

ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITIES
1	TEST PITS (Ex. Water Main)	EA.	3
2	PAVEMENT REMOVAL (Murray Hill & Vollmerhausen)	SY	9,272
3	TOPSOIL STRIPPING UNDER FILL	CY	10,000
4	UNCLASSIFIED EXCAVATION (Roadway)	CY	55,500
5	BORROW EXCAVATION	CY	3,000
6	MD. S.H.A. SPEC. 'B' BIT. CONC. BASE (6"th)	SY	960
7	MD. S.H.A. SPEC. 'B' BIT. CONC. SURFACE (3"th)	SY	960
8	BIT. CONC. SURFACE COURSE (1 1/2"th)	SY	33,860
9	BIT. CONC. BINDER COURSE (1 1/2"th)	SY	33,800
10	BIT. CONC. BASE COURSE (5"th)	SY	33,860
11	3/4" 7" COMB. CURB AND GUTTER	LF	16,540
12	CONCRETE SIDEWALK 4"th	LF	11,460
13	MOUNTABLE CURB	LF	1,345
14	R/W AND SLOPE STABILIZATION	SY	37,000
15	TRANSITION CURB AT "A" INLETS	LF	1,020
16	5/8" A-5 INLETS	EA.	26
17	5/8" A-10 INLETS	EA.	20
18	TYPE "D" INLETS	EA.	4
19	MD. S.H.A. TYPE "H" INLET	EA.	1
20	5/8" MANHOLE	EA.	10
21	5/8" TYPE "B" MANHOLE	EA.	4
22	18" 5/8" METAL END SECTION (5-3 and 5-7)	EA.	2
23	21" 5/8" METAL END SECTION (5-4)	EA.	1
24	24" 5/8" METAL END SECTION (5-9 and 5-10)	EA.	2
25	42" 5/8" METAL END SECTION (5-5)	EA.	1
26	SPECIAL ENDWALL (5-2)	EA.	1
27	TYPE "A" HEADWALL (5-1)	EA.	1
28	TEMPORARY 24" CUT-OFF WALL (5-6)	EA.	1
29	TEMPORARY 27" CUT-OFF WALL (5-8)	EA.	1
30	15" RCP CL IV	LF	1,640
31	18" RCP CL IV	LF	566
32	21" RCP CL IV	LF	523
33	24" RCP CL IV	LF	880
34	27" RCP CL IV	LF	36
35	30" RCP CL IV	LF	482
36	36" RCP CL IV	LF	56
37	42" RCP CL IV	LF	72
38	15" RCP CL III	LF	241
39	18" RCP CL III	LF	34
40	24" RCP CL III	LF	138
41	27" RCP CL III	LF	38
42	30" RCP CL III	LF	74
43	42" RCP CL III	LF	20
44	15" BCCMP 16 GAGE	LF	427
45	18" BCCMP 16 GAGE	LF	153
46	21" BCCMP 16 GAGE	LF	33
47	24" BCCMP 12 GAGE	LF	40
48	30" BCCMP 14 GAGE	LF	37
49	42" BCCMP 12 GAGE	LF	28
50	DITCH EXCAVATION	CY	1010
51	CONCRETE DITCH PAVING	SY	40
52	RIP RAP DITCH (MD. SHA NO. 1 STONE) 9"th	SY	285
53	POLY FILTER X CLOTH	SY	305
54	DITCH STABILIZATION (SEEDING)	SY	5675
STORM WATER MANAGEMENT (Ponds No. 1 and No. 2)			
55	EXCAVATION	CY	18,700
56	STABILIZATION (SEEDING)	SY	8,300
57	RIP RAP (MD. SHA. NO. 1 STONE) 9"th	SY	325
58	18" BCCMP RISER, CONCRETE BASE and VORTEX DEVICE	EA.	1
59	30" BCCMP RISER, CONCRETE BASE and VORTEX DEVICE	EA.	1
60	12" BCCMP 16 GAGE Principal Spillway	LF	117
61	18" BCCMP 16 GAGE Principal Spillway	LF	199
62	12" 5/8" METAL END SECTION (5-13)	EA.	1
63	18" TYPE "A" HEADWALL (5-11)	EA.	1
64	SPECIAL HEADWALL (5-12)	EA.	1
65	DEWATERING PIPE	EA.	1
SEDIMENT CONTROL			
66	SEDIMENT TRAPS (Includes excavation, stone & Inlet treatment)	EA.	7
67	DIVERSION DIKE (Earth Dike)	LF	4165
68	CLEAN WATER INLETS (Includes temporary 15 inch CMP)	EA.	5
69	FLEXIBLE PIPE SLOPE DRAIN	EA.	1
MURRAY HILL POND			
NOTE: 10/22/75 CAPITAL PROJECT D-1159 PRINCIPLE SPILLWAY REPAIR IN POND			
MURRAY HILL 2 POND			
NOTE: 10/22/75 CAPITAL PROJECT D-1159 PRINCIPLE SPILLWAY REPAIR IN POND #2 BY REMOVING THE CMP AND VORTEX DEVICE CONTROL STRUCTURE AND ABANDONING THE 18" CMP WITH AN RCP WEIR WALL OUTLET CONTROL STRUCTURE AND 48" RCP.			

SHEET INDEX

NO.	DESCRIPTION
1	Title Sheet
2	Murray Hill Road Sta. 0+00 to Sta. 11+00
3	Murray Hill Road Sta. 11+00 to Sta. 24+50
4	Murray Hill Road Sta. 24+50 to Sta. 29+75
5	Vollmerhausen Road Sta. 0+16.26 to Sta. 12+50
6	Vollmerhausen Road Sta. 12+50 to Sta. 26+00
7	Vollmerhausen Road Sta. 26+00 to Sta. 39+00
8	Vollmerhausen Road Sta. 39+00 to Sta. 50+00
9	Guilford and Murray Hill Road Temporary Intersection
10	Roadway Details
11	Storm Drain Profiles - Murray Hill Road
12	Storm Drain Profiles - Murray Hill Road
13	Storm Drain Profiles - Murray Hill Road
14	Storm Drain Profiles - Vollmerhausen Road
15	Storm Drain Profiles and Details - Vollmerhausen Road
16	Drainage Area Map
17	Drainage Area Map
18	Drainage Area Map
19	Drainage Area Map
20	Drainage Area Map
21	Temporary Sediment Traps No. 1 Thru No. 4
22	Temporary Sediment Traps No. 5 Thru No. 7
23	Storm Drain Details
24	Storm Drain Details
25	Storm Water Management Pond No. 1 and Pond No. 2
26	" " " " " " " "
27	Storm Water Management Pond No. 1 and Pond No. 2

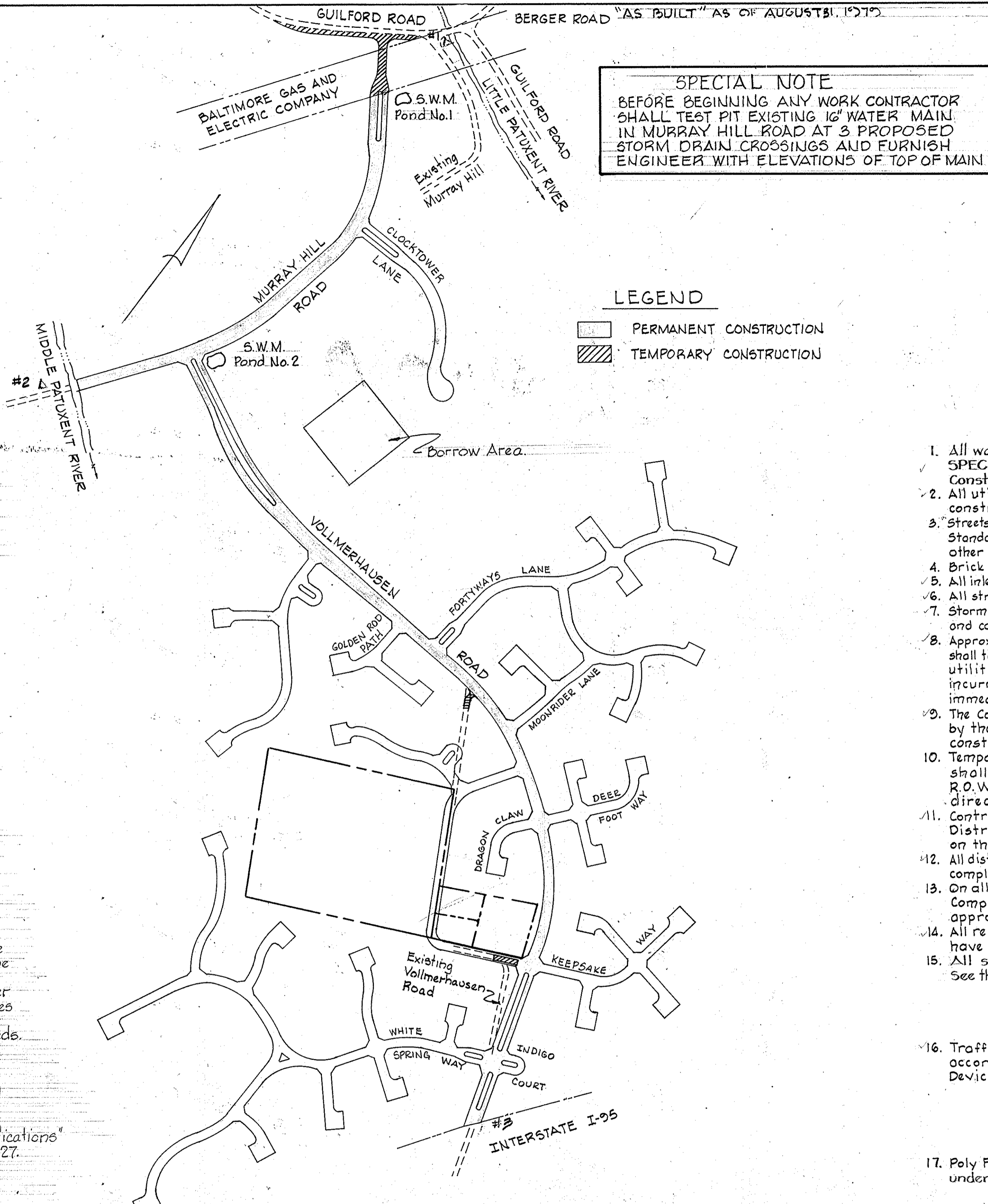
REFERENCES

- #1. HOWARD CO. SURVEY POINT #2241007 - CONC. MON. N.P. LITTLE PATUXENT RIVER BRIDGE - ELEV. 268.75 - N485886.76 E 842174.84
- #2. HOWARD CO. SURVEY POINT #2141003 - CONC. MON. SOUTH OF MIDDLE PATUXENT RIVER BRIDGE - ELEV. 238.12 N483032.15, E841773.50
- #3. HOWARD CO. SURVEY POINT #2142006 - R - CONC. MON. N.P. VOLLMERHAUSEN ROAD BRIDGE - ELEV. 359.66 - N481397.72, E 840013.03

SEQUENCE OF CONSTRUCTION

- Construct Storm Water Management Pond No. 1.
- Strip and grade Murray Hill Road between stations 11+50 and 15+50 to permit Water Main relocation.
- Strip Vollmerhausen Road between Murray Hill Road and station 24+00.
- Construct fill embankment for Vollmerhausen Road and Storm Water Management Pond No. 2. Complete construction of Pond No. 2.
- Strip and grade the balance of Murray Hill Road.
- Strip and grade the remainder of Vollmerhausen and excavate all sediment traps except traps No. 4 and No. 5 which occur in the roadway. Construct the diversion dikes for the clean water inlets along Vollmerhausen Road except the dikes at traps No. 2, No. 3 and No. 6 which occur in the roadway.
- Construct the storm drain systems and extend the pipes to the clean water inlets. Construct sediment traps No. 4 and No. 5. Construct the diversion dikes at traps No. 2, No. 3 and No. 6.
- Construct concrete curb and gutter for Murray Hill and Vollmerhausen Roads.
- Remove traps No. 4 and No. 5 and prepare road surfaces for paving.
- Pave Murray Hill and Vollmerhausen Roads.
- Sediment traps, diversion dikes and clean water inlets may be removed after all road construction is completed and grass is established on all disturbed graded surfaces.

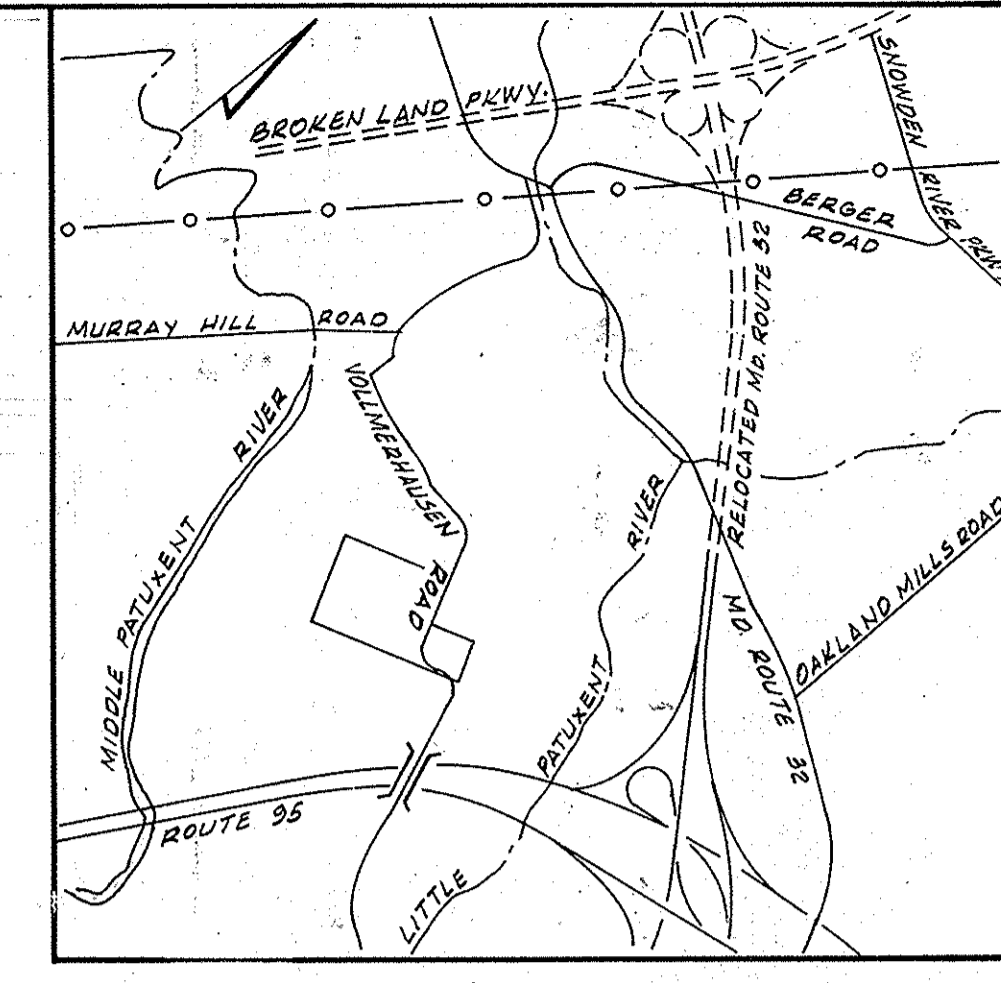
See "General Notes" on Sediment Control Drawing, Sheet 21; and "Specifications" and "General Notes" on the Storm Water Management Drawing, Sheet 27.



SPECIAL NOTE
BEFORE BEGINNING ANY WORK CONTRACTOR SHALL TEST PIT EXISTING 16" WATER MAIN IN MURRAY HILL ROAD AT 3 PROPOSED STORM DRAIN CROSSINGS AND FURNISH ENGINEER WITH ELEVATIONS OF TOP OF MAIN

LEGEND

 PERMANENT CONSTRUCTION
 TEMPORARY CONSTRUCTION



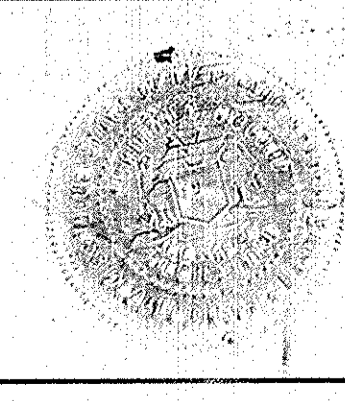
GENERAL NOTES

- All work shall be performed in accordance with the SPECIFICATIONS and also the Howard County Road Construction Code and Standard Specifications.
 - All utility companies shall be notified 24 hours in advance of construction.
 - Streets are designated for traffic speed in accordance with AASHO Standards Murray Hill Road and Vollmerhausen Road 35 MPH all other streets 30 MPH.
 - Brick bulkhead shall be installed in all storm drain stubs.
 - All inlets shall be Howard County standards unless otherwise shown.
 - All street curb returns shall have a 35' radii unless otherwise noted.
 - Storm drain trenches within road rights of way shall be backfilled and compacted in accordance with Howard County Road Code.
 - Approximate location of existing utilities are shown. The Contractor shall take all necessary precautions to protect the existing utilities and to maintain uninterrupted service. Any damage incurred due to Contractor's operations shall be repaired immediately at the Contractor's expense.
 - The Contractor shall test pit existing utilities where directed by the Engineer, a minimum of two weeks in advance of construction operations.
 - Temporary compacted 18" high Earth Fill Diversion Dikes shall be constructed above the lips of fill slopes on the R.O.W. concurrently with the initial grading and directed to undisturbed sod areas at the end of each day.
 - Contractor to notify the Howard County Soil Conservation District at least 3 days before starting work shown on these drawings.
 - All disturbed slope areas to be stabilized as soon as grading is completed.
 - On all fills in sump areas, Reliance Plastic & Chemical Company "Flexible Tube Down Drains and Pans" or approved equal shall be used.
 - All reinforced concrete for storm drain structures shall have minimum 28 days strength of 3500 psi.
 - All swales and slopes shall be permanently seeded. See the seed specifications on sheet 27 of 27.
 - Traffic control devices and their installation shall be in accordance with the Manual on Uniform Traffic Control Devices, 1971 Revised Edition.
 - Poly Filter-X (filter cloth blanket) or equal shall be placed under all stone rip-rap (full width and length of stone).
 - Rip-Rap at Outfalls shall be unpaved unless otherwise noted.
- ▲ 8-2-78 CLARIFY HOWARD COUNTY COMMENTS

CERTIFICATION BY THE DEVELOPER
 I certify that all development and or construction will be done according to this plan of development and plan for Erosion and Sediment Control, and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
Albert G. Goodfellow 6-22-78
 Signature of Developer Date

CERTIFICATION BY THE ENGINEER
 I certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Kenneth A. McCord 6/22/78
 Kenneth A. McCord P.E. 1974 Date

WHITMAN, REQUART & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202
Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 No. 1974



DEPARTMENT OF PUBLIC WORKS
W. O. Libert 8-30-78
 CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Murrellman 8-25-78
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORP.
 COLUMBIA, MARYLAND

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
P. Wayne Ray 8-24-78
 U.S. SOIL CONSERVATION DISTRICT Date

THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT
 APPROVED *Wes Farr* 8-24-78
 HOWARD S.C.D. Date
 PLAN NUMBER

COLUMBIA VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA I
ROAD CONSTRUCTION PLANS
 6TH ELECTION DISTRICT OF HOWARD COUNTY MD.
 OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
 COLUMBIA MARYLAND
 Date: June 22, 1978 Scale: As Shown

4445 Sec. 3-91

STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV.	INV. ELEV.	LOCATION
I-10	Std. A-5 Inlet width=2.5'	286.84	278.90	€ Inlet 37.25' Lt. of € Sta. 5+50
I-11	Std. A-5 Inlet width=4.0'	286.84	279.51	€ Inlet 38.00' Rt. of € Sta. 5+50
I-12	Std. 'D' Inlet 2.5' square	289.23	282.95	€ Inlet 8.00' Rt. of € Sta. 8+50
I-13	Std. A-10 Inlet width=2.5'	288.48	283.65	€ Inlet Rt. of € Sta. 6+75
I-14	Std. A-10 Inlet width=2.5'	294.66	288.37	€ Inlet 23.25' Rt. of € Sta. 6+25
I-15	Std. A-5 Inlet width=2.5'	296.02	291.02	€ Inlet 23.25' Rt. of € Sta. 8+50
I-16	Std. A-10 Inlet width=2.5'	294.56	290.03	€ Inlet 23.25' Lt. of € Sta. 8+25
I-17	Std. A-5 Inlet width=3.0'	280.88	276.10	€ Inlet 12.50' Rt. of € Sta. 0+80
I-18	Std. Type 'D' Inlet	281.83	277.29	€ Inlet 41.0' Rt. of € Sta. 1+25
I-19	MD. S.H.A. Type H Inlet	283.54	272.43	See Plan and Profile
MH-1	Std. Manhole	275.00	267.17	See Plan and Profile
S-2	Special E.W. See Detail Sht. 15	272.06	267.06	See Plan and Profile
S-3	Motor 1" Dia. 1' Dia.	275.16	275.16	€ End Pipe 22.0' Lt. of € Sta. 0+75

* Inlets shall be constructed with pavement deflectors.
See Detail on Sheet 24 of 27.
** Construct Inlet I-12 with all four sides open.

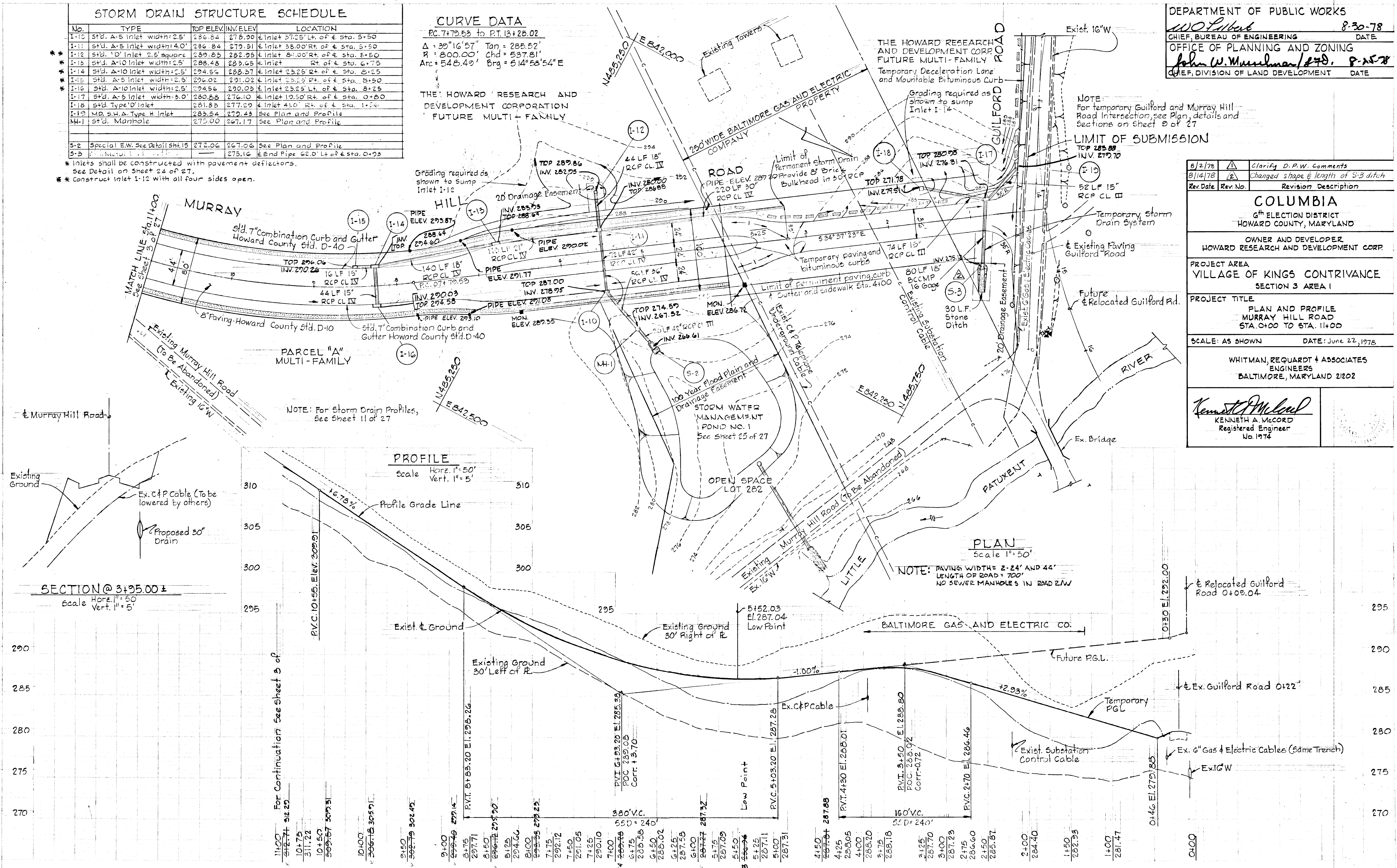
CURVE DATA

PC: 7+79.53 to P.T. 13+28.02
 $\Delta = 39^\circ 16' 57''$ Tan = 288.52'
 $R = 300.00'$ Chd = 537.81'
 Arc = 548.43' Brg = 614^\circ 58' 54'' E

THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 FUTURE MULTI-FAMILY

DEPARTMENT OF PUBLIC WORKS

W.O. Libert 8-30-78
 CHIEF, BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
John W. Murchman/270 8-25-78
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE



NOTE: For temporary Guilford and Murray Hill Road Intersection, see Plan, details and Sections on Sheet 2 of 27

LIMIT OF SUBMISSION

Rev. No.	Rev. Date	Revision Description
1	8/2/78	Clarify D.P.W. Comments
2	8/14/78	Changed shape & length of S-3 ditch

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 PLAN AND PROFILE
 MURRAY HILL ROAD
 STA. 0+00 TO STA. 11+00

SCALE: AS SHOWN DATE: June 22, 1978

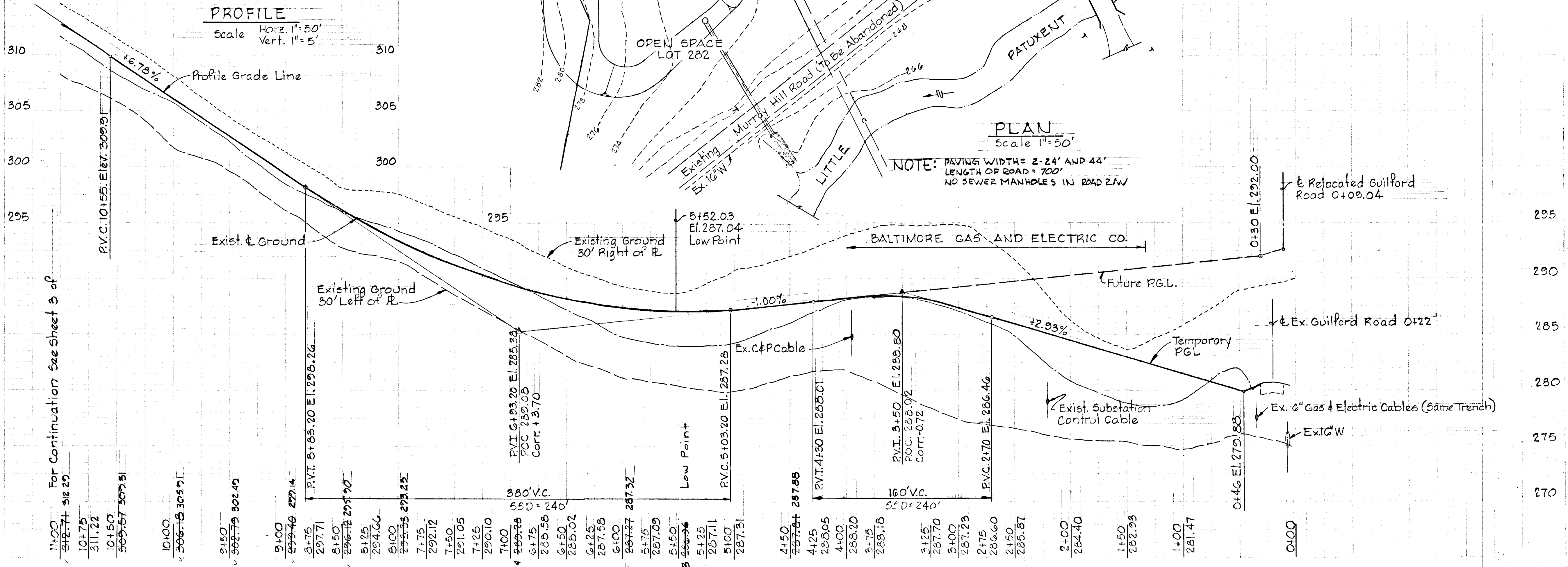
WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

NOTE: For Storm Drain Profiles, See Sheet 11 of 27

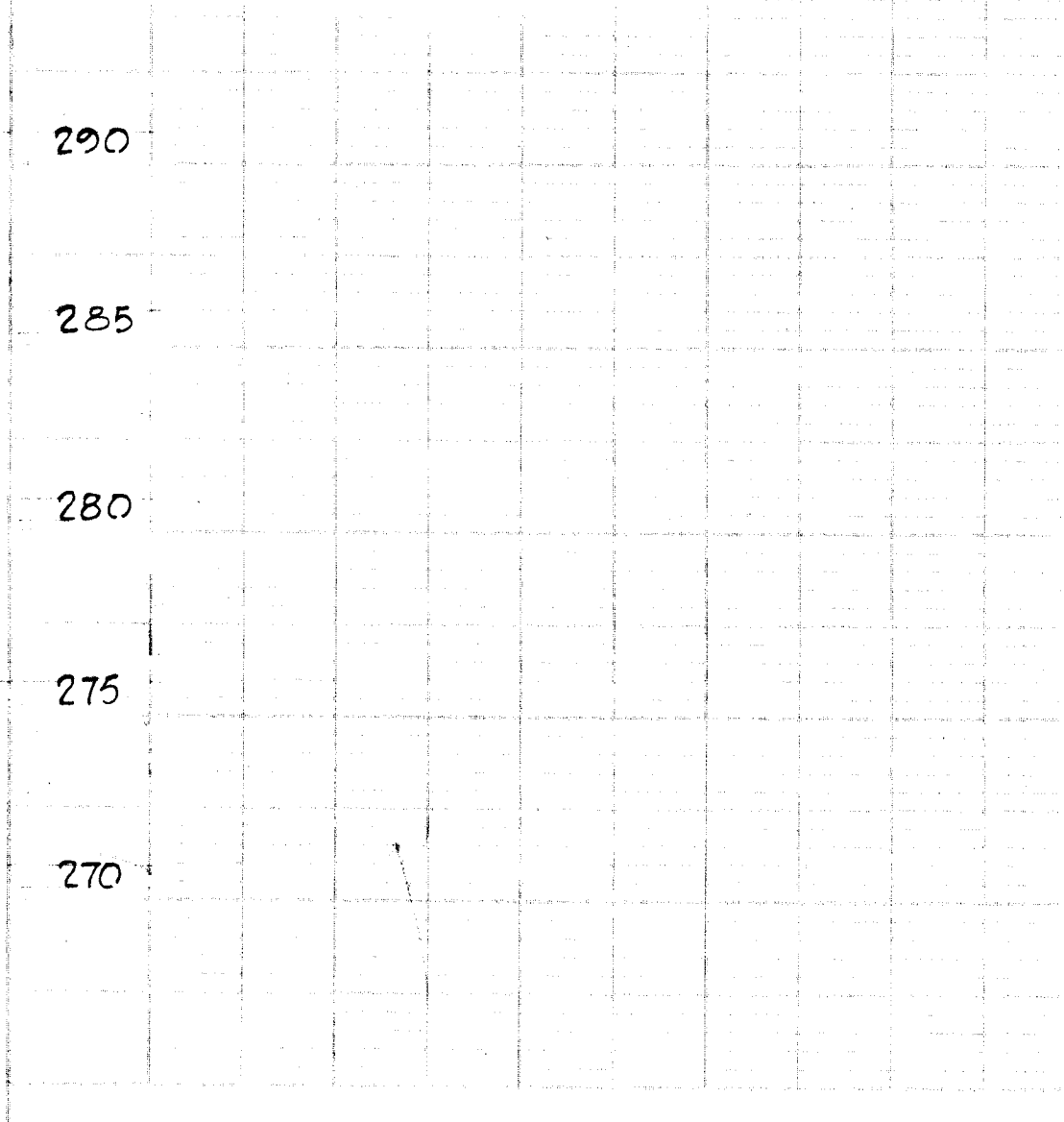
PROFILE

Scale Horiz. 1" = 50'
 Vert. 1" = 5'



SECTION @ 3+95.00 ±

Scale Horiz. 1" = 50'
 Vert. 1" = 5'



PLAN

Scale 1" = 50'

NOTE: PAVING WIDTHS = 2'-24" AND 44"
 LENGTH OF ROAD = 100'
 NO SEWER MANHOLES IN ROAD ROW

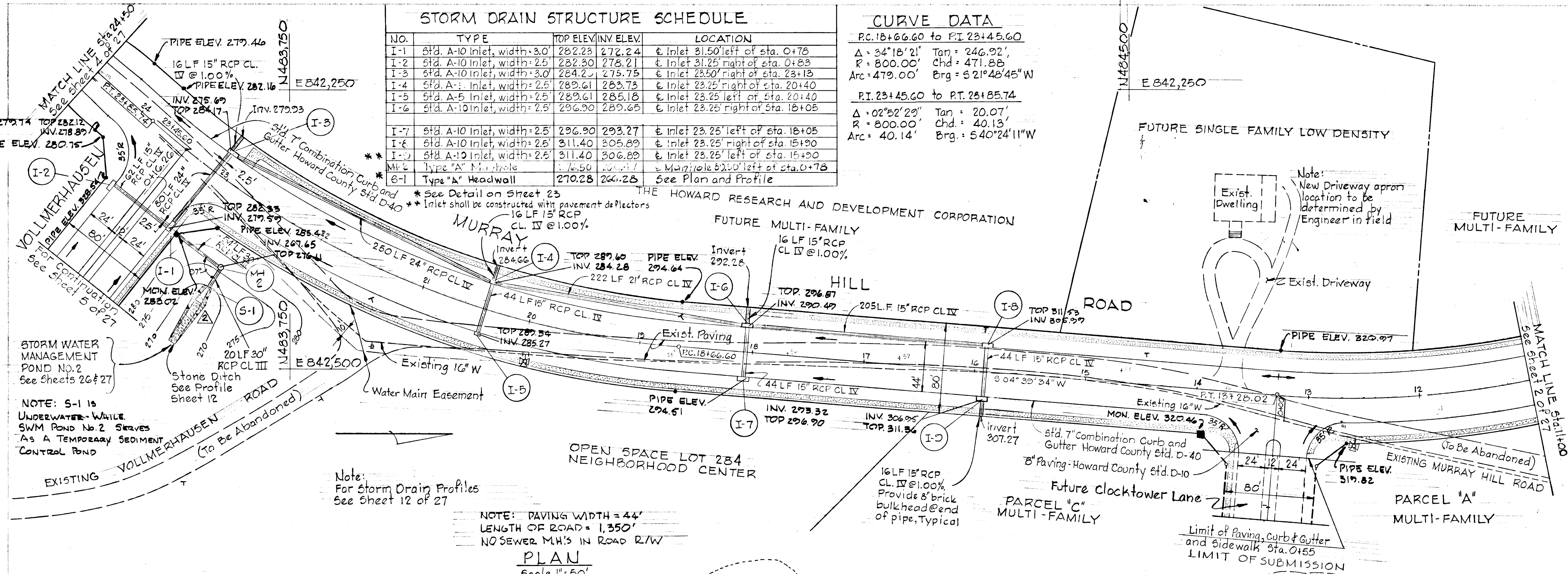
STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. ELEV.	LOCATION
I-1	Std. A-10 Inlet, width=3.0'	282.28	272.24	± Inlet 81.50' left of sta. 0+78
I-2	Std. A-10 Inlet, width=2.5'	282.30	278.21	± Inlet 31.25' right of sta. 0+88
I-3	Std. A-10 Inlet, width=3.0'	284.2	275.75	± Inlet 23.50' right of sta. 23+18
I-4	Std. A-5 Inlet, width=2.5'	283.61	283.73	± Inlet 23.25' right of sta. 20+40
I-5	Std. A-5 Inlet, width=2.5'	283.61	285.18	± Inlet 23.25' left of sta. 20+40
I-6	Std. A-10 Inlet, width=2.5'	296.90	289.65	± Inlet 23.25' right of sta. 18+05
I-7	Std. A-10 Inlet, width=2.5'	296.90	293.27	± Inlet 23.25' left of sta. 18+05
I-8	Std. A-10 Inlet, width=2.5'	311.40	305.89	± Inlet 23.25' right of sta. 15+90
I-9	Std. A-10 Inlet, width=2.5'	311.40	306.89	± Inlet 23.25' left of sta. 15+90
M-1	Type "A" Manhole	276.50	276.50	± Manhole 83.50' left of sta. 0+78
B-1	Type "A" Headwall	270.28	266.28	See Plan and Profile

CURVE DATA

PC: 18+66.60 to PI: 23+45.60
 $\Delta = 34^{\circ}18'21''$ Tan = 246.92'
 $R = 800.00'$ Chd = 471.88'
 Arc = 479.00' Brg = $S 21^{\circ}48'45'' W$

PI: 23+45.60 to PT: 28+85.74
 $\Delta = 02^{\circ}52'29''$ Tan = 20.07'
 $R = 800.00'$ Chd = 40.13'
 Arc = 40.14' Brg = $S 40^{\circ}24'11'' W$



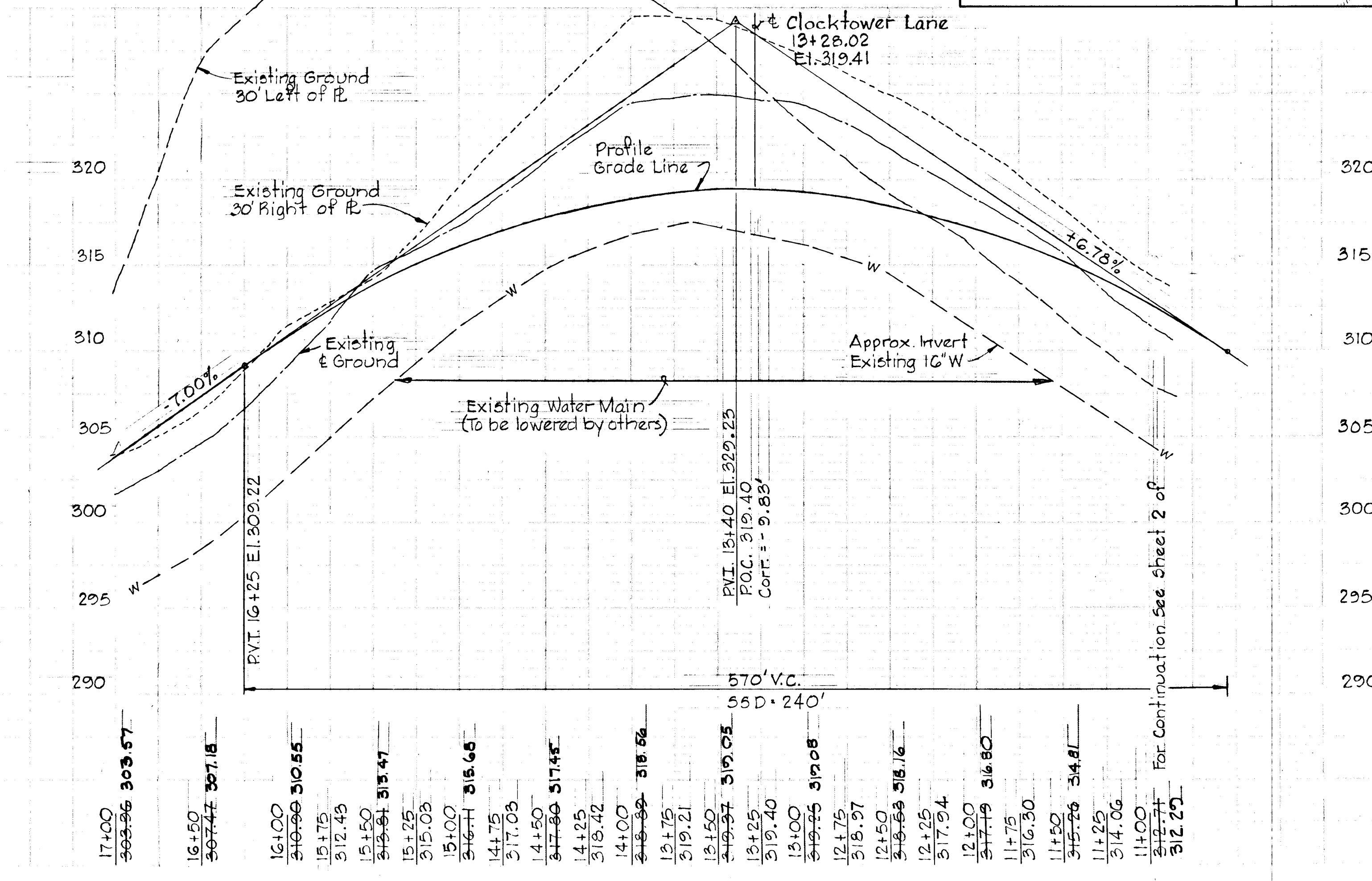
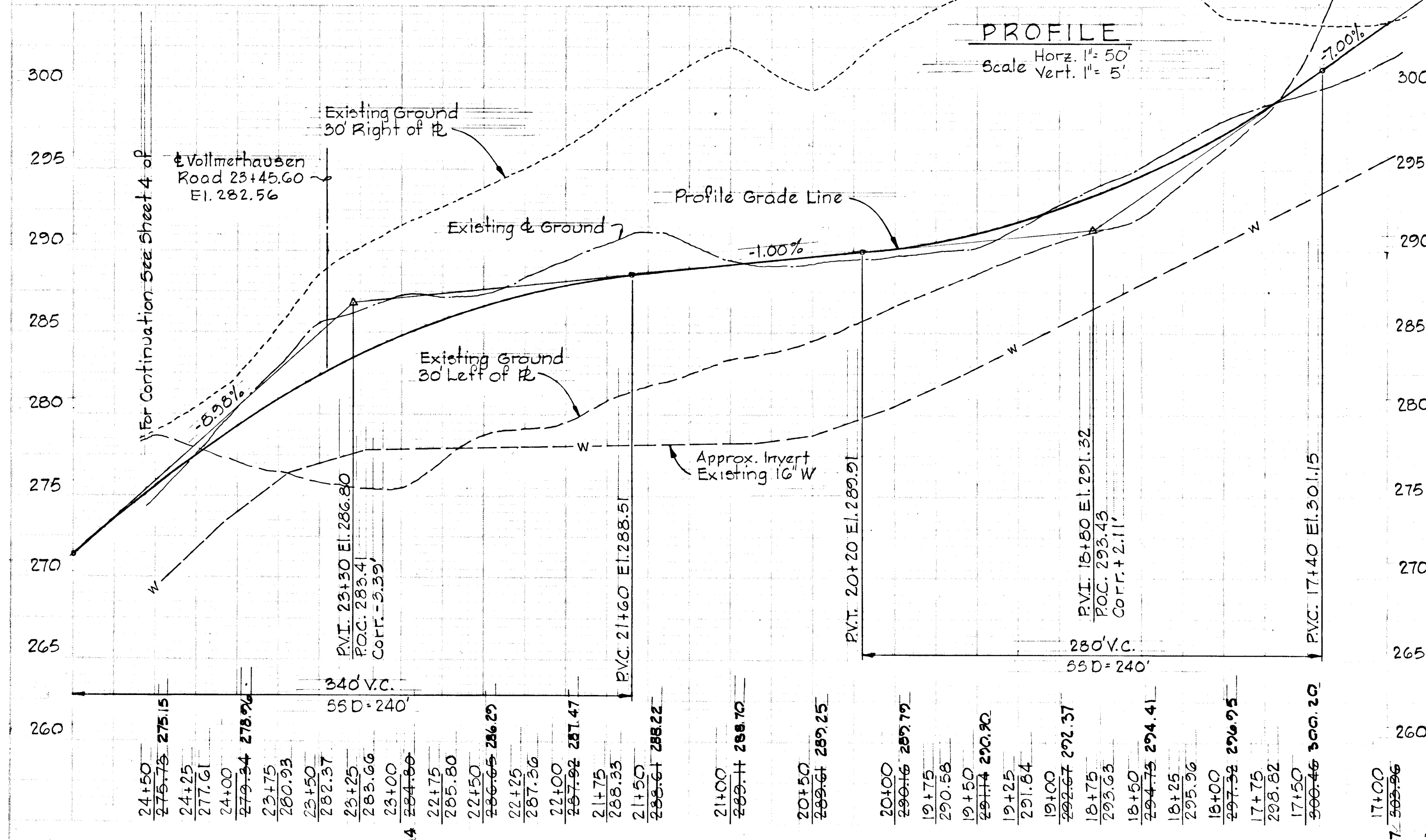
Note:
 For Storm Drain Profiles
 See Sheet 12 of 27

NOTE: PAVING WIDTH = 44'
 LENGTH OF ROAD = 1,350'
 NO SEWER M.H.'S IN ROAD R/W

PLAN
 Scale 1" = 50'

PROFILE

Scale Horiz. 1" = 50'
 Scale Vert. 1" = 5'



8/2/78	Clarify D.P.W. Comments
8/14/78	Removed Conc. Paving, added stone @ S-1
Rev. No.	Revision Description

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 PLAN AND PROFILE
 MURRAY HILL ROAD
 STA. 11+00 TO STA. 24+50

SCALE: AS SHOWN DATE: June 23, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 No. 1974

STORM DRAIN STRUCTURE SCHEDULE				
NO	TYPE	TOP ELEV	INVT ELEV	LOCATION
I-20	Std. A-5 Inlet, width=2.5'	240.70	234.55	€ Inlet Lt. € Sta. 28+93
I-21	Std. A-10 Inlet, width=2.5'	241.60	237.19	€ Inlet Rt. € Sta. 28+75
I-22	Std. A-5 Inlet, width=2.5'	271.53	266.46	€ Inlet 19.25' Rt. € Sta. 25+00
I-23	Std. Type 'D' Inlet	277.83	272.06	€ Inlet 65.00' Rt. € Sta. 25+00
MH-3	Std. Manhole	224.70	215.65	See Plan and Profile
MH-4	Std. Manhole	249.00	232.75	€ Manhole 35.00' Lt. € Sta. 29+00
MH-5	Type 'B' Manhole, See Det. Sht. 24	246.30	240.83	€ Manhole 23.00' Rt. € Sta. 27+93
S-4	Standard Box Section	214.77	See Plan and Profile	

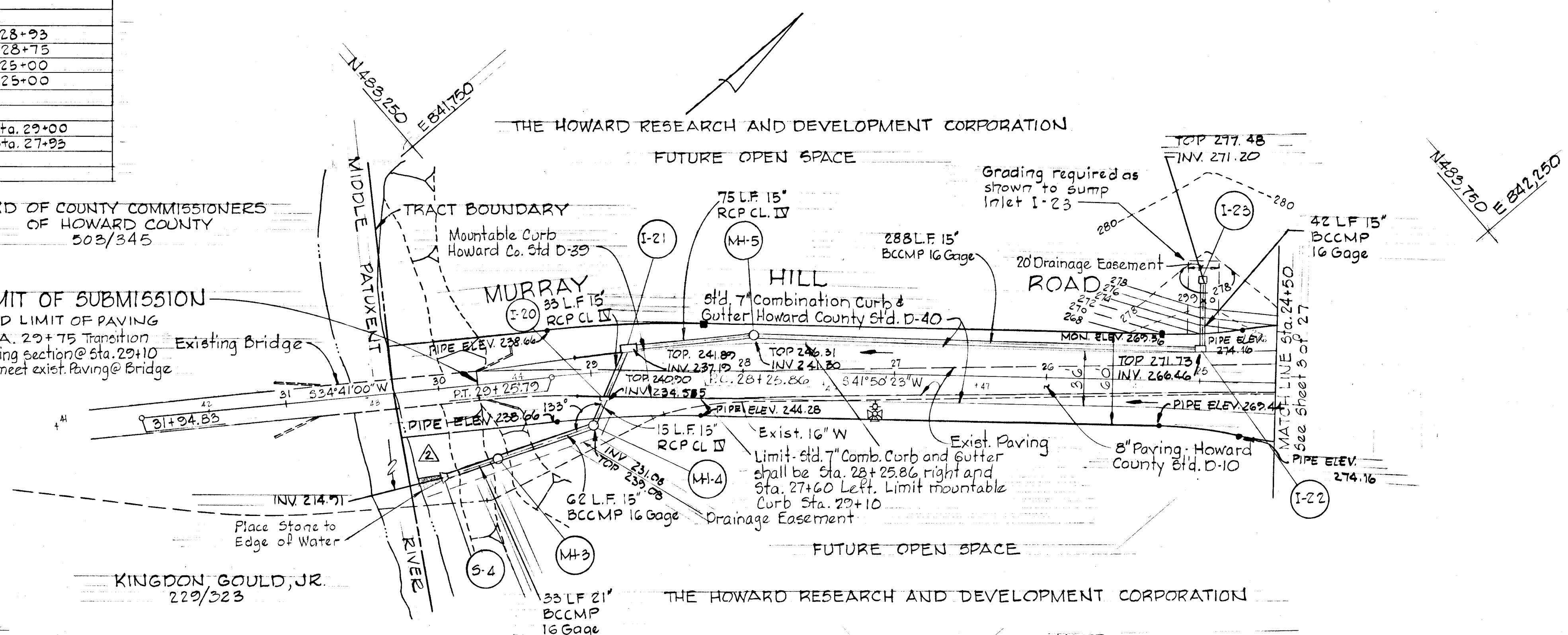
* - Inlet shall be constructed with pavement deflectors.

