

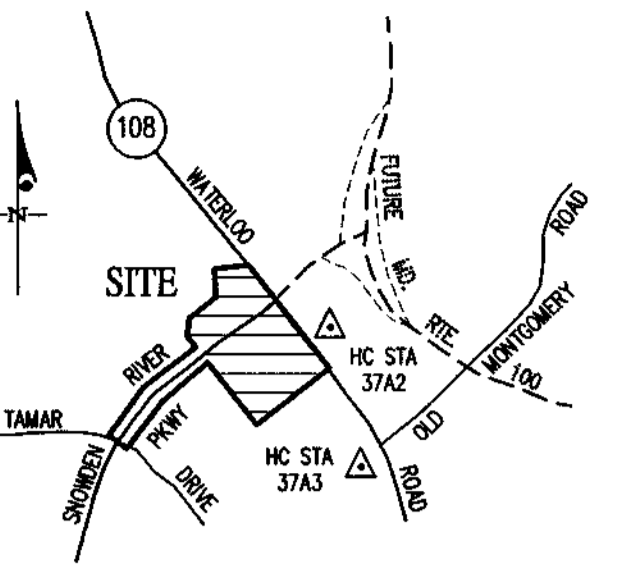
# ROUTE 108 COMMERCIAL

## GENERAL NOTES

1. THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
2. PROJECT BACKGROUND:  
 LOCATION: COLUMBIA  
 TAX MAP: 37 PARCELS: 228 & 498  
 SECTION 1: AREA 1  
 ELECTION DISTRICT: 6  
 NUMBER OF PROPOSED LOTS: 4  
 GROSS AREA OF TRACT: 30.04 Ac.
3. SEE COUNTY FILES NO.'s : SP-98-05, WP-98-34, GP 97-142, WP-97-107, PB-315
4. TOPOGRAPHY SHOWN HAS A 2' CONTOUR INTERVAL AND WAS DETERMINED BY MAPS INC. AND A FIELD SURVEY PERFORMED BY GUTSCHICK, LITTLE & WEBER, P.A.
5. WATER AND SEWER FOR THIS PROJECT IS PUBLIC AND WILL BE CONSTRUCTED UNDER CONTRACT No. 24-3659-D. THE SYSTEM IS WITHIN THE METROPOLITAN DRAINAGE AREA.
6. HORIZONTAL AND VERTICAL CONTROL BASED ON HOWARD COUNTY CONTROL STATIONS 37A2 AND 37A3.
7. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM BEST AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE MAINS BY DIGGING TEST PITS BY HAND AT ALL CROSSINGS WELL IN ADVANCE OF CONSTRUCTION. ANY DISCREPANCIES MUST BE COMMUNICATED TO THE ENGINEER AT ONCE.
8. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY AND MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
9. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT (410) 313 - 1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
10. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THE PLANS.  

MISS UTILITY	1-800-257-7777
BELL ATLANTIC COMPANY	725-9976
HOWARD COUNTY BUREAU OF UTILITIES	313-4900
AT&T CABLE LOCATION DIVISION	393-3553
BALTIMORE GAS & ELECTRIC CO.	850-4620 & 787-9068
STATE HIGHWAY ADMINISTRATION	531-5533
11. TYPES OF STORM DRAINS REFER TO THE STANDARD DETAILS OF HOWARD COUNTY AND MSHA.
12. TRENCH COMPACTION FOR STORM DRAINS WITHIN ROADS AND STREET RIGHT-OF-WAYS LIMITS SHALL BE IN ACCORDANCE WITH "HOWARD COUNTY DESIGN MANUAL", VOL. IV, STANDARD G-201.
13. CONCRETE SIDEWALK RAMPS SHALL BE PROVIDED AT ALL INTERSECTIONS AND AS INDICATED ON THE PLANS. THE RAMPS SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA) 1992, AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH "HOWARD COUNTY MANUAL", VOL. IV.
14. SEDIMENT CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH "1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL".
15. STREET TREES LOCATIONS SHOWN ARE TENTATIVE AND ARE TO BE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMMODATE FIELD CONDITIONS AND BUILDER'S LANDSCAPE PROGRAM. FINANCIAL SURETY FOR THE REQUIRED TREES IN THE AMOUNT OF SHALL BE PART OF THE DEVELOPER'S AGREEMENT.
16. SEE SHEET 14 OF 17 FOR STREET TREE DETAIL.
17. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
18. STREET TREES SHALL BE PLANTED A MINIMUM OF FIVE (5) FEET FROM STORM DRAIN, WATERLINE OR SEWER PIPE MANHOLES; ALSO A MINIMUM OF TWENTY (20) FEET FROM STREET LIGHTS.
19. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES.
20. STORMWATER MANAGEMENT PROVIDED UNDER THESE PLANS.
21. ALL PIPE ELEVATIONS SHOWN ARE INVERTS.
22. WP-98-34 WAS GRANTED ON Jan. 28, 1998 PERMITTING GRADING OR REMOVAL OF VEGETATIVE COVER WITHIN THE 25' WETLAND BUFFER AND 50' STREAM BUFFER (SECTIONS 16.116(a)(1) AND 16.116(c)(2)(a)).
23. A PORTION OF THIS PLAN IS THE SUBJECT OF JURISDICTIONAL DETERMINATION OF WETLANDS AND PERMIT APPLICATIONS AS FOLLOWS:  
 A: TRACKING NUMBER: 199763225  
 B: AUTHORIZATION NUMBER: 97-NT-0326
24. PROVIDE TEMPORARY BRICK BULKHEADS FOR ALL STORM DRAIN STUBS.
25. Precast structures may be used for storm drain construction.

# ROAD CONSTRUCTION PLAN FOR SNOWDEN RIVER PARKWAY FROM TAMAR DRIVE TO MD. ROUTE 108 STATIONS 61+41.15 TO 83+83.72

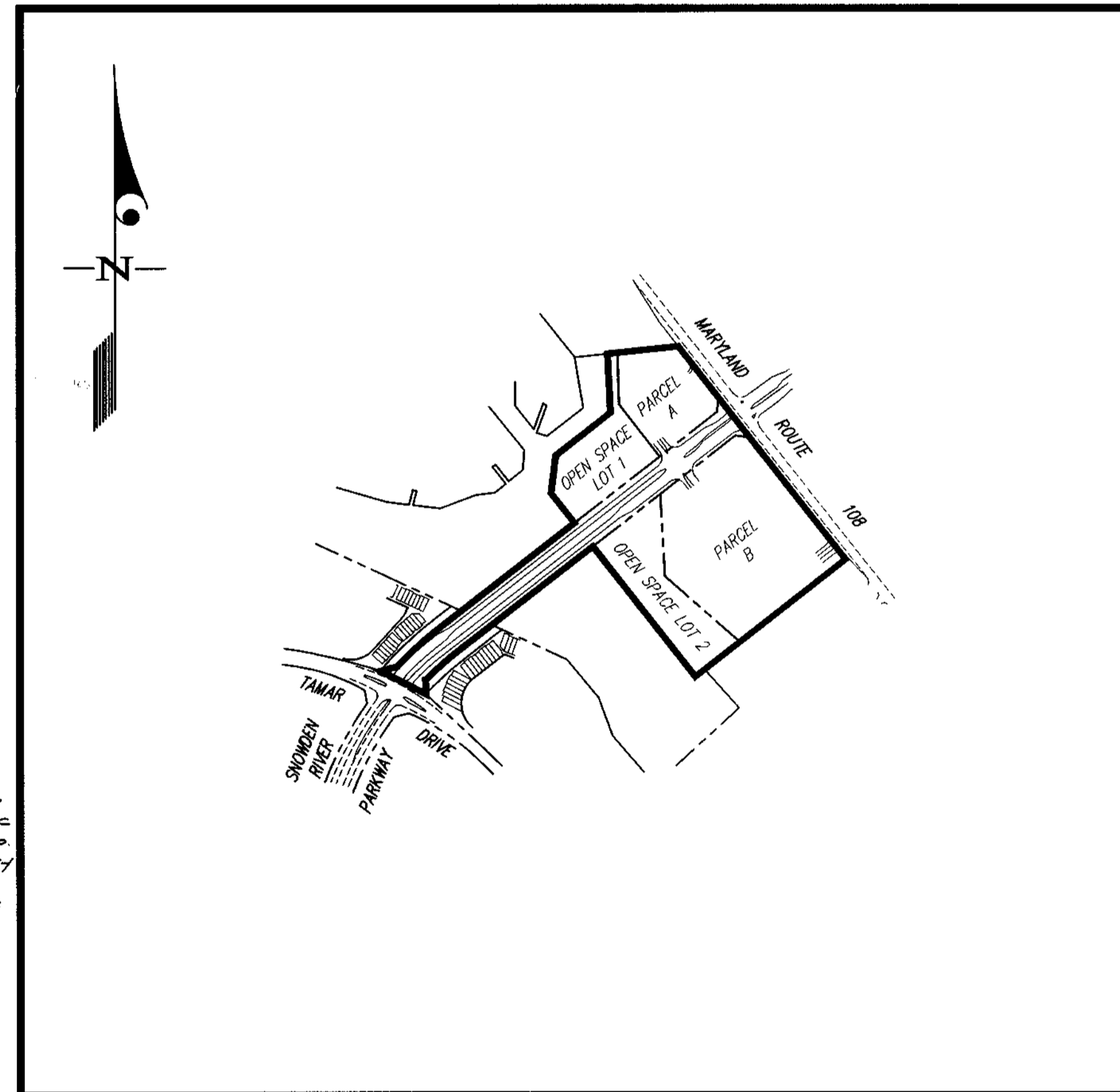


VICINITY MAP  
SCALE: 1"=2000'

### BENCHMARK DESCRIPTIONS

- STATION 37A2 (CONCRETE MONUMENT)**  
 N. 562120.86 E. 1369300.25  
 ELEV.: 403.02  
 STATION IS LOCATED 40'± NORTHEAST OF MARYLAND ROUTE 108, 1100'± NORTHWEST OF OLD MONTGOMERY ROAD.
- STATION 37A3 (CONCRETE MONUMENT)**  
 N. 561130.82 E. 1369913.27  
 ELEV.: 384.94  
 STATION IS LOCATED SOUTHWEST OF THE INTERSECTION OF MARYLAND ROUTE 108 AND OLD MONTGOMERY ROAD.

Sheet Index	
1	Cover Sheet
2	Road Construction Plan
3	Road Construction Plan
4	Drainage Area Map
5	Mass Grading/Sediment Control Plan
6	Mass Grading/Sediment Control Plan
7	Mass Grading/Sediment Control Plan
8	Storm Drain Profiles
9	Storm Drain Profiles
10	Storm Drain Profiles
11	SWM/Storm Drain Details
12	Md. 37B Notes & Details
13	Sediment Control Notes & Details
14	Road Detail Sheet
15	Details & Notes
16	Traffic Plan
17	Traffic Plan



## KEY MAP

SCALE: 1" = 600'

Street Light Schedule				
Sheet No.	Street Name	Elevation	Offset	Type
2	Snowden River Parkway	62+40	8' Left	1
2		62+40	8' Right	
2		63+40	6' Left	
2		63+65	10' Right	
2		64+40	4' Left	
2		65+25	14' Right	
2		65+45	11' Left	
2		66+25	14' Left	
2		66+25	14' Right	
2		66+25	14' Left	
2		66+25	14' Right	
2		66+25	14' Left	
2		66+25	14' Right	
2		66+25	14' Left	
2		66+25	14' Right	
2		71+25	14' Left	
2		71+25	14' Right	
2	Snowden River Parkway	72+25	14' Left	
2		72+25	14' Right	
2		74+25	14' Left	
2		74+25	14' Right	
2		75+25	11' Right	
2		75+25	14' Left	
2		76+25	2' Right	
2		77+25	14' Left	
2		77+25	6' Right	
2		78+25	2' Right	
2		78+25	14' Left	
2		80+25	0' Lt/rt	
2		80+25	6' Right	1
2		81+25	7' Right	2
2		82+25	6' Right	1
2		82+25	6' Left	2
2		82+25	7' Right	1

Street Light Information			
Type	Symbol	Arm Length	Fixture/Pole
1	●*	12'	250-watt HPS vapor pendant fixture (cut off) mounted at 90' on a bronze fiberglass pole.
2	*●*	6'	

- Notes
1. A 20' min. distance shall be maintained between any trees located along the curb line & any street light.
  2. A 5' min. distance shall be maintained between any street light and a fire hydrant.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
  
 Andrew M. Sanchez, Chief, Bureau of Highways, 5/18/98 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
  
 Cindy Hamilton, Chief, Division of Land Development, 5/20/98 Date

[illegible], Chief, Development Engineering Division, 5/12/98 Date

GLW GUTSCHICK LITTLE & WEBER, P.A.  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONVILLE OFFICE PARK  
 BURTONVILLE, MARYLAND 20886  
 TEL: 301-421-4024 FAX: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DESIGN	DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 THE ROUSE BUILDING  
 10275 LITTLE PATUXENT PARKWAY  
 COLUMBIA, MD. 21044  
 410-992-6027

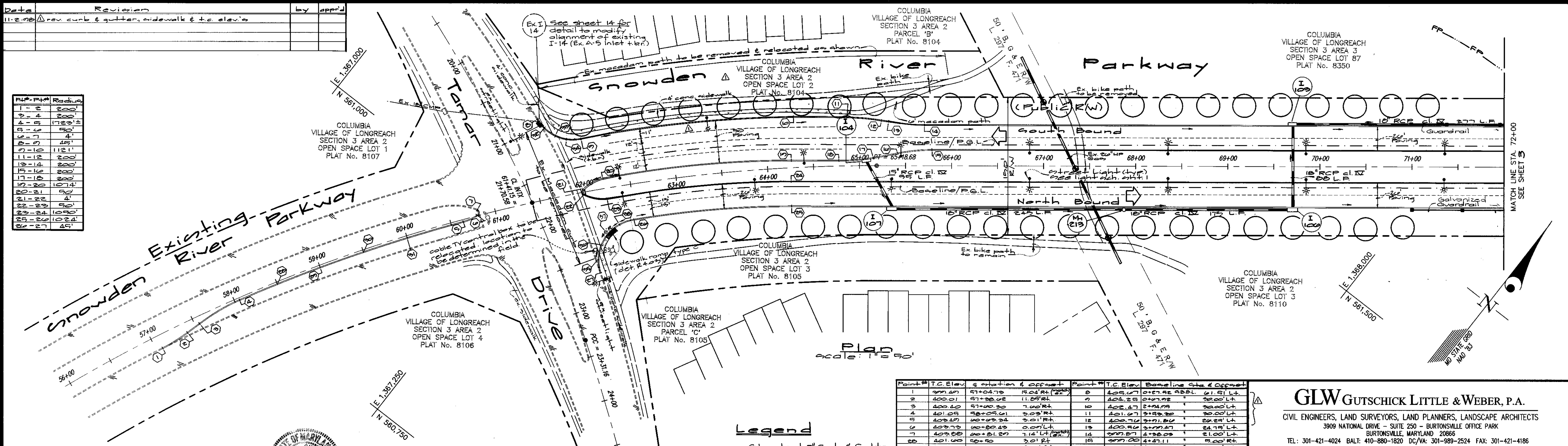
COVER SHEET  
 Columbia  
**ROUTE 108 COMMERCIAL**  
 SECTION 1 AREA 1  
 Parcels 'A' & 'B' and Lots 1 & 2

SCALE AS SHOWN  
 ZONING NEW TOWN  
 DATE May 11, 1998  
 TAX MAP No. 37  
 SHEET 1 OF 17

HOWARD COUNTY, MARYLAND

Date	Revision	By	App'd
11-2-98	Rev curb & gutter, sidewalk & h.c. elev's		

Run-Point	Radius
1-2	200'
2-3	200'
3-4	200'
4-5	200'
5-6	200'
6-7	200'
7-8	200'
8-9	200'
9-10	200'
10-11	200'
11-12	200'
12-13	200'
13-14	200'
14-15	200'
15-16	200'
16-17	200'
17-18	200'
18-19	200'
19-20	200'
20-21	200'
21-22	200'
22-23	200'
23-24	200'
24-25	200'
25-26	200'
26-27	200'



Point #	T.C. Elev	Station & Offset	Point #	T.C. Elev	Baseline Sta & Offset
1	400.27	57+04.75 9.04 Rt. (25%)	9	402.67	05+92.88 BL 61.51 Lt.
2	400.21	57+08.02 11.57 Rt.	10	402.33	06+92.00 Lt.
3	400.40	57+00.30 7.00 Rt.	11	401.67	07+92.00 Lt.
4	401.09	58+09.01 3.09 Rt.	12	400.76	08+92.00 Lt.
5	402.49	60+09.24 3.01 Rt.	13	400.50	09+92.00 Lt.
6	403.79	60+00.43 0.00 Lt.	14	400.07	10+92.00 Lt.
7	403.05	60+01.27 7.14 Lt. (25%)	15	400.00	11+92.00 Lt.
8	401.60	59+00.00 3.01 Rt.	16	400.00	12+92.00 Lt.
9	402.07	59+00.00 3.01 Rt.	17	400.22	13+92.00 Lt.
10	402.40	59+00.00 3.01 Rt.	18	400.21	14+92.00 Lt.
11	402.10	59+00.00 3.01 Rt.	19	400.51	15+92.00 Lt.
12	402.30	59+00.00 3.01 Rt.	20	401.87	01+92.84 Lt.
13	402.40	59+00.00 3.01 Rt.	21	401.67	02+92.84 Lt.
14	402.50	59+00.00 3.01 Rt.	22	401.67	03+92.84 Lt.
15	402.50	59+00.00 3.01 Rt.	23	402.00	04+92.84 Lt.
16	402.50	59+00.00 3.01 Rt.	24	401.18	05+92.84 Lt.
17	402.50	59+00.00 3.01 Rt.	25	401.60	06+92.84 Lt.
18	402.50	59+00.00 3.01 Rt.	26	401.18	07+92.84 Lt.
19	402.50	59+00.00 3.01 Rt.	27	401.60	08+92.84 Lt.
20	402.50	59+00.00 3.01 Rt.	28	401.43	09+92.84 Lt.
21	402.50	59+00.00 3.01 Rt.	29	400.41	10+92.84 Lt.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Danek* 5-19-98  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Condy Hamatin* 5/27/98  
 Chief, Division of Land Development

*John Danek* 5/27/98  
 Chief, Development Engineering Division



**Curve Data**

P.C. Sta	P.C.C. Sta	P.T. Sta	Radius	Arc	Tangent	Chord	Bearing	Delta
47+53.30	none	49+10.48	1725.00	1349.32	641.17	1512.16	N 26° 00' 50" E	51° 59' 31"

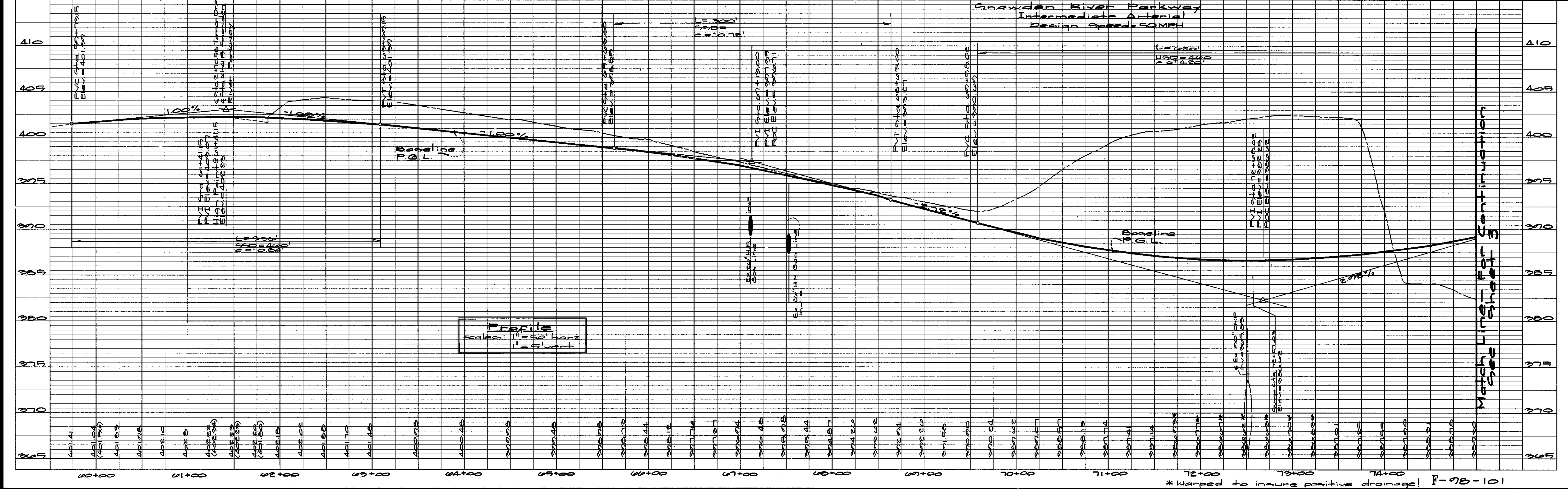
**Legend**

- Standard 7" Curb & Gutter
- Reversed 7" Curb & Gutter
- Test Pit Location

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DESIGNED	Columbia	SCALE	As Shown
DRAWN	Route 108 Commercial	DRAWING	2 of 17
CHECKED	Section 1 Area 1	ZONING	NT
DATE	Parcel A, B and Lots 1 & 2	JOB No.	97009

OWNER: The Howard Research & Development Corporation  
 10715 Little Patuxent Pkwy.  
 Columbia, Maryland 21044  
 Phone: 410-726-0027

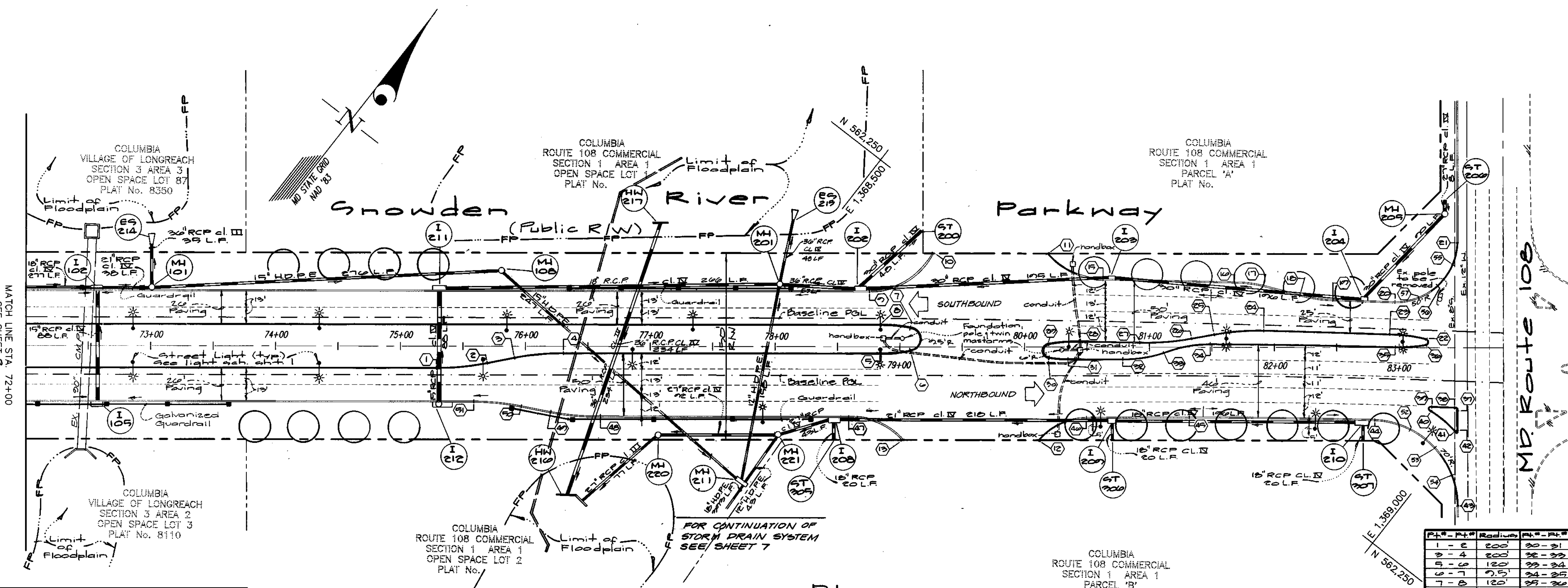


**Profile**  
 scales: 1" = 50' horiz  
 1" = 5' vert

\*Warped to insure positive drainage! F-98-101

Point#	T.C. Elev.	Baseline Sta. & Offset	Point#	T.C. Elev.	Baseline Sta. & Offset
1	371.85	14+44.40 NBBL 0.00' Lt	20	421.21	18+75.51 NBBL 0.00' Lt
2	371.85	14+44.40 NBBL 0.00' Lt	21	421.12	18+75.51 NBBL 0.00' Lt
3	371.85	14+44.40 NBBL 0.00' Lt	22	421.52	18+75.51 NBBL 0.00' Lt
4	371.85	14+44.40 NBBL 0.00' Lt	23	421.52	18+75.51 NBBL 0.00' Lt
5	371.85	14+44.40 NBBL 0.00' Lt	24	421.74	18+75.51 NBBL 0.00' Lt
6	371.85	14+44.40 NBBL 0.00' Lt	25	421.72	18+75.51 NBBL 0.00' Lt
7	371.85	14+44.40 NBBL 0.00' Lt	26	421.72	18+75.51 NBBL 0.00' Lt
8	371.85	14+44.40 NBBL 0.00' Lt	27	421.72	18+75.51 NBBL 0.00' Lt
9	371.85	14+44.40 NBBL 0.00' Lt	28	421.72	18+75.51 NBBL 0.00' Lt
10	371.85	14+44.40 NBBL 0.00' Lt	29	421.72	18+75.51 NBBL 0.00' Lt
11	371.85	14+44.40 NBBL 0.00' Lt	30	421.72	18+75.51 NBBL 0.00' Lt
12	371.85	14+44.40 NBBL 0.00' Lt	31	421.72	18+75.51 NBBL 0.00' Lt
13	371.85	14+44.40 NBBL 0.00' Lt	32	421.72	18+75.51 NBBL 0.00' Lt
14	371.85	14+44.40 NBBL 0.00' Lt	33	421.72	18+75.51 NBBL 0.00' Lt
15	371.85	14+44.40 NBBL 0.00' Lt	34	421.72	18+75.51 NBBL 0.00' Lt
16	371.85	14+44.40 NBBL 0.00' Lt	35	421.72	18+75.51 NBBL 0.00' Lt
17	371.85	14+44.40 NBBL 0.00' Lt	36	421.72	18+75.51 NBBL 0.00' Lt
18	371.85	14+44.40 NBBL 0.00' Lt	37	421.72	18+75.51 NBBL 0.00' Lt
19	371.85	14+44.40 NBBL 0.00' Lt	38	421.72	18+75.51 NBBL 0.00' Lt
20	371.85	14+44.40 NBBL 0.00' Lt	39	421.72	18+75.51 NBBL 0.00' Lt
21	371.85	14+44.40 NBBL 0.00' Lt	40	421.72	18+75.51 NBBL 0.00' Lt
22	371.85	14+44.40 NBBL 0.00' Lt	41	421.72	18+75.51 NBBL 0.00' Lt
23	371.85	14+44.40 NBBL 0.00' Lt	42	421.72	18+75.51 NBBL 0.00' Lt
24	371.85	14+44.40 NBBL 0.00' Lt	43	421.72	18+75.51 NBBL 0.00' Lt
25	371.85	14+44.40 NBBL 0.00' Lt	44	421.72	18+75.51 NBBL 0.00' Lt
26	371.85	14+44.40 NBBL 0.00' Lt	45	421.72	18+75.51 NBBL 0.00' Lt
27	371.85	14+44.40 NBBL 0.00' Lt	46	421.72	18+75.51 NBBL 0.00' Lt
28	371.85	14+44.40 NBBL 0.00' Lt	47	421.72	18+75.51 NBBL 0.00' Lt
29	371.85	14+44.40 NBBL 0.00' Lt	48	421.72	18+75.51 NBBL 0.00' Lt
30	371.85	14+44.40 NBBL 0.00' Lt	49	421.72	18+75.51 NBBL 0.00' Lt
31	371.85	14+44.40 NBBL 0.00' Lt	50	421.72	18+75.51 NBBL 0.00' Lt
32	371.85	14+44.40 NBBL 0.00' Lt	51	421.72	18+75.51 NBBL 0.00' Lt
33	371.85	14+44.40 NBBL 0.00' Lt	52	421.72	18+75.51 NBBL 0.00' Lt
34	371.85	14+44.40 NBBL 0.00' Lt	53	421.72	18+75.51 NBBL 0.00' Lt
35	371.85	14+44.40 NBBL 0.00' Lt	54	421.72	18+75.51 NBBL 0.00' Lt
36	371.85	14+44.40 NBBL 0.00' Lt	55	421.72	18+75.51 NBBL 0.00' Lt
37	371.85	14+44.40 NBBL 0.00' Lt	56	421.72	18+75.51 NBBL 0.00' Lt
38	371.85	14+44.40 NBBL 0.00' Lt	57	421.72	18+75.51 NBBL 0.00' Lt
39	371.85	14+44.40 NBBL 0.00' Lt	58	421.72	18+75.51 NBBL 0.00' Lt
40	371.85	14+44.40 NBBL 0.00' Lt	59	421.72	18+75.51 NBBL 0.00' Lt
41	371.85	14+44.40 NBBL 0.00' Lt	60	421.72	18+75.51 NBBL 0.00' Lt

Note: NBBL indicates northbound baseline and S.B.L. indicates southbound baseline.



