

**Legend**

WETLAND	HEAD OF STREAM
25' WETLAND BUFFER	STREAM BANK
WETLAND SYMBOL	50' STREAM BUFFER
	PUBLIC 100 YEAR FLOOD PLAIN, DRAINAGE AND UTILITY EASEMENT
EX. CURB & GUTTER	---
EX. MAJOR CONTOURS	--- 400 ---
EX. MINOR CONTOURS	--- 402 ---
PROP. STORM DRAIN	15" RCP CL. IV
PROP. SEWER	6" S.
PROP. WATER	4" W.
EX. STORM DRAIN	EX. 21" RCP
EX. SEWER	EX. 6" S.
EX. WATER	EX. 4" W.
UTILITY EASEMENTS	---
LIMIT OF DISTURBANCE	---
PROPOSED SHADE TREE	○
PROPOSED FLOWERING TREE	○
PROPOSED EVERGREEN TREE	○
PROPOSED STREET TREE	○
SOIL LABEL	MIC2
SOIL BOUNDARY	---
SLOPES >25%	█
SLOPES 15%-25%	█
EX. FOREST EDGE	---
SCRUBS/SHRUBS/HEDGEROW OR TREE GROUP	---
PROPOSED WOODS EDGE	---
NON-WOODY VEGETATION BUFFER	---
FOREST CONSERVATION EASEMENT LINE	---
REFORESTATION AREA	---
EARTH/DIVERSION DIKE	---
SILT FENCE	--- SF ---
SUPER SILT FENCE	--- SSF ---
CLEAN WATER DIVERSION PIPE	---
LIMIT OF DISTURBANCE	---
PROPOSED S.E.C. BASIN FACILITY	---
PROPOSED SEDIMENT TRAP	---
MOUNTABLE BERM	---
SANDBAG DIVERSION	---
CURB INLET PROTECTION	---
REMOVABLE PUMPING STATION	---
STABILIZED CONSTRUCTION ENTRANCE	---
GABION MATTRESS INFLOW PROTECTION	---
DEWATERING BASIN	---
PERMANENT SWALE	---
PROPOSED SWM EASEMENT	---
PROPERTY LINE	---
ROADWAY RIGHT-OF-WAY	---
PROPOSED LOT LINE	---
EXISTING CONDITION DRAINAGE AREA TO TRAPS AND BASINS	---
INTERIM CONDITION DRAINAGE AREAS	---
PROPOSED CONDITION DRAINAGE AREAS	---
EXISTING CONDITION TO PATH	---
PROPOSED CONDITION TO PATH	---
SOIL BORING	---
EARTH DIKE	---
PROPOSED SWM EASEMENT	---

**THE PURPOSE OF REVISION #2 IS:**  
 1. SHOW THE EMERSON CAMPUS SECURITY FENCE.  
 2. ADD ADDITIONAL DRAWING SHEETS ASSOCIATED WITH THE PROPOSED EMERSON CAMPUS SECURITY FENCE.

**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 streets 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 herein 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. 24-4014D drainage area
- Sewer is public, contract no. 24-4014D drainage area
- Stormwater Management for this project will be addressed with the installation of four Stormwater Management Facilities which will control the runoff per the latest approved Design Standards. The facilities will be wet, extended detention ponds. They will be owned by the Property Owners Association but maintained by Howard County.

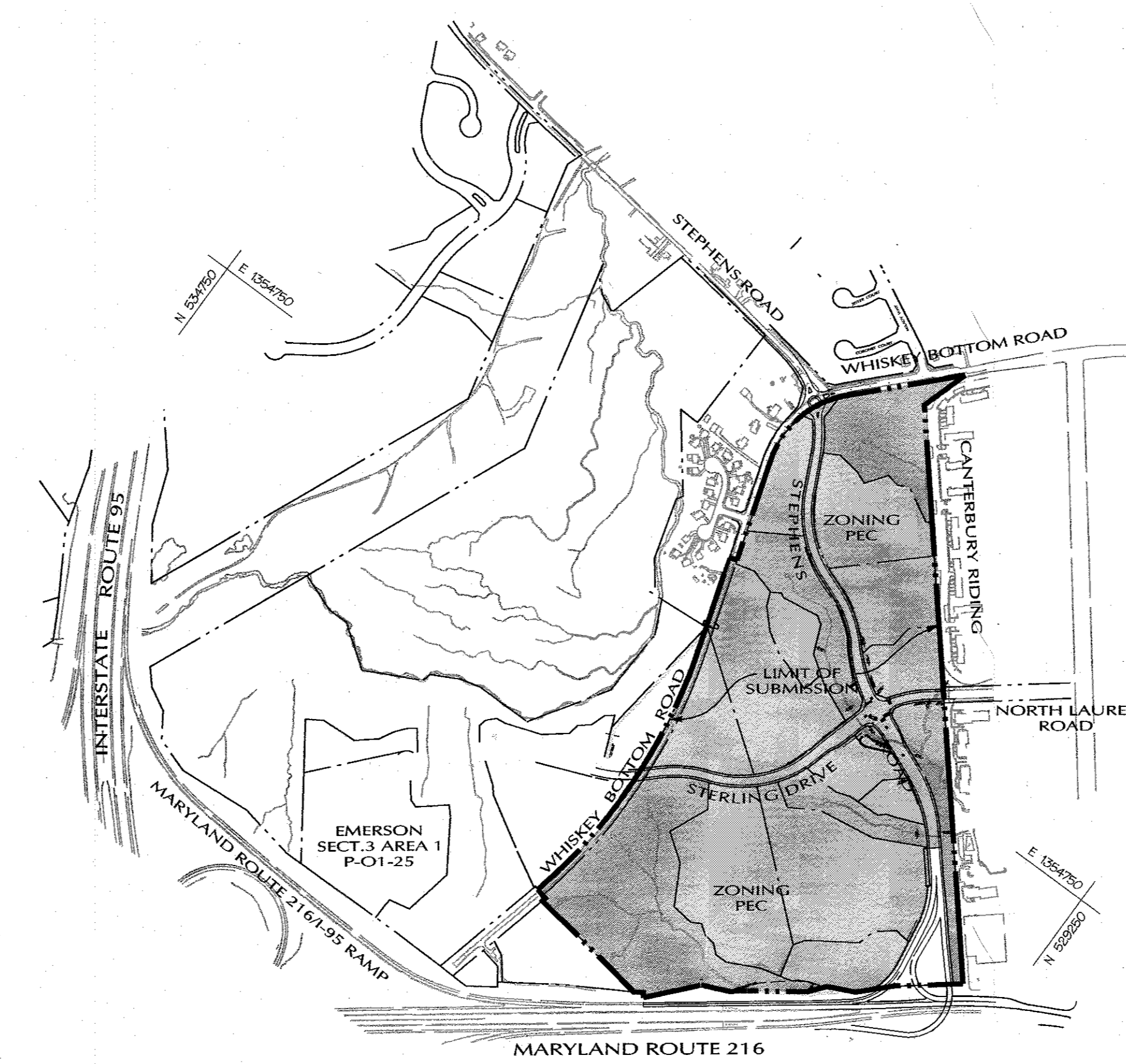
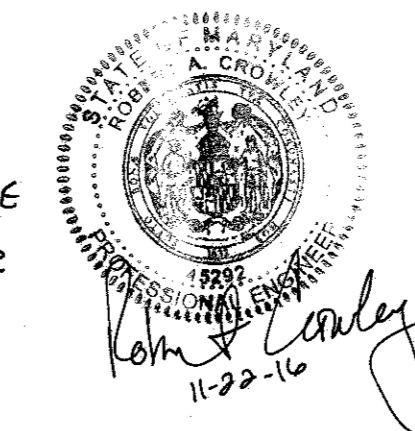
# Final Plan for Revitz Property

Howard County Maryland

**THE PURPOSE OF REVISION #3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP, SP-16-005**

**PROFESSIONAL CERTIFICATION FOR REV #3**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 05/21/2018

*John S. Carley*  
 11-22-16

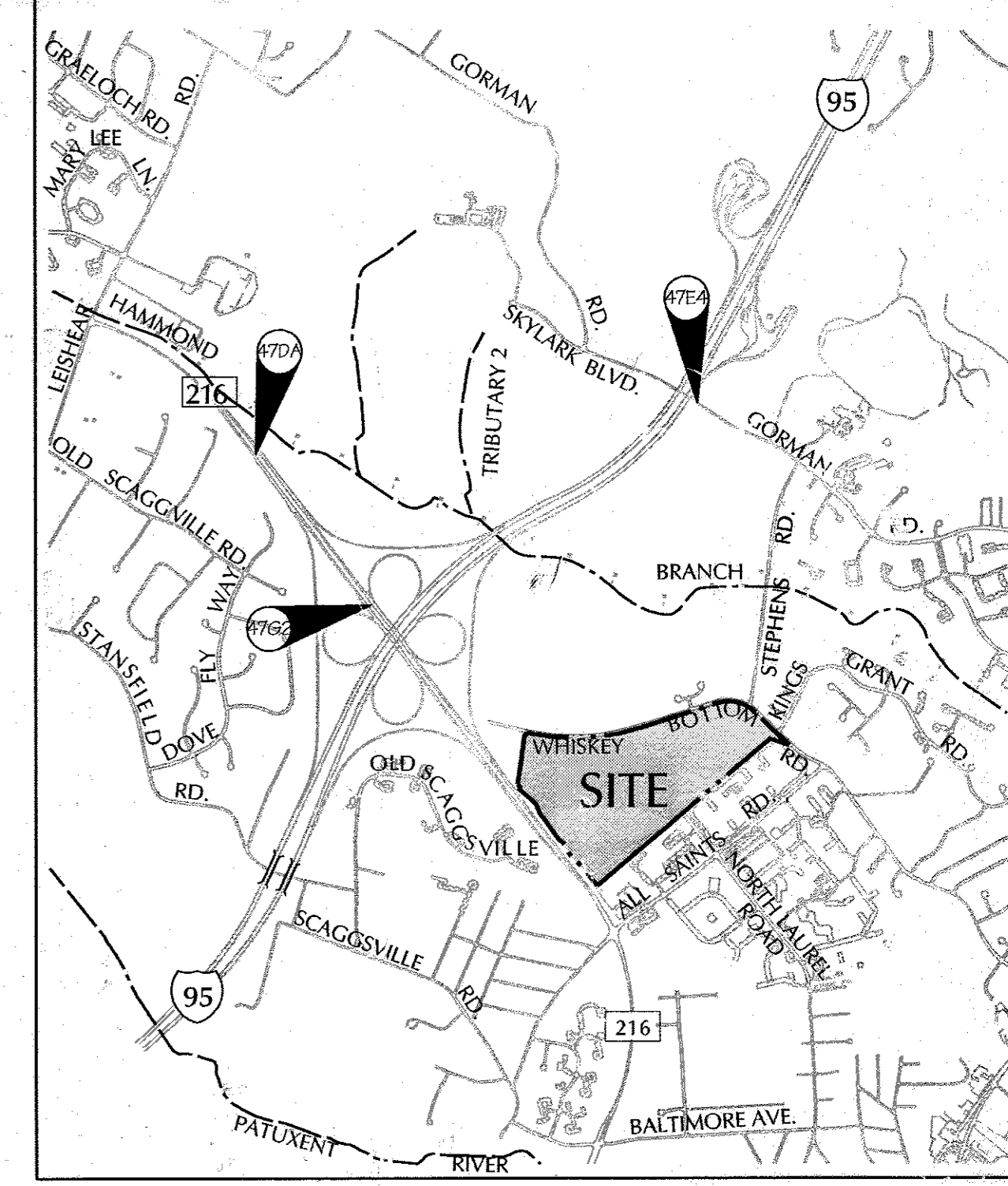


**Overall Property Outline**  
 Scale: 1"=600'

**SHEET INDEX CONTINUED**  
 57A FENCE LAYOUT PLAN  
 57B SITE DETAILS  
 57C SITE DETAILS  
 57D SITE DETAILS

**Sheet Index**

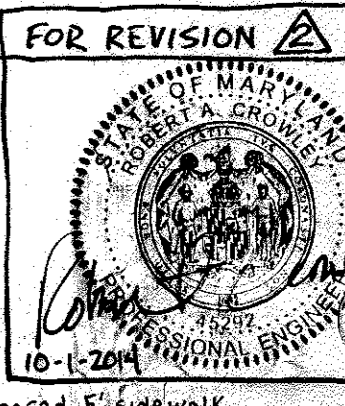
SHEET	DESCRIPTION
1	COVER SHEET
2	ROAD CONSTRUCTION PLAN - STEPHENS ROAD & STA. 0+00 - 11+00
3	ROAD CONSTRUCTION PLAN - STEPHENS ROAD & STA. 11+00 - 23+50
4	ROAD CONSTRUCTION PLAN - STEPHENS ROAD & STA. 23+50 - 29+00
5	ROAD CONSTRUCTION PLAN - WHISKEY BOTTOM ROAD
6	ROAD CONSTRUCTION PLAN - NORTH LAUREL ROAD & STA. 0+00 - 12+00
7	ROAD CONSTRUCTION PLAN - STERLING DRIVE & STA. 12+00 - 19+85.45
8	ROUNDABOUT DETAILS
9	ROUNDABOUT CURB PROFILES
10	STEPHENS RD - STERLING DR. INTERSECTION DETAILS
11	LANE MARKING PLAN - WHISKEY BOTTOM RD - STEPHENS DR.
12	LANE MARKING PLAN - STERLING DRIVE
13	ROAD CONSTRUCTION DETAILS
14	MAINTENANCE OF TRAFFIC PLAN
15	STORM DRAIN DRAINAGE AREA MAP
16	STORM DRAIN PROFILES
17	STORM DRAIN PROFILES
18	STORM DRAIN PROFILES
19	SEDIMENT & EROSION CONTROL DRAINAGE AREA MAP
20	SEDIMENT & EROSION CONTROL DRAINAGE AREA MAP
21	GRADING, SEDIMENT & EROSION CONTROL PLAN
22	GRADING, SEDIMENT & EROSION CONTROL PLAN
23	GRADING, SEDIMENT & EROSION CONTROL PLAN
24	GRADING, SEDIMENT & EROSION CONTROL PLAN
25	GRADING, SEDIMENT & EROSION CONTROL PLAN
26	GRADING, SEDIMENT & EROSION CONTROL PLAN
27	GRADING, SEDIMENT & EROSION CONTROL - BASIN VI PLAN
28	GRADING, SEDIMENT & EROSION CONTROL - BASINS III, IV, V
29	GRADING, SEDIMENT & EROSION CONTROL DETAILS
30	GRADING, SEDIMENT & EROSION CONTROL DETAILS
31	GRADING, SEDIMENT & EROSION CONTROL DETAILS
32	GRADING, SEDIMENT & EROSION CONTROL DETAILS
33	GRADING, SEDIMENT & EROSION CONTROL SPECIFICATIONS
34	STORM WATER MANAGEMENT DRAINAGE AREA MAP
35	STORM WATER MANAGEMENT DRAINAGE AREA MAP
36	STORM WATER MANAGEMENT PLAN - PONDS III, IV, V PLAN
37	STORM WATER MANAGEMENT PLAN - POND VI PLAN
38	STORM WATER MANAGEMENT PLAN - POND III DETAILS
39	STORM WATER MANAGEMENT PLAN - POND IV DETAILS
40	STORM WATER MANAGEMENT PLAN - POND V DETAILS
41	STORM WATER MANAGEMENT PLAN - POND V DETAILS
42	STORM WATER MANAGEMENT PLAN - POND V DETAILS
43	STORM WATER MANAGEMENT PLAN - DETAILS & SPECIFICATIONS
44	STORM WATER MANAGEMENT PLAN - BORING LOGS
45	STORM WATER MANAGEMENT PLAN - BORING LOGS
46	LANDSCAPE PLAN
47	LANDSCAPE PLAN
48	LANDSCAPE PLAN - PONDS III & IV
49	LANDSCAPE PLAN - PONDS V & VI
50	LANDSCAPE NOTES & DETAILS
51	FINAL FOREST CONSERVATION PLAN
52	FINAL FOREST CONSERVATION PLAN
53	FINAL FOREST CONSERVATION PLAN
54	FINAL FOREST CONSERVATION PLAN
55	FINAL FOREST CONSERVATION PLAN
56	FINAL FOREST CONSERVATION PLAN
57	FINAL FOREST CONSERVATION DETAILS



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

**Benchmark Description**

COORDINATES IN MARYLAND NAD83(91) (HORIZONTAL) AND NGVD29 (VERTICAL) DATUMS.
470A NORTHING: 163191.9104 EASTING: 412665.759 ELEVATION: 315.905 ft.
47E4 NORTHING: 163326.2295 EASTING: 413136.2950 ELEVATION: 338.909ft.
47G2 NORTHING: 162440.1212 EASTING: 418539.279 ELEVATION: 364.210ft.



**PROFESSIONAL CERTIFICATION FOR REV. #2**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 05/21/2018

The purpose of revision #2 is to show the proposed 5' sidewalk along Sterling Drive in front of Parcel D.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	10-10-02
<i>William J. Mahoney</i> CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	10/22/02
<i>Cindy Hornat</i> CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Mike</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
05/23/15	EMERSON CAMPUS VCP
10/1/14	CAMPUS PERIMETER SECURITY FENCE
2-7-11	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	Revision Description

**REVITZ PROPERTY**

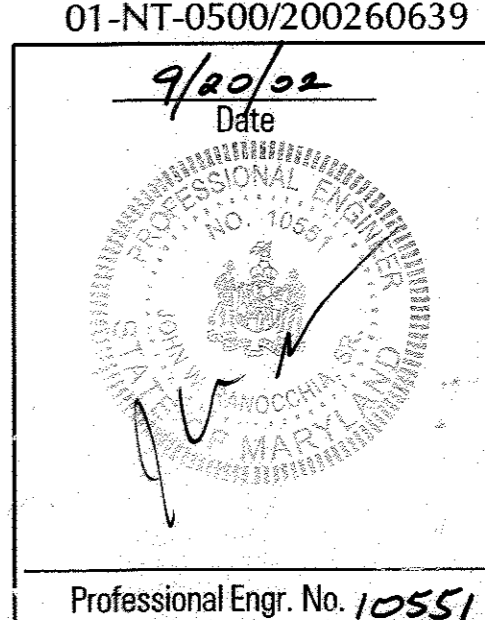
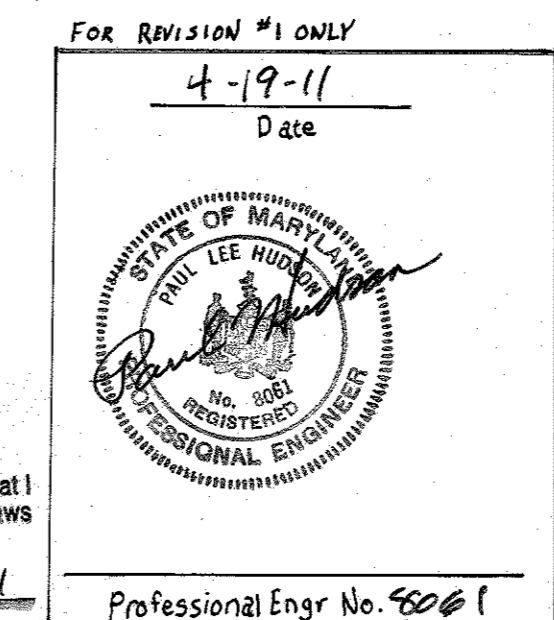
OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Daft-McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax: 296-4705

REVISION NAME	REVITZ PROPERTY	REVISION NO.	165 & 160 PAR. 837
PLAT OR LOT	226/436	BOOK #	20
SECTION	PEC	DATE	6/11/02
DATE	9/20/02	DATE	9/19/02

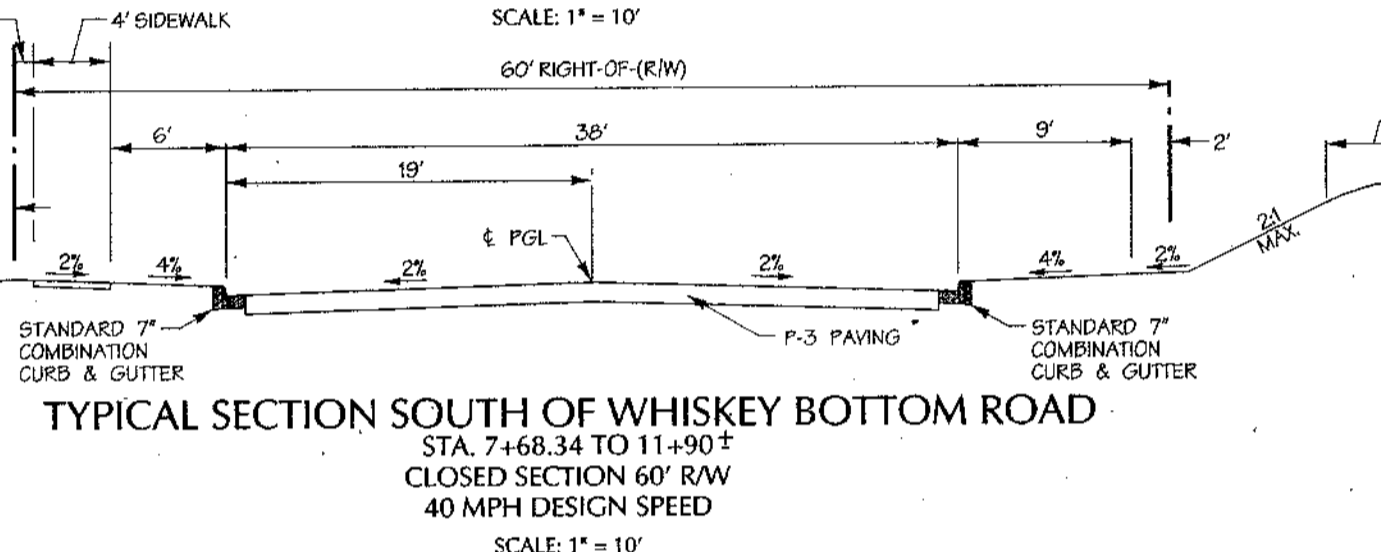
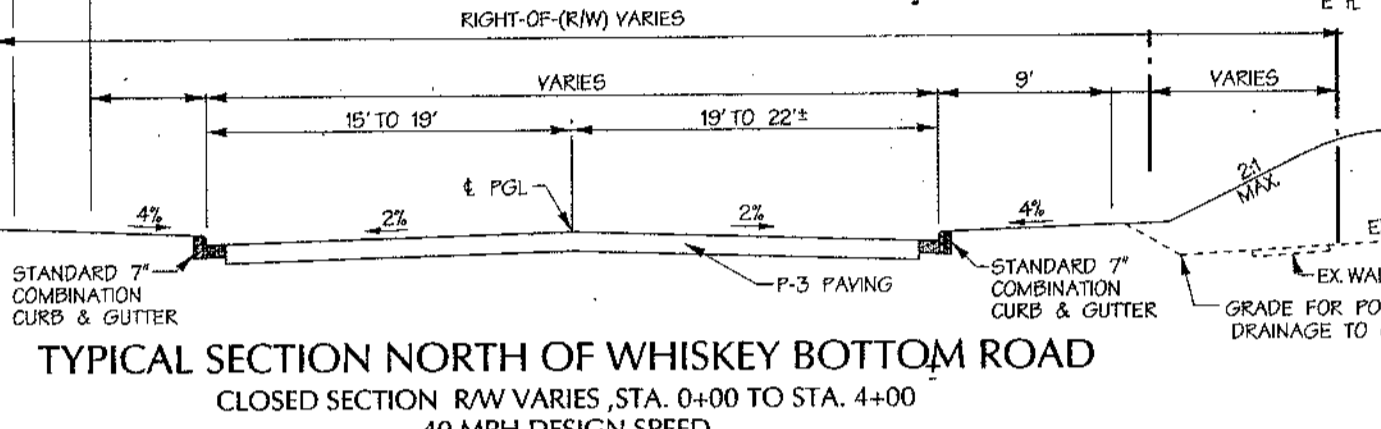
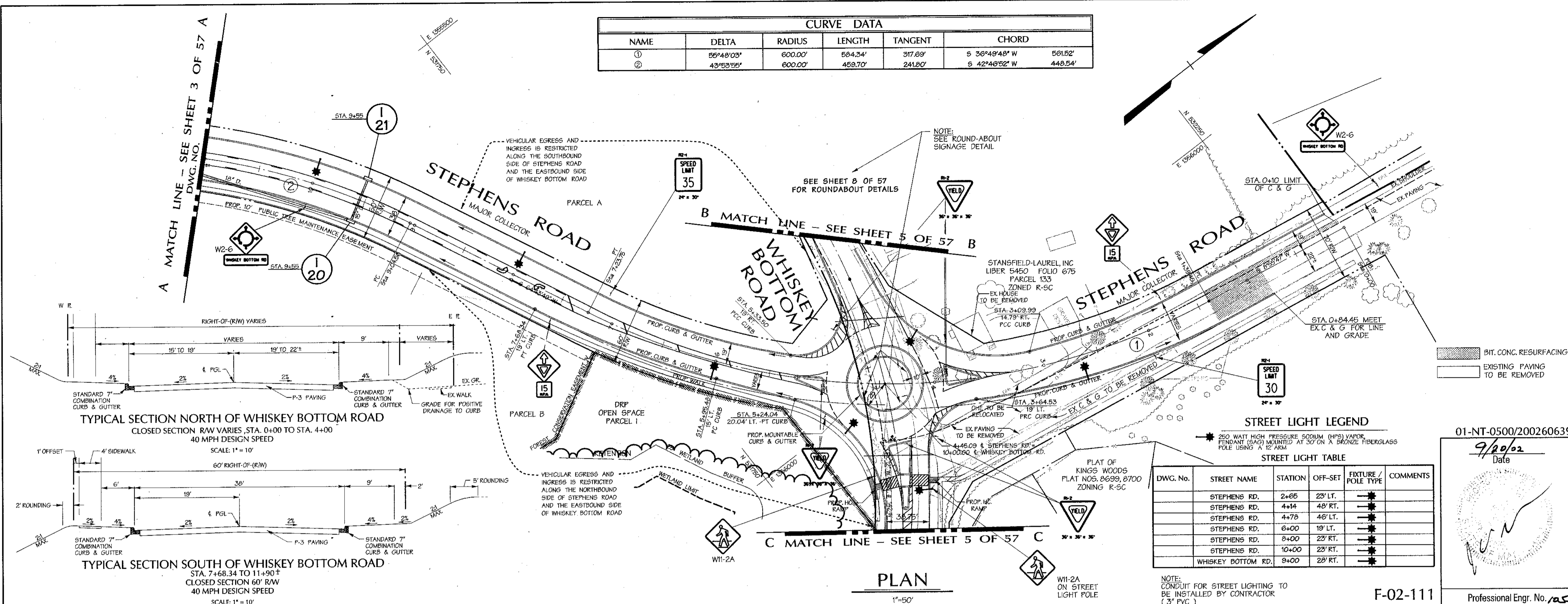
**COVER SHEET**

Des By	RBW	Scale	1" = 600'	Proj. No.	01011
Drn By	WDE	Date	9/19/02		
Chk By	Approved				



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 2061, Expiration Date: 6-26-11  
 Professional Engr No. 5061

CURVE DATA					
NAME	DELTA	RADIUS	LENGTH	TANGENT	CHORD
①	55°48'03"	600.00'	564.34'	317.69'	S 36°48'48" W 561.52'
②	43°53'55"	600.00'	458.70'	241.80'	S 42°48'52" W 448.54'



STREET LIGHT LEGEND

250 WATT HIGH PRESSURE SODIUM (HPS) VAPOR PENDANT (SAG) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 10' ARM

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	STEPHENS RD.	2+65	23' LT.	—	
	STEPHENS RD.	4+14	48' RT.	—	
	STEPHENS RD.	4+78	46' LT.	—	
	STEPHENS RD.	6+00	19' LT.	—	
	STEPHENS RD.	8+00	23' RT.	—	
	STEPHENS RD.	10+00	23' RT.	—	
	WHISKEY BOTTOM RD.	9+00	28' RT.	—	

10-10-02 DATE

10/22/02 DATE

10/18/02 DATE

10-10-02 DATE

9/20/02 Date

Professional Engr. No. 10557

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

REVITZ PROPERTY

DMW  
Dati-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
410 286-3333  
Fax 286-4706

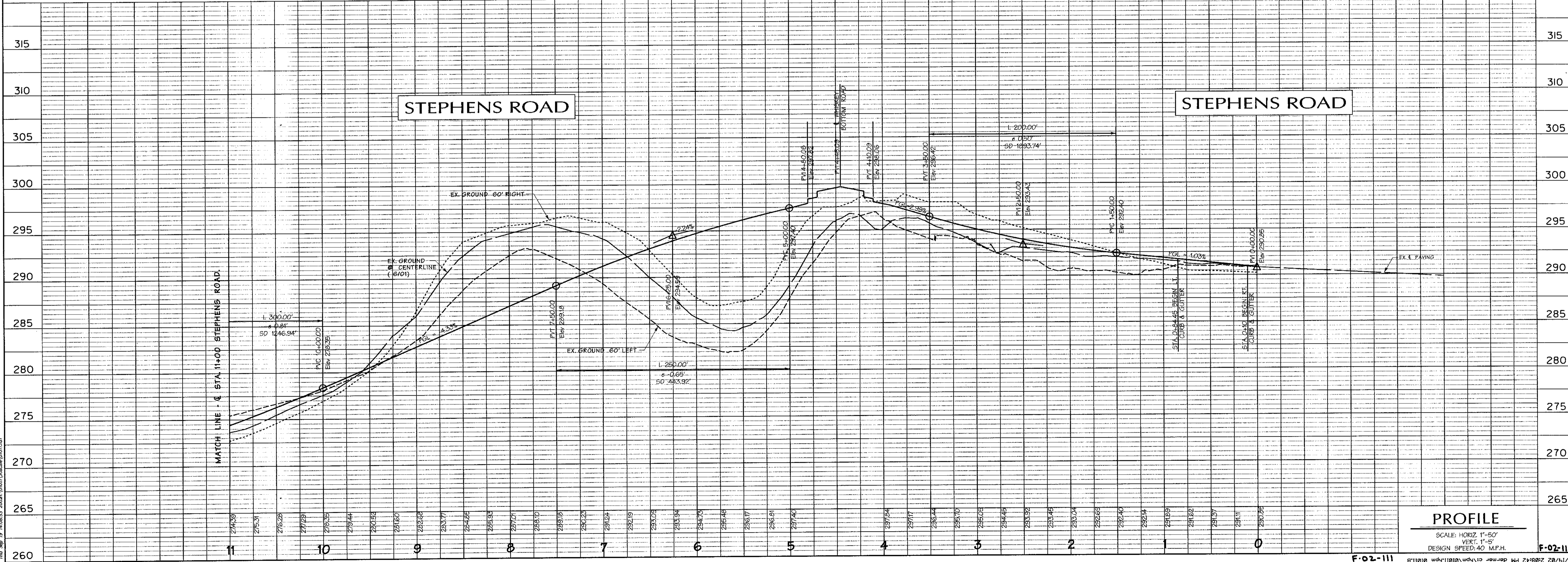
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

AREA: TAX MAP 47 PARCEL 165, 837  
6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE: FINAL PLAN  
ROAD CONSTRUCTION PLAN  
STEPHENS ROAD

Des By: DFM Scale: 1" = 50' Proj. No.: 01011.B0  
Dm By: WDE Date: 9/19/02  
Chk By: Approved

F-02-111 2 OF 57

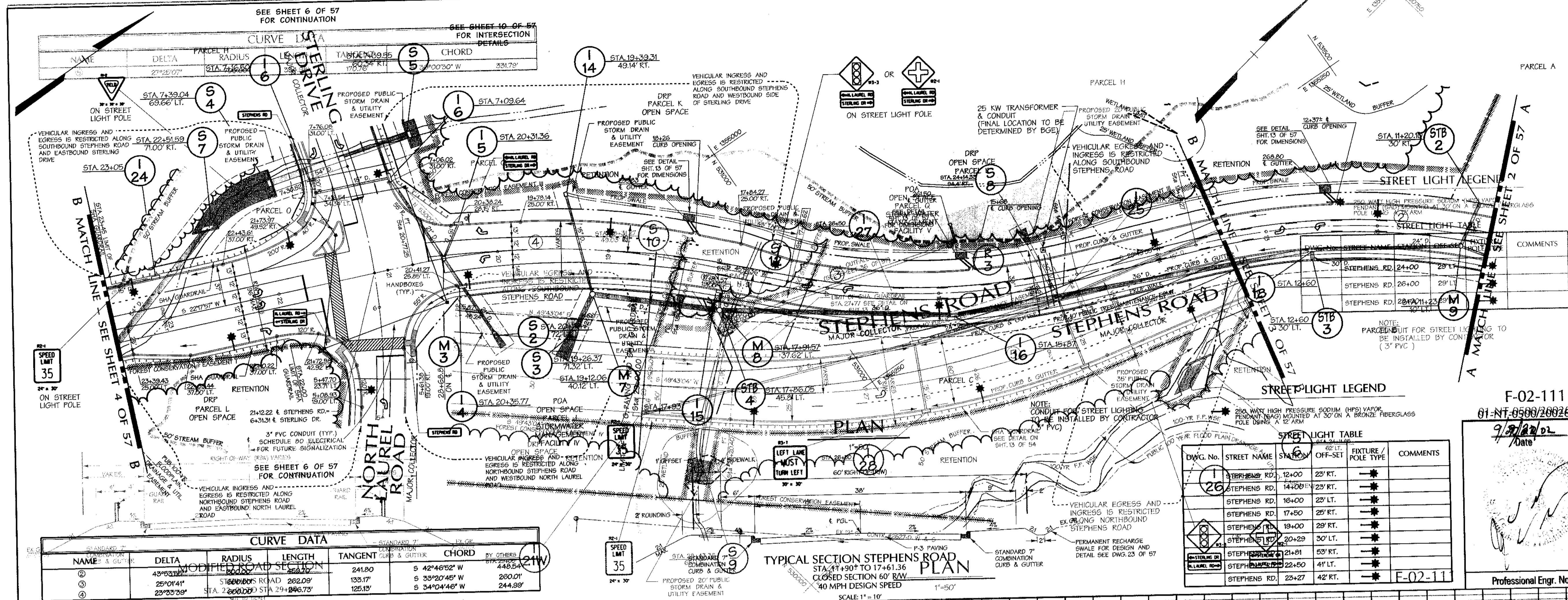


PROFILE

SCALE: HORIZ 1" = 50'  
VERT. 1" = 5'  
DESIGN SPEED: 40 M.P.H.

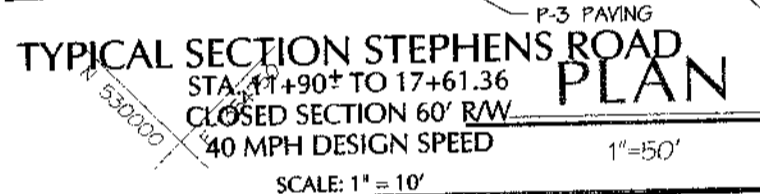
F-02-111

- 1 FOR CURB OPENING DETAILS SEE DWG. 13 OF 57.
- 2 FOR PERMANENT RECHARGE SWALE DESIGN & DETAILS SEE DWG. 43 OF 57.

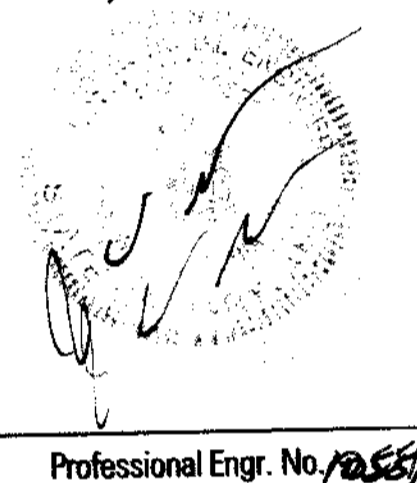


NAME	DELTA	RADIUS	LENGTH	TANGENT	CHORD	BY OTHER
1	43°03'22"	140.00'	241.00'	5 42°46'52" W	448.54'	21W
2	25°01'41"	280.00'	262.09'	133.17'	260.01'	
3	23°33'36"	280.00'	294.63'	125.15'	244.39'	

DWG. No.	STREET NAME	STATION	62' LT. OFF-SET	FIXTURE / POLE TYPE	COMMENTS
1	STEPHENS RD.	12+00	25' FT.	—	
2	STEPHENS RD.	14+00	23' LT.	—	
3	STEPHENS RD.	16+00	23' LT.	—	
4	STEPHENS RD.	17+50	25' FT.	—	
5	STEPHENS RD.	19+00	29' FT.	—	
6	STEPHENS RD.	20+29	30' LT.	—	
7	STEPHENS RD.	21+81	53' FT.	—	
8	STEPHENS RD.	22+50	41' LT.	—	
9	STEPHENS RD.	23+27	42' FT.	—	



F-02-111  
01-NY-0500/200260639  
9/8/02  
Date



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 DATE: 10-18-02

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Chief, Division of Land Development  
 DATE: 10/26/02

APPROVED: DEVELOPMENT ENGINEERING DIVISION  
 Chief, Development Engineering Division  
 DATE: 10/26/02

Date	No.	Revision Description

**REVITZ PROPERTY**

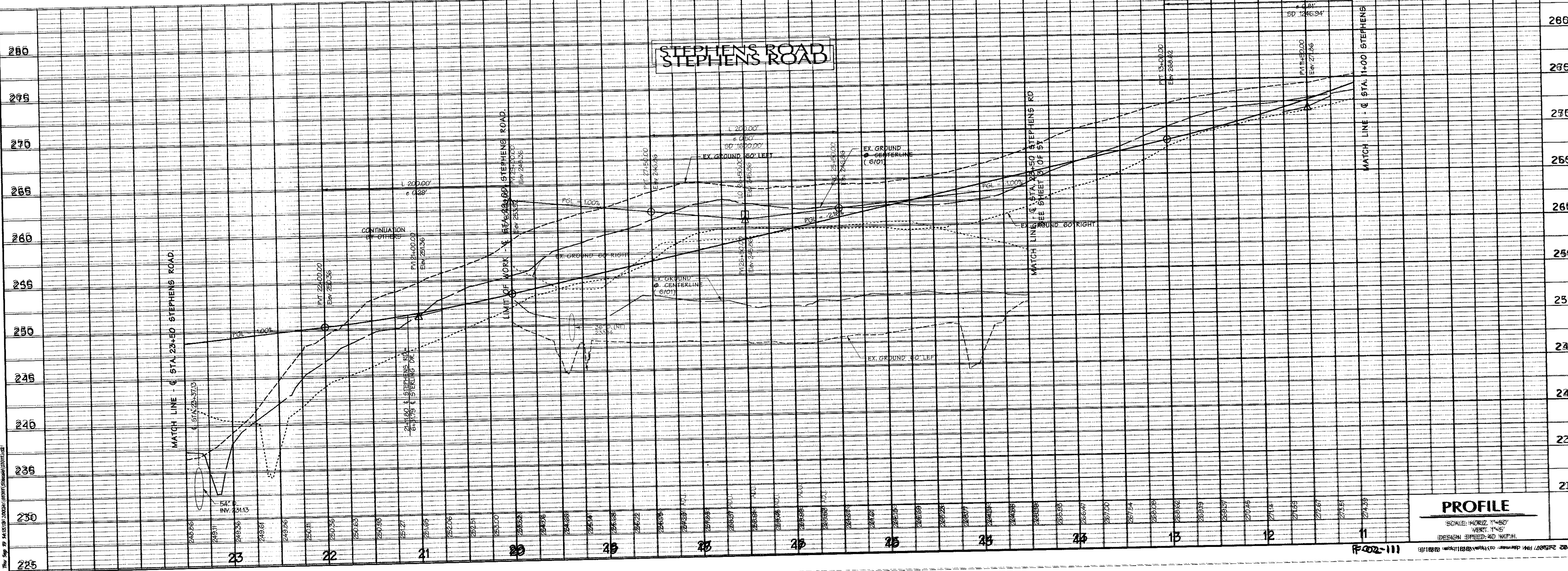
OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

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

AREA: TAX MAP 47 PARCEL 165, 837  
 6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

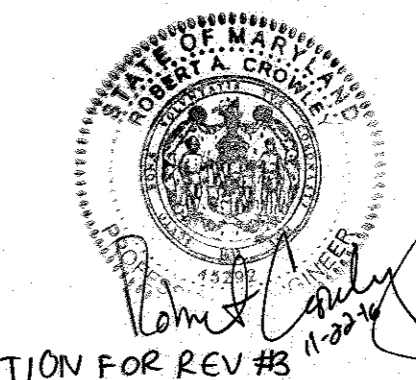
TITLE: **FINAL PLAN ROAD CONSTRUCTION PLAN STEPHENS ROAD**

Des By: DFM/M Scale: 1"=50' Proj. No. 01011.80  
 Dm By: W/W/D/E Date: 9/19/02  
 Chk By: Approved: 3 OF 57



**PROFILE**  
 SCALE: HORIZ. 1"=50'  
 VERT. 1"=5'  
 DESIGN SPEED: 40 MPH

CURVE DATA					
NAME	DELTA	RADIUS	LENGTH	TANGENT	CHORD
⑤	27°28'07"	700.00'	234.88'	170.76'	S 36°00'30" W 331.79'



PROFESSIONAL CERTIFICATION FOR REV #3  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 46272  
 EXPIRATION DATE: 05/21/2018  
 THE PURPOSE OF REV 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP SDP-16-005.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 William R. Mader 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Cindy Horvath 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Mike Dammer 10/18/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

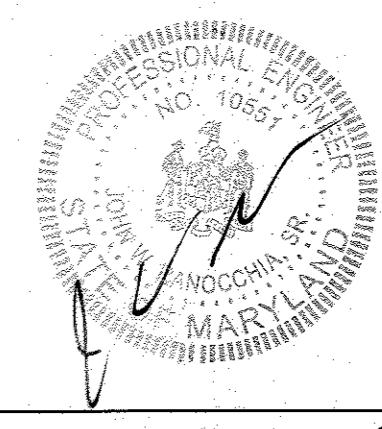
STREET LIGHT LEGEND

250 WATT HIGH PRESSURE SODIUM (HPS) VAPOR PENDANT (SAP) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	STEPHENS RD.	24+00	28' LT	—*	
	STEPHENS RD.	26+00	28' LT	—*	
	STEPHENS RD.	28+00	28' LT	—*	

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

01-NT-0500/200260639  
 9/20/02  
 Date

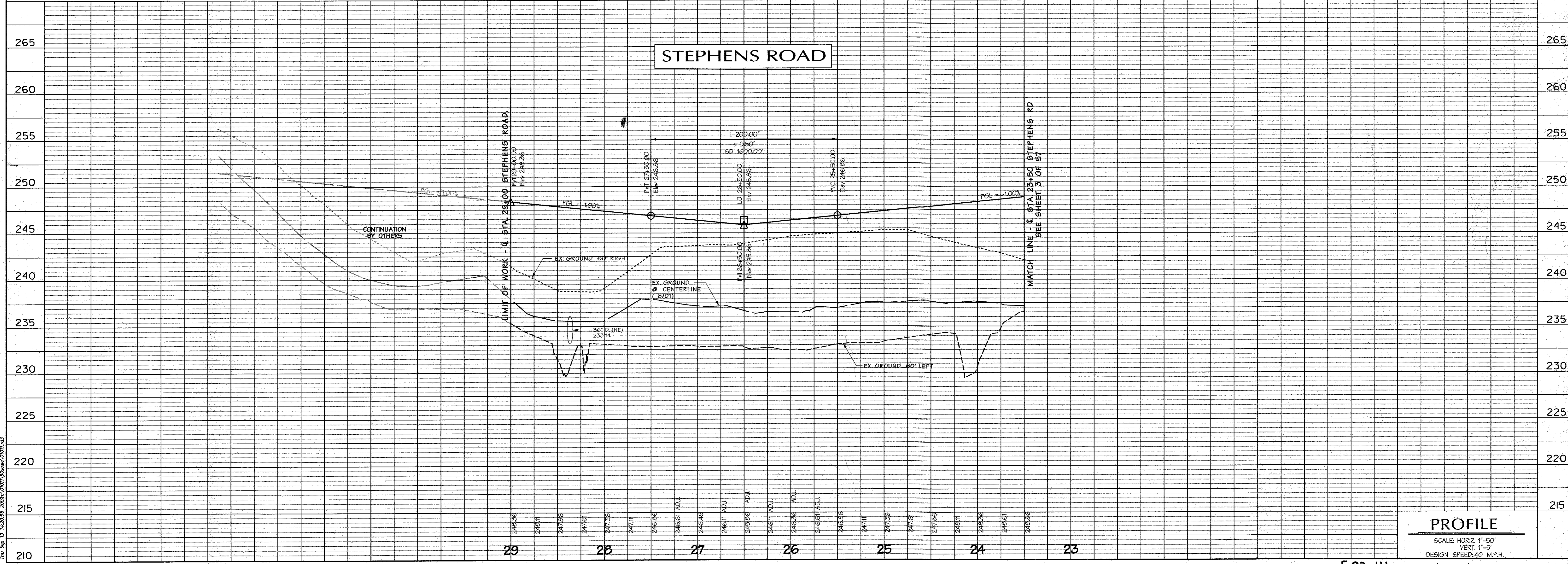
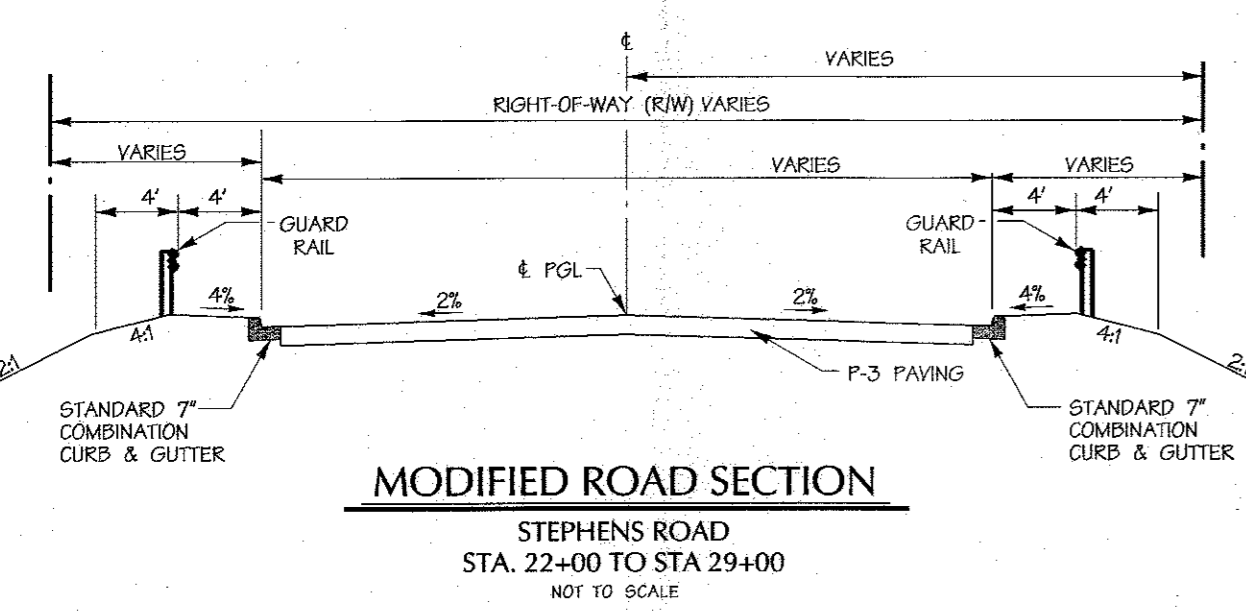
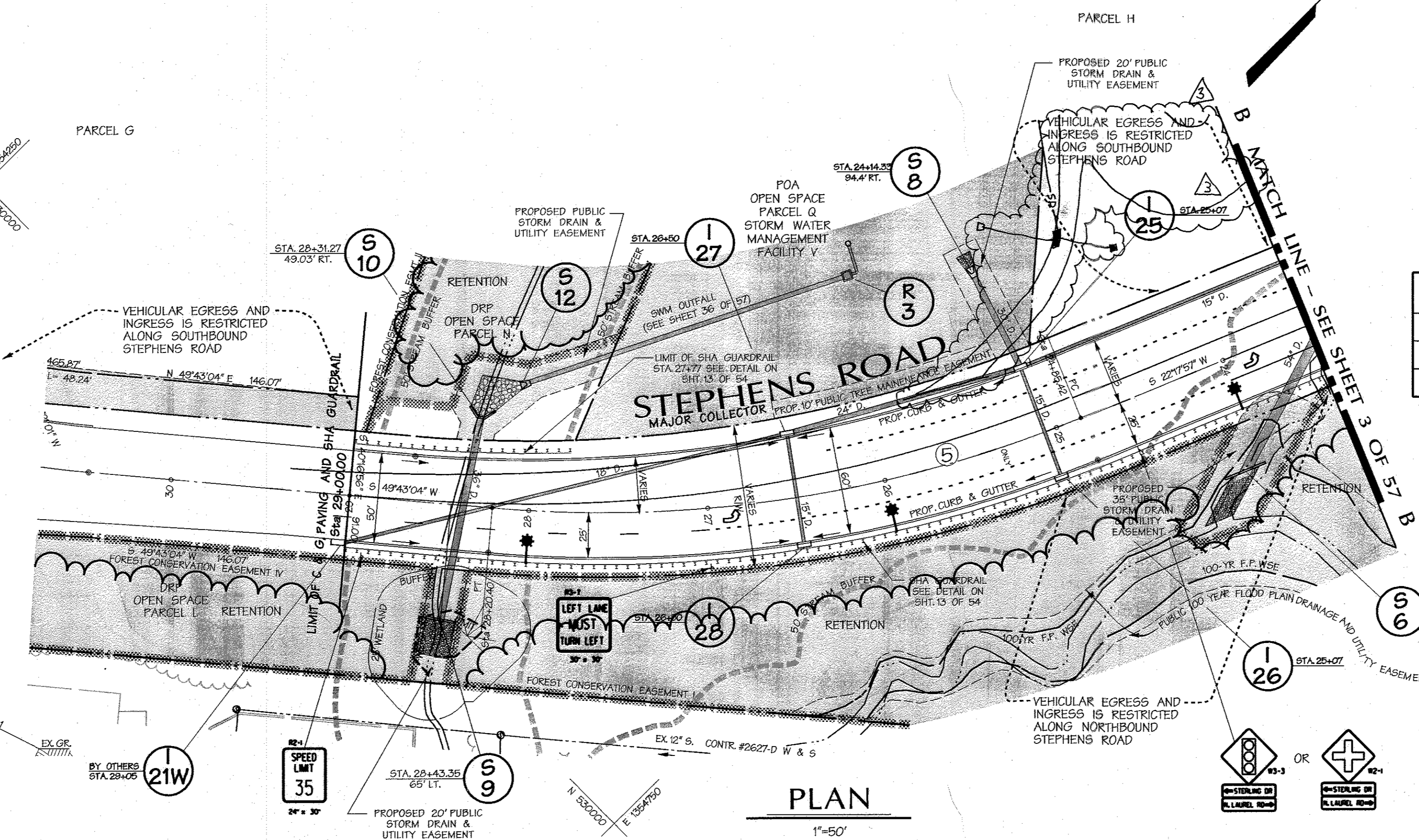


**DMW**  
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AREA  
 TAX MAP 47 PARCEL 165, 837  
 6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

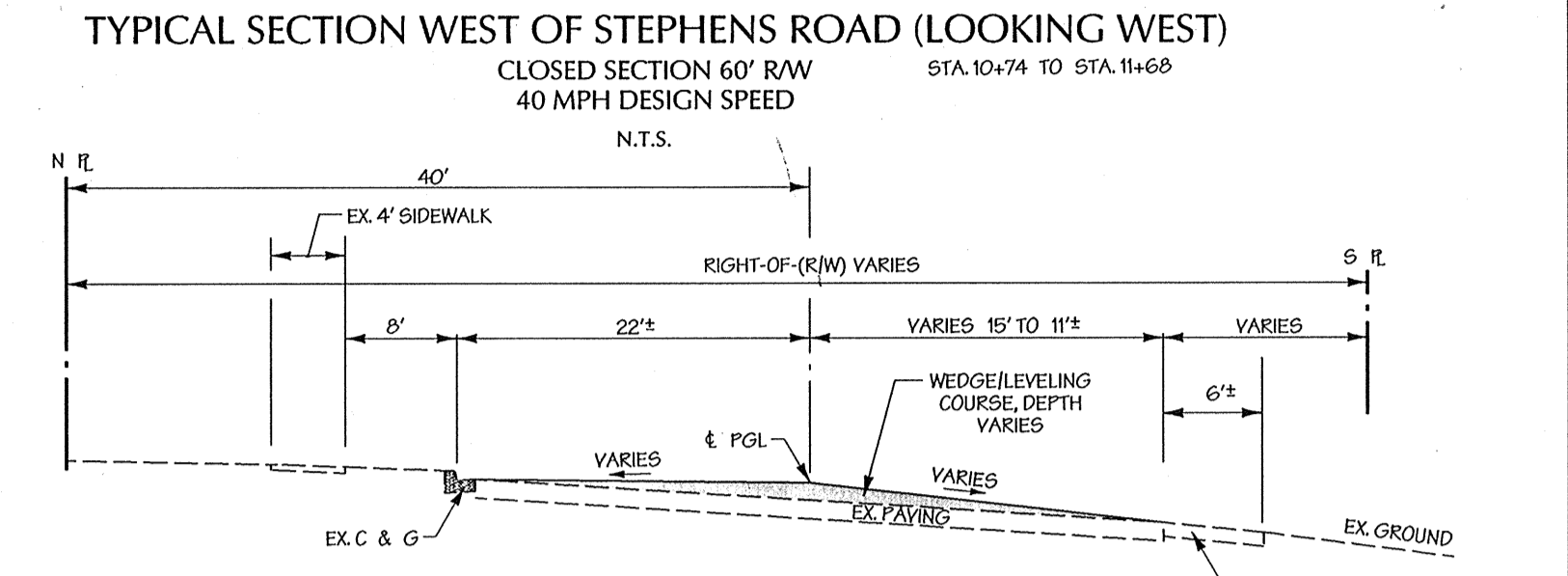
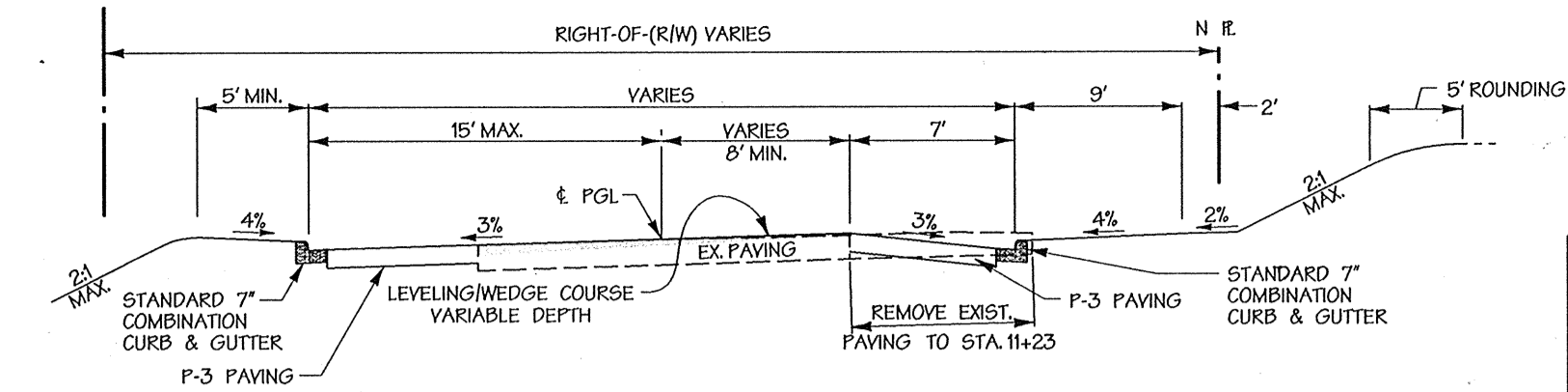
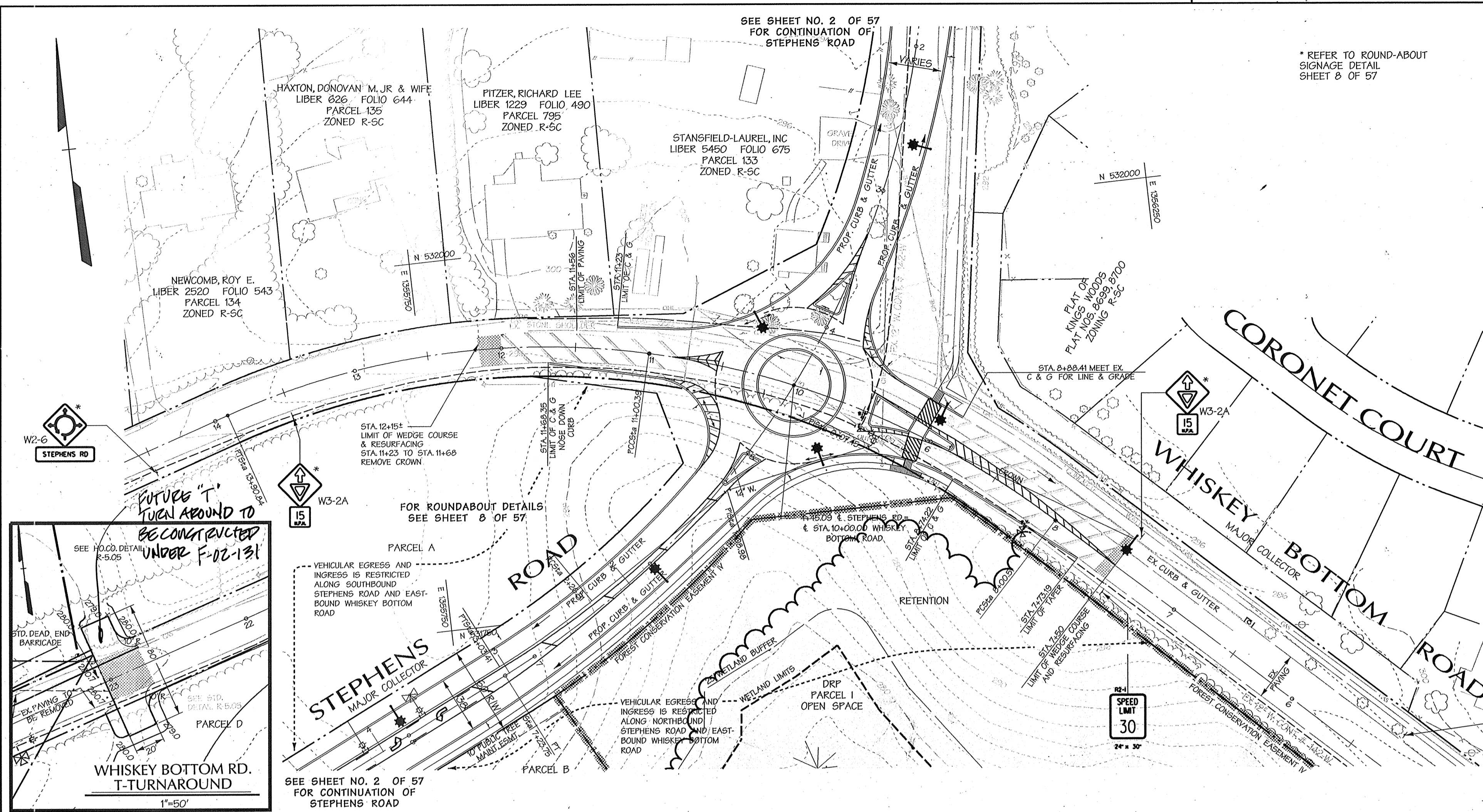
TITLE  
**FINAL PLAN  
 ROAD CONSTRUCTION PLAN  
 STEPHENS ROAD**

Des By DFM Scale 1"=50' Proj. No. G1011.50  
 Dn By WDE Date 9/19/02  
 Chk By Approved 4 OF 57



**PROFILE**  
 SCALE: HORIZ. 1"=50'  
 VERT. 1"=5'  
 DESIGN SPEED: 40 M.P.H.

Thu Sep 19 14:20:58 2002: \\010715\dwg\010711.dwg



STREET LIGHT LEGEND

250 WATT HIGH PRESSURE SODIUM (HPS) VAPOR PENDANT (SAG) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	WHISKEY BOTTOM RD	7+50	25' RT	★	
	WHISKEY BOTTOM RD	9+00	25' RT	★	

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

01-NT-0500/200260639

9/2/02  
Date

PROFESSIONAL ENGINEER  
NO. 10657

STATE OF MARYLAND

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. ...* 10-18-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*...* 11/22/01  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 10/18/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

9-03-04  
Date No. NOTE ADDED TO DETAIL Revision Description

**REVITZ PROPERTY**

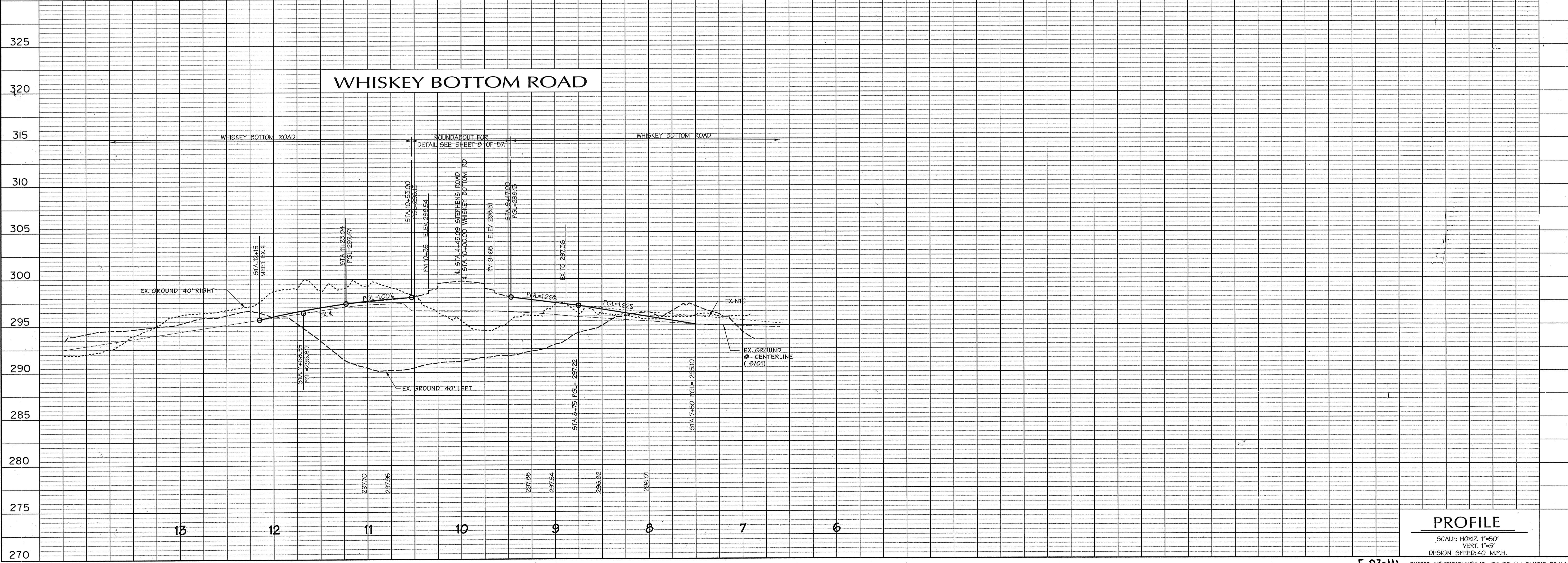
OWNER /DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Dunham-Crane-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 286-3333  
Fax 296-4705  
A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

AREA  
TAX MAP 47 PARCEL 165, 837  
6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

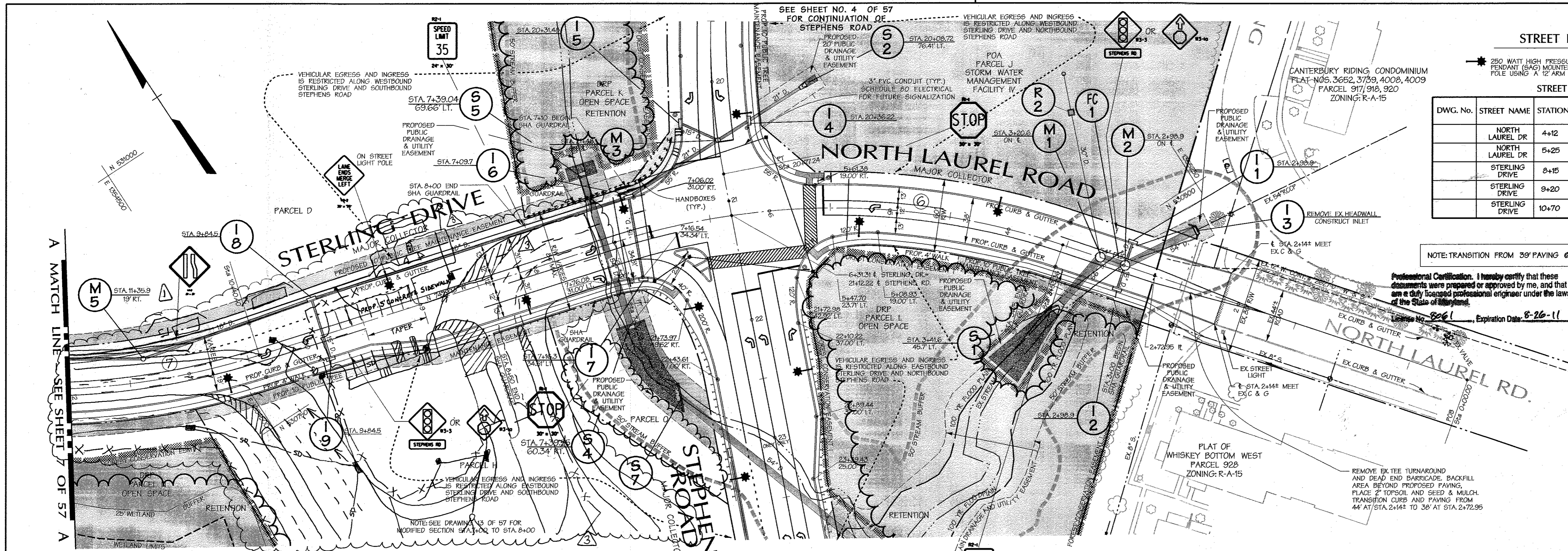
TITLE  
**FINAL PLAN  
ROAD CONSTRUCTION PLAN  
WHISKEY BOTTOM ROAD  
STEPHENS ROAD INTERSECTION**

Des By	DFM	Scale	1"=50'	Proj. No.	01C 1.80
Dwn By	WDE	Date	9/19/02		
Chk By	Approved				5 OF 57



**PROFILE**  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'  
DESIGN SPEED: 40 M.P.H.

Thu, Sep 19 14:32:00 2002m:\0071\506cad\07071.dwg



### STREET LIGHT LEGEND

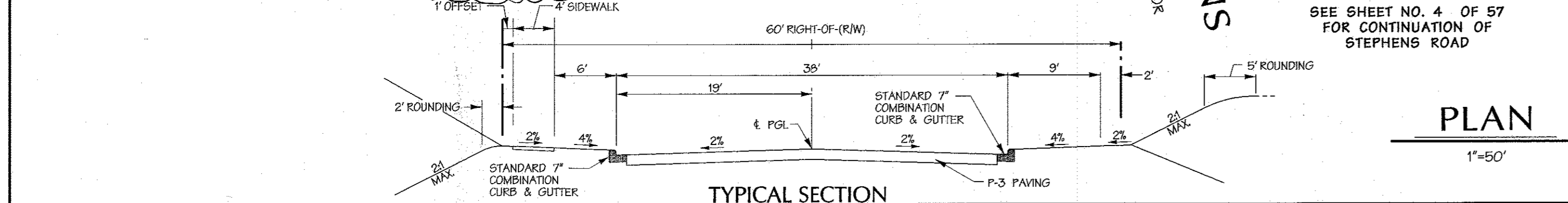
250 WATT HIGH PRESSURE SODIUM (HPS) VAPOR PENDANT (SAG) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12 ARM

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	NORTH LAUREL DR	4+42	24' RT.	—	
	NORTH LAUREL DR	5+25	23' LT.	—	
	STERLING DRIVE	8+15	35' LT.	—	
	STERLING DRIVE	9+20	35' RT.	—	
	STERLING DRIVE	10+70	23' LT.	—	

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. ...*  
 CHIEF, BUREAU OF HIGHWAYS DATE 10-10-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy ...*  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 11/28/07

APPROVED: *...*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 12/18/07



### CURVE DATA

NAME	DELTA	RADIUS	LENGTH	TANGENT	CHORD
①	36°01'54"	600.00'	377.32'	195.15'	N 56°19'16" W 371.14'
②	54°58'07"	600.00'	575.63'	312.13'	N 46°50'09" W 553.21'

NOTE: TRANSITION FROM 33' PAVING @ STA. 2+73 TO 44' PAVING @ STA. 2+147

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 2261, Expiration Date: 8-26-11

FOR REVISION #1 ONLY  
 4-19-11

Professional Engr. No. 01-NT-0500/200260639  
 Date 9/20/02

Professional Engr. No. 10257

EMERSON CAMPUS VCP  
 ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE  
 Revision Description

## REVITZ PROPERTY

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

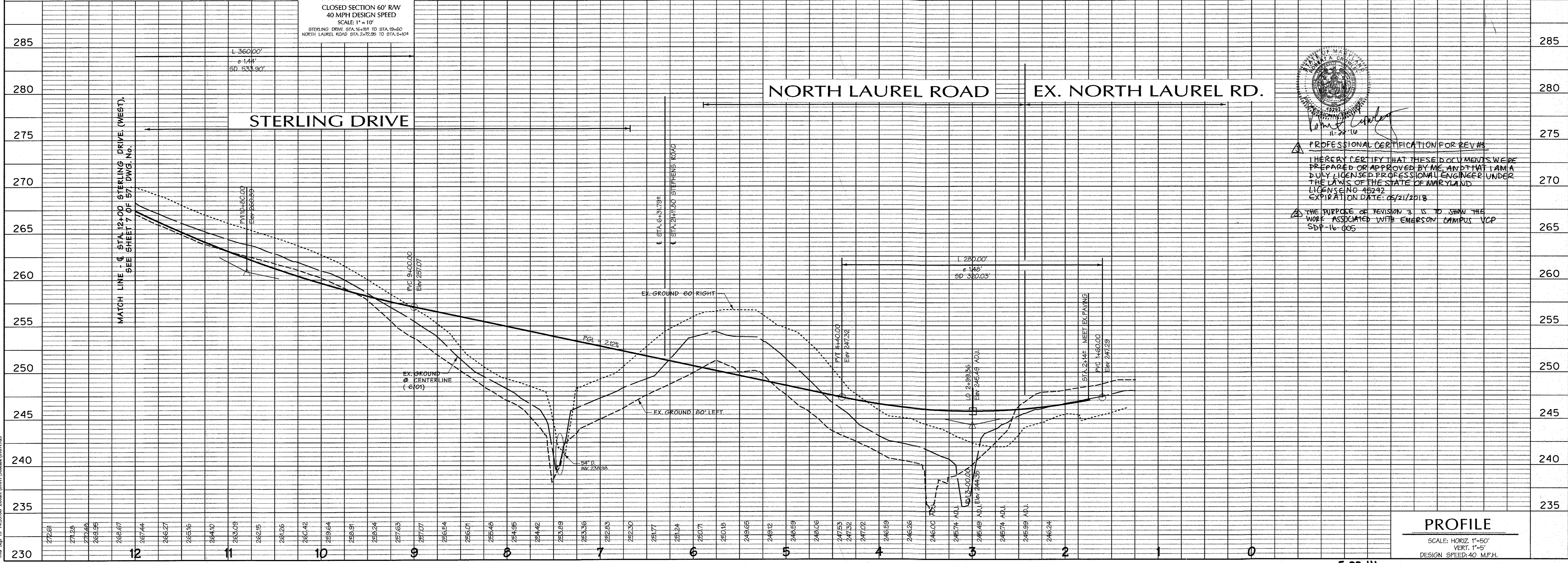
**DMW**  
 Draft-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3938  
 Fax 296-4706

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

AREA TAX MAP 47 PARCEL 165, 837  
 6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE **FINAL PLAN ROAD CONSTRUCTION PLAN**  
**NORTH LAUREL ROAD /STERLING DRIVE**

Des By DFM Scale 1"=50' Proj. No. 01011.B0  
 Dwn By WDE Date 9/19/02  
 Chk By Approved 6 OF 57



PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 45242  
 EXPIRATION DATE: 05/21/2018

THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP SDP-16-005

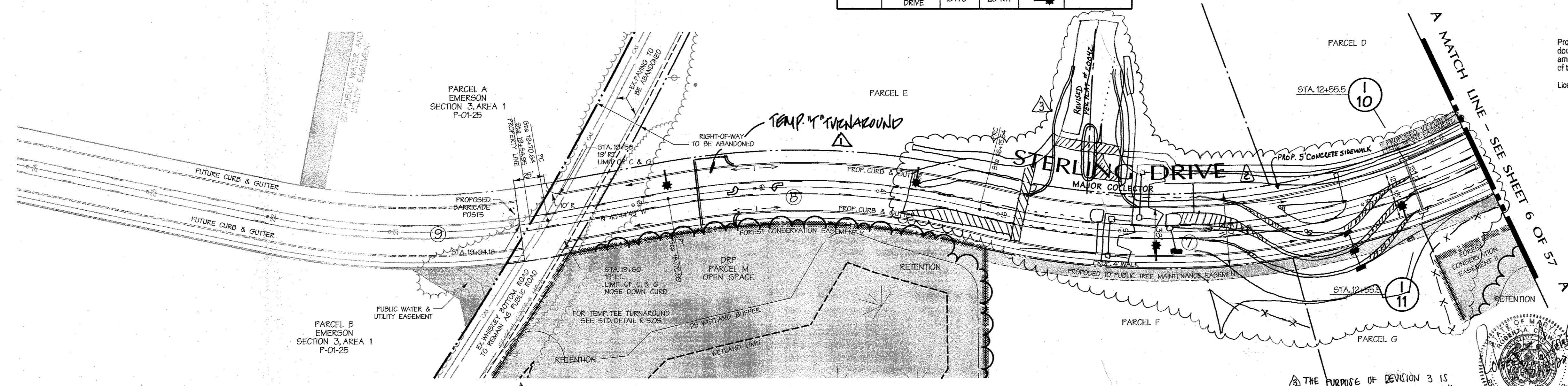
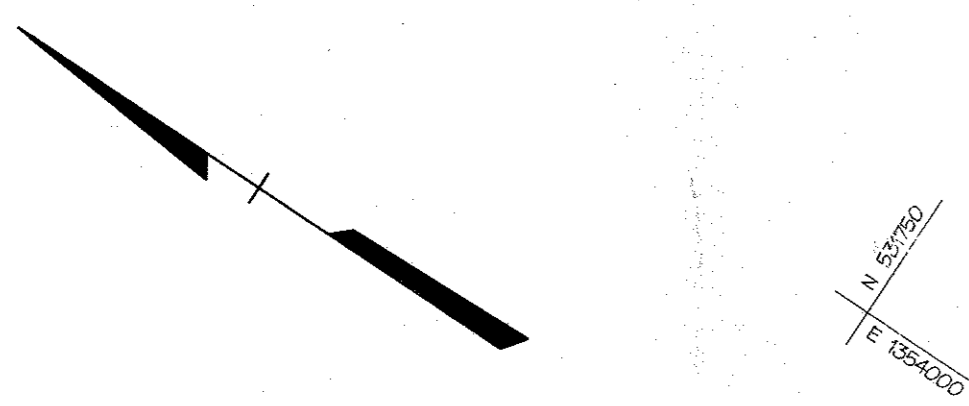
**PROFILE**  
 SCALE: HORIZ 1"=50'  
 VERT. 1"=5'  
 DESIGN SPEED 40 M.P.H.

STREET LIGHT LEGEND

250 WATT HIGH PRESSURE SODIUM (HPS) VAPOR PENDANT (SAG) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' WIM

DWG. No.	STREET NAME	STATION	OFF-SET	FIXTURE / POLE TYPE	COMMENTS
	STERLING DRIVE	12+70	23' LT.	—	
	STERLING DRIVE	14+70	23' LT.	—	
	STERLING DRIVE	16+70	23' RT.	—	
	STERLING DRIVE	18+70	23' RT.	—	

STREET LIGHT TABLE



CURVE DATA					
NAME	DELTA	RADIUS	LENGTH	TANGENT	CHORD
①	54°59'07"	600.00'	575.63'	312.13'	N 46°50'09" W 553.81'
②	24°23'39"	600.00'	256.46'	129.68'	N 31°32'55" W 253.53'
③	21°55'25"	600.00'	229.61'	116.23'	N 32°46'57" W 228.21'

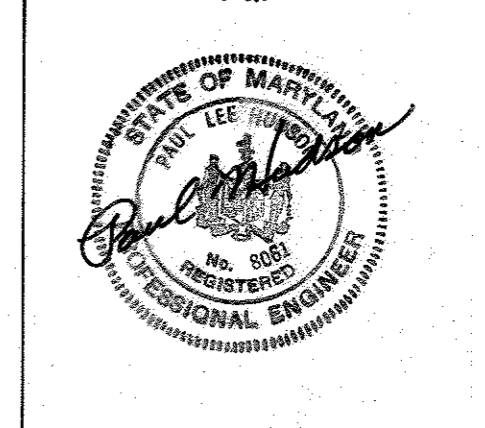
PLAN  
1"=50'

THE PURPOSE OF DEVIATION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP. SDP-NO-005  
PROFESSIONAL CERTIFICATION FOR REV 1/03

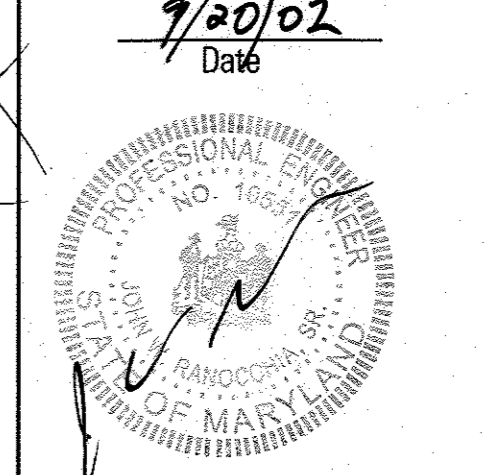
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 45212  
EXPIRATION DATE 05/21/2018  
F-02-111

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 8291 Expiration Date: 8-26-11

FOR REVISION # 2 ONLY  
4-19-11  
Date



Professional Engr. No. 01-NT-0500/200260639  
9/20/02  
Date



Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
W. J. ...  
CHIEF, BUREAU OF HIGHWAYS  
DATE 10-10-02

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
Cindy ...  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE 11/22/02

APPROVED: ...  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK  
DATE 10/16/02

Date	No.	Revision Description
2-7-11	2	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
9-9-09	1	ADD 4' TURNAROUND

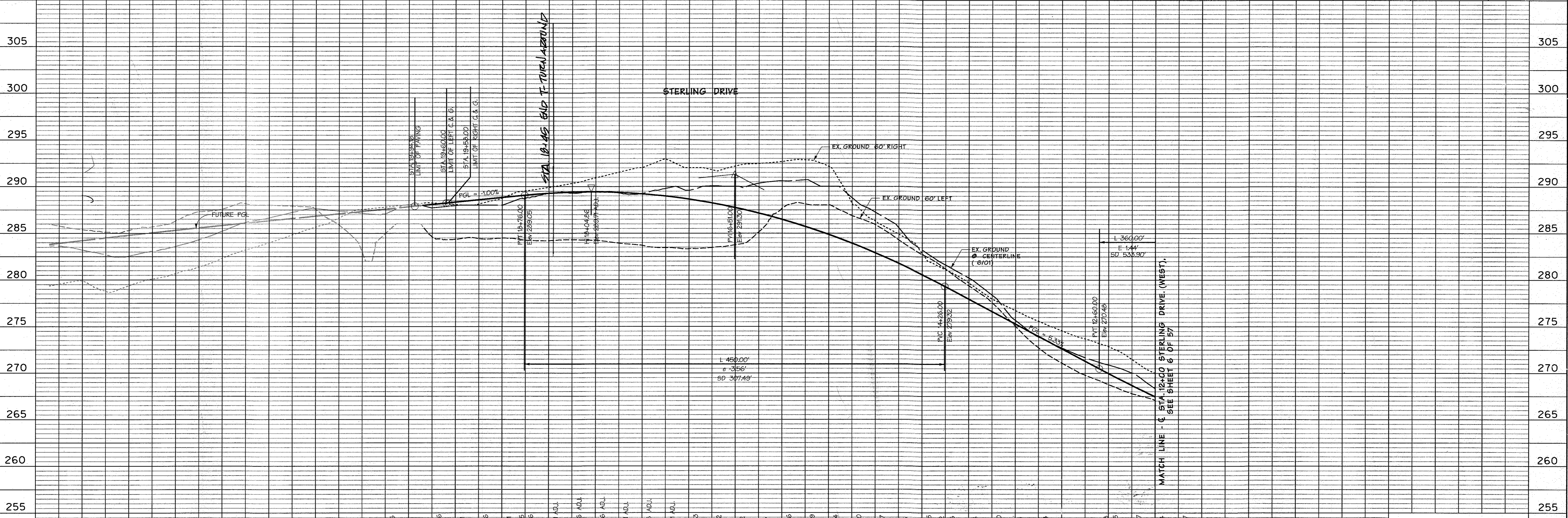
**REVITZ PROPERTY**  
OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff McCune Walker, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 286-3333  
Fax 296-4705  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

AREA TAX MAP 47 PARCEL 165, 837  
6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE **FINAL PLAN ROAD CONSTRUCTION PLAN STERLING DRIVE**

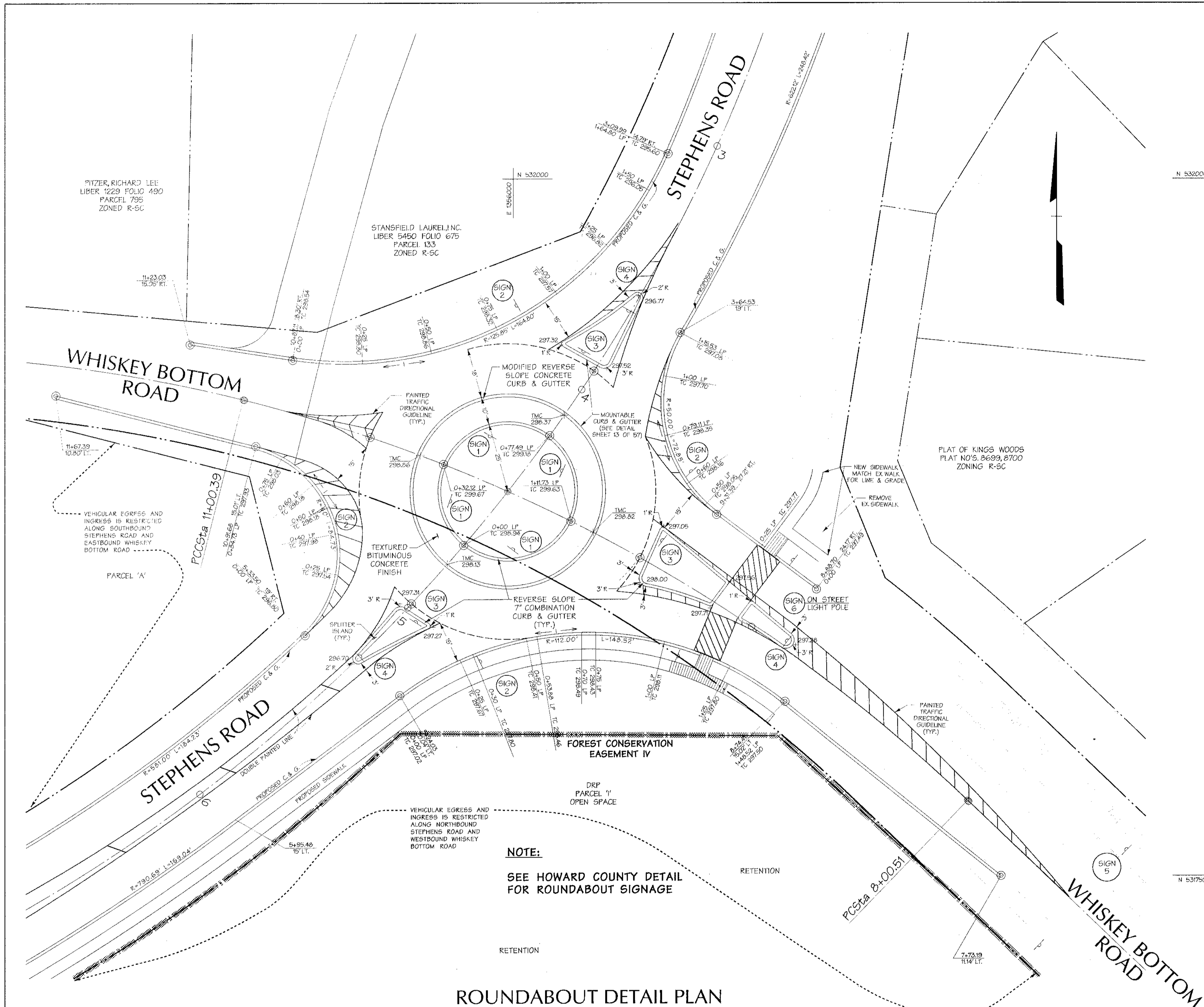
Des By	DFM	Scale	1" = 50'	Proj. No.	01011.80
Dwn By	WDE	Date	9/19/02		
Chk By	Approved				7 OF 57



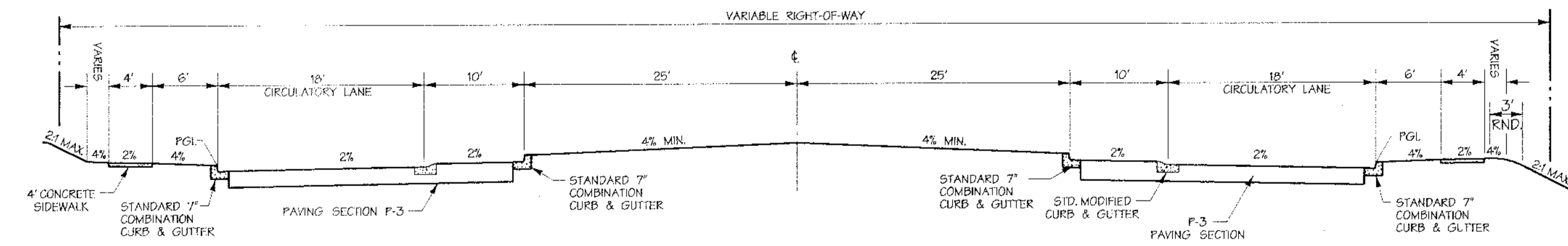
PROFILE

SCALE: HORIZ 1"=50'  
VERT. 1"=5'  
DESIGN SPEED 40 M.P.H.

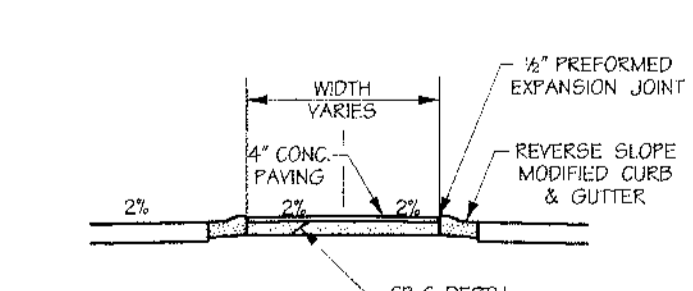
Thu, Sep 19 14:42:49 2002; 01011.80.dwg; 01011.80.dwg; 01011.80.dwg



**ROUNDABOUT DETAIL PLAN**  
SCALE: 1" = 20'



**ROUNDABOUT PAVING SECTION**  
SCALE: 1" = 10'



**SPLITTER ISLAND DETAIL**  
SCALE: 1" = 10'

- SIGN 1: ONE WAY (R6-IR) 36" x 12" with W1-B
- SIGN 2: YIELD (R1-2) 36" x 36" x 36"
- SIGN 3: STREET NAME (R1-2) 36" x 36" x 36"
- SIGN 4: TO TRAFFIC IN CIRCLE (W1) 36" x 36"
- SIGN 5: 25 MPH (W2-6) 36" x 36"
- SIGN 6: WALKER (W1A-2) 36" x 36"

**TYPICAL SINGLE LANE ROUNDABOUT**

**NOTES:**

**MARKINGS:**

SHARK TEETH (IF USED) AND 3" X 12" STRIPS SHALL BE WHITE THERMO PLASTIC OR INLaid TAPE.

STRIPING AROUND THE TRUCK APRON OR CENTRAL ISLAND IS NOT REQUIRED.

A DOUBLE YELLOW CENTERLINE SHALL BE USED ON THE APPROACH ROADWAYS FOR A MINIMUM OF 200' IN ADVANCE OF THE SPLITTER ISLAND.

CROSS WALKS (IF USED) SHALL BE THERMO PLASTIC OR INLaid TAPE.

**CURBS:**

SPLITTER ISLAND CURBING SHALL BE HOWARD COUNTY MODIFIED COMBINATION CURB AND GUTTER OR SHA TYPE C CURB AND GUTTER. IF THE SPLITTER ISLAND ALSO SERVES AS A PEDESTRIAN REFUGE ISLAND, BARBER CURBING SHOULD BE CONSIDERED.

CENTRAL ISLAND CURBING SHALL BE HOWARD COUNTY COMBINATION CURB AND GUTTER OR SHA TYPE A CURB AND GUTTER.

RIGHT EDGE OF ROUNDABOUT AND APPROACH ROADWAY SHALL USE HOWARD COUNTY COMBINATION CURB AND GUTTER OR SHA TYPE A CURB AND GUTTER.

**SIGNING:**

SIGN 1 CONSISTS OF ONE 12" X 36" R6-1 AND THREE 12" X 18" W1-B'S OF AN EQUIVALENT SINGLE 36" X 70" SIGN PANEL. BOTTOM OF SIGN ASSEMBLY SHALL BE 4" ABOVE GROUND (TO TOP OF SIGN).

SIGN 2 IS 36" X 36" R1-2. THE STREET NAME SIGN SHALL BE MOUNTED ON THE BACK SIDE OF THE POST.

SIGN 3 IS 36" X 36" W1-2 WITH 18" X 30" SUPPLEMENTAL PLATE AS SHOWN.

SIGN 4 IS ON ROUTINE SPLITTER ISLANDS A GROUND MOUNTED AMBER OR YELLOW FLEX POSE ON LARGER SPLITTER ISLANDS WHERE THE DISTANCE BETWEEN SIGNS 2 AND 4 IS IN EXCESS OF 20' AN 14-7 STANDARD SIZE AND MOUNTING SHALL BE USED IN LIEU OF THE FLEX POSE.

SIGN 5 IS A 25" X 36" W2-6 WITH SUPPLEMENTAL SPEED PLATE 15 SHOWN.