DEPARTMENT OF PUBLIC WORKS
W.D. Liberty 8-30-78
 CHIEF, BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
John W. Musselman / JTD 8-25-78
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CURVE DATA
 P.C. 28+25.86 to P.T. 29+25.79
 $\Delta = 07^{\circ}09'24''$ $Tan = 50.03'$
 $R = 800.00'$ $Chd = 99.86'$
 $Arc = 99.93'$ $Brg = S 35^{\circ}15'42''W$

BOARD OF COUNTY COMMISSIONERS
 OF HOWARD COUNTY
 503/345

**LIMIT OF SUBMISSION
 AND LIMIT OF PAVING**
 STA. 29+75 Transition
 Paving section @ Sta. 29+10
 to meet exist. Paving @ Bridge



Note:
 For Storm Drain Profile
 See Sheet 13 of 27

NOTE:
 PAVING WIDTH 36'
 LENGTH OF ROAD 525'
 NO SEWER MHS IN ROAD R/W

PLAN
 Scale: 1" = 50'

Rev. Date	Rev. No.	Revision Description
8/2/78	1	Clarify D.P.W. Comments
8/14/78	2	Changed shape of S-4 ditch

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

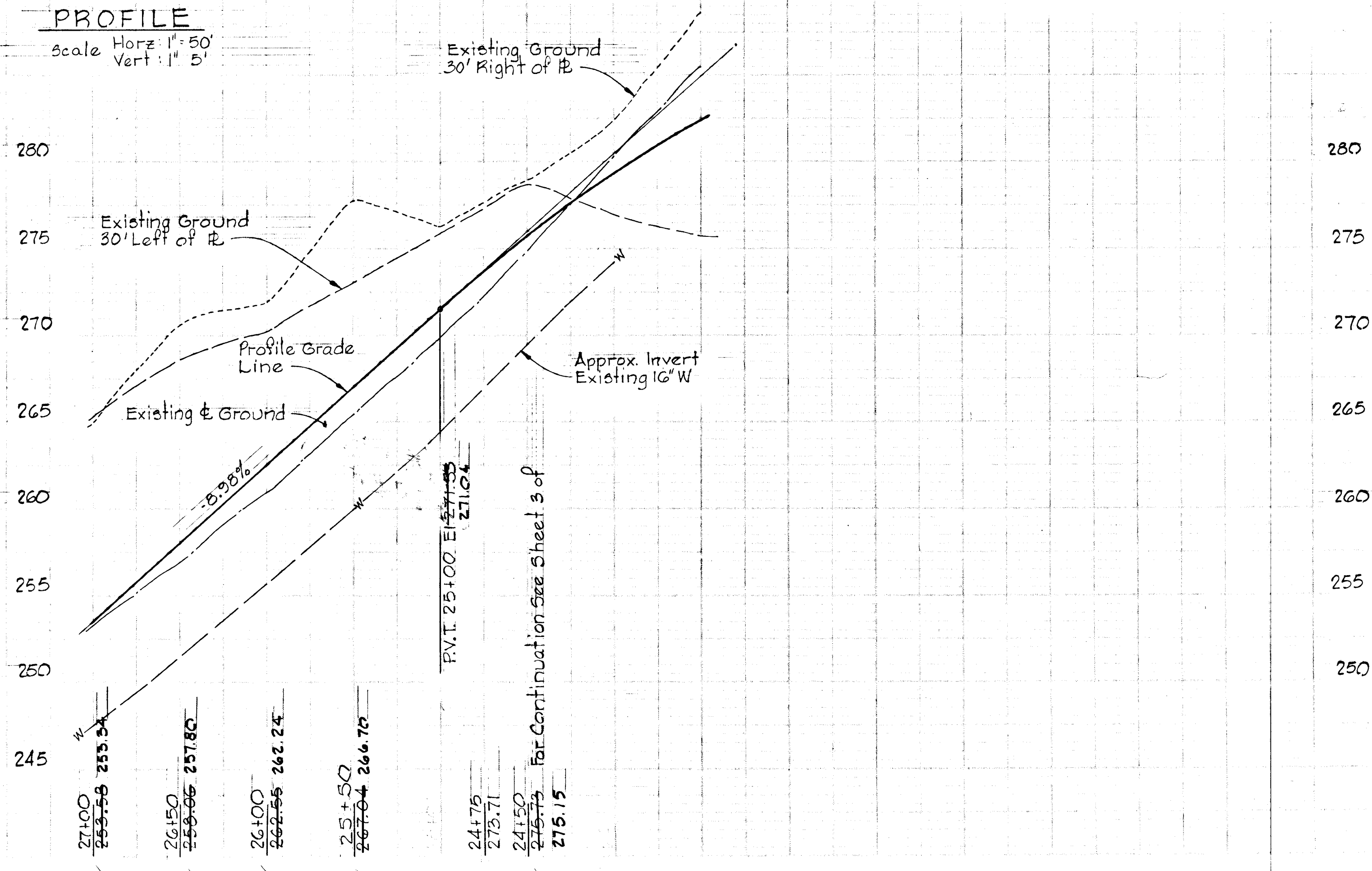
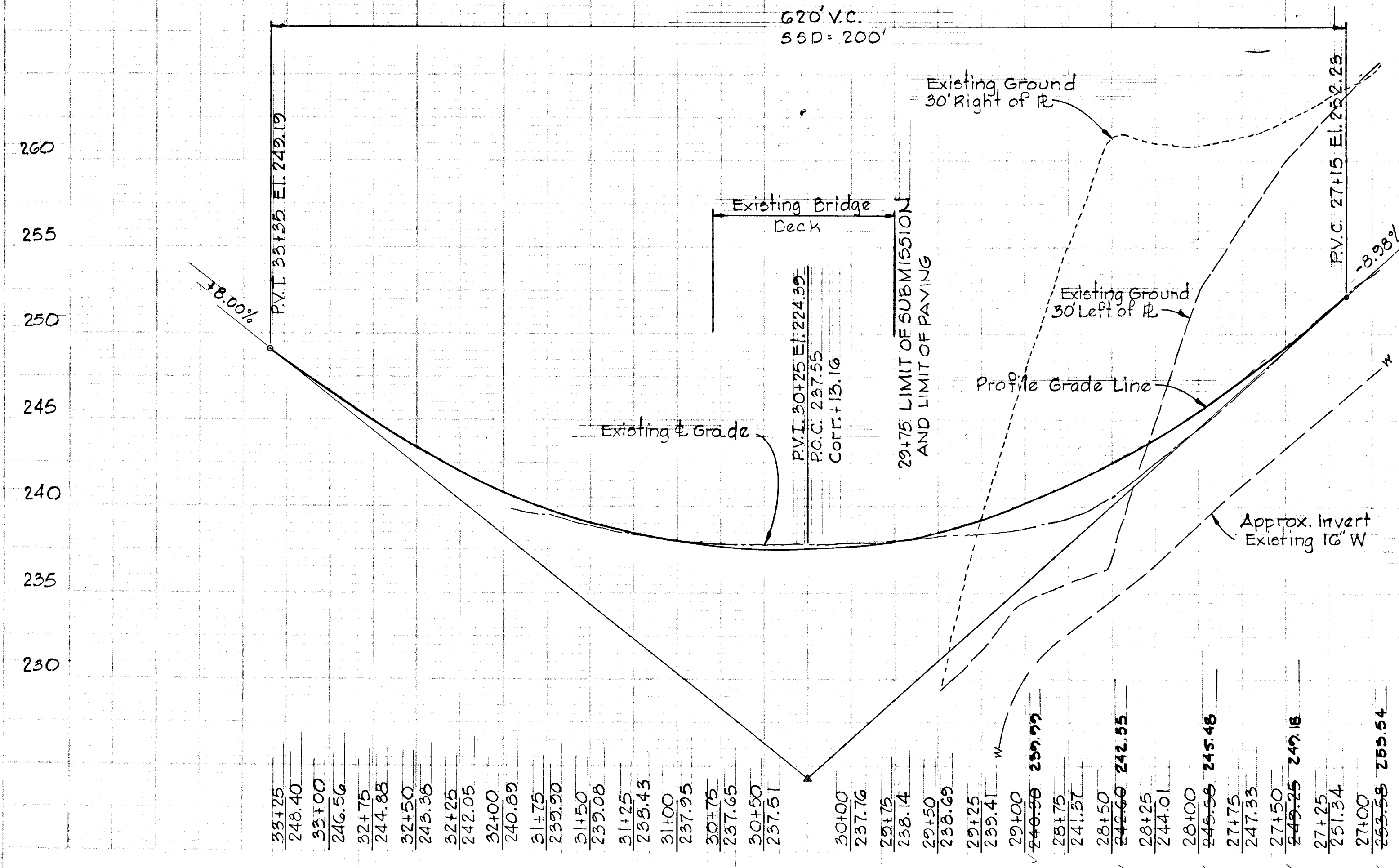
PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA I

PROJECT TITLE
 PLAN AND PROFILE
 MURRAY HILL ROAD
 STA. 24+50 TO STA. 29+75

SCALE: AS SHOWN DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

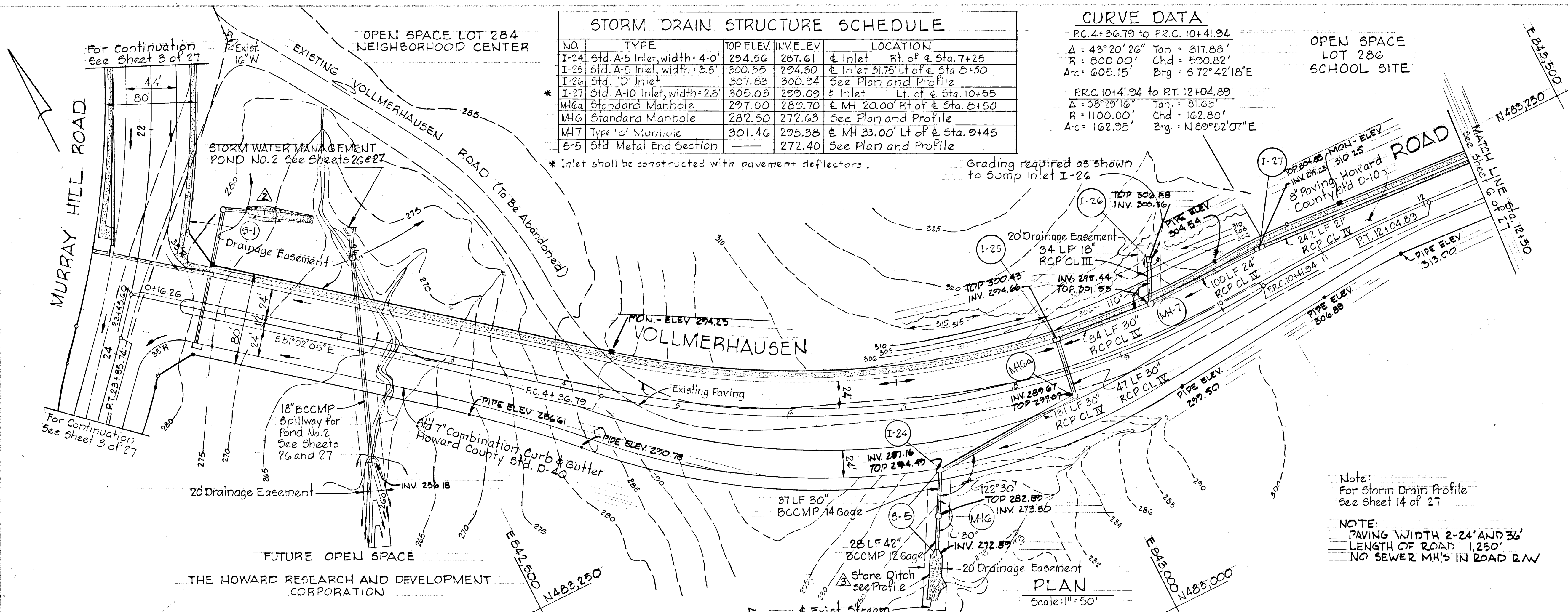


445
 86.3 - Ann

STORM DRAIN STRUCTURE SCHEDULE				
NO.	TYPE	TOP ELEV.	INV. ELEV.	LOCATION
I-24	Std. A-5 Inlet, width = 4'-0"	294.56	287.61	± Inlet Rt. of Sta. 7+25
I-23	Std. A-5 Inlet, width = 3'-5"	300.35	294.30	± Inlet 31.75' Lt. of Sta. 8+50
I-26	Std. 'D' Inlet	307.83	300.94	See Plan and Profile
I-27	Std. A-10 Inlet, width = 2'-5"	305.03	299.09	± Inlet Lt. of Sta. 10+55
MH6a	Standard Manhole	297.00	289.70	± MH 20.00' Rt. of Sta. 8+50
MH6	Standard Manhole	282.50	272.63	See Plan and Profile
MH7	Type 'B' Manhole	301.46	295.38	± MH 33.00' Lt. of Sta. 9+45
6-5	Std. Metal End Section		272.40	See Plan and Profile

CURVE DATA
 P.C. 4+36.79 to P.R.C. 10+41.94
 $\Delta = 43^\circ 20' 26''$ Tan = 317.88'
 $R = 800.00'$ Chd = 590.82'
 $Arc = 605.15'$ Brg = $S 72^\circ 42' 18'' E$
 P.R.C. 10+41.94 to P.T. 12+04.89
 $\Delta = 08^\circ 29' 16''$ Tan = 81.63'
 $R = 1100.00'$ Chd = 162.80'
 $Arc = 162.95'$ Brg = $N 89^\circ 52' 07'' E$

OPEN SPACE
 LOT 286
 SCHOOL SITE



Rev. Date	Rev. No.	Revision Description
8/2/78	1	Clarify D.P.W. Comments
8/14/78	2	Removed Conc. Paving, added stone @ S-1
8/14/78	3	Removed Conc. Paving, added stone @ S-5

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

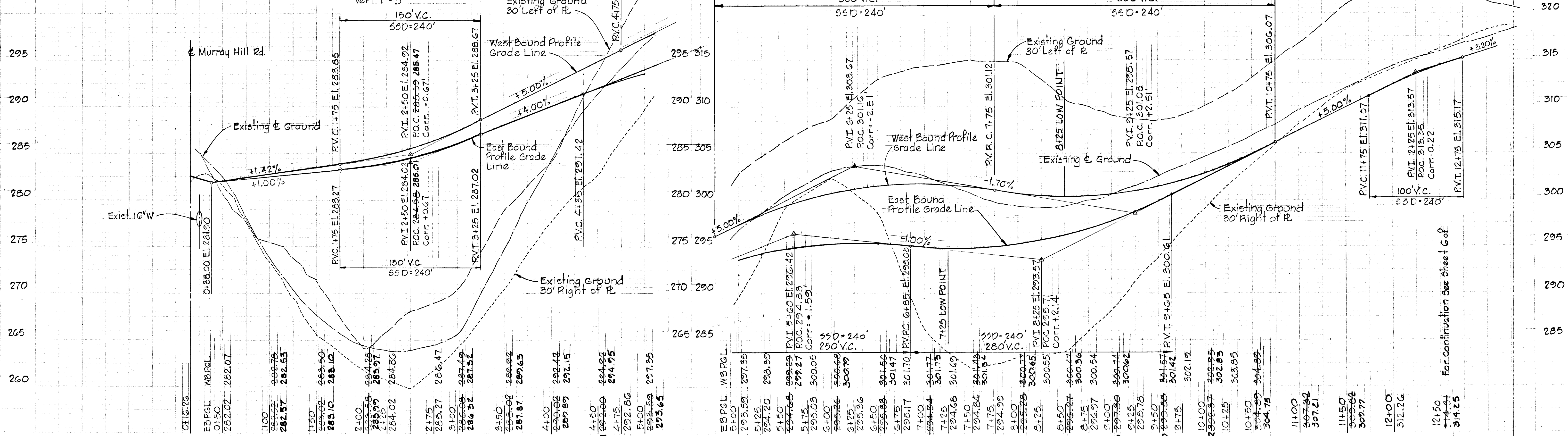
PROJECT TITLE
 PLAN AND PROFILE
 VOLLMERHAUSEN ROAD
 STA. 0+16.26 TO STA. 12+50

SCALE: AS SHOWN DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

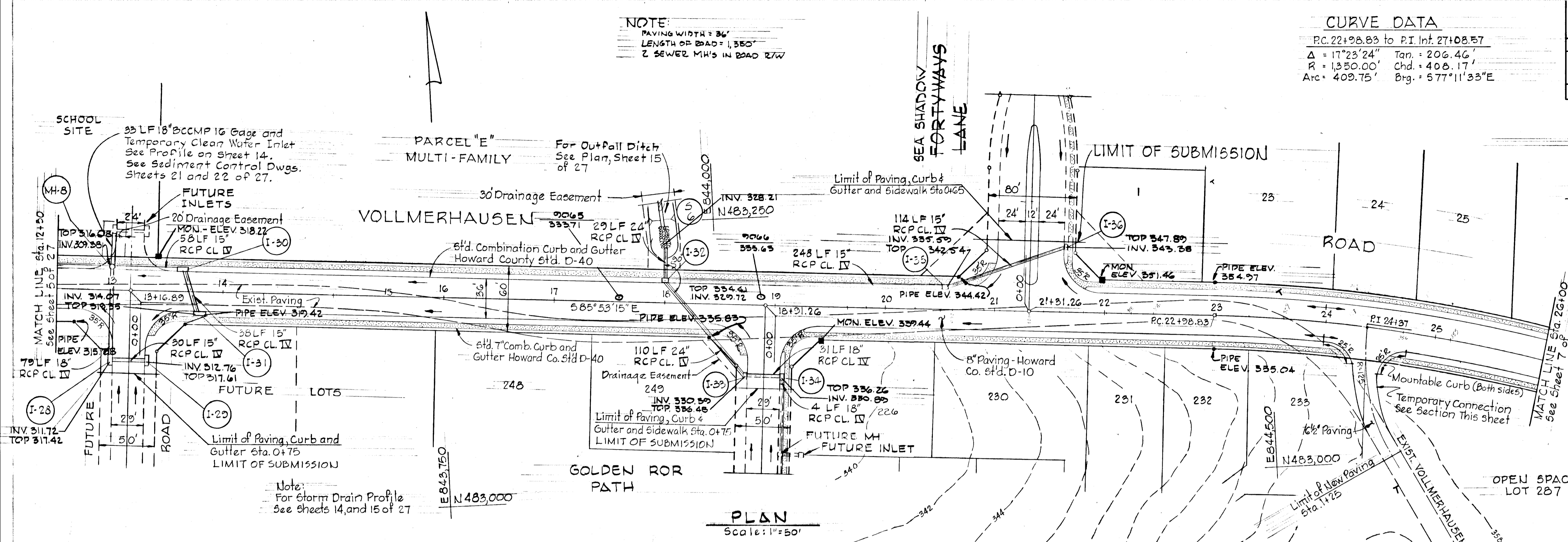
PROFILE
 Scale: Horz. 1" = 50'
 Vert. 1" = 5'



4445
 10.5.01

CURVE DATA
 PC 22+98.83 to PI Int. 27+08.57
 $\Delta = 17^{\circ}23'24''$ Tan. = 206.46'
 $R = 1,350.00'$ Chd. = 408.17'
 Arc = 409.75' Brg. = $577^{\circ}11'33''E$

NOTE:
 PAVING WIDTH = 36'
 LENGTH OF ROAD = 1,350'
 2 SEWER M.H.'S IN ROAD R/W



SECTION - TEMPORARY CONNECTION
 No Scale

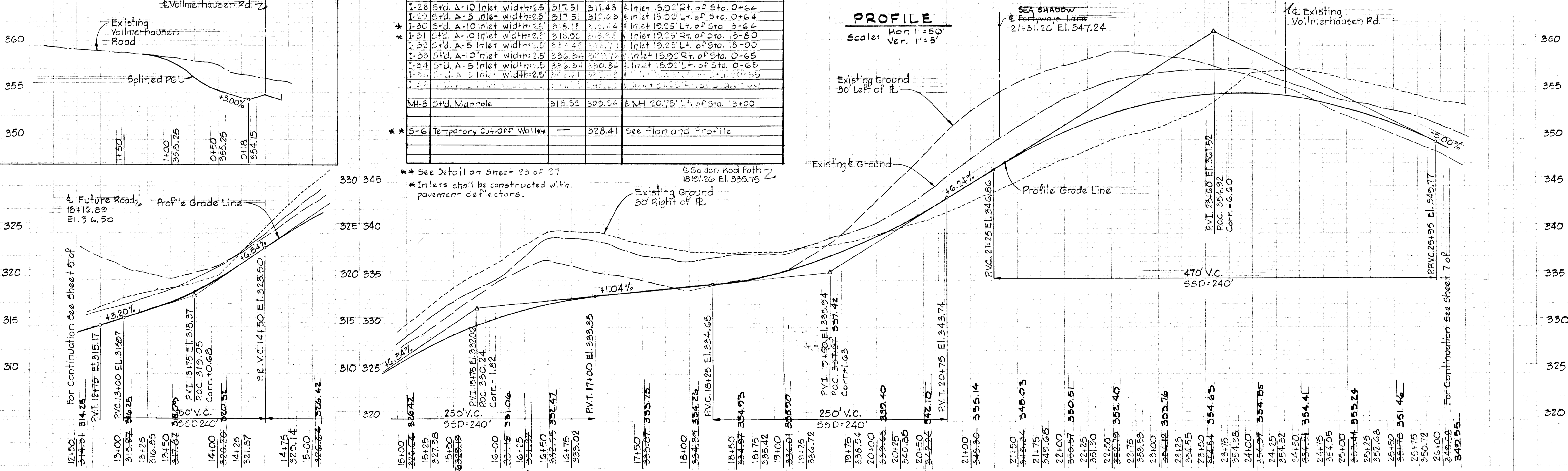
8/2/78	△	Clarify D.P.W. Comments
Rev. Date	Rev. No.	Revision Description
COLUMBIA		
6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KINGS CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE PLAN AND PROFILE VOLLMERHAUSEN ROAD STA. 12+50 TO STA. 26+00		
SCALE: AS SHOWN		DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOPELEV.	INVELEV.	LOCATION
I-28	Std. A-10 Inlet width=2.5	317.51	311.48	Inlet 15.02' Rt. of Sta. 0+64
I-29	Std. A-5 Inlet width=2.5	317.51	316.63	Inlet 15.02' Lt. of Sta. 0+64
I-30	Std. A-10 Inlet width=2.5	318.17	316.44	Inlet 19.25' Lt. of Sta. 13+64
I-31	Std. A-10 Inlet width=2.5	318.90	318.90	Inlet 19.25' Rt. of Sta. 13+80
I-32	Std. A-5 Inlet width=2.5	324.42	321.71	Inlet 19.25' Lt. of Sta. 18+00
I-33	Std. A-10 Inlet width=2.5	326.84	322.72	Inlet 15.02' Rt. of Sta. 0+65
I-34	Std. A-5 Inlet width=2.5	326.84	320.84	Inlet 15.02' Lt. of Sta. 0+65
MH-8	Std. Manhole	315.52	309.54	M.H. 20.75' Lt. of Sta. 13+00
S-6	Temporary Cut-off Wall		328.41	See Plan and Profile

* See Detail on sheet 25 of 27
 * Inlets shall be constructed with pavement deflectors.

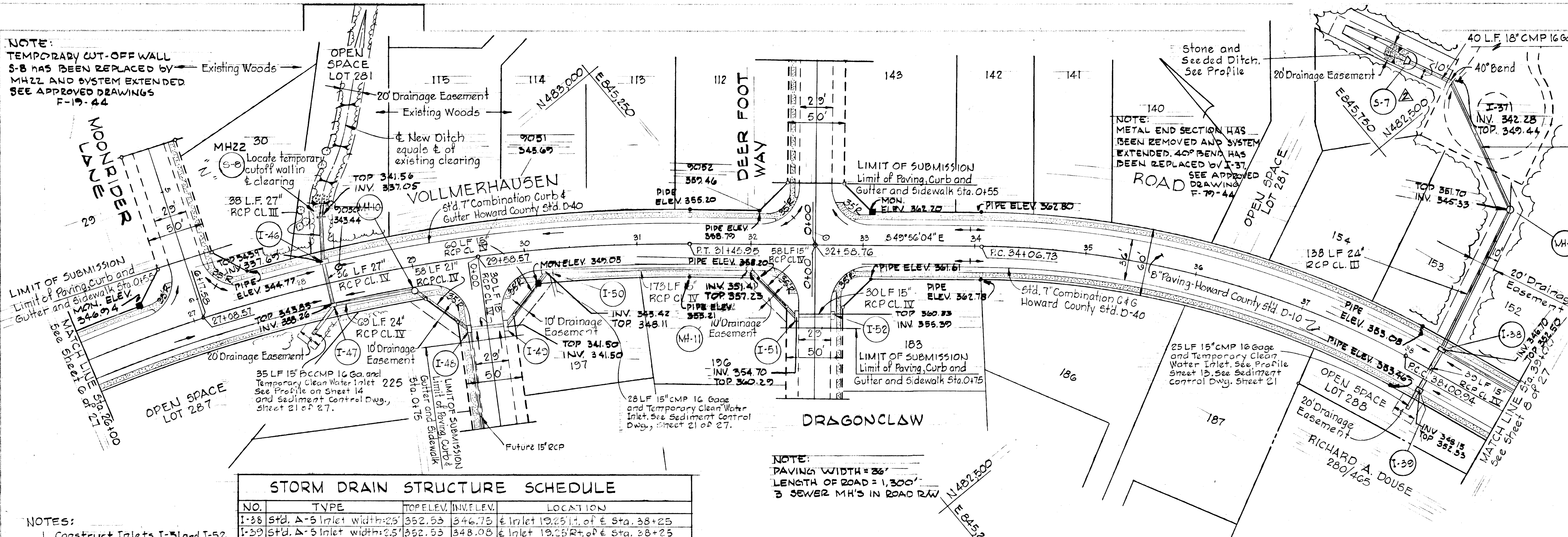
PROFILE
 Scale: Hor. 1"=50'
 Ver. 1"=5'



4445
 50.3-01

NOTE:
TEMPORARY CUT-OFF WALL
S-B HAS BEEN REPLACED BY
MH22 AND SYSTEM EXTENDED
SEE APPROVED DRAWINGS
F-19-44

DEPARTMENT OF PUBLIC WORKS
W.O. Fallick 8-30-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Musselman / J.W. 8-25-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



Note:
For Storm Drain Profiles
See Sheet 13 and 14 of 27

Rev. Date	Rev. No.	Revision Description
8/2/78	1	Clarify D.P.W. Comments
8/14/78	2	Changed shape of ditch @ S-7
COLUMBIA		
6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KINGS CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE PLAN AND PROFILE VOLLMERHAUSEN ROAD STA. 26+00 TO STA. 39+00		
SCALE: AS SHOWN DATE: June 22, 1978		
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		

NO.	TYPE	TOP ELEV.	INV. ELEV.	LOCATION
I-38	Std. A-5 Inlet width: 25'	352.53	346.73	€ Inlet 19.25' Lt. of € Sta. 38+25
I-39	Std. A-5 Inlet width: 25'	352.53	348.03	€ Inlet 19.25' Rt. of € Sta. 38+25
MH-9	Standard Manhole	352.00	344.91	See Plan and Profile
S-7	Standard Metal End Section	-	344.92	See Plan and Profile
I-40	Std. A-5 Inlet width: 25'	344.00	337.76	€ Inlet 19.25' Lt. of € Sta. 28+25
I-47	Std. A-5 Inlet width: 25'	344.00	338.26	€ Inlet 19.25' Rt. of € Sta. 28+25
I-48	Std. A-5 Inlet width: 25'	346.91	340.36	€ Inlet 15.92' Lt. of € Sta. 0+63
I-49	Std. A-10 Inlet width: 25'	346.94	341.57	€ Inlet 15.92' Lt. of € Sta. 0+63
I-50	Std. A-10 Inlet width: 25'	348.16	343.65	€ Inlet 19.25' Rt. of € Sta. 30+18
I-51	Std. A-10 Inlet width: 25'	360.37	354.66	€ Inlet 15.92' Rt. of € Sta. 0+63
I-52	Std. A-5 Inlet width: 25'	360.37	355.39	€ Inlet 15.92' Lt. of € Sta. 0+63
MH-10	Type 'B' Manhole	344.76	339.39	€ Manhole 21.00' Rt. of € Sta. 28+98
MH-11	Standard Manhole	357.08	351.41	€ Manhole 21.00' Rt. of € Sta. 31+98
S-B	Temporary Cut-off wall **	-	337.44	See Plan and Profile

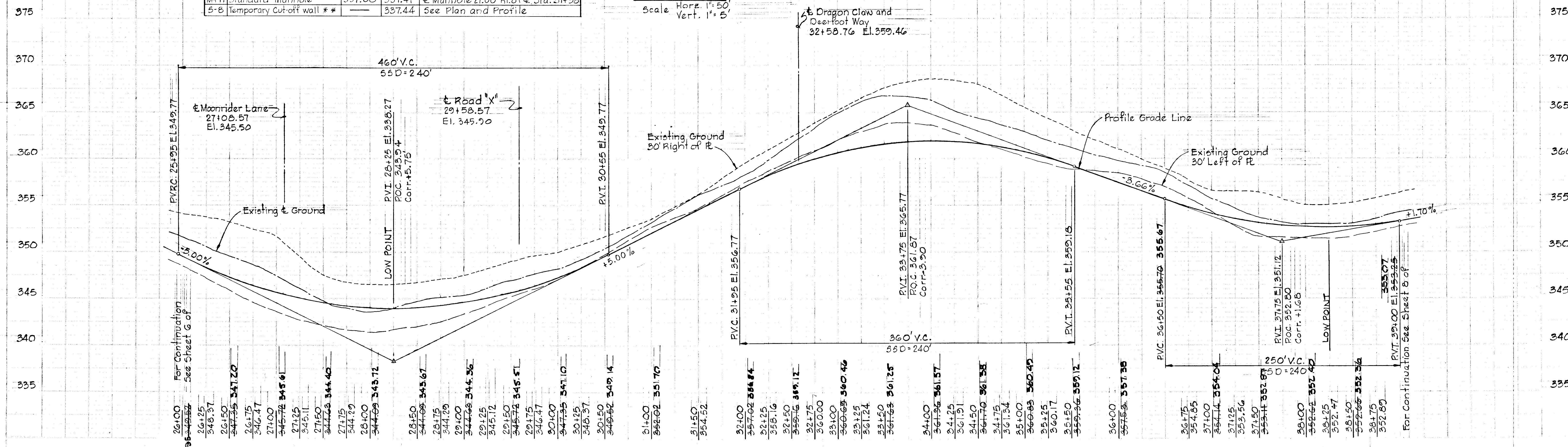
NOTES:
1. Construct Inlets I-51 and I-52 with Pavement Deflectors.
* See Detail on Sheet 24.
** See Detail on Sheet 23.

PLAN
Scale: 1"=50'

CURVE DATA

PI. 27+08.57 to PI. 29+58.57	PI. 29+58.57 to PI. 31+45.95	PC. 34+06.73 to P.C. 38+00.94	P.C. 38+00.94 to PI. 40+63.40
$\Delta = 10^{\circ}36'37''$ Tan: 125.36'	$\Delta = 07^{\circ}57'09''$ Tan: 93.84'	$\Delta = 28^{\circ}14'00''$ Tan: 201.19'	$\Delta = 08^{\circ}23'17''$ Tan: 131.27'
R = 1350.00' Chd: 249.64'	R = 1350.00' Chd: 187.23'	R = 800.00' Chd: 390.24'	R = 4438.41' Chd: 262.42'
Arc: 250.00' Brg: 563^{\circ}11'32"E	Arc: 187.38' Brg: 553^{\circ}54'39"E	Arc: 394.21' Brg: 635^{\circ}49'04"E	Arc: 262.46' Brg: 520^{\circ}00'26"E

PROFILE
Scale: Horiz. 1"=50', Vert. 1"=5'



Note:
 For Storm Drain Profiles see
 sheets 12, 13 & 14 of 27

Rev. No.	Rev. Date	Clarify D.P.W. Comments	Revision Description
8/2/78			

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

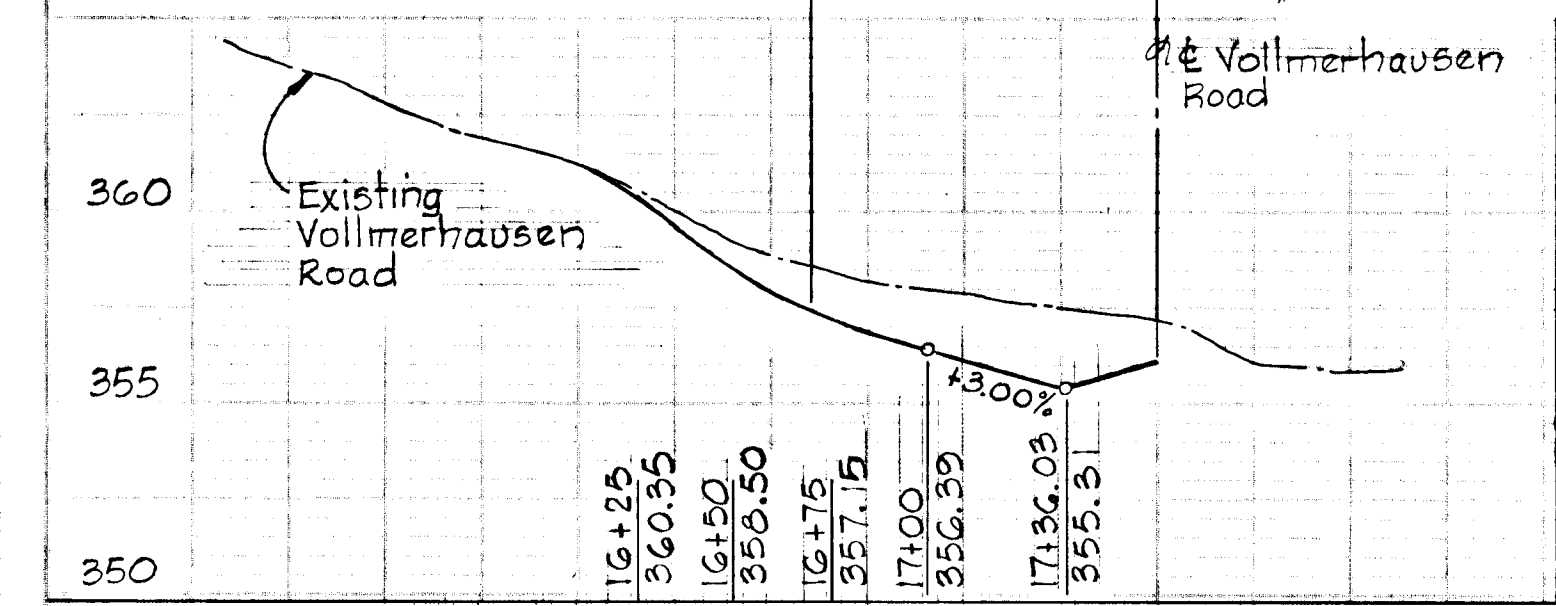
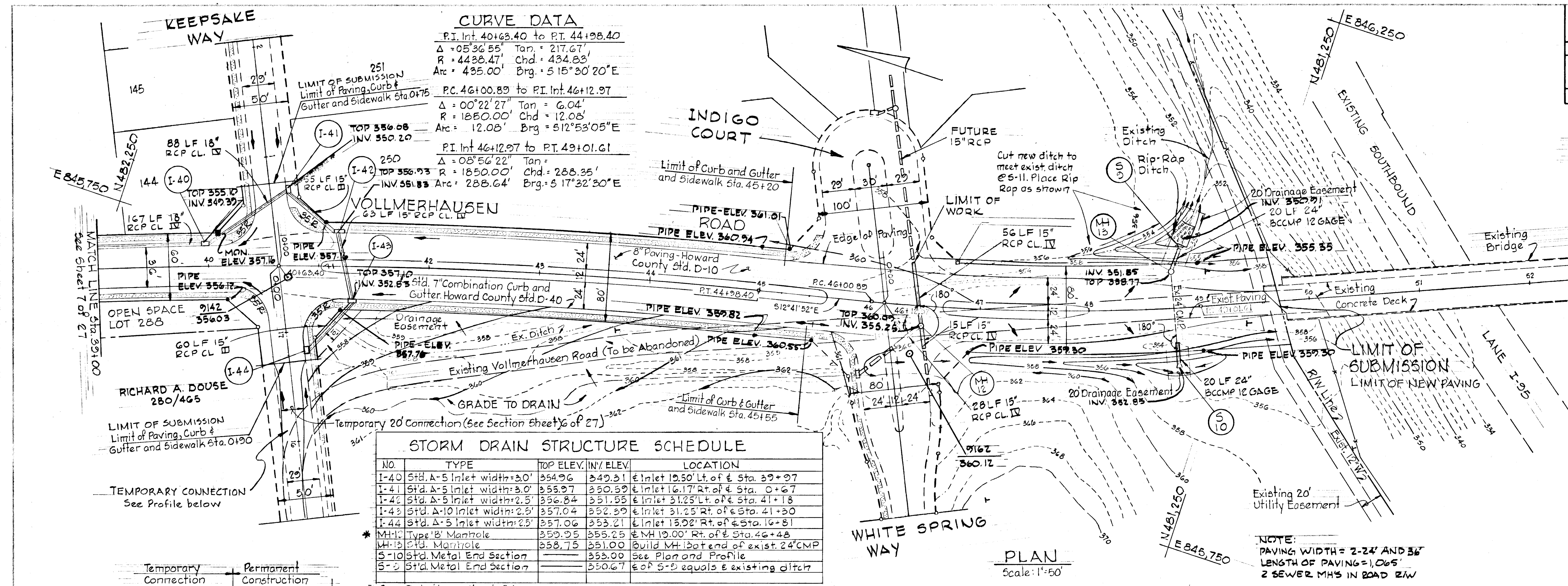
PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 PLAN AND PROFILE
 VOLLMERHAUSEN ROAD
 STA. 39+00 TO STA. 50+00

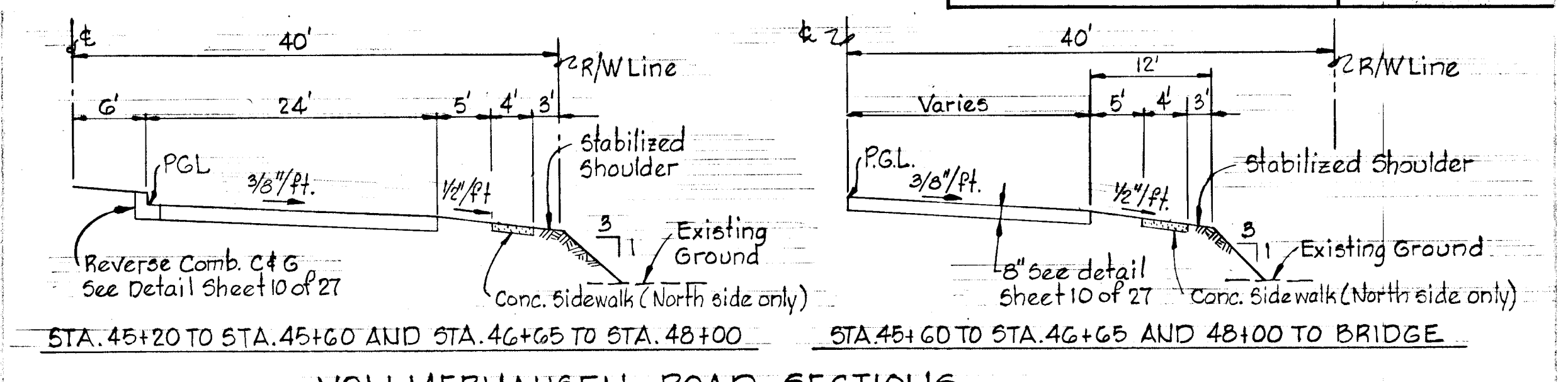
SCALE: AS SHOWN DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