Plan scale: 1"=50'

Legend

- Standard 7" Curb & Gutter
- Reversed 7" Curb & Gutter

Station	Prop. Elev.	Ex. Elev.	Depth
1-2	200	20	180
3-4	200	20	180
5-6	150	20	130
7-8	130	20	110
9-10	100	20	80
11-12	100	20	80
13-14	100	20	80
15-16	150	20	130
17-18	100	20	80
19-20	150	20	130
21-22	200	20	180
23-24	200	20	180
25-26	200	20	180
27-28	200	20	180
29-30	200	20	180
31-32	200	20	180
33-34	200	20	180
35-36	200	20	180
37-38	200	20	180
39-40	200	20	180
41-42	200	20	180
43-44	200	20	180
45-46	200	20	180
47-48	200	20	180
49-50	200	20	180
51-52	200	20	180
53-54	200	20	180
55-56	200	20	180
57-58	200	20	180
59-60	200	20	180

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 5-19-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 5/2/98

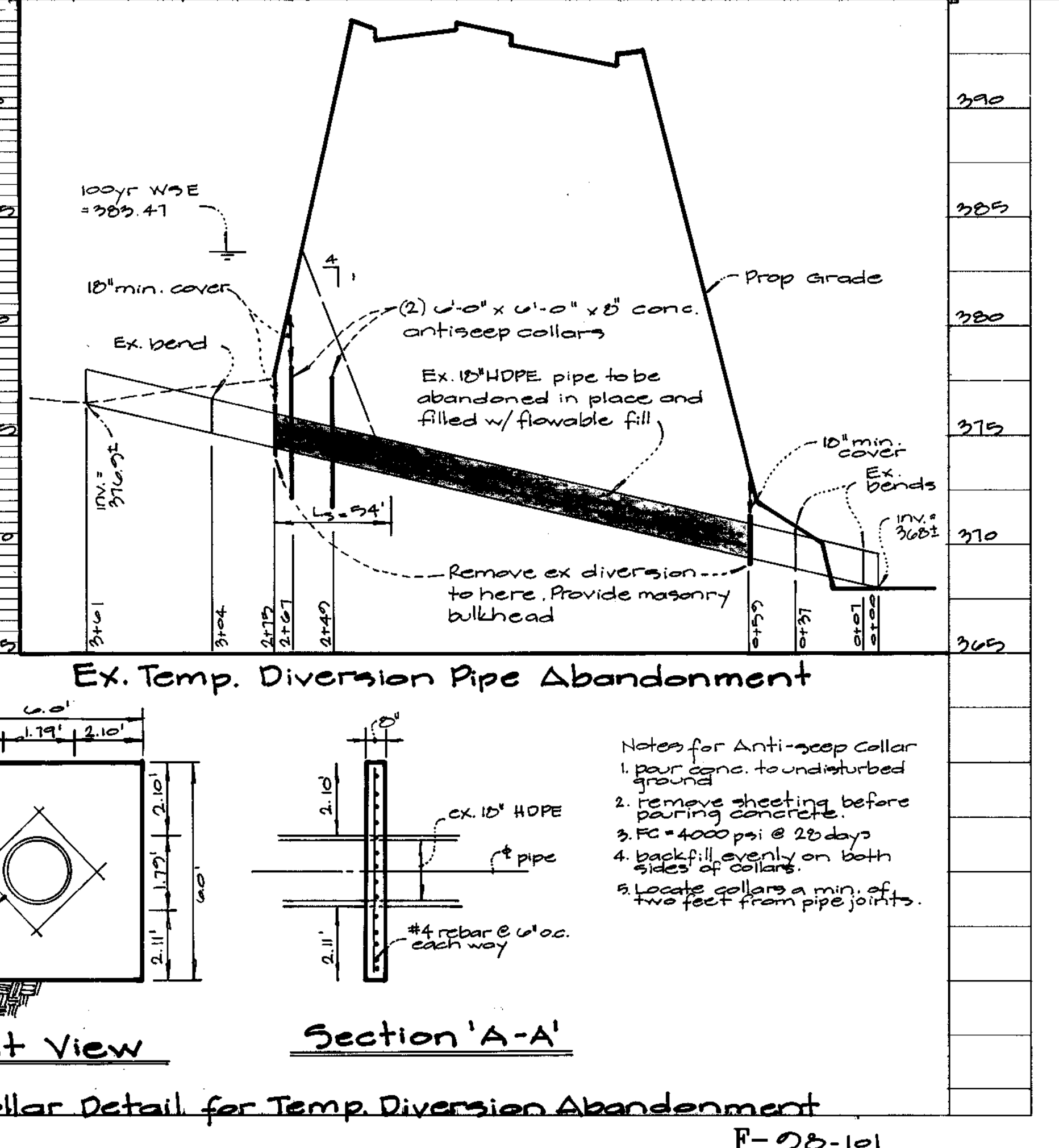
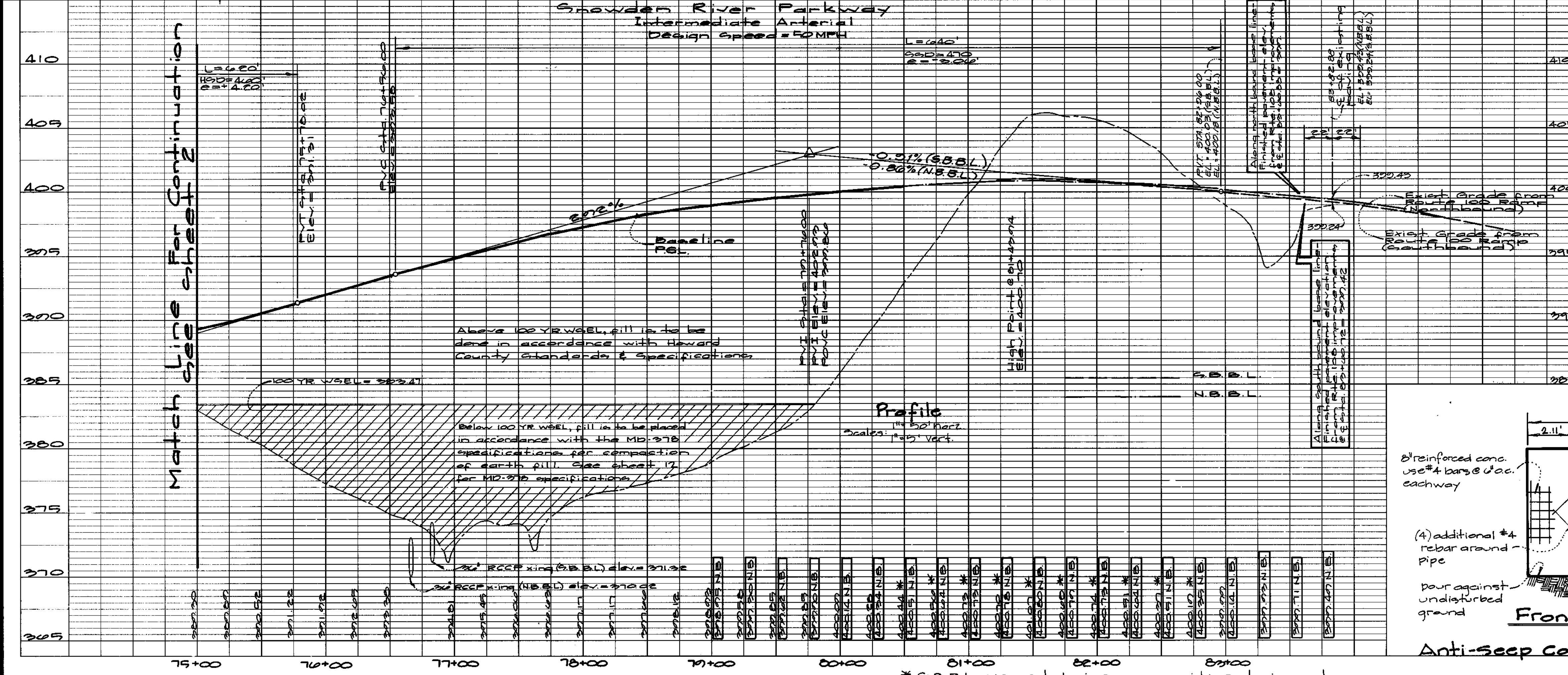
Chief, Development Engineering Division  
 Date: 5/2/98

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3809 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20886  
 TEL: 301-421-4024 BALT. 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DESIGNED: Columbia  
 DRAWN: KLP  
 CHECKED: [Signature]  
 DATE: May 11, 1998

SCALE: As Shown  
 DRAWING: 3 of 17  
 ZONING: NT  
 JOB No.: 97009

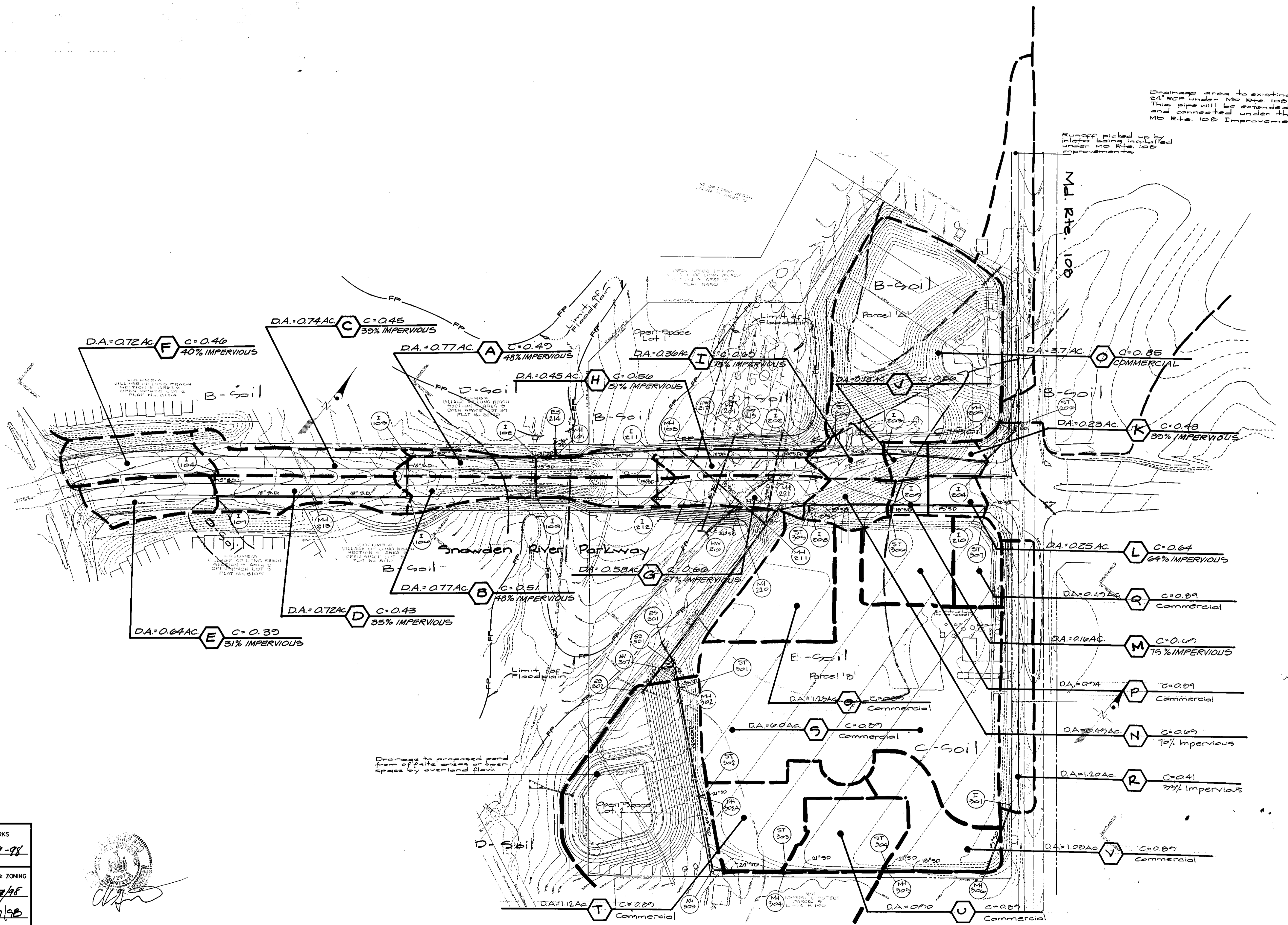
**Route 108 Commercial**  
 Section 1 Area 1  
 Parcels 'A' & 'B' and Lots 1 & 2  
 with Election District  
 OWNER: Howard County, Maryland  
 The Howard Research & Development Corporation  
 Little Retirement Plan  
 Columbia, Maryland 21044  
 Attn: Al Edwards  
 Phone: 410-992-0027



\* S.B.L. warped to insure positive drainage!

Drainage area to existing 24" RCP under MD Rte. 108. This pipe will be extended and connected under the MD Rte. 108 Improvement.

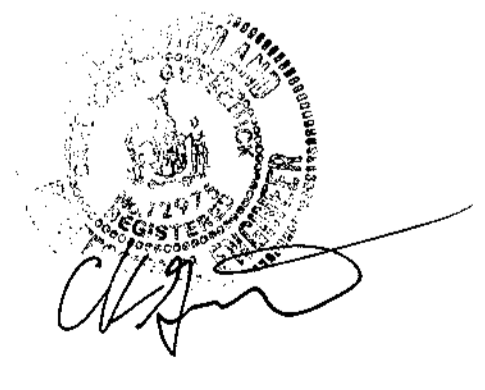
Runoff picked up by inlets being installed under MD Rte. 108 improvement.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 5-19-98  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Andy Hamilton* 5/27/98  
 Chief, Division of Land Development Date

*John Cummings* 5/27/98  
 Chief, Development Engineering Division Date



**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE · SUITE 250 · BURTONSVILLE OFFICE PARK · BURTONSVILLE, MD. 20866  
 TELEPHONE: (301)421-4024 NO. VA. (301)989-2524 BALTO. (301)880-1820 FAX (301)421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 The Howard Research & Development Corporation  
 10275 Little Patuxent Pkwy.  
 Columbia, Maryland 21044  
 Attn: Al Edwards  
 Phone: 410-302-6027

**DRAINAGE AREA MAP**  
 Columbia  
 Route 108 Commercial  
 Section 1, Area 1&2  
 Parcels 'A' & 'B' and Lots 1&2  
 6th Election District  
 Howard County, Maryland

DES.: H&J	SCALE: 1" = 100'	ZONING: NT	G.L.W. FILE NO.: 97009
CHK.: May 11, 1998	DATE: May 11, 1998	TAX MAP NO.: 37	SHEET: 4 of 17

Note  
See sheet 2 For Additional  
Information on Improvements  
Within Intersection.

COLUMBIA  
VILLAGE OF LONG REACH  
SECTION 3 AREA 2  
OPEN SPACE LOT 2  
PLAT No. 8104

COLUMBIA  
VILLAGE OF LONG REACH  
SECTION 3 AREA 2  
OPEN SPACE LOT 27  
PLAT No. 8050

COLUMBIA  
VILLAGE OF LONG REACH  
SECTION 3 AREA 2  
OPEN SPACE LOT 3  
PLAT No. 8105

COLUMBIA  
VILLAGE OF LONG REACH  
SECTION 3 AREA 2  
OPEN SPACE LOT 3  
PLAT No. 8110

COLUMBIA  
VILLAGE OF LONG REACH  
SECTION 3 AREA  
PARCEL  
PLAT No.

Note:  
All Sediment Controls Interrupted  
During Storm Drain Installation  
shall be Repaired Immediately.

LEGEND

- 304 --- EXISTING CONTOUR
- 304 — PROPOSED CONTOUR
- SEDIMENT CONTROL DRAINAGE DIVIDE
- ED. A:1 EX. EARTH DIKE
- ED. A:1 PROP. EARTH DIKE
- T.S. (I) TEMP. SWALE (PHASE I)
- T.S. (II) TEMP. SWALE (PHASE II)
- SF (I) SILT FENCE (PHASE I)
- SF (II) SILT FENCE (PHASE II)
- SSF (I) SUPER SILT FENCE (PHASE I)
- SSF (II) SUPER SILT FENCE (PHASE II)
- IB INLET BLOCKING
- L.O.D. LIMIT OF DISTURBANCE

Approved: Howard County Dept. of Public Works  
*Andrew M. Daniels* 5-19-98  
Chief, Bureau of Highways  
Approved: Howard County Dept. of Planning & Zoning  
*Cindy Hamilton* 5/20/98  
Chief, Division of Land Development  
*Mark S. ...* 5/27/98  
Chief, Development Engineering Division

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MD. 20866  
TELEPHONE: (301)421-4024 NO. VA. (301)989-2524 BALTO. (301)880-1820 FAX (301)421-4186

DATE	REVISION	BY	APP'R.
11-2-98	Revise grading & paving widths		

PREPARED FOR:  
The Howard Research & Development Corporation  
10275 Little Patuxent Pkwy.  
Columbia, Maryland 21044  
Attn: Al Edwards  
Phone: 410-992-0027

Mass Grading/Sediment Control Plan  
Route 108 Commercial  
Section 1 Area 1  
Parcels 'A' & 'B' and Lots 1 & 2  
4th Election District  
Howard County, Maryland

DES.:	SCALE	ZONING	G.L.W. FILE No.
KLP	1"=50'	NT	07009
DRN.:	DATE	TAX MAP No.	SHEET
KLP	May 11, 1998	27	5 of 17
CHK.:			



Engineer's Certificate  
I certify that the plan and construction, design & sediment control representing a practical feasible plan based on my personal knowledge of site conditions, the plans were prepared in accordance with the requirements of the Howard County Department of Planning & Zoning. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction & provide the Howard Soil Conservation District with an approved plan of the pond within 30 days of completion.

*Al Edwards* 4-9-98  
Date

Developer's/Builder's Certificate  
I/We certify that all development and/or construction will be done according to these plans, & that any responsible personnel involved in the construction project will have a Certificate of Attendance from the Maryland Department of the Environment Approved Training Program for the Control of Sediment Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction & provide the Howard Soil Conservation District with an approved plan of the pond within 30 days of completion by the Howard Soil Conservation District.

*Al Edwards* 4-8-98  
Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District & meet the technical requirements for small pond construction, soil erosion & sediment control.

*Cheryl Simon / as* 5/14/98  
Natural Resources Conservation Service Date

These plans for small pond construction, soil erosion & sediment control meet the requirements of the Howard Soil Conservation District.

*J.R. Polunton / as* 5/14/98  
Howard Soil Conservation District Date

**LEGEND**

- +r TO REMAIN
- +b TO BE REMOVED
- 304--- EXISTING CONTOUR
- 304--- PROPOSED CONTOUR
- SEDMENT CONTROL DRAINAGE DIVIDE
- EDA-1 EX. EARTH DIKE
- EDA-1 PROP. EARTH DIKE
- T.S. (I) TEMP SWALE (PHASE I)
- T.S. (II) TEMP SWALE (PHASE II)
- SF(I) SILT FENCE (PHASE I)
- SF(II) SILT FENCE (PHASE II)
- SSF(I) SUPER SILT FENCE (PHASE I)
- SSF(II) SUPER SILT FENCE (PHASE II)
- IB INLET BLOCKING
- L.O.D. LIMIT OF DISTURBANCE

**TRAP #1**

EX. STONE OUTLET SEDIMENT TRAP ST II  
 BEFORE DEVELOPMENT D.A. = 4.8 AC.  
 AFTER DEVELOPMENT D.A. = 5.74 AC.  
 VOLUME REQUIRED = 17,280 CF  
 VOLUME PROVIDED = 21,425 CF  
 WEIR LENGTH = 20'  
 TOP OF DAM = 384.0±  
 CHANNEL DEPTH = 2'  
 BOTTOM ELEV. = 378.00  
 CLEAN OUT ELEV. = 380.00  
 WEIR CREST ELEV. = 382.00

See sheet 5 for backfilling detail in the area of Ex. trap #1.

**100 Year Floodplain Cross Section Tabulation**

Cross section	Prop. 100 YR HIGHEST
1 SFD	383.40
2 SFD	383.40
3 SFD	383.70
4 SFD	383.70

**Engineer's Certificate**

I certify that this plan for pond construction, erosion & sediment control represents a practical and suitable 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 & provide the Howard Soil Conservation District with a certified plan of the pond within 30 days of completion.

*Albert L. Edwards* 4-9-98  
 Signature of Engineer Date

**Developer's/Builder's Certificate**

I/we certify that all development and/or construction will be done in accordance with these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at the Maryland Department of the Environment's Approved Training Program for the control of erosion and sedimentation. I/we have notified the Howard Soil Conservation District and provided a certified plan of the pond within 30 days of completion.

*Albert L. Edwards* 4-9-98  
 Signature of Developer/Builder Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, erosion and sediment control.

*Chief Engineer* 5/14/98  
 Natural Resources Conservation Service Date

These plans for small pond construction, erosion and sediment control meet the requirements of the Howard Soil Conservation District.

*DR. [Signature]* 5/14/98  
 Howard Soil Conservation District Date

**NOTES**

- ANY SEDIMENT CONTROL DEVICES INTERRUPTED BY THE INSTALLATION OF THE STORM DRAINS SHALL BE REPAIRED IMMEDIATELY.
- ALL EXISTING SEDIMENT CONTROLS SHOWN ARE PER GP 97-142.
- TEMPORARY SWALES SHALL BE STABILIZED WITH EROSION CONTROL MATTING.



Approved: Howard County Dept. of Public Works  
*Andrew M. Danek* 5-19-98  
 Chief, Bureau of Highways Date

Approved: Howard County Dept. of Planning & Zoning  
*Cathy Hamilton* 5/27/98  
 Chief, Division of Land Development Date

*[Signature]* 5/27/98  
 Chief, Development Engineering Division Date

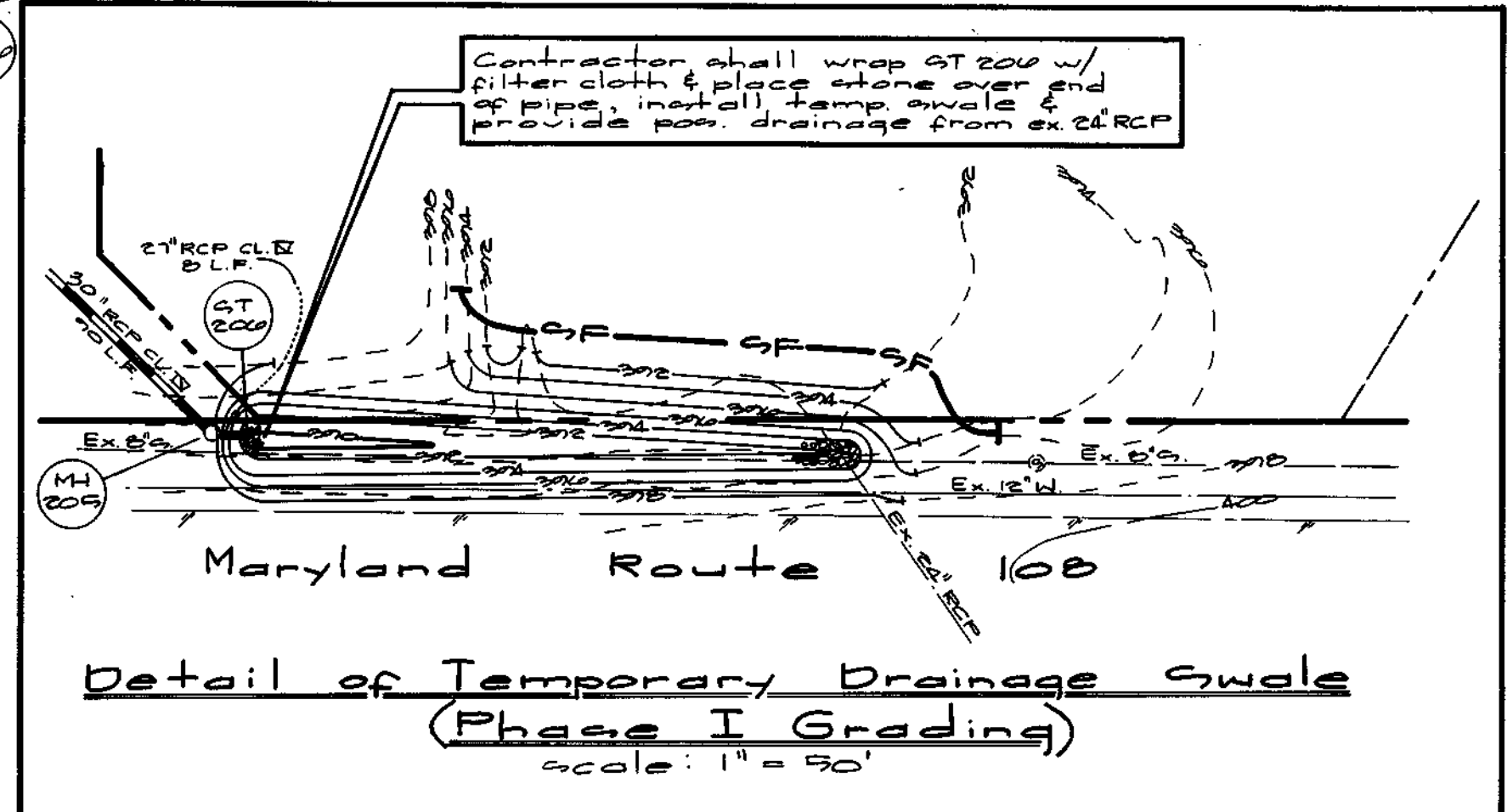
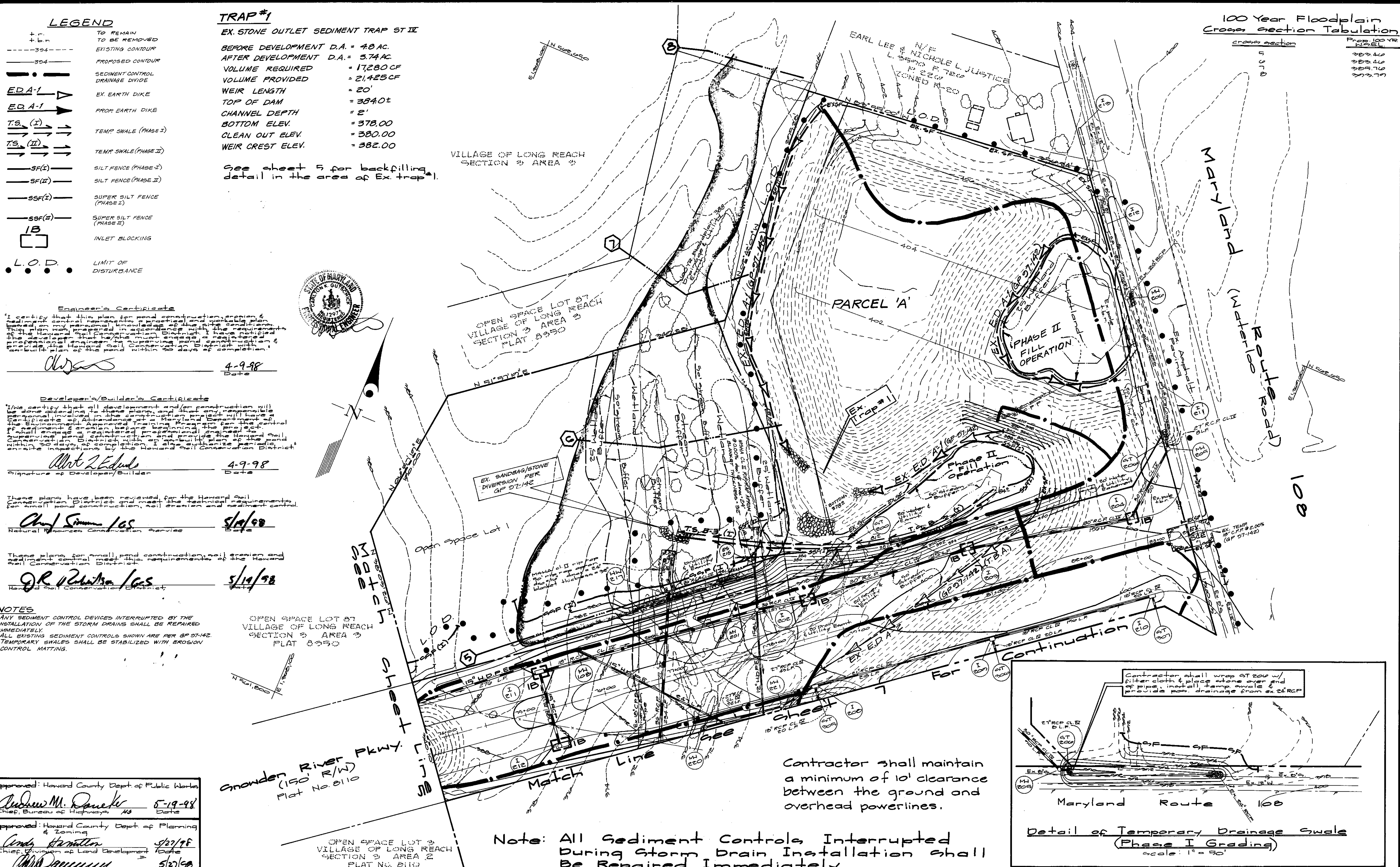
**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MD. 20866  
 TELEPHONE: (301)421-4024 NO. VA. (301)989-2524 BALTO. (301)880-1820 FAX (301)421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
 The Howard Research & Development Corporation  
 1029 Little Patuxent Parkway  
 Columbia, Maryland 21044  
 Attn: Al Edwards  
 Phone: 410-992-0027

Mass Grading/Sediment Control Plan  
 Columbia  
 Route 108 Commercial  
 Section 1 Area 1  
 Parcels 'A' & 'B' and Lots 1 & 2  
 4th Election District  
 Howard County, Maryland

DES.: KLP	SCALE: 1"=50'	ZONING: NT	G.L.W. FILE NO.: 97-009
DRN.: KLP	DATE: May 11, 1998	TAX MAP NO.: 37	SHEET: 6 of 17
CHK.: [Signature]			



Contractor shall maintain a minimum of 10' clearance between the ground and overhead powerlines.