SIGN 6 IS A 36" X 36" W1A-2 CROSSING SIGN.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William S. ...* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Andy ...* 10/23/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 10/10/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date No. Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

SUBMISSION NAME: REVITZ PROPERTY		DATE: 9/20/02	
PLAT OR LA: 226/436	BOOK: 20	SHEET: 47	TOTAL SHEETS: 53
TITLE: FINAL PLAN ROUNDABOUT DETAILS		DATE: 9/19/02	
Des By: DFM	Scale: AS SHOWN	Proj. No: 01011.B	
Dwn By: WDE	Date: 9/19/02		
Chk By:	Approved:		8 OF 57

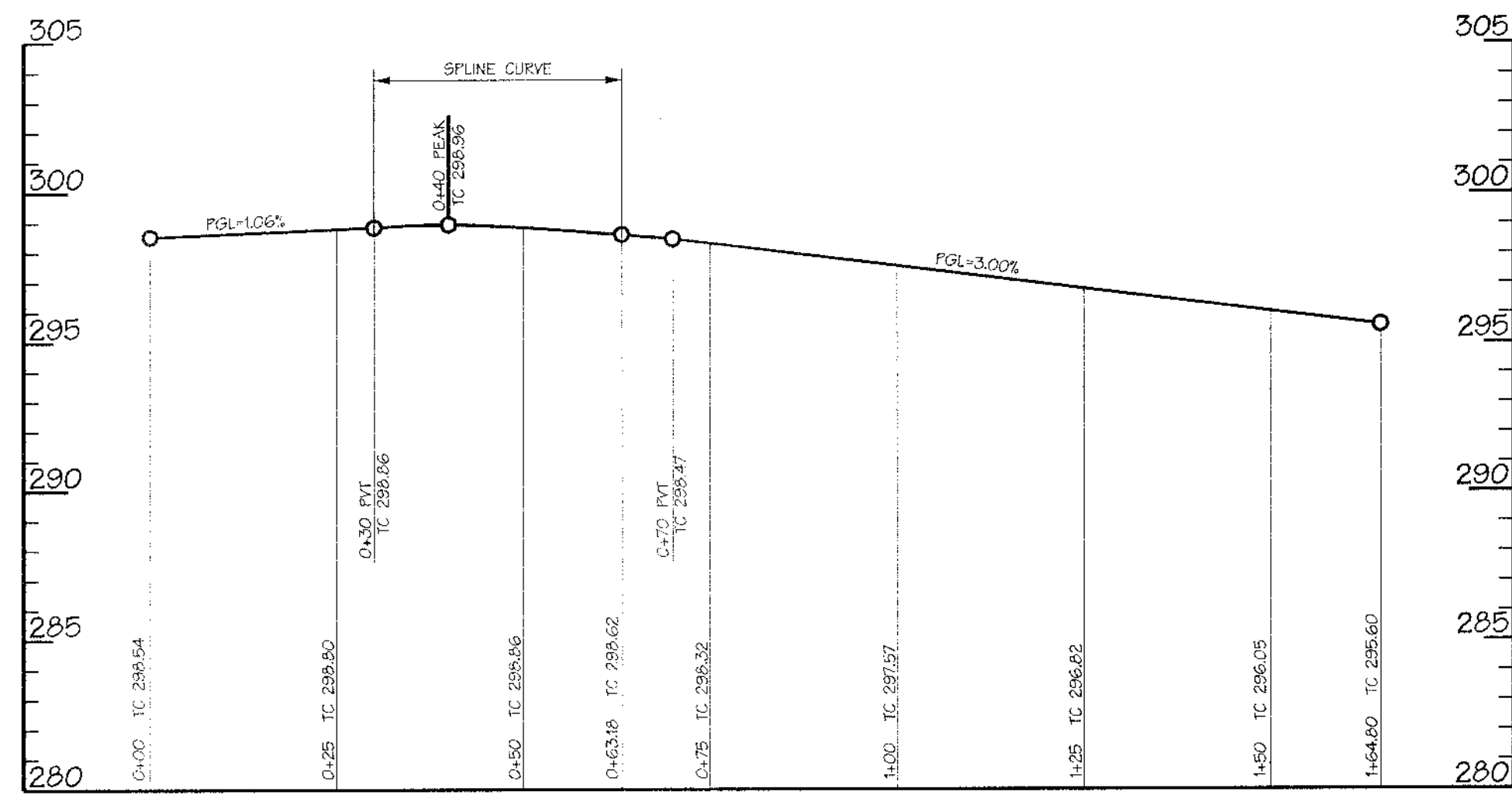
01-NT-0500/200260639

9/20/02

Date

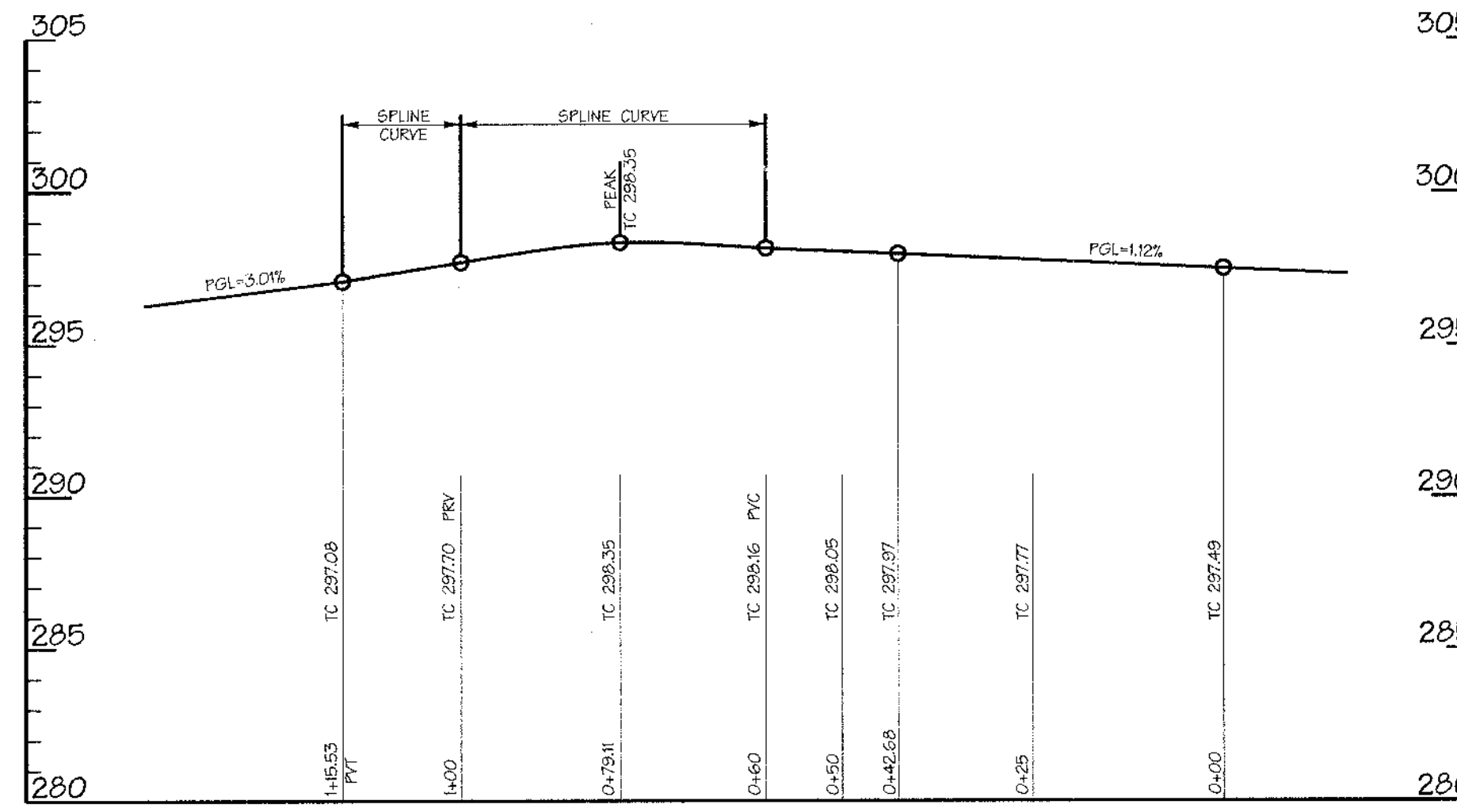
Professional Engr. No. 10551





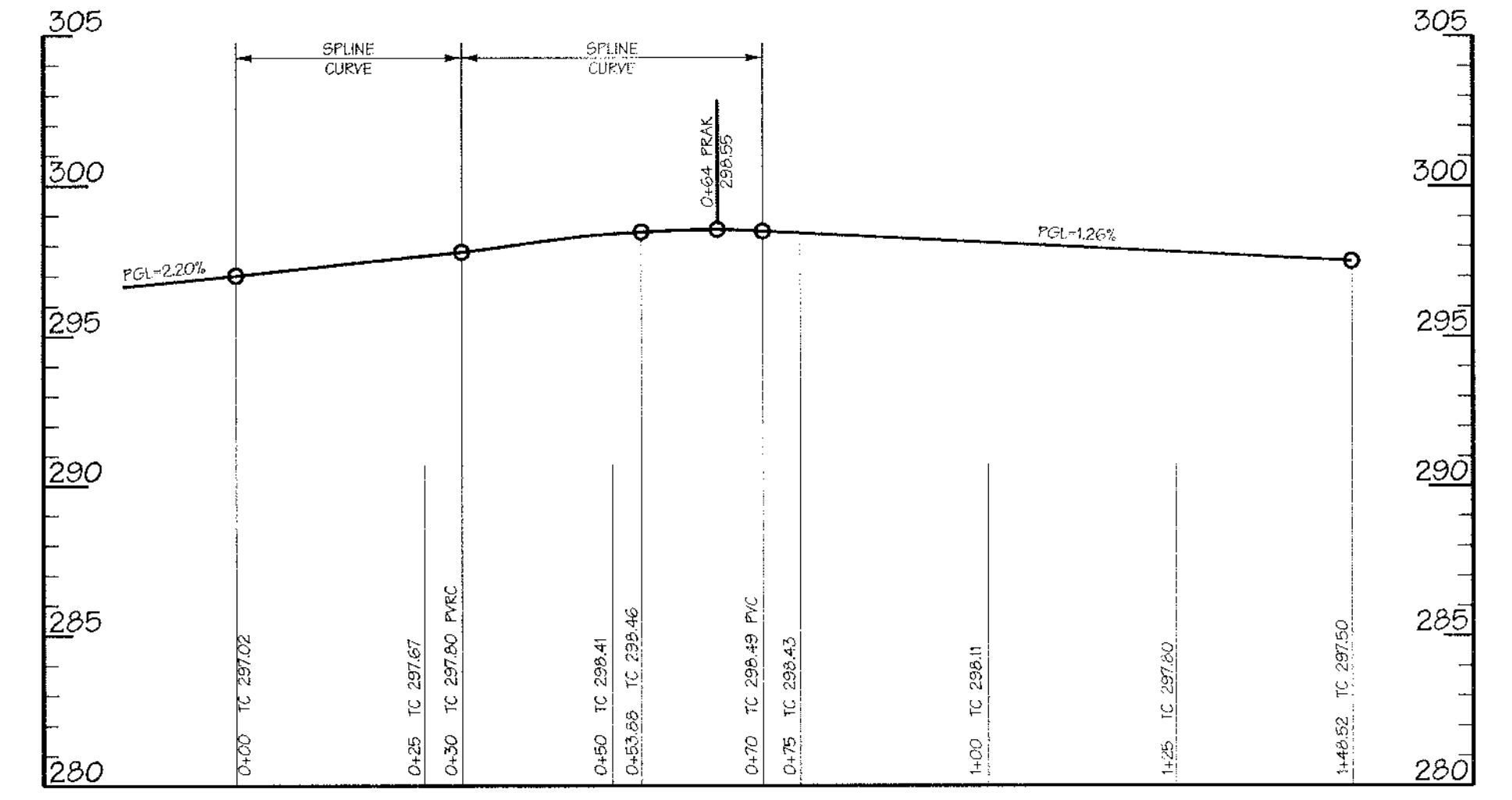
LINEAR PROFILE - NW CURB RETURN

SCALE: HORZ. 1" = 20'  
VERT. 1" = 5'



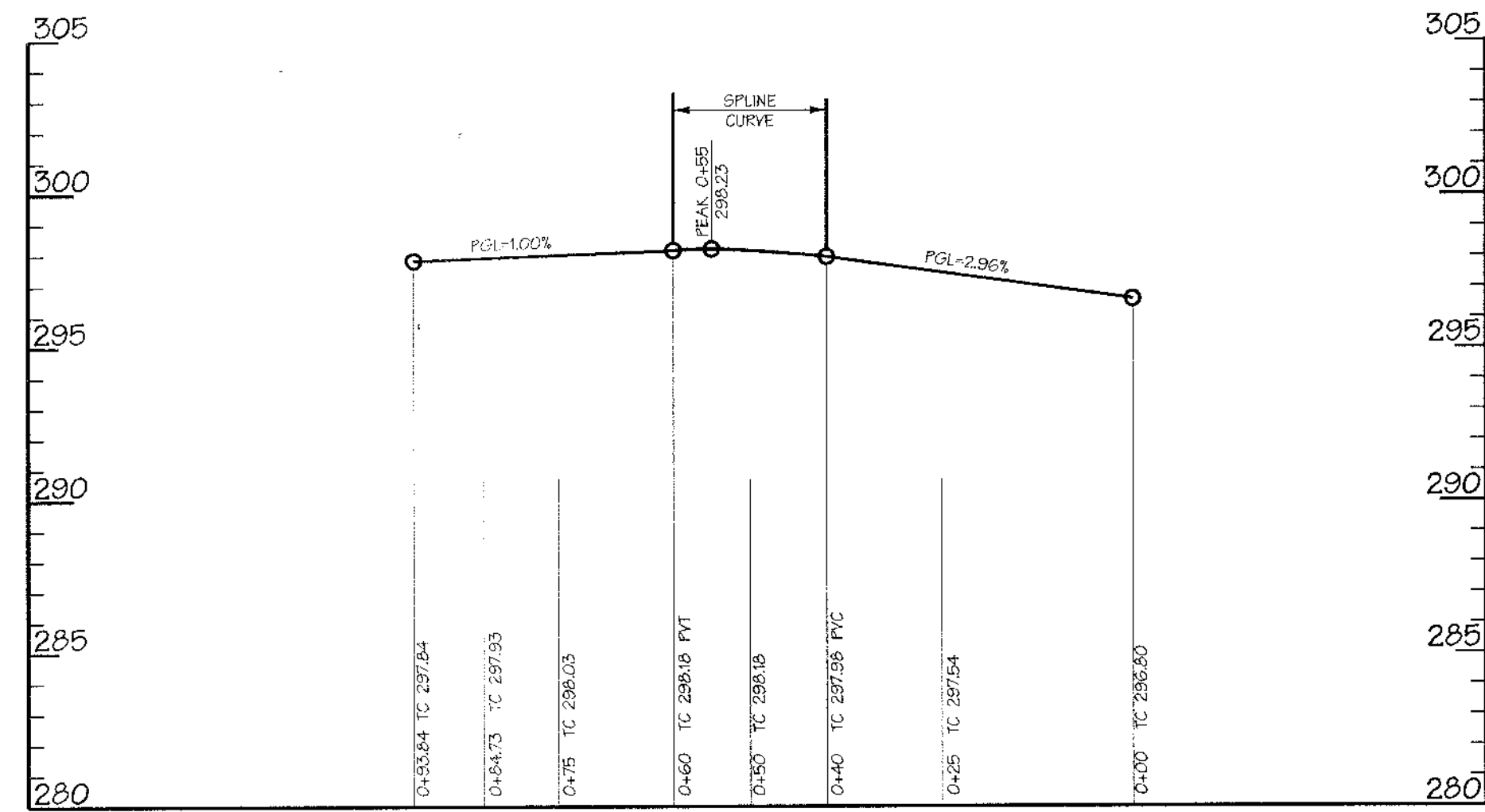
LINEAR PROFILE - NE CURB RETURN

SCALE: HORZ. 1" = 20'  
VERT. 1" = 5'



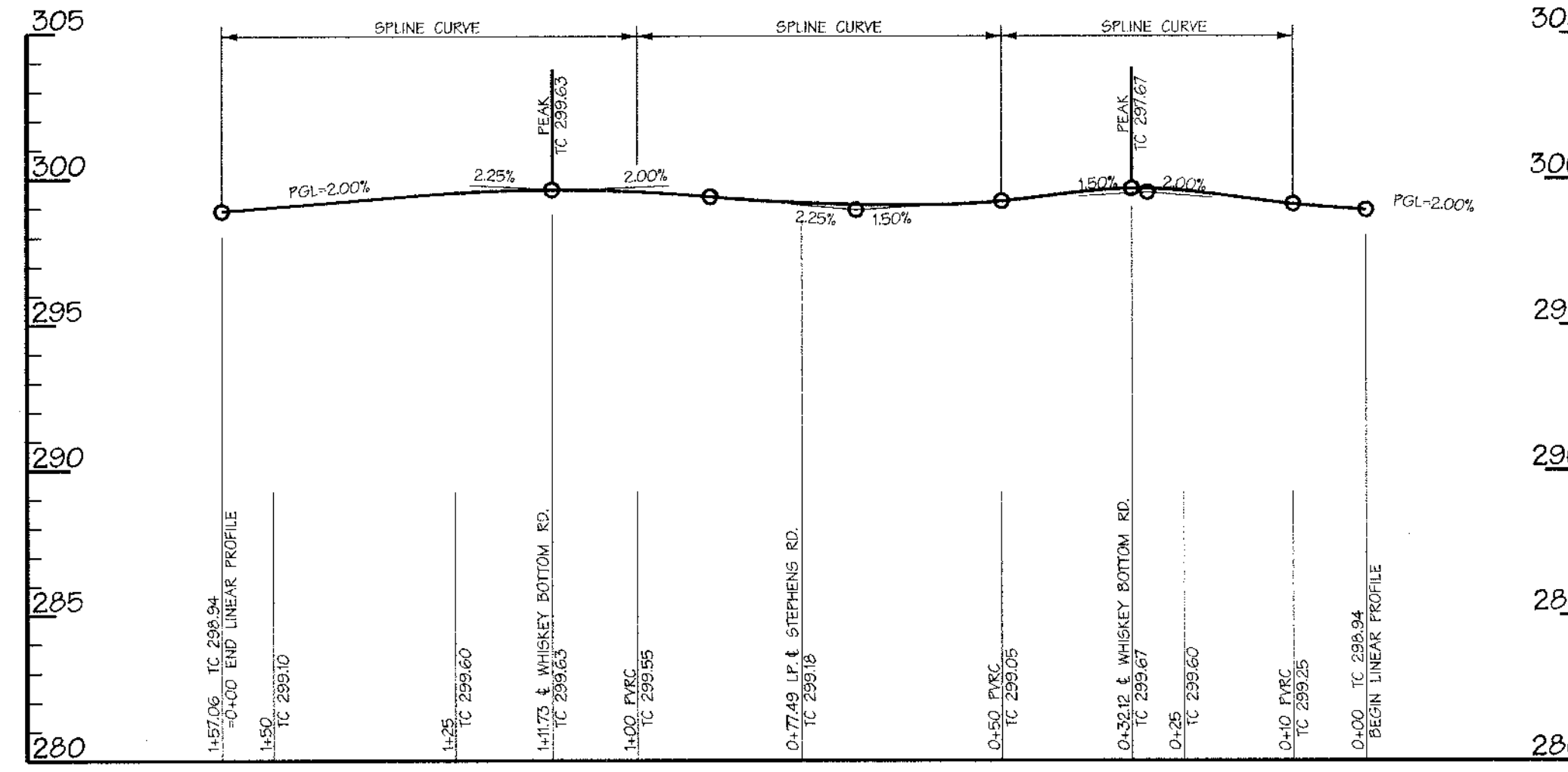
LINEAR PROFILE - SE CURB RETURN

SCALE: HORZ. 1" = 20'  
VERT. 1" = 5'



LINEAR PROFILE - SW CURB RETURN

SCALE: HORZ. 1" = 20'  
VERT. 1" = 5'



CENTER ISLAND - LINEAR PROFILE

SCALE: HORZ. 1" = 20'  
VERT. 1" = 5'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William Z. Baker</i> CHIEF, BUREAU OF HIGHWAYS	10-10-02 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Christa Hamilton</i> CHIEF, DIVISION OF LAND DEVELOPMENT	10/22/02 DATE
APPROVED: DEVELOPMENT ENGINEERING DIVISION	
<i>Alan D. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	MJK DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

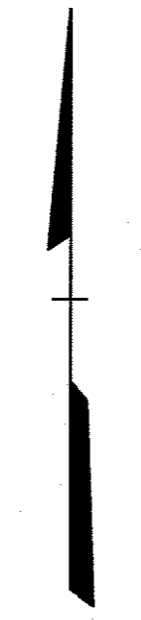
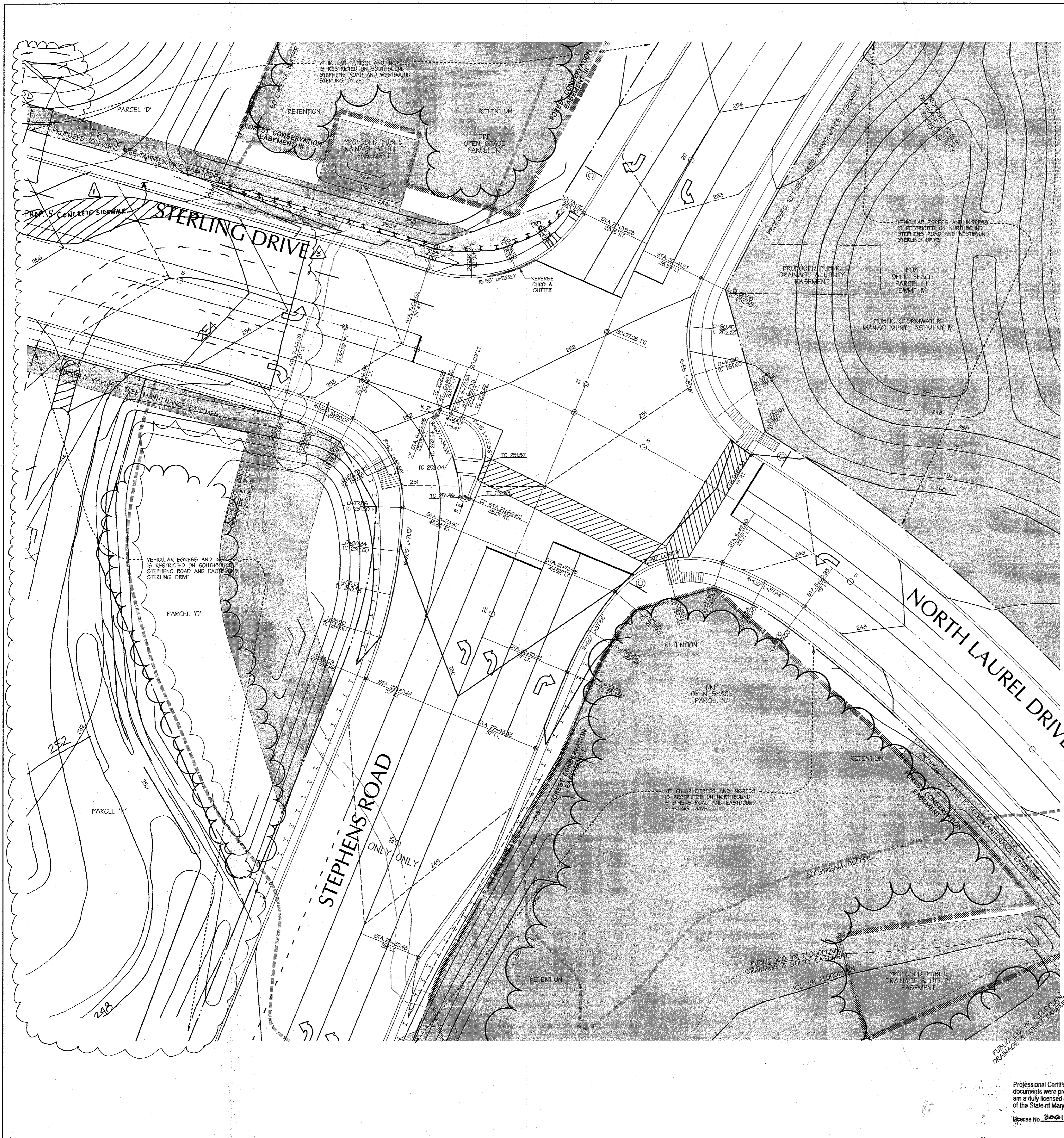
OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044


**DMW**  
Duff McCune Walker, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3233  
Fax: 296-4705

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

01-NT-0500/200260639  
7/20/02  
Date  
*[Signature]*  
Professional Engr. No. 10551

REVISION NAME	REVISION AREA	ISSUANCE #
REVITZ PROPERTY		165 & PO PAR 837
PLAT OR CD	BLOCK #	ZONE
2267436	20	PEC
WATER USE	PARCELS MAP	SECTION
	6	th
TITLE		
FINAL PLAN		
ROUNDBOUT CURB PROFILES		
Des By	Scale	Proj. No.
RBW	AS SHOWN	01011.B
Drn By	Date	
WDE	9/19/02	
Chk By	Approved	9 OF 57



  
 THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP SPP-10-005

PROFESSIONAL CERTIFICATION FOR REV #3  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 05/21/2018.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Mahan, Jr.* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy Harrold* 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Alan Dammann* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

05/23/13	3	EMERSON CAMPUS VCP
2-7-11	1	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No.	Revision Description

### REVITZ PROPERTY

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

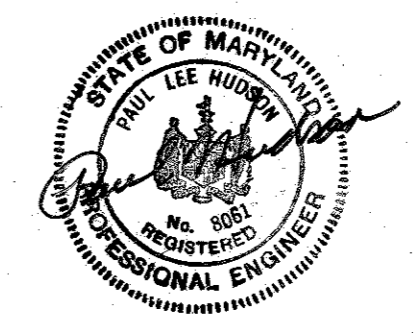
**DMW**  
 Dorn-McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3353  
 Fax 296-4705


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

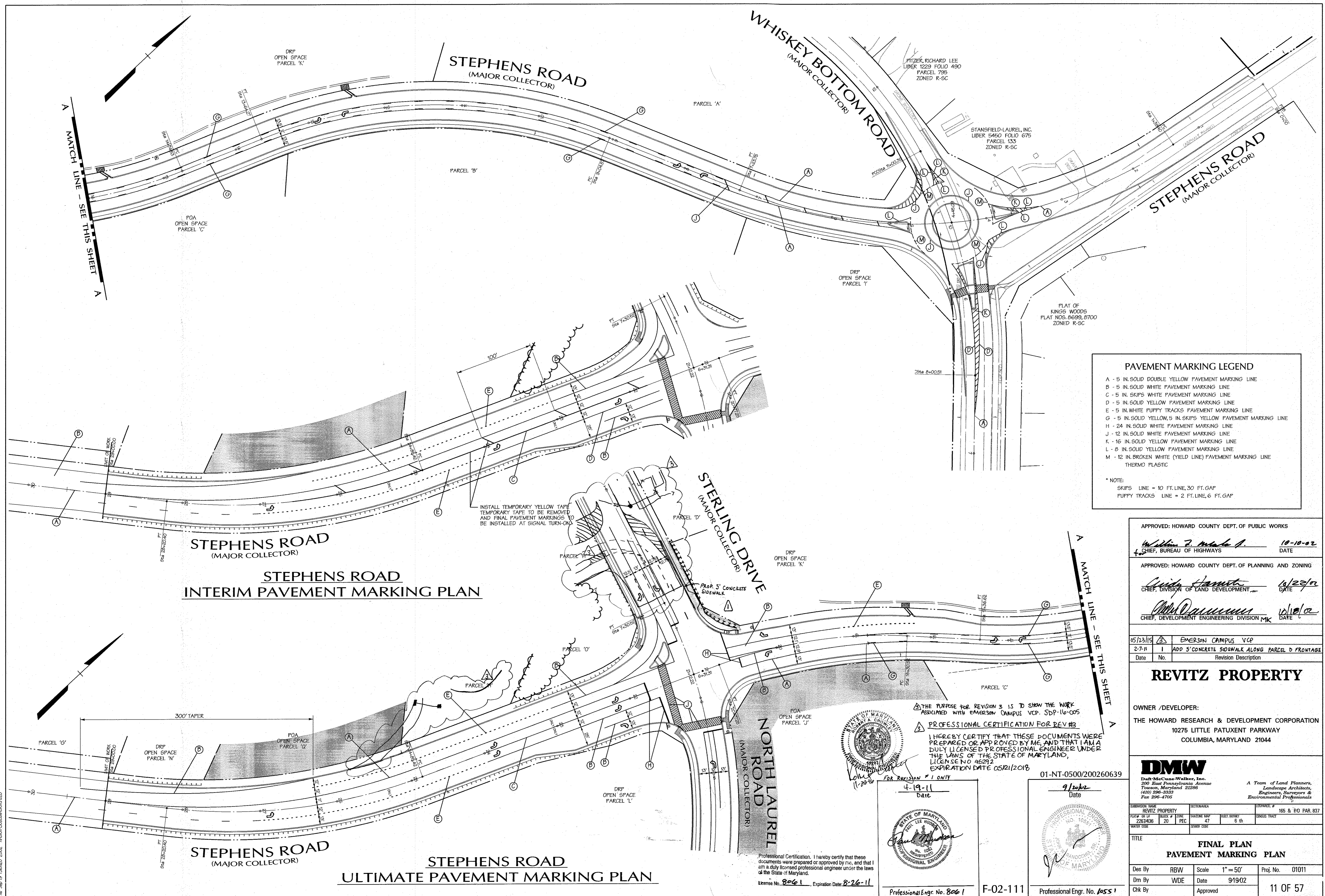
SUBDIVISION NAME	REVITZ PROPERTY	SECTION/AREA	10557	DATE	10/22/02
PLAT	2267436	FEET	20	FEET	47
WATER CODE	20	SEWER CODE	47	SHEET NUMBER	6 TH

TITLE			
STEPHENS ROAD - STERLING DRIVE INTERSECTION DETAIL			
Des By	RBW	Scale	1" = 20'
Drn By	WDE	Date	9/19/02
Chk By	Approved	Proj. No.	01011.B
			10 OF 57

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 8061 Expiration Date: 8-26-11

FOR REVISION #1 ONLY  
 4-19-11  
 Date  
  
 Professional Engr. No. 8061

01-NT-0500/200260639  
 9/20/02  
 Date  
  
 Professional Engr. No. 45292



**PAVEMENT MARKING LEGEND**

- A - 5 IN. SOLID DOUBLE YELLOW PAVEMENT MARKING LINE
- B - 5 IN. SOLID WHITE PAVEMENT MARKING LINE
- C - 5 IN. SKIPS WHITE PAVEMENT MARKING LINE
- D - 5 IN. SOLID YELLOW PAVEMENT MARKING LINE
- E - 5 IN. WHITE PUPPY TRACKS PAVEMENT MARKING LINE
- G - 5 IN. SOLID YELLOW, 5 IN. SKIPS YELLOW PAVEMENT MARKING LINE
- H - 24 IN. SOLID WHITE PAVEMENT MARKING LINE
- J - 12 IN. SOLID WHITE PAVEMENT MARKING LINE
- K - 16 IN. SOLID YELLOW PAVEMENT MARKING LINE
- L - 8 IN. SOLID YELLOW PAVEMENT MARKING LINE
- M - 12 IN. BROKEN WHITE (YIELD LINE) PAVEMENT MARKING LINE THERMO PLASTIC

\* NOTE:  
 SKIPS LINE = 10 FT. LINE, 30 FT. GAP  
 PUPPY TRACKS LINE = 2 FT. LINE, 6 FT. GAP

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. Madsen* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Grady Hamon* 10/23/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chris Parnass* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

05/23/19	EMERSON CAMPUS VCP
2-7-N	1 ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No. Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

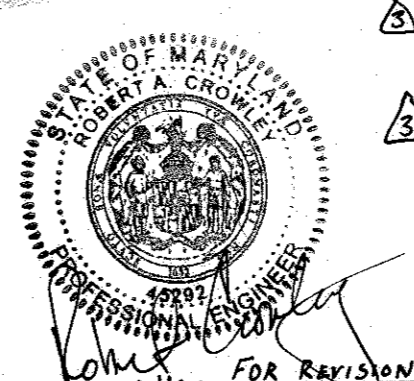
**DMW**  
 Draft-McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

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

SECTION AREA	165 & DO PAR. 837
PLAT # OR 14	2267436
BLOCK #	20
PLAT #	47
PLAT #	6 th
PLAT #	

**FINAL PLAN PAVEMENT MARKING PLAN**

Des By	RBW	Scale	1" = 50'	Proj. No.	01011
Drn By	WDE	Date	9/19/02		
Chk By	Approved				11 OF 57



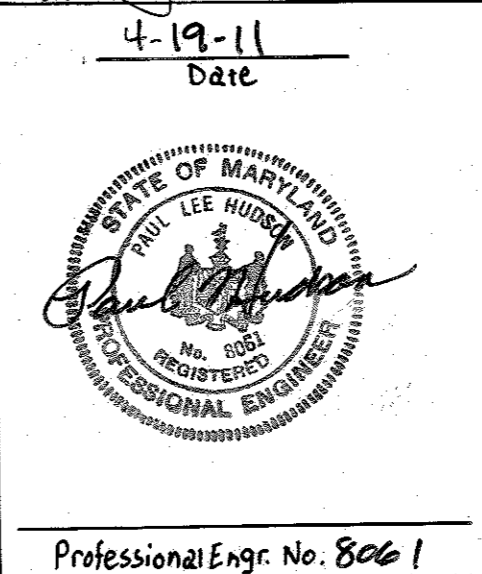
THE PURPOSE FOR REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP. SDP-16-005

PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292 EXPIRATION DATE 05/21/2018

DATE: 4-19-11

Professional Engr. No. 8061

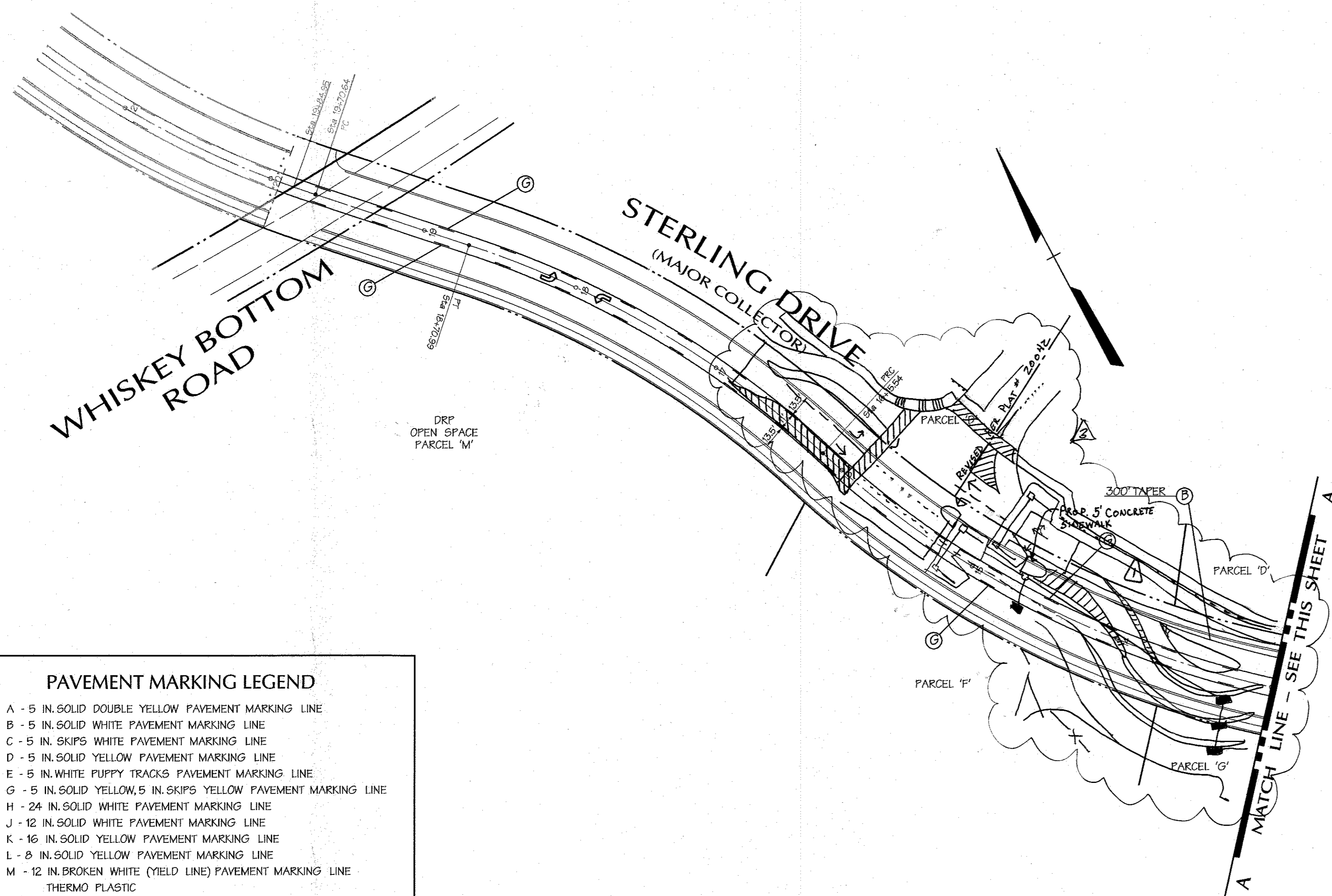
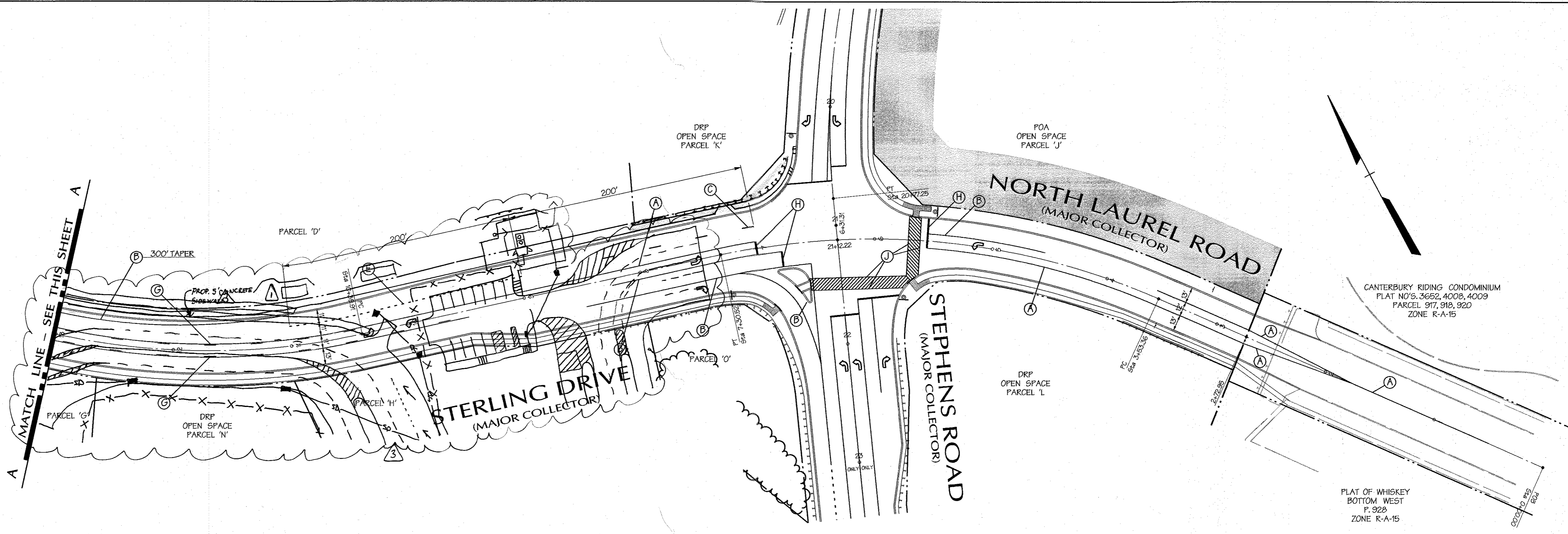


DATE: 9/20/02

Professional Engr. No. 16551

F-02-111

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 8061, Expiration Date: 8-26-11



**PAVEMENT MARKING LEGEND**

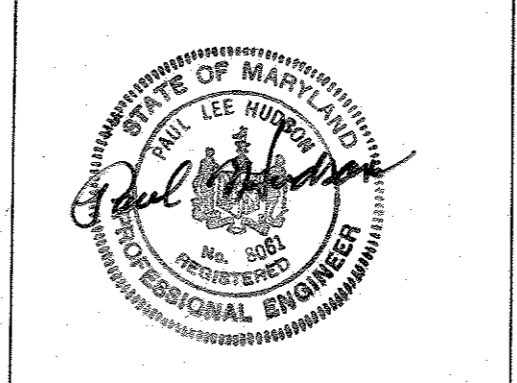
- A - 5 IN. SOLID DOUBLE YELLOW PAVEMENT MARKING LINE
- B - 5 IN. SOLID WHITE PAVEMENT MARKING LINE
- C - 5 IN. SKIPS WHITE PAVEMENT MARKING LINE
- D - 5 IN. SOLID YELLOW PAVEMENT MARKING LINE
- E - 5 IN. WHITE PUPPY TRACKS PAVEMENT MARKING LINE
- G - 5 IN. SOLID YELLOW, 5 IN. SKIPS YELLOW PAVEMENT MARKING LINE
- H - 24 IN. SOLID WHITE PAVEMENT MARKING LINE
- J - 12 IN. SOLID WHITE PAVEMENT MARKING LINE
- K - 16 IN. SOLID YELLOW PAVEMENT MARKING LINE
- L - 8 IN. SOLID YELLOW PAVEMENT MARKING LINE
- M - 12 IN. BROKEN WHITE (YIELD LINE) PAVEMENT MARKING LINE THERMO PLASTIC

\* NOTE:  
 SKIPS LINE = 10 FT. LINE, 30 FT. GAP  
 PUPPY TRACKS LINE = 2 FT. LINE, 6 FT. GAP

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 8061, Expiration Date: 8-26-11



FOR REVISION #1 ONLY  
 4-19-11  
 Date



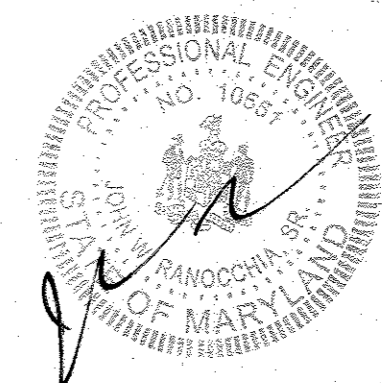
Professional Engr. No. 8061

THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP. SDR-16-005

PROFESSIONAL CERTIFICATION FOR REV #3  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10551, EXPIRATION DATE 05/21/2018

01-NT-0500/200260639

9/26/02  
 Date



Professional Engr. No. 10551

F-02-111

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. White Jr.</i> CHIEF, BUREAU OF HIGHWAYS	10-10-02 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Christy Hammett</i> CHIEF, DIVISION OF LAND DEVELOPMENT	10/22/02 DATE
<i>Mark Dammann</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	10/10/02 DATE
05/23/15	EMERSON CAMPUS VCP
2-7-11	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No. Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**

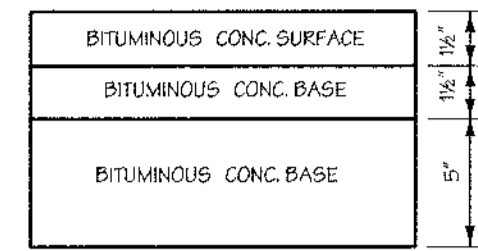
Dan McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-8833  
 Fax 296-4705

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

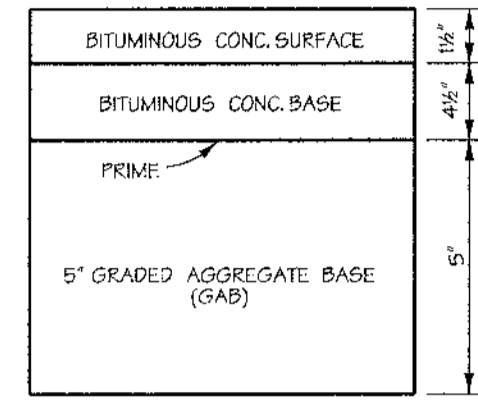
SUBMISSION NAME	REVITZ PROPERTY	SECTION AREA	105 & PO PAR. 837
PLAT # OR 17	226/436	BLOCK #	20
DATE	20	PERMITS	PEC
WATER CODE		SEWER CODE	6 th

TITLE			
FINAL PLAN PAVEMENT MARKING PLAN			
Des By	RBW	Scale	1" = 50'
Dim By	WDE	Date	9/19/02
Proj. No.	01011		
Chk By	Approved	12 OF 57	

F-02-111



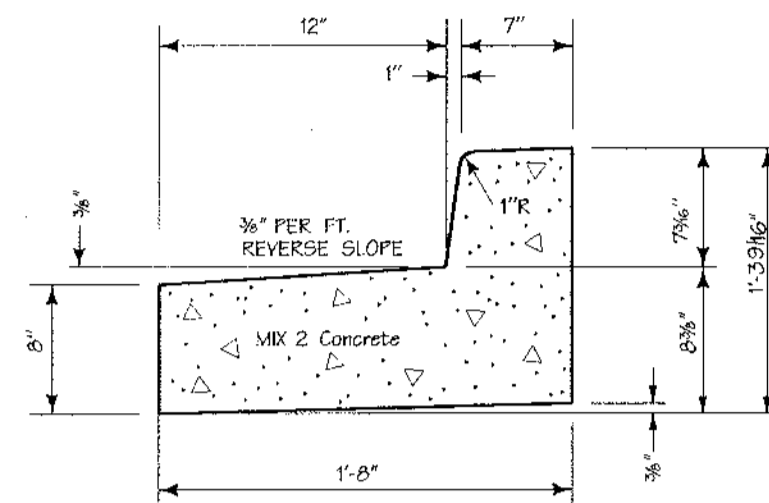
FULL DEPTH ALTERNATE



GRANULAR BASE ALTERNATE

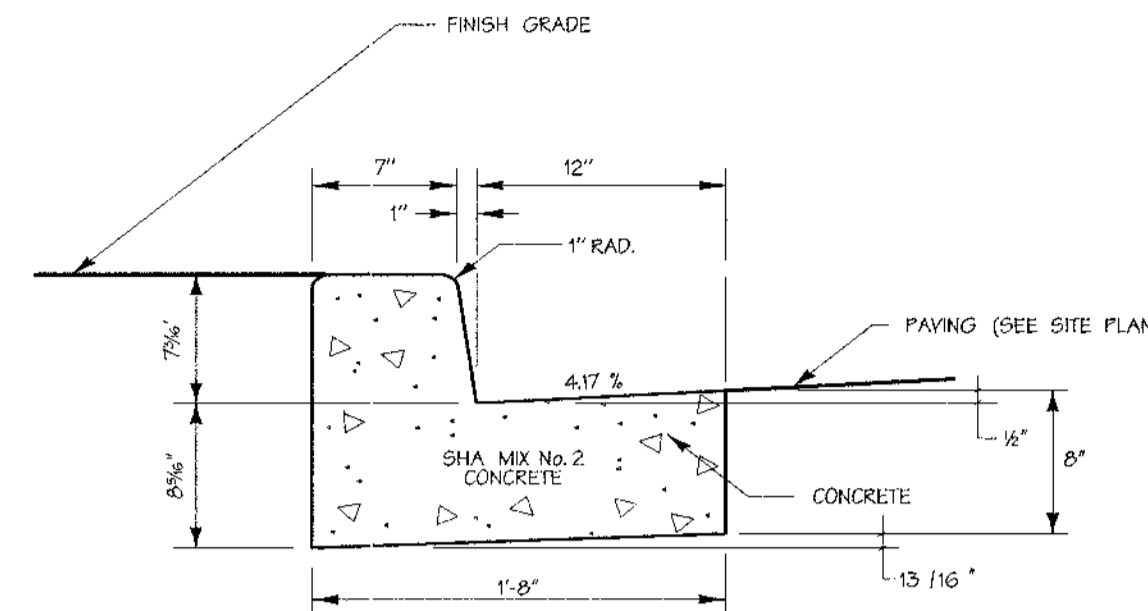
PAVING SECTION P-3  
MINOR & MAJOR COLLECTORS

NO SCALE



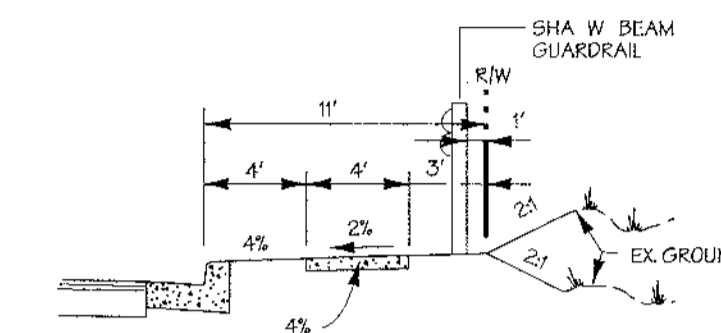
REVERSE 7" COMBINATION CURB & GUTTER

NO SCALE

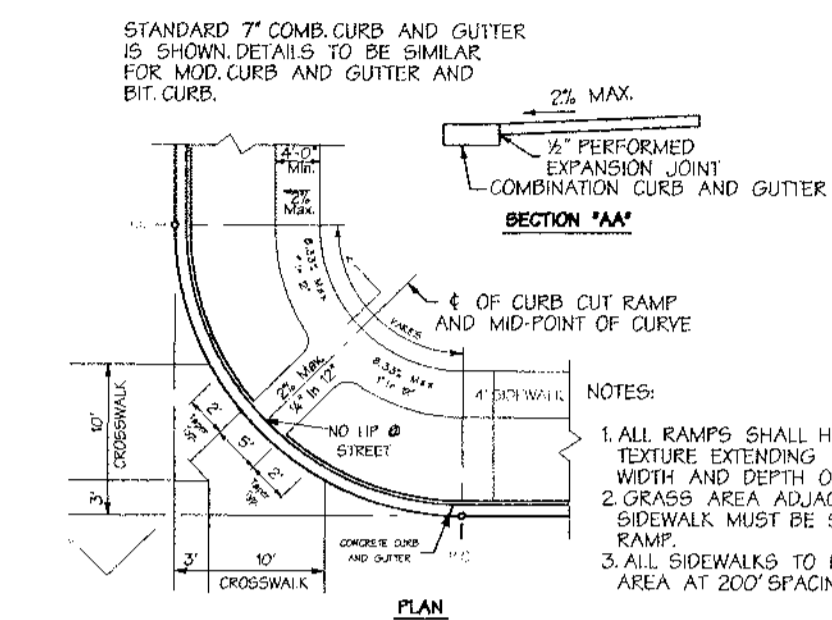


SECTION TYPE "A" CURB AND GUTTER

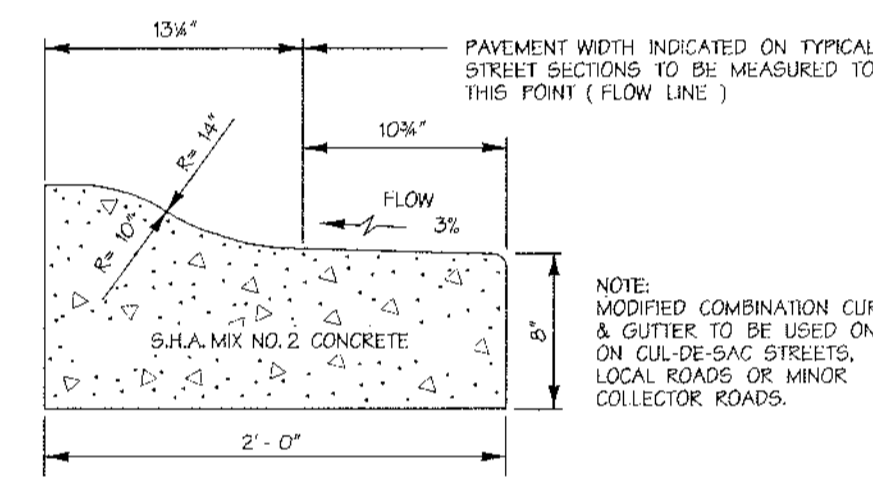
NO SCALE



LOCATION PLAN  
W BEAM GUARDRAIL

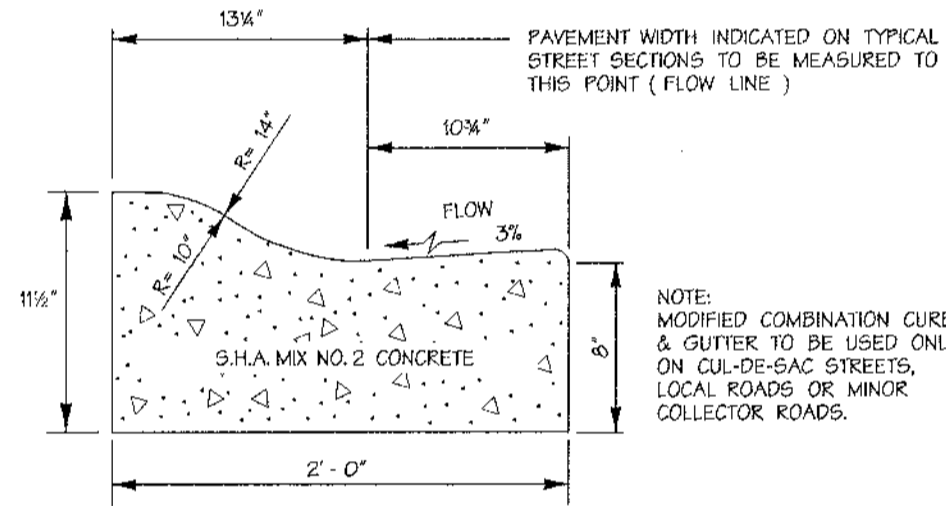


SIDEWALK RAMP  
TYPE "A"



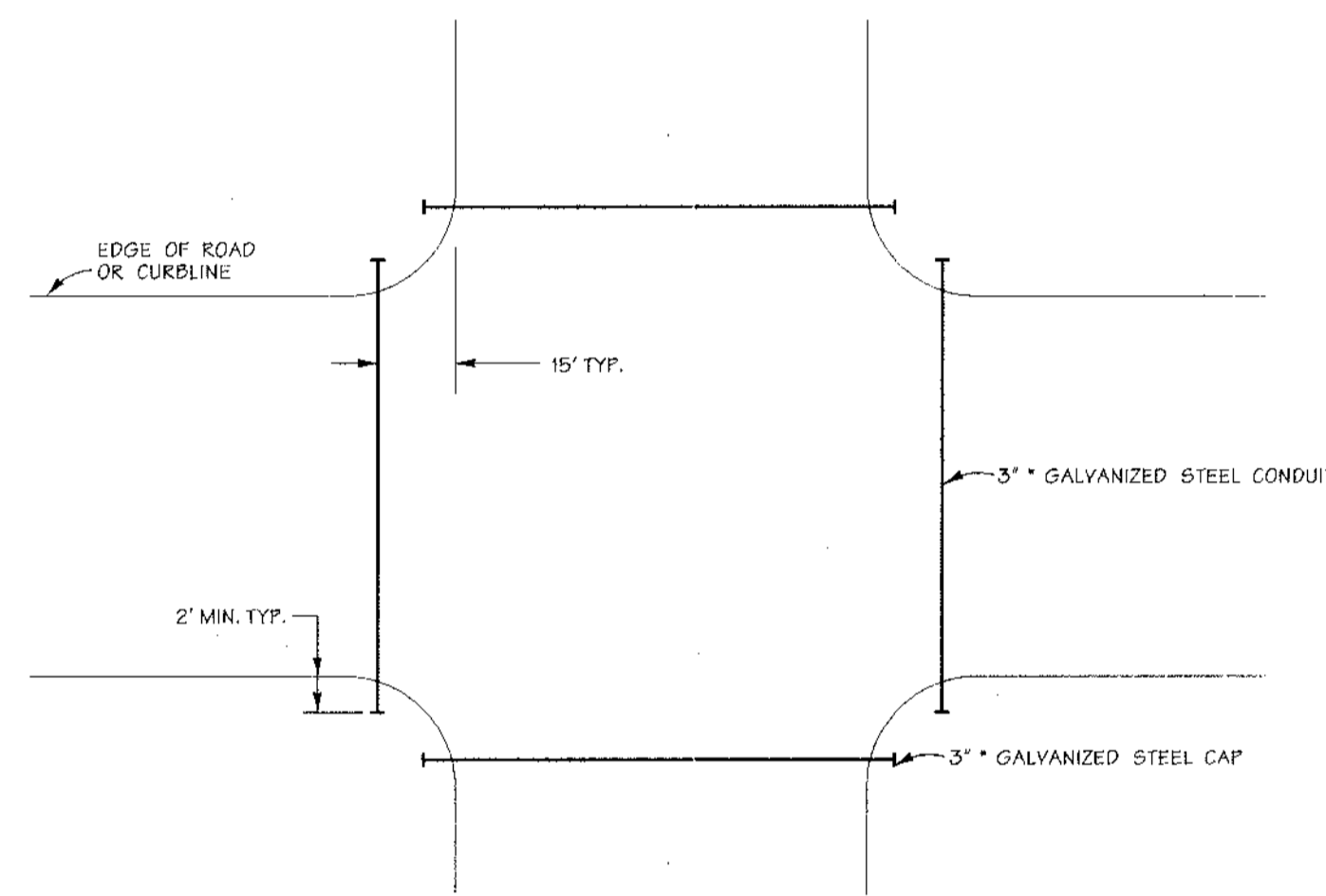
MODIFIED REVERSE SLOPE MOUNTABLE CONCRETE CURB & GUTTER

NO SCALE



MODIFIED MOUNTABLE CONCRETE CURB & GUTTER

NO SCALE

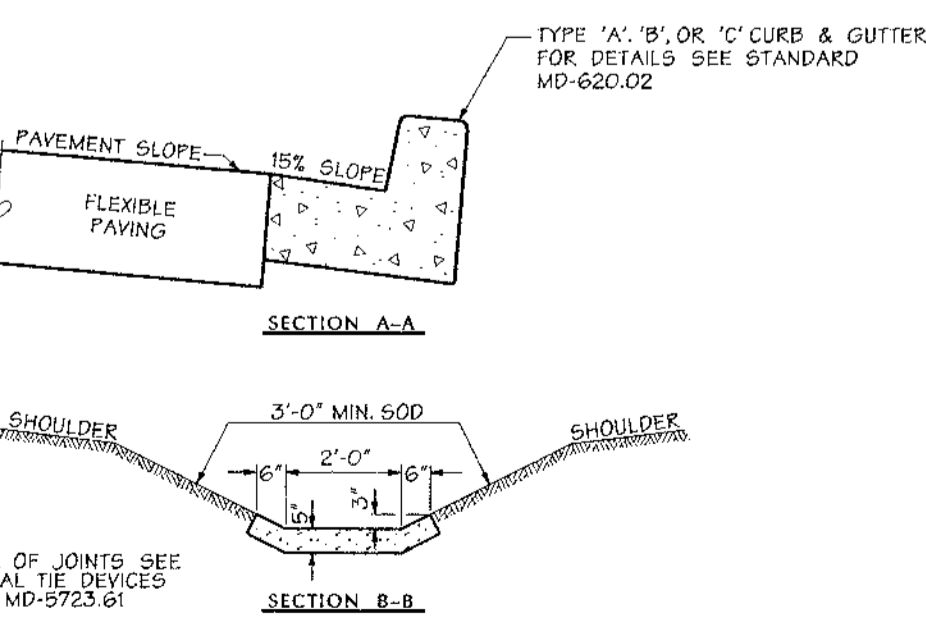
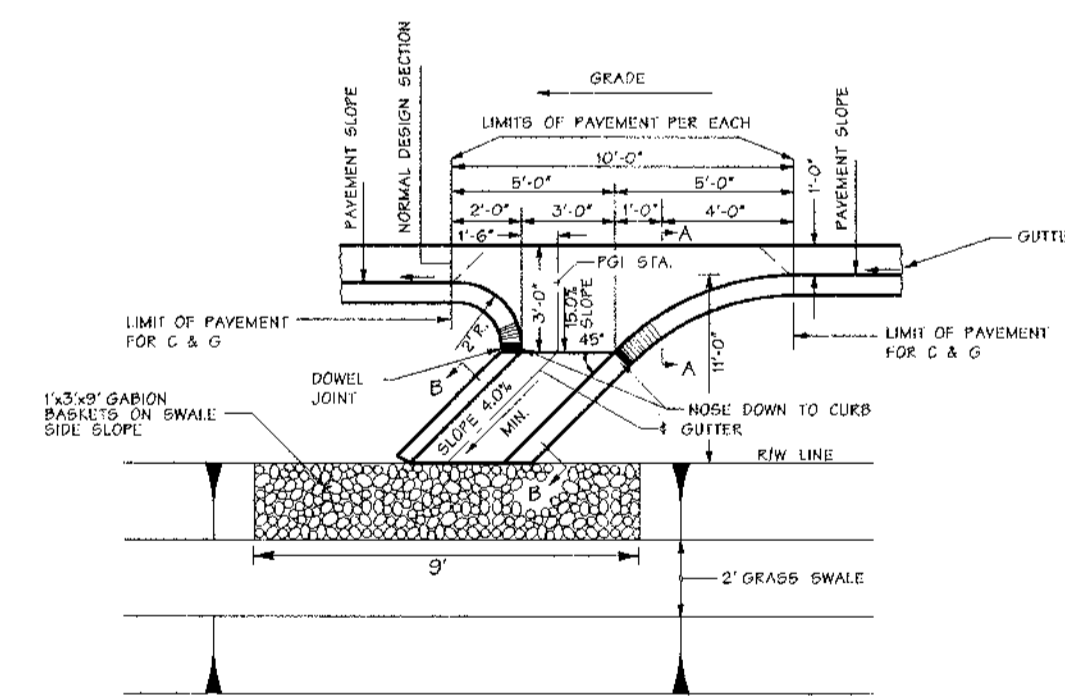


HOWARD COUNTY DETAIL R-9.01

NO SCALE

\* LARGER CONDUITS SHALL BE INSTALLED WHEN SO DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.

- NOTES:
1. CONDUITS SHALL BE INSTALLED WHEN DIRECTED BY THE DEPT. OF PUBLIC WORKS
  2. CONDUITS SHALL BE LAID AT A DEPTH OF 18", SLOPED TO DRAIN AND THE ENDS CAPPED.
  3. SEE FIGURES 2.18 AND 2.19 OF DESIGN MANUAL FOR LOCATION OF UTILITIES.

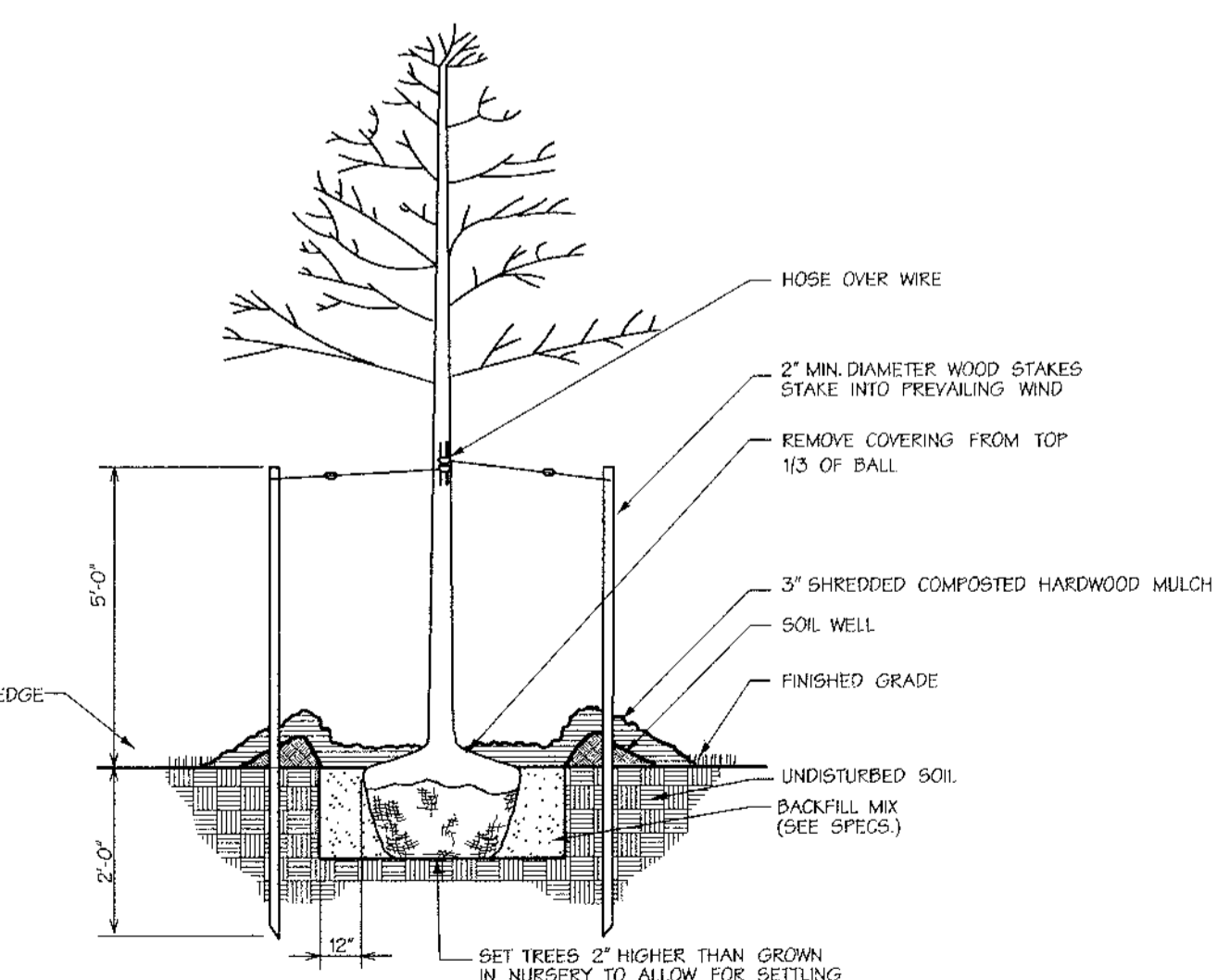


STANDARD CURB OPENING DETAIL CURB & GUTTER SECTION

NOT TO SCALE

NOTE: FOR DETAIL OF JOINTS SEE LONGITUDINAL. THE DESIGNER'S STANDARD MD-5723.61

F-02-111



DECIDUOUS TREE DETAIL

(TO 3" CALIPER)

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William F. White Jr.</i>	10-10-02
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Christy Hammett</i>	10/22/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>John DeWitt</i>	10/18/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Dan McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Potosi, Maryland 21286  
(410) 296-3938  
Fax: 296-4705

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

01-NT-0500/200260639  
9/22/02  
Date

PROJECT NAME	REVITZ PROPERTY	SECTION AREA		OFFICIAL #	155 & PO PAR. 837
MAP OR LOT	2767436	BLOCK #	20	TRACED MAP	47
WATER CODE					
TITLE	FINAL PLAN ROAD CONSTRUCTION DETAILS				
Des By	RBW	Scale	AS SHOWN	Proj. No.	01011
Drn By	WDE	Date	9/19/02		
Chk By		Approved			13 OF 57

F-02-111

Professional Engr. No. 10551

F-02-111



NOTE:  
CONTRACTOR TO MAKE  
ADJUSTMENTS TO PLAN  
IN FIELD AS REQUIRED.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. Walker Jr.* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Linda Smith* 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark* 10/18/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

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

A Team of Land Planners,  
 Landscape Architects,  
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 Environmental Professionals

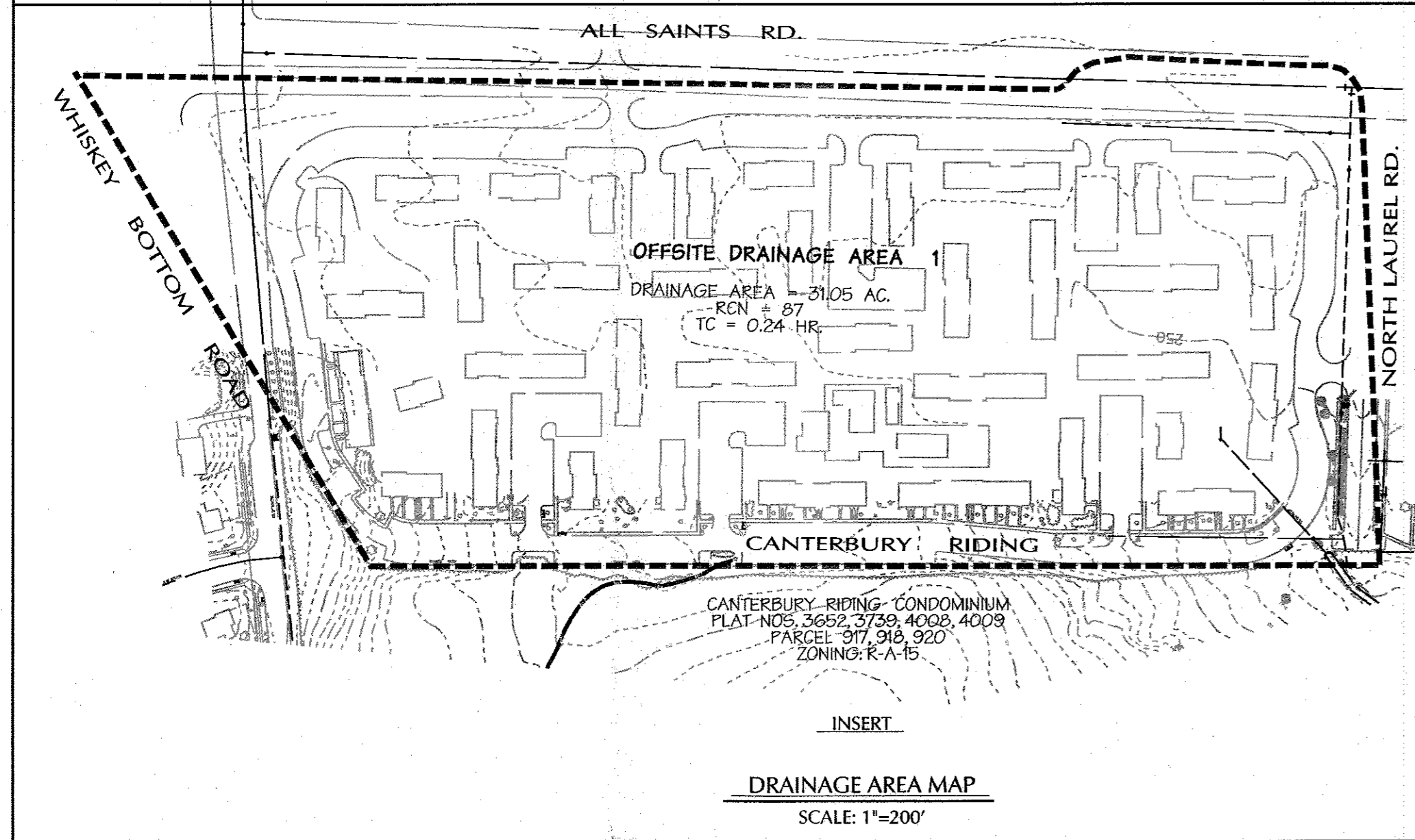
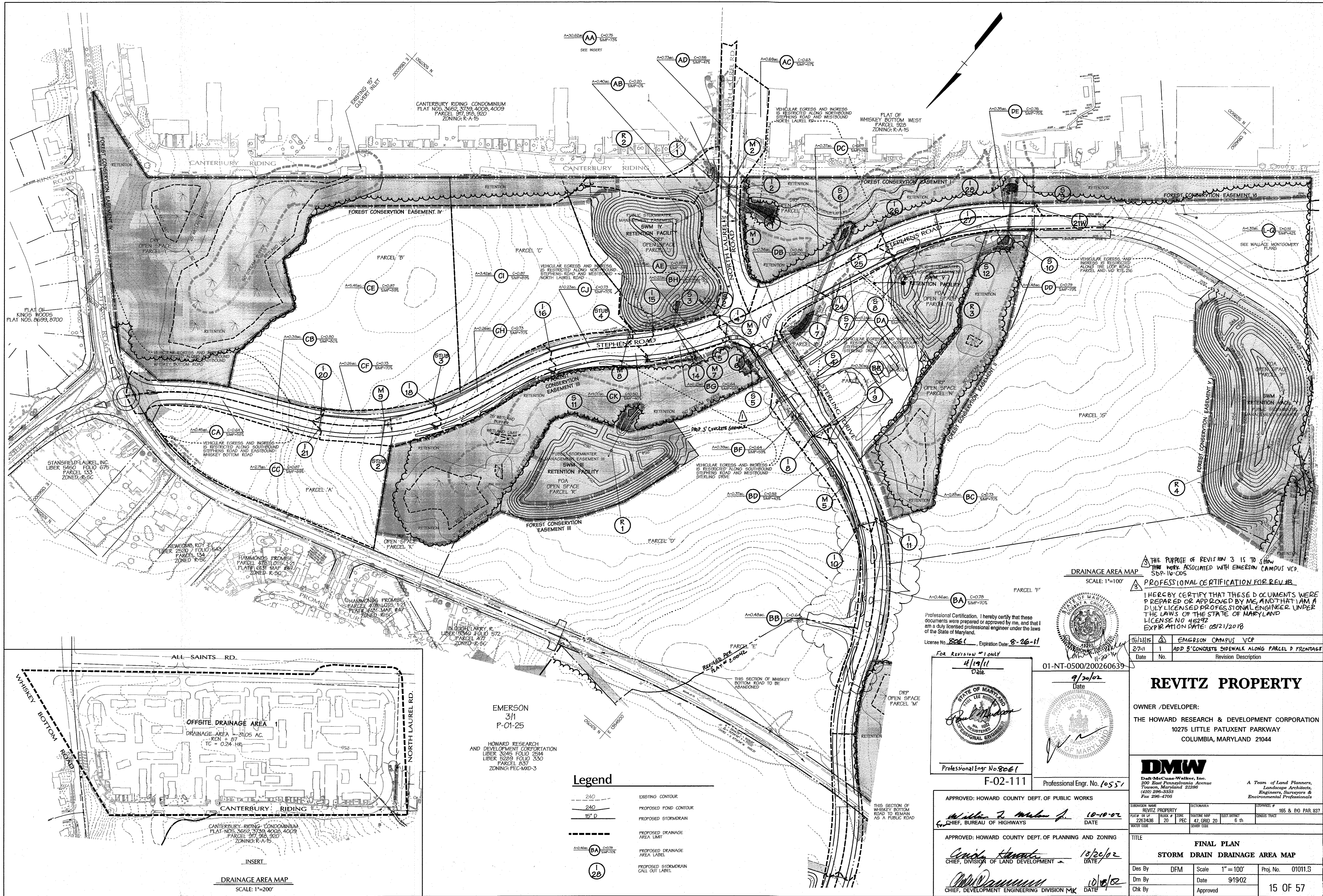
SUBDIVISION NAME	SECTION AREA	DATE
2267436	20	9/22/02

TITLE			
FINAL PLAN MAINTENANCE OF TRAFFIC PLAN			
Des By	DFM	Scale 1" = 50'	Proj. No. 01011
Drn By	KDE	Date 9/19/02	
Chk By	Approved		14 OF 57

*g/walker*  
 Date

*[Signature]*

F-02-111 Professional Engr. No. 10551



EMERSON  
3/1  
P-01-25

HOWARD RESEARCH  
AND DEVELOPMENT CORPORATION  
LIBER 3245 FOLIO 2514  
LIBER 5229 FOLIO 330  
PARCEL 257  
ZONING: PEC-MXD-3

- Legend**
- 240 --- EXISTING CONTOUR
  - 240 --- PROPOSED POND CONTOUR
  - 15' D --- PROPOSED STORMDRAIN
  - PROPOSED DRAINAGE AREA LIMIT
  - A=0.46ac (BA) C=0.75 SIMP=70% PROPOSED DRAINAGE AREA LABEL
  - 1 2B --- PROPOSED STORMDRAIN CALL OUT LABEL

**DRAINAGE AREA MAP**  
SCALE: 1"=100'

THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP SDP-16-005

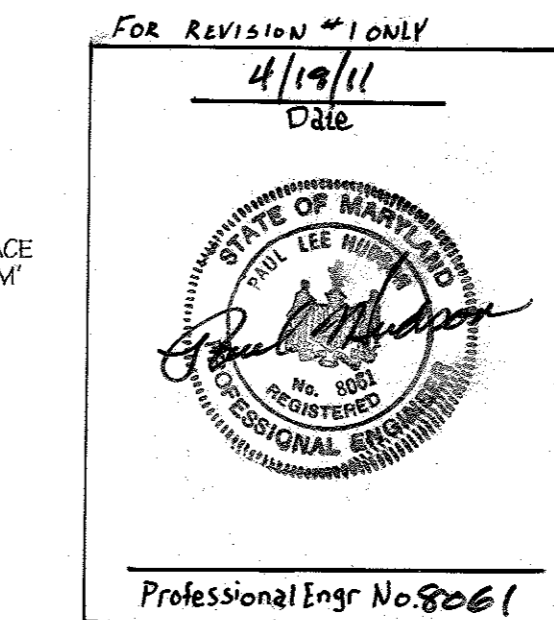
PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND  
LICENSE NO. 45292  
EXPIRATION DATE: 05/21/2019



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 8061 Expiration Date: 8-26-11



01-NT-0500/200260639

9/26/02  
Date

Professional Engr. No. 10551

Date	No.	Revision Description
05/13/15	1	EMERSON CAMPUS VCP
2-7-11	1	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff-McCune-Walker, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-8333  
Fax 296-4705

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

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William J. Mahan Jr.* 10-10-02  
DATE  
CHIEF, BUREAU OF HIGHWAYS

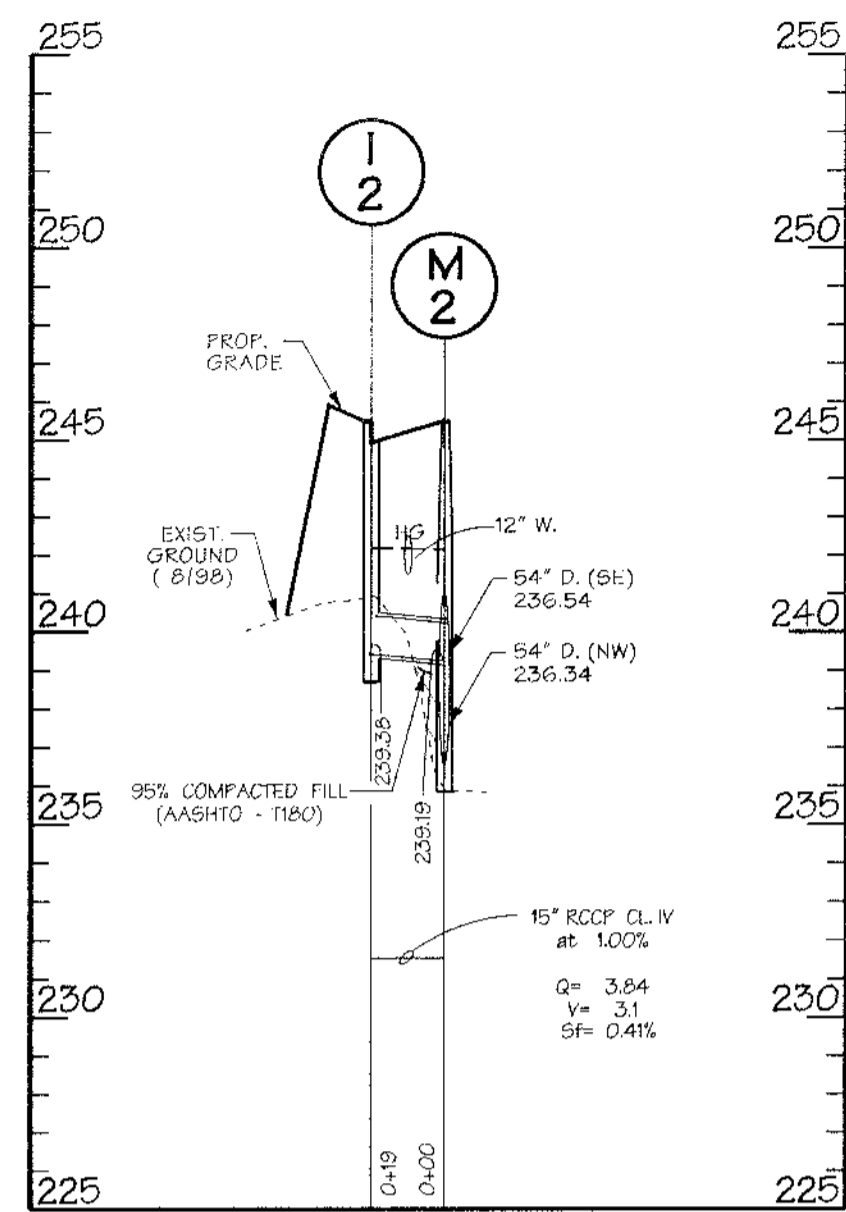
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Conita K. Hantz* 10/26/02  
DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT

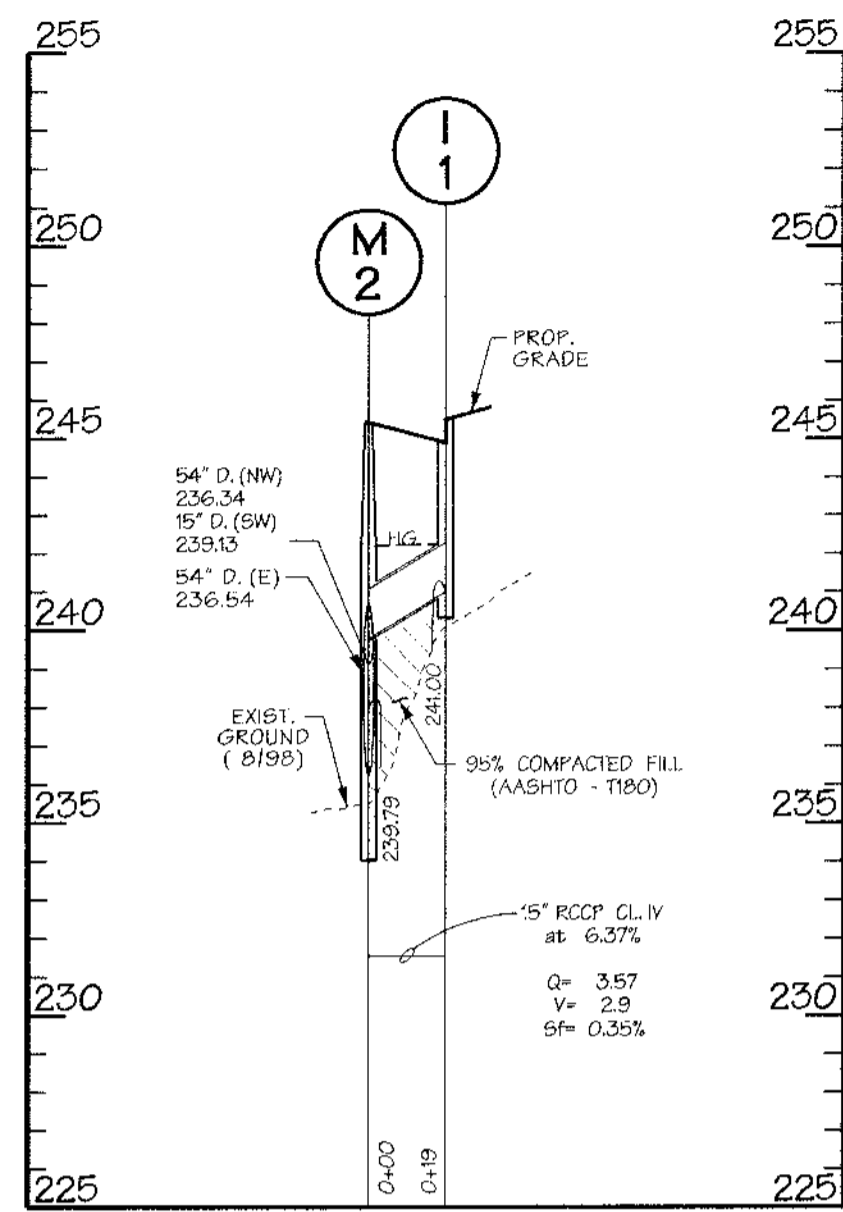
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Michael J. ...* 10/15/12  
DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK

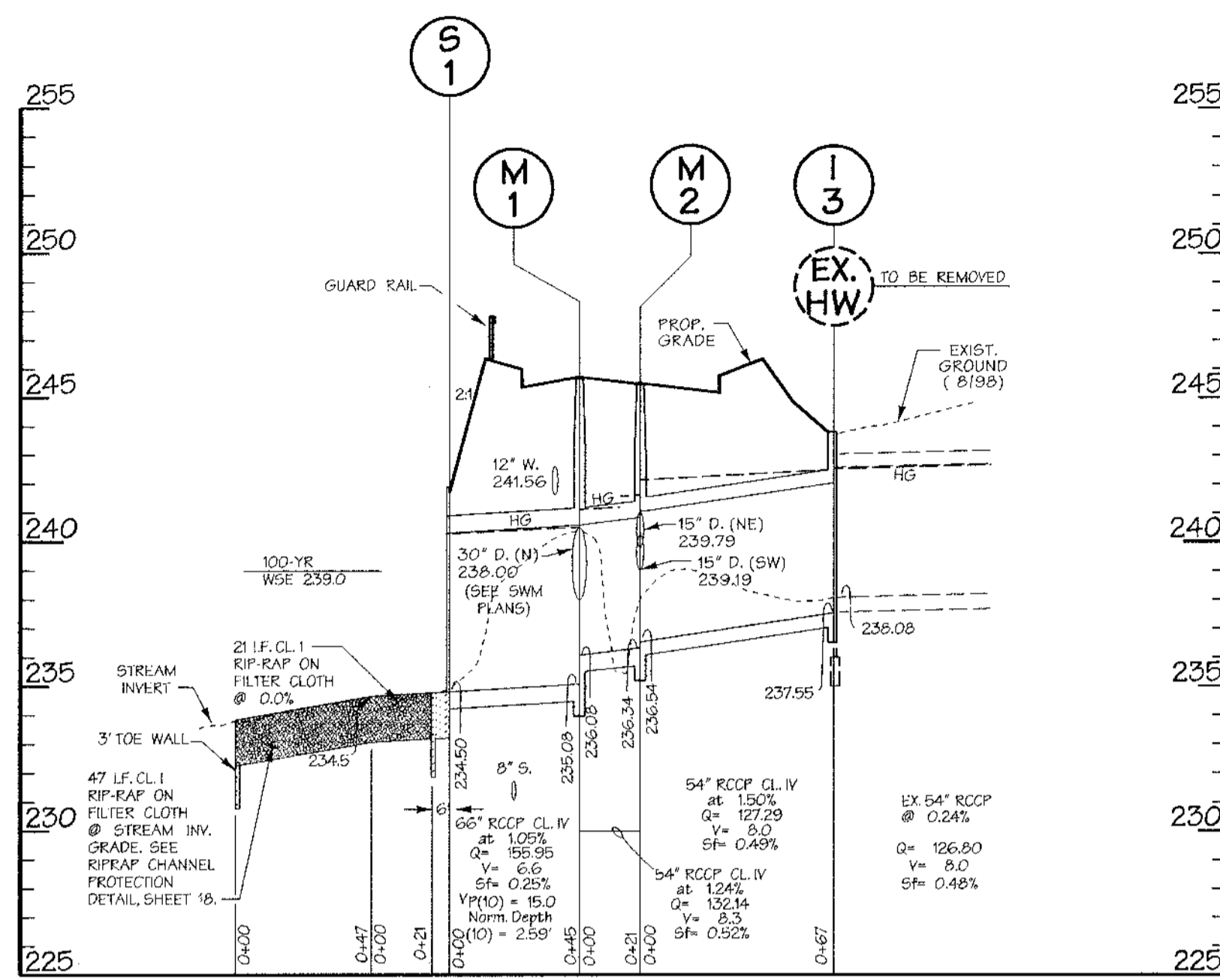
TITLE			
<b>FINAL PLAN</b>			
<b>STORM DRAIN DRAINAGE AREA MAP</b>			
Des By	DFM	Scale	1" = 100'
Drn By		Date	9/19/02
Chk By		Approved	
		Proj. No.	01011.3
		15 OF 57	



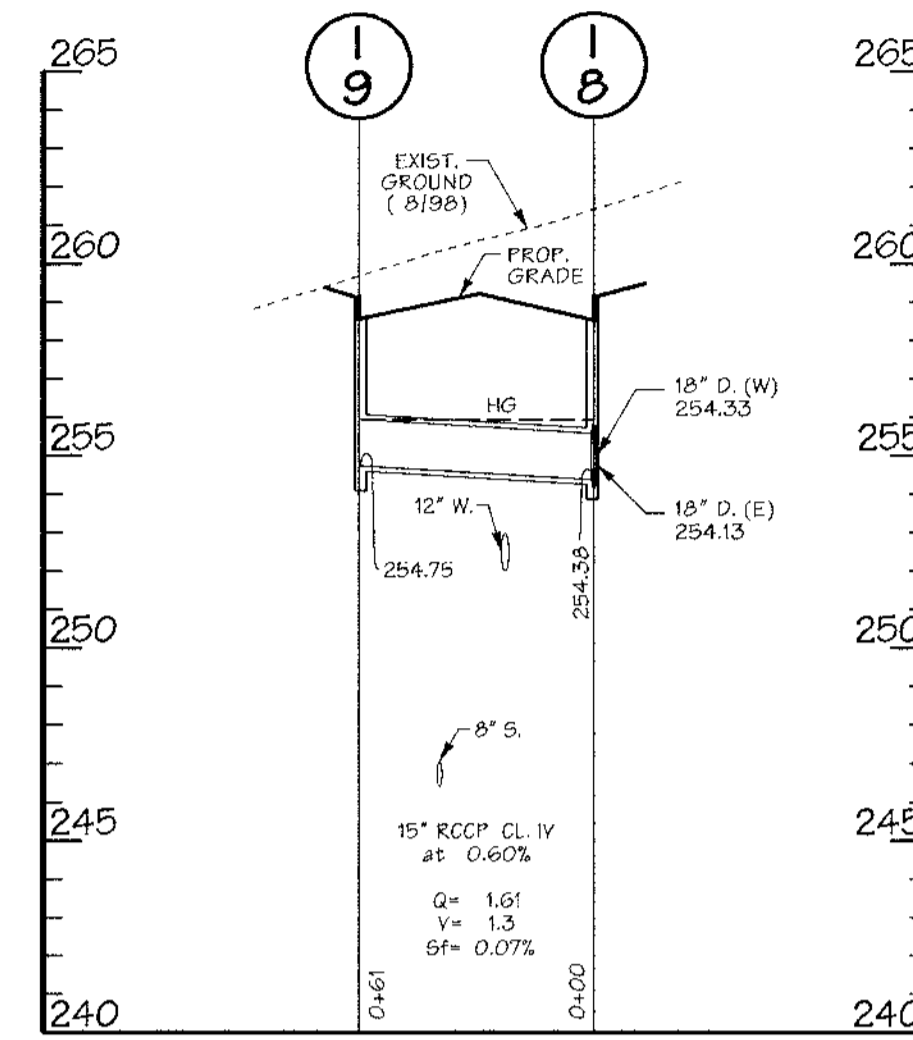
**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



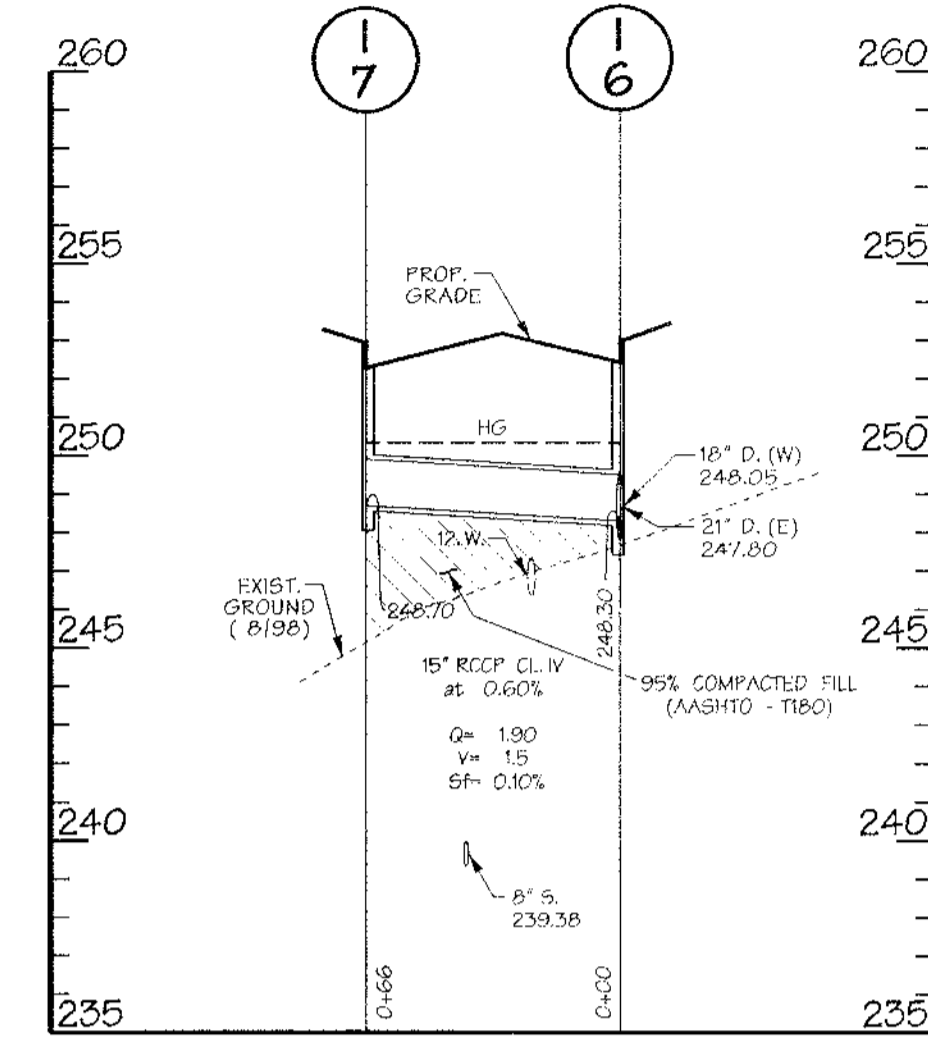
**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



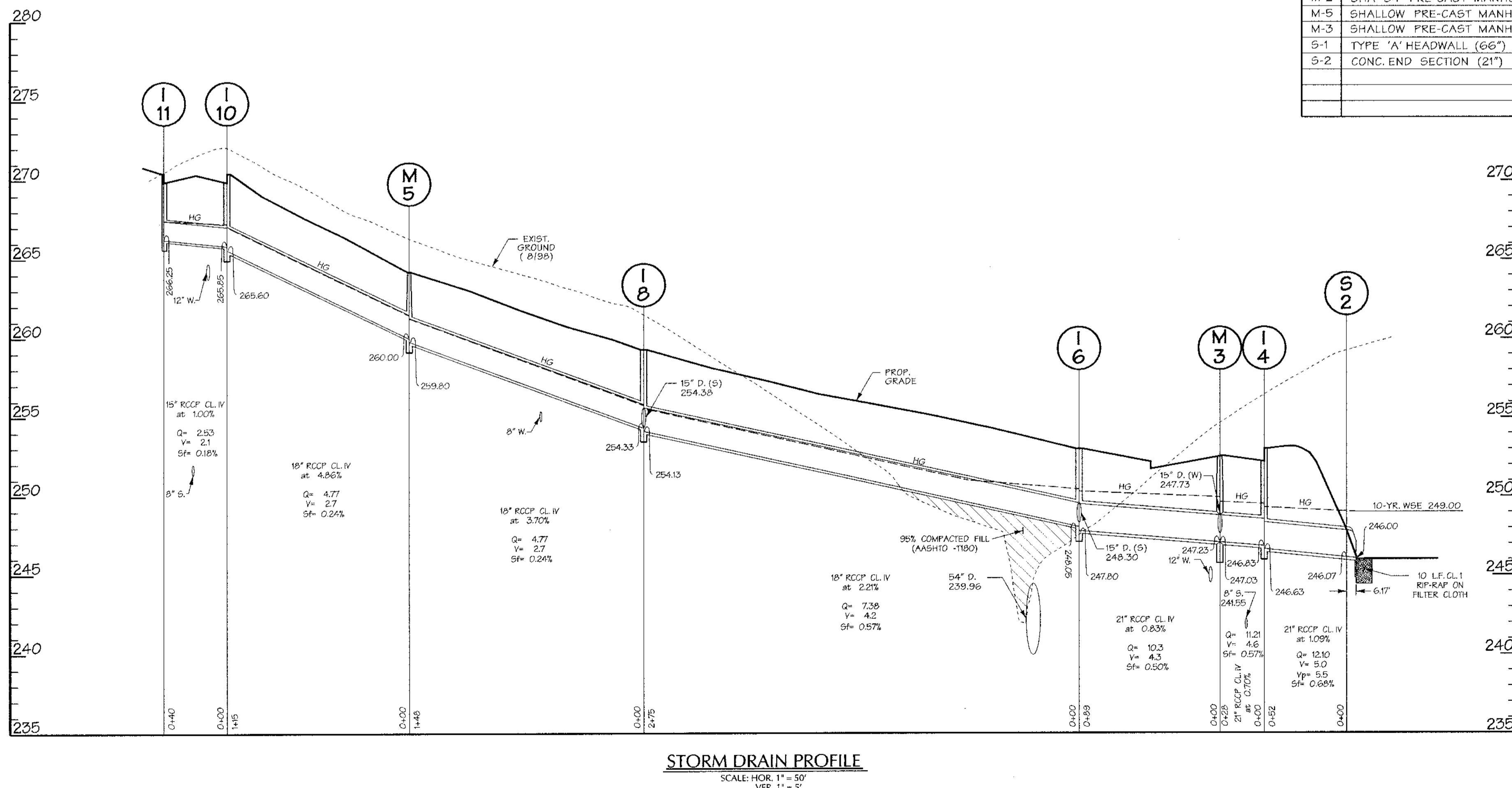
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SCALE: HOR. 1" = 50'  
VER. 1" = 5'



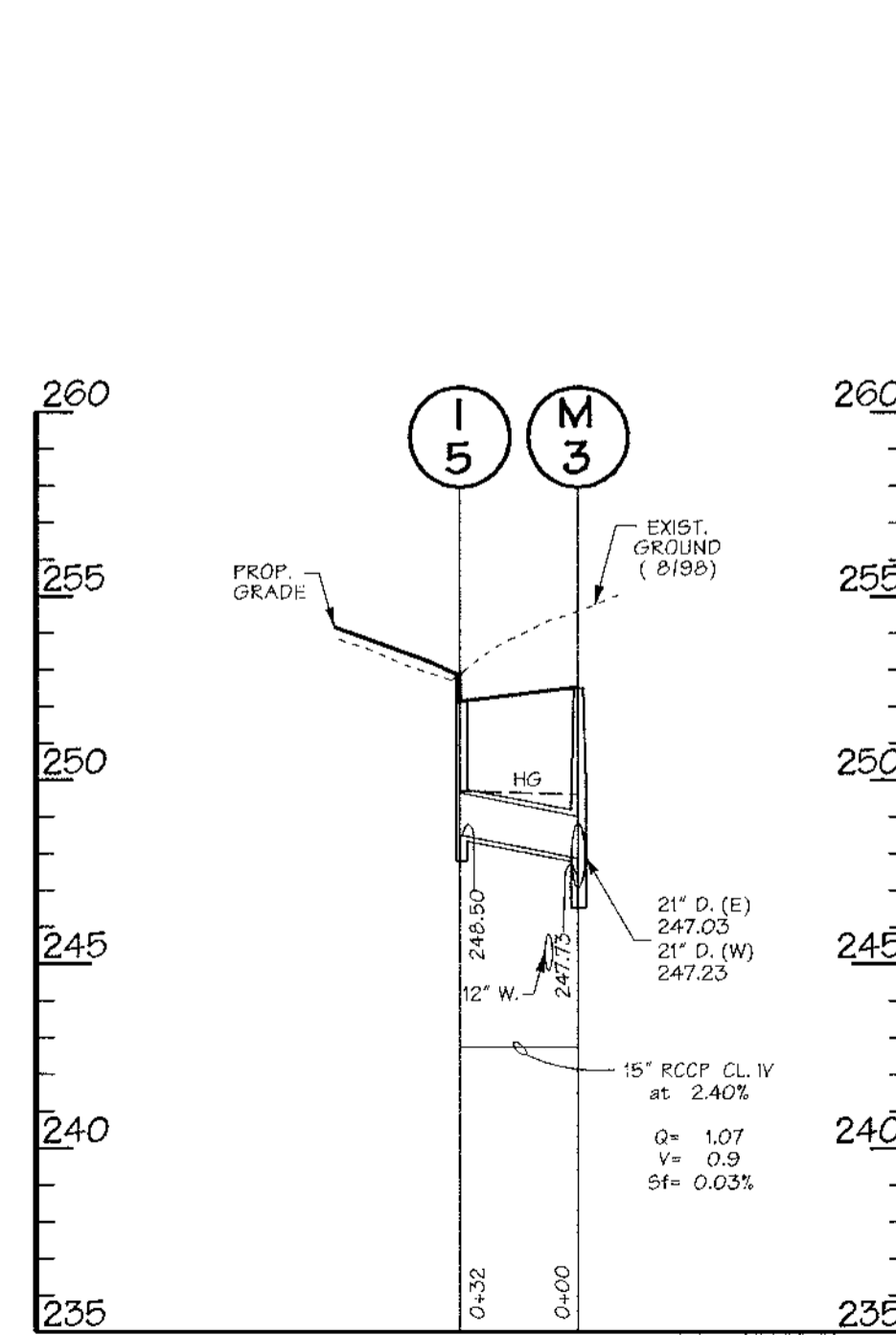
**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'

STRUCTURE SCHEDULE						
NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS	LOCATION
I-1	A-5 W=2'-6"	241.00	245.69	HO. CO. STD. SD 4.01		NORTH LAUREL DR. STA. 2+99.36
I-2	A-5 W=2'-6"		239.38	245.69	HO. CO. STD. SD 4.01	NORTH LAUREL DR. STA. 2+99.36
I-3	DBL. "S" INLET	238.08	237.55	243.80	HO. CO. STD. SD 4.23	NORTH LAUREL DR.
I-4	A-5 W=2'-6"	246.83	246.63	253.00	HO. CO. STD. SD 4.01	STEPHENS RD. STA. 20+36.22
I-5	A-5 W=2'-6"		248.50	253.40	HO. CO. STD. SD 4.01	STEPHENS RD. STA. 20+31.48
I-6	A-10 W=3'-0"	248.05	247.80	253.40	HO. CO. STD. SD 4.02	STERLING DR. STA. 7+10.00
I-7	A-10 W=2'-6"		248.70	252.95	HO. CO. STD. SD 4.02	STERLING DR. STA. 7+17.00
I-8	A-10 W=2'-6"	254.33	254.15	259.17	HO. CO. STD. SD 4.02	STERLING DR. STA. 9+85.00
I-9	A-10 W=2'-6"		254.74	259.14	HO. CO. STD. SD 4.02	STERLING DR. STA. 9+85.00
I-10	A-10 W=2'-6"	265.85	265.60	270.44	HO. CO. STD. SD 4.02	STERLING DR. STA. 12+56.00
I-11	A-10 W=2'-6"		266.25	270.44	HO. CO. STD. SD 4.02	STERLING DR. STA. 12+56.00
M-1	SHA 120" PRE-CAST MANHOLE	236.08	235.08	245.70	SHA STD. MD-384.11	NORTH LAUREL DR. STA. 2+99.36
M-2	SHA 84" PRE-CAST MANHOLE	236.54	236.34	245.49	SHA STD. MD-384.07	NORTH LAUREL DR. STA. 3+21.00
M-5	SHALLOW PRE-CAST MANHOLE (48" DIA.)	260.00	259.80	264.21	HO. CO. STD. G 5.12	STERLING DR. STA. 11+37.00
M-3	SHALLOW PRE-CAST MANHOLE (48" DIA.)	247.23	247.03	252.54	HO. CO. STD. G 5.12	STEPHENS RD. STA. 20+48.00
S-1	TYPE 'A' HEADWALL (66")		234.50	241.50	HO. CO. STD. SD 5.11	
S-2	CONC. END SECTION (21')		246.00		HO. CO. STD. SD 5.51	

PIPE SCHEDULE		
SIZE (IN.)	CATEGORY	L (FT.)
15	RCCP CL. IV	708
18	RCCP CL. IV	951
21	RCCP CL. IV	169
24	RCCP CL. IV	312
27	RCCP CL. IV	10
30	RCCP CL. IV	74
36	RCCP CL. IV	653
42	RCCP CL. IV	148
54	RCCP CL. IV	426
66	RCCP CL. IV	45



**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'

01-NT-0500/200260639  
9/20/02  
Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Mahan* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Charles H. Harts* 10/23/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark D. ...* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Datt-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Pikesville, Maryland 21096  
 (410) 296-3333  
 Fax: 296-4705

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

REVISION NAME	REVISION	REVISION DATE	REVISION BY
REVITZ PROPERTY			

PROJECT NO. 185 & PO PAR. 837

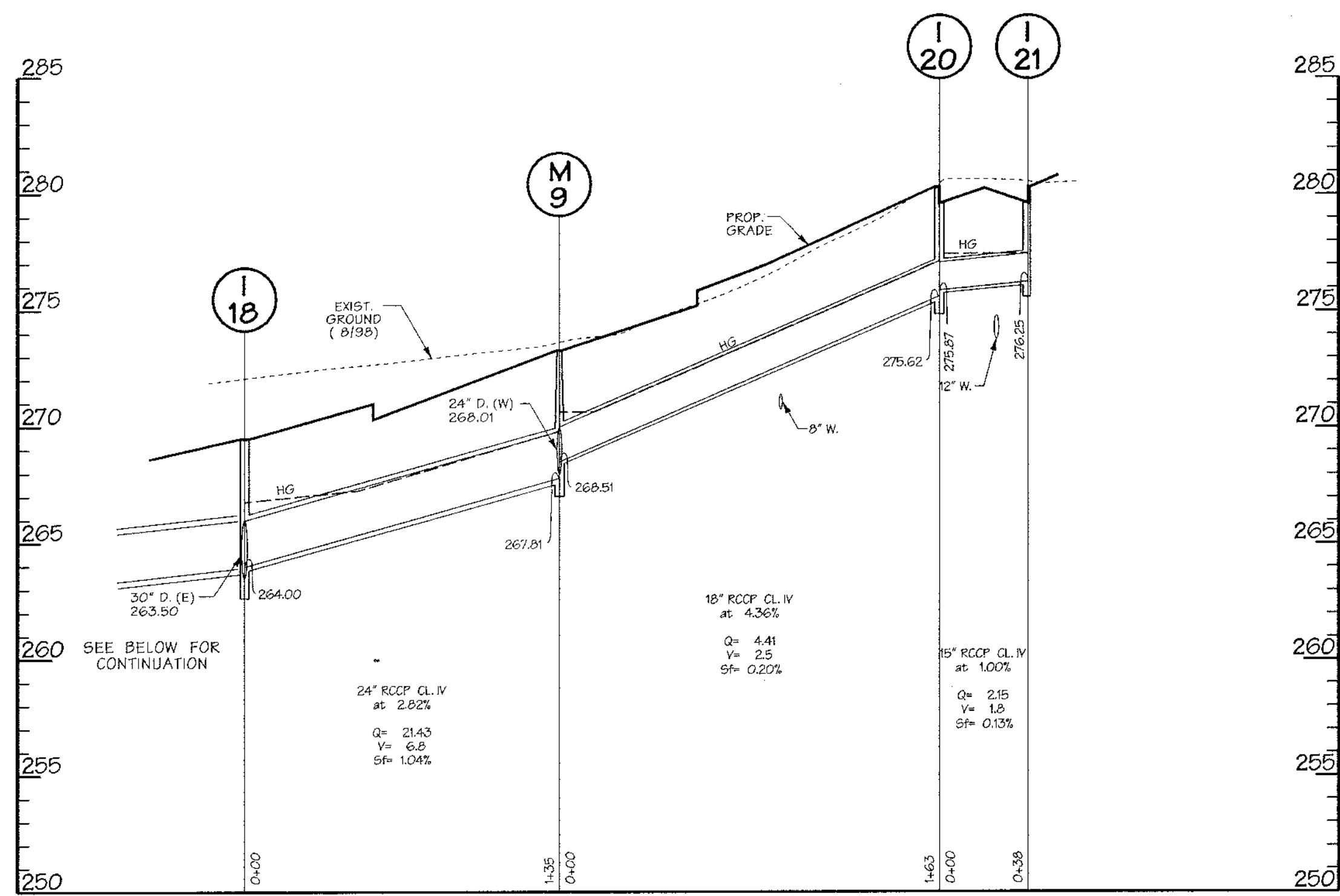
TITLE: **FINAL PLAN STORM DRAIN PROFILES**

Des By: DFM Scale: AS SHOWN Proj. No: 01011  
 Dwn By: WDE Date: 9/19/02  
 Chk By: Approved 16 OF 57

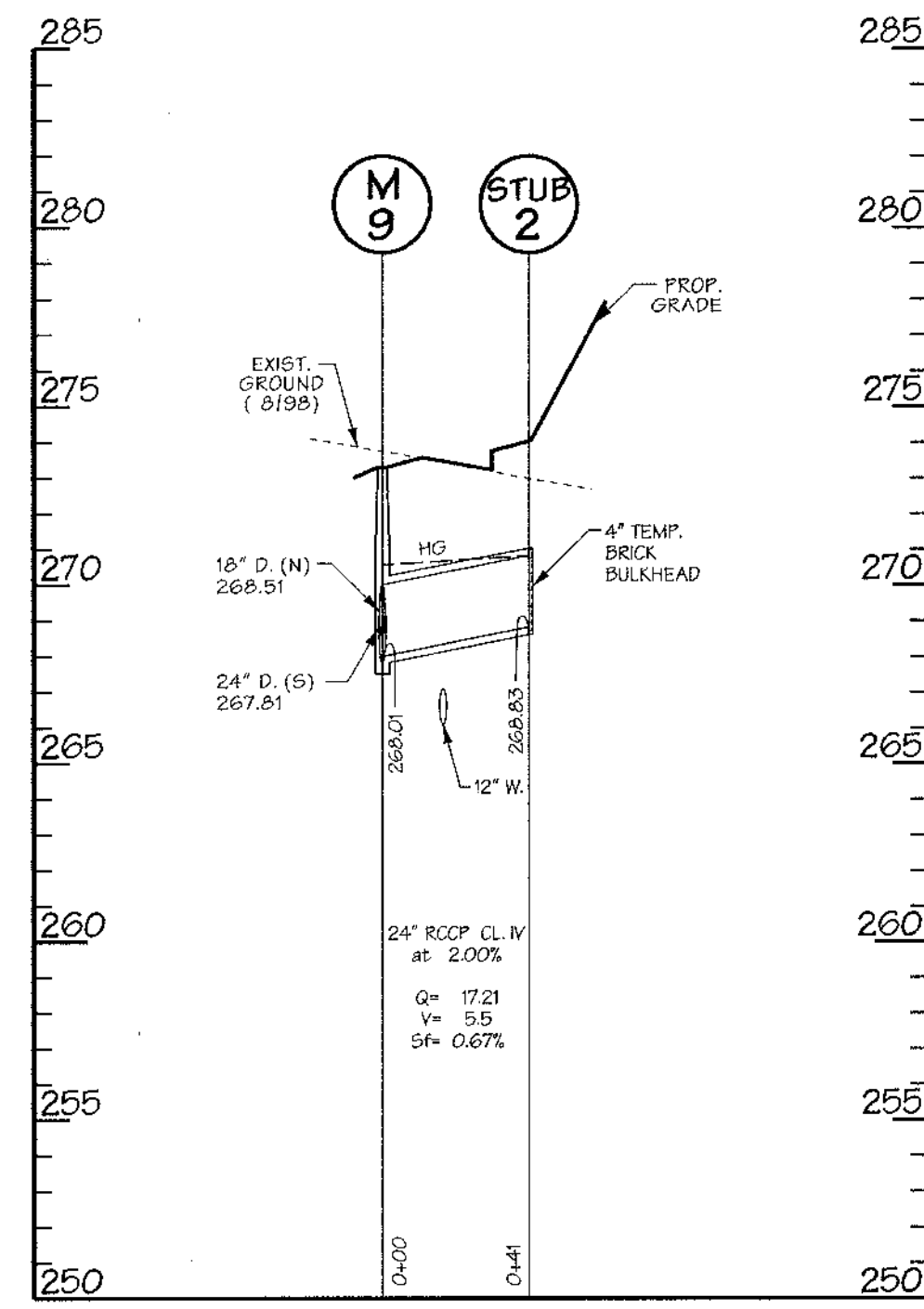
F-02-111

F-02-111

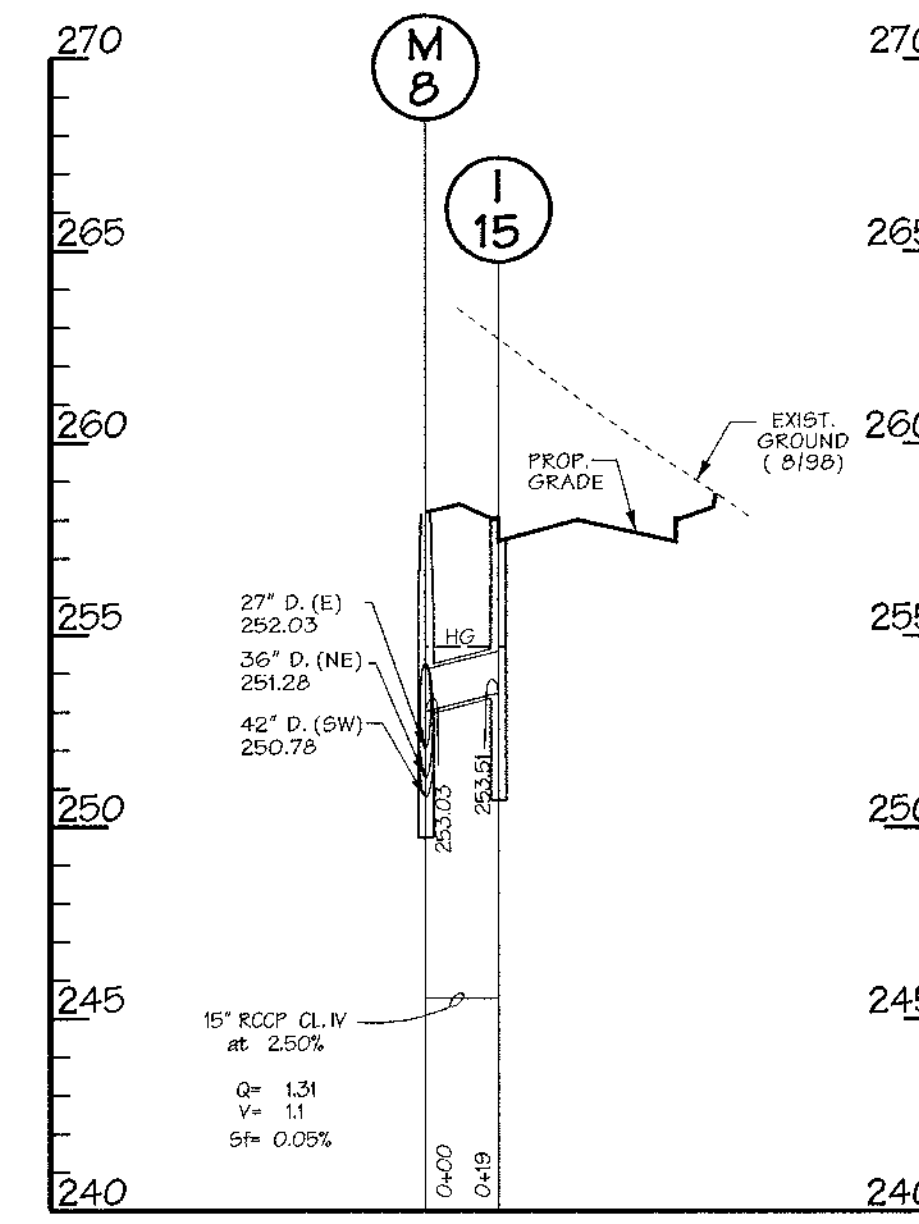




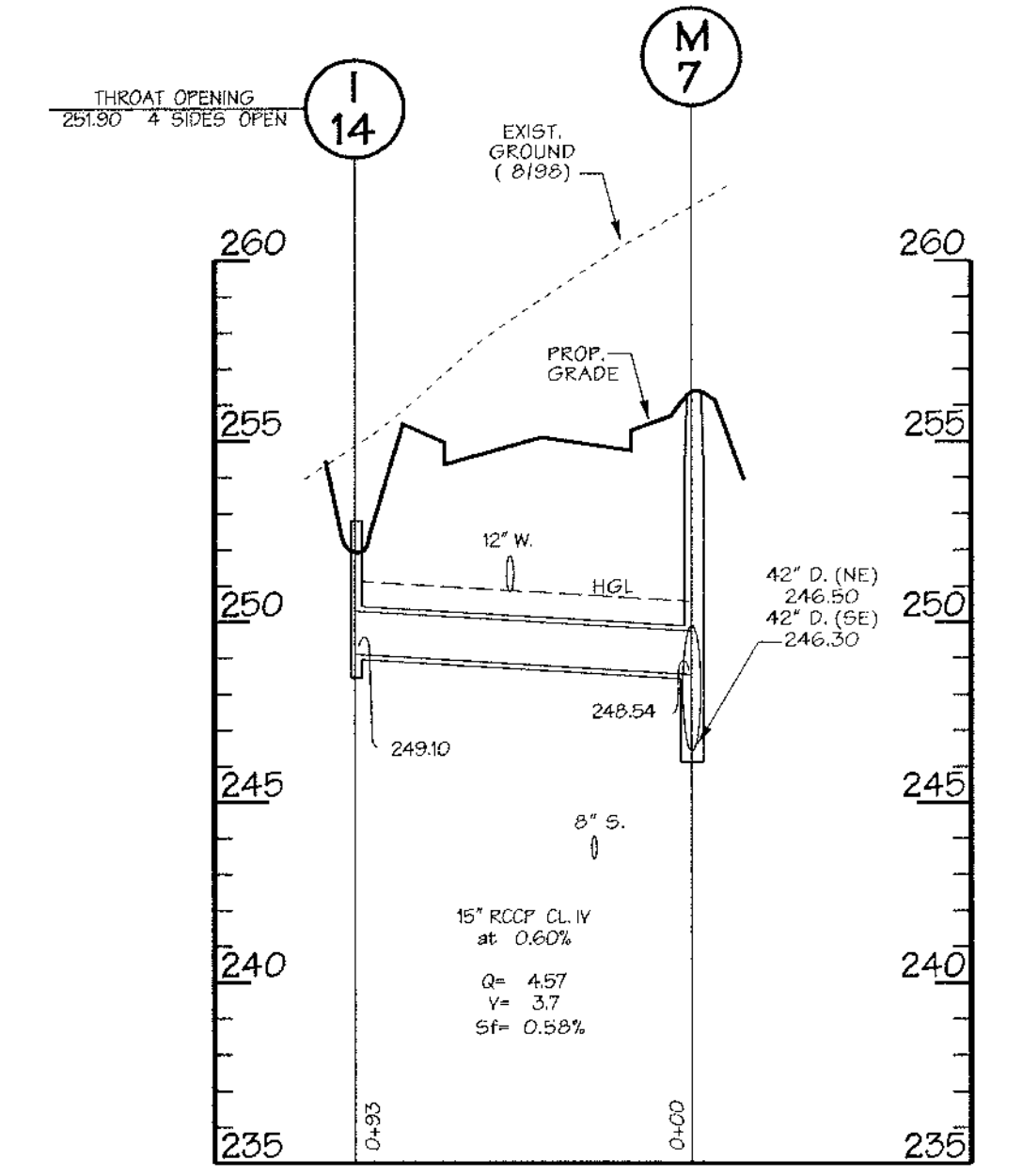
**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