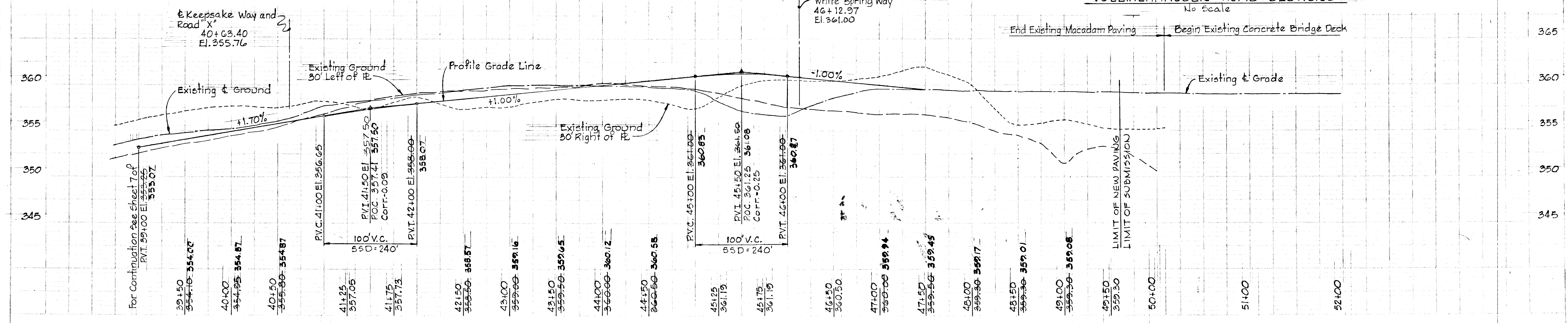
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



PROFILE
 Scale: Horz. 1"=50'
 Vert. 1"=5'

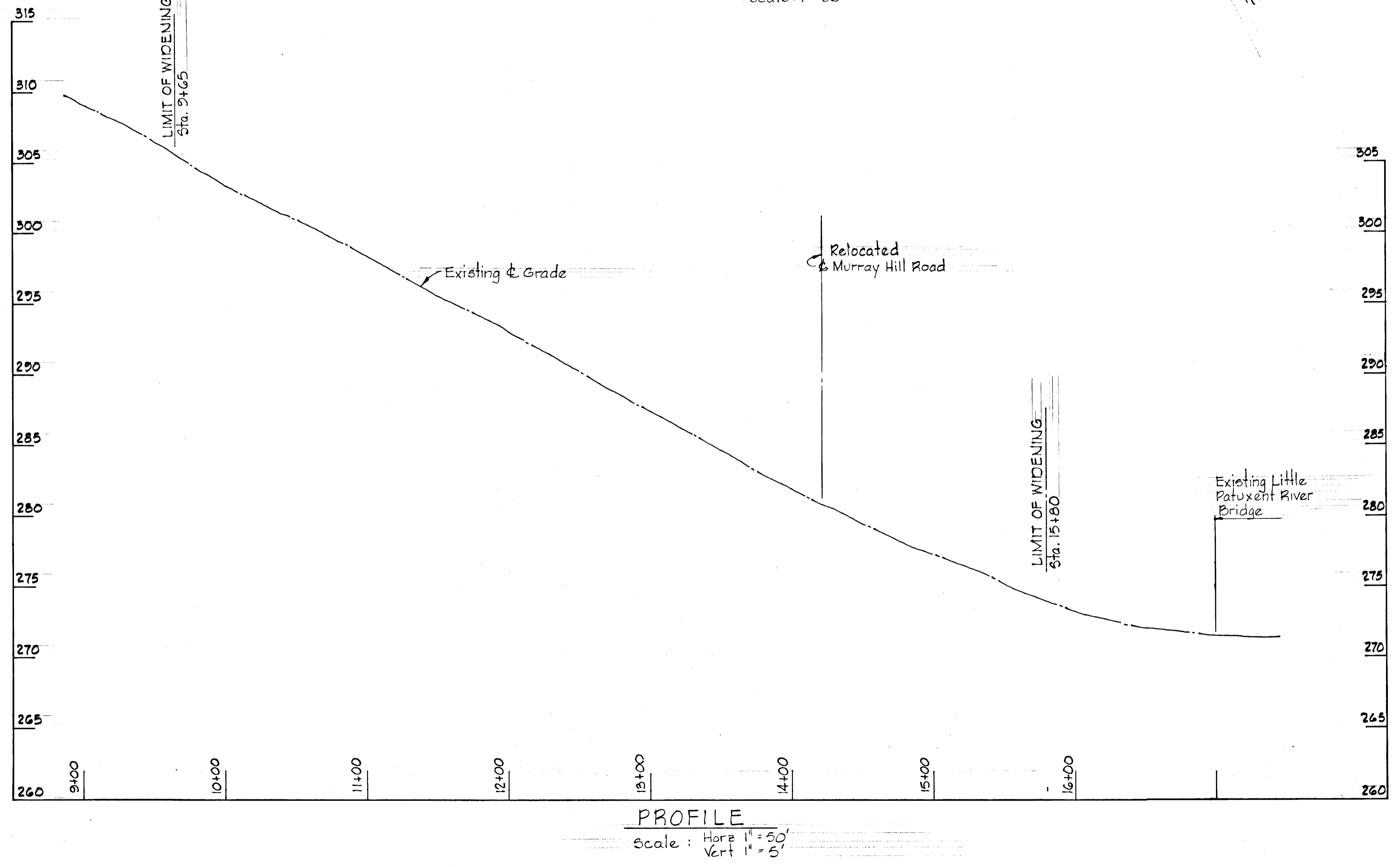
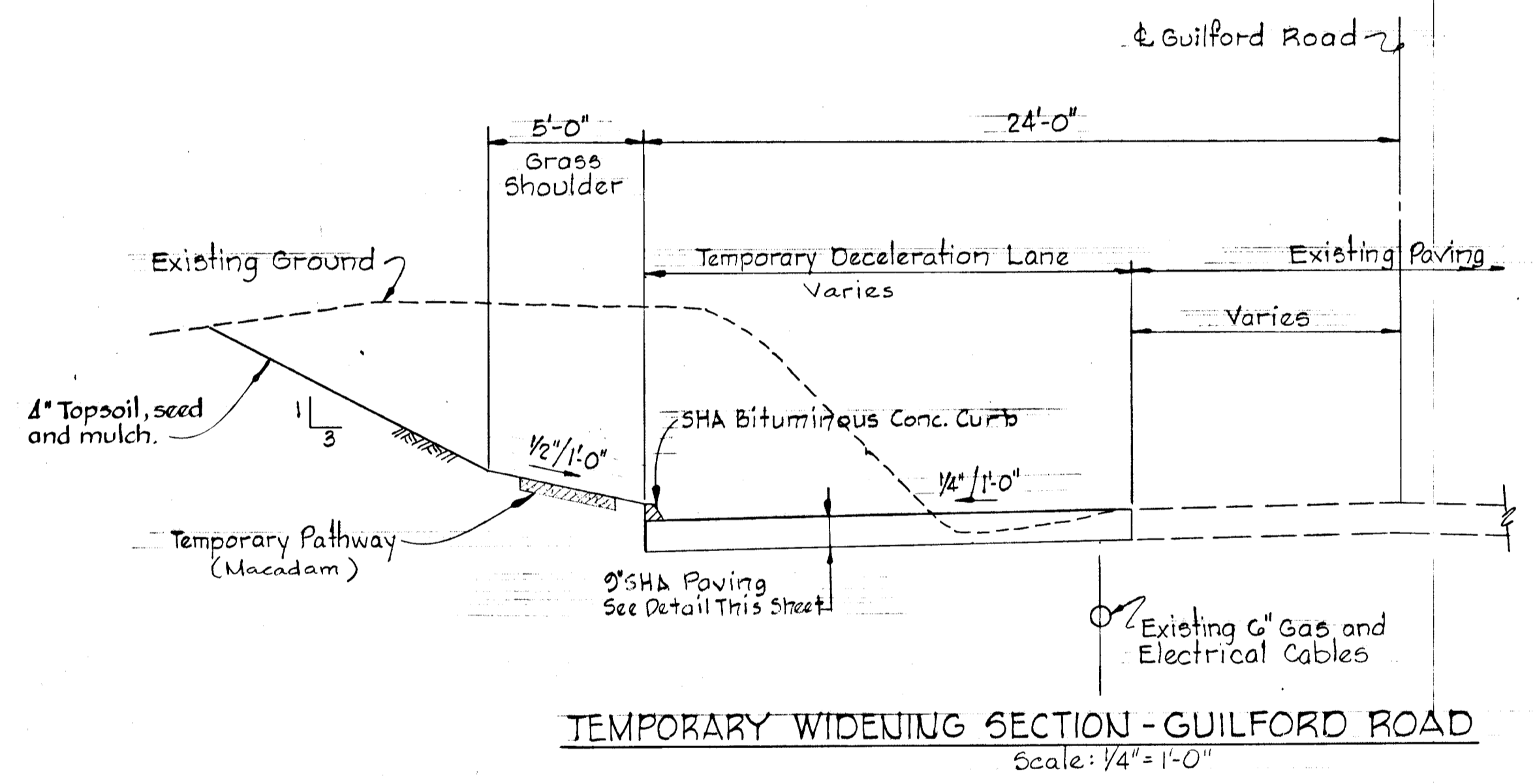
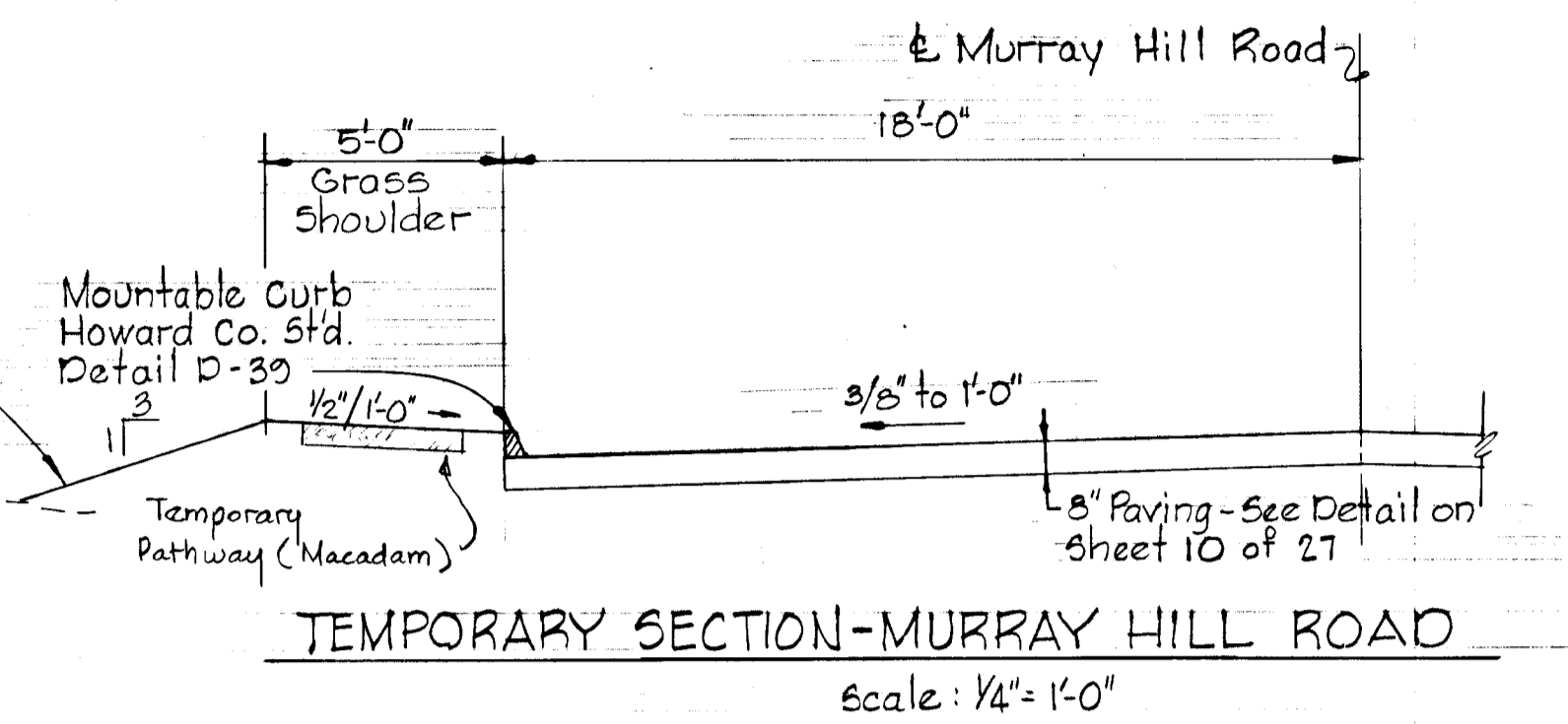
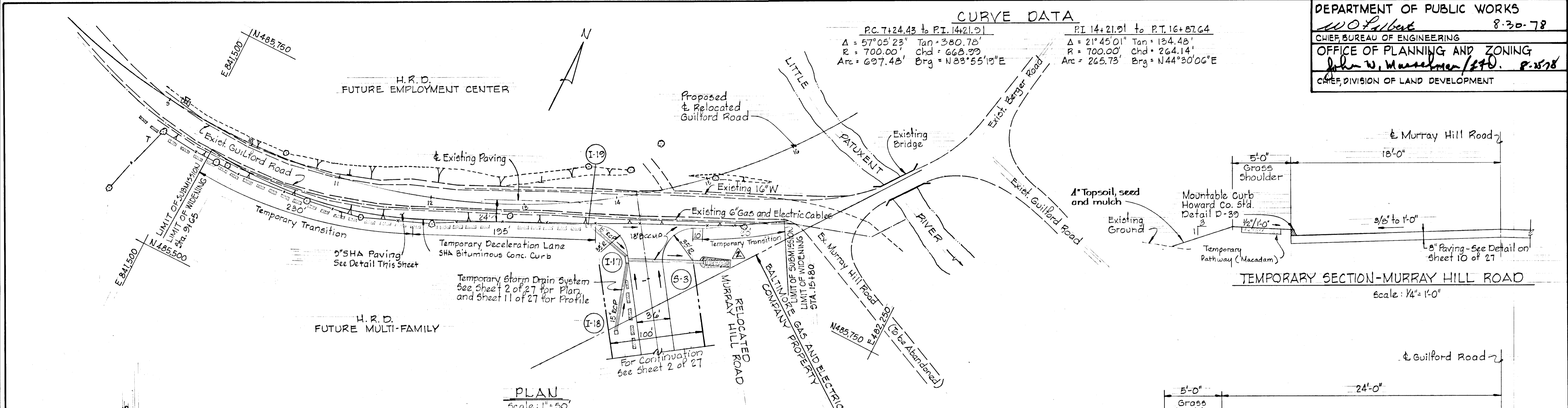


VOLLMERHAUSEN ROAD SECTIONS
 No Scale



CURVE DATA

P.C. 7+24.43 to P.T. 14+21.01	P.I. 14+21.01 to P.T. 16+87.64
$\Delta = 57^{\circ}05'23''$ Tan = 380.75'	$\Delta = 21^{\circ}45'01''$ Tan = 134.48'
R = 700.00' Chd = 668.33'	R = 700.00' Chd = 264.14'
Arc = 697.48' Brg = N83°55'13"E	Arc = 265.73' Brg = N44°30'06"E



5"	5"	5"	Bituminous Concrete Surface
5"	5"	5"	Bituminous Concrete Base (2 Courses)

SHA PAVING SECTION
No Scale

8/2/78	Δ	Clarify D.P.W. Comments
8/14/78	Δ	Change stripe & length of ditch @ S-3
Rev. Date	Rev. No.	Revision Description

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP

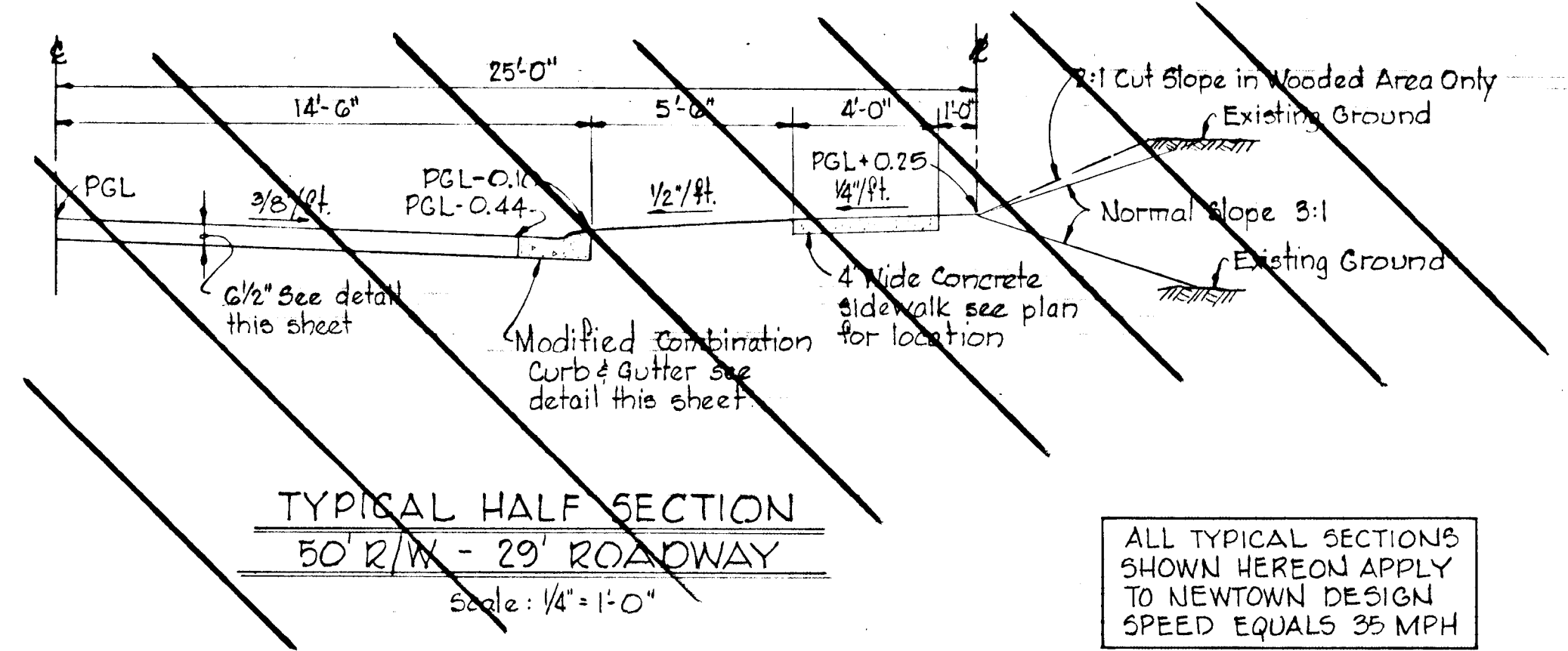
PROJECT AREA
VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 PLAN, PROFILE AND SECTIONS
 GUILFORD ROAD AND MURRAY HILL ROAD
 TEMPORARY INTERSECTION

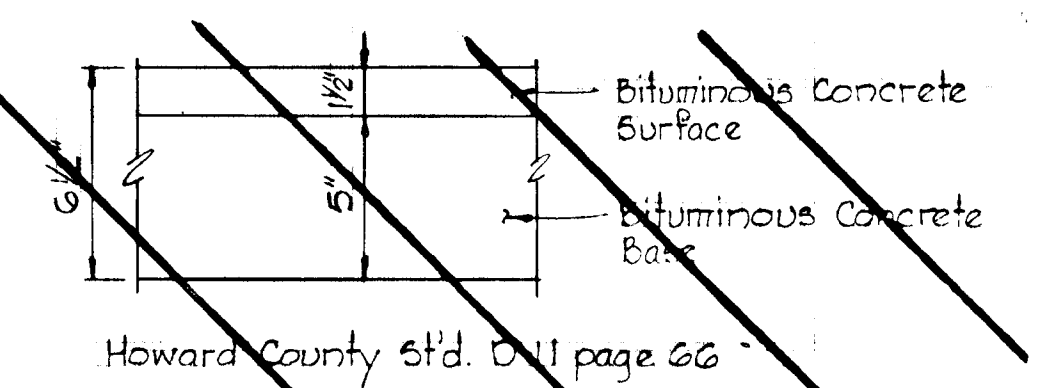
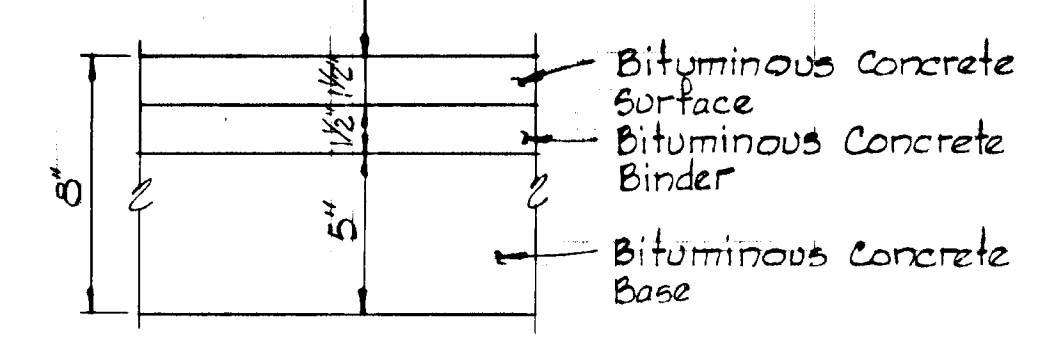
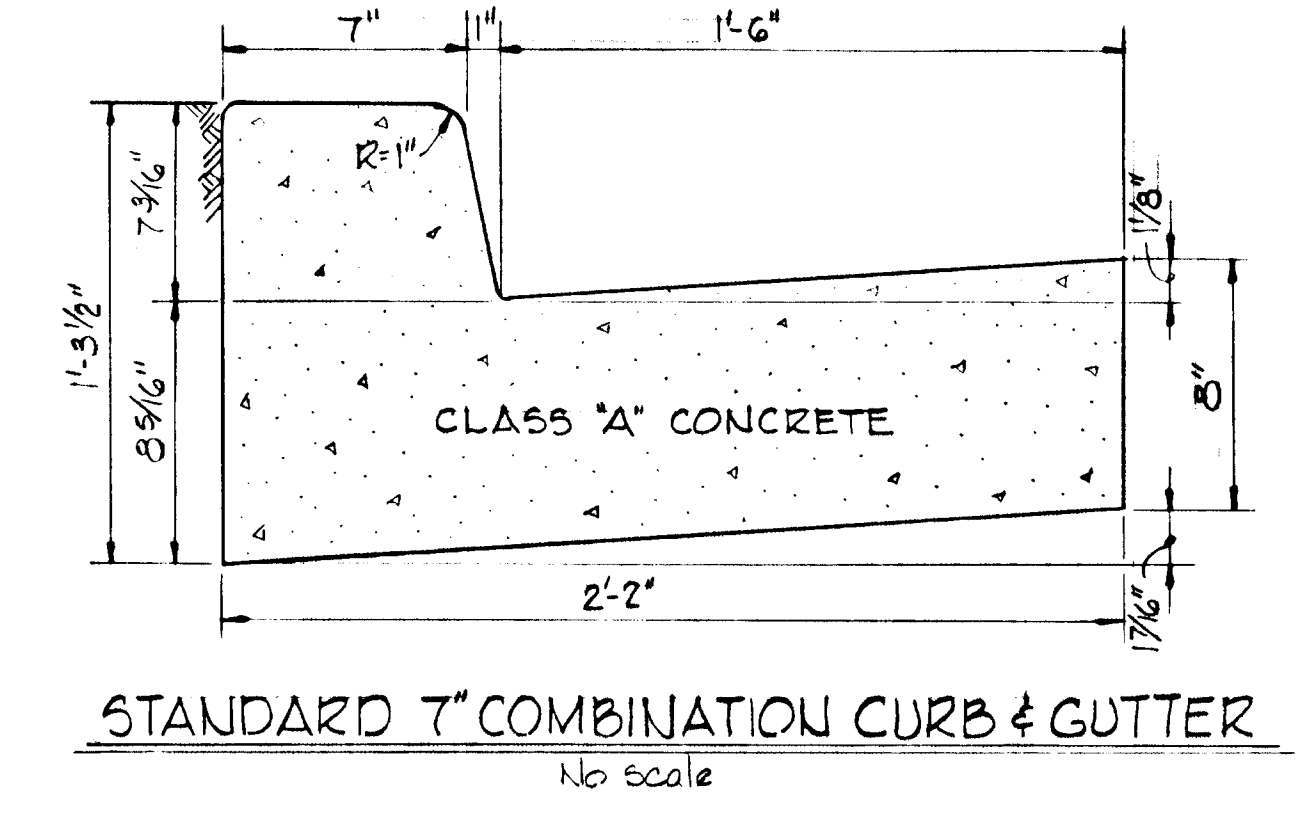
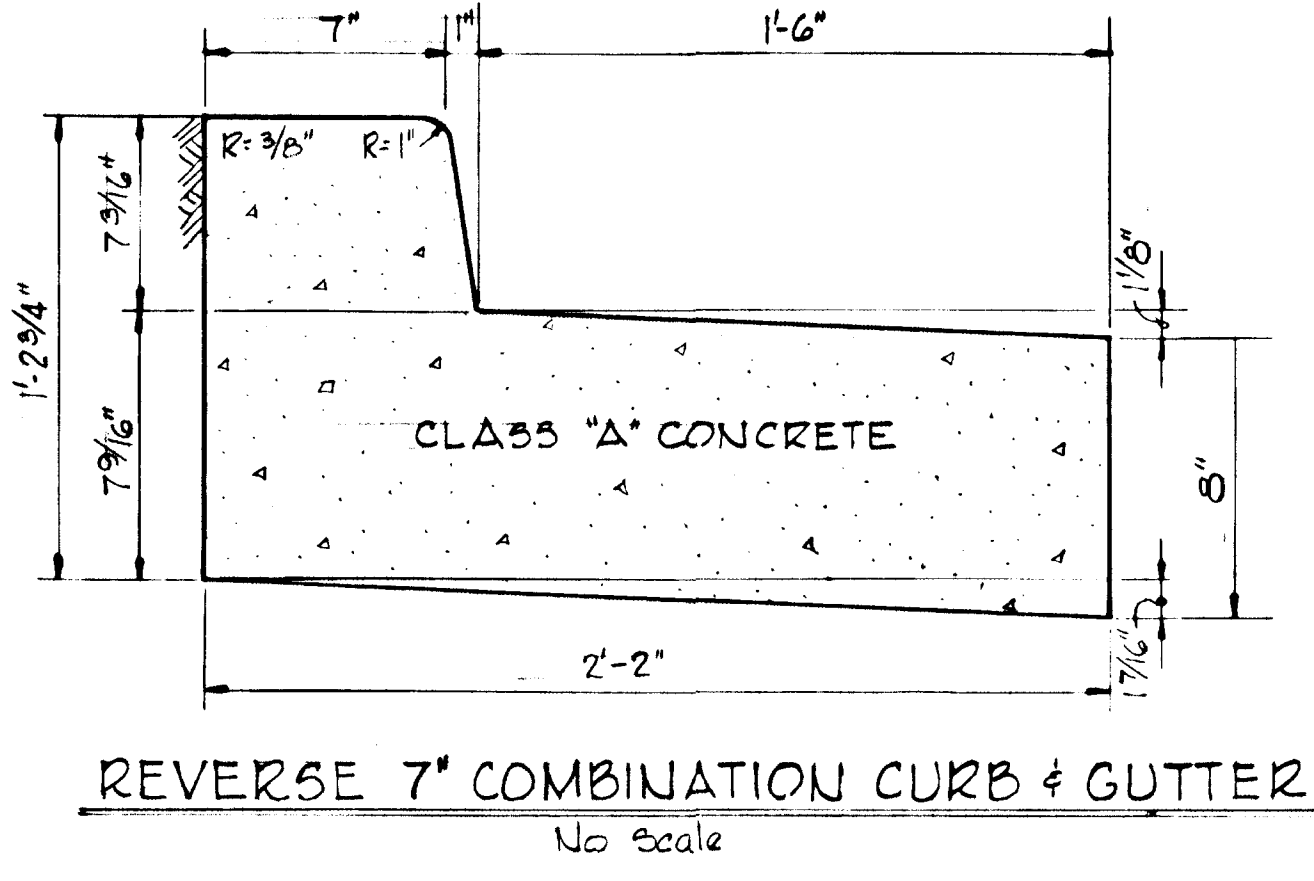
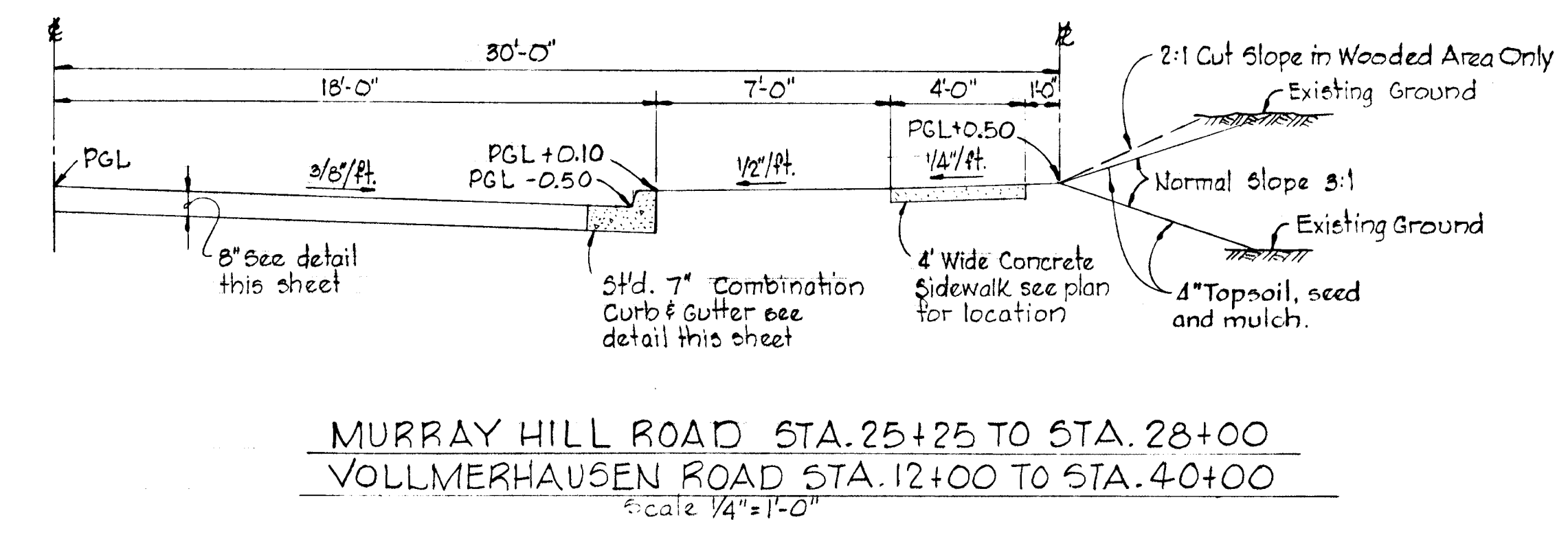
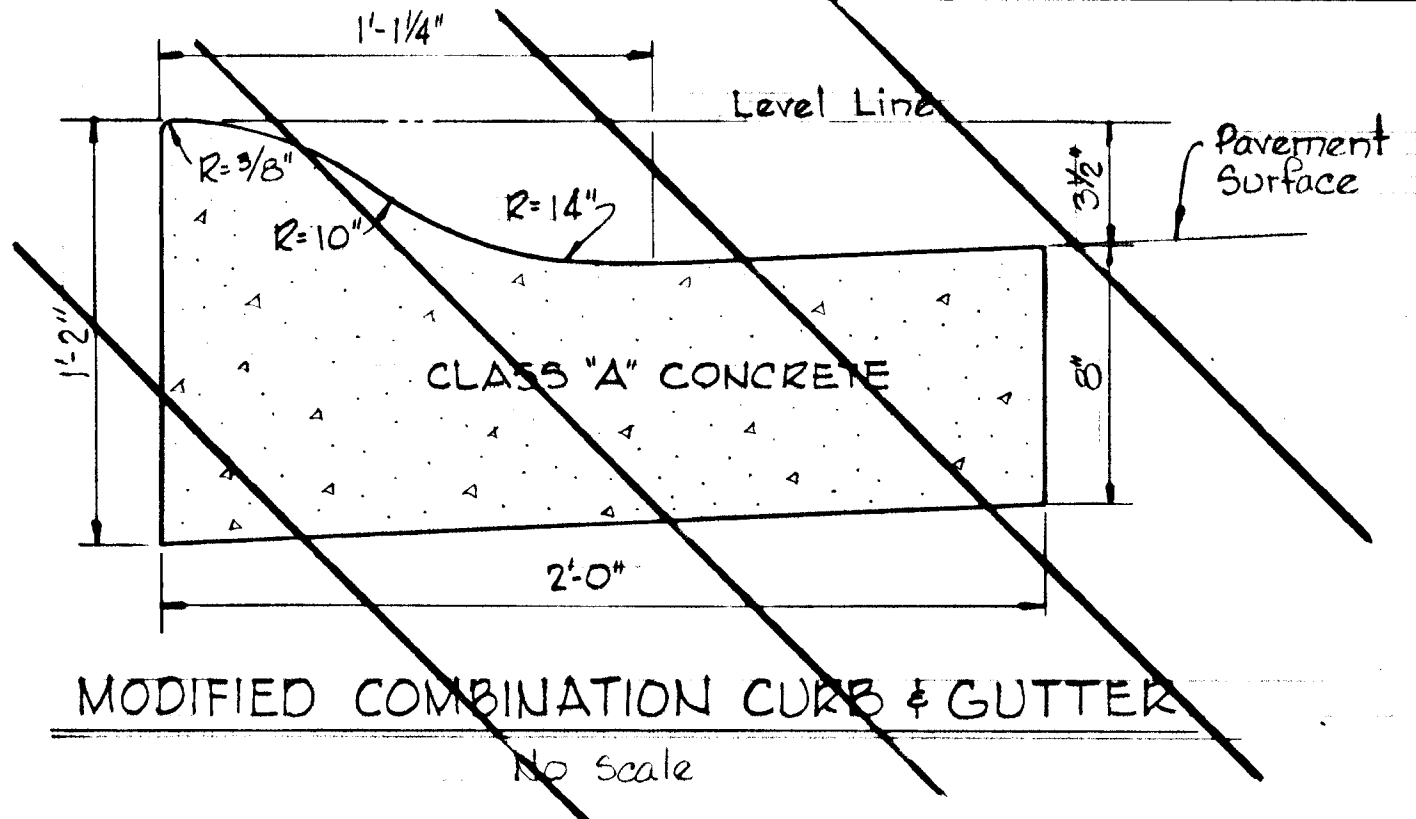
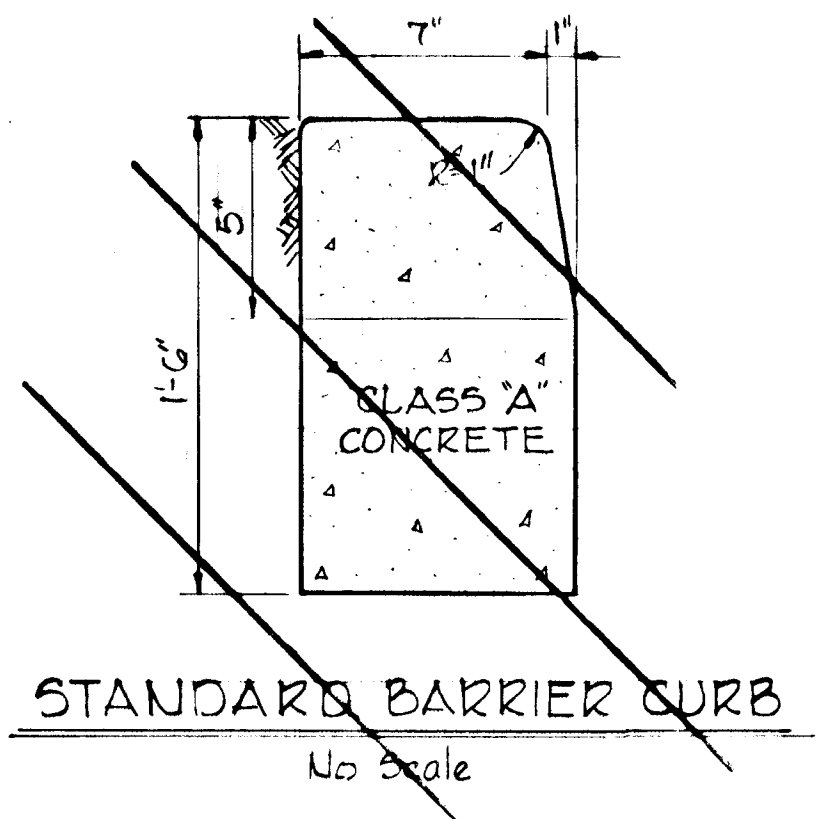
SCALE: As Shown DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 No. 1974



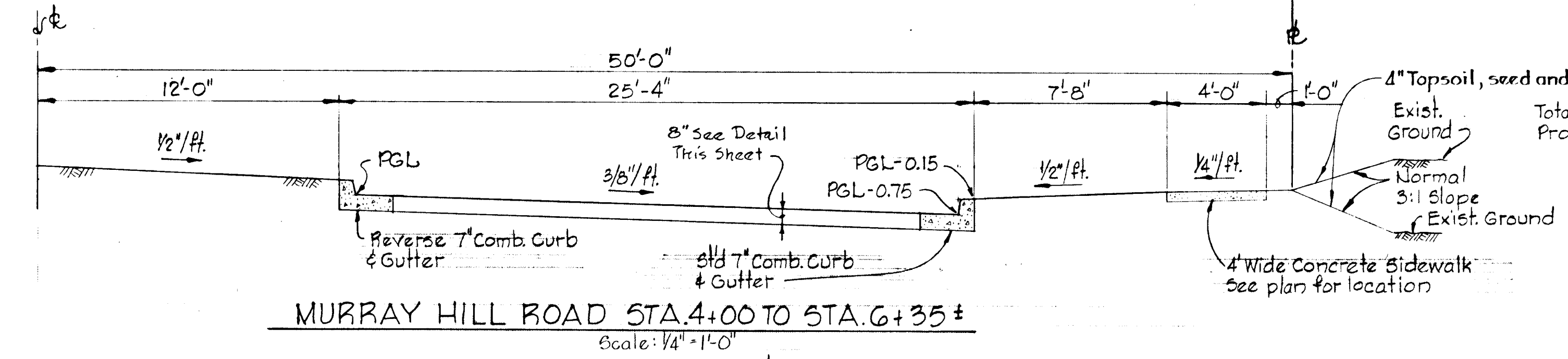
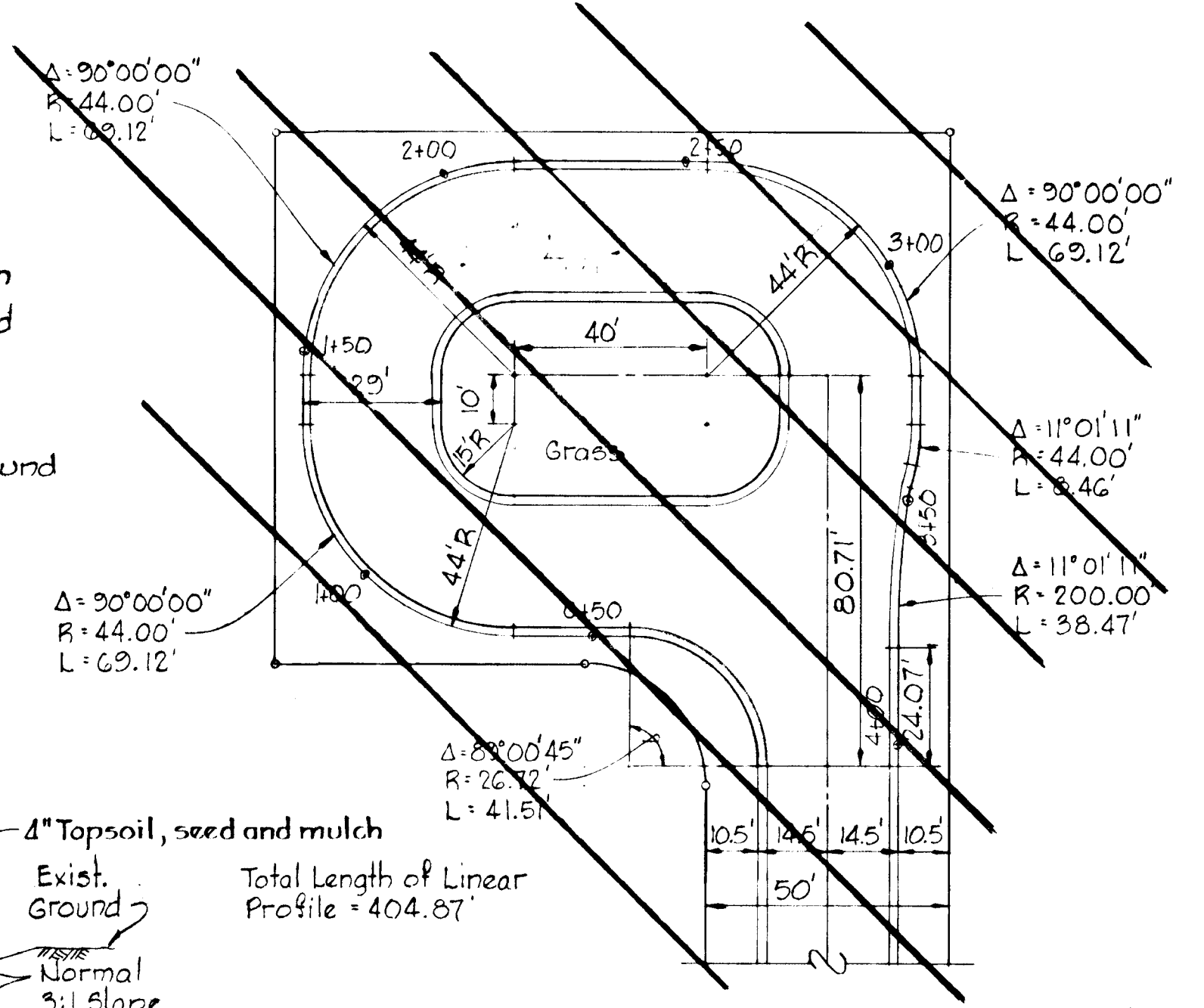
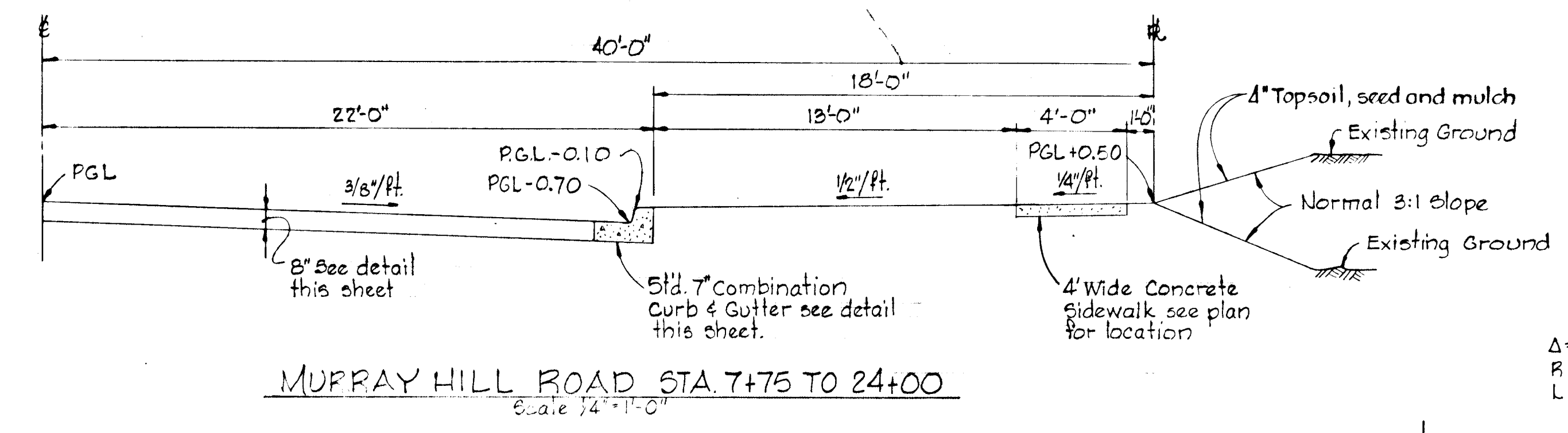
ALL TYPICAL SECTIONS SHOWN HEREON APPLY TO NEWTOWN DESIGN SPEED EQUALS 35 MPH



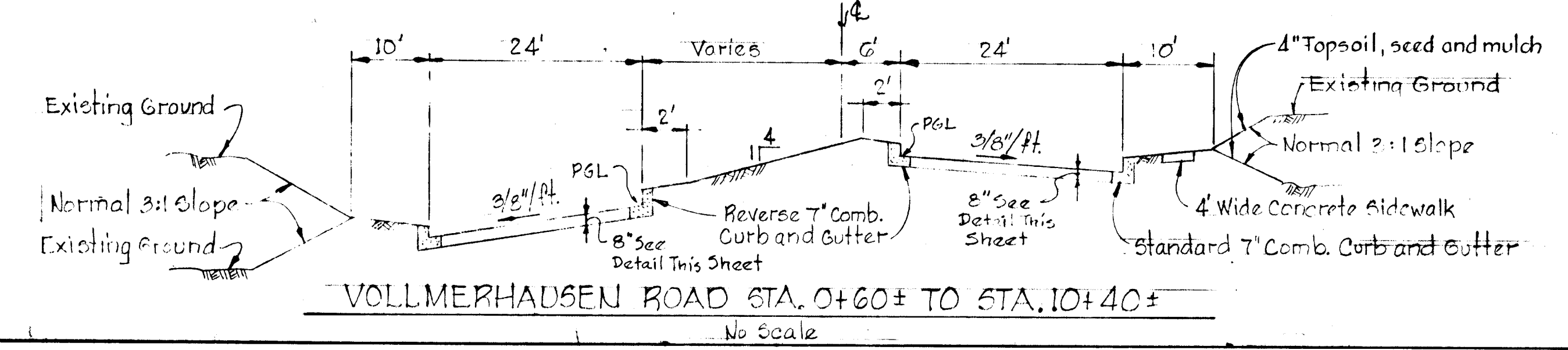
NOTES

1. Base will be primed in accordance with C-30-C as provided in the Howard County Road Construction Code and Standard Specifications.
2. Tack Coat is required in accordance with Section C-31-4 of the Howard County Road Construction Code and Standard Specifications.