Note: All Sediment Controls Interrupted During Storm Drain Installation shall Be Repaired Immediately.

**Legend**

- TO REMAIN
- TO BE REMOVED
- EXISTING CONTOUR
- PROPOSED CONTOUR
- SEDIMENT CONTROL DRAINAGE DIVIDE
- EX. EARTH DIKE
- PROP. EARTH DIKE
- TEMP SWALE
- RIP RAP PROTECTION
- SILT FENCE (PHASE I)
- SILT FENCE (PHASE II)
- SUPER SILT FENCE (PHASE I)
- SUPER SILT FENCE (PHASE II)
- INLET BLOCKING
- C.I.P.
- LIMIT OF DISTURBANCE

**TRAP #4**  
 BEFORE DEV. D.A. = 740 AC.  
 AFTER DEV. D.A. = 5.5 AC.  
 BEFORE DEV. Q<sub>2</sub> = 3.0 CFS  
 AFTER DEV. Q<sub>2</sub> = 21.1 CFS  
 LIMIT OF SEDIMENT CONTROL (800 CF/AC) = 267.20  
 VOLUME REQUIRED = 13,425 CF  
 VOLUME PROVIDED = 28,000 CF  
 LIMIT OF TEMP SWM = 269.00  
 VOLUME REQUIRED = 24,800 CF  
 VOLUME PROVIDED = 25,200 CF  
 TOTAL VOLUME PROVIDED = 54,132 CF  
 CLEANOUT ELEV. = 306.19  
 RELEASE ORIFICE: 8" PVC @ 367.20  
 DISCHARGE Q<sub>2</sub> = 2.0 CFS  
 BOTTOM = 269.00  
 TOP OF DAM = 372.00  
 WEIR CREST ELEV. = 370.00  
 WEIR LENGTH = 10'

**Engineer's Certificate**

I certify that this plan for pond construction, erosion and sediment control, represents a practical and feasible plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the Alternative Compliance Provisions of Section 10.124 of the Ho. Co. Code and Landscape Manual. I have notified the developer/owner of the requirements of this plan and provided the necessary information to the developer/owner to complete the pond construction within 30 days of completion of the plan.



4-9-98  
 Date

**Developer/Builder's Certificate**

I certify that all development and/or construction will be done according to these plans, and that any reasonable level of Alternative Compliance Provisions of Section 10.124 of the Ho. Co. Code and Landscape Manual will be followed. I am engaged a registered Professional Engineer to supervise the pond construction with an approved plan of the pond within 30 days of completion. I will provide periodic onsite inspections by the Howard Soil Conservation District.

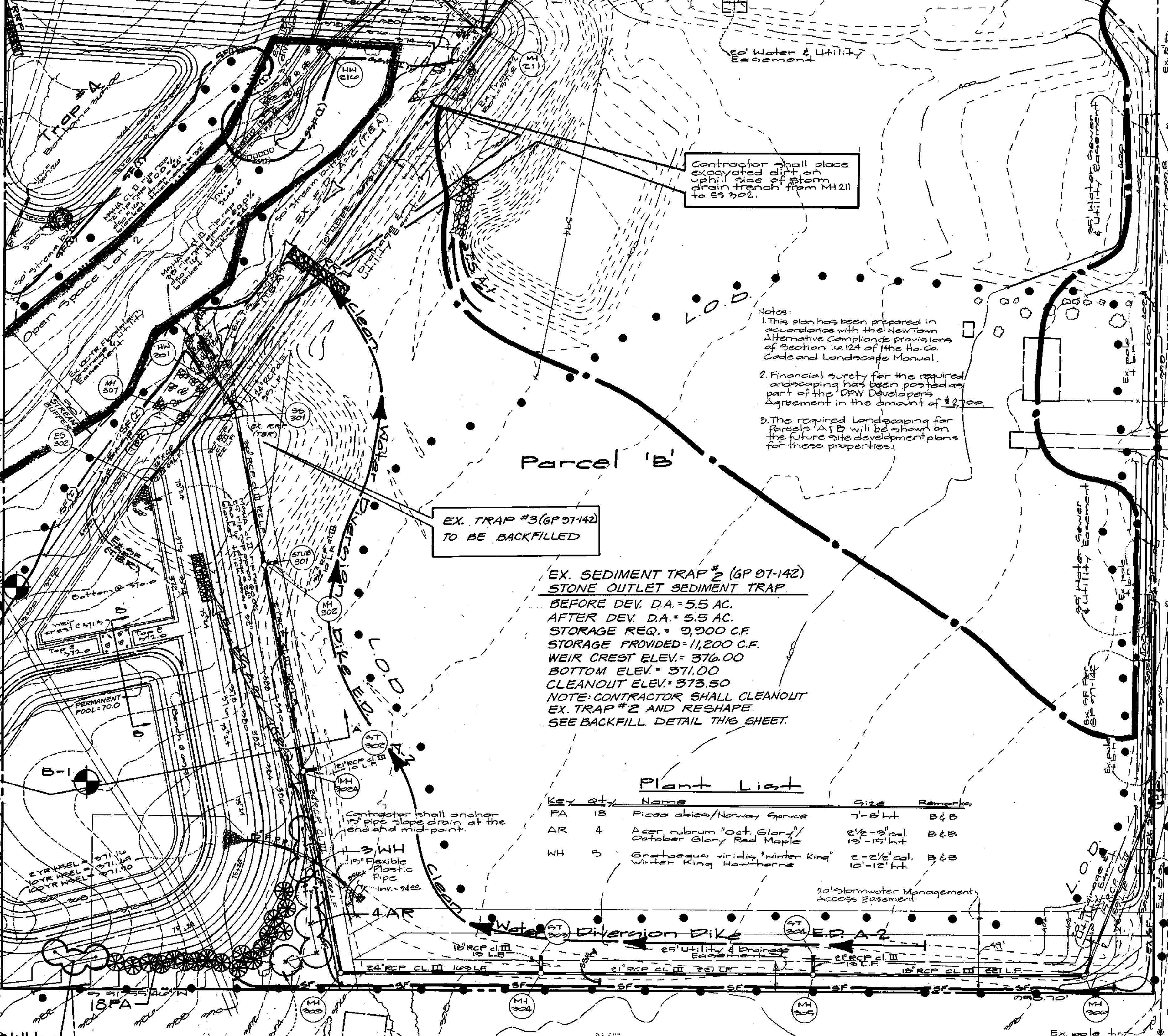
Signature of Developer/Builder \_\_\_\_\_ Date \_\_\_\_\_

These plans have been reviewed for the technical requirements for soil erosion and sediment control.  
 Chief, Natural Resources Conservation Service  
 5/14/98

These plans for small pond construction, erosion and sediment control, meet the requirements of the Howard Soil Conservation District.  
 J.R. Roberts, Inc. 5/14/98  
 Howard Soil Conservation District

Match Line See Sheet 6 For Continuation

Match Line See sheet 5



EX. TRAP #3 (GP 97-142)  
 TO BE BACKFILLED

**EX. SEDIMENT TRAP #2 (GP 97-142)**  
**STONE OUTLET SEDIMENT TRAP**  
 BEFORE DEV. D.A. = 5.5 AC.  
 AFTER DEV. D.A. = 5.5 AC.  
 STORAGE REQ. = 9,000 CF  
 STORAGE PROVIDED = 11,200 CF  
 WEIR CREST ELEV. = 376.00  
 BOTTOM ELEV. = 371.00  
 CLEANOUT ELEV. = 373.50  
 NOTE: CONTRACTOR SHALL CLEANOUT EX. TRAP #2 AND RESHAPE. SEE BACKFILL DETAIL THIS SHEET.

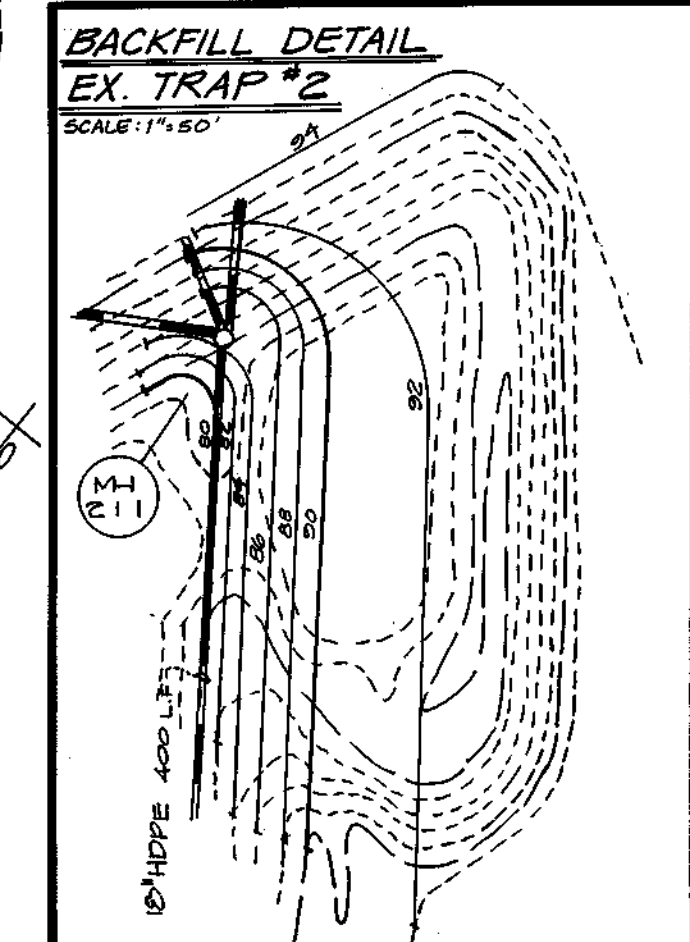
**Plant List**

Key	Qty	Name	Size	Remarks
PA	18	Picea abies/Norway Spruce	7'-8' ht.	B & B
AR	4	Acer rubrum 'Oct. Glory' / October Glory Red Maple	2 1/2' - 3' cal. 13'-15' ht.	B & B
WH	5	Gratiola viridis 'Winter King' / Winter King Hawthorne	2 - 2 1/2' cal. 10'-12' ht.	B & B

**Notes**

- 1. The stormwater management facility provides quantity control through detention & provides quality control with a permanent pool (retention) and a shallow marsh.
- 2. The facility is a type 'A' hazard classification pond.
- 3. See sheet 12 for soil boring logs.

Note: All Sediment Controls Interrupted During Storm Drain Installation shall Be Repaired Immediately.



Approved: Howard County Dept. of Public Works  
 Andrew M. Daniels 5-19-98  
 Chief, Bureau of Highways

Approved: Howard County Dept. of Planning & Zoning  
 Andy Hamilton 5/21/98  
 Chief, Division of Land Development

Approved: Howard County Dept. of Planning & Zoning  
 [Signature] 5/21/98  
 Chief, Development Engineering Division

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MD. 20866  
 TELEPHONE: (301)421-4024 NO. VA. (301)989-2524 BALTO. (301)880-1820 FAX (301)421-4186

DATE	REVISION	BY	APPR.

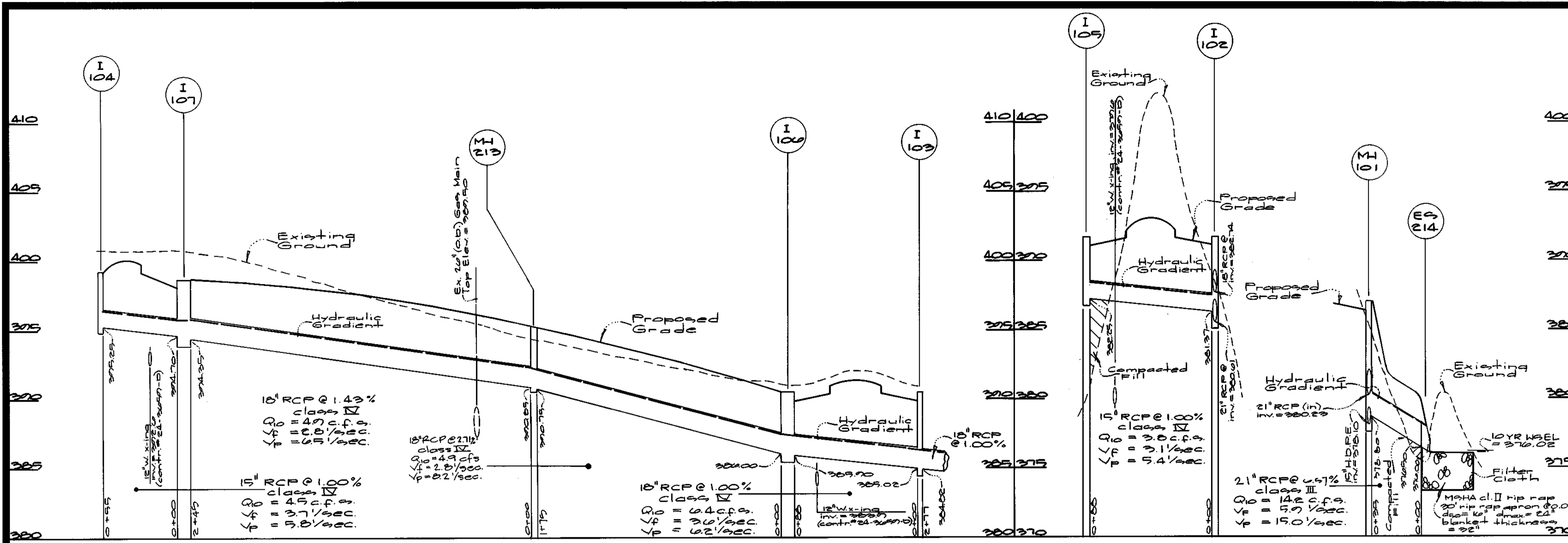
PREPARED FOR:  
 The Howard Research & Development Corporation  
 10275 Little Patuxent Pkwy  
 Columbia, Maryland 21044  
 Attn: Al Edwards  
 Phone: 410-992-0027

Mass Grading/Sediment Control Plan  
 Columbia  
 Route 108 Commercial  
 Section 1, Area 1 & 2  
 Parcels 'A' & 'B' and Lots 1 & 2  
 4th Election District  
 Howard County, Maryland

DES:	SCALE	ZONING	G.L.W. FILE NO.
DRN:	1" = 50'	NT	97-009
CHK:	DATE	TAX MAP NO.	SHEET
	May 11, 1998	37	7 of 17

Maryland Route 108 (Waterloo Road)

Contractor shall maintain a minimum 10' clearance between the ground and overhead powerlines.



### Structure Schedule

No.	Type	Width (inside)	Top Elevation	Invert Elevation	St'd Detail	Locations	Remarks
I 102	A-10	3'-0"	388.74	388.74	SD 4.41	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
I 103	A-10	3'-0"	388.02	388.02	SD 4.41	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
I 104	A-10	3'-0"	389.81	389.81	SD 4.41	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
I 105	A-10	3'-0"	388.74	388.74	SD 4.41	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
I 106	A-10	3'-0"	388.02	388.02	SD 4.41	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
I 107	A-10	3'-0"	389.81	389.81	SD 4.41	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
MH 101	std'd manhole	4'-0"	388.04	388.04	G. 5.12	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	See detail Sheet 10
MH 102	"	4'-0"	388.13	388.13	G. 5.12	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
MH 103	A-10	4'-0"	378.92	378.92	G. 5.12	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
MH 104	A-5 (multi-pipe)	4'-0"	378.92	378.92	G. 5.12	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	See Plan
MH 105	std'd manhole	4'-0"	389.41	389.41	G. 5.12	B. Sta. Snowden River Pkwy. @ S.B. 1147.25 21.00' R.L.	
ES 214	End section		378.92	378.92	SD 5.51	See Plan	
ES 200	"		378.04	378.04	SD 5.51	See Plan	

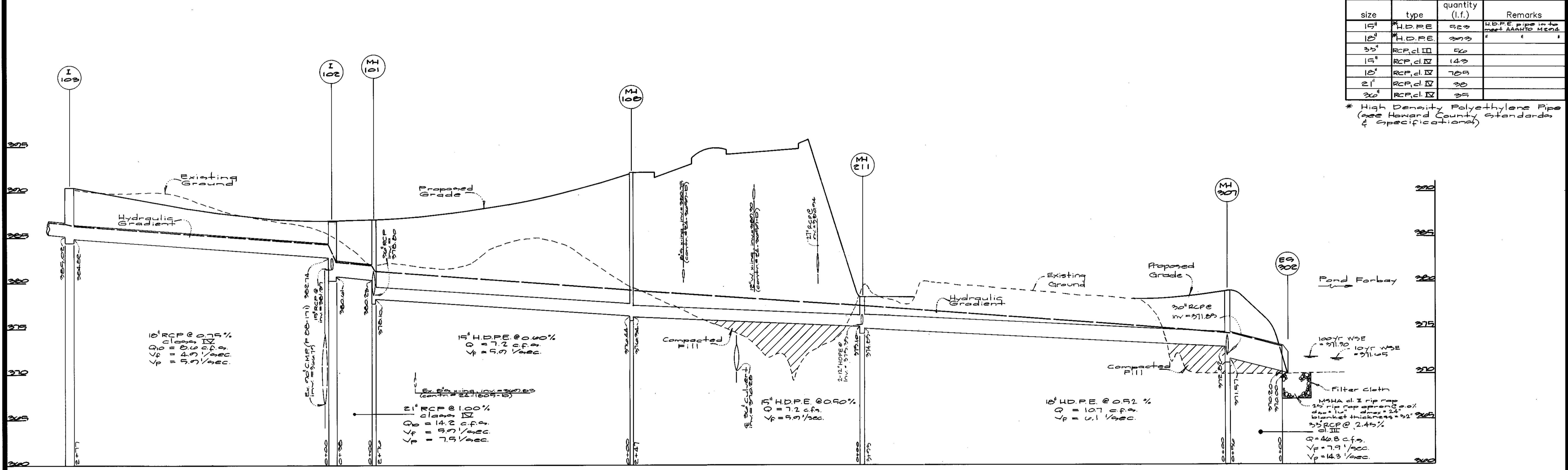
**Profile**  
 scales: 1" = 5' vert.  
 1" = 30' horiz.

Precast structures may be used for construction.

### Pipe Schedule

size	type	quantity (l.f.)	Remarks
15"	H.D.P.E.	523	H.D.P.E. pipe in the meet AA&TD ME&A
10"	H.D.P.E.	303	" " " "
30"	RCP cl III	50	
15"	RCP cl IV	143	
10"	RCP cl IV	705	
21"	RCP cl IV	30	
30"	RCP cl IX	35	

\* High Density Polyethylene Pipe (see Howard County Standards & Specifications)



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 5-19-98  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Hamilton* 5/27/98  
 Chief, Division of Land Development

*Mark Williams* 5/27/98  
 Chief, Development Engineering Division



**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20886  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

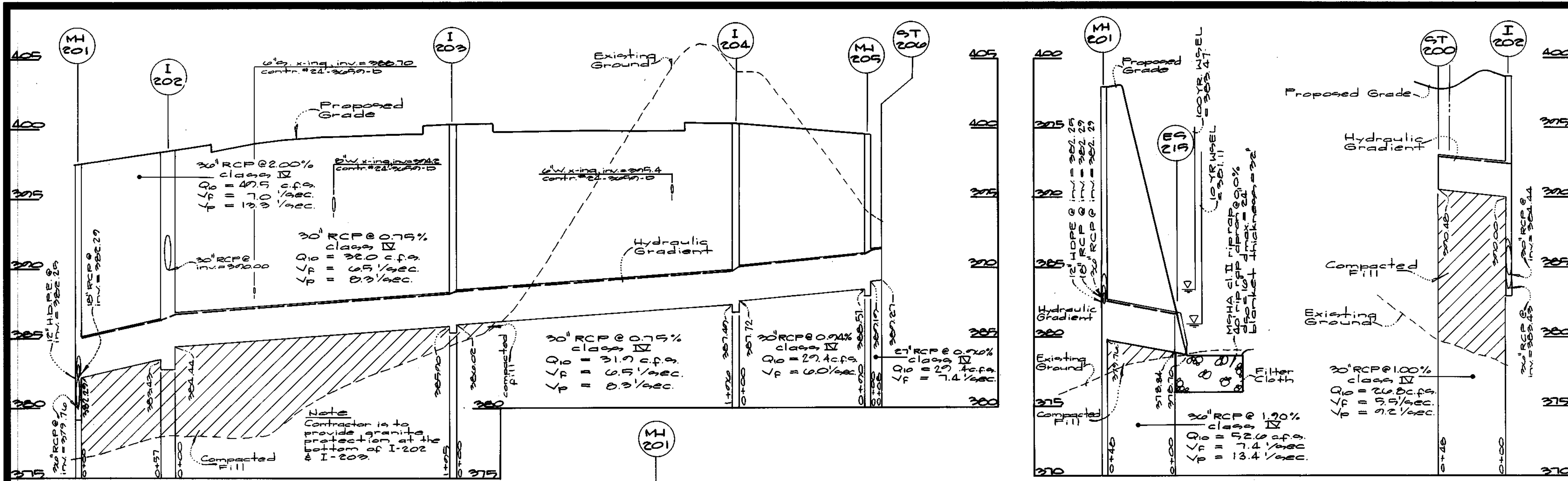
DESIGN	DATE	REVISION	BY	APPR.

PREPARED FOR:  
 The Howard Research & Development Corporation  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044  
 Attn: Al Edwards  
 Phone: 410-992-0027

Storm Drain Profiles  
 Columbia  
**Route 108 Commercial**  
 Section 1, Area 1  
 Parcels 'A' & 'B' and Lots 1 & 2  
 4th Election District  
 Howard County, Maryland

SCALE	ZONING	G. L. W. FILE No.
As shown	NT	97009
DATE	TAX MAP No.	SHEET
May 11, 1998	37	8 of 17

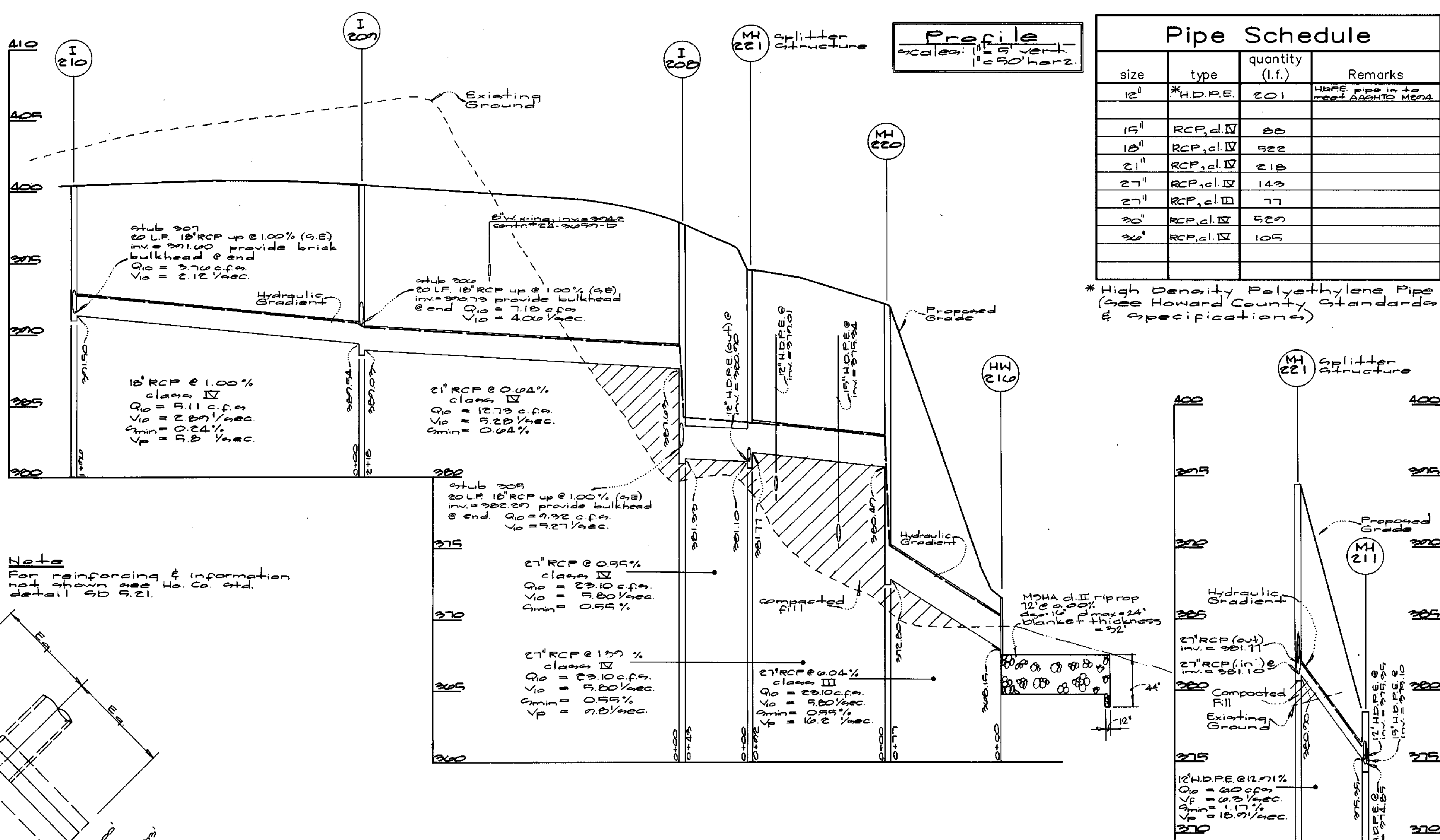
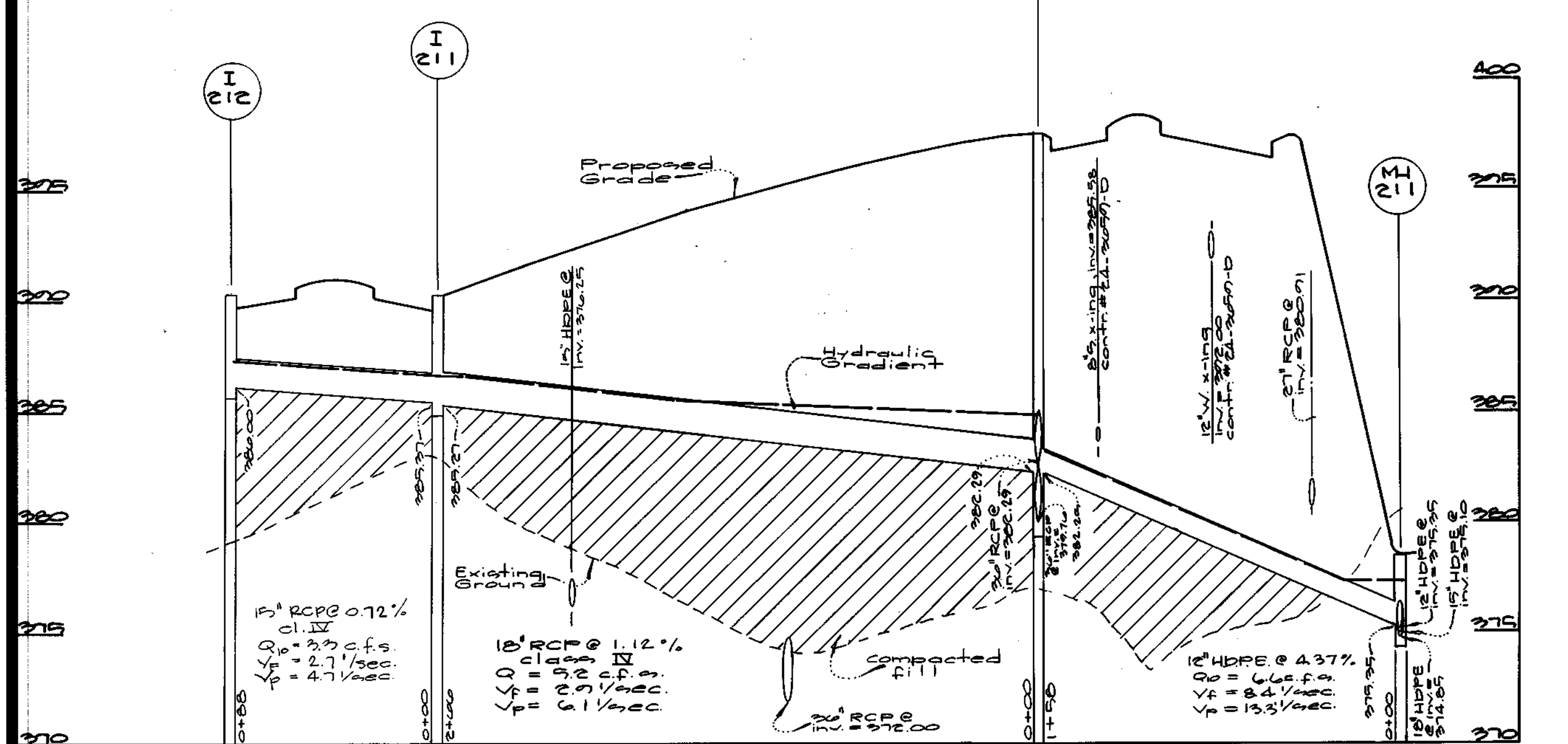