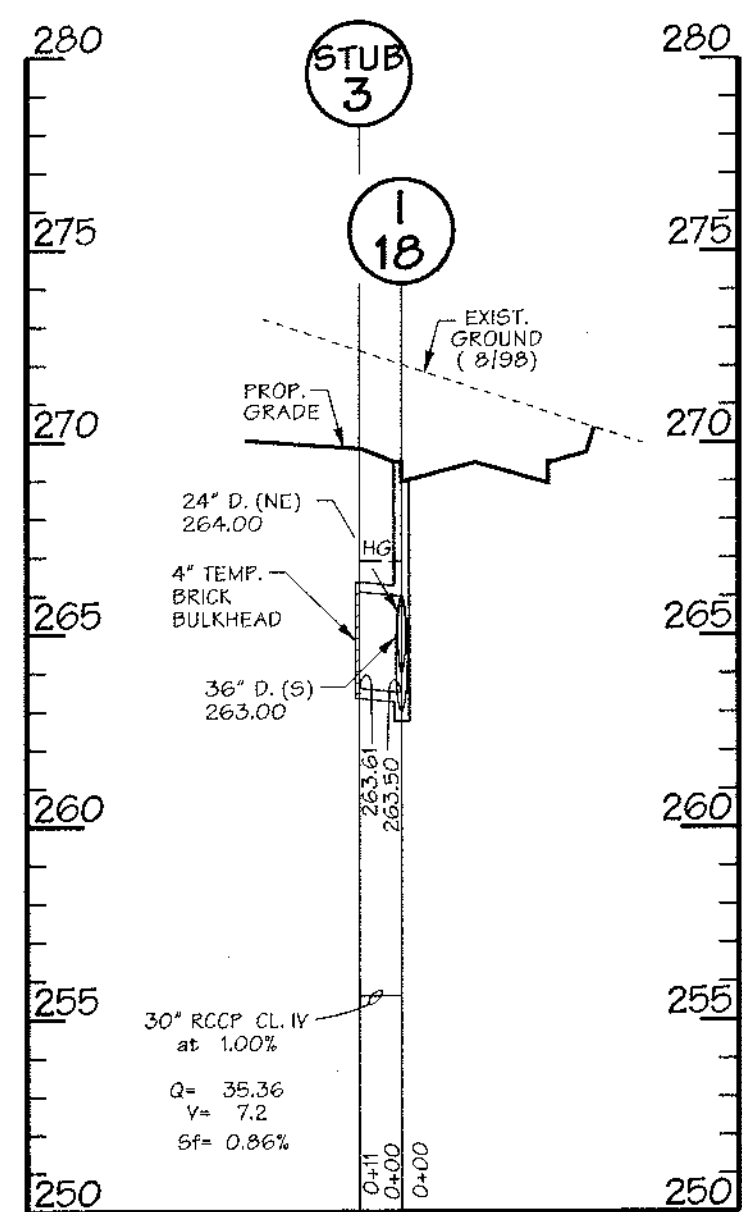
**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



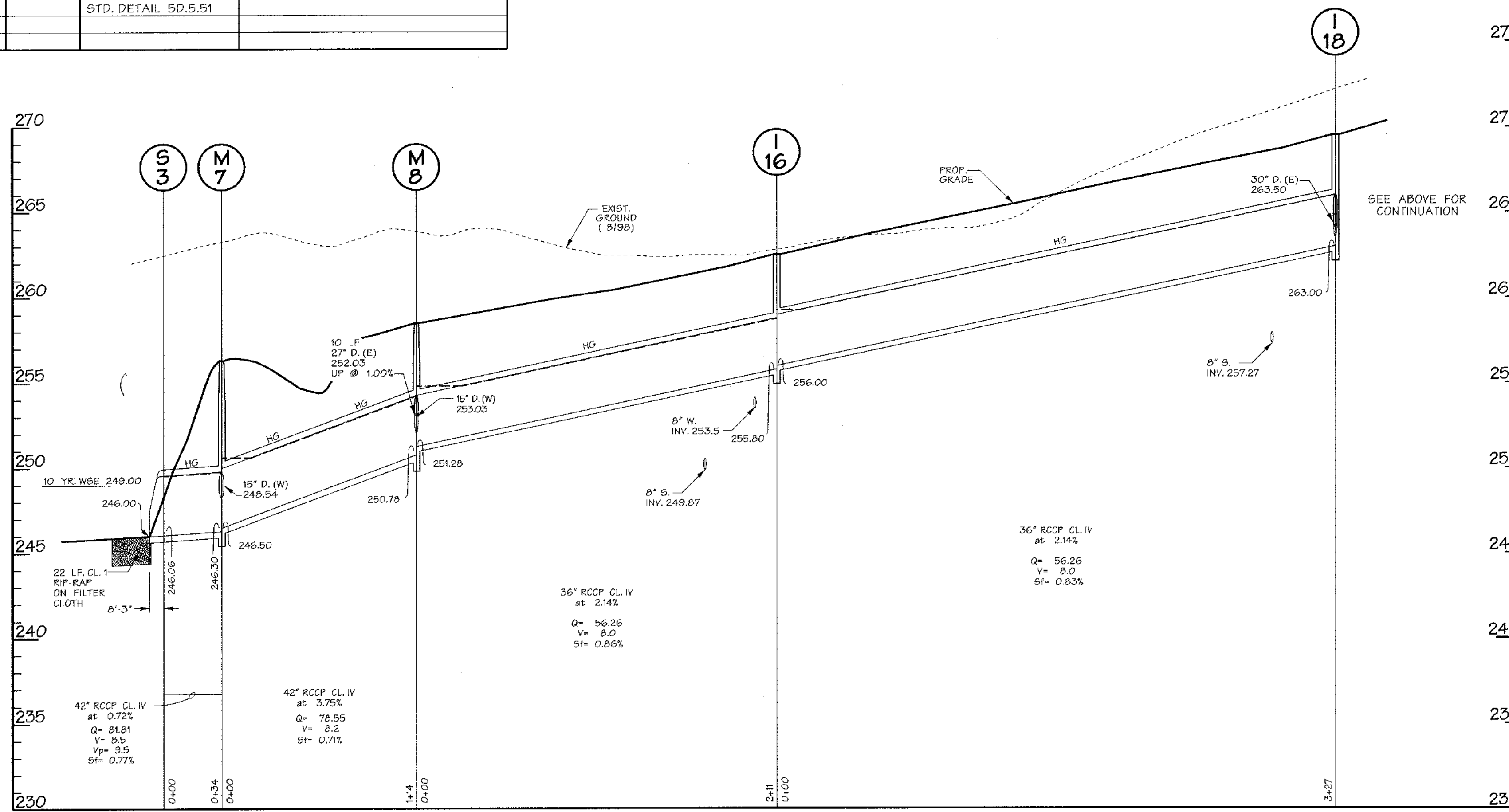
**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'

**STRUCTURE SCHEDULE**

NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS	LOCATION
I-14	TYPE "D" INLET		249.10	251.90	HO. CO. STD. SD 4.11	STEPHENS RD. STA. 19+39.25
I-15	A-10 W=2'-6"		253.51	258.18	HO. CO. STD. SD 4.02	STEPHENS RD. STA. 17+93.00
I-16	A-10 W=4'-0"	256.00	255.80	262.63	HO. CO. STD. SD 4.02	STEPHENS RD. STA. 15+87.00
I-18	A-10 W=4'-0"	264.00	263.00	269.74	HO. CO. STD. SD 4.02	STEPHENS RD. STA. 12+60.00
I-20	A-10 W=2'-6"	275.87	275.62	280.50	HO. CO. STD. SD 4.02	STEPHENS RD. STA. 9+55.00
I-21	A-10 W=2'-6"		276.25	280.50	HO. CO. STD. SD 4.02	STEPHENS RD. STA. 9+55.00
M-7	SHA 96" DIA. PRECAST MANHOLE	246.50	246.30	256.50	STD. DETAIL MD-384.09	
M-8	SHA 96" DIA. PRECAST MANHOLE	251.28	250.78	258.50	STD. DETAIL MD-384.09	
M-9	SHALLOW PRECAST MANHOLE (48" DIA.)	268.01	267.81	273.36	STD. DETAIL 6.5.12	STEPHENS RD. STA. 11+23.00
S-3	CONC. END SECTION (42")		246.06		STD. DETAIL SD.5.51	



**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



**STORM DRAIN PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William R. Decker* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy Hunter* 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark R. ...* 10/19/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Daft McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax: 296-4705

SUBDIVISION NAME: REVITZ PROPERTY SECTION AREA: 165 & 80 PAR. 837  
 PLAT # OR L.P.: 226/436 BLOCK # 20 PERM. MAP # 47 TOWNSHIP: 5 th CONSEC. TRACT:  
 TRACT CODE: 2008 SUBD. CODE:

TITLE: **FINAL PLAN STORM DRAIN PROFILES**

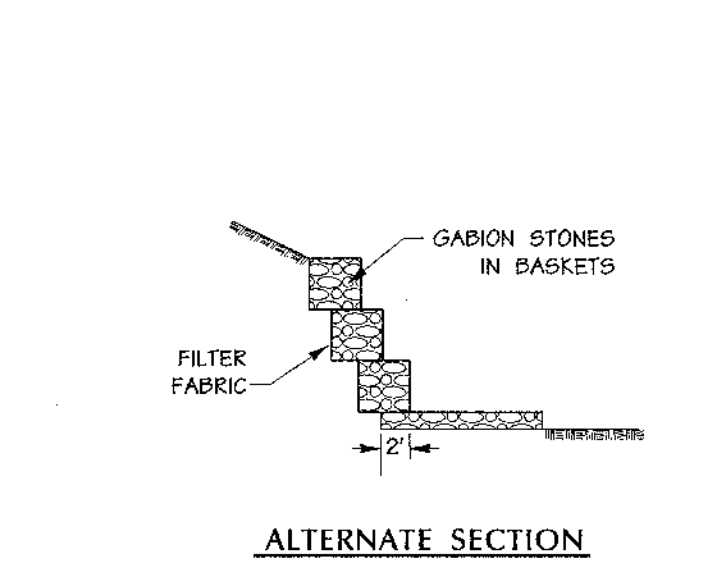
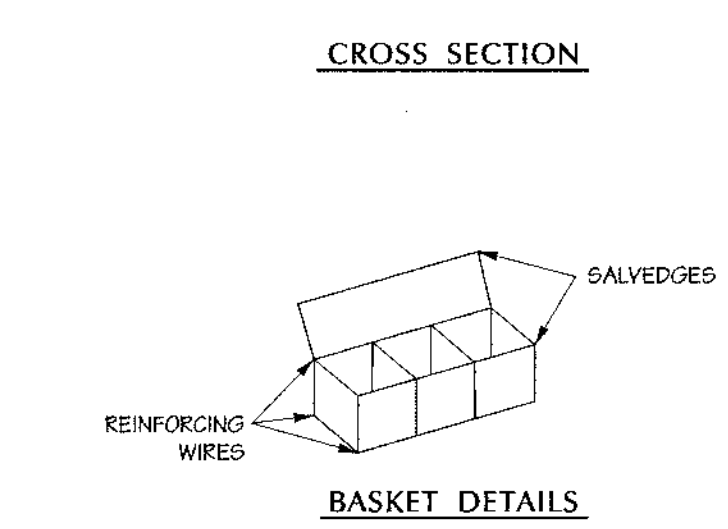
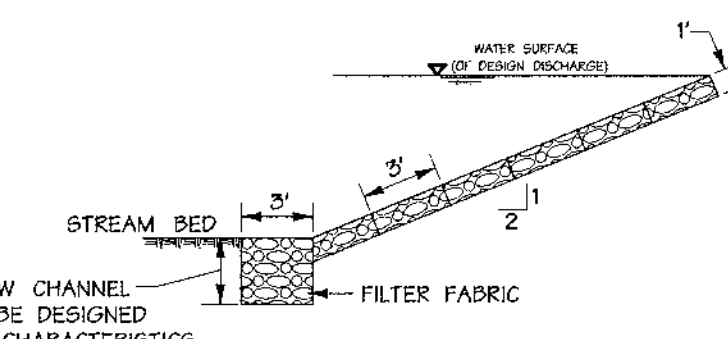
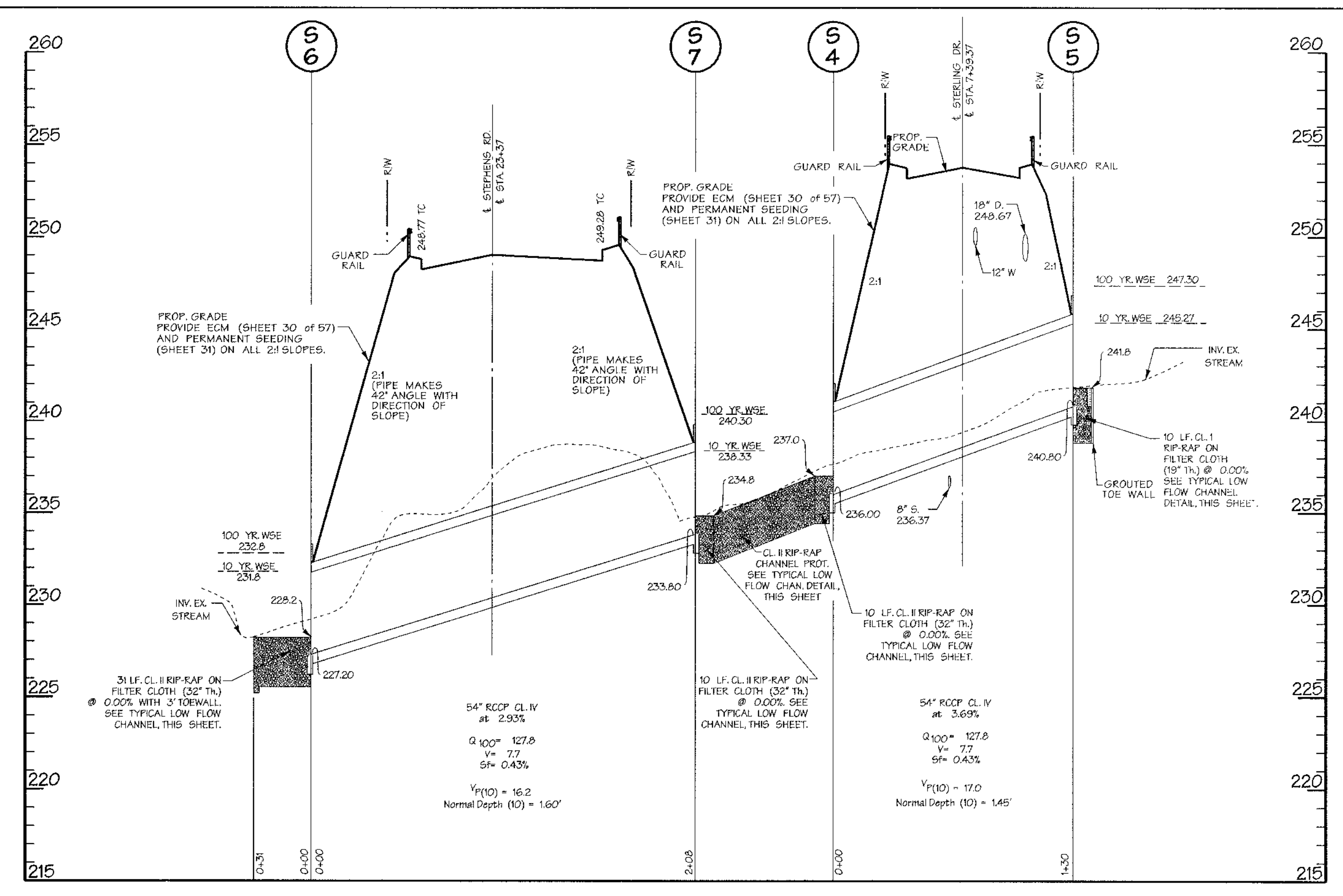
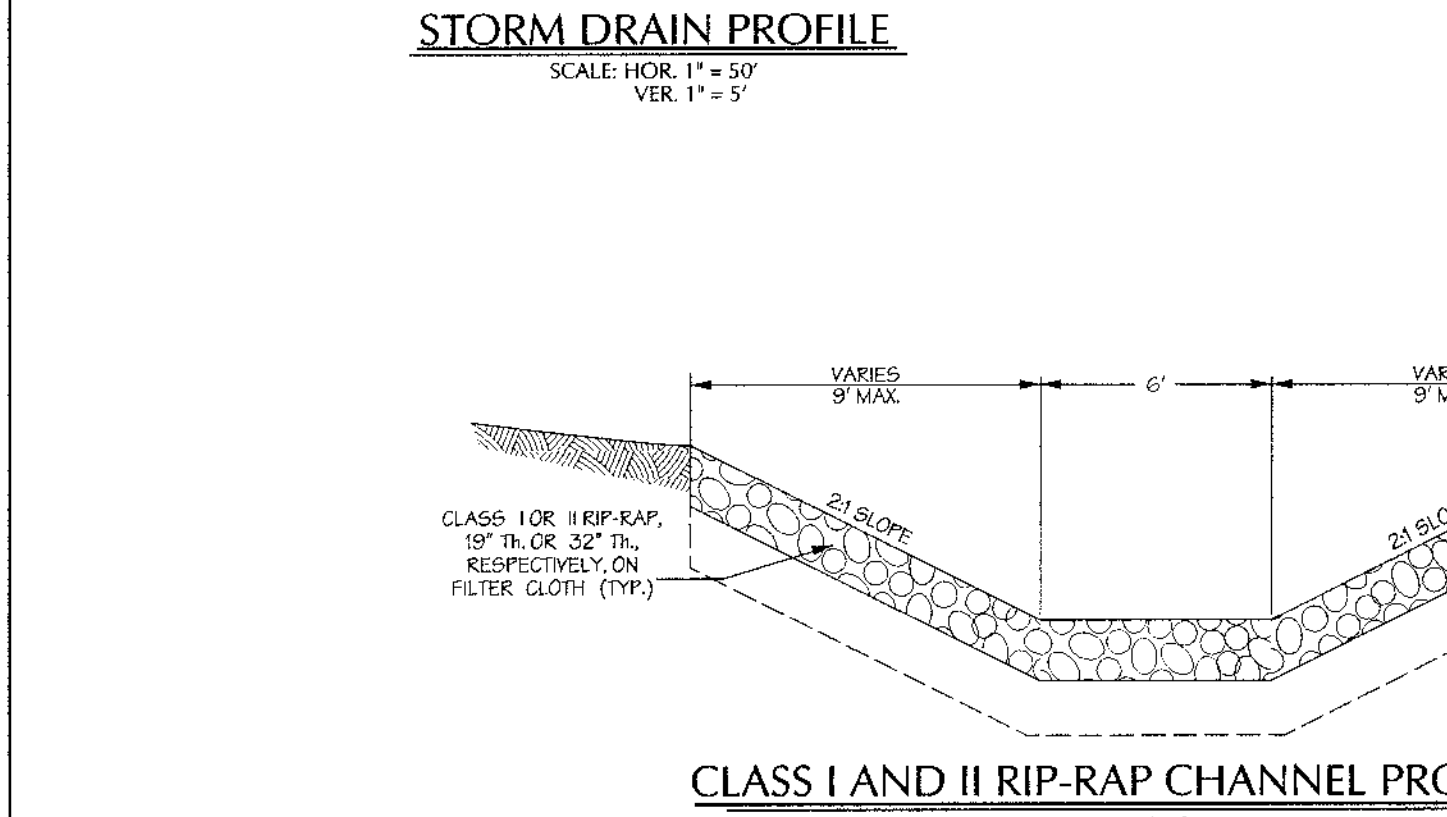
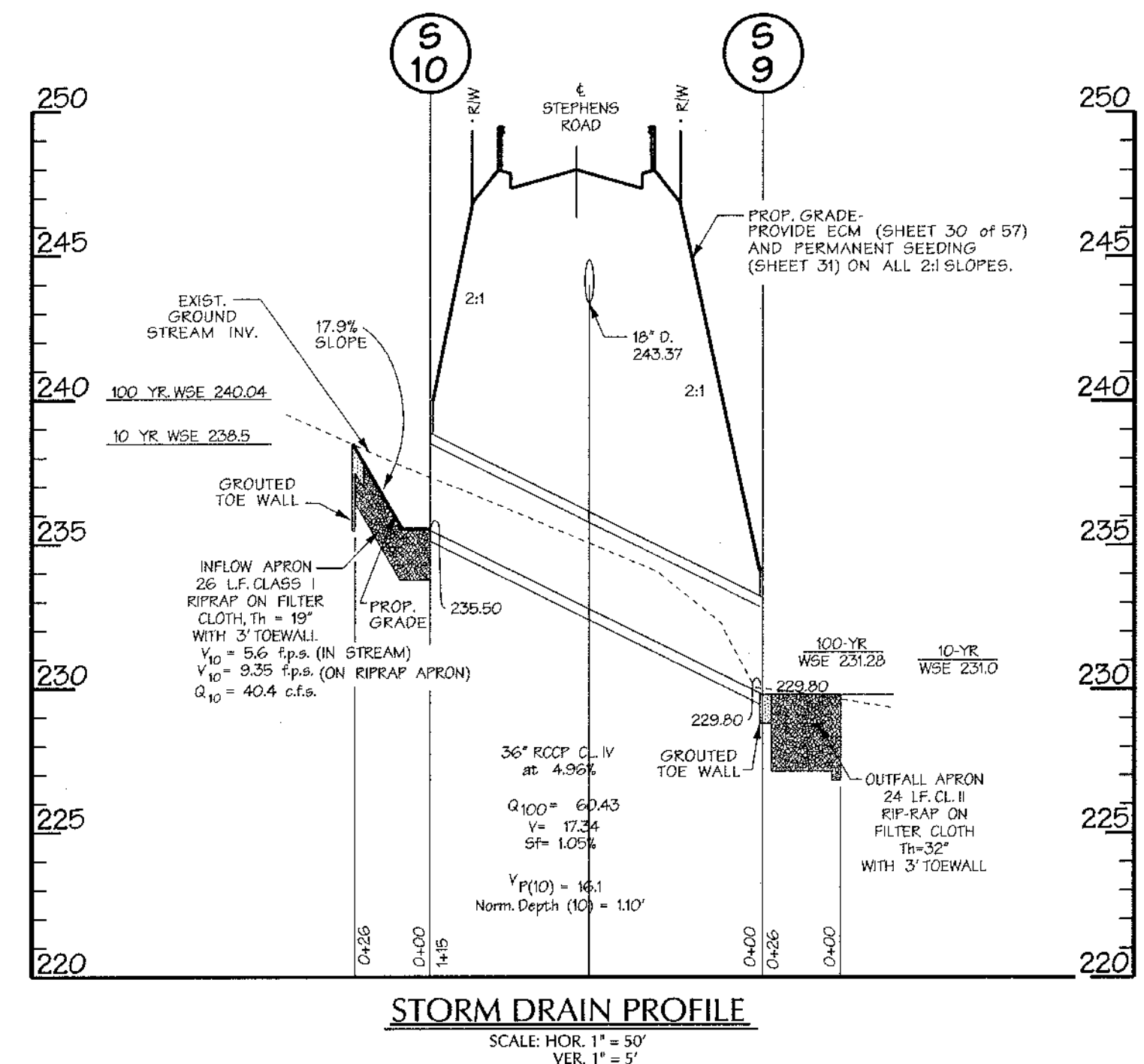
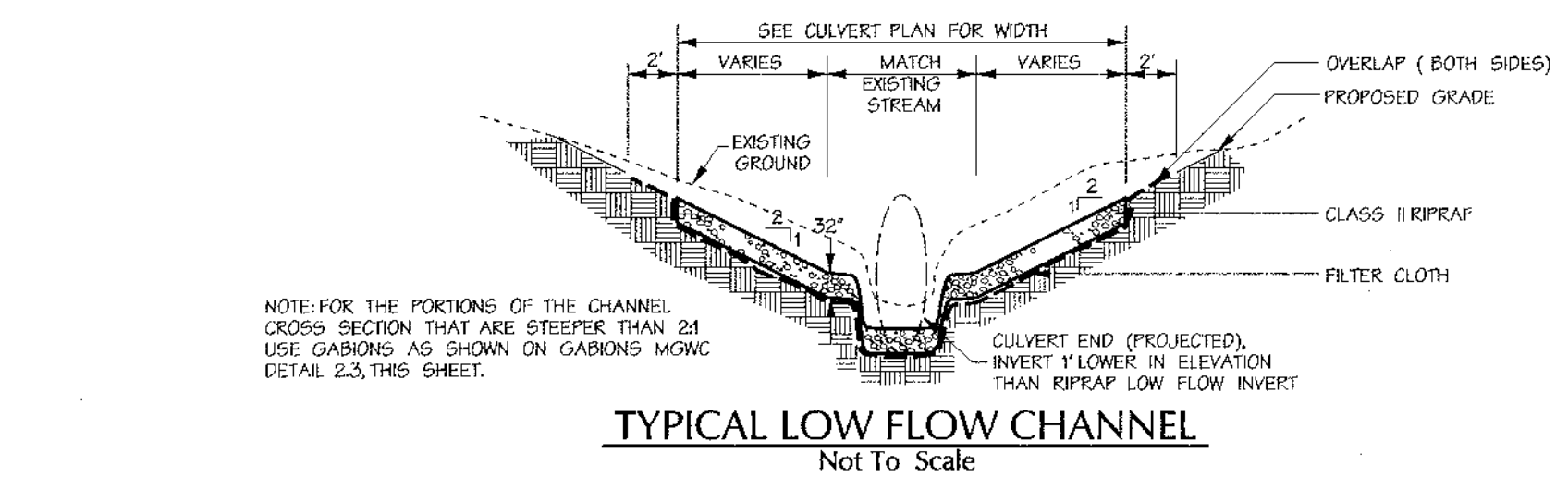
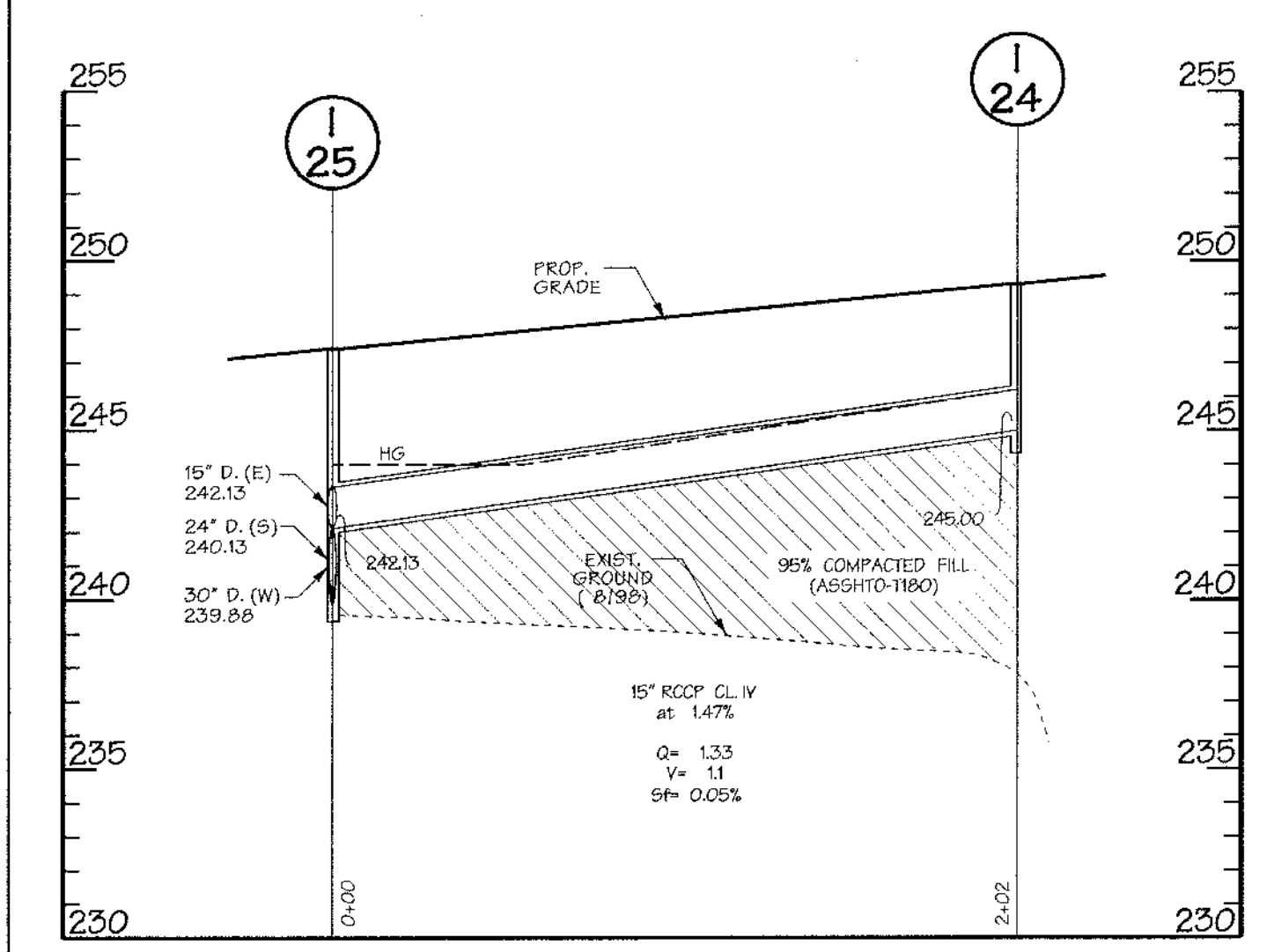
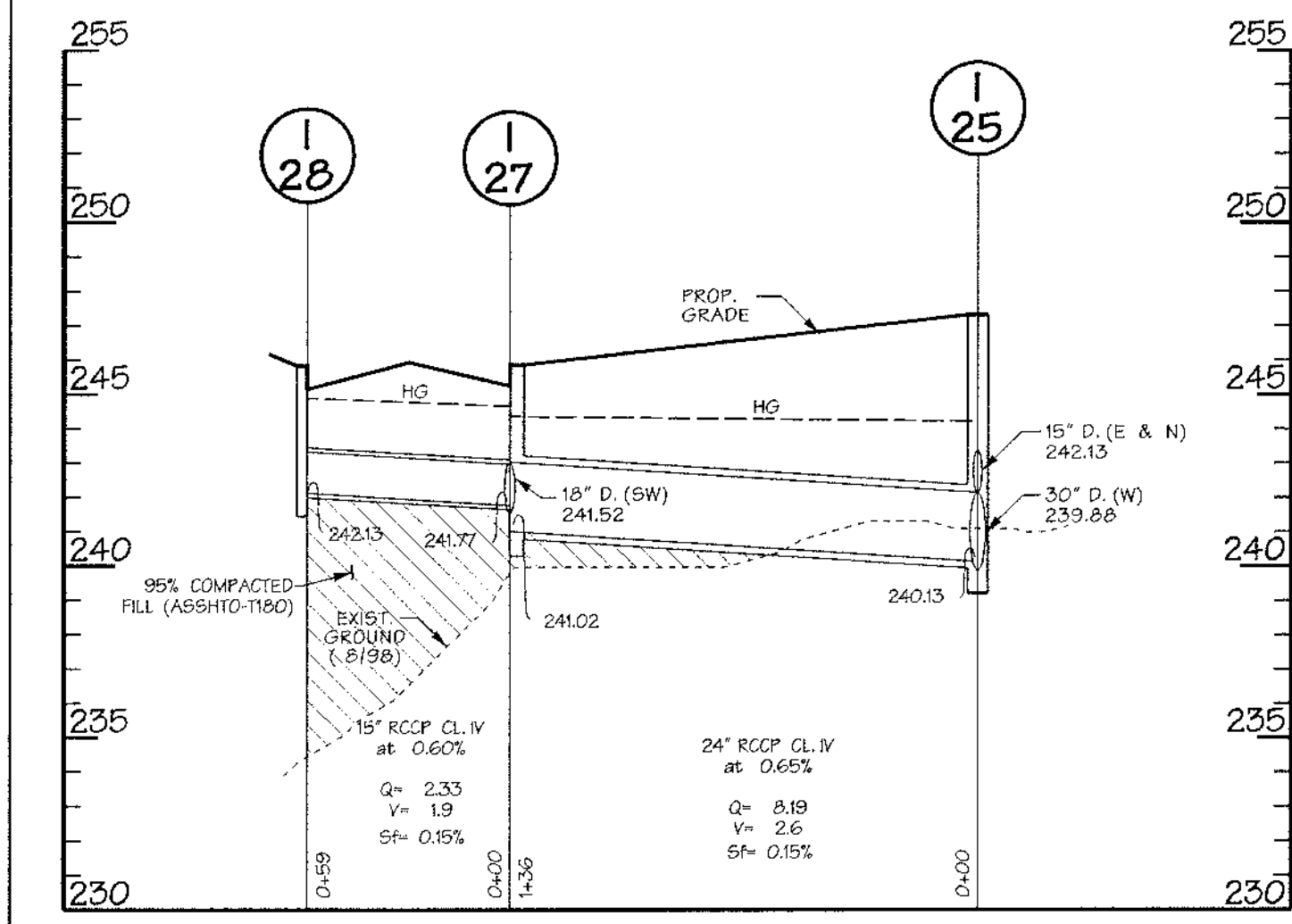
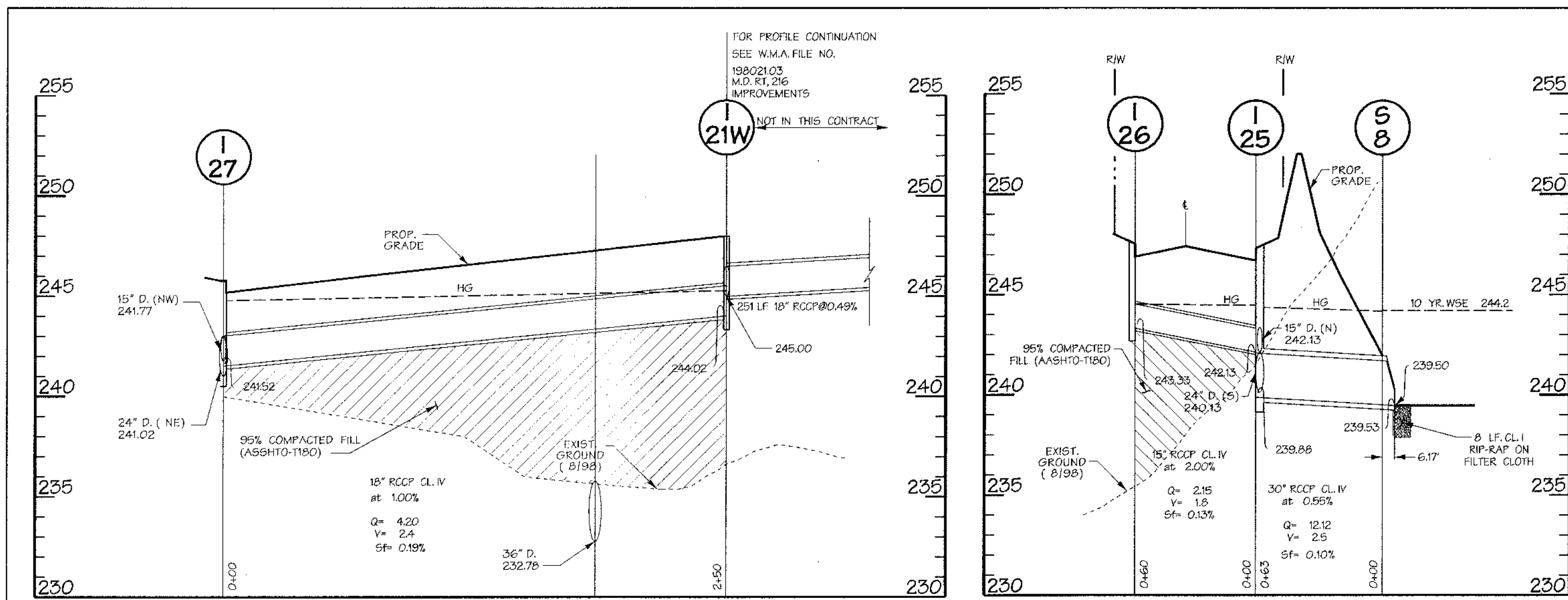
Des By: DFM Scale: AS SHOWN Proj. No.: 01011  
 Dwn By: WDE Date: 9/19/02  
 Chk By: Approved 17 OF 57

F-02-111

Professional Engr. No. 10557

F-02-111

Thu Sep 19 09:10:10 AM 2002



**DETAIL 2.3 - GABIONS**  
 REVISED 10/00 MD DEPARTMENT OF THE ENVIRONMENT  
 PAGE 23-3 WATER MANAGEMENT ADMINISTRATION

**DESCRIPTION**  
 THIS WORK SHALL CONSIST OF PROTECTING STREAM SLOPES AND CHANNELS WITH STONE-FILLED WIRE BASKETS IN ORDER TO PROVIDE STABILIZATION FOR STREAM CHANNELS AND BANKS. BASKETS SHALL BE PLACED IN SUCH A MANNER AS TO PREVENT UNDERMINING FROM WATER VELOCITIES AND OVERTURNING FROM LATERAL EARTH PRESSURES.

**1. MATERIAL SPECIFICATIONS**

**1.1. FILTER FABRIC**  
 FILTER FABRIC SHALL BE CAREFULLY AND LOOSELY PLACED ON THE PREPARED SUBGRADE AND HELD IN PLACE ADJACENT STRIPS SHALL BE OVERLAPPED BY A MINIMUM OF 8 INCHES. CARE SHALL BE EXERCISED IN PLACING, STRETCHING AND HOLDING THE EMPTY BASKET UNITS IN GOOD ALIGNMENT IN ORDER TO AVOID DAMAGE TO THE CLOTH. IF THE FILTER FABRIC SHOULD BE TORN OR DAMAGED, IT SHALL MEET THE FOLLOWING REQUIREMENTS:  
 TENSILE STRENGTH 200 LBS.  
 BURST STRENGTH 300 LBS.  
 PUNCTURE STRENGTH 70 LBS.  
 PERMEABILITY .02 CM/SEC  
 ELONGATION AT FAILURE 30%  
 MINIMUM LAP LENGTH 24 IN.

**1.2. WIRE BASKETS**  
 THE PLACEMENT OF THE WIRE BASKET UNITS SHALL BEGIN WITH THE CUTOFF WALLS. THE EMPTY WIRE BASKET UNITS SHALL BE SET ON THE PREPARED SUBGRADE AND THE VERTICAL ENDS BOUND TOGETHER WITH WIRE TIES AT SPACINGS THAT ARE ADEQUATE TO PERMIT STRETCHING OF THE UNITS TO REMOVE KINKS. THE USE OF STAPLES, PINS OR OTHER ACCEPTABLE METHODS SHALL BE USED TO INSURE A GOOD ALIGNMENT OF THE EMPTY WIRE BASKET UNITS. THE BASKETS MAY BE REQUIRED TO INSURE STABILITY OF THE STREAM BANK FROM ROTATIONAL OVERTURNING.

**1.3. STONES**  
 STONE FOR GABIONS FOR WHICH THE SIZE OF PARTICLES WILL BE DETERMINED UNUSUALLY SHALL MEET THE FOLLOWING REQUIREMENTS:  

BASKET	THICKNESS	SIZE OF INDIVIDUAL PARTICLES
IN	MM	IN
6	150	3 - 5
8	225	4 - 7
12	300	4 - 7
18	450	4 - 7
36	900	4 - 12

**III. CONSTRUCTION REQUIREMENTS**

1. THE CONTRACTOR SHALL INSTALL ALL SEDIMENT AND EROSION CONTROL DEVICES AS A FIRST ORDER OF BUSINESS.

2. EXCAVATION, INCLUDING CUTOFF WALLS, SHALL BE MADE IN REASONABLY CLOSE CONFORMITY WITH THE EXISTING STREAM SLOPE. THE SUBGRADE SHALL BE SMOOTH, FIRM AND FREE FROM PROTRUDING OBJECTS OR Voids THAT WOULD AFFECT THE PROPER PLACEMENT OF THE WIRE BASKETS OR DAMAGE THE FILTER FABRIC.

3. THE EMPTY BASKET UNITS SHALL BE FILLED CAREFULLY WITH STONE PLACED BY HAND OR MACHINE TO ASSURE GOOD ALIGNMENT WITH A MINIMUM OF Voids BETWEEN STONES AND TO AVOID BUILDUPS OF MESH. THE MAXIMUM HEIGHT FROM WHICH THE STONE MAY BE DROPPED INTO THE UNITS SHALL BE 36 INCHES. THE STONE SHALL BE SO PLACED AS TO PROVIDE A MINIMUM OF TWO COURSES. CARE SHALL BE TAKEN IN PLACING THE TOP LAYER OF STONE TO ASSURE A UNIFORM SURFACE THIS AVOIDING ANY BUILDUPS OF THE LID MESH. AFTER A BASKET UNIT HAS BEEN FILLED, ITS LID SHALL BE DENT OVER UNTIL IT MEETS THE END OF THE UNIT. THE LID SHALL THEN BE SECURED TO THE SIDES AND ENDS WITH WIRE TIES. WHEN A COMPLETE BASKET UNIT CANNOT BE INSTALLED ON SLOPES OR CHANNELS BECAUSE OF SPACE LIMITATIONS, THE BASKET UNIT SHALL BE CUT TO FIT IN A MANNER APPROVED BY THE WR.

4. ANY EXCAVATION Voids EXISTING ALONG THE EDGES OF THE COMPLETED GABIONS SHALL BE BACKFILLED AND PERMANENTLY STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN.

**STORM DRAIN PROFILE**  
 SCALE: HOR. 1" = 50'  
 VER. 1" = 5'

**STRUCTURE SCHEDULE**

NO.	TYPE	INV. IN	INV. OUT	TOP ELEV.	REMARKS	LOCATION
1-24	A-5 W=2'-6"		245.00	249.31	HO. CO. STD. SD. 4.01	STEPHENS RD. STA. 23+05.00
1-25	A-10 W=3'-6"	242.13	239.86	247.19	HO. CO. STD. SD. 4.02	STEPHENS RD. STA. 25+07.00
1-26	A-10 W=2'-6"		243.33	247.37	HO. CO. STD. SD. 4.02	STEPHENS RD. STA. 25+07.00
1-27	A-5 W=3'-0"	241.77	241.02	245.86	HO. CO. STD. SD. 4.01	STEPHENS RD. STA. 26+50.00
1-28	A-5 W=2'-6"		242.13	245.84	HO. CO. STD. SD. 4.01	STEPHENS RD. STA. 26+50.00
S-4	TYPE 'C' ENDWALL (54")		241.50	241.50	S.H.A. STD. NO. MD-354.01	STEPHENS RD. STA. 21+95.93
S-5	TYPE 'C' ENDWALL (54")	240.80		246.30	S.H.A. STD. NO. MD-354.01	STERLING DR. STA. 20+59.91
S-6	TYPE 'C' ENDWALL (54")		227.70	233.20	S.H.A. STD. NO. MD-354.01	STEPHENS RD. STA. 24+11.85
S-7	TYPE 'C' ENDWALL (54")	233.80		239.30	S.H.A. STD. NO. MD-354.01	STEPHENS RD. STA. 22+51.59
S-8	CONC. END SECTION (30")		239.53		STD. DETAIL SD.5.51	STEPHENS RD. STA. 24+14.33
S-9	TYPE 'C' ENDWALL (36")		229.80	233.80	STD. DETAIL SD.5.21	STEPHENS RD. STA. 28+43.35
S-10	TYPE 'A' HEADWALL (36")	235.50		240.00	STD. DETAIL SD.5.11	STEPHENS RD. STA. 28+31.28

01-NT-0500/200260639  
 9/20/02  
 Date  
 Professional Eng. No. 10557  
 F-02-111

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William R. Malen* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy Hammett* 10/29/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John D. ...* 10/29/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

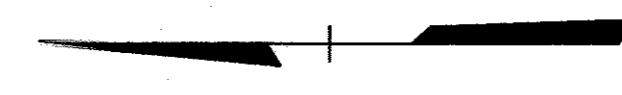
OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

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

SUBVISION NAME: REVITZ PROPERTY  
 REVITZ PROPERTY  
 226/436 20 20 PEC  
 WATER CODE: 226/436 20 20 PEC  
 SHEET CODE: 185 & 80 PAR. 837

TITLE: **FINAL PLAN STORM DRAIN PROFILES**

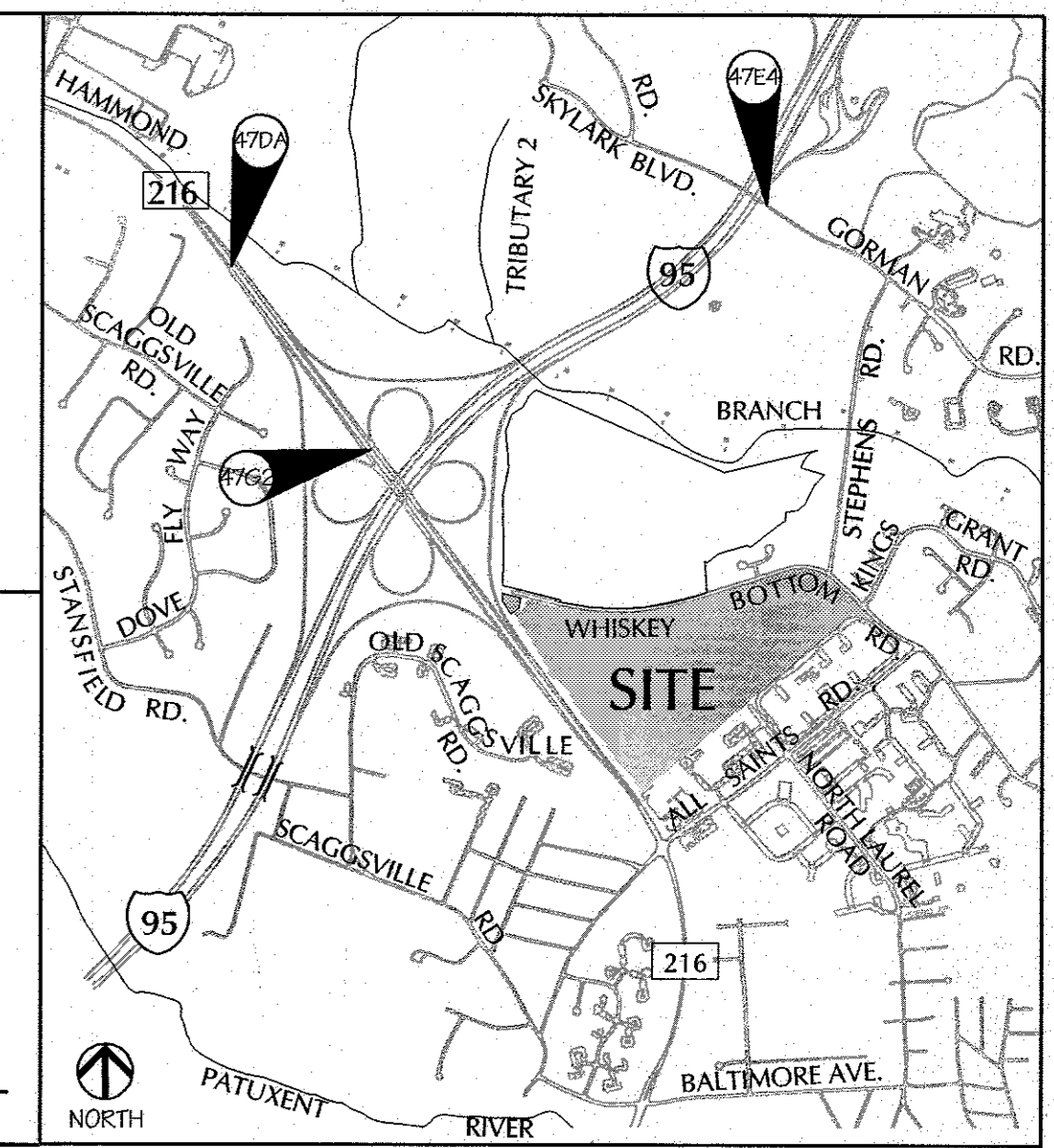
Des By: DFM Scale: AS SHOWN Proj. No.: 01011  
 Dwn By: Date: 9/19/02  
 Chk By: Approved 18 OF 57



NOTE:  
 1) 5' CONTOURS ARE SHOWN SOUTH-EAST OF THE SITE,  
 2' CONTOURS ELSEWHERE.

FOR REVISION #1 ONLY  
 4-19-11  
 DATE

Professional Engr. No. 8061

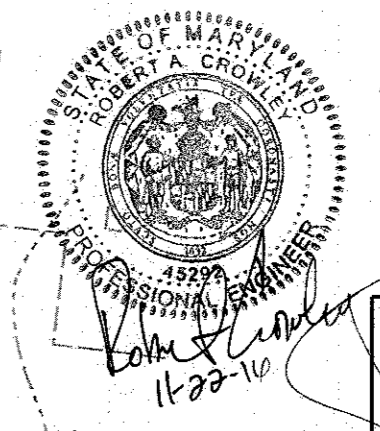


Vicinity Map  
 SCALE: 1"=2000'

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 8061, Expiration Date: 8-26-11

Legend

- SWM II PROPOSED SWM FACILITY EASEMENT
- EXISTING CONDITIONS DRAINAGE AREAS
- INTERIM CONDITIONS DRAINAGE AREAS
- PROPOSED TO PATH
- SOIL BORING
- PROPERTY BOUNDARY
- EARTH DIKE
- LIMIT OF DISTURBANCE
- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- HEAD OF STREAM
- STREAM BANK
- 50' STREAM BUFFER
- 100 YEAR FLOODPLAIN
- SLOPES >25%
- SLOPES 15%-25%
- PC 1 FT OF ARC
- CENTERLINE OF ROAD
- RADIUS OF ARC



PROFESSIONAL CERTIFICATION FOR REV #3  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 08/21/2013

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William Z. Walker</i>	10-10-02
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Andy Hovatt</i>	10/29/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Mike Vanaman</i>	12/10/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE
05/23/10	EMERSON CAMPUS VCP
2-7-11	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No. Revision Description

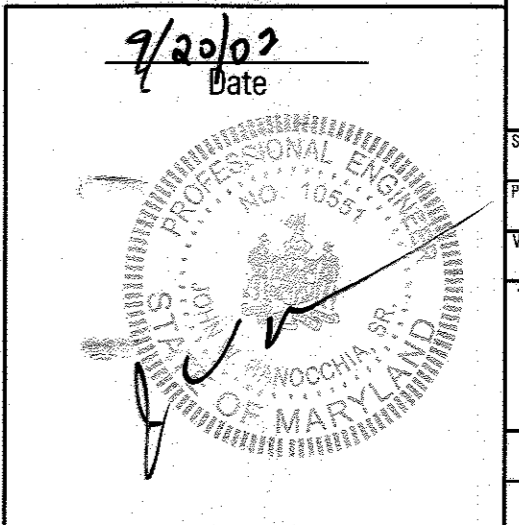
**REVITZ PROPERTY**  
 OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Dawn McCanna-Walkers, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

DESIGNER NAME	SECTION/AREA	DATE	SCALE	PROJECT #
DATE	NO. OF SHEETS	DATE	SCALE	PROJECT #

**FINAL PLAN  
 SEDIMENT AND EROSION  
 CONTROL DRAINAGE AREA MAP**

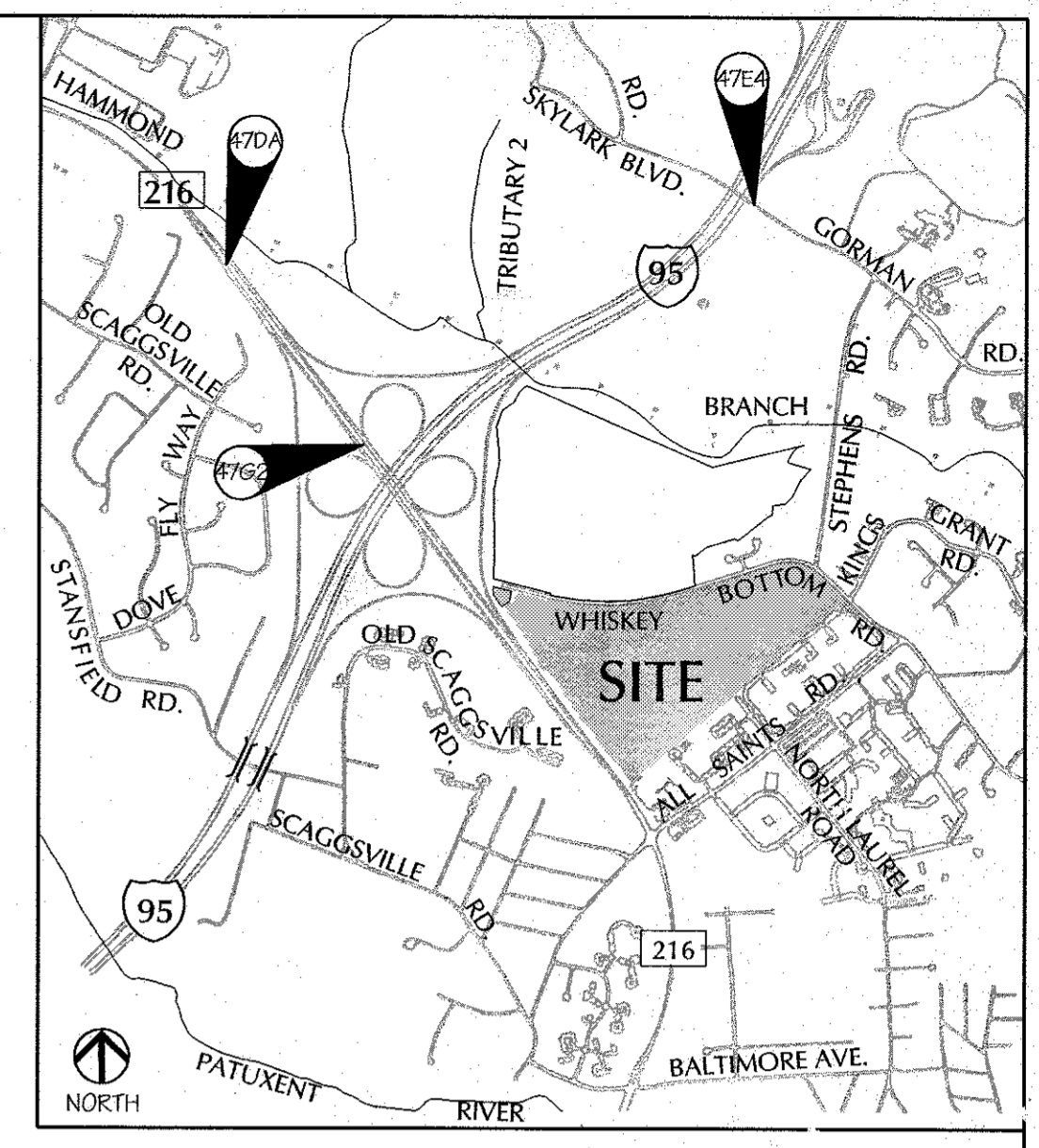
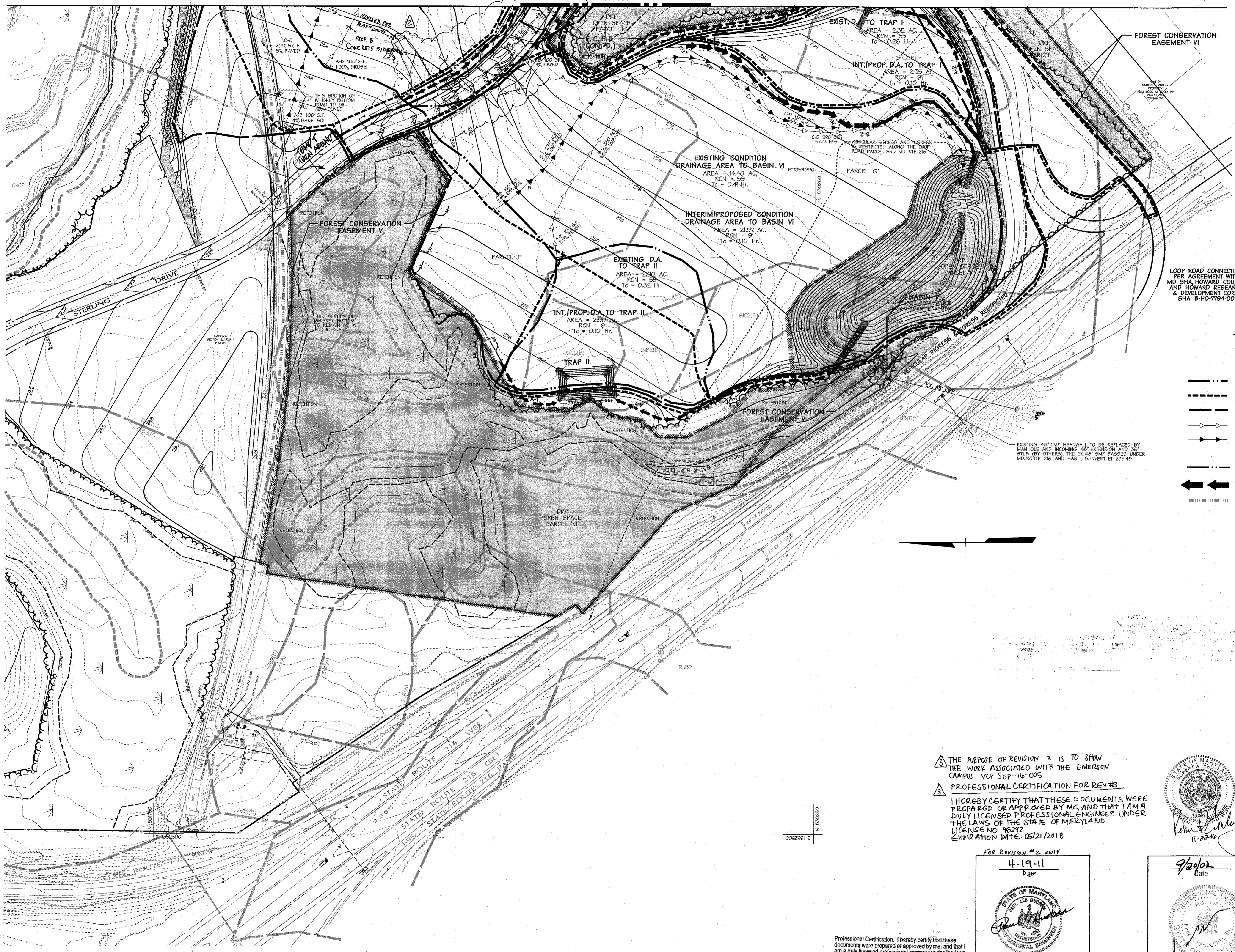
Des By	MRT	Scale	1" = 100'	Proj. No.	01011
Dim By	MRT	Date	9/19/02		
Chk By	Approved				19 OF 57



F-02-111  
 Professional Engr. No. 10557

A MATCH LINE - SEE SHEET 20 OF 57 A  
 DWG. NO.

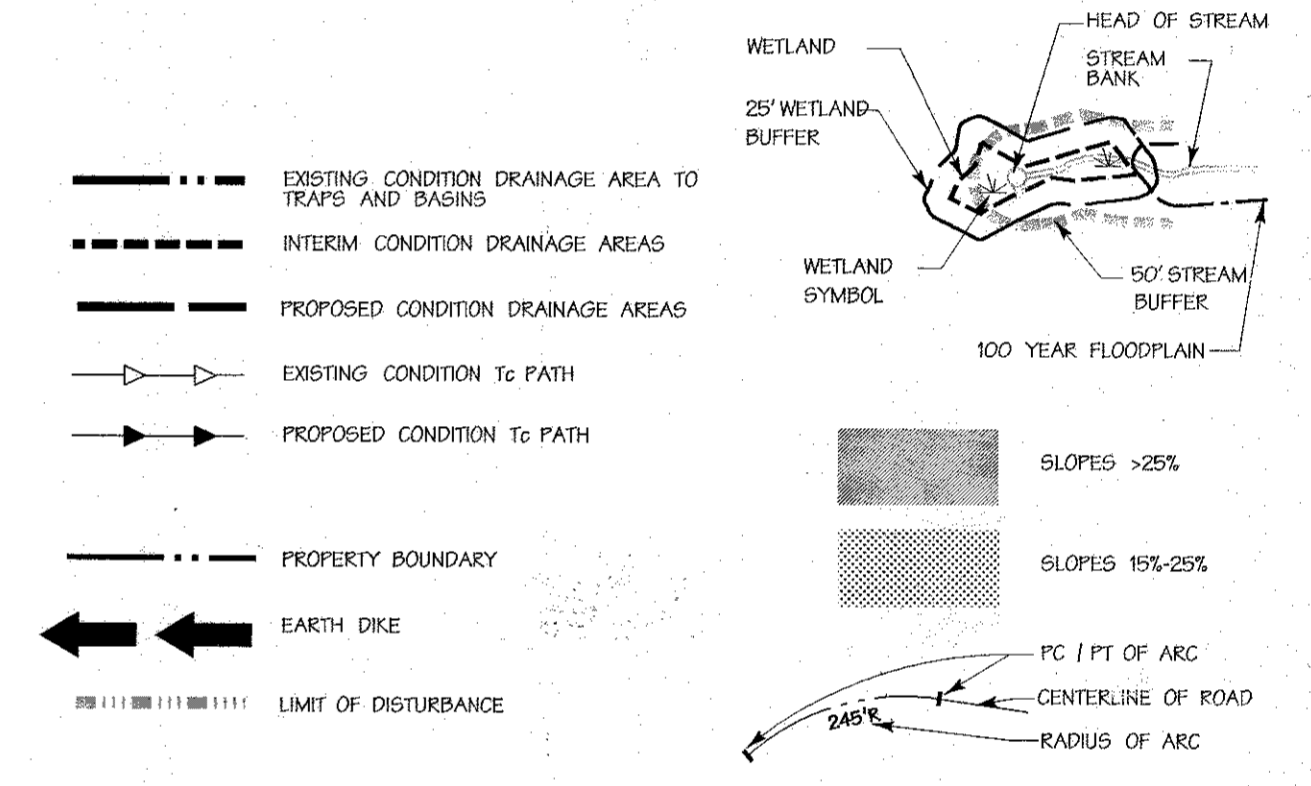
A MATCH LINE - SEE SHEET 19 OF 57 A  
 DWG. NO.



Vicinity Map  
 SCALE: 1"=2000'

LOOP ROAD CONNECTION PER AGREEMENT WITH MD SHA, HOWARD COUNTY AND HOWARD RESEARCH & DEVELOPMENT CORP. SHA B-HO-7734-00

Legend



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William F. Walker, Jr.</i>	10-10-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Conrad Henrich</i>	10/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>John P. Williams</i>	10/18/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
2-7-11	Z ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
9-3-05	A ADD 4" TURTLE AROUND
Date	No. Revision Description

REVITZ PROPERTY

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Darr McCann-Walkers, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 286-3238  
 Fax 286-4705

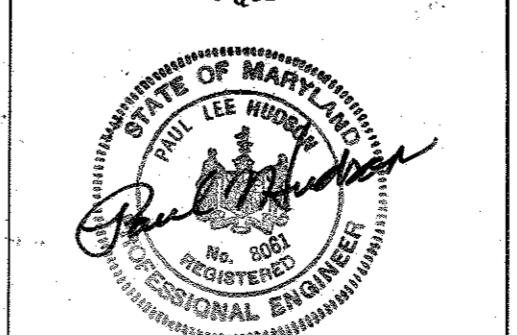
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

△ THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP SBP-16-005

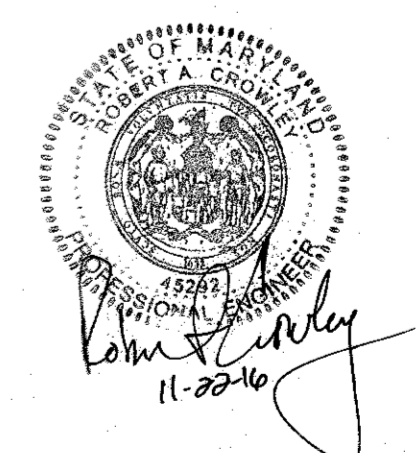
△ PROFESSIONAL CERTIFICATION FOR REV#3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 8061 EXPIRATION DATE: 05/21/2018

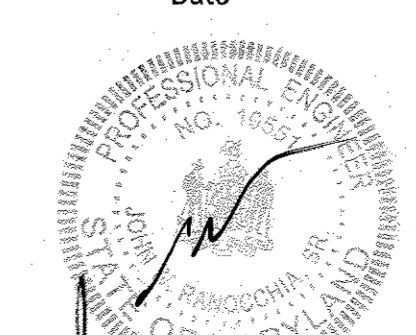
FOR REVISION #2 ONLY  
 4-19-11  
 Date



Professional Engr. No. 8061



9/26/02  
 Date

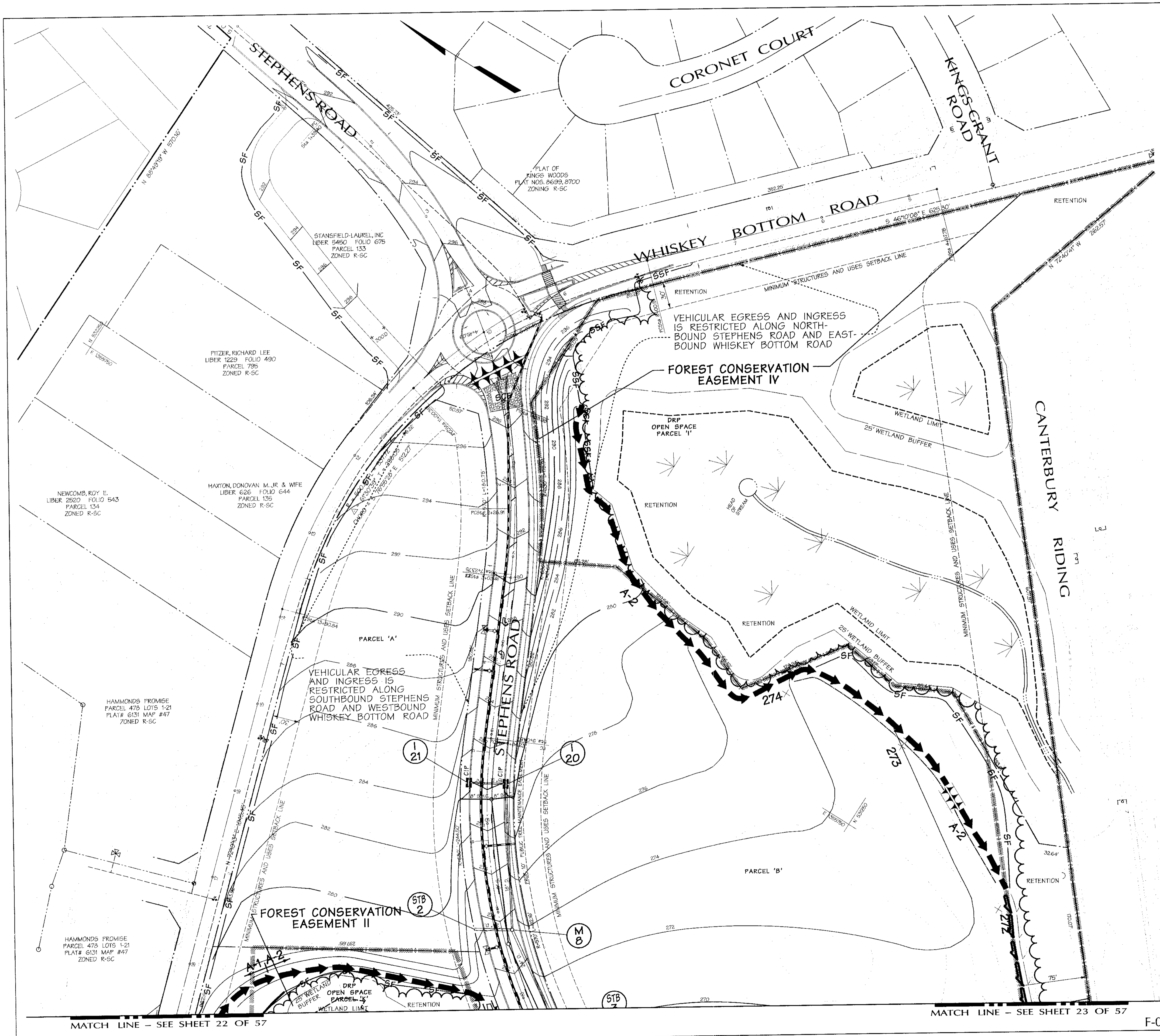


Professional Engr. No. 10551

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 8061, Expiration Date: 5-26-11

F-02-111

Des By	MRT	Scale	1" = 100'	Proj. No.	01011
Drn By	MRT	Date	9/19/02		
Chk By	Approved				20 OF 57



**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 EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/20/02  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME BELOW SIGNATURE

**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.

*John Pawasick* 9/20/02  
 SIGNATURE OF ENGINEER DATE  
 PRINT NAME BELOW SIGNATURE

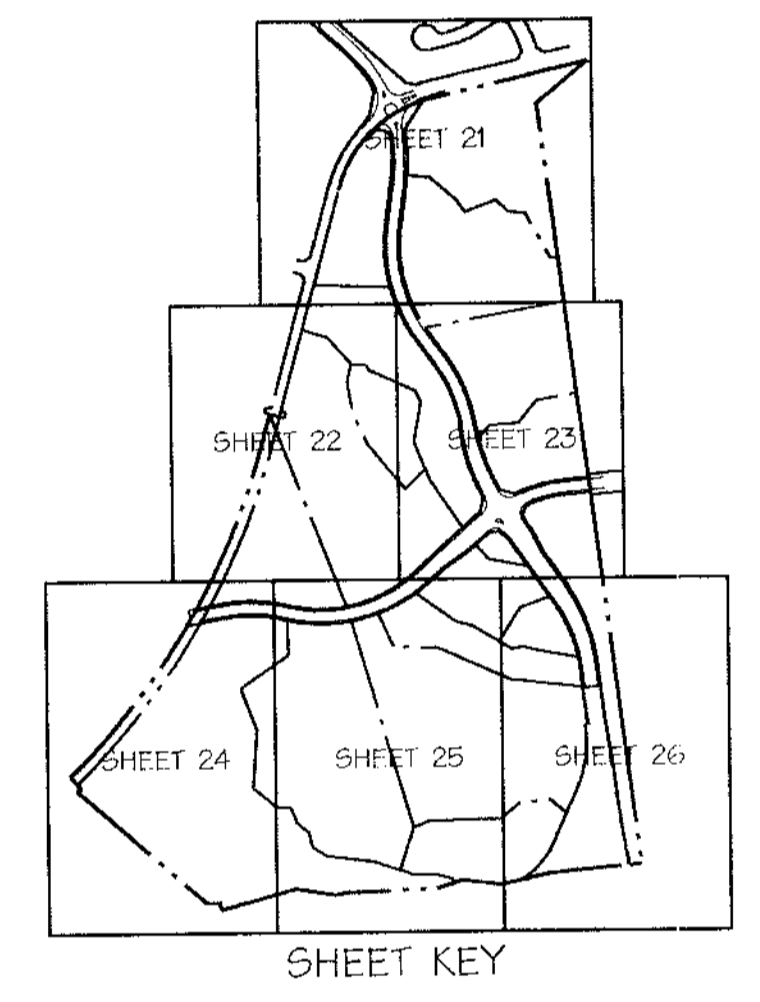
REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS

*Jim Hayes* 9/20/02  
 U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

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

*Yup Seung* 9/20/02  
 HOWARD S.C.D. DATE

- Legend**
- EXISTING CONTOUR
  - PROPOSED CONTOUR
  - PROPOSED STORMDRAIN
  - EARTH/DIVERSION DIKE
  - SILT FENCE
  - SUPER SILT FENCE
  - CLEAN WATER DIVERSION PIPE
  - LIMIT OF DISTURBANCE
  - WETLAND
  - 25' WETLAND BUFFER
  - 50' STREAM BUFFER
  - FOREST CONSERVATION EASEMENT
  - MOUNTABLE BERM
  - CIP CURB INLET PROTECTION
  - RPS REMOVABLE PUMPING STATION
  - SCE STABILIZED CONSTRUCTION ENTRANCE
  - PERMANENT SWALE
  - EARTH/DIVERSION DIKE/SWALE
  - PROPOSED WOODS EDGE
  - HIGHLY VISIBLE ORANGE SAFETY FENCE



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William J. Walker* 10-18-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Carla Starnes* 10/23/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mike Sauer* 10/16/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Dan McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 396-3333  
 Fax 396-4706

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

SECTION NAME	SECTION NO.	DATE	BY	REVISION #

TITLE: **FINAL PLAN GRADING & SEDIMENT AND EROSION CONTROL PLAN**

Des By: DFM Scale: 1" = 50' Proj. No.: 01011  
 Dir By: Date: 9/19/02  
 Chk By: Approved: 21 OF 57

9/20/02  
 Date

*V*

MATCH LINE - SEE SHEET 23 OF 57

F-02-111 Professional Engr. No. 10557

MATCH LINE - SEE SHEET 22 OF 57

MATCH LINE - SEE SHEET 21 OF 57

MATCH LINE - SEE SHEET 23 OF 57

MDE PERMIT AND TRACKING No. 01-NT-0500/200260639

**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/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Developer: *Robert A. Jenkins* DATE: 9/20/02  
 PRINT NAME BELOW SIGNATURE: Robert A. Jenkins

**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 of Engineer: *John Benecchia* DATE: 9/20/02  
 PRINT NAME BELOW SIGNATURE: John Benecchia

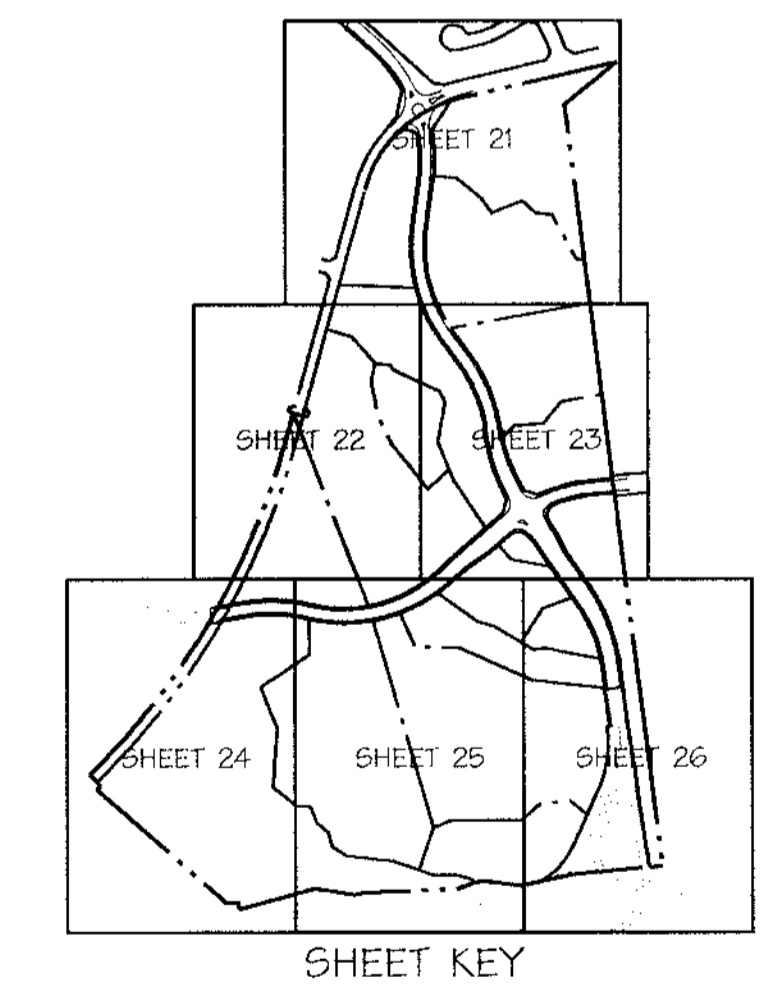
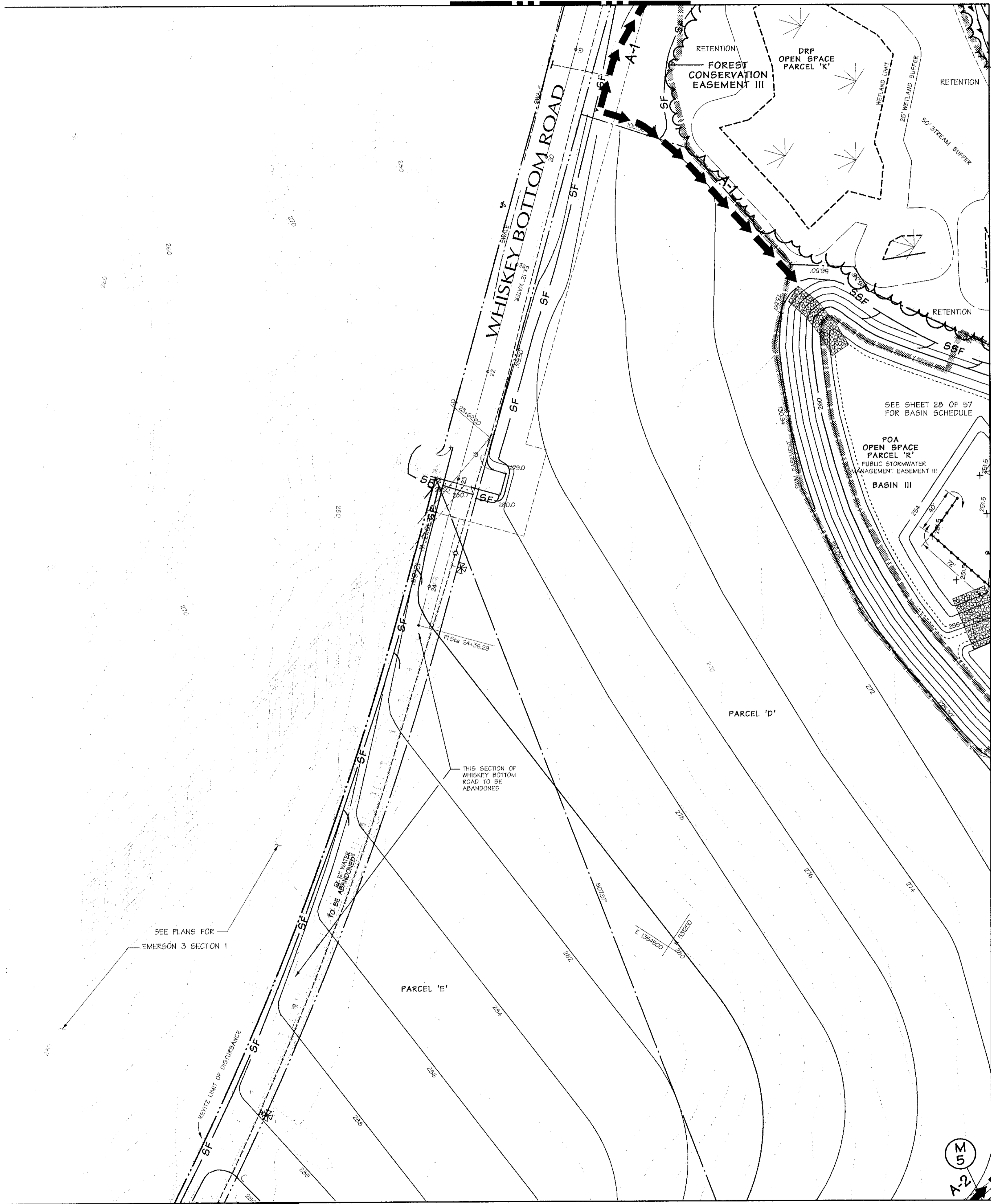
REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS

Signature: *Jim Myslo* DATE: 9/30/02  
 U.S. NATURAL RESOURCE CONSERVATION SERVICE

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

Signature: *John A. ...* DATE: 9/30/02  
 HOWARD S.C.D.

- Legend**
- 340 — EXISTING CONTOUR
  - 340 — PROPOSED CONTOUR
  - 15" D. — PROPOSED STORMDRAIN
  - → EARTH/DIVERSION DIKE
  - SF — SILT FENCE
  - SSF — SUPER SILT FENCE
  - ▽ CLEAN WATER DIVERSION PIPE
  - LOD LIMIT OF DISTURBANCE
  - WETLAND
  - 25' WETLAND BUFFER
  - 50' STREAM BUFFER
  - CIP CURB INLET PROTECTION
  - RPS REMOVABLE PUMPING STATION
  - GM GABION MATTRESS INFLOW PROTECTION
  - → PERMANENT SWALE
  - ~ ~ ~ PROPOSED WOODS EDGE



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Signature: *William F. ...* DATE: 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Signature: *David Hamant* DATE: 9/20/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT

Signature: *John A. ...* DATE: 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Draft McCune Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax: 296-4705

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

DATE OF LAST REVISION	REVISION	BY	DATE

TITLE: **FINAL PLAN GRADING & SEDIMENT AND EROSION CONTROL PLAN**

Des By: DFM Scale: 1" = 50' Proj. No.: 01011

Drn By: Date: 9/19/02

CHK By: Approved: 22 OF 57

9/20/02  
 Date

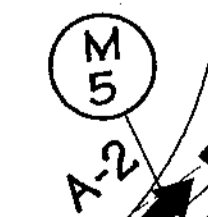
*[Signature]*

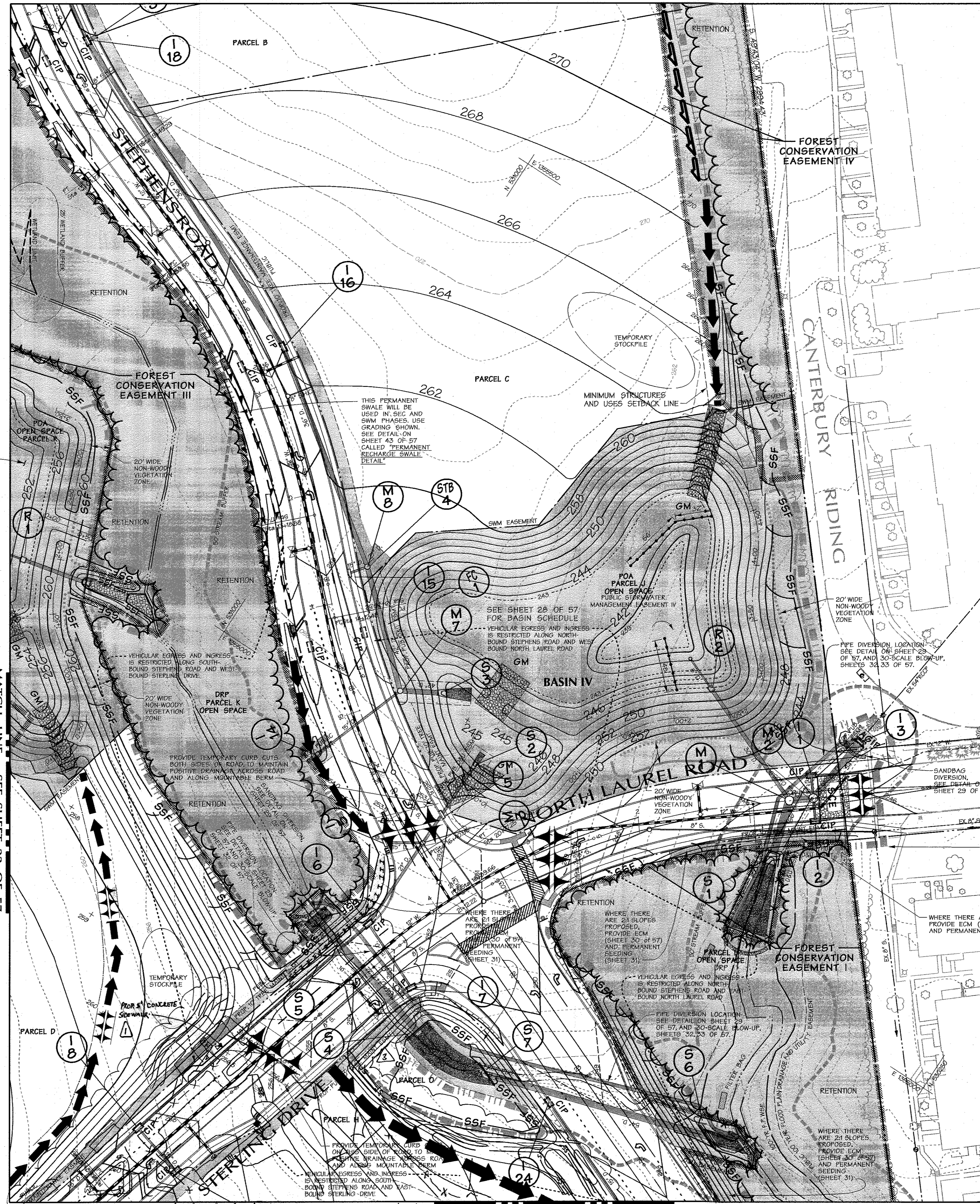
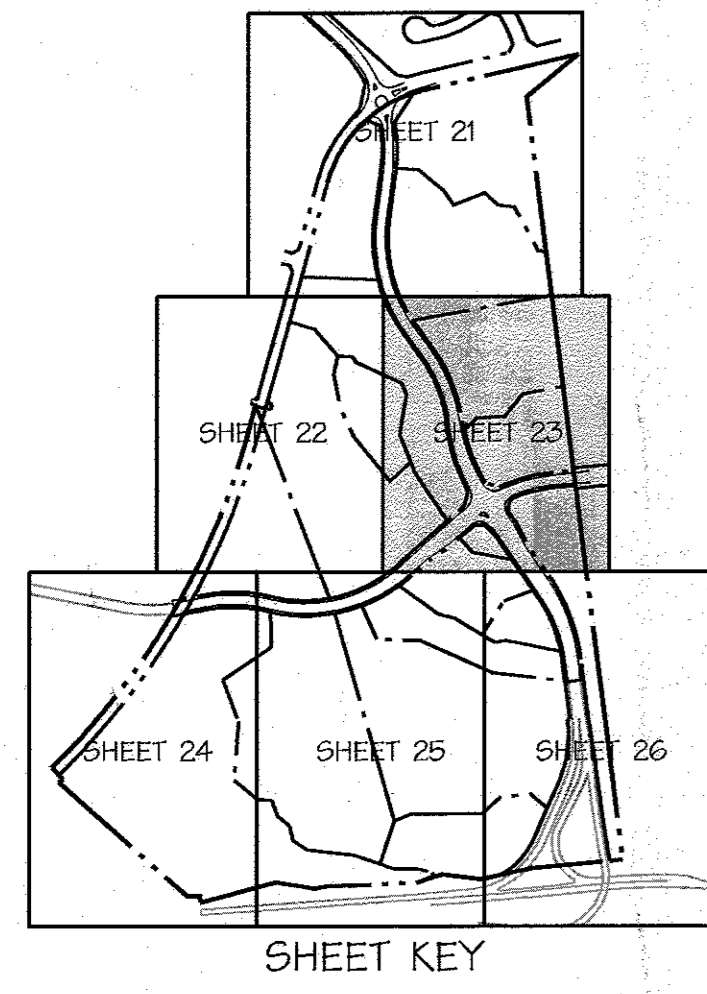
Professional Engr. No. 10557

F-02-111

F-02-111

MATCH LINE - SEE SHEET 24 OF 57  
 DWG. NO.