TYPICAL PAVING SECTIONS
 No Scale



Total Length of Linear Profile = 404.87'



Rev. Date	Rev. No.	Revision Description
8/2/78	1	Clarify D.P.W. Comments

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

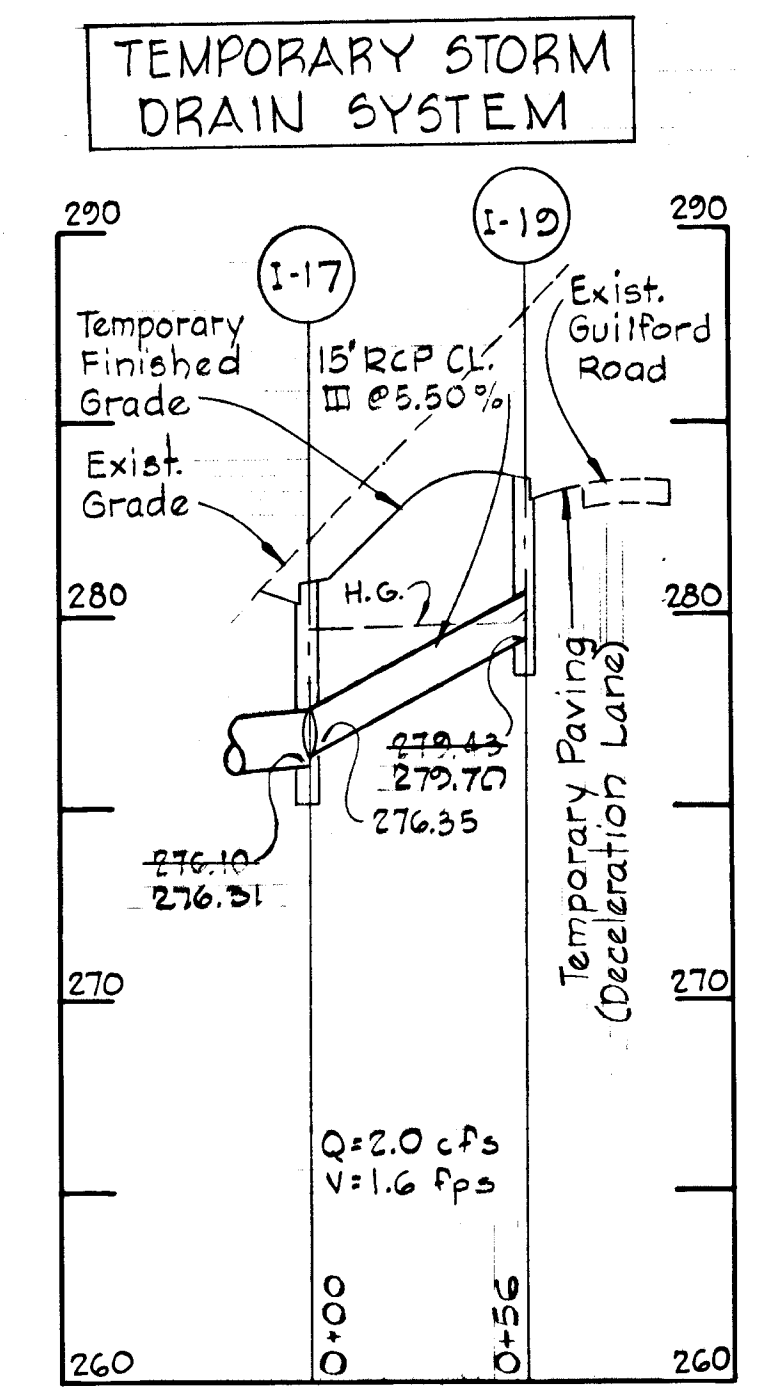
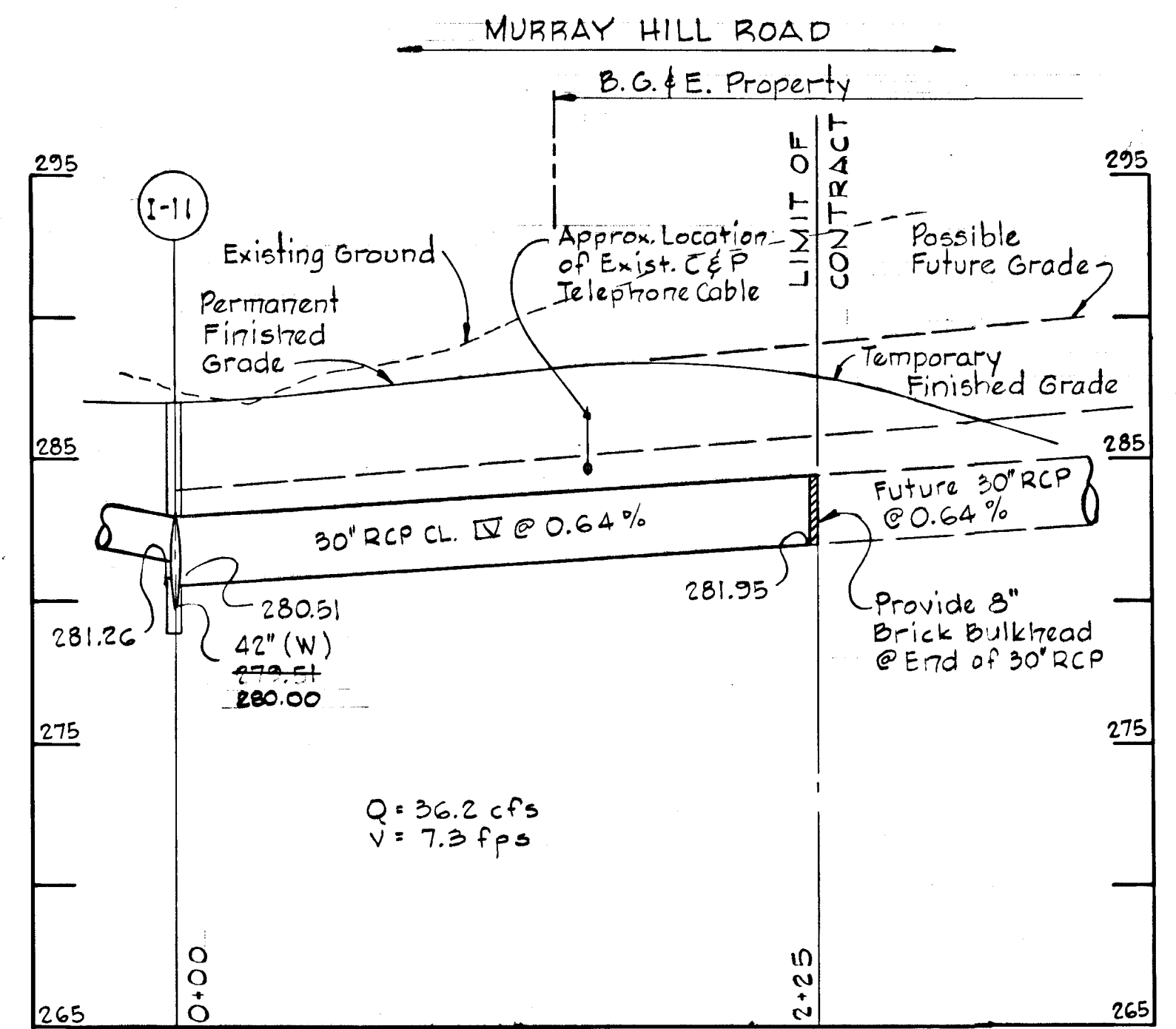
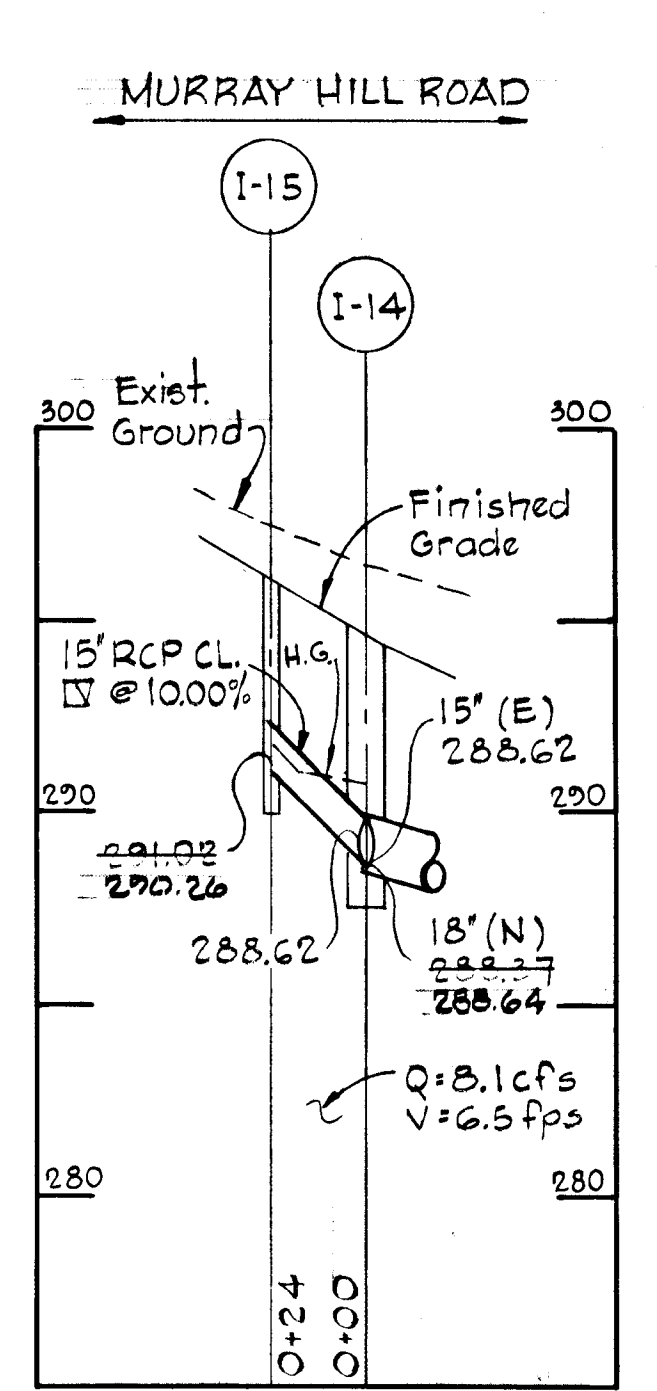
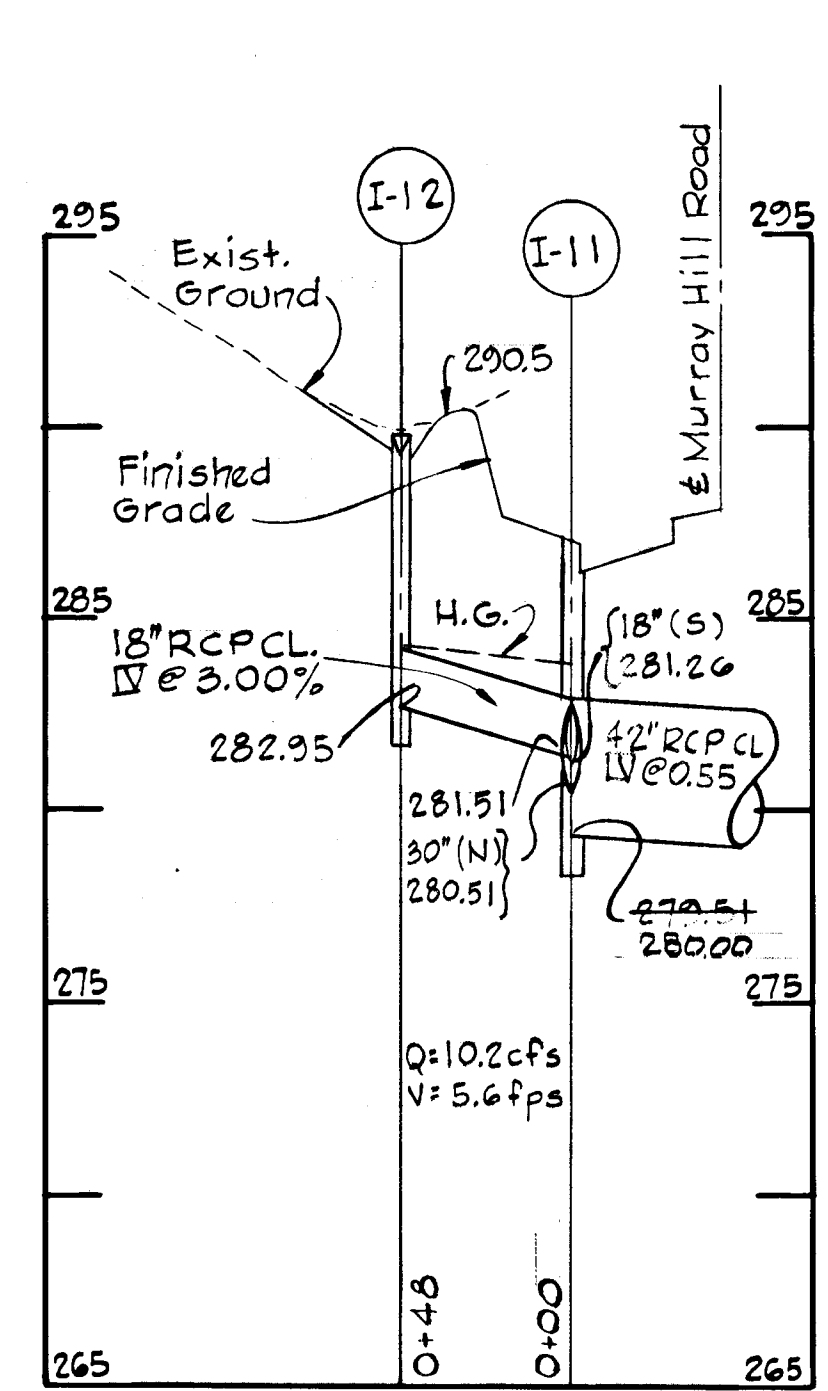
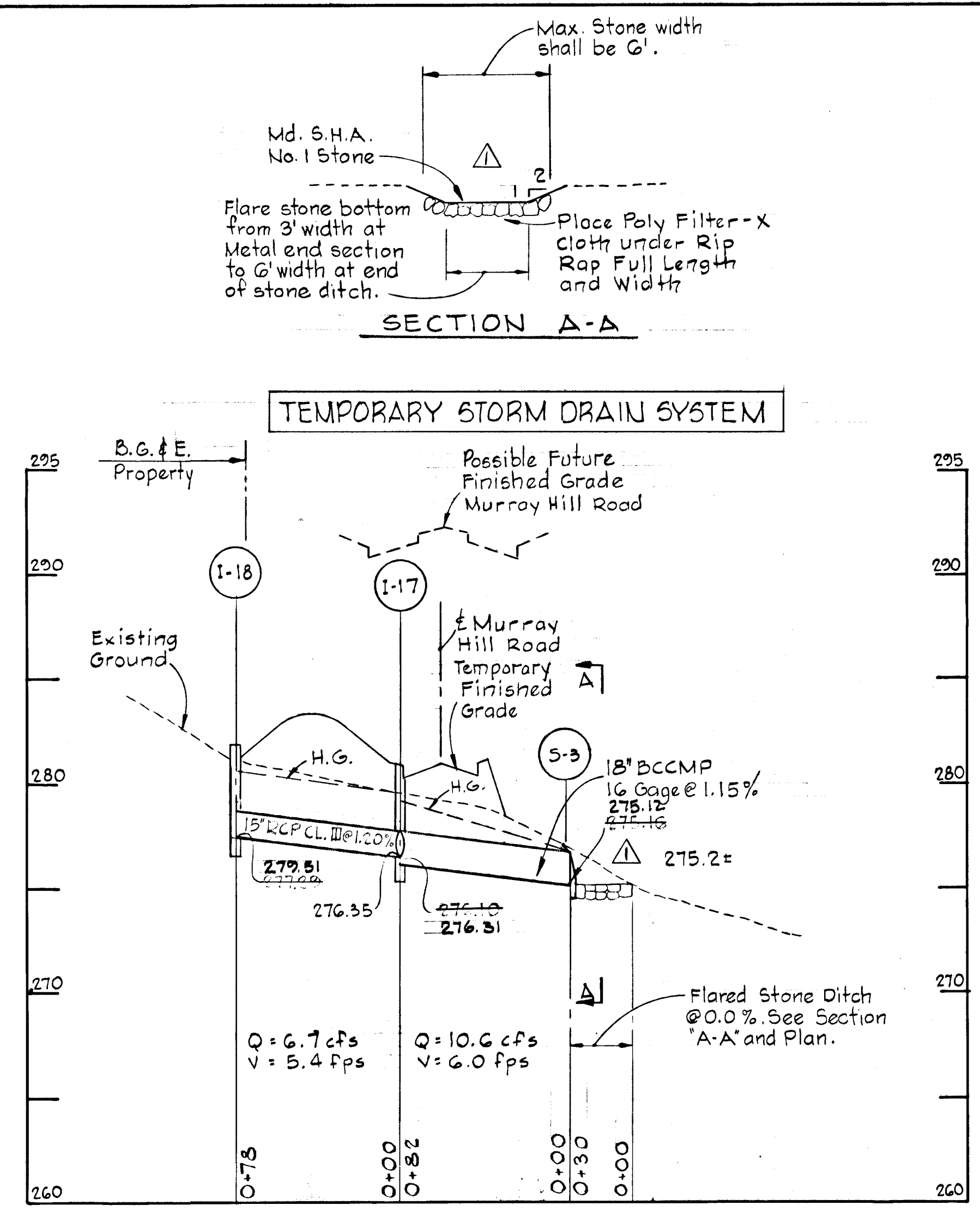
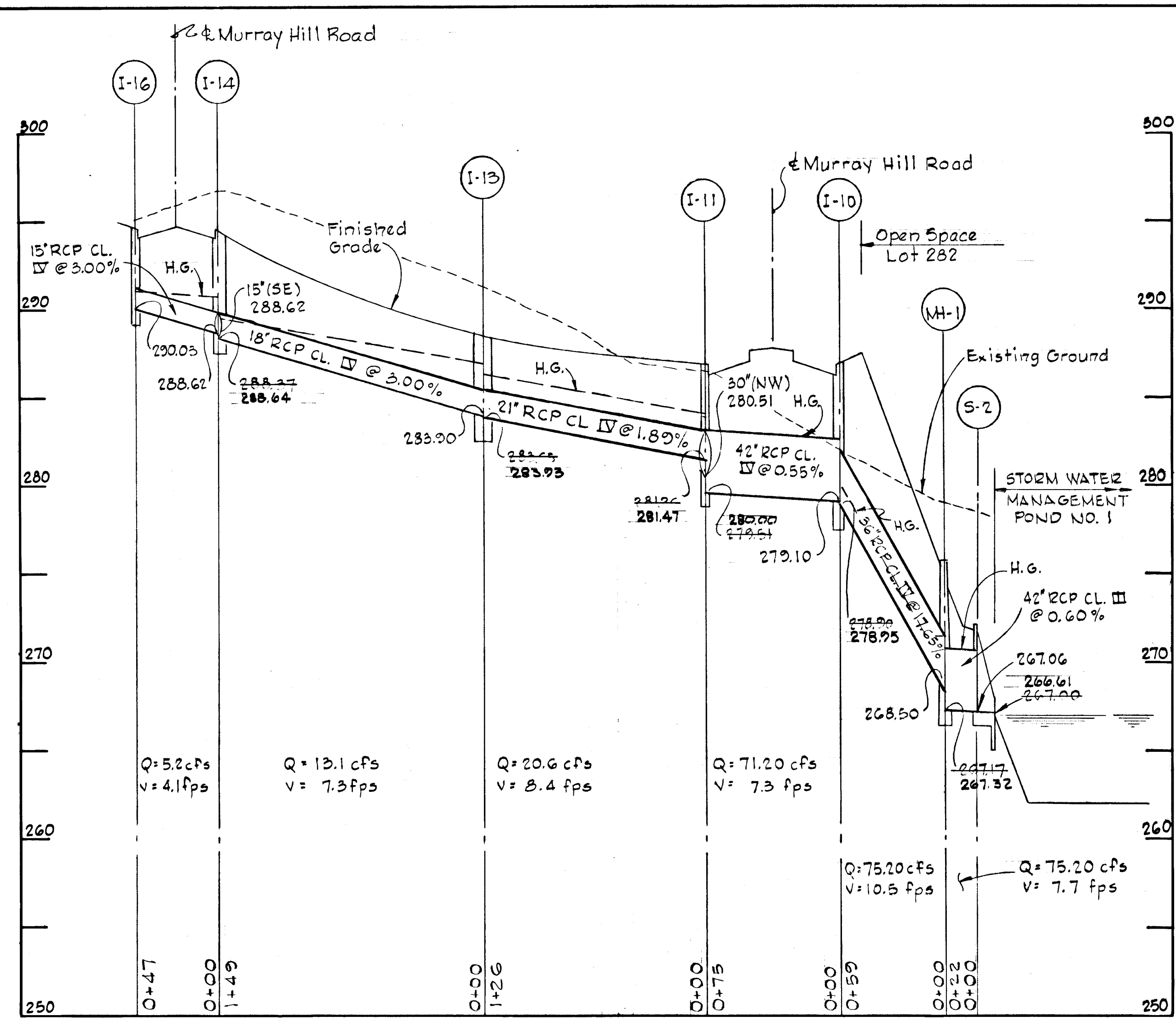
PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
ROADWAY DETAILS

SCALE: AS SHOWN DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



Rev. Date	Rev. No.	Revision Description
8/14/78	1	Changed length & shape of S-3 ditch

COLUMBIA
 4th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

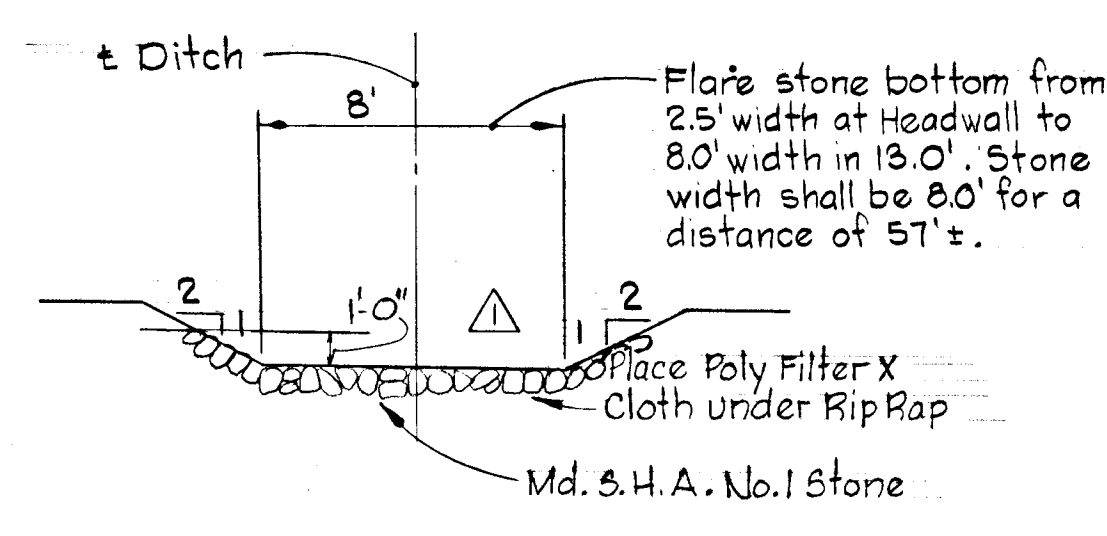
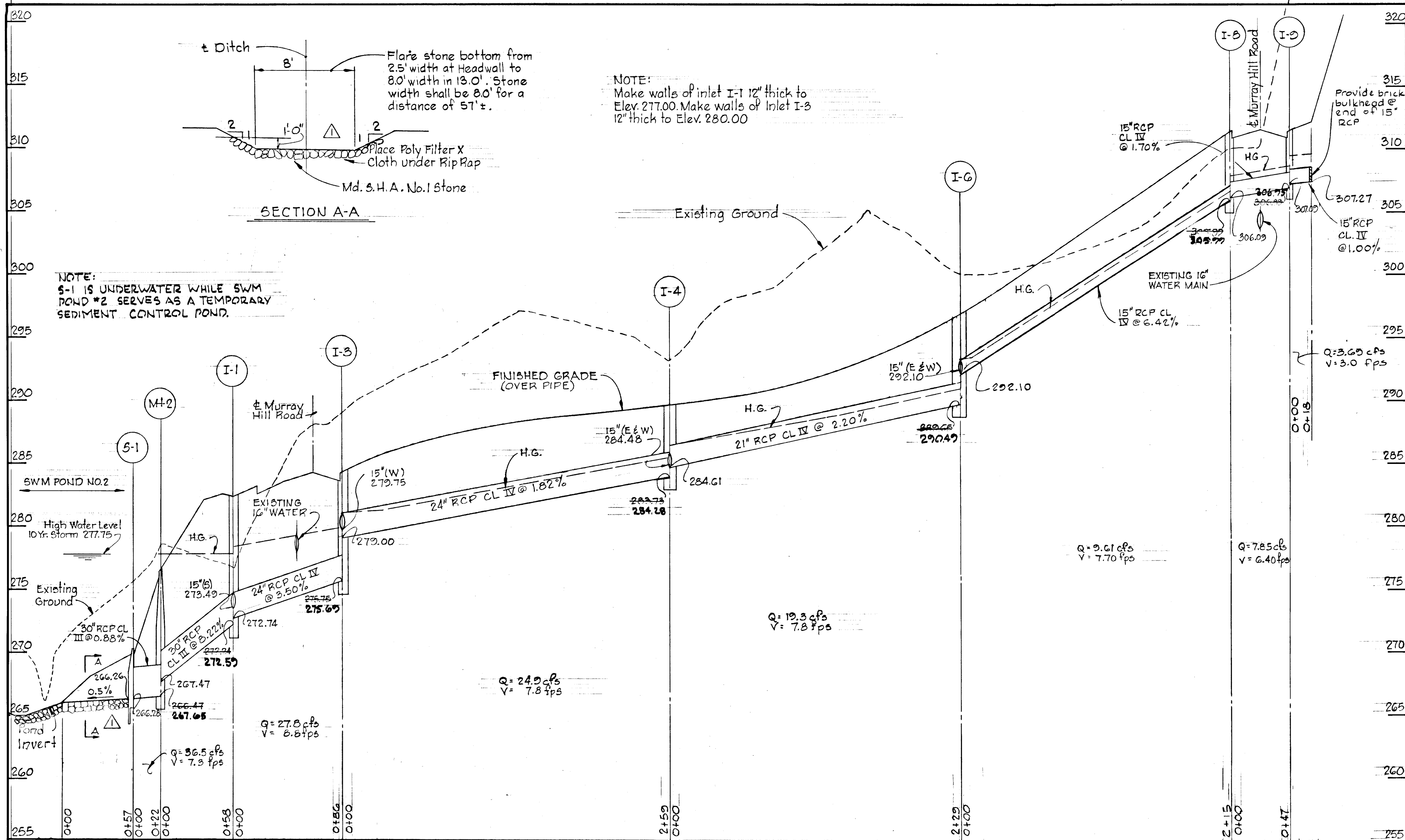
PROJECT AREA
VILLAGE OF KING'S CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 STORM DRAIN PROFILES
 MURRAY HILL ROAD

SCALE: Horz. 1"=50' Vert. 1"=5' DATE: June 22, 1978

WHITMAN, REQUARD & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

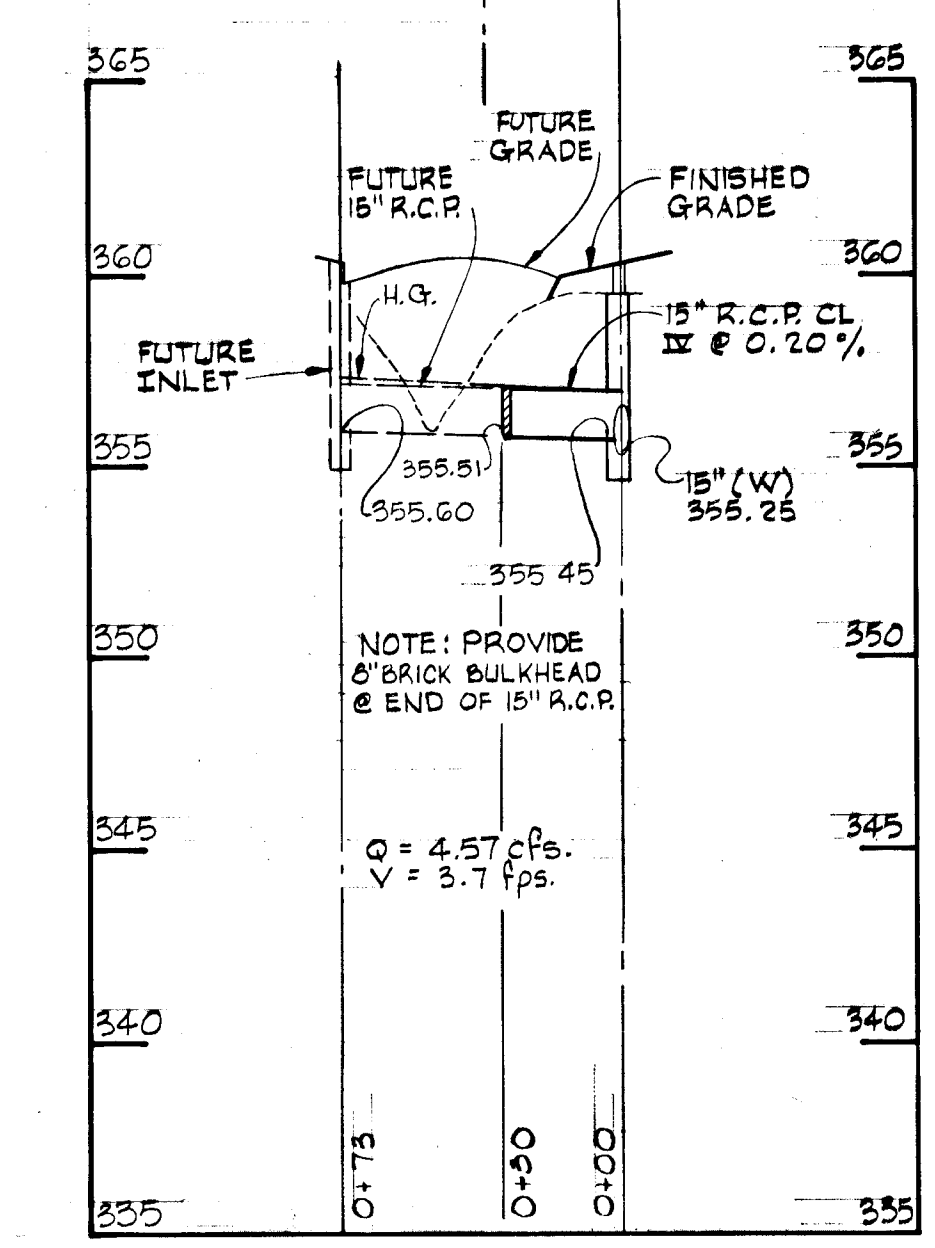
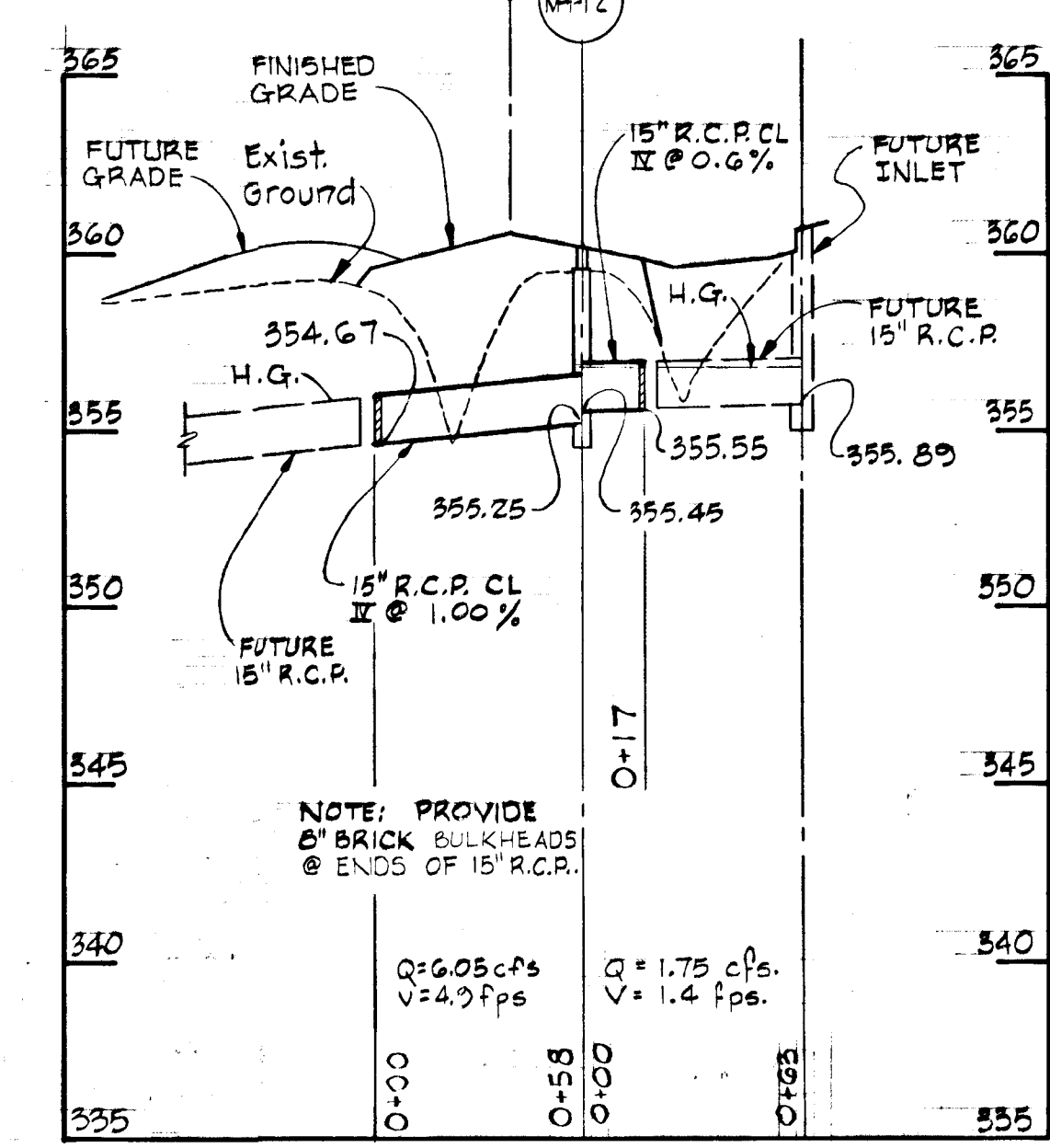
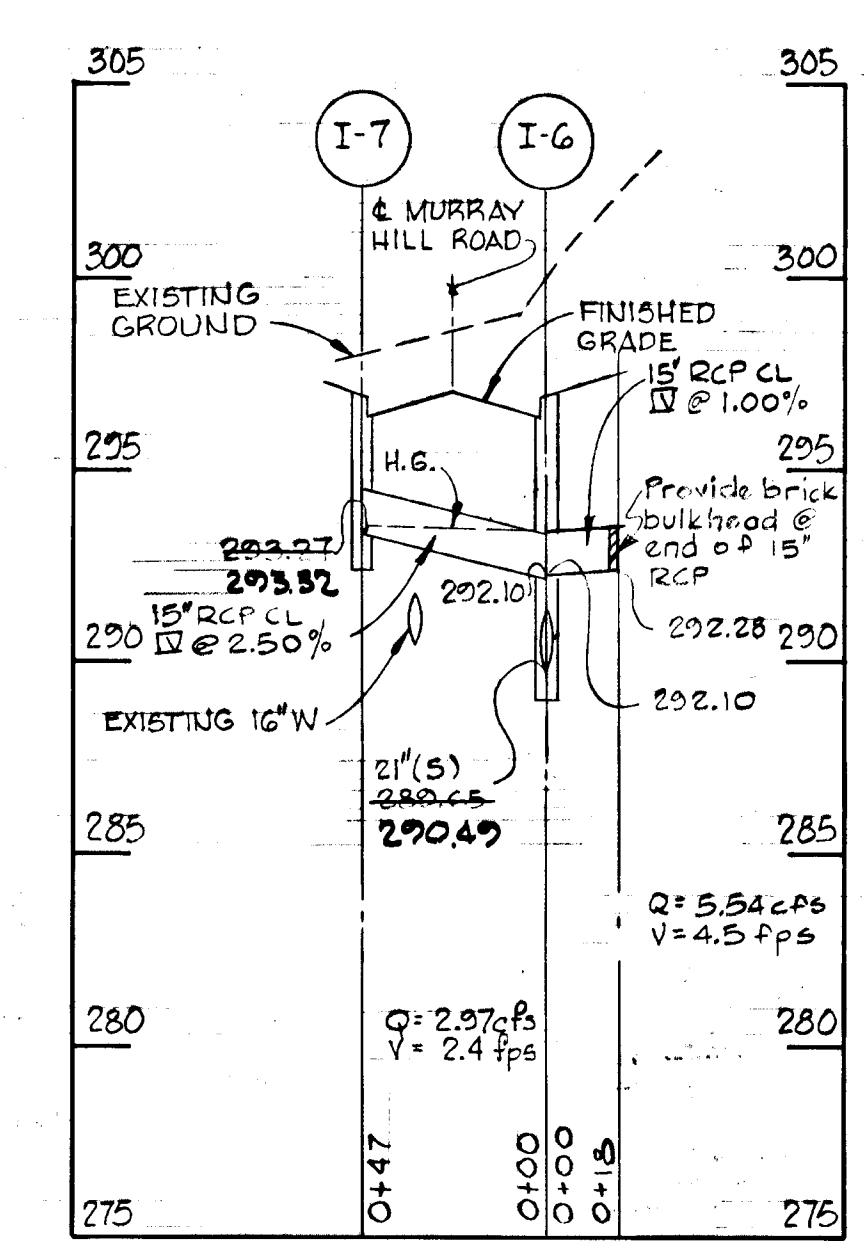
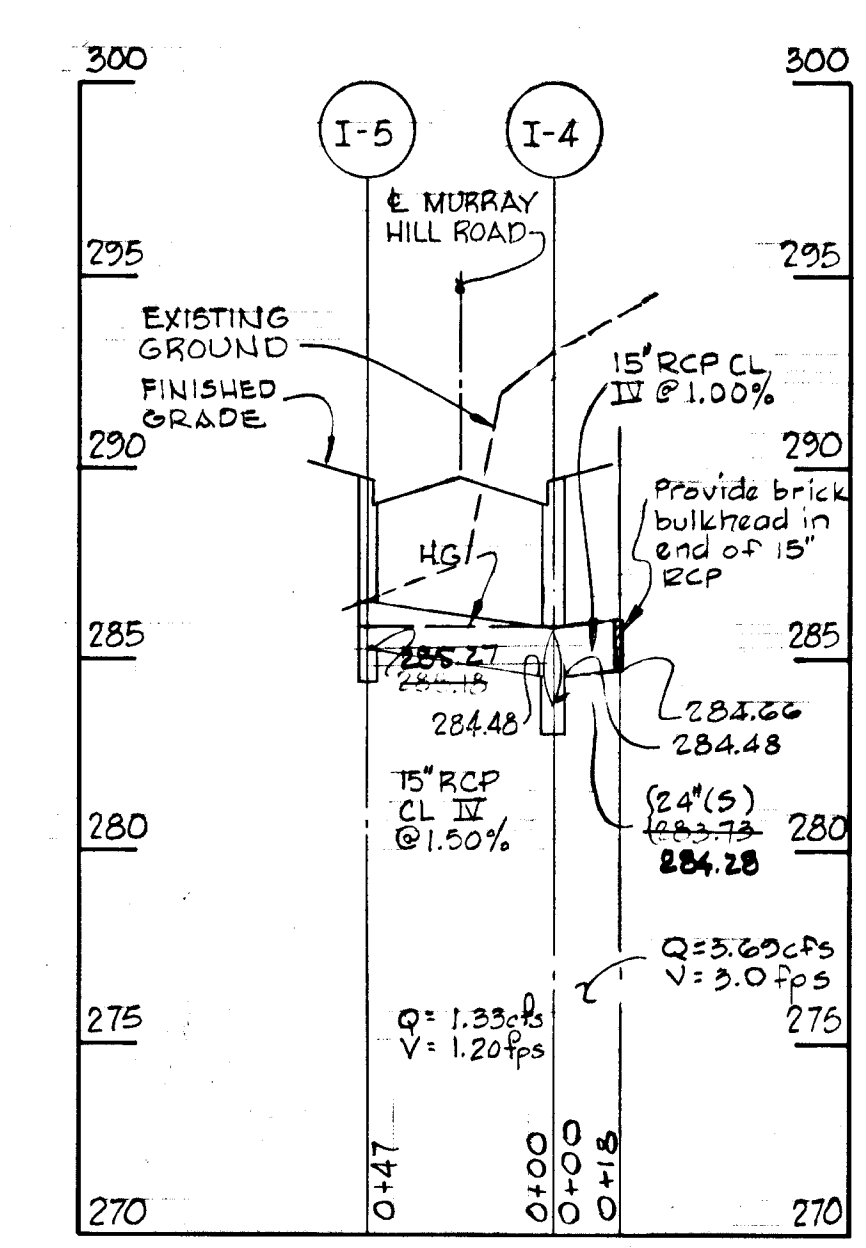
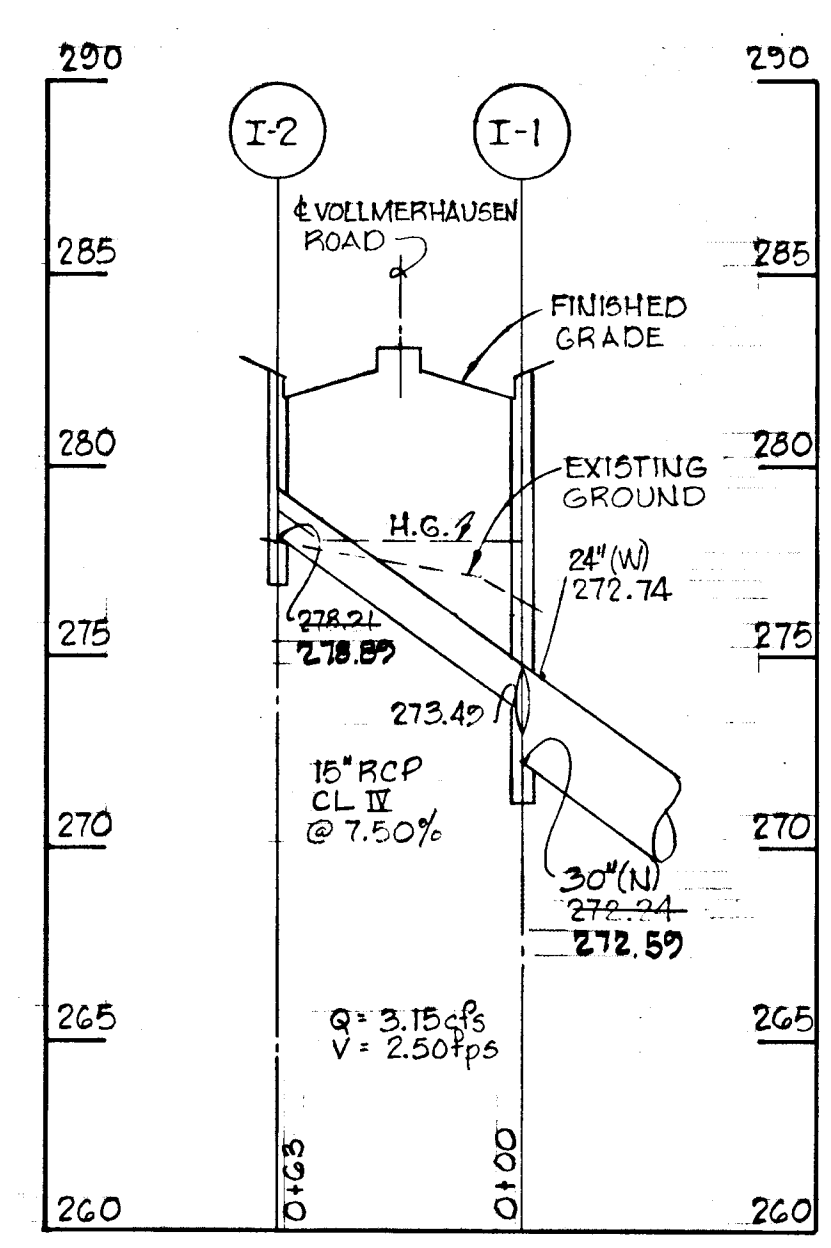


NOTE:
 Make walls of inlet I-1 12" thick to Elev. 277.00. Make walls of Inlet I-3 12" thick to Elev. 280.00

NOTE:
 5-1 IS UNDERWATER WHILE SWM POND #2 SERVES AS A TEMPORARY SEDIMENT CONTROL POND.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Approved *Wes Fero* Date 8-24-78
 Howard S.C.D.