### Structure Schedule

No.	Type	Width (inside)	Top Elevation	Upper	Lower	Invert Elevation	Upper	Lower	St'd Detail	Locations	Remarks
I 202	A-10	4'-0"	378.59	378.07	378.00	378.43	378.43	378.43	SD 4.41	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 203	A-5	4'-0"	400.44	400.42	399.08	399.08	399.08	399.08	SD 4.40	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 204	A-5	4'-0"	400.27	400.23	397.71	397.40	397.40	397.40	SD 4.40	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 205	A-10	4'-0"	378.00	378.18	377.09	376.33	376.33	376.33	SD 4.41	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 207	A-5	3'-0"	400.44	400.42	399.09	399.09	399.09	399.09	SD 4.40	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 210	A-10	3'-0"	400.92	400.11	399.92	399.92	399.92	399.92	SD 4.41	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 211	A-10	3'-0"	378.08	378.09	376.37	376.37	376.37	376.37	SD 4.41	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
I 212	COB 15	4'-0"	370.41	370.03	370.00	370.00	370.00	370.00	MD 374.02	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
MH 201	Special Structure	8'-0"	377.76	377.76	377.76	377.76	377.76	377.76		Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	See detail sheet IV
MH 205	"	4'-0"	399.89	399.10	399.07	399.07	399.07	399.07	G 5.12	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
MH 211	"	4'-0"	382.50	375.25	374.85	374.85	374.85	374.85	G 5.12	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
MH 220	"	4'-0"	376.10	376.10	376.00	376.00	376.00	376.00	G 5.12	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	
MH 221	Std. Manhole	3'-0"	374.92	374.92	374.77	374.77	374.77	374.77	See sheet	Sta. Snowden River Pkwy. @ N.B. 11+29.72 21.71' Rht.	See detail sheet IV
ST 200	atub				375.40					See Plan	
ST 202	atub				376.23					See Plan	
SE 219	End Section		378.02		378.00	378.00			SD 5.51	See Plan	
HW 210	Head wall		371.97		372.15	372.37				See Plan	

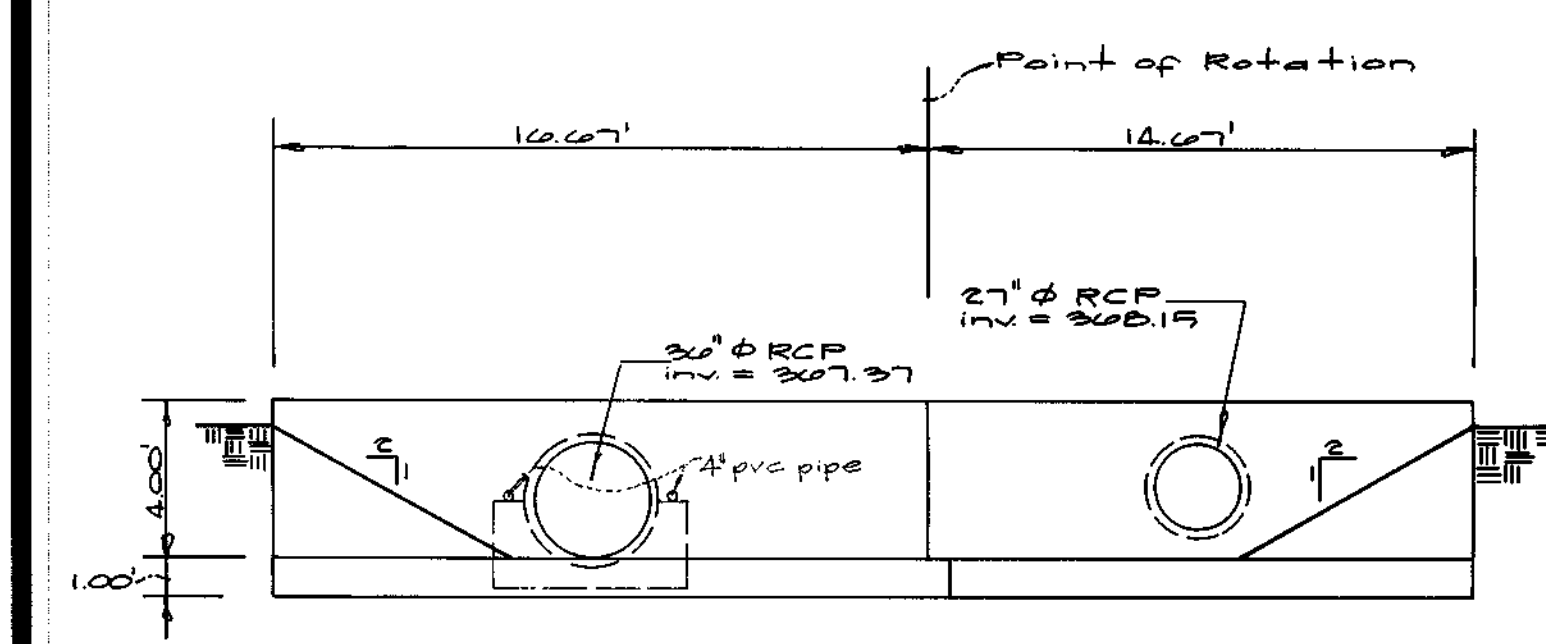
Pre-cast structures may be used for construction.



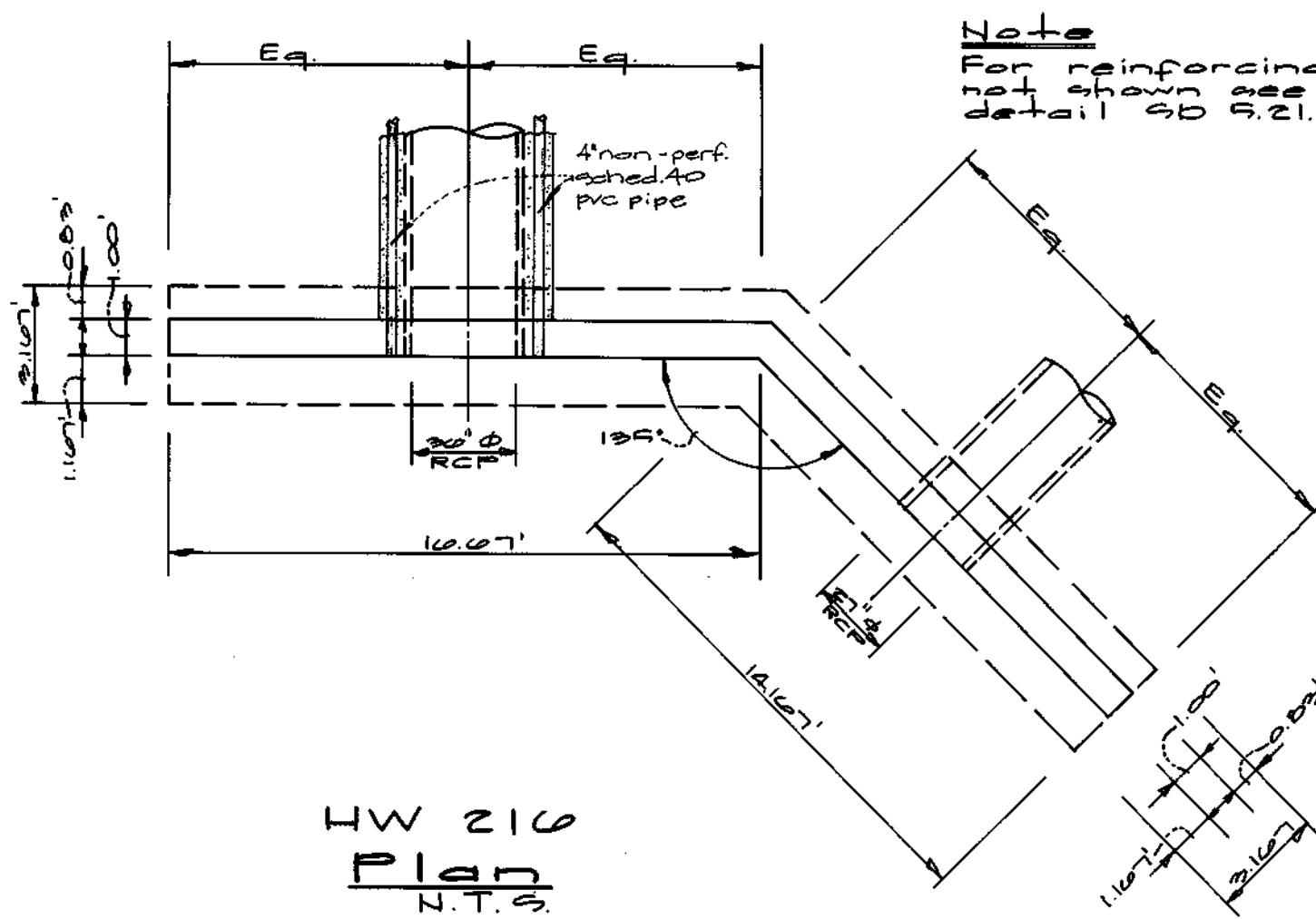
### Pipe Schedule

size	type	quantity (l.f.)	Remarks
12"	*HDPE	201	HDPE pipe in to meet ADAADA reqs.
15"	RCP, cl. IV	88	
18"	RCP, cl. IV	522	
21"	RCP, cl. IV	218	
27"	RCP, cl. IV	143	
27"	RCP, cl. III	77	
30"	RCP, cl. IV	520	
36"	RCP, cl. IV	105	

\* High Density Polyethylene Pipe (see Howard County Standards & Specifications)



HW 210 Elevation N.T.S.



HW 210 Plan N.T.S.

Note: Reinforcing & information not shown see H.C. std. detail SD 5.21.

Approved: Howard County Dept of Public Works  
*Andrew M. Decker* 5-19-98  
 Chief, Bureau of Highways MS Date

Approved: Howard County Dept of Planning & Zoning  
*Cindy Harpster* 5/21/98  
 Chief, Division of Land Development Date

*John Decker* 5/27/98  
 Chief, Development Engineering Division Date



**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 200 - BURTONTVILLE OFFICE PARK  
 BURTONTVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-999-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:  
 The Howard Research & Development Corporation  
 10293 Little Patuxent Parkway  
 Columbia, Maryland 21044  
 Attn: Al Edwards  
 Phone: 410-992-0027

**Storm Drain Profiles**  
**Columbia**  
**Route 108 Commercial**  
 Section 1 Area 1  
 Parcel A' & B' and Lots 1 & 2  
 6th Election District  
 Howard County, Maryland

SCALE	ZONING	G. L. W. FILE No.
As Shown	NT	97009
DATE	TAX MAP No.	SHEET
May 11, 1998	37	7 of 17





**SPECIFICATIONS**

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

**Site Preparation**

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

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

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

**Earth Fill**

**Material** - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

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

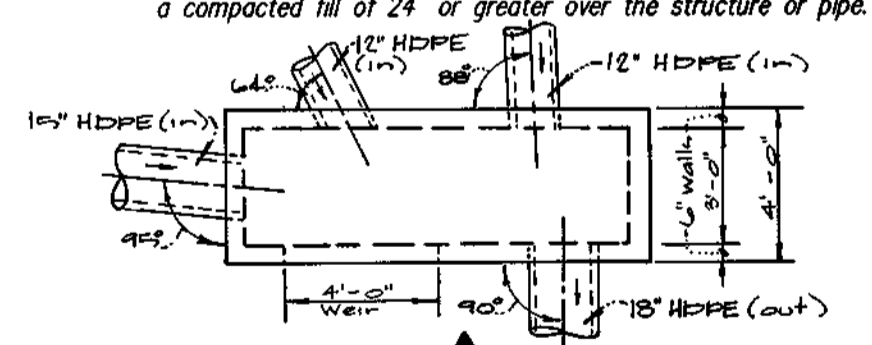
**Compaction** - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one track tread of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber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

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within 12% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

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

**Structure Backfill**

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



**Pipe Conduits**

All pipes shall be circular in cross section.

**Corrugated Metal Pipe** - All of the following criteria shall apply for corrugated metal pipe:

- Materials** - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plast-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

**Materials** - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

**Material** - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

- Coupling bands, anti-seep collars, end sections, etc.**, must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.
- Connections** - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe & riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

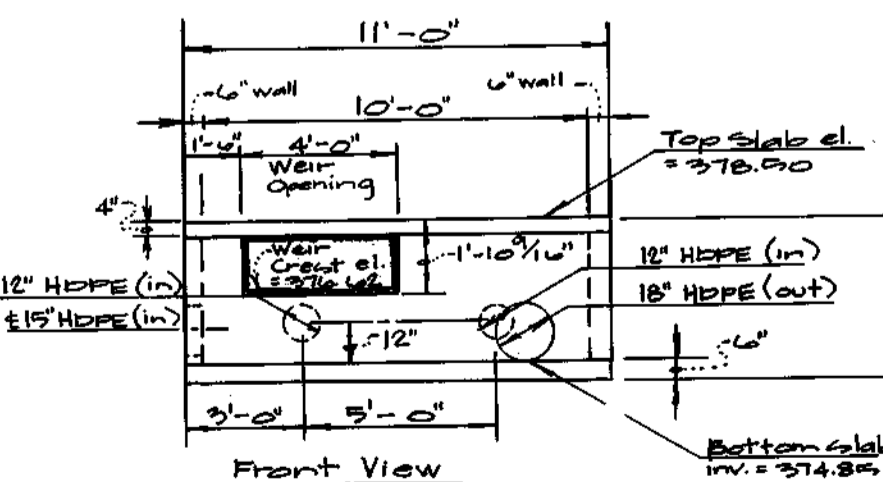
All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled on an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 24" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 24" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24".

Helically corrugated pipe shall have either continuously welded seams or have lock seams.

- 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-seep collars, valves, etc.) shall be as shown on the drawings.

**Reinforced Concrete Pipe** - All of the following criteria shall apply for reinforced concrete pipe:

- Materials** - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-301.
- Bedding** - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
- Laying pipe** - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
- Backfilling** shall conform to "Structure Backfill".
- Other details** (anti-seep collars, valves, etc.) shall be shown on the drawings.



**Polyvinyl Chloride (PVC) Pipe** - All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

- Materials** - PVC pipe shall be PVC - 1120 or PVC - 1220 conforming to ASTM D-1785 or ASTM D-2241.
- Joints and connections** to anti-seep collars shall be completely watertight.
- 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-seep collars, valves, etc.) shall be as shown on the drawings.

**Concrete**

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standards Specifications for Construction and Materials, Section 608, Mix No. 3.

**Rock Riprap**

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 905.

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 riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

**Care of Water during Construction**

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal 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 leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in 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 being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

**Stabilization**

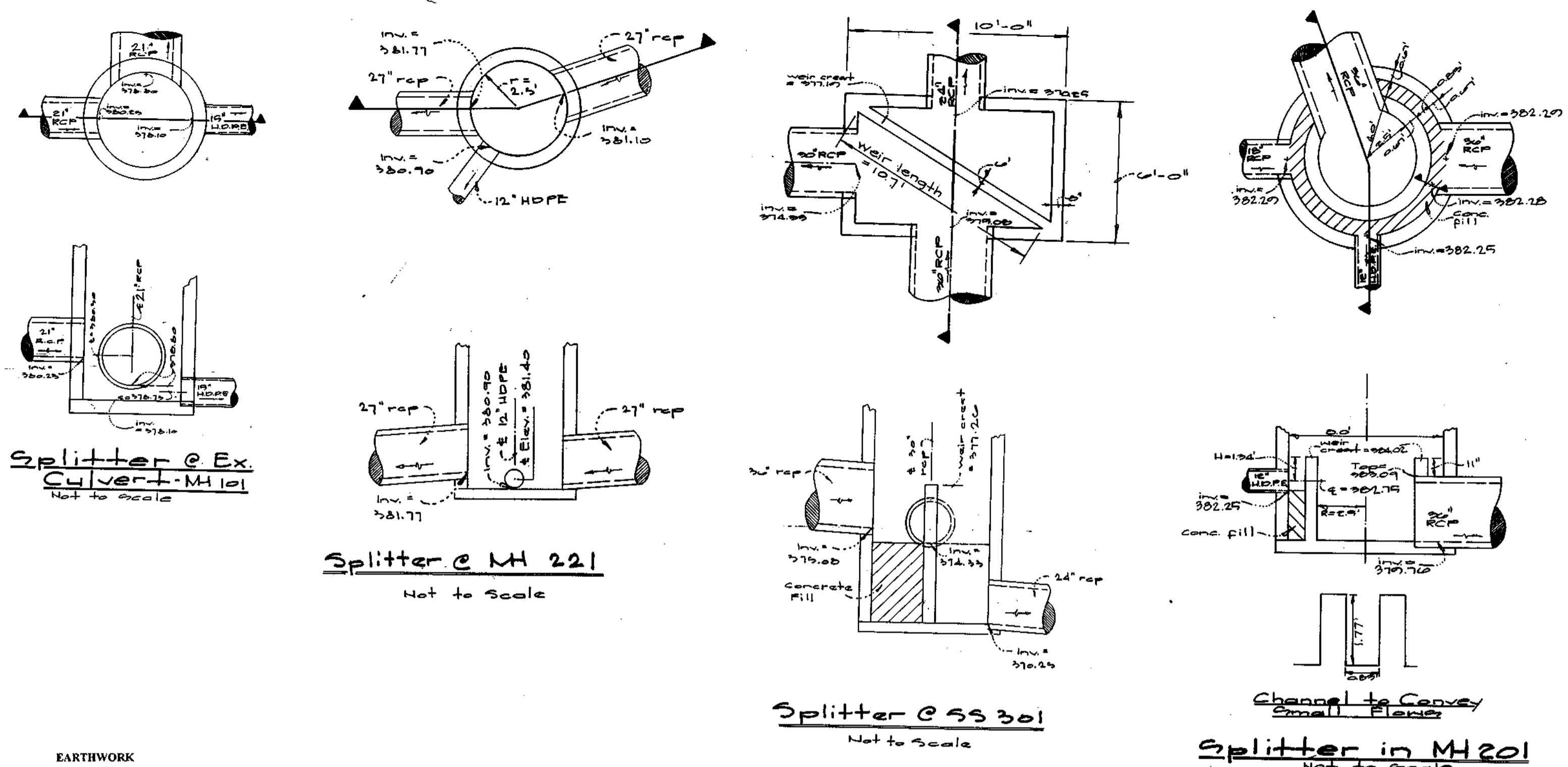
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

**Erosion and Sediment Control**

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

Elev.	Soil Description	Depth
32.25	Surf. soil	0.0
32.25	Light brown moist silt & clay, little fine sand, some silt (SM) silt loam	0.2
32.25	Multi-colored moist clay & silt (SC) sandy clay loam	0.2
32.25	Gray & white moist micaceous fine sand, some silt (SM) loamy sand	0.2

D-2 At completion of boring, water at 12.5' hole covered at 11.5' \*5 days after completion, water at 12.5' hole covered at 11.5'



**EARTHWORK**

Based on our review of the available project plans, we understand that the proposed SWM pond will be constructed by excavation for the pond and construction of embankment. Additional fill up to 6 feet will be placed for the embankment. The top of the finished embankment will be 9 feet higher than the bottom of the pond. The proposed SWM facility must be designed and constructed in accordance with the current specifications established by Maryland SCS Standards and Specifications 378 for embankment ponds.

Prior to installation of the cutoff trench and construction of the embankment, all organics, topsoil, and other surficially-unstable soils should be removed. The subgrade soils should be pre-graded with light weight equipment to form a relatively uniform surface. Any excessively soft or yielding areas should be undercut and replaced with suitable on-site materials, placed in accordance with project specifications. We presume that the materials to be used for embankment construction will be obtained from excavation of the pond and wetland mitigation areas. Laboratory moisture-density relationship tests (SHEET 4) performed on materials obtained from these areas indicate they are suitable for use as controlled compacted fill for the embankment. Controlled fill must be placed in maximum 8-inch loose lifts and compacted to at least 95% of the maximum dry density, as determined by the Standard Proctor (AASHTO T-99/ASTM D698).

It should be noted that moisture descriptions as noted on the BORING PROFILES were determined during visual classifications. The descriptions (e.g. slightly moist, moist, wet) are related to dry-wet conditions and do not reflect the moisture variations of the on-site soils. Variations in moisture-density relationship of the on-site soils should be anticipated. These variations must be determined by the soils technician in the field during earthwork operations and be treated appropriately. Some of the on site soil samples exhibited above optimum moisture contents and may require manipulation and aeration for efficient and sufficient compaction of these soils during placement as controlled compacted fill or as subgrade materials. It would prudent to schedule clearing, grubbing, and earthwork operations during the warmer, drier months of the year to expedite earthwork.

SCS criteria for embankment ponds require installation of a cutoff trench of relatively impervious material at or upstream of the centerline of the embankment. The cutoff trench should extend into relatively impervious materials and consist of materials conforming to Unified Soil Classification SC, GC, CH, or CL. The required minimum depth and width of the cutoff trench is 4 feet, with side slopes not steeper than 1H:1V. Based on the subsurface data developed from the borings in the proposed pond area, some on-site materials comply with the SCS soil classification criteria and those materials may be used in the cutoff trench.

It is unlikely that groundwater will be encountered during construction of the SWM pond. However, should free water be encountered due to perched water conditions or surface water infiltration, it will be necessary to use temporary dewatering techniques such as sumps and pumps. It should be noted that due to the proposed elevation (EL. 363.5) for the wetland mitigation area, some excavation of soil materials from this area will be below the groundwater table.

Cautionary measures for proper control of slopes, trenches, etc., must be considered to prevent sloughing of the sandy materials in the area. To satisfy the requirements for the storm water management facility, the side slopes for all excavations shall not be steeper than 2H:1V. It is also recommended that all earthwork operations be continuously monitored and inspected by a qualified soils technician to confirm that the work is completed in accordance with project plans and specifications. Should subsurface conditions deviate from those encountered during the course of this investigation, the recommendations contained in this report may require modifications, as appropriate.

Elev.	Soil Description	Depth
32.25	Surf. soil	0.0
32.25	Light brown moist silt & clay, little fine sand, some silt (SM) silt loam	0.2
32.25	Multi-colored moist clay & silt (SC) sandy clay loam	0.2
32.25	Gray & white moist micaceous fine sand, some silt (SM) loamy sand	0.2

B-2 At completion of boring, water at 12.5' hole covered at 12.5' \*24 hours after completion, water at 12.5' hole covered at 11.4'

**Operation, Maintenance & Inspection**

- The County shall remove silt when accumulation exceeds 6" in forebay.
- During the min. annual inspection, the County shall remove accumulated paper, trash & debris as necessary.
- The County shall mow vegetation growing in embankment top & faces of the forebay or basin at least once per year.
- Annual inspection shall be made by the County on or about June of each year. If repairs, if any, shall be done at that time. Cosmetic & landscaping items not performed by Howard County Department of Public Works will be the responsibility of the Columbia Association. Structural & scheduled cosmetic/aesthetic items will be the responsibility of the Howard County Department of Public Works.
- Inspection of the pond(s) shown herein shall be performed at least annually by the County, in accordance with the checklist & requirements contained within LUPDA, 2005, Standards and Specifications for Ponds (MD-378).

Elev.	Soil Description	Depth
32.25	Surf. soil	0.0
32.25	Light brown moist silt & clay, little fine sand, some silt (SM) silt loam	0.2
32.25	Multi-colored moist clay & silt (SC) sandy clay loam	0.2
32.25	Gray & white moist micaceous fine sand, some silt (SM) loamy sand	0.2

D-1 At completion of boring, hole held & covered at 12.5' \*24 hours after completion, water at 12.5' hole covered at 11.4'

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.

*Clay Simons* 5/14/98  
Natural Resources Conservation Service Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

*J.R. Robinson* 5/14/98  
Howard Soil Conservation District Date

**ENGINEER'S CERTIFICATE**

I 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.

*Clay Simons* 4-9-98  
Date

**DEVELOPER'S/BUILDER'S 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 Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

*Wrt Edwards* 4-9-98  
Signature of Developer/Builder Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Dangle* 5-19-98  
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Hamilton* 5/2/98  
Chief, Division of Land Development Date