**Legend**

- 340--- EXISTING CONTOUR
- 340— PROPOSED CONTOUR
- 15' D. PROPOSED STORMDRAIN
- EARTH/DIVERSION DIKE
- SF SILT FENCE
- SSF SUPER SILT FENCE
- △ CLEAN WATER DIVERSION PIPE
- LOD LIMIT OF DISTURBANCE
- WETLAND
- 25' WETLAND BUFFER
- 50' STREAM BUFFER
- MOUNTABLE BERM
- SANDBAG DIVERSION
- CIP CURB INLET PROTECTION
- RP6 REMOVABLE PUMPING STATION
- SCF STABILIZED CONSTRUCTION ENTRANCE
- GM GABION MATTRESS INFLOW PROTECTION
- FILTER BAG
- PERMANENT SWALE, TO BE USED IN SEC AND SWM PHASES
- DIKE/SWALE
- TOE OF BASIN EMBANKMENT SLOPE
- NON-WOODY VEGETATION ZONE
- HIGHLY VISIBLE ORANGE SAFETY FENCE
- PROPOSED WOODS EDGE

**BASIN III**  
SEE SHEET 25 OF 57 FOR BASIN SCHEDULE

MATCH LINE - SEE SHEET 22 OF 57

MATCH LINE - SEE SHEET 26 OF 57

**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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/20/02  
SIGNATURE OF DEVELOPER DATE  
Robert A. Jenkins

**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.

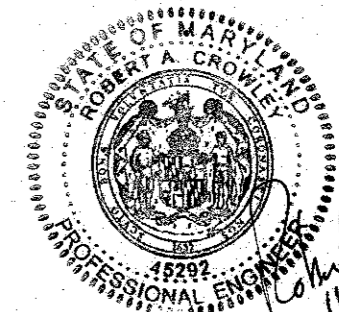
*John Kanecchia* 9/20/02  
SIGNATURE OF ENGINEER DATE  
John Kanecchia

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

*J. M. ...* 9/20/02  
U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

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

*...* 9/20/02  
HOWARD S.C.D. DATE



THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP. SDP-10-005

**PROFESSIONAL CERTIFICATION FOR REV #3**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A JULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 46292, EXPIRATION DATE: 06/21/2018

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William F. ...* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*...* 10/26/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 10/10/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

EMERSON CAMPUS VCP

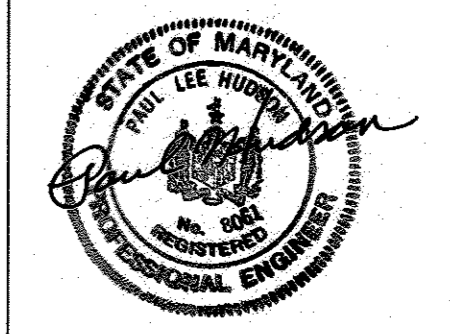
Date	No.	Revision Description
05/23/05	1	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE

**REVITZ PROPERTY**

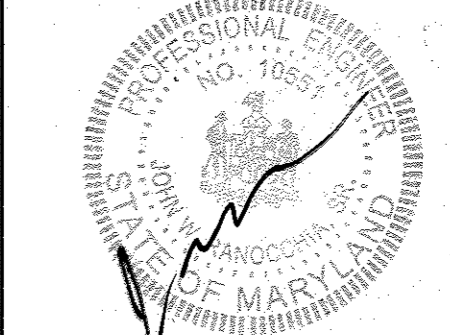
OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Darr McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 286-8325  
Fax 286-4705  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

FOR REVISION #1 ONLY  
4-19-11  
Date

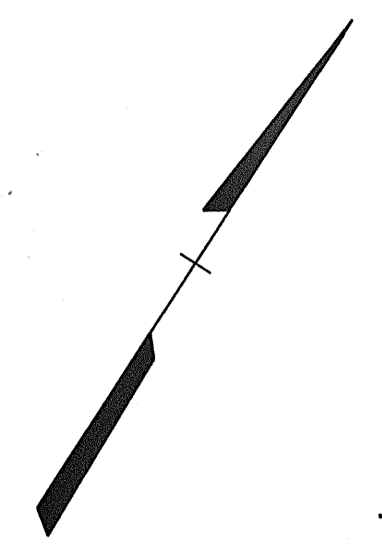


Professional Engr. No. 8061  
9/20/02  
Date



Professional Engr. No. 10557

DESIGNER NAME	SECTION/AREA	DISTRICT #
2285/436	47, GRID 20	165 & PO PAR. B37
TITLE		
FINAL PLAN GRADING & SEDIMENT AND EROSION CONTROL PLAN		
Des By	DFM	Scale 1" = 50'
Dim By	WDE	Date 9/19/02
Proj. No.	01011	
Chk By	Approved	23 OF 57

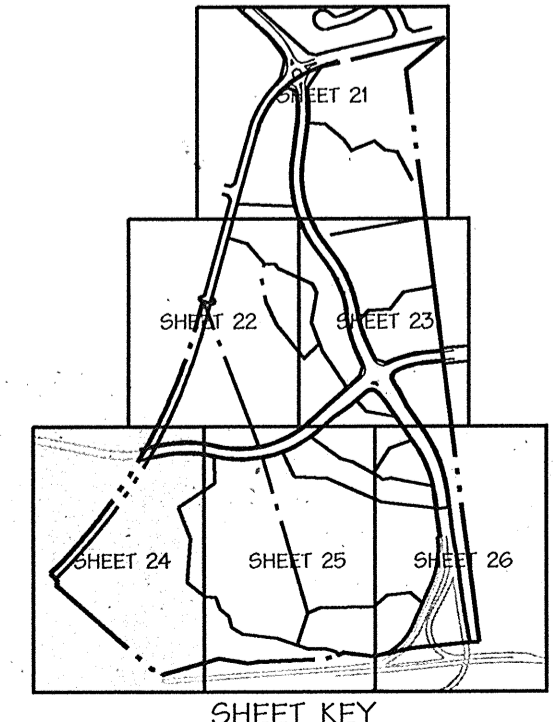


- Legend**
- EXISTING CONTOUR
  - 340 --- PROPOSED CONTOUR
  - 15" D. --- PROPOSED STORMDRAIN
  - ==> EARTH/DIVERSION DIKE
  - SF --- SILT FENCE
  - SSF --- SUPER SILT FENCE
  - > CLEAN WATER DIVERSION PIPE
  - LOD --- LIMIT OF DISTURBANCE
  - WETLAND
  - 25' WETLAND BUFFER
  - 50' STREAM BUFFER
  - CIP CURB INLET PROTECTION
  - RPS REMOVABLE PUMPING STATION
  - PROPOSED WOODS EDGE

STATE ROUTE 216 WBL

MATCH LINE - SEE SHEET 22 OF 57

MATCH LINE - SEE SHEET 25 OF 57



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. Mahan Jr.* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Leah Stewart* 10/23/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark Summers* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

9/9/02	ADD 1" TURN AROUND
Date	Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

F-02-111

9/20/02  
 Date

MDE PERMIT AND TRACKING No. 01-NT-05001200260639

**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.

*Robert A. Jenkins* 9/20/02  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME BELOW SIGNATURE

**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.

*Sola Pasocchia* 9/20/02  
 SIGNATURE OF ENGINEER DATE  
 PRINT NAME BELOW SIGNATURE

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

*Jin Nguyen* 9/20/02  
 U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

*Shawn* 9/20/02  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 HOWARD S.C.D. DATE



**DMW**  
 Draft-McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3833  
 Fax: 296-4705

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

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL #	165 & 60 PAR. 837
PLAT # OR LE	BLOCK #	LOT #	2267436 20 PEC
WATER CODE	LAWSHARE MAP	ELECT. DISTRICT	47 6th
TITLE	FINAL PLAN GRADING & SEDIMENT AND EROSION CONTROL PLAN		
Des By	DFM	Scale	1" = 50'
Dwn By		Date	9/19/02
Chk By		Approved	24 OF 57

Professional Engr. No. 105551



MATCH LINE - SEE SHEET 24 OF 57



MATCH LINE - SEE SHEET 22 OF 57

MATCH LINE - SEE SHEET 23 OF 57

**Legend**

- 340--- EXISTING CONTOUR
- 340--- PROPOSED CONTOUR
- 15" D. PROPOSED STORMDRAIN
- EARTH DIVERSION DIKE
- SF SILT FENCE
- SSF SUPER SILT FENCE
- △ CLEAN WATER DIVERSION PIPE
- LOD LIMIT OF DISTURBANCE
- WETLAND
- 25' WETLAND BUFFER
- 50' STREAM BUFFER
- BASIN I PROPOSED S.E.C. BASIN FACILITY
- CIP CURB INLET PROTECTION
- RPS REMOVABLE PUMPING STATION
- GM GABION MATTRESS INFLOW PROTECTION
- \*\*\*\*\* TOE OF EMBANKMENT SLOPE
- NON-WOODY VEGETATION ZONE
- EARTH DIVERSION DIKE/SWALE
- ~ PROPOSED WOODS EDGE

MARYLAND ROUTE 216

ROUTE 216

ROUTE 216

ROUTE 216

ROUTE 216

ROUTE 216

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. White Jr.</i> CHIEF, BUREAU OF HIGHWAYS	10-10-02 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>David Hunt</i> CHIEF, DIVISION OF LAND DEVELOPMENT	10/22/02 DATE
<i>Michael J. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	10/10/02 DATE
05/23/13	EMERSON CAMPUS VCP
2-7-11	ADD 5' CONCRETE SIDEWALK ALONG PARCEL P FRONTAGE
Date	No. Revision Description

**REVITZ PROPERTY**

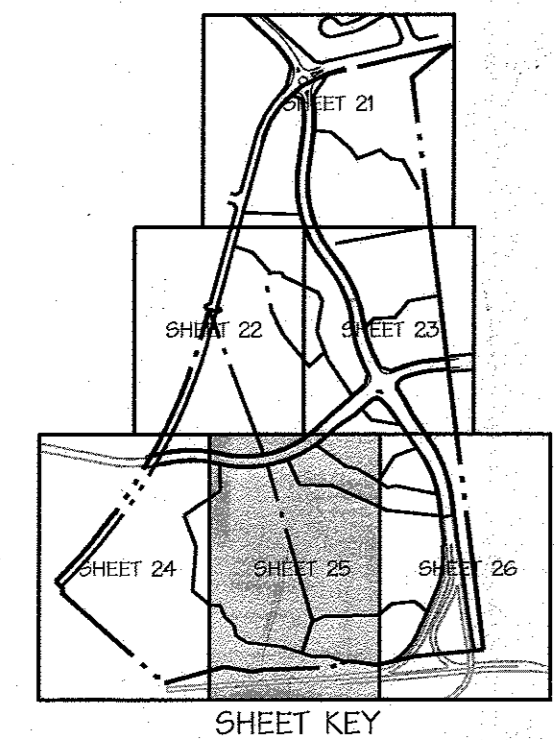
OWNER /DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duck-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 286-3333  
Fax 396-4705

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

DESIGNER NAME	SECTION/AREA	DRAWING #
2787436	PEC	165 & 60 PAR. 637
DATE	SHEET NUMBER	SHEET TOTAL
9/30/02	6th	25 OF 57
TITLE		
FINAL PLAN GRADING & SEDIMENT AND EROSION CONTROL PLAN		
Des By	DFM	Scale 1" = 50'
Drn By	Date	9/19/02
Proj. No.	01011	
Chk By	Approved	25 OF 57

**BASIN VI**  
SEE SHEET 27 OF 57  
FOR BASIN SCHEDULE



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 8061, Expiration Date: 8-26-11

For Revision #1 ONLY  
4-19-11  
Date

Professional Engr. No. 8061

MATCH LINE - SEE SHEET 26 OF 57  
PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 05/21/2018

**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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins*  
SIGNATURE OF DEVELOPER  
DATE: 9/20/02

THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP SDP-10-005

**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.

*John Banocchia*  
SIGNATURE OF ENGINEER  
DATE: 9/20/02

MDE PERMIT AND TRACKING No. 01-NT-0500/200260639

REVIEWED FOR HOWARD S.G.D. AND MEETS TECHNICAL REQUIREMENTS

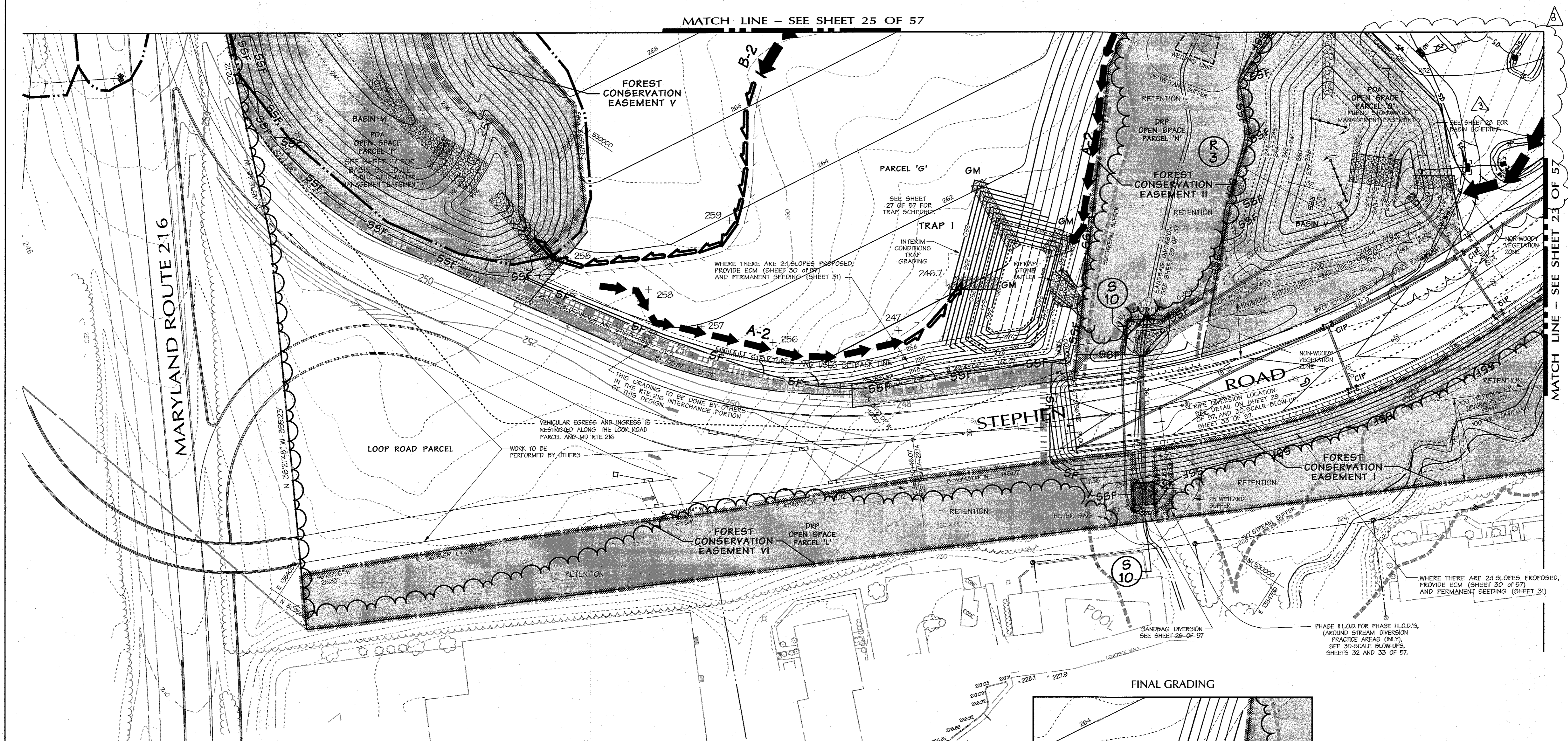
*Jim Moore*  
U.S. NATIONAL RESOURCE MONITOR SERVICE  
DATE: 9/30/02

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

*John Banocchia*  
DATE: 9/30/02

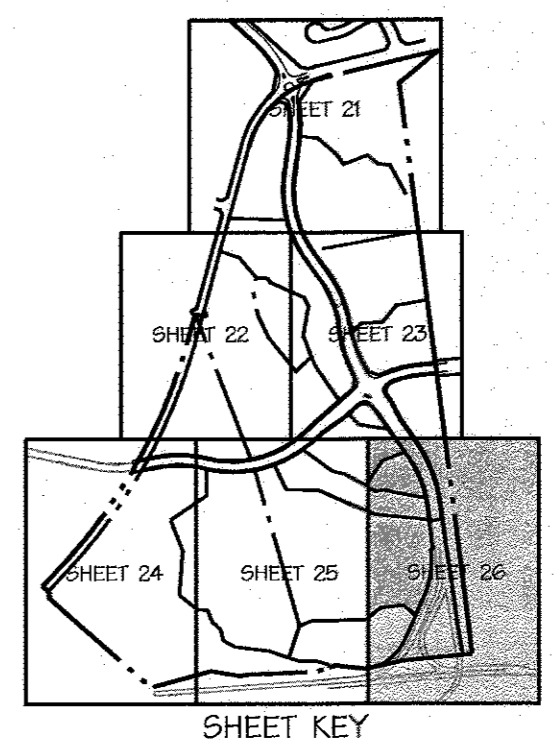
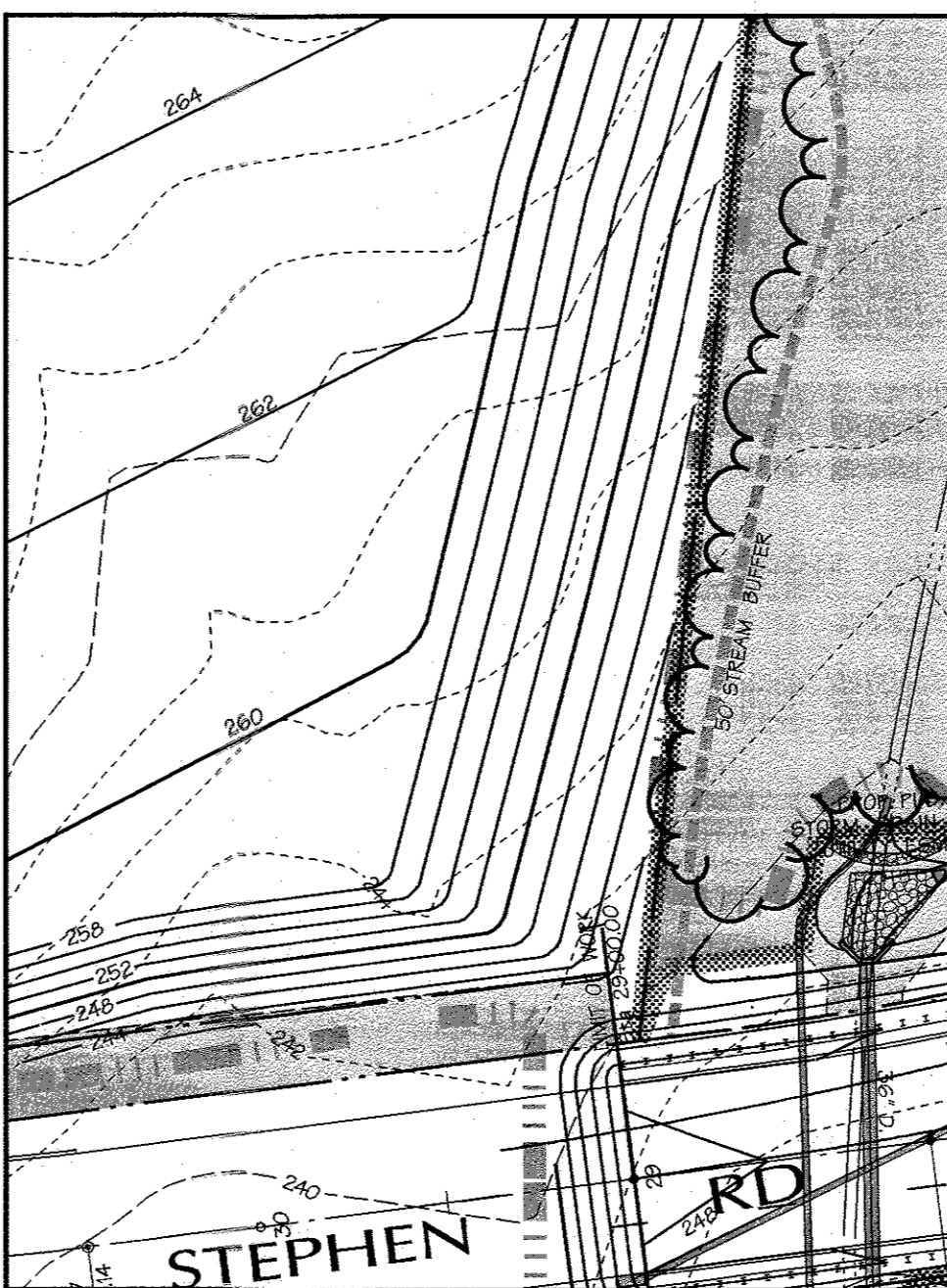
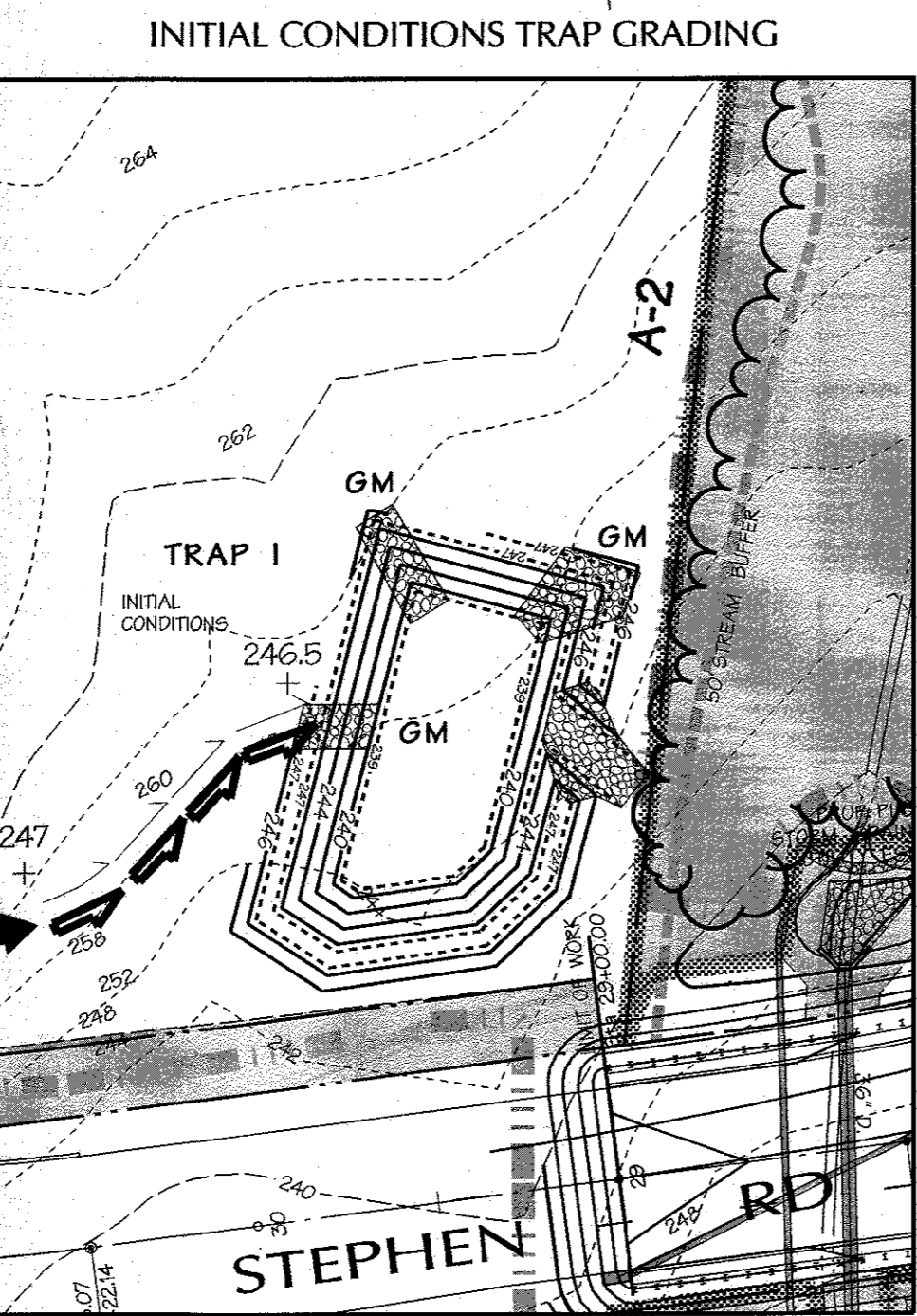
F-02-111  
9/20/02  
Date

Professional Engr. No. 10559



### Legend

- 340 --- EXISTING CONTOUR
- 340 --- PROPOSED CONTOUR
- 15" D. --- PROPOSED STORMDRAIN
- → → EARTH/DIVERSION DIKE
- 6F — SILT FENCE
- 6SF — SUPER SILT FENCE
- ▽ CLEAN WATER DIVERSION PIPE
- LOD LIMIT OF DISTURBANCE
- WETLAND
- WETLAND BUFFER
- STREAM BUFFER
- BASIN I PROPOSED S.E.C. BASIN FACILITY
- ▬ MOUNTABLE BERM
- ▬ SANDBAG DIVERSION
- CIP CURB INLET PROTECTION
- RP6 REMOVABLE PUMPING STATION
- ▬ SCE STABILIZED CONSTRUCTION ENTRANCE
- ▬ GM GABION MATTRESS INFLOW PROTECTION
- ▬ FILTER BAG
- NON-WOODY VEGETATION ZONE



THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP SDP-16-005

PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 46292, EXPIRATION DATE 06/21/2018



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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Robert A. Jenkins, Date: 9/20/02

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 Banascie, Date: 9/20/02

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

Signature: Jim Myers, Date: 9/20/02

Signature: [Signature], Date: 9/20/02

F-02-111

9/20/02

PROFESSIONAL ENGINEER SEAL FOR MARYLAND

Professional Engr. No. 10557

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. Mahon Jr.</i>	10-10-02
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Chris Hovatt</i>	10/22/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Mike Pannunzio</i>	10/21/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE
05/23/15	EMERSON CAMPUS VCP
Date	Revision Description

<b>REVITZ PROPERTY</b>	
OWNER / DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044	
<b>DMW</b> Duff-McCune-Walker, Inc. 200 East Pennsylvania Avenue Towson, Maryland 21286 (410) 296-8833 Fax 296-4705	
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals	
SEWERAGE NAME	SECTION AREA
226/436	20
DATE	DATE
47	6 th
WATER CODE	SEWER CODE
TITLE <b>FINAL PLAN GRADING &amp; SEDIMENT AND EROSION CONTROL PLAN</b>	
Des By	Scale 1" = 50'
DFM	Proj. No. 01011
Drn By	Date 9/19/02
Chk By	Approved
26 OF 57	

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  
 DATE: 9/20/02

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

APPROVED: [Signature]  
 DATE: 9/20/02

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 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]  
 DATE: 9/20/02

Robert A. Jenkins

**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]  
 DATE: 9/20/02

John Kanowski

**BASIN TABLE**

BASIN NUMBER	VI	
EXISTING DRAINAGE AREA: ACRES	14.40	
INTERIM DRAINAGE AREA: ACRES	21.97	
PROPOSED DRAINAGE AREA: ACRES	21.97	
STORAGE REQUIRED: CUBIC FEET	WET	39,550
	DRY	39,550
	TOTAL	79,090
STORAGE PROVIDED: CUBIC FEET	WET	40,116
	DRY	40,397
	TOTAL	80,513
EXISTING GROUND ELEVATION	251.0	
TOP EMBANKMENT ELEVATION	252.0	
EMERGENCY SPILLWAY CREST ELEVATION	N/A	
RISER CREST ELEVATION	246.0	
WET STORAGE ELEVATION	241.6	
CLEANOUT ELEVATION	240.3	
BOTTOM ELEVATION	237.0	
Q <sub>2</sub> EXISTING (C.F.S.)	3.01	
Q <sub>2</sub> INTO BASIN (C.F.S.)	70.03	
Q <sub>2</sub> OUT BARREL (C.F.S.)	2.14	
Q OUT EMERGENCY SPILLWAY	N/A	
BASIN DEPTH	WET	4.6
	DRY	1.7
	TOTAL	6.3
DESIGN HIGHWATER	247.6	
FREEBOARD PROVIDED	4.4	
BARREL DIAMETER	36 in.	
RISER DIAMETER	4' x 4'	
EMERGENCY SPILLWAY WIDTH	N/A	
WET STORAGE ZONE ELEVATION	237.0 - 241.6	
DRY STORAGE ZONE ELEVATION	241.6 - 243.3	
BOTTOM DIMENSIONS	SEE PLAN	
S.E.C. CONTROL PLATE ORIFICE SIZE (in.)	4.0	

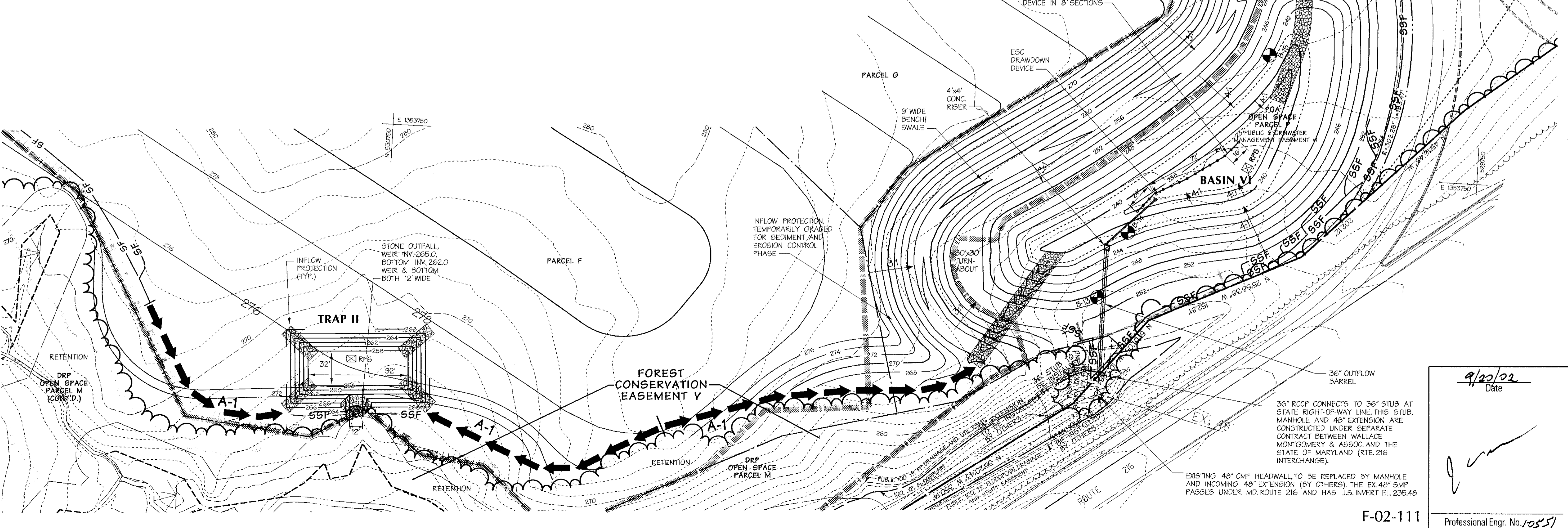
**TRAP TABLE**

TRAP NUMBER	I	II
TRAP TYPE	II	II
EXISTING DRAINAGE AREA: ACRES	2.35	2.90
INTERIM DRAINAGE AREA: ACRES	2.35	2.90
PROPOSED DRAINAGE AREA: ACRES	2.35	2.35
STORAGE REQUIRED: CUBIC FEET	WET	4,225
	DRY	4,225
	TOTAL	8,450
STORAGE PROVIDED: CUBIC FEET	WET	11,552
	DRY	14,172
	TOTAL	25,724
EXISTING GROUND ELEVATION	242.0	262.0
TOP EMBANKMENT ELEVATION	246.0	266.0
WEIR CREST ELEVATION	245.0	265.0
WET STORAGE ELEVATION - STONE OUTLET BOTTOM	242.0	262.0
CLEANOUT ELEVATION	240.0	260.0
TRAP BOTTOM ELEVATION	238.0	258.0
DEPTH OF STONE OUTLET WEIR CHANNEL (a)	1.0	4.4
STONE OUTLET WEIR WIDTH (b)	12.0	12.0
BOTTOM DIMENSION	28' x 76'	32' x 92'
TRAP SIDESLOPES	2:1	2:1
TRAP DEPTH	WET	4.0
	DRY	3.0
	TOTAL	7.0
BARREL DIAMETER	N/A	N/A
RISER DIAMETER	N/A	N/A
WET STORAGE ZONE ELEVATION	238.0 - 242.0	258.0 - 262.0
DRY STORAGE ZONE ELEVATION	242.0 - 245.0	262.0 - 265.0

\* THE EXISTING 2-YEAR DISCHARGE WILL BE EQUAL TO THE PROPOSED 2-YEAR DISCHARGE IN BOTH TRAPS. THE UPSTREAM FACE OF THE KIPKAP OUTLET STRUCTURE WILL BE PROTECTED BY FILTER FABRIC.

- Legend**
- 340 — EXISTING CONTOUR
  - 15' D. — PROPOSED CONTOUR
  - 15' D. — PROPOSED STORMDRAIN
  - → → EARTH/DIVERSION DIKE
  - SF — SILT FENCE
  - SSF — SUPER SILT FENCE
  - CWP — CLEAN WATER DIVERSION PIPE
  - LOD --- LIMIT OF DISTURBANCE
  - WETLAND ---
  - WETLAND BUFFER ---
  - STREAM BUFFER ---
  - CIP --- CURB INLET PROTECTION
  - RP5 --- REMOVABLE PUMPING STATION
  - GM --- GABION MATTRESS INFLOW PROTECTION

- Legend**
- WETLAND BUFFER
  - HEAD OF STREAM
  - STREAM BANK
  - WETLAND SYMBOL
  - 50' STREAM BUFFER
  - 100 YEAR FLOODPLAIN
  - SLOPES >25%
  - SLOPES 15%-25%
  - PC / FT OF ARC
  - CENTERLINE OF ROAD
  - RADIUS OF ARC
  - PROPOSED SWM EASEMENT
  - SOIL EROSION



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

[Signature] 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[Signature] 9/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9/20/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision	Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

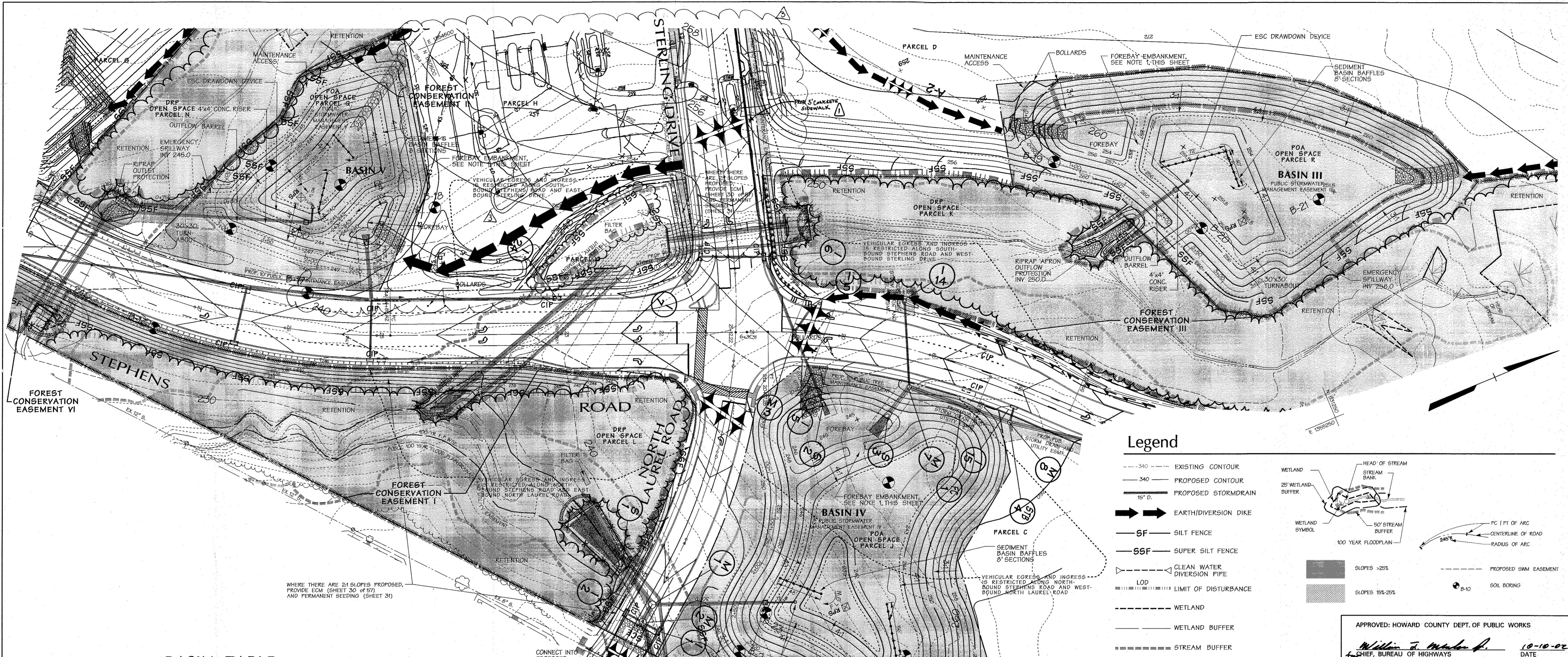
**DMW**  
 Daft-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

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

SUBDIVISION NAME	SECTION/AREA	DATE	SCALE	PROJECT NO.
PLATA ON PL. 2267435	BLK. # 20	DATE 9/20/02	SCALE 47' GRID 20'	PROJECT NO. 165 & PO PAR. 237
WATER TYPE	VEGET. CODE	DESIGNER	DATE	PROJECT NO.
TITLE	SCALE	DATE	PROJECT NO.	
SEDIMENT AND EROSION CONTROL BASIN VI PLAN	1" = 50'	9/19/02	01011	
Des By	MRT	Date	9/19/02	Proj. No. 01011
Chk By	MRT	Date	9/19/02	27 OF 57

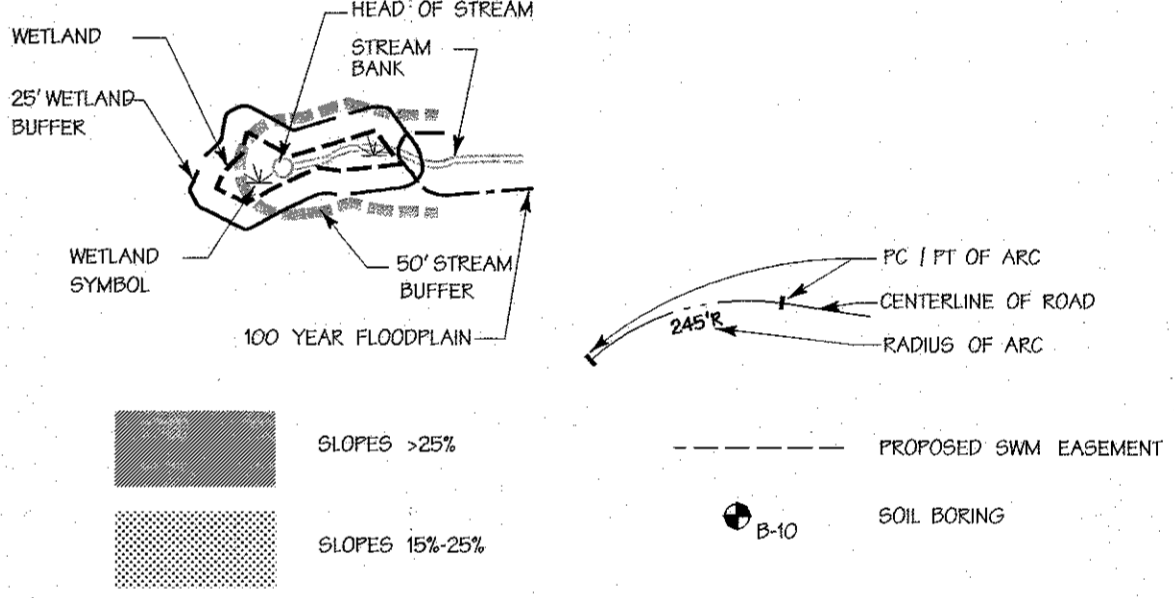
F-02-111

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**Legend**

- 340 --- EXISTING CONTOUR
- 340 --- PROPOSED CONTOUR
- 15" D. --- PROPOSED STORMDRAIN
- → → EARTH/DIVERSION DIKE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- LOD — CLEAN WATER DIVERSION PIPE
- 15" D. --- LIMIT OF DISTURBANCE
- WETLAND
- WETLAND BUFFER
- STREAM BUFFER
- BASIN II ○ PROPOSED S.E.C. BASIN FACILITY
- MOUNTABLE BERM
- SANDBAG DIVERSION
- CIP CURB INLET PROTECTION
- RPS REMOVABLE PUMPING STATION
- SCE --- STABILIZED CONSTRUCTION ENTRANCE
- GM --- GABION MATTRESS INFLOW PROTECTION
- FILTER BAG
- PERMANENT SWALE



**BASIN TABLE**

BASIN NUMBER	III	IV	V	
EXISTING DRAINAGE AREA: ACRES	12.10	16.30	4.36	
INTERIM DRAINAGE AREA: ACRES	14.60	19.50	7.36	
PROPOSED DRAINAGE AREA: ACRES	14.60	19.50	7.36	
STORAGE REQUIRED: CUBIC FEET	WET	26,280	35,100	13,248
	DRY	26,280	35,100	13,248
	TOTAL	52,560	70,200	26,496
STORAGE PROVIDED: CUBIC FEET	WET	27,342	35,983	13,234
	DRY	30,306	40,094	13,525
	TOTAL	57,648	76,077	26,759
EXISTING GROUND ELEVATION	258.0	244.0	244.0	
TOP EMBANKMENT ELEVATION	260.0	252.0	247.0	
EMERGENCY SPILLWAY CREST ELEVATION	258.0	N/A	245.0	
RISER CREST ELEVATION	257.0	246.0	242.7	
WET STORAGE ELEVATION	254.2	242.8	239.1	
CLEANOUT ELEVATION	253.0	241.6	238.2	
BOTTOM ELEVATION	251.5	239.0	237.0	
Q <sub>2</sub> EXISTING (C.F.S.)	6.94	12.75	1.83	
Q <sub>2</sub> INTO BASIN (C.F.S.)	46.55	64.13	24.18	
Q <sub>2</sub> OUT BARREL (C.F.S.)	0.90	1.96	0.67	
Q OUT EMERGENCY SPILLWAY	0.00	N/A	0.00	
BASIN DEPTH	WET	2.7	3.8	2.1
	DRY	1.2	1.2	1.4
	TOTAL	3.9	5.0	3.5
DESIGN HIGHWATER	257.71	247.71	243.3	
FREEBOARD PROVIDED	2.3	4.29	3.7	
BARREL DIAMETER	30"	30"	24"	
RISER DIAMETER	4' x 4'	4' x 4'	4' x 4'	
EMERGENCY SPILLWAY WIDTH	12'	N/A	12'	
WET STORAGE ZONE ELEVATION	251.5 - 254.2	239.0 - 242.8	237.0 - 239.1	
DRY STORAGE ZONE ELEVATION	254.2 - 255.4	242.8 - 244.0	239.1 - 240.5	
BOTTOM DIMENSIONS	SEE PLAN	SEE PLAN	SEE PLAN	
S.E.C. CONTROL PLATE ORIFICE SIZE (in.)	4.0	5.75	3.5	

△ THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP, SDP-16-005

△ PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 05/21/2018



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: *[Signature]* 9/30/02 DATE

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

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

APPROVED: *[Signature]* 9/30/02 DATE

HOWARD SOIL CONSERVATION DISTRICT

**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 ADVISED 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.

APPROVED: *[Signature]* 10/25/02 DATE

10/25/02 DATE

10/25/02 DATE

10/25/02 DATE

**DEVELOPERS CERTIFICATE:**

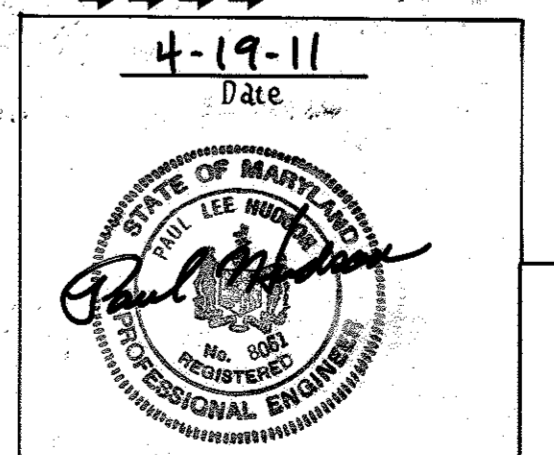
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION 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 AUTHORIZED PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *[Signature]* 9/20/02 DATE

9/20/02 DATE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 8001, Expiration Date: 8-20-11



APPROVED: *[Signature]* 9/20/02 DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*[Signature]* 10-10-02 DATE

CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*[Signature]* 10/20/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

*[Signature]* 10/19/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description
05/13/05	1	EMERSON CAMPUS VCP
2-7-11	1	ADD 8" CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE

**REVITZ PROPERTY**

OWNER / DEVELOPER:

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**

Darr-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3333  
Fax 396-4705

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

DESIGNER	SCALE	DATE	PROJECT NO.
MRT	1" = 50'	9/19/02	01011
CHK BY	APPROVED		28 OF 57

F-02-111

F-02-111

**CONDITIONS AND MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS AND BUFFERS**

- REMOVE EXCAVATED MATERIAL, CONSTRUCTION MATERIAL OR DEBRIS TO AN UPLAND DISPOSAL AREA OUTSIDE OF ANY WATERWAY, FLOODPLAIN, NONTIDAL WETLAND, OR BUFFER.
- IF BACKFILL IS OBTAINED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSHARPLY POINTING TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE.
- PLACE MATERIAL IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
- MAINTAIN THE HYDROLOGIC REGIME OF NONTIDAL WETLANDS OUTSIDE THE LIMITS OF DISTURBANCE.
- VERIFY ANY NONTIDAL WETLANDS AND BUFFERS TEMPORARILY IMPACTED BY THE PERMITTED ACTIVITY. ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LIGULUM MULTIFLORUM), WHEAT (TRITICUM HYBRIDUM), SOYBEAN (GLYCINE MAX), AND/OR RYE (SECALE CEREALE). OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION, KENTUCKY. ALL FILL SHALL NOT BE UTILIZED IN THE WET AND/OR BUFFER. ALL TEMPORARY FILL SHALL BE REMOVED IN THEIR ENTIRETY ON OR BEFORE THE COMPLETION OF CONSTRUCTION.
- TO PROTECT IMPORTANT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM AS FOLLOWS:
  - USE WATERS, IN-STREAM WORK MAY NOT BE CONDUCTED DURING THE PERIOD MARCH 1 - JUNE 15 INCLUSIVE, DURING ANY YEAR.
- NO REMOVAL OF VEGETATION, GRASSING, FILLING, DRAINING OR OTHER ALTERATION OF THE NONTIDAL WETLANDS OR BUFFER OUTSIDE THE LIMITS OF DISTURBANCE SHALL OCCUR WITHOUT WRITTEN AUTHORIZATION FROM THE WATER MANAGEMENT ADMINISTRATION.

**DESCRIPTION**  
THE WORK SHOULD CONSIST OF INSTALLING FLOW DIVERSION PIPES IN COMBINATION WITH SANDBAGS OR STONE BARRIERS WHEN CONSTRUCTION ACTIVITIES OCCUR WITHIN THE STREAM CHANNEL.

**RESPECTIVE USES & LIMITATIONS**  
DIVERSION PIPES WITH AN INSUFFICIENT FLOW CAPACITY CAN CAUSE THE CHANNEL DIVERSION TO FAIL, THEREBY RESULTING IN SEVERE EROSION OF THE DISTURBED CHANNEL SECTION UNDER CONSTRUCTION. THEREFORE, IN CHANNEL CONSTRUCTION ACTIVITIES SHOULD OCCUR ONLY DURING PERIODS OF LOW FLOW.

**MATERIAL SPECIFICATIONS**  
MATERIALS FOR STREAM DIVERSIONS SHOULD MEET THE FOLLOWING REQUIREMENTS:  
1. SANDBAGS SHOULD BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES (15 CM) (MINIMUM).  
2. SANDBAGS SHOULD BE MADE OF A DURABLE MATERIAL WHICH IS RESISTANT TO ULTRAVIOLET RADIATION, TEARING, AND PUNCTURE AND SHOULD BE WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL (E.G. SAND, FINE GRAVEL, ETC.).  
3. NETTING SHEETING SHOULD BE MADE OF POLYETHYLENE OR OTHER MATERIAL WHICH IS IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

**INSTALLATION GUIDELINES**  
ALL EROSION AND SEDIMENT CONTROL DEVICES INCLUDING MANDATORY DEWATERING BASINS SHOULD BE INSTALLED AS THE FIRST ORDER OF BUSINESS ACCORDING TO A PLAN APPROVED BY THE WMA OR LOCAL AUTHORITY. INSTALLATION SHOULD PROCEED FROM UPSTREAM TO DOWNSTREAM DURING LOW FLOW CONDITIONS IF NECESSARY. A FENCE OR STRAW BALES SHOULD BE INSTALLED AROUND THE PERIMETER OF THE WORK AREA.

**DIVERSION PIPES WITH SANDBAGS OR STONE BARRIERS SHOULD BE COMPLETED AS FOLLOWS (REFER TO DETAIL 1A):**

- SANDBAGS OR STONE BARRIERS SHOULD BE SIZED AND INSTALLED AS DETAILED IN WORK TO SANDBAGS OR STONE BARRIERS. THE MATERIALS SHOULD BE SIZED TO WITHSTAND DOWNSTREAM VELOCITIES.
- ALL EXCAVATED MATERIAL SHOULD BE DEPOSITED AND STABILIZED IN AN APPROVED AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE AUTHORIZED BY THE WMA.
- SEDIMENT-LADEN WATER FROM THE CONSTRUCTION AREA SHOULD BE FUNNELED TO A DEWATERING BASIN.
- THE DIVERSION PIPE SHOULD HAVE A MINIMUM CAPACITY SUFFICIENT TO CONVEY THE 2-YEAR FLOW FOR PROJECTS WITH A DURATION OF TWO WEEKS OR GREATER. FOR PROJECTS WITH A SHORTER DURATION, THE CAPACITY OF THE PIPE CAN BE REDUCED ACCORDINGLY.
- IF NECESSARY, FENCE OR STRAW BALES SHOULD BE INSTALLED AROUND THE PERIMETER OF THE WORK AREA.
- SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.

**STAKE THROUGH CONSTRUCTION FENCE TO RESTRIKT IF SLOPE IS GREATER THAN 5 PERCENT**

**2" x 2" BARRIERS ON UPLAND SIDE**

**20' MAX**

**CUT OPEN CORNER OF BAG AND CLAMP ON DEWATERING HOSE**

**STAKE AT 25' C.C. TO HOLD ON SLOPES**

**CONSTRUCTION FENCE FOR RESTRIKT AND AID IN LIFTS USED BAG**

**WATER AND SEDIMENT**

**FILTER FABRIC (PHILIPS FIBERS SAFAC 600)**

**1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL/WEED GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.**

**2. WIDTH AND LENGTH SHALL BE AS SHOWN IN THE TABLE.**

**3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.**

**4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 500 GPM.**

**5. FILTER BAG SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.**

**CONSTRUCTION SPECIFICATIONS**

- PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
- THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 4 TIMES THE AREA OF THE INTERNAL ORIFICE.
- THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
- PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOTATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF THE DRAW-DOWN DEVICE WITH 1" STEEL ANGLE OR 2" BY 2" SQUARE OR 2" ROUND WOODEN POSTS SET 3" MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 2 GAUGE MINIMUM WIRE.

**DUST CONTROL SPECIFICATIONS**

**TEMPORARY METHODS**

- MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
- VEGETATIVE COVER - SEE STANDARDS FOR VEGETATIVE COVER.
- VEGETATION - TO PROTECT SURFACE AND SPRING CLOSURE THE SURFACE THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING BEGINS. BURN PLANTING ON UPLAND SIDE OF SITE. ORNAMENTAL PLANTS SHOULD BE PLACED AT LEAST 10 FEET FROM THE DISTURBED AREA.
- IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY PREVENTATIVE MEASURE TO PREVENT SOIL BLOWING. SURFACE IS MOIST REFILL AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THE RUNOFF BEGINS TO FLOW.
- BARRIERS - SOLID BOARD FENCES, SHOWN FENCES, BURIED FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS SHOULD BE PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 100 FEET. THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
- CALCIUM CHLORIDE - APPLIED TO A PAVE THAT WILL "CL" SURFACE MOISTURE MAY NEED REAPPLICATION.

**PERMANENT METHODS**

- PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER AND VEGETATIVE PROTECTION - LEFT IN PLACE.
- TOPSOILING - COVERING WITH LESS EROSION SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
- STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

**Working in Nontidal Wetlands & Buffers**

**CROSS SECTION**

**PLAN VIEW**

**STABILIZATION**  
PDS-1 SEED AND MULCH (DRAINING - 1 ACRE)  
PDS-2 SEED AND COVER WITH SOIL STABILIZATION MATTING OR LINE WITH SOD (DRAINING BETWEEN 1 AND 2 ACRES)

**CONSTRUCTION SPECIFICATIONS**

- ALL PERIMETER DITCHES SHALL HAVE AN UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS-SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED IN THE STANDARD.
- FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- STABILIZATION WITH SEED AND MULCH OR AS SPECIFIED OF THE AREA DISTURBED BY THE DKE AND SWALE SHALL BE COMPLETED WITHIN 7 DAYS UPON REMOVAL.
- INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.

NOTE: THE MAXIMUM DRAINAGE AREA FOR THIS PRACTICE IS 2 ACRES.

**Water Management Administration Detail MOWC 1A**

**DIVERSION PIPE**

**PLAN VIEWS**

**BAFFLE DETAIL**

**CONSTRUCTION SPECIFICATIONS**

- ALL PERIMETER DITCHES SHALL HAVE AN UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS-SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED IN THE STANDARD.
- FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- STABILIZATION WITH SEED AND MULCH OR AS SPECIFIED OF THE AREA DISTURBED BY THE DKE AND SWALE SHALL BE COMPLETED WITHIN 7 DAYS UPON REMOVAL.
- INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.

**Filter Bag**

**PERSPECTIVE VIEW**

**CROSS SECTION**

**CONSTRUCTION SPECIFICATIONS**

- RIP-RAP LINED INFLOW CHANNELS SHALL BE 8" DEPTH, HAVE A TRIANGULAR CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND 3" (MIN) BOTTOM WIDTH. THE CHANNEL SHALL BE LINED WITH 4" TO 12" RIP-RAP TO A DEPTH OF 18".
- FILTER CLOTH SHALL BE INSTALLED UNDER ALL RIP-RAP. FILTER CLOTH SHALL BE GEOTEXTILE CLASS C.
- ENTRANCE AND EXIT SECTIONS SHALL BE INSTALLED AS SHOWN IN THE DETAIL SECTION.
- RIP-RAP USED FOR THE LINING MAY BE RECYCLED FOR PERMANENT OUTLET PROTECTION IF THE BASIN IS TO BE CONVERTED TO A STORAGE/WATER MANAGEMENT FACILITY.
- GARBON INFLOW PROTECTION MAY BE USED IN LIEU OF RIP-RAP INFLOW PROTECTION.
- RIP-RAP SHOULD BLEND INTO EXISTING GROUND.
- RIP-RAP INFLOW PROTECTION SHALL BE USED WHERE THE SLOPE IS BETWEEN 4:1 AND 10:1 FOR SLOPES FLATTER THAN 10:1 USE EARTH DICE OR TEMPORARY SWALE LINING CRITERIA.

**Basin Drawdown Schematic Ver. Drawdown Device**

**ELEVATION**

**CONSTRUCTION SPECIFICATIONS**

- THE OUTER PIPE SHOULD BE 48" DIAMETER OR SMALLER IN ANY CASE, BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
- AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
- THE INSIDE STAND PIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" x 6" SLOTS OR 1" DIAMETER HOLES 4" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS E.
- THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OF RISE CREST ELEVATION WHEN DEWATERING A BASIN.

**Dust Control Specifications**

**APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS**  
William Z. Mullen, Jr. 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

**APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING**  
Cindy Harshbarger 10/29/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**APPROVED: DEVELOPMENT ENGINEERING DIVISION**  
Mick 10/29/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**Earth Dike /Swale**

**CROSS SECTION**

**PLAN VIEW**

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

**CONSTRUCTION SPECIFICATIONS**

- SEED AND COVER WITH STRAW MULCH.
- SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD IN A MINIMUM PLANTER.

**Sediment Basin Baffles**

**CONSTRUCTION SPECIFICATIONS**

- ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- ALL TREES, BRUSH STUMPS, OBSTRUCTIONS AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

**Rip-Rap Inflow Protection**

**CONSTRUCTION SPECIFICATIONS**

- ALL PERIMETER DITCHES SHALL HAVE AN UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

**Removable Pumping Station**

**CONSTRUCTION SPECIFICATIONS**

- ALL PERIMETER DITCHES SHALL HAVE AN UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

**Temporary Swale**

**CONSTRUCTION SPECIFICATIONS**

- ALL PERIMETER DITCHES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- ALL TREES, BRUSH STUMPS, OBSTRUCTIONS AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

**CONSTRUCTION SPECIFICATIONS**

- ALL PERIMETER DITCHES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
- RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- ALL TREES, BRUSH STUMPS, OBSTRUCTIONS AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

**CONSTRUCTION SPECIFICATIONS**

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- RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT A NON-EROSIVE VELOCITY.
- ALL TREES, BRUSH STUMPS, OBSTRUCTIONS AND OTHER OBSTRUCTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDER NORMAL FLOW.
- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
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- FILL IF NECESSARY SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

**APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING**  
Cindy Harshbarger 10/29/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**APPROVED: DEVELOPMENT ENGINEERING DIVISION**  
Mick 10/29/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**REVISION TABLE**

Date	No.	Revision Description

**REVITZ PROPERTY**

**OWNER /DEVELOPER:**  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
DRAFT-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

**F-02-111**  
9/26/02  
Date

**MDE PERMIT AND TRACKING No. 01-NT-0500/200260639**

**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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

**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.

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

**U.S. NATURAL RESOURCE CONSERVATION SERVICE**  
DATE: 9/30/02

**HOWARD COUNTY**  
DATE: 9/30/02

**Professional Engr. No. 10457**  
F-02-111

RISER #	LENGTH	WEIR POOL ELEV.	POUR RISER HEIGHT	ORIFICE DRILLED HOLE SIZE	PERFORATION SPACING	PERFORATIONS PER VERT. FT.
R-3	13'	25-42	12"	4"	2'	70
R-4	30'	210.8	24"	5.75"	2'	140
R-5	45'	239.1	14"	3.5"	2 1/2'	50
R-6	58'	241.6	17"	4"	2 1/2'	64

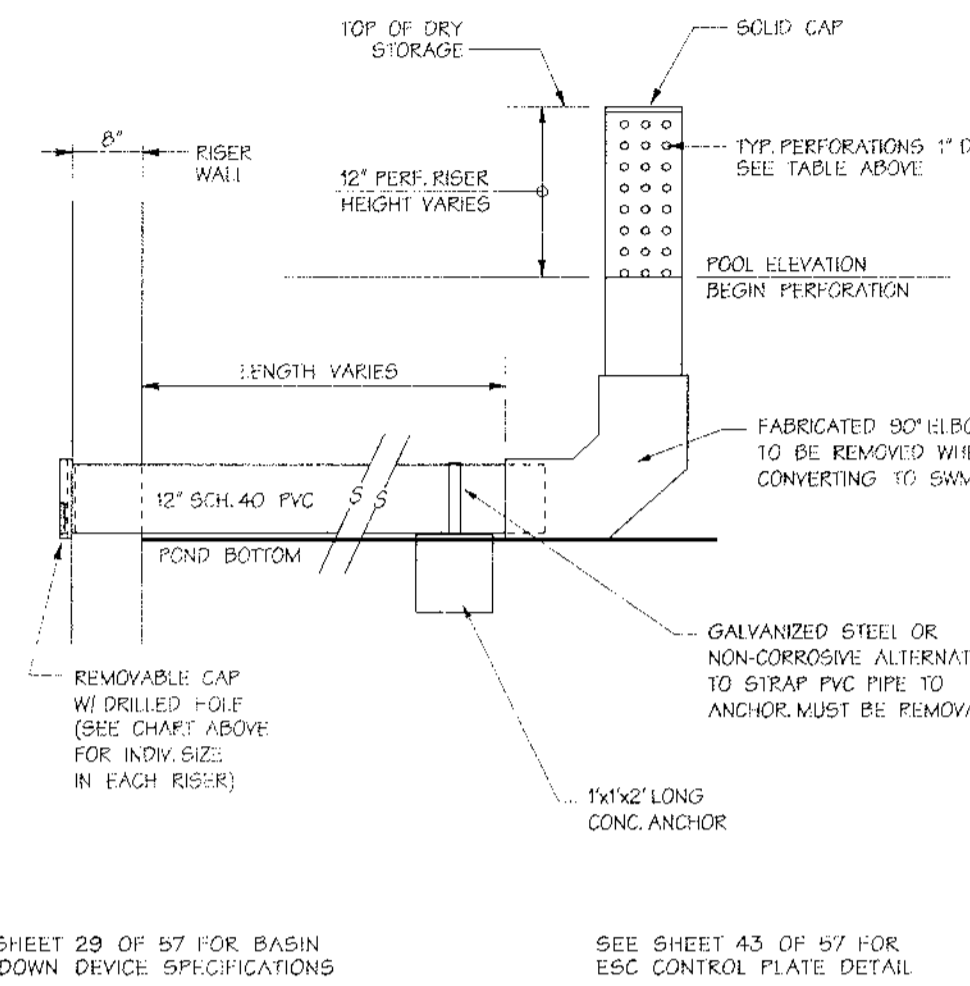


Table 20. Stone Size

SIZE RANGE	D <sub>50</sub>	D <sub>100</sub>	AASHTO	WEIGHT
NUMBER 57*	3/4" - 1 1/4"	1 1/4"	M-43	N/A
NUMBER 1	2" - 3"	2 1/2"	M-43	N/A
RIP-RAP**	4" - 7"	5 1/2"	N/A	N/A
CLASS I	N/A	9.5"	N/A	150lb max.
CLASS II	N/A	16"	N/A	700lb max.
CLASS III	N/A	23"	N/A	2200lb max.

\* This classification is to be used on the inside face of stone outlets and check dams.  
 \*\* This classification is to be used when over small rip-rap is required. The State Highway Administration designation for this stone is Stone For Gabions (305.0104)

Stone For Gabion Baskets

BASKET THICKNESS	SIZE OF INDIVIDUAL STONES
INCHES	MM
6	150
9	225
12	300
18	460
36	910

NOTE: Recycled concrete equivalent may be substituted for all stone classifications. Recycled concrete equivalent shall be concrete broken into the sizes meeting the appropriate classification, shall contain no steel reinforcement, and shall have a density of 150 pounds per cubic foot.

Table 27. Geotextile Fabrics

CLASS	APPARENT OPENING SIZE MM MAX.	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
A	0.30**	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40-0.60*	90	180

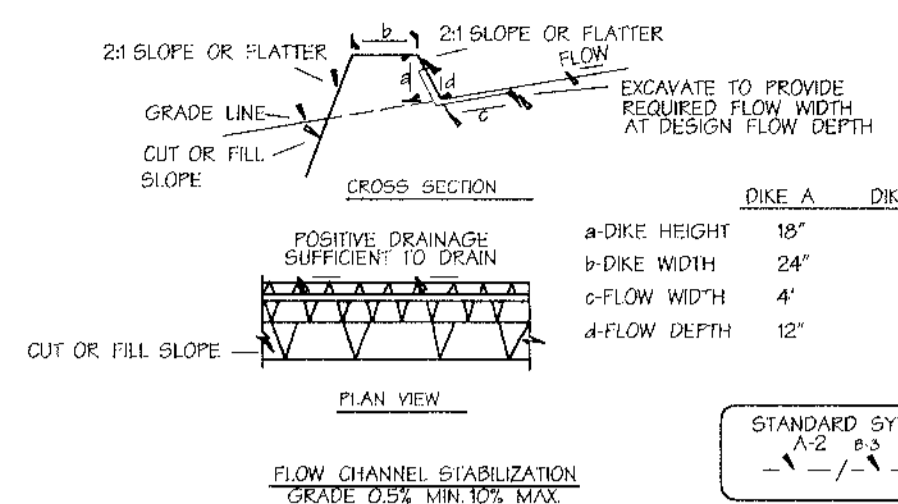
\* US Std. Stone CW-02215 \*\* 50 mm max for Super Silt Fence

The properties shall be determined in accordance with the following procedures:  
 - Apparent opening size MSMT 323  
 - Grab tensile strength ASTM 1602; 4x8" specimen, 1/2" clamps, 12" strain rate in both principal directions of geotextile fabric.  
 - Burst strength ASTM D 3786

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95% by weight of polypropylenes, polyesters, or polyamides. The geotextile fabric shall resist deterioration from ultraviolet exposure.

In addition, Classes A through E shall have a 0.01 cm/sec. minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20 percent (50%) when tested in accordance with the grab tensile strength requirements listed above.

Silt Fence  
 Class F geotextile fabric for all fences shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modulus when tested in accordance with MSMT 509. The material shall also have a 0.3 gal./ft. min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with MSMT 322. Geotextile fabric used in the construction of silt fences shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

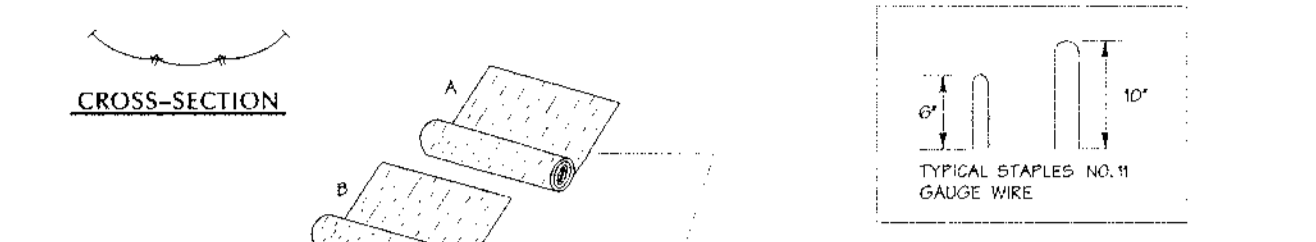


1. Seal and cover with straw mulch.  
 2. Seal and cover with Erosion Control Matting or tile with soil.  
 3. 3" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

Construction Specifications  
 1. All temporary earth dikes shall have uninterrupted positive grade to 8" above spot elevations may be necessary for grades less than 1%.

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

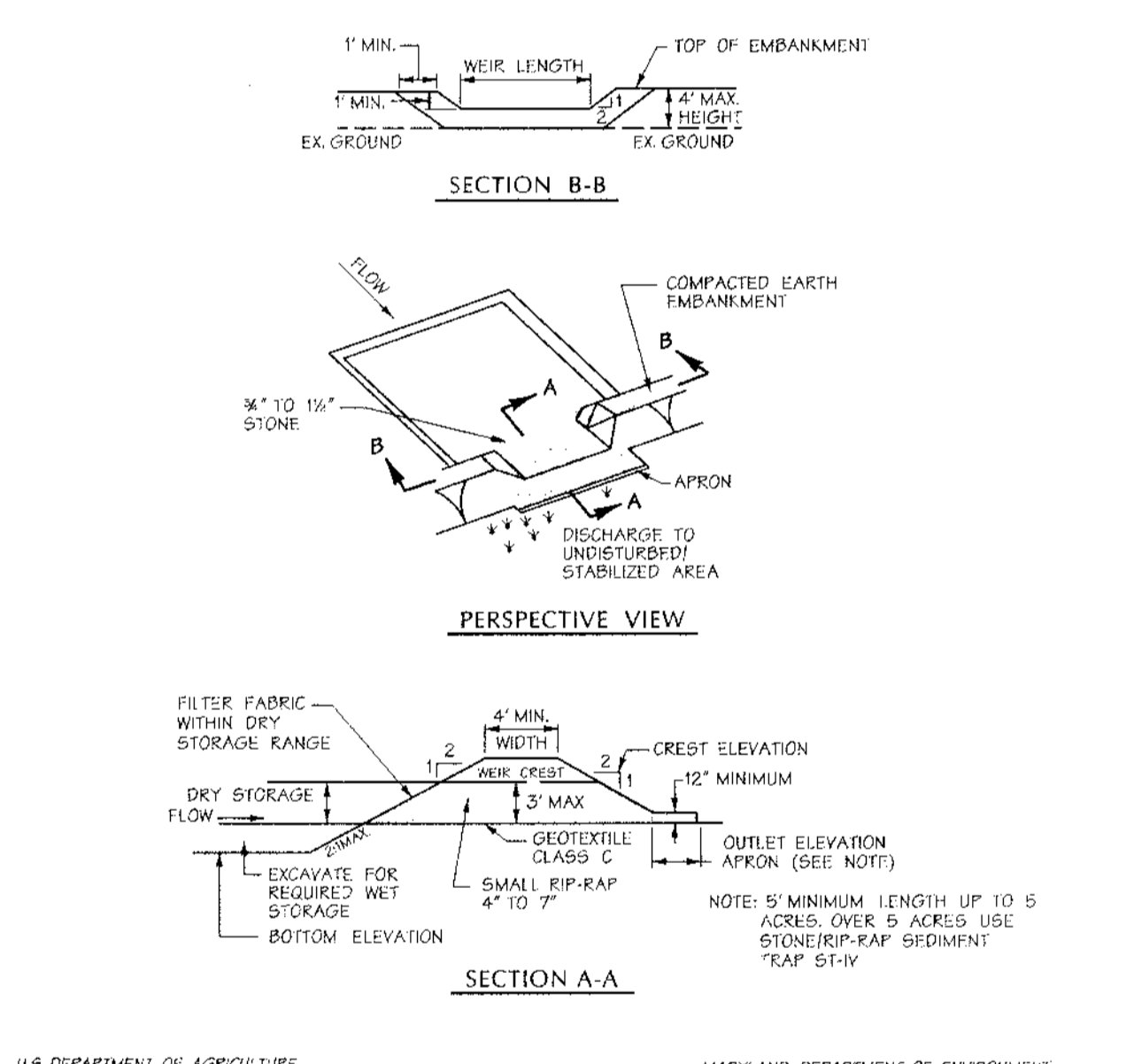
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- CONSTRUCTION SPECIFICATIONS
1. Lay in the matting by placing the top ends of the matting in a narrow trench 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Cross-spacing between staples is 4'.
  2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
  3. Secure staples to the outer edges of the matting. Make sure the matting is smooth and in firm contact with the soil.
  4. Staples shall be placed 2' apart with 4 rows for each step. 2 outer rows and 2 alternating rows down the center.
  5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4" in the fashion of the overlap. The overlap shall be reinforced with a double row of staples spaced 6" apart in a staggered pattern on either side.
  6. The discharge end of the matting line should be similarly secured with 2 double rows of staples.
- NOTE: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

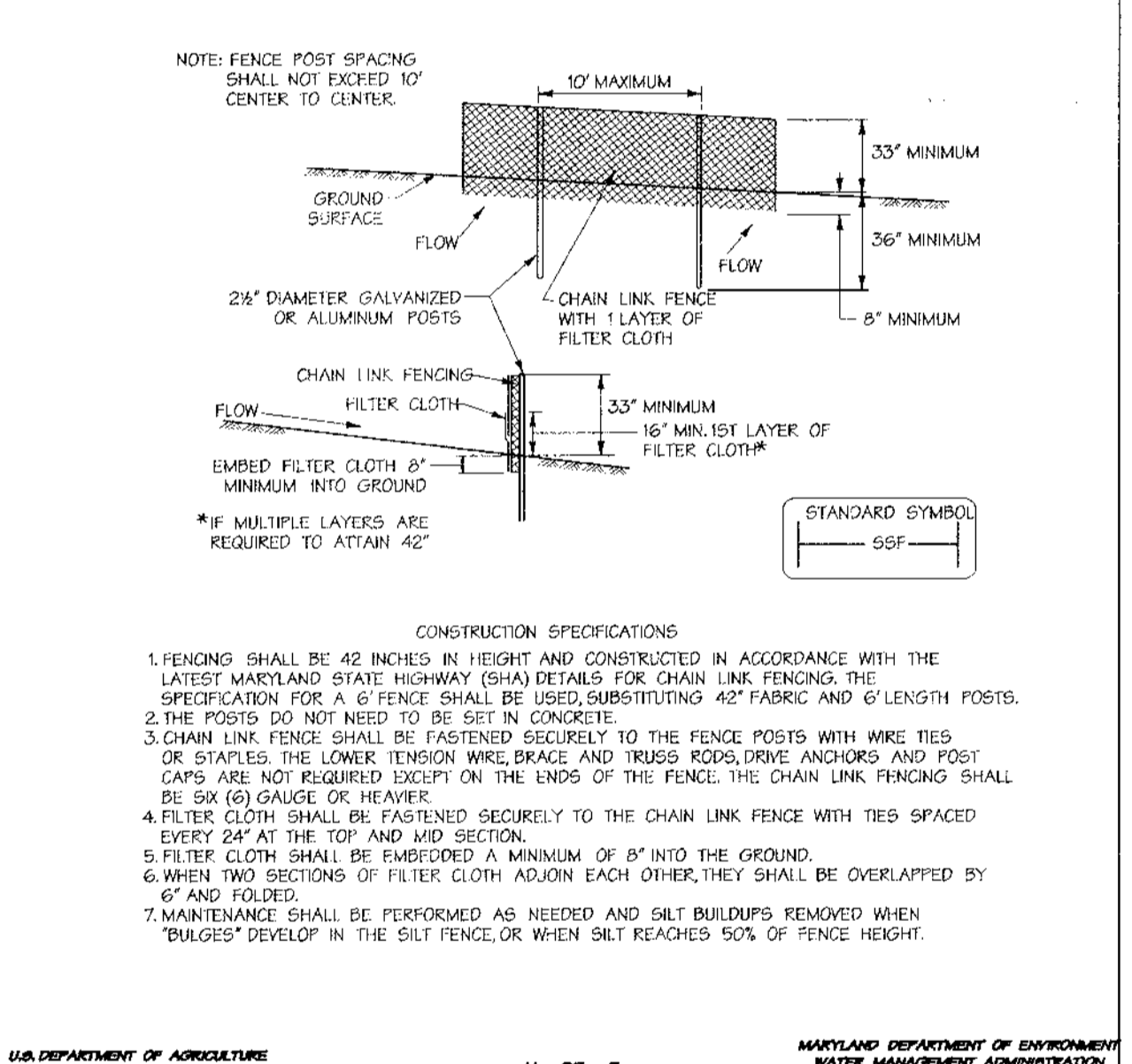
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Sediment Control Draw-Down Not To Scale



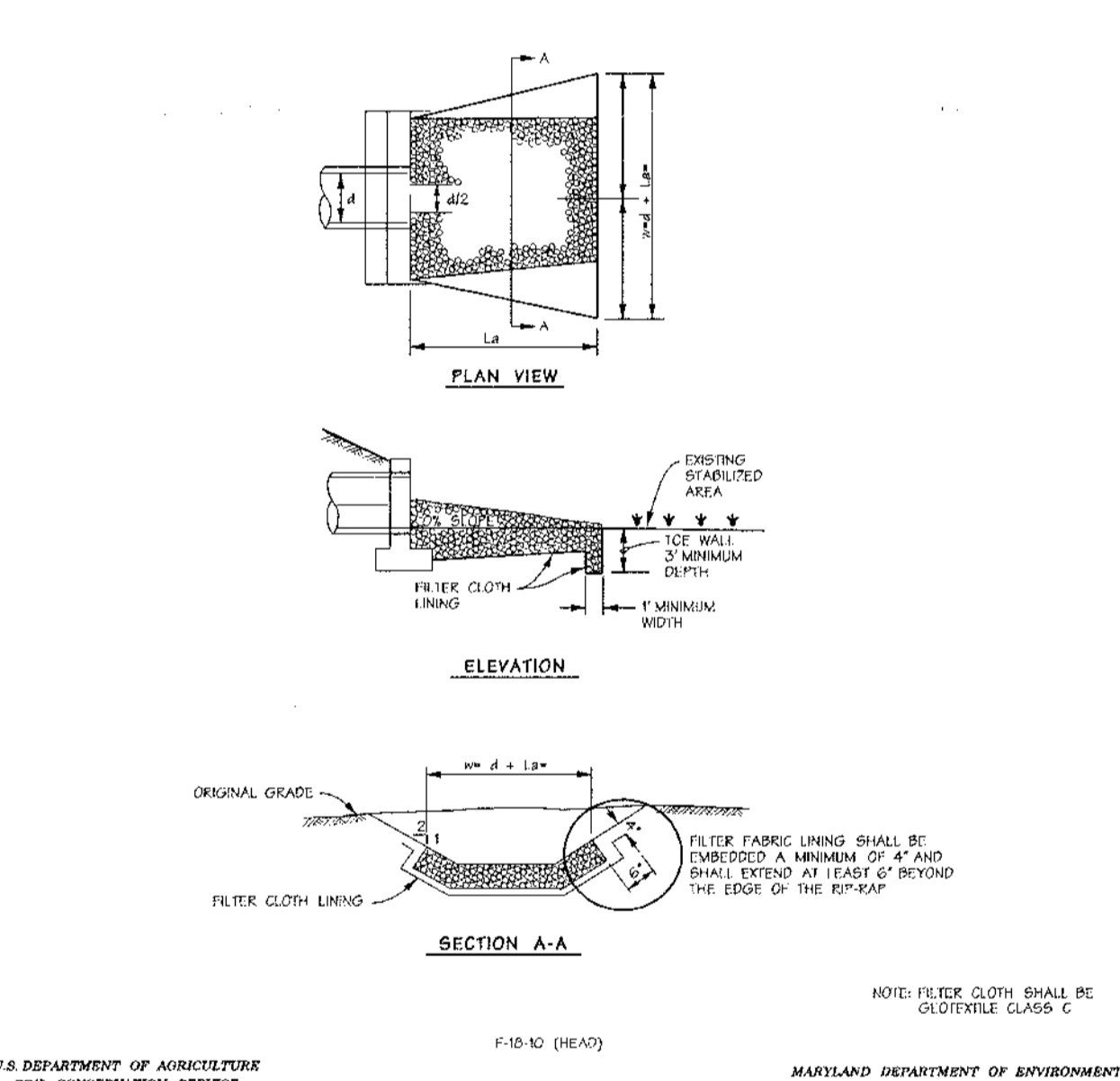
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Geotextile Material Specifications Not To Scale



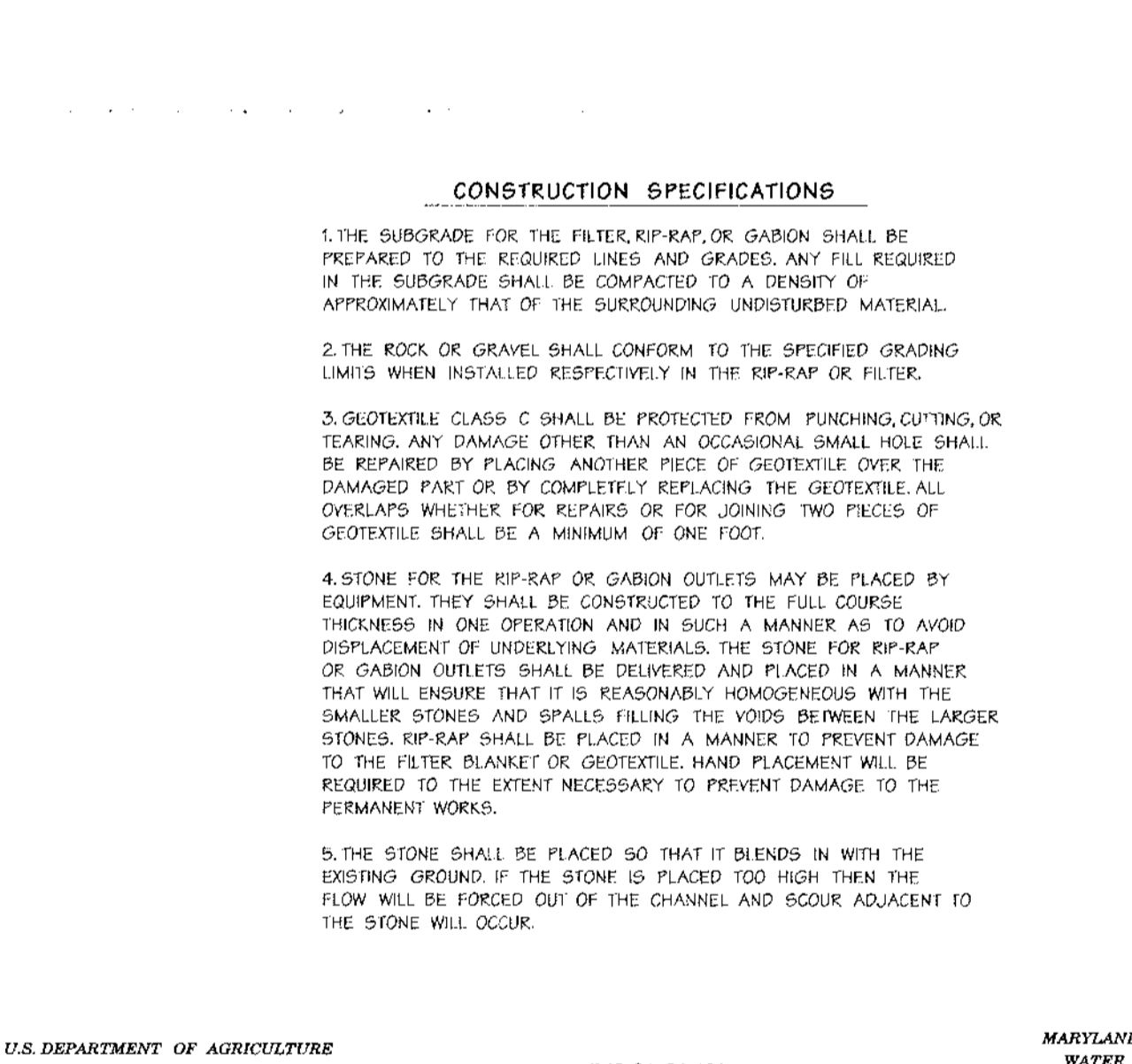
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Earth Dike Not To Scale



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Earth Dike Not To Scale



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

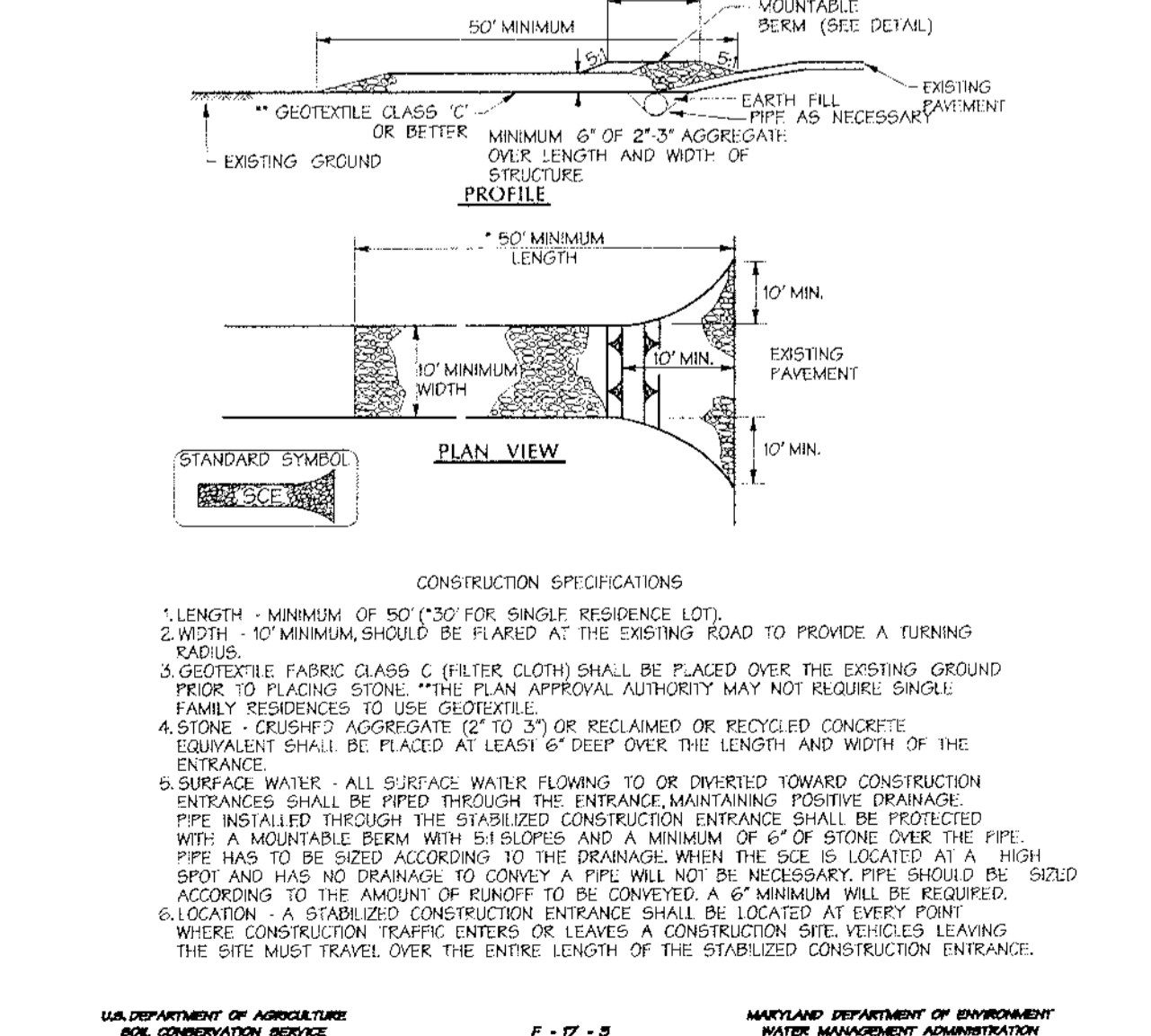
Erosion Control Matting Not To Scale

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 William J. Malon Jr. 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Craig Hanft 10/20/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

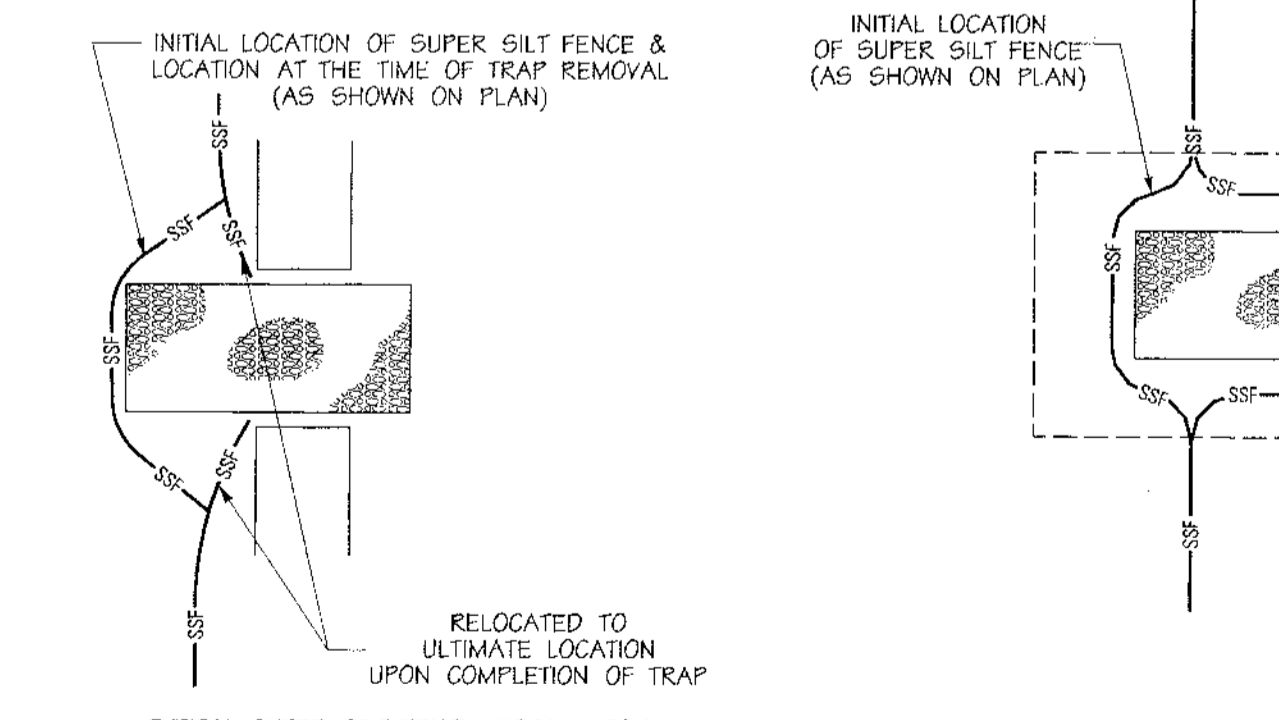
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Michael J. Jenkins 10/20/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Stone Outlet Sediment Trap - ST II Not To Scale



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

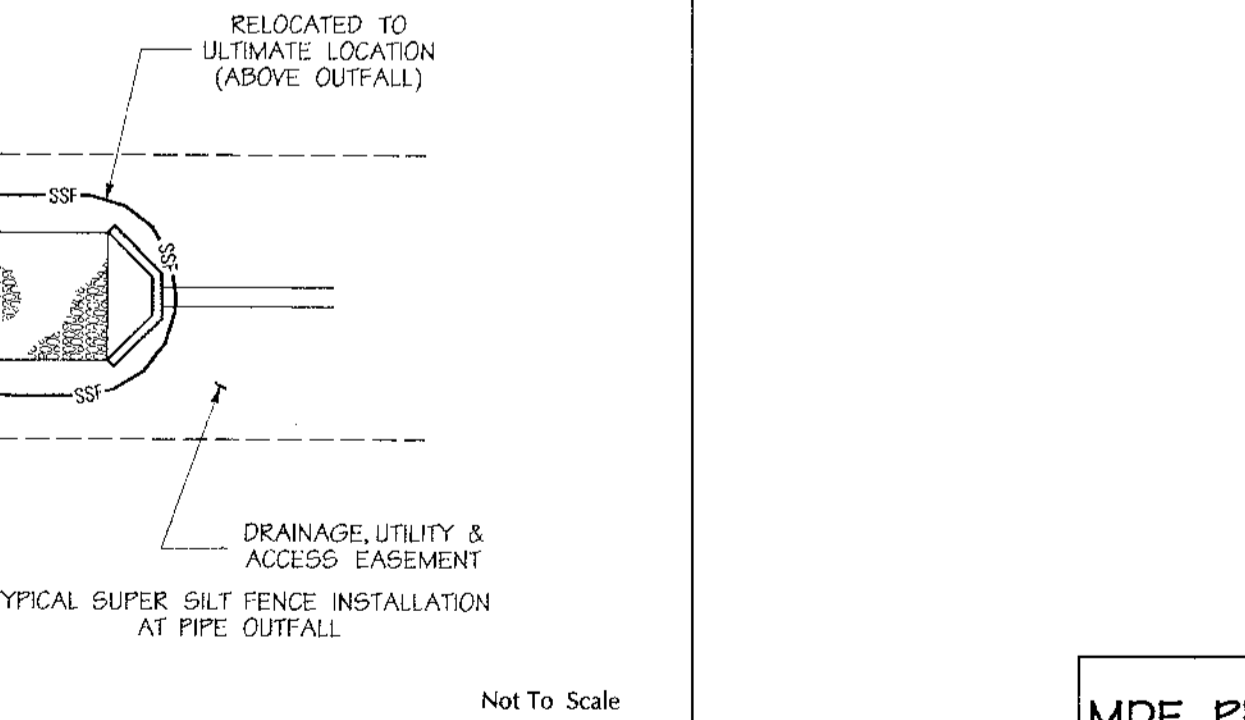
Super Silt Fence Not To Scale



RELOCATED TO ULTIMATE LOCATION UPON COMPLETION OF TRAP

TYPICAL SUPER SILT FENCE INSTALLATION AT TRAP OUTFALL

Rock Outlet Protection III Not To Scale



RELOCATED TO ULTIMATE LOCATION (ABOVE OUTFALL)

TYPICAL SUPER SILT FENCE INSTALLATION AT PIPE OUTFALL

Rock Outlet Protection Specifications Not To Scale

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER RIP-RAP OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FALLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

Stabilized Construction Entrance Not To Scale

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Super Silt Fence Outfall Protection Not To Scale

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Super Silt Fence Outfall Protection Not To Scale

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MDE PERMIT AND TRACKING No. 01-NT-0500/200260639

U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE: 9/30/02

F-02-111  
 9/30/02  
 Date

Professional Engr. No. 12557  
 F-02-111

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Michael J. Jenkins 10/20/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Professional Engr. No. 12557  
 F-02-111

REVITZ PROPERTY

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT 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

SUBMISSION NAME: SECTION: SHEET #  
 DATE OF UP: 2267436 BLOCK # 20 DATE PEC TAXING MAP 47 DISTRICT 6 th DENSE 1521  
 WATER CODE: SEWER CODE: 165 & PD PAR 637

TITLE: FINAL PLAN SEDIMENT AND EROSION CONTROL DETAILS

Des By: DFM Scale: 1" = 50' Proj. No.: 01011  
 Dwn By: WDE Date: 9/19/02  
 Chk By: Approved 30 OF 57

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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Robert A. Jenkins DATE: 9/20/02

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 Banocchia DATE: 9/20/02

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

Signature: [ ] DATE: 9/30/02

U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE: 9/30/02

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

Signature: [ ] DATE: 9/30/02

**STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

**SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS**

- A. SITE PREPARATION**
- Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
  - Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
  - Schedule required soil test to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- Soil test must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
  - Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.
  - Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 90 - 100% will pass through a #20 mesh sieve.
  - Incorporate lime and fertilizer into the top 3 - 5 inches of soil by disking or other suitable means.

- C. SEEDBED PREPARATION**
- TEMPORARY SEEDING**
    - Seedbed preparation shall consist of loosening soil to a depth of 3 inches to 5 inches by means of suitable agricultural or construction equipment such as a disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughness condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
    - Apply fertilizer and lime as prescribed on the plans.
    - Incorporate lime and fertilizer into the top 3 - 5 inches of soil by disking or other suitable means.

- PERMANENT SEEDING**
  - Minimum soil conditions required for permanent vegetative establishment:
    - Soil pH shall be between 6.0 and 7.0.
    - Soluble salts shall be less than 500 parts per million (PPM).
    - The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if Lovegrass or Serotia lespedeza is to be planted. Then a sandy soil (< 30% silt plus clay) would be acceptable.
    - Soil shall contain 1.5% minimum organic matter by weight.
    - Soil must contain sufficient pore space to permit adequate root penetration.
    - If these conditions cannot be met by the soils on site, adding topsoil is required in accordance with Section 21 - Standards and Specification for Topsoil.
  - Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5 inches to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
  - Apply soil amendments as per soil test or as included on the plans.
  - Mix soil amendments into the top 3 - 5 inches of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3 inches of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- D. SEED SPECIFICATIONS**
  - All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
  - Seed tags shall be made available to the Inspector to verify type and rate of seed used.
  - Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75-80 F. can weaken bacteria and make the inoculant less effective.

- E. METHODS OF SEEDING**
- Hydroseeding:** Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or cultipacker seeder.
    - If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following:
      - Nitrogen: maximum of 100 pounds per acre total of soluble Nitrogen; P205 (phosphorous): 200 pounds per acre; K2O (potassium): 200 pounds per acre.
    - Lime: Use only ground agricultural limestone, up to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
  - Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.**
  - Dry Seeding:** This includes use of conventional drop or broadcast spreaders.
    - Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the temporary or permanent seeding summaries or tables 25 or 26. The seeded area shall then be rolled with a weighed roller to provide good seed soil contact.
    - Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

- Drill or cultipacker seeding:** Mechanized seeders that apply and cover seed with soil.
  - Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.
  - Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)**
- Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weeds seeds as specified in the Maryland Seed Law.
  - Wood cellulose fiber mulch (WCFFM)
    - WCFFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical strate.
    - WCFFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
    - WCFFM, including dye shall contain no germination or growth inhibiting factors.
    - WCFFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
    - WCFFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.
    - WCFFM must conform to the following physical requirements:
      - Fiber length to approximately 10 mm., diameter approximately 1mm., ph range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

- G. MULCHING SEEDED AREAS** - Mulch shall be applied to all seeded areas where one species of grass is desired.
- If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
  - When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons per acre. Mulch shall be applied in a uniform loose depth of between 1/2 and 2 inches. Mulch applied shall achieve a uniform distribution and depth so that the surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons per acre.
  - Wood cellulose fiber used as a mulch shall be applied at a net, dry weight of 1,500 pounds per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

- H. SECURING STRAW MULCH** - Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:
- A mulch anchoring tool is a tractor drawn implement design to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
  - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
  - Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys or on crest of banks. The remainder of area should appear uniform after binder application. Synthetic binders - such as Acrylic DLR (agro-task), DCA-70, Petrostat, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
  - Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

**SECTION II - TEMPORARY SEEDING**

VEGETATION - Annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, permanent seeding is required.

Seed Mixture (Hardiness Zone 6B)					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (Lb./Ac.)	Seeding Dates	Seeding Depths		
1	Annual Ryegrass	50	2/1 - 4/30 8/15 - 1/11	1/4" - 1/2"	600 Lbs./Ac. (15 Lbs./1000 Sq.Ft.)	2 Tons/Ac. (100 Lbs./1000 SF)
2	Weeping Lovegrass	4	5/1 - 8/14	1/4" - 1/2"		

**SECTION III - PERMANENT SEEDING**

Seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.

Seed Mixture No. 3 (Hardiness Zone 6B)					Fertilizer Rate (10-20-20)			Lime Rate
%	Species	Application Rate (Lb./Ac.)	Seeding* Dates	Seeding Depths	N	P205	K20	
85	Rebel II Tall Fescue	125			90 Lb./Ac. (22 Lb./1000 Sq.Ft.)	175 Lb./Ac. (44 Lb./1000 Sq.Ft.)	175 Lb./Ac. (44 Lb./1000 Sq.Ft.)	2 Tons/Ac. (100 Lb./1000 Sq.Ft.)
10	Pennine Perennial Ryegrass	15	3/1 - 5/15 8/15 - 1/15	1/4" - 1/2"	1000 Lb./Ac. (250 Lb./1000 Sq.Ft.)	1000 Lb./Ac. (250 Lb./1000 Sq.Ft.)	1000 Lb./Ac. (250 Lb./1000 Sq.Ft.)	
5	Kentucky Bluegrass	10						

\* For 5-16 through 8-14 add two (2) pounds of Weeping Lovegrass per acre or ten (10) pounds of Millet per acre to seed mixture (i.e. Mix #3 shown).

**SECTION IV - SOD**

To provide quick cover on disturbed areas (2:1 grade or flatter)

- A. GENERAL SPECIFICATIONS**
- Class of turfgrass sod shall be Maryland or Virginia State certified or approved. Sod labels shall be made available to the job foreman and inspector.
  - Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/8", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
  - Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
  - Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
  - Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.
- B. SOD INSTALLATION**
- During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
  - The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which air drying of the roots.
  - Whenever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.
  - Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations laying, tamping and irrigating for any piece of sod shall be completed within eight hours.
- C. SOD MAINTENANCE**
- In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 inches. Watering should be done during the heat of the day to prevent wilting.
  - After the first week, sod watering is required as necessary to maintain adequate moisture content.
  - The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2 inches and 3 inches unless otherwise specified.

**SECTION V - TURFGRASS ESTABLISHMENT**

Areas where turfgrass may be desired may include lawns, parks, playgrounds, and commercial sites which will receive a medium high level of maintenance. Areas to receive sod shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

Note: Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

- A. TURFGRASS MIXTURES**
- Kentucky Bluegrass - Full sun mixture** - For use in areas that receive intensive management, irrigation required in the areas of central Maryland and Eastern Shore. Recommended certified Kentucky Bluegrass cultivars seeding rate: 1.5 to 2.0 pounds per 1000 square feet. A minimum of three Bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
  - Kentucky Bluegrass/Perennial Rye - Full sun mixture** - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass cultivars/certified Kentucky Bluegrass seeding rate: 2 pounds mixture per 1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
  - Tall Fescue/Kentucky Bluegrass - Full sun mixture** - For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: certified Tall Fescue cultivars 95-100%, certified Kentucky Bluegrass cultivars 0 - 5%, seeding rate: 5 to 6 pounds per 1000 square feet. One or more cultivars may be blended.
  - Kentucky Bluegrass/Fine Fescue - Shade mixture** - For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: certified Kentucky Bluegrass cultivars 30-40%, and certified Fine Fescue and 60-70%. Seeding rate: 1.5 - 3 pounds per 1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen. With each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland publication, agronomy mimeo number 77, "Turfgrass Cultivar Recommendations for Maryland".

- B. IDEAL TIMES OF SEEDING**
- Western Maryland: March 15 - June 1, August 1 - October 1 (hardiness zones - 5B, 6A).  
Central Maryland: March 1 - May 15, August 15 - October 15 (hardiness zone - 6B).  
Southern Maryland, Eastern Shore: March 1 - May 15, August 15 - October 15 (hardiness zones - 7A - 7B).

- C. IRRIGATION**
- If soil moisture is different, supply new seedlings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

- D. REPAIRS AND MAINTENANCE**
- Inspect all seeded areas for failures and make necessary repairs, replacements, and reseeding within the planting season.
  - Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.
  - If the stand provides less than 40% ground coverage, re-establish following original lime, fertilizer, seeded preparation and seeding recommendations.
  - If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.
  - Maintenance fertilizer rates for permanent seedings are shown in Table 24, for lawns and other medium high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" bulletin number 171.

**21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL**

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

**PURPOSE**  
To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

**CONDITIONS WHERE PRACTICE APPLIES**

- This practice is limited to areas having 2:1 or flatter slopes where:
  - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
  - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  - The original soil to be vegetated contains material toxic to plant growth.
  - The soil is so acidic that treatment with limestone is not feasible.
- For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

**CONSTRUCTION AND MATERIAL SPECIFICATIONS**

- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
  - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.
  - Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutgrass, poison ivy, thistle, or others as specified.
  - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
  - For sites having disturbed areas under 5 acres:
    - On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
      - pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
      - Organic content of topsoil shall be not less than 1.5 percent by weight.
      - Topsoil having soluble salts content greater than 500 parts per million shall not be used.
      - No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control unless sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
    - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
  - Topsoil Application
    - When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
    - Grades on the areas to be topsoiled, which have been previously established, shall be maintained, about 4% - 8% higher in elevation.
    - Topsoil shall be uniformly distributed in a 4% - 8% layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
    - Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.
  - Alternative for Permanent Seeding - Instead of applying the full amount of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
    - Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
      - Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
      - Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituent must be added to meet the requirements prior to use.
      - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
      - Composted sludge shall be amended with a potassium fertilizer applied at a rate of 4 lbs./1,000 square feet and 1/3 the normal lime application rate.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

- References: Guidelines Specifications, Soil Preparation and Sodding, MD-YA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1975.

**Vegetative Stabilization**

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**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 AUTHORIZED PERSON ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/20/02  
SIGNATURE OF DEVELOPER  
PRINT NAME BELOW SIGNATURE

**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.

*John R. Kovachia* 9/20/02  
SIGNATURE OF ENGINEER  
PRINT NAME BELOW SIGNATURE

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

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

*Jim Hynes* 9/30/02  
U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

*John R. Kovachia* 9/30/02  
HOWARD S.C.D. DATE

Date \_\_\_\_\_

Professional Engr. No. \_\_\_\_\_

F-02-111

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William B. White* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Andy Haney* 10/18/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Michael M...* 10/18/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date No. Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff 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 OF PLAN 2/26/02 ISSUE # 20 DATE OF REVISION 9/20/02 SHEET NO. 47 OF 47 SHEET TITLE DATE 6 th REVISION 1001

TITLE: **FINAL PLAN SEDIMENT AND EROSION CONTROL DETAILS**

Des By DFM Scale 1" = 50' Proj. No. 01011

Drn By WDE Date 9/19/02

Chk By Approved 31 OF 57

F-02-111

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (S15050).

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

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

A. SEVEN CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1.

B. FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAPS/BRASING SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE "HOWARD COUNTY DESIGN MANUAL", STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE "2004 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR PERMANENT SEEDING (SEC. 31), SOGS (SEC. 54), TEMPORARY SEEDING (SEC. 52) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

TOTAL AREA OF SITE = 90 ACRES

AREA TO BE ROOFED OR PAVED = 40 ACRES

AREA TO BE VEGETATIVELY STABILIZED = 7 ACRES

TOTAL CUT = 250,000 CUBIC YARDS

TOTAL FILL = 250,000 CUBIC YARDS

WASTE BORROW AREA = NOT REQUIRED

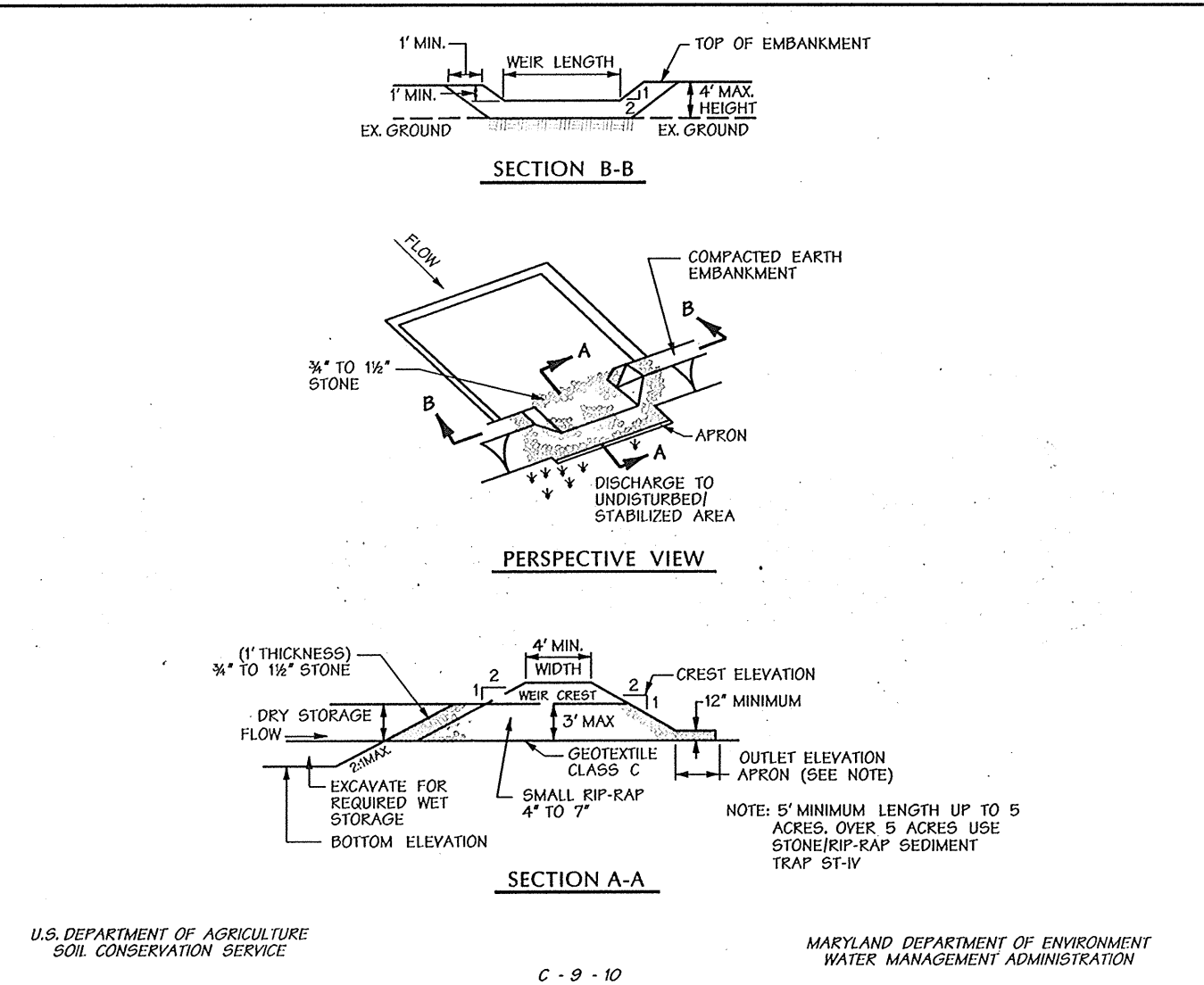
\* ANY WASTE BORROW ISSUES THAT MAY ARISE DURING CONSTRUCTION CAN BE TAKEN CARE OF ON-SITE.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



**Sediment Control General Notes** Not To Scale

**CONSTRUCTION SPECIFICATIONS**

- EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18\"/>
- DRIVE THE 2\"/>
- STRETCH THE 1/2\"/>
- STRETCH THE GEOTEXTILE CLASS E TIGHTLY OVER THE WIRE MESH WITH THE GEOTEXTILE EXTENDING FROM THE TOP OF THE FRAME TO 18\"/>
- BACKFILL AROUND THE INLET IN COMPACTED 6\"/>
- IF THE INLET IS NOT IN A SHARP CORNER, CONSTRUCT A COMPACTED EARTH DIKE ACROSS THE DIKE LINE DIRECTLY BELOW IT. THE TOP OF THE EARTH DIKE SHOULD BE AT LEAST 6\"/>
- THE STRUCTURE MUST BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND THE GEOTEXTILE REPLACED WHEN IT BECOMES CLOGGED.

**Stone Outlet Sediment Trap - ST II** Not To Scale

**CONSTRUCTION SPECIFICATIONS**

- LIFT GRATE AND WRAP WITH GEOTEXTILE CLASS E TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
- PLACE 3/4\"/>

**Standard Inlet Protection** Not To Scale

**CONSTRUCTION SPECIFICATIONS**

- LATCH A CONTINUOUS PIECE OF 1/2\"/>
- PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS E THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH IT TO THE 2\"/>
- SECURELY NAIL THE 2\"/>
- PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2\"/>
- FORM THE 1/2\"/>
- THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
- ASSURE THAT STORM FLOW DOES NOT BYPASS THE INLET BY INSTALLING A TEMPORARY EARTH OR ASPHALT DIKE TO DIRECT THE FLOW OF THE INLET.

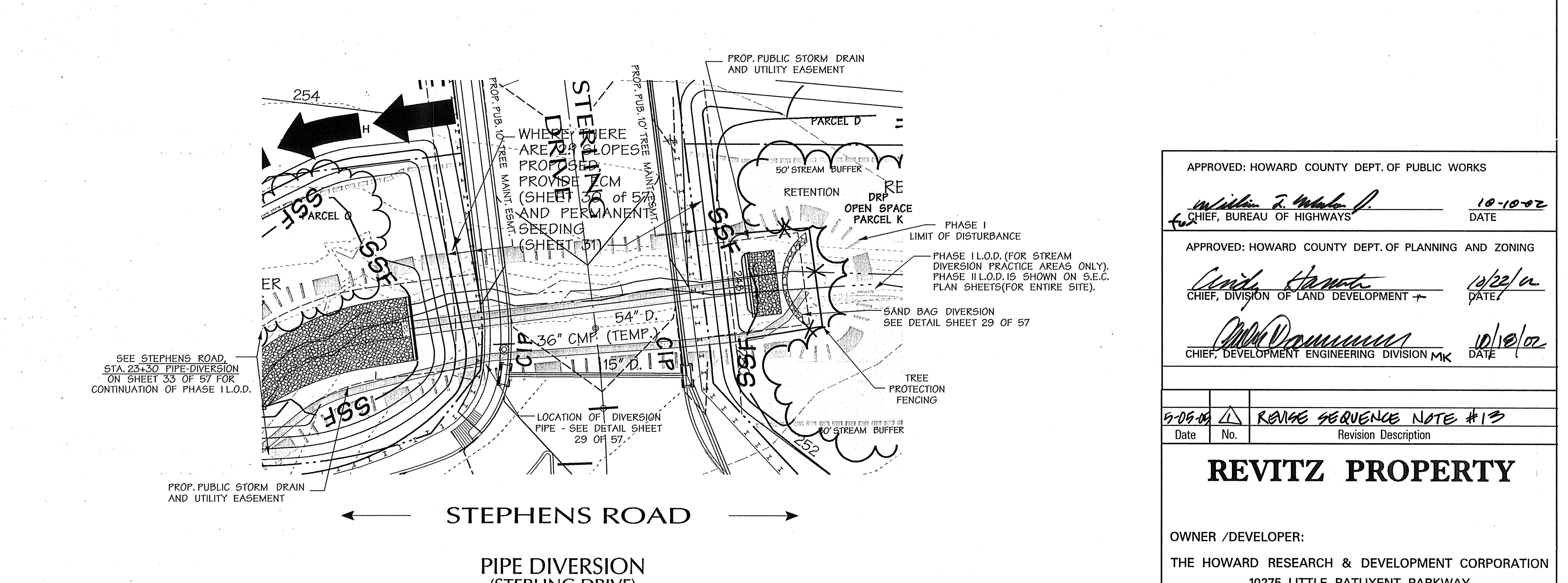
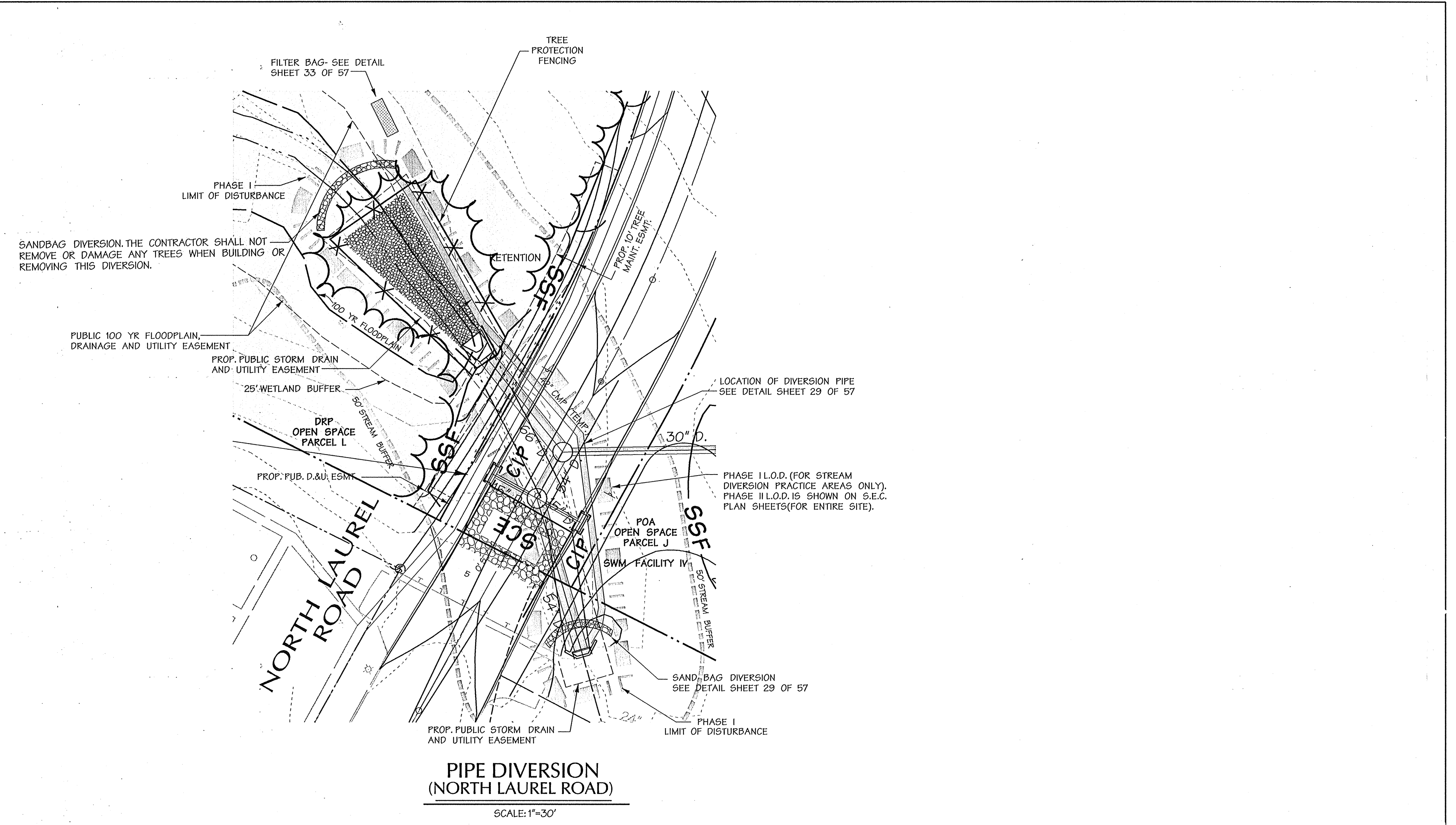
**At Grade Inlet Protection** Not To Scale

- Notify Maryland Department of Environment Nontidal Wetlands and Waterways Inspections and Compliance Sections at 410 631 3510 at least five days in advance of beginning any work in streams, 100 year Flood Plain, Nontidal Wetlands and Wetlands Buffers.
- Notify HCD Department of Inspections 410 313 1855 at least 48 hours prior to beginning work.
- If applicable, orange high visibility fence shall be manually installed along the limits of disturbance, where the limits is within 50 feet of the forest conservation easement, 100 year flood plain, wetlands, wetlands buffer or stream buffer. This shall be completed by and inspected at the pre-construction meeting.
- Clear and grub for sediment and erosion control measures or devices only with the Sediment Control Inspector's permission.
- (a). Install sediment control for culvert crossings, install culvert crossings, stabilize with ECM (seed). Observe the Phase I L.O.D. (for stream diversion practices at stream crossings only). Phase I L.O.D. is shown on sheets 32 and 33 of 57. Upon completion of the crossings, the portions of proposed 2:1 slopes that have been constructed in this phase shall be protected with ECM (sheet 30 of 57) and permanent seeding (sheet 31).
- (b). With permission from the Inspector, install remainder of sediment control measures and devices i.e. Sediment basins, sediment traps, silt fence, super silt fence, earth dikes, etc with the exception of the earth dike running east along the north side of Sterling Drive to SWM III. Observe the Phase II L.O.D., shown on SEC plan sheets. There will be no in-stream work between March 1st through June 15th. For conditions of MDE Permit see Tracking number 01-NT-0500120260639.
- Notify HCD Department of Inspection upon completion of said installation.
- With the approval of the Sediment Control Inspector clear and grub remainder of site. Execute, maintain dust control per dust control specifications, sheet 29.
- Mass grade north of Sterling Drive until contour 270 is reached. Install remainder of earth dike draining to Basin 3 on Parcel D. Mass grade remainder of site with the exception of the portion north of Stephens on Parcel 1.
- Mass grade and stabilize remainder of site.
- Install water, sewer, storm drains and curb and gutter for site.
- For Round-about please see Traffic Maintenance Plan.
- Pave site.
- Upon stabilization of site with established vegetation and with permission of the Sediment Control Inspector, remove Trap 1 and grade remainder of site. Stabilize this section. Flush storm drain system. Remove sediment control measures and stabilize. Convert SEC basins to SWM facilities.