Reviewed for *Howard* S.C.D.
 and meets Technical Requirements
W. Marshall Date 8-24-78
 Signature
 U.S. Soil Conservation Service



Rev. Date	Rev. No.	Revision Description
8/14/78	1	Removed Conc. Paving, added stone, changed shape of S-1 Ditch

COLUMBIA
 8th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP

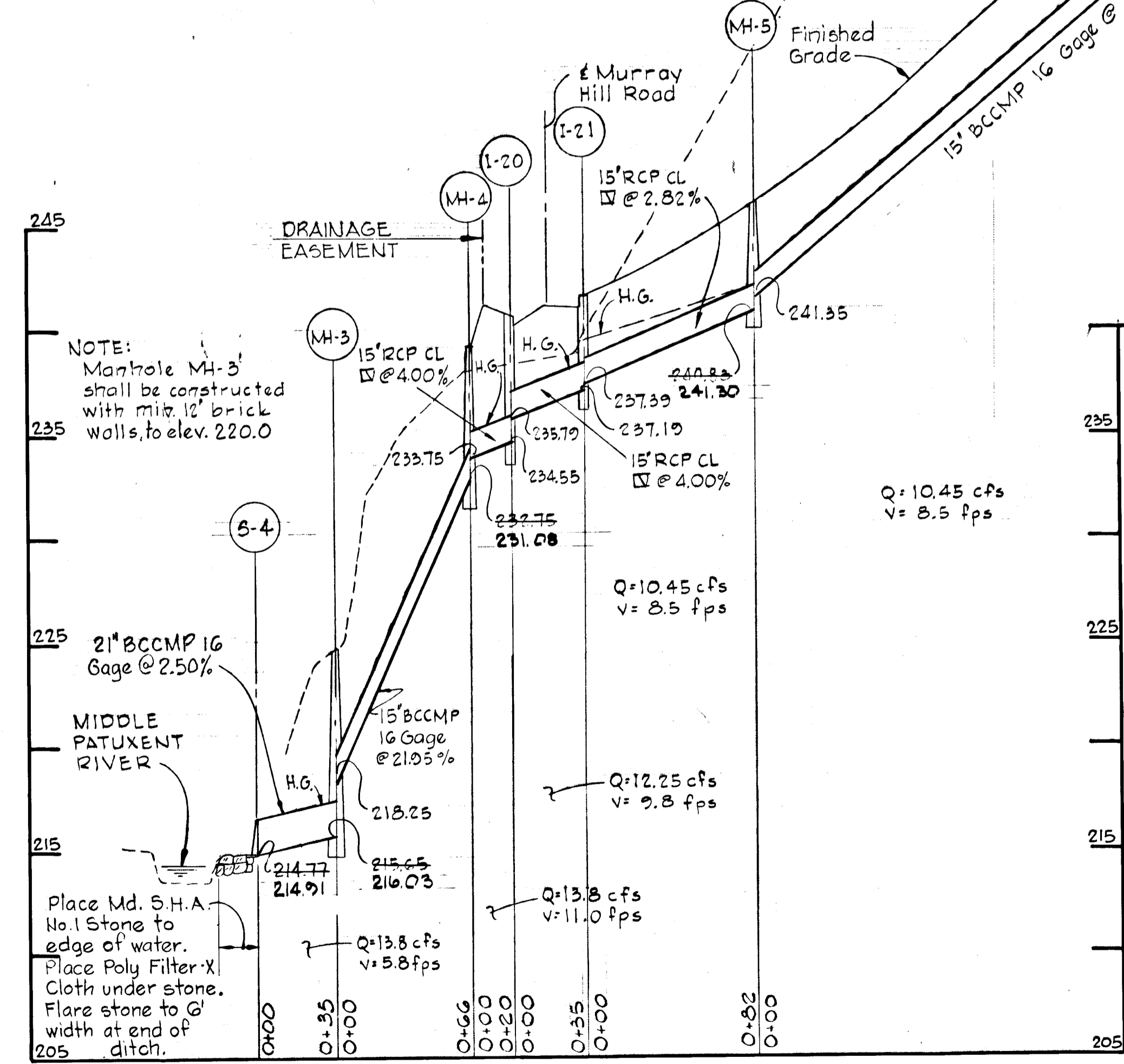
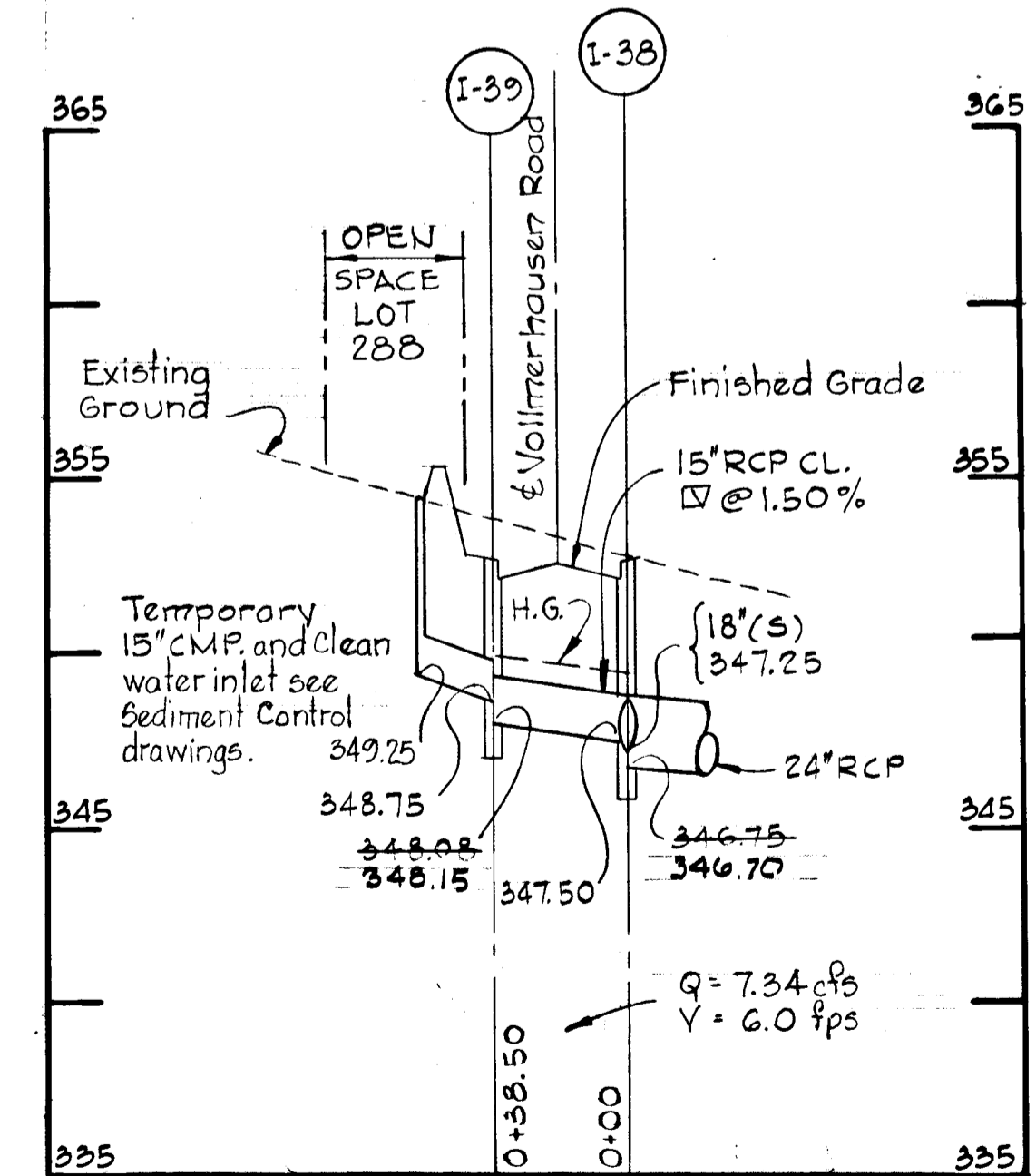
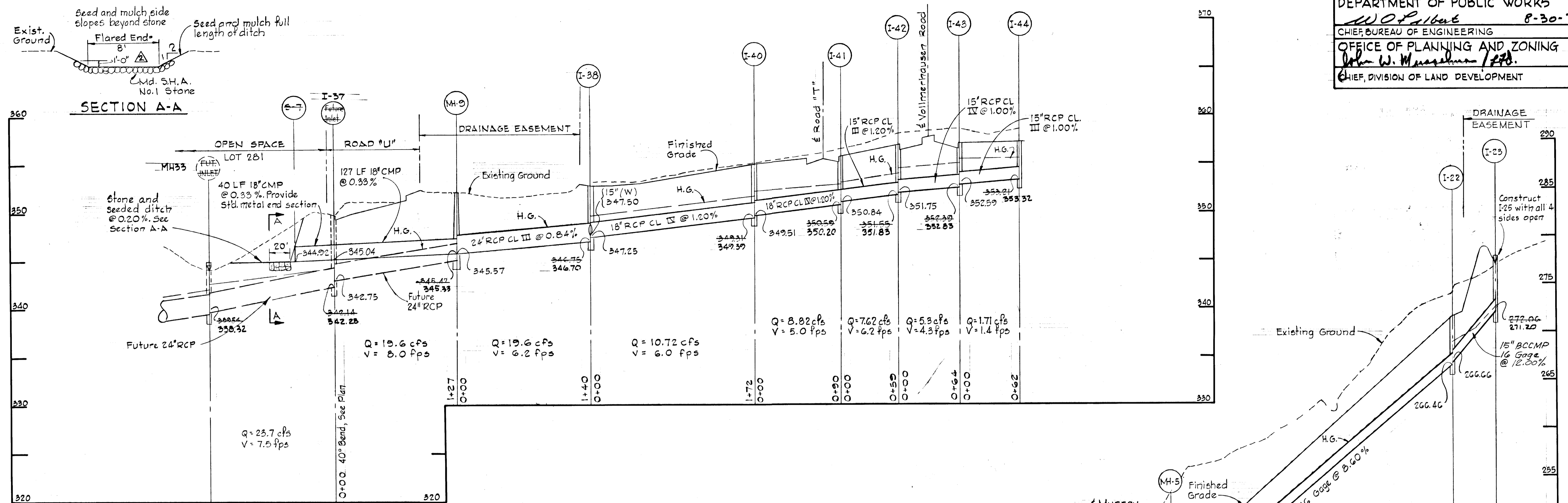
PROJECT AREA
 VILLAGE OF KING'S CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 STORM DRAIN PROFILES
 MURRAY HILL ROAD AND
 VOLLMERHAUSEN ROAD

SCALE: Horizontal: 1" = 50' Vertical: 1" = 5' DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

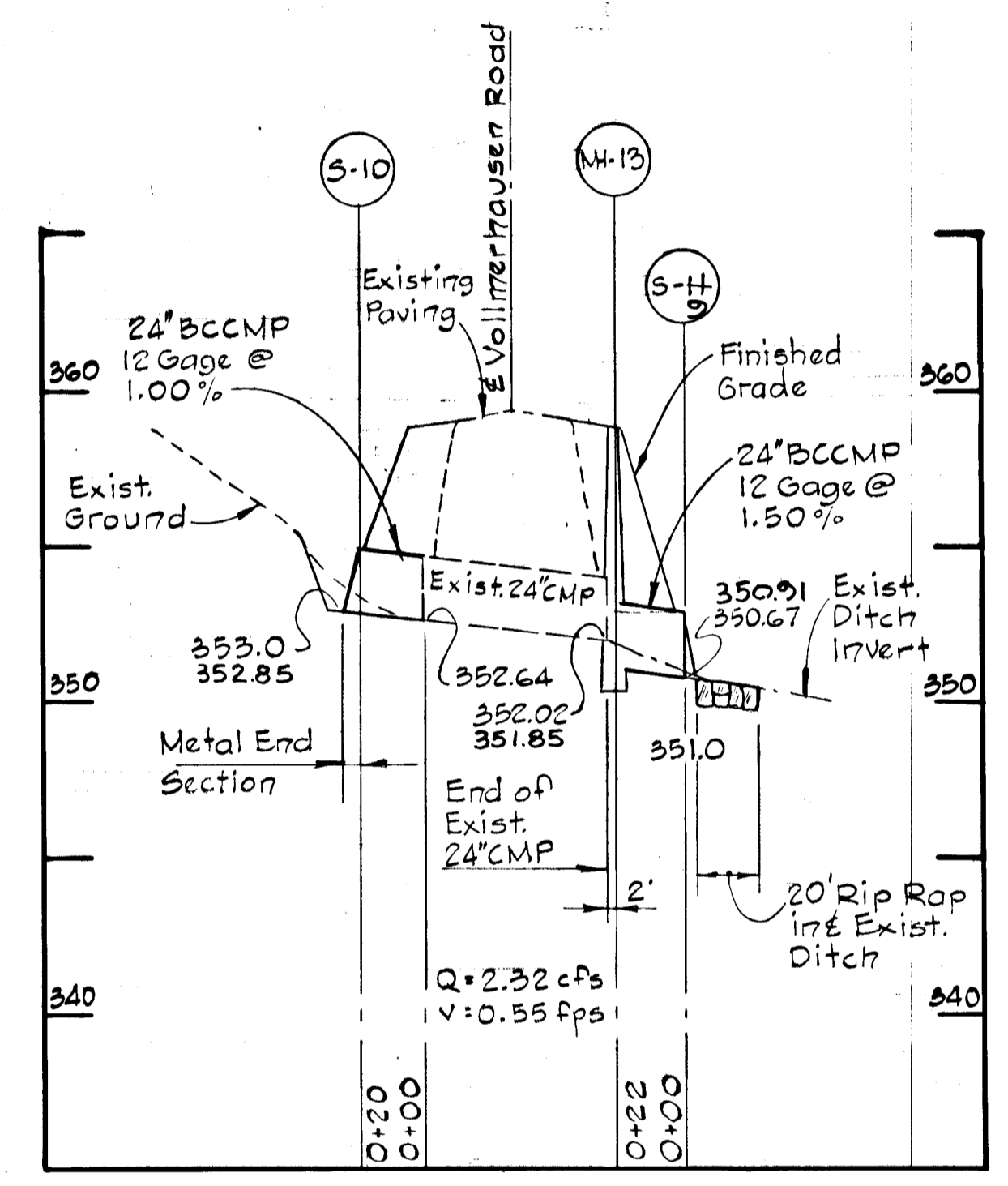
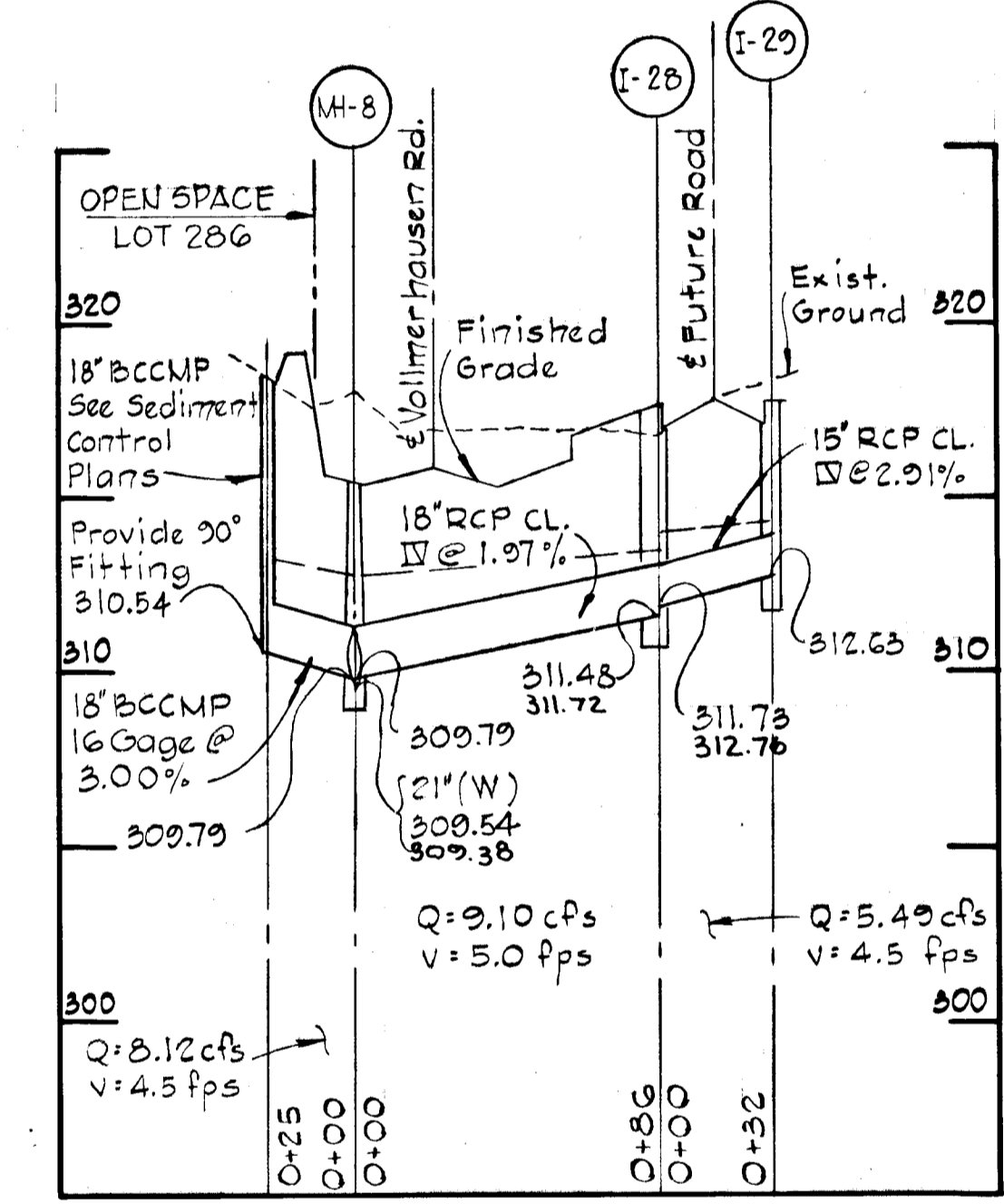
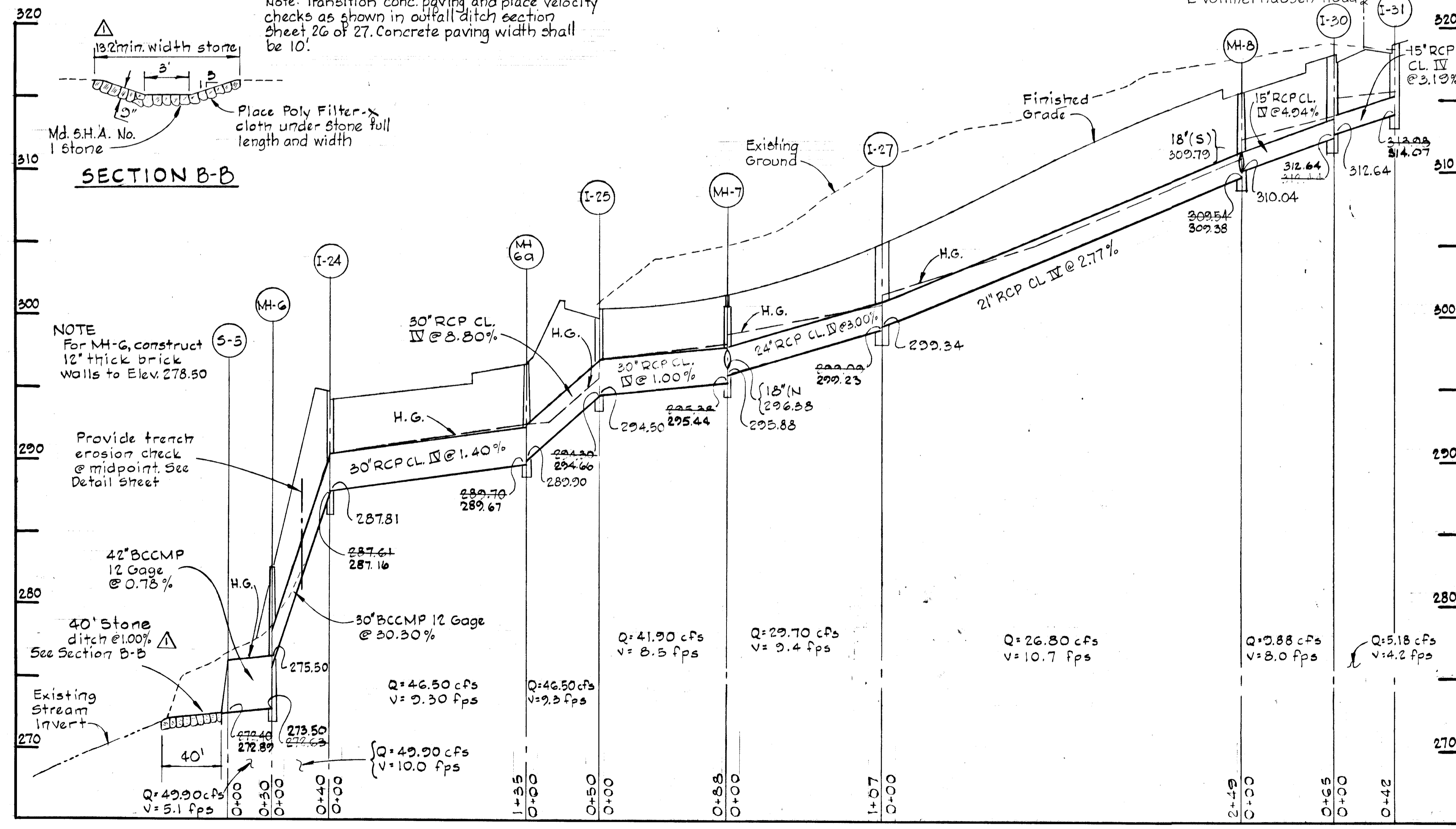
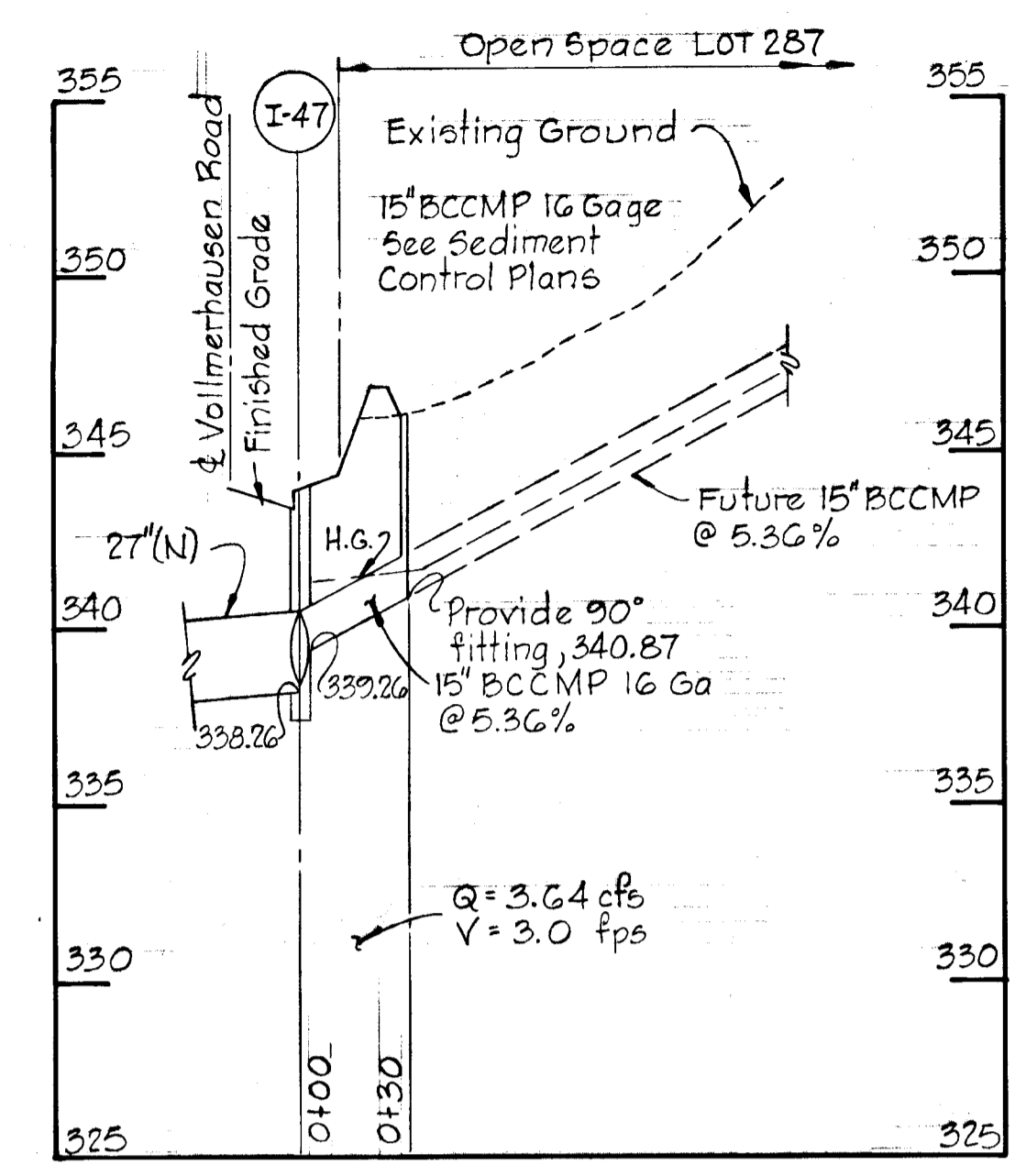
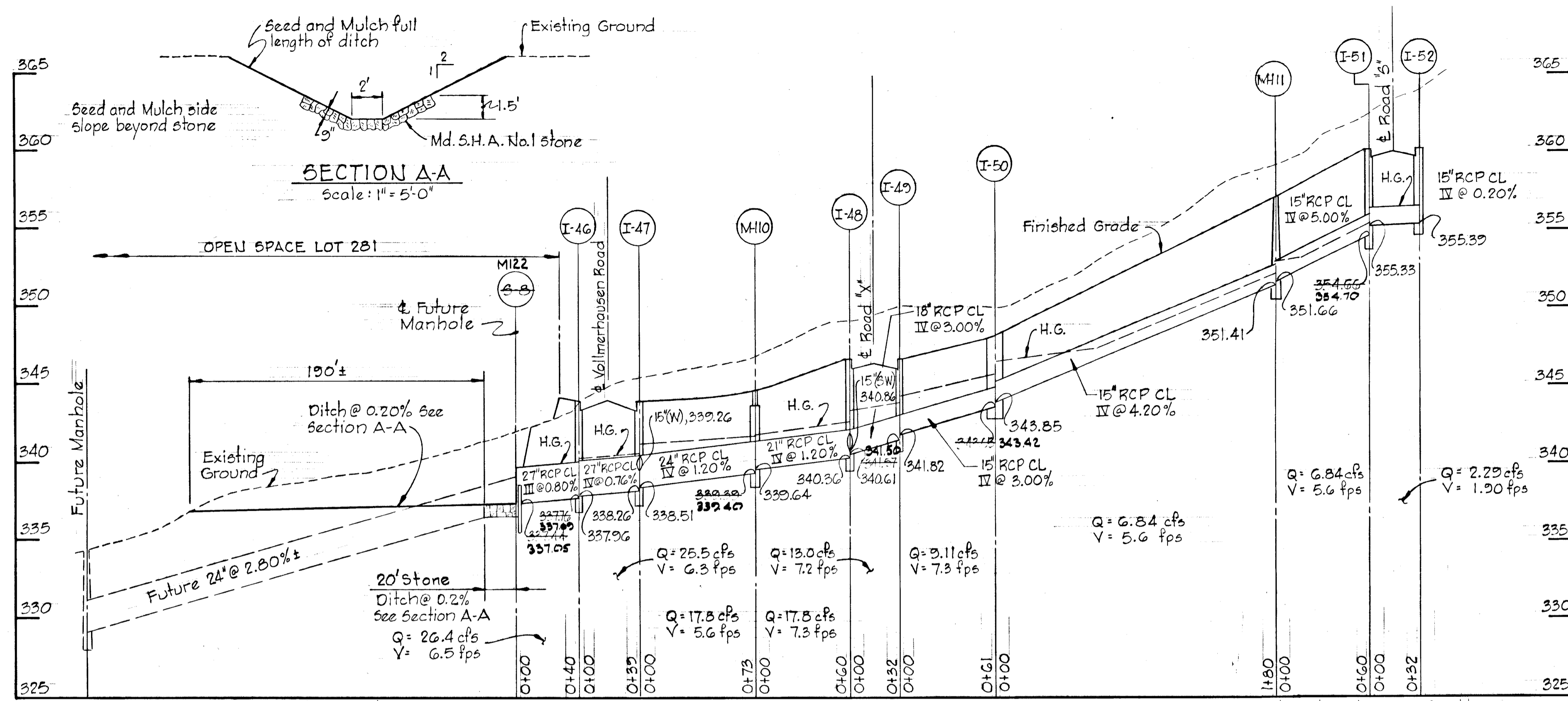
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



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

Approved *[Signature]* Date *8-27-78*
 Reviewed for *Howard* S.C.D. Name *[Signature]* Date *8-24-78*
 and meets Technical Requirements
 Signature *[Signature]*
 U.S. Soil Conservation Service

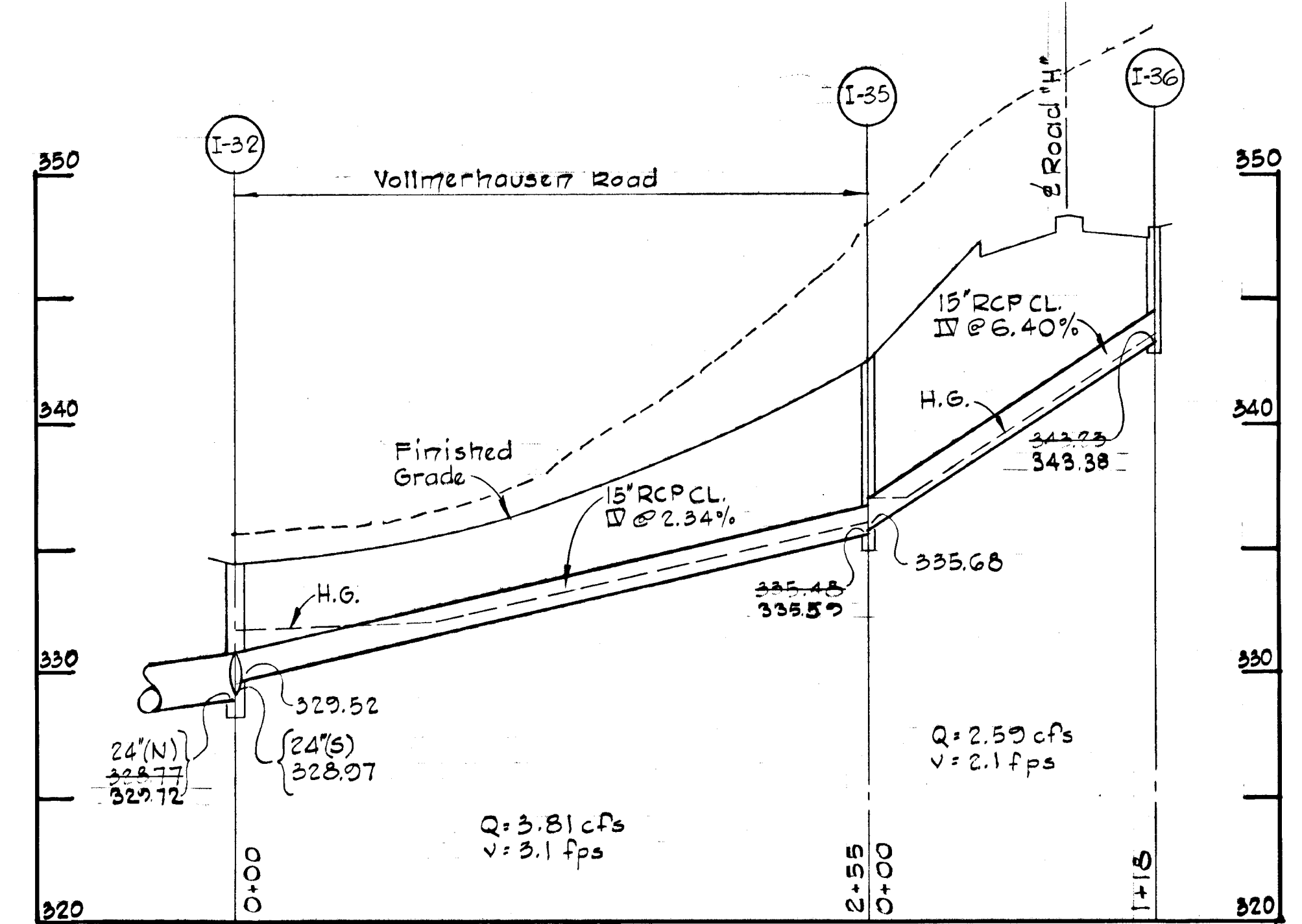
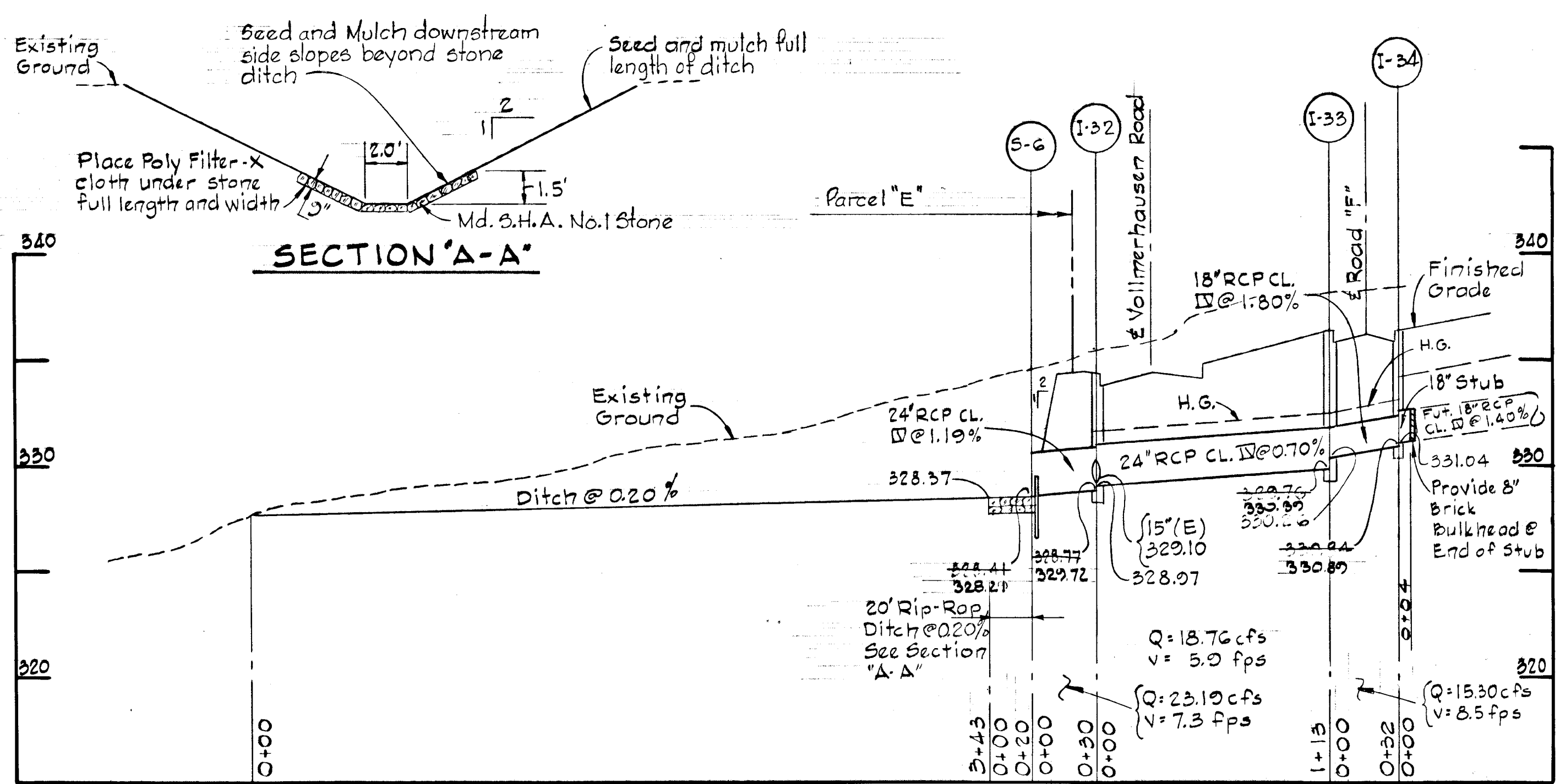
8/2/78	△	Clarify D.F.W. comments.
8/4/78	△	Changed shape of ditch @ 5-7
Rev. Date	Rev. No.	Revision Description
COLUMBIA 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KING'S CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE STORM DRAIN PROFILES MURRAY HILL ROAD AND VOLLMERHAUSEN ROAD		
SCALE: Horz: 1"=50' Vert: 1"=5' DATE: June 22, 1978		
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		



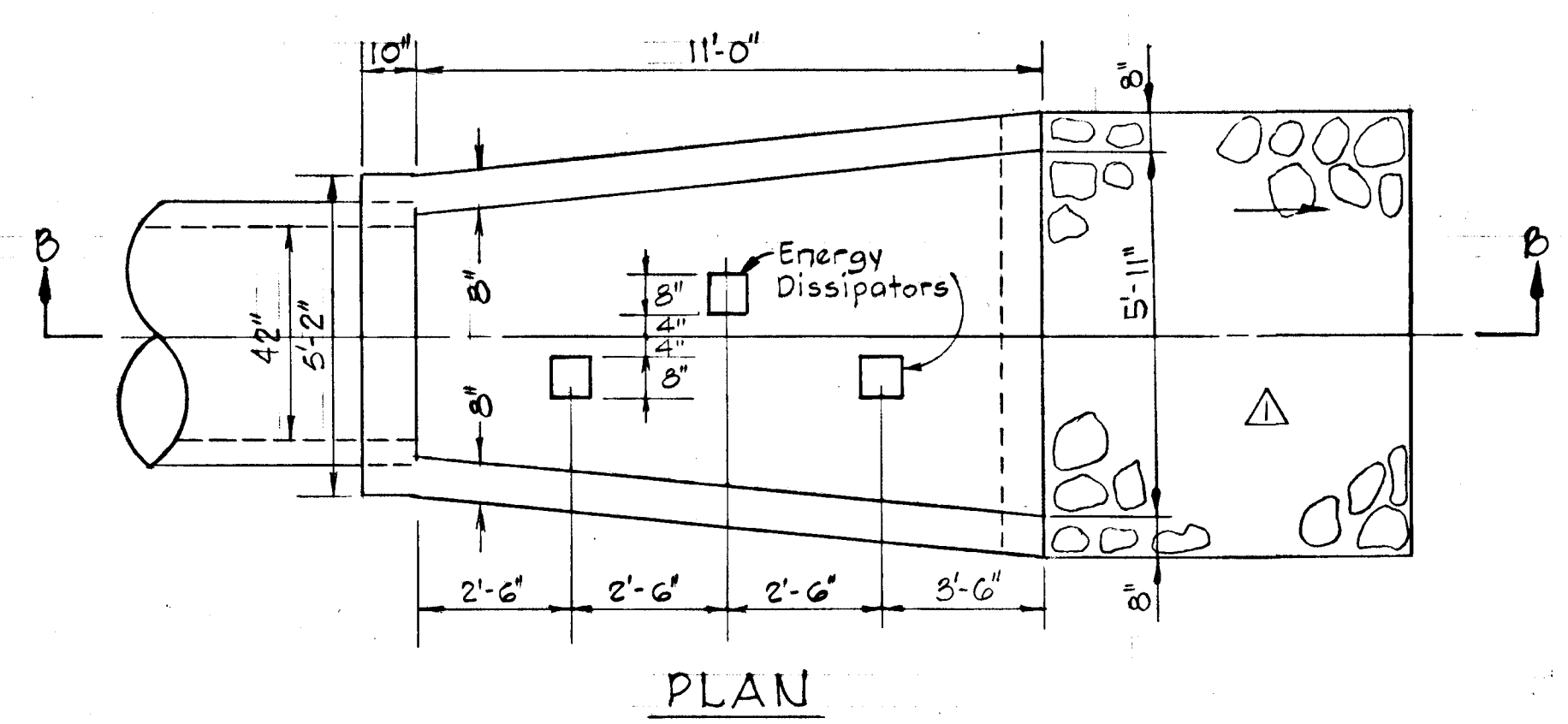
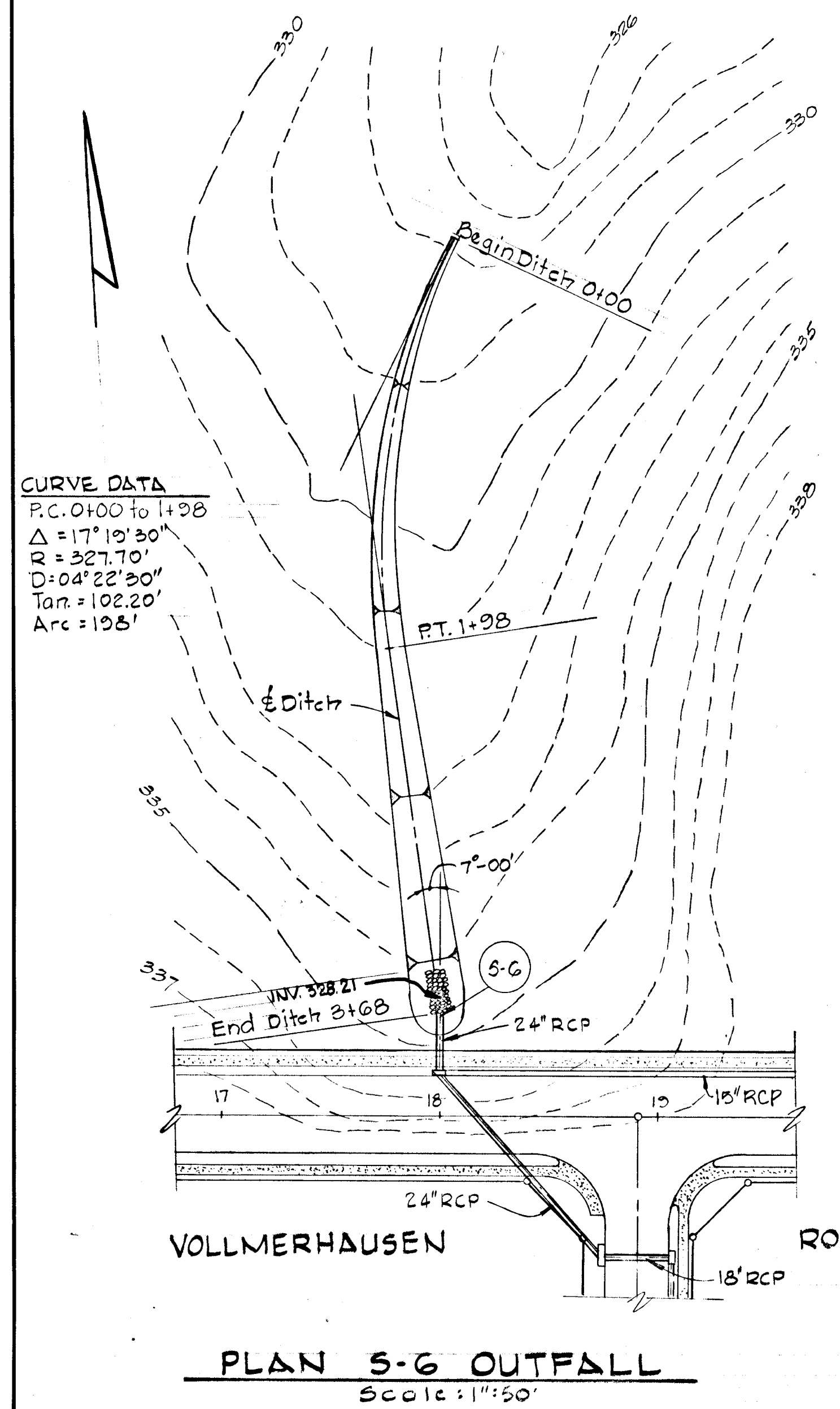
Approved
 Date 8-24-78
 Signature
 U.S. Soil Conservation Service