*Wrt Edwards* 5/22/98  
Chief, Development Engineering Division Date

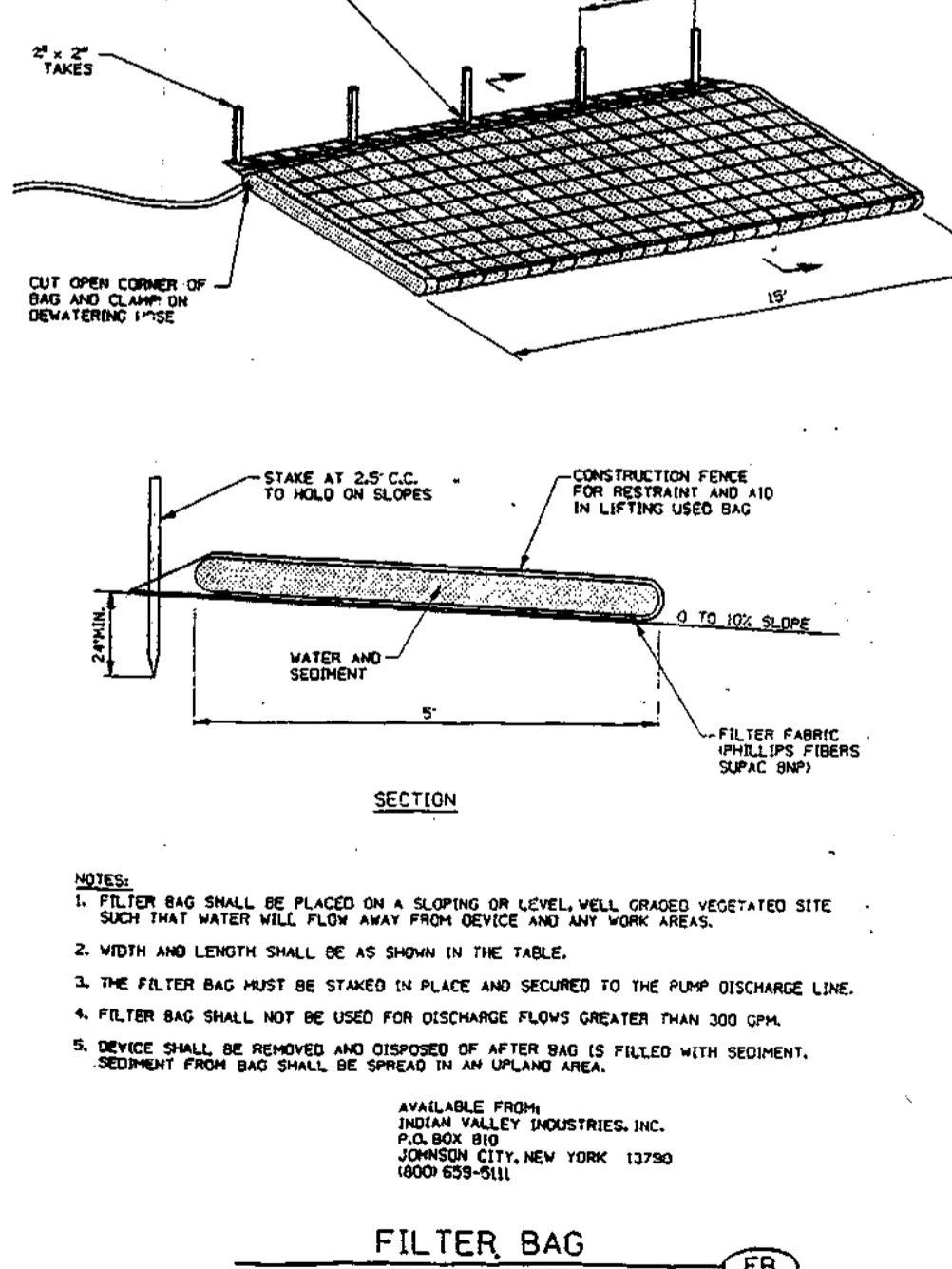
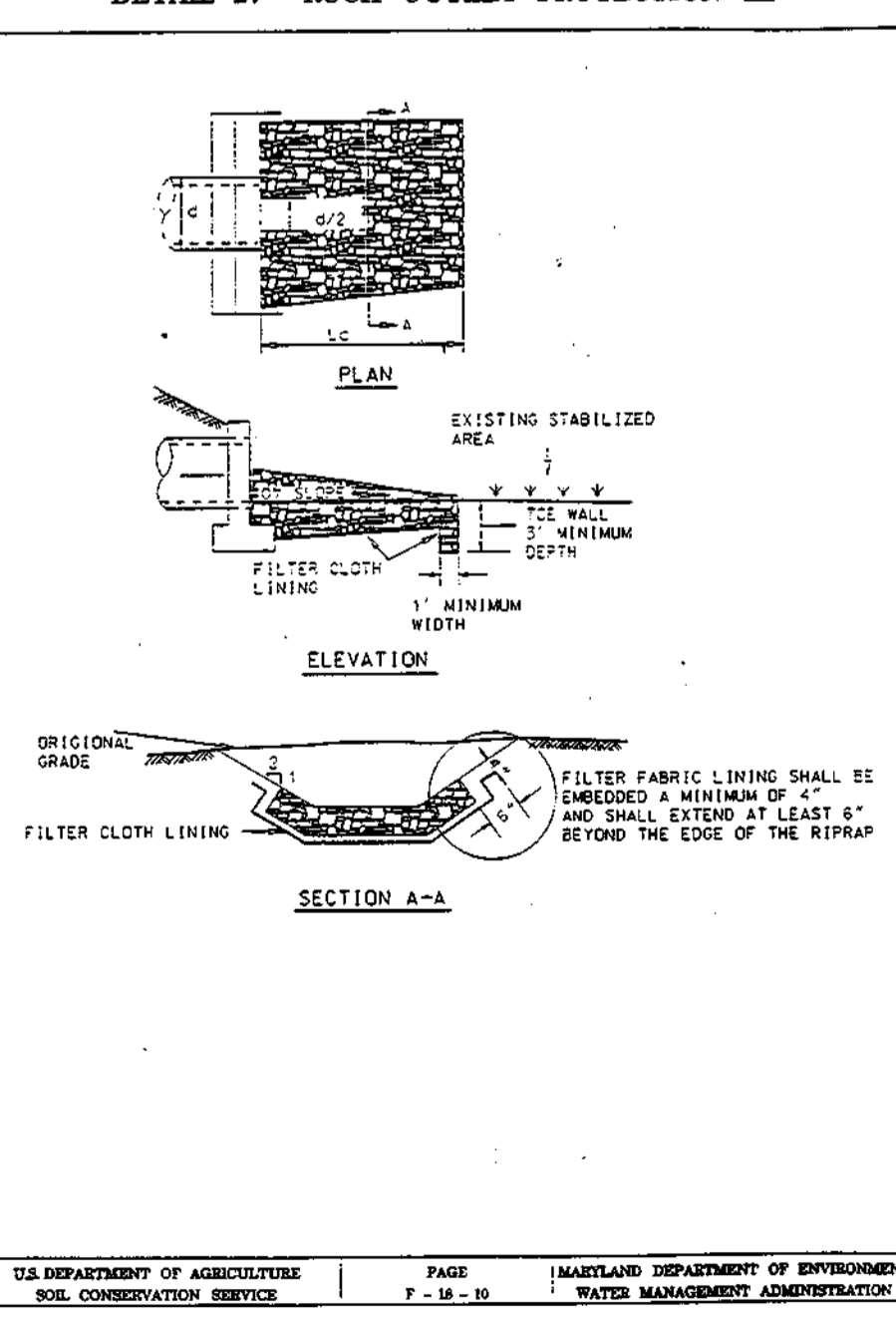
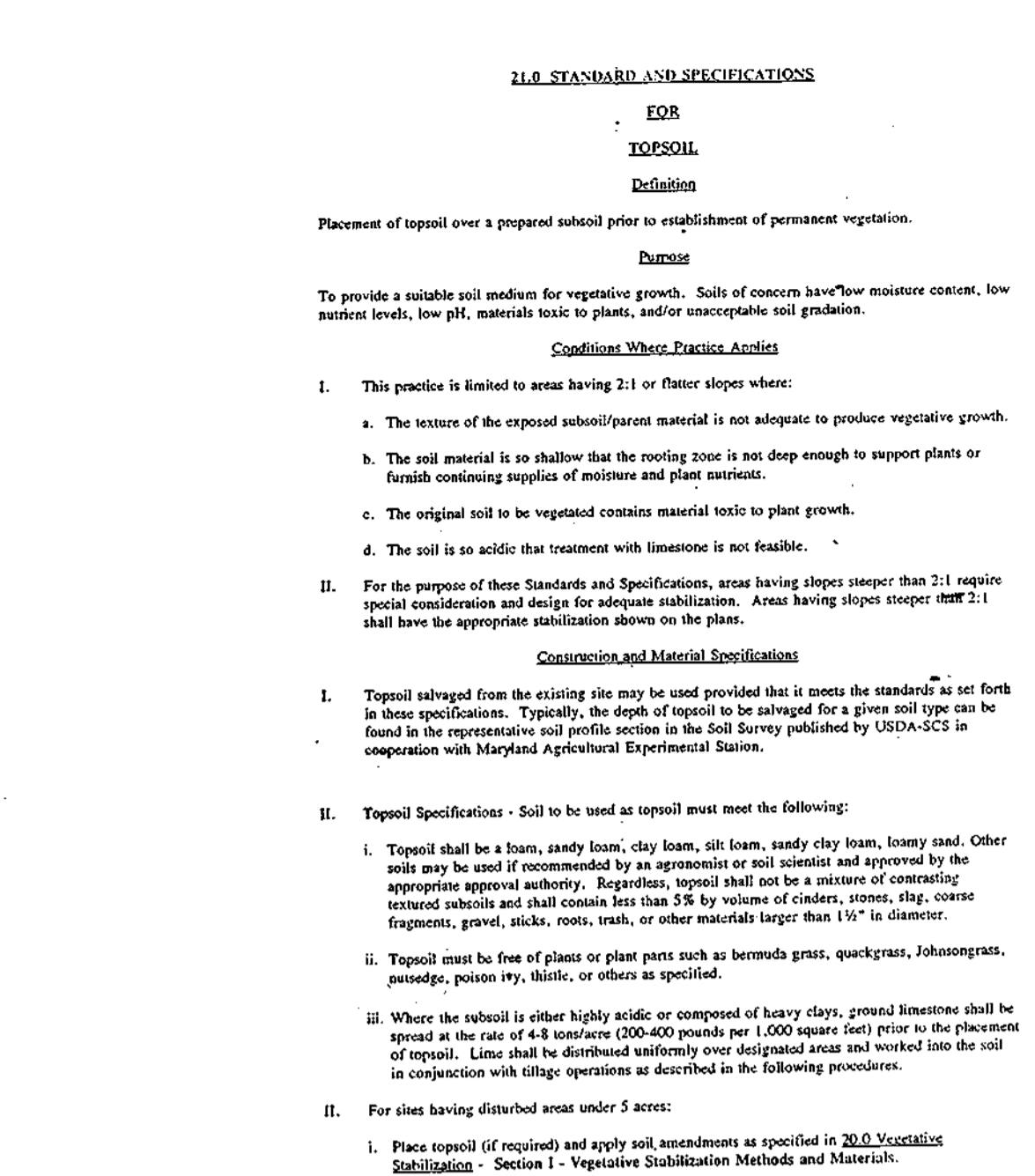
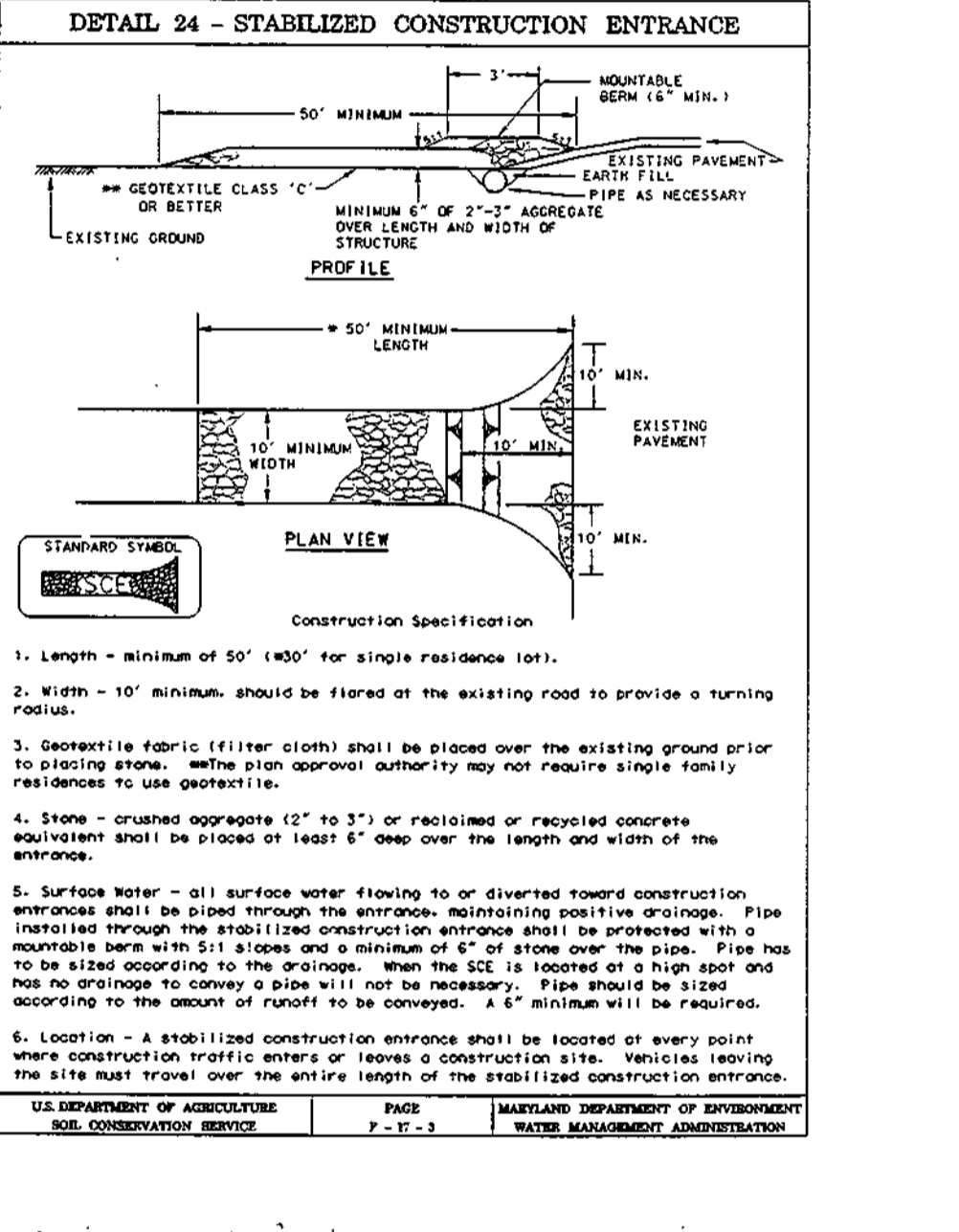
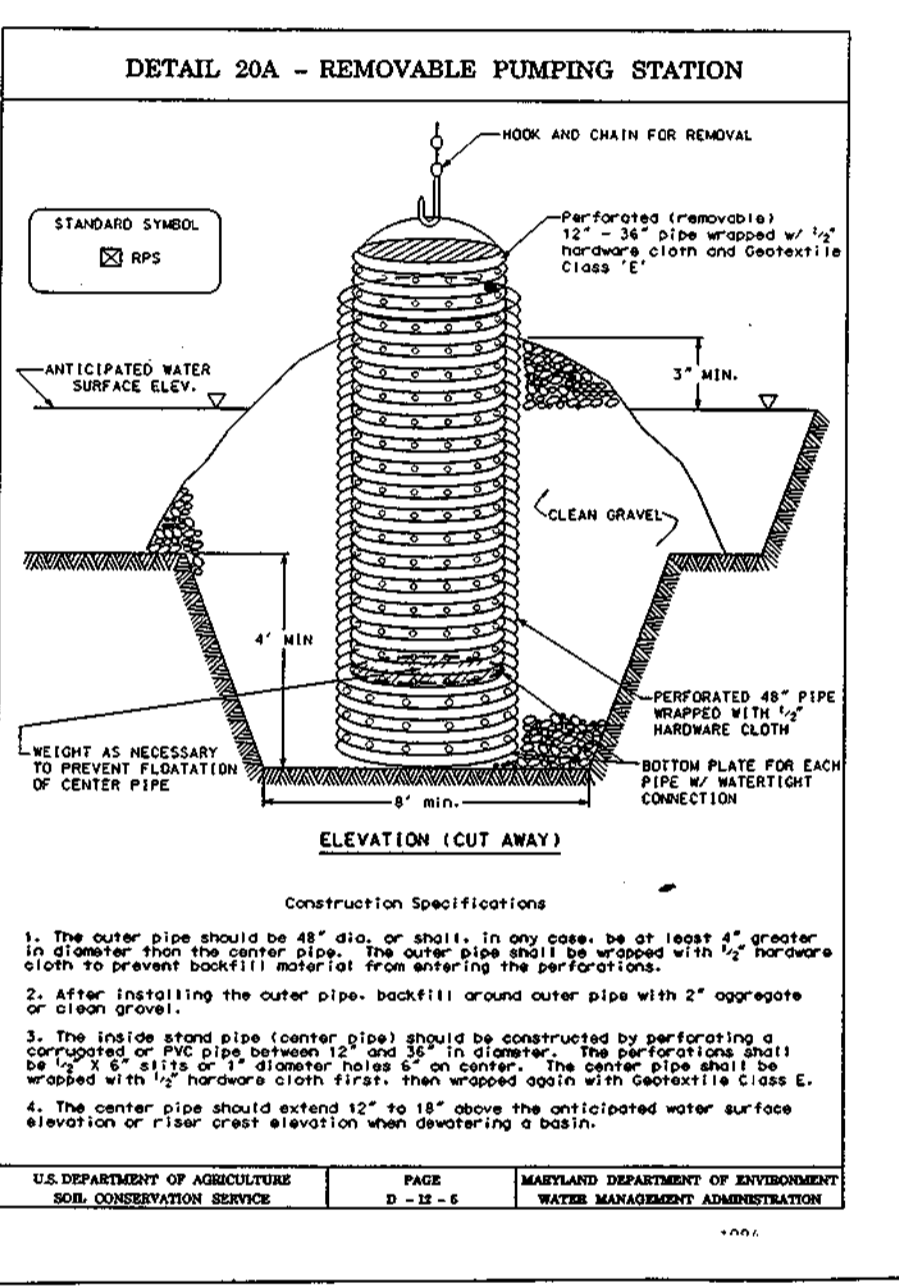
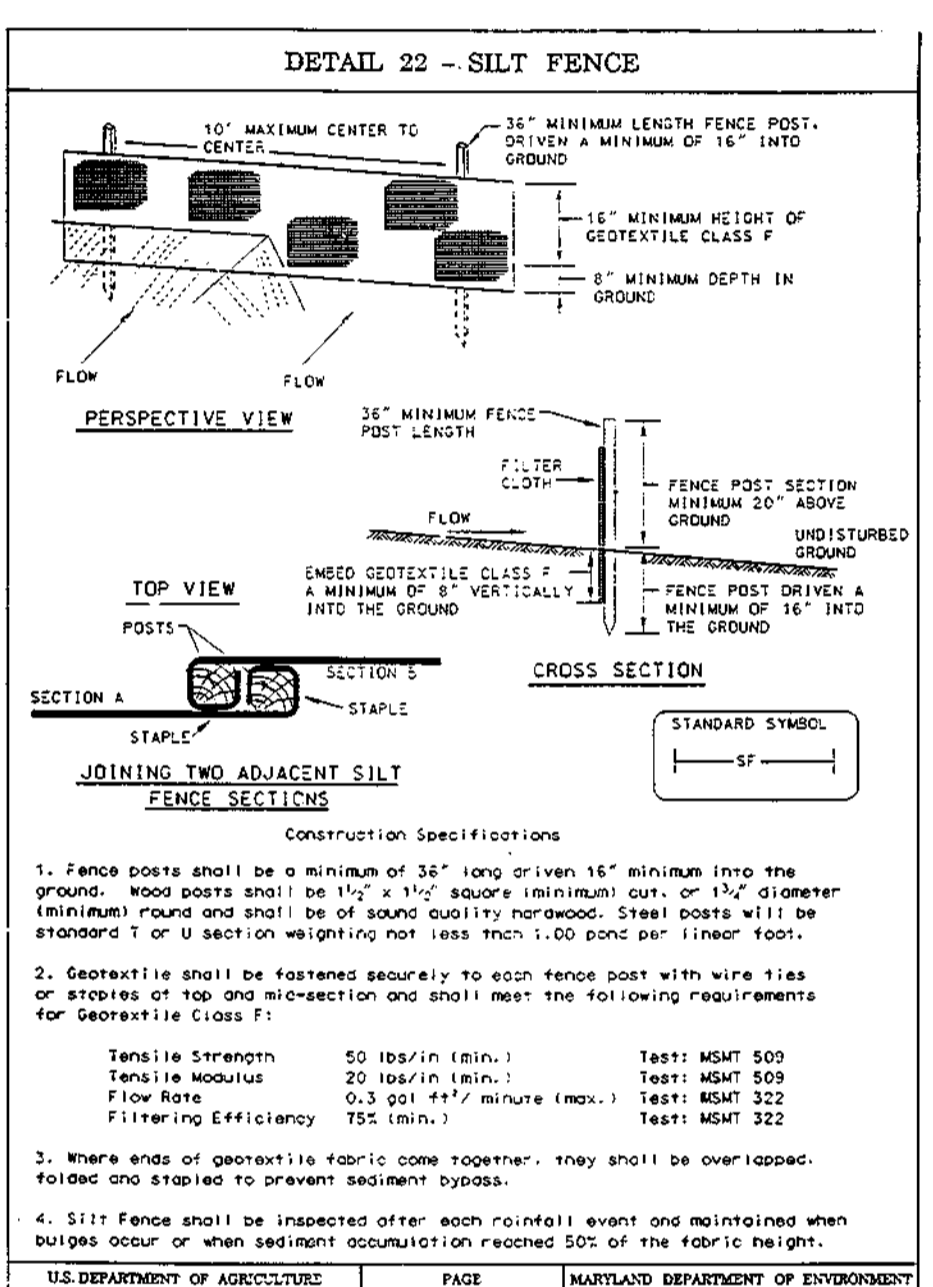
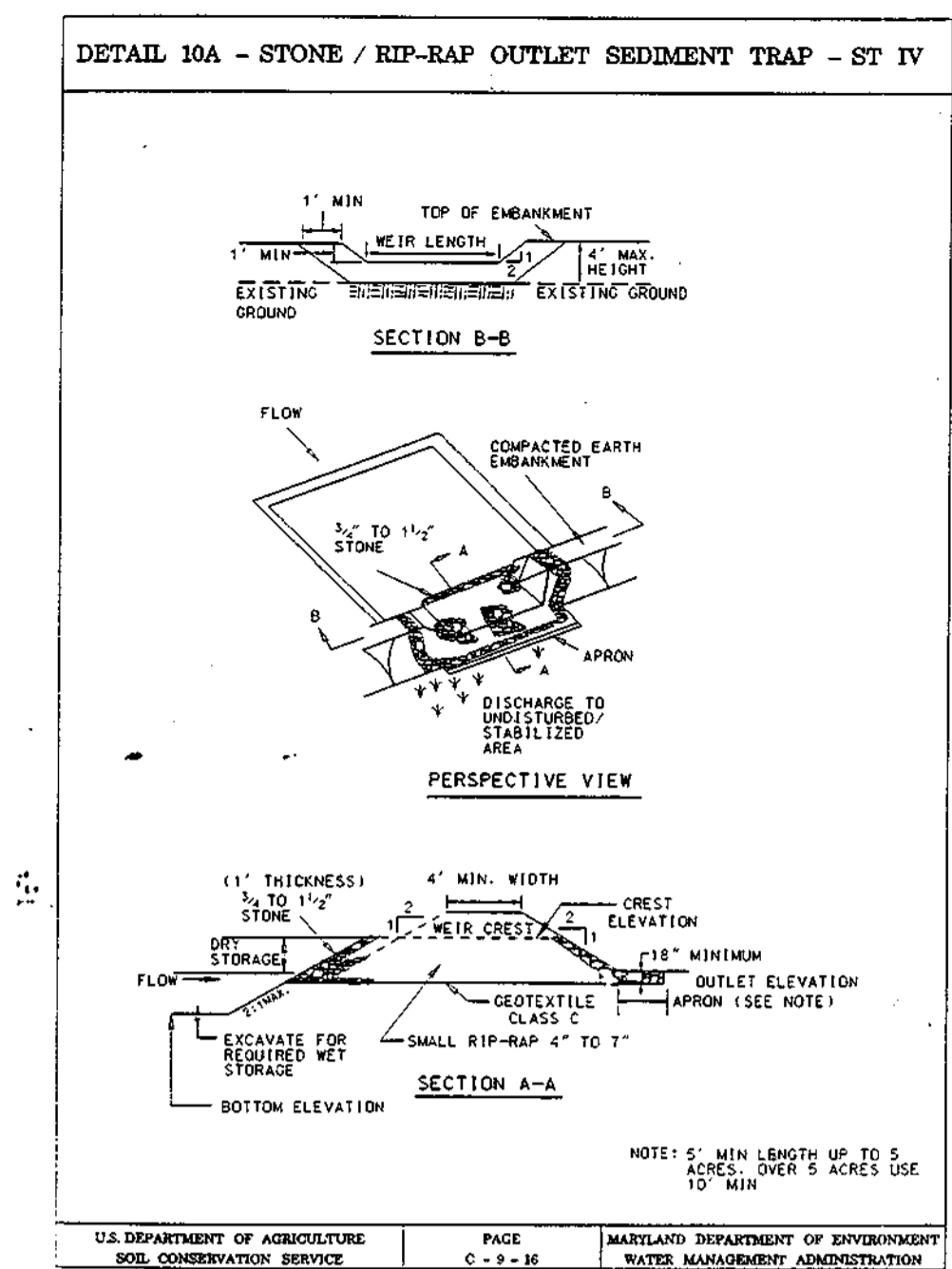
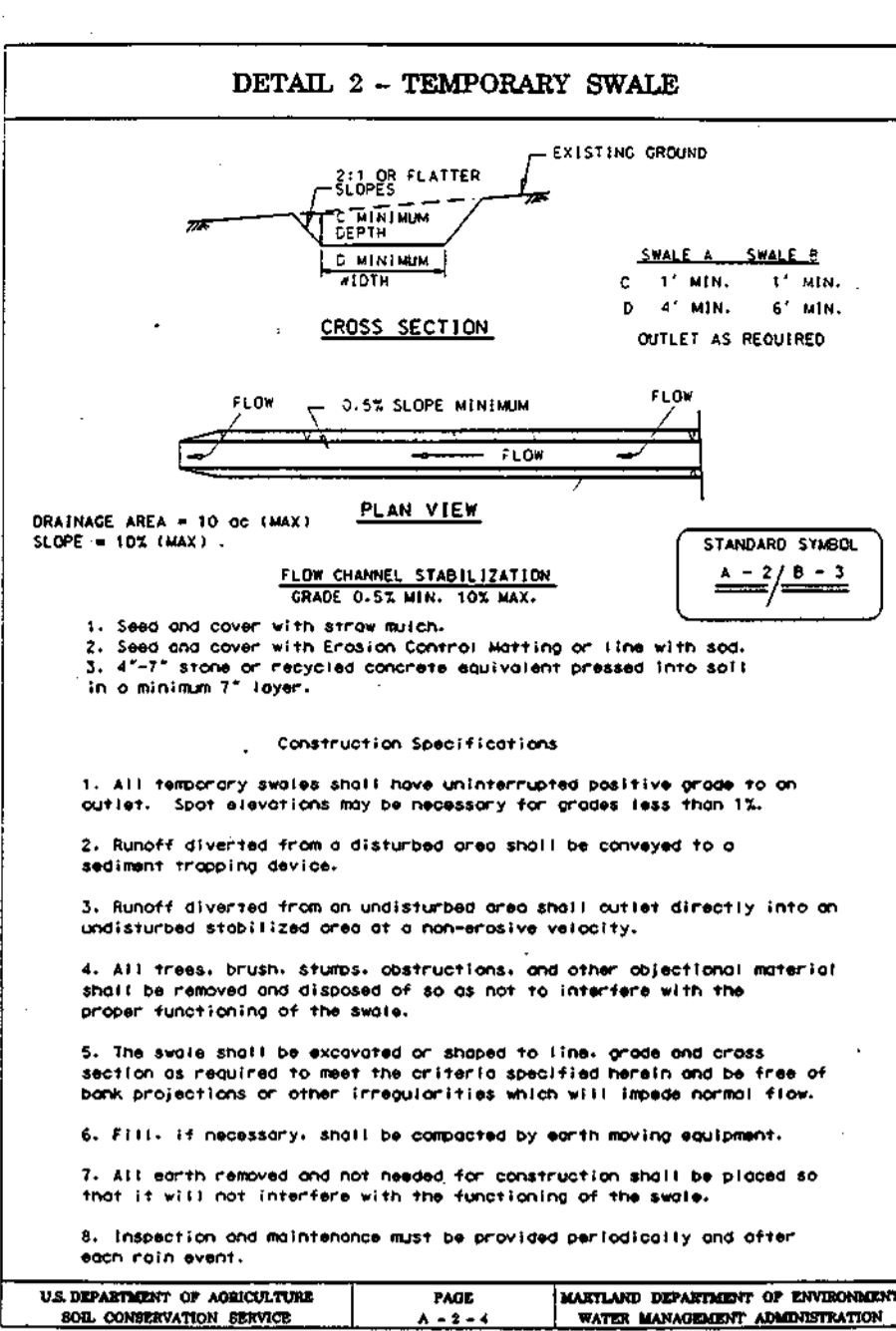
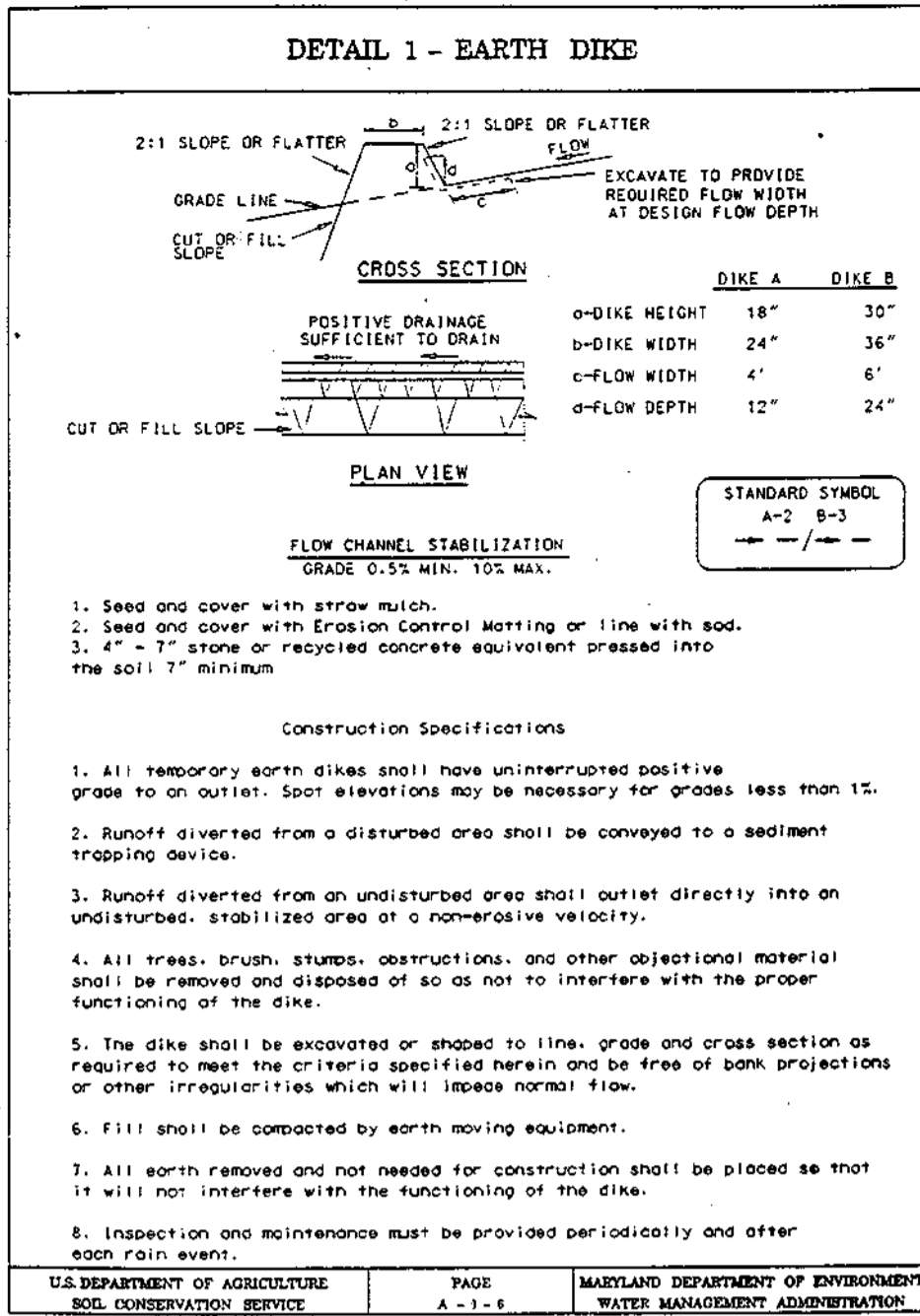
**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MARYLAND 20866  
TEL: (301) 421-4024 MO. VA. (501) 989-2524 BALT. (410) 880-1820 FAX: (301) 421-4166 DES. DRN. CHK.

DATE	REVISION	BY	APPR.

