61 ON#
M-35	SHALLOW MH (48")	299.20	303.20	.80	HQ.CO.STD.G.12	STA. 5+00.00 ON#
M-36	SHALLOW MH (48")	302.40	306.40	.80	HQ.CO.STD.G.12	STA. 7+59.20 -14.71T.
M-37	SHALLOW MH (48")	298.20	302.20	.80	HQ.CO.STD.G.12	N 534,671.62, E 1,356,122.66
M-38	STANDARD MH (48")	299.20	303.20	.80	HQ.CO.STD.G.12	N 534,786.28, E 1,356,175.82

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. ...* 6/18/04  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*K. ...* 6/23/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 6/23/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

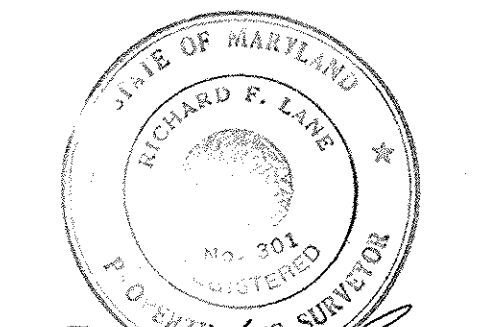
7-12-04 1 REVISED PROFILE & STRUCTURE SCHEDULE TO ADD I-39A, REMAINS M-39

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

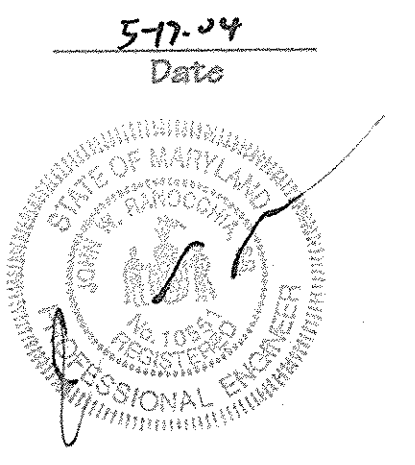
OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Daft · McCune · Walker, Inc.  
 A Team of Land Planners, 200 East Pennsylvania Avenue  
 Landscape Architects, Towson, Maryland 21286  
 Engineers, Surveyors & 410 296 3333  
 Environmental Professionals Fax 296 4705

SUBDIVISION NAME	EMERSON	SECTION AREA	PHASE 5A	LOT/FACILITY #	837
PLAT OR L.P. NO.	072/430	BLK. #	7,8,13	ZONE	MXD
DATE	5/19/04	NO. OF SHEETS	47	ELECTRIFIED	6 TH
WATER CODE		SEWER CODE		STANDARD YEAR	
TITLE <b>STORM DRAIN PROFILES</b>					
Des By:	WDE	Scale:	AS SHOWN	Proj. No.	95054.02
Des By:	JDC	Date:	5/19/04	Sheet	15 of 29
Chk By:		Approved:			



5-17-04  
 Date



**PROFILES**  
 SCALE: HORIZ. 1"=50'  
 VERT. 1"=5'

F-04-53

POUND 2  
DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Structure Type	WET RETENTION
Water Quality Type	WET POND
Structure Classification	A
Watershed Area to Facility (SWM) (Ac.)	27.67
Level of Management Required	1-Yr
Level of Management Provided	1-Yr
Top Width Provided (ft)	12.0 (S), 8.0 (W)
Maximum Height of Fill (ft)	5.7
Water Quality Vol. WQ <sub>2</sub> Required (Ac-ft)	1.073
Water Quality Vol. WQ <sub>2</sub> Provided (Ac-ft)	1.541
Recharge Required (Area Method) Rev (Ac-ft)	3.523
Recharge Provided (Area Method) Rev (Ac-ft)	4.333
Channel Protection Vol. C <sub>p</sub> Required (Ac-ft)	1.598
Channel Protection Vol. C <sub>p</sub> Provided (Ac-ft)	1.598
1-Year Storm Existing Discharge at Design Point (cfs)	3.68
1-Year Storm Proposed Discharge at Design Point (cfs)	0.76
WQ <sub>2</sub> Water Surface Elev. - Normal Pool	267.00
C <sub>p</sub> Water Surface Elev. - Rounded 1-Year WSE	268.73
10-Year CLOGGED Water Surface Elev.	272.05
100 Yr. CLOGGED Water Surface Elev.	272.87
Top of Embankment Elev.	274.20
Emergency Spillway Elevation	272.20
Freeboard Required (ft)	1.00
Freeboard Provided (ft)	1.33
Pond Volume Below 100 Yr. Clogged WSE (Ac-ft)	6.45

WQ<sub>2</sub> IS PROVIDED IN THE WET PORTION OF THE POND. C<sub>p</sub> IS PROVIDED IN THE POND ABOVE THE WQ<sub>2</sub> STORAGE VOLUME.  
 \*\* RECHARGE IS PROVIDED WITHIN BOTH DRAINAGE AREAS WITH A COMBINATION OF GRASS SWALE CREEPS AND ROOFTOP DISCONNECTS. RECHARGE IS QUANTIFIED ON A TOTAL-SITE BASIS. THESE TOTALS INCLUDE THE SWM 1 AND SWM 2 DRAINAGE AREAS.

NOTES  
 1) THIS POND WILL BE DESIGNATED AS "POA" (PROPERTY OWNER'S ASSOCIATION) PROPERTY AND THIS WILL BE PRIVATELY OWNED. ROUTINE MAINTENANCE WILL BE PERFORMED BY THE POA AND NON-ROUTINE MAINTENANCE WILL BE PERFORMED BY THE COUNTY. SEE SHEET 18 MAINTENANCE REQUIREMENTS.  
 2) ACCESS TO THE SWM POND FACILITY'S MAINTENANCE ACCESS POINT OF ENTRY SHALL BE PROVIDED ACROSS THE ADJOINING DEVELOPMENT PARCEL BY GENERAL EASEMENT UNTIL DEFINED ACCESS AND EASEMENT IS DETERMINED AT SITE DEVELOPMENT STAGE. NO ACCESS WILL BE OBTAINED FROM RESTRICTED ACCESS ROADS OR ACROSS ENVIRONMENTALLY SENSITIVE AREAS.

THESE PONDS WILL HAVE DAM STRUCTURE HAZARD CLASSIFICATION OF 'A'

HAMMOND BRANCH IS IN THE MIDDLE PATUXENT RIVER WATERSHED AND HAS A STREAM USAGE CLASSIFICATION OF "1-P" (WATER CONTACT RECREATION, AQUATIC LIFE PROTECTION AND PUBLIC WATER SUPPLY).

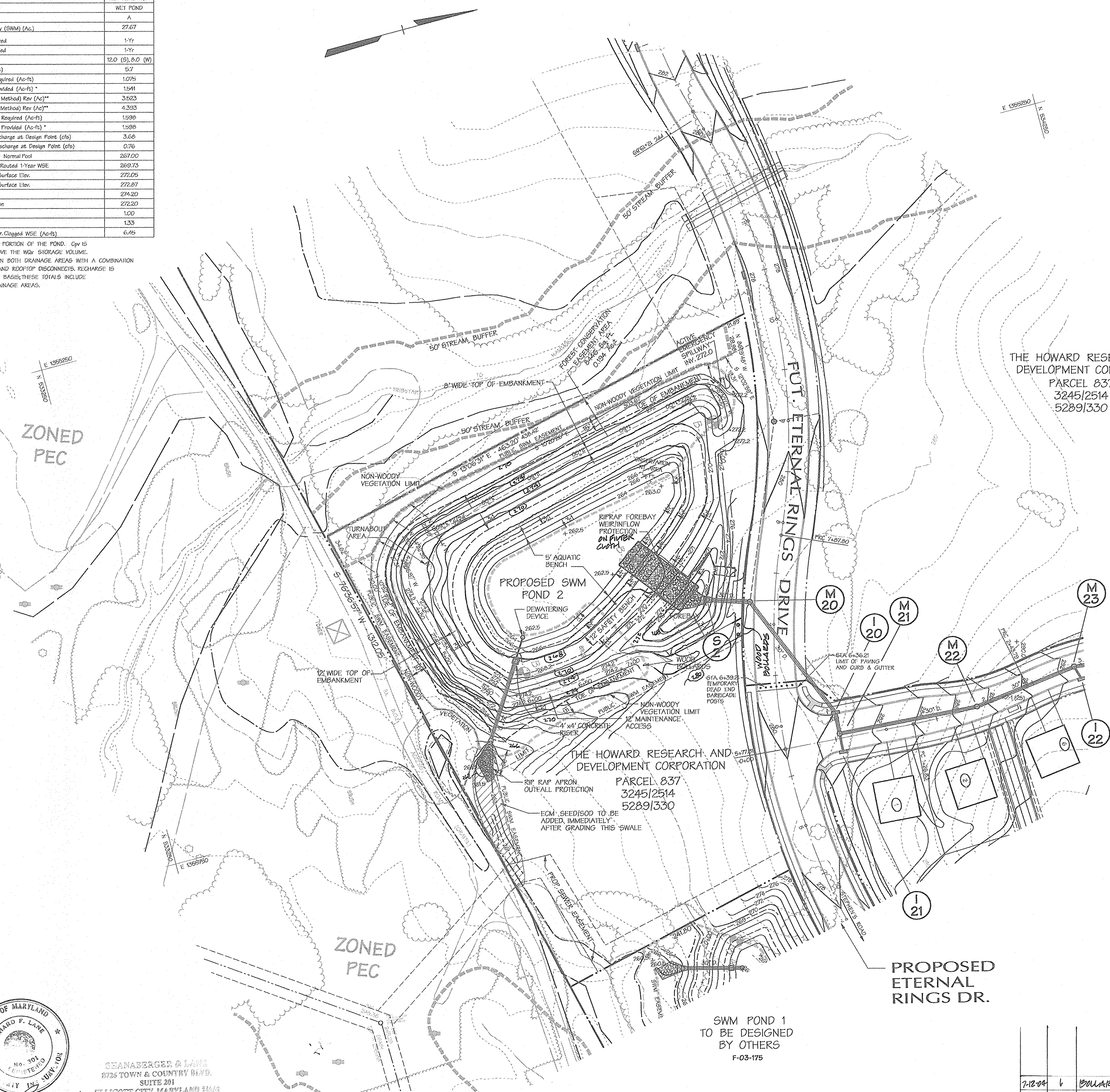
**ENGINEERS CERTIFICATE:**  
 I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.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

Signature: *John W. Remick, Sr.*  
 REG. NO. 10551 DATE 5/19/07

**DEVELOPERS CERTIFICATE:**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Paul G. Connaught*  
 DATE 5/14/07

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION  
 PARCEL 837  
 3245/2514  
 5289/330



**Legend**

---	ADJACENT PROPERTY LINE
---	EXISTING CONTOURS
---	EXISTING SPOT ELEVATION
---	PROPOSED CONTOURS
---	100 YR. WSE (2002 DMW STUDY)
---	100 YR. WSE (1996 Ho. Co. STUDY)
---	¢ OF EXISTING STREAM
---	EXISTING TREE LINE
---	WETLAND BUFFER
---	LIMIT OF WETLANDS
---	PROPOSED ROAD
---	EDGE OF ROAD
---	EXISTING BUILDINGS
---	BGE OVERHEAD ELECTRIC TOWERS
---	PROPOSED LOT LINES
---	PROPOSED LOT NUMBERS
---	PROPERTY BOUNDARY
---	PROPOSED ROAD R/W LINES
---	STREAM BUFFER
---	NON-WOODY VEGETATION LIMIT
---	TOE OF EMBANKMENT SLOPE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE: *Jim Meyer* 5/26/07 DATE

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

APPROVED: *John W. Remick, Sr.* 5/26/07 DATE  
 HOWARD SOIL CONSERVATION DISTRICT

PLAN NUMBER

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Gable* 6-18-07 DATE  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Karl H. Lewis* 6/23/07 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*John W. Remick, Sr.* 6/22/07 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Day-McCune-Walker, Inc.  
 309 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3353  
 Fax: 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

AREA	TAX MAP 47	PARCEL
	6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND	
TITLE		
STORMWATER MANAGEMENT POND #2		
Des By	MRT	Scale 1" = 50'
Drn By	KDE	Date 5/18/04
Chk By	Approved	16 OF 29

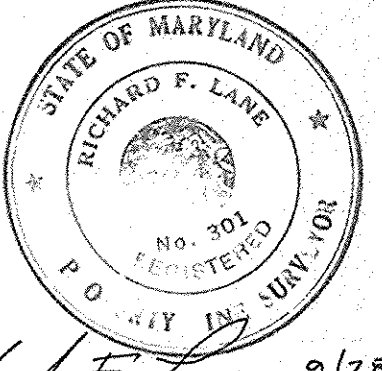
5-17-07  
 Date

Professional Engr. No. 10551

DATE	NO	REVISION
7-12-04	1	POUNDERS ADDED, ACCESS EXTENDED
7-12-04	1	FILTER CURB ADDED TO FOREBAY PROTECTION

SWM POND 1  
 TO BE DESIGNED  
 BY OTHERS  
 F-03-175

PROPOSED  
 ETERNAL  
 RINGS DR.

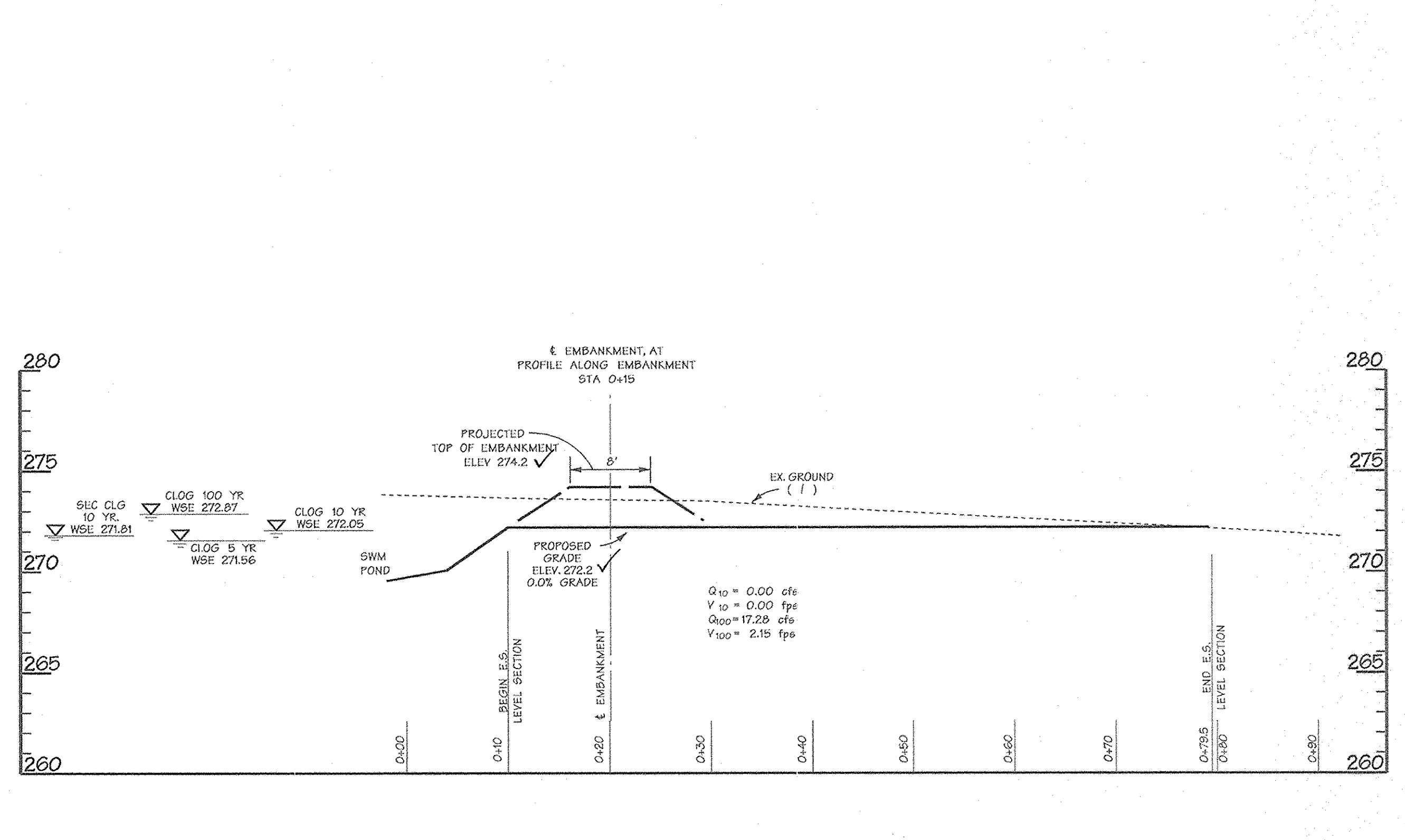
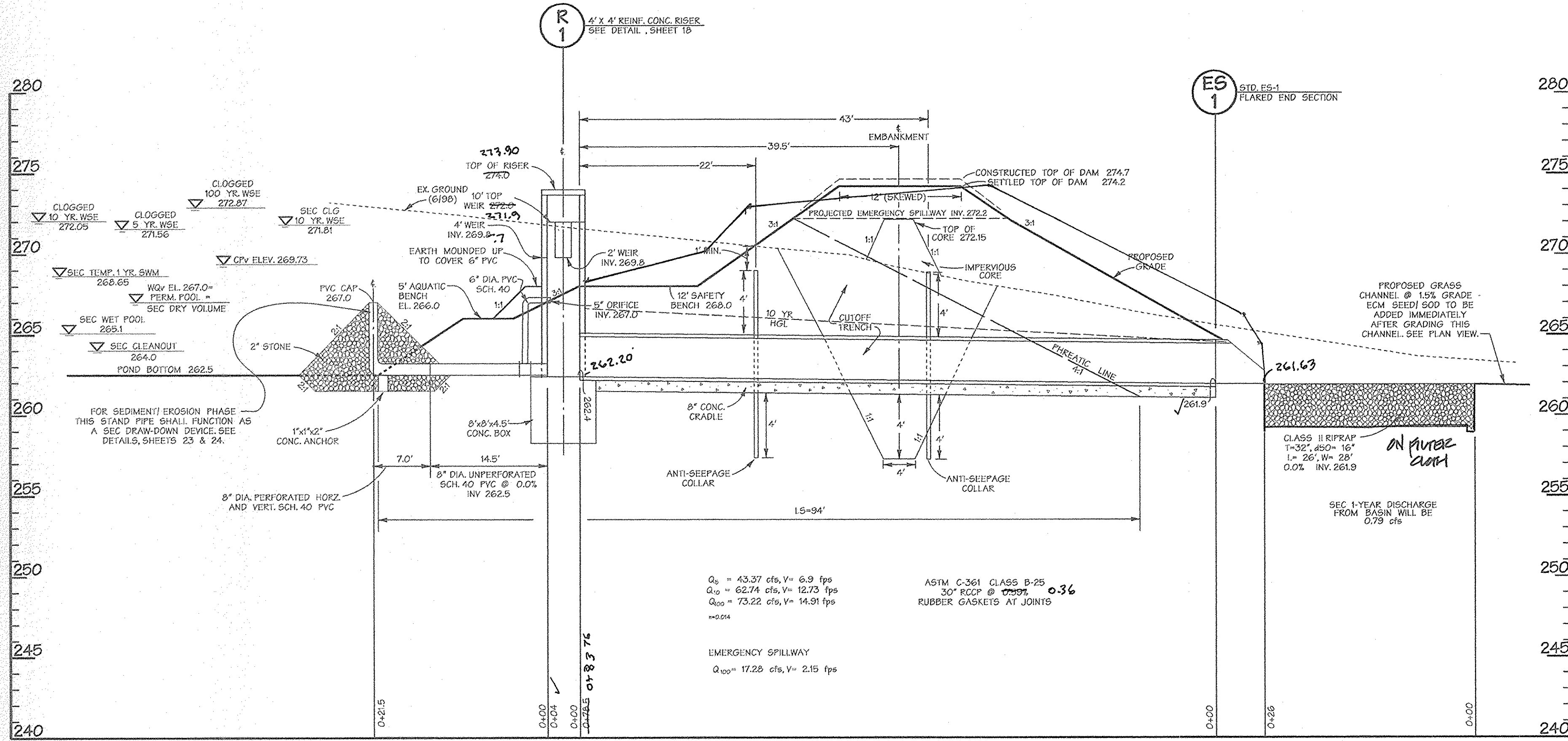


SEANBERGER & LANE  
 8725 TOWN & COUNTRY BLVD.  
 SUITE 201  
 ELICOTT CITY, MARYLAND 21043

Richard F. Lane 9/28/07  
 ROAD 1 STORM DRAIN AS-BUILT

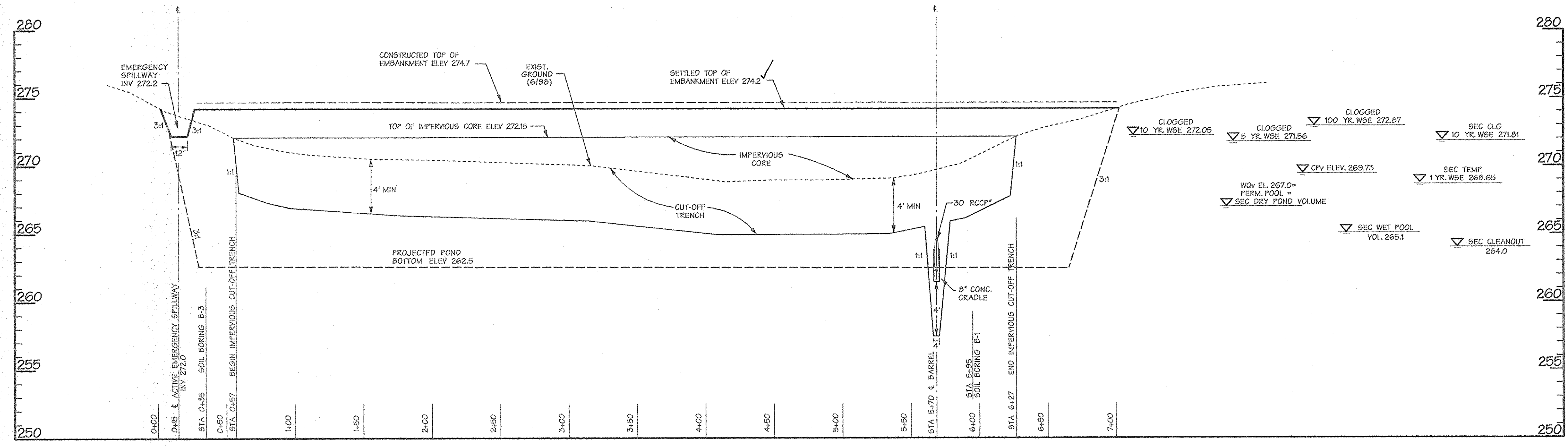
F-04-53





PROFILE FOR SWM POND #2

PROFILE THROUGH EMERGENCY SPILLWAY



PROFILE FOR SWM POND #2 ALONG CENTERLINE OF DAM

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

APPROVED: *John G. Conaway* 5/14/04 DATE

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE

**DEVELOPERS CERTIFICATE:**

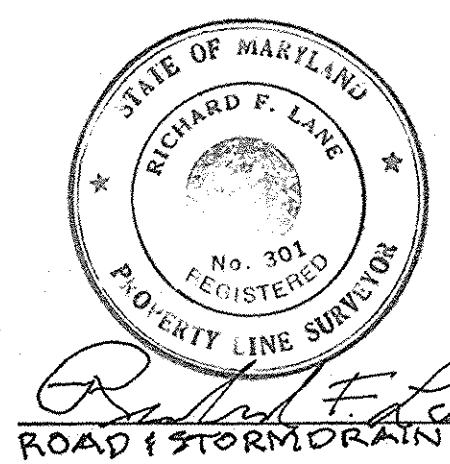
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER: *Paul G. Conaway* DATE: 5/14/04