**Curb Inlet Protection (COG or COS Inlets)** Not To Scale

**Sequence of Operations**

**Sequence of Operations**



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William J. White* 10/10/02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Conrad H. White* 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark D. Williams* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

9-09-04 RANGE SEQUENCE NOTE #13  
 Date No. Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

MDE PERMIT AND TRACKING No. 01-NT-0500120260639

F-02-111  
 9/30/02  
 Date

**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.

*Robert A. Jenkins* 9/30/02  
 SIGNATURE OF DEVELOPER DATE

**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.

*John W. Ranocchia, Jr.* 9/30/02  
 SIGNATURE OF ENGINEER DATE

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

*Jim Hughes* 9/30/02  
 U.S. NATIONAL RESOURCE CONSERVATION SERVICE DATE

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

*Guy S. Shy* 9/30/02  
 HOWARD SOIL CONSERVATION DISTRICT DATE

Professional Engr. No. 1057

**DMW**  
 Dart-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 298-3353  
 Fax 298-4705

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

SUBDIVISION NAME: SECTION AREA: LOT AREA: 165 & 80 PAR. 837

PLAT # OR MAP: 226/436 BLOCK # 20 ZONE PEC TAXING MAP 47 SECT. DISTRICT 6th CENSUS TRACT

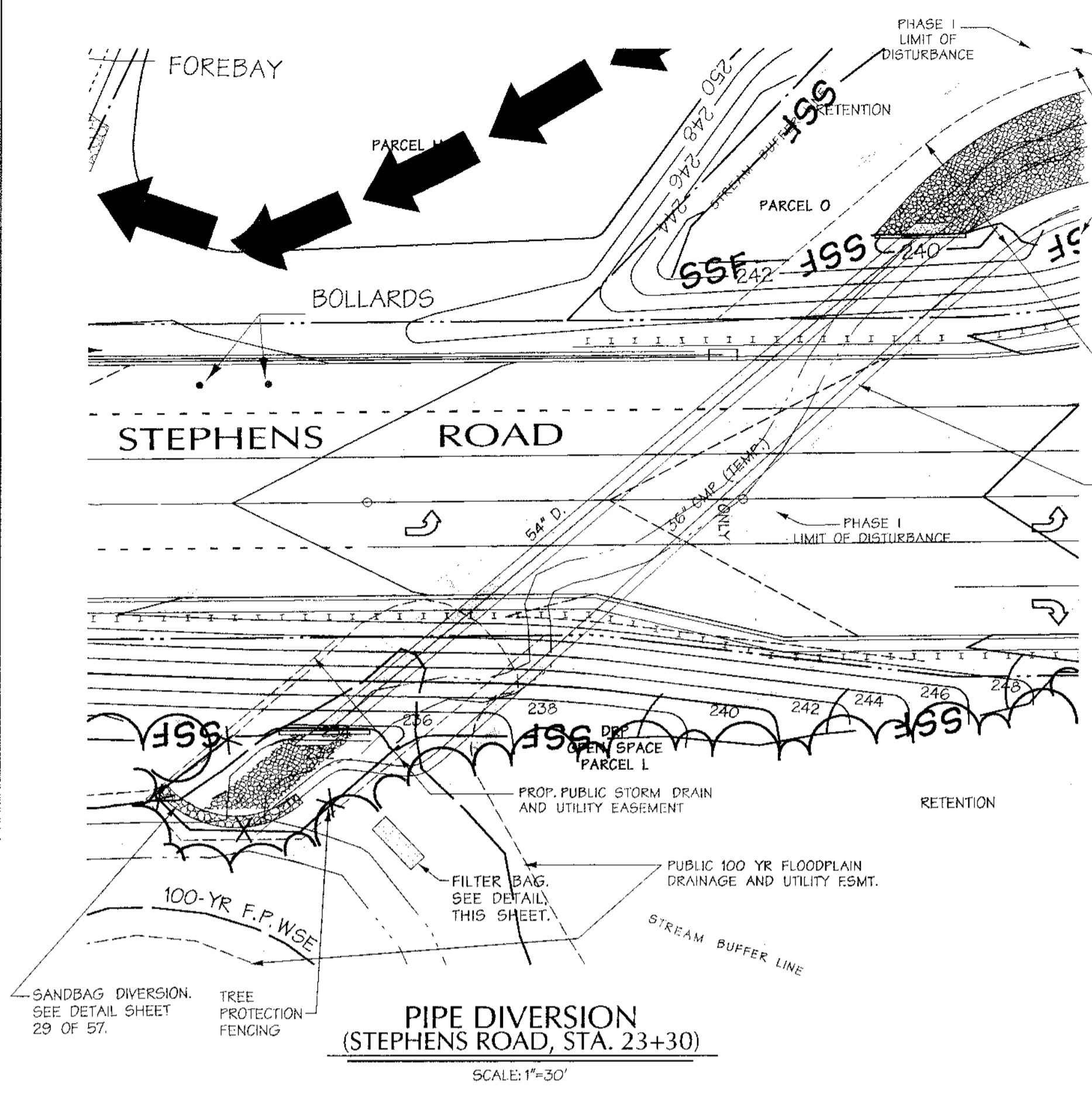
TITLE: **FINAL PLAN SEDIMENT AND EROSION CONTROL DETAILS**

Des By: DFM Scale: 1" = 50' Proj. No. 01011

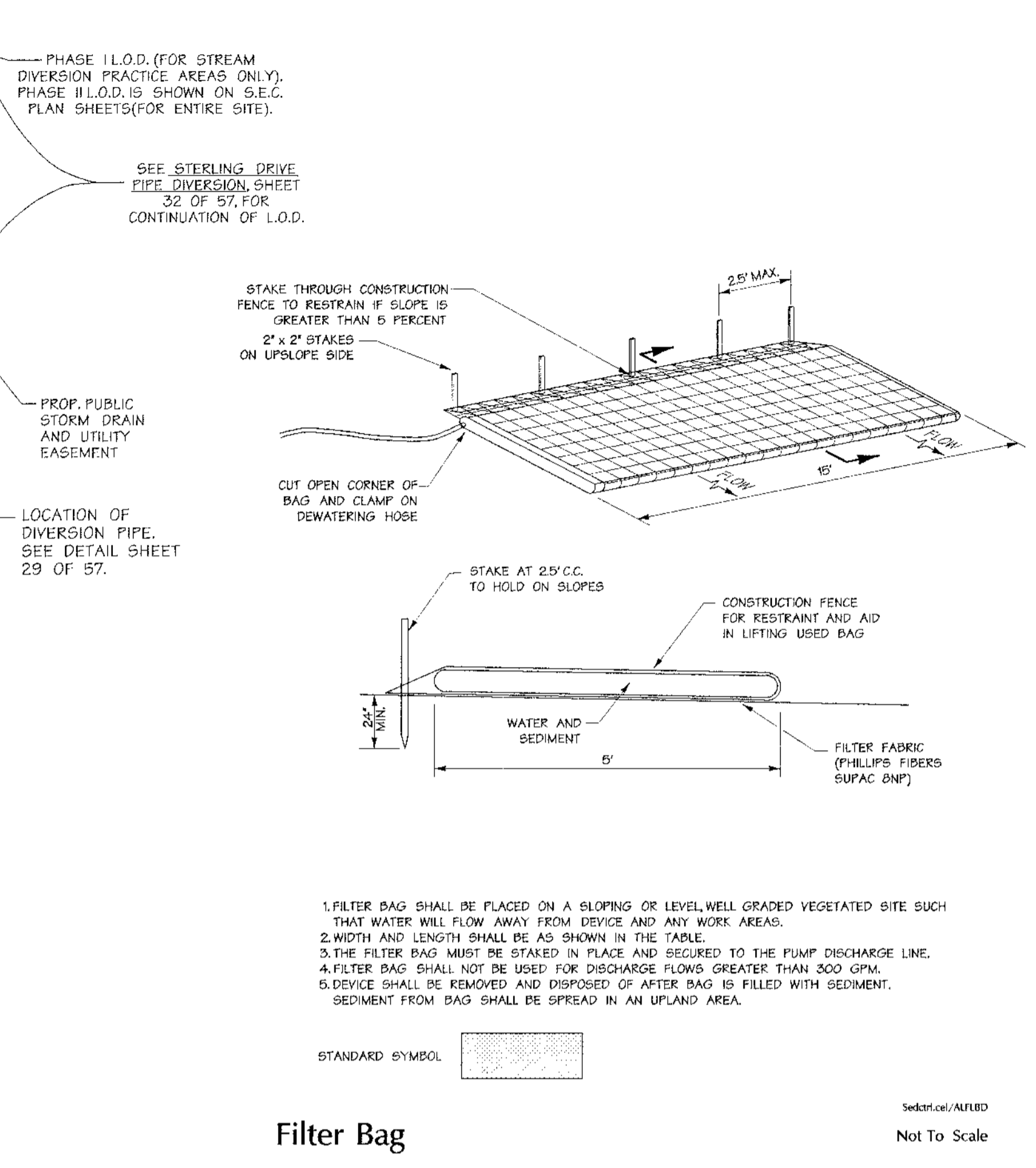
Drn By: WDE Date: 9/19/02

Chk By: Approved 32 OF 57





**PIPE DIVERSION  
(STEPHENS ROAD, STA. 23+30)**  
SCALE: 1"=30'



**Filter Bag**  
SCALE: Not To Scale

**DESCRIPTION**  
THE WORK SHOULD CONSIST OF INSTALLING DEWATERING BASINS JOINTLY WITH CHANNEL DIVERSION MEASURES TO FILTER SEDIMENT LADEN WATER FROM IN-STREAM CONSTRUCTION SITES BEFORE THE WATER RE-ENTERS THE DOWNSTREAM REACH.

**EFFECTIVE USES & LIMITATIONS**  
UNDERSIZED DEWATERING BASINS WILL NOT ADEQUATELY FILTER SEDIMENT LADEN WATER FROM THE CONSTRUCTION SITE.

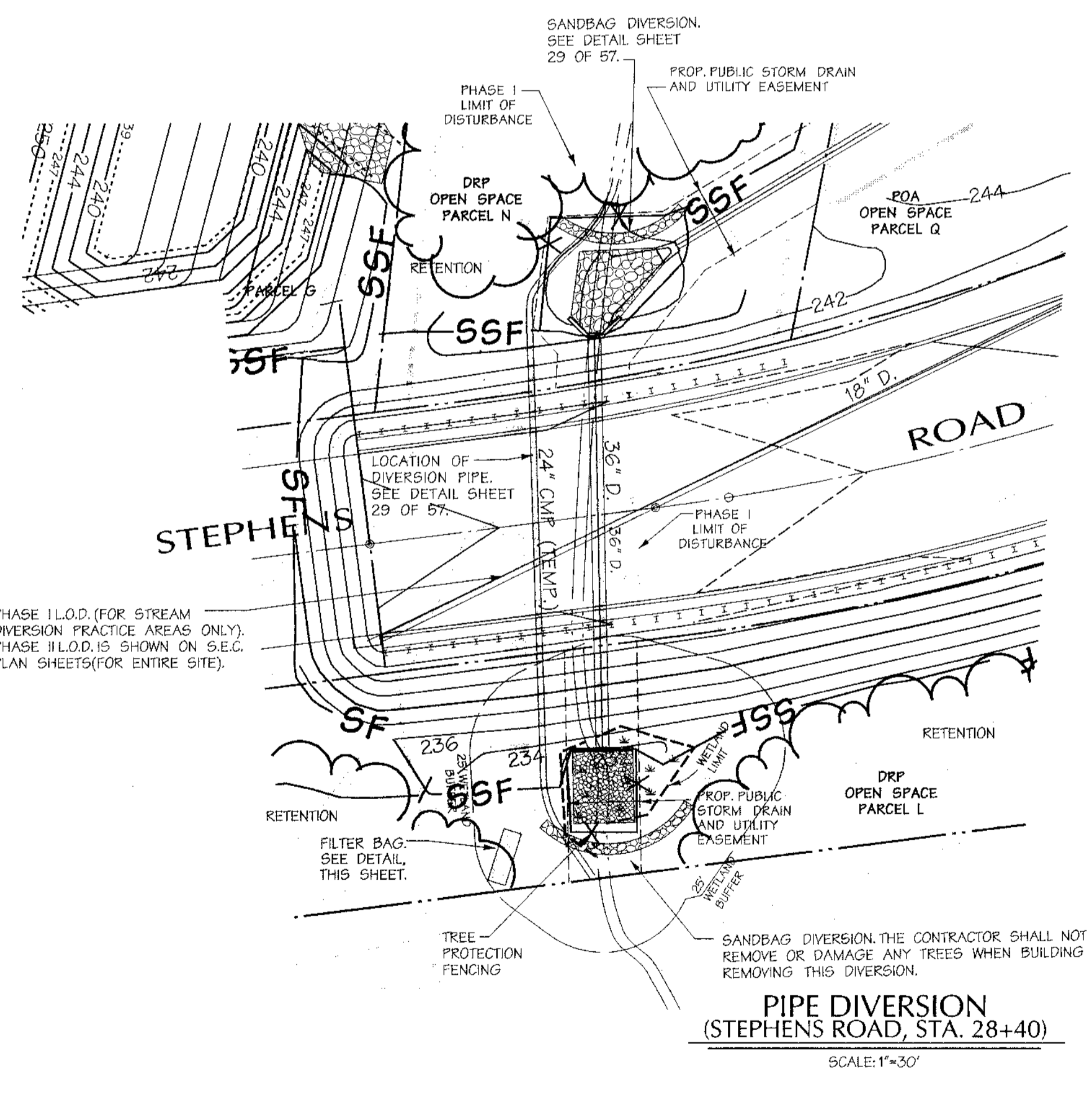
**MATERIAL SPECIFICATIONS**  
MATERIALS FOR DEWATERING BASINS SHOULD MEET THE FOLLOWING REQUIREMENTS: RIP-RAP/RIP-RAP SHOULD BE WASHED AND HAVE A DIAMETER RANGING FROM 4 TO 6 INCHES (10 TO 15 CENTIMETERS). FILTER CLOTH/FILTER CLOTH SHOULD BE A WOVEN OR NON WOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. THE FABRIC SHOULD BE INERT TO COMMONLY ENCOUNTERED CHEMICALS, HYDRO-CARBONS, ULTRAVIOLET LIGHT AND MILDEW AND SHOULD BE NOT RESISTANT TO STRAW DALES/SLIT FENCE/STRAW DALES SHOULD MEET THE CRITERIA AS SPECIFIED IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

**INSTALLATION GUIDELINES**  
DUE TO THE DANGER OF OVERTOPPING BY EVENTS GREATER THAN THE DESIGN FLOW, DEWATERING BASINS REQUIRE A VEGETATIVE BUFFER STRIP TO FILTER SEDIMENT LADEN OVERFLOW. A 50-FOOT (15-METER) MINIMUM GRASS COVERED BUFFER WIDTH IS REQUIRED FOR SLOPES LESS THAN 20 DEGREES (12:7) WHEN RIGHT-OF-WAY IS NOT LIMITED. FOR SLOPES GREATER THAN 20 DEGREES, BASINS SHOULD HAVE A 100 FOOT (30-METER) MINIMUM BUFFER WIDTH WHICH PRACTICALLY ALL EROSION AND SEDIMENT CONTROL DEVICES SHOULD BE INSTALLED AS THE FIRST ORDER OF BUSINESS ACCORDING TO A PLAN APPROVED BY THE WATER MANAGEMENT ADMINISTRATION (WMA) OR LOCAL AUTHORITY. DEWATERING BASINS SHOULD BE CONSTRUCTED AS FOLLOWS (REFER TO DETAIL 11):

1. EXCAVATED SUBSOIL AND TOPSOIL SHOULD BE STORED SEPARATELY AND REPLACED IN THEIR NATURAL ORDER. ADDITIONALLY, THE EXCAVATED SEDIMENTS SHOULD BE PREVENTED FROM ENTERING THE WATERWAY BY USING SEDIMENT PERIMETER CONTROLS OR OTHER MEASURES.
2. THE DEWATERING BASINS SHOULD HAVE A MINIMUM DEPTH OF 3 FEET (1 METER) WHERE BASIN DEPTH IS MEASURED FROM THE TOP OF THE STREAM TO THE TO THE BOTTOM OF THE EXCAVATION.
3. ONCE THE DEWATERING BASIN BECOMES FILLED TO ONE-HALF OF THE EXCAVATED DEPTH, ACCUMULATED SEDIMENT SHOULD BE REMOVED AND DISPOSED OF IN AN APPROVED AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE AUTHORIZED BY THE WMA.
4. SEDIMENT CONTROL DEVICES SHOULD REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL. ALL DISTURBED GROUND CONTOURS SHOULD BE RETURNED TO THEIR ORIGINAL CONDITION UNLESS OTHERWISE APPROVED BY THE WMA OR LOCAL AUTHORITY.

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREA.
2. WIDTH AND LENGTH SHALL BE AS SHOWN IN THE TABLE.
3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

- CONSTRUCTION OF PIPE DIVERSION**
- | SEQUENCE  | NO. OF DAYS |
|---|-------------|
| 1. CLEAR FOR AND INSTALL SEDIMENT CONTROL DEVICES AND MEASURES, SAND BAG DIVERSION, AND RIP-RAP OUTFALL PROTECTION AND EROSION CONTROL MATING AT DOWN STREAM END. MAINTAIN EXISTING STREAM FLOW AT ALL TIMES.                 | 1           |
| a. INSTALL ONLY THAT PORTION OF SAND BAG DIVERSION EAST OF STREAM.  |             |
| 2. CLEAR & GRUB FOR AND BEGIN LAYING PIPE.  |             |
| a. INSTALL ONLY THAT PORTION OF PIPE THAT CAN BE CONSTRUCTED, BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY.   |             |
| b. PLACE SILT FENCE ON LOW SIDE OF WORK AREA DURING PIPE EXCAVATION, IF REQUIRED.   |             |
| c. WITHIN ONE DAYS CONSTRUCTION OF UPPER INVERT AND WITH THE SEDIMENT CONTROL INSPECTORS APPROVAL, CLEAR FOR AND INSTALL SAND BAG DIVERSION WITH RIP-RAP INFLOW PROTECTION AT UPPER END.                                      |             |
| c. MAINTAIN EXISTING STREAM FLOW AT ALL TIMES. WITH SEDIMENT CONTROL INSPECTOR APPROVAL, INSTALL LAST SECTION OF PIPE MAKE CONNECTION FOR REROUTING OF STREAM.  | 2           |
| 3. CLEAR & GRUB FOR AND INSTALL REMAINING SAND BAG DIVERSION TO DIVERT STREAM AT BOTH ENDS.   |             |
| a. INSTALL UPSTREAM END FIRST, THEN DOWNSTREAM.   | 1           |
| 4. CLEAR & GRUB REMAINING WORK AREA AND INSTALL TWIN CULVERT SYSTEM.  |             |
| a. WITH SEDIMENT CONTROL INSPECTOR APPROVAL, CONSTRUCT HEADWALLS AND INSTALL STREAM BOTTOM PROTECTION.  |             |
| b. WITH SEDIMENT CONTROL INSPECTOR APPROVAL, ADJUST SEDIMENT CONTROL DEVICES AND MEASURES AS PER PLAN (SHEET ) FOR ROAD CONSTRUCTION (SEE MAIN SEQUENCE - SHEET 29)   | 1WK.        |
| 5. UPON COMPLETION OF PIPE INSTALLATION AND WITH SEDIMENT CONTROL INSPECTOR APPROVAL, REMOVE SEDIMENT CONTROL DEVICES AND MEASURES. REMOVAL SHALL TAKE PLACE UNDER SEQ. # 5 OF THE MAIN SEQUENCE OF CONSTRUCTION, THIS SHEET. | 1           |



**PIPE DIVERSION  
(STEPHENS ROAD, STA. 28+40)**  
SCALE: 1"=30'

**DESCRIPTION**  
THE WORK SHOULD CONSIST OF INSTALLING SANDBAG OR STONE FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES OCCUR WITHIN THE STREAM CHANNEL.

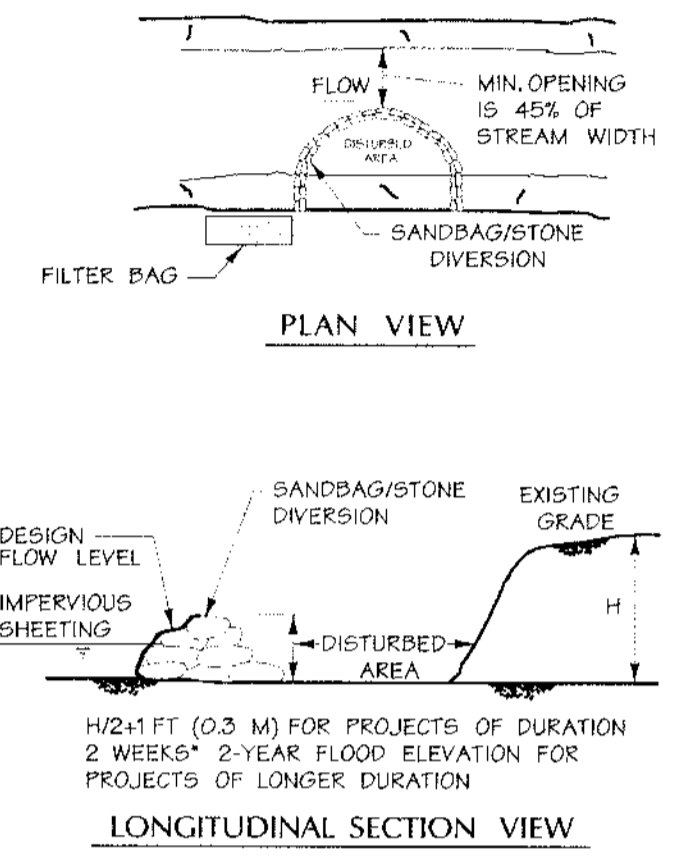
**EFFECTIVE USES & LIMITATIONS**  
DIVERSIONS ARE USED TO ISOLATE WORK AREAS FROM FLOW DURING THE CONSTRUCTION OF IN-STREAM PROJECTS. DIVERSIONS WHICH HAVE AN INSUFFICIENT FLOW CAPACITY CAN FAIL AND SEVERELY ERODE THE DISTURBED CHANNEL SECTION UNDER CONSTRUCTION THEREFORE IN-CHANNEL CONSTRUCTION ACTIVITIES SHOULD OCCUR ONLY DURING PERIODS OF LOW RAINFALL. THIS TEMPORARY MEASURE MAY NOT BE PRACTICAL IN LARGE CHANNELS.

**MATERIAL SPECIFICATIONS**  
MATERIALS FOR SANDBAG AND STONE STREAM DIVERSIONS SHOULD MEET THE FOLLOWING REQUIREMENTS:  
RIP-RAP SHOULD BE WASHED AND HAVE A MINIMUM DIAMETER OF 6 INCHES (0.15 METERS).  
SANDBAGS SHOULD CONSIST OF MATERIALS WHICH ARE RESISTANT TO ULTRAVIOLET RADIATION, TEARING, AND PUNCTURE AND SHOULD BE WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF THE FILL MATERIAL (I.E., SAND, FINE GRAVEL, ETC).  
SHEETING: SHEETING SHOULD CONSIST OF POLYETHYLENE OR OTHER MATERIALS WHICH ARE IMPERVIOUS AND RESISTANT TO PUNCTURE AND TEARING.

**INSTALLATION GUIDELINES**  
ALL EROSION AND SEDIMENT CONTROL DEVICES, INCLUDING DEWATERING BASINS, SHOULD BE IMPLEMENTED AS THE FIRST ORDER OF BUSINESS ACCORDING TO A PLAN APPROVED BY THE WMA OR LOCAL AUTHORITY. INSTALLATION SHOULD PROCEED FROM UPSTREAM TO DOWNSTREAM DURING PERIODS OF LOW FLOW. IF NECESSARY, SILT FENCE OR STRAW BALES SHOULD BE INSTALLED AROUND THE PERIMETER OF THE WORK AREA. SANDBAG/STONE DIVERSIONS CAN BE USED INDEPENDENTLY OR AS COMPONENTS OF OTHER STREAM DIVERSION TECHNIQUES.

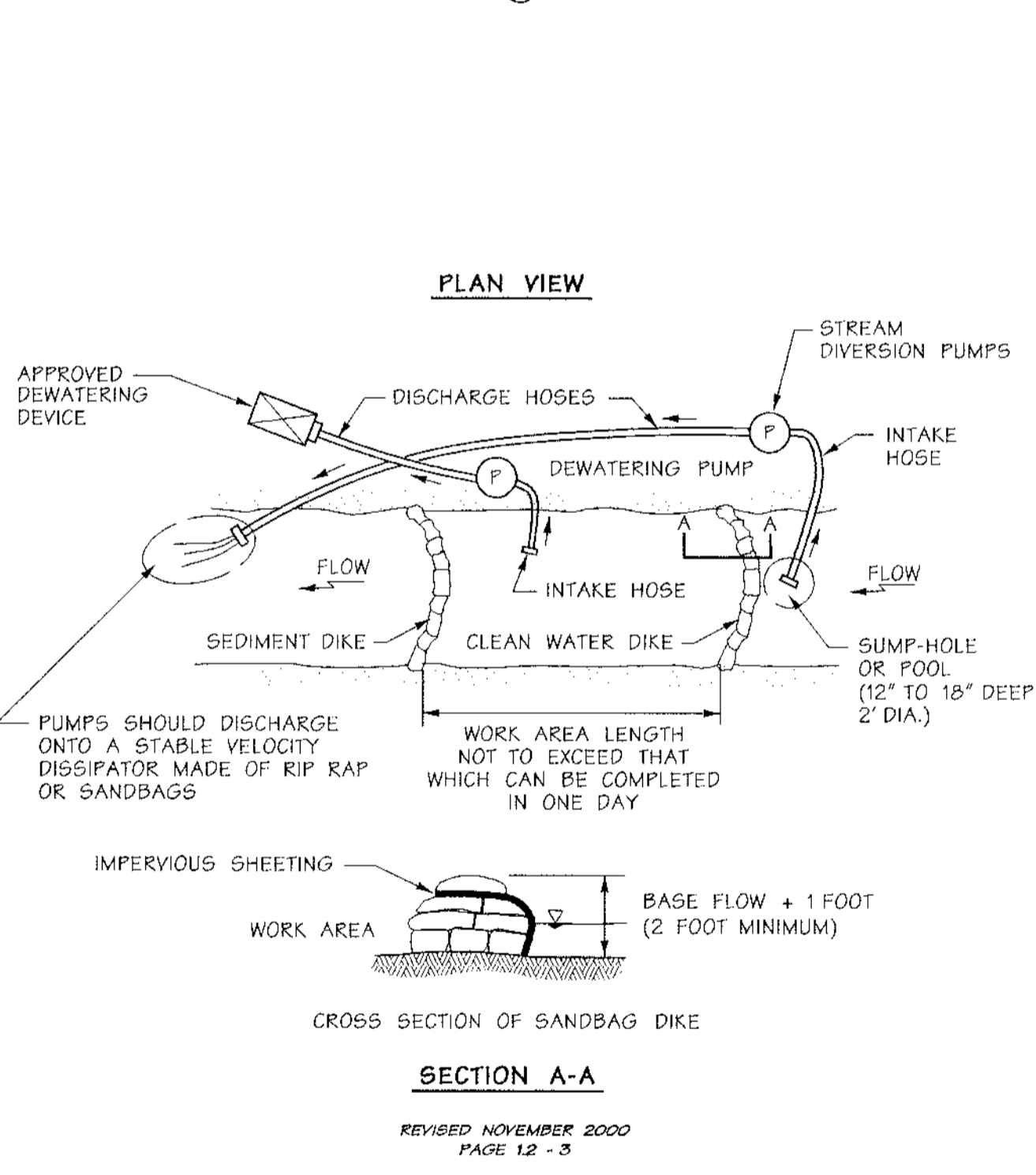
**INSTALLATION OF THIS MEASURE SHOULD PROCEED AS FOLLOWS (REFER TO DETAIL 15):**

1. THE DIVERSION STRUCTURE SHOULD BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
2. THE HEIGHT OF THE SANDBAG/STONE DIVERSION SHOULD BE A FUNCTION OF THE DURATION OF THE PROJECT IN THE STREAM REACH. FOR PROJECTS WITH A DURATION LESS THAN 2 WEEKS, THE HEIGHT OF THE DIVERSION SHOULD BE ONE HALF THE STREAM BANK HEIGHT MEASURED FROM THE CHANNEL BED. PLUS 1 FOOT (0.3 METERS) OR BANK FULL HEIGHT, WHICHEVER IS GREATER. FOR PROJECTS OF LONGER DURATION, THE TOP OF THE SANDBAG OR STONE DIVERSION SHOULD CORRESPOND TO BANK FULL HEIGHT. FOR DIVERSION STRUCTURES UTILIZING SANDBAGS, THE STREAM BED SHOULD BE HAND PREPARED PRIOR TO PLACEMENT OF THE BASE LAYER OF SANDBAGS IN ORDER TO ENSURE A WATER TIGHT FIT. ADDITIONALLY, IT MAY BE NECESSARY TO PREPARE THE BANK IN A SIMILAR FASHION.
3. ALL EXCAVATED MATERIAL SHOULD BE DEPOSITED AND STABILIZED IN AN APPROVED AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE AUTHORIZED BY THE WMA.
4. SEDIMENT LADEN WATER FROM THE CONSTRUCTION AREA SHOULD BE PUMPED TO A DEWATERING BASIN. TEMPORARY MEASURE FOR DEWATERING IN-CHANNEL CONSTRUCTION SITES.
5. SHEETING ON THE DIVERSION SHOULD BE POSITIONED SUCH THAT THE UPSTREAM PORTION CORRESPOND TO THE DOWNSTREAM PORTION WITH AT LEAST A 18-INCH (0.45 METERS) OVERLAP.
6. SANDBAG OR STONE DIVERSIONS SHOULD NOT OBSTRUCT MORE THAN 45% OF THE STREAM WIDTH. ADDITIONALLY, BANK STABILIZATION MEASURES SHOULD BE PLACED IN THE CONSTRUCTED DIVERSION IF ACCELERATED EROSION AND BANK SCOUR ARE OBSERVED DURING THE CONSTRUCTION TIME OR IF PROJECT TIME IS EXPECTED TO LAST MORE THAN 2 WEEKS.
7. PRIOR TO REMOVAL OF THESE TEMPORARY STRUCTURES, ANY ACCUMULATED SEDIMENT SHOULD BE REMOVED, DEPOSITED AND STABILIZED IN AN APPROVED AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS AUTHORIZED BY THE WMA.
8. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTING AUTHORITY APPROVES THEIR REMOVAL.



**LONGITUDINAL SECTION VIEW**

**Sandbag / Stone Diversion**



**Pump-Around Practice**

REVISED NOVEMBER 2000  
PAGE 12 - 3

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. Walker* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*David Henrich* 10/20/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chris Cummings* 10/18/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff-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

**FINAL PLAN  
SEDIMENT AND EROSION CONTROL  
DETAILS**

Des By	DFM	Scale	1" = 50'	Proj. No.	01011
Drn By	WDE	Date	9/19/02		
Chk By		Approved			33 OF 57

**DEVELOPER'S CERTIFICATION:**  
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND THAT ANY RESTORATION PERSONNEL WORKING 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.

*Robert A. Jenkins* 9/20/02  
SIGNATURE OF DEVELOPER DATE

**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.

*John V. Remcohes, Jr.* 9/20/02  
SIGNATURE OF ENGINEER DATE

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

*John V. Remcohes, Jr.* 9/20/02  
U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

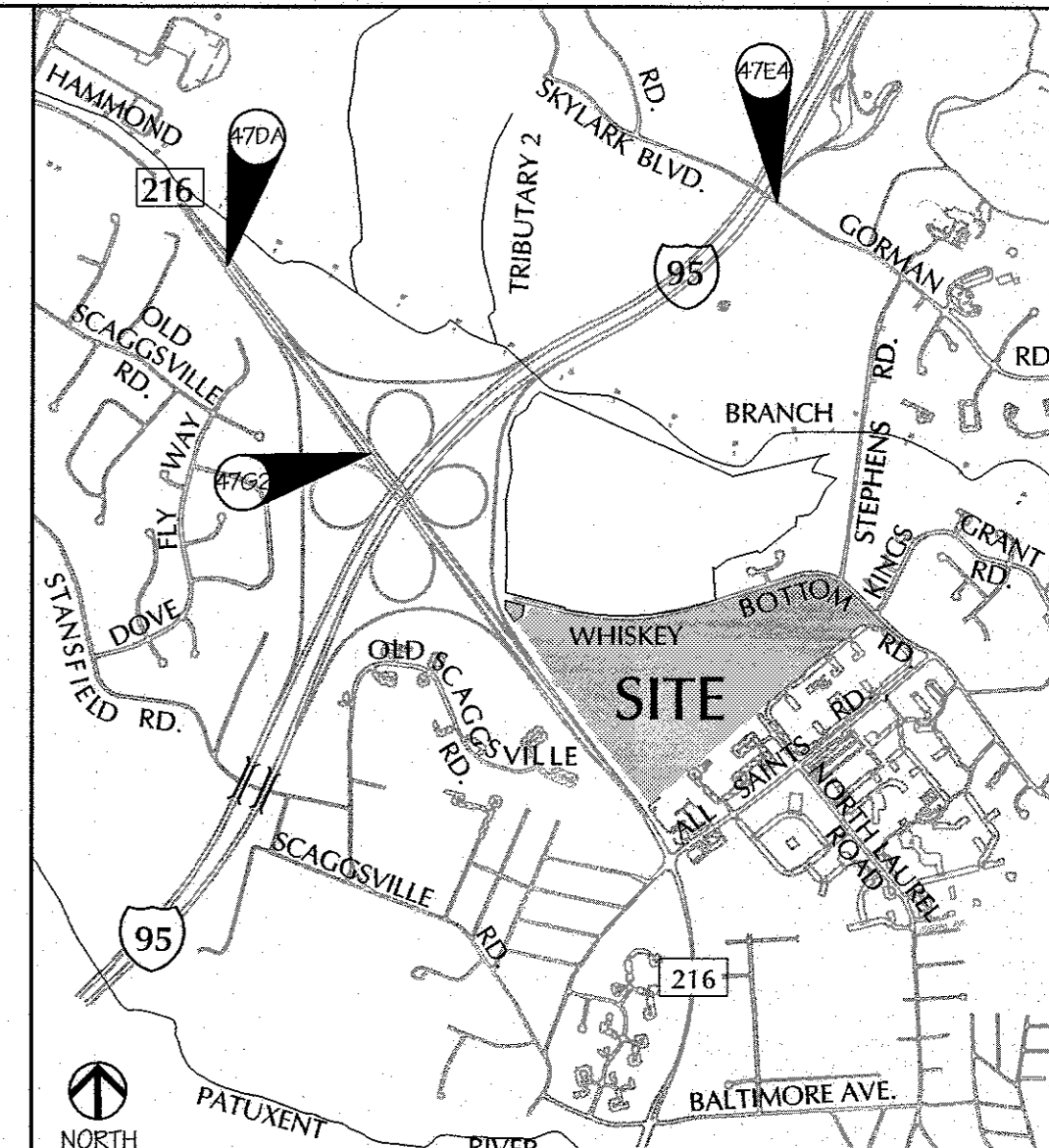
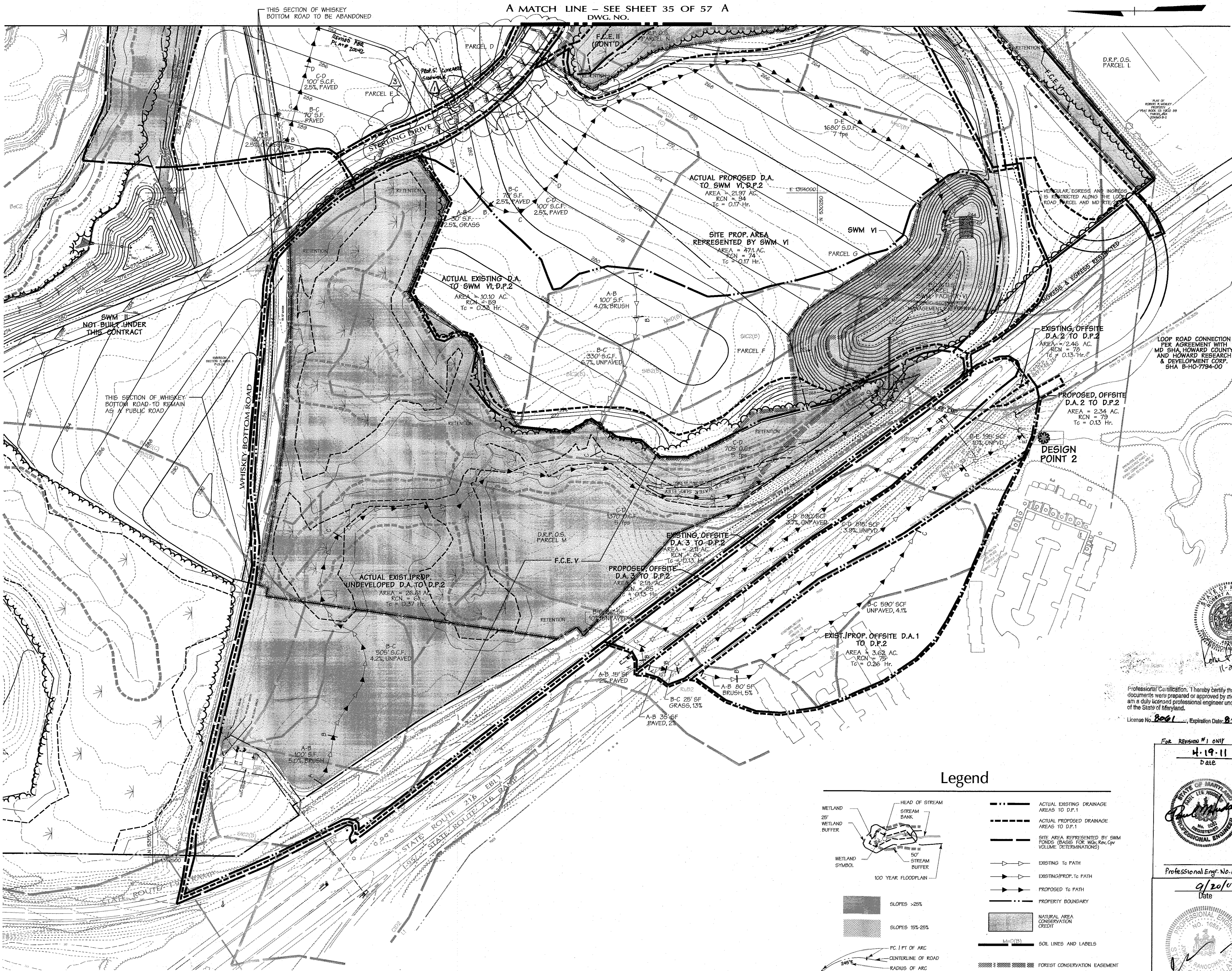
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John V. Remcohes, Jr.* 9/20/02  
HOWARD S.C.D. DATE

F-02-111  
9/20/02  
Date  
Professional Engr. No. 10551

MDE PERMIT AND TRACKING No. 01-NT-05001/200260639

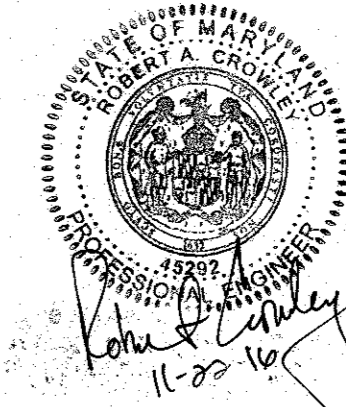
A MATCH LINE - SEE SHEET 35 OF 57 A  
DWG. NO.



Vicinity Map  
SCALE: 1"=2000'

NOTES:  
1. THE HYDROLOGY FOR SWM POND VI CONSISTS OF ACTUAL EXISTING DRAINAGE AREAS, ACTUAL PROPOSED DRAINAGE AREAS, AND A SITE PROPOSED AREA. THE ACTUAL EXISTING AND ACTUAL PROPOSED AREAS ARE ADDED TO DESIGN POINT 2 (10-20 HYDRAULIC MODEL) TO DETERMINE POND AND RISER SIZE NEEDED FOR 10-YEAR MANAGEMENT. THE SITE PROPOSED AREA WHICH CONSISTS OF SITE AREA THAT IS REPRESENTED BY THE POND, IS USED FOR DETERMINATION OF THE WQV (WATER QUALITY) AND C<sub>0</sub> (CHANNEL PROTECTION) VOLUMES IN ACCORDANCE WITH THE 2002 MD SWM REGULATIONS.  
2. THE SELECTED DESIGN POINT FOR THE STORM ROUTING IS TAKEN AT THE DOWNSTREAM END OF THE EXISTING 48" CMP THAT PASSES UNDER MD ROUTE 216 AND IS CALLED DESIGN POINT 2.

THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP. SPP-16-005  
PROFESSIONAL CERTIFICATION FOR REV#3  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE 05/21/2018



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 8661, Expiration Date: 8-26-11

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. ...* 10-10-12  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*...* 10/20/12  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 10/10/12  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

05/23/15	3	EMERSON CAMPUS VCP
2-7-11	1	ADD 5" CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No.	Revision Description

FOR REVISION #1 ONLY  
4-19-11  
Date



Professional Engr. No. 8661  
9/20/12  
Date



Professional Engr. No. 10557

**REVITZ PROPERTY**  
OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

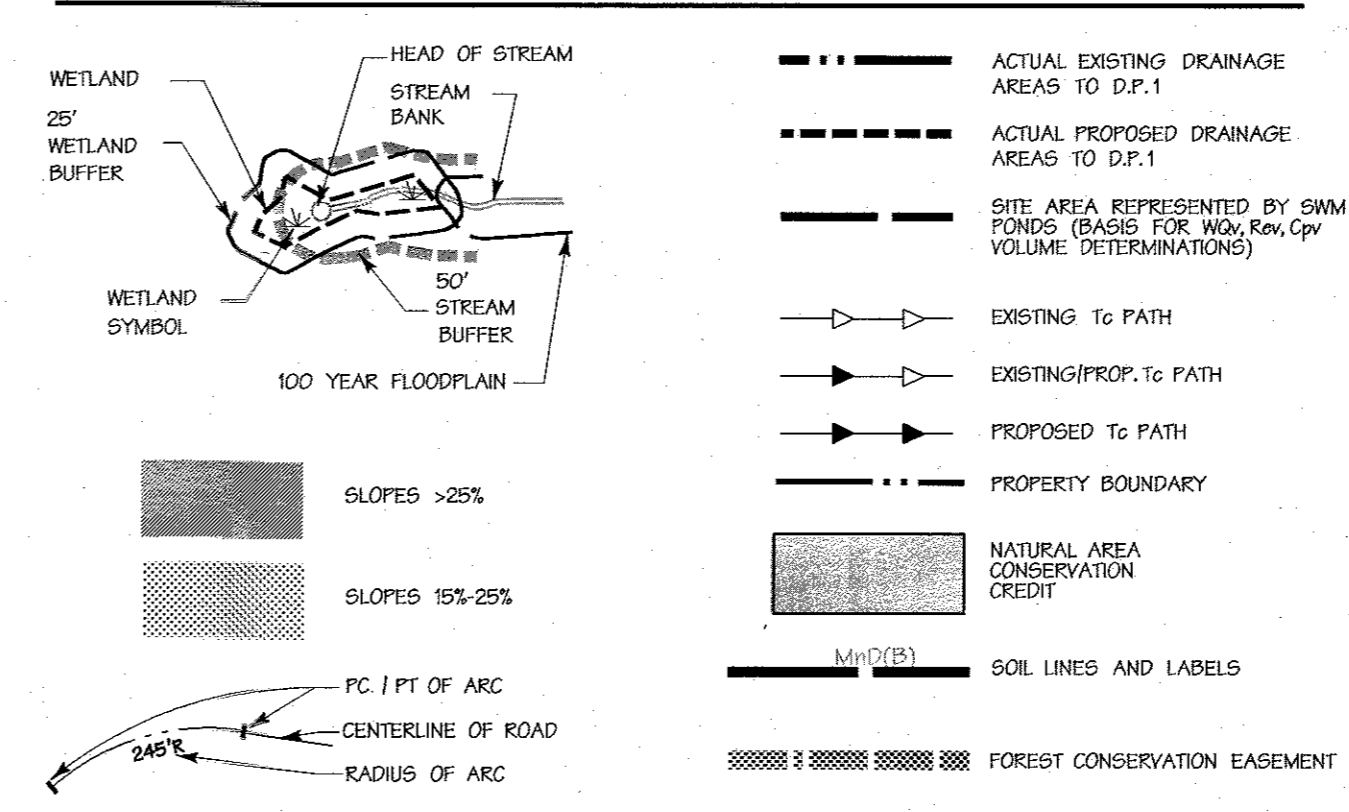
**DMW**  
Darr McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3333  
Fax 296-4705  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
2262436	PEC 47, GRID 20	165 & 160 PAR. 837
WATER CODE	SEWER CODE	DESIGN SCALE

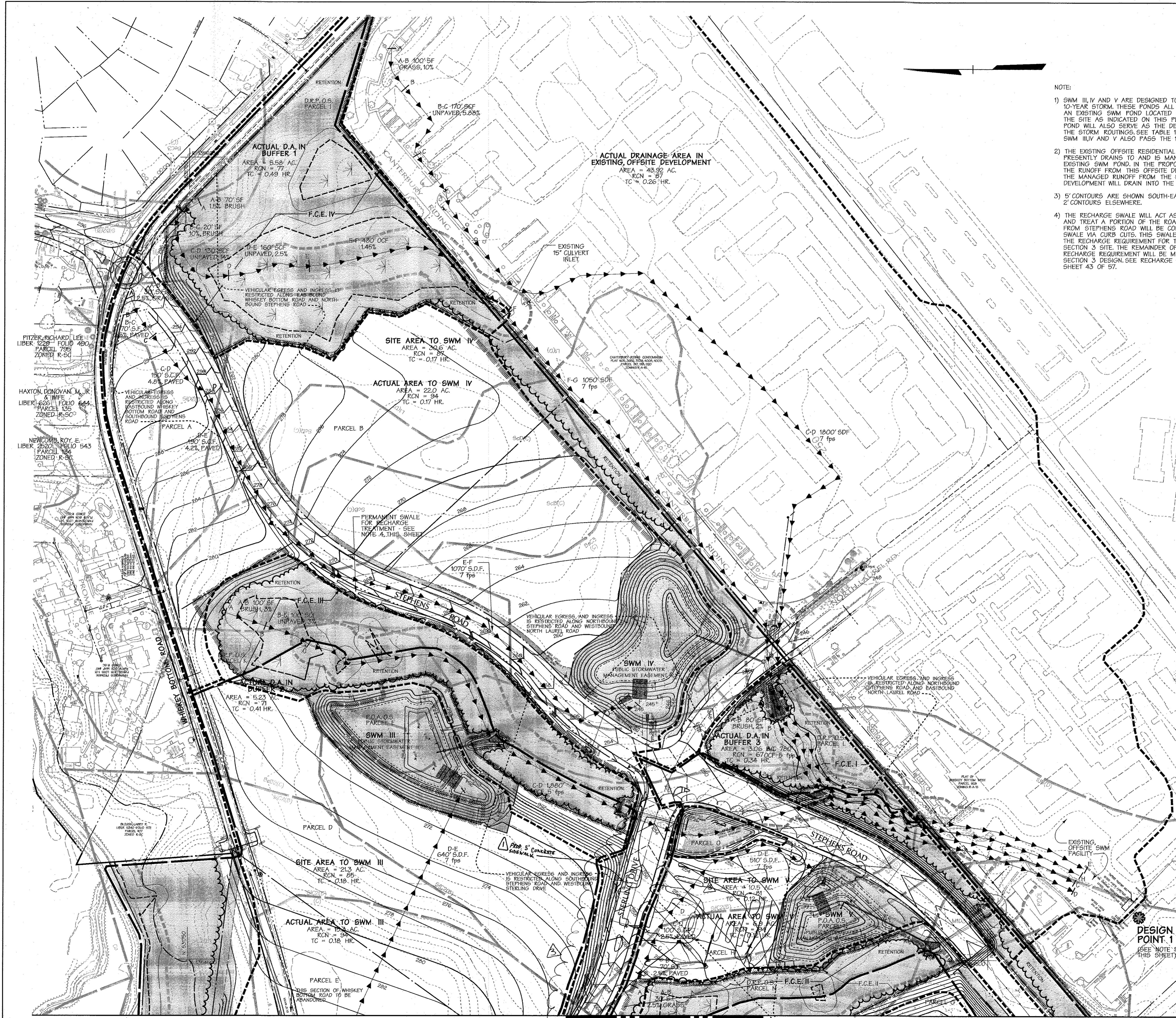
TITLE  
**FINAL PLAN  
SWM DRAINAGE AREA MAP**

Des By	MRT	Scale	1"=100'	Proj. No.	01011
Drn By	KMF	Date	9/19/02		
Chk By	Approved				34 OF 57

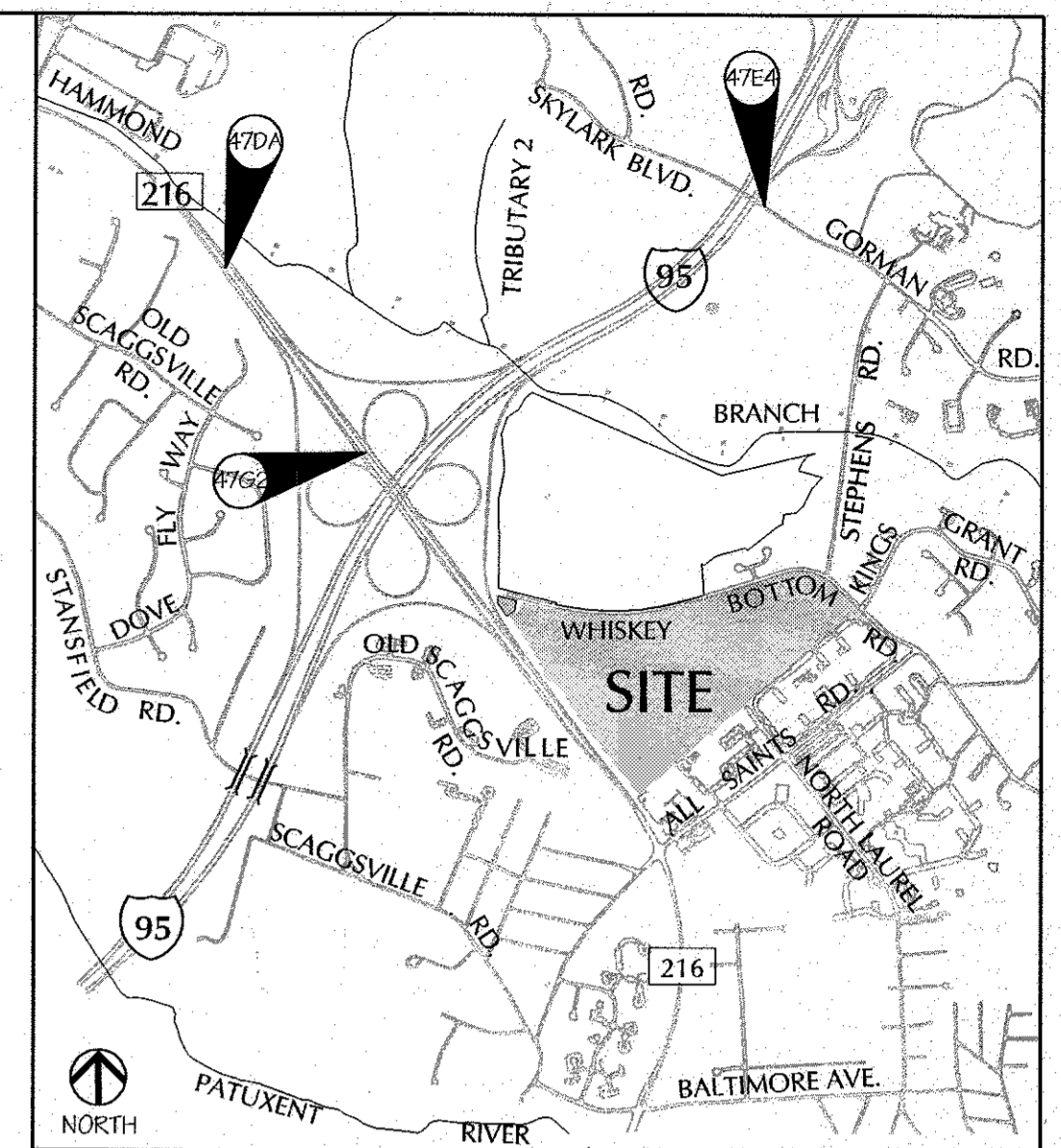
Legend



F-02-111

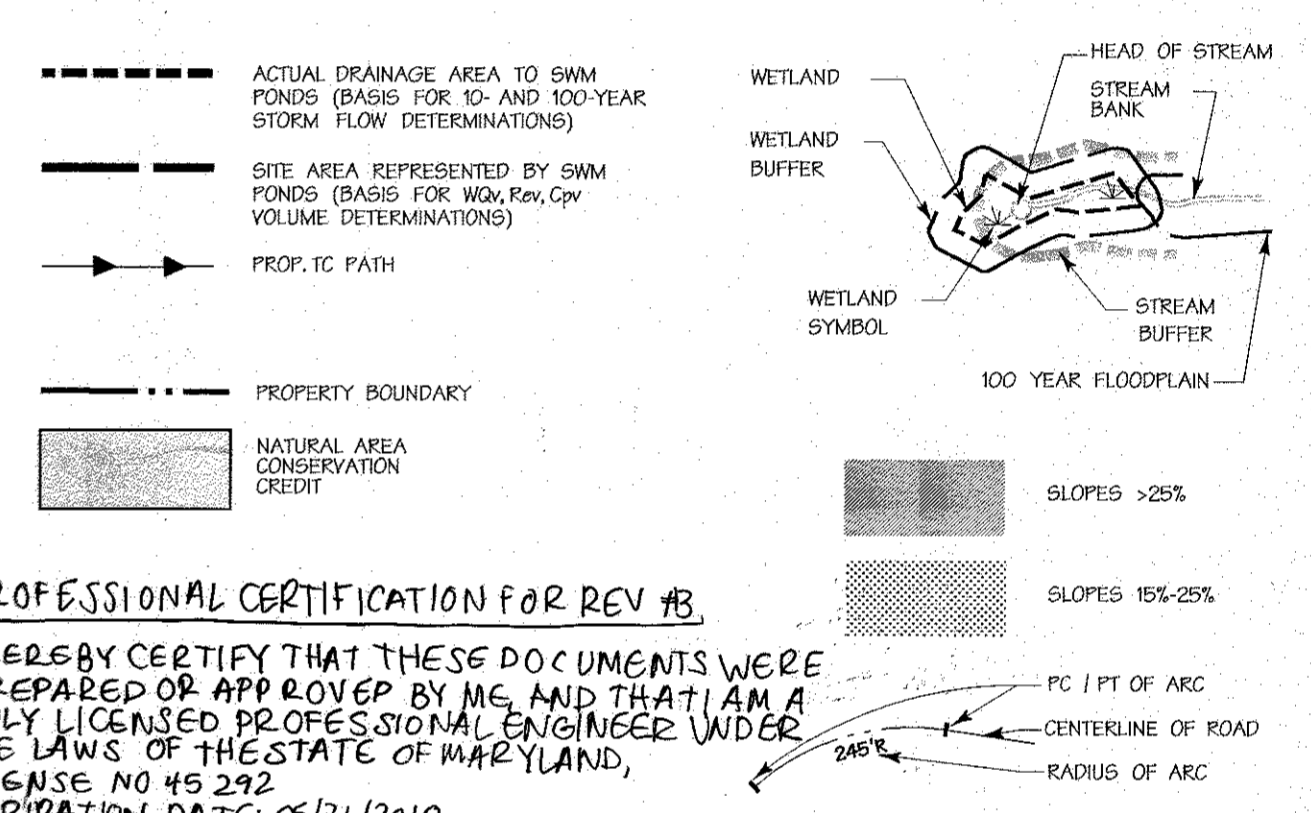


- NOTE:
- 1) SWM III, IV AND V ARE DESIGNED TO MANAGE THE 10-YEAR STORM. THESE PONDS ALL OUTFALL INTO AN EXISTING SWM POND LOCATED SOUTHWEST OF THE SITE AS INDICATED ON THIS PLAN. THE OFFSITE POND WILL ALSO SERVE AS THE DESIGN POINT FOR THE 5' FLOW ROUTINGS. SEE TABLE 1, SHEET 36. SWM III, IV AND V ALSO PASS THE 100-YEAR STORM.
  - 2) THE EXISTING OFFSITE RESIDENTIAL DEVELOPMENT PRESENTLY DRAINS TO AND IS MANAGED BY THE EXISTING SWM POND. IN THE PROPOSED CONDITION, THE RUNOFF FROM THIS OFFSITE DEVELOPMENT AND THE MANAGED RUNOFF FROM THE REVITZ PROPERTY DEVELOPMENT WILL DRAIN INTO THE OFFSITE POND.
  - 3) 5' CONTOURS ARE SHOWN SOUTH-EAST OF THE SITE, 2' CONTOURS ELSEWHERE.
  - 4) THE RECHARGE SWALE WILL ACT AS A RECHARGE CREDIT AND TREAT A PORTION OF THE ROAD PAVEMENT RUNOFF FROM STEPHENS ROAD. THIS SWALE WILL PARTIALLY MEET THE RECHARGE REQUIREMENT FOR THE REVITZ/EMERSON SECTION 3 SITE. THE REMAINDER OF UNTREATED RECHARGE REQUIREMENT WILL BE MET IN THE EMERSON SECTION 3 DESIGN. SEE RECHARGE SWALE DETAIL, SHEET 43 OF 57.

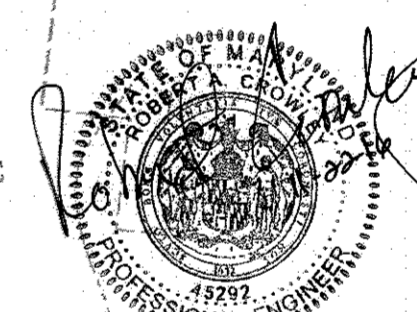


Vicinity Map  
SCALE: 1"=2000'

Legend



PROFESSIONAL CERTIFICATION FOR REV 1B  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 8061, EXPIRATION DATE: 05/21/2018



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
DATE: 10-10-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
DATE: 10/26/07

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION MK  
DATE: 10/10/07

Date	No.	Revision Description
05/23/07	1	EMERSON CAMPUS VCP
2-7-11	1	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE

REVITZ PROPERTY

OWNER /DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

DMW

Darr McCreary-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-1025  
Fax: 296-4705

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

PLAN #	BLK #	ZONE	PLANNING	PERMITS	RECORDS	REVISION
2267436	20	PEC	47	GRD	20	6th

FINAL PLAN  
SWM DRAINAGE AREA MAP

Des By	MRT	Scale	1"=100'	Proj. No.	01011
Drn By	KMF	Date	9/19/02		
Chk By	Approved				35 OF 57

F-02-111

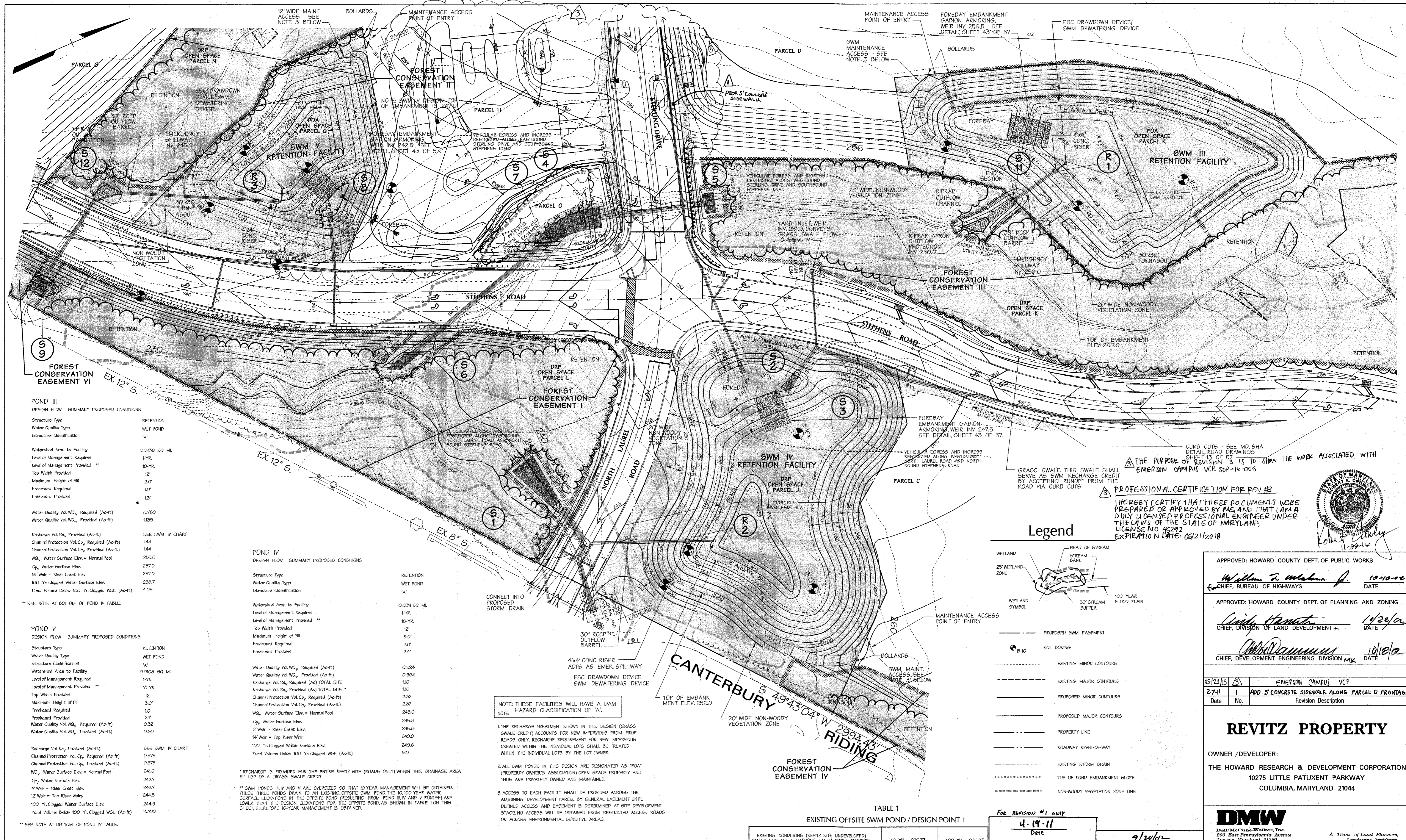
Professional Eng. No. 8061

F-02-111

A MATCH LINE - SEE SHEET 34 OF 57 A  
DWG. NO.

VEHICULAR EGRESS AND INGRESS IS RESTRICTED ALONG SOUTHWEST STEPHENS ROAD AND EASTBOUND STEWART DRIVE

DESIGN POINT 1  
(SEE NOTE 1 THIS SHEET)



**POND III**  
DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Structure Type	RETENTION
Water Quality Type	WET POND
Structure Classification	'A'
Watershed Area to Facility	0.0239 SQ. MI.
Level of Management Required	1-YR.
Level of Management Provided **	10-YR.
Top Width Provided	12'
Maximum Height of Fill	2.0'
Freeboard Required	1.0'
Freeboard Provided	1.3'
Water Quality Vol. WQ <sub>2</sub> , Required (Ac-Ft)	0.760
Water Quality Vol. WQ <sub>2</sub> , Provided (Ac-Ft)	1.139
Recharge Vol. R <sub>24</sub> , Provided (Ac-Ft)	SEE SWM IV CHART
Channel Protection Vol. C <sub>24</sub> , Required (Ac-Ft)	1.44
Channel Protection Vol. C <sub>24</sub> , Provided (Ac-Ft)	1.44
WQ <sub>2</sub> Water Surface Elev. - Normal Pool	255.0
C <sub>24</sub> Water Surface Elev.	257.0
16" Weir - Riser Crest Elev.	257.0
100 Yr. Clogged Water Surface Elev.	258.7
Pond Volume Below 100 Yr. Clogged WSE (Ac-Ft)	4.05

\*\* SEE NOTE AT BOTTOM OF POND IV TABLE.

**POND IV**  
DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Structure Type	RETENTION
Water Quality Type	WET POND
Structure Classification	'A'
Watershed Area to Facility	0.0311 SQ. MI.
Level of Management Required	1-YR.
Level of Management Provided **	10-YR.
Top Width Provided	12'
Maximum Height of Fill	8.0'
Freeboard Required	2.0'
Freeboard Provided	2.4'
Water Quality Vol. WQ <sub>2</sub> , Required (Ac-Ft)	0.924
Water Quality Vol. WQ <sub>2</sub> , Provided (Ac-Ft)	0.964
Recharge Vol. R <sub>24</sub> , Required (Ac) TOTAL SITE	1.10
Recharge Vol. R <sub>24</sub> , Provided (Ac) TOTAL SITE	1.10
Channel Protection Vol. C <sub>24</sub> , Required (Ac-Ft)	2.32
Channel Protection Vol. C <sub>24</sub> , Provided (Ac-Ft)	2.37
WQ <sub>2</sub> Water Surface Elev. - Normal Pool	243.0
C <sub>24</sub> Water Surface Elev.	249.8
16" Weir - Riser Crest Elev.	249.8
14" Weir - Top Riser Weir	249.0
100 Yr. Clogged Water Surface Elev.	249.6
Pond Volume Below 100 Yr. Clogged WSE (Ac-Ft)	8.0

\* RECHARGE IS PROVIDED FOR THE ENTIRE RETENTIVE SITE (ROADS ONLY) WITHIN THIS DRAINAGE AREA BY USE OF A GRASS SWALE CREDIT.

\*\* SWM PONDS III, IV AND V ARE OVERSIZED SO THAT 10-YEAR MANAGEMENT WILL BE OBTAINED. THESE THREE PONDS DRAIN TO AN EXISTING OFFSITE SWM POND. THE 10,100-YEAR WATER SURFACE ELEVATIONS IN THE OFFSITE POND (RESULTING FROM POND III, IV AND V RUNOFF) ARE LOWER THAN THE DESIGN ELEVATIONS FOR THE OFFSITE POND, AS SHOWN IN TABLE 1 ON THIS SHEET, THEREFORE 10-YEAR MANAGEMENT IS OBTAINED.

**POND V**  
DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Structure Type	RETENTION
Water Quality Type	WET POND
Structure Classification	'A'
Watershed Area to Facility	0.0108 SQ. MI.
Level of Management Required	1-YR.
Level of Management Provided **	10-YR.
Top Width Provided	12'
Maximum Height of Fill	3.0'
Freeboard Required	1.0'
Freeboard Provided	2.1'
Water Quality Vol. WQ <sub>2</sub> , Required (Ac-Ft)	0.26
Water Quality Vol. WQ <sub>2</sub> , Provided (Ac-Ft)	0.60
Recharge Vol. R <sub>24</sub> , Provided (Ac-Ft)	SEE SWM IV CHART
Channel Protection Vol. C <sub>24</sub> , Required (Ac-Ft)	0.575
Channel Protection Vol. C <sub>24</sub> , Provided (Ac-Ft)	0.575
WQ <sub>2</sub> Water Surface Elev. - Normal Pool	241.0
C <sub>24</sub> Water Surface Elev.	242.7
4" Weir - Riser Crest Elev.	242.7
12" Weir - Top Riser Weir	244.5
100 Yr. Clogged Water Surface Elev.	244.9
Pond Volume Below 100 Yr. Clogged WSE (Ac-Ft)	2.500

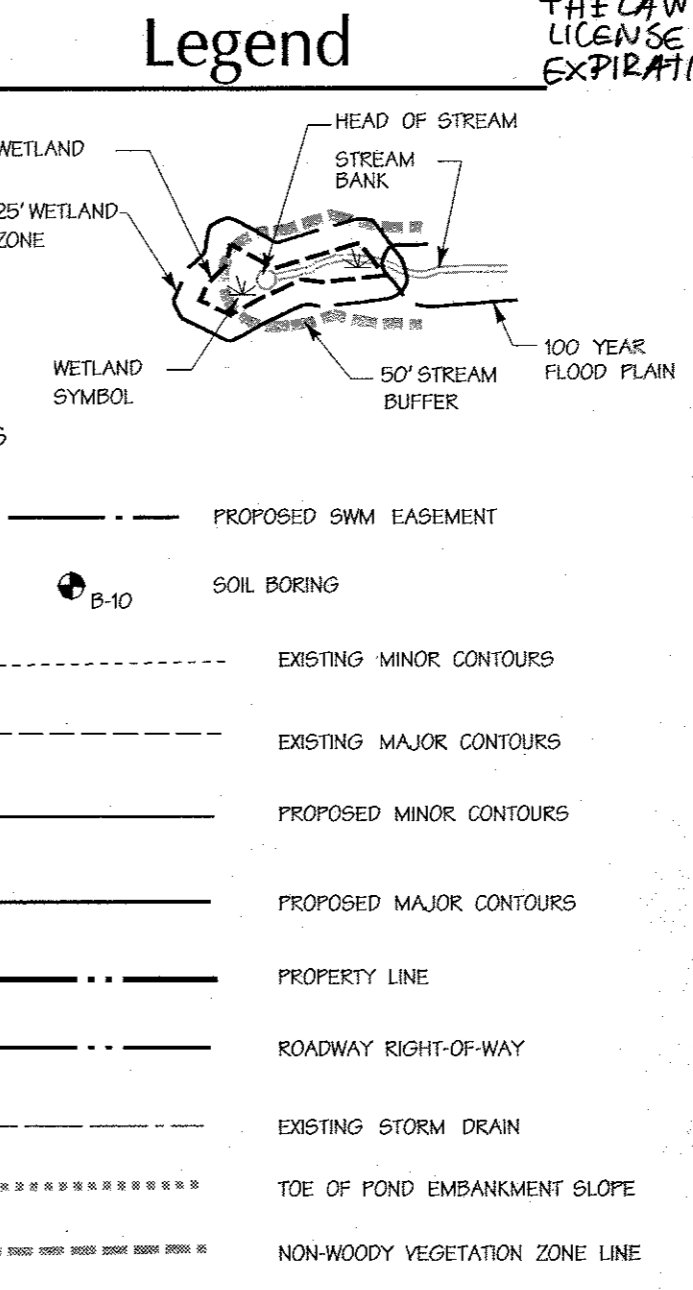
\*\* SEE NOTE AT BOTTOM OF POND IV TABLE.

NOTE: THESE FACILITIES WILL HAVE A DAM HAZARD CLASSIFICATION OF 'A'.

- THE RECHARGE TREATMENT SHOWN IN THIS DESIGN (GRASS SWALE CREDIT) ACCOUNTS FOR NEW IMPERVIOUS FROM PROP. ROADS. ONLY RECHARGE REQUIREMENT FOR NEW IMPERVIOUS CREATED WITHIN THE INDIVIDUAL LOTS SHALL BE TREATED WITHIN THE INDIVIDUAL LOTS BY THE LOT OWNER.
- ALL SWM PONDS IN THIS DESIGN ARE DESIGNATED AS "POA" (PROPERTY OWNER'S ASSOCIATION) OPEN SPACE PROPERTY AND THIS ARE PRIVATELY OWNED AND MAINTAINED.
- ACCESS TO EACH FACILITY 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 ENVIRONMENTAL SENSITIVE AREAS.

**TABLE 1**  
EXISTING OFFSITE SWM POND / DESIGN POINT 1

EXISTING CONDITIONS (REVITZ SITE UNDEVELOPED) WATER SURFACE ELEVATIONS TAKEN FROM WHISKEY BOTTOM WEST PLANS, SDP-78-7L, APPROVED 7-5-78.	10 YR. = 226.33	100 YR. = 226.83
PROPOSED CONDITIONS (REVITZ SITE DEVELOPED) WATER SURFACE ELEVATIONS TAKEN FROM REVITZ SWM REPORT TR-20 ROUTING OUTPUT	10 YR. = 226.23	100 YR. = 226.75



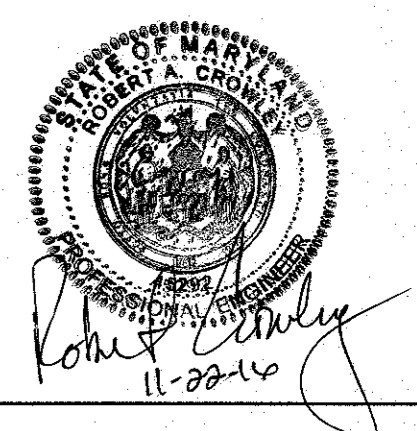
THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP SDP-14-005

PROFESSIONAL CERTIFICATION FOR REV #3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 8061, EXPIRATION DATE: 05/21/2018

GRASS SWALE THIS SWALE SHALL SERVE AS SWM RECHARGE CREDIT BY ACCEPTING RUNOFF FROM THE ROAD VIA CURB CUTS

CURB CUTS - SEE MD. SHA DETAIL ROAD DRAWINGS SHEET 43 OF 57



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 William T. Mahan Jr. 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Jeff Hamant 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Chris Dammann 10/18/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

05/23/15	3	EMERSON CAMPUS VCP
2-7-11	1	ADD 5' CONCRETE SIDEWALK ALONG PARCEL O FRONTAGE
Date	No.	Revision Description

**REVITZ PROPERTY**

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 200 East Pennsylvania Avenue  
 Poolesville, Maryland 21086  
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 Fax: 296-4705

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

DESIGNER NAME	SECTION/AREA	SHEET NO.	TOTAL SHEETS
DALE W. COLE	165 & BO. PAR. 837	22	68
DATE	SCALE	DATE	DATE
9/20/02	1" = 50'	9/19/02	9/19/02

TITLE: **FINAL PLAN SWM III, IV AND V PLAN**

Des. By	MRT	Scale	1" = 50'	Proj. No.	01011
Drn. By	MRT	Date	9/19/02	36	OF 57
Chk. By	Approved				

F-02-111

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 Resource Conservation Service  
 Jim Mays 9/16/02  
 DATE

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

APPROVED: [Signature] 9/15/02  
 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.

[Signature] 9/20/02  
 SIGNATURE OF DEVELOPER DATE

Robert A. Jenkins

**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 NOTICED THE DEVELOPER THAT HE/SHOULD 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] 10/5/02 9/20/02  
 SIGNATURE OF ENGINEER REG. NO. DATE

John W. Ranovich 8-26-11

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 8061, Expiration Date: 8-26-11

Professional Engr. No. 8061

F-02-111



FOND VI  
DESIGN FLOW SUMMARY PROPOSED CONDITIONS

Structure Type	RETENTION
Water Quality Type	WET POND
Structure Classification	'A'
Watershed Area to Facility	0.0343 SQ MI.
Level of Management Required **	10-YR
Level of Management Provided	10-YR
Top Width Provided	12'
Maximum Height of Fill	7.0'
Fretboard Required	2.0'
Fretboard Provided	2.0'
Water Quality Vol. WQ <sub>1</sub> Required (Ac-ft)	0.680
Water Quality Vol. WQ <sub>1</sub> Provided (Ac-ft)	0.683
Recharge Vol. R <sub>1</sub> Provided (Ac-ft) *	SEE SWM IV
Channel Protection Vol. C <sub>p</sub> Required (Ac-ft)	1.680
Channel Protection Vol. C <sub>p</sub> Provided (Ac-ft) ***	3.038
WQ <sub>2</sub> Water Surface Elev. - Normal Pool	241.0
C <sub>p</sub> Water Surface Elev.	245.5
Riser Crest Elev.	249.5
100 Yr. Clogged Water Surface Elev.	250.5
Pond Volume Below 100 Yr. Clogged WSE (Ac-ft)	8.7

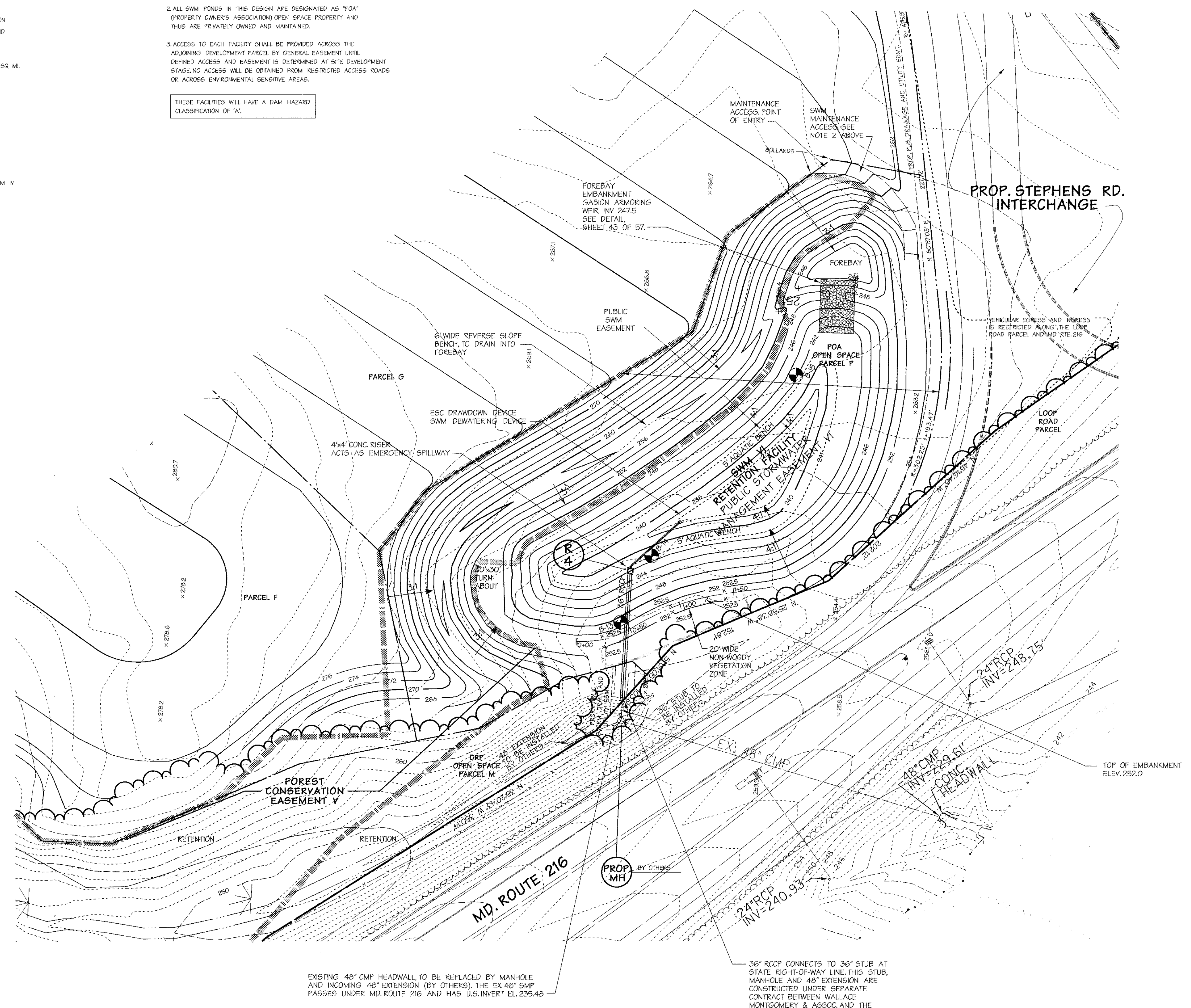
\* RECHARGE VOLUME IS PROVIDED FOR THE ENTIRE SITE (FOR ROADS ONLY) IN SWM IV DRAINAGE AREA - SEE SWM V C-MARK

\*\* THIS POND OUTFALLS IMMEDIATELY UPSTREAM OF AN EXISTING 48" CMP. PROVISION OF 10-YR MANAGEMENT IS NECESSARY.

\*\*\* THIS VOLUME ACCOUNTS FOR EXTENDED DETENTION OF THE 1-YR. STORM

- NOTE:
1. THE RECHARGE TREATMENT SHOWN IN THIS DESIGN (GRASS SWALE CREDIT) ACCOUNTS FOR NEW IMPERVIOUS FROM PROP. ROADS ONLY. RECHARGE REQUIREMENT FOR NEW IMPERVIOUS CREATED WITHIN THE INDIVIDUAL LOTS SHALL BE TREATED WITHIN THE INDIVIDUAL LOTS BY THE LOT OWNER.
  2. ALL SWM PONDS IN THIS DESIGN ARE DESIGNATED AS "FOA" (PROPERTY OWNER'S ASSOCIATION) OPEN SPACE PROPERTY AND THUS ARE PRIVATELY OWNED AND MAINTAINED.
  3. ACCESS TO EACH FACILITY 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 ENVIRONMENTAL SENSITIVE AREAS.

THESE FACILITIES WILL HAVE A DAM HAZARD CLASSIFICATION OF 'A'.



Legend

- WETLAND
- 25' WETLAND BUFFER
- HEAD OF STREAM
- STREAM BANK
- WETLAND SYMBOL
- 50' S' RECLAIM BUFFER
- 100 YEAR FF WATER SURFACE ELEVATION
- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED SWM EASEMENT
- SOIL BORING
- PROPERTY LINE
- ROADWAY RIGHT-OF-WAY
- EXISTING STORM DRAIN
- TOE OF EMBANKMENT SLOPE DELINEATOR LINE
- NON-WOODY VEGETATION ZONE LINE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William F. Walker* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Chris H. Smith* 10/26/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*William F. Walker* 10/10/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date	No.	Revision Description

REVITZ PROPERTY

OWNER / DEVELOPER:  
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Environmental Professionals

SUBDIVISION NAME	SECTION/DATE	DATE	DATE
PLAT # OR L.P.	BLOCK #	LOT #	DATE
226/7426	20	PEC	47, GRID 20
WATER TYPE	MAXIMUM DEPTH	DEPTH	DEPTH
	6 ft	6 ft	6 ft
TITLE	SCALE	PROJ. NO.	DATE
FINAL PLAN SWM VI PLAN	1" = 50'	01011	9/19/02
Des By	MRT	Scale	1" = 50'
Drn By	MRT	Date	9/19/02
Chk By	Approved	Proj. No.	01011
			37 OF 57

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 Mynar* 9/30/02  
USDA NATURAL RESOURCES CONSERVATION SERVICE DATE

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

*Robert A. Jenkins* 9/30/02  
APPROVED: 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 OF THE PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A REPAIRMENT 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.

*Robert A. Jenkins* 9/30/02  
SIGNATURE OF DEVELOPER DATE  
PRINT NAME BELOW SIGNATURE  
Robert A. Jenkins

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 HIS/HE 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.

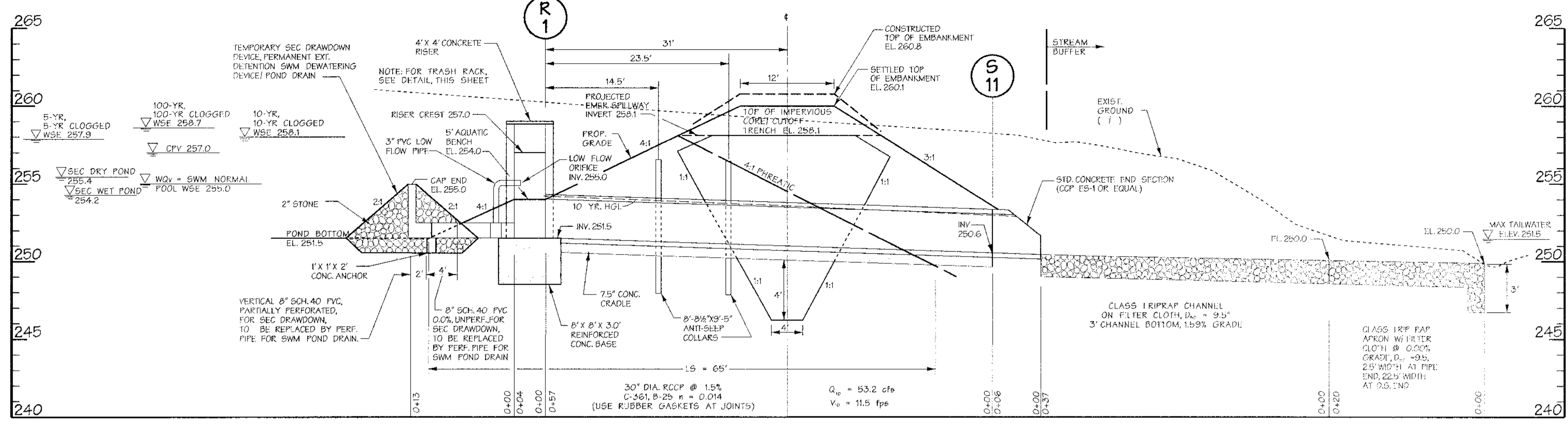
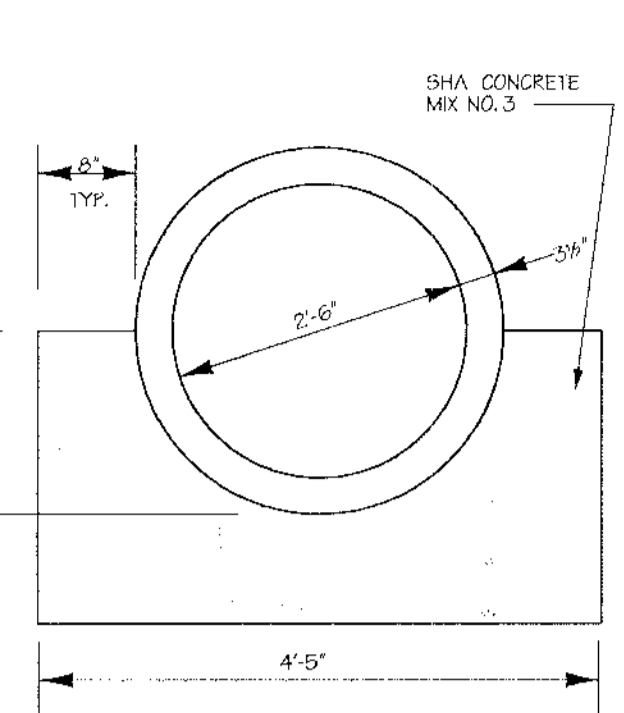
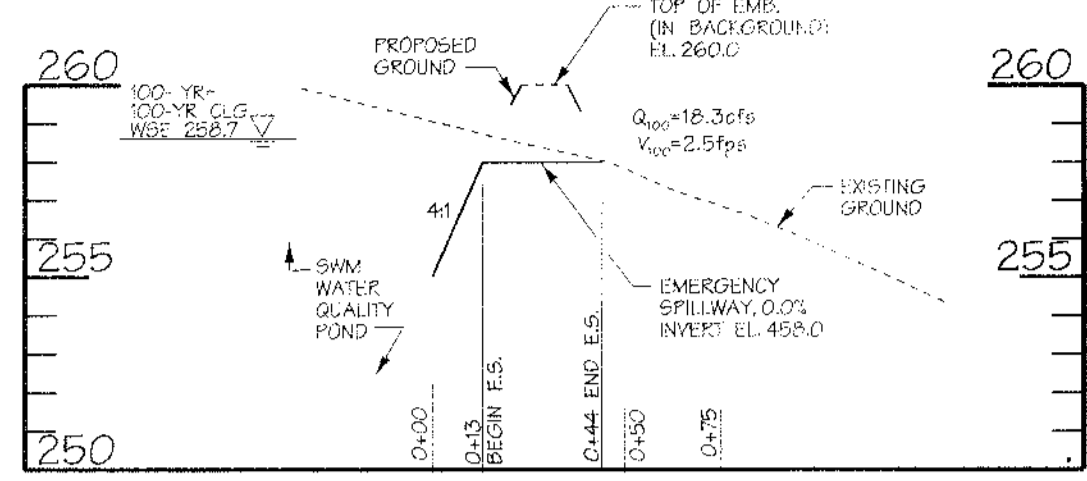
*John Lee Ramocho* 9/20/02  
SIGNATURE OF ENGINEER REG. NO. DATE  
PRINT NAME BELOW SIGNATURE  
John Lee Ramocho

9/20/02  
Date

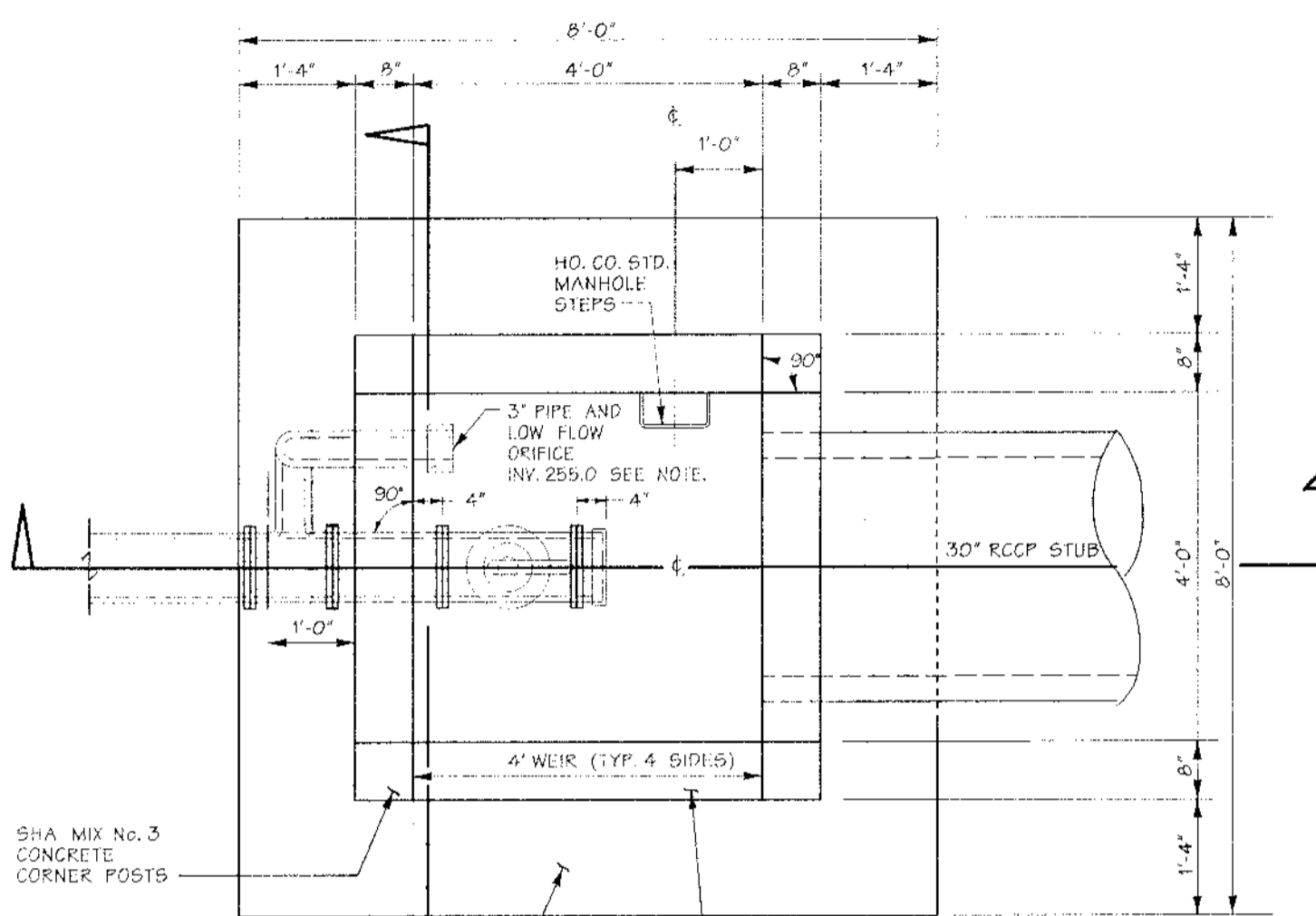
*[Signature]*

Professional Engr. No. 10551

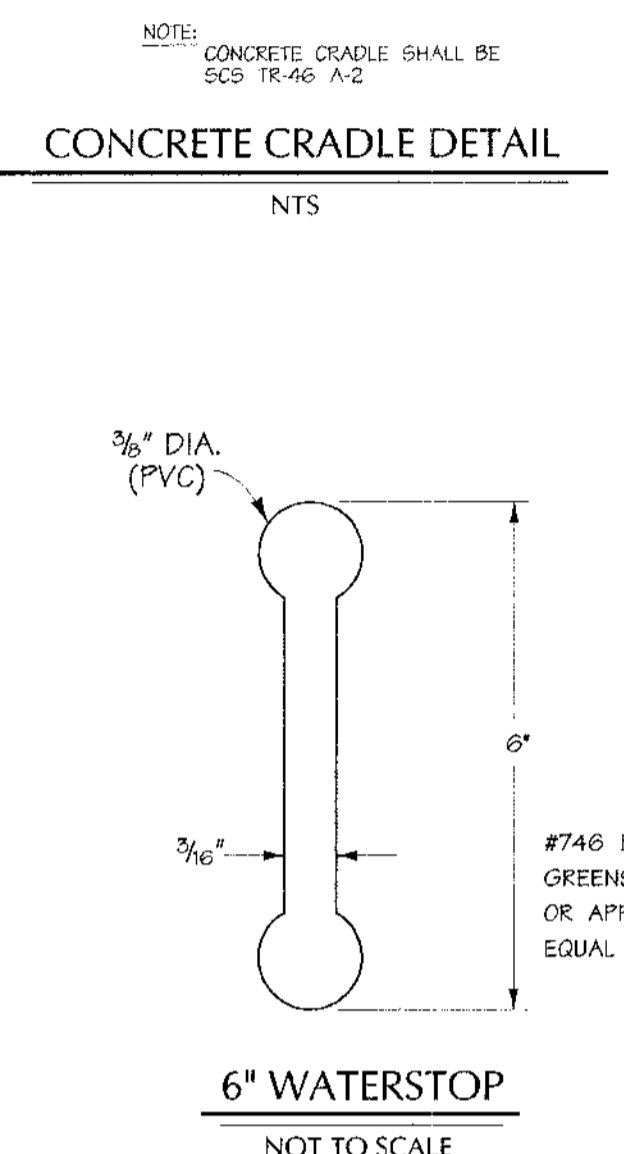
F-02-111



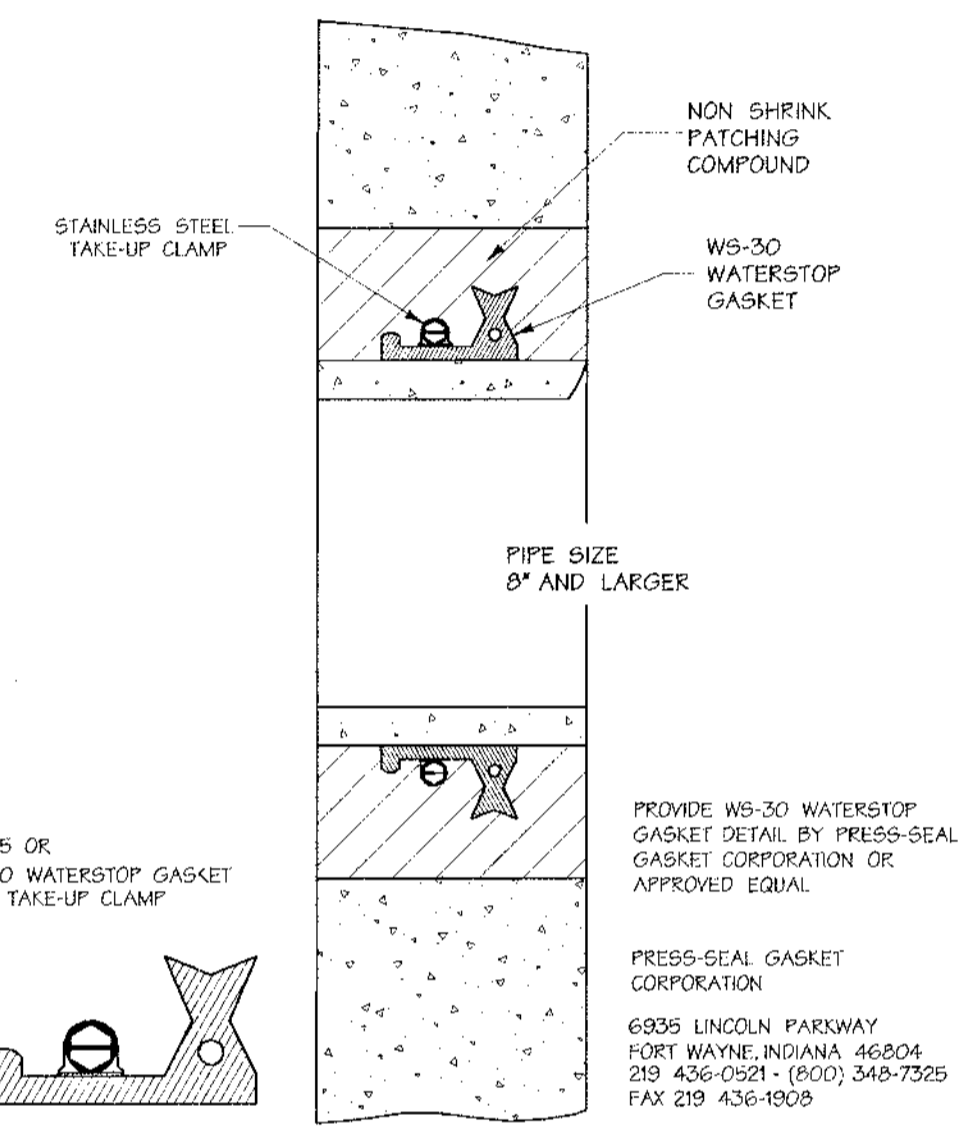
PROFILE THROUGH POND/ RISER/ BARREL



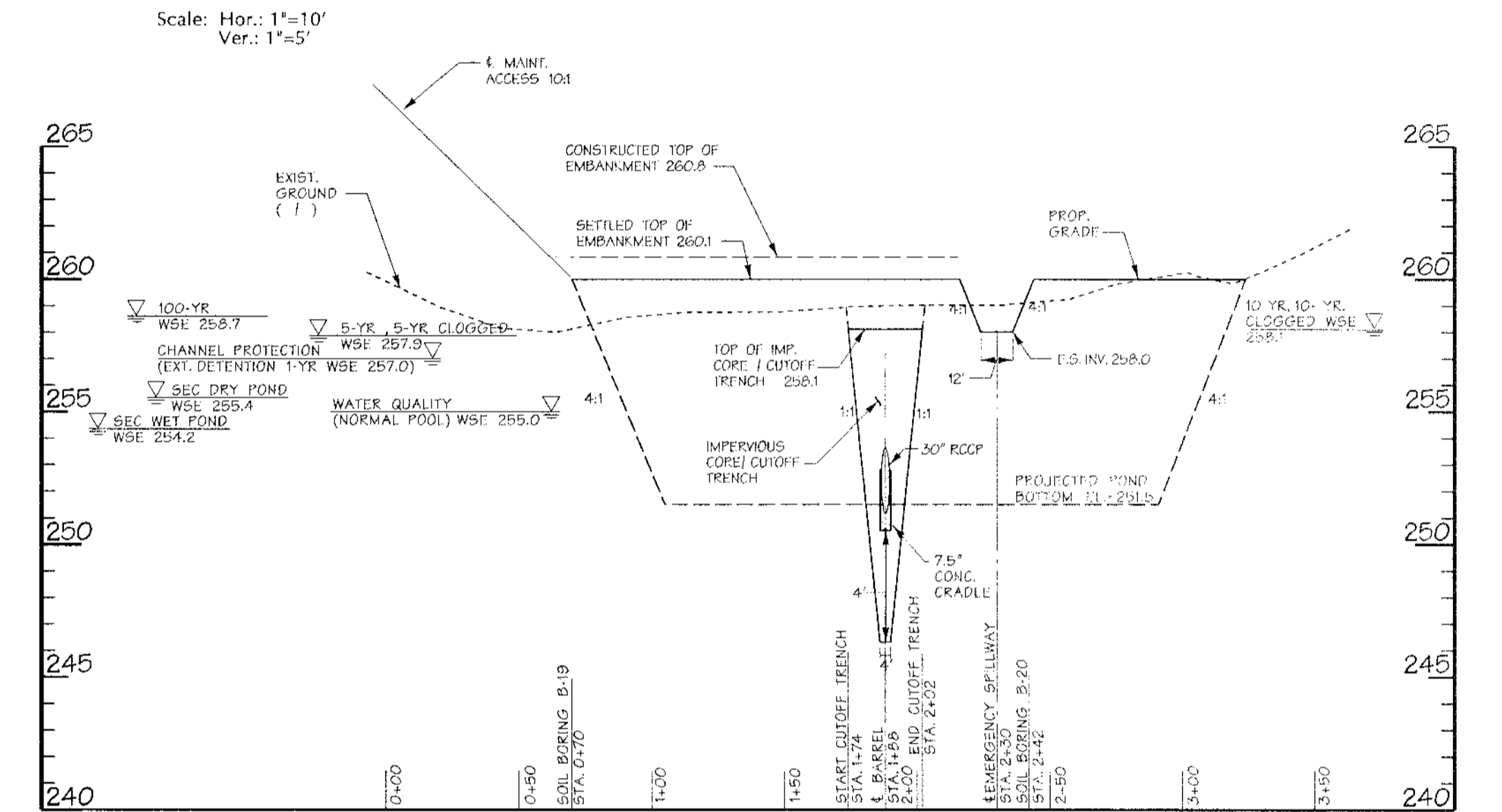
RISER PLAN (TOP SLAB REMOVED) - SWM III



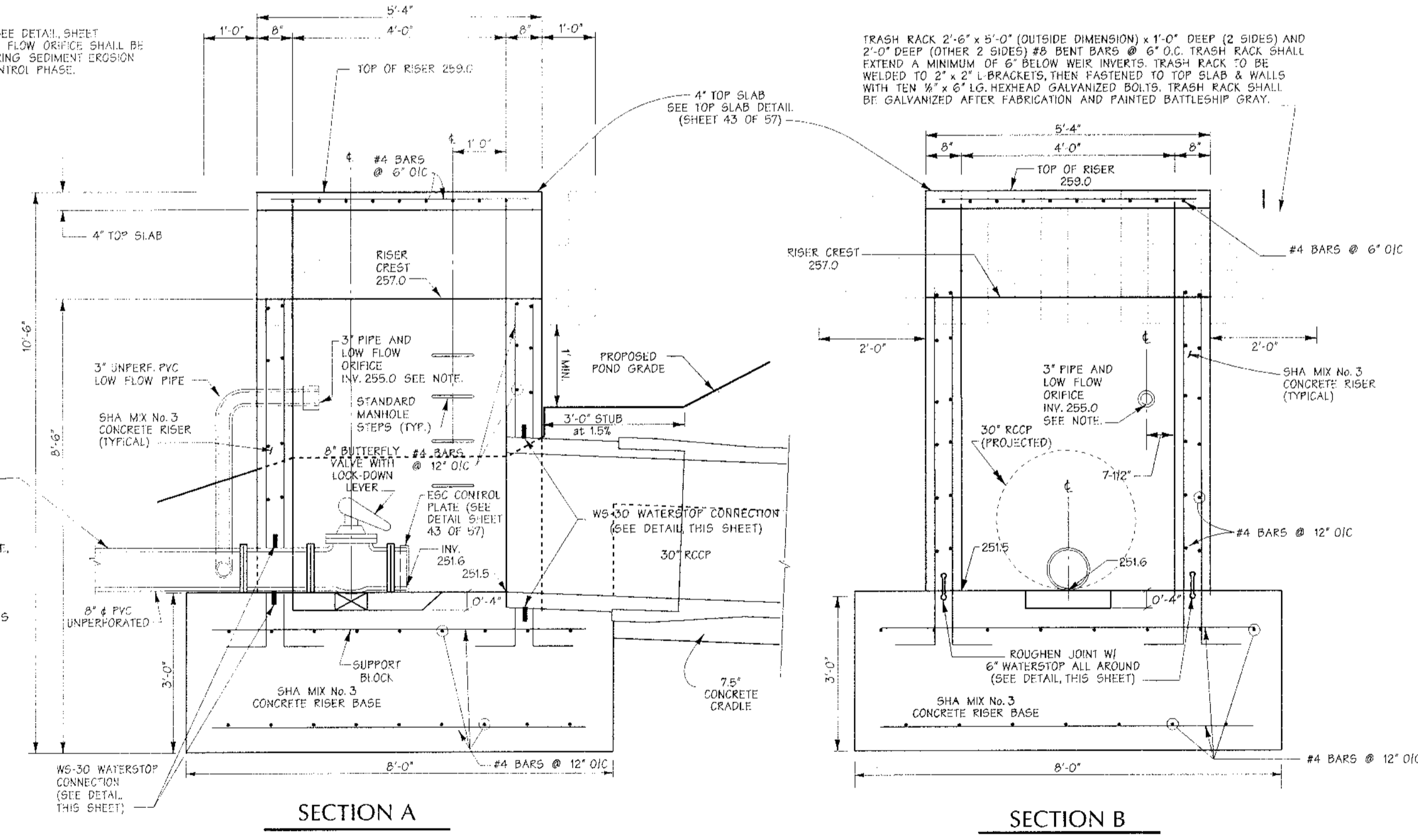
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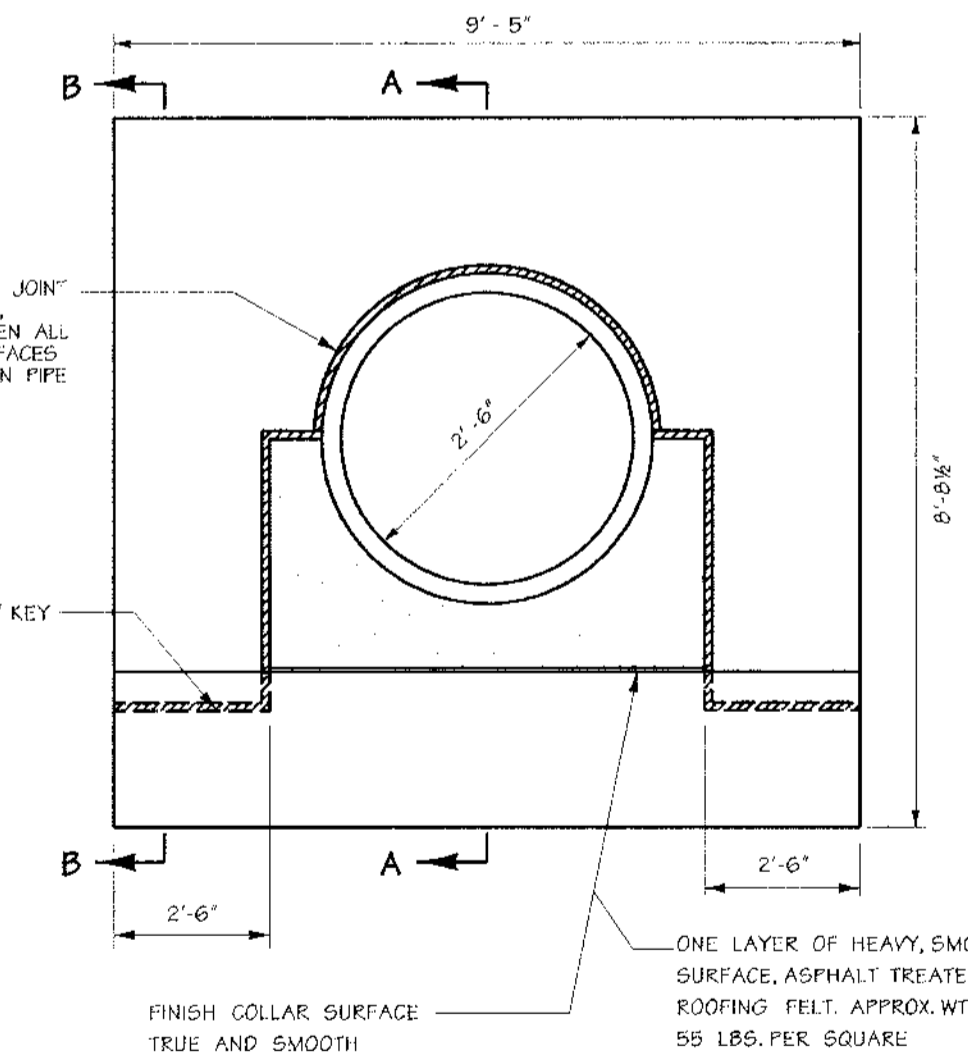
PIPE WATER STOP DETAIL



PROFILE ALONG EMBANKMENT



R-3 RISER DETAIL FOR POND - SWM III



ANTI-SEEP COLLAR DETAIL - SWM III

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Walker, P.* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Condy Harwell* 10/23/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John W. Renwick* 10/18/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Date No. Revision Description

**REVITZ PROPERTY**

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 Landscape Architects,  
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SUBMISSION NAME	SECTION AREA	DATE	165 & PD. PAR. 627
DATA CD 14	BLDG # 20	DATE 20	6 th
WATER CODE	SEWER DEPT		
TITLE	FINAL PLAN SWM III DETAIL SHEET		
Des By	MRT	Scale 1" = 50'	Proj. No. 01011.B
Drn By	KMF	Date 9/19/02	
Chk By		Approved	38 OF 57

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 Myrolo* 9/30/02  
 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: *Robert A. Jenkins* 9/30/02  
 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.