PREPARED FOR:  
The Howard Research & Development Corporation  
10273 Little Patuxent Parkway  
Columbia, Maryland 21044  
Attn: Al Edwards  
Phone: 410-992-6627

MD 970 Notes & Details  
**ROUTE 108 COMMERCIAL SECTION 1 AREA 1**  
Parcels 'A' & 'B' and Lots 1 & 2  
GALFORD ELECTRON DISTRICT No. 6

SCALE	ZONING	G. L. W. FILE NO.
As shown	NT	97009
DATE	TAX MAP No.	SHEET
May 11, 1998	97	12 of 17



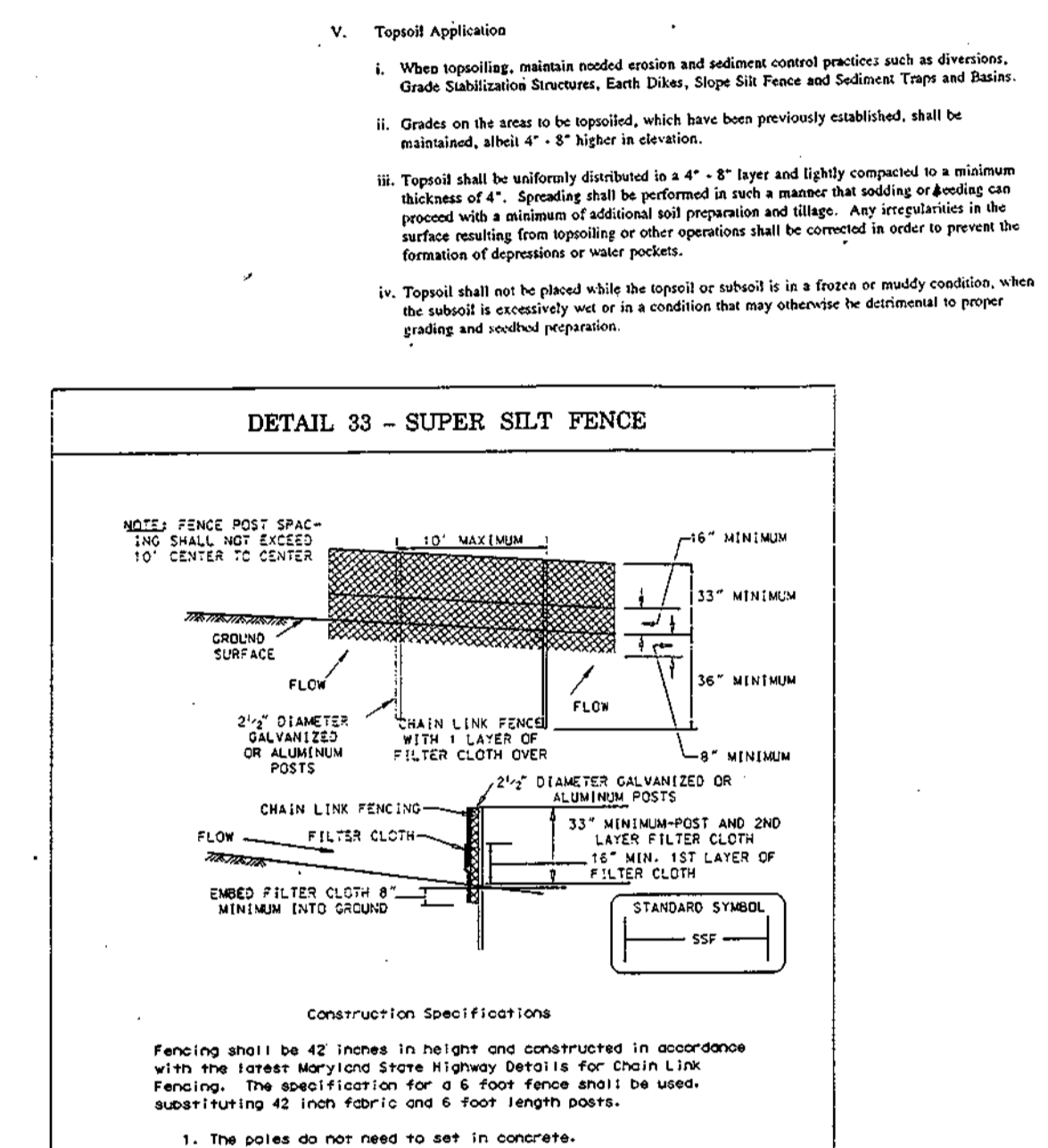
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Danner* 5-19-98  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Andy Harter* 5/27/98  
Chief, Division of Land Development

*Chris Danner* 5/27/98  
Chief, Development Engineering Division



### SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (410) 313-1855.
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes and perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings, sod, temporary seeding and mulching (Sec. G). 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	: 24.15	Acres
Area Disturbed	: 21.23	Acres
Area to be roofed or paved	: 2.51	Acres
Area to be vegetatively stabilized	: 2.27	Acres
Total Cut	: 112,241	Cu. Yds.
Total Fill	: 112,241	Cu. Yds.

 Off-site waste/borrow area location:
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 control must be provided, if deemed necessary by the Howard County DPW Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to 3 pipe lengths or that which shall be backfilled and stabilized within one working day, whichever is shorter.

### PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square feet) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of rotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 ft or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseeding.

### TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).

Seeding: For periods March 1 thru April 30 and from August 15 thru October 15, seed with 2-1/2 bushel per acre of annual ryegrass (3.2 lbs./1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of rotted, weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

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.

*Chief Simon /es* 5/19/98  
Natural Resources Conservation Service

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

*J.P. Robinson* 5/19/98  
Howard Soil Conservation District

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DRN.	CHK.	DATE	REVISION	BY	APPR.

PREPARED FOR:

The Howard Research & Development  
The Route Building  
10275 Little Patuxent Parkway  
Columbia, Maryland 21044  
(410) 992-6027  
Attn: Al Edwards

6th Election District

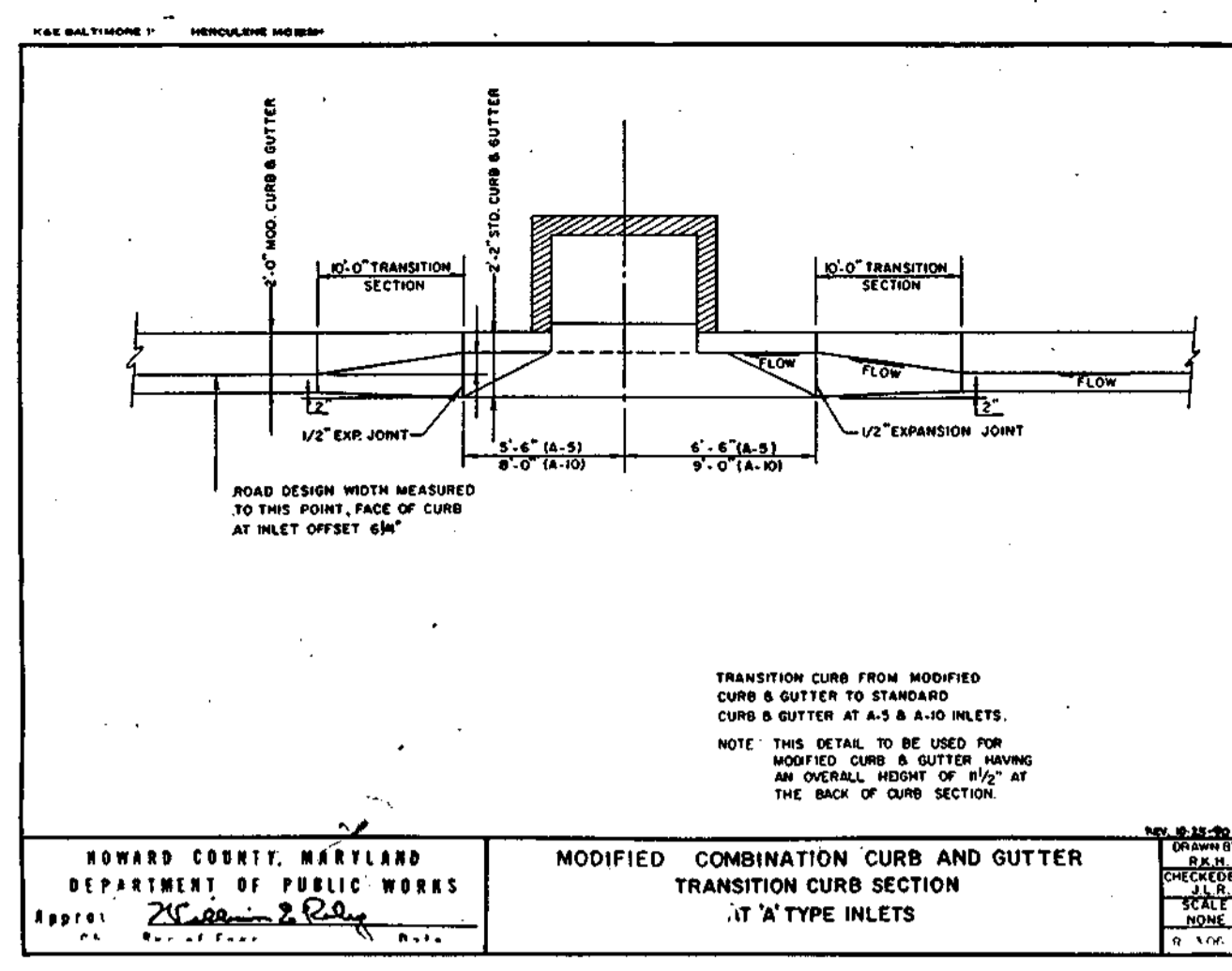
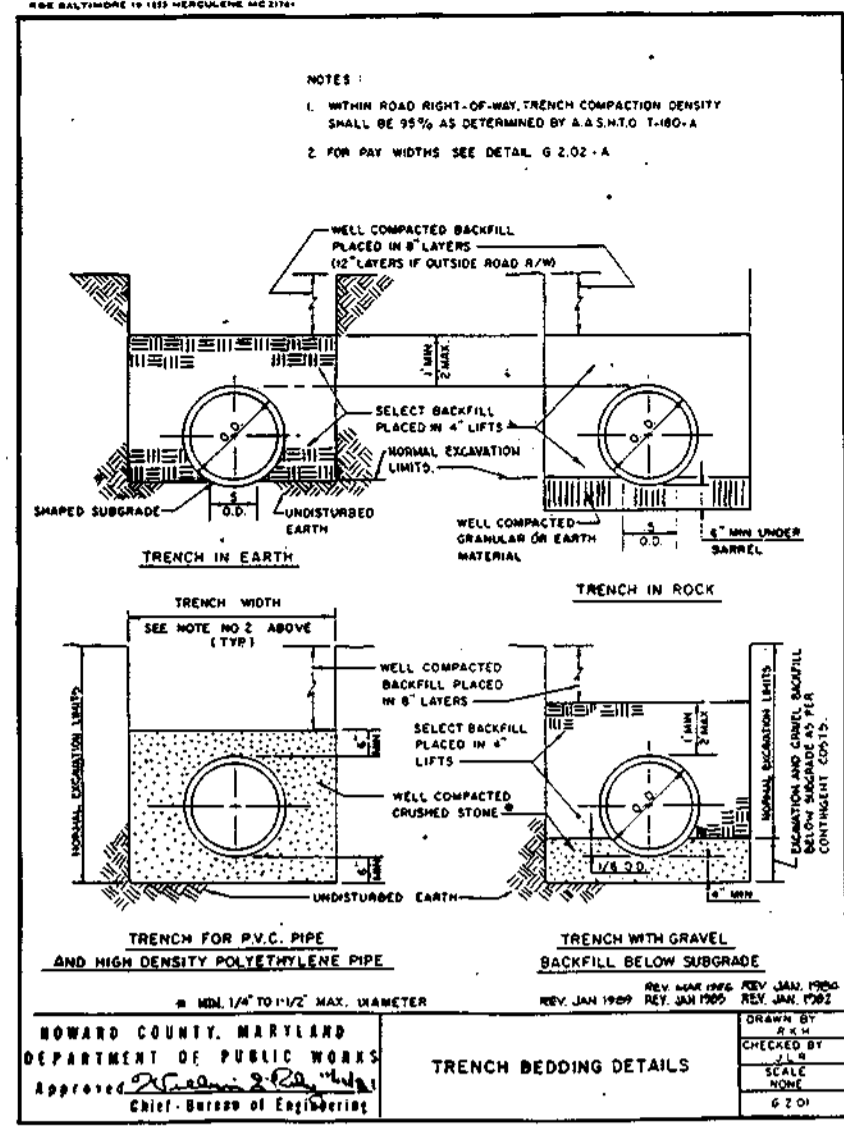
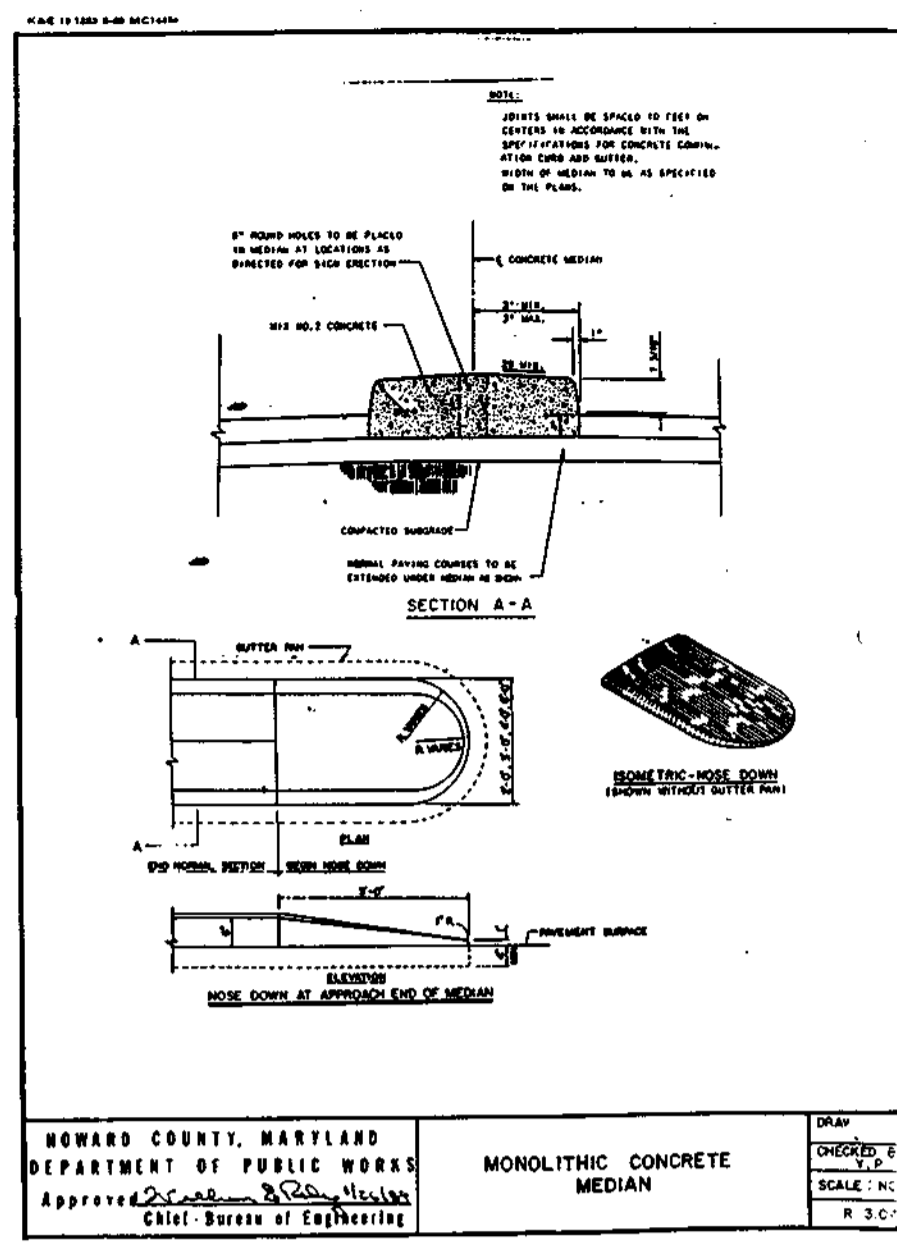
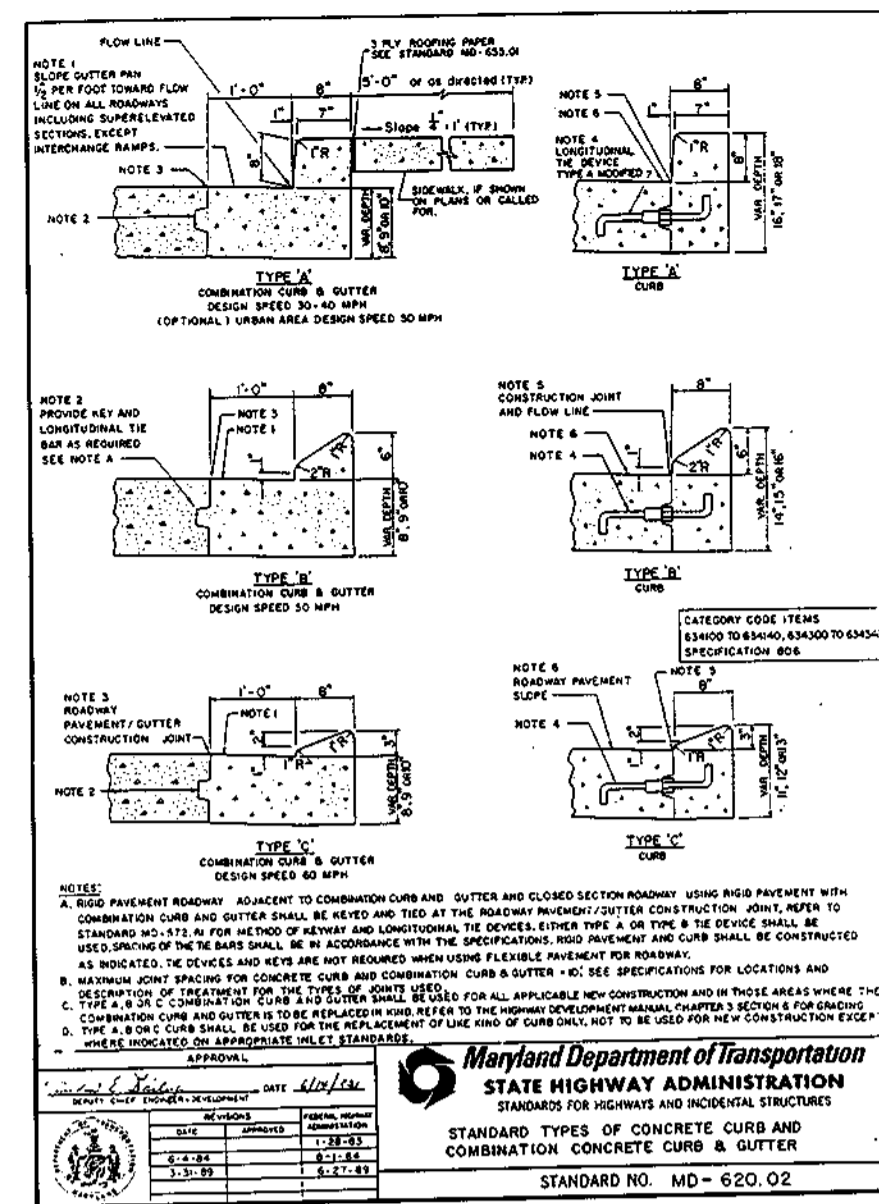
SCALE		ZONING	G. L. W. FILE NO.
			97009
DATE	TAX MAP No.	SHEET	
MAY 11, 1998		13 of 17	

SEDIMENT CONTROL NOTES & DETAILS

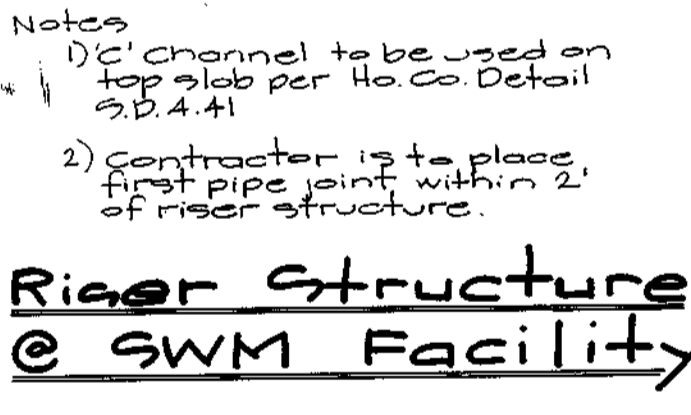
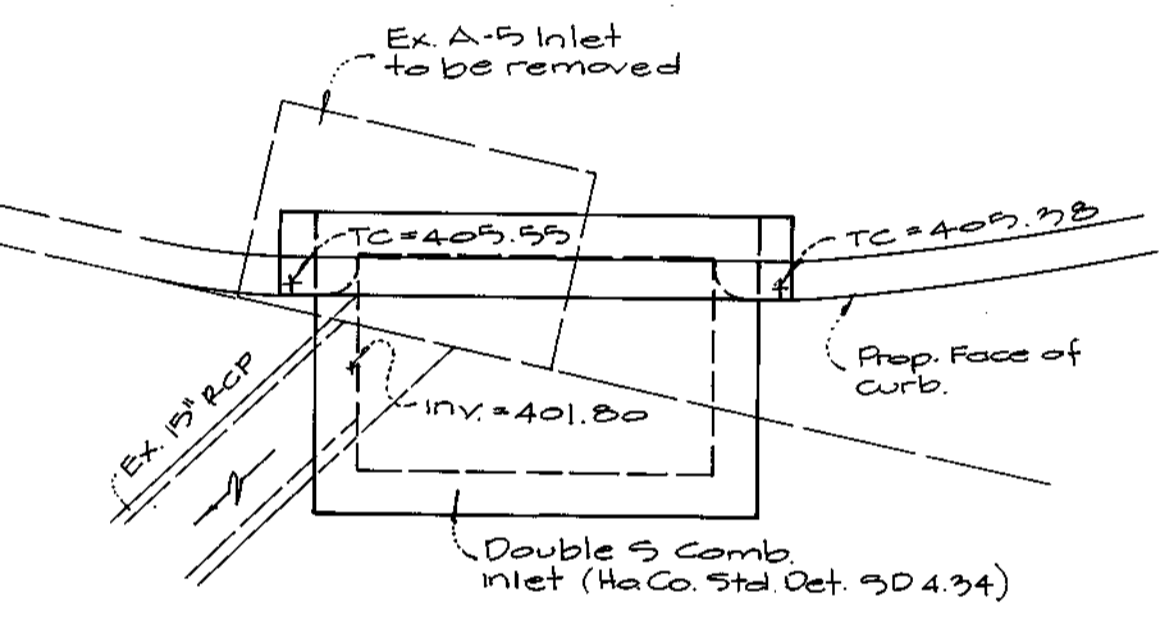
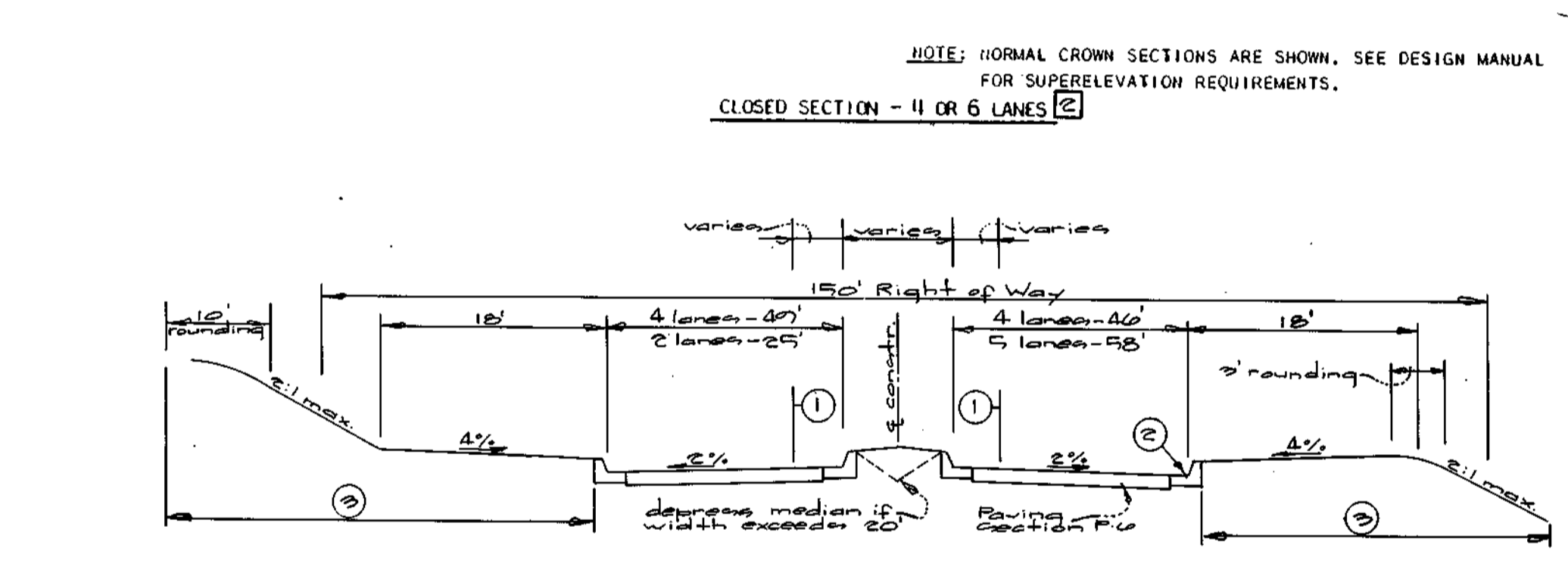
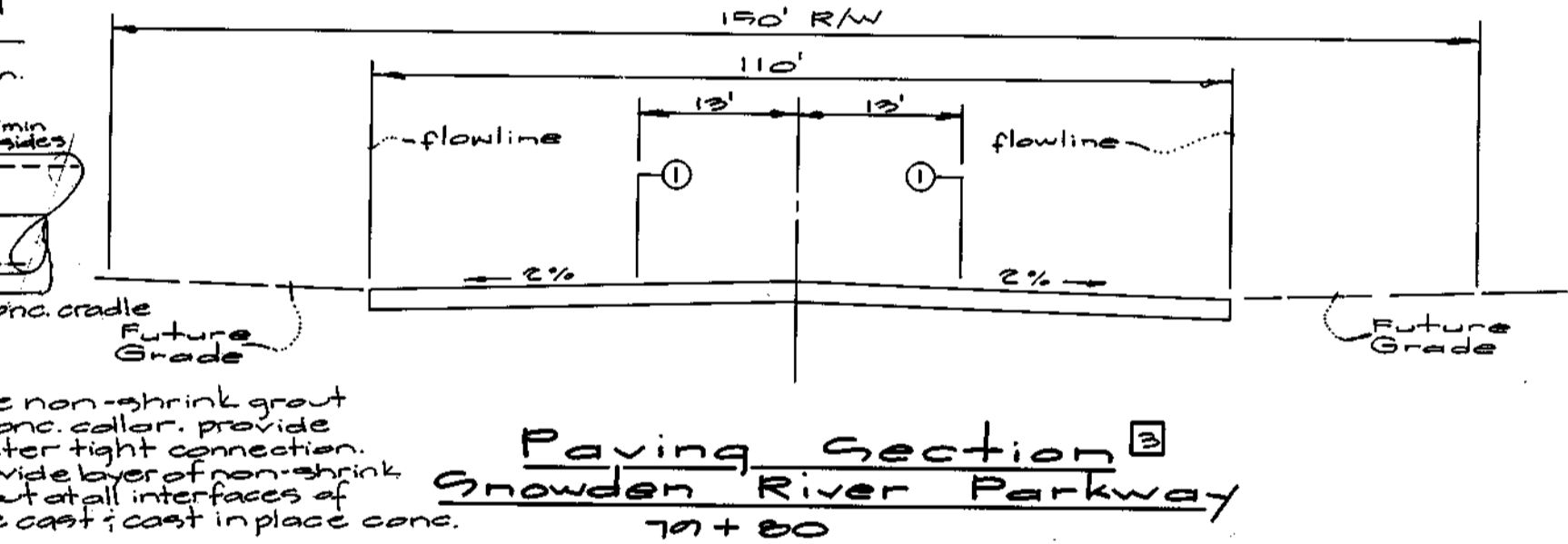
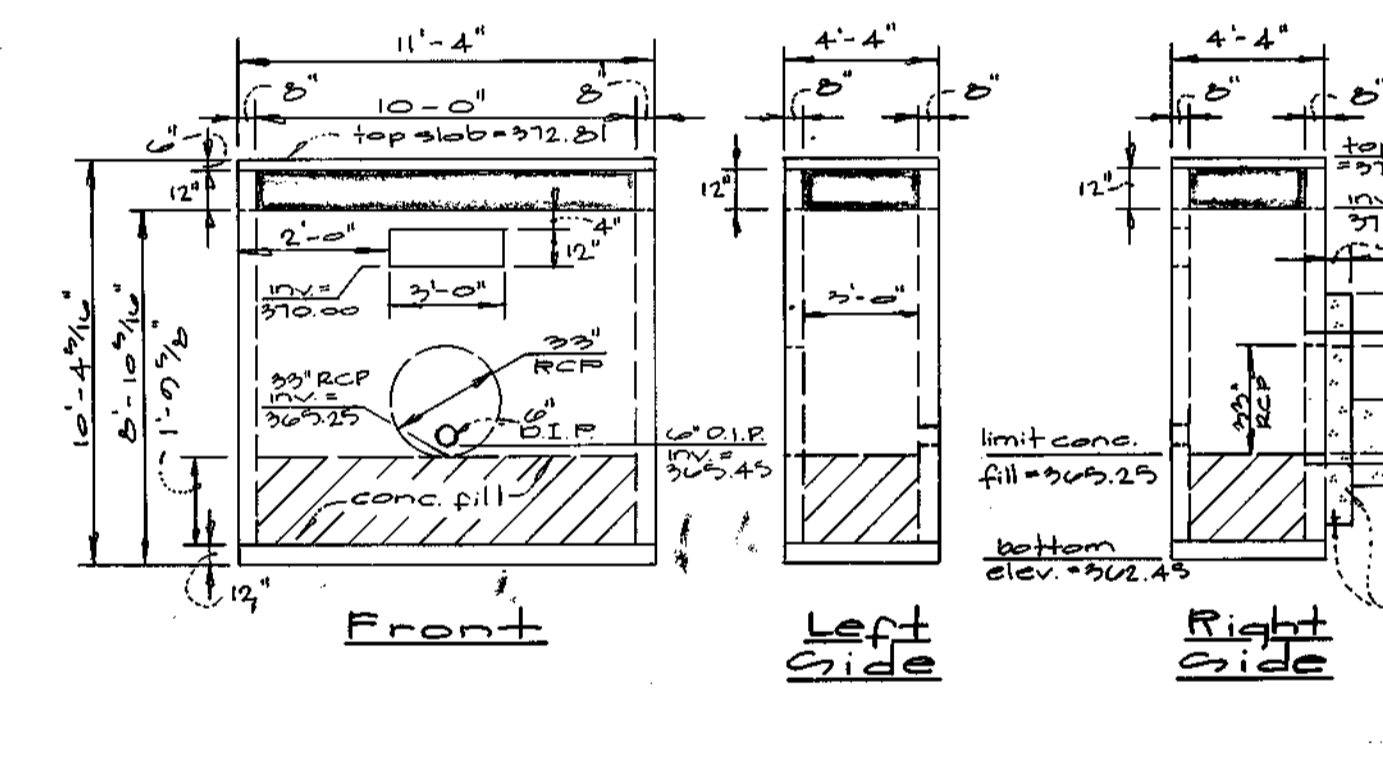
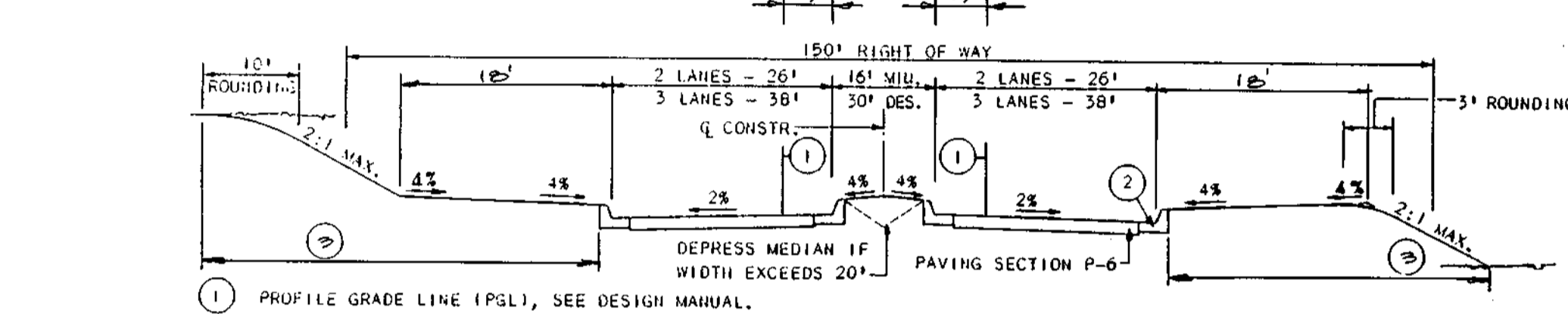
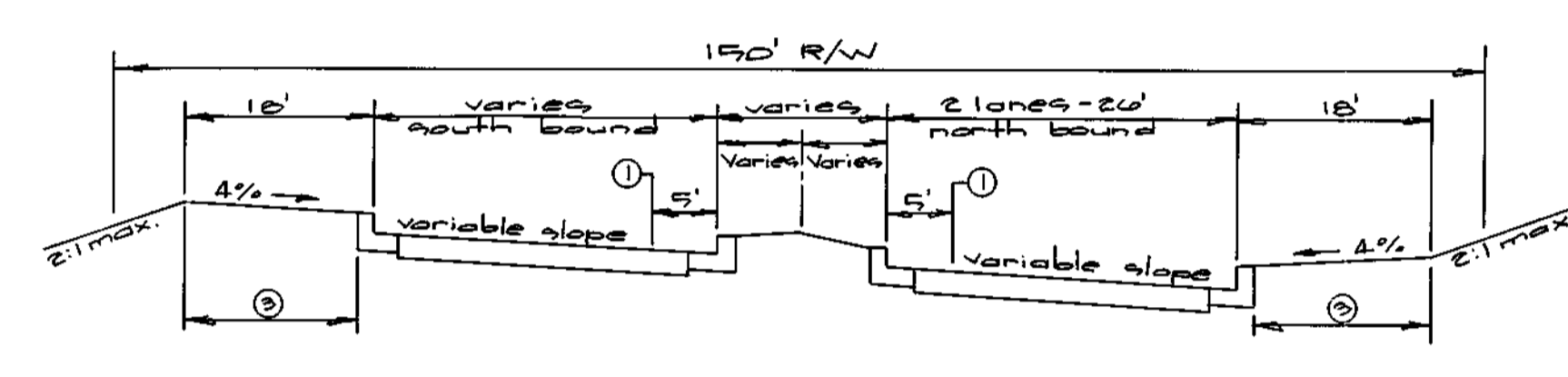
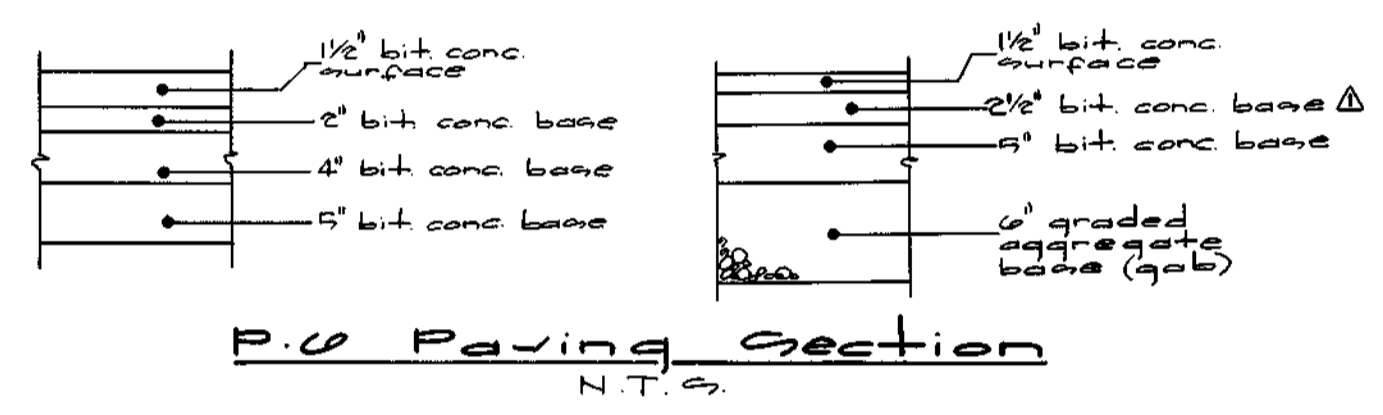
Columbia