**ENGINEERS CERTIFICATE:**

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

SIGNATURE OF ENGINEER: *John W. Rancovich* REG. NO. 10551 DATE: 5/14/04



*Richard F. Lane* 5/17/04  
 ROAD & STORM DRAIN AS-BUILT

STANBRADGER & LANE  
 3726 TOWN & COUNTRY BLVD.  
 SUITE 201  
 ELICOTT CITY, MARYLAND 21042

5/17/04  
 Date

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. ...* 6-18-04  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Katherine ...* 6/23/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: *...* 6/21/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

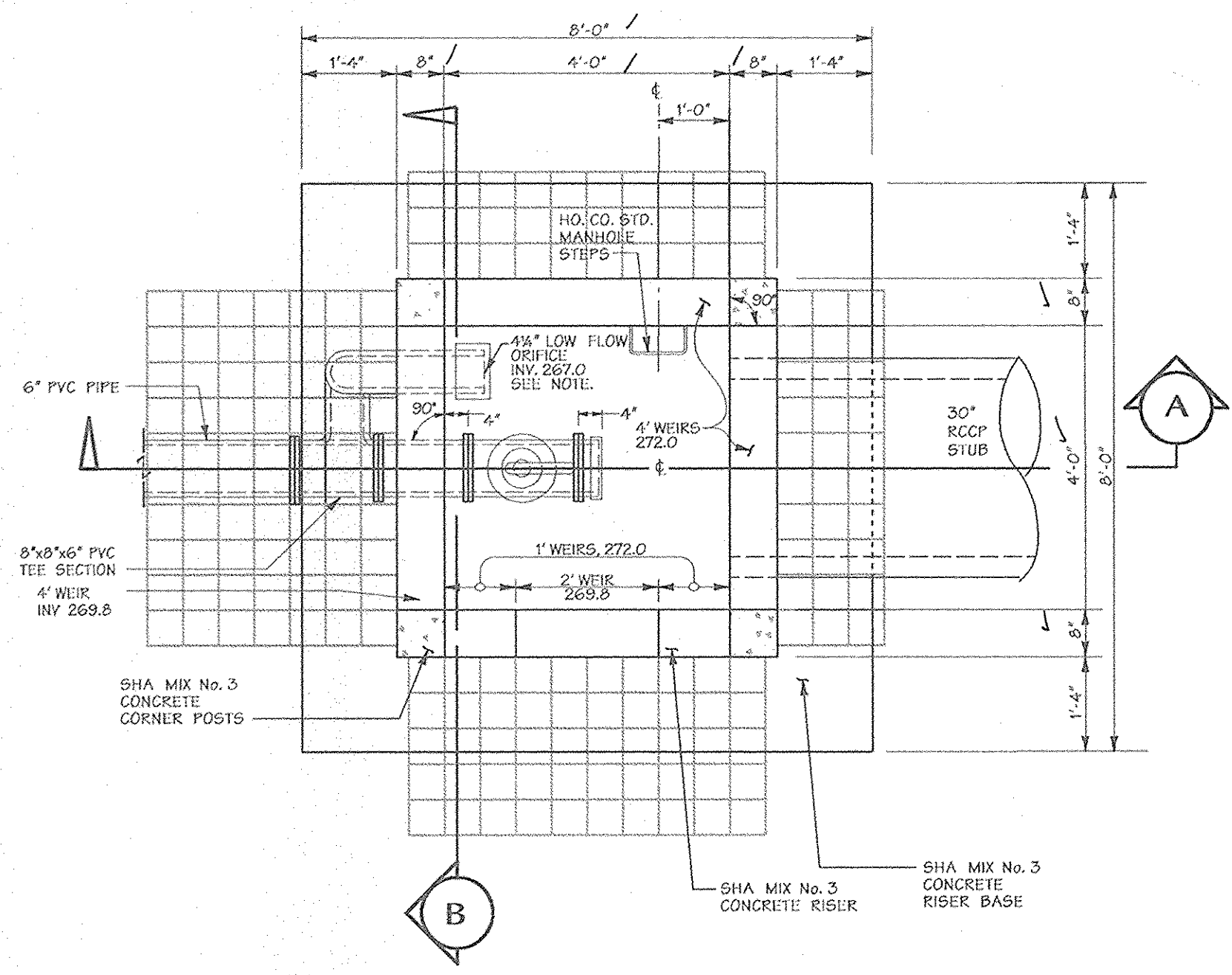
**DMW**  
 Dan McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Poolesville, Maryland 21088  
 (410) 296-3353  
 Fax 296-4705

A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals

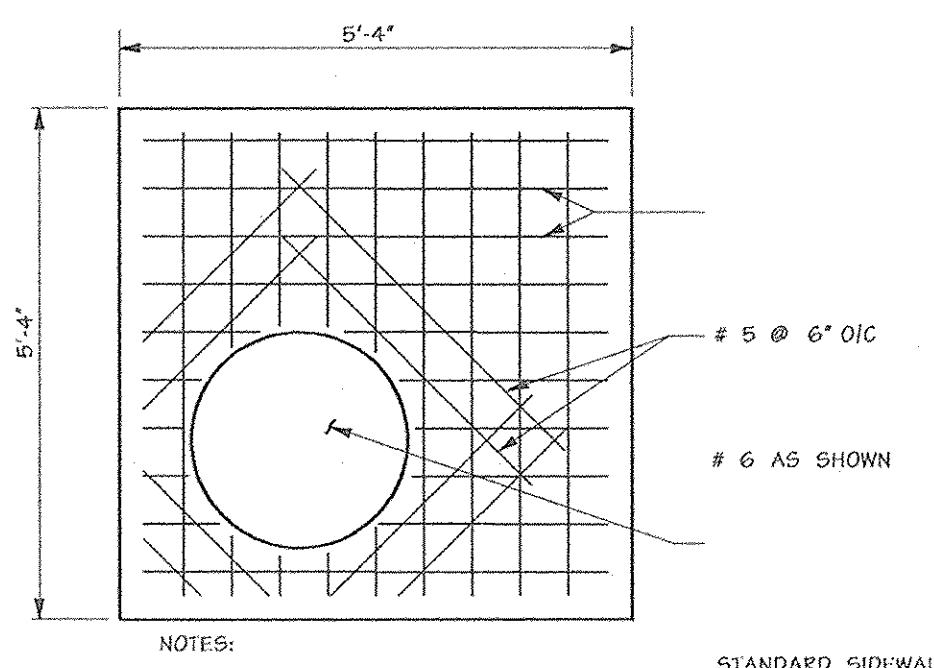
AREA TAX MAP 47 PARCEL  
 6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE  
**STORMWATER MANAGEMENT PROFILES**

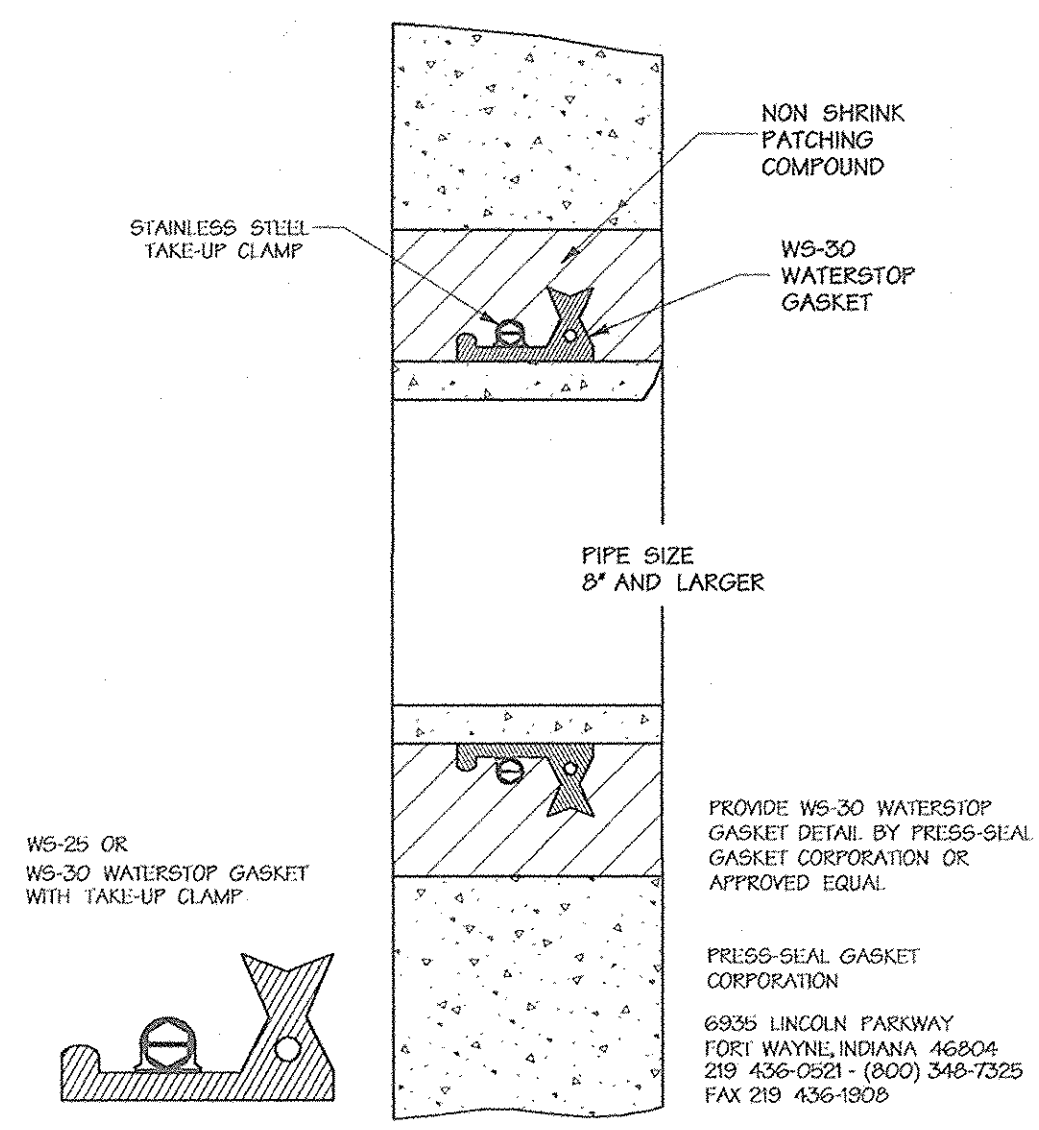
Des By MRT Scale AS SHOWN Proj. No. 95054.G2  
 Dwn By ECV Date 5/18/04  
 Chk By Approved 17 OF 29



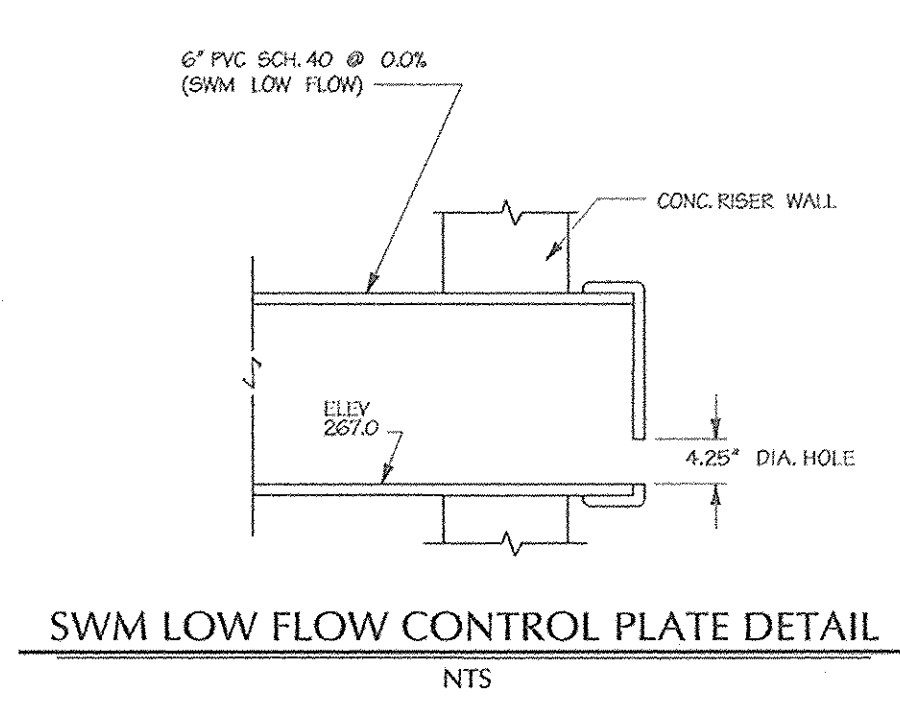
RISER PLAN (TOP SLAB REMOVED) - SWM 2  
Scale: 1/2" = 1'-0"  
CAST IN PLACE



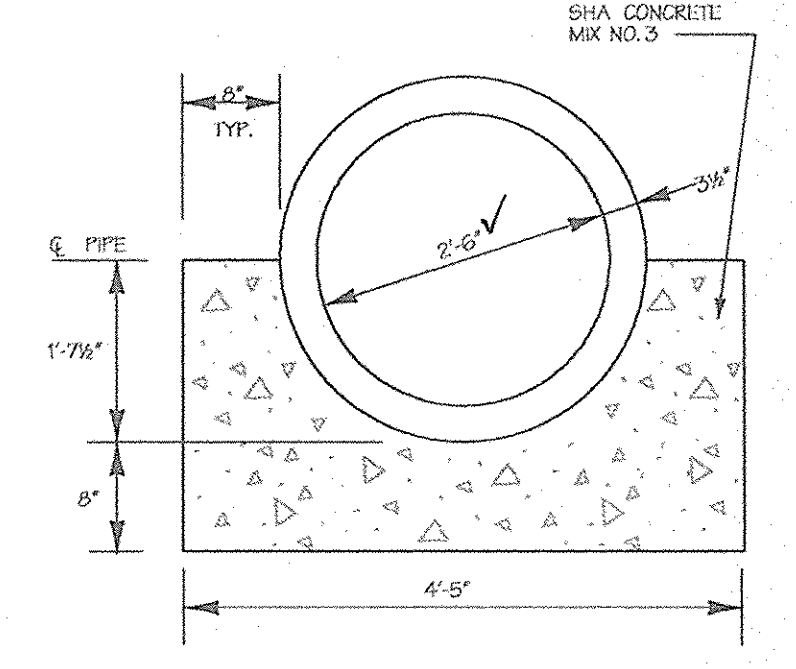
TOP SLAB  
Scale: 1/2" = 1'-0"  
CAST IN PLACE