Reviewed for *Howard* S.C.D.
 Name
 and meets Technical Requirements
 Date 8-24-78
 Signature
 U.S. Soil Conservation Service

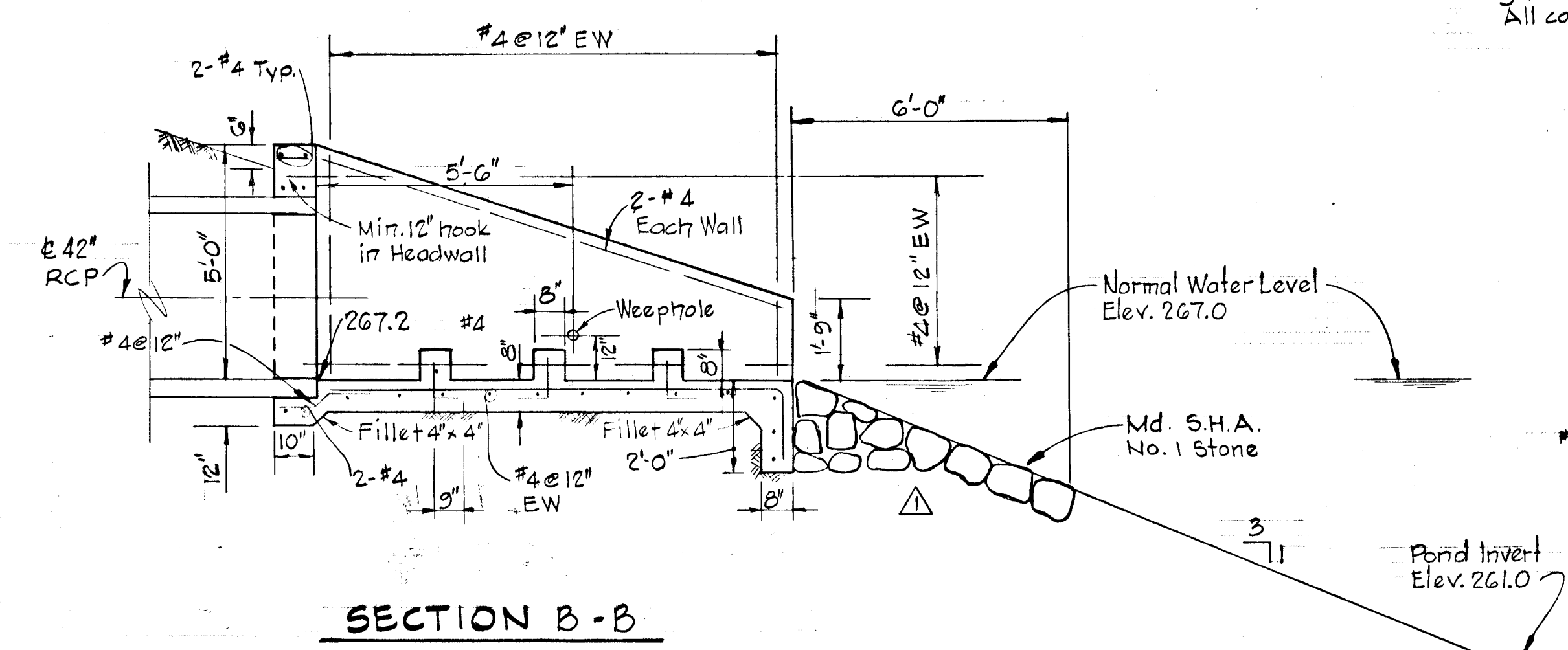
Rev. Date	Rev. No.	Revision Description
8/14/78		Removed Conc. Paving, added stone, changed width of stone from 3'-5"
COLUMBIA 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KING'S CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE STORM DRAIN PROFILES VOLLMERHAUSEN ROAD		
SCALE: Horz. 1"=50', Vert. 1"=5' DATE: June 22, 1978		
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		



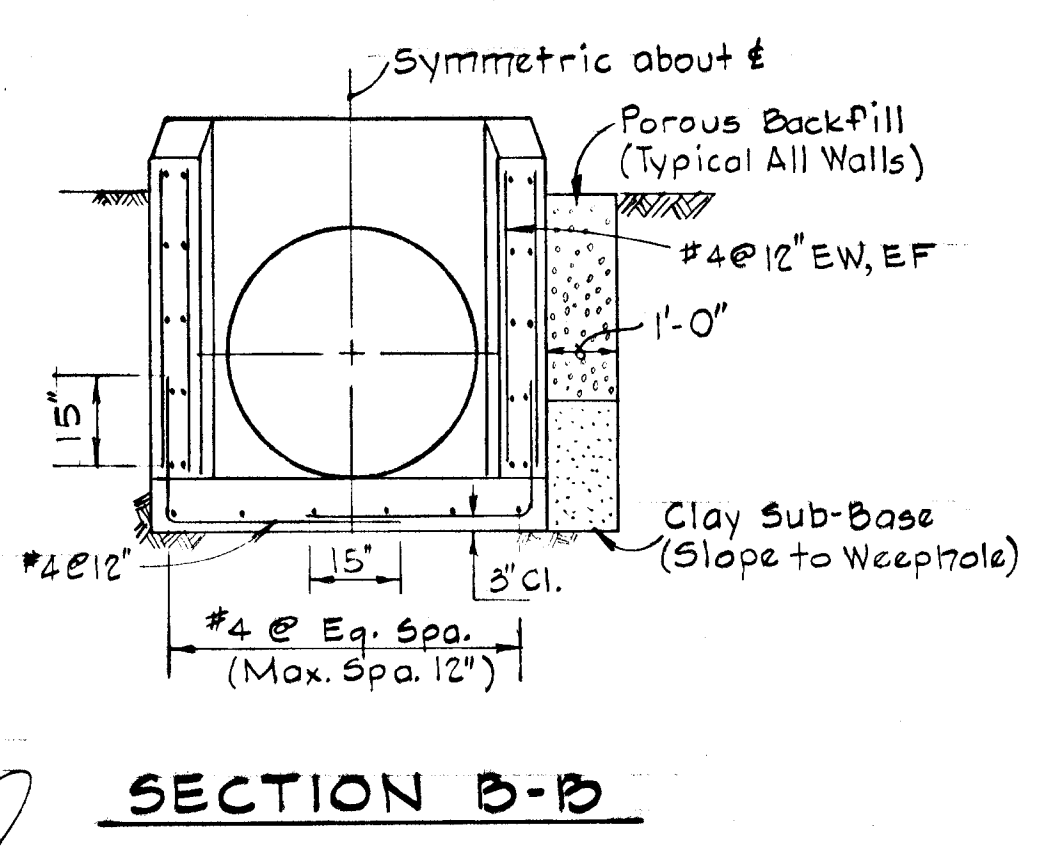
PROFILES
 Scale: Horz. 1" = 50'
 Vert. 1" = 5'



PLAN



SECTION B-B



SECTION B-B

DETAIL - STRUCTURE S-2
 Scale: 3/8" = 1'-0"

NOTES

1. Steel shall be 2" clear unless otherwise shown.
2. Provide one 3" cast iron weephole in each wingwall, at center. Place weephole at top of clay sub-base.
3. Concrete shall have a minimum of 6 bags of cement per cubic yard and water content not to exceed 6 gallons per bag of cement. Slump shall range 3"-4". All concrete shall be transit mix.

Reviewed for *HOWARD* S.C.D.
 Name
 and meets Technical Requirements
P. Wayne Ray Date 8-29-78
 Signature
 U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Approved *Alex FINE* Date 8-24-78
 Howard S.C.D.

Rev. Date	Rev. No.	Revision Description
8/14/78	1	Removed Conc. Paving, added Stone @ S-2

COLUMBIA
 8th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
STORM DRAIN PROFILES
VOLLMERHAUSEN ROAD
AND DETAILS

SCALE: As Shown DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 No. 1974



Rev. Date	Rev. No.	Revision Description
8/2/78	1	Clarify D.P.W. Comments

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
VILLAGE OF KING'S CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
DRAINAGE AREA MAP

SCALE: 1"=100' DATE: June 22, 1978

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 No. 1974

4445



Rev. Date	Rev. No.	Revision Description
8/2/76	1	Clarify D.P.W. Comments

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
DRAINAGE AREA MAP

SCALE: 1" = 100' DATE: June 28, 1978

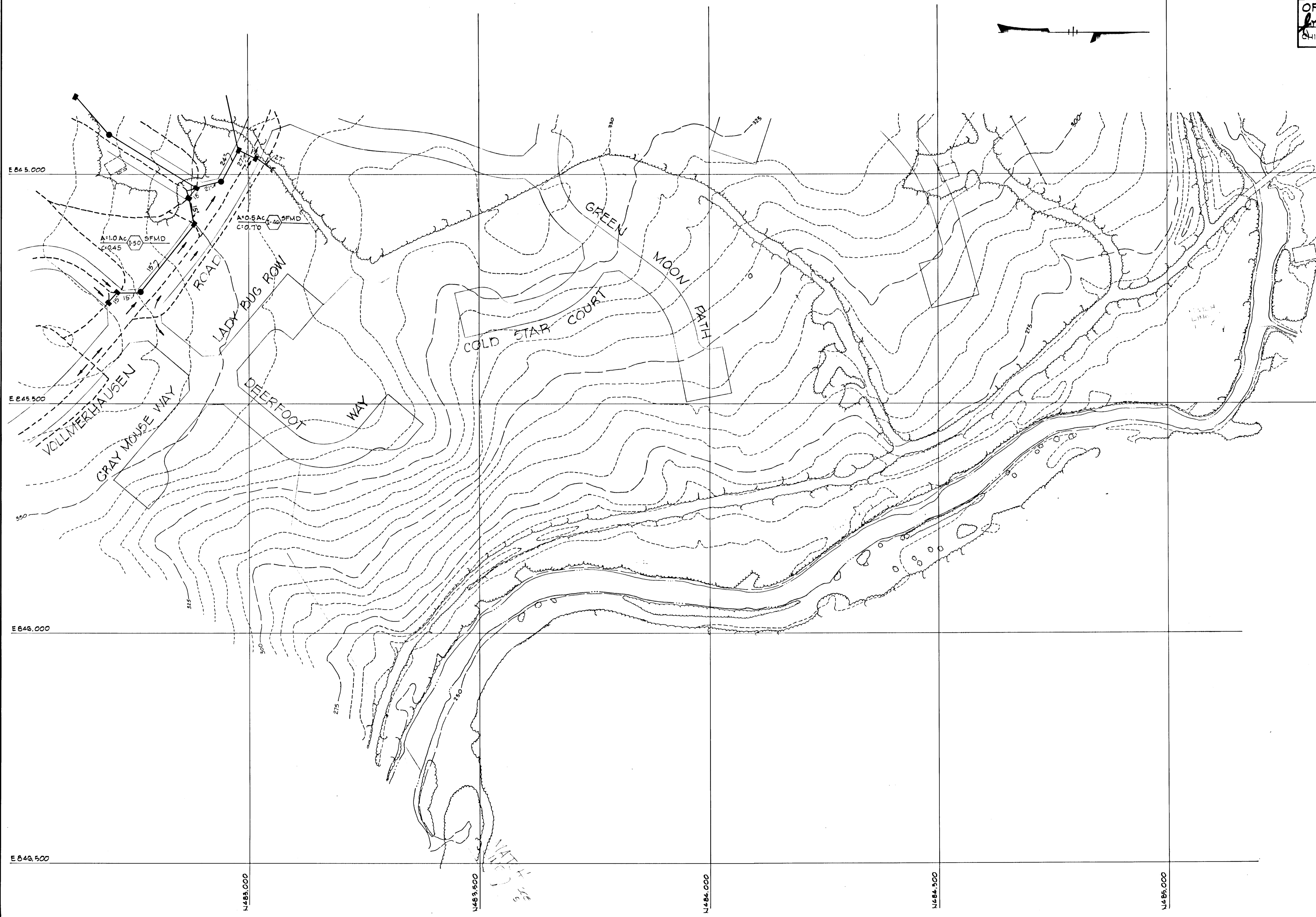
WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. McCORD
 Registered Engineer
 No. 1974

#445



8/2/78	△	Clarify D.P.W. Comments
Rev. Date	Rev. No.	Revision Description
COLUMBIA 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KINGS CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE DRAINAGE AREA MAP		
SCALE: 1"=100'		DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		



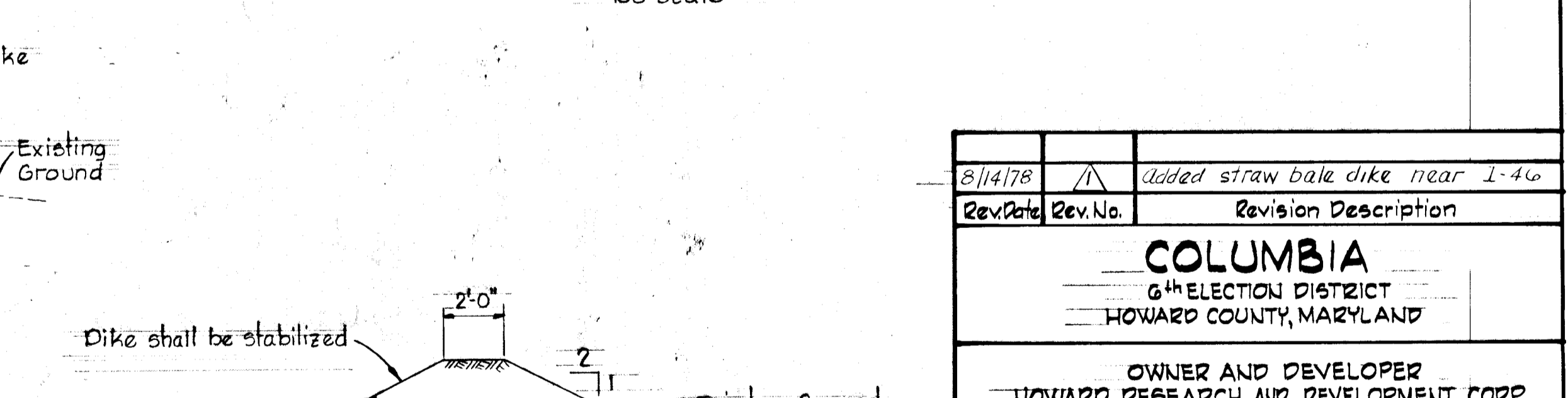
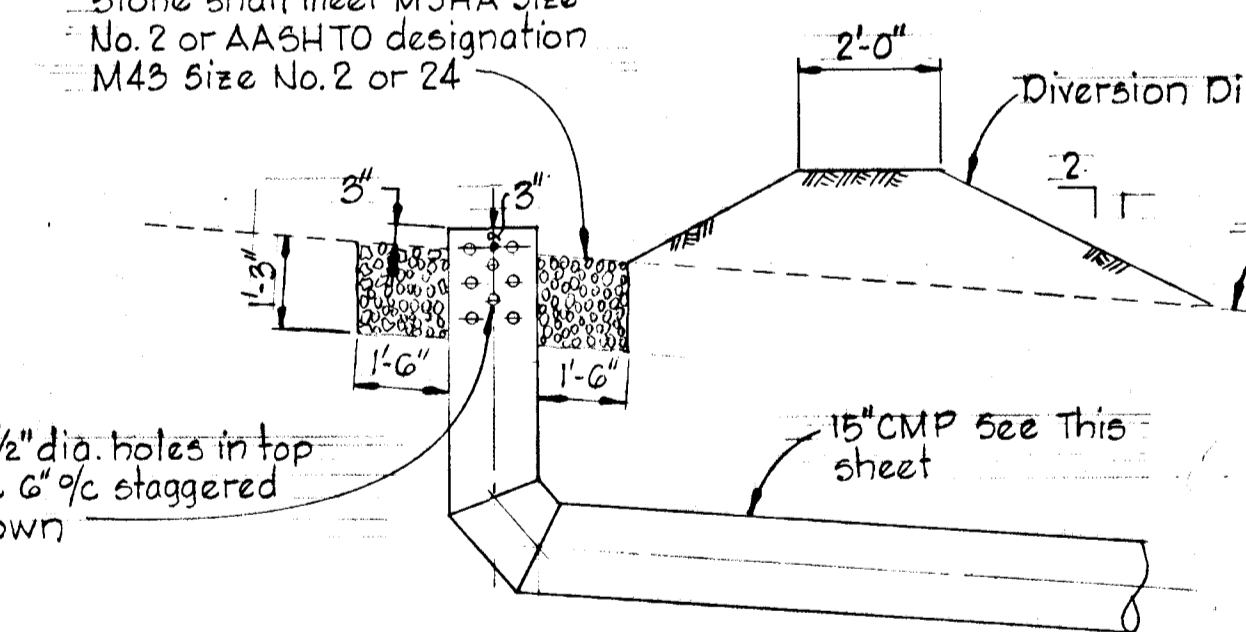
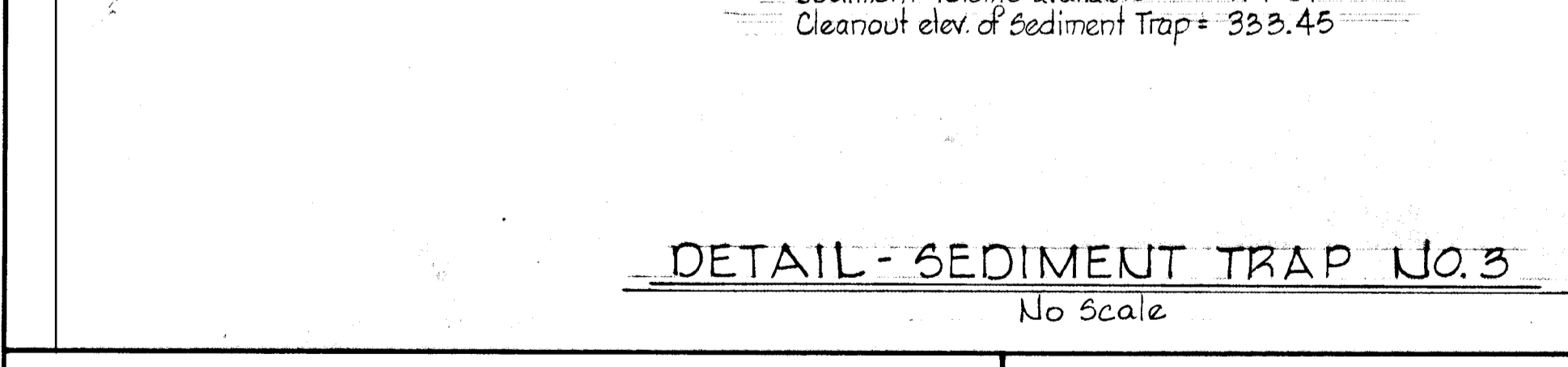
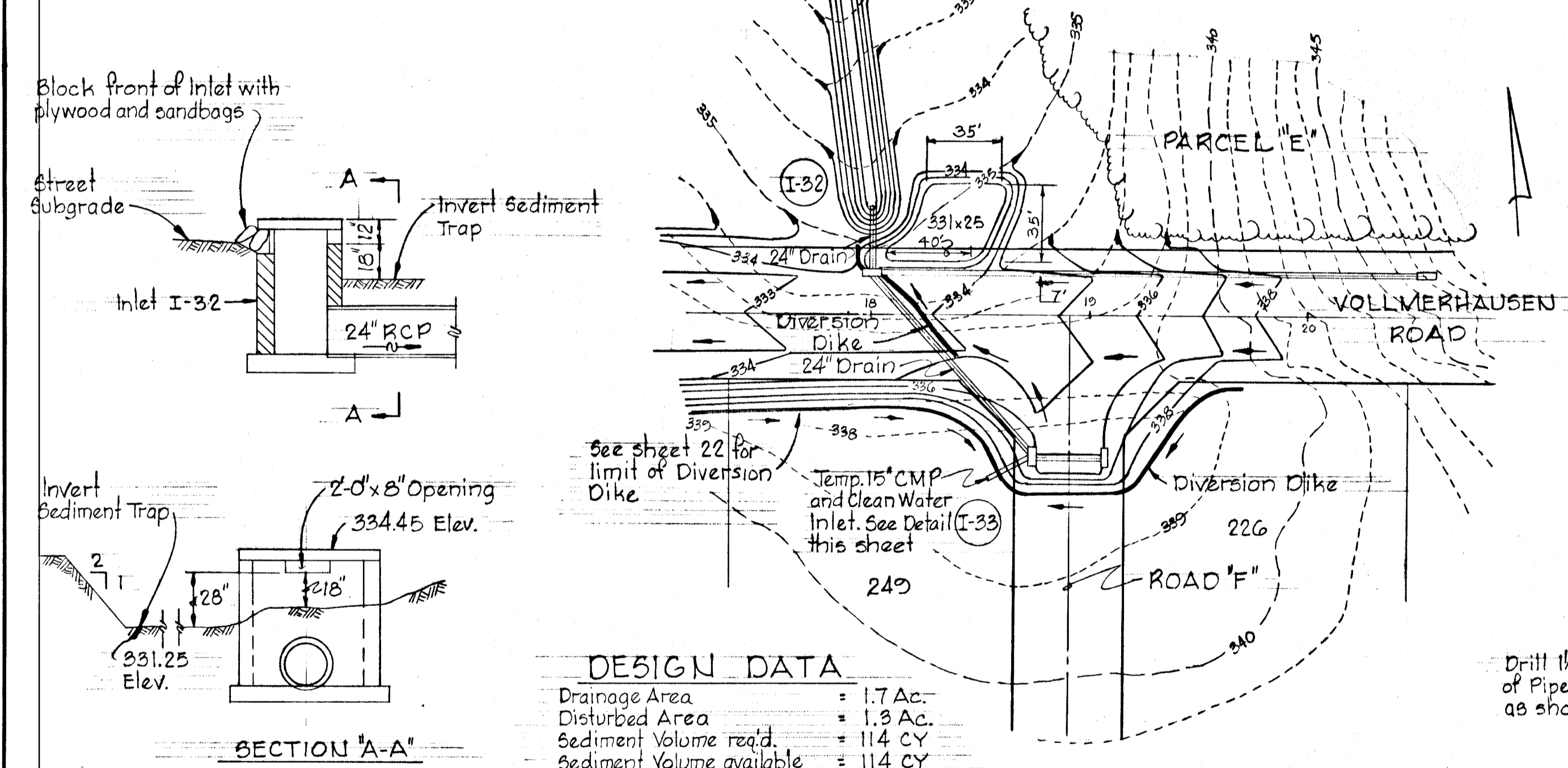
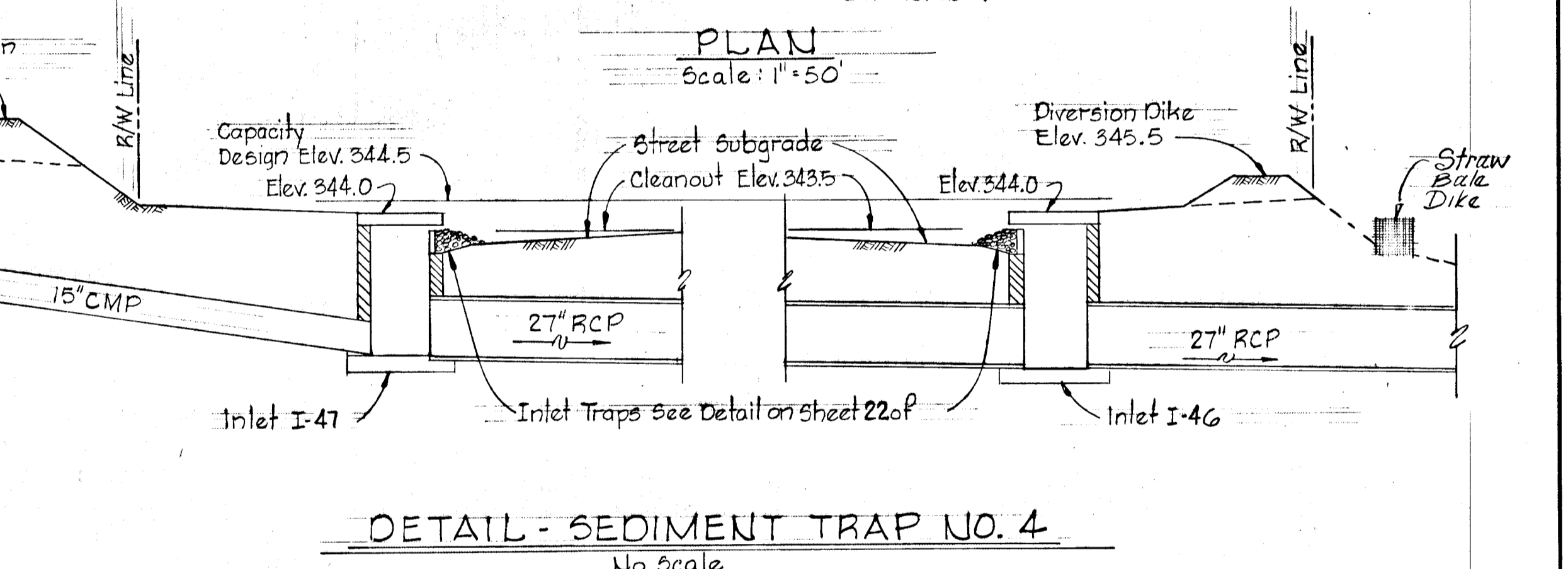
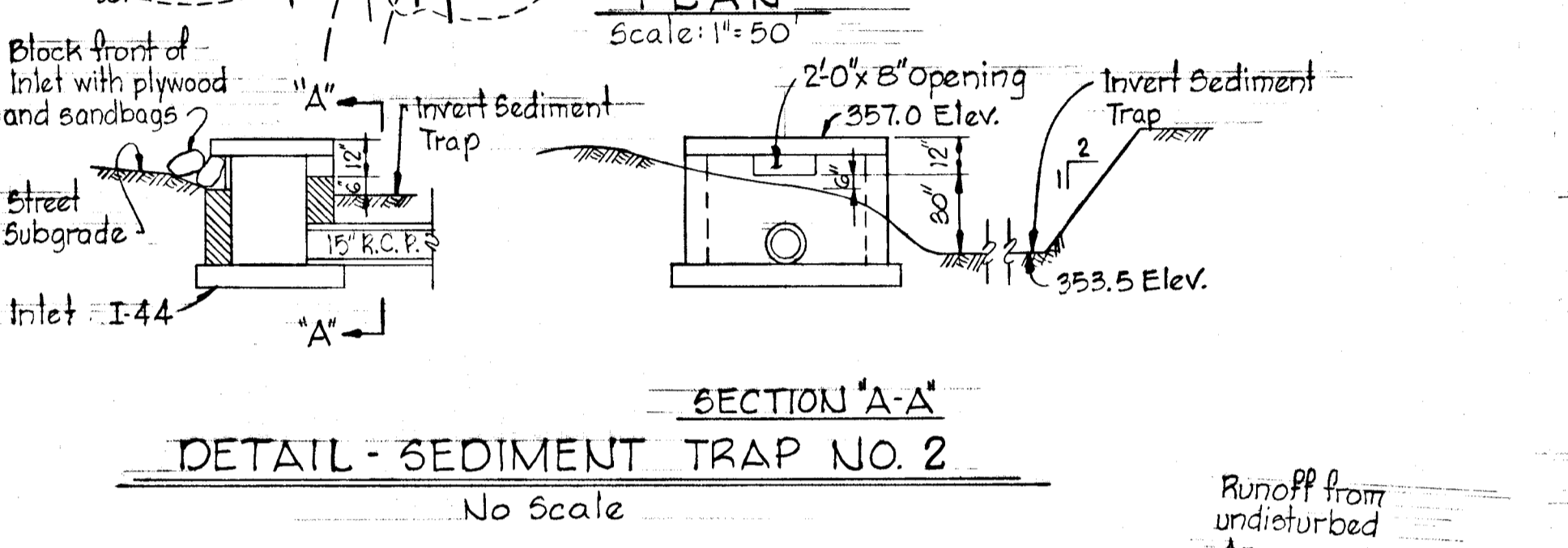
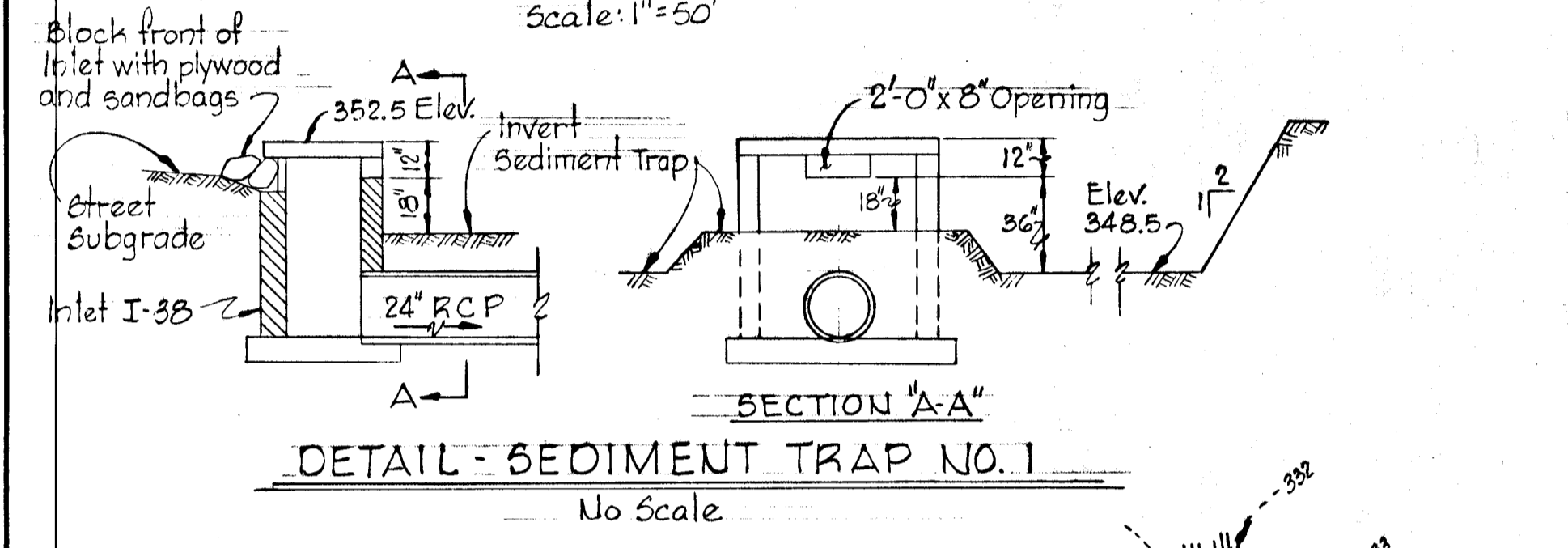
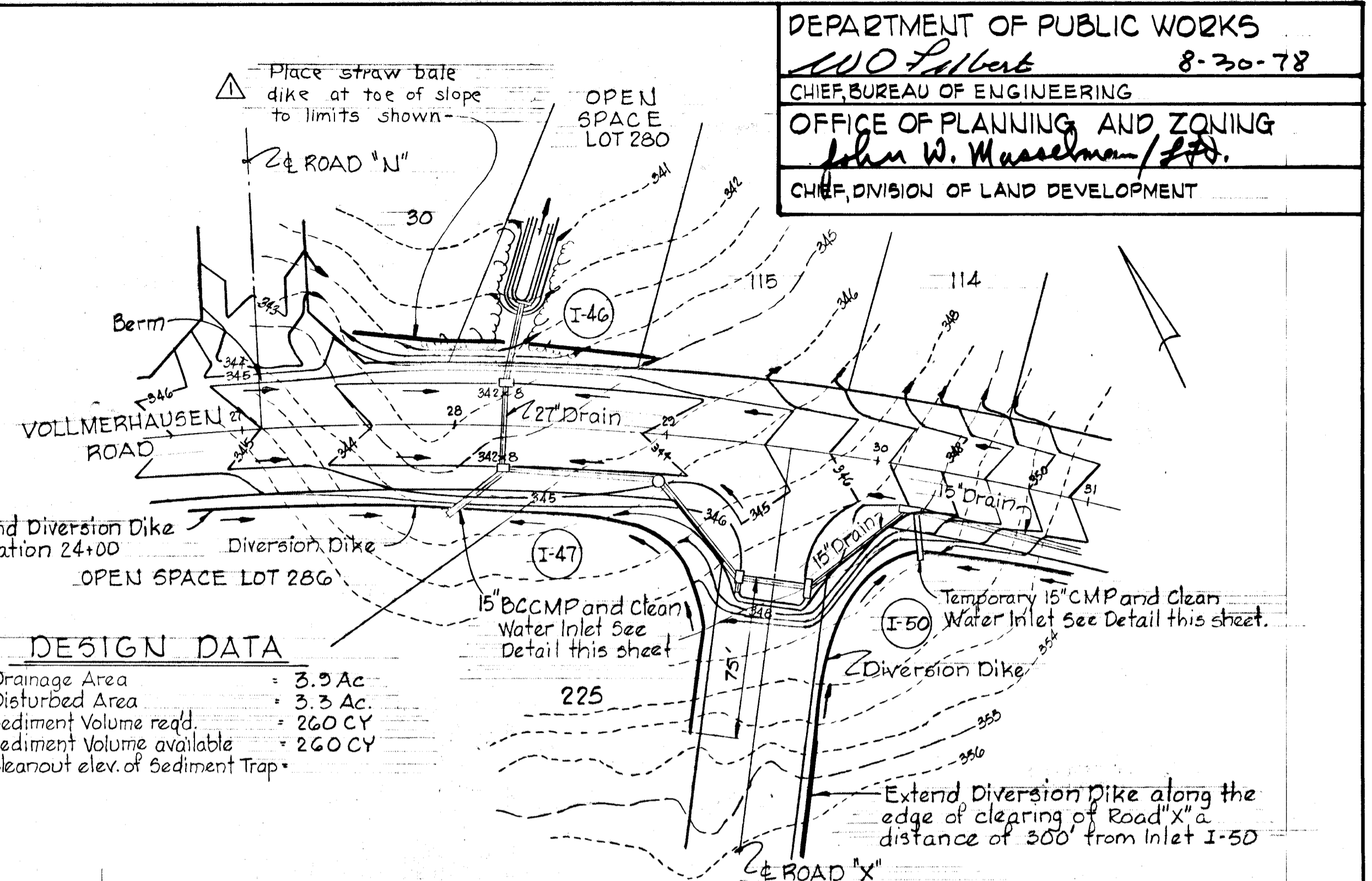
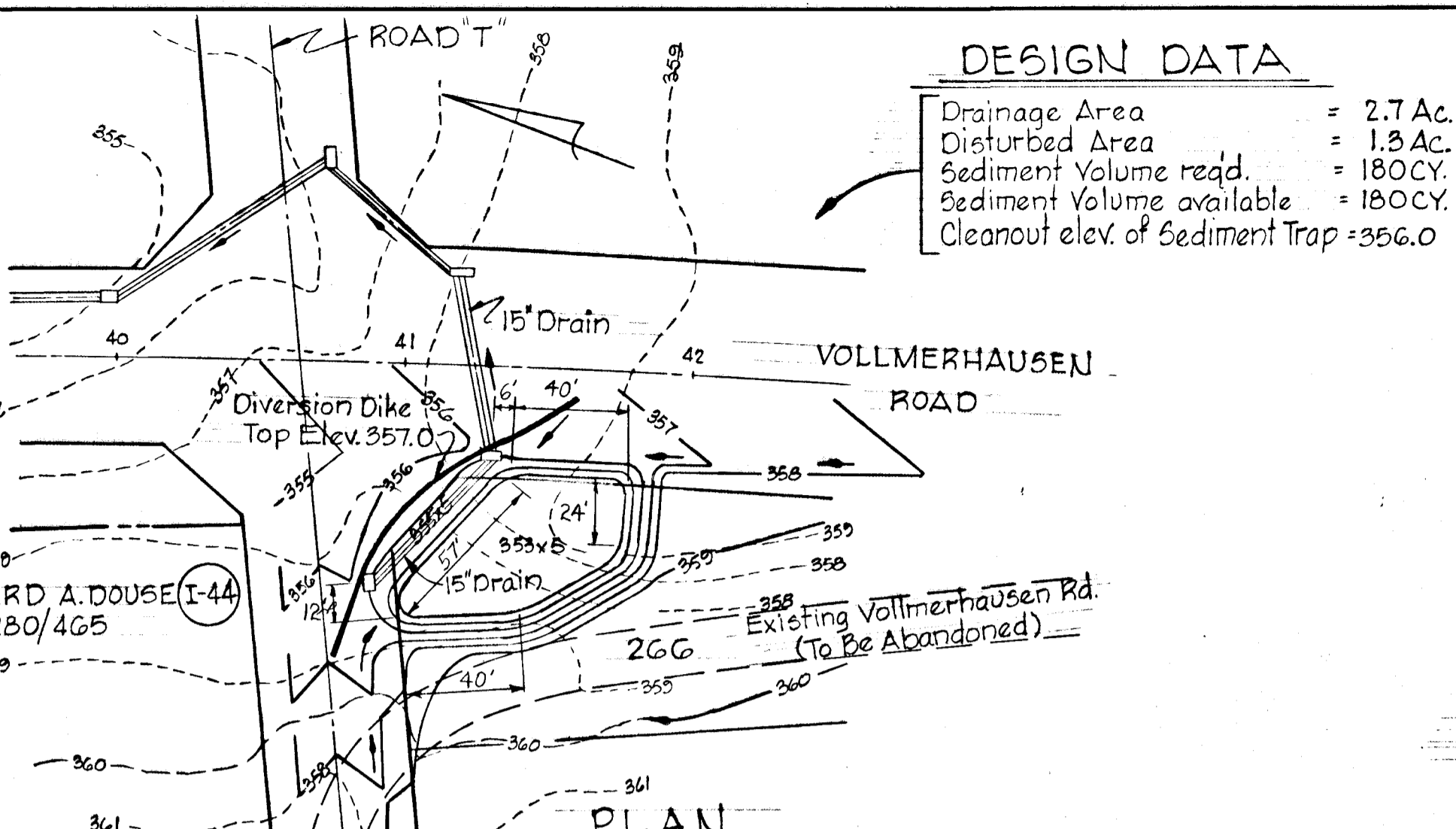
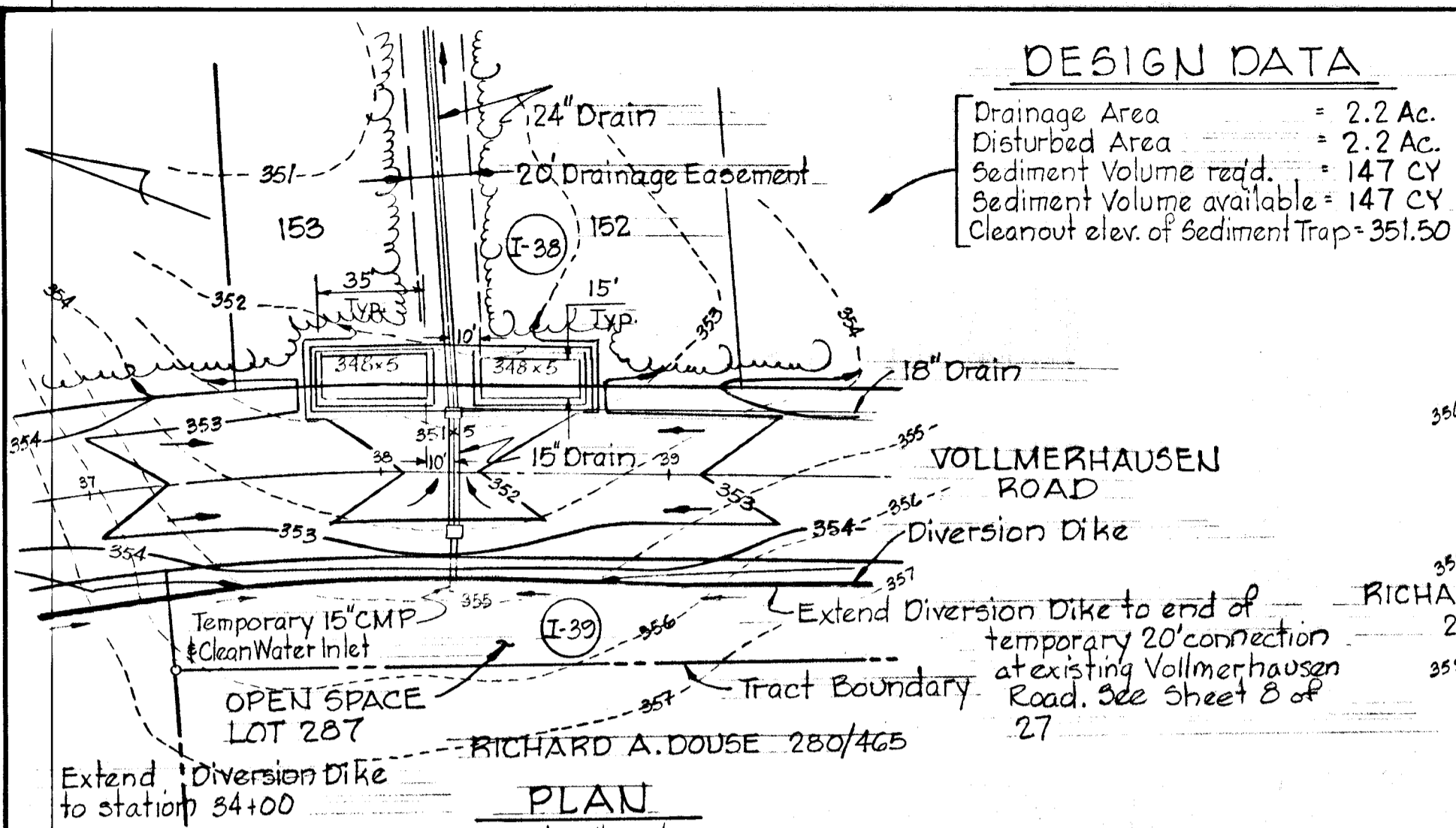
8/1/78	1	Clarify D.P.W. Comments
Rev. Date	Rev. No.	Revision Description
COLUMBIA 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KINGS CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE DRAINAGE AREA MAP		
SCALE: 1" = 100'		DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		

DEPARTMENT OF PUBLIC WORKS
W. O. Sibley 8-20-78
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
W. W. Marshall / 1978
 CHIEF, DIVISION OF LAND DEVELOPMENT



MATCH LINE

8/2/78	Δ	CLARIFY DPW COMMENTS
Rev. Date	Rev. No.	Revision Description
COLUMBIA 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KINGS CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE DRAINAGE AREA MAP		
SCALE: 1"=100'		DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		



NOTE: ALL CONTOURS SHOWN WITHIN STREET PAVING AREAS DENOTE SUBGRADES

Stone shall meet MSHA Size No. 2 or AASHTO designation M43 Size No. 2 or 24

Drill 1/2" dia. holes in top of Pipe 6" @ 9" staggered as shown

GENERAL NOTES

- See "Sequence of Construction" on sheet 1.
- Prior to starting any work, the Contractor shall notify the Howard Soil Conservation District at least 24 hours in advance of notice to begin.
- The sediment control measures shall be constructed as shown on these drawings.
- The storm water management ponds No. 1 and No. 2 are initially sediment basins. See sheets 25, 26 and 27 for details and specifications.
- All diversion dikes shall be seeded as specified in notes G and 7. All other surfaces to be seeded shall be permanently seeded. See specifications on sheet 27.
- The diversion dikes shall be hydroseeded as follows:
 - a. ground limestone - (50#/1000²), one ton/acre
 - b. Fertilizer - 10-10-10 (25/1000²), 1/2 ton/acre
 - c. Seed - Italian Rye grass 40#/acre
- Mulch with straw at the rate of 50#/1000² or one ton per acre. Anchor with asphalt at the rate of 480 gallons/acre.