Route 108 Commercial  
Section 1 Area 1  
Parcels 'A' & 'B' and Lots 1 & 2  
Howard County, Maryland

F-98-101

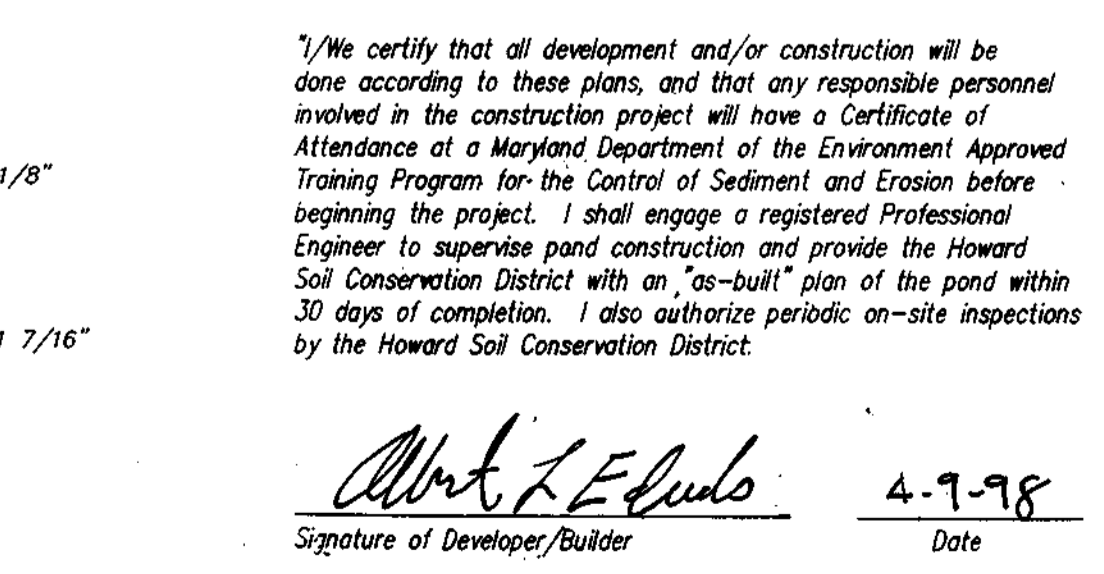
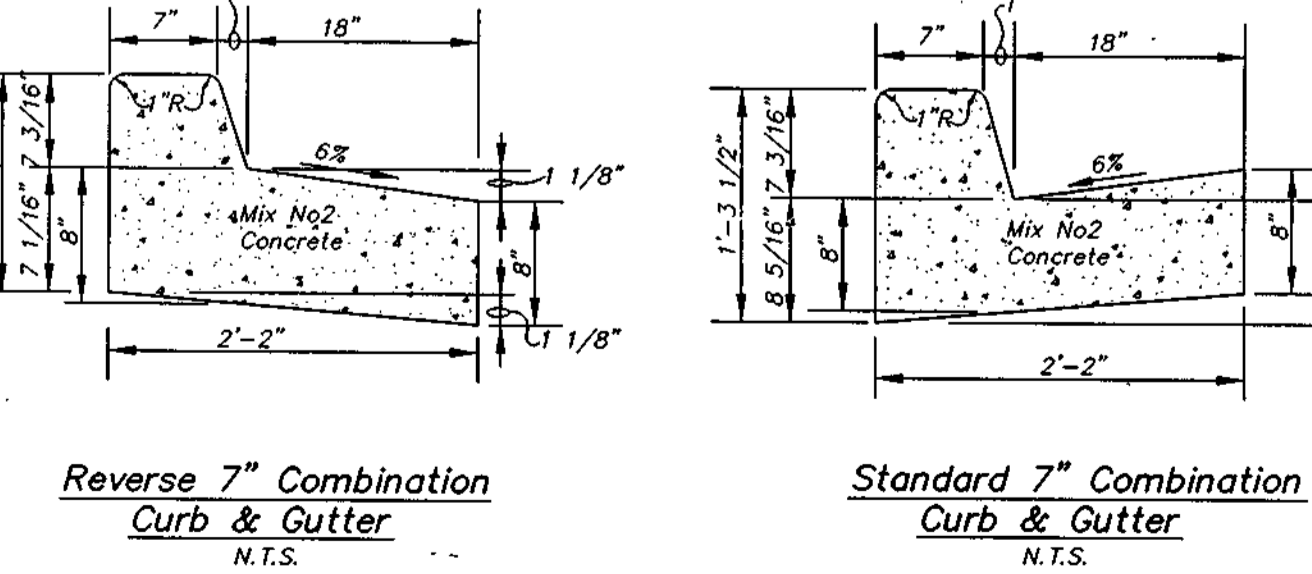


- SEQUENCE OF CONSTRUCTION**
- Obtain grading permit and arrange for an on-site meeting with the County Sediment Control Inspector.
  - Contractor is to inspect and repair (as necessary) the existing sediment control devices put in under GP 97-142. (i.e. pipe slope drains along stream bank on Parcels A and B, earth dikes, etc.)
  - Install stone construction entrances at north and south ends of Snowden River Parkway.
  - Inspect existing Trap #1, and inspect and resize existing Trap #2 (GP 97-142) as shown on plan, install temporary swale from centerline station 81+00 to approximate centerline station 77+25 draining it towards the existing 18" CPP diversion pipe, construct Trap #4 and stabilize.
  - Install cleanwater diversion dike on Parcel "B"; silt fence and super silt fence denoted with (I) as shown throughout the site. Begin excavation of SWM facility.
  - Begin excavation and installation of 36" RCP culvert and headwall under Snowden River Parkway. Fill roadway using dirt from Parcel "A" (until discharge from 24" culvert in Route 108 is diverted). The contractor shall not fill areas denoted "Phase II Fill Operation".
  - After 36" RCP culvert is complete, clear and rough grade site.
- PHASE II**
- Construct structure run ST 206 through ES 215. Install temporary swale from Ex. 24" culvert in Rte. 108 to ST 206 and stabilize with jute matting. Block inlets 1-202, 1-203, 1-204, 1-211, 1-212.
  - Install 1-104 through 1-102. From 1-102 place one section of 21" RCP and connect 21" temporary plastic pipe draining to Trap #4 (contractor is to insure that MH-101 and MH-201 remain clean).
  - Fill the two areas denoted as "Phase II fill operation" in Parcel "A" and fine grade site. (Trap #1 is to remain until Parcel "A" has been stabilized).
  - Construct all remaining storm drain runs, and other utilities.
  - As areas become available after utility construction, fine grade Snowden River Parkway install curb and gutter and base pave road. Stabilize all disturbed areas in accordance with Permanent Seeding Notes.
  - After areas draining to sediment traps have been stabilized, flush all storm drains with permission from the Sediment Control Inspector, remove any earth dikes to Trap #1 and backfill existing Traps #1, #2 and #4.
  - Install surface paving.
  - With permission from Sediment Control Inspector, remove all remaining sediment control devices, stabilize as necessary.



Snowden River Parkway Station	Type of Traffic Zoning	Design Speed	Paving Section	Crown
06+10 - 06+20	Divided Intermediate Arterial	NT	90	1
06+20 - 07+20				2
07+20 - 07+25				3
07+25 - 08+05				4
08+05 - 08+10				4
08+10 - 08+40				4

- Super Elevated. See detail this sheet.
- Standard. See detail this sheet.
- Crossover. See detail this sheet.
- Due to transition, this area does not conform to any of the sections shown. Survey construction in these areas must be used.
- Standard w/island offset. See detail this sheet.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Doncker* 5/19/98  
 Chief, Bureau of Highways

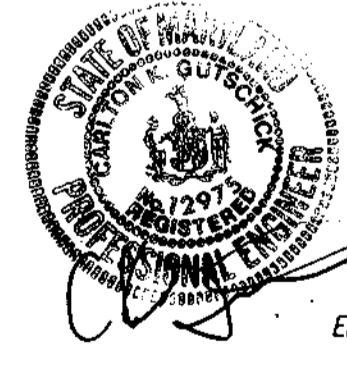
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Conrad Stamata* 5/21/98  
 Chief, Division of Land Development

*William J. ...* 5/27/98  
 Chief, Development Engineering Division

DEVELOPER'S/BUILDER'S CERTIFICATE

"I 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 Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

*Albert L. E. ...* 4-9-98  
 Signature of Developer/Builder



ENGINEER'S CERTIFICATE

"I 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."

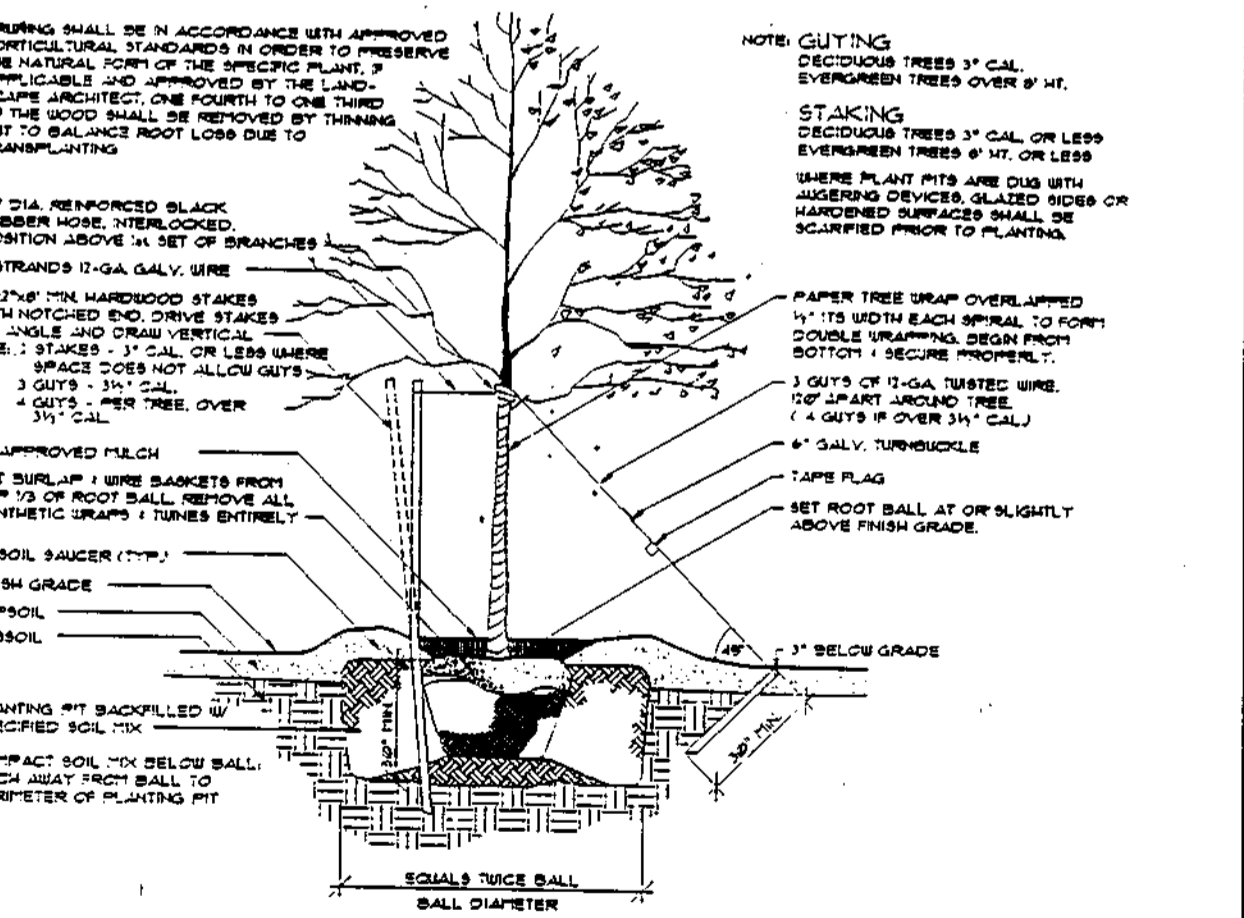
*...* 4-9-98  
 Date

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.

*...* 5/27/98  
 Natural Resources Conservation Service

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

*...* 5/27/98  
 Howard Soil Conservation District



**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK - BURTONSVILLE, MD. 20866  
 TELEPHONE: (301)421-4024 NO. VA. (301)989-2524 BALTO. (301)880-1820 FAX (301)421-4186

DATE	REVISION	BY	APP'R.
11-2-98	Rev. P-U paving bit conc base		

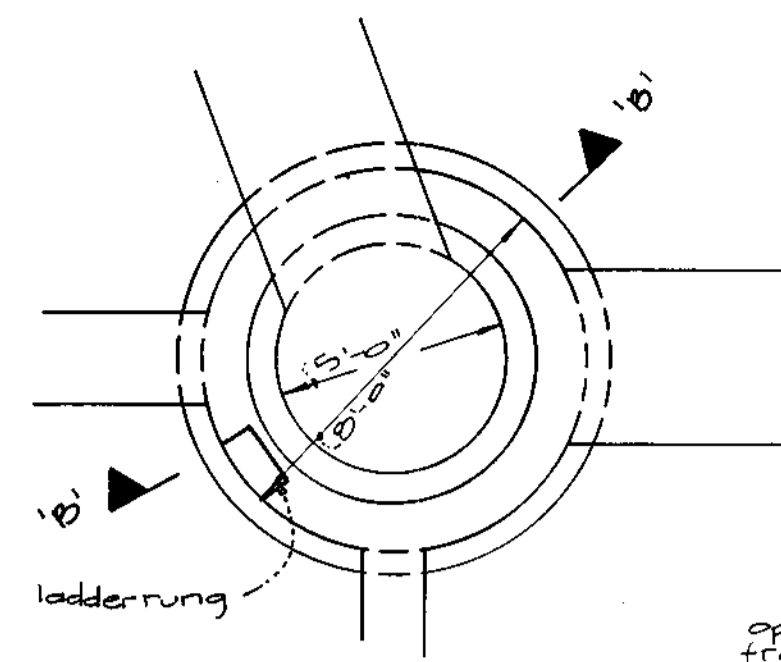
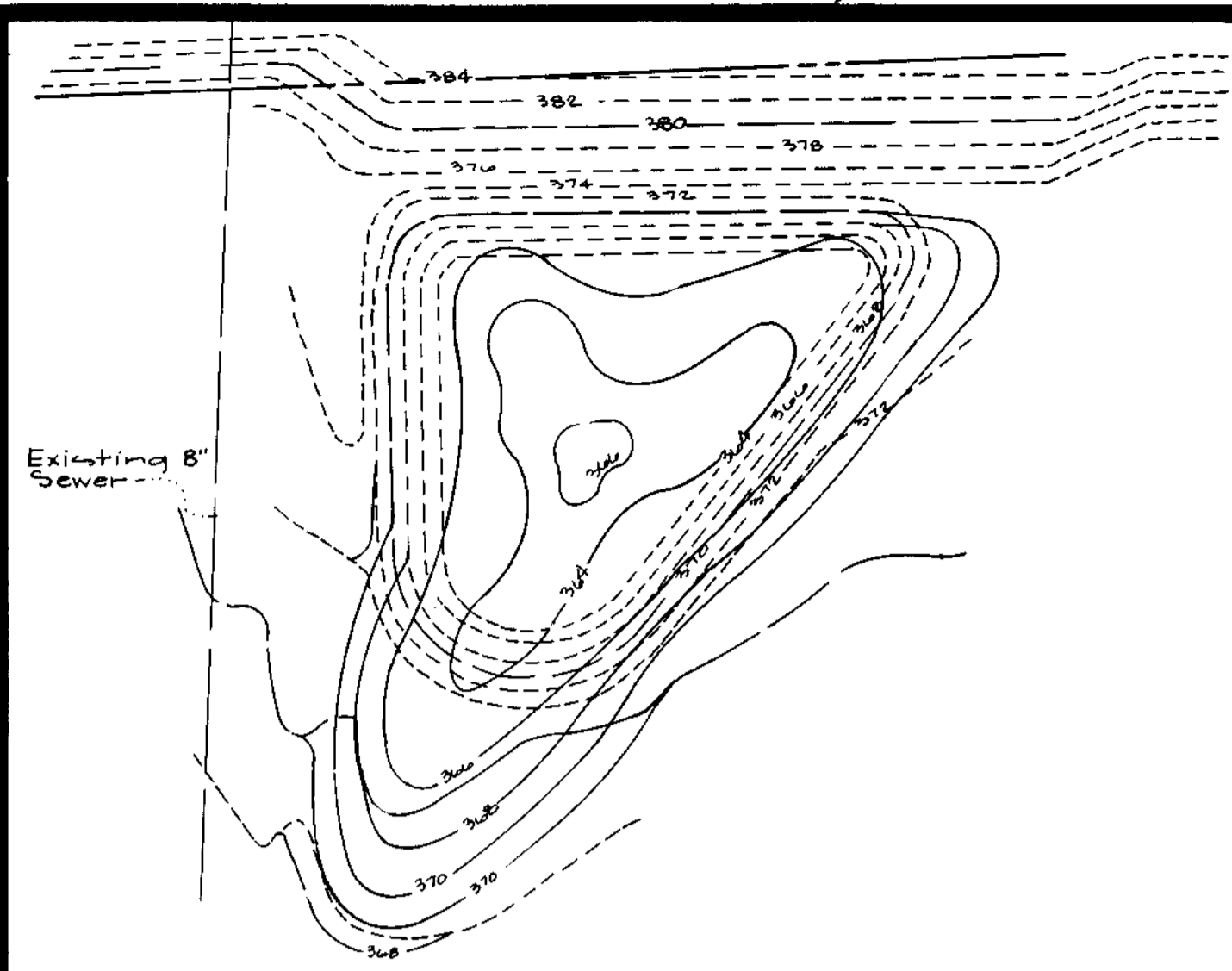
PREPARED FOR:  
 THE HOWARD RESEARCH & DEVELOPMENT CORP.  
 THE ROUSE BUILDING  
 10275 LITTLE PATENT PARKWAY  
 COLUMBIA, MD. 21044  
 410-992-6027

Road Detail Sheet  
**ROUTE 108 COMMERCIAL**  
 SECTION 1 AREA 1  
 Parcels 'A' & 'B' and Lots 1 & 2  
 GULFORD ELECTION DISTRICT No. 6  
 HOWARD COUNTY, MARYLAND

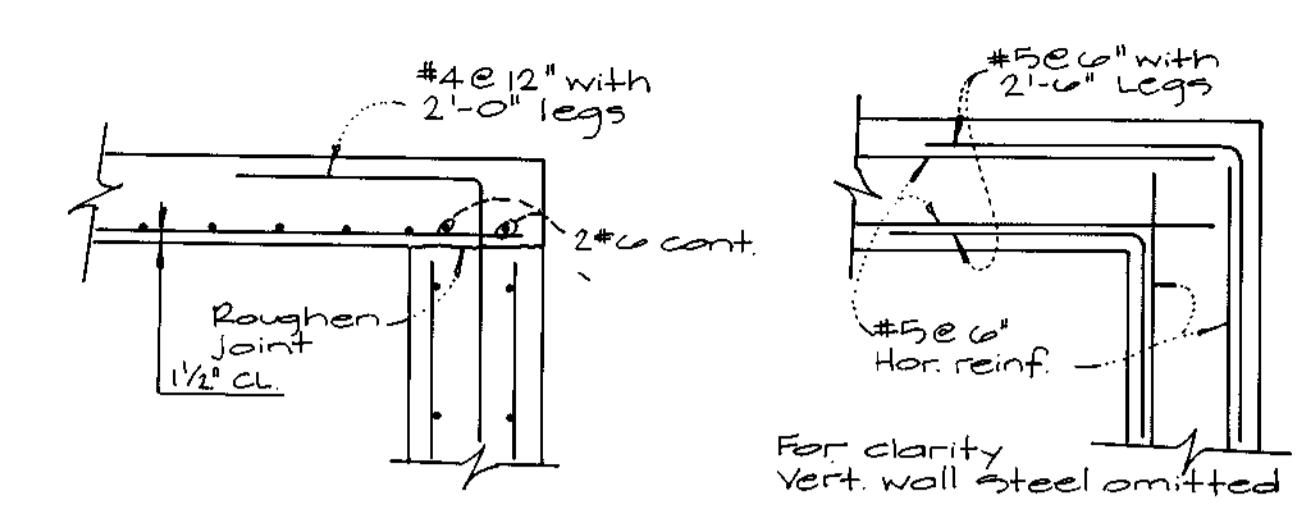
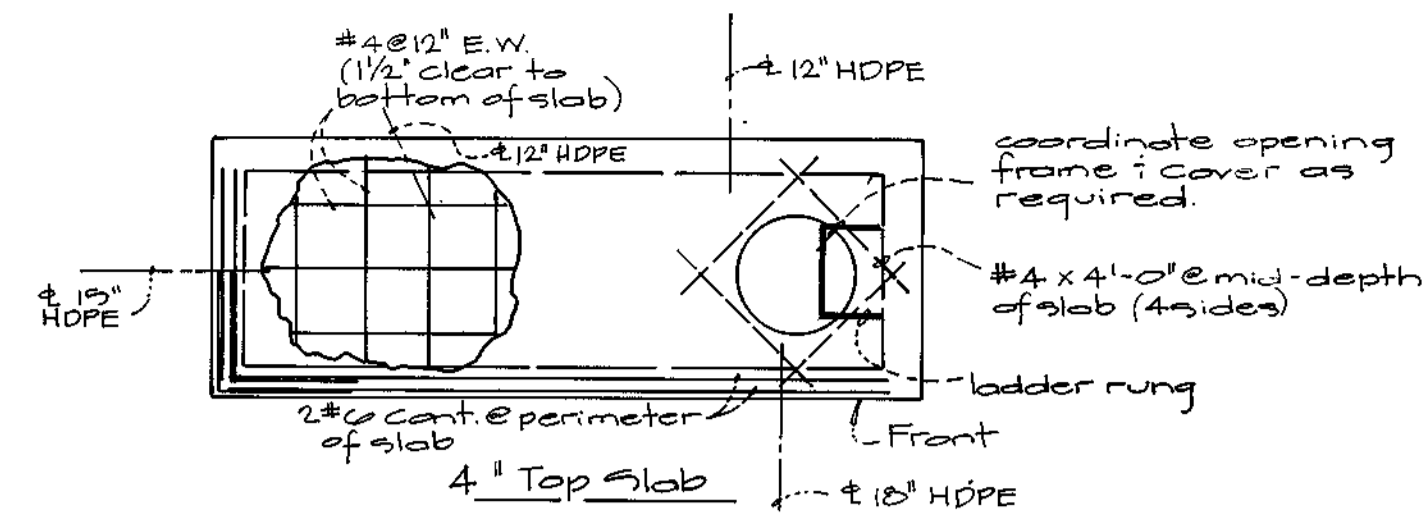
DES.	SCALE	ZONING	G.L.W. FILE NO.
		NEW TOWN	97009
DRN.	DATE	TAX MAP NO.	SHEET
	May 11, 1998	37	14 of 17
CHK.	DATE	TAX MAP NO.	SHEET
	May 11, 1998	37	14 of 17