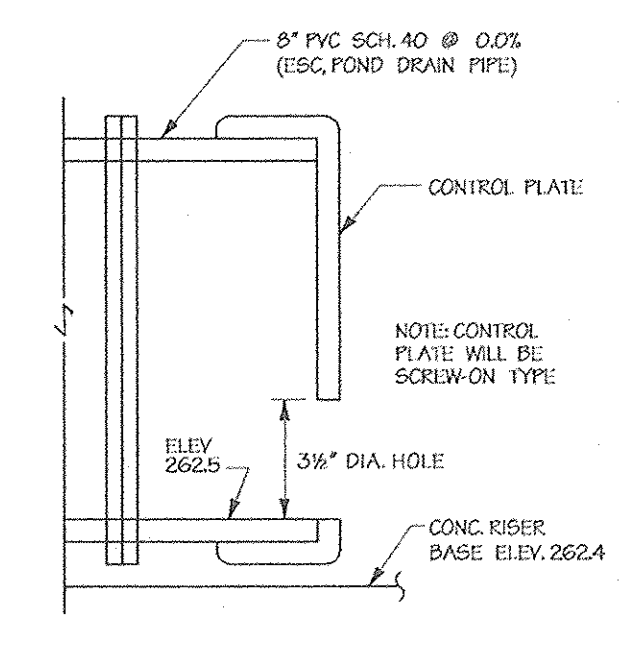
PIPE WATER STOP DETAIL  
NOT TO SCALE



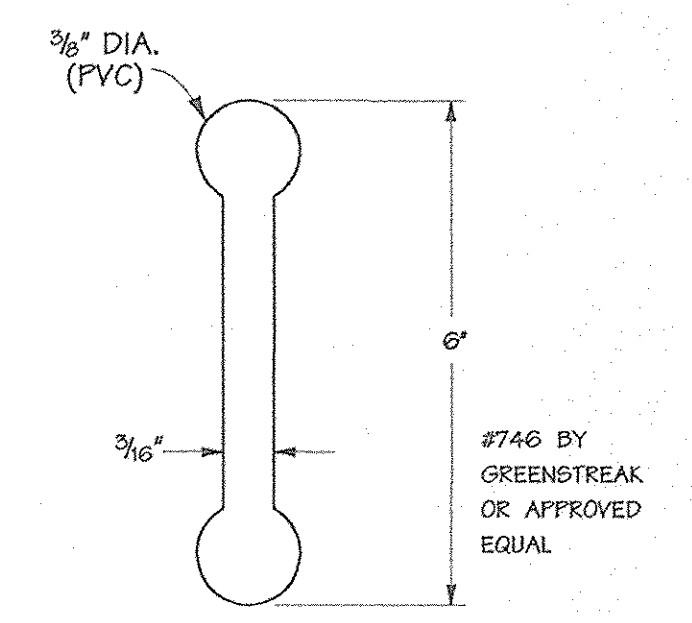
SWM LOW FLOW CONTROL PLATE DETAIL  
NTS



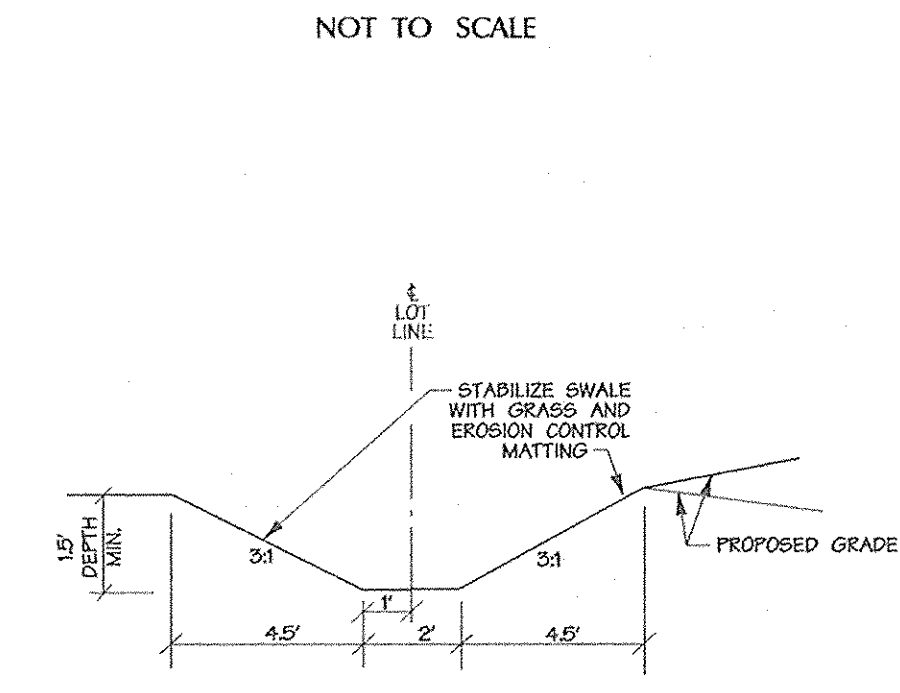
CONCRETE CRADLE DETAIL  
NTS



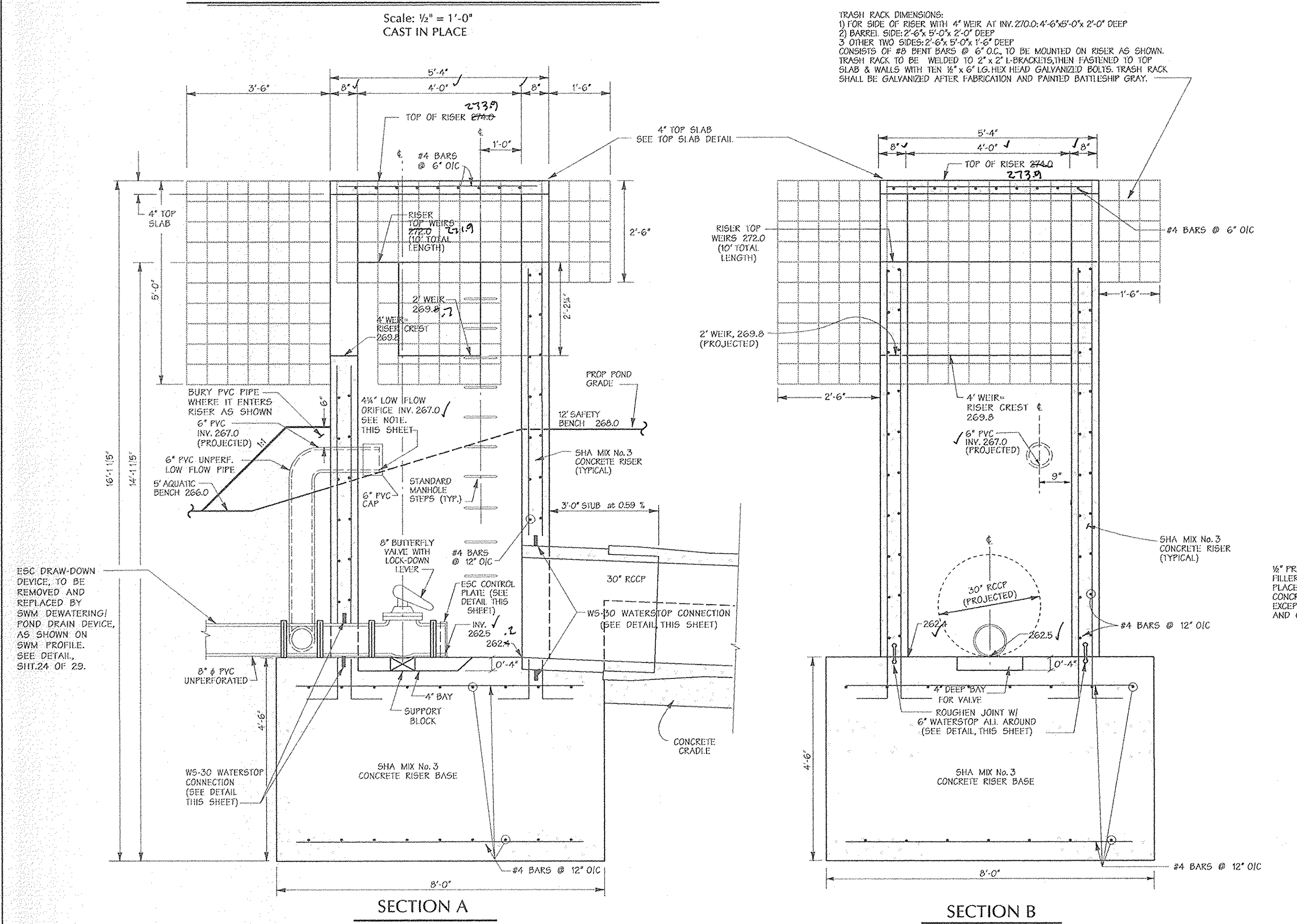
ESC CONTROL PLATE DETAIL  
NTS



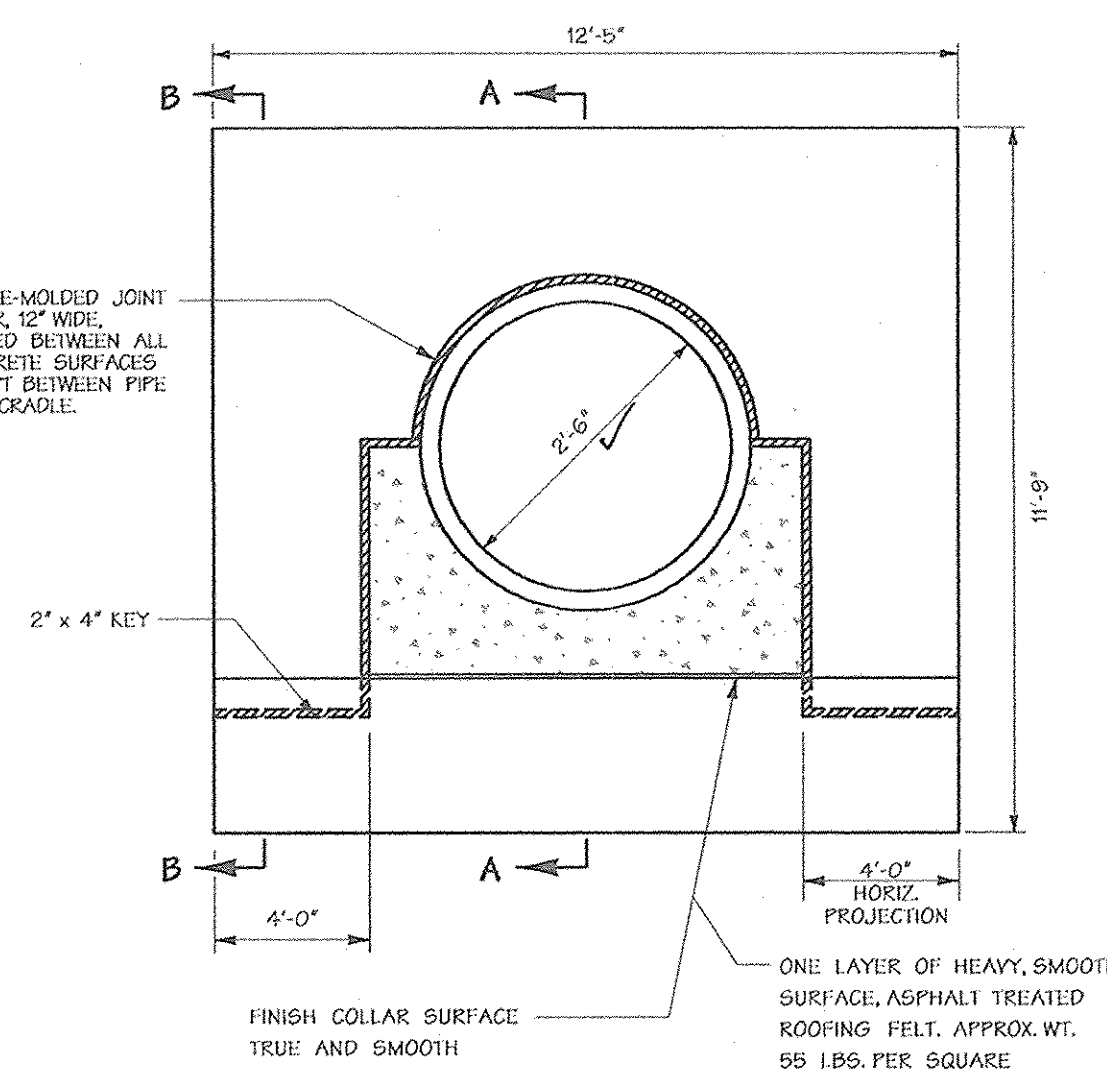
6" WATERSTOP  
NOT TO SCALE



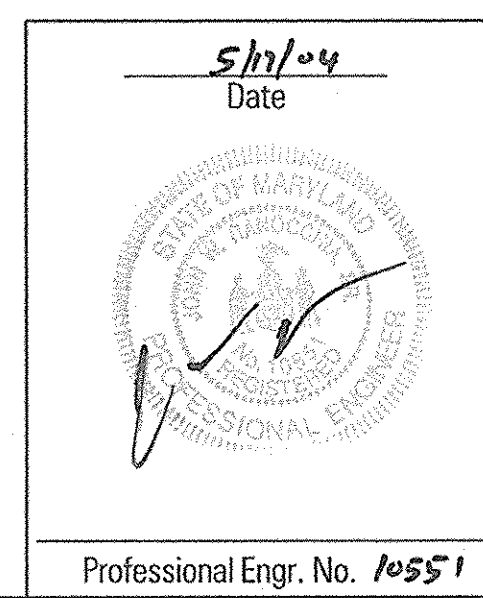
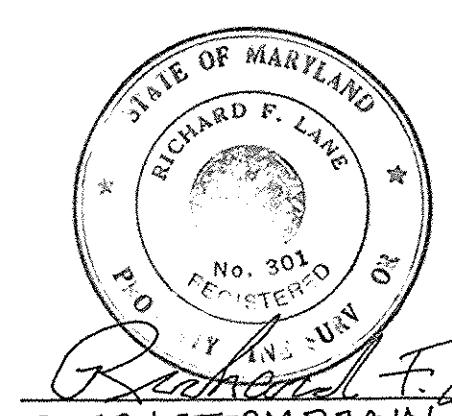
PERMANENT RECHARGE SWALE DETAIL  
NOT TO SCALE



RISER DETAIL FOR SWM POND 2  
Scale: 1/2" = 1'-0"  
CAST IN PLACE



ANTI-SEEP COLLAR DETAIL - POND 2  
CAST IN PLACE - NOT TO SCALE



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William Z. White* 6-18-04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Karl DeLorenzo* 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark D. ...* 6/22/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Pasture Parkway  
Columbia, Maryland 21044

**DMW**  
Daft-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3333  
Fax 296-4705  
A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

Date	No.	Revision Description

AREA: TAX MAP 47 PARCEL: 6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT DETAILS

Des By	MRT	Scale	AS SHOWN	Proj. No.	95054.62
Dwn By	ECY	Date	5/18/04		
Chk By		Approved			18 OF 29

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

*Jim Moore* 5/26/04  
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

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

APPROVED: *Paul G. ...* 5/26/04  
HOWARD SOIL CONSERVATION DISTRICT DATE

PLAN NUMBER: \_\_\_\_\_

DEVELOPERS CERTIFICATE:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Paul G. ...* 5/11/04  
SIGNATURE OF DEVELOPER DATE

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

*John W. Ramoche, Jr.* 5/11/04  
SIGNATURE OF ENGINEER DATE

10551  
REG. NO.

PLANNING & ZONING  
AND TOWN & COUNTRY BLDG.  
SUITE 201  
BETHESDA CITY, MARYLAND 20814

*Richard F. Lane* 5/28/04  
ROAD & STORM DRAIN AS-BUILT



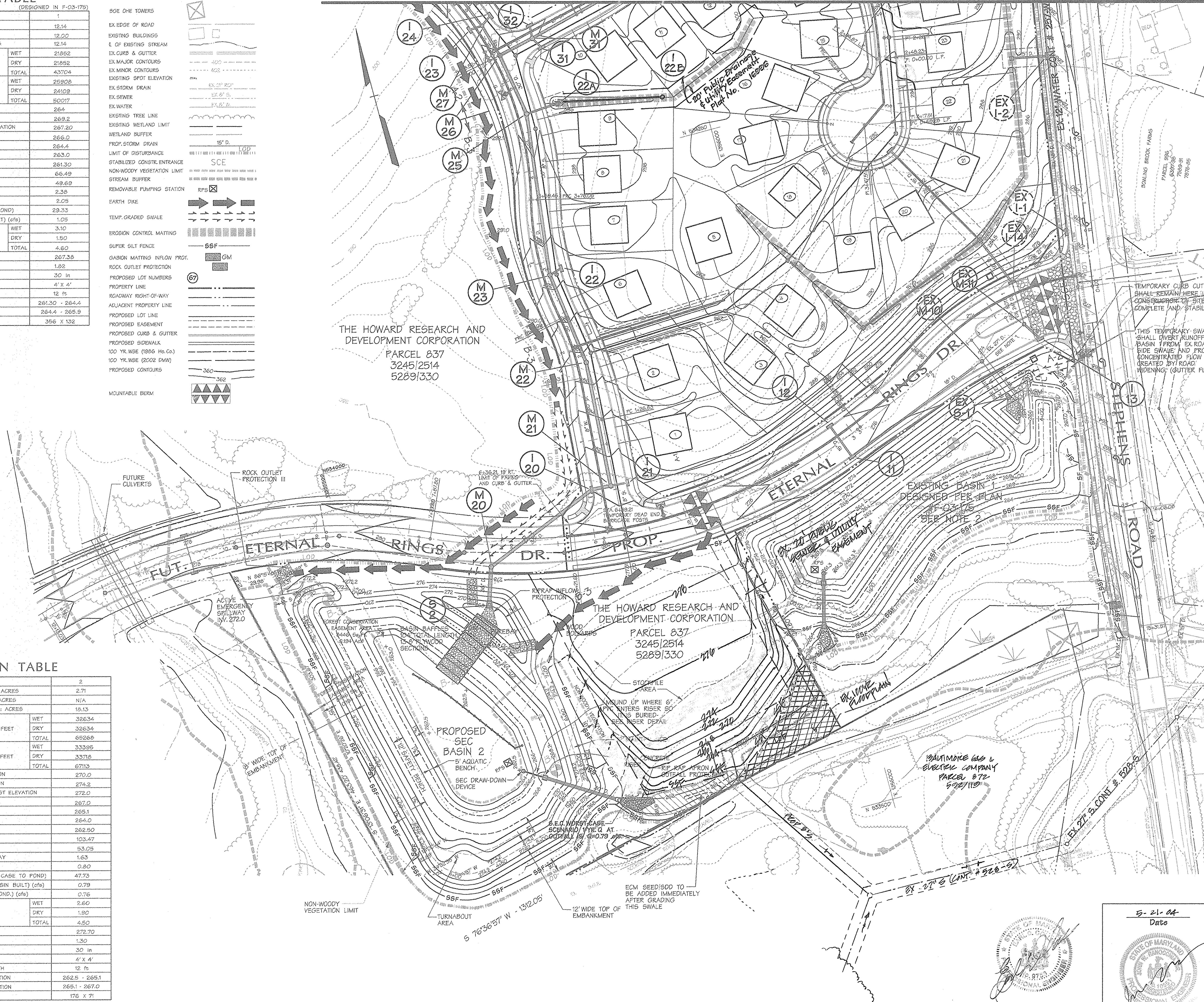
**BASIN TABLE**

DESIGNED IN F-03-175		
BASIN NUMBER	1	
EXISTING DRAINAGE AREA: ACRES	12.14	
INTERIM DRAINAGE AREA: ACRES	12.00	
PROPOSED DRAINAGE AREA: ACRES	12.14	
STORAGE REQUIRED: CUBIC FEET	WET	21852
	DRY	21852
	TOTAL	43704
STORAGE PROVIDED: CUBIC FEET	WET	25908
	DRY	24108
	TOTAL	50017
EXISTING GROUND ELEVATION	264	
TOP EMBANKMENT ELEVATION	269.2	
EMERGENCY SPILLWAY CREST ELEVATION	267.20	
RISER CREST ELEVATION	266.0	
WET STORAGE ELEVATION	264.4	
CLEANOUT ELEVATION	263.0	
BOTTOM ELEVATION	261.30	
Q <sub>1</sub> INTO BASIN (C.F.S.)	66.49	
Q <sub>2</sub> OUT BARREL (C.F.S.)	49.69	
Q <sub>3</sub> OUT EMERGENCY SPILLWAY	2.38	
Q <sub>4</sub> PRE-DEVELOPMENT (cfs)	2.05	
Q <sub>5</sub> DURING DEV. (WORST-CASE TO POND)	29.53	
Q <sub>6</sub> POST DEVELOPMENT (BASIN BUILT) (cfs)	1.05	
BASIN DEPTH	WET	3.10
	DRY	1.50
	TOTAL	4.60
DESIGN HIGHWATER	267.36	
FREEBOARD PROVIDED	1.02	
BARREL DIAMETER	30 in	
RISER DIAMETER	4' X 4'	
EMERGENCY SPILLWAY WIDTH	12 ft	
WET STORAGE ZONE ELEVATION	261.30 - 264.4	
DRY STORAGE ZONE ELEVATION	264.4 - 265.9	
BOTTOM DIMENSIONS	356 X 132	

**Legend**

BGE ONE TOWERS  
 EX EDGE OF ROAD  
 EXISTING BUILDINGS  
 EX EXISTING STREAM  
 EX CURB & GUTTER  
 EX MAJOR CONTOURS  
 EX MINOR CONTOURS  
 EXISTING SPOT ELEVATION  
 EX STORM DRAIN  
 EX SEWER  
 EX WATER  
 EXISTING TREE LINE  
 EXISTING WETLAND LIMIT  
 WETLAND BUFFER  
 PROP. STORM DRAIN  
 LIMIT OF DISTURBANCE  
 STABILIZED CONST. ENTRANCE  
 NON-WOODY VEGETATION LIMIT  
 STREAM BUFFER  
 REMOVABLE PUMPING STATION  
 EARTH DIKE  
 TEMP. GRADED SWALE  
 EROSION CONTROL MATTING  
 SUPER SILT FENCE  
 GABION MATTING INFLOW PROT.  
 ROCK OUTLET PROTECTION  
 PROPOSED LOT NUMBERS  
 PROPERTY LINE  
 ROADWAY RIGHT-OF-WAY  
 ADJACENT PROPERTY LINE  
 PROPOSED LOT LINE  
 PROPOSED EASEMENT  
 PROPOSED CURB & GUTTER  
 PROPOSED SIDEWALK  
 100 YK.WSE (1986 Ho.Co.)  
 100 YK.WSE (2002 PMW)  
 PROPOSED CONTOURS  
 MOUNTABLE BERM

MATCHLINE SEE SHEET 21 OF 29



THESE PONDS WILL HAVE DAM STRUCTURE HAZARD CLASSIFICATION OF 'A'

HAMMOND BRANCH IS IN THE MIDDLE PATUXENT RIVER WATERSHED AND HAS A STREAM USAGE CLASSIFICATION OF '1-P' (WATER CONTACT RECREATION, AQUATIC LIFE PROTECTION AND PUBLIC WATER SUPPLY).

**ENGINEER'S CERTIFICATION**

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 WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

10/26/04 5/24/04  
 SIGNATURE OF ENGINEER DATE  
 JOHN W. RANADHAR  
 JOHN W. RANADHAR, P.E.

**DEVELOPER'S CERTIFICATION**

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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.

5/24/04  
 SIGNATURE OF DEVELOPER DATE  
 JOHN M. MURPHY  
 JOHN M. MURPHY, P.E.

THIS PLAN HAS BEEN REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.  
 5/24/04  
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 5/24/04  
 HOWARD S.C.D. DATE

- NOTES :
1. STORM DRAINS THAT DRAIN TO BASIN 1 AND ARE LABELED AS "EXISTING" ARE DESIGNED UNDER PLAN # F-03-175.
  2. BASIN 1 WILL FUNCTION THROUGHOUT THIS PHASE AND BE CONVERTED TO A SWM POND, AS BASIN 2 WILL, UPON COMPLETION OF CONSTRUCTION SITE STABILIZATION (SEE SEQUENCE OF OPERATIONS SHEET 2A). BASIN 1 SCHEDULE IS SHOWN ON THESE PLANS AS WELL AS ON F-03-175 PLANS.
  3. EROSION CONTROL MATTING (ECM) SHALL BE INSTALLED IN GRADED SWALES IMMEDIATELY AFTER GRADING THEM. THE SWALES THAT WILL REQUIRE ECM INCLUDE THOSE ALONG THE BACK LOT LINE OF LOTS 7-9, 15-16, 19-27, 43-45 AND 70-80 AND ALONG THE NORTH LOT LINE OF LOT 38.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 6/18/04  
 WALTER F. WALKER, CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 6/23/04  
 KEVIN DELOACH, CHIEF, DIVISION OF LAND DEVELOPMENT #8 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 6/23/04  
 JOHN D. DAMME, CHIEF, DEVELOPMENT ENGINEERING DIVISION #8 DATE

8-21-04 2 MASS GRADING & SEDIMENT CONTROL NOTED  
 10-6-05 1 Add Yard Inlet 1-22B to Public Drainage Utility Easement by Fisher Collins & Carter, Inc.  
 7-12-04 1 REVISIONS DRAWING DATE/TOWN CO.

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER/DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Daft · McCune · Walker, Inc.  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410 296 3333  
 Fax 296 4705

SUBDIVISION NAME	EMERSON	SECTION AREA	PHASE 5C	LOT/FACEL #	837
PLATE OR L.P.	572430	BLOCK #	7,8,9,13	TAXING MAP #	47
WATER CODE		SEWER CODE		ELECT. DISTRICT	E TH
TITLE					
FINAL PLAN SEDIMENT AND EROSION CONTROL PLAN					
Des By:	MRT	Scale:	1"=50'	Proj. No.:	95054-02
Des By:	ECY	Date:	5/15/04		
Chk By:		Approved:			20 OF 29

Professional Engr. No. 10561

**BASIN TABLE**

BASIN NUMBER	2	
EXISTING DRAINAGE AREA: ACRES	2.71	
INTERIM DRAINAGE AREA: ACRES	N/A	
PROPOSED DRAINAGE AREA: ACRES	18.13	
STORAGE REQUIRED: CUBIC FEET	WET	32634
	DRY	32634
	TOTAL	65268
STORAGE PROVIDED: CUBIC FEET	WET	33395
	DRY	33718
	TOTAL	67113
EXISTING GROUND ELEVATION	270.0	
TOP EMBANKMENT ELEVATION	274.2	
EMERGENCY SPILLWAY CREST ELEVATION	272.0	
RISER CREST ELEVATION	267.0	
WET STORAGE ELEVATION	265.1	
CLEANOUT ELEVATION	264.0	
BOTTOM ELEVATION	262.50	
Q <sub>1</sub> INTO BASIN (C.F.S.)	103.47	
Q <sub>2</sub> OUT BARREL (C.F.S.)	53.05	
Q <sub>3</sub> OUT EMERGENCY SPILLWAY	1.63	
Q <sub>4</sub> PRE-CONSTRUCTION (cfs)	0.80	
Q <sub>5</sub> DURING CONSTR. (WORST-CASE TO POND)	47.73	
Q <sub>6</sub> POST CONSTRUCTION (BASIN BUILT) (cfs)	0.79	
Q <sub>7</sub> DEVELOPED (ULTIMATE COND.) (cfs)	0.76	
BASIN DEPTH	WET	2.60
	DRY	1.90
	TOTAL	4.50
DESIGN HIGHWATER	272.70	
FREEBOARD PROVIDED	1.30	
BARREL DIAMETER	30 in	
RISER DIAMETER	4' X 4'	
EMERGENCY SPILLWAY WIDTH	12 ft	
WET STORAGE ZONE ELEVATION	262.5 - 265.1	
DRY STORAGE ZONE ELEVATION	265.1 - 267.0	
BOTTOM DIMENSIONS	176 X 71	

**Legend**

- BQE ONE TOWERS
- EXISTING BUILDINGS
- E. OF EXISTING STREAM
- EX. CURB & GUTTER
- EX. MAJOR CONTOURS
- EXISTING SPOT ELEVATION
- EX. STORM DRAIN
- EX. SEWER
- EX. WATER
- EXISTING TREE LINE
- EXISTING WETLAND LIMIT
- WETLAND BUFFER
- PROP. STORM DRAIN
- LIMIT OF DISTURBANCE
- STABILIZED CONGR. ENTRANCE
- NON-WOODY VEGETATION LIMIT
- REMOVABLE PUMPING STATION

- MOUNTABLE BERM
- EARTH DIKE
- TEMP. GRADED SWALE
- EROSION CONTROL MATTING
- SUPER SILT FENCE
- CURB INLET PROT.
- GABION MATTING (INFLOW PROT.)
- ROCK OUTLET PROTECTION
- STREAM BUFFER
- PROPOSED LOT NUMBERS
- PROPERTY LINE
- ROADWAY RIGHT-OF-WAY
- ADJACENT PROPERTY LINE
- PROPOSED LOT LINE
- PROPOSED EASEMENT
- PROPOSED CURB & GUTTER
- PROPOSED SIDEWALK
- 100 YR. WATER SURFACE EL.
- PROPOSED CONTOURS

THESE PONDS WILL HAVE DAM STRUCTURE  
HAZARD CLASSIFICATION OF 'A'

HAMMOND BRANCH IS IN THE MIDDLE PATUXENT RIVER  
WATERSHED AND HAS A STREAM USAGE CLASSIFICATION  
OF '1-P' (WATER CONTACT RECREATION, AQUATIC LIFE  
PROTECTION AND PUBLIC WATER SUPPLY).

**ENGINEER'S CERTIFICATION**

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]* 5/11/04  
SIGNATURE OF ENGINEER DATE  
PRINT NAME BELOW SIGNATURE **John W. Ransochie, Jr.**

**DEVELOPER'S CERTIFICATION**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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]* 5/11/04  
SIGNATURE OF DEVELOPER DATE  
PRINT NAME BELOW SIGNATURE **Paul G. Casanova, Jr.**

THIS PLAN HAS BEEN REVIEWED FOR HOWARD S.C.D. AND METTS TECHNICAL REQUIREMENTS.