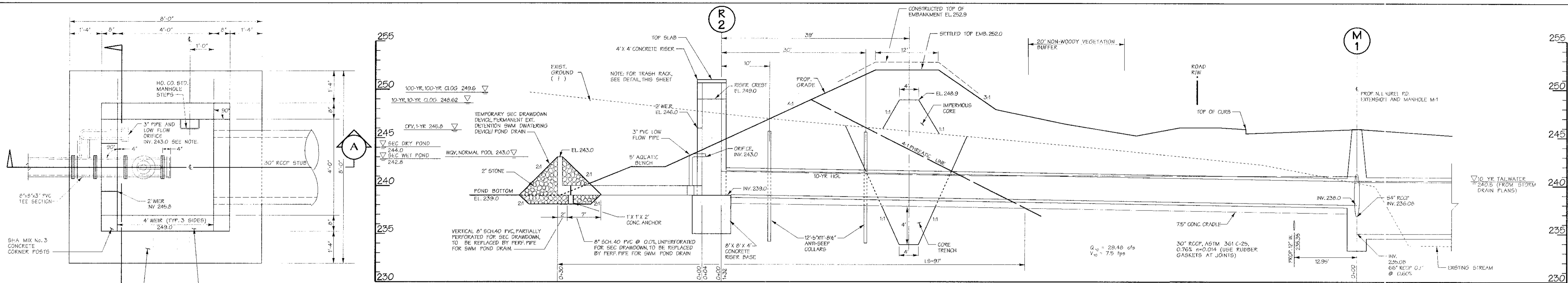
*Robert A. Jenkins* 9/30/02  
 SIGNATURE OF DEVELOPER DATE

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 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. Renwick* 9/20/02  
 SIGNATURE OF ENGINEER REG. NO. 10551 DATE

F-02-111  
 Professional Engr. No. 10551  
 F-02-111

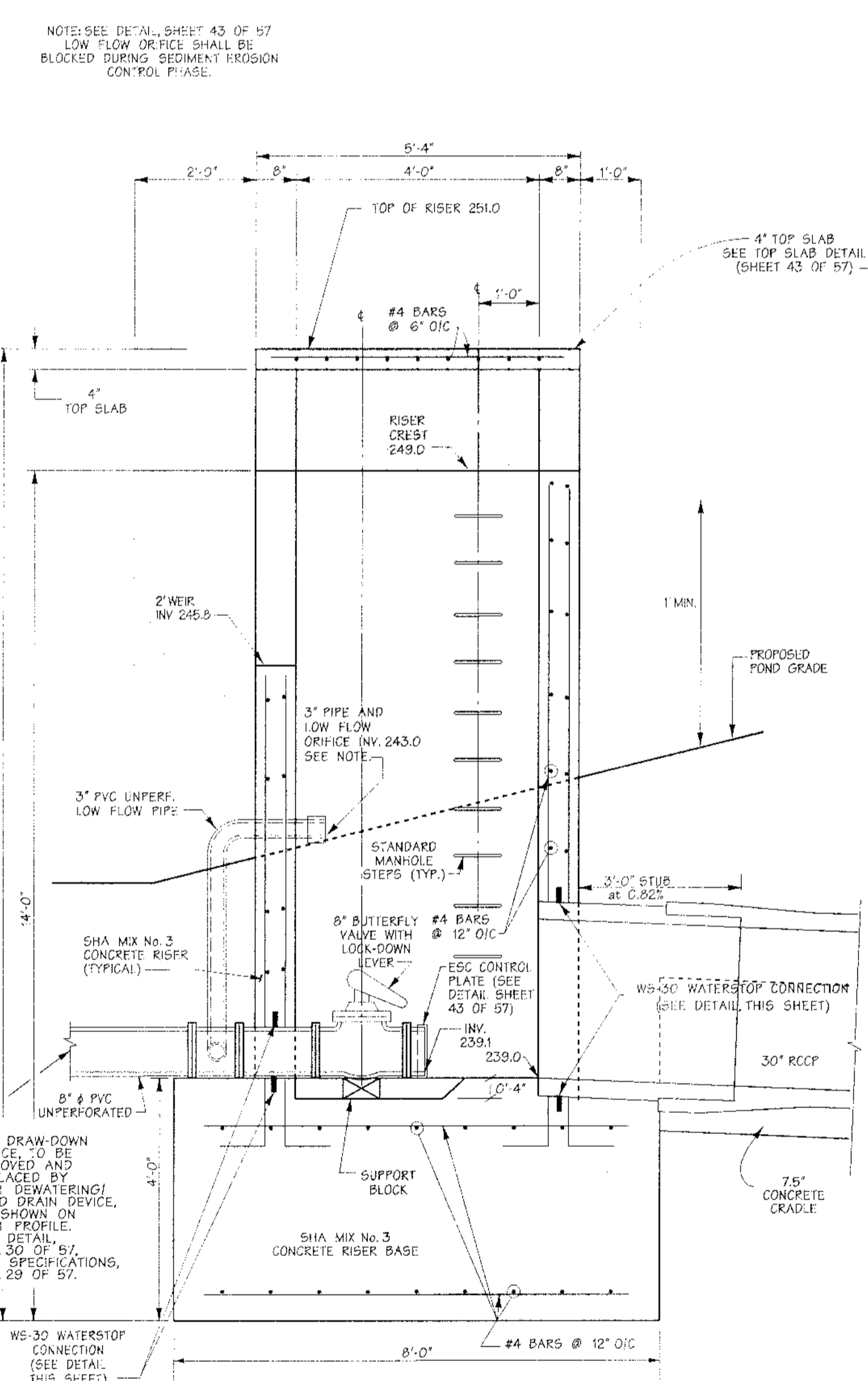


PROFILE THROUGH POND/ RISER/ BARREL

Scale: Hor: 1"=10'  
Ver: 1"=5'

R-4 RISER PLAN (TOP SLAB REMOVED) - SWM IV

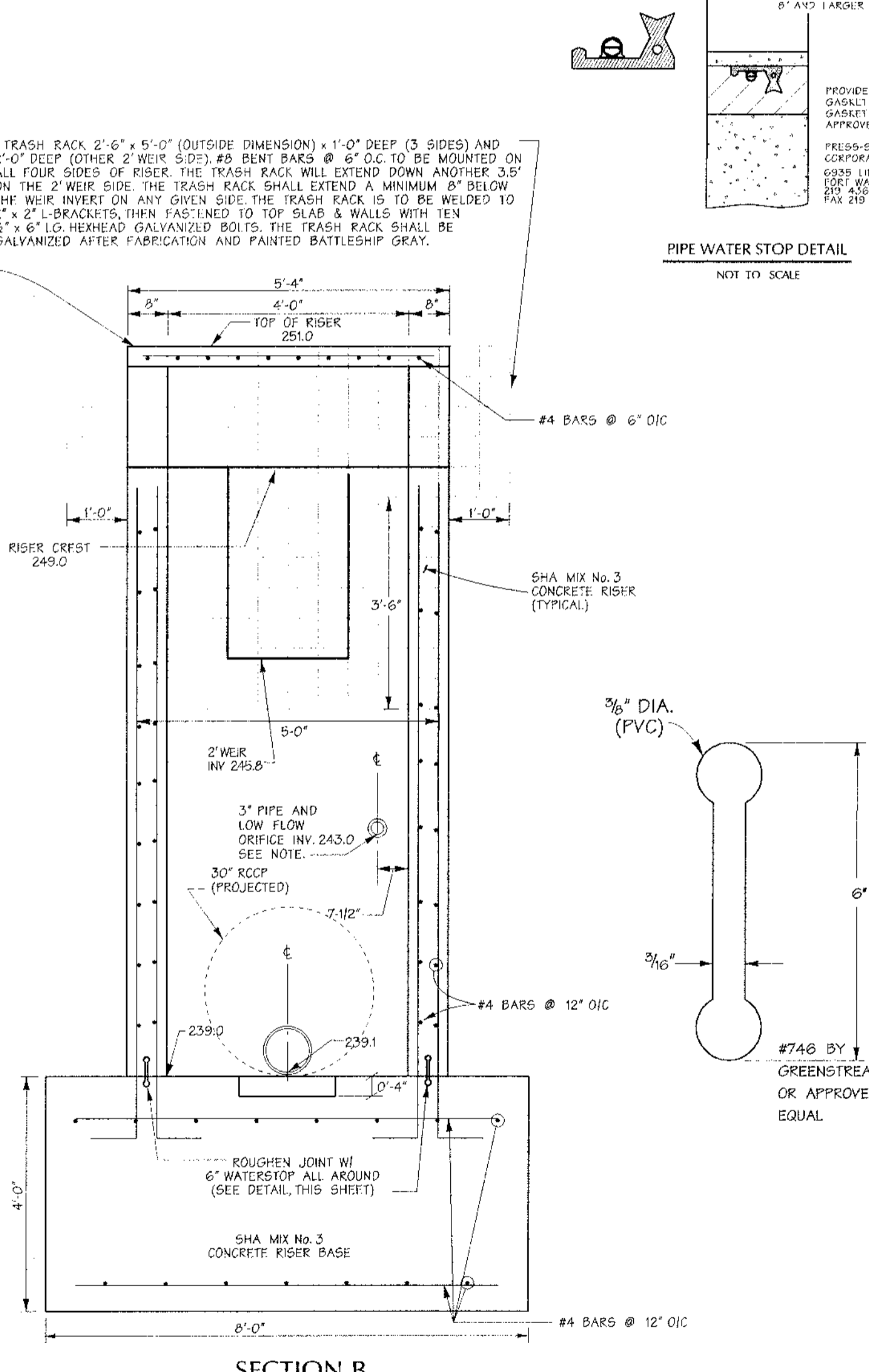
Scale: 1/2" = 1'-0"  
CAST IN PLACE



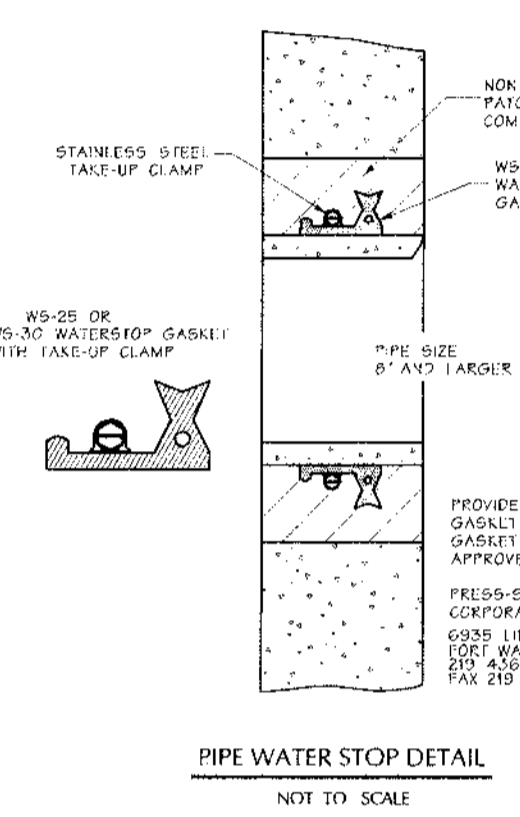
SECTION A

R-4 RISER DETAIL FOR POND - SWM IV

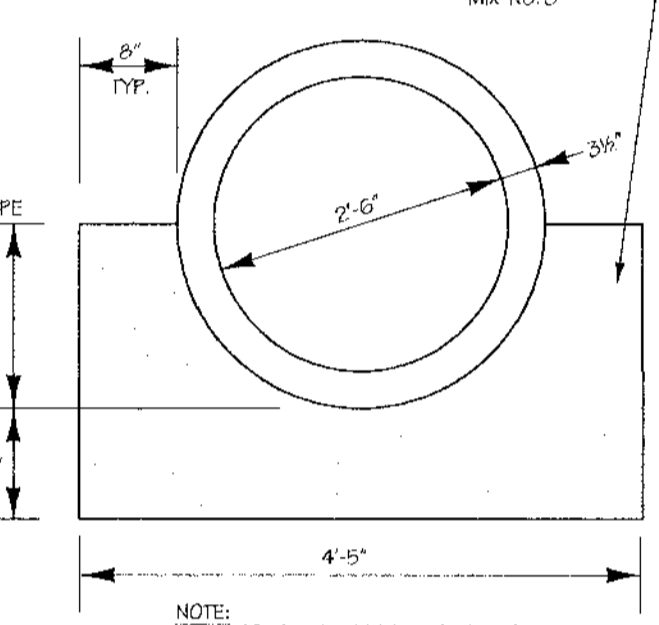
Scale: 1/2" = 1'-0"  
CAST IN PLACE



SECTION B

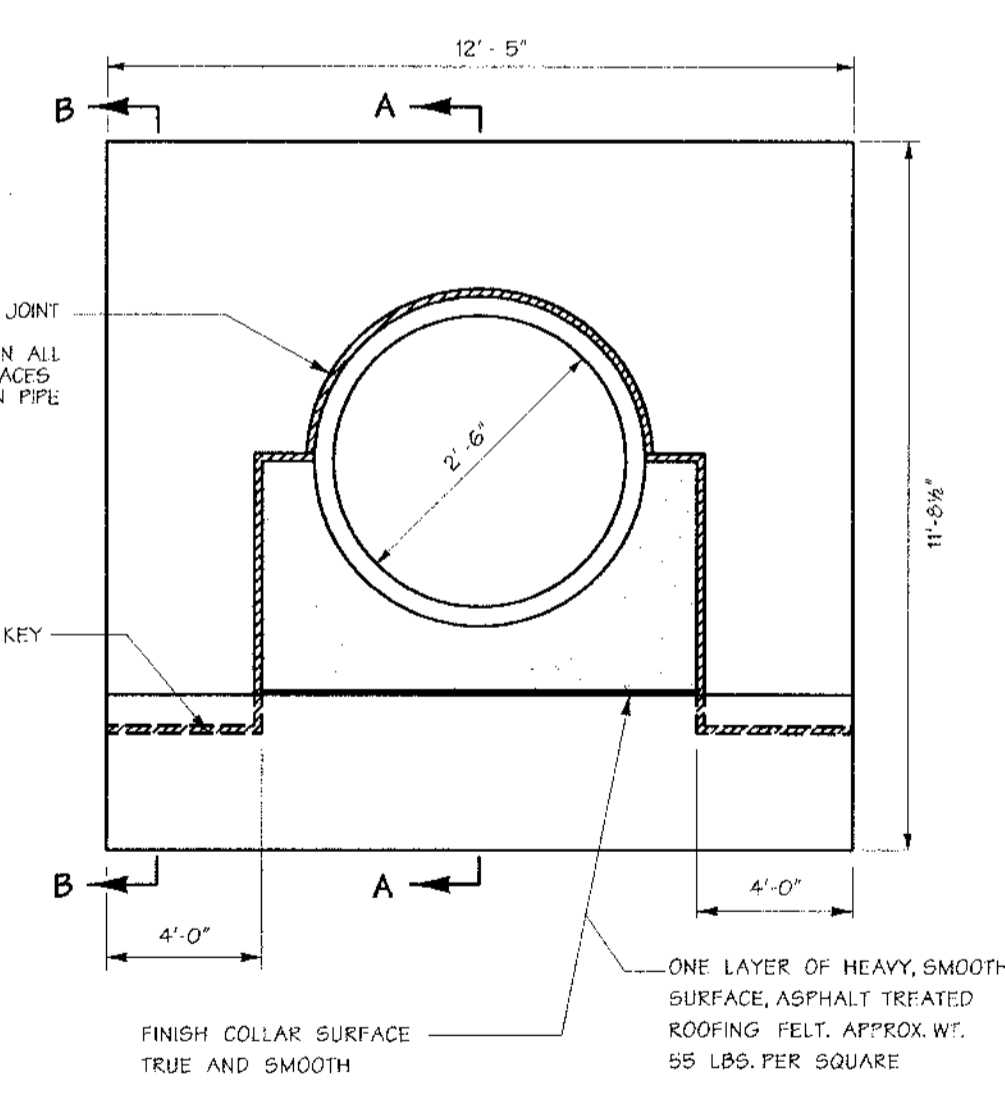


PIPE WATER STOP DETAIL  
NOT TO SCALE



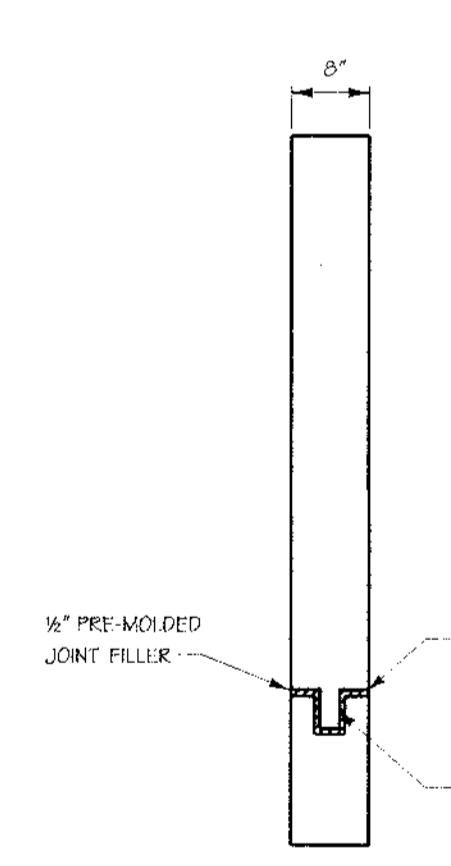
CONCRETE CRADLE DETAIL  
NTS

6" WATERSTOP  
NOT TO SCALE

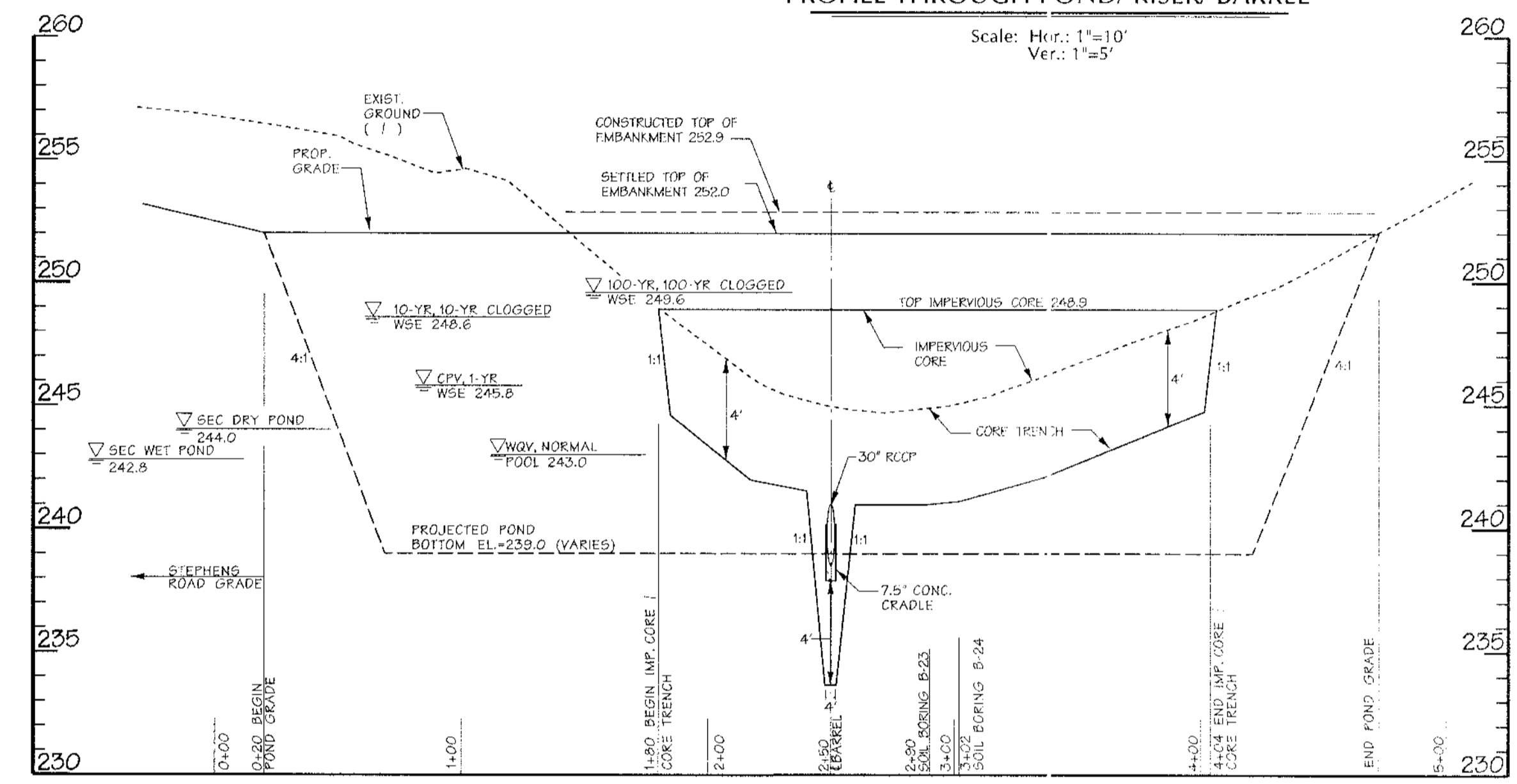


ANTI - SEEP COLLAR DETAIL - SWM IV

CAST IN PLACE - NOT TO SCALE



SECTION B-B



PROFILE ALONG EMBANKMENT

Scale: Hor: 1"=50'  
Ver: 1"=5'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William T. Madson* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Chad Hammett* 10/23/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*W. J. ...* 11/12/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

**REVITZ PROPERTY**  
OWNER /DEVELOPER:  
T-HE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Thousand Oaks, Maryland 21086  
(410) 986-3333  
Fax 286-4705

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

DATE	NO.	REVISION DESCRIPTION

TITLE: **FINAL PLAN SWM IV DETAIL SHEET**

Des By: MRT Scale: 1" = 50' Proj. No.: 01011.B  
 Drn By: KMF Date: 9/19/02  
 Ck By: Approved: 39 OF 57

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 Myers* 9/31/02  
U.S.D.A. NATURAL RESOURCE CONSERVATION SERVICE DATE

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

APPROVED: *Robert A. Jenkins* 9/31/02  
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/ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/26/02  
SIGNATURE OF DEVELOPER  
PRINT NAME: BELOW SIGNATURE DATE

ENGINEERS CERTIFICATE:

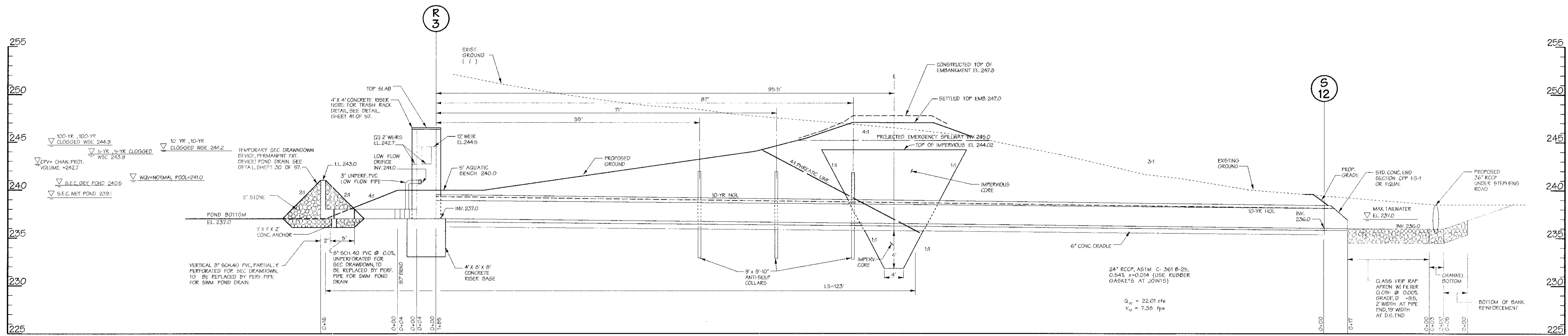
I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER 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. Ranocchia, P.E.* 10551 9/26/02  
SIGNATURE OF ENGINEER REG. NO. DATE  
PRINT NAME: BELOW SIGNATURE

F-02-111

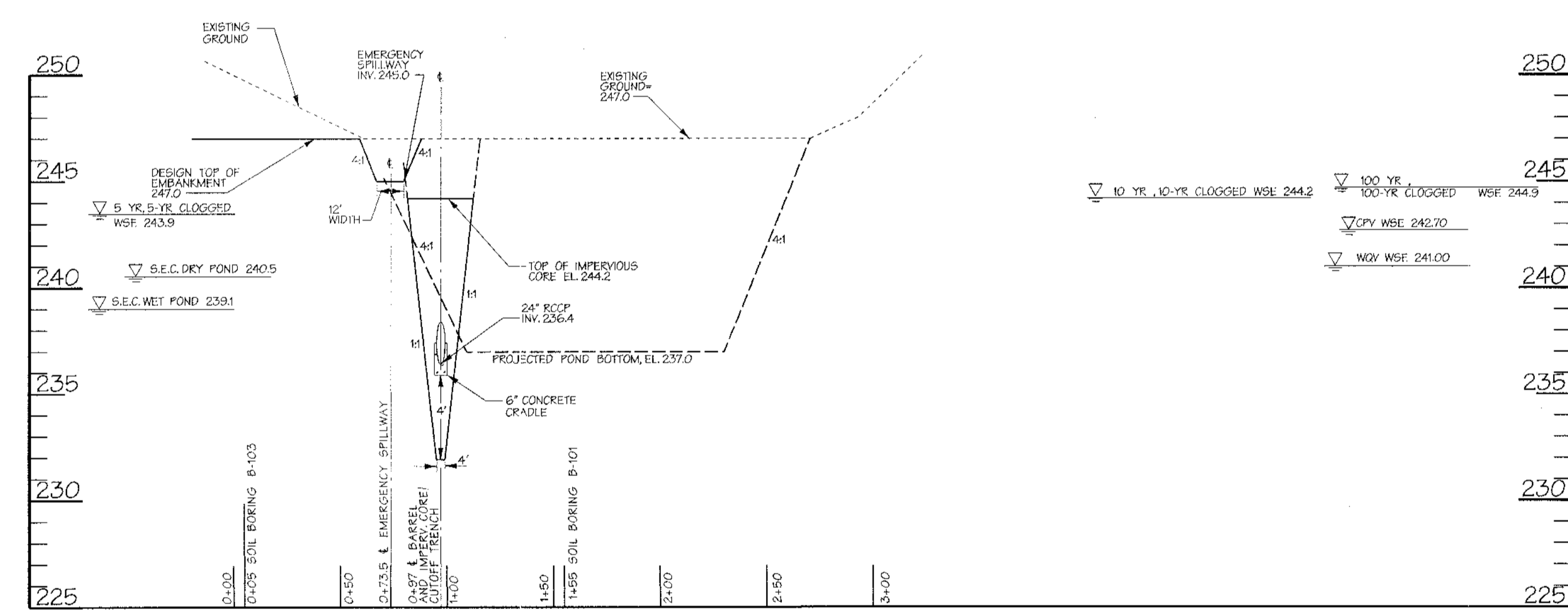
Professional Engr. No. 10551

F-02-111



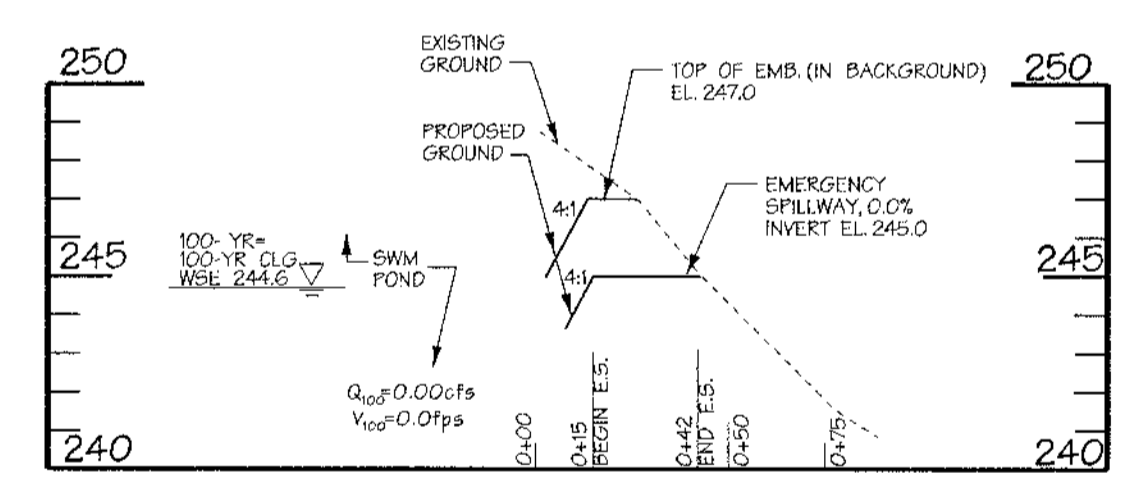
PROFILE THROUGH POND/ RISER/ BARREL

Scale: Hor.: 1"=10'  
Ver.: 1"=5'



PROFILE ALONG EMBANKMENT

Scale: Hor.: 1"=50'  
Ver.: 1"=5'



PROFILE ALONG EMERGENCY SPILLWAY

Scale: Hor.: 1"=50'  
Ver.: 1"=5'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William F. ...</i>	10-10-02
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Janis ...</i>	10/22/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Michael ...</i>	10/18/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
Date	No.
Revision Description	

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff-McCune-Walker, Inc.  
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Environmental Professionals

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.

*John ...* 9/30/02  
DATE

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

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

APPROVED: *John ...* 9/30/02  
DATE

HOWARD SOIL CONSERVATION DISTRICT

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.

*Robert A. Jenculis* 9/26/02  
SIGNATURE OF DEVELOPER  
PRINT NAME BELOW SIGNATURE  
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 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 ...* 10/5/02 9/26/02  
SIGNATURE OF ENGINEER  
PRINT NAME BELOW SIGNATURE  
REG. NO. DATE

9/26/02  
Date

*[Signature]*

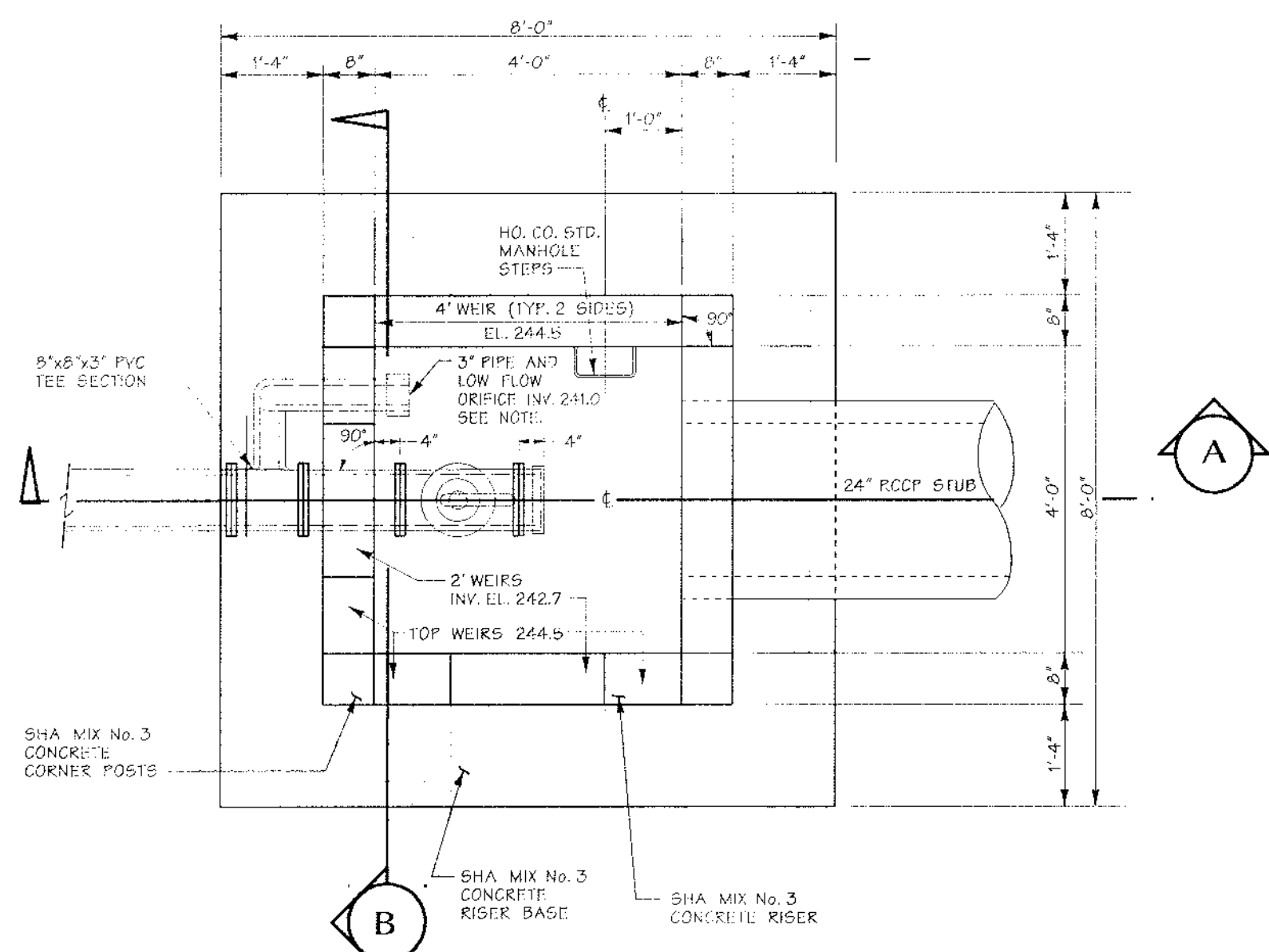
Professional Engr. No. 10551

SUBMISSION NAME		SECURITY		DATE	
PLAN # OF SET	BOOK #	DATE	DATE	DATE	DATE
2262436	20	PEC	47, GRID 20	6 th	GENERIC SHEET
TITLE		REVISION # 105 & PD, PAR. B37			
FINAL PLAN SWM V DETAIL SHEET					
Des By	MRT	Scale	1"=50'	Proj. No.	01011.B
Drn By	KMF	Date	9/19/02		
Chk By		Approved			40 OF 57

F-02-111

F-02-111

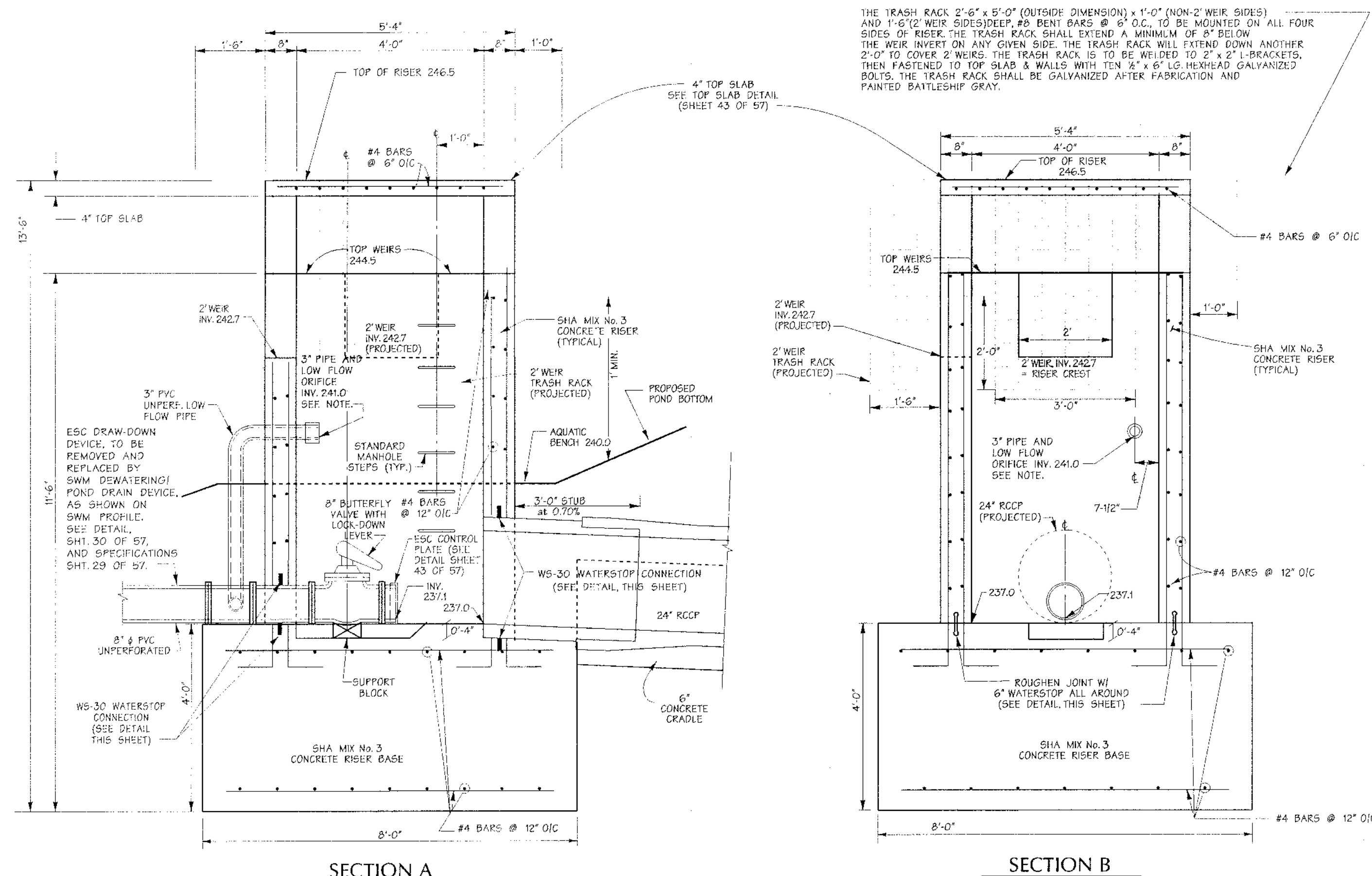
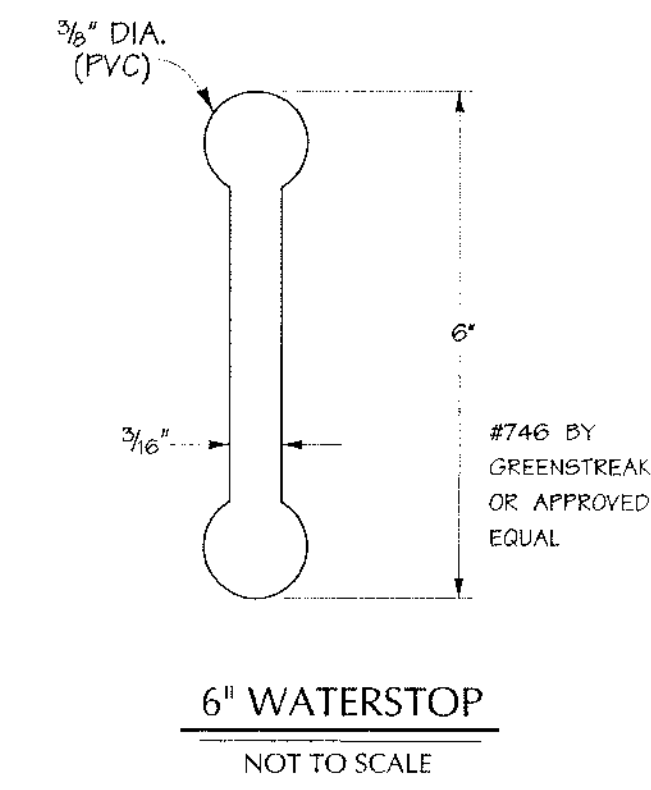
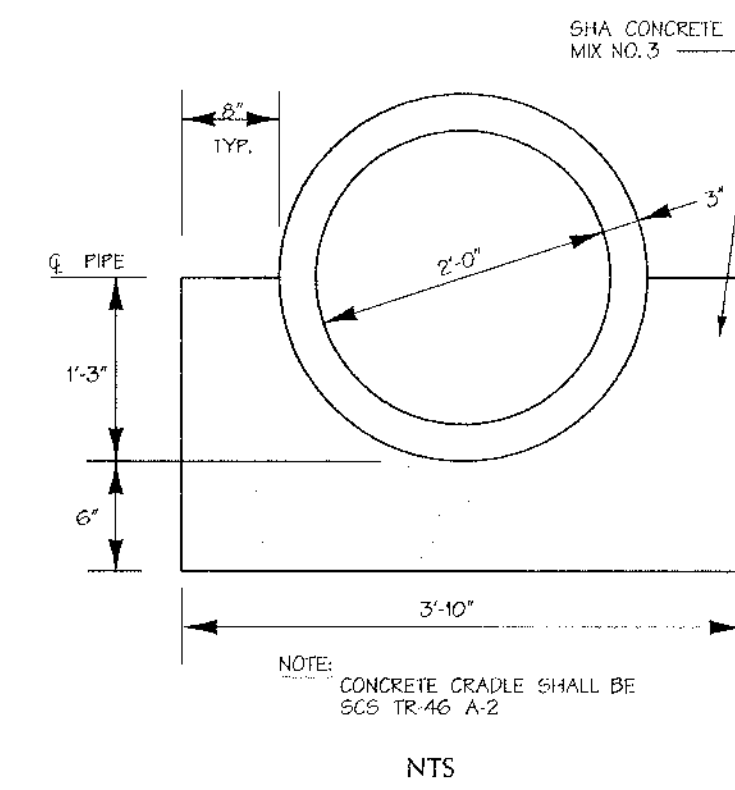
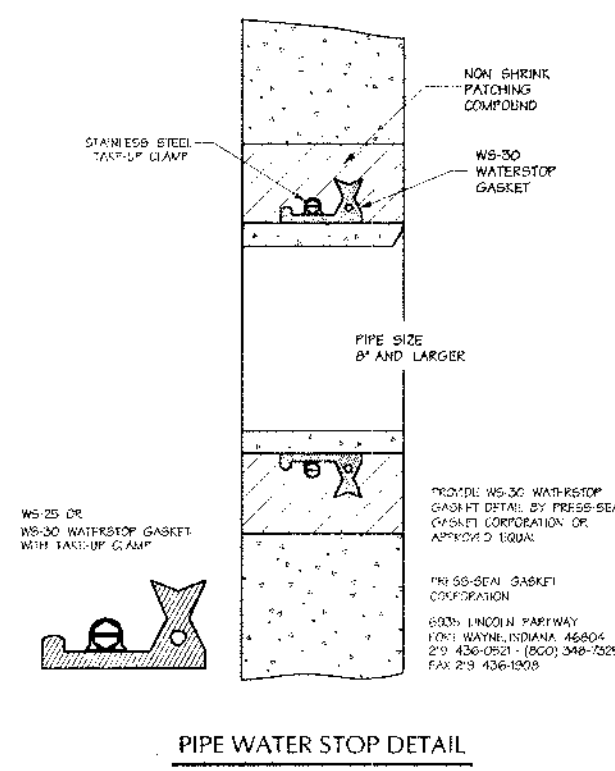




R-5 RISER PLAN (TOP SLAB REMOVED) - SWM V

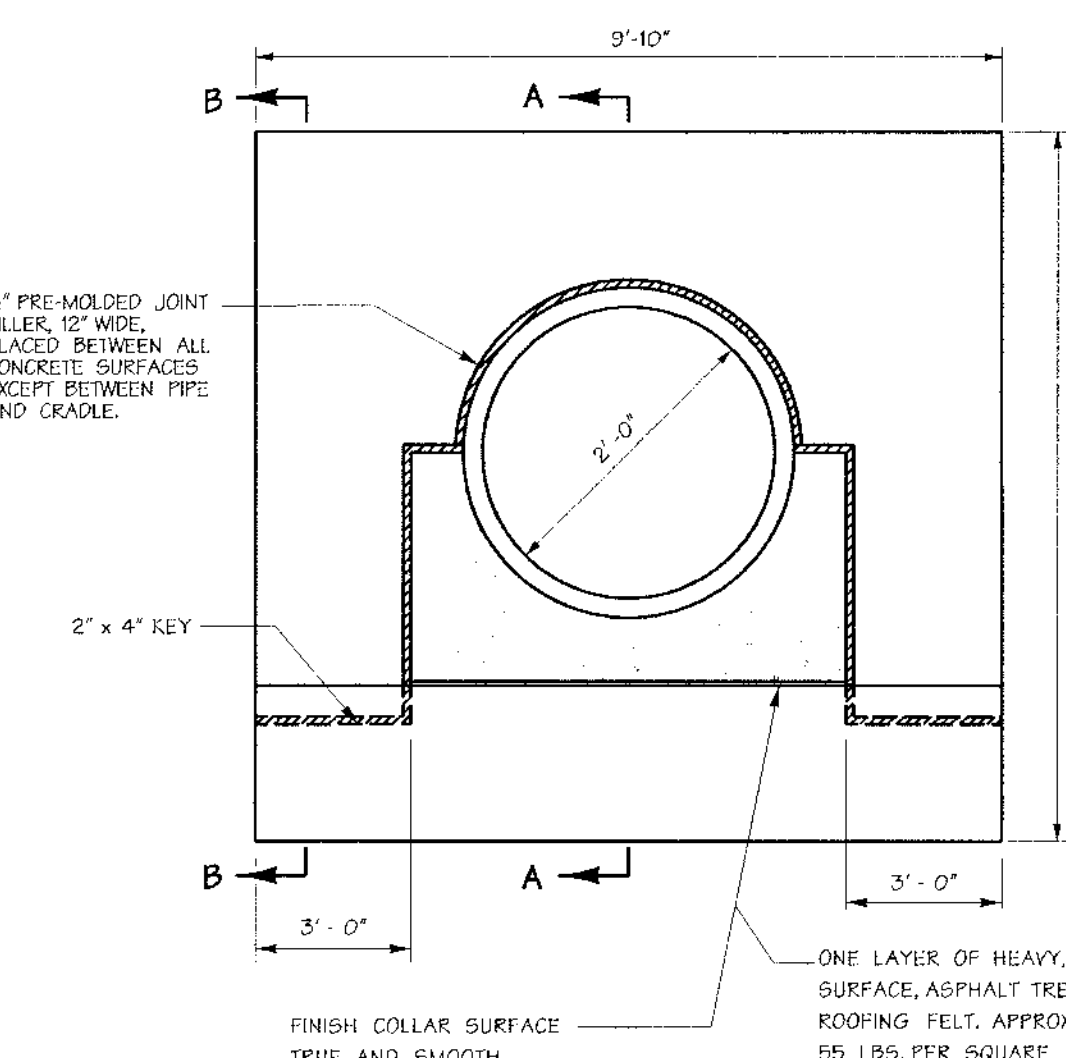
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CAST IN PLACE

NOTE: SEE DETAIL SHEET AS OF 57,  
LOW FLOW ORIFICE SHA-1, BE  
BLOCKED DURING SEDIMENT EROSION  
CONTROL PHASE.

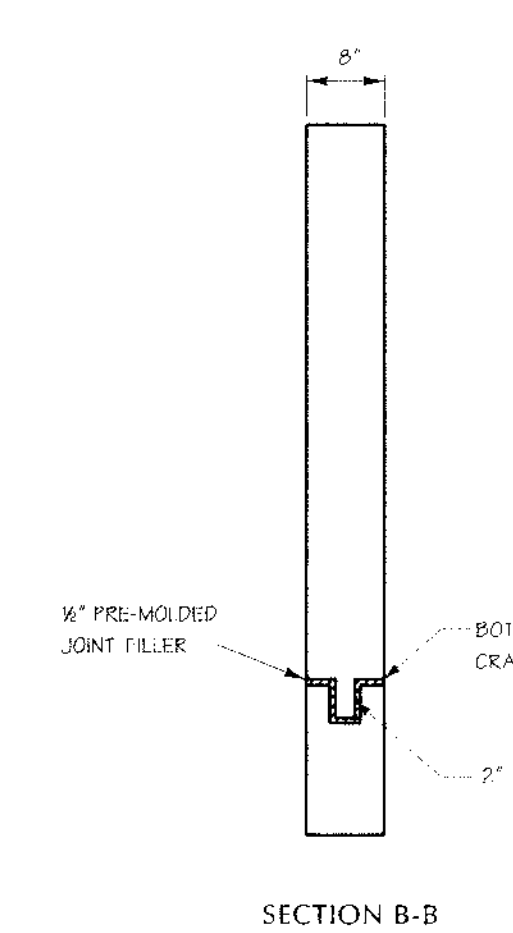


R-5 RISER DETAIL FOR POND - SWM V

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



SECTION A-A  
SWM V  
ANTI-SEEP COLLAR DETAIL  
CAST IN PLACE - NOT TO SCALE



SECTION B-B

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: *[Signature]* 9/30/02  
DATE

APPROVED: *[Signature]* 9/30/02  
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 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. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* 9/24/02  
DATE

*[Signature]* Robert A. Jenkins

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]* 10551 9/20/02  
DATE

*[Signature]* John W. Nawecchia, Sr.

9/20/02  
Date

*[Signature]*

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*[Signature]* 10-10-02  
DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*[Signature]* 10/23/02  
DATE

*[Signature]* 10/10/02  
DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Datt-McCune-Walker, Inc.  
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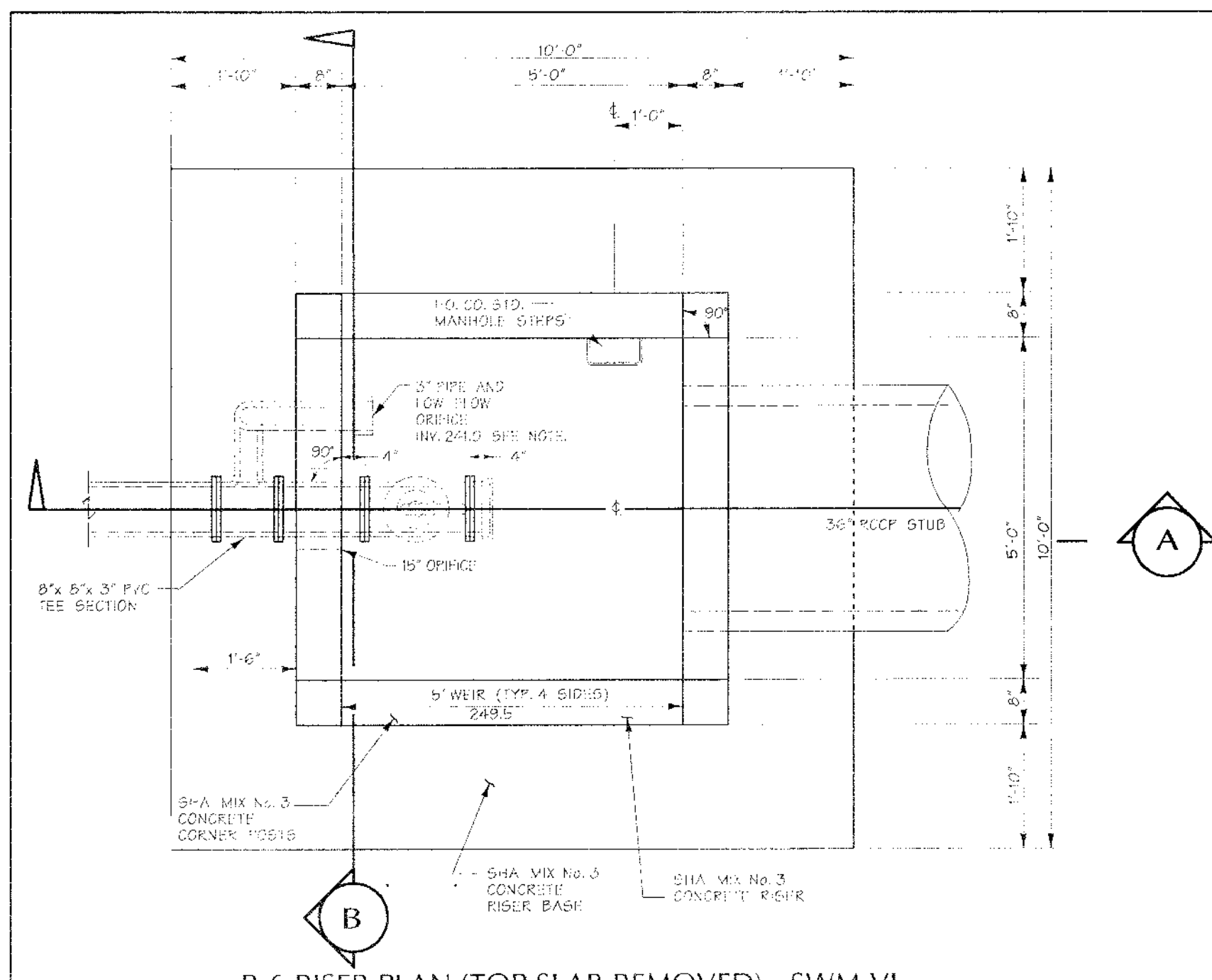
NO.	DATE	REVISION

DESIGNER: MRT  
CHECKER: KMF  
DATE: 9/19/02  
PROJECT: 01011.B

41 OF 57

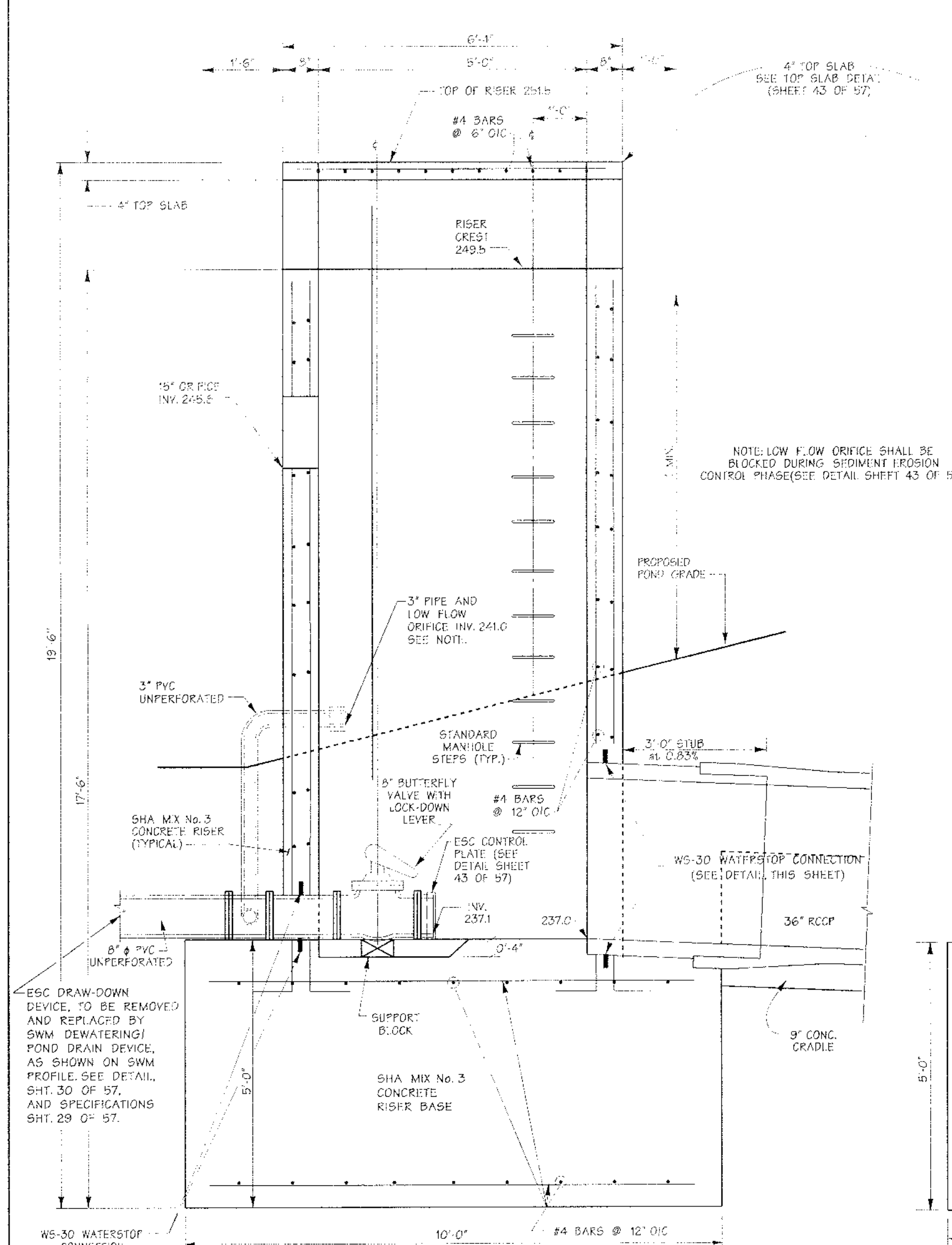
F-02-111

F-02-111



R-6 RISER PLAN (TOP SLAB REMOVED) - SWM VI

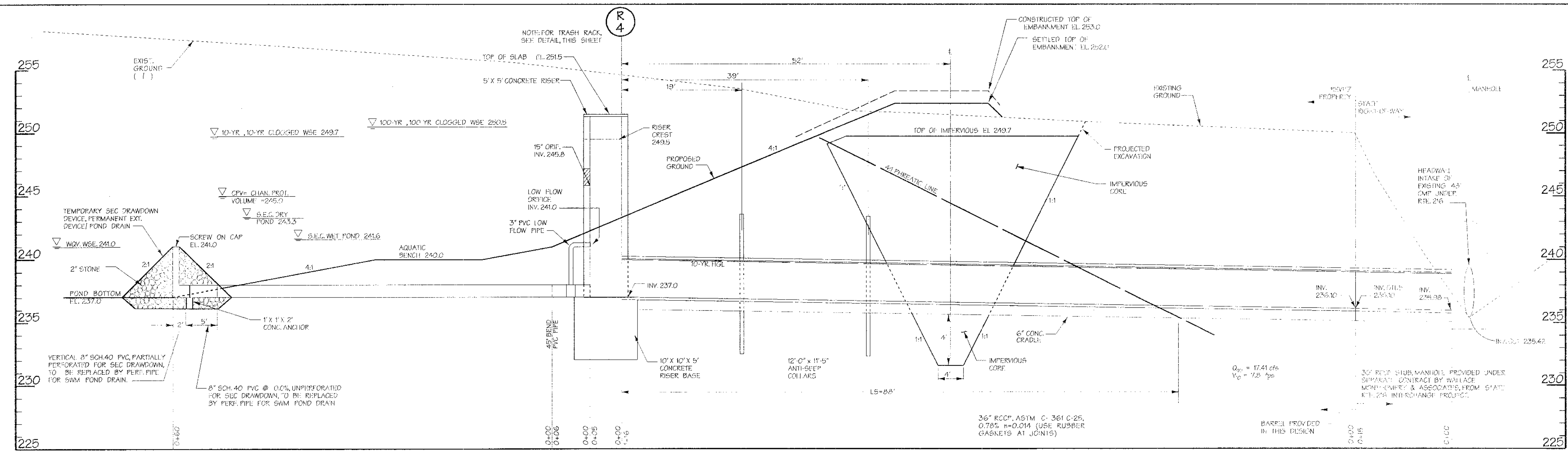
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CAST IN PLACE



SECTION A

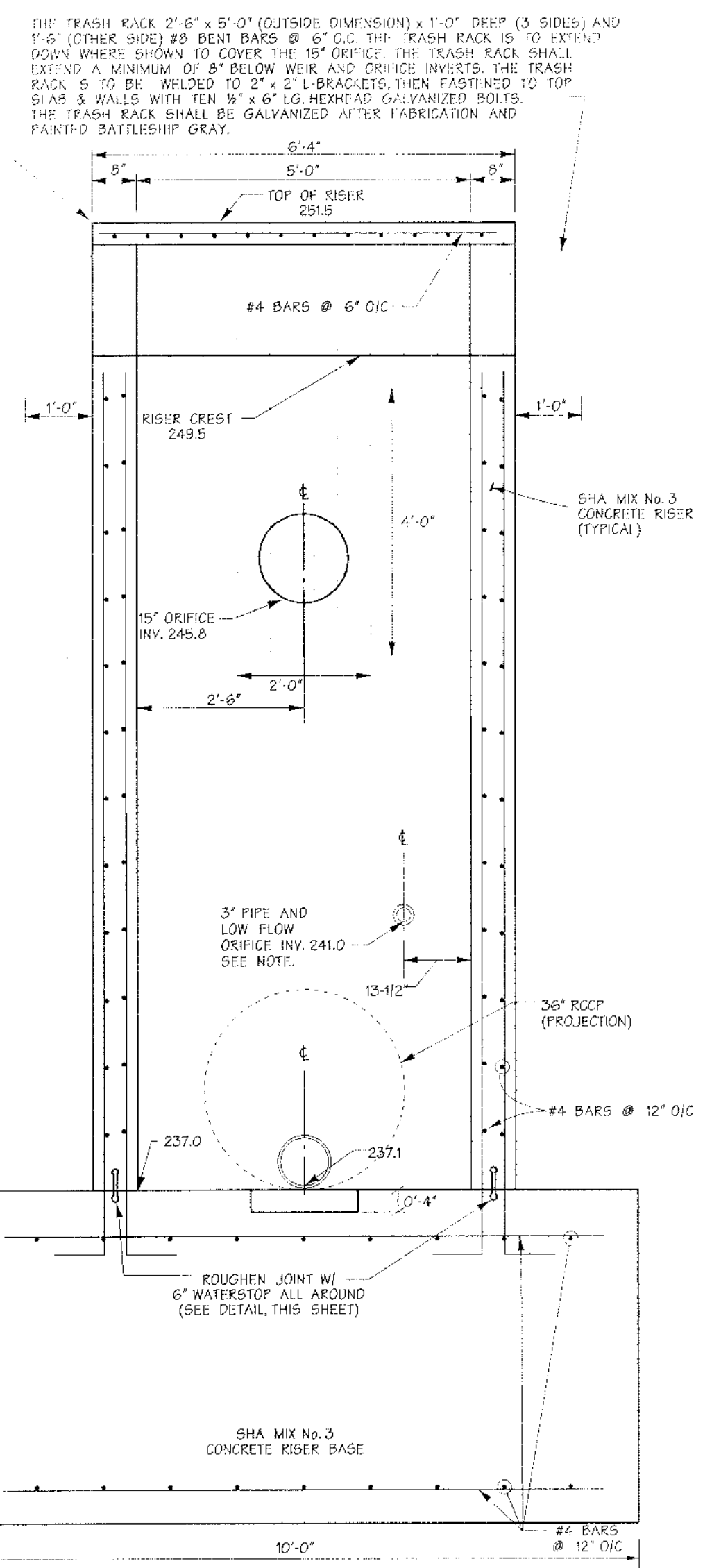
R-6 RISER DETAIL FOR POND - SWM VI

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



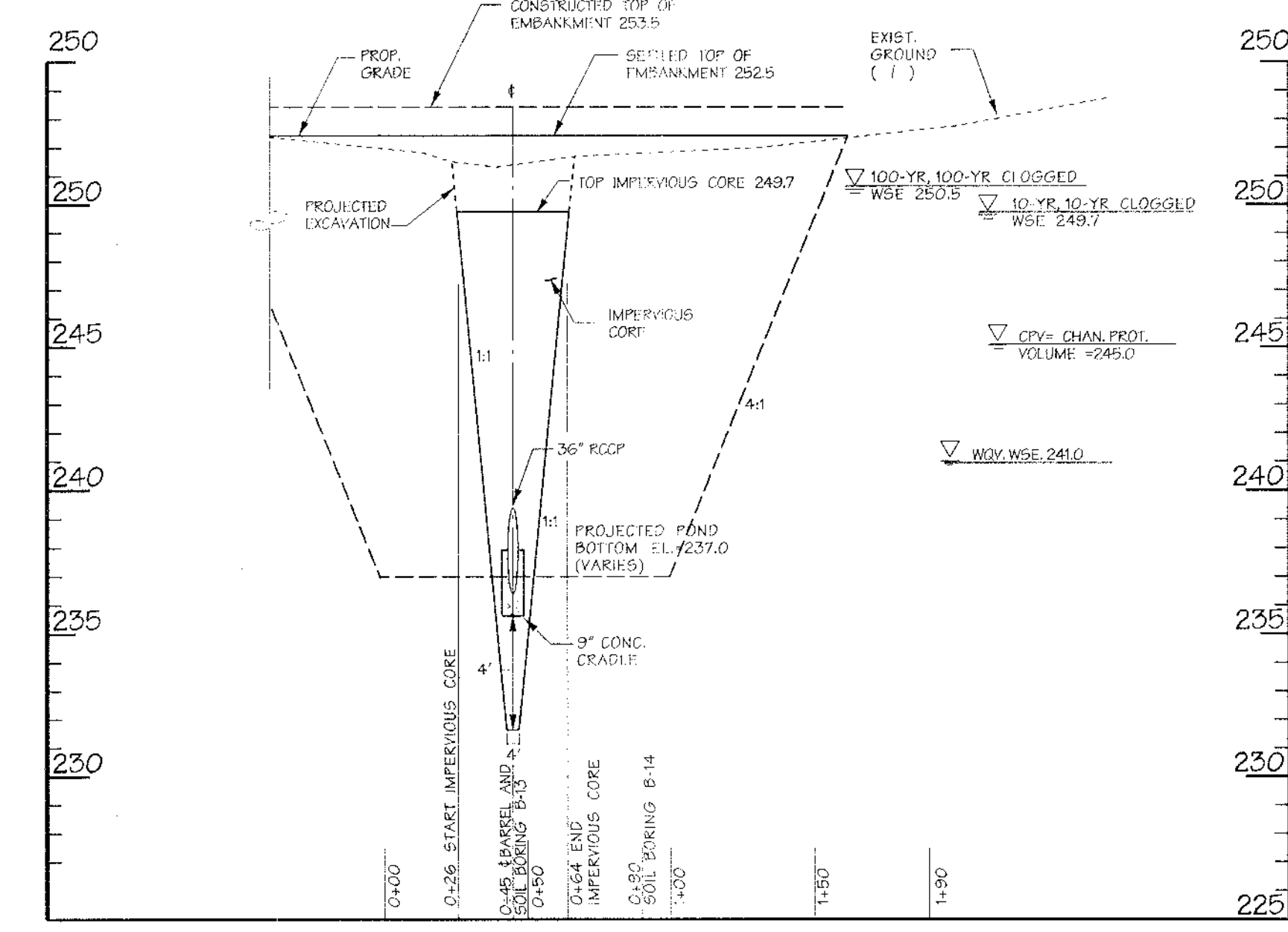
PROFILE THROUGH POND/ RISER/ BARREL

Scale: Hor. 1"=10'  
Ver.: 1"=5'



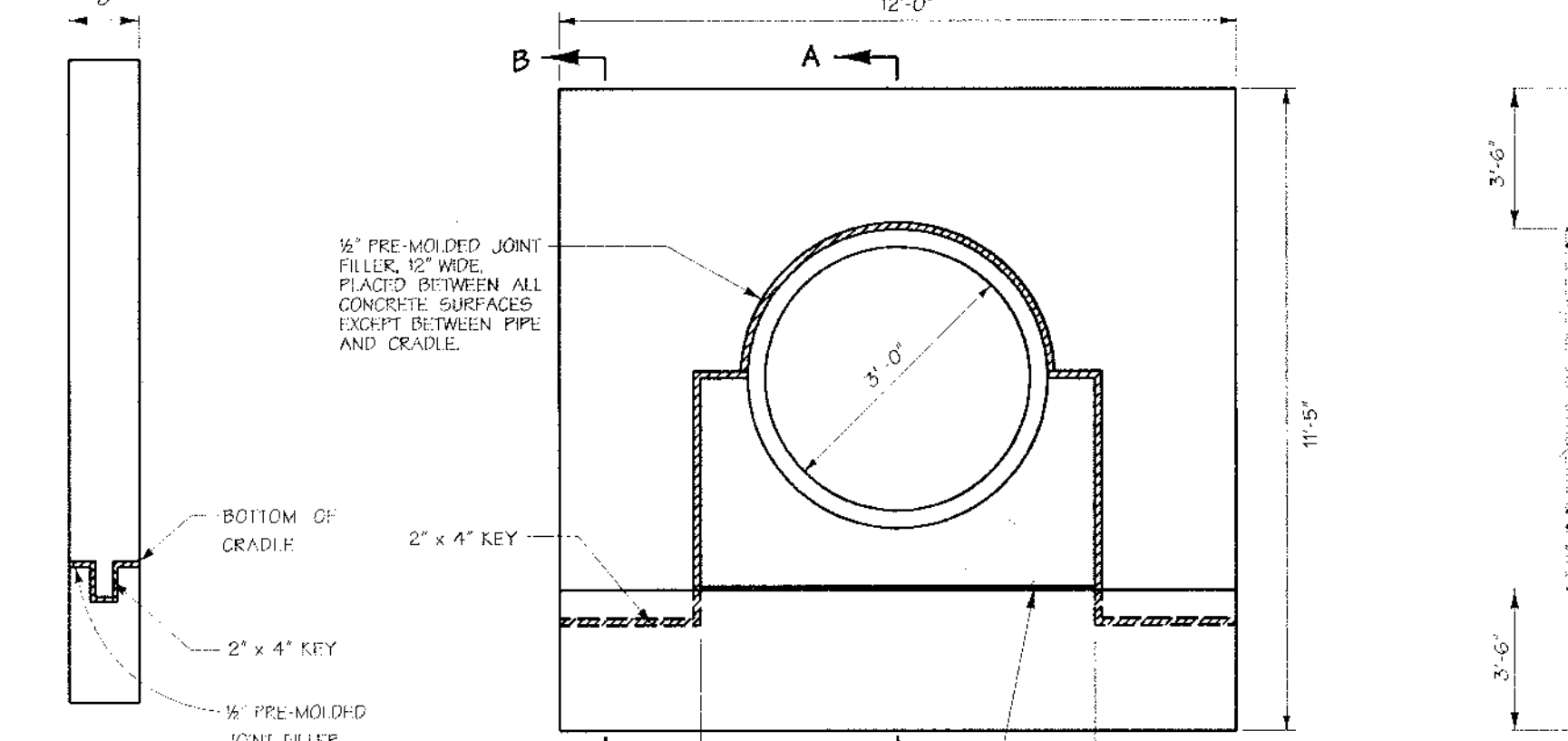
SECTION B

SECTION B-B



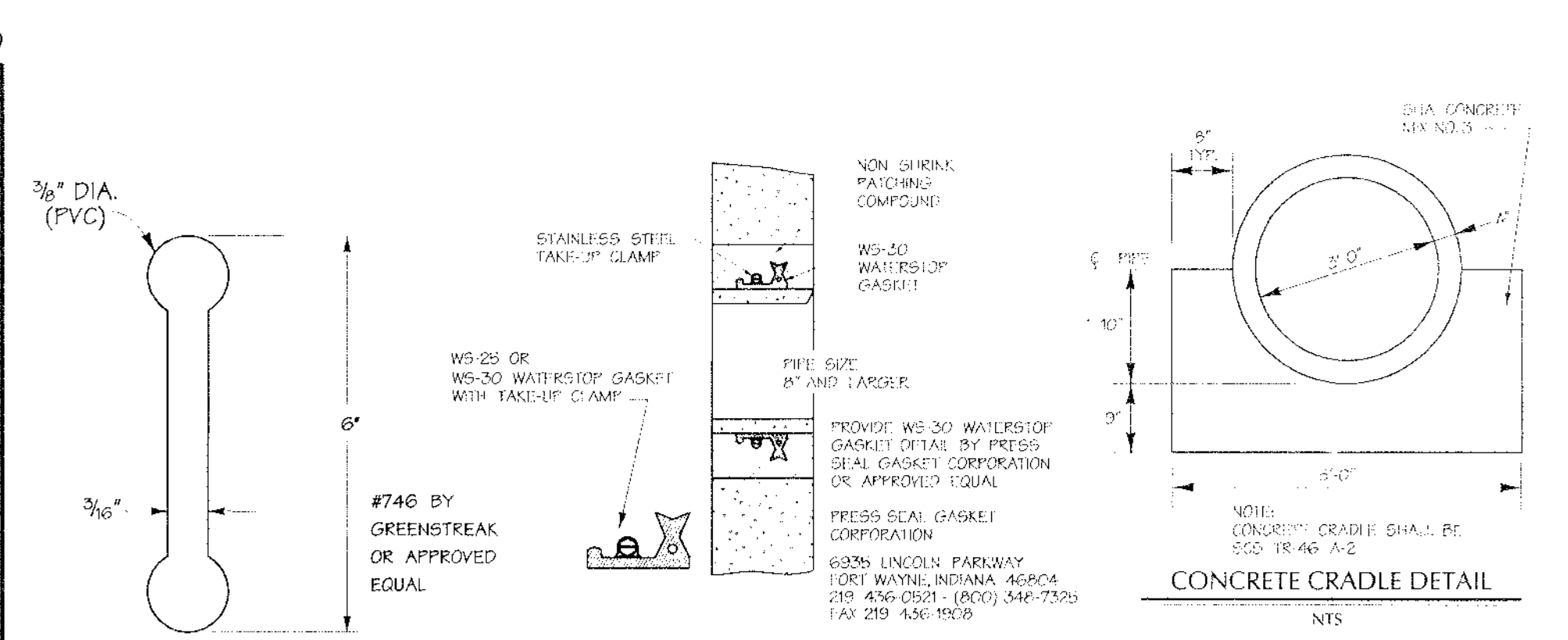
PROFILE ALONG EMBANKMENT

Scale: Hor. 1"=50'  
Ver.: 1"=5'



ANTI-SEEP COLLAR DETAIL - SWM VI

CAST IN PLACE - NOT TO SCALE



6" WATERSTOP

NOT TO SCALE

PIPE WATER STOP DETAIL

NTS

CONCRETE CRADLE DETAIL

NTS

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.

*J. A. Myers, Jr.* 9/30/02 DATE

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

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

APPROVED: *Robert A. Jenkins* 9/30/02 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/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.

*Robert A. Jenkins* 9/30/02 DATE

SIGNATURE OF DEVELOPER  
PRINT NAME BELOW SIGNATURE

*Robert A. Jenkins*

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 THAT WERE 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.

*John W. Ranocchi, Jr.* 9/20/02 DATE

SIGNATURE OF ENGINEER  
PRINT NAME BELOW SIGNATURE

*John W. Ranocchi, Jr.*

DETAIL SHOWN FOR EARTH FOUNDATION FOR ROCK FOUNDATION, FOUND BOTTOM OF CRADLE ON ROCK LINE, AND KEY COLLAR 6" INTO ROCK.

ONE LAYER OF HEAVY, SMOOTH SURFACE, ASPHALT TREATED ROOFING FELT, APPROX. WT. 55 LBS. PER SQUARE

FINISH COLLAR SURFACE TRUE AND SMOOTH

ANTI-SEEP COLLAR DETAIL - SWM VI

CAST IN PLACE - NOT TO SCALE

9/2/02 DATE

F-02-111

Professional Engr. No. 00577

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS			
<i>William J. ...</i>		10-10-02 DATE	
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING			
<i>...</i>		10/23/02 DATE	
<i>...</i>		10/18/02 DATE	
Date	No.	Revision Description	
<b>REVITZ PROPERTY</b>			
OWNER /DEVELOPER: THE HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 LITTLE PATUXENT PARKWAY COLUMBIA, MARYLAND 21044			
<b>DMW</b>			
Duff-McCune-Walker, Inc. 300 East Pennsylvania Avenue Towson, Maryland 21286 (410) 296-3333 Fax 296-4745			
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals			
DATE	REVISION	BY	REASON
9/2/02	1	MRT	ISS & PD PAR. 037
TITLE <b>FINAL PLAN SWM VI DETAIL SHEET</b>			
Des By	MRT	Scale	1" = 50'
Drn By	KMF	Date	9/19/02
Chk By		Approved	42 OF 57

**STORMWATER MANAGEMENT POND  
GENERAL CONSTRUCTION SPECIFICATIONS**

**1. GENERAL**  
ALL STORMWATER MANAGEMENT FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (HCP) AND THE MARYLAND AND FEDERAL STANDARDS AND SPECIFICATIONS FOR PONDS (MD-3292).

USUAL OPERATIONS ARE APPROVED FOR ALL PONDS WITH THE EXCEPT OF THE STANDARD PRACTICE MD-276. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST CURRENT EDITION.

**2. SITE PREPARATION**  
AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT AND STRUCTURAL WORK SHALL BE CLEARED, CRUSHED, STRIPPED OR PULVERIZED, UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREE TRUNKS AND MATERIAL SHALL BE REMOVED, GRATED, BURNED AND SHARP ENDS SHALL BE CUT TO NO STEEPER THAN 1:1. ALL TREES SHALL BE EXTRACTED AND REMOVED WITHIN 15 FEET OF THE EDGE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVE SHALL BE CLEARED OF ALL TREES, LIMBS, LOGS, FENCES, RUBBISH AND OTHER OBSTRUCTIONS. MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREE TRUNKS AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE TOP SOY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25'-0" RADIUS AROUND THE TREE OR STUMP SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM OR RESERVE AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

**3. EARTH FILL**  
MATERIAL - THE FILL MATERIAL SHALL BE LARGE ROCK APPROXIMATELY 25% OF THE FILL SHALL BE FREE OF ROOTS, STUMPS, LOGS, RUBBISH, LIMBS, GREATER THAN 6" DIAMETER OR OTHER OBSTRUCTIONS. MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 6" THICKNESS. THE FILL SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION OR OTHER CLASSIFICATION AS SPECIFIED ON THE PLANS. THE FILL SHALL BE COMPACTED TO THE REQUIRED DENSITY OF THE FILL OR OTHER MATERIAL AS SPECIFIED ON THE PLANS. THE FILL SHALL BE DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGN REQUIREMENTS SHALL BE SUPERVISED BY A GEOTECHNICAL ENGINEER.

MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VIBRATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

**4. LAYERS**  
LAYERS WHICH ARE TO BE CONTIGUOUS OVER THE ENTIRE LENGTH OF THE FILL, THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PERMEABLE MATERIAL SHALL BE PLACED CONCURRENTLY WITH THE PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

**5. COMPACTION**  
THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LAYER SHALL BE TRAVELLED BY NOT LESS THAN ONE (1) PASS. THE MOVEMENT OF THE EQUIPMENT SHALL BE CONTROLLED BY A MINIMUM OF FOUR (4) COMPLETE PASSES OF A SHEEPSFOOT, ROLLER, OR VIBRATORY ROLLER. THE MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DENSITY OF COMPACTION WILL BE OBTAINED WHEN THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE WHEN IT IS FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE ENGINEERING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF THE MAXIMUM 2% DENSITY WITH A MOISTURE CONTENT WITHIN ± 2% OF THE OPTIMUM FACTOR. THE FILL SHALL BE COMPACTED TO THE REQUIRED DENSITY AND IS TO BE COMPLETED BY THE ENGINEER. THE LEVEL OF COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD METHOD).

**6. DRAINAGE**  
THE OUTER TRENCH SHALL BE EXCAVATED INTO PERMEABLE MATERIAL ALONG OF THE EMBANKMENT. THE DRAINAGE SHALL BE AS SHOWN ON THE PLANS. THE EQUIPMENT USED FOR EXCAVATION SHALL BE CONTROLLED SO THAT THE DRAINAGE SHALL BE PLACED TO THE REQUIRED DEPTH. THE DRAINAGE SHALL BE AT LEAST 4 FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPE OF THE DRAIN SHALL BE 1:1 TO 1:1.5. THE DRAIN SHALL BE COMPACTED WITH COMPACTION EQUIPMENT, ROLLERS, OR HAND TAMPKES TO ASSURE MINIMUM DENSITY AND MINIMUM PERMEABILITY.

**7. EMBANKMENT CORE**  
THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE AS SHOWN ON THE PLANS. THE CORE SHALL BE PLACED TO AT LEAST 12 FEET FROM EITHER SIDE OF THE EMBANKMENT. THE CORE SHALL BE 1:1 TO 1:1.5 OR FLATTER. THE CORE SHALL BE COMPACTED WITH COMPACTION EQUIPMENT, ROLLERS, OR HAND TAMPKES TO ASSURE MINIMUM DENSITY AND MINIMUM PERMEABILITY. THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

**8. STRUCTURE BACKFILL**  
BACKFILL ADJACENT TO PILES OR SHEET PILES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJACENT MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 4 INCHES IN THICKNESS AND COVERED BY HAND TAMPKES OR OTHER MANUALLY OPERATED COMPACTION EQUIPMENT. THE MINIMUM DENSITY OF THE FILL SHALL BE AS SPECIFIED ON THE PLANS. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DEPTH MEASUREMENT BE ALLOWED TO OPERATE CLOSER THAN 4 FEET MEASURED HORIZONTALLY TO ANY PART OF A STRUCTURE UNDER NO CIRCUMSTANCES SHALL ANY PART OF A CONCRETE STRUCTURE OR PIPE BE COVERED BY THE FILL UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE PLACED BY MEANS OF THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 212. THE FILL SHALL BE PLACED IN LAYERS NOT EXCEEDING 6" THICKNESS AND COVERED BY HAND TAMPKES OR OTHER MANUALLY OPERATED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL Voids ADJACENT TO THE STRUCTURE OR PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DEPTH MEASUREMENT BE ALLOWED TO OPERATE CLOSER THAN 4 FEET MEASURED HORIZONTALLY TO ANY PART OF A STRUCTURE UNDER NO CIRCUMSTANCES SHALL ANY PART OF A STRUCTURE OR PIPE BE COVERED BY THE FILL UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL COVERING THE STRUCTURAL BACKFILL (REWEAVE) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

**9. REMOVAL AND REPLACEMENT OF DEFECTIVE FILL**  
FILL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITY OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED ACCEPTABLE RANGE OF MOISTURE CONTENT OR OTHERWISE NOT CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE REMOVED TO MEET THE REQUIREMENTS OR REMOVED AND REPLACED BY ACCEPTABLE FILL. THE BOTTOMS OF SUCH EXCAVATIONS SHALL BE FINISHED WITH OR GRANULAR FILL AND NOT EXCEED 4 INCHES IN THICKNESS. THE EXCAVATION SHALL BE REMOVED TO A SLOPE NOT STEEPER THAN 3:1 VERTICALLY EXTENDING FROM THE BOTTOM OF THE EXCAVATION TO THE FILL SURFACE.

**10. PIPE CONDUITS**  
ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION. ALL PERFORATED PIPES SHALL HAVE A MINIMUM OF 3.31 SQUARE INCHES OF OPENING PER SQUARE FOOT OF PIPE SURFACE (1.30 3/8" HOLES PER SQUARE FOOT). PERFORATIONS SHALL BE EQUALLY SPACED AROUND THE FULL CIRCUMFERENCE OF THE PIPE. ANY PERFORATIONS SHALL BE FULLY COVERED BY PERMANENT COATING SHALL BE OPEN TO INSTALLATION.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:  
1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE 50,000 PSI AND SPIRO JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-604.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE Laid IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING (GRADE) SHALL CONSIST OF HIGH STRENGTH CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 6" TO 12" ABOVE THE OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE CONCRETE GRADE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE STRUCTURE BACKFILL SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BEARS AND SPIRO PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL JOINTS UNDER THE FILL ARE FULLY COVERED. THE BEDDING SHALL BE PLACED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".

5. CONNECTIONS - ALL CONNECTIONS TO ANTI-SERP COLLARS, RISERS, ETC SHALL BE WATER TIGHT.

6. OTHER DETAILS (ANTI-SERP COLLARS, VALVES, ETC) SHALL BE AS SHOWN ON THE DRAWINGS.

- PLASTIC PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:
- MATERIALS - PVC PIPE SHALL BE PVC-1220 OR PVC-1220 CONFORMING TO ASTM D-1784 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE), COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" HIGH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" SHALL MEET THE REQUIREMENTS OF AASHTO M254 TYPE S.
  - JOINTS AND CONNECTIONS TO ANTI-SERP COLLARS SHALL BE COMPLETELY WATER TIGHT.
  - BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
  - BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
  - OTHER DETAILS (ANTI-SERP COLLARS, VALVES, ETC) SHALL BE AS SHOWN ON THE DRAWINGS.

**7. CONCRETE**  
CONCRETE SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 212.

CAST-IN-PLACE CONCRETE STRUCTURES:  
1. SPECIFICATIONS: MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION.

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

2. CONCRETE SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414 AND 502, MIX NO. 3.

3. CONTRACTOR MAY ADD COLOR MIX AT PLANT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION "1-12 MILSA BRIG" AS MANUFACTURED BY L.M. SCOFFIELD COMPANY (215) 723-9285.

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

ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS. DESIGN FC = 1200 PSI.

ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" X 3/4". ALL CONSTRUCTION KEYS ARE SHOWN NOMINAL SIZE.

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

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

6. STRUCTURAL BACKFILL: CAST-IN-PLACE CONCRETE STRUCTURES AND PIPE SHALL BE BACKFILLED WITH SELECT GRANULAR BACKFILL MEETING THE REQUIREMENTS OF AASHTO GRADED. ASBESTATE-SUBGRADE. STRUCTURAL FILL SHALL BE PLACED IN LAYERS OF APPROXIMATELY 6 INCHES, AND COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH AASHTO T-99. THE GRAVE WEIGHT OF EQUIPMENT USED ADJACENT TO WALLS SHALL NOT EXCEED 3,000 POUNDS. NO BACKFILL SHALL BE PLACED AGAINST THE CAST-IN-PLACE WALLS UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED 28 DAY STRENGTH.

PRE-CAST CONCRETE STRUCTURES:  
SHOP DRAWINGS FOR PRE-CAST STRUCTURES WITH SUPPORTING STRUCTURAL COMPUTATIONS (SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER MEETING ASTM REQUIREMENTS FOR PRE-CAST STRUCTURES) MUST BE SUBMITTED TO THE ENGINEER AND THE APPROVING AGENCY (HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION) FOR APPROVAL PRIOR TO FABRICATION.

**8. ROCK RIP-RAP**  
ROCK RIP-RAP SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GRAVEL SHALL BE PLACED UNDER ALL RIP-RAP AND SHALL MEET THE REQUIREMENTS OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 312.03, CLASS C.

THE RIP-RAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THE RIP-RAP IN PLACE SHALL BE REASONABLY UNIFORM IN SIZE. THE LARGER ROCKS WILL BE DISTRIBUTED AND PLACED IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS FILLING THE Voids BETWEEN THE LARGER ROCKS.

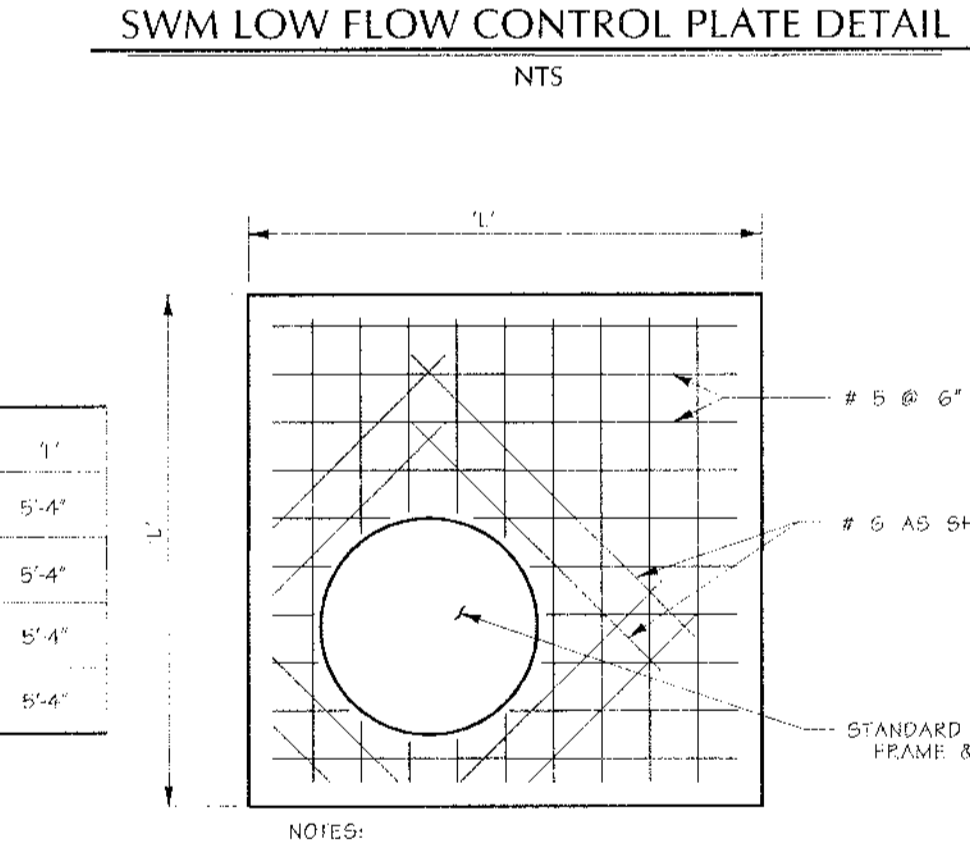
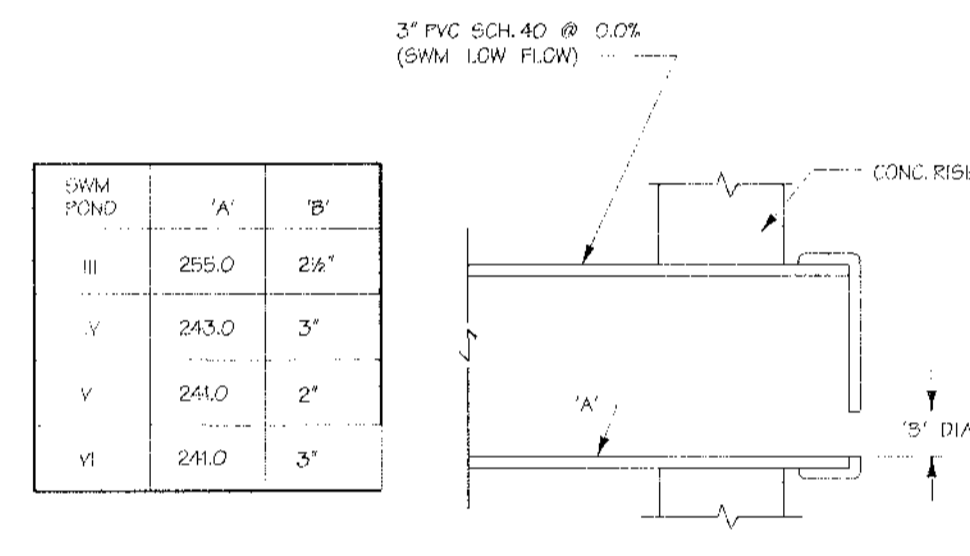
**9. CARE OF WATER DURING CONSTRUCTION**  
ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DICES, LEVIES, CONTROLS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT AREAS TO BE OCCUPIED BY THE PERMANENT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

**10. STABILIZATION**  
ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SLOPE AND BORROW AREAS AND BORDERS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-352) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

**11. EROSION AND SEDIMENT CONTROL**  
CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION PREVENTION WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

ALL DISTURBED AREAS SHALL BE CONTROLLED BY AN EROSION AND SEDIMENT CONTROL PLAN WHICH HAS BEEN APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT (H.S.C.D.).

**12. SEEDING**  
SEEDING, FERTILIZING AND MULCHING SHALL BE AS FOLLOWS:  
SEED MIX: 80% KENTUCKY BLUEGRASS, 20% PENNINLAN CREEPING RED FESCUE, 10% STREATER REDTOP  
APPLIED AT A RATE OF 150 LBS. PER ACRE.  
REBELL TALL FESCUE (25 LBS. PER ACRE)  
PENNINLAN PERENNIAL RYEGRASS (5 LBS. PER ACRE)  
KENTUCKY BLUEGRASS (10 LBS. PER ACRE)  
PENNINLAN CREEPING RED FESCUE (70 LBS. PER ACRE)  
AURORA HARD FESCUE (40 LBS. PER ACRE)  
COMMON WHITE CLOVER (5 LBS. PER ACRE)  
WINTER RYE (45 LBS. PER ACRE)  
70% FORAGER TALL FESCUE  
30% CHEMUNG CROWNWEED, INCULCATED  
APPLIED AT A RATE OF 50 LBS. PER ACRE  
OPTIMUM SEEDING DATE: MARCH 1 TO APRIL 30.  
LIME: 2 TON/ACRE DOLIMIC LIMESTONE.  
FERTILIZER: 600 LBS./ACRE 10-10-10 FERTILIZER BEFORE SEEDING.  
400 LBS./ACRE 30-0-0 UREA/FORM FERTILIZER AT TIME OF SEEDING.  
MULCH: STRAW AT 4,000 LBS. PER ACRE.



(OPTIONAL) MULCHING TOOL OR WOOD CELLULOSE FIBER BINDER AT A MINIMUM OF 100 POUNDS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MULCHING TOOL OR BINDER SHALL BE APPLIED TO A MAXIMUM OF 100 GALLONS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER OR AT RATES RECOMMENDED BY THE MANUFACTURER.

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

**14. GABIONS**  
ALL GABIONS SHALL BE PVC COATED WOVEN WIRE BASKETS. STONE SIZE SHALL BE 4 INCHES TO 12 INCHES (CLASS IV GABIONS).

**15. CONSTRUCTION INSPECTION BY DESIGNATED ENGINEERS**  
THE CONSTRUCTION OF THE POND AND EMBANKMENT AND CERTIFICATION THAT THE POND AND EMBANKMENT HAVE BEEN BUILT IN ACCORDANCE WITH THE PLANS SHALL BE UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN ADVANCE OF THE CONSTRUCTION OF THE EMBANKMENT SHALL BE NOTIFIED IMMEDIATELY IN ADVANCE OF THE CONSTRUCTION OF THE POND. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN ADVANCE OF THE CONSTRUCTION OF THE POND AND EMBANKMENT. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN ADVANCE OF THE CONSTRUCTION OF THE POND AND EMBANKMENT. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN ADVANCE OF THE CONSTRUCTION OF THE POND AND EMBANKMENT.

**16. INSPECTION SCHEDULE**  
1. PRIOR NOTIFICATION SHALL BE GIVEN TO THE ENGINEER SO THAT INSPECTIONS MAY BE MADE AT THE FOLLOWING STAGES:  
(1) UPON COMPLETION OF EXCAVATION TO SUBFUNDATION AND WHEN PREPARED FOR INSTALLATION OF STRUCTURAL SUPPORTS OR REINFORCEMENT FOR STRUCTURES, INCLUDING BUT NOT LIMITED TO:  
(a) CORE TESTS FOR STRUCTURAL EMBANKMENTS.  
(b) INLET OUTLET STRUCTURES AND ANTI-SERP STRUCTURES, WATER BASKETS, CONNECTIONS ON PIPES AND  
(c) TRENCHES FOR ENGRAVED STREAM DRAINAGE FACILITIES.  
(2) DURING PLACEMENT OF STRUCTURAL FILL, REINFORCING AND CONCRETE.  
(3) DURING BACKFILL OF FOUNDATIONS AND TRENCHES.  
(4) DURING EMBANKMENT CONSTRUCTION AND  
(5) UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

NO WORK SHALL PROCEED UNTIL THE ENGINEER INSPECTS AND APPROVES THE WORK PREVIOUSLY COMPLETE.

2. GEOTECHNICAL COMPACTION TESTING OF THE FACILITY EMBANKMENT IS REQUIRED. CERTIFICATION MUST BE PROVIDED TO THE DESIGNATED ENGINEER IN CHARGE OF THE AS-BUILT.

3. A COPY OF ALL MATERIAL SUPPLY TICKETS MUST BE GIVEN TO THE DESIGNATED ENGINEER IN CHARGE OF THE AS-BUILT.

**17. MAINTENANCE SCHEDULE**  
**ROUTINE MAINTENANCE (BY POND)**  
1. THE FACILITY SHALL BE INSPECTED TWICE ANNUALLY, MARCH AND SEPTEMBER, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, 565 STANDARDS AND SPECIFICATIONS FOR PONDS (MD-377).  
2. VEGETATION SHALL BE MAINTAINED AT 1 TIMES.  
3. SEDIMENT SHALL BE REMOVED FROM FOREBAYS WITH THE DEPTH EXCEEDS 12 INCHES.  
4. VEGETATION ON EMBANKMENT AND ACCESS BENCH SHALL NOT EXCEED 18 INCH HEIGHT.  
5. TOP AND OUTSIDE SIDE SLOPE OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER.

**NON-ROUTINE MAINTENANCE (BY HOWARD COUNTY)**  
1. THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR AGENTS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY INDICATE THE NECESSITY OF DEFERRED OR EXCESSIVE DEFERRED MAINTENANCE, SUCH AS EXCESSIVE SEDIMENT, EXCESSIVE VEGETATION, OR CRACKING.  
2. RILLS ON THE SLOPES OF THE DAM AND WASHED IN THE TYPICAL SPILLWAY SHALL BE FILLED WITH SUITABLE MATERIAL AND THOROUGHLY COMPACTED. THESE AREAS SHALL BE RESEDED OR RESEDED, LIMED, AND FERTILIZED AS NECESSARY.  
3. ALL APPEARANCES SHALL BE LEFT FREE OF TRASH.  
4. WASH AND DRAINAGE SHALL BE REMOVED AS NECESSARY.  
5. INSIDE SIDE SLOPE AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED. CARE SHALL BE TAKEN NOT TO MOW ANY OF THE WETLAND PLANTINGS IN THE VICINITY OF THE SPILLWAY STRUCTURE.

**18. OPERATION, MAINTENANCE AND INSPECTION**  
INSPECTION OF PONDS SHOWN HEREON SHALL BE PERFORMED AT LEAST TWICE ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, 565 STANDARDS AND SPECIFICATIONS FOR PONDS (MD-377). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR AGENTS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY INDICATE THE NECESSITY OF EXCESSIVE DEFERRED MAINTENANCE, SUCH AS EXCESSIVE SEDIMENT, EXCESSIVE VEGETATION, OR CRACKING.