Existing 8" Sewer

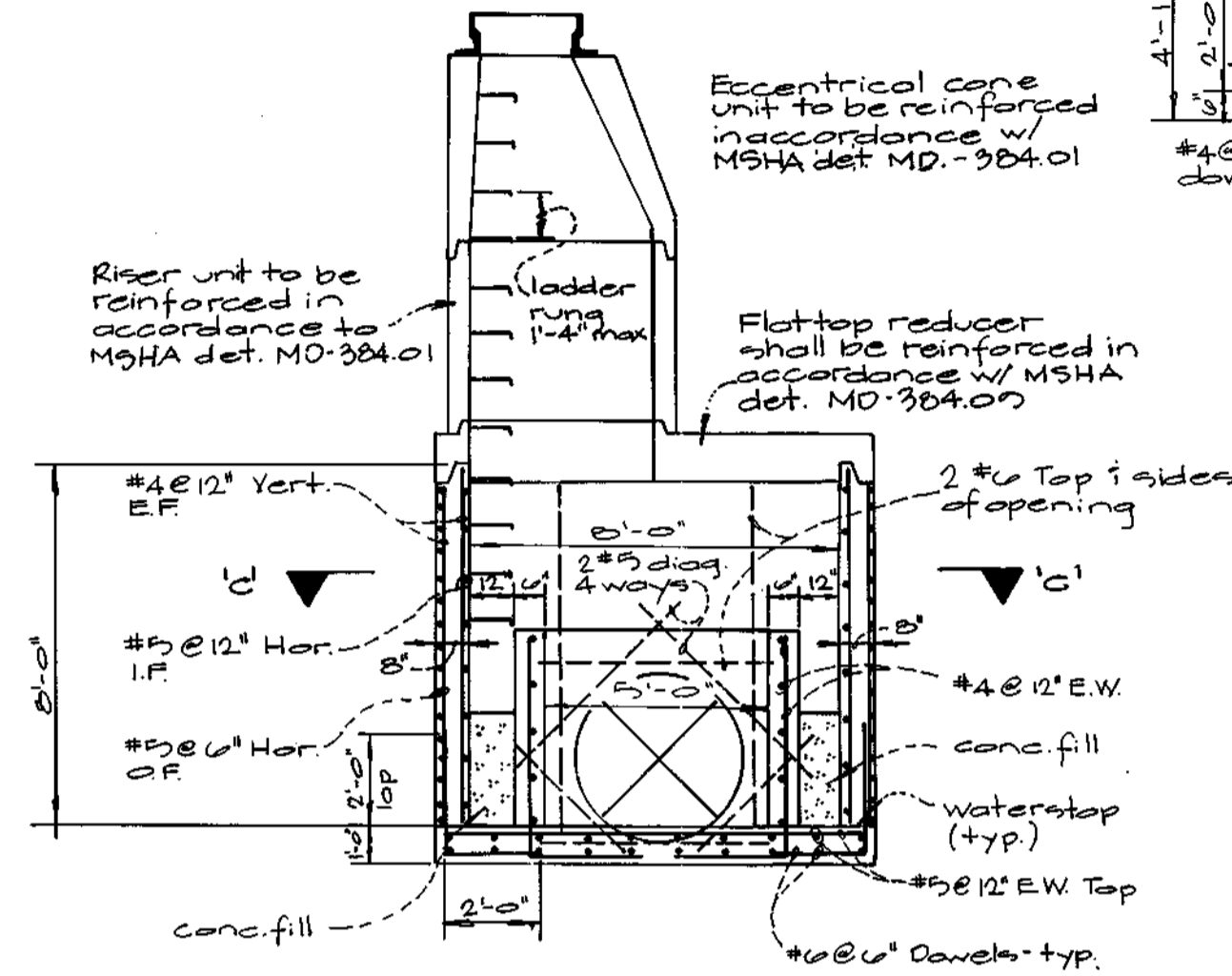
**Backfilling Detail For Trap # 4**  
1" = 50'



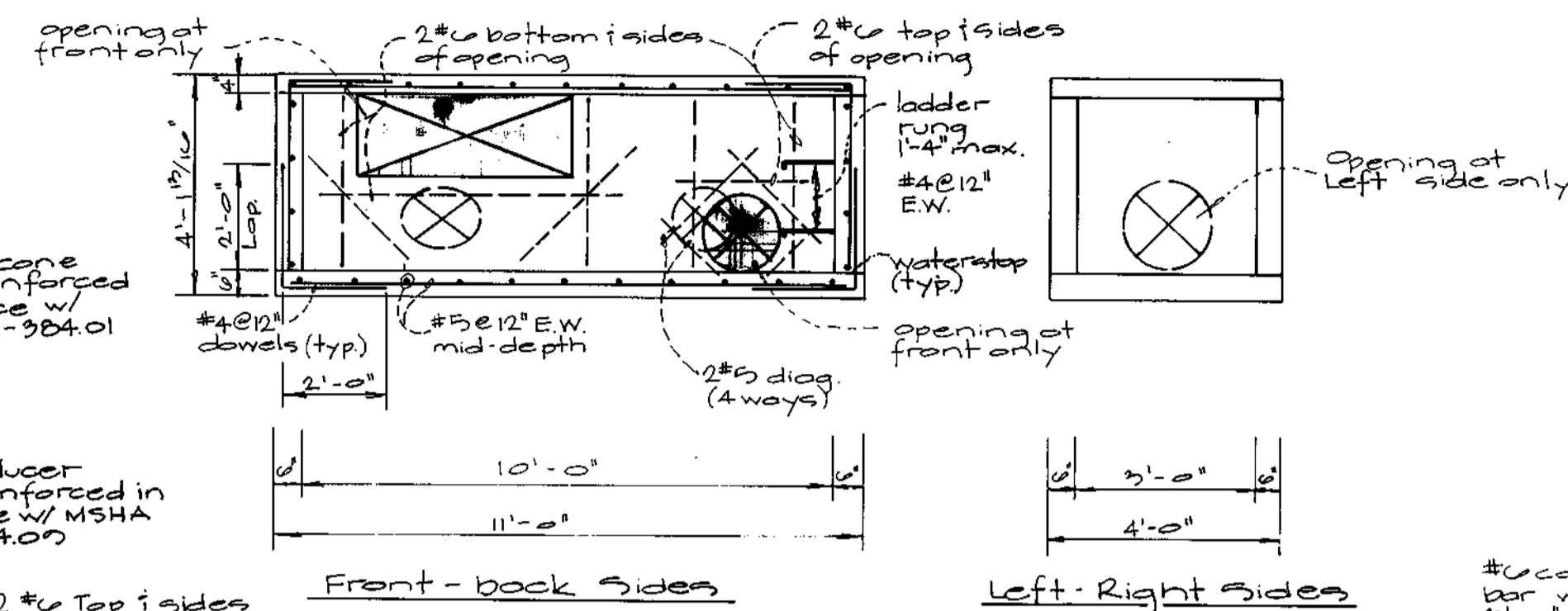
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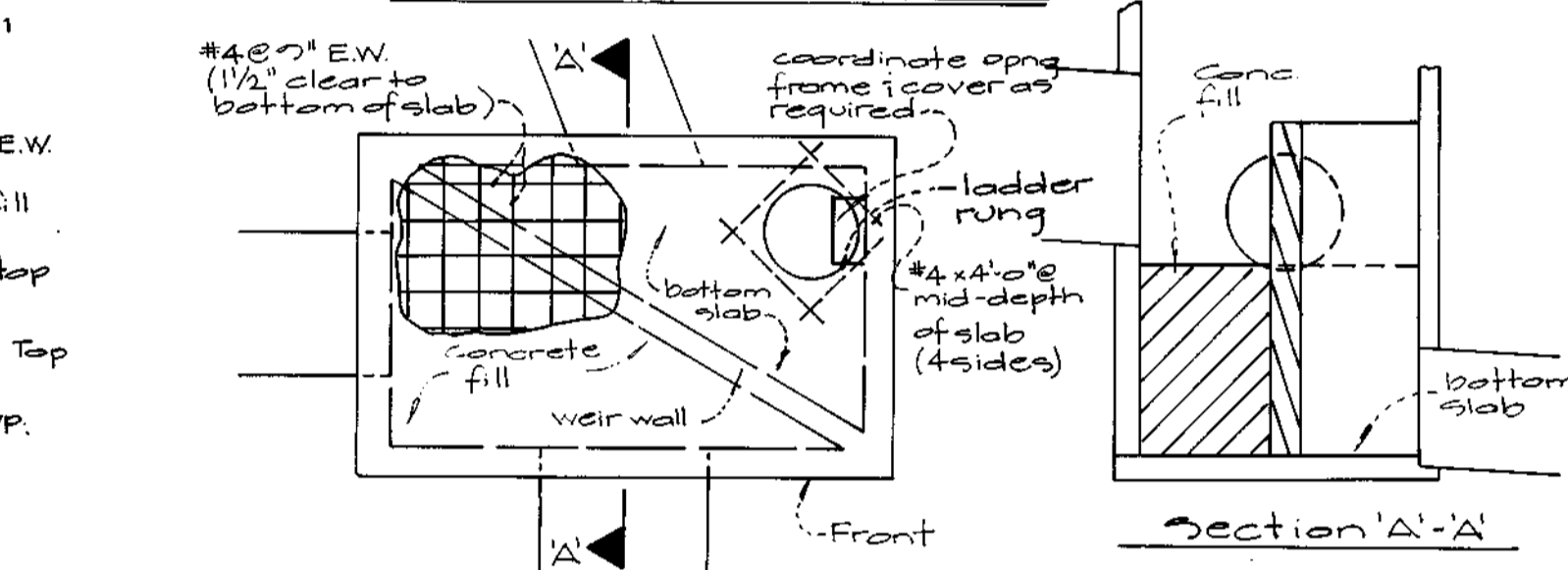
**(A) Top of Wall (B) Corner Detail**



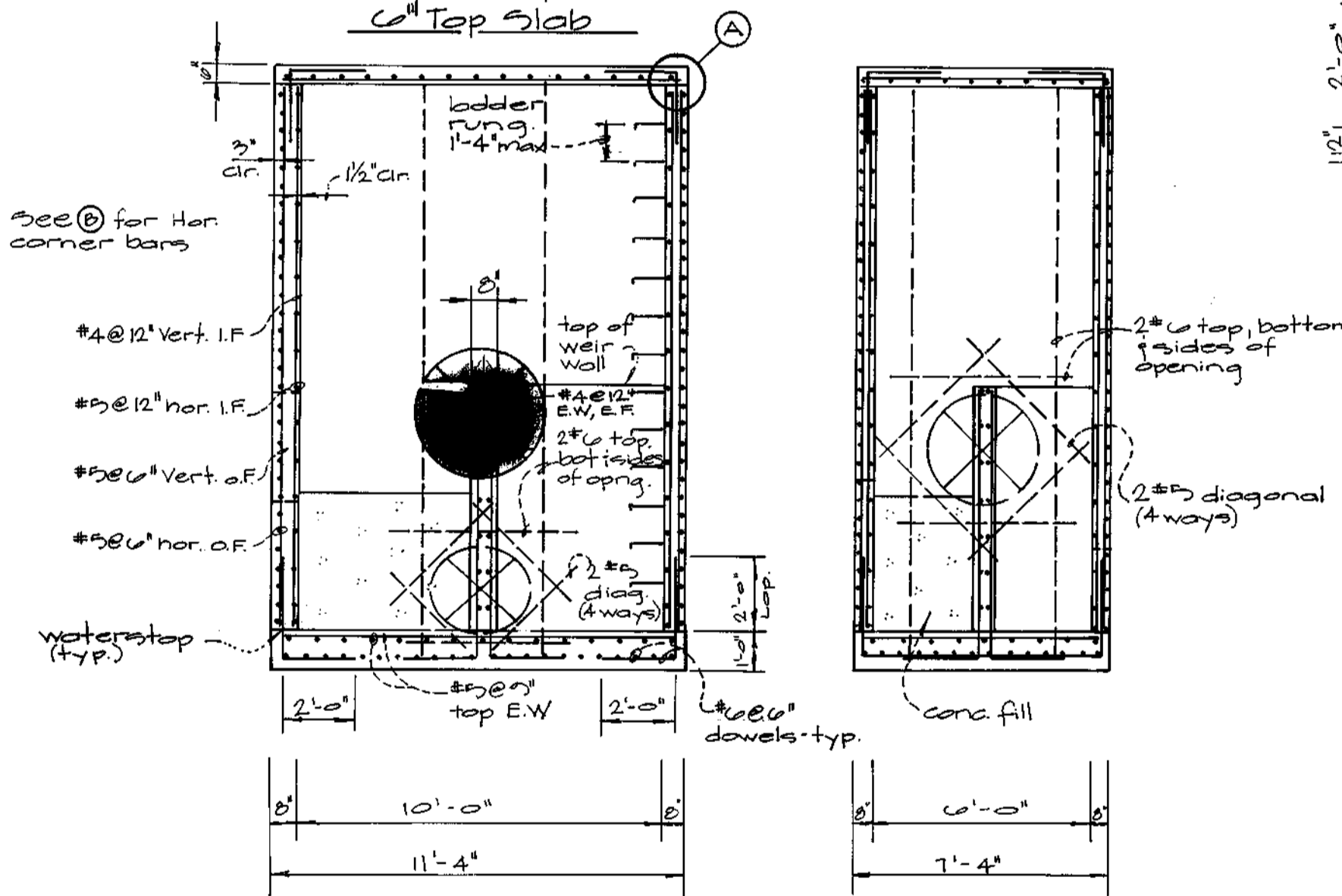
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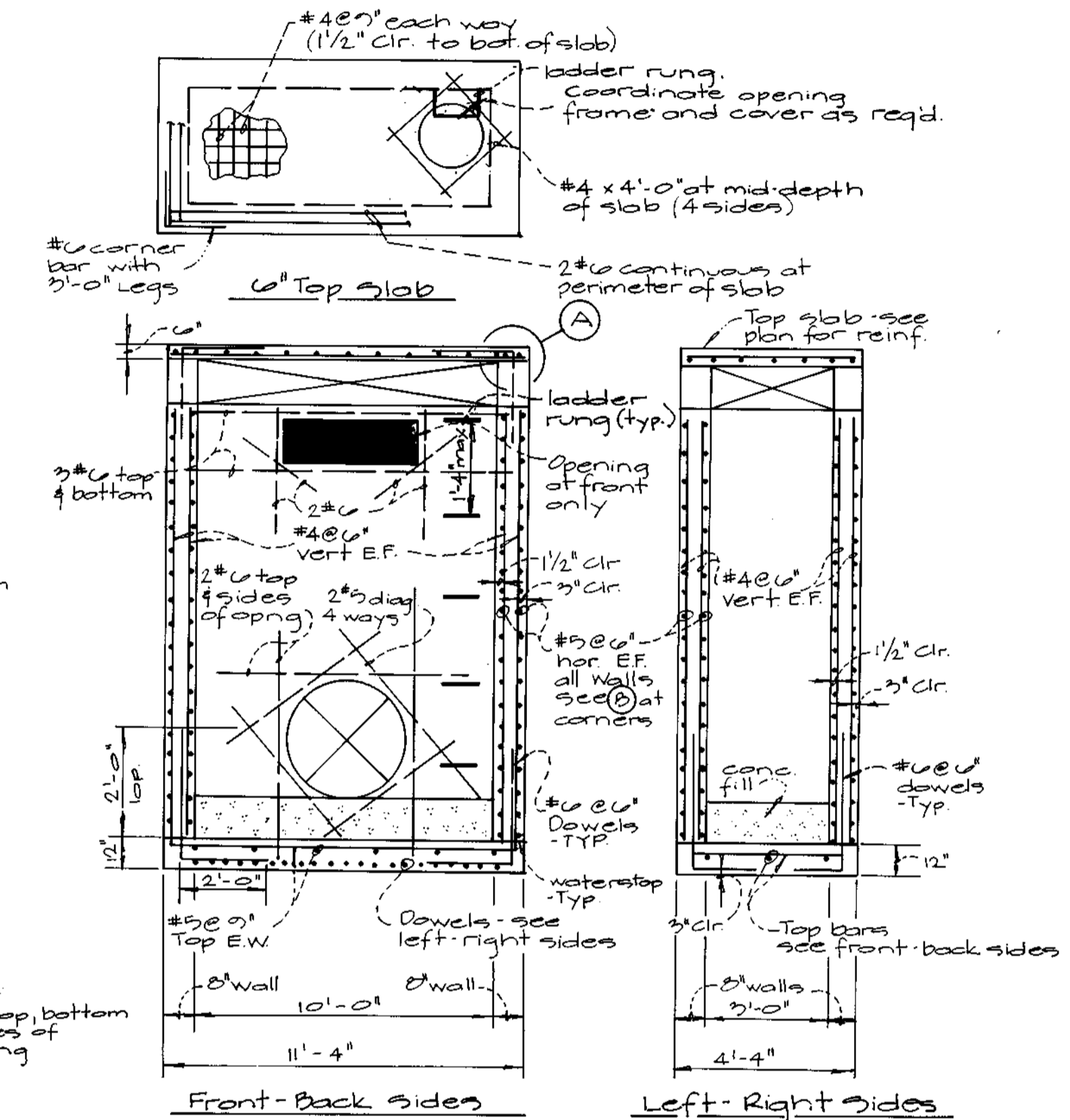
MH 211 Sections



MH 201 Sections



Special Structure 201



Riser Sections

- Riser - General Notes**
- Concrete to be normal weight (150 PCF) w/a compressive strength of 4000 psi. at 28 days. All concrete to be air entrained.
  - Deformed reinforcing bars to conform to ASTM A 615, Grade 60.
- Construction**
- All foundations to be placed on undisturbed soil or compacted structural fill.
  - Assumed min. bearing capacity = 2000 psf. Actual capacity to be verified prior to placing concrete.
  - Place backfill material against retaining wall in maximum lifts of eight inches.

- Notes**
- For information i dimensions not shown for the following structures: MH 211, special structure 201, SWM riser structure, see No. ca. det. 5.D. 4.41.
  - Manholes 101 i 221 shall be precast structures i shop drawings will be provided.
  - For information i dimensions not shown on MH 201, see 201 dia precast manhole, MSHA Standard No. MD-304.01

**ENGINEER'S CERTIFICATE**

I 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]* 4-9-98  
Date



**DEVELOPER'S/BUILDER'S 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 Maryland Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered Professional Engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District.

*[Signature]* 4-9-98  
Signature of Developer/Builder Date

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.

*[Signature]* 5/14/98  
Notary Resources Conservation Service Date

These Plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

*[Signature]* 5/14/98  
Howard Soil Conservation District Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
<i>[Signature]</i> 5-19-98 Chief, Bureau of Highways Date	
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	
<i>[Signature]</i> 5/27/98 Chief, Bureau of Planning & Zoning Date	
<i>[Signature]</i> 5/27/98 Chief, Development Engineering Division Date	

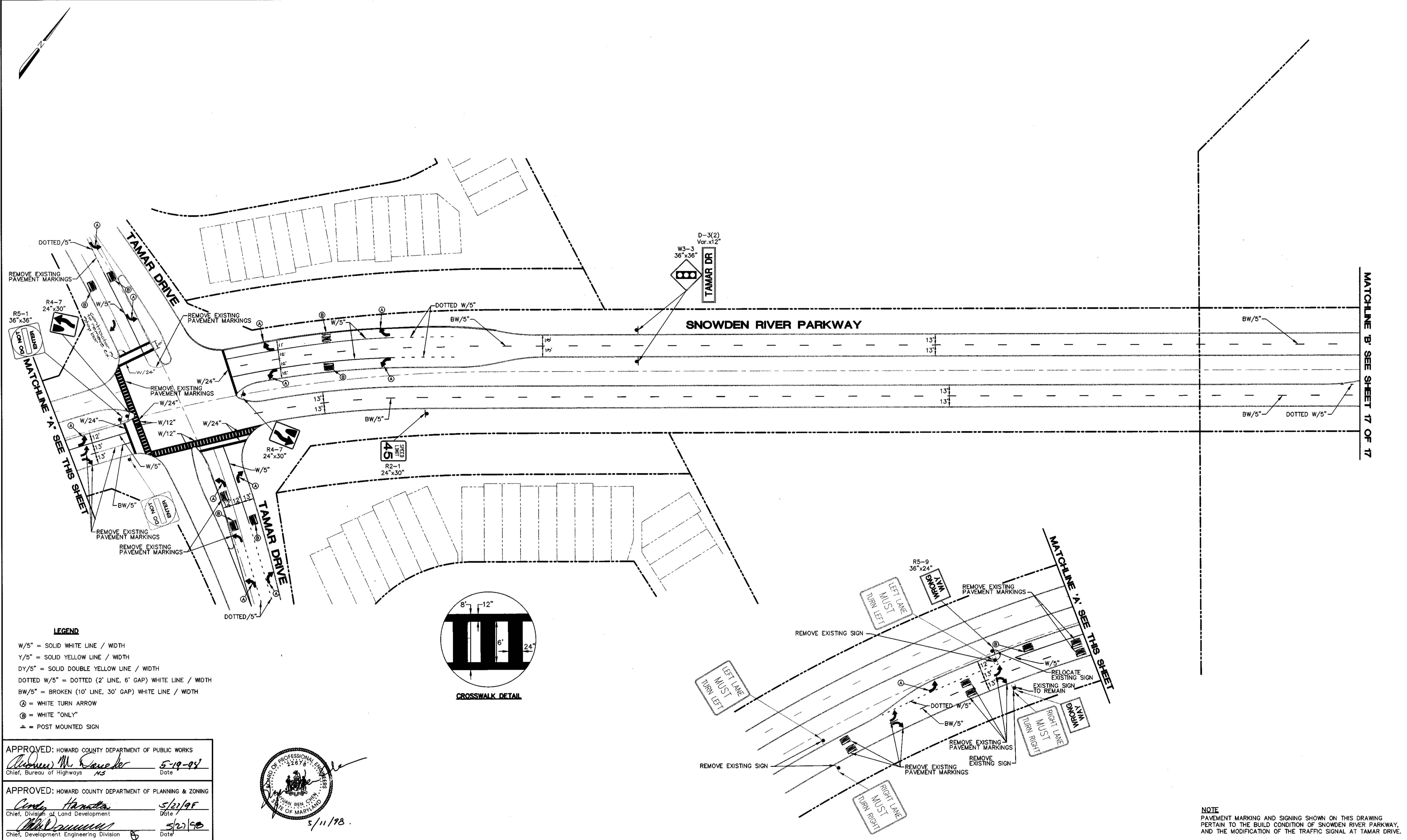
**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, SURVEYORS, PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE SUITE 250 BURTONSVILLE OFFICE PARK BURTONSVILLE, MD 20886  
TELEPHONE (301)421-4024 NO VA (301)989-2524 BALTO (301)880-1820 FAX (301)421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:  
THE HOWARD RESEARCH & DEVELOPMENT CORP.  
THE ROUSE BUILDING  
10275 LITTLE PATUXENT PARKWAY  
COLUMBIA, MD. 21044  
410-992-8027

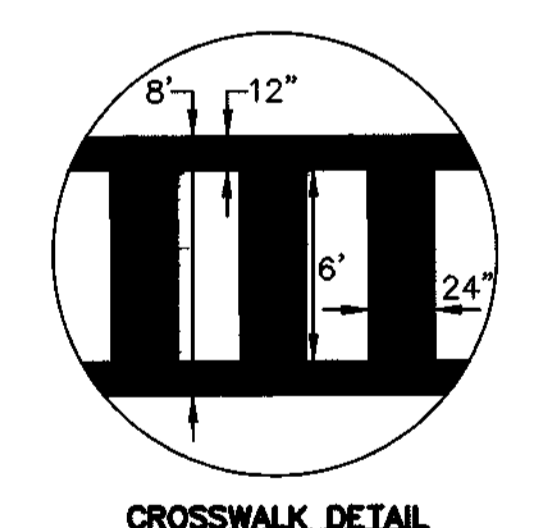
Details i Notes  
Columbia  
**Route 100 Commercial**  
Section 1, Area 1  
Parcela 'A' & 'B' and Lots 1 & 2  
4th Election District  
Howard County, Maryland

DES.: DEW	SCALE: As Shown	ZONING: New Town	G.L.W. FILE NO.: 97009
DRN.: MCF	DATE: May 11, 1998	TAX MAP NO.: 37	SHEET: 15 of 17
CHK.:			



**LEGEND**

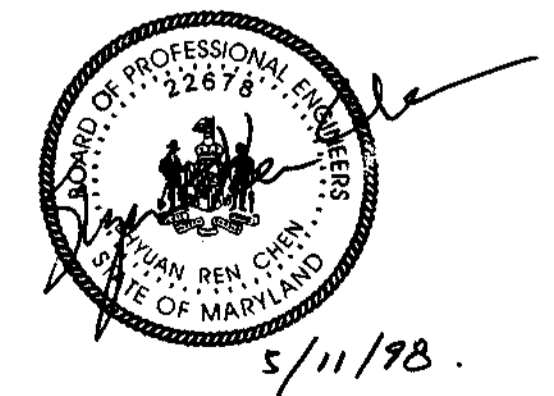
W/5" = SOLID WHITE LINE / WIDTH  
 Y/5" = SOLID YELLOW LINE / WIDTH  
 DY/5" = SOLID DOUBLE YELLOW LINE / WIDTH  
 DOTTED W/5" = DOTTED (2' LINE, 6' GAP) WHITE LINE / WIDTH  
 BW/5" = BROKEN (10' LINE, 30' GAP) WHITE LINE / WIDTH  
 ⊕ = WHITE TURN ARROW  
 ⊙ = WHITE "ONLY"  
 ▲ = POST MOUNTED SIGN



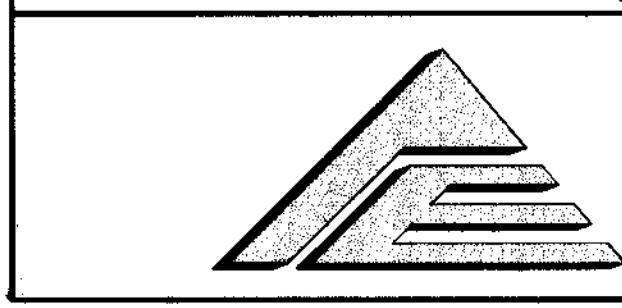
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Alfred M. Savelle* 5-19-98  
 Chief, Bureau of Highways HS Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Hanata* 5/21/98  
 Chief, Division of Land Development Date

*Mike Dammus* 5/21/98  
 Chief, Development Engineering Division Date



**NOTE**  
 PAVEMENT MARKING AND SIGNING SHOWN ON THIS DRAWING PERTAIN TO THE BUILD CONDITION OF SNOWDEN RIVER PARKWAY, AND THE MODIFICATION OF THE TRAFFIC SIGNAL AT TAMAR DRIVE.



**A/E GROUP, INC.**  
 ENGINEERS • PLANNERS  
 181 E. Main Street  
 Westminster, Maryland 21158  
 A/E Job No. 97-358-001

DATE	REVISION	BY	APP'R
11/2/90	Revise lane width and curb line, right turn lane		

PREPARED FOR:  
 The Howard Research & Development Corporation  
 The Rouse Building  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044  
 (410) 992-6027  
 Attn: Al Edwards

Pavement Marking and Signing Plan  
**Route 108 Commercial**  
 Section 1 Area 1  
 Phase 229  
 6th Election District  
 Howard County, Maryland

DES.	SCALE	ZONING	G.W.L. FILE No.
A.T.H.	1" = 50'	NT	97-009
DRN.	DATE	TAX MAP No.	SHEET
M.J.G.	MAY 1998	37 Block 7 Parcels 498 & 228	<b>16 of 17</b>
CHK.: C.S.C.			F-98-101



MD ROUTE 108

MD ROUTE 108

2" CLEARANCE FROM GROUND TO BOTTOM OF SIGN

PARCEL "A"

PARCEL "B"

INSET INTERIM MARKING AND SIGNING

PARCEL "A"

PARCEL "B"

NOTE

- SIGNS THAT WILL NOT BE INSTALLED UNDER THE "INTERIM MARKING AND SIGNING" ARE CROSSED OUT.
- STANDARD TEMPORARY MARKING TAPES (REMOVABLE) WILL BE USED FOR ALL INTERIM STRIPING.

SCALE: 1" = 60'

LEGEND

- W/5" = SOLID WHITE LINE / WIDTH
- Y/5" = SOLID YELLOW LINE / WIDTH
- DY/5" = SOLID DOUBLE YELLOW LINE / WIDTH
- DOTTED W/5" = DOTTED (2' LINE, 6' GAP) WHITE LINE / WIDTH
- BW/5" = BROKEN (10' LINE, 30' GAP) WHITE LINE / WIDTH
- ⊙ = WHITE TURN ARROW
- ⊕ = WHITE "ONLY"
- ⊕ = POST MOUNTED SIGN

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Demko* 5/19/94  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Cindy Hamilton* 5/21/95  
 Chief, Division of Land Development Date

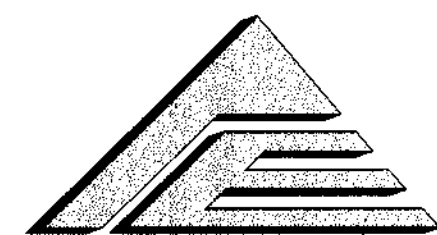
*William J. ...* 5/27/98  
 Chief, Development Engineering Division Date



MATCHLINE 'B' SEE SHEET 16 OF 17

NOTE

PAVEMENT MARKING AND SIGNING SHOWN ON THIS DRAWING PERTAIN TO THE BUILD CONDITION OF SNOWDEN RIVER PARKWAY, AND THE INSTALLATION OF TRAFFIC SIGNAL AT MD 108 AND SNOWDEN RIVER PARKWAY AND SNOWDEN RIVER PARKWAY AT DRIVEWAYS TO PARCELS A/B RESPECTIVELY.



**A/E GROUP, INC.**  
 ENGINEERS • PLANNERS  
 181 E. Main Street  
 Westminster, Maryland 21158  
 A/E Job No. 97-358-001

DATE	REVISION	BY	APP'R

PREPARED FOR:  
 The Howard Research & Development Corporation  
 The Rouse Building  
 10275 Little Patuxent Parkway  
 Columbia, Maryland 21044  
 (410) 992-6027  
 Attn: Al Edwards

Pavement Marking and Signing Plan

**Route 108 Commercial**  
**Section 1 Area 1**  
 Phase 229

6th Election District

Howard County, Maryland

DES:	SCALE	ZONING	G.W.L. FILE No.
A.T.H.	1" = 50'	NT	97-009
DRN:	DATE	TAX MAP No.	SHEET
M.J.G.	MAY 1998	37	17 of 17
CHK:	C.S.C.	Block 7	Parcels 498 & 228