*[Signature]* 5/11/04  
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*[Signature]* 5/11/04  
HOWARD S.C.D. DATE

NOTE:  
1. EROSION CONTROL MATTING (ECM) SHALL BE INSTALLED IN GRADED SWALES IMMEDIATELY AFTER GRADING THEM. THE SWALES THAT WILL REQUIRE ECM INCLUDE THOSE ALONG THE BACK LOT LINES OF LOTS 7-9, 15-16, 19-37, 43-45 AND 70-80 AND ALONG THE NORTH LOT LINE OF LOT 38.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*[Signature]* 6-18-04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*[Signature]* 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 6/22/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

7-12-04 1 **PAVING GRADING PARALLELS WAY**  
Date No. Revision Description

**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

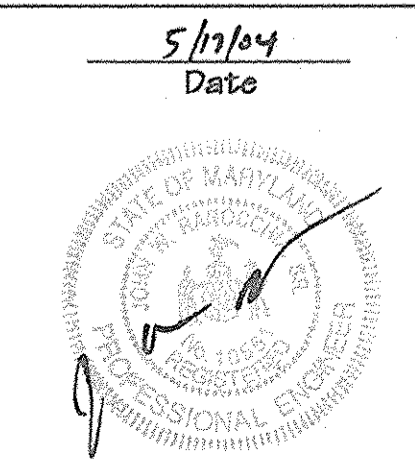
OWNER/DEVELOPER:  
**THE HOWARD RESEARCH & DEVELOPMENT CORPORATION**  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

**DMW**  
Daft - McCune - Walker, Inc.  
A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 296 8333  
Fax 296 4705

SUBDIVISION NAME: EMERSON SECTION AREA: PHASE 5C LOT/PARCEL # 837  
PLAT/OF: 572/430 BLOCK # 7, 8, 9, 13 ZONE: MXD POLYCON WVF 47 ELEC. RECORD: 6 TH GENUS TRACT: -  
WATER CODE: SEWER CODE:

**FINAL PLAN**  
**SEDIMENT AND EROSION CONTROL PLAN**

Drn By: ECF Scale: 1"=50' Proj. No.: 93054.02  
Des By: MRT Date: 5/11/04  
Chk By: Approved: 21 OF 29

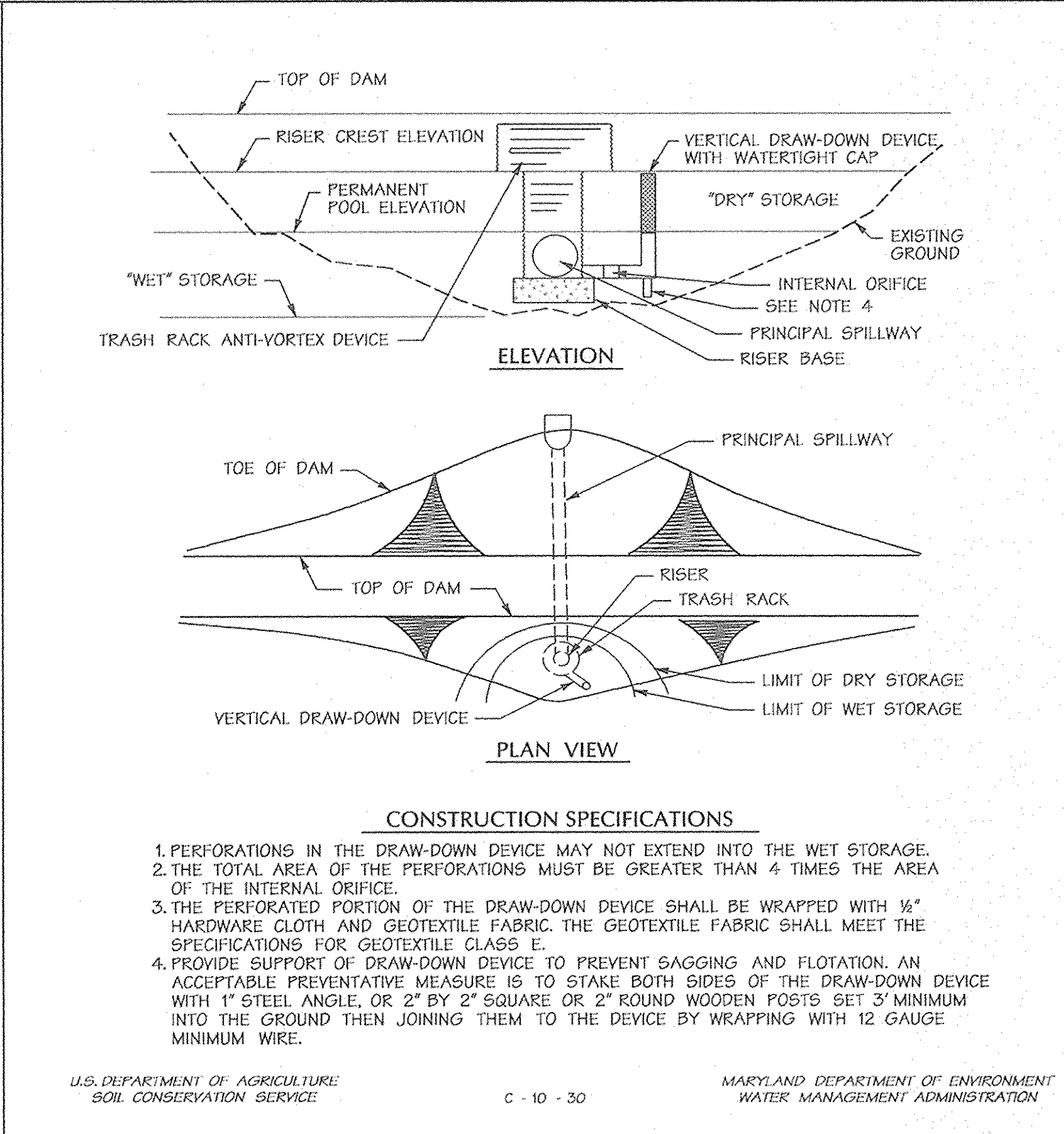
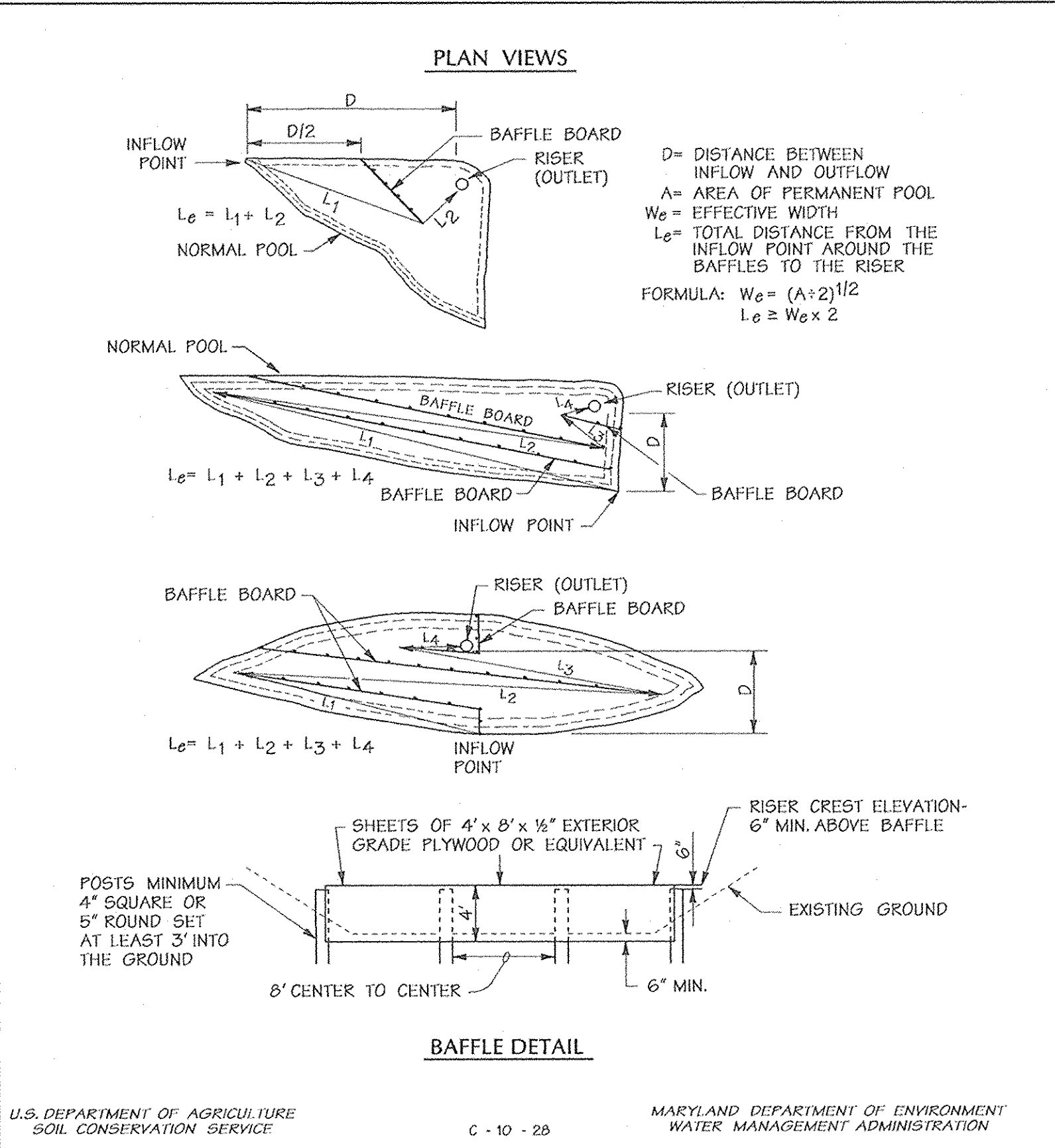
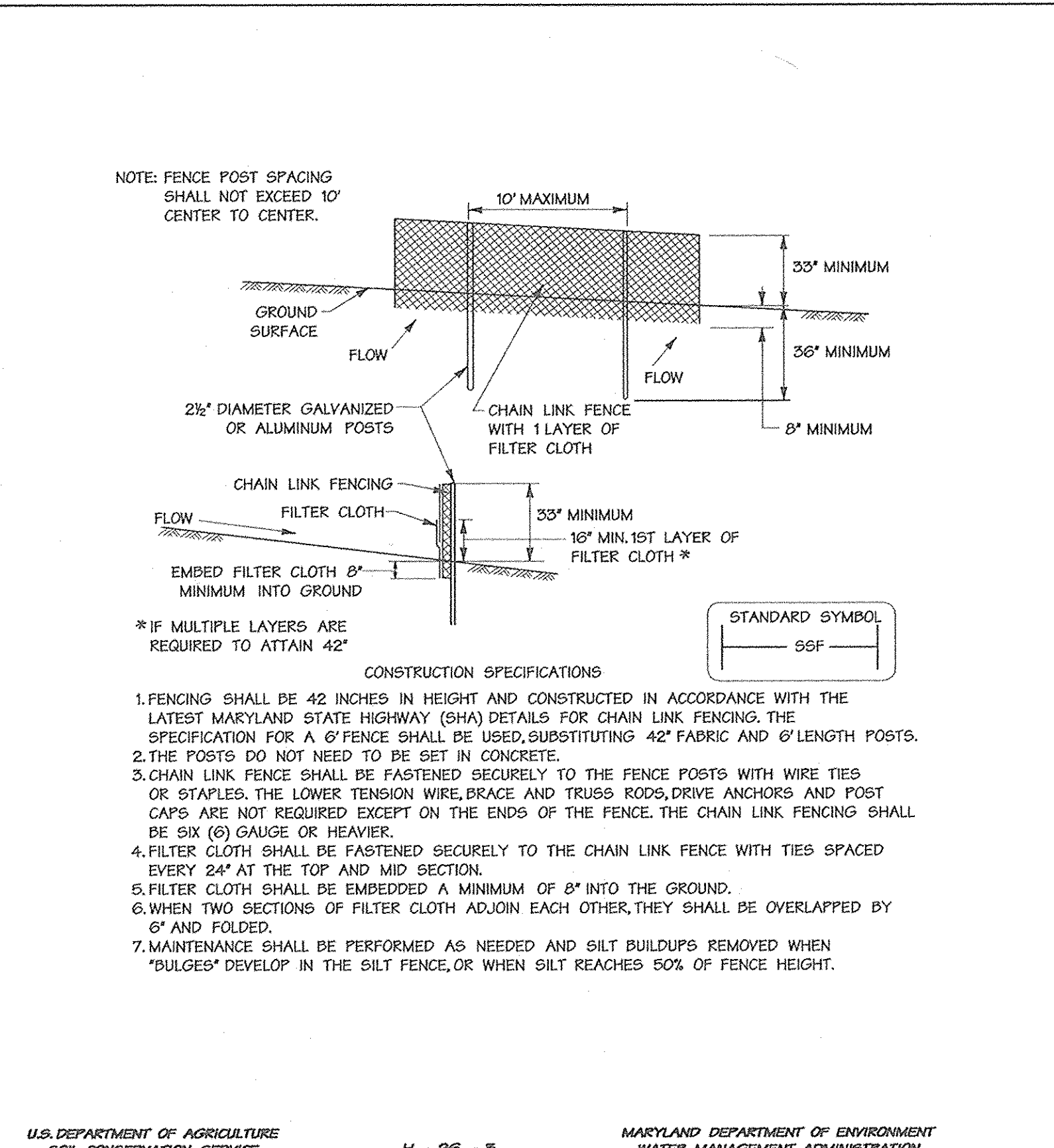
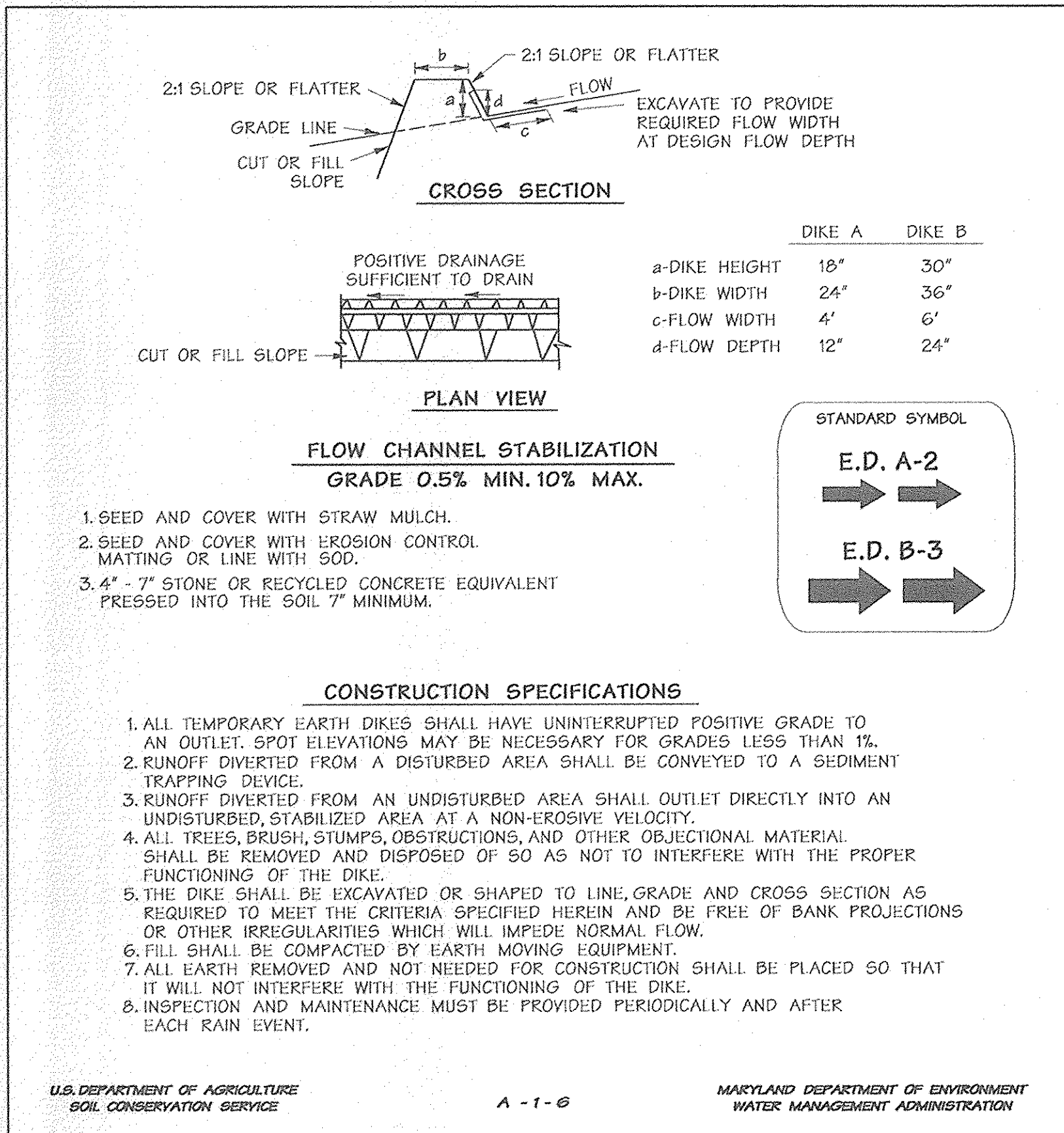