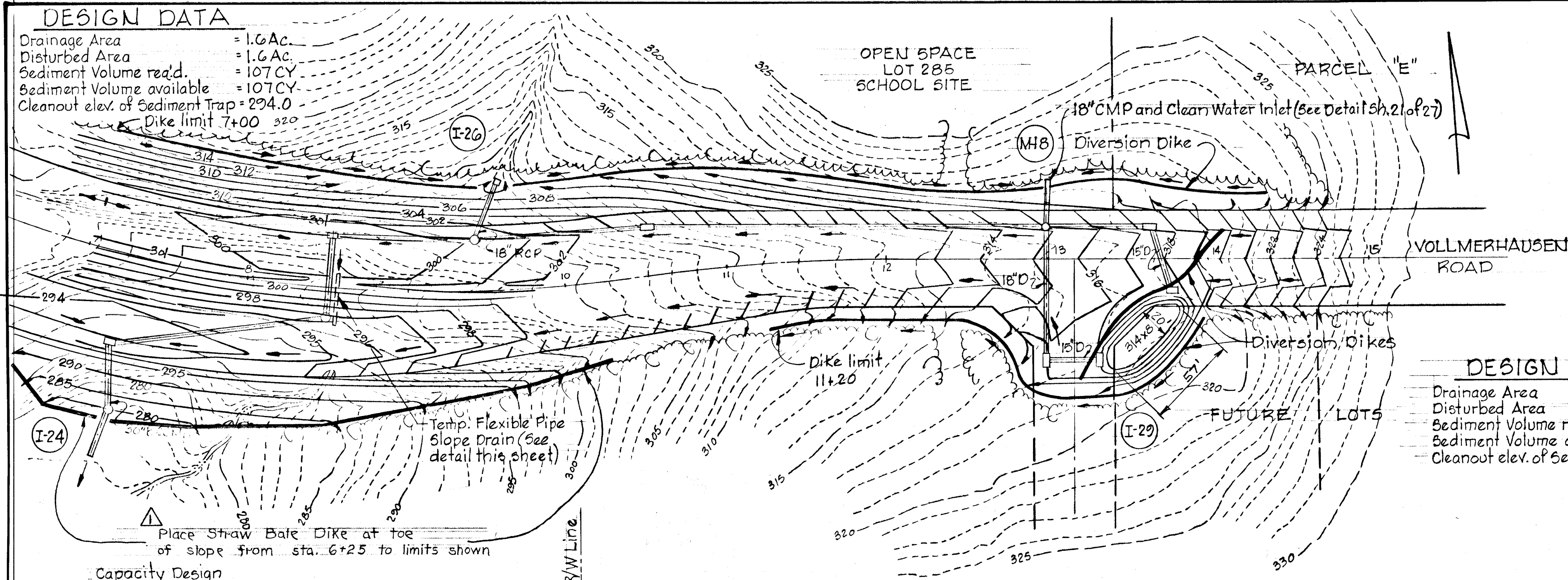
CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to this plan of development and plan for Erosion and Sediment Control, and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
Walter E. Woodruff 6-22-78
 Signature of Developer Date

CERTIFICATION BY THE ENGINEER
 I certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Kenneth A. McCord 6-22-78
 Kenneth A. McCord P.E. 1974 Date

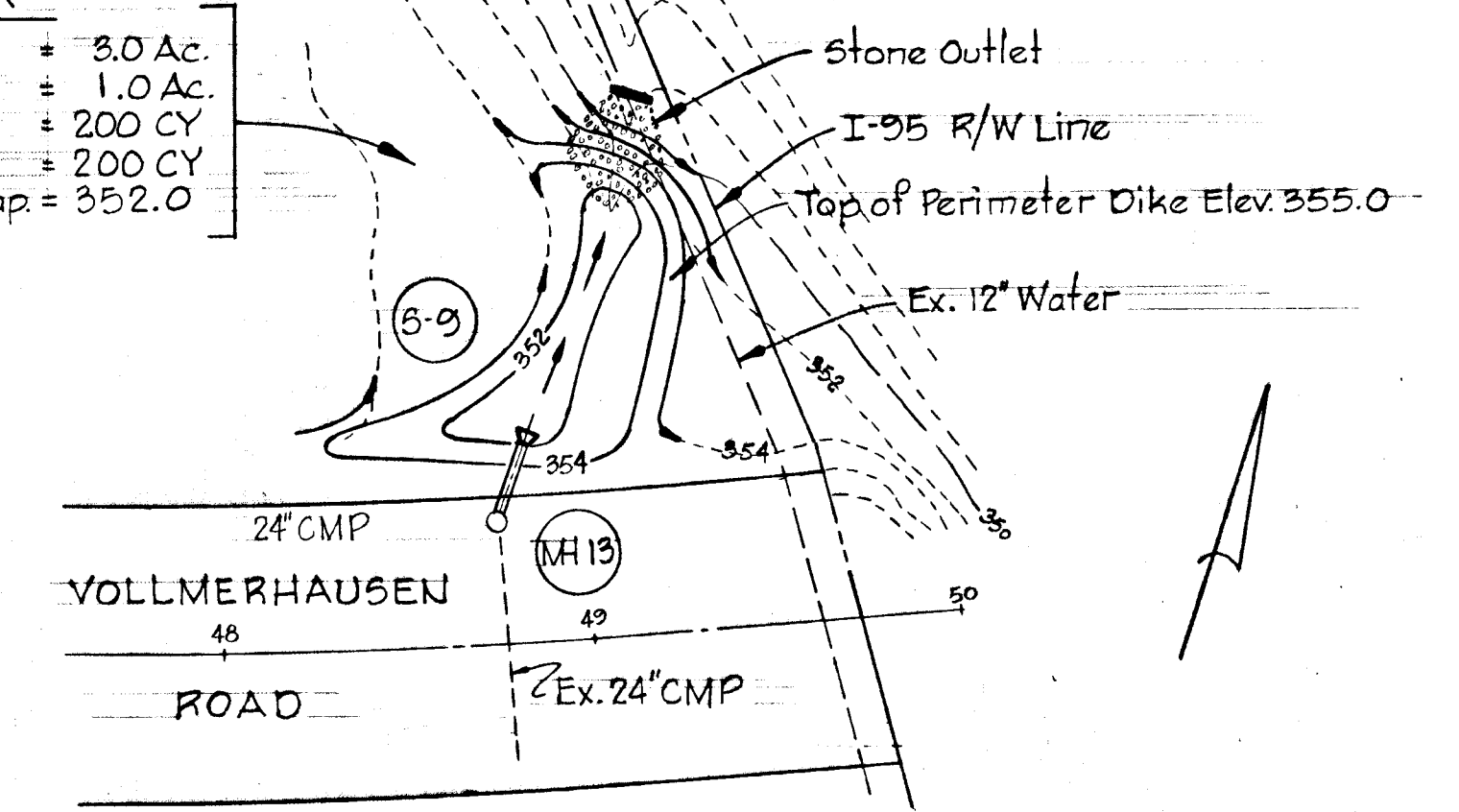
THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
C. Wayne Gray 8-24-78
 U.S. SOIL CONSERVATION DISTRICT Date

THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT
 APPROVED: *W. O. Libert* 8-24-78
 HOWARD S.C.D. Date
 PLAN NUMBER

8/14/78	W	Added straw bale dike near I-46
Rev. No.	Rev. No.	Revision Description
COLUMBIA 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KING'S CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE TEMPORARY SEDIMENT TRAPS NO. 1 THRU NO. 4 AND DETAILS		
SCALE: As Shown	DATE: June 22, 1978	
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCord Registered Engineer No. 1974		

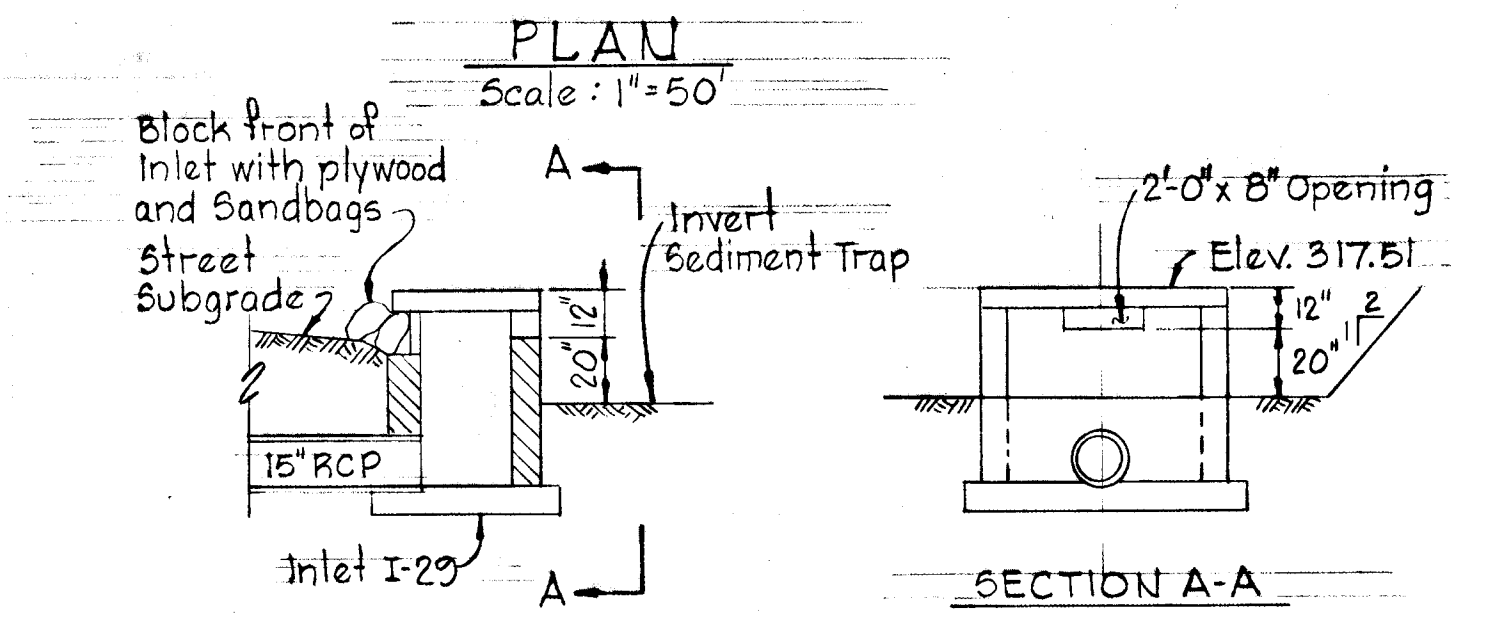


DESIGN DATA
 Drainage Area = 3.0 Ac.
 Disturbed Area = 1.0 Ac.
 Sediment Volume reqd. = 200 CY
 Sediment Volume available = 200 CY
 Cleanout elev. of Sediment Trap = 352.0

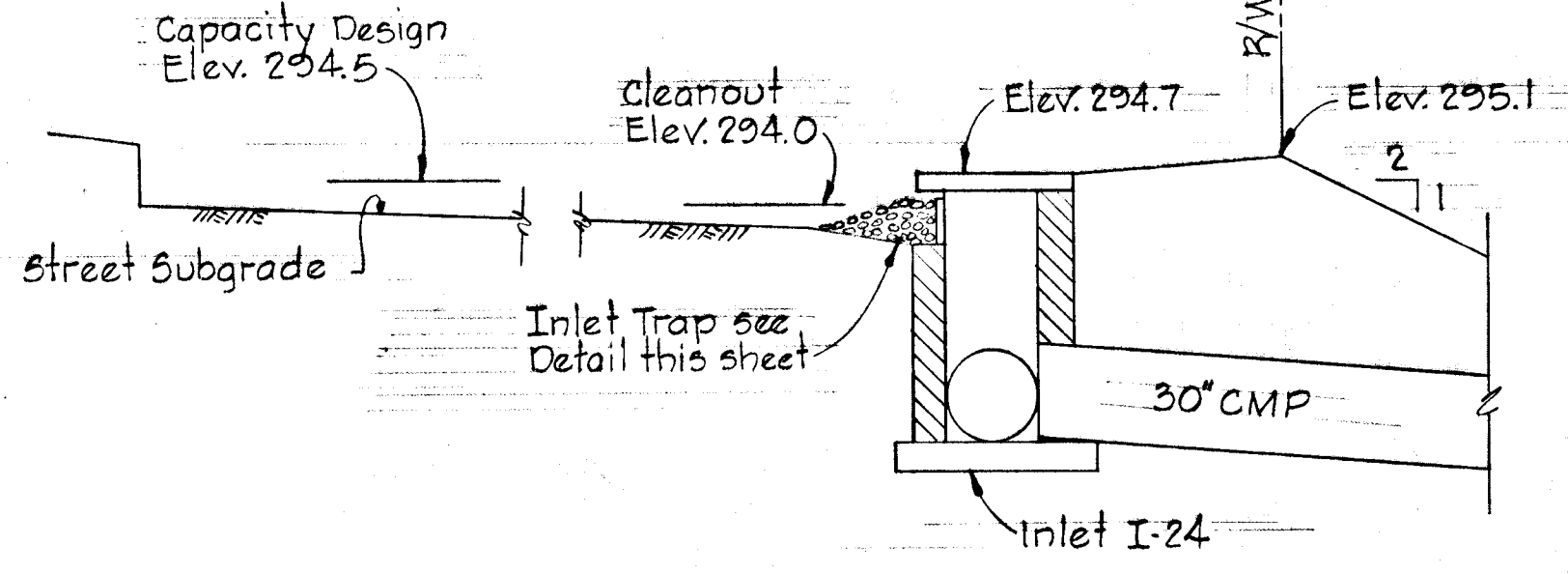


PLAN
 Scale: 1" = 50'

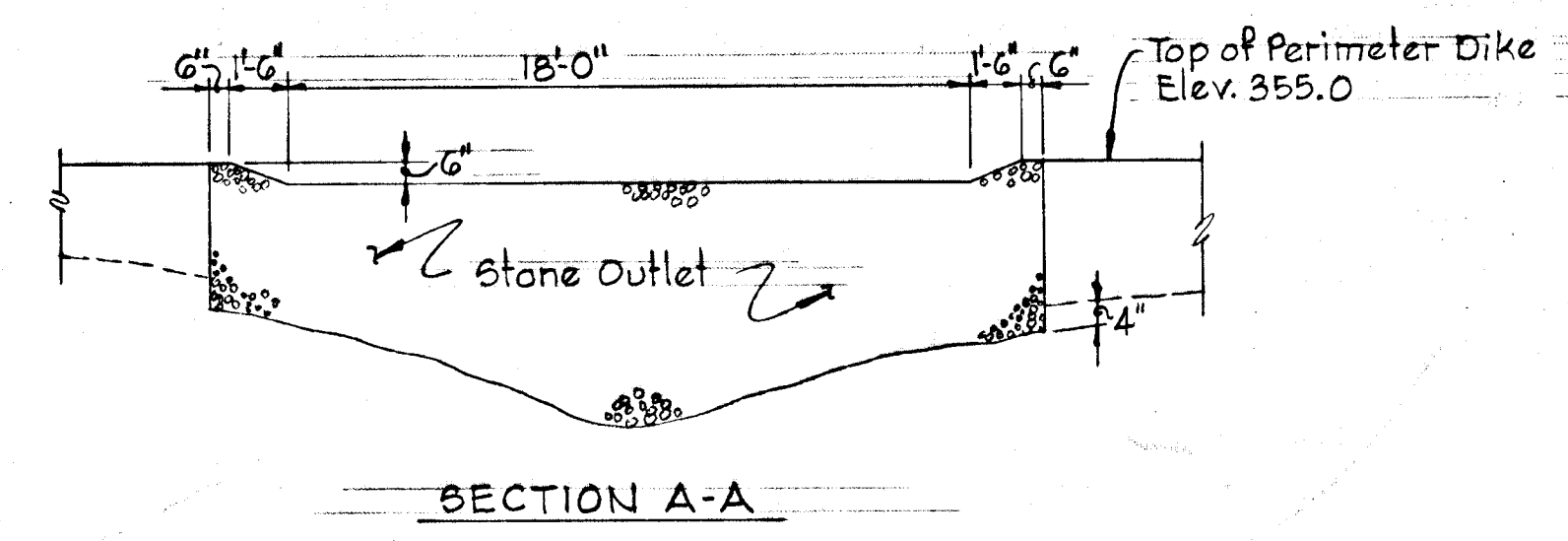
DESIGN DATA
 Drainage Area = 0.7 Ac.
 Disturbed Area = 0.7 Ac.
 Sediment Volume reqd. = 47 CY
 Sediment Volume available = 47 CY
 Cleanout elev. of Sediment Trap = 316.51



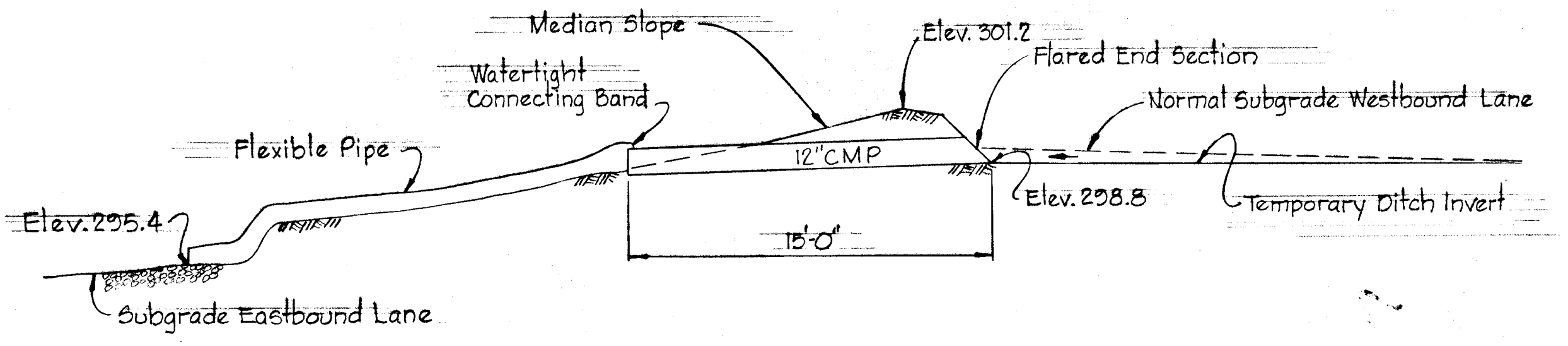
DETAIL - SEDIMENT TRAP NO. 6
 No Scale



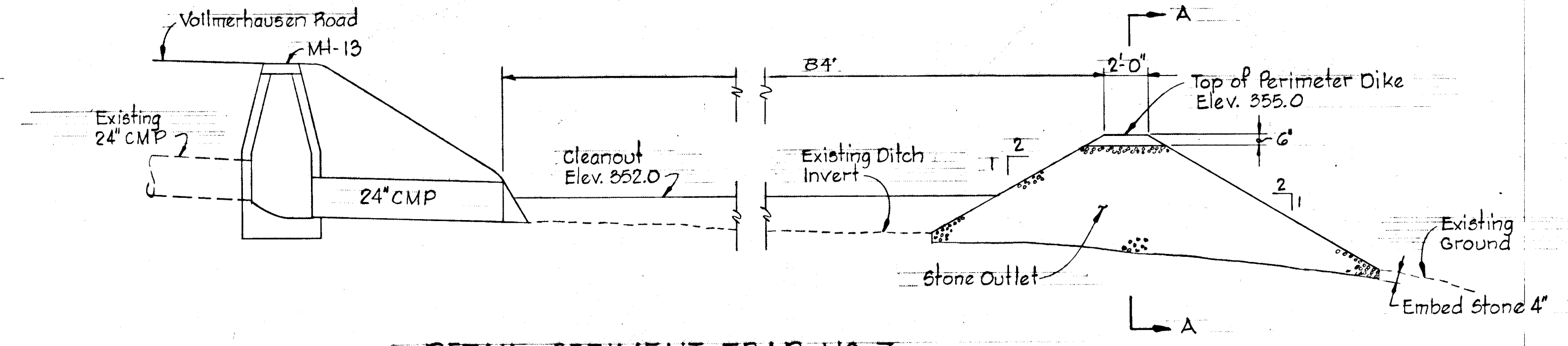
DETAIL - SEDIMENT TRAP NO. 5
 No Scale



DETAIL - SEDIMENT TRAP NO. 7
 No Scale



DETAIL - FLEXIBLE PIPE SLOPE DRAIN @ STA. 8+50 VOLLMERHAUSEN ROAD
 No Scale



TRAP @ INLETS I-24, 46 AND 47
 Scale 3/8" = 1'-0"

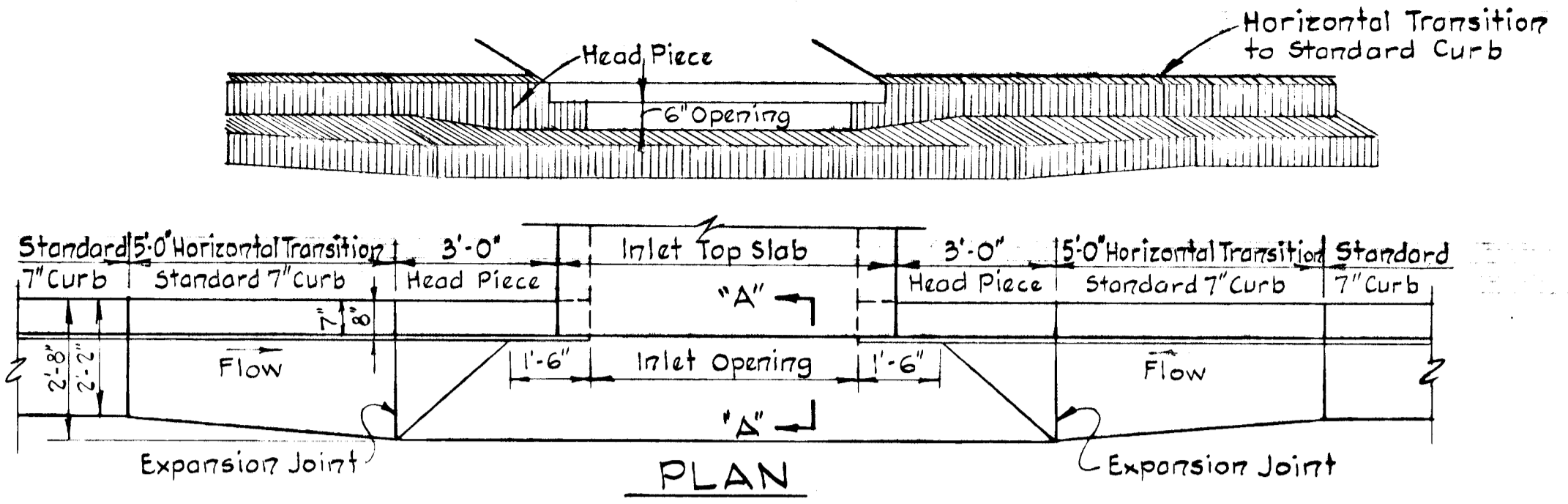
8/14/78	Δ	Added Straw bale dike near I-24
Rev. Date	Rev. No.	Revision Description
COLUMBIA 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KINGS CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE TEMPORARY SEDIMENT TRAPS NO. 5 THRU NO. 7 AND DETAILS		
SCALE: As Shown		DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to this plan of development and plan for Erosion and Sediment Control, and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
Walter Woodruff 6-22-78
 Signature of Developer Date

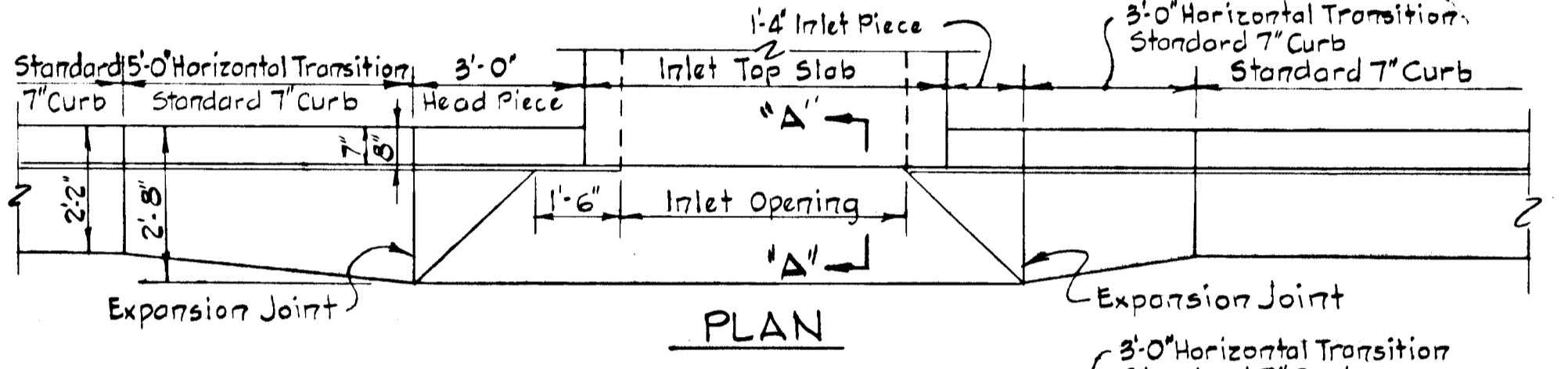
CERTIFICATION BY THE ENGINEER
 I certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Kenneth A. McCord 6-22-78
 Kenneth A. McCord P.E. 1974 Date

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
W. Wayne Ray 8-24-78
 U.S. SOIL CONSERVATION DISTRICT Date

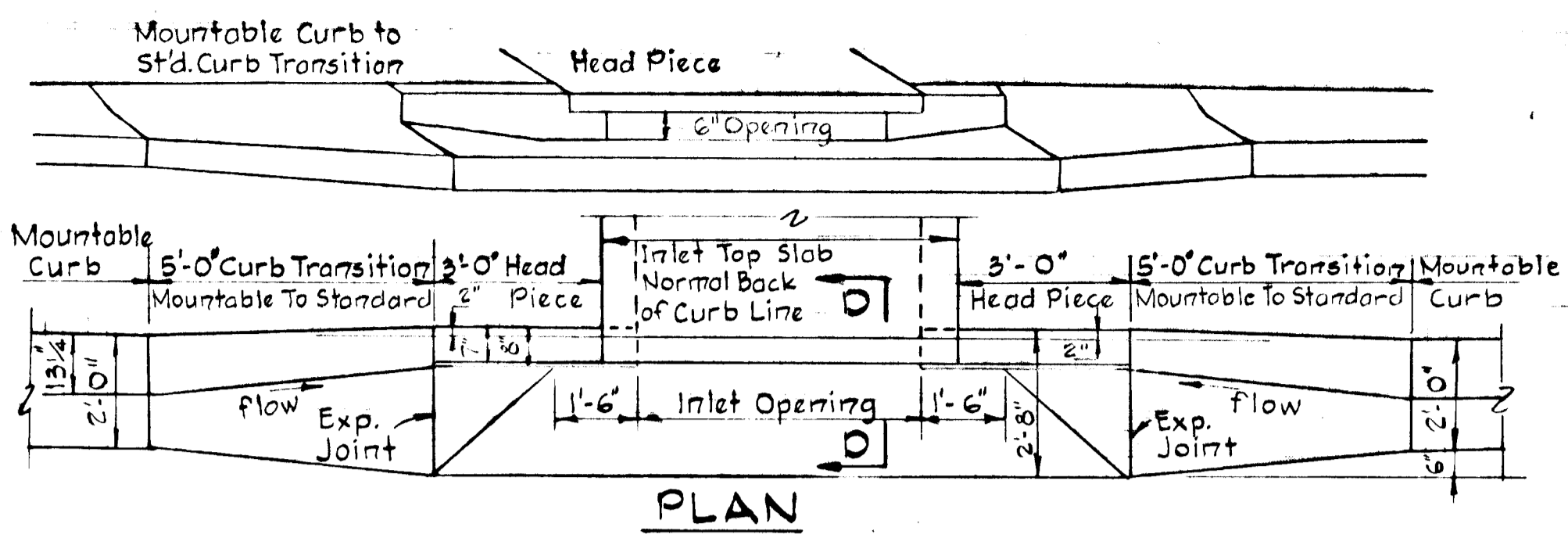
THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT
 APPROVED: *Wes Egan* 8-24-78
 HOWARD S.C.D. Date
 PLAN NUMBER



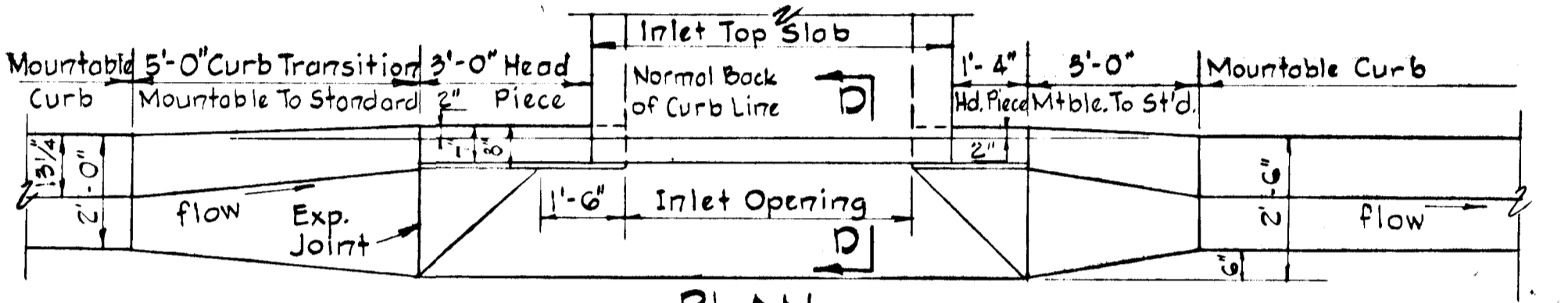
SECTION ALONG FLOW LINE
SUMPED "A" INLETS - STANDARD CURB



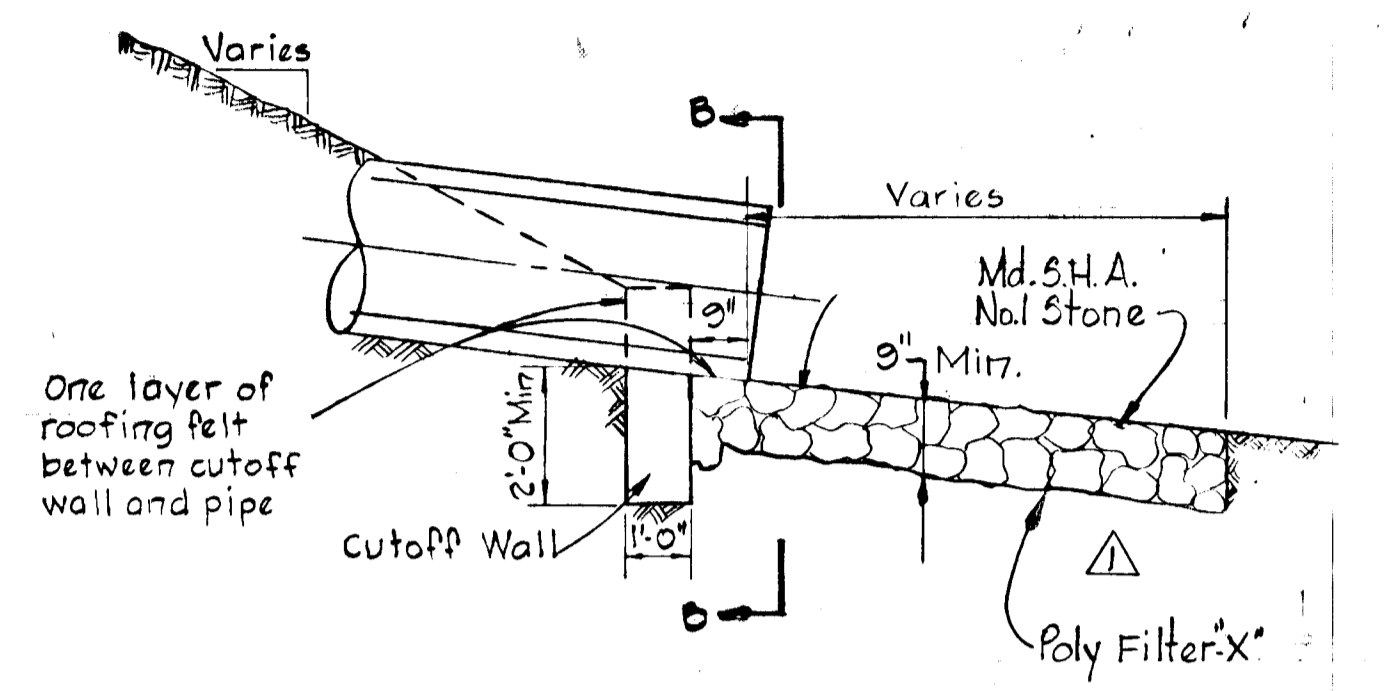
SECTION ALONG FLOW LINE
"A" INLETS - STANDARD CURB



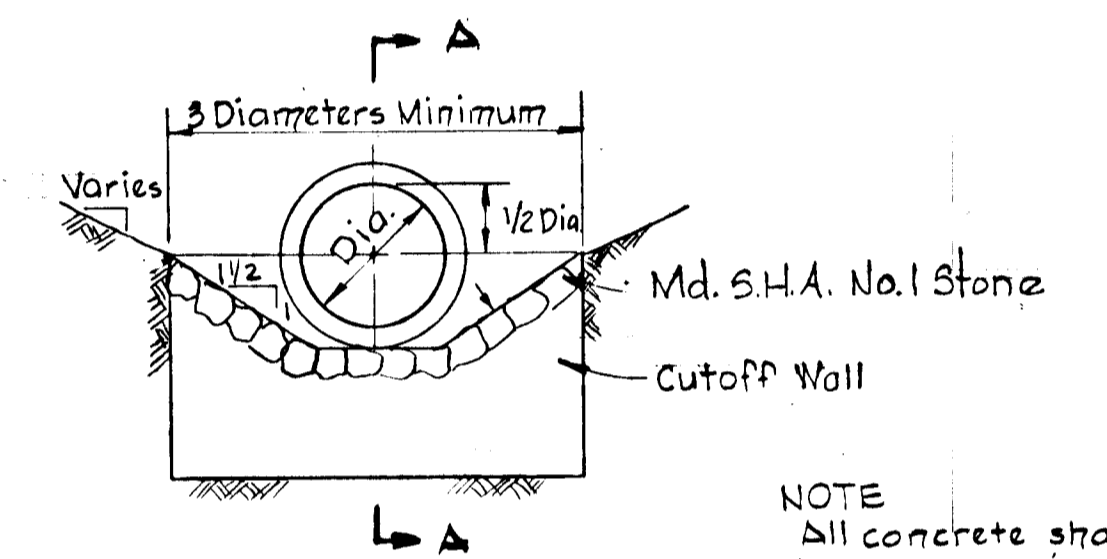
SECTION ALONG FLOW LINE
SUMPED "A" INLETS - MOUNTABLE CURB



SECTION ALONG FLOW LINE
"A" INLETS - MOUNTABLE CURB



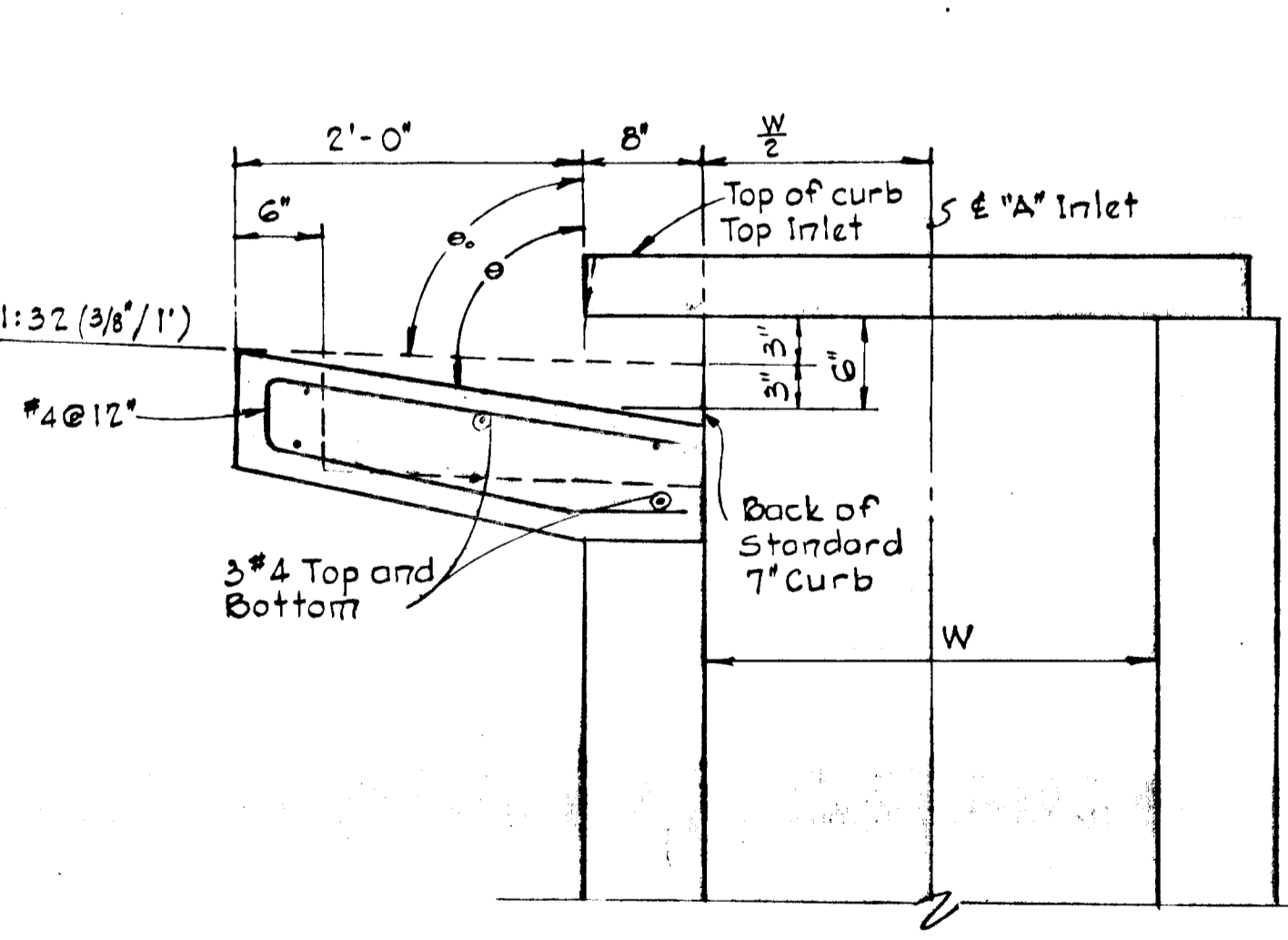
SECTION A-A



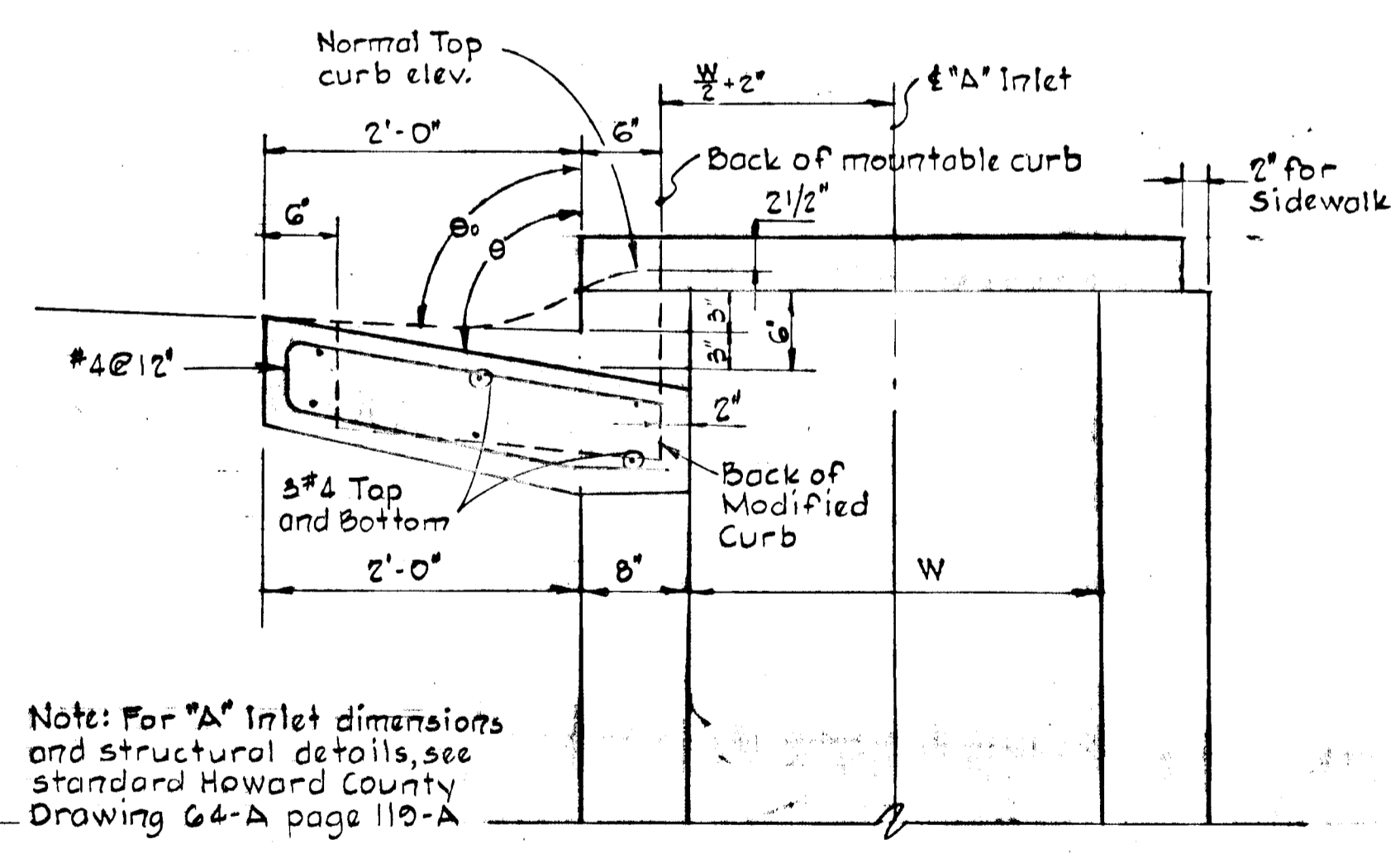
SECTION B-B

DETAIL - CUTOFF WALL
 AND OUTLET PAVING
 No Scale

NOTE
 All concrete shall
 be 3000 p.s.i.