**19. UTILITIES**  
NO UTILITIES MAY BE CONSTRUCTED WITHIN ANY OF THE EMBANKMENT.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Mahaffey* 10-10-02  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Deirdre Hamel* 9/29/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Michael J. ...* 10/1/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
DRAFTING ENGINEER  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3833  
Fax 296-4705

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

REVISION NAME	DATE	BY	CHKD BY	APPROVED BY	DESCRIPTION
REVITZ	10/1/02				105 & PG BAR 637

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

*Jim ...* 9/24/02  
USDA NATURAL RESOURCES CONSERVATION DISTRICT

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

APPROVED: *...* 9/24/02  
DATE

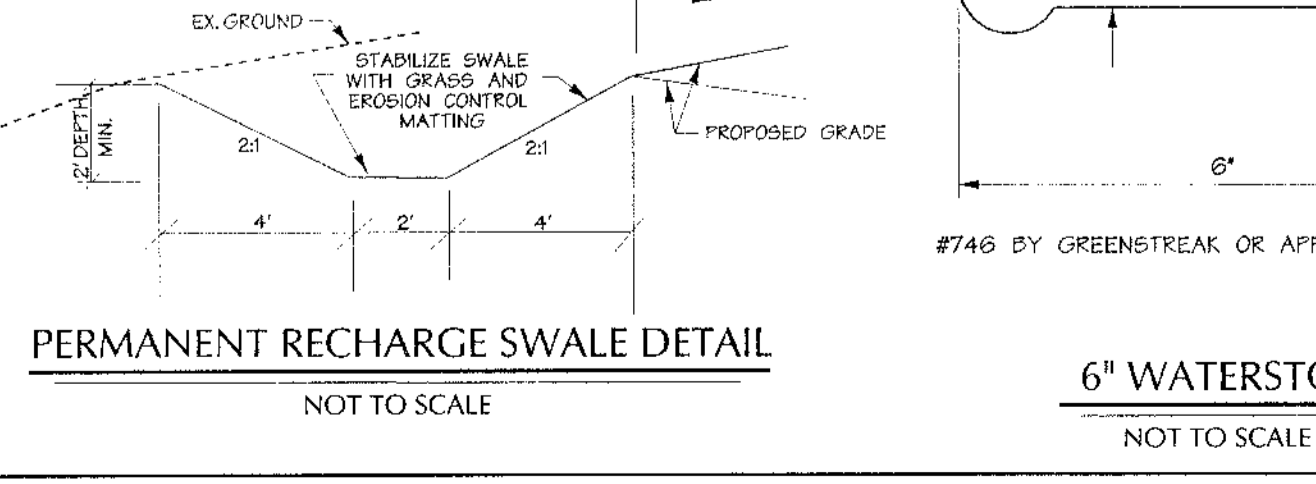
PLAN NUMBER: \_\_\_\_\_

**DEVELOPERS CERTIFICATE:**  
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 AND NATURAL RESOURCES PRESENTATION THAT NOTIFIED THE DEVELOPER THAT HE/SHE WILL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD COUNTY CONSERVATION DISTRICT WITH AN AS-BUILT PLAN WITHIN 30 DAYS OF COMPLETION (ASD) AUTHORITY PROVIDED ON-SITE INSPECTIONS BY THE HOWARD COUNTY CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/26/02  
DATE

**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 COUNTY CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE WILL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD COUNTY CONSERVATION DISTRICT WITH AN AS-BUILT PLAN WITHIN 30 DAYS OF COMPLETION (ASD) AUTHORITY PROVIDED ON-SITE INSPECTIONS BY THE HOWARD COUNTY CONSERVATION DISTRICT.

*John Y. ...* 10/25/02 9/29/02  
DATE



**ESC CONTROL PLATE DETAIL**

NTS

**F-02-111**  
9/26/02  
DATE

Professional Engr. No. 10577

**F-02-111**

DESIGN BY	MRT	SCALE	1" = 50'	PROJ. NO.	0101.B
CHK BY	KMF	DATE	9/19/02		
CRN BY		APPROVED		43	OF 57

The Robert B. Baiter Company  
BORING LOG

Contract No. 14267 MD Sheet 1 of 1

Project & Location: Revitz Property - Additional SWM Facilities, Howard County, Maryland

Boring No. B-101

Elev.	Depth	Identification of Materials	Sample No.   N bpf	Surf. Elev. 247.5	Remarks
247.0	0.3	Topsoil	S1   13		
	5	Brown, moist, micaceous Clayey SILT, some mf sand (ML)	S2   29 S3   38 S4   58		Prop. FG Elev. = 249.1
	10	Dark brown, moist, micaceous, mf SAND, some silt, trace rock fragments (SM) (Decomposed Rock)	S5   55 S6   53/5 S7   85 S8   50/5		
202.1	15	Boring Terminated at 15.4 ft			
<p><b>Water Levels</b></p> <p>At boring completion (9/10/01) Water at Dry Caved at 12.0</p> <p>24 hours after completion (9/11/01) Water at Dry Caved at 11.8</p>					

The Robert B. Baiter Company  
18 Music Fair Road  
Coving Hills, Maryland 21117  
Scale 1"=5'

The Robert B. Baiter Company  
BORING LOG

Contract No. 14267 MD Sheet 1 of 1

Project & Location: Revitz Property - Additional SWM Facilities, Howard County, Maryland

Boring No. B-102

Elev.	Depth	Identification of Materials	Sample No.   N bpf	Surf. Elev. 252.3	Remarks
252.0	0.3	Topsoil	S1   28		
	5	Brown moist SILT, some mf sand, trace roots (ML)	S2   35 S3   30		
	10	Gray & red-brown, moist, micaceous, mf SAND, and Clayey SILT (SM)	S4   33 S5   51		
	14	Red-brown, moist, micaceous, mf SAND, and Clayey SILT (SM) (Decomposed Rock)	S6   56 S7   50/4		
	17	Gray & red-brown, moist, micaceous, mf SAND, some silt and rock fragments (SM) (Decomposed Rock)	S8   50/5 S9   50/4 S10   50/4		Prop. FG Elev. = 249.1
208	20	Boring Terminated at 19.3 ft			
<p><b>Water Levels</b></p> <p>At boring completion (9/12/01) Water at Dry Caved at 15.2</p> <p>24 hours after completion (9/13/01) Water at Dry Caved at 14.0</p>					

The Robert B. Baiter Company  
18 Music Fair Road  
Coving Hills, Maryland 21117  
Scale 1"=5'

The Robert B. Baiter Company  
BORING LOG

Contract No. 14267 MD Sheet 1 of 1

Project & Location: Revitz Property - Additional SWM Facilities, Howard County, Maryland

Boring No. B-103

Elev.	Depth	Identification of Materials	Sample No.   N bpf	Surf. Elev. 251.0	Remarks
251.0	0.3	Topsoil	S1   16		Prop. FG Elev. = 249.1
	4	Gray & red-brown, moist, micaceous, mf SAND and Clayey SILT (SM-ML)	S2   45		
	6	Gray & red-brown, moist, micaceous, mf SAND, some clayey silt (SM) (Decomposed Rock)	S3   43 S4   50/5		
241.1	10	Boring Terminated at 9.9 ft			
<p><b>Water Levels</b></p> <p>At boring completion (9/11/01) Water at Dry Caved at 8.8</p> <p>48 hours after completion (9/13/01) Water at Dry Caved at 5.0</p>					

The Robert B. Baiter Company  
18 Music Fair Road  
Coving Hills, Maryland 21117  
Scale 1"=5'

The Robert B. Baiter Company  
BORING LOG

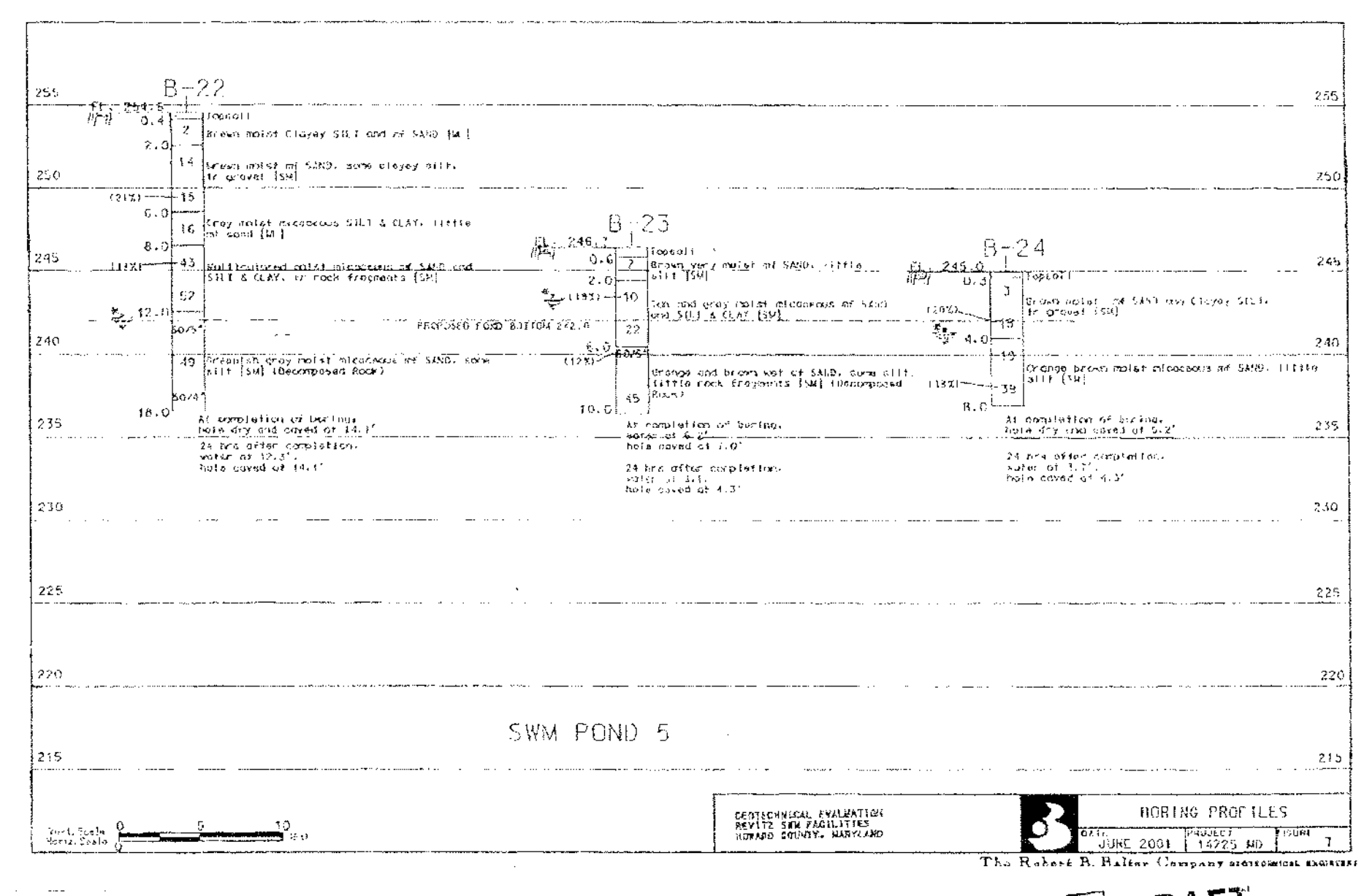
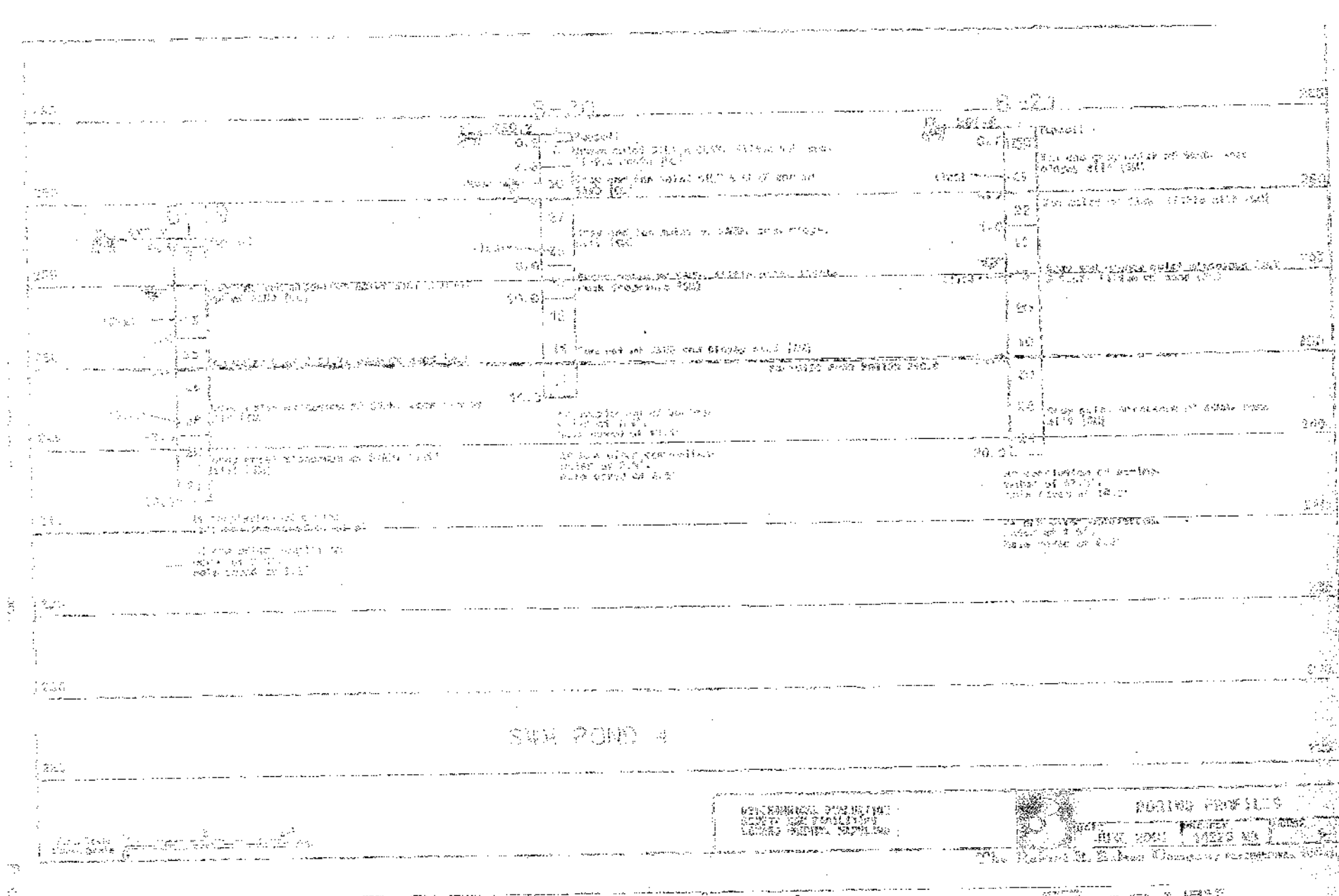
Contract No. 14267 MD Sheet 1 of 1

Project & Location: Revitz Property - Additional SWM Facilities, Howard County, Maryland

Boring No. B-104

Elev.	Depth	Identification of Materials	Sample No.   N bpf	Surf. Elev. 252.3	Remarks
252.0	0.3	Topsoil	S1   37		
	4	Brown moist, Clayey SILT, some mf sand (ML)	S2   33		
	8	Gray & tan, moist, micaceous, Clayey SILT, some mf sand (ML)	S3   12 S4   38 S5   27		
	10	Gray & red-brown, moist, micaceous, mf SAND and Clayey SILT (SM) (Decomposed Rock)	S6   40 S7   50/4 S8   75 S9   54 S10   50/5		Prop. FG Elev. = 249.1
242.8	20	Boring Terminated at 19.4 ft			
<p><b>Water Levels</b></p> <p>At boring completion (9/10/01) Water at Dry Caved at 16.2</p>					

The Robert B. Baiter Company  
18 Music Fair Road  
Coving Hills, Maryland 21117  
Scale 1"=5'



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William T. Malone* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Wendy Hensch* 9/29/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chris Dammann* 10/2/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Dan McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-2333  
 Fax 296-4705

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

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

*J. A. Myers* 9/26/02  
 U.S.D.A. NATIONAL RESOURCE CONSERVATION SERVICE DATE

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

APPROVED: *Robert A. Jenkins* 9/30/02  
 PLAN NUMBER: \_\_\_\_\_ DATE

**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 CONSTRUCTION OF SEDIMENT AND EROSION CONTROL. I HEREBY CERTIFY THAT I HAVE ENGAGED 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 AM NOT PROVIDING ANY OTHER INFORMATION TO THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/29/02  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME BELOW SIGNATURE

**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 DISEASE FREE BATH. I HEREBY CERTIFY THAT I HAVE ENGAGED 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.

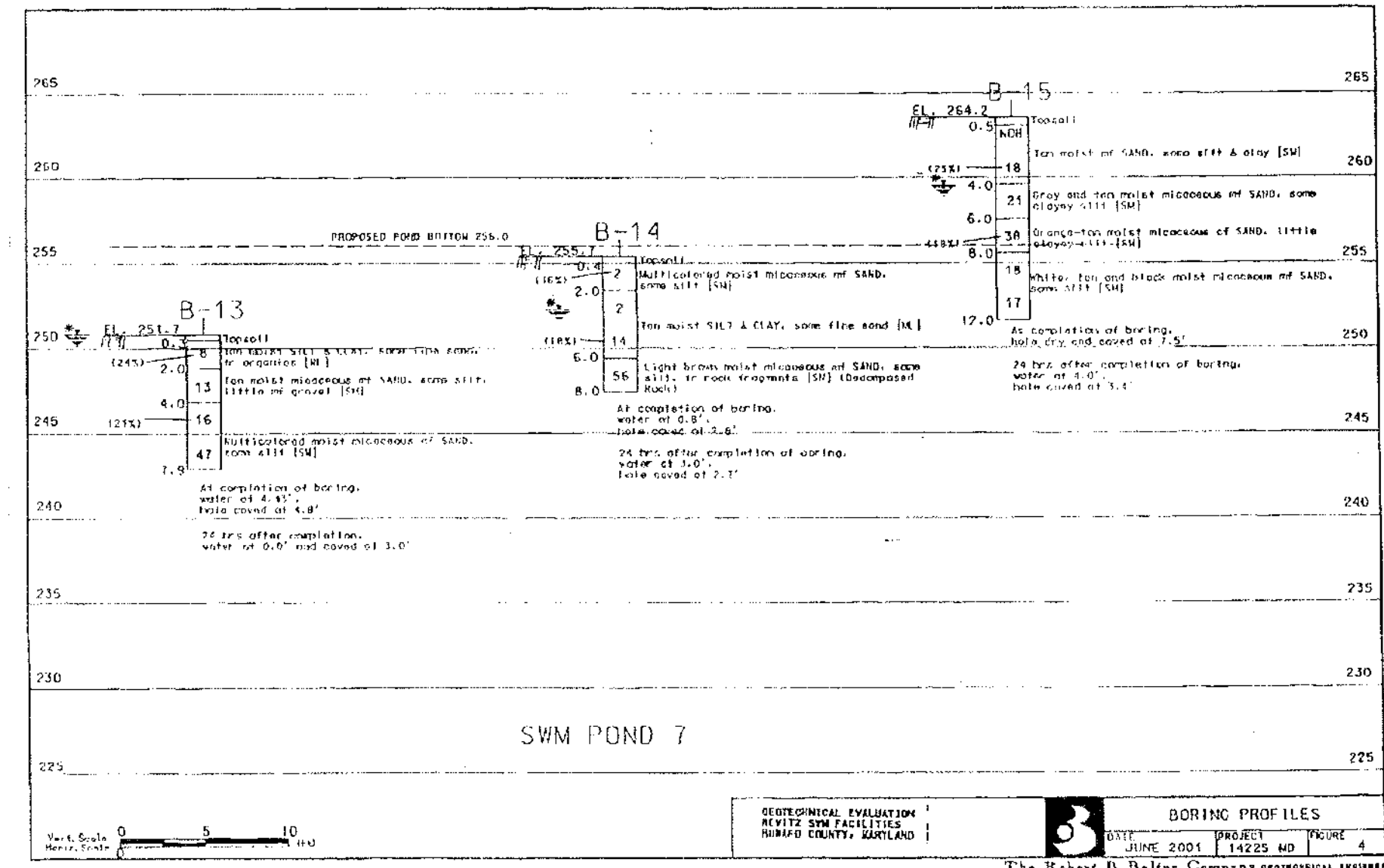
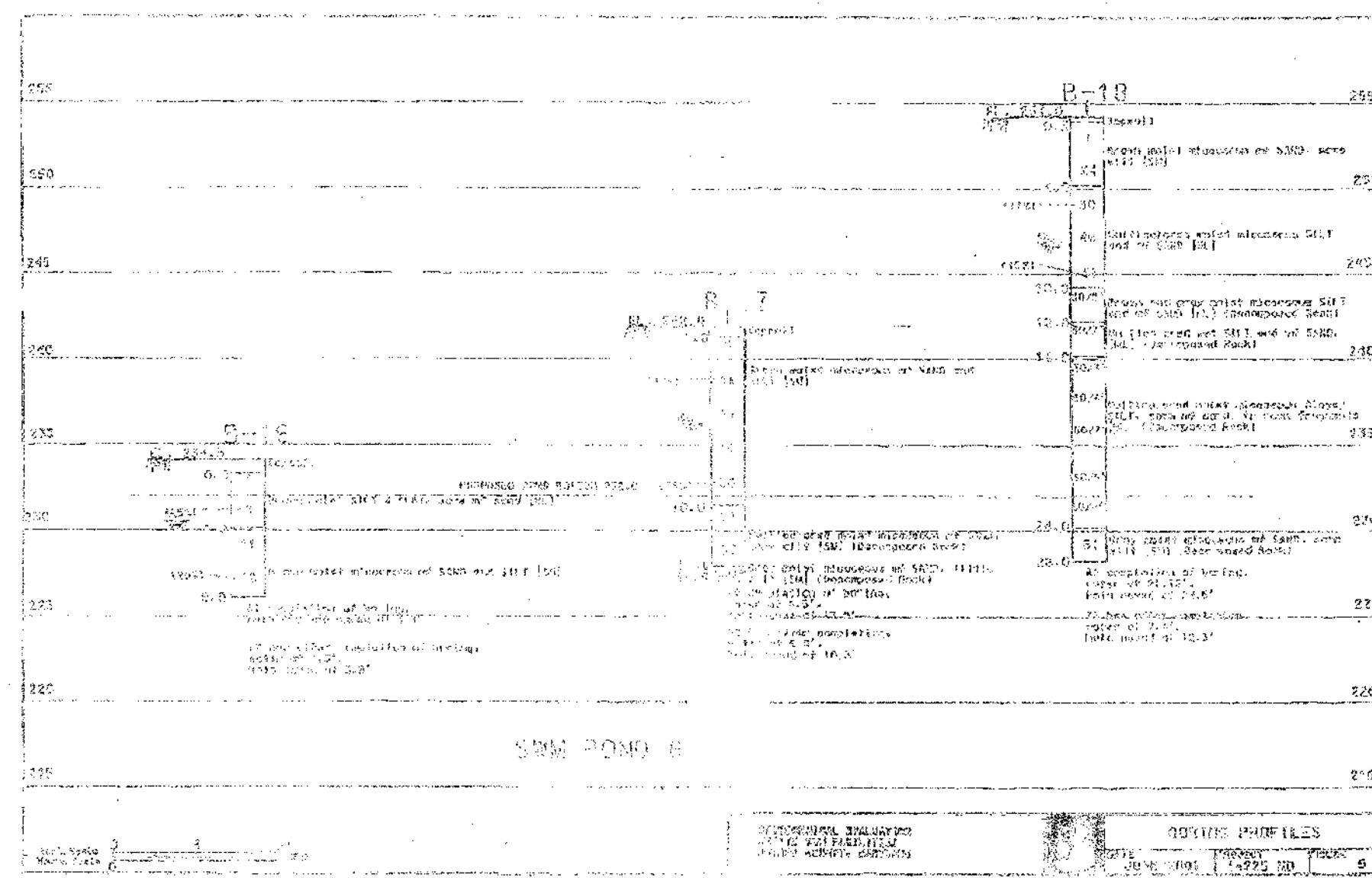
*J. W. Ramon* 10/5/02 9/29/02  
 SIGNATURE OF ENGINEER REG. NO. DATE  
 PRINT NAME BELOW SIGNATURE

9/29/02  
 Date

*[Signature]*

Professional Engr. No. 10557

F-02-111



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

*Jim Meyer* / *CS* 9/30/02 DATE

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

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

APPROVED: *Robert A. Jenkins* 9/30/02 DATE

HOWARD SOIL CONSERVATION DISTRICT

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/ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Robert A. Jenkins* 9/30/02 DATE

PRINT NAME: BELOW SIGNATURE

**Robert A. Jenkins**

**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.

*John W. Ranucha, Jr.* 10551 9/30/02 DATE

SIGNATURE OF ENGINEER REG. NO. DATE

PRINT NAME: BELOW SIGNATURE

**John W. Ranucha, Jr.**

9/20/02 Date

*William J. Walker, Jr.*

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William J. Walker, Jr.* 10-10-02 DATE

CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Andy Hand* 10/26/02 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

*Mark* 10/10/02 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Dan 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

REVISION NAME	DESCRIPTION	DATE

PROJECT NO. 165 & PO PAR 837

DATE: 9/30/02

SCALE: 1" = 50'

DATE: 9/30/02

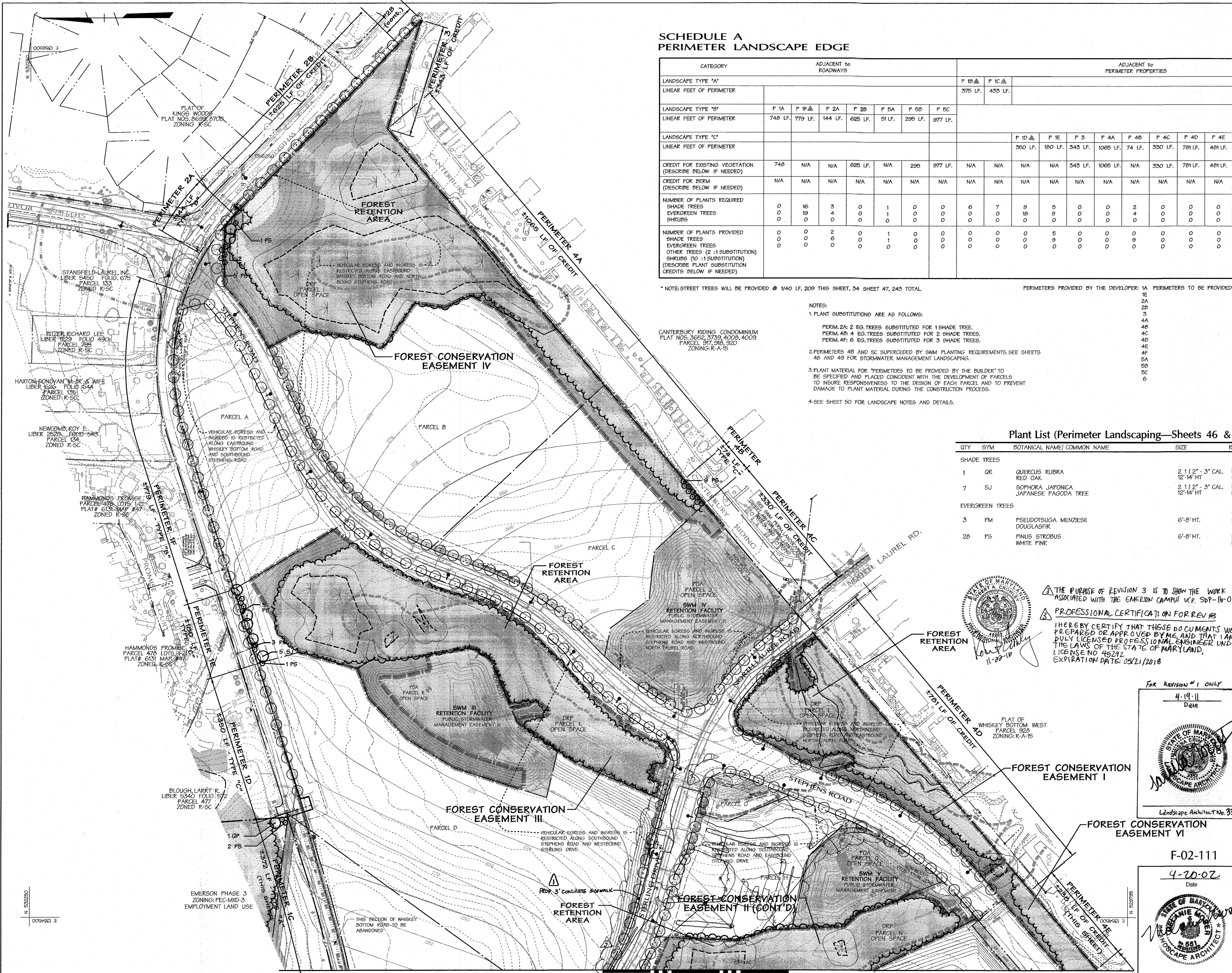
PROJECT NO. 01011

DATE: 9/30/02

PROJECT NO. 45 OF 57

F-02-111

F-02-111



**SCHEDULE A  
PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT to ROADWAYS							ADJACENT to PERIMETER PROPERTIES											
	P 1A	P 1F	P 2A	P 2B	P 5A	P 5B	P 5C	P 1D	P 1E	P 3	P 4A	P 4B	P 4C	P 4D	P 4E	P 6			
LANDSCAPE TYPE "A" LINEAR FEET OF PERIMETER	375 LF.							433 LF.										205 LF.	
LANDSCAPE TYPE "B" LINEAR FEET OF PERIMETER	748 LF.	779 LF.	144 LF.	625 LF.	51 LF.	285 LF.	977 LF.												
LANDSCAPE TYPE "C" LINEAR FEET OF PERIMETER								350 LF.	180 LF.	343 LF.	1065 LF.	74 LF.	330 LF.	781 LF.	481 LF.	667 LF.			
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	748	N/A	N/A	625 LF.	N/A	285	977 LF.	N/A	N/A	N/A	343 LF.	1065 LF.	N/A	330 LF.	781 LF.	481 LF.	667 LF.		
CREDIT FOR PERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
NUMBER OF PLANTS REQUIRED																			
SHADE TREES	0	16	3	0	1	0	0	6	7	8	5	0	2	0	0	0	3		
EVERGREEN TREES	0	19	4	0	1	0	0	0	0	18	9	0	4	0	0	0	0		
SHRUBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
NUMBER OF PLANTS PROVIDED																			
SHADE TREES	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0		
EVERGREEN TREES	0	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0		
OTHER TREES (2:1 SUBSTITUTION)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
SHRUBS (10:1 SUBSTITUTION)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

\* NOTE: STREET TREES WILL BE PROVIDED @ 1/40 LF, 209 THIS SHEET, 34 SHEET 47, 243 TOTAL.

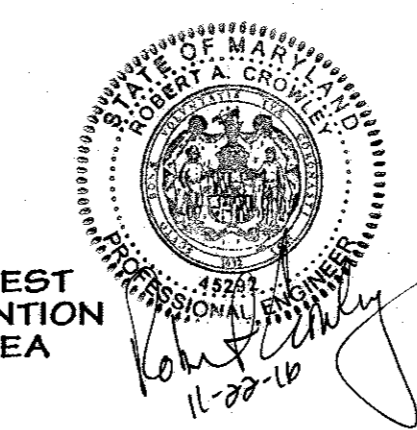
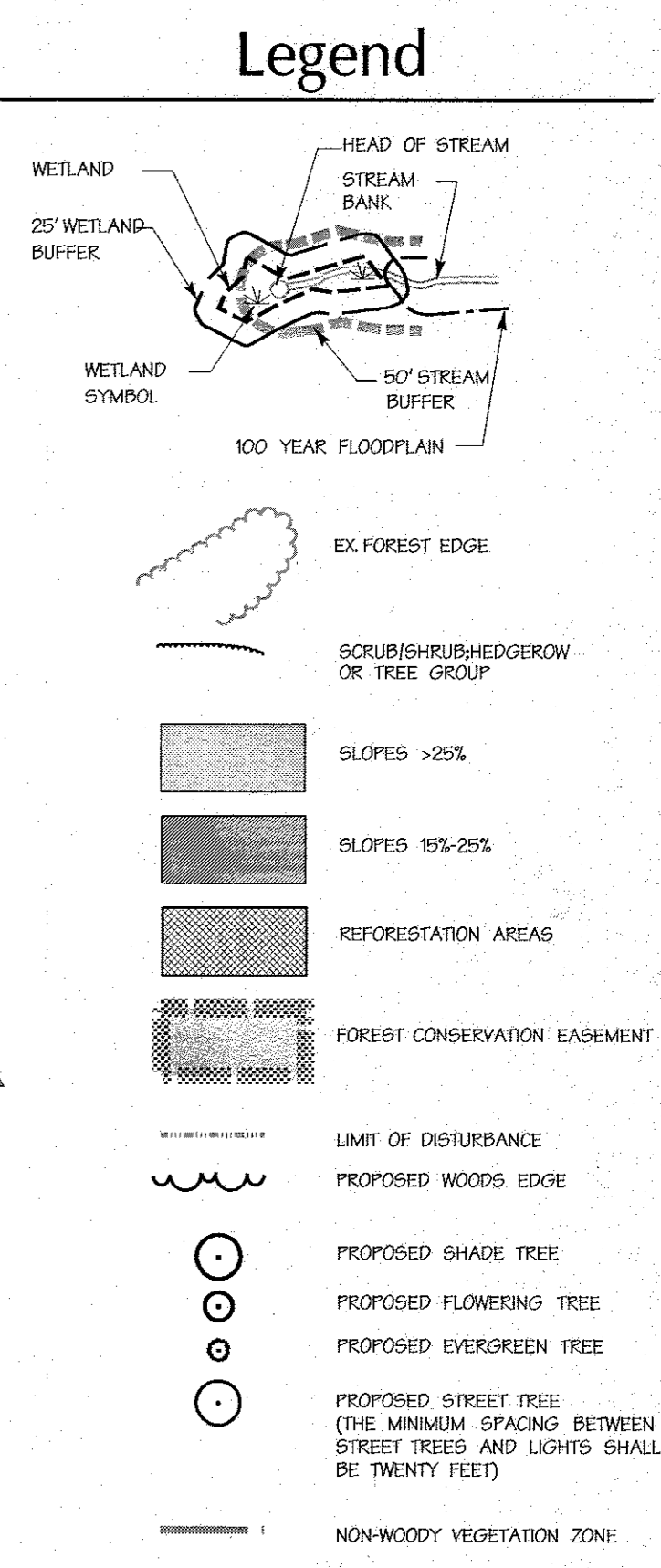
PERIMETERS PROVIDED BY THE DEVELOPER: 1A, 1E, 2A, 2B, 3, 4A, 4B, 4C, 4D, 4E, 4F, 5A, 5B, 5C, 6

PERIMETERS TO BE PROVIDED BY THE BUILDER: 1B, 1C, 1D, 1F

NOTES:  
 1. PLANT SUBSTITUTIONS ARE AS FOLLOWS:  
 PERIM. 2A: 2 EG. TREES SUBSTITUTED FOR 1 SHADE TREE.  
 PERIM. 4B: 4 EG. TREES SUBSTITUTED FOR 2 SHADE TREES.  
 PERIM. 4F: 6 EG. TREES SUBSTITUTED FOR 3 SHADE TREES.  
 2. PERIMETERS 4B AND 5C SUPERCEDED BY SWM PLANTING REQUIREMENTS. SEE SHEETS 4B AND 49 FOR STORMWATER MANAGEMENT LANDSCAPING.  
 3. PLANT MATERIAL FOR "PERIMETERS TO BE PROVIDED BY THE BUILDER" TO BE SPECIFIED AND PLACED CONCURRENT WITH THE DEVELOPMENT OF PARCELS TO INSURE RESPONSIVENESS TO THE DESIGN OF EACH PARCEL AND TO PREVENT DAMAGE TO PLANT MATERIAL DURING THE CONSTRUCTION PROCESS.  
 4. SEE SHEET 50 FOR LANDSCAPE NOTES AND DETAILS.

**Plant List (Perimeter Landscaping—Sheets 46 & 47)**

QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
<b>SHADE TREES</b>				
1	QR	QUERCUS RUBRA / RED OAK	2 1/2" - 3" CAL. / 12'-14" HT.	B & B FULL HEAD
7	SJ	SOPHORA JAPONICA / JAPANESE PAGODA TREE	2 1/2" - 3" CAL. / 12'-14" HT.	B & B FULL HEAD
<b>EVERGREEN TREES</b>				
3	PM	PSEUDOTSUGA MENZIESII / DOUGLASFIR	6'-8" HT.	B & B
28	PS	PINUS STROBUS / WHITE PINE	6'-8" HT.	B & B HEAVY / UNSHEARED



THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP, SDP-16-005

PROFESSIONAL CERTIFICATION FOR REV 3

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45212, EXPIRATION DATE: 05/21/2018

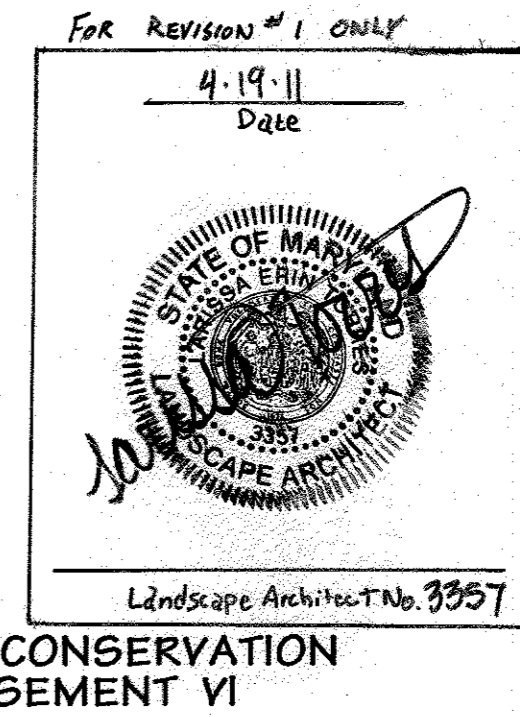
05/23/15  
 2-7-11  
 EMERSON CAMPUS VCP  
 ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 William J. Whelan, Chief, Bureau of Highways, 10-10-02

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
 Cindy Thomas, Chief, Division of Land Development, 10/22/10

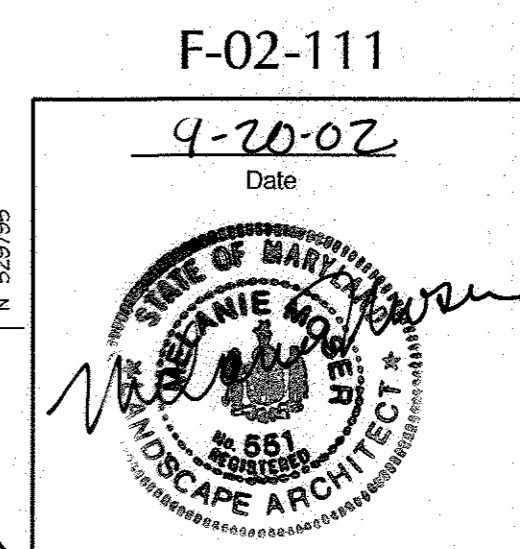
FOR REVISION #1 ONLY  
 4-19-11  
 Date

NIA DIRECTOR



**REVITZ PROPERTY**

OWNER / DEVELOPER  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044



F-02-111  
 4-20-07  
 Date

DMW  
 Dan McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3239  
 Fax 296-4705

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

SUBMISSION NAME: PERIMETER LANDSCAPE AND STREET TREE PLAN  
 SECTION AREA: 47, GRID 20  
 ELECT. DISTRICT: 6th  
 CENSUS TRACT: 165 & PG PAR 837

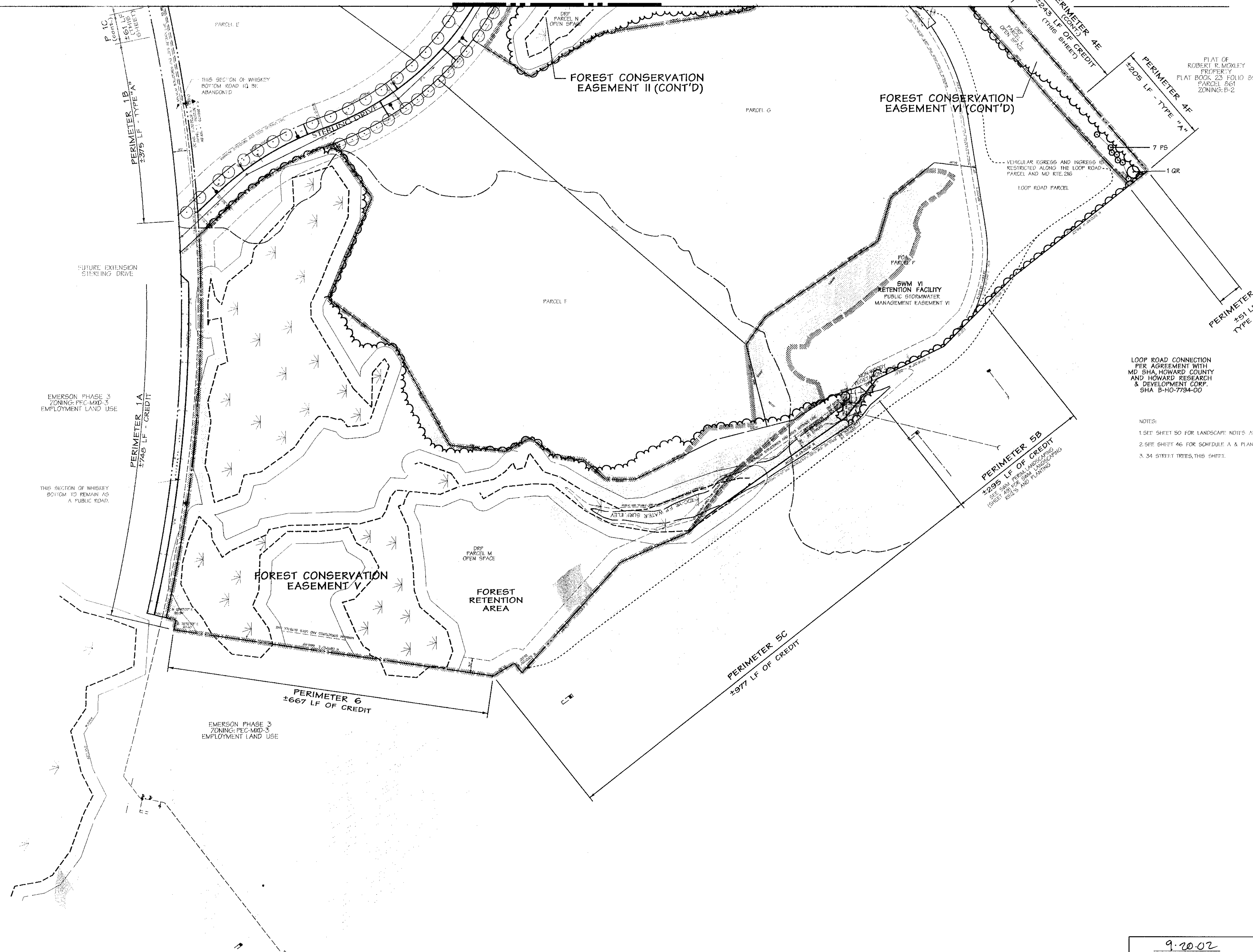
Des By: MM Scale: 1"=100' Proj. No.: 01011  
 Dm By: AJS Date: 9/19/02  
 Chk By: Approved 46 OF 57

A MATCH LINE - SEE SHEET 47 OF 57 A

A MATCH LINE - SEE SHEET 46 OF 57 A

Legend

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- 100' YEAR FLOOD PLAIN
- EX FOREST EDGE
- SCUBUS-SURVEYED BOUNDARY OF TREE CROWN
- BLUPLS - 20%
- BLUPLS - 10% 20%
- REFORESTATION AREAS
- LIMIT OF DISTURBANCE
- PROPOSED WOODS EDGE
- FOREST CONSERVATION EASEMENT
- PROPOSED SHADY TREE
- PROPOSED BLOWING TREE
- PROPOSED TURFGRASS TREE
- PROPOSED STREET TREE (SEE MINIMUM SPACING BETWEEN STREET TREES AND LIGHTS SHAFTS IN STREET TREE)
- NON WOODY VEGETATION ZONE



LOOP ROAD CONNECTION PER AGREEMENT WITH MD SHA, HOWARD COUNTY AND HOWARD RESEARCH & DEVELOPMENT CORP. SHA B-HQ-7794-00

- NOTES:
1. SET SHEET 50 FOR LANDSCAPE NOTES AND DETAILS.
  2. SET SHEET 46 FOR SCHEDULE A & PLANT LIST.
  3. 34 STREET TREES, THIS SHEET.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William T. Mahoney* 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
*Mark* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

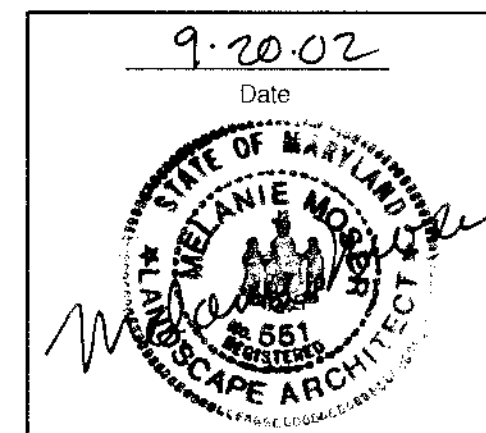
*Quincy Hamilton* 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N/A  
 DIRECTOR DATE

REVITZ PROPERTY

OWNER / DEVELOPER  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

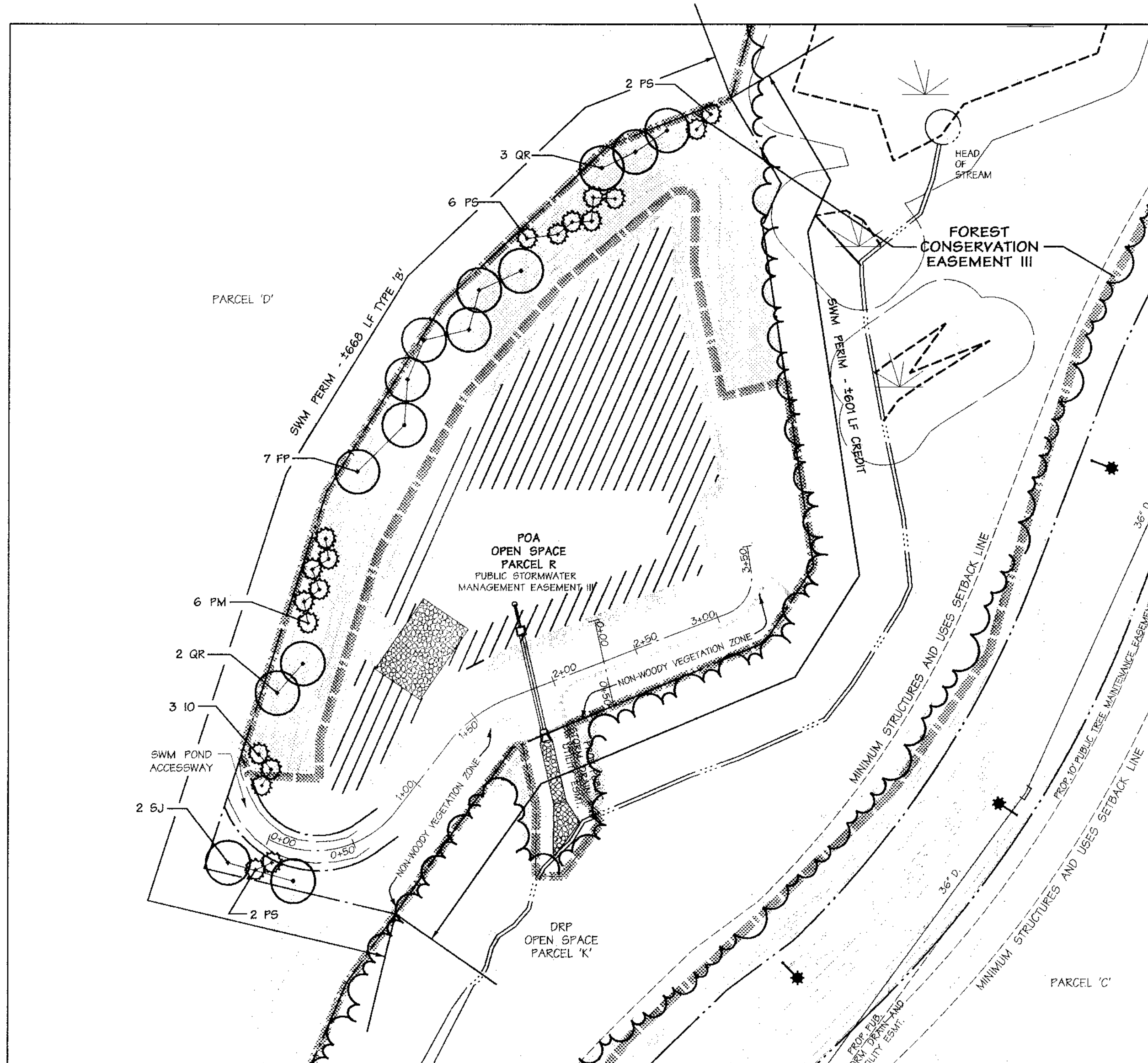
**DMW**  
 Daft McCune Walker, Inc. A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3323  
 Fax 296-4705



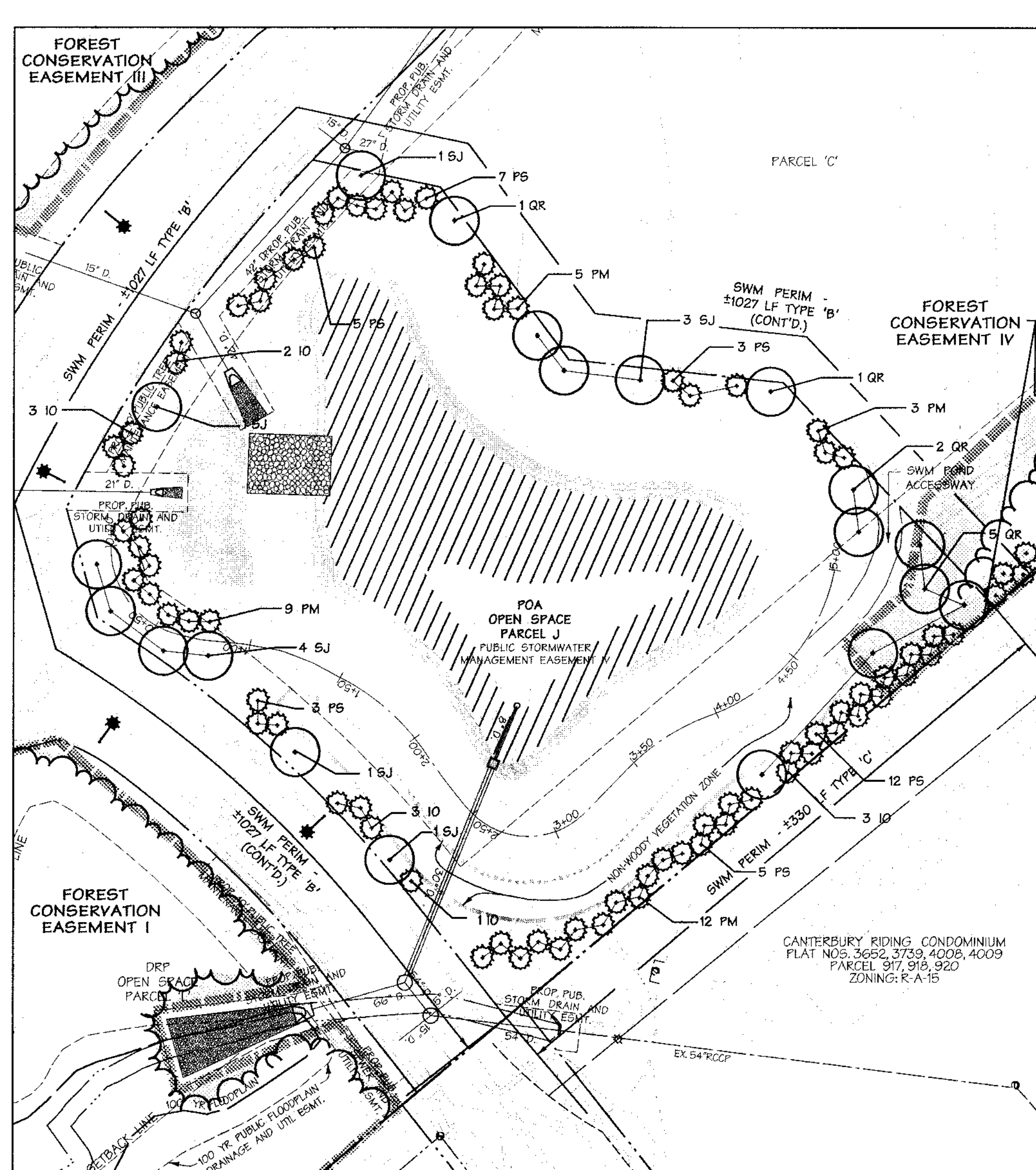
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
PLAT # OR LF BLOCK # ZONE	PARCEL MAP ELECT. DISTRICT	CENSUS TRACT
WATER CODE	SEWER CODE	
TITLE PERIMETER LANDSCAPE AND STREET TREE PLAN		
Des By: MM	Scale: 1"=100'	Proj No: 01011
Drn By: AJS	Date: 9/30/02	
Chk By:	Approved:	47 OF 57

F-02-111

F-02-111



STORMWATER MANAGEMENT POND III  
SCALE 1"=50'



STORMWATER MANAGEMENT POND IV  
SCALE 1"=50'

LEGEND

- EX CURB & GUTTER
- EX MAJOR CONTOURS
- EX MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. SEWER
- PROP. WATER
- EX STORM DRAIN
- EX SEWER
- EX WATER
- UTILITY EASEMENTS
- PROPOSED SHADE TREE
- PROPOSED FLOWERING TREE
- PROPOSED EVERGREEN TREE
- ZONE 'A' WATER QUALITY PLANTING
- ZONE 'B' WATER QUALITY PLANTING
- TOP OF SLOPE
- NON-WOODY VEGETATION BUFFER
- FOREST CONSERVATION EASEMENT LINE
- REFORESTATION AREA
- PROPOSED WOODS EDGE
- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- HEAD OF STREAM
- STREAM BANK
- 50' STREAM BUFFER
- 100 YEAR FLOOD PLAN

SCHEDULE D  
STORMWATER MANAGEMENT AREA  
LANDSCAPING

STORMWATER MANAGEMENT AREA	III	IV
LANDSCAPE TYPE "B" (LINEAR FT OF PERIMETER)	1269 LF	1027 LF
LANDSCAPE TYPE "C" (LINEAR FT OF PERIMETER)	N/A	330 LF
NUMBER OF TREES REQUIRED		
SHADE TREES @ 1/50 LF (1/40 TYPE 'C')	13	29
EVERGREEN TREES @ 1/40 LF (1/20 TYPE 'C')	17	42
CREDIT FOR EXISTING VEGETATION	601 LF	N/A
CREDIT FOR OTHER LANDSCAPING	N/A	N/A
PLANTING DEFERRED UNTIL LATER PHASE	N/A	
NUMBER OF TREES PROVIDED		
SHADE TREES	14	20*
FLOWERING TREES	N/A	N/A
EVERGREEN TREES	19	76

\* 10 EVERGREEN TREES SUBSTITUTED FOR 0 SHADE TREES

NOTE: SEE SHEET 50 FOR LANDSCAPE NOTES AND DETAILS.

Plant List (This Sheet)

QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
SHADE TREES				
7	FP	FRAXINUS PENNSYLVANICA 'MARSHALL'S SEEDLESS'	2 1/2" - 3" CAL.	B & B FULL HEAD
		MARSHALL'S SEEDLESS GREEN ASH	12'-14" HT	
14	QR	QUERCUS RUBRA	2 1/2" - 3" CAL.	B & B FULL HEAD
		RED OAK	12'-14" HT	
13	SJ	SOPHORA JAPONICA	2 1/2" - 3" CAL.	B & B FULL HEAD
		JAPANESE PAGODA TREE	12'-14" HT	
EVERGREEN TREES				
15	IO	ILEX OPACA	6'-8" HT.	B & B (ONE MALE)
		AMERICAN HOLLY		
35	PM	PSEUDOTSUGA MENZIESII	6'-8" HT.	B & B
		DOUGLASFIR		
45	PS	PINUS STROBUS	6'-8" HT.	B & B HEAVY / UNSHEARED
		WHITE PINE		

Water Quality Planting Plan\*\*  
Facility #III

Species	Size	Spacing	Quantity	Remarks
Scirpus tabernaemontani	quart container*	36"	221	OBL
Panicum virgatum	quart container	36"	442	FAC
Saururus cernuus	quart container**	36"	221	OBL
TOTALS			884	

Water Quality Planting Plan\*\*  
Facility #IV

Species	Size	Spacing	Quantity	Remarks
Scirpus tabernaemontani	quart container*	36"	308	OBL
Panicum virgatum	quart container	36"	616	FAC
Saururus cernuus	quart container**	36"	308	OBL
TOTALS			820	

Species	Size	Spacing	Quantity	Remarks
Sagittaria latifolia	quart container*	36"	1272	OBL
Peltandra virginica	quart container*	36"	1272	OBL
TOTALS			2544	

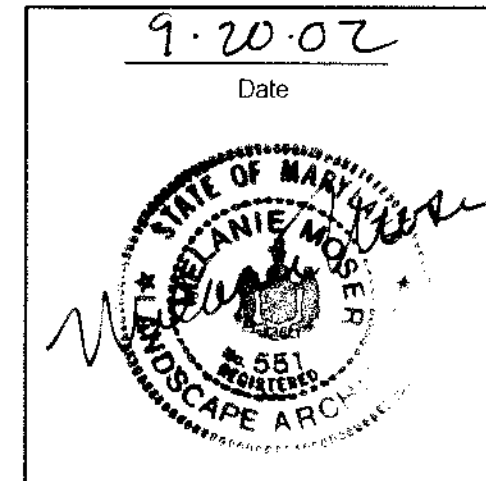
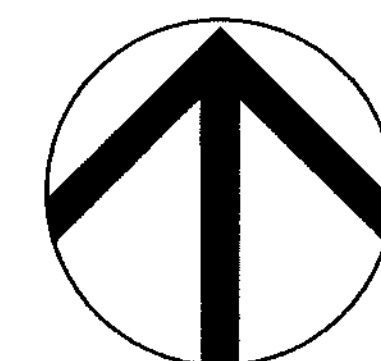
Species	Size	Spacing	Quantity	Remarks
Sagittaria latifolia	quart container*	36"	1272	OBL
Peltandra virginica	quart container*	36"	1272	OBL
TOTALS			2544	

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

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

\*\* Alternate species and install in random pattern, distributing each species across the hydrologic gradient of each planting zone. Single species massings to be avoided.

\*\* Alternate species and install in random pattern, distributing each species across the hydrologic gradient of each planting zone. Single species massings to be avoided.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 [Signature] 10-10-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
 [Signature] 10/10/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N/A  
 DIRECTOR DATE

REVITZ PROPERTY

OWNER / DEVELOPER  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

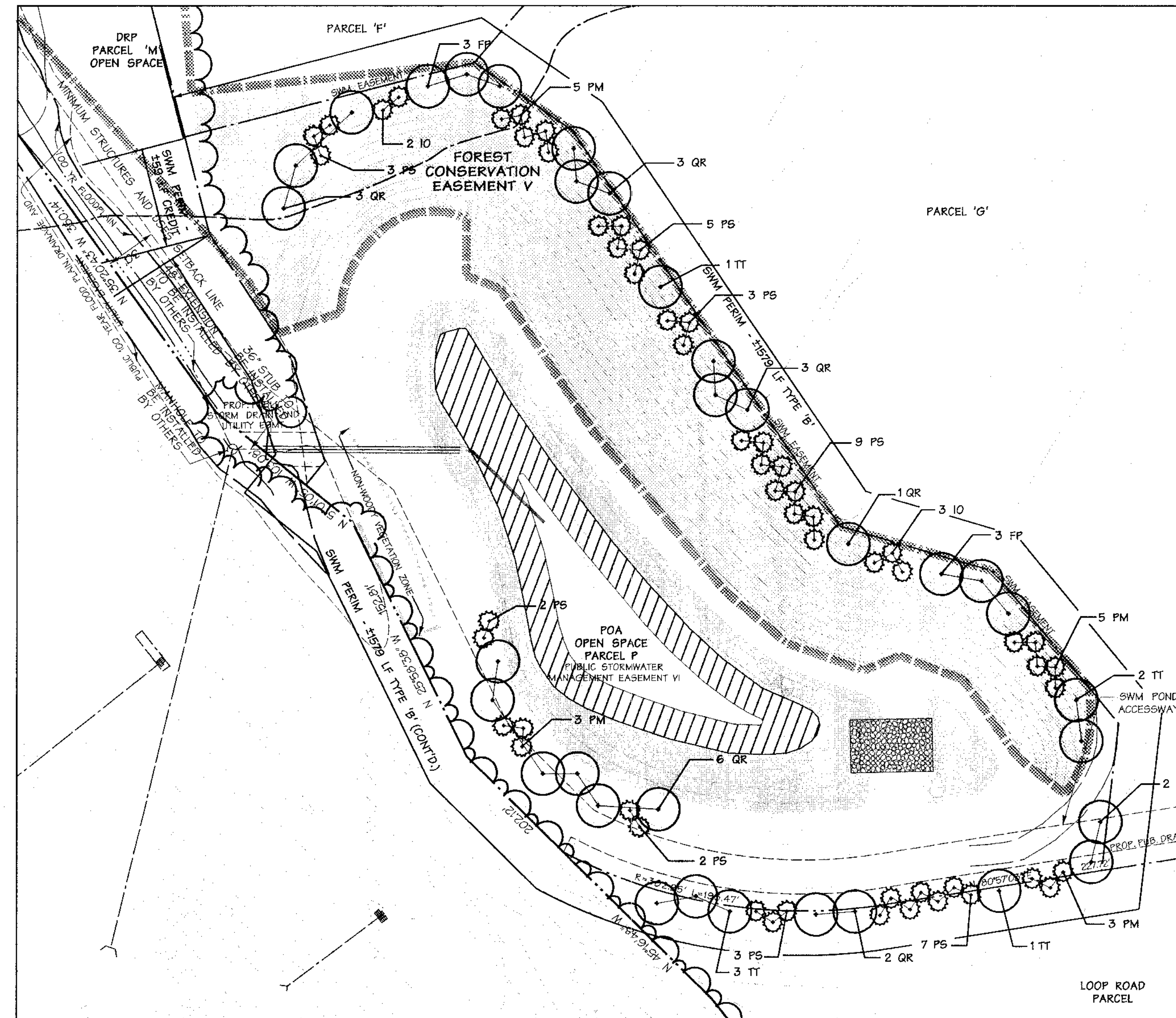
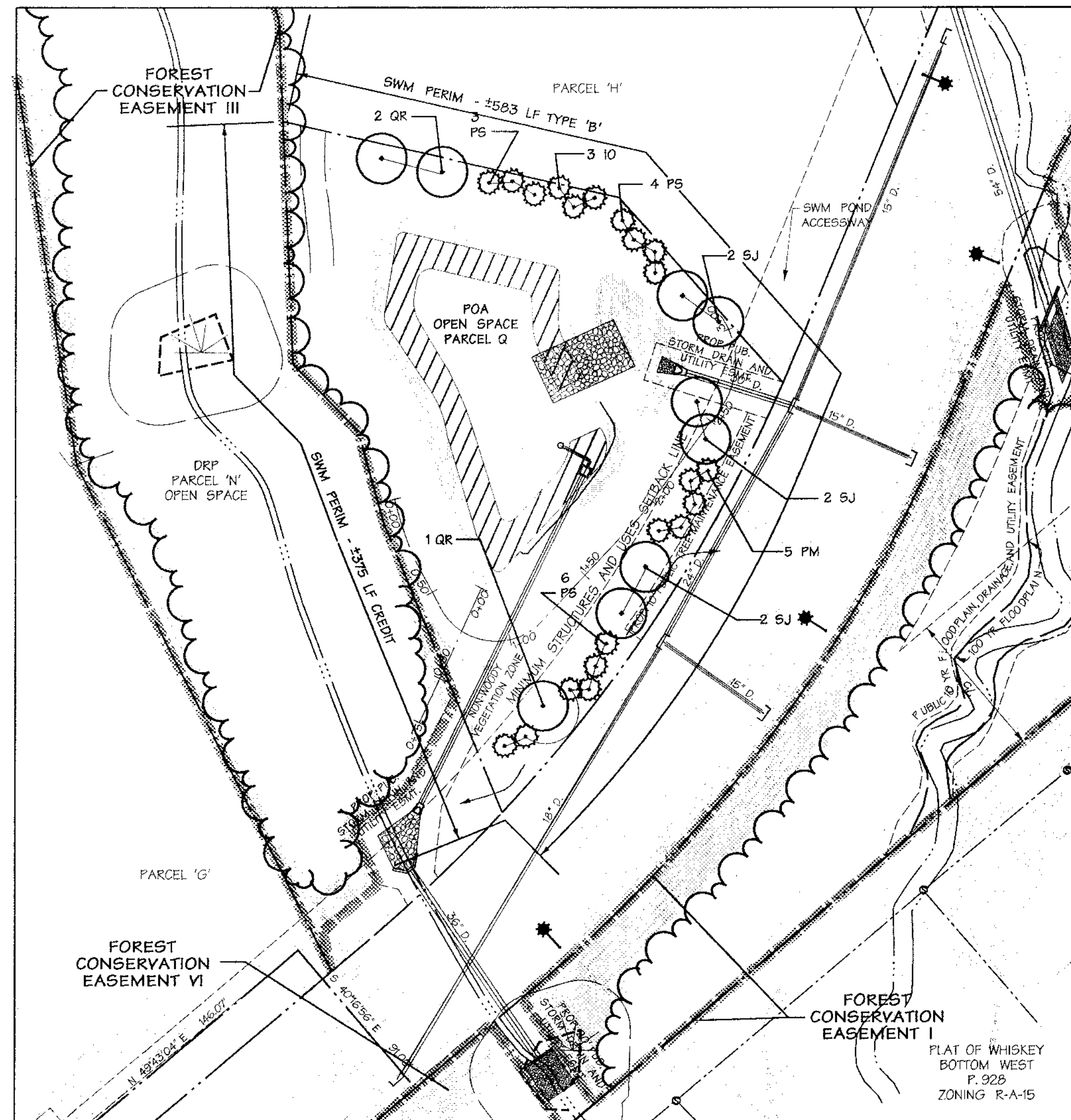
**DMW**  
 Daft McCune Walker, Inc. A Team of Land Planners,  
 200 East Pennsylvania Avenue Landscape Architects,  
 Towson, Maryland 21286 Golf Course Architects,  
 (410) 296-3333 Engineers, Surveyors &  
 Fax 296-4705 Environmental Professionals

9-20-07  
 Date

STATE OF MARYLAND  
 LANDSCAPE ARCHITECT  
 No. 951

SUBDIVISION NAME: SECTION AREA: LOT/PARCEL #:  
 2267836 20 47 GRID 20 0.01 85 & PG. PAR 937  
 WATER CODE: SEWER CODE:  
 TITLE: LANDSCAPE PLAN SWM PONDS III AND IV  
 Des By: MM Scale: 1"=50' Proj. No: 01011  
 Dwn By: AJS Date: 9/19/07  
 Chk By: Approved: 48 OF 57





**LEGEND**

- EX. CURB & GUTTER
- EX. MAJOR CONTOURS
- EX. MINOR CONTOURS
- PROP. STORM DRAIN
- PROP. SEWER
- PROP. WATER
- EX. STORM DRAIN
- EX. SEWER
- EX. WATER
- UTILITY EASEMENTS
- PROPOSED SHADE TREE
- PROPOSED FLOWERING TREE
- PROPOSED EVERGREEN TREE
- ZONE 'A' WATER QUALITY PLANTING
- ZONE 'B' WATER QUALITY PLANTING
- TOE OF SLOPE NON-WOODY VEGETATION BUFFER
- FOREST CONSERVATION EASEMENT LINE
- REFORESTATION AREA
- PROPOSED WOODS EDGE
- WEILAND
- 25' WEILAND BUFFER
- WEILAND SYMBOL
- HEAD OF STREAM
- STREAM BANK
- 50' STREAM BUFFER
- 100 YEAR FLOOD PLAN

**SCHEDULE D  
STORMWATER MANAGEMENT AREA  
LANDSCAPING**

STORMWATER MANAGEMENT AREA	V	VI
LANDSCAPE TYPE "B" (LINEAR FT. OF PERIMETER)	960 LF	1638 LF
LANDSCAPE TYPE "C" (LINEAR FT. OF PERIMETER)	N/A	N/A
NUMBER OF TREES REQUIRED:		
SHADE TREES @ 1/50 LF. (1140 TYPE 'C')	12	32
EVERGREEN TREES @ 1/40 LF. (1020 TYPE 'C')	15	39
CREDIT FOR EXISTING VEGETATION	375 LF	59 LF
CREDIT FOR OTHER LANDSCAPING	N/A	N/A
PLANTING DEFERRED UNTIL LATER PHASE	N/A	N/A
NUMBER OF TREES PROVIDED:		
SHADE TREES	9*	33
FLOWERING TREES	N/A	N/A
EVERGREEN TREES	21	96

\* POND V: 6 EVERGREEN TREES SUBSTITUTED FOR 3 SHADE TREES  
NOTE: SEE SHEET 50 FOR LANDSCAPE NOTES AND DETAILS.

**Plant List (This Sheet)**

QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
<b>SHADE TREES</b>				
6	FF	FRAXINUS PENNSYLVANICA 'MARSHALL'S SEEDLESS'	2 1/2" - 3" CAL.	B & B FULL HEAD
		MARSHALL'S SEEDLESS GREEN ASH	12'-14" HT	
21	QR	QUERCUS RUBRA	2 1/2" - 3" CAL.	B & B FULL HEAD
		RED OAK	12'-14" HT	
6	SJ	SOPHORA JAPONICA	2 1/2" - 3" CAL.	B & B FULL HEAD
		JAPANESE PAGODA TREE	12'-14" HT	
9	TT	TILIA TOMENTOSA 'GREEN MOUNTAIN'	2 1/2" - 3" CAL.	B & B FULL HEAD
		GREEN MOUNTAIN SILVER LINDEN	12'-14" HT	
<b>EVERGREEN TREES</b>				
8	IO	ILEX OPACA	6'-8" HT.	B & B ONE MALE
		AMERICAN HOLLY		
21	PM	PSEUDOTSUGA MENZIESII	6'-8" HT.	B & B
		DOUGLASS FIR		
47	PS	PINUS STROBUS	6'-8" HT.	B & B HEAVY / UNSHEARED
		WHITE PINE		

Water Quality Planting Plan\*\*  
Facility #V

Species	Size	Spacing	Quantity	Remarks
<i>Scirpus tabernaemontani</i>	quart container*	36"	130	OBL
<i>Panicum virgatum</i>	quart container*	36"	380	FAC
<i>Saururus cernuus</i>	quart container*	36"	190	OBL
<b>TOTALS</b>			<b>700</b>	

Species	Size	Spacing	Quantity	Remarks
<i>Sagittaria latifolia</i>	quart container*	36"	328	OBL
<i>Peltandra virginica</i>	quart container*	36"	328	OBL
<b>TOTALS</b>			<b>656</b>	

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

\*\* Alternate species and install in random pattern, distributing each species across the hydrologic gradient of each planting zone. Single species massings to be avoided.

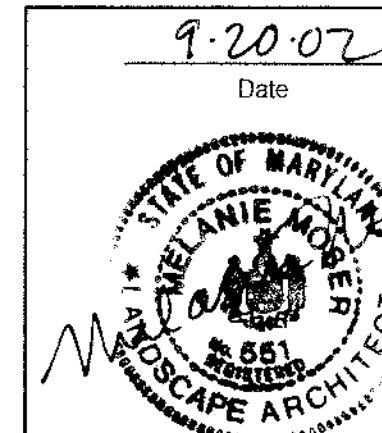
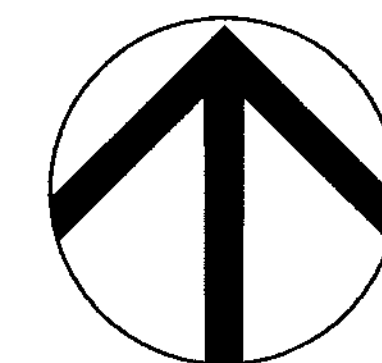
Water Quality Planting Plan\*\*  
Facility #VI

Species	Size	Spacing	Quantity	Remarks
<i>Scirpus tabernaemontani</i>	quart container*	36"	412	OBL
<i>Iris pseudacoris</i>	quart container*	36"	412	OBL
<i>Labella cardinalis</i>	quart container*	36"	412	FAC/W
<i>Iris versicolor</i>	quart container*	36"	412	OBL
<i>Panicum virgatum</i>	quart container*	36"	412	FAC
<i>Saururus cernuus</i>	quart container*	36"	412	OBL
<b>TOTALS</b>			<b>2472</b>	

Species	Size	Spacing	Quantity	Remarks
<i>Sagittaria latifolia</i>	quart container*	36"	740	OBL
<i>Peltandra virginica</i>	quart container*	36"	740	OBL
<b>TOTALS</b>			<b>1480</b>	

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

\*\* Alternate species and install in random pattern, distributing each species across the hydrologic gradient of each planting zone. Single species massings to be avoided.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 William F. Mahan, Jr. 10-10-02  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
 [Signature] 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

[Signature] 10/20/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

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

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #	RS & PG PAR 807
PLAT # (OR LF, BLOCK #)	ZONE	SECTION MAP	ELECT DISTRICT
2267436	20	47, GRID 20	6 th
CENSUS TRACT			
WATER CODE		SEWER CODE	
TITLE	LANDSCAPE PLAN SWM PONDS V AND VI		
Des. By	MM	Scale	1"=50'
Drn By	AJS	Date	9/19/02
Chk By	Approved	Proj. No.	01011
Landscape Architect No.			49 OF 57

# 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 Plant 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 plant list shall control. The contractor is responsible for verifying all plant quantities prior to the commencement of work. Soil 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 (in 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 job 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 ordered 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 mowing 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.
- The contractor is responsible for testing pot soils. The contractor is to provide a certified soils report to the owner. The contractor shall verify that the soils on site are acceptable for the proper growth of the proposed plant material. Should the contractor find poor soil conditions, the contractor shall be required to provide soil amendments as necessary. These amendments shall include, but not be limited to, fertilizers, lime, and topsoil. Proper planting soils must be verified prior to planting of materials.
- PLANTING MIX:
  - Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum quantities of 20 cubic yards or sufficient mix for entire job if less than 20 cubic yards is required.
  - Thoroughly mixed in the following proportions for tree and shrub planting mix:
    - cy existing soil
    - cy sharp sand
    - cy wood residuals
    - lb treble superphosphate
    - lb dolomite limestone (eliminate for acid loving plants)
  - For bed planting, shrubs and groundcover spaces 24 inches or closer, incorporate the following ingredients per 20' of and incorporate into top 8 inches of existing soils by rototilling or similar method of incorporation.
    - cy sharp sand
    - cy organic material
    - lb treble superphosphate
    - lb dolomite limestone (eliminate for acid loving plants)
- The contractor shall dispose of stumps and major roots of all plants to be removed. Any depressions caused by removal operations shall be refilled with fertile, friable soil placed and compacted so as to reestablish proper grade for new planting and/or lawn areas.
- The contractor shall insure adequate vertical drainage in all plant beds and planters.
- All disturbed areas on the site not planted with shrubs or ground cover shall be fine graded and seeded or sodded as noted on landscape plan.
- All sod shall be obtained from areas having growing conditions familiar to areas to be covered. Areas to be sodded shall be raked of stones and debris. Debris and stones over 1 inch in diameter shall be removed from the site. All damaged sod will be rejected. All sod must be placed with staggered joints, tightly butted, with no inequalities in grade. Place all sod in rows at right angles to slopes (where applicable).
- All planting procedures shall conform to Daft McCune Walker Inc. specifications.
- Some field located plants are not graphically shown on this plan but are within the limit of construction line. All plants (field located plants and graphically shown plants) are noted on the plant list.

# 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 PLANTS as indicated on the Drawings and specified herein.
- A. Include:
- Furnishing of all plant material.
  - Soil preparation, planting operations.
  - Maintenance and guarantee.
- 1.02 QUALITY ASSURANCE
- A. American Association of Nurserymen (A.A.N.): "American Standard for Nursery Stock", (ANSI Z601) 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. Tops or roots of plants allowed to dry out or which have been damaged or disturbed root balls will be 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 payment to the Contractor. Payment release inspection does not waive any requirements of the standard of comparison or initial acceptance clause.
- C. Initial Inspection: Conducted at the request of the Contractor and the Owner when 90% or more of all planting and related tasks are complete.
- D. Initial 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 materials shall be the same size as other unimpaired material, considering growth that has occurred since original installation. Methods of installation shall be identical to the original contractor shall guarantee 85% survivorship at the end of the guarantee period.
- B. Replacement 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.
- 1.10 PRODUCTS
- 2.01 PLANTS
- A. Sound, healthy, vigorous, free from plant diseases, insect pests or their signs.
- B. Plants out 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. These 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 roots masses maintained moist, through periodic watering, until the time of planting.
- F. The removal of the plants from the containers, the soil/root masses shall be the size of the specified soil exists on the bottom of the containers, the plants will be rejected if they have not been grown sufficiently long in the containers to root into the soils contained therein.
- G. The plants shall appear healthy with no leaf spots, leaf damage, leaf discolorations, leaf wilting, or evidence of insects on the leaves.
- H. The container size shall be at least as large as indicated in the specifications or shown in the plant labels/lists. Plants shall not be rejected if supplied in containers larger than specified.
- I. Filler 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.
- J. 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.
- K. If growing the plants shall appear healthy with no foliar spots, discolorations, wilting, or other evidence of the presence of disease or insects.
- L. Plants shall not be rejected if supplied in pots larger than specified.
- M. The number of plants, stems, or culms per pot, as specified or shown in the plant labels/lists at least one be present, on the average, or the plants shall be rejected.
- N. Dominant Propagule (Rhizomatous): If not planted immediately after being delivered to the job site, the dominant propagule 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 material, and shall be maintained moist, through periodic watering, until the time of planting.
- O. The buds and shoots associated with the propagules shall have turned or be rigid to the touch. If the buds and/or shoots associated with the propagules are soft or mushy or appear rotten or decomposed, the plant materials shall be rejected.
- P. 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.
- Q. Suckers 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).
- R. Growing Bare Root Plants (Herbaceous): The plants shall contain new roots that are clean and white in coloration.
- S. 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.
- T. The plants shall appear healthy with no foliar spots, discolorations, wilting, or other evidence of the presence of disease or 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:
1. All emergent plant material - planting pit application of 1 oz. per container or bare root plant.
- C. Pesticides, herbicides and fungicides will not be used unless justified necessary by the wetland landscape. 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 formulae 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 costs 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 grading, soil, 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 for 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:
- Keep all plants in a healthy growing condition by watering, when necessary, removing dead or dying branches, controlling insect infestations, removing sprouts, windings.
  - Remove and replace dead or damaged plant material. Where replacement is not possible due to season, remove dead material, etc. and level pit, re-planting is possible.
- C. Notify Owner for review of activities prior to initiating maintenance operations each month.

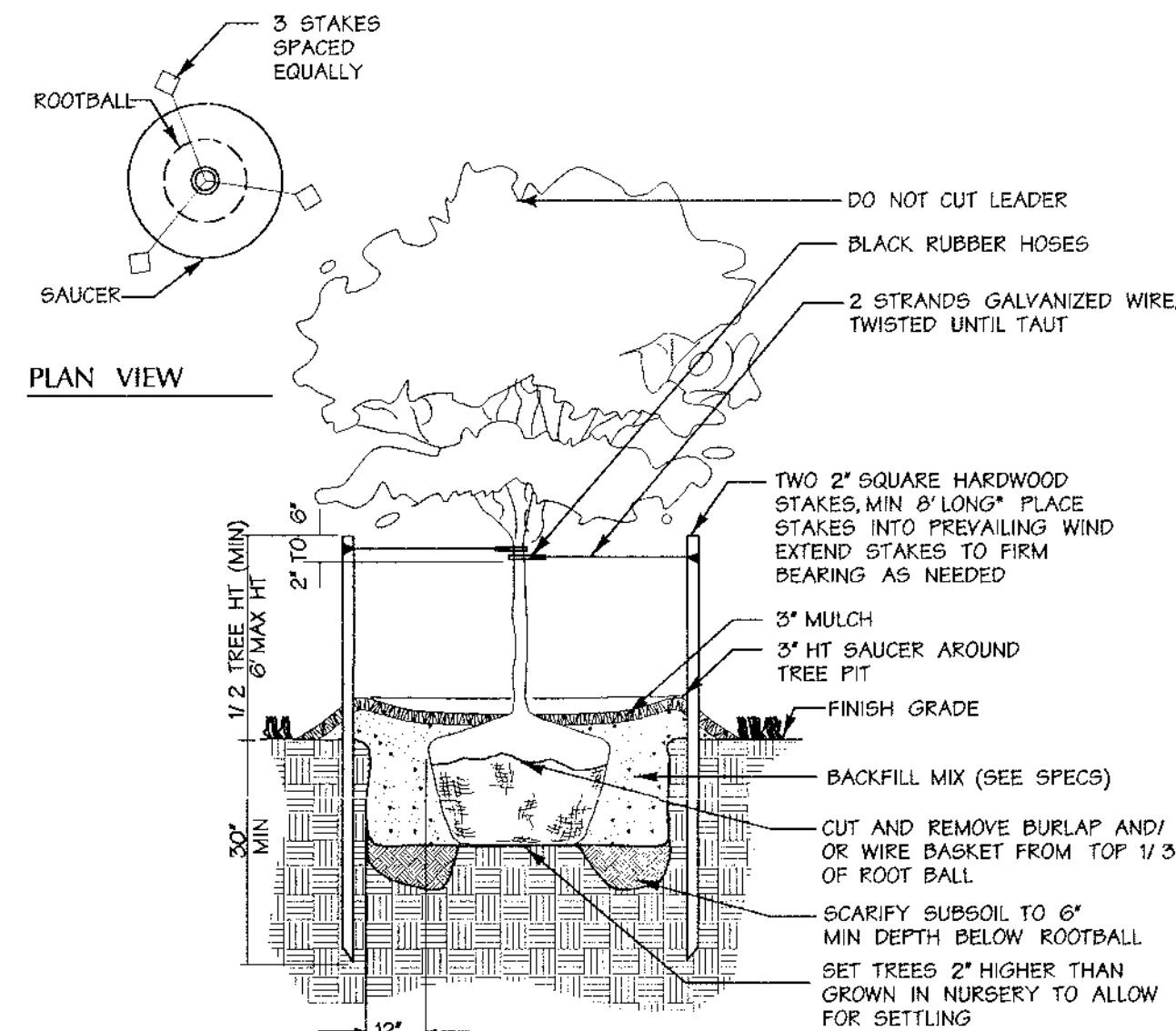
## General Planting Notes

- All plants material to meet A.A.N. Standards.
- Landscape Contractor to follow landscape specification guidelines for Baltimore Washington Metro area approved by LCMW.
- 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 16124 of the Ho. Co. Code. Financial surety for the required landscaping in the amount of \$49,650.00 must be posted as part of the developer's agreement. (100 shade, 131 evergreens).
- Developer's/Builder's Certificate

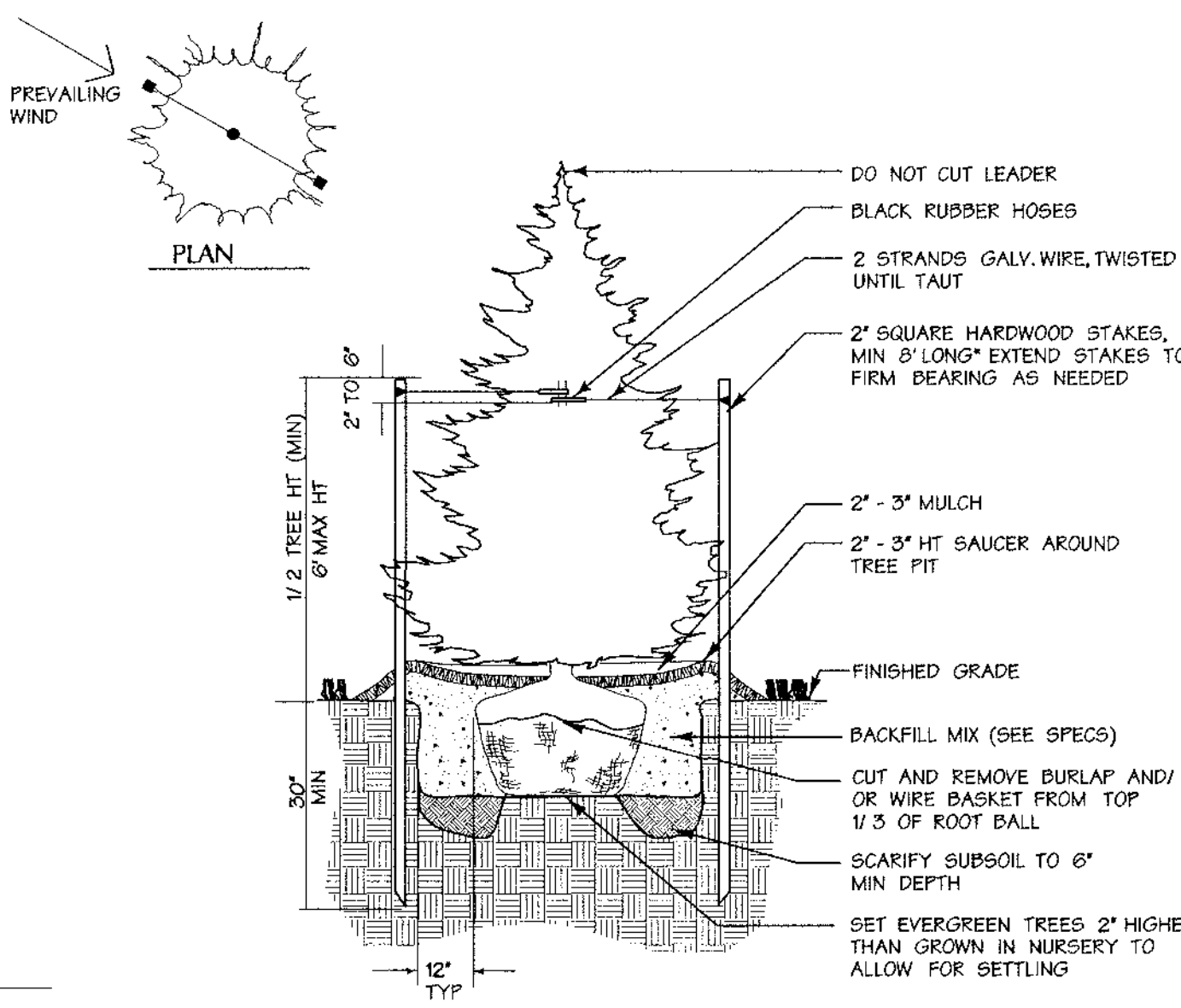
I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16124 of the Howard County code and the Howard County Landscape Manual. I/we further certify that upon completion, a certification of landscape installation, accompanied by an executed one-year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

*Robert A. Jenkins* 9/20/02  
 NAME: DATE

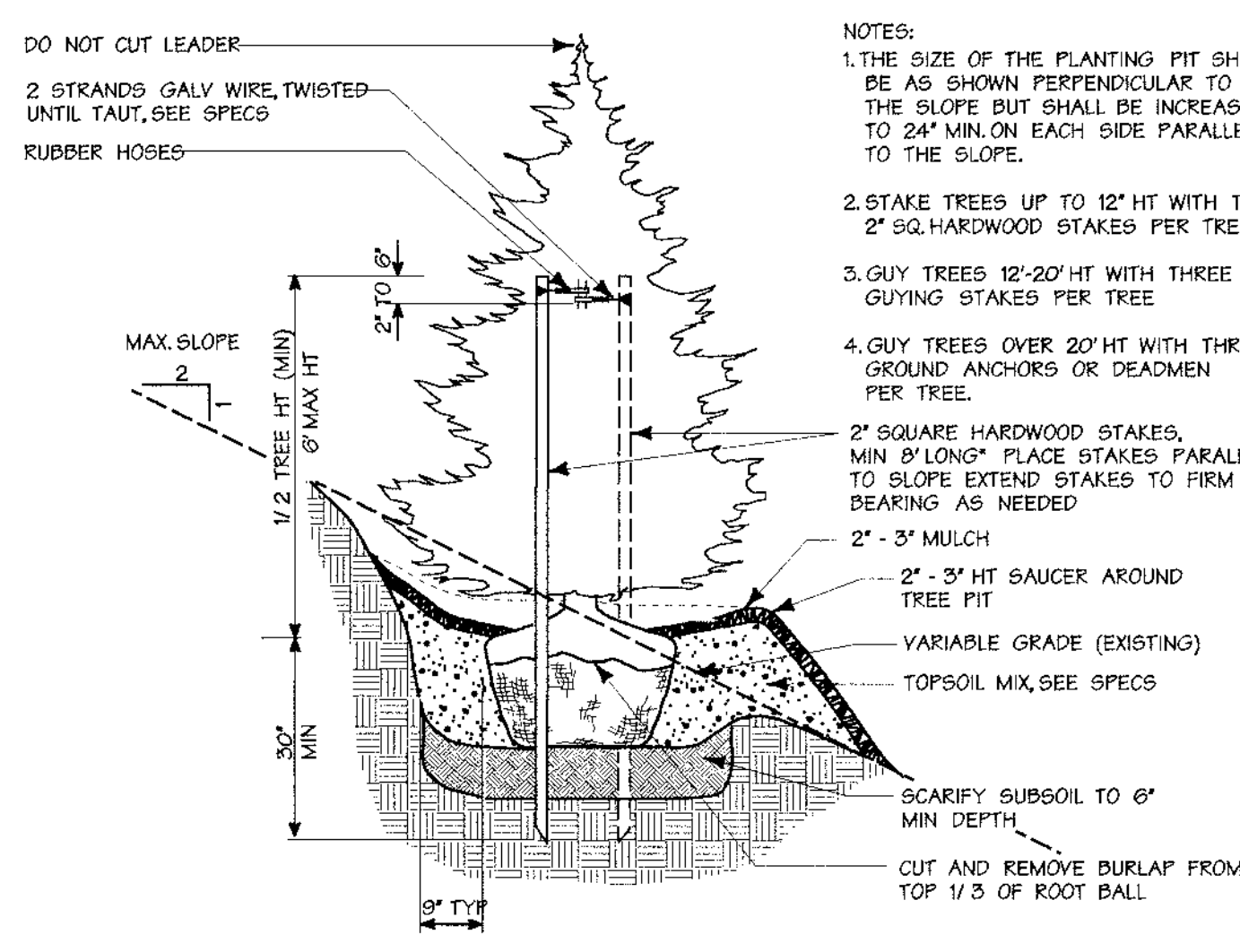
*Robert A. Jenkins*



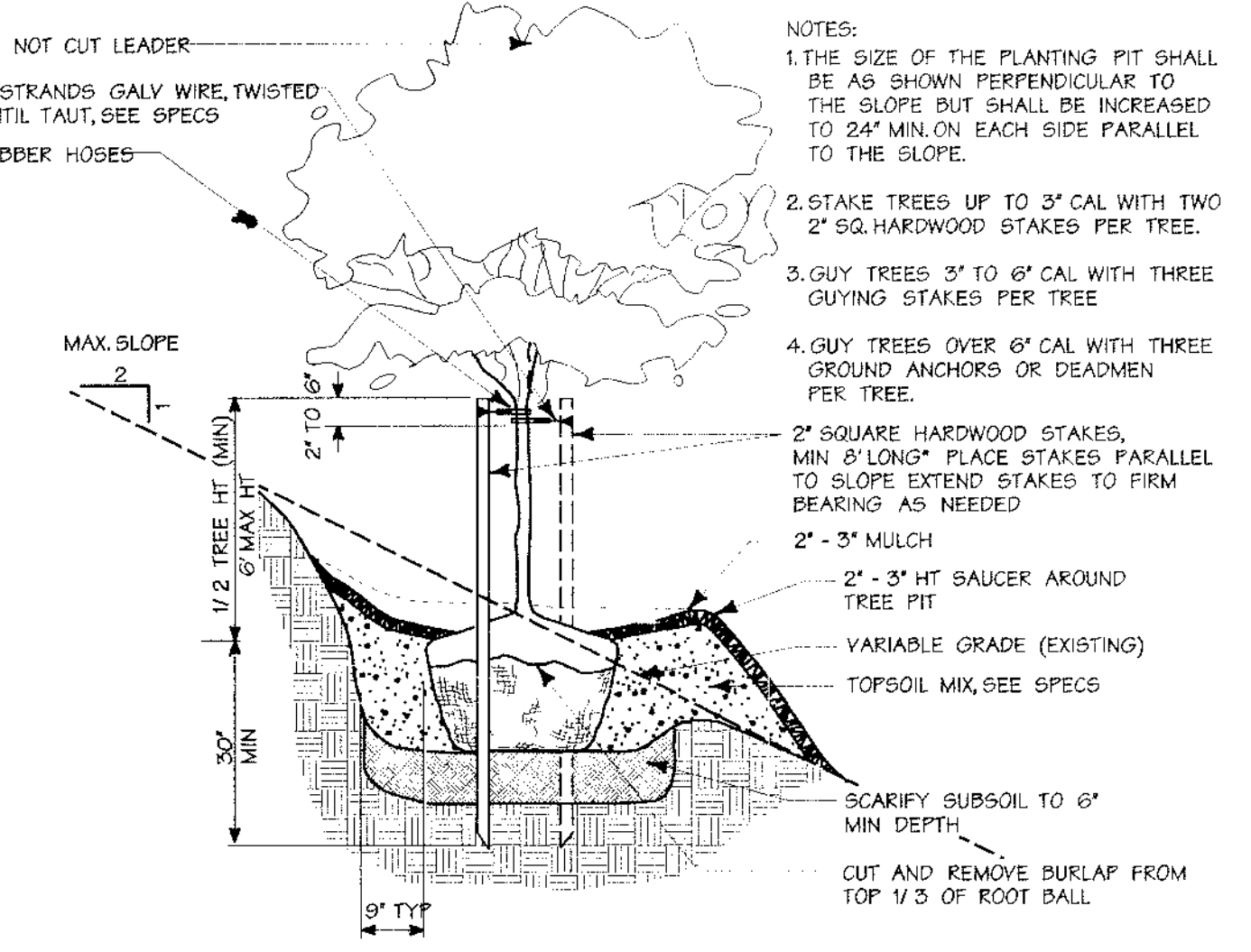
Less Than 3" Cal. Tree Planting  
Not To Scale



Evergreen Tree Planting  
Not To Scale



Evergreen Tree Planting on Slope  
Not To Scale



Tree Planting on Slope  
Not To Scale

APPROVED HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. ...</i>	10-10-02
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING	
<i>...</i>	11/20/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK	DATE
<i>...</i>	1/20/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
N/A	
DIRECTOR	

**REVITZ PROPERTY**  
 OWNER / DEVELOPER  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

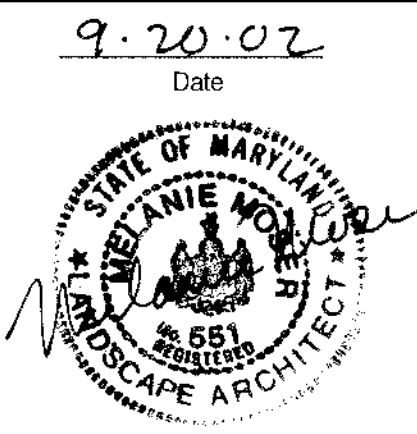
**DMW**  
 Daft McCune Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

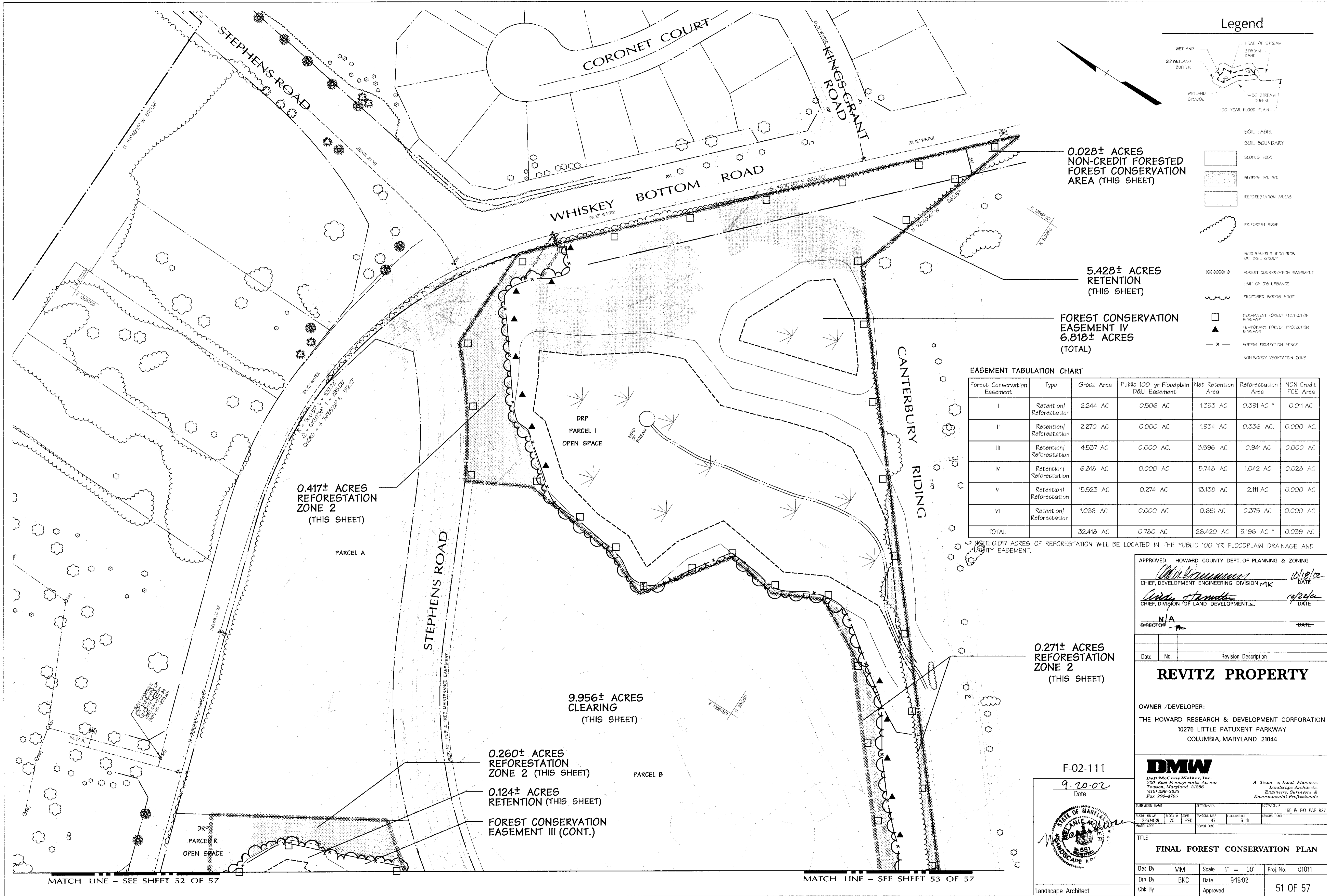
A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
PLAT # OR L.P. BLOCK #	ZONE	RES & PLO PAR 537
2267488	REC	
WATER CODE	TAXZONE MAP	ELECT. DISTRICT
	47 GRID 20	6 th
	CENSUS TRACT	
	SEWER CODE	
TITLE	LANDSCAPE NOTES AND DETAILS	
Des By	Scale	AS NOTED
Drn By	A/S	Date
Chk By	Approved	50 OF 57

F-02-111

F-02-111





### Legend

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- HEAD OF STREAM
- STREAM BANK
- 100 YEAR FLOOD PLAIN
- 100' STREAM BUFFER
- 50' STREAM BUFFER
- SOIL LABEL
- SOIL BOUNDARY
- SLOPES >25%
- SLOPES 1%:25%
- REFORESTATION AREAS
- EX FOREST EDGE
- SCRUBSHRUBBEDGEWOOD OR "HELL GROUP"
- FOREST CONSERVATION EASEMENT
- LIMIT OF DISTURBANCE
- PROPOSED WOODS FENCE
- PERMANENT FOREST PROTECTION SIGNAGE
- TEMPORARY FOREST PROTECTION SIGNAGE
- FOREST PROTECTION FENCE
- NON-WOODY VEGETATION ZONE

### EASEMENT TABULATION CHART

Forest Conservation Easement	Type	Gross Area	Public 100 yr Floodplain D&U Easement	Net Retention Area	Reforestation Area	NON-Credit FCE Area
I	Retention/Reforestation	2,244 AC	0.506 AC	1,353 AC	0.391 AC *	0.011 AC
II	Retention/Reforestation	2,270 AC	0.000 AC	1,934 AC	0.336 AC	0.000 AC
III	Retention/Reforestation	4,537 AC	0.000 AC	3,596 AC	0.941 AC	0.000 AC
IV	Retention/Reforestation	6,818 AC	0.000 AC	5,748 AC	1,042 AC	0.028 AC
V	Retention/Reforestation	15,523 AC	0.274 AC	13,138 AC	2,111 AC	0.000 AC
VI	Retention/Reforestation	1,026 AC	0.000 AC	0,651 AC	0,375 AC	0.000 AC
TOTAL		32,418 AC	0.780 AC	26,420 AC	5,196 AC *	0.039 AC

NOTE: 0.017 ACRES OF REFORESTATION WILL BE LOCATED IN THE PUBLIC 100 YR FLOODPLAIN DRAINAGE AND UTILITY EASEMENT.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

*Howard County*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE 10/12/02

*Wanda Hamlett*  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 10/20/02

N/A  
 DIRECTOR DATE

Date	No.	Revision Description

## REVITZ PROPERTY

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Dan McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3233  
 Fax: 296-4706

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

F-02-111  
 9.20.02  
 Date

*Wanda Hamlett*  
 Wanda Hamlett  
 651  
 LANDSCAPE ARCHITECT

SUBVISION NAME	SECTION AREA	DATE	SCALE	PROJECT NO.	DATE
165 & PD FAR R37					

TITLE  
**FINAL FOREST CONSERVATION PLAN**

Des By	MM	Scale	1" = 50'	Proj No.	01011
Drn By	BKC	Date	9/19/02		
Chk By	Approved				51 OF 57

MATCH LINE - SEE SHEET 52 OF 57

MATCH LINE - SEE SHEET 53 OF 57

MATCH LINE - SEE SHEET 51 OF 57

Legend

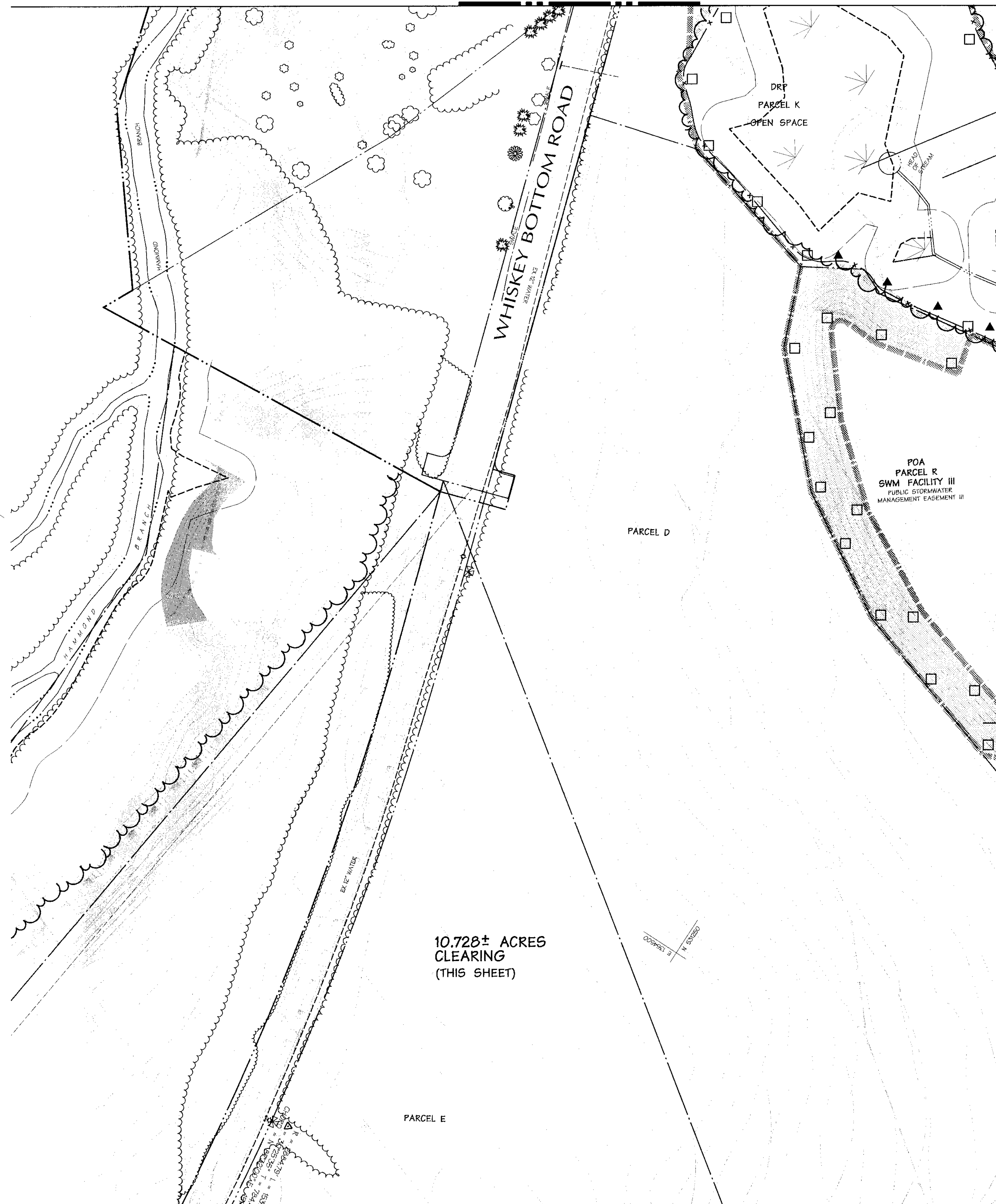
- WETLAND 25' WETLAND BUFFER
- HEAD OF STREAM
- STREAM BANK
- 50' STREAM BUFFER
- 100' YEAR FLOOD PLAIN
- WETLAND SYMBOL
- SOIL LABEL
- SOIL BOUNDARY
- SLOPES >25%
- SLOPES 15%-25%
- REFORESTATION AREAS
- EX FOREST EDGE
- SCUPBUSH/SHRUB/DECIDUOUS OF TREE GROUP
- FOREST CONSERVATION EASEMENT LIMIT OF DISTURBANCE
- PROPOSED WOODS EDGE
- PERMANENT FOREST PROTECTION SIGNAGE
- TEMPORARY FOREST PROTECTION SIGNAGE
- FOREST PROTECTION FENCE
- NON-WOODY VEGETATION ZONE

1.458± ACRES RETENTION (THIS SHEET)

FOREST CONSERVATION EASEMENT III  
4.537± ACRES (TOTAL)

0.558± ACRES REFORESTATION ZONE 2

10.728± ACRES CLEARING (THIS SHEET)



APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
*Mike Williams* 10/18/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE  
*Cindy Herold* 10/28/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 N/A  
 DIRECTOR DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Datt-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4776  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

9.20.02  
 Date

SUBMISSION NAME	SECTION/AREA	DATE	REVISION #

TITLE: **FINAL FOREST CONSERVATION PLAN**

Des By	MM	Scale	1" = 50'	Proj. No.	01011
Drn By	BKC	Date	9/19/02		
Chk By	Approved				

F-02-111

Landscape Architect

F-02-111

52 OF 57

MATCH LINE - SEE SHEET 54 OF 57

MATCH LINE - SEE SHEET 53 OF 57

Legend

- WETLAND 25' WETLAND BUFFER
- HEAD OF STREAM
- STREAM BANK
- 30' STREAM BUFFER
- 100 YEAR FLOOD PLAIN
- WETLAND SYMBOL
- SOIL LABEL
- SOIL BOUNDARY
- SLOPES >25%
- SLOPES 15%-25%
- REFORESTATION AREAS
- EX-FOREST EDGE
- SCOUR/SHRUB/HERDORROW OR TREE GROUP
- FOREST CONSERVATION EASEMENT
- LIMIT OF DISTURBANCE
- PROPOSED WOODS EDGE
- PERMANENT FOREST PROTECTION SIGNAGE
- TEMPORARY FOREST PROTECTION SIGNAGE
- FOREST PROTECTION FENCE
- NON-WOODY VEGETATION ZONE

2.014± ACRES RETENTION  
FOREST CONSERVATION EASEMENT III (CONT.)