Professional Engr. No. 10551

MATCHLINE SEE SHEET 20 OF 29

F-04-53



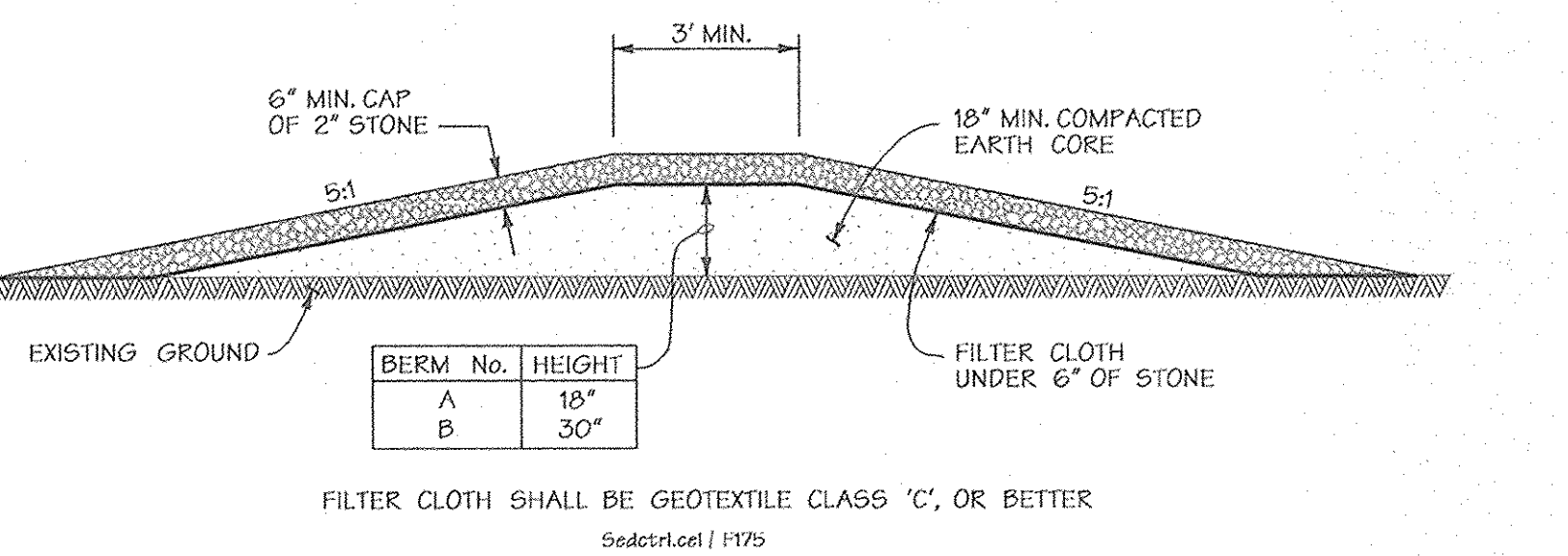
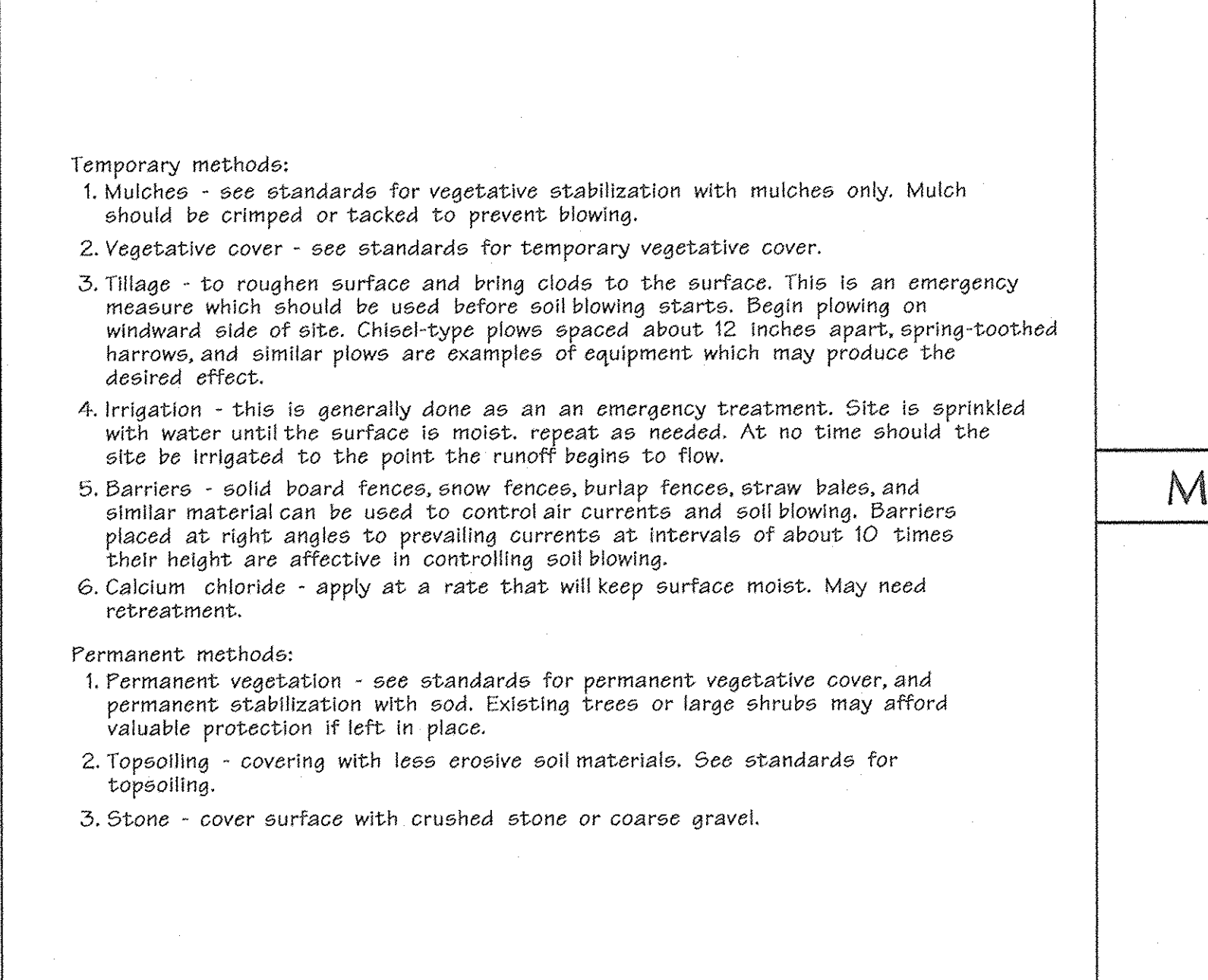
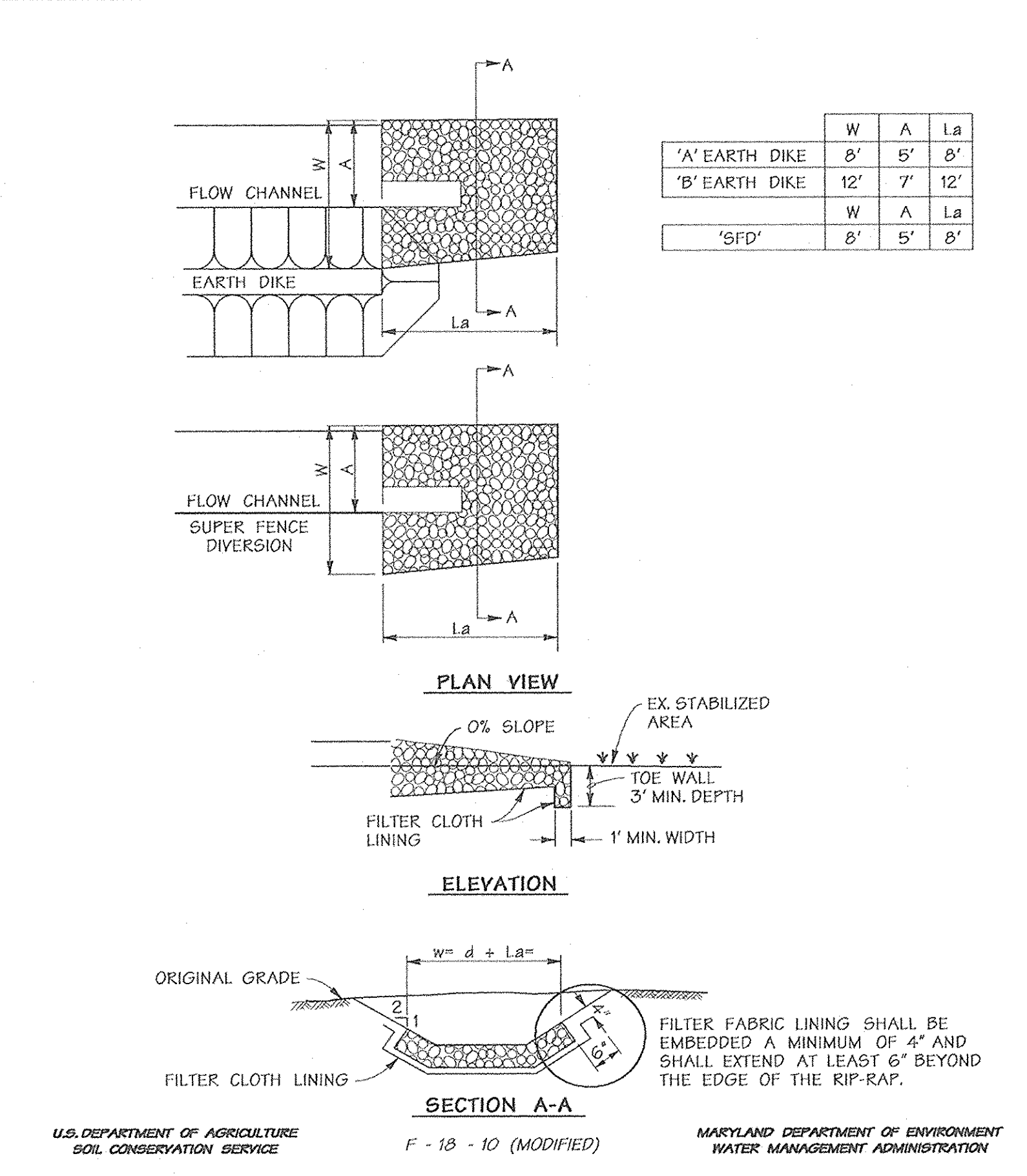
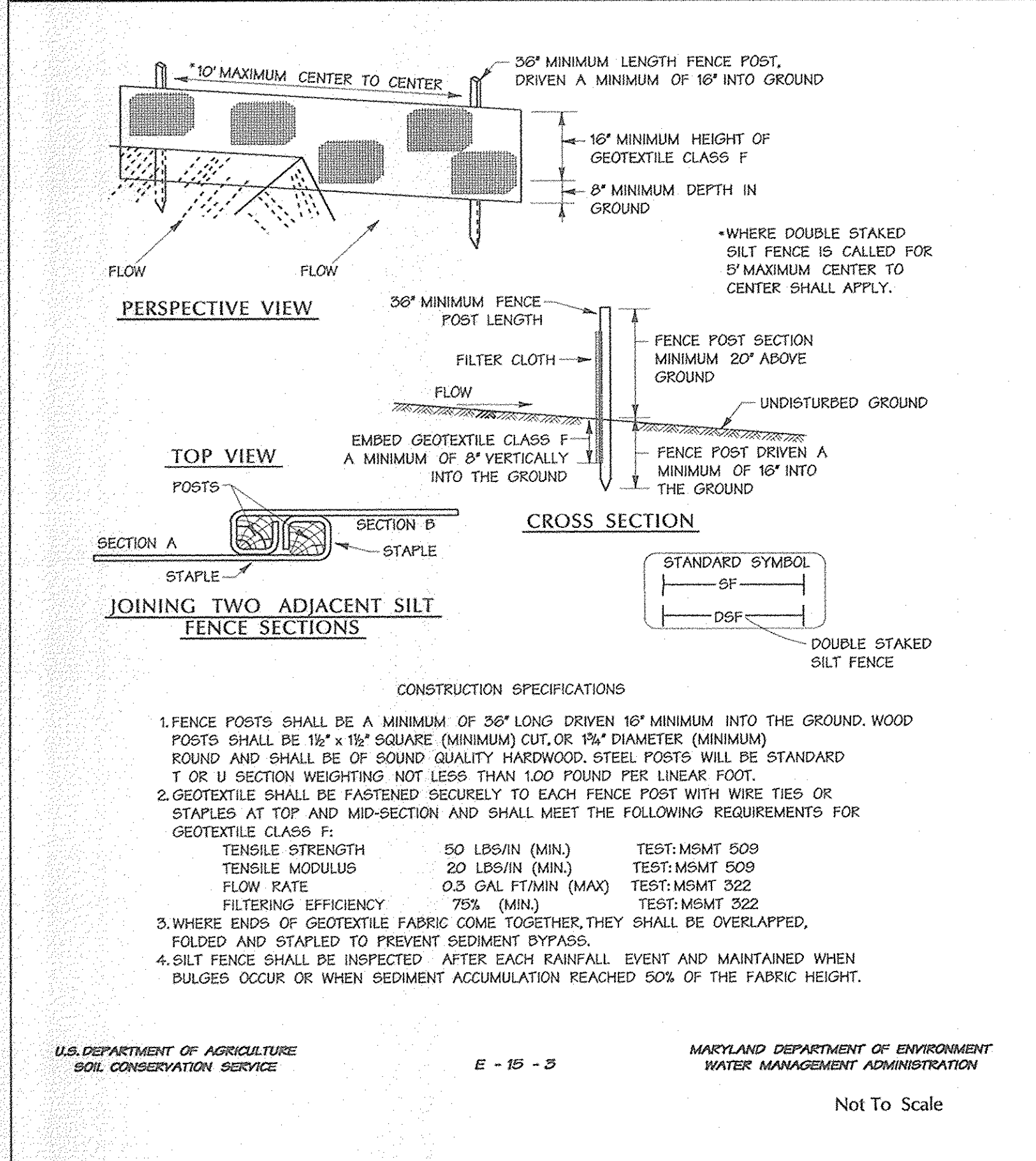


**Earth Dike** Not To Scale

**Super Silt Fence** Not To Scale

**Sediment Basin Baffles** NOT TO SCALE

**Basin Drawdown Schematic Ver. Drawdown Device**



**Silt Fence** Not To Scale

**Rock Outlet Protection III** Not To Scale

**DEVELOPER'S CERTIFICATION:**

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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 VISIT INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Paul G. Cantalero*  
Date: 5/14/04

**ENGINEER'S CERTIFICATION:**

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: *John W. Rouse*  
Date: 5/17/04

**REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS**

Signature: *Jim Myers*  
Date: 5/26/04

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

Signature: *John W. Rouse*  
Date: 5/26/04

**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

**DMW**  
Daft · McCune · Walker, Inc.  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

200 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 296 3333  
Fax 296 4705

DATE	NO.	REVISION DESCRIPTION
6-18-04		
6/23/04		
6/22/04		

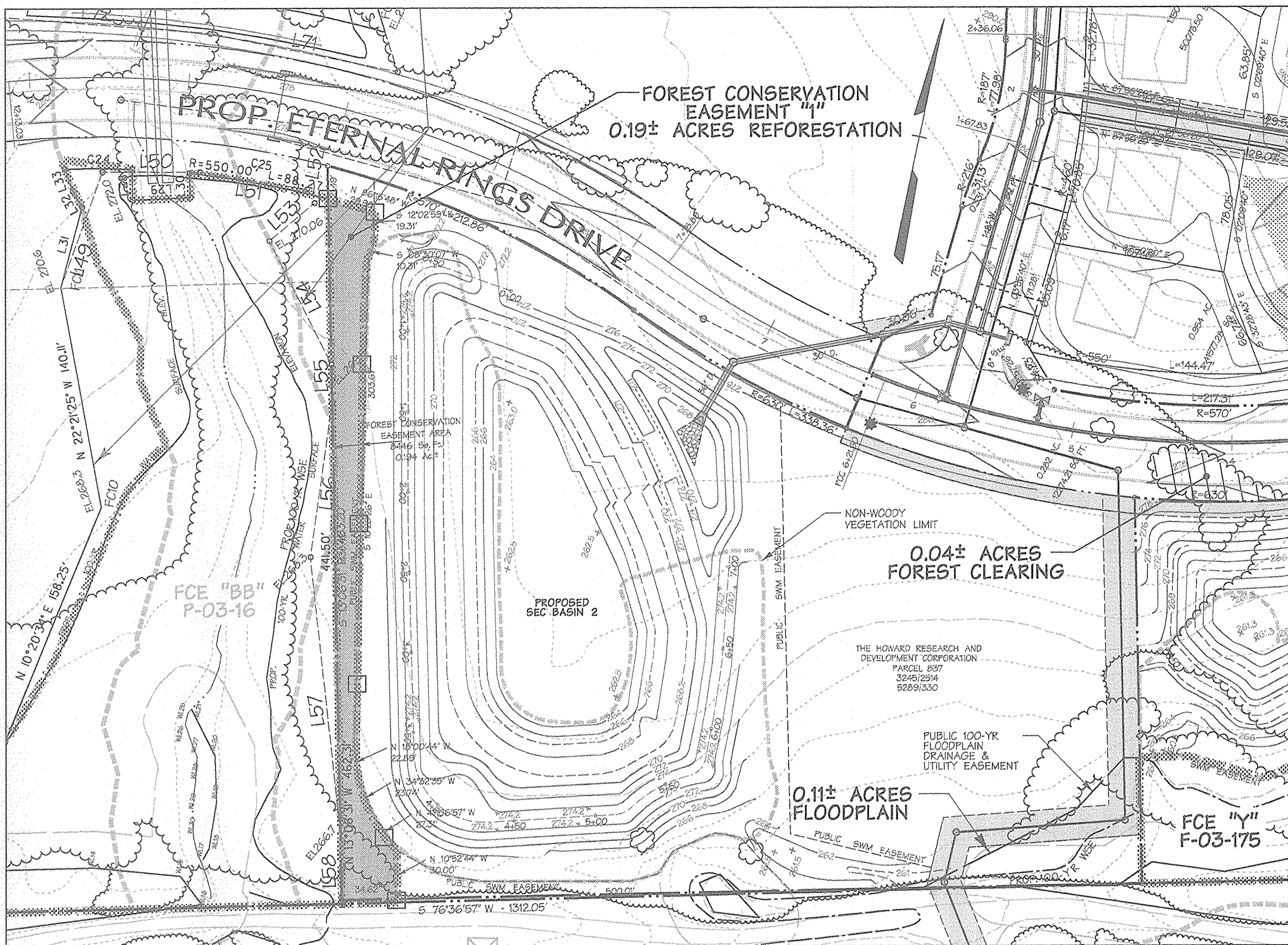
**SEDIMENT & EROSION CONTROL DETAILS**

Drn By: ECY	Scale: N/A	Proj. No. 95054.02
Des By: MRT	Date: 5/18/04	
Chk By:	Approved:	23 of 29

Professional Engr. No. 1551





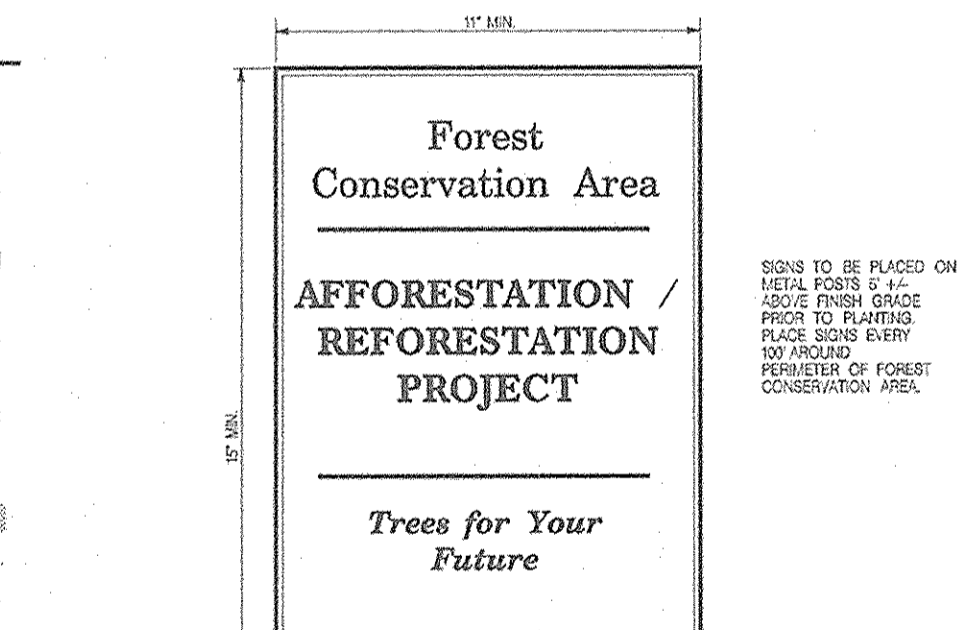


**FOREST CONSERVATION EASEMENT #1**  
SCALE 1"=50'

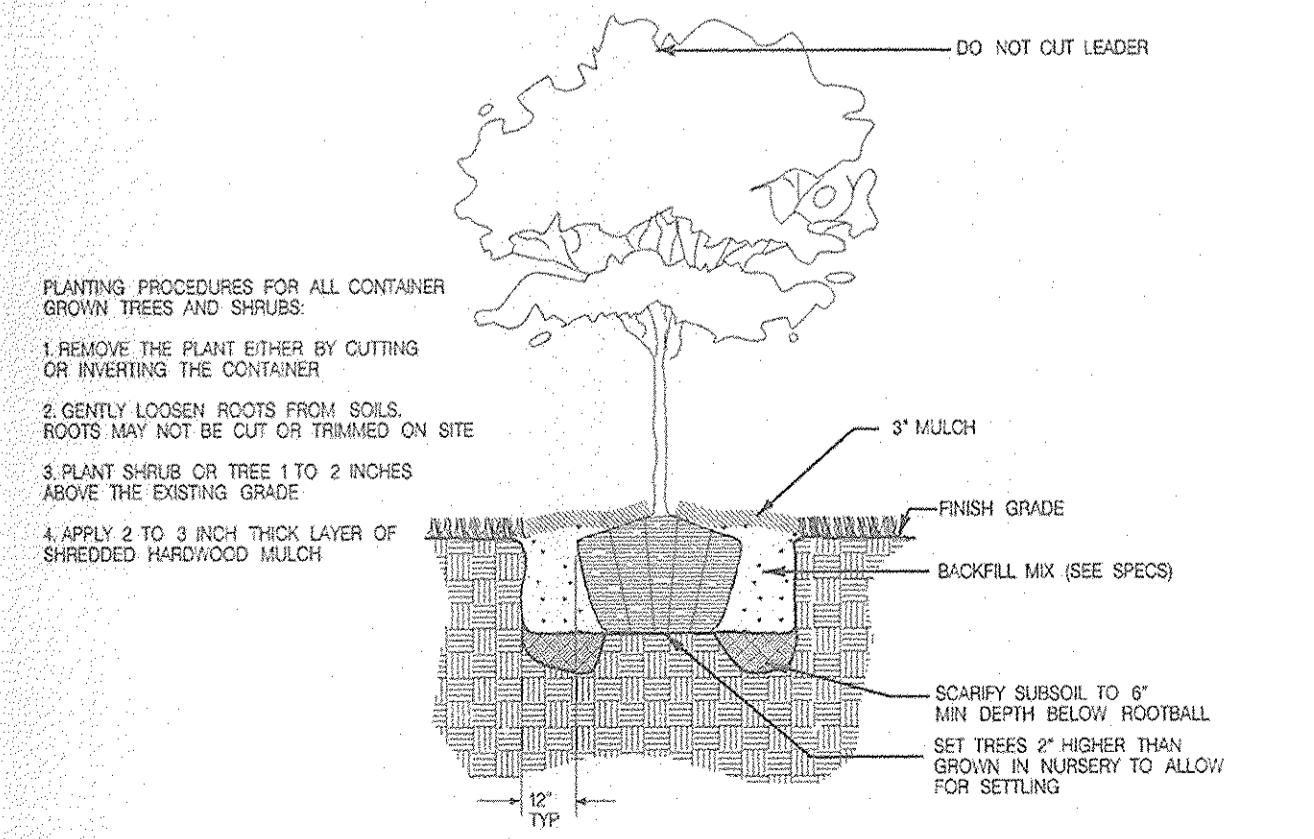
**NOTES**  
SEE SHEET 1 FOR FOREST CONSERVATION TRACKING CHART.  
A SURETY IN THE AMOUNT OF \$4,338.20 WILL BE REQUIRED FOR REFORESTATION PLANTING (0.19 ACRES AT \$0.50/S.F.).

**Legend**

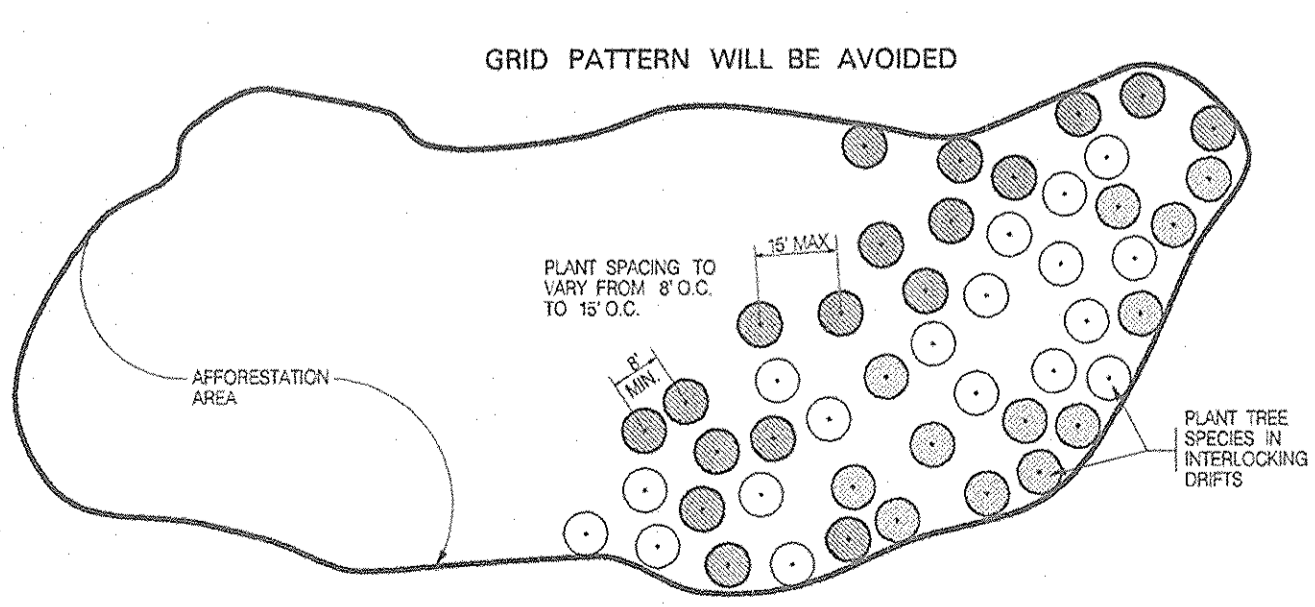
EX. CURB & GUTTER	--- 4' W. ---	PROP. WATER	--- 8" W. ---
EX. MAJOR CONTOURS	--- 40' ---	PROPERTY LINE	---
EX. MINOR CONTOURS	--- 10' ---	ROADWAY RIGHT-OF-WAY	---
EX. STORM DRAIN	--- 2' x 2' S.P. ---	PROPOSED LOT LINE	---
EX. SEWER	--- 15" S.P. ---	PROPOSED EASEMENT	---
EX. WATER	--- 12" S.P. ---	PROPOSED CURB & GUTTER	---
EXISTING TREE LINE	---	PROPOSED SIDEWALK	---
EXISTING WETLAND LIMIT	---	PROPOSED FOREST CLEARING	---
WETLAND BUFFER	---	PROPOSED FOREST CLEARING	---
100 YR. FLOODPLAIN	---	PROPOSED FOREST CLEARING	---
LIMIT OF DISTURBANCE	---	PROPOSED FOREST CLEARING	---
50(LS) LINE (NOT SHOWN)	---	PROPOSED FOREST CLEARING	---
75' STREAM BUFFER	---	PROPOSED FOREST CLEARING	---
PROPOSED STREET TREE (PRESENT)	---	PROPOSED FOREST CLEARING	---
PROPOSED STREET TREE (FUTURE)	---	PROPOSED FOREST CLEARING	---
PROP. STORM DRAIN	---	PROPOSED FOREST CLEARING	---
PROP. SEWER	---	PROPOSED FOREST CLEARING	---



**Permanent Signage**  
Not To Scale



**Typical Tree Planting (For container grown)**  
Not To Scale



**Planting Design Schematic**  
Not To Scale

**GOALS AND OBJECTIVES**  
The goals and objectives of this Forest Conservation Plan are to identify forest areas to be cleared under Emerson 2, Phase 5 (A), and to provide long term protection for reforestation areas to be planted under this phase. Approximately 0.19 acres of forest clearing and no retention is proposed under this phase and approximately 0.19 acres of reforestation is proposed on the western portion of the project. When evaluated cumulatively with previous phases of this project, 2.76 acres of reforestation is required, and 8.74 acres (8.55 acres under previous phases and 0.19 acres currently) of reforestation is provided. Plant species have been chosen to tolerate wetland/mesic and upland floodplain conditions experienced in the planting area.

**PRECONSTRUCTION MEETING/CONSTRUCTION PERIOD PRACTICES**  
Before construction begins a required preconstruction meeting shall be held. The principle contractor, engineer, Howard County inspectors and a qualified forest professional familiar with the plan shall be present. All matters pertaining to forest retention, tree preservation and construction period practices shall be discussed. Any changes to the plan due to on-site conditions must be approved by the Howard County Department of Planning and Zoning.

**POST CONSTRUCTION MANAGEMENT/MAINTENANCE BY CONTRACTOR**  
All dead trees or tree limbs which pose an immediate safety hazard will be felled. Trees dropped within the forest retention area will not be removed. All temporary forest protection structures will be removed after construction and permanent signage will be placed where indicated on the plan. A 2-year Contractor's Maintenance and Monitoring Period shall begin at mobilization. Severely five percent survivorship must be guaranteed for this period. The site shall be inspected at the end of the two year period to ascertain survivorship and provide for replacement if necessary. The Contractor's maintenance of new planting shall consist of watering, weeding, and mowing as necessary to insure survival. Contractor shall protect planting areas and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treated or replaced as directed by Landscape Architect at no additional cost to Owner.

**REFORESTATION AREAS SHOWN ON THIS PLAN TO BE PLACED IN FOREST CONSERVATION EASEMENT WITH PERMANENT FOREST PROTECTION SIGNS PLACED AT 50' TO 100' INTERVALS AROUND EASEMENTS.**

**STANDARDS AND SPECIFICATIONS FOR PLANTING**

**1. PLANT MATERIAL SELECTION**  
A. Nursery grown plant materials greater than 1" caliper should meet or exceed the requirements of the American Nurserymen Specifications. It should be typical of the species and variety, have a normal habit of growth to be healthy, sound, vigorous, well-established root systems, and be free of disease, insect pests and mechanical injuries.  
B. Planting stock less than 1" caliper should meet the following standards:  
Seedlings/shubs:  
Hardwoods - 1 1/2" to 2" caliper with roots not less than 8" long  
Shrubs - 18" or larger caliper with 8" root system.

**2. PLANTING SITE PREPARATION**  
Soils shall be disturbed outside the area necessary for planting individual specimens and the removal of exotic invasive plant material. These areas should be stabilized as shown on the temporary seeding notes on sheet 8.

**3. PLANTING PERIOD**  
All material shall be planted between September 15 and May 31. Material shall not be installed when ground is frozen.

**4. PLANT MATERIAL STORAGE**  
Plants should be planted within 24 hours of delivery. If possible, plant material which are left unplanted for more than 24 hours shall be protected from direct sun and weather and kept moist. Nursery stock should not be left unplanted for more than two weeks.

**5. ON-SITE INSPECTION**  
Prior to planting, planting stock shall be inspected by the landscape architect or other qualified professional familiar with this plan. Plant material not conforming to standard nursery specifications for size, form, vigor, roots, bark wounds, insect and disease should be replaced.

**6. TOPSOIL FOR PLANTING SOIL**  
A. On-site material or imported from same source as topsoil used on site for finish grading.  
1. Uniform composition, free of subsoil, clay lumps, stones, stumps, roots or similar objects larger than 1 inch.  
2. Topsoil must be free of plants or plant parts of barnyardgrass, quackgrass, johnsongrass, nutgrass, poison ivy, Canada thistle, or others as specified.  
3. All topsoil shall be tested by a recognized laboratory for pH and soluble salts. A pH of 4.5 to 7.5 is required. Soluble salts shall not be higher than 500 parts per million.  
B. Additive for backfill mix:  
A. Wood Residuals:  
1. Source shall be well composted, not chemically treated.  
2. Physical properties - grading:  

U.S. Sieve	Dry Weight Percent Passing
3/8"	100
1/2"	90 - 100
No. 6	70 - 100
No. 20	0 - 30

  
3. Organic content by ash analysis: 80 - 100 percent dry weight.  
4. Chemistry:  
Range:  
a. Saturation Extract Conductivity (EC) --- NI - 3.5  
b. Reaction (pH) --- 3.0 - 5.5  
5. Salinity: Maximum saturation extract conductivity 1.0 millimhos per cm at 25 degrees centigrade.  
B. Sand:  
1. Physical Properties - Grading:  

U.S. Sieve	Dry Weight Percent Passing
No. 4	85 - 100
No. 10	90 - 100
No. 30	65 - 100
No. 60	0 - 50
No. 140	0 - 25
No. 270	0 - 7

  
2. Chemistry:  
Saturation Extract Conductivity (EC) --- NI - 3.0  
Sodium Absorption Ratio (SAR) --- NI - 6.0  
Boron - ppm in saturation extract solution --- NI - 1.0  
Reaction (pH) --- 6.0 - 7.5  
Available calcium - sodium acetate extractable - ppm --- NI - 2000 dry weight.

**7. ADDITIVE FOR BACKFILL MIX**

**8. MULCH**  
A. Shredded long fiber hardwood.  
B. Mulch shall have been shredded within the last six (6) months.

**9. PLANTING MIX**  
A. Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum quantities of 20 cubic yards or sufficient mix for entire job less than 20 cubic yards is required.  
B. Thoroughly mixed in the following proportions for tree and shrub planting mix:  
.5 cu Existing soil  
.2 cu Sharp sand  
.3 cu Wood residuals  
4.5 lbs. Triple superphosphate  
5 lbs. Dextroic limestone (eliminate for acid loving plants).

**10. LAYOUT AND EXCAVATION OF PLANTING AREAS**  
A. Plants shall be placed in each zone at random locations shown at spacing as indicated on the plan.  
B. The Landscape Architect or qualified professional will check location of plants in the field and shall adjust to exact position before planting begins.  
C. Subsoil shall be worked when moisture content is so great that excessive compaction will occur; nor when it is so dry that roots will not readily break. Water shall be applied, if necessary, to bring soil to an optimum moisture content before filing and planting.  
D. Tree pits shall not be excavated more than 24 hours in advance of planting operation. Tree pits shall be excavated to the following dimensions:  

Excavation for	Width	Depth
Canned Trees	Can + 12 in.	Can + 4 in.
B&B Trees	Ball + 12 in.	Ball + 4 in.

  
E. Excavate shrub pits to the following depths:  

Excavation for	Width	Depth
Shrubs	Ball or Can + 8 in.	Can + 4 in., not less than 12 in.

**11. PREPARING PLANT MATERIALS FOR PLANTING**  
A. Container stock shall be removed carefully after cans have been cut on two sides with approved cutter. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems or trunks at any time.  
B. Do not bend or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only from bottom of ball.  
C. Balled and burlapped B&B plants shall have firm balls of earth. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations. B&B material shall be dug only when dormant. Pre-dug stored B&B material shall be inspected and approved at the storage site.  
D. Do not remove roots for bare rooted trees into excavated pits - custom dig pits to receive roots without deformation.

**12. MIXING**  
A. Mix soil, base, amendments and chemical additives by mechanical means.  
B. Soil and sand bases shall be completely pulverized and fine lumps or aggregated material. Moisture content of base materials shall not be such that chemical granular or pelletized additives become dissolved during the mixing process.  
C. Mix media in quantities of not less than 20 cubic yards or mix total quantity required if less than 20 cubic yards. The Contractor shall be responsible for continuity between batches.  
D. Contaminating backfill mix with unmoist soil in backfilling lots shall be avoided.

**13. INSTALLATION OF CONTAINERIZED PLANT MATERIAL**  
A. Scarify walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix. The Contractor shall remove all glazing of soil caused by an auger or mechanical hole digger.  
B. Walls around trees and shrubs: after planting is complete form a soilwall 3 inches high around each plant, extending to the outer limit of the plant pit in accordance with planting details shown on the Drawings.  
C. Smooth planting areas to conform to specified grades after full settlement as occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, omissions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage shall be brought to the attention of the Landscape Architect in writing.  
D. Water all plants immediately upon planting.  
E. Spread mulch in required areas to the compacted depth of 2 inches.

**REFORESTATION AREA PLANTING PLAN**

Plants required - 67 (350 whips/acre x 0.19 acres)

Species	Common name	Size	Spacing	Quantity	Tolerance	Indicator status
<i>Acer rubrum</i>	red maple	24" container grown whip	1' x 1'	15	full sun to partial shade	FAC
<i>Juglans nigra</i>	black walnut	24" container grown whip	1' x 1'	15	full sun	FACU
<i>Liquidambar styraciflua</i>	sweet gum	24" container grown whip	1' x 1'	12	full sun	FAC
<i>Quercus alba</i>	white oak	24" container grown whip	1' x 1'	10	full sun to partial shade	FACU
<i>Quercus palustris</i>	pin oak	24" container grown whip	1' x 1'	15	full sun	FACU
<b>TOTALS</b>				<b>67</b>		

**GUARANTEE:**  
A MINIMUM SURVIVAL RATE OF 75% IS TO BE GUARANTEED BY THE DEVELOPER AT THE END OF THE TWO YEAR MAINTENANCE PERIOD.

**FOREST CONSERVATION CALCULATIONS**

BASIC SITE DATA		ACRES (H2)
GROSS SITE AREA		306.84
AREA WITHIN 100 YEAR FLOODPLAIN		27.51
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)		0.0
NET TRACT AREA		279.33
LAND USE CATEGORY		COMMERCIAL/INDUSTRIAL/OFFICE
<b>INFORMATION FOR CALCULATIONS</b>		
A. NET TRACT AREA		279.33
B. REFORESTATION THRESHOLD (15% x A)		41.90
C. AFFORESTATION MINIMUM (15% x A)		41.90
D. EXISTING FOREST ON NET TRACT AREA		39.66
E. FOREST AREAS TO BE RETAINED		47.63
F. FOREST AREAS TO BE CLEARED		47.63
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD		0.00
H. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD		9.13
<b>REFORESTATION CALCULATIONS</b>		
A. NET TRACT AREA		279.33
B. REFORESTATION THRESHOLD (15% x A)		41.90
C. EXISTING FOREST ON NET TRACT AREA		39.66
D. FOREST AREAS TO BE CLEARED		47.63
E. FOREST AREAS TO BE RETAINED		51.03
F. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD		47.63
G. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD		0.00
H. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD		9.13
<b>CLEARING ABOVE THE THRESHOLD ONLY</b>		
IF FOREST AREAS TO BE RETAINED ARE GREATER THAN THE REFORESTATION THRESHOLD (IF E IS GREATER THAN B), THE FOLLOWING CALCULATIONS APPLY:		
REFORESTATION FOR CLEARING ABOVE THRESHOLD	(F)(4)	11.91
REFORESTATION FOR CLEARING BELOW THRESHOLD	(G)(2)	0.00
TOTAL REFORESTATION REQUIRED	(F)(4) + (G)(2)	11.91
CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD		9.13
REFORESTATION REQUIRED		2.78 ACRES
REFORESTATION PROVIDED		6.74 ACRES

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

**Emerson Section 2**  
 Phase 5A and Section 3 Area 3  
 (Key Property)

OWNER/DEVELOPER:  
**THE HOWARD RESEARCH & DEVELOPMENT CORPORATION**  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 DaM, M'cCune, Walker, Inc.  
 A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410 286 3333  
 Fax 286 5705

DATE: 6/11/04  
 DATE: 6/23/04  
 DATE: 10/22/04

DATE: 6/11/04

**FINAL FOREST CONSERVATION PLAN, NOTES, & DETAILS**

Dwn By: slj Scale: AS SHOWN Proj. No: 95054-G2  
 Des By: smh Date: 5/18/04  
 Chk By: mmm Approved: 25 of 29

THE HOWARD RESEARCH AND  
DEVELOPMENT CORPORATION  
PARCEL 837  
3245/2514  
5289/330

THE HOWARD RESEARCH AND  
DEVELOPMENT CORPORATION  
PARCEL 837  
3245/2514  
5289/330

PERIMETER 1  
277 LF TYPE "B"

PERIMETER 4  
475 LF - TYPE "B"

PERIMETER 5  
220 LF - TYPE "A"

PROP. ETERNAL RINGS DRIVE

SWM PERIMETER  
463 LF - CREDIT

SWM PERIMETER  
911 LF TYPE "B"

SWM POND 1  
PER F-03-175

OPEN SPACE  
LOT 1

STREET TREES ALONG STEPHENS ROAD WERE  
PLANTED UNDER F-03-175

NOTE: SEE SHEET 29 FOR PLANTING  
LIST AND DETAILS

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>Walter F. Mohr</i>	6-18-04
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Kat Shaddock</i>	6/27/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Mark Dammann</i>	6/22/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
10.6.05	1 Add Yard Inlet 1-22B, Rev. grd. lots D-11, 16817 by Fisher, Collins & Carter, Inc.
Date	No. Revision Description

**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

OWNER /DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

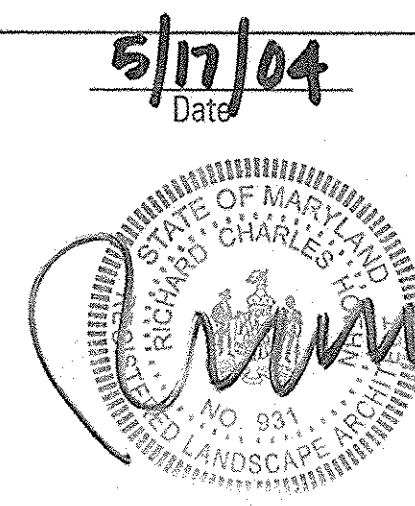
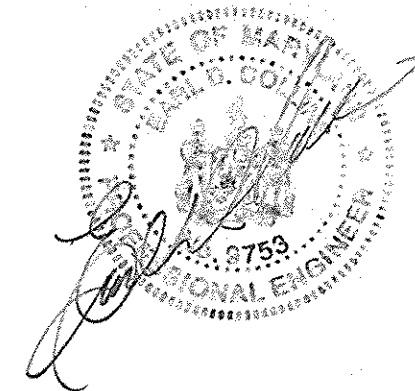
**DMW**  
Duff-Nease-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 390-3333  
Fax 296-4705

A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

AREA  
TAX MAP 47 PARCEL 837  
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

**FINAL LANDSCAPE & STREET TREE PLAN**

Des By	MRT	Scale	1" = 50'	Proj. No.	95054.G2
Dm By	ECY	Date	5/18/04		
Chk By	MM	Approved		26	OF 29



**Legend**

EX CURB & GUTTER	---	EARTH DIKE	---
EX MAJOR CONTOURS	---	SUPER SILT FENCE	---
EX MINOR CONTOURS	---	INLET PROTECTION	---
EX STORM DRAIN	---	ROCK OUTLET PROTECTION	---
EX SEWER	---	PROPERTY LINE	---
EX WATER	---	ROADWAY RIGHT-OF-WAY	---
EXISTING TREE LINE	---	PROPOSED LOT LINE	---
EXISTING WETLAND LIMIT	---	PROPOSED EASEMENT	---
PROP. STORM DRAIN	---	PROPOSED CURB & GUTTER	---
LIMIT OF DISTURBANCE	---	PROPOSED SIDEWALK	---
SEDIMENT TRAP	---	STEEP SLOPES 15% - 24.9%	---
STABILIZED CONSTRUCTION ENTRANCE	---	PROPOSED CONTOURS	---

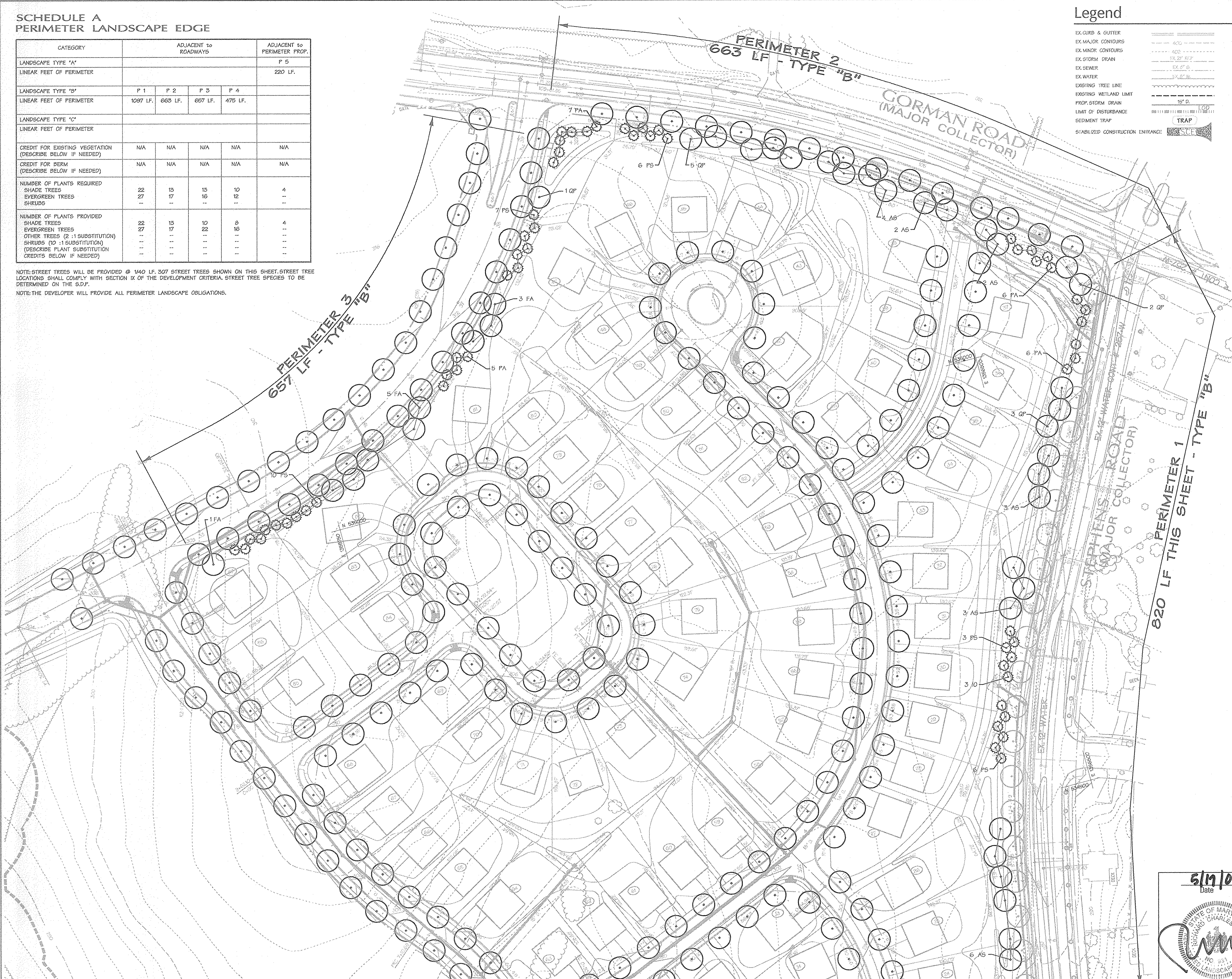
**SCHEDULE A  
PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAYS				ADJACENT TO PERIMETER PROP.
LANDSCAPE TYPE "A"					P 5
LINEAR FEET OF PERIMETER					220 LF.
LANDSCAPE TYPE "B"	P 1	P 2	P 3	P 4	
LINEAR FEET OF PERIMETER	1097 LF.	663 LF.	657 LF.	475 LF.	
LANDSCAPE TYPE "C"					
LINEAR FEET OF PERIMETER					
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A
CREDIT FOR BERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A
NUMBER OF PLANTS REQUIRED					
SHADE TREES	22	13	13	10	4
EVERGREEN TREES	27	17	16	12	--
SHRUBS	--	--	--	--	--
NUMBER OF PLANTS PROVIDED					
SHADE TREES	22	13	10	8	4
EVERGREEN TREES	--	--	22	16	--
OTHER TREES (2:1 SUBSTITUTION)	--	--	--	--	--
SHRUBS (10:1 SUBSTITUTION)	--	--	--	--	--
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)					

NOTE: STREET TREES WILL BE PROVIDED @ 1/40 LF. 307 STREET TREES SHOWN ON THIS SHEET. STREET TREE LOCATIONS SHALL COMPLY WITH SECTION IX OF THE DEVELOPMENT CRITERIA. STREET TREE SPECIES TO BE DETERMINED ON THE S.D.P.  
NOTE: THE DEVELOPER WILL PROVIDE ALL PERIMETER LANDSCAPE OBLIGATIONS.