0.113± ACRES REFORESTATION ZONE 2  
(THIS SHEET)

0.010± ACRES REFORESTATION ZONE 2  
(THIS SHEET)

FOREST CONSERVATION EASEMENT III (CONT.)

0.320± ACRES RETENTION  
(THIS SHEET)

FOREST CONSERVATION EASEMENT IV (CONT.)

0.354± ACRES REFORESTATION ZONE 2  
(THIS SHEET)

14.521± ACRES CLEARING  
(THIS SHEET)

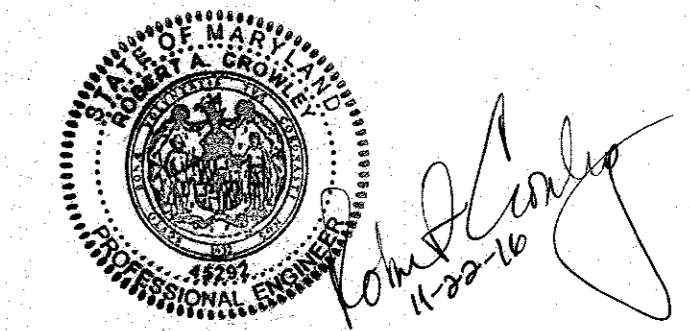
0.830± ACRES RETENTION (EXCLUDES PUBLIC 100 YR FLOOD-PLAIN D&U EASEMENT)  
(THIS SHEET)

0.444± ACRES PUBLIC 100 YR FLOOD-PLAIN D&U EASEMENT  
(THIS SHEET)

FOREST CONSERVATION EASEMENT I - 2.244± ACRES (TOTAL)

0.011± ACRES NON-CREDIT, NON-WOODED FCE AREA  
(THIS SHEET)

0.159± ACRES REFORESTATION ZONE 2  
(THIS SHEET)



PROFESSIONAL CERTIFICATION FOR REV #3  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 46292, EXPIRATION DATE: 05/21/2018  
THE PURPOSE OF REVISION 3 IS TO SHOW THE WORK ASSOCIATED WITH EMERSON CAMPUS VCP. SDP-10-005

For Revisions #1 ONLY  
4-19-11  
Date  
Landscape Architect No.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
Chief, Development Engineering Division MKK 10/2/11  
Chief, Division of Land Development 10/23/11  
N/A  
DIRECTOR DATE

05/23/11	3	EMERSON CAMPUS VCP
2-7-11	1	ADD 5' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No.	Revision Description

REVITZ PROPERTY

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

**DMW**  
Duff-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 286-5838  
Fax 286-4705  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

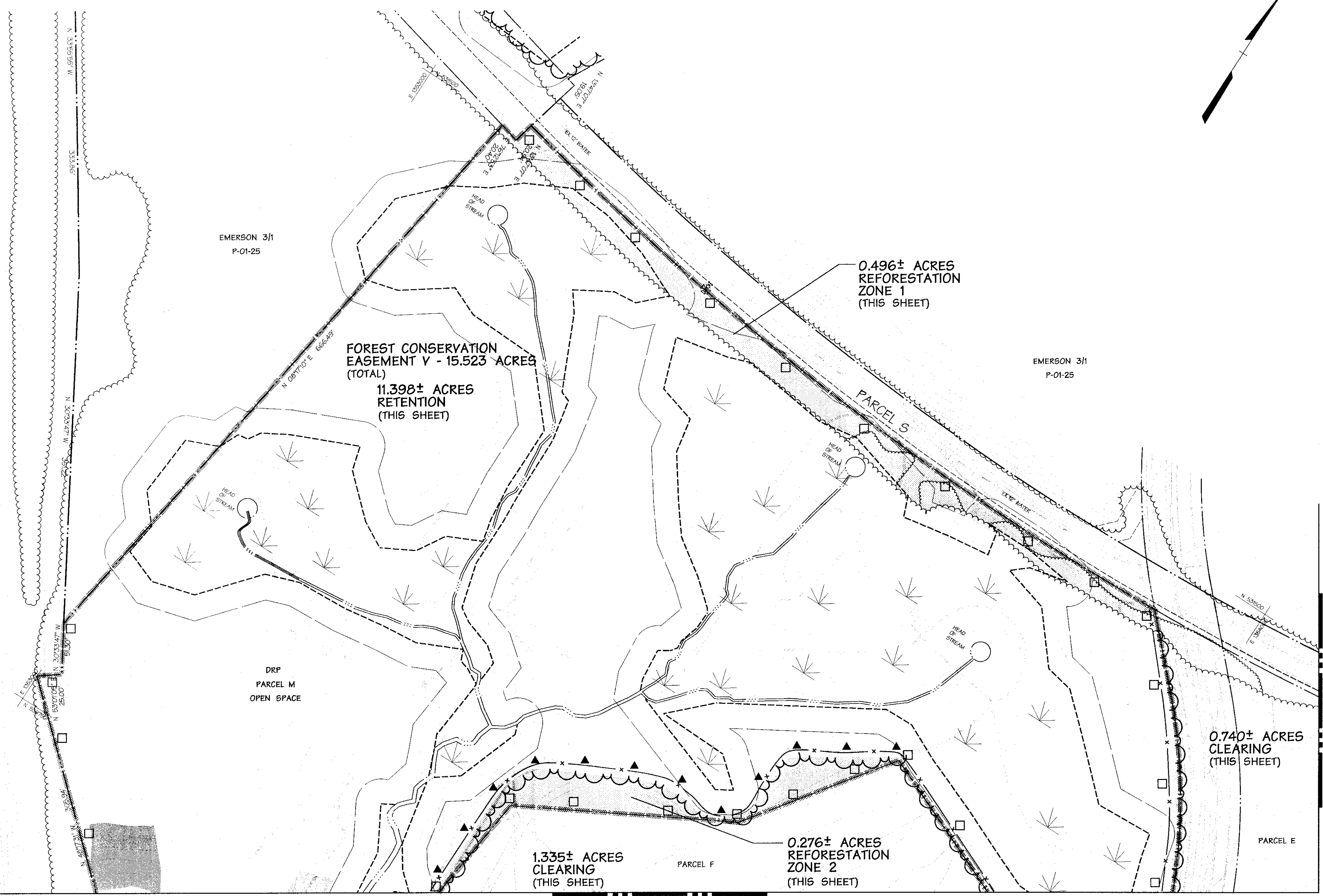
9-20-02  
Date  
Landscape Architect

SUBDIVISION NAME	SECTION/AREA	DISPARITY #
PLAT # OR L.P. 2267436	BLOCK # 20	SECTION # 47
WATER CODE	SEWER CODE	SHEDD TRACT
TITLE FINAL FOREST CONSERVATION PLAN		
Des By MM	Scale 1" = 50'	Proj. No. 01011
Dm By BKC	Date 9/19/02	
Chk By	Approved	53 OF 57

F-02-111 Landscape Architect

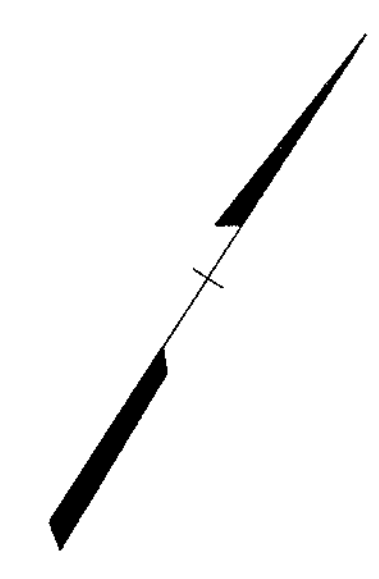
F-02-111

STATE ROUTE 216 WBL



Legend

- WETLAND 25' WETLAND BUFFER
- WETLAND SYMBOL
- HEAD OF STREAM
- STREAM BANK
- 50' STREAM BUFFER
- 100 YEAR FLOOD PLAIN
- SOIL LABEL
- SOIL BOUNDARY
- SLOPES >25%
- SLOPES 15%-25%
- REFORESTATION AREAS
- EX FOREST EDGE
- SCRUBSHRUBBEDGEWOOD OR TREE GROUP
- FOREST CONSERVATION EASEMENT
- LIMIT OF DISTURBANCE
- PROPOSED WOODS EDGE
- PERMANENT FOREST PROTECTION SIGNAGE
- TEMPORARY FOREST PROTECTION SIGNAGE
- FOREST PROTECTION FENCE
- NON-WOODY VEGETATION ZONE



MATCH LINE - SEE SHEET 52 OF 57

MATCH LINE - SEE SHEET 55 OF 57

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
*(Signature)* 10/10/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE  
*(Signature)* 10/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 DIRECTOR N/A DATE

Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**

Darr-McCune-Walker, Inc.  
 2000 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 410) 296-3523  
 Fax: 296-4705

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

9.20.02  
 Date  
  
 Stephanie Walker  
 LANDSCAPE ARCHITECT

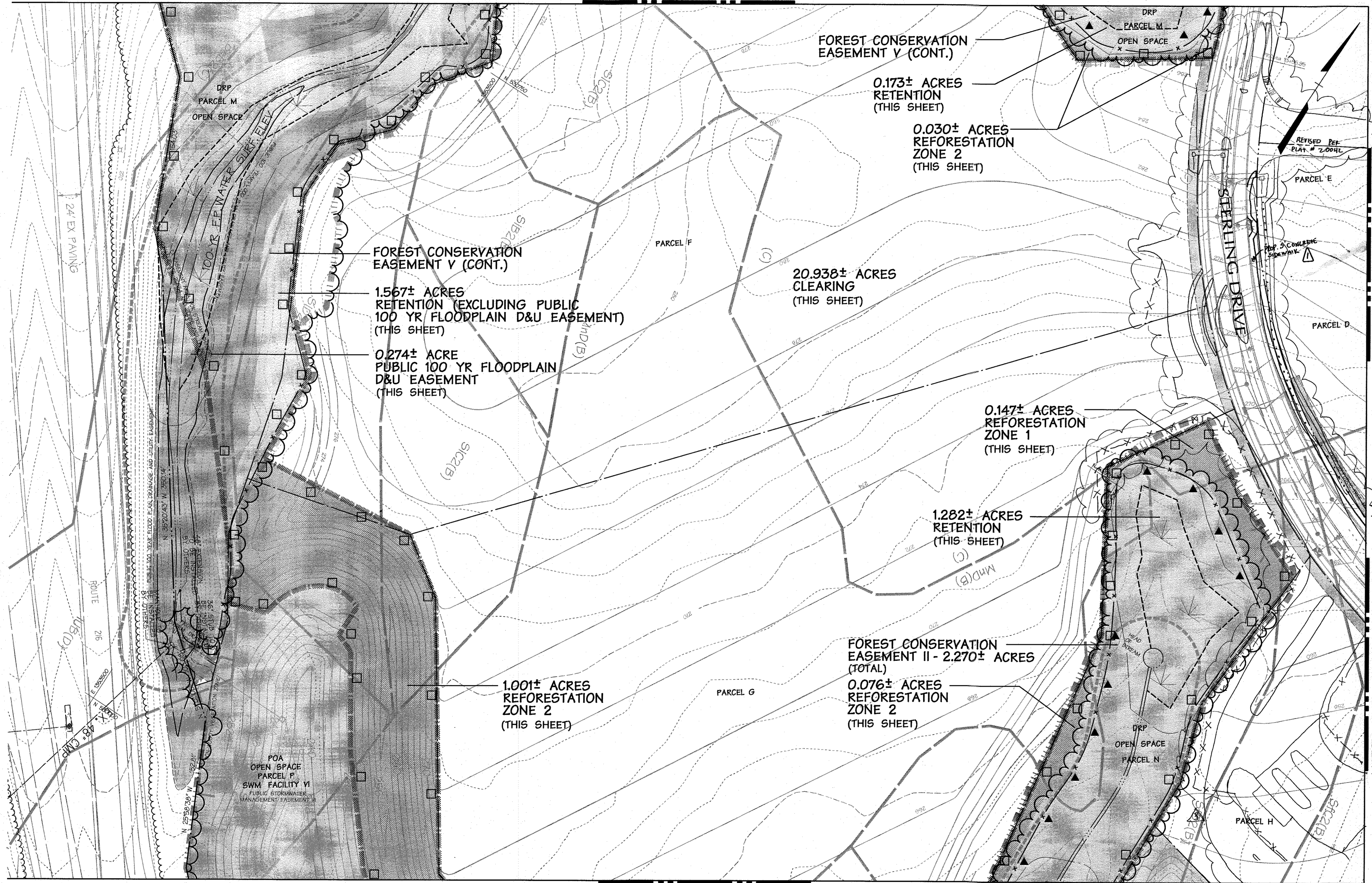
SECTION NAME	DATE/VERSION	OFFICIAL #
PARCEL M OPEN SPACE	9/20/02	165 & PO PAR 837
PLAT # OR LOT	BLOCK #	ZONE
2201435	23	REC
PAVING MAP	FEET DISTANCE	SEASONS TRACT
47	6 ft	
WATER CODE	SEASONS CODE	

**FINAL FOREST CONSERVATION PLAN**

Des By	MM	Scale	1" = 50'	Proj. No.	01011
Des By	BKC	Date	9/19/02		
Chk By		Approved			54 OF 57

F-02-111

MATCH LINE - SEE SHEET 54 OF 57



MATCH LINE - SEE SHEET 56 OF 57

### Legend

WETLAND 25' WETLAND BUFFER  
WETLAND SYMBOL  
HEAD OF STREAM  
STREAM BANK  
50' STREAM BUFFER  
100 YEAR FLOOD PLAN

**MTC2**

SOIL LABEL  
SOIL BOUNDARY  
SLOPES >25%  
SLOPES 15%-25%  
REFORESTATION AREAS  
EX FOREST EDGE  
SCRUBSHRUBBERGROW OR TREE GROUP  
FOREST CONSERVATION EASEMENT  
LIMIT OF DISTURBANCE  
PROPOSED WOODS EDGE

PERMANENT FOREST PROTECTION SIGNAGE  
TEMPORARY FOREST PROTECTION SIGNAGE  
FOREST PROTECTION FENCE  
NON-WOODY VEGETATION ZONE

MATCH LINE - SEE SHEET 52 OF 57

MATCH LINE - SEE SHEET 53 OF 57

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

*Michael J. Williams* 10/10/12  
CHIEF DEVELOPMENT ENGINEERING DIVISION MK DATE

*Andy Hamilton* 10/22/12  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N/A  
DIRECTOR DATE

05/23/15	Δ	EMERSON CAMPUS VCP
2-7-11	1	ADD 3' CONCRETE SIDEWALK ALONG PARCEL D FRONTAGE
Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER / DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

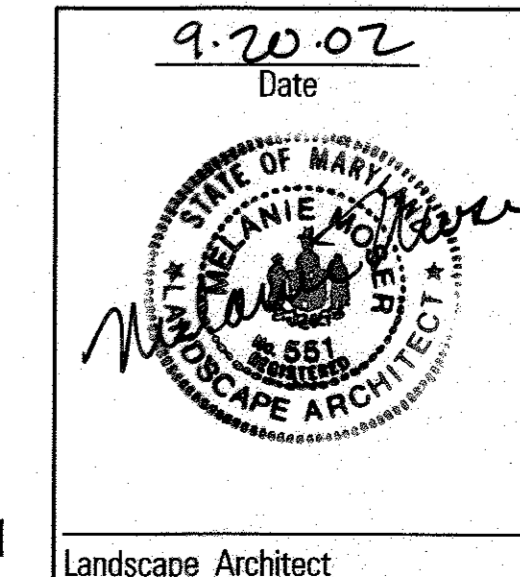
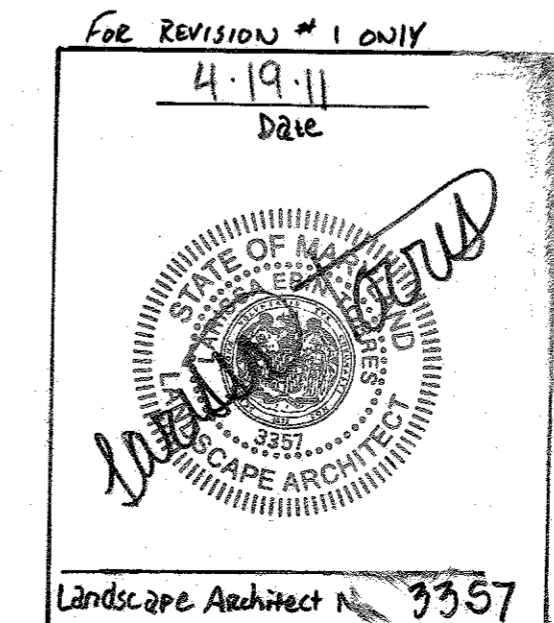
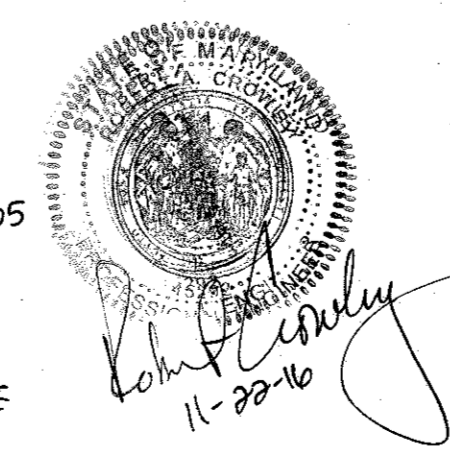
**DMW**  
Duff-McCune-Walkers, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 506-3333  
Fax 298-4705

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

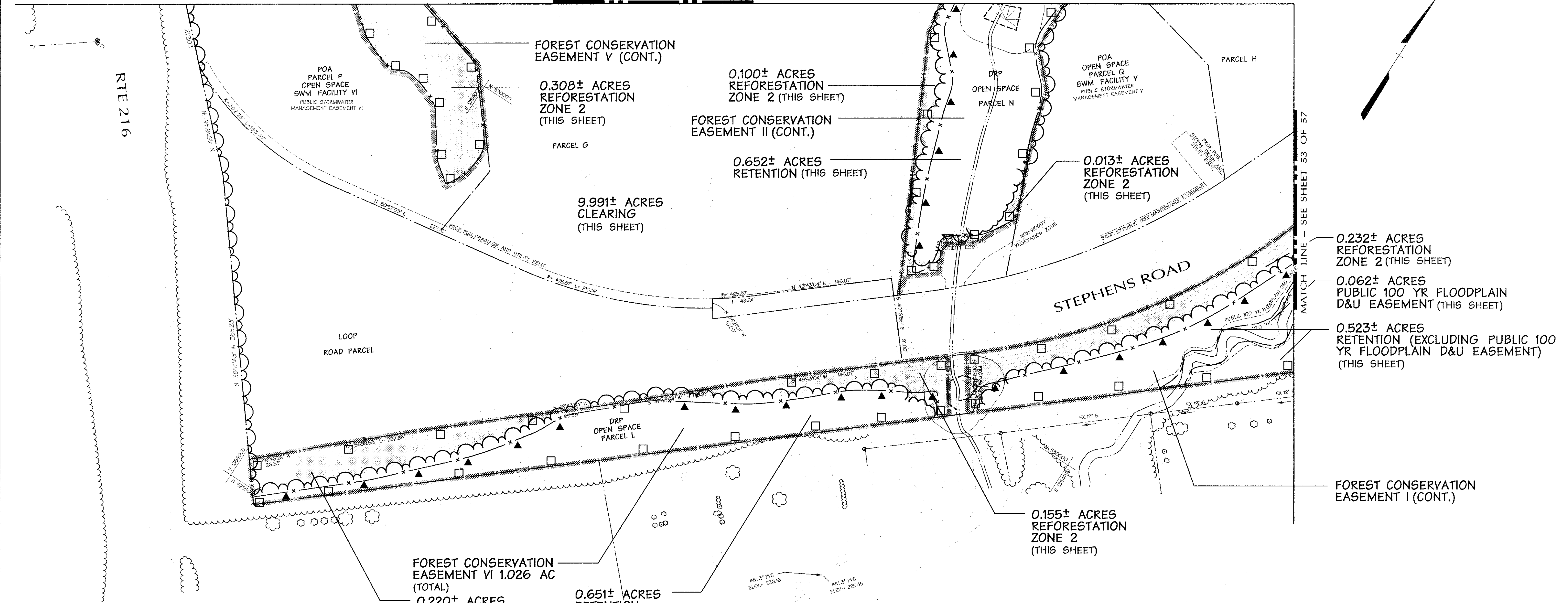
SUBDIVISION NAME	SECTION/AREA	DATE	165 & DC PAR. 837
DATE OF PLAN	BLOCK #	ZONE	REVISION MAP
2262436	20	PEC	47
WATER CODE	REVISION	DATE	6 th
TITLE	FINAL FOREST CONSERVATION PLAN		
Des By	MM	Scale	1" = 50'
Dwn By	BKC	Date	9/19/02
Chk By	Approved	Page No.	01011
			55 OF 57

Δ THE PURPOSE FOR REVISION #1 IS TO SHOW THE WORK ASSOCIATED WITH THE EMERSON CAMPUS VCP, SDR-16-005

Δ PROFESSIONAL CERTIFICATION FOR REV #3  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292, EXPIRATION DATE: 05/21/2018



F-02-111



0.232± ACRES REFORESTATION ZONE 2 (THIS SHEET)  
 0.062± ACRES PUBLIC 100 YR FLOODPLAIN D&U EASEMENT (THIS SHEET)  
 0.523± ACRES RETENTION (EXCLUDING PUBLIC 100 YR FLOODPLAIN D&U EASEMENT) (THIS SHEET)  
 FOREST CONSERVATION EASEMENT I (CONT.)

**Legend**

- WETLAND
- WETLAND BUFFER
- 25' WETLAND SYMBOL
- HEAD OF STREAM
- STREAM BANK
- 90' STREAM BUFFER
- 100 YEAR FLOOD PLAN
- SOIL LABEL
- SOIL BOUNDARY
- SLOPES >25%
- SLOPES 15%-25%
- REFORESTATION AREAS
- PERMANENT FOREST PROTECTION SIGNAGE
- TEMPORARY FOREST PROTECTION SIGNAGE
- FOREST PROTECTION FENCE
- EX-FOREST EDGE
- SCRUBSHRUBHEDGEROW OR TREE GROUP
- FOREST CONSERVATION EASEMENT
- LIMIT OF DISTURBANCE
- PROPOSED WOODS EDGE
- NON-WOODY VEGETATION ZONE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING

*Michael M. K...* 10/2/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

*Cindy Hammit* 10/2/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

N/A  
 DIRECTOR DATE

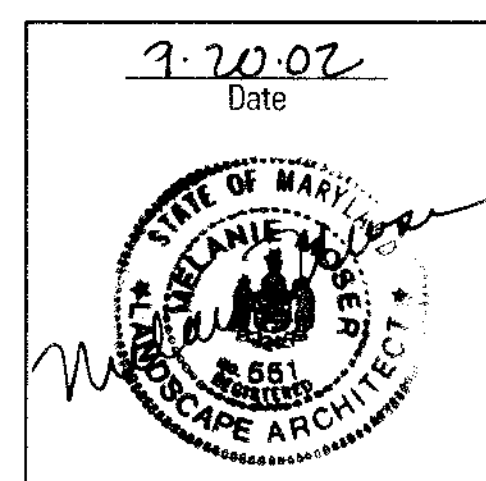
Date	No.	Revision Description

**REVITZ PROPERTY**

OWNER /DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Duff McCreary-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 286-3333  
 Fax: 286-4705

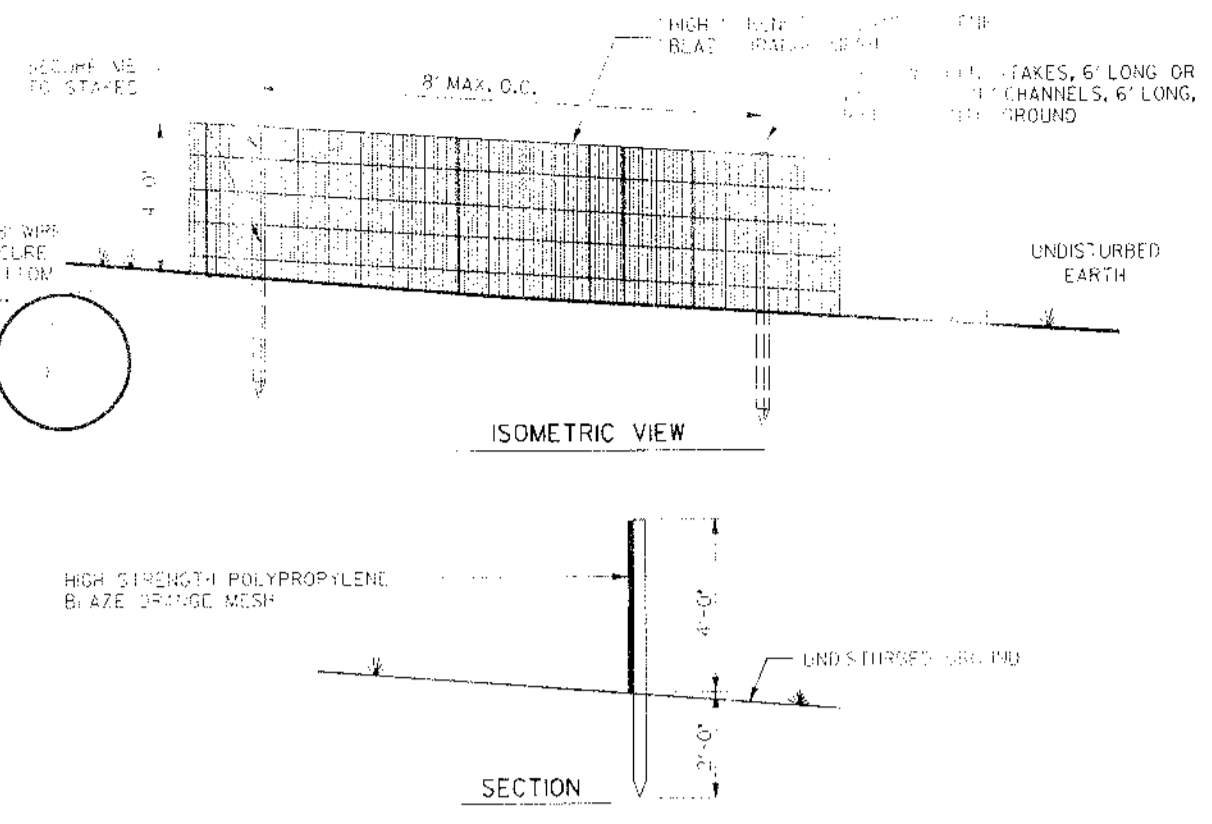
A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals



SUBSCRIBER NAME	SECTION/AREA	DATE	155 & PG PAR 837
PLAT # OR LF #	BLOCK #	DATE	REVISION TABLE
220/436	20	PEC	8 in
WATER CODE	SEWER CODE		
TITLE			
FINAL FOREST CONSERVATION PLAN			
Des By	MM	Scale	1" = 50'
Drn By	BKC	Date	9/19/02
Proj. No.	01011		
Chk By	Approved	56 OF 57	

F-02-111  
 Landscape Architect



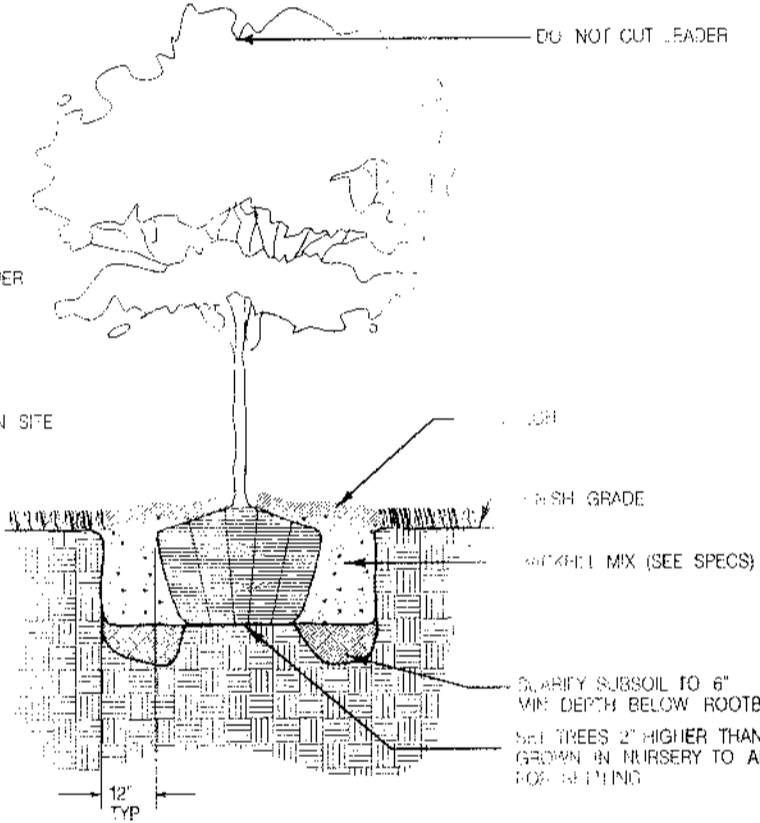


- NOTES:
- THIS DETAIL IS FOR FOREST PROTECTION DEVICE ONLY.
  - FOREST RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
  - BOUNDARIES OF FOREST RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING THE DEVICE.
  - ROOT DAMAGE SHALL BE AVOIDED.
  - PROTECTION SIGNAGE MAY ALSO BE USED.
  - FOREST PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

### Forest Protection Fence

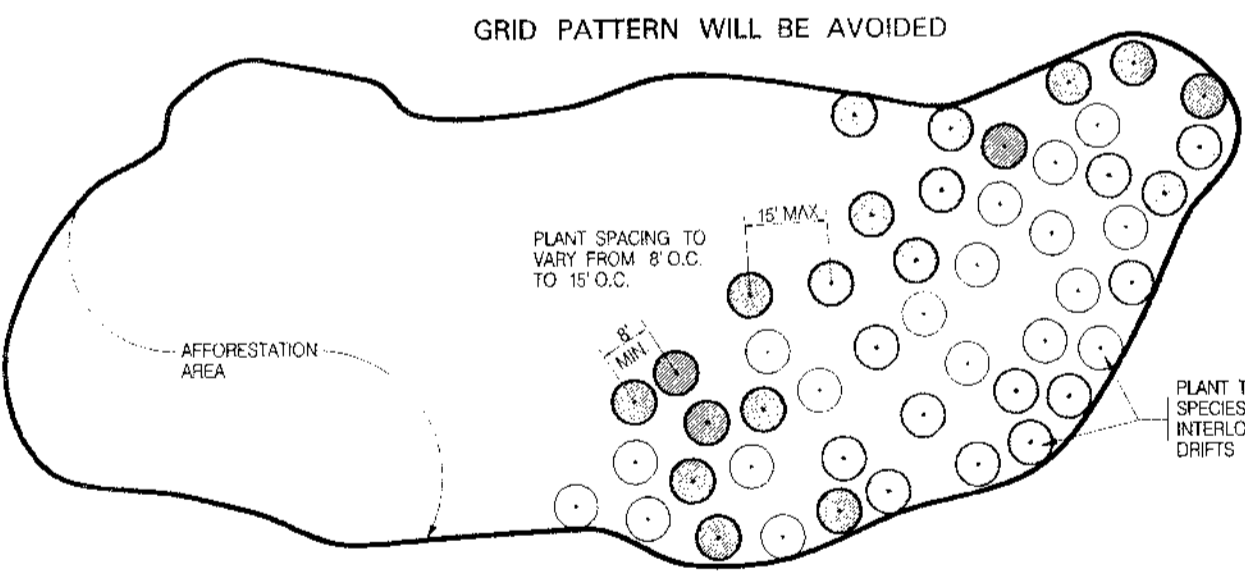
Not To Scale

\* WHERE SUPER SILT FENCE (S.S.F.) IS TO BE INSTALLED ADJACENT TO FOREST RETENTION AREAS, ATTACH HIGH VISIBILITY TAPE OR FLAGGING TO THE TOP EDGE OF S.S.F. AT 5' INTERVALS AND USE S.S.F. IN LIEU OF BLAZE ORANGE FENCE. TEMPORARY FOREST PROTECTION SIGNAGE MAY BE ATTACHED TO S.S.F.



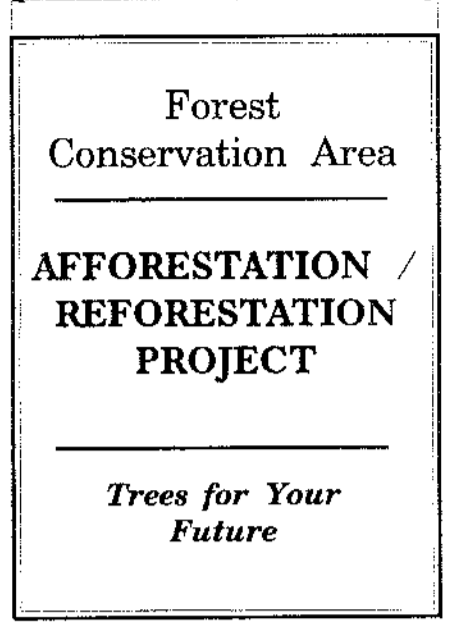
### Typical Tree Planting (For container grown)

Not To Scale



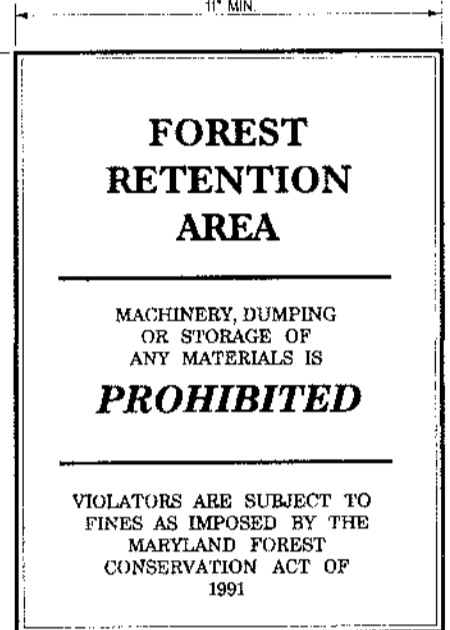
### Planting Design Schematic

Not To Scale



### Permanent Signage

Not To Scale



### Temporary Signage

Not To Scale

SIGNS TO BE PLACED ON METAL POSTS 4" DIA. ABOVE FENCE LINE. PLACE SIGNS EVERY 50' ALONG PERIMETER OF FOREST RETENTION AREA.

SIGNS TO BE PLACED ON METAL POSTS 4" DIA. ABOVE FENCE LINE. PLACE SIGNS EVERY 50' ALONG PERIMETER OF FOREST RETENTION AREA.

SIGNS MAY NOT BE ATTACHED TO TREES.

**GOALS AND OBJECTIVES**  
Development of the Revitz Property proposes approximately 68.21 acres of forest clearing. Under the current Forest Conservation Act, 5.00 acres of reforestation are required to mitigate for the forest clearing. The goal of this Forest Conservation Plan is to address reforestation requirements for the proposed development by establishing forest in priority reforestation areas which are located on-site. This plan proposes to plant a mix of fast-growing native tree species to establish viable forest cover in these areas as quickly as possible. Reforestation of these areas as proposed will provide resource protection for the adjacent streams and wetlands and will enhance the functional value and quality of the existing habitat. A total of 5.20 acres of priority reforestation will occur on portions of the site. This reforestation will satisfy the reforestation obligation and will provide an average 0.12 acres of reforestation that may be used to offset reforestation requirements for off-site development.  
Please note that the total site acreage of 97.53 includes the MD RTE 26 Loop Road Parcel and addresses Forest Conservation Act Compliance associated with the conveyance of this property to the State Highway Administration.

**FOREST RETENTION**  
The Retention Area Protection areas will be delineated with temporary forest protection fencing and retention area signage as appropriate. See forest protection fence and retention area signage detail prior to the beginning of any construction activity. Attachment of signs to trees is prohibited.

**PRECONSTRUCTION MEETINGS/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 items 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.  
No grading, excavation, utility placement, sediment and erosion control activities, or vehicular traffic will occur within forest retention areas. Storage of equipment and materials shall not be permitted in the forest retention area.  
There will be no burial or disposal of discarded material on-site within the retention area.  
There will be no open burning within 100 feet of woodlands.  
Temporary structures including, but not limited to construction trailers, sanitary facilities, etc. shall not be placed within the forest retention areas. Employee parking shall not be permitted in the forest retention area.

**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. Seventy five percent survivorship must be guaranteed for the 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, cultivating, weeding, and mulching 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, they shall be replaced as directed by Landscape Architect at no additional cost to Owner.

### ALL FOREST RETENTION & REFORESTATION AREAS SHOWN ON THIS PLAN TO BE PLACED IN FOREST CONSERVATION EASEMENT

#### STANDARDS AND SPECIFICATIONS FOR PLANTING

- PLANT MATERIAL SELECTION**
  - Nursery grown plant materials greater than 1" caliper should meet or exceed the requirements of the American Nurserymen Specifications, i.e. should be typical of the species and variety, have a normal habit of growth, be first quality, sound, vigorous, well-branched, have healthy well-furnished root systems, and be free of disease, insect pests and mechanical injuries.
  - Planting stock less than 1" caliper should meet the following standards:  
Seedlings: Hardwoods - 14" to 12" caliper with roots not less than 8" long. Shrubs - 16" or larger caliper with 8" root system.
- PLANTING SITE PREPARATION**  
Soils shall not 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.
- PLANTING PERIOD**  
All material shall be planted between September 15 and May 31. Material shall not be installed when ground is frozen.
- PLANT MATERIAL STORAGE**  
Planting stock should be planted within 24 hours of delivery if possible. Plant material which is left unplanted for more than 24 hours shall be protected from direct sun and weather and kept cool. Nursery stock should not be left unplanted for more than two weeks.
- 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 nurseryman specifications for size, form, vigor, roots, trunk, wounds, insects and disease should be replaced.

#### FOREST CONSERVATION CALCULATIONS

DESCRIPTION	ACRES (A.S.)
<b>EXISTING SITE DATA</b>	
ACRES SITE AREA	97.53
AREA WITHIN 100' YEAR FLOODPLAIN	1.17
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0.0
NET TRACT AREA	96.36
LAND USE CATEGORY	GA
<b>REFORESTATION CALCULATIONS</b>	
A. NET TRACT AREA	96.36
B. REFORESTATION THRESHOLD (15% x A)	14.45
C. AFFORESTATION MINIMUM (15% x A)	14.45
D. EXISTING FOREST ON NET TRACT AREA	94.63
E. FOREST AREAS TO BE CLEARED	68.21
F. FOREST AREAS TO BE RETAINED	26.42
<b>REFORESTATION CALCULATIONS</b>	
A. NET TRACT AREA	96.36
B. REFORESTATION THRESHOLD (15% x A)	14.45
C. EXISTING FOREST ON NET TRACT AREA	94.63
D. FOREST AREAS TO BE CLEARED	68.21
E. FOREST AREAS TO BE RETAINED	68.21
F. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD	0.0
G. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	0.0
H. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	11.97
<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	17.05
REFORESTATION FOR CLEARING BELOW THRESHOLD	0.0
TOTAL REFORESTATION REQUIRED (F+(H)+G)	17.05
NET AFFORESTATION REQUIRED	11.97
CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	5.08
REFORESTATION REQUIRED	0.0
REFORESTATION PROVIDED	5.20
ACRES	5.20
ACRES	5.20

**FOREST CONSERVATION SURETY NOTE:**  
A total of 26.42 acres of forest retention, and 5.20 acres of reforestation are proposed under this plan. As such, the required surety amount for the retention acreage is \$230,171.04, and the required surety amount for the reforestation is \$113,256.00. The total amount of the required Forest Conservation Act surety is \$343,427.04.

- 10. LAYOUT AND EXCAVATION OF PLANTING AREAS**
- Plants shall be placed in each zone at random locations shown, at spacing as indicated on the plan.
  - The Landscape Architect or qualified professional will check location of plants in the field and shall adjust to exact location before planting begins.
  - Subsoil shall not be worked when moisture content is so great that excessive compaction will occur nor when it is so dry that roots will not readily penetrate. Subsoiling shall be necessary to bring soils an optimum moisture content before planting.
  - 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
Carried Trees	Can + 12 in.	Can + 4 in.
B&B Trees	Ball + 12 in.	Ball + 4 in.
  - 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**
- Container stock shall be removed carefully after cans have been cut on two sides with approved cutter. Do not use spade to cut cans. Use an iron or non-iron container plants by tops, stems or trunks at any time.
  - 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 pot.
  - Balled and burlapped (B&B) plants shall have firm ball of earth. Plants must be watered with a ball of earth if the ball is cracked or broken before planting. B&B material shall be dug only when dormant. Pre-dug stored B&B material shall be inspected and approved at the storage site.
  - Do not force roots for bare rooted trees into excavated pits - custom dig pits to receive roots without deformation.

- 12. MIXING**
- Mix soil, amendments and chemical additives by mechanical means.
  - Soil and sand bases shall be completely pulverized and free of lumps or aggregated material. Moisture content of base materials shall not be such that clumps of granular or pelletized additives become dislodged during the mixing process.
  - Mix media in quantities of not less than 20 cubic yards or mix total quantity required if less than 50 cubic yards. The Contractor shall be responsible for mixing between batches.
  - Contaminating backfill mix with unamended soils backfilling into pits shall be avoided.

#### GUARANTEE:

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

Reforestation Area Planting Plan

Zone I

Common Name	Species	Size	Spacing	Quantity	Volume	Remarks
White Oak	<i>Quercus alba</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Red Maple	<i>Acer rubrum</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Green Ash	<i>Fraxinus pennsylvanica</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
White Oak	<i>Quercus alba</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
American Sycamore	<i>Platanus occidentalis</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Black Gum	<i>Nyssa sylvatica</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Blackberry	<i>Rubus cuneifolius</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Common Persimmon	<i>Diospyros virginiana</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Sweet Gum	<i>Liquidambar styraciflua</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
Red Oak	<i>Quercus rubra</i>	Container grown whip	11' o.c. f.m.d.m.	220	220	1.0
TOTALS				2200	2200	

Zone II

Common Name	Species	Size	Spacing	Quantity	Volume	Remarks
White Oak	<i>Quercus alba</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Red Maple	<i>Acer rubrum</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Green Ash	<i>Fraxinus pennsylvanica</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
White Oak	<i>Quercus alba</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
American Sycamore	<i>Platanus occidentalis</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Black Gum	<i>Nyssa sylvatica</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Blackberry	<i>Rubus cuneifolius</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Common Persimmon	<i>Diospyros virginiana</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Sweet Gum	<i>Liquidambar styraciflua</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
Red Oak	<i>Quercus rubra</i>	Container grown whip	11' o.c. f.m.d.m.	100	100	1.0
TOTALS				1,000	1,000	

- NOTE:
- THE PRECISE LOCATION OF PLANT MASSINGS WILL BE LOCATED IN THE FIELD BY LANDSCAPE ARCHITECT.
  - GRID PATTERNS WILL BE AVOIDED
  - PLANT MATERIAL MAY BE GROUPED IN CLUSTERS OF NO MORE THAN 5 TO 7 WHIPS OF THE SAME PLANT. PLANTS WILL BE INSTALLED IN A RANDOM FASHION
  - ALL PROPOSED SPECIES ARE TREES. NO SHRUBS SHALL BE PLANTED

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development

Date	No.	Revision Description

**REVITZ PROPERTY**

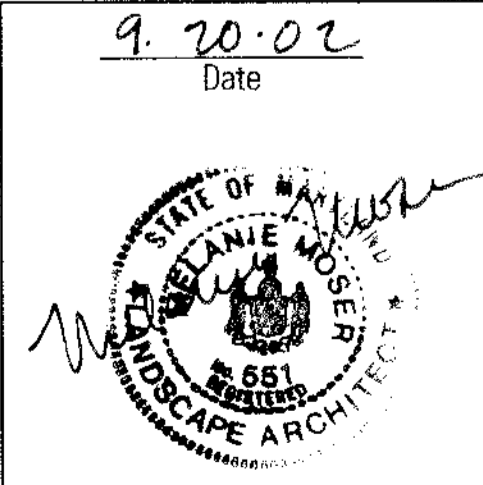
OWNER / DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

**DMW**  
 Dan McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3253  
 Fax: 296-4706

DATE	NO.	REVISION DESCRIPTION

TITLE  
**FINAL FOREST CONSERVATION PLAN**

Des By	MM	Scale	1" = 50'	Proj. No.	01011
Drn By	3KC	Date	9/19/02		
Chk By		Appr. ved			57 01 57



F-02-111

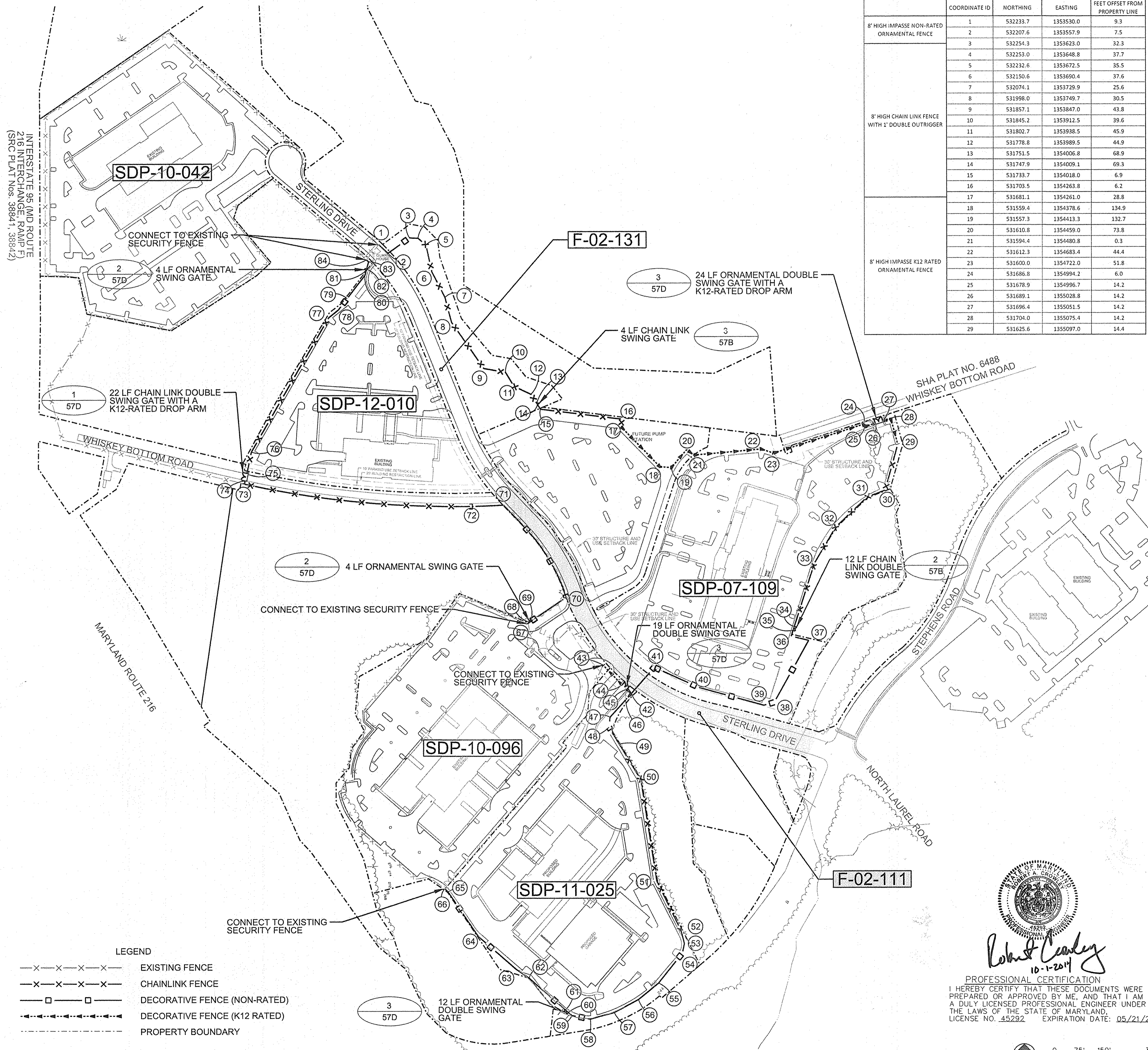
F-02-111

D

C

B

A



	COORDINATE ID	NORTHING	EASTING	FEET OFFSET FROM PROPERTY LINE
8' HIGH IMPASSE NON-RATED ORNAMENTAL FENCE	1	532233.7	1353530.0	9.3
	2	532207.6	1353557.9	7.5
	3	532254.3	1353623.0	32.3
	4	532253.0	1353648.8	37.7
	5	532232.6	1353672.5	35.5
	6	532150.6	1353690.4	37.6
	7	532074.1	1353729.9	25.6
	8	531998.0	1353749.7	30.5
	9	531857.1	1353847.0	43.8
8' HIGH CHAIN LINK FENCE WITH 1" DOUBLE OUTRIGGER	10	531845.2	1353912.5	39.6
	11	531802.7	1353938.5	45.9
	12	531778.8	1353989.5	44.9
	13	531751.5	1354006.8	68.9
	14	531747.9	1354009.1	69.3
	15	531733.7	1354018.0	6.9
	16	531703.5	1354263.8	6.2
	17	531681.1	1354261.0	28.8
	18	531559.4	1354378.6	134.9
8' HIGH IMPASSE K12 RATED ORNAMENTAL FENCE	19	531557.3	1354413.3	132.7
	20	531610.8	1354459.0	73.8
	21	531594.4	1354480.8	0.3
	22	531612.3	1354683.4	44.4
	23	531600.0	1354722.0	51.8
	24	531686.8	1354994.2	6.0
	25	531678.9	1354996.7	14.2
	26	531689.1	1355028.8	14.2
	27	531696.4	1355051.5	14.2
	28	531704.0	1355075.4	14.2
	29	531625.6	1355097.0	14.4

	COORDINATE ID	NORTHING	EASTING	FEET OFFSET FROM PROPERTY LINE
8' HIGH CHAIN LINK FENCE WITH 1" DOUBLE OUTRIGGER	29	531625.6	1355097.0	14.4
	30	531487.3	1355058.4	2.5
	31	531466.2	1355003.9	2.5
	32	531375.2	1354908.7	2.5
	33	531266.0	1354845.0	0.0
	34	531075.5	1354783.8	0.0
	35	531063.8	1354780.1	0.0
	36	531045.8	1354774.3	6.0
	37	531033.3	1354827.1	6.0
8' HIGH IMPASSE NON-RATED ORNAMENTAL FENCE	38	530846.1	1354723.0	50.0
	39	530837.3	1354691.9	33.0
	40	530891.5	1354495.6	34.4
	41	530953.0	1354360.7	26.5
	42	530874.1	1354291.6	14.5
	43	530959.6	1354206.6	13.4
	44	530900.0	1354263.2	12.8
	45	530886.4	1354277.9	10.0
	46	530854.5	1354274.0	7.5
8' HIGH IMPASSE NON-RATED ORNAMENTAL FENCE	47	530802.1	1354227.0	20.0
	48	530771.7	1354223.7	12.3
	49	530720.0	1354255.0	2.0
	50	530615.3	1354318.4	2.0
	51	530308.5	1354367.5	2.0
	52	530158.1	1354440.4	4.7
	53	530119.6	1354450.4	13.0
	54	530090.6	1354444.4	31.4
	55	530001.4	1354372.7	40.2
8' HIGH IMPASSE NON-RATED ORNAMENTAL FENCE	56	529952.2	1354311.7	29.6
	57	529912.6	1354238.4	28.6
	58	529892.6	1354166.4	31.3
	59	529903.4	1354111.0	51.6
	60	529912.9	1354100.1	46.3
	61	529920.8	1354091.1	36.4
	62	530016.4	1353981.6	0.0
	63	530042.7	1353942.5	14.2
	64	530141.4	1353828.3	2.2
	65	530275.8	1353737.0	1.9
	66	530286.0	1353726.9	4.4
8' HIGH CHAIN LINK FENCE WITH 1" DOUBLE OUTRIGGER	67	531084.8	1353977.6	3.7
	68	531089.6	1353984.8	0.0
	69	531092.0	1353988.4	0.0
	70	531164.5	1354095.9	0.9
	71	531443.9	1353905.8	0.9
	72	531440.2	1353802.7	0.0
	73	531508.5	1353124.3	0.0
	74	531518.5	1353126.4	10.2
	75	531540.6	1353131.8	7.0
	76	531605.3	1353145.4	6.4
	77	532012.6	1353378.9	5.7
8' HIGH IMPASSE NON-RATED ORNAMENTAL FENCE	78	532035.8	1353407.9	10.0
	79	532070.3	1353434.3	4.4
	80	532140.6	1353488.1	4.7
	81	532155.9	1353493.3	1.1
	82	532160.1	1353493.5	2.7
	83	532181.5	1353499.4	7.9
	84	532187.4	1353492.6	8.5

US Army Corps of Engineers  
Ballimore District

REAL PROPERTY SERVICES  
FIELD OFFICE  
ANNAPOLIS JUNCTION, MARYLAND

**JACOBS**  
100 N. GLEBE RD., ARLINGTON, VA 22201

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NO.	DATE	DESCRIPTION	BY	APP.
1	NEW SHEET ADDED FOR REVISED DESIGN #1			

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT *10/15/14* DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION *10-10-14* DATE

DIRECTOR *X* DATE

Date No. Revision Description



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 45292 EXPIRATION DATE: 05/21/2016

**REVITZ PROPERTY**  
OWNER DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

DES. BY	SCALE	PROJ. NO.
	1"=150'	01011
	Date 09-12-14	
	Approved	

DATE: SEPTEMBER 18, 2014

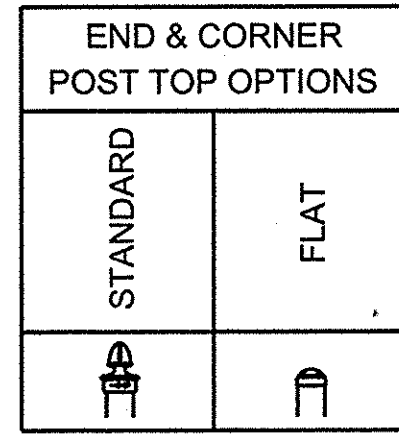
PROJECT NO.: 31433

DESIGNED BY: R. CROWLEY

PROJECT MANAGER: LAUREL MD

EMERSON - CAMPUS FENCE  
FENCE LAYOUT PLAN  
ROOM(S) OR FLOOR: LAUREL MD

Drawing No. **57A**  
Sheet Reference No. **57A**  
Sheet of 006

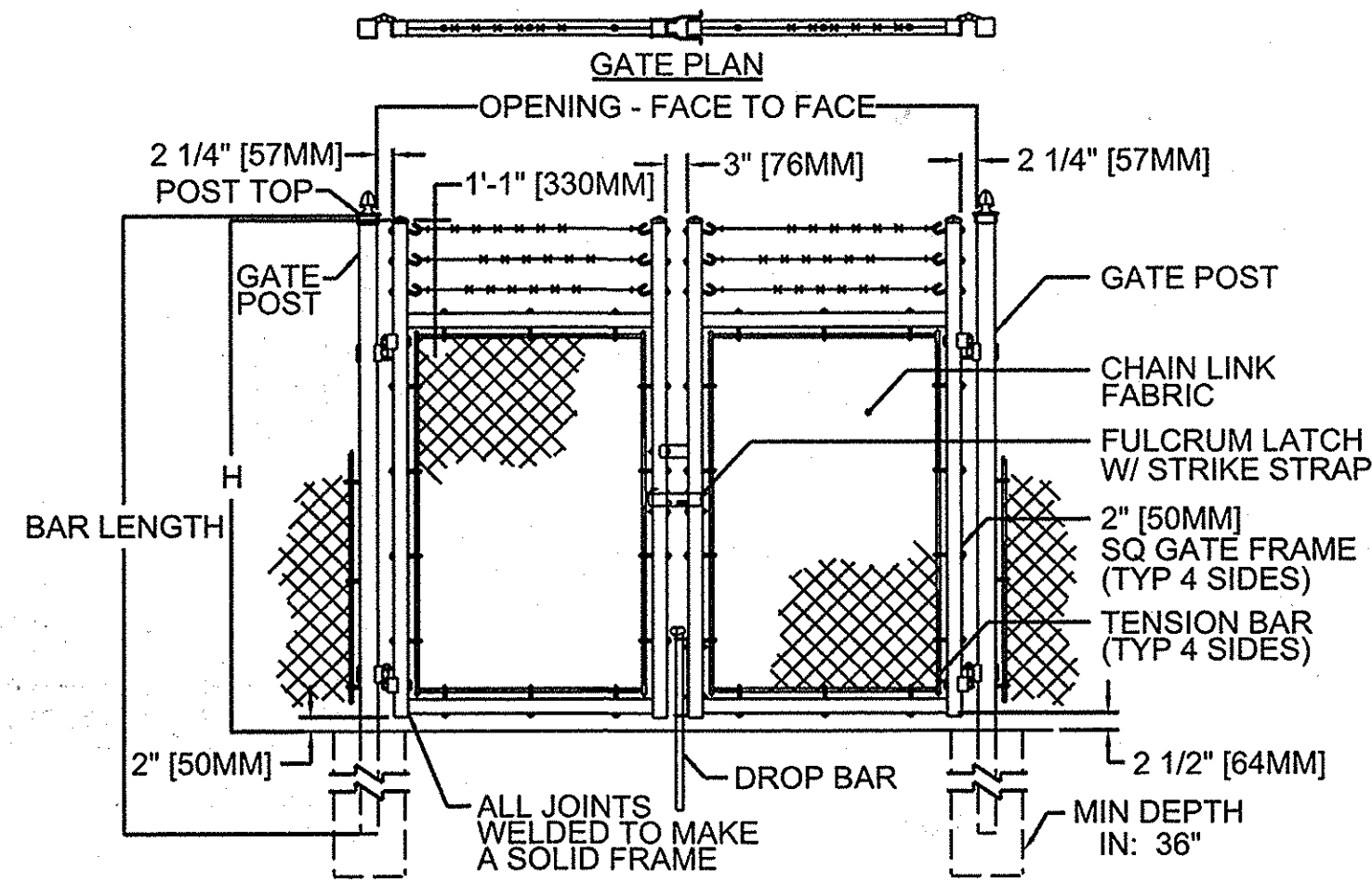


GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIAM	"B" DEPTH	"C" POST EMBED.
3' TO 6'	2.875"	3' TO 5'	12"	38"	36"
		6' TO 9'	14"	42"	40"
		10' TO 12'	16"	46"	44"
7' TO 12'	4.000"	3' TO 5'	14"	38"	36"
		6' TO 9'	16"	42"	40"
		10' TO 12'	18"	46"	44"

NOM HEIGHT (H)	8'-0" [2438MM]
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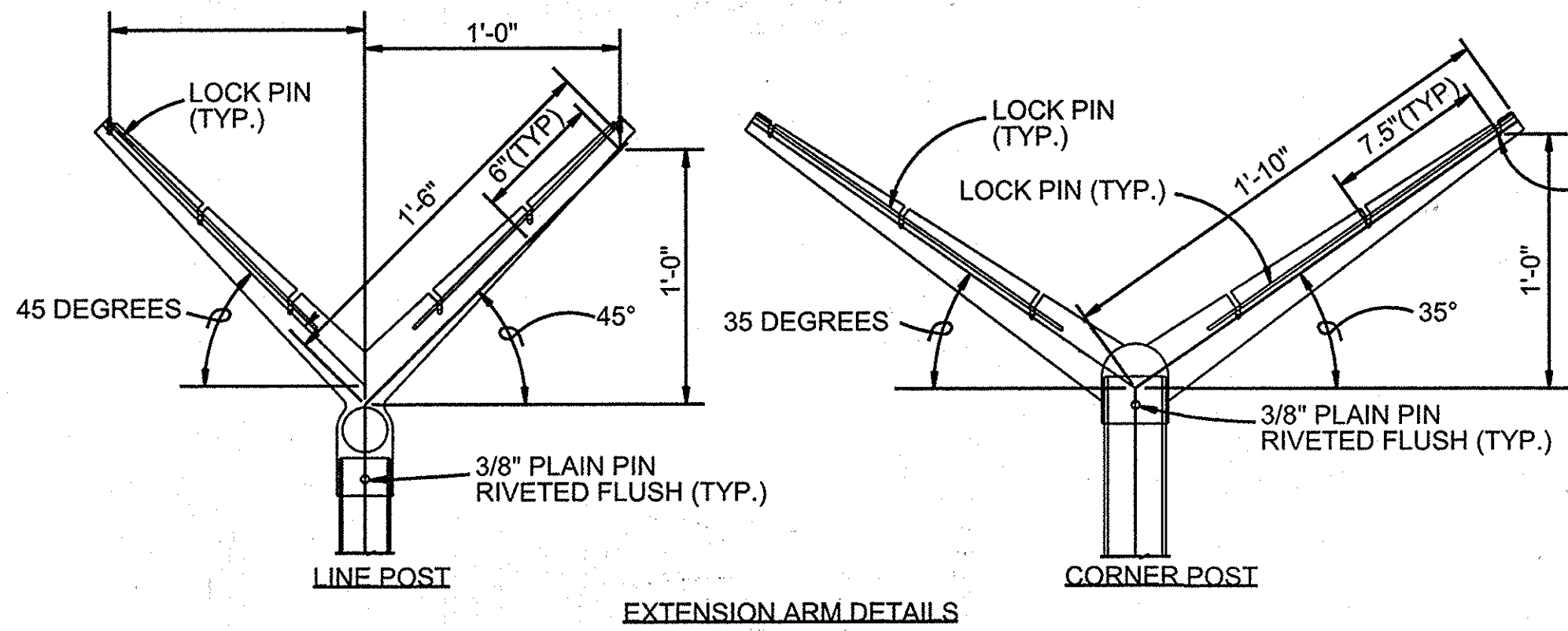
OPENING (F/F)	24' [7315MM]
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- NOTES:  
 1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.  
 2. SPECIFICATIONS SHOWN CAN BE CHANGED BY MASTER HALCO ONLY.  
 3. FOOTING WIDTH TO BE (4)X POST WIDTH.  
 4. GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL VARY FOR ELECTRICALLY OPERATED GATES.

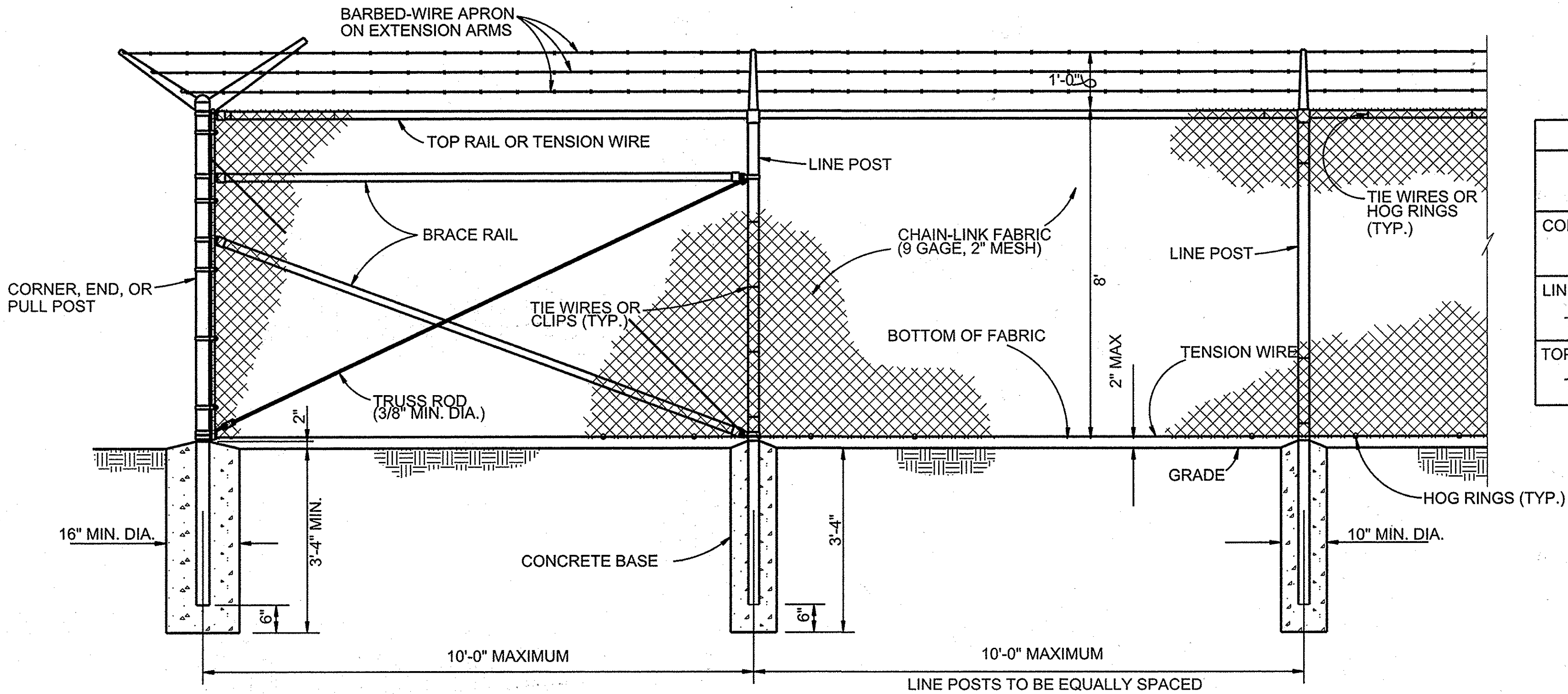


GATE ELEVATION

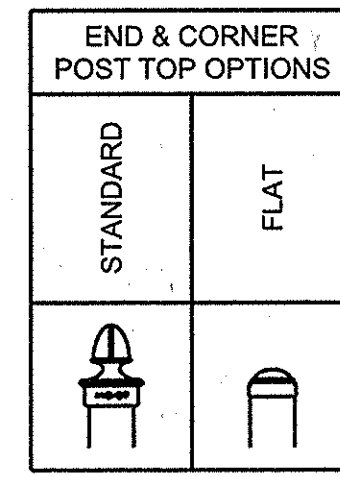
**2 SINGLE-LEAF DOUBLE SWING GATE**  
SCALE: NONE



EXTENSION ARM DETAILS



**1 CHAIN LINK SECURITY FENCE**  
SCALE: NONE

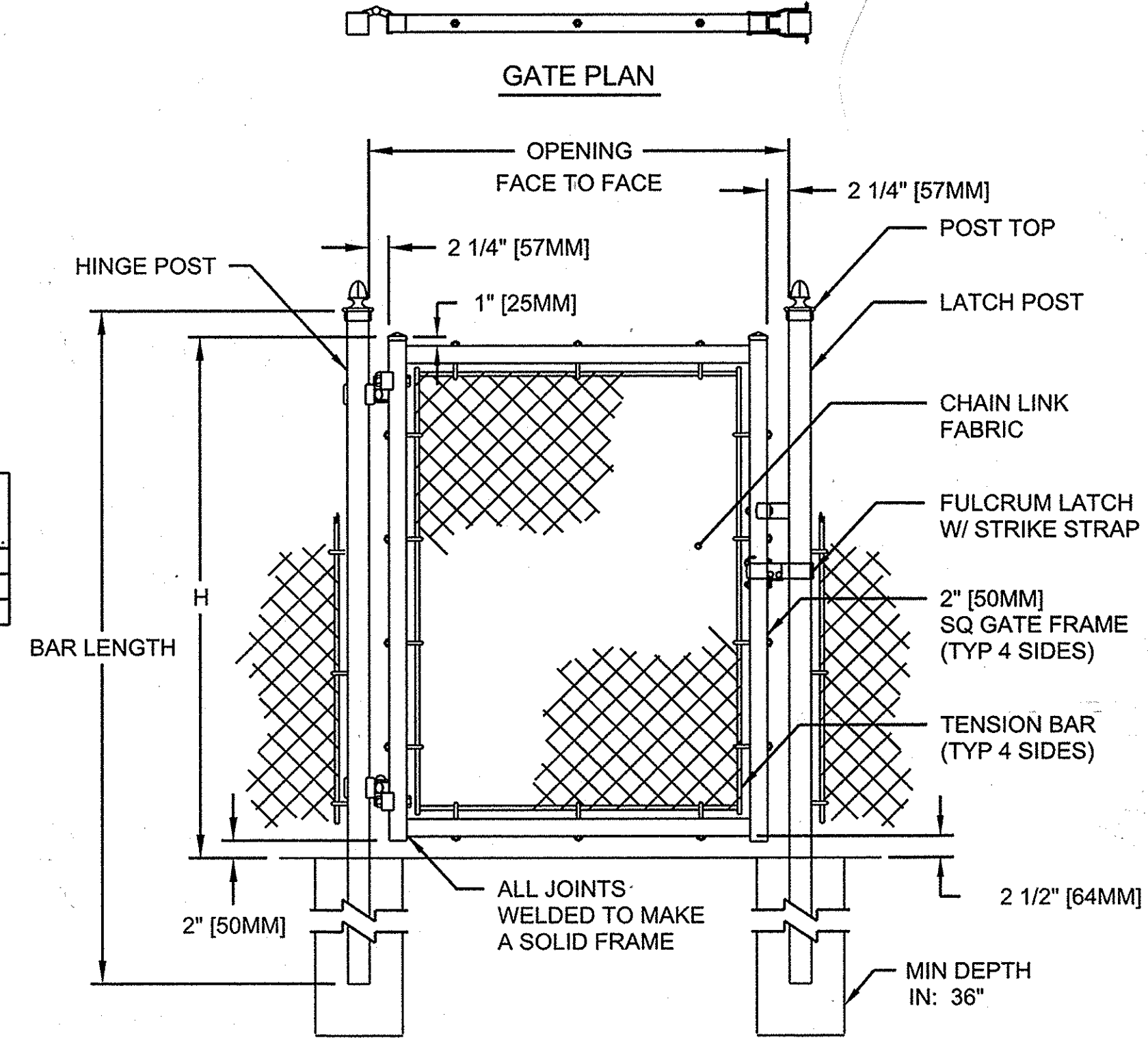


GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIAM	"B" DEPTH	"C" POST EMBED.
3' TO 6'	2.875"	3' TO 5'	12"	38"	36"
		6' TO 9'	14"	42"	40"
		10' TO 12'	16"	46"	44"

NOM HEIGHT (H)	8'-0" [2438MM]
----------------	----------------

OPENING (F/F)	4'-0" [1219MM]
---------------	----------------

- NOTES:  
 1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.  
 2. SPECIFICATIONS SHOWN CAN BE CHANGED BY MASTER-HALCO ONLY.  
 3. FOOTING WIDTH TO BE (4)X POST WIDTH.  
 4. GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL VARY FOR ELECTRICALLY OPERATED GATES.



GATE ELEVATION

**3 SINGLE SWING GATE**  
SCALE: NONE

USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)
	FABRIC WIDTH 84" TO 96"
CORNER, END & PULL POSTS	
TUBULAR - ROUND	2.875" O.D.
LINE POSTS	
TUBULAR - ROUND	2.375" O.D.
TOP, BOTTOM & BRACE RAILS	
TUBULAR - ROUND	1.66" O.D.

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292 EXPIRATION DATE: 05/21/2016

*Robert Crowley*  
10-1-2014

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 Chief, Division of Land Development DATE 10/5/14  
 Chief, Development Engineering Division DATE 10-10-14  
 Director DATE 10/10/14

**REVITZ PROPERTY**

OWNER DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MARYLAND 21044

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL #
REVITZ PROPERTY	TAX ZONE MARBLCT. DISTRICT	165 & P/O PAR. 837
PLAT # OR L.P. BLOCK #	SEWER CODE	CENSUS TRACT
2267/435	47	6th
WATER CODE		

TITLE **FENCE LAYOUT PLAN**

Des. By	Scale 1" = 150'	Proj. No. 01011
Dwn. By	Date 09-12-14	57B
Chk. By	Approved	

US Army Corps of Engineers  
 Baltimore District

REAL PROPERTY SERVICES  
 ANNAPOLIS JUNCTION, MARYLAND

**JACOBS**  
 1100 N. GLEBE RD., ARLINGTON, VA 22201

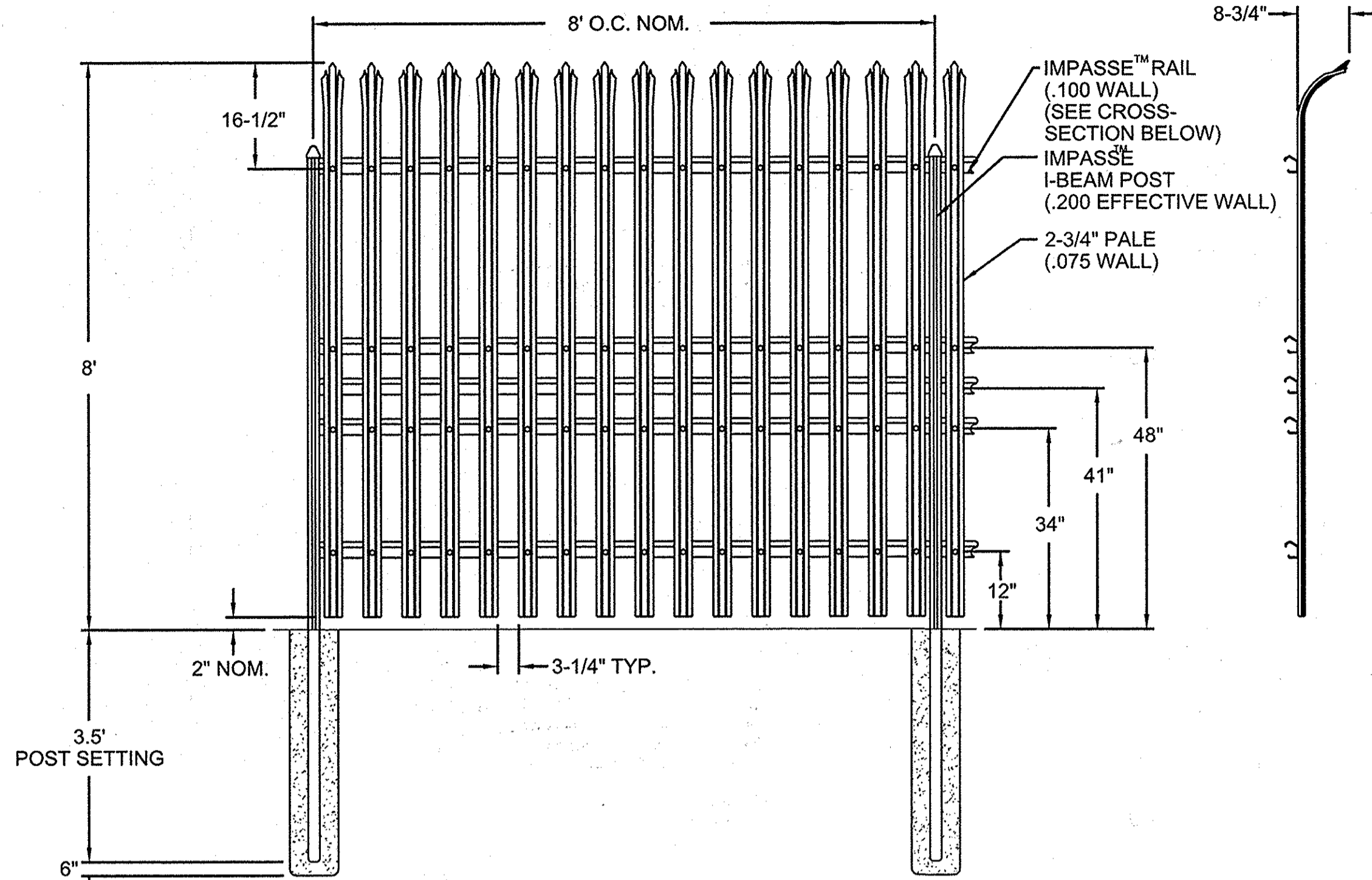
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Rev.	1	NEW SHEET ADDED FOR REVISION	10/10/14
Date			

DATE: SEPTEMBER 18, 2014  
 PROJECT NO.: 31435  
 DESIGNED BY: M. WERDER  
 DRAWN BY: M. WERDER  
 REVISION PROJECT MANAGER: R. CROWLEY  
 PROJECT MANAGER: NATHAN JAMES

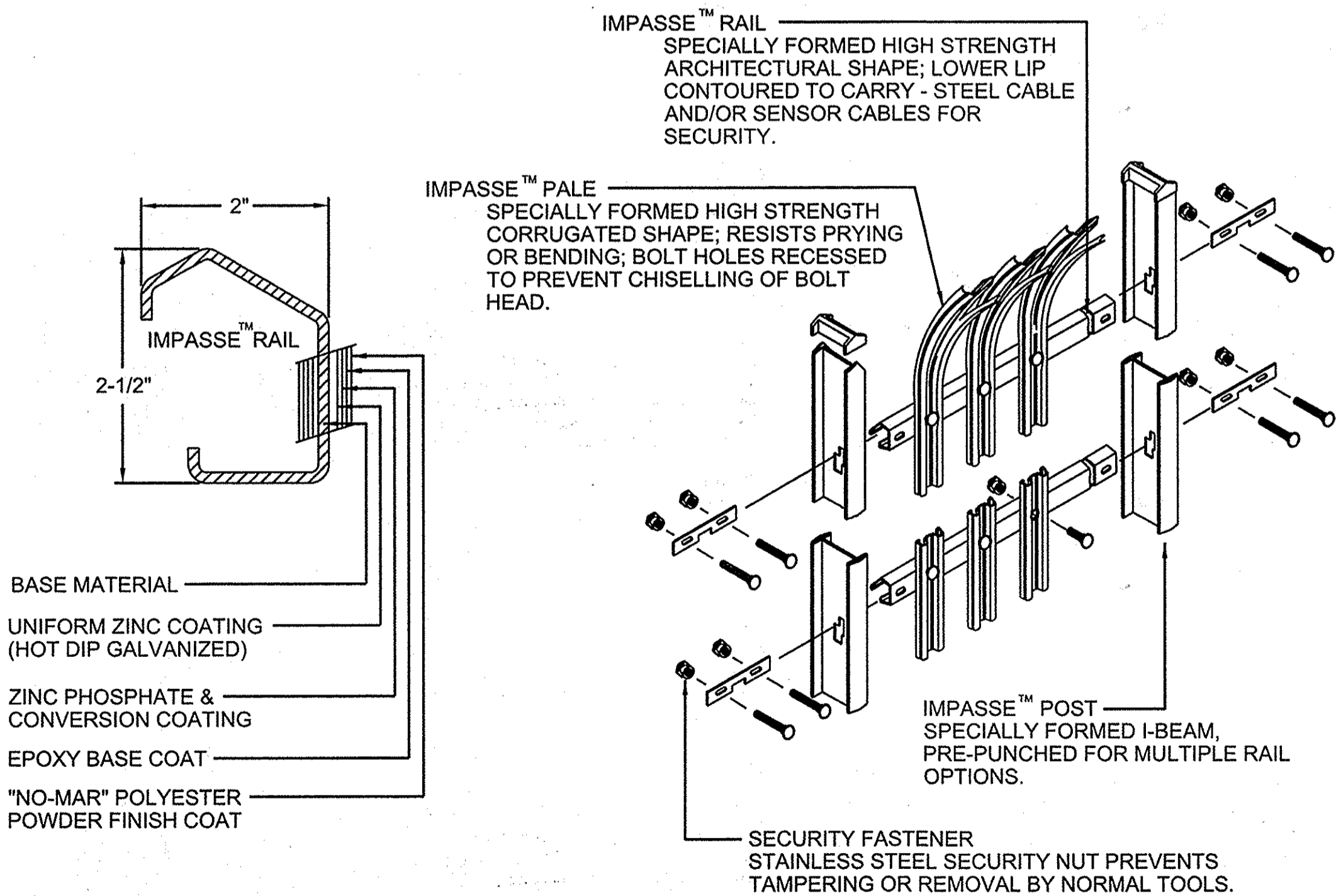
EMERSON - CAMPUS FENCE  
 SITE DETAILS  
 ROOM(S) OR FLOOR  
 LAUREL, MD

Drawing No.  
**57B**  
 Sheet of 006



**NOTES:**

- SEE DETAIL 2 ON THIS SHEET FOR K-12 ANTI-RAM CABLED STEEL BARRIER INSTALLATION FOR PORTIONS OF FENCE TO BE K-12 RATED. SEE SITE LAYOUT PLAN FOR SECTION OF FENCE THAT IS TO BE K-12 RATED.
- IDS SYSTEM IS TO BE ATTACHED TO FENCE PICKETS EVERY 8'. REPLACE CURVED PICKETS WITH STRAIGHT PICKETS AT LOCATIONS FOR IDS CONNECTIONS. FENCE HALF POSTS CAN BE USED FOR IDS CONNECTIONS. STRAIGHT PICKETS ARE TO BE SAME HEIGHT AS CURVED PICKETS.

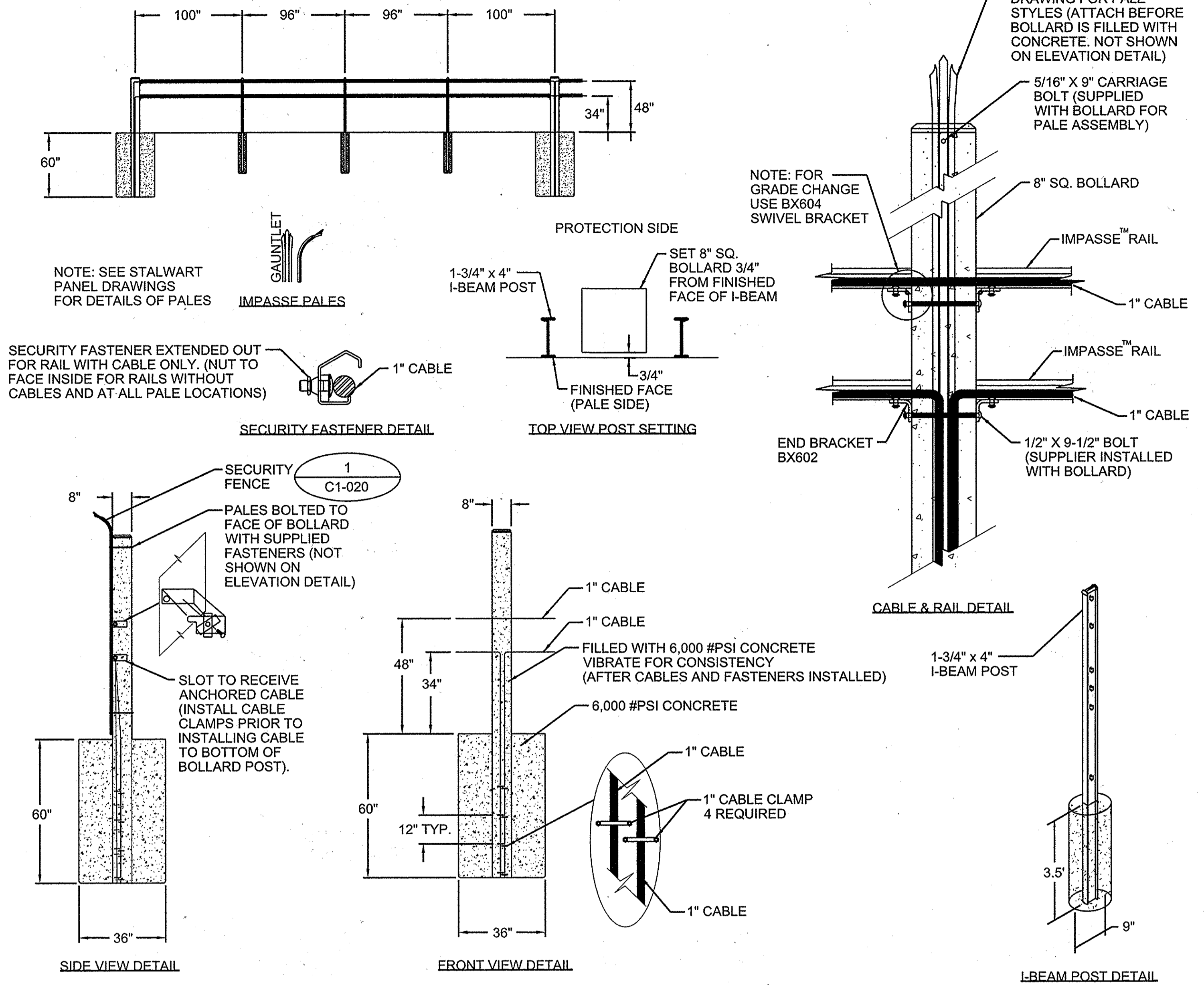


- BASE MATERIAL
- UNIFORM ZINC COATING (HOT DIP GALVANIZED)
- ZINC PHOSPHATE & CONVERSION COATING
- EPOXY BASE COAT
- "NO-MAR" POLYESTER POWDER FINISH COAT

**1 AMERISTAR 8' HIGH IMPASSE GAUNTLET HIGH SECURITY STEEL FENCE**

SCALE: NONE

DETAIL IS BASE DESIGN. CONTRACTOR MAY USE EQUIVALENT PRODUCT THAT MEETS PROJECT REQUIREMENTS AND SPECIFICATIONS AND AS APPROVED BY THE COR.



**2 STALLWART M40 (K12) ANTI-RAM CABLED STEEL BARRIER**

SCALE: NONE

DETAIL IS BASE DESIGN. CONTRACTOR MAY USE EQUIVALENT PRODUCT THAT MEETS PROJECT REQUIREMENTS AND SPECIFICATIONS AND AS APPROVED BY THE COR.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE: 10-10-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE: 10-10-14
DIRECTOR	DATE: 10-10-14
DESIGNED BY: SPANBERGER	REV. DATE: AS SHOWN
DRAWN BY: SPANBERGER	PROJECT NO: 31435
CHECKED BY: R. CROWLEY	FILE NAME: AS SHOWN
RSFO PROJECT MANAGER: AMY YALE	POST DATE: AS SHOWN
SUBMITTED BY: NATHAN JAMES	
PROJECT MANAGER: NATHAN JAMES	

**REVITZ PROPERTY**

OWNER DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

SUBDIVISION NAME: REVITZ PROPERTY	SECTION AREA: 47	LOT/PARCEL #: 165 & P/O PAR. 837
PLAT/DATE: 2781/435	TAX ZONE: 47	WATER CODE: 20
SEWER CODE: PEC	DISTRICT: 6th	CENSUS TRACT:

TITLE: FENCE LAYOUT PLAN

Des. By	Scale 1"=150'	Proj. No. 01011
Orn. By	Date 09-12-14	57C
Chk. By	Approved	57C



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 45292 EXPIRATION DATE: 05/21/2016.

US Army Corps of Engineers  
Baltimore District

REAL PROPERTY SERVICES  
ANNAPOLIS JUNCTION, MARYLAND

**JACOBS**  
1100 SLEBE RD., ARLINGTON, VA 22201

THE INFORMATION PROVIDED HEREIN IS THE PROPERTY OF THE UNITED STATES GOVERNMENT. IT IS PROVIDED ONLY FOR THE PURPOSE STATED IN THE ACCOMPANYING DOCUMENT. CONTAINED HEREIN IS LIMITED TO THE SUBJECT SPECIFIED IN THE ACCOMPANYING DOCUMENT. REPRODUCTION OR TRANSMISSION IN ANY FORM OR BY ANY MEANS WITHOUT THE APPROVAL OF THE UNITED STATES GOVERNMENT IS STRICTLY PROHIBITED. VIOLATORS OF THE REQUIREMENT WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

Rev.	Date	Description
1	10/10/14	NEW SHEET ADDED FOR REDLINE REVISION #1.

EMERSON - CAMPUS FENCE  
SITE DETAILS  
ROOM(S) OR FLOOR  
LAUREL, MD

Drawing No.  
Sheet Reference No.  
**57C**  
Sheet of 006

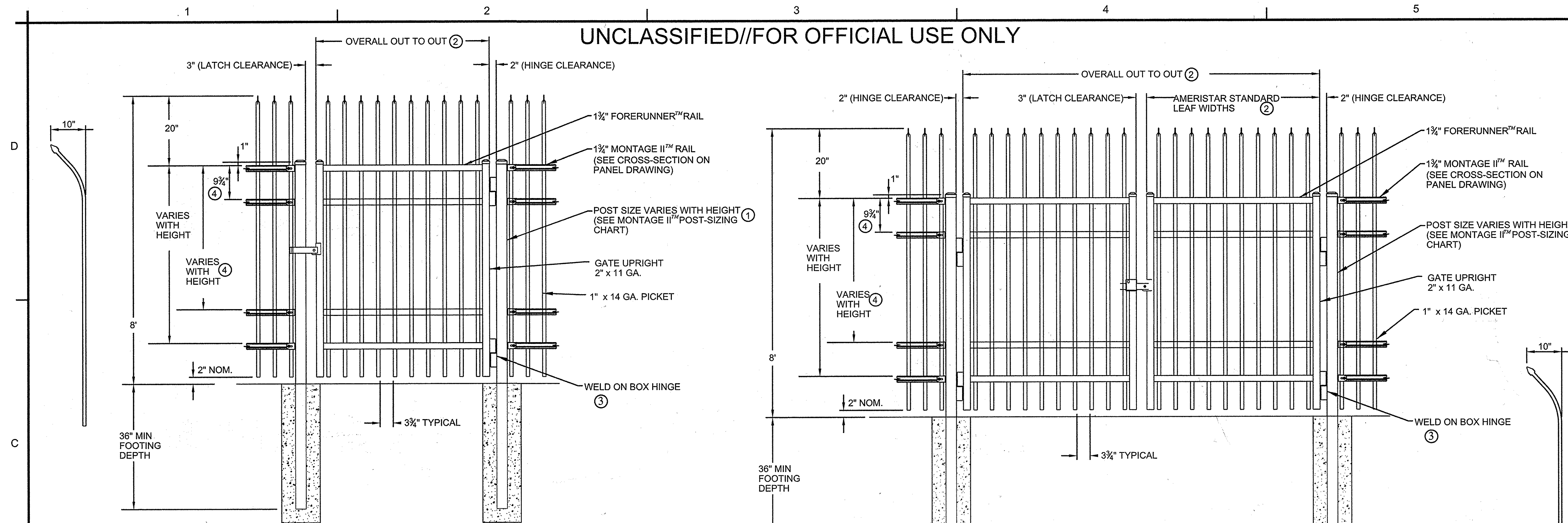
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Date	Rev.	Discipline
10/10/14	1	AS SHOWN

Date:	SEPTEMBER 18, 2014
Project No.:	31435
Checked by:	R. CROWLEY
RSFO Project Manager:	AMY YALE
File name:	NATHAN JAMES
Plot date:	10/10/14
Plot scale:	AS SHOWN

Designed by:	M. WERBER
Dwn by:	M. WERBER
Submitted by:	NATHAN JAMES
Project Manager:	NATHAN JAMES

Drawing No.	57D
Sheet Reference No.	57D
Sheet	of 006



- NOTES:
- 1.) POST SIZE DEPENDS ON FENCE HEIGHT, WEIGHT AND WIND LOADS. SEE MONTAGE II™ SPECIFICATIONS FOR POST SIZING CHART.
  - 2.) SEE AMERISTAR GATE TABLE FOR STANDARD OUT TO OUTS. CUSTOM GATE OPENINGS AVAILABLE FOR SPECIAL OUT TO OUT/LEAF WIDTHS.
  - 3.) ADDITIONAL STYLES OF GATE HARDWARE ARE AVAILABLE ON REQUEST THIS COULD CHANGE THE LATCH & HINGE CLEARANCE.
  - 4.) THIRD & FORTH RAIL OPTIONAL.

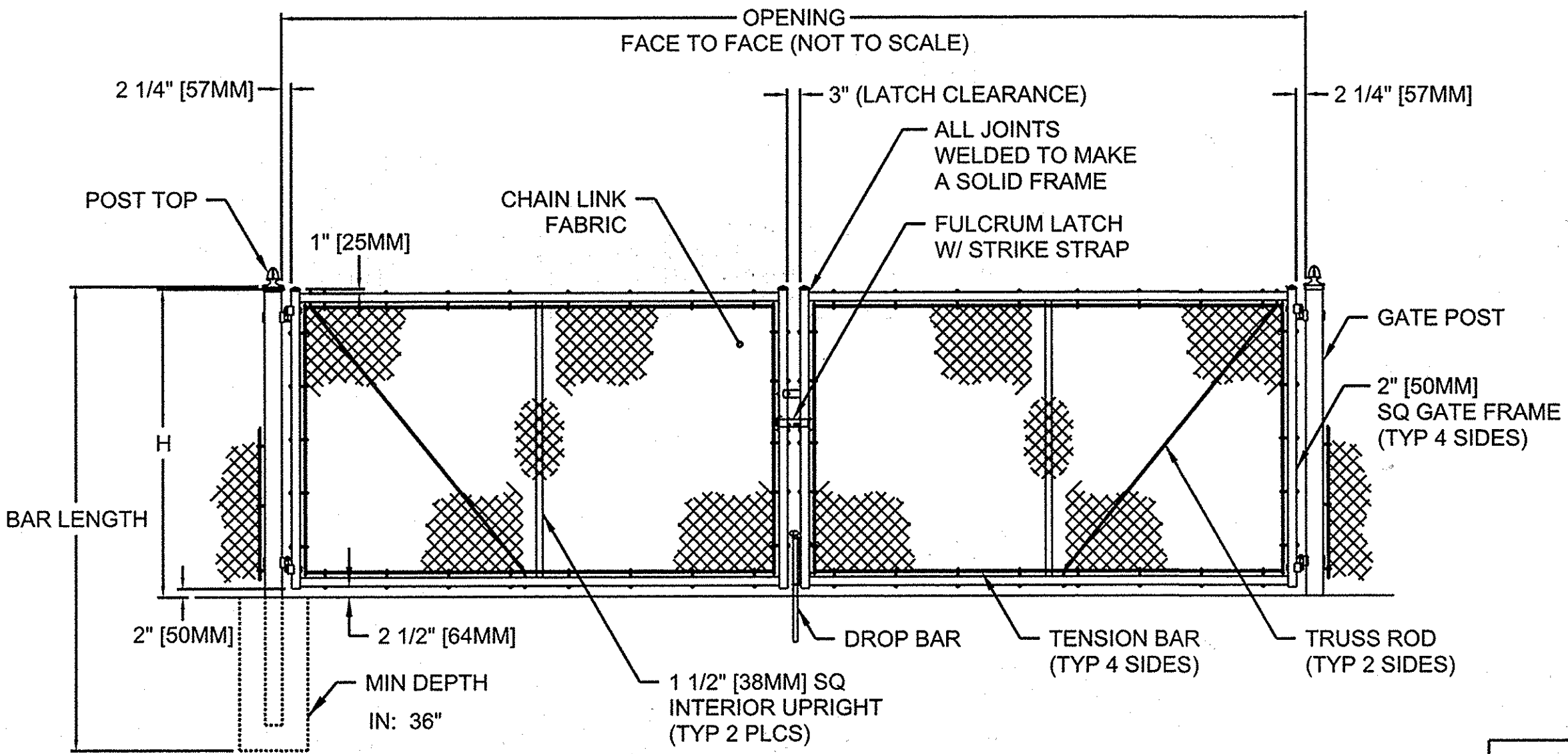
- NOTES:
- 1.) POST SIZE DEPENDS ON FENCE HEIGHT, WEIGHT AND WIND LOADS. SEE MONTAGE II SPECIFICATIONS FOR POST SIZING CHART.
  - 2.) SEE AMERISTAR GATE TABLE FOR STANDARD OUT TO OUTS. CUSTOM GATE OPENINGS AVAILABLE FOR SPECIAL OUT TO OUT/LEAF WIDTHS.
  - 3.) ADDITIONAL STYLES OF GATE HARDWARE ARE AVAILABLE ON REQUEST. THIS COULD CHANGE THE LATCH AND HINGE CLEARANCE.
  - 4.) THIRD AND FOURTH RAIL OPTIONAL.
  - 5.) CONTRACTOR SHALL SAND DOWN END OF SCREWS ON HASPS AS NEEDED TO WELD HASP TO GATE.

**2 AMERISTAR MONTAGE II ORNAMENTAL INVINCIBLE SINGLE SWING GATE**

SCALE: NONE  
DETAIL IS BASE DESIGN. CONTRACTOR MAY USE EQUIVALENT PRODUCT THAT MEETS PROJECT REQUIREMENTS AND SPECIFICATIONS AND AS APPROVED BY THE COR.

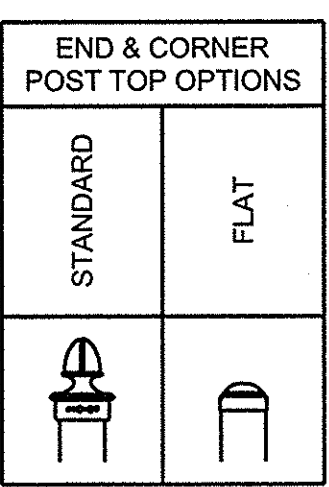
**3 AMERISTAR MONTAGE II ORNAMENTAL INVINCIBLE DOUBLE SWING GATE**

SCALE: NONE  
DETAIL IS BASE DESIGN. CONTRACTOR MAY USE EQUIVALENT PRODUCT THAT MEETS PROJECT REQUIREMENTS AND SPECIFICATIONS AND AS APPROVED BY THE COR.



NOM HEIGHT (H)
8'-0" [2438MM]

BAYS	OPENING (F/F)
4	20'-0" [6096MM]
4	22'-0" [6706MM]
4	24'-0" [7315MM]



OPENING	GATE POST (OD)	FABRIC HEIGHT	"A" DIAM	"B" DEPTH	"C" POST EMBED.
14' TO 24'	4"	3' TO 5'	12"	38"	36"
		6' TO 9'	14"	42"	40"
		10' TO 12'	16"	46"	44"

- NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
  2. SPECIFICATIONS SHOWN CAN BE CHANGED BY MASTER-HALCO ONLY.
  3. FOOTING WIDTH TO BE (4)X POST WIDTH.
  4. GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL VARY FOR ELECTRICALLY OPERATED GATES.

**1 DOUBLE-LEAF DOUBLE SWING GATE**

SCALE: NONE



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. 45292 EXPIRATION DATE: 05/21/2016

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
Chief, Division of Land Development	DATE: 10/15/14
Chief, Development Engineering Division	DATE: 10-10-14
Director	DATE:
Date	Revision Description

**REVITZ PROPERTY**

OWNER DEVELOPER:  
THE HOWARD RESEARCH & DEVELOPMENT CORPORATION  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MARYLAND 21044

SUBDIVISION NAME	SECTION AREA	LOT/PARCEL #
REVITZ PROPERTY		165 & P/O PAR. 837
PLAT/LOT/BLOCK/ZONE	TAX ZONE	MARFLECT. DISTRICT
283/4/5	20	47
WATER CODE	SEWER CODE	CENSUS TRACT
		6th

**TITLE FENCE LAYOUT PLAN**

Des. By	Scale 1"=150'	Proj. No. 01011
Dwn. By	Date 09-12-14	57D
Chk. By	Approved	