**Legend**

EX. CURB & GUTTER		EARTH DIKE	
EX. MAJOR CONTOURS		SUPER SILT FENCE	
EX. MINOR CONTOURS		INLET PROTECTION	
EX. STORM DRAIN		ROCK OUTLET PROTECTION	
EX. SEWER		PROPERTY LINE	
EX. WATER		ROADWAY RIGHT-OF-WAY	
EXISTING TREE LINE		PROPOSED LOT LINE	
EXISTING WETLAND LIMIT		PROPOSED EASEMENT	
PROP. STORM DRAIN		PROPOSED CURB & GUTTER	
LIMIT OF DISTURBANCE		PROPOSED SIDEWALK	
SEDIMENT TRAP		STEEP SLOPES 1% - 24.3%	
STABILIZED CONSTRUCTION ENTRANCE		PROPOSED CONTOURS	



STREET TREES ALONG STEPHENS ROAD WERE PLANTED UNDER F-03-175  
NOTE: SEE SHEET 29 FOR PLANTING LIST AND DETAILS

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*John J. Walker* 6/18/04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Kate R. Walker* 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*William M. Walker* 6/27/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**Emerson Section 2**  
Phase 5A  
Section 3 - Area 3

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

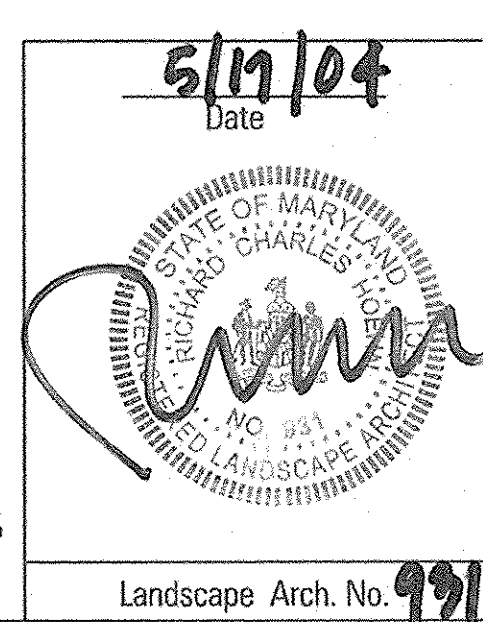
**DMW**  
Duff McCune Walker, Inc.  
200 East Pennsylvania Avenue  
Fusion, Maryland 21086  
Phone 296-3333  
Fax 296-4705

A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

AREA  
TAX MAP 47 PARCEL 837  
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

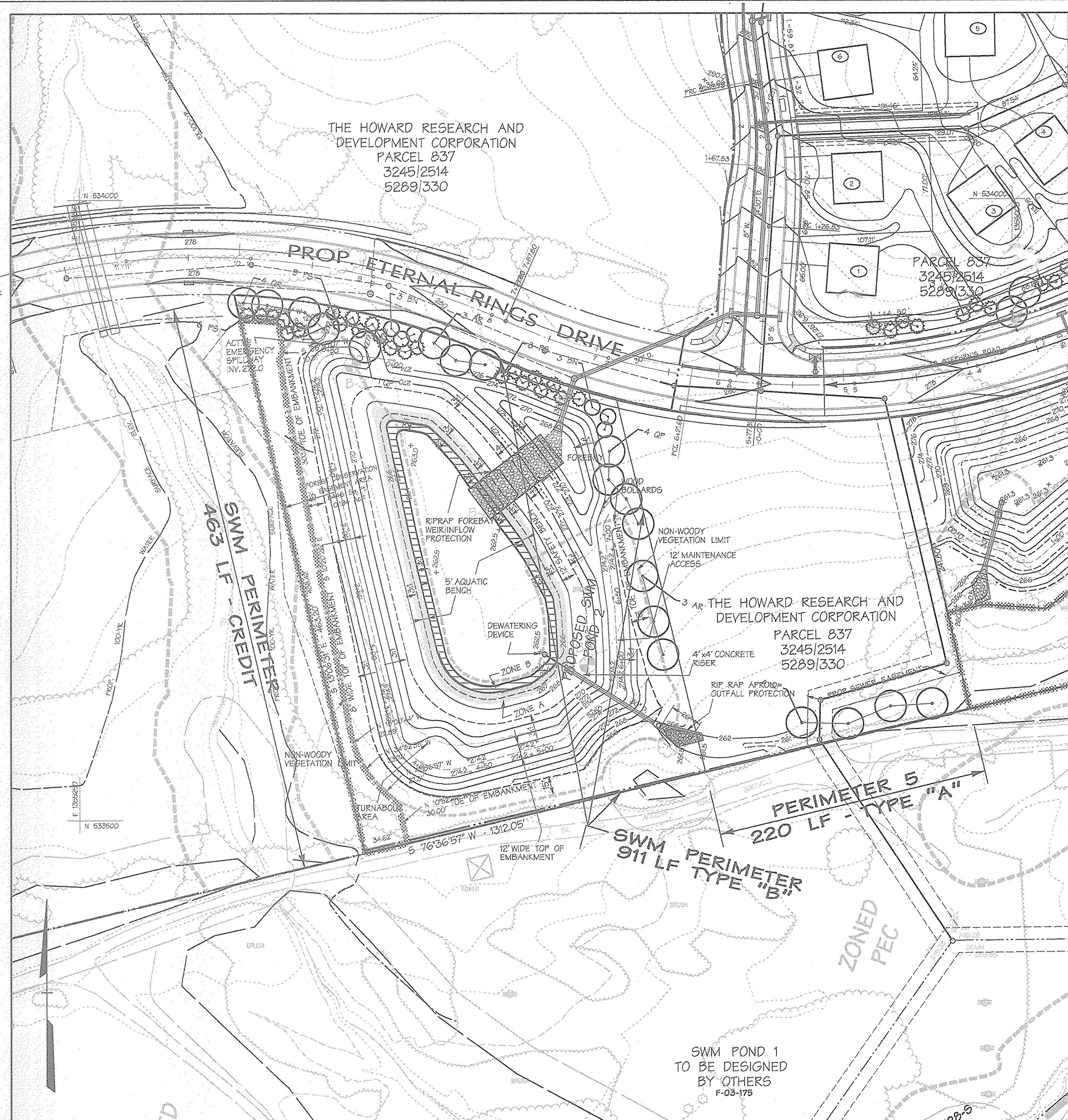
**FINAL LANDSCAPE & STREET TREE PLAN**

Des By	MRT	Scale	1" = 50'	Proj. No.	95054.G2
Dwn By	ECY	Date	05/18/04		
Chk By	MM	Approved			27 OF 29



MATCHLINE SEE SHEET 26

F-04-53



**SWM POND 2 LANDSCAPE PLAN**

SCALE 1"=50'

**Water Quality Planting Specifications**

**PART 1 GENERAL**  
**1.01 DESCRIPTION:** Work consists of all labor, materials, equipment and services necessary for and incidental to the execution and completion of WETLAND PLANTING as indicated on the Drawings and specified herein.  
**A. Include:**  
 1. Furnishing of all plant material.  
 2. Soil preparation, planting operations.  
 3. Maintenance and guarantee.

**1.02 QUALITY ASSURANCE**  
**A.** American Association of Nurserymen (A.A.N.): "American Standard for Nursery Stock", (ANSI Z60.1) as expanded herein.  
**B.** Nomenclature in accordance with HORTUS III by L.H. Bailey.  
**C.** United States Department of Agriculture: Textural Classification Diagram for Soils.  
**1.03 STANDARD OF COMPARISON**  
**A.** When the Drawings indicate a total quantity of five (5) or more of an individual plant (other than bulbs or perennials) the Contractor shall obtain approval of a standard of comparison prior to delivery on site. Assemble samples of all plants to be evaluated as "standards" at the principal business location of the Contractor. Notify Owner to schedule an inspection for approval of "standards" and to obtain record photographs. Photographs of each "standard" shall be used for comparison of all material subsequently installed on the site.

**1.04 SUBMITTALS**  
**A.** Source: Notify the Owner, in writing, of source of all material before delivery.  
**1.05 DELIVERY, STORAGE AND HANDLING**  
**A.** Root stock of the plant material shall be kept moist during transport from the source to the job site and until planted.  
**B.** Transport and handle plants so that foliage, roots, or balls are protected from breakage, sun and winds. Ties or roots of plants allowed to dry out or which have been damaged or disturbed root balls will cause for rejection.  
**1.06 DRAWINGS**  
**A.** The Contractor shall use quantities of wetland plants noted on the plant list.

**1.07 PROJECT CONDITIONS**  
**A.** Planting shall commence following approval of the as-built certification of the subject water quality facility.  
**B.** All emergent wetland plantings shall be installed between April 15 and June 30 or as directed by the Landscape Architect. Do not plant when ground is frozen. Do not use frozen planting soil at any time.

**1.08 DEFINITIONS**  
**A.** Start of Planting: Installation of plant material into excavated pits or beds.  
**B.** Payment Release Inspection: Conducted monthly by the Owner or designated representative to verify quantity only for partial payments to the Contractor. Payment release inspection does not waive any requirements of the standard of comparison or final acceptance clause.  
**C.** Initial Inspection: Conducted at the request of the Contractor and the Owner when 80% or more of all planting and related tasks are complete.  
**D.** Final Acceptance: Occurs when all plant material is in place in accordance with the specifications and approved by the Owner.  
**E.** Maintenance Period: From start of planting to final acceptance.  
**F.** Guarantee Period: From initial acceptance and continuing for 90 days thereafter, excluding the period from November 1 to April 15.  
**G.** Final Acceptance: Occurs after Contractor has completed all outstanding items, as determined by the Owner, at the end of the maintenance and guarantee period.

**1.09 GUARANTEE AND REPLACEMENT**  
**A.** All plants in an impaired, dead or dying condition prior to initial acceptance and prior to final acceptance shall be removed and replaced. Replacement material shall be the same size as other unplaced material considering growth that has occurred since original installation. Methods of installation shall be identical to the original. The Contractor shall guarantee 85% survivorship at the end of the guarantee period.  
**B.** Replacements shall be made between April 15 and June 30, the season following the initial planting, and shall conform to the planting specifications listed above.  
**C.** The contractor shall notify the Landscape Architect to arrange a site meeting to determine the replacement requirements, at the end of the guarantee period.

**PART 2 PRODUCTS**  
**2.01 PLANTS**  
**A.** Sound, healthy, vigorous, free from plant diseases, insect pests or their eggs.  
**B.** Plants cut back from larger sizes or pruned prior to delivery will not be accepted.  
**C.** It is anticipated that these plants will need to be obtained from a nursery source. Those plant species are normally unavailable from standard landscape nursery sources.  
**D.** Shape and Form: Plant materials shall be symmetrical and typical for the variety and species.  
**E.** Containers: The soil/root masses shall be thoroughly moist upon delivery to the job site. Any dry and light weight plants shall be rejected. If not planted immediately after being delivered to the job site, the plants shall be stored out of direct exposure to the sun and wind and their root masses maintained moist, through periodic watering, until the time of planting.

Until the removal of the plants from the containers, the soil/root masses shall be the size of the specified soil balls on the bottom of the containers, the plants will be rejected since they have not been grown sufficiently long in the containers to root into the soils contained therein.  
 The plants shall appear healthy with no leaf spots, leaf damage, leaf discolorations, leaf withering, or evidence of insects on the leaves.  
 The container size shall be at least as large as indicated in the specifications or shown in the plant table/notes. Plants shall not be rejected if supplied in containers larger than specified.

**F. Filter or Peat Pot:** If not planted immediately after being delivered to the job site, the plants shall be stored out of direct exposure to the sun and wind and their pots and associated root masses maintained moist, through periodic watering, until the time of planting.  
 The plants shall be well-rooted through the sides and bottoms of the pots and firmly contained therein.  
 Should the plants be removed from the pots by holding them from their tops and gently pulling on the pots, the plants shall be rejected.  
 If growing, the plants shall appear healthy with no foliar spots, discolorations, withering, or other evidence of the presence of disease or insects.

Plants shall not be rejected if supplied in pots larger than specified.  
 The number of plants, stems, or culms per pot, as specified or shown in the plant table/notes at least shall be present on the average or the plants shall be rejected.  
**G. Dormant Propagule (Herbaceous):** If not planted immediately after being delivered to the job site, the dormant propagules shall be stored out of direct exposure to the sun and wind, and they shall be protected by covering with straw, peat moss, compost, or other suitable materials and shall be maintained moist, through periodic watering, until the time of planting.  
 The bundles and shoots associated with the propagules shall have turgor or be rigid to the touch. If the bundles and/or shoots associated with the propagules are soft or mushy or appear rotten or decomposed, the plant materials shall be rejected.  
 Rhizome (stolon) sections shall provide a minimum of two shoots per section or Rhizome (stolon) sections containing at least a terminal shoot shall be a minimum of four inches in length (in order to ensure sufficient stored energy to support the new growth). Rhizome sections containing shoots that are soft or mushy or otherwise appear rotten shall not be accepted.  
 Cuttings shall contain a terminal shoot and be a minimum of four inches in length (in order to ensure sufficient stored energy to support the new growth).  
 Growing Bare Root Plants (Herbaceous): The plants shall contain new roots that are clean and white in coloration.  
 If not planted immediately after delivery to the job site, the plants shall be stored out of direct exposure to the sun and wind and the new roots shall be protected by the use of straw, peat moss, compost, or other suitable materials and shall be maintained moist, through periodic watering, until the time of planting.  
 The plants shall appear healthy with no foliar spots, discolorations, withering, or other evidence of the presence of disease or of insects.

**2.02 FERTILIZER**  
**A.** Plant Fertilizer: Slow release fertilizer such as Osmocote 19-6-12 analysis (3-4 month release) or equal approved by the Landscape Architect.  
**B.** Slow release fertilizer shall be applied at the time of planting and at the following rate:  
 All emergent plant material - planting pit application of 1 oz. per container or bare root plant.  
 If applied, quantities recommended by the Department of Agriculture shall not be exceeded.  
**D.** Fertilizer shall be delivered to the site in the original unopened containers with formulas attached.

**3.01 PREPARATION**  
**A.** Plant Locations: As shown on the Drawings, to dimensions if shown, to scale if not dimensioned. Locations subject to review by the Landscape Architect before starting excavation.  
**B.** No plant material shall be installed until the Landscape Architect has approved the finish grade of the planted areas.  
**3.02 PLANTING PROCEDURES**  
**A.** Set plants straight and plumb.  
**B.** Plant material shall be planted in existing soil with each planting pit excavated to size sufficient to contain the entire root stock or root mass without crowding.  
**C.** Where water is not available on-site, the Contractor shall furnish sufficient quantities to complete the work at no additional cost to the Owner.

**3.04 CLEAN-UP**  
**A.** During planting operations, excess and waste materials shall be removed from the site on a daily basis.  
**B.** Repair turf areas and other existing conditions damaged during planting operations, including regrading, seed, mulch and fertilization to the satisfaction of the Owner.  
**3.05 MAINTENANCE**  
**A.** Watering of plant material shall take place at the end of each of fourteen (14) consecutive days after planting has been completed. The watering shall completely saturate the soil and partially immerse the plant material.  
**B.** During maintenance period, on approximately the 1st and 15th of each month, the Contractor shall provide sufficient supervision, equipment, materials and manpower to:  
 1. Keep all plants in a healthy growing condition by watering when necessary, removing dead or dying branches, controlling insect infestations, removing sprouts, weeding.  
 2. Remove and replace dead or damaged plant material. Where replacement is not possible due to season, remove dead material, etc. and level pit until planting is possible.  
**C.** Notify Owner for review of activities prior to initiating maintenance operations each month.

**Legend**

- ADJACENT PROPERTY LINE
- - - EXISTING CONTOURS
- - - EXISTING SPOT ELEVATION
- PROPOSED CONTOURS
- 100 YR. WATER SURFACE ELEVATION
- E OF EXISTING STREAM
- EXISTING TREE LINE
- WETLAND BUFFER
- LIMIT OF WETLANDS
- PROPOSED ROAD
- EX. EDGE OF ROAD
- EXISTING BUILDINGS
- ⊠ BCE OVERHEAD ELECTRIC TOWERS
- PROPOSED LOT LINES
- PROPOSED LOT NUMBERS
- PROPERTY BOUNDARY
- PROPOSED ROAD R/W LINES
- STREAM BUFFER
- NON-WOODY VEGETATION LIMIT
- TCE OF EMBANKMENT SLOPE
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William T. Osh...* Co-18-09 Date  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*R. ...* 4/23/04 Date  
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: *[Signature]* 4/22/04 Date  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description
------	-----	----------------------

**Emerson Section 2**  
 Phase 5A  
 Section 3 - Area 3

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044

**DMW**  
 Date: **5/17/04**  
 Richard Charles...  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

AREA	TAX MAP 47	PARCEL
	6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND	
TITLE	<b>FINAL LANDSCAPE PLAN STORMWATER MANAGEMENT POND</b>	
Des By	MRT	Scale 1"=50'
Drn By	KDE	Date 5/18/04
Chk By	[Signature]	Approved

Proj. No. 95054.G2  
 28 OF 29  
 Landscape Architect No. *[Signature]*  
 F-04-53

**SWM Plant List**

QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
6	AR	AGER RUBROM 'RED SUNSET' / RED SUNSET RED MAPLE	2 1/2" - 3" CAL. / 12'-9" HT.	B & B FULL HEAD
5	QP	QUERCUS PALUSTRIS / PIN OAK	2 1/2" - 3" CAL. / 12'-9" HT.	B & B FULL HEAD
4	QR	QUERCUS RUBRA / RED OAK	2 1/2" - 3" CAL. / 12'-9" HT.	B & B FULL HEAD
23	FS	FINUS STROBUS / WHITE PINE	6'-6" HT.	B & B HEAVY / UNSHEARED
6	BN	BETULA NIGRA / RIVER BIRCH	8'-10" HT.	B & B

Water Quality Planting Plan Facility #2

Species	Size	Spacing	Quantity	Remarks
Scirpus tabernaemontani	quart container*	36"	300	0.81
Iris pseudacorus	quart container*	36"	300	0.81
Iris versicolor	quart container*	36"	300	0.81
TOTALS			600	

Species	Size	Spacing	Quantity	Remarks
Sagittaria latifolia	quart container*	36"	175	0.81
Polygonum virginica	quart container*	36"	355	0.81
TOTALS			530	

\* Dormant rhizomes of Scirpus, Iris and Saururus, dormant tubers of Sagittaria, and 1st year bulbs of Polygonum may be substituted if plantings are to be installed during dormant season.

**SCHEDULE D  
STORMWATER MANAGEMENT  
AREA LANDSCAPING**

POND #	2
LINEAR FT OF PERIMETER (TYPE 'B')	1374 LF
NUMBER OF TREES REQUIRED	18
SHADE TREES @ 150 LF	22
EVERGREEN TREES @ 140 LF	
CREDIT FOR EXISTING VEGETATION	465
CREDIT FOR OTHER LANDSCAPING	NA
NUMBER OF TREES PROVIDED**	18+
SHADE TREES	23
EVERGREEN TREES	0
SHRUBS	

\*\* THE DEVELOPER WILL PROVIDE ALL SWM LANDSCAPE OBLIGATIONS  
 \*\* SIX FLOWERING TREES HAVE BEEN SUBSTITUTED FOR THREE SHADE TREES

# Landscape Notes

- The contractor shall review architectural/engineering plans to become thoroughly familiar with grading and surface utilities.
- All equipment and tools shall be placed so as not to interfere or hinder the pedestrian and vehicular traffic flow. See Seasonal Plans List for planting times of bulbs and seasonal plants.
- The contractor shall coordinate with lighting and irrigation contractors regarding timing of installation of plant material.
- The contractor shall insure that his work does not interrupt established or projected drainage patterns.
- During planting operations, excess waste materials shall be promptly and frequently removed from the site.
- 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 contractor shall be held responsible for all damage to utilities and such damage shall not result in any additional expenses to the owner.
- If utility lines are encountered in 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.
- Maintain positive drainage out of planting beds at a minimum 2% slope. All grades, dimensions, and existing conditions shall be verified by the contractor on site before construction begins. Any discrepancies shall be brought to the attention of the landscape architect or owner.
- Every possible safeguard shall be taken to protect building surfaces, equipment, and furnishings. The contractor shall be responsible for any damage or injury to person or property which may occur as a result of his negligence in the execution of the work.
- In the event of variation between quantities shown on the plant list and the plans, the plans shall control. The contractor is responsible for verifying all plant quantities prior to the commencement of work. Good quantity take-offs are the responsibility of the contractor. All discrepancies shall be reported to the landscape architect for clarification prior to bidding. The contractor shall furnish plant material in sizes as specified in plant list.
- The contractor shall stake all material located on the site for review and/or adjustment by the landscape architect prior to planting. All locations are to be approved by the landscape architect before excavation.
- Plants shall conform to current "American Standards for Nursery Stock" by American Association of Nurserymen (AAN), particularly with regard to size, growth, size of ball, and density of branch structure. Plant material shall be tagged at the source by the landscape architect unless this requirement is specifically waived.
- All plants (B&B or container) shall be properly identified by weather-proof labels securely attached thereto 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.
- Any material and/or work may be rejected by the landscape architect if it does not meet the requirements of the specifications. All rejected materials shall be removed from the site by the contractor.
- No substitutions shall be made without written consent of the owner or landscape architect.
- The landscape architect or owner shall have the right, at any stage of the operations, to reject any and all work and material which, in his opinion, does not meet the requirements of these plans and specifications.
- The contractor shall be wholly responsible for stability and conditions of all trees and shrubs and shall be legally liable for any damage caused by instability of any plant materials.
- All proposed trees to be installed either entirely in or entirely out of planting beds. Planting bed lines are not to be obstructed. All shrubs and ground cover areas shall be planted in continuous prepared bed and top dressed with 3-inch shredded hardwood mulch. Mulch shall have been stratified within the last six months.
- All planting beds adjacent to lawn, sod, or seeded areas shall be spade edged.
- 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 includes moving of turf, 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 continued maintenance if requested by the owner.
- Upon completion of all landscaping, an acceptance 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.
- All trees shall be guaranteed for 12 months from the date of acceptance. All shrubs and ground covers shall be guaranteed for 12 months from the date of acceptance.

## Plant List

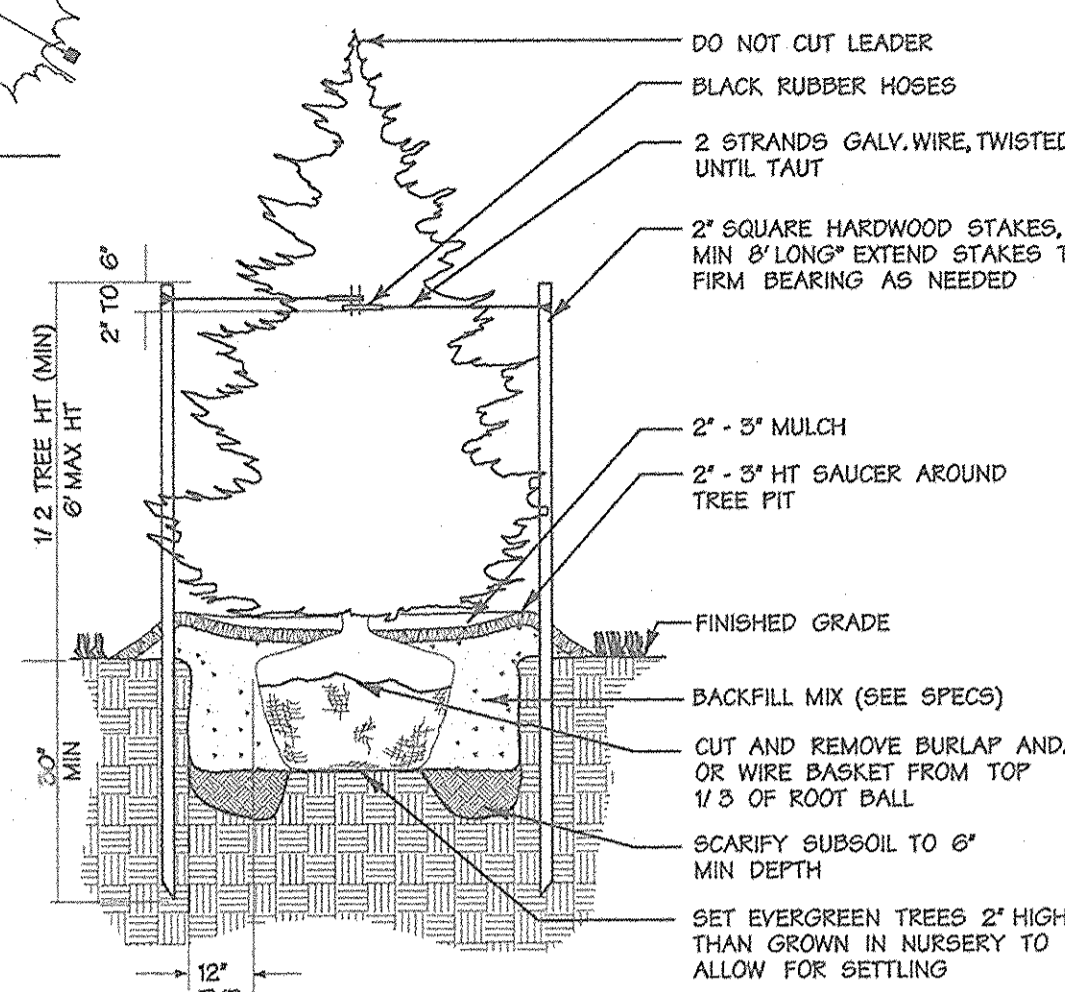
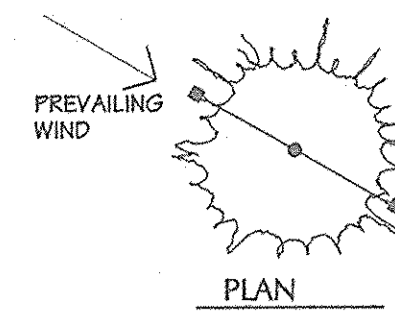
QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
<b>SHADE TREES</b>				
20	AS	ACER SACCHARUM 'GREEN MOUNTAIN' / GREEN MOUNTAIN SUGAR MAPLE	2 1/2" - 3" CAL. 12'-14" HT	B & B FULL HEAD
17	FA	FRAXINUS PENNSYLVANICA 'MARSHALLS SEEDLESS ASH' / MARSHALLS SEEDLESS ASH	2 1/2" - 3" CAL. 12'-14" HT	B & B FULL HEAD
20	QP	QUERCUS PALUSTRIS / PIN OAK	2 1/2" - 3" CAL. 12'-14" HT	B & B FULL HEAD
<b>EVERGREEN TREES</b>				
9	IO	ILEX OPACA / AMERICAN HOLLY	6'-8" HT.	B & B
42	PA	PICEA ABIES / NORWAY SPRUCE	6'-8" HT.	B & B
31	PS	PINUS STROBUS / WHITE PINE	6'-8" HT.	B & B HEAVY / UNHEALED

### General Planting Notes

- All plant material to meet A.A.N. standards.
- Landscape Contractor to follow landscape specification guidelines for Baltimore Washington Metro area approved by LCAMW.
- No substitutions to be made without consent of Landscape Architect or Owner.
- All beds to be topped with three inches of hardwood mulch.
- Landscape Contractor to verify location of utilities with Owner before planting.
- Landscape Architect/Owner shall select, verify and/or approve all plant material. At Owner's discretion, specimen and other plant material will be selected.
- Landscape Contractor shall coordinate plant bed filling operations and plant material installation with General Contractor and Utilities Contractor. At the time of final inspection with acceptance, all electric, water, drainage, and fountain utilities, as well as all plant materials, shall remain undamaged. Likewise, Landscape Contractor and Utilities Contractor shall coordinate efforts to ensure that surface utilities are at the proper elevation relative to final grades.
- Contractor shall notify Miss Utility 72 hours prior to construction.
- The owner, tenant, and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.
- This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho.Co. code. Financial surety for the required landscaping in the amount of \$30,250.00 must be posted as part of the developer's agreement. (BO shade, 95 evergreens).
- Developer's/Builder's Certificate

I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County code and the Howard County Landscape Manual. I/we further certify that upon completion, a certification of landscape installation, accompanied by an executed one-year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

NAME: Paul G. Cavanagh  
DATE: 5/14/04

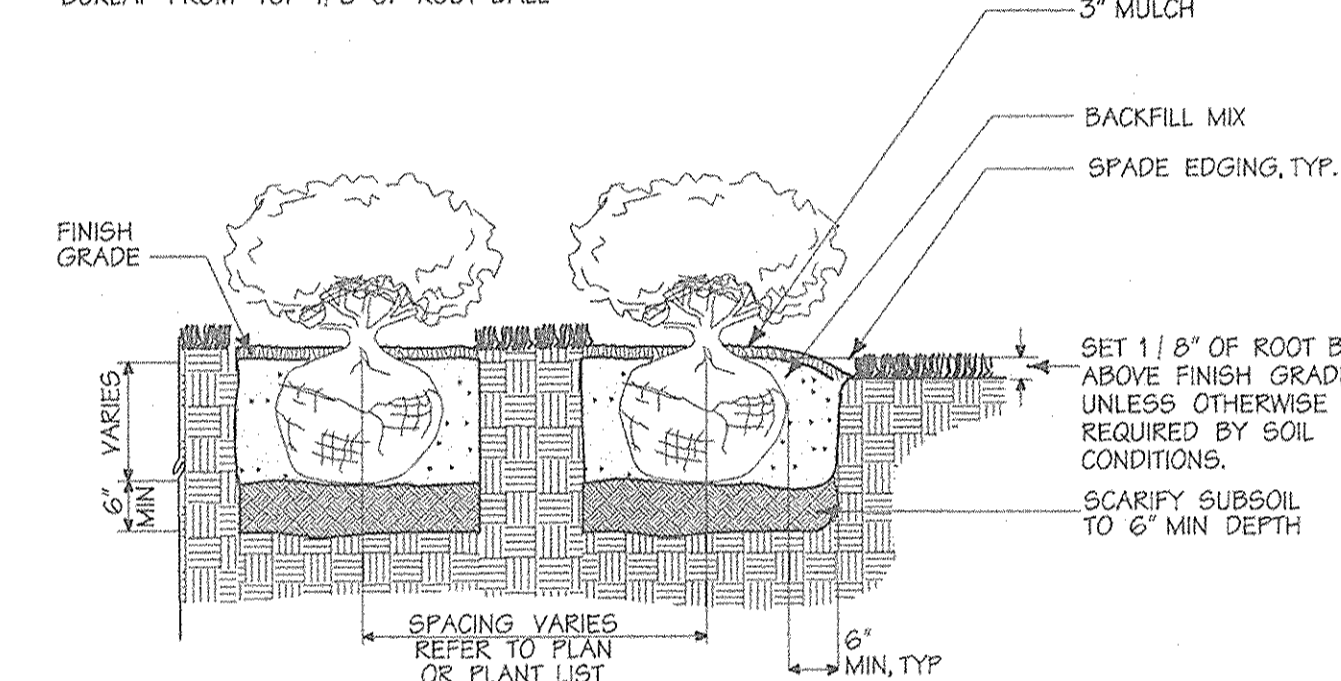


### Evergreen Tree Planting

Not To Scale

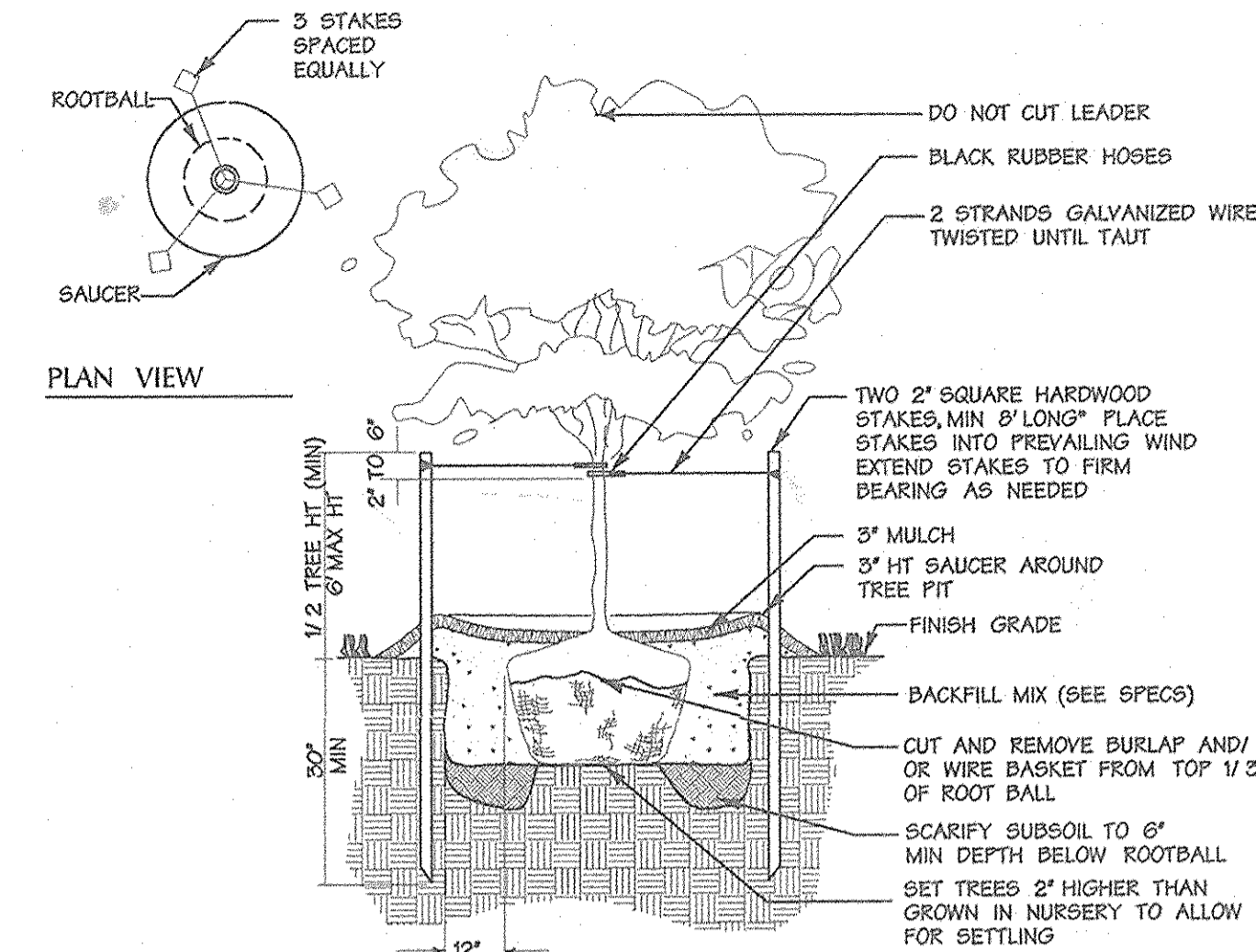
#### NOTES:

- FOR CONTAINER SHRUBS, COMPLETELY REMOVE ALL NON-BIODEGRADABLE CONTAINERS AND SCARIFY ROOTBALL BY USING A SHARP BLADE AND MAKING 4 TO 5 ONE INCH CUTS THE LENGTH OF THE ROOTBALL.
- FOR B&B SHRUBS, CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOT BALL.



### Shrub Planting

Not To Scale

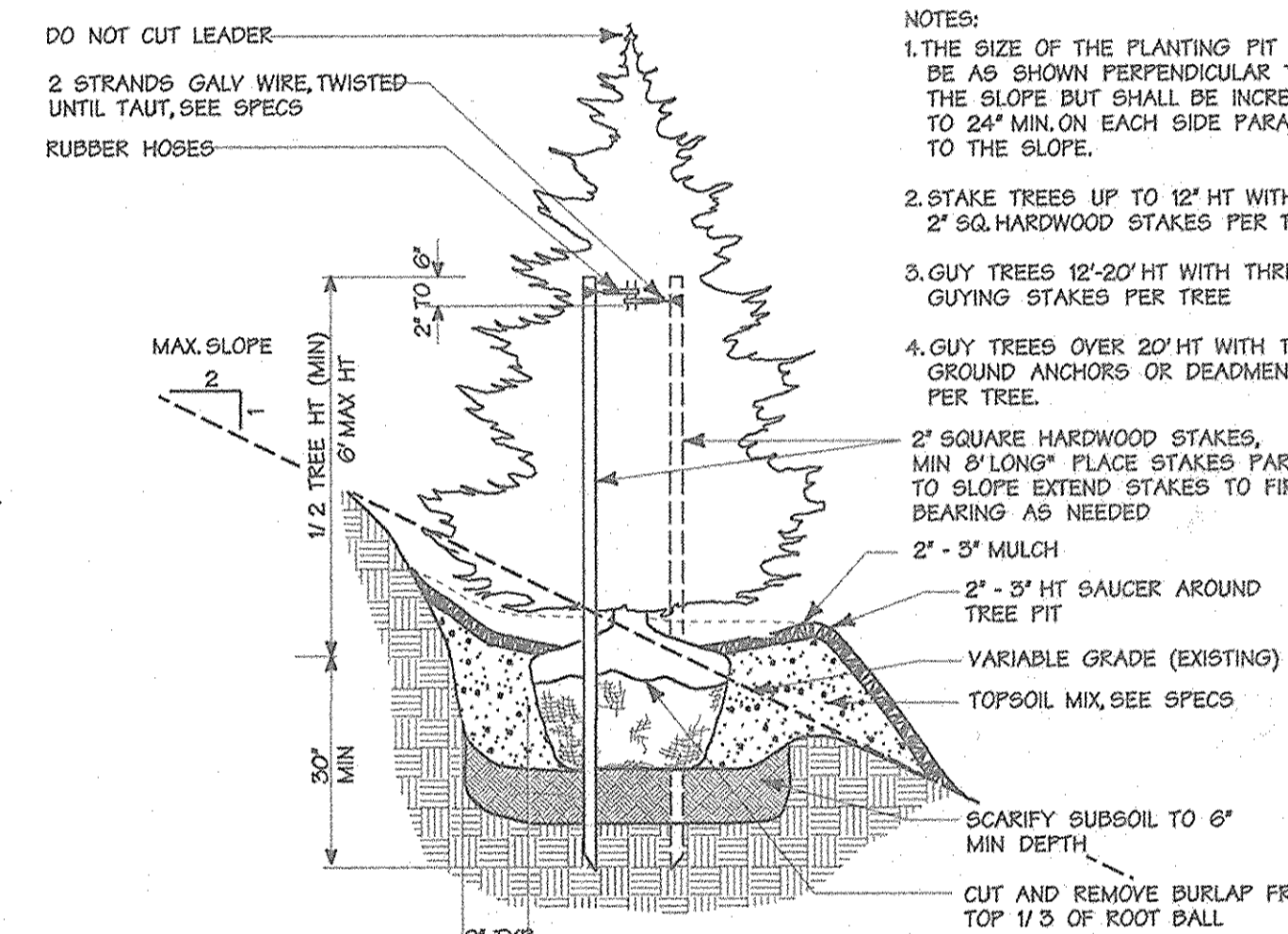


### Less Than 3" Cal. Tree Planting

Not To Scale

#### NOTES:

- THE SIZE OF THE PLANTING PIT SHALL BE AS SHOWN PERPENDICULAR TO THE SLOPE BUT SHALL BE INCREASED TO 24" MIN ON EACH SIDE PARALLEL TO THE SLOPE.
- STAKE TREES UP TO 12' HT WITH TWO 2" SQ. HARDWOOD STAKES PER TREE.
- GUY TREES 12'-20' HT WITH THREE GUYING STAKES PER TREE.
- GUY TREES OVER 20' HT WITH THREE GROUND ANCHORS OR DEADMEN PER TREE.
- 2" SQUARE HARDWOOD STAKES, MIN 8" LONG\* PLACE STAKES PARALLEL TO SLOPE EXTEND STAKES TO FIRM BEARING AS NEEDED.
- 2' - 3" MULCH
- 2' - 3" HT SAUCER AROUND TREE PIT
- VARIABLE GRADE (EXISTING)
- TOPSOIL MIX, SEE SPECS
- SCARIFY SUBSOIL TO 6" MIN DEPTH
- CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOT BALL

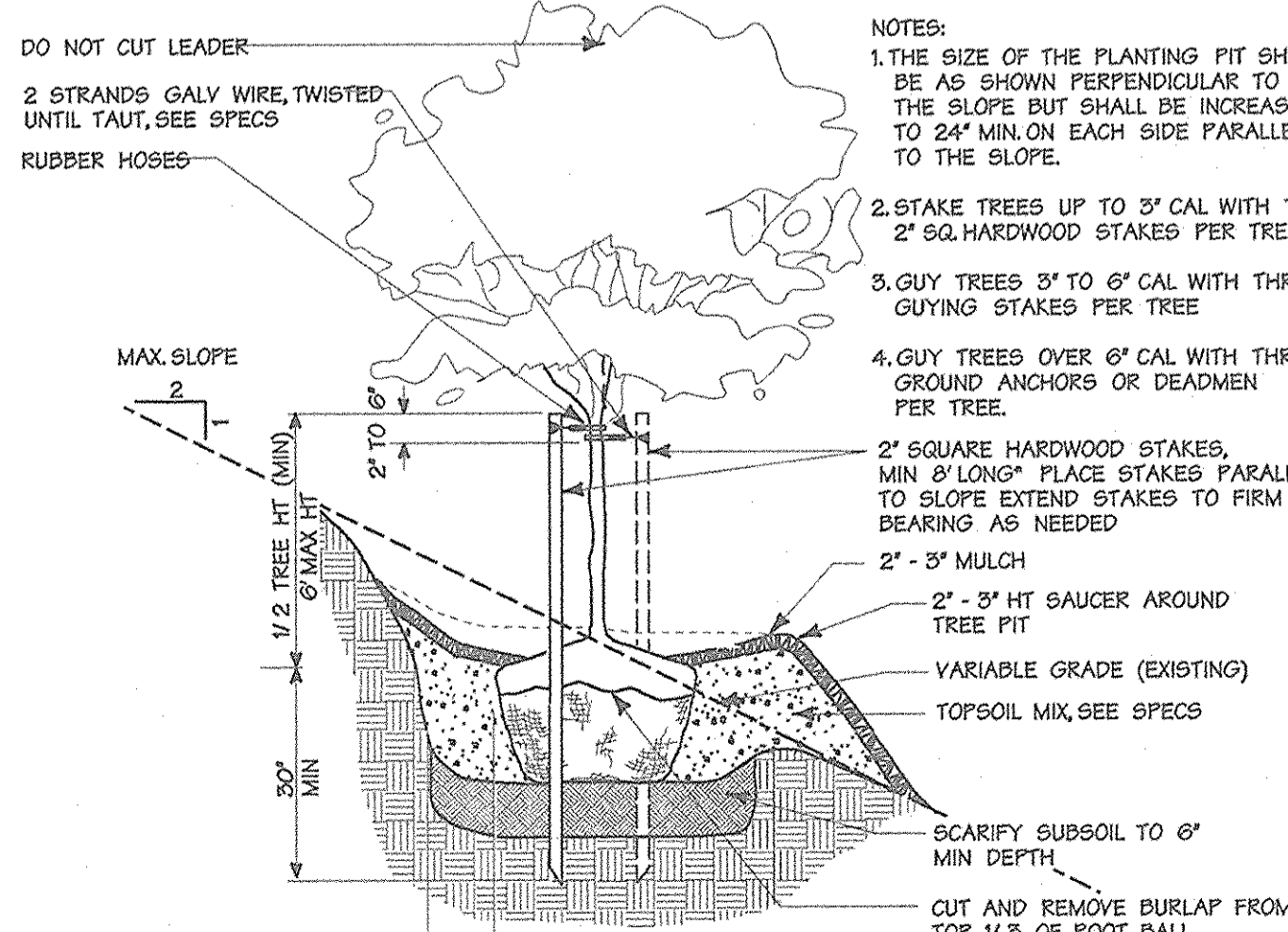


### Evergreen Tree Planting on Slope

Not To Scale

#### NOTES:

- THE SIZE OF THE PLANTING PIT SHALL BE AS SHOWN PERPENDICULAR TO THE SLOPE BUT SHALL BE INCREASED TO 24" MIN ON EACH SIDE PARALLEL TO THE SLOPE.
- STAKE TREES UP TO 3' CAL WITH TWO 2" SQ. HARDWOOD STAKES PER TREE.
- GUY TREES 3' TO 6' CAL WITH THREE GUYING STAKES PER TREE.
- GUY TREES OVER 6' CAL WITH THREE GROUND ANCHORS OR DEADMEN PER TREE.
- 2" SQUARE HARDWOOD STAKES, MIN 8" LONG\* PLACE STAKES PARALLEL TO SLOPE EXTEND STAKES TO FIRM BEARING AS NEEDED.
- 2' - 3" MULCH
- 2' - 3" HT SAUCER AROUND TREE PIT
- VARIABLE GRADE (EXISTING)
- TOPSOIL MIX, SEE SPECS
- SCARIFY SUBSOIL TO 6" MIN DEPTH
- CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOT BALL



### Tree Planting on Slope

Not To Scale

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

William J. Gabel 6-18-04  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Kathleen L. Brown 6/23/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Michael J. ... 6/23/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

## Emerson Section 2 Phase 5A Section 3 - Area 3

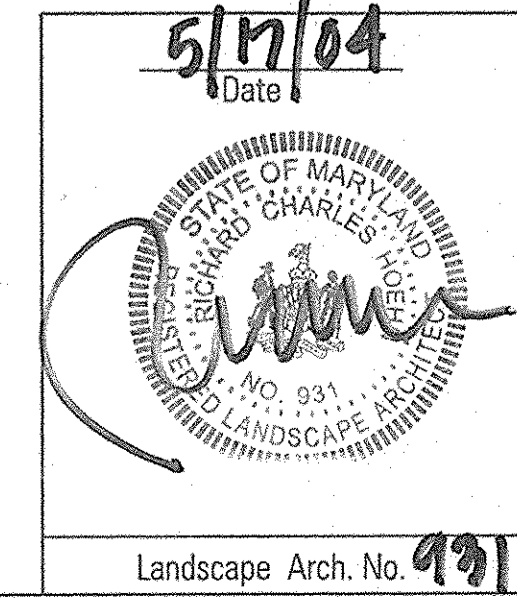
OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044

**DMW**  
Date McCune Walker, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-1333  
Fax 296-4703  
A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

AREA TAX MAP 47 PARCEL 837  
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

### FINAL LANDSCAPE & STREET TREE NOTES AND DETAILS

Des By: MRT Scale: 4" = 50' Proj. No.: 95054.02  
Dwn By: ECV Date: 5/18/04  
Chk By: MM Approved: 29 OF 29



Landscape Arch. No. 931  
F-04-53