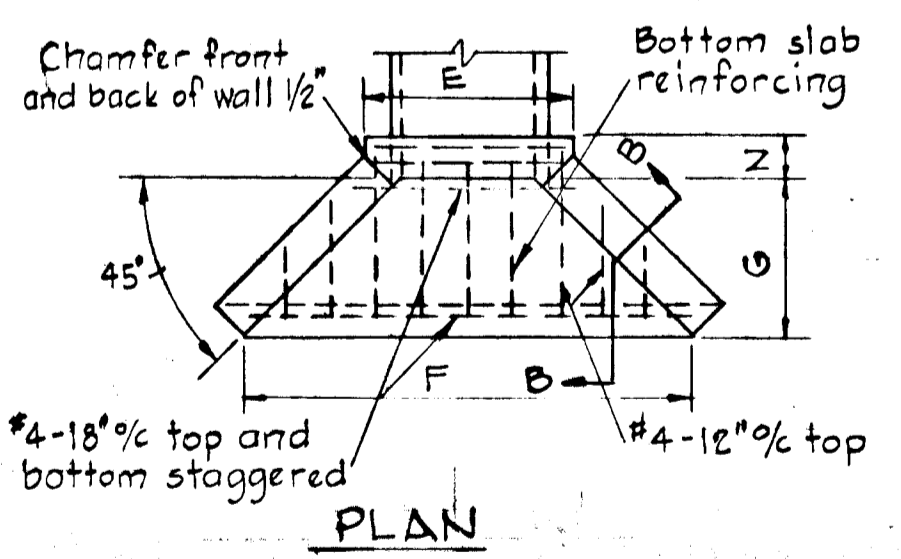
SECTION C-C
"A" INLET - STANDARD CURB



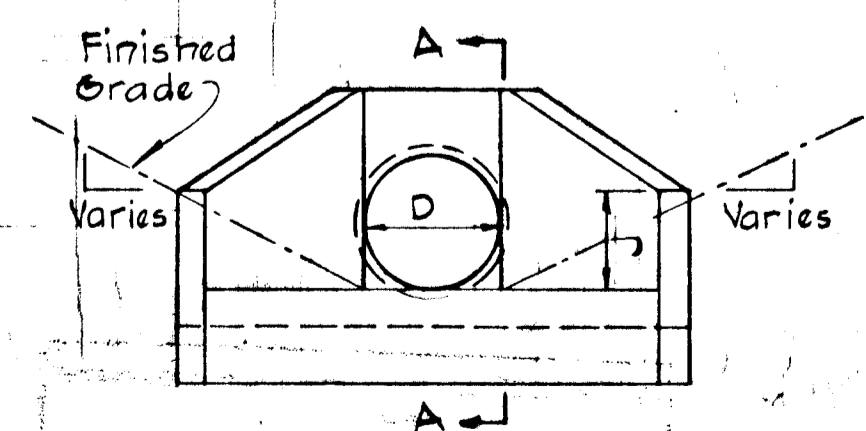
SECTION D-D
"A" INLET - MOUNTABLE CURB

THIS DEVELOPMENT PLAN IS APPROVED
 FOR SOIL EROSION AND SEDIMENT
 CONTROL BY THE HOWARD SOIL
 CONSERVATION DISTRICT.
 Approved: [Signature] Date: 8-22-78
 Howard S.C.D.

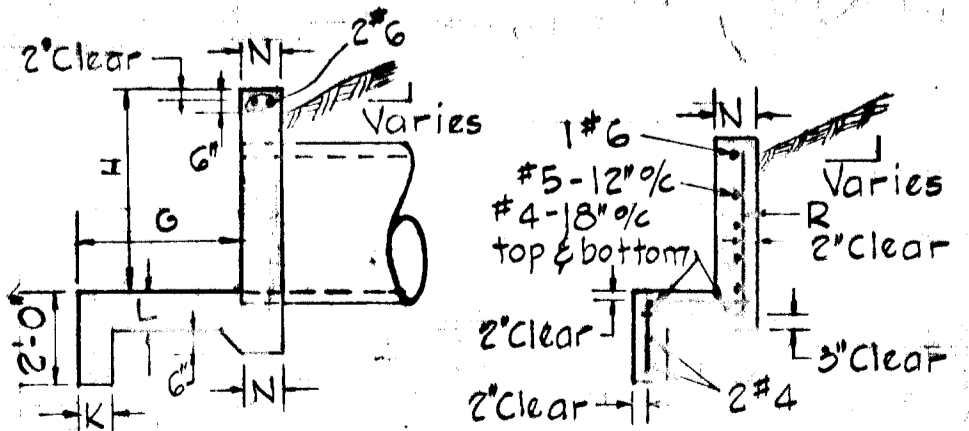
Employed for: Howard S.C.D.
 Name: [Signature]
 and meets Technical Requirements
 Date: 8-24-78
 Signature: [Signature]
 Date: 8-24-78
 Conservation Service



PLAN



FRONT ELEVATION



SECTION A-A

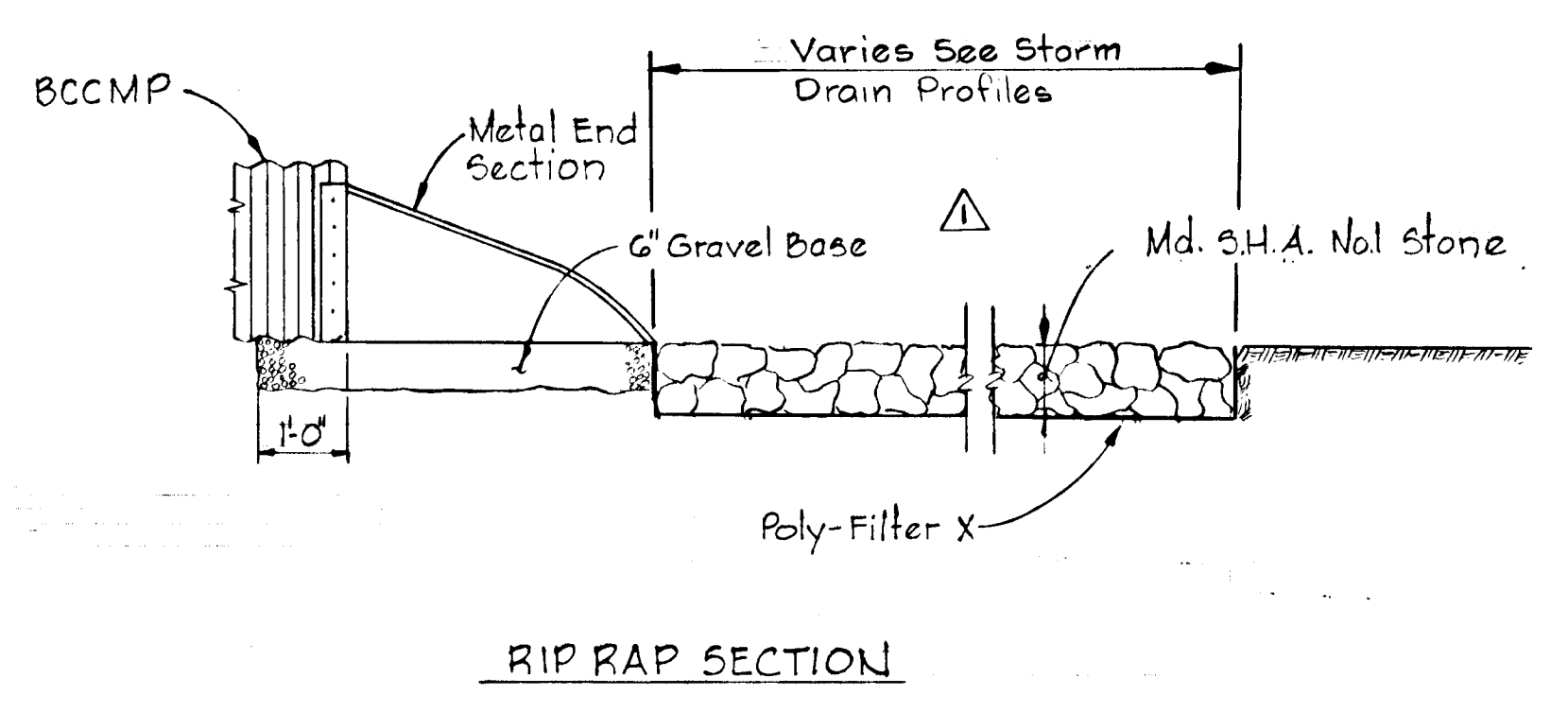
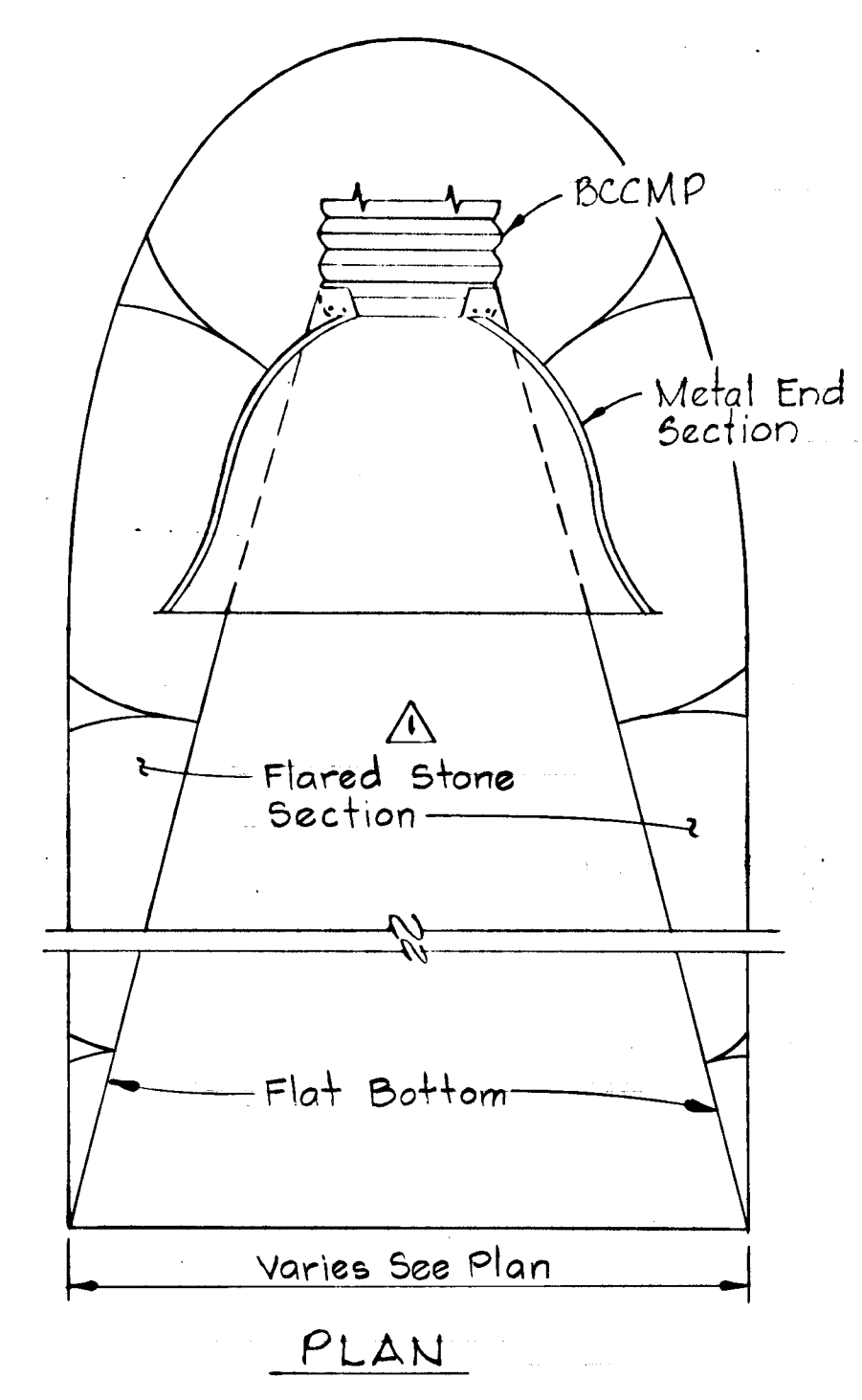
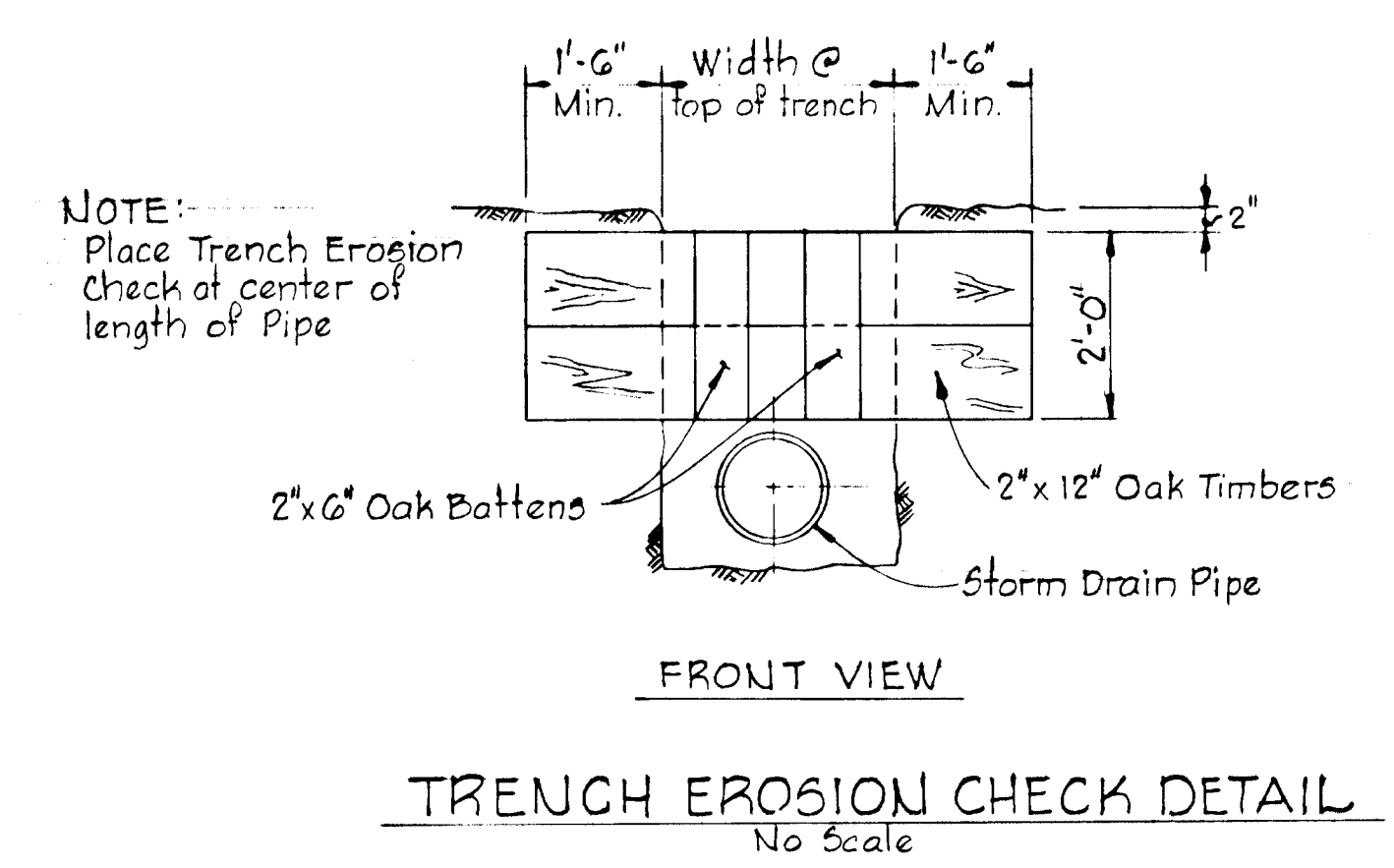
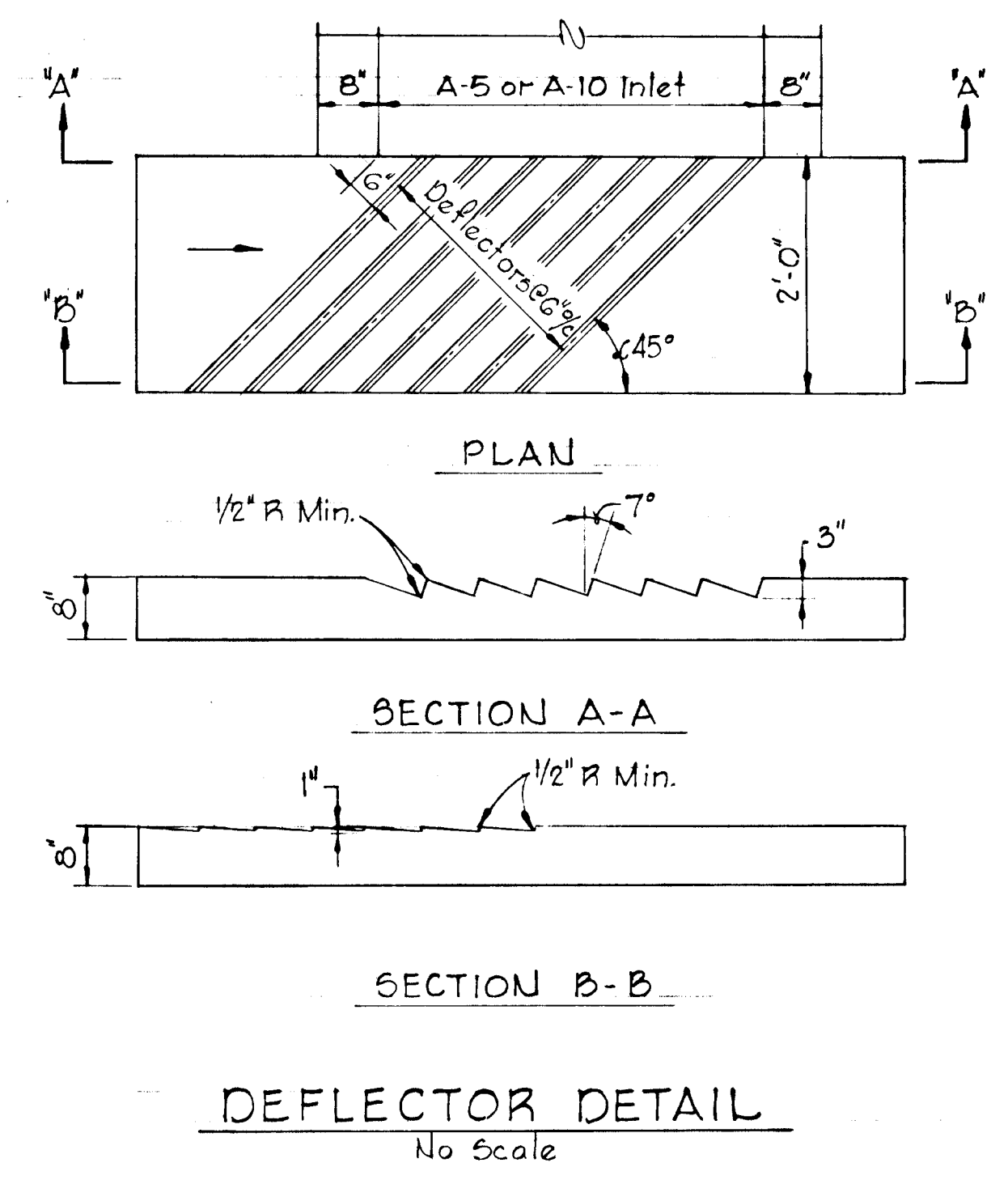
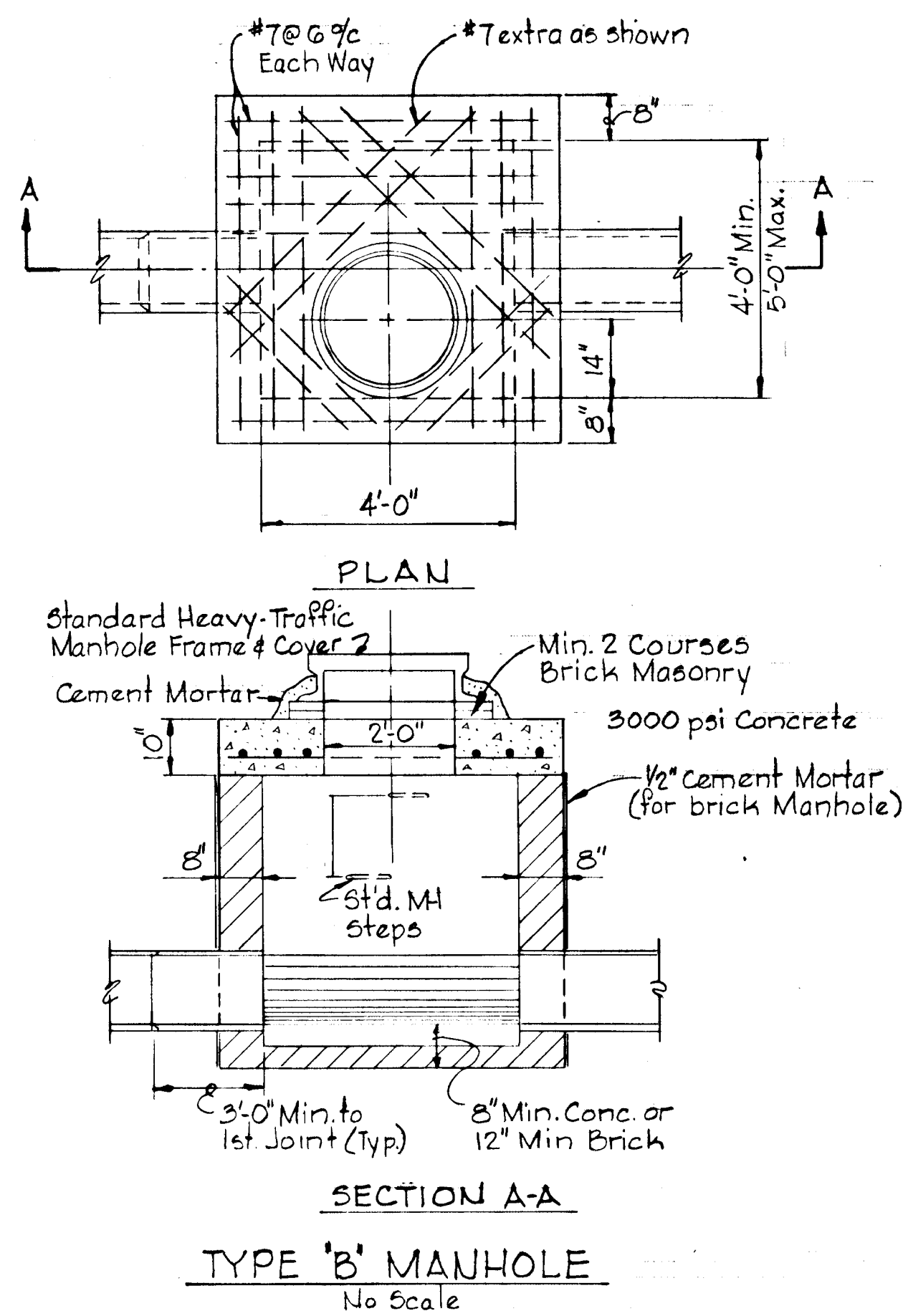
SECTION B-B

- NOTES:
- Exposed edges shall be chamfered 1"x1".
 - All concrete shall be 3000 psi.

DETAIL - TYPE "A" HEADWALL
 No Scale

D	E	F	G	H	J	K	L	N	R
16'	3'-0"	7'-6"	3'-0"	3'-0"	2'-0"	8'	8'	8'	#5-12% 2'-0"
24'	3'-4"	7'-9"	3'-0"	3'-0"	2'-0"	8'	8'	8'	#5-12% 2'-0"
27'	3'-8"	8'-0"	3'-0"	3'-0"	2'-0"	8'	8'	8'	#5-12% 2'-0"
30'	4'-2"	8'-6"	3'-0"	4'-0"	2'-1"	8'	8'	10'	#5-12% 2'-0"
36'	4'-8"	10'-0"	3'-0"	4'-6"	2'-5"	8'	10'	10'	#5-12% 2'-0"
42'	5'-3"	11'-6"	4'-0"	5'-0"	2'-9"	8'	10'	10'	#5-12% 2'-0"
48'	5'-10"	13'-0"	4'-6"	5'-6"	3'-0"	8'	10'	12'	#5-12% 2'-0"
54'	6'-5"	14'-6"	5'-0"	6'-0"	3'-3"	8'	12'	12'	#6-8% 2'-0"
60'	7'-0"	16'-0"	5'-6"	6'-6"	3'-6"	8'	12'	12'	#6-8% 2'-0"
66'	7'-7"	17'-6"	6'-0"	7'-0"	3'-9"	8'	12'	14'	#6-8% 2'-0"
72'	8'-2"	19'-0"	6'-6"	7'-6"	4'-3"	8'	12'	14'	#6-8% 2'-0"

8/14/78	Δ	Changed stone Section @ Cutoff Wall
Rev Date	Rev No.	Revision Description
COLUMBIA		
6 th ELECTION DISTRICT		
HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER		
HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA		
VILLAGE OF KINGS CONTRIVANCE		
SECTION 3 AREA 1		
PROJECT TITLE		
STORM DRAIN DETAILS		
SCALE: As Shown	DATE: June 27, 1978	
SWITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
Kenneth A. McCord Registered Engineer No. 1974		



THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Wes Carr 8-24-78
 Approved: _____ Date: _____
 HOWARD S.C.D.

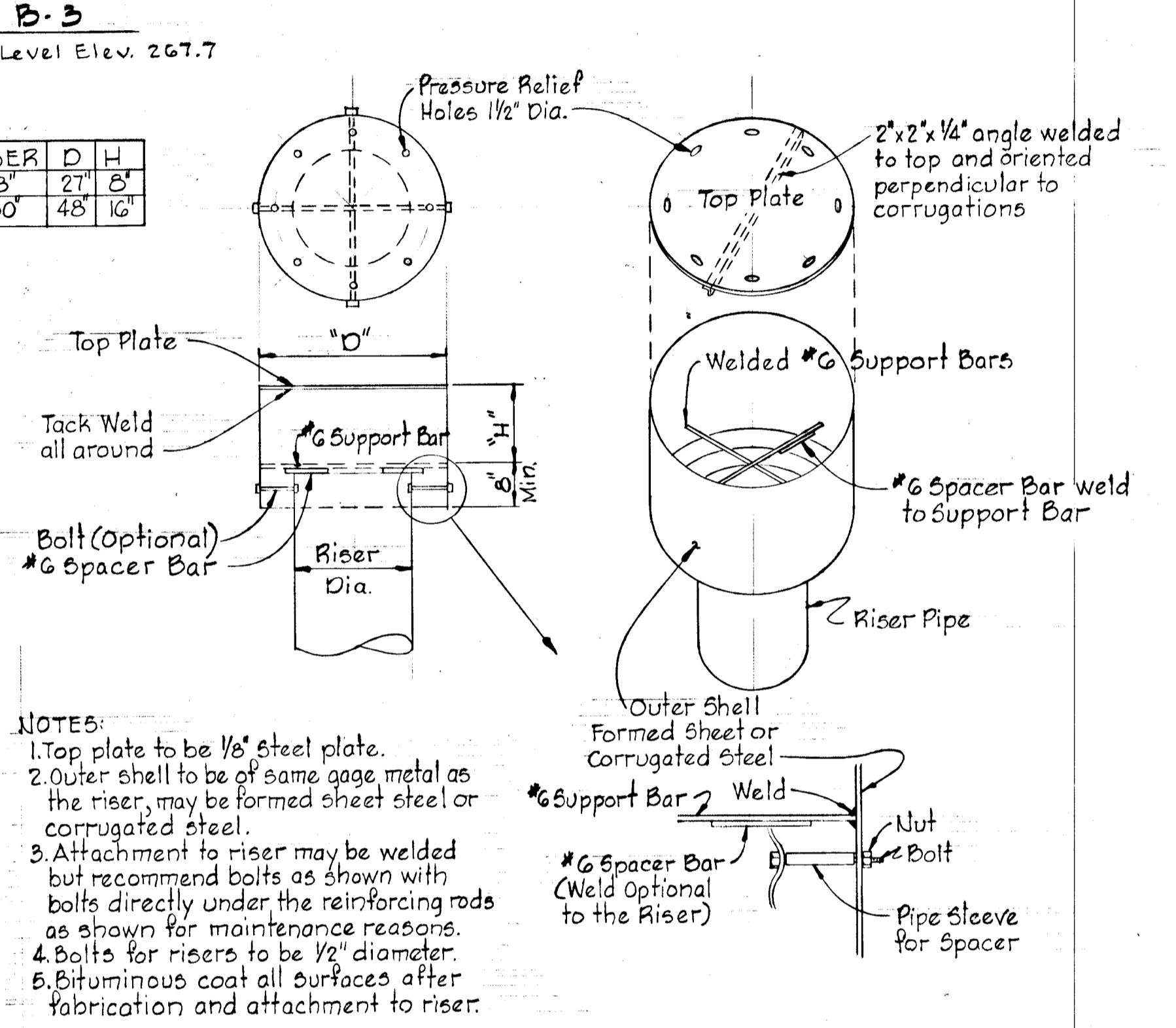
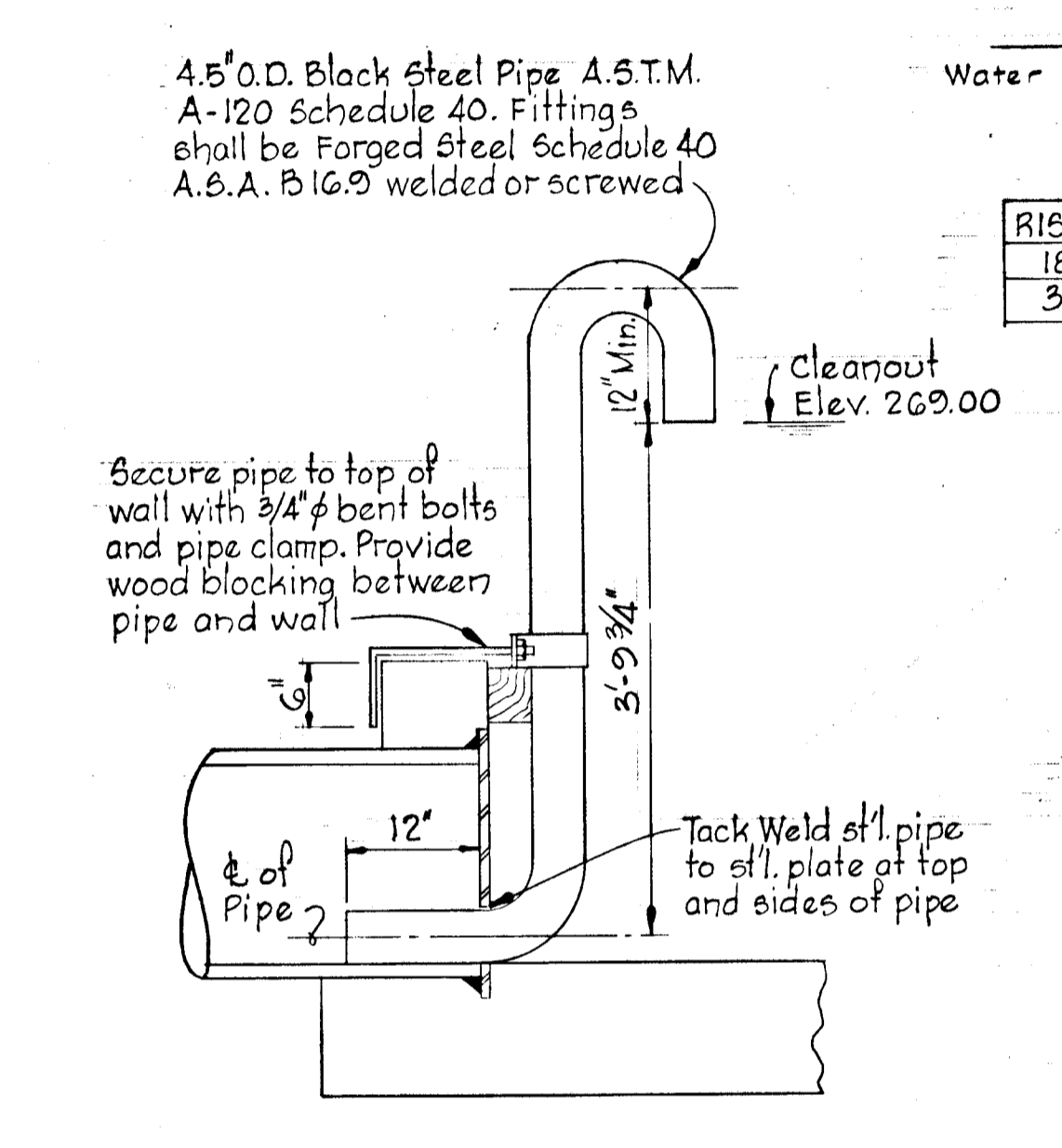
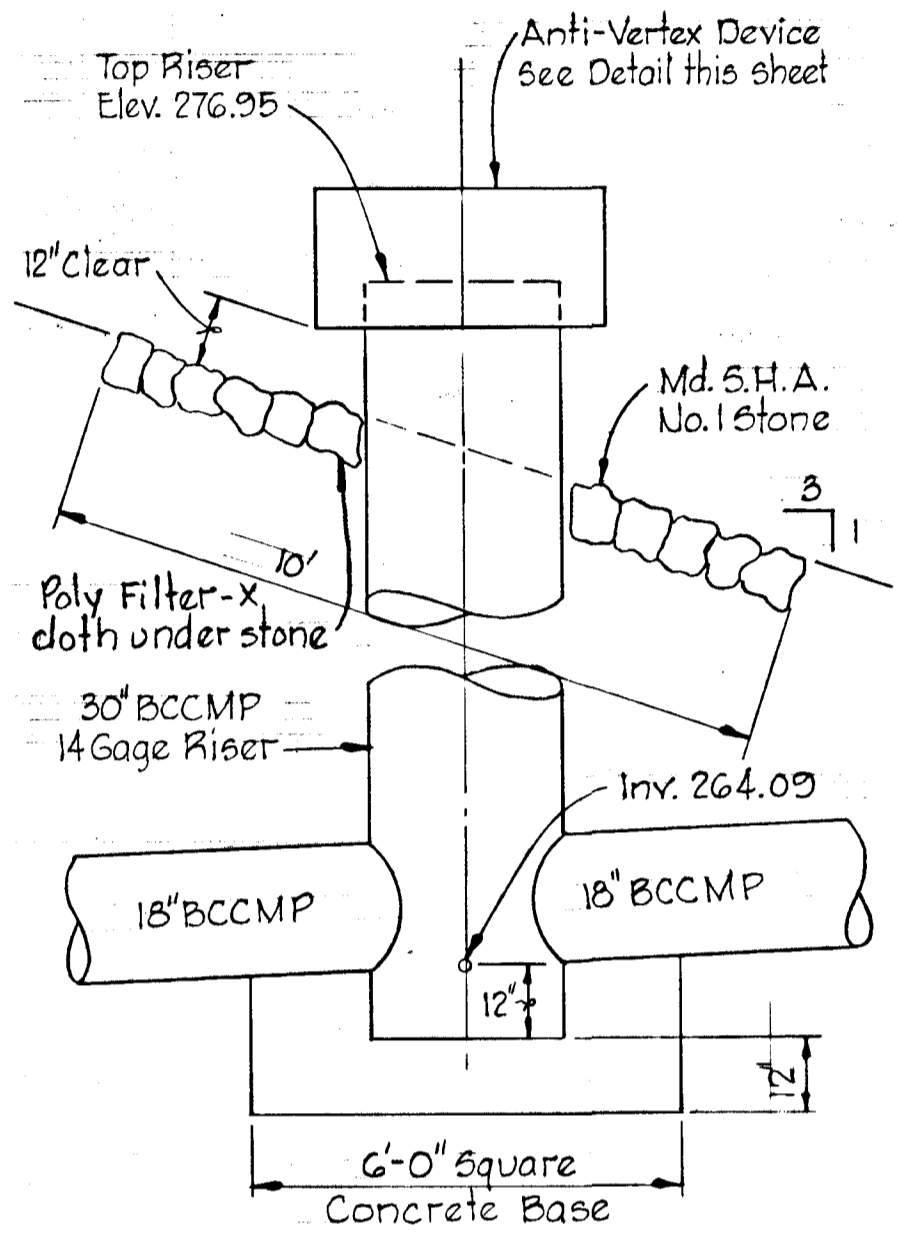
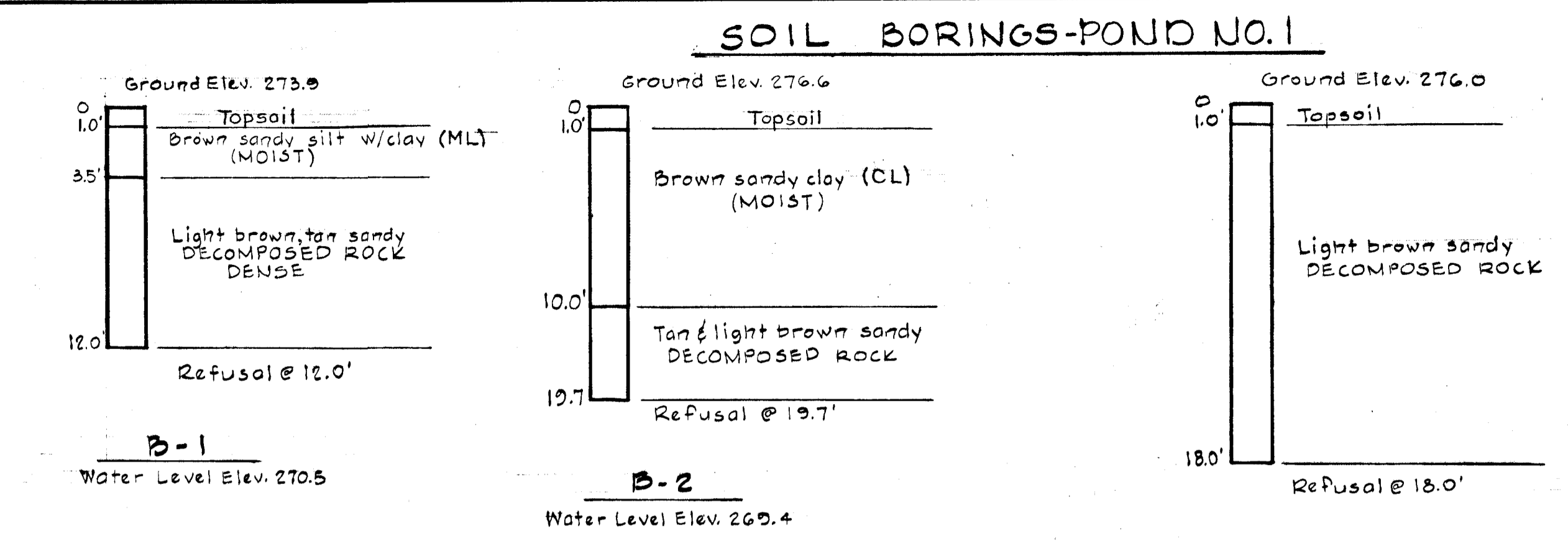
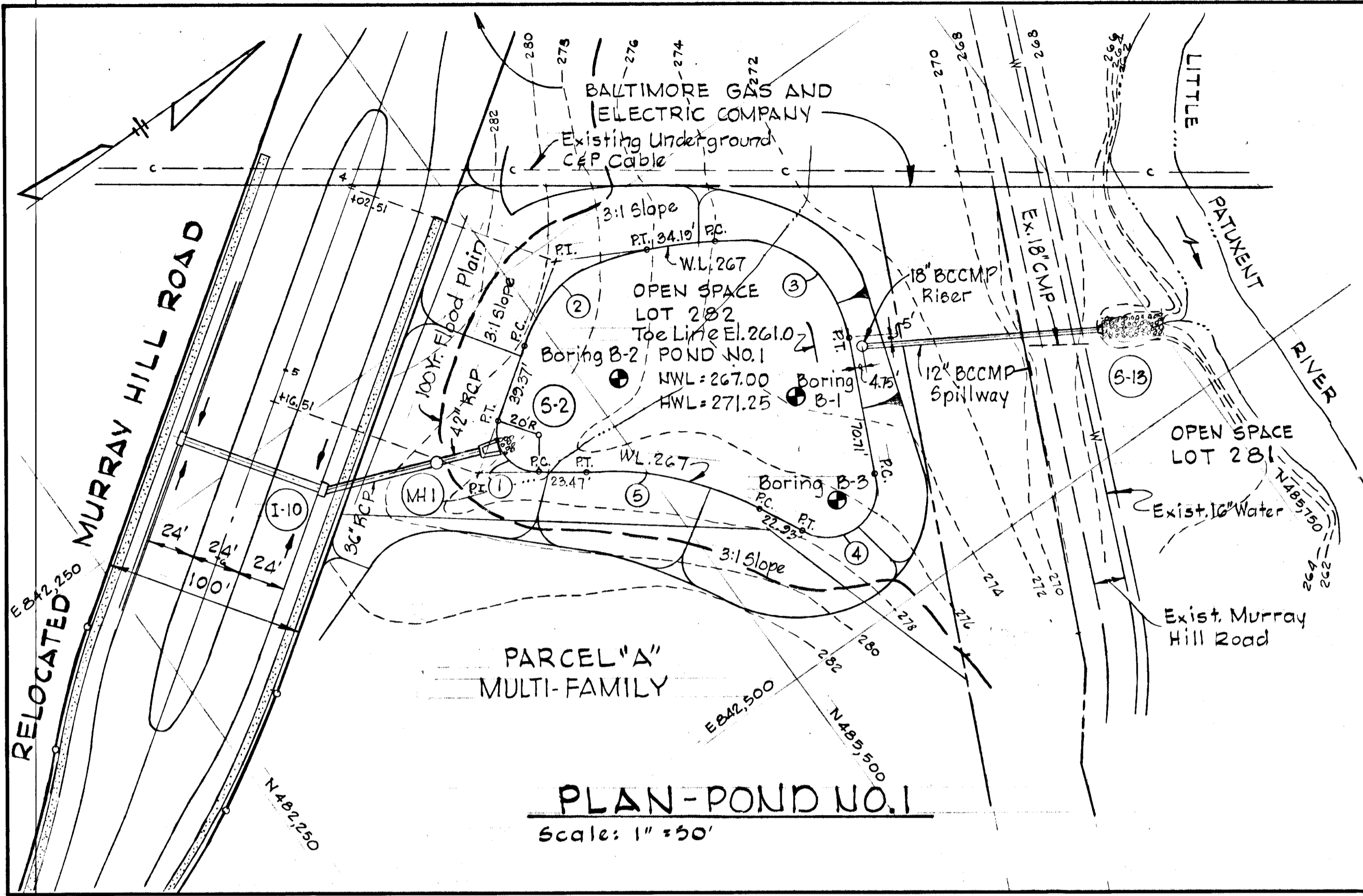
Reviewed for HOWARD... P.A.D.
 and meets Technical Requirements
W. Wayne Kay Date 8-24-78
 Signature
 U.S. Soil Conservation Service

Rev. Date	Rev. No.	Revision Description
8/14/78	1	Removed Conc. Paving, change ditch shape @ Metal End Section
COLUMBIA 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KING'S CONTRIVANCE SECTION 3 AREA 1		
PROJECT TITLE STORM DRAIN DETAILS		
SCALE: As Shown		DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. McCORD Registered Engineer No. 1974		

DESIGN DATA - POND NO. 1
 DRAINAGE AREA = 18.9 Ac.*

2 YR. STORM Peak Inflow = 3.8 cfs Release = 1.5 cfs Storage = 1.7 Ac.Ft.	10 YR. STORM Peak Inflow = 7.8 cfs Release = 4.6 cfs Storage = 2.7 Ac.Ft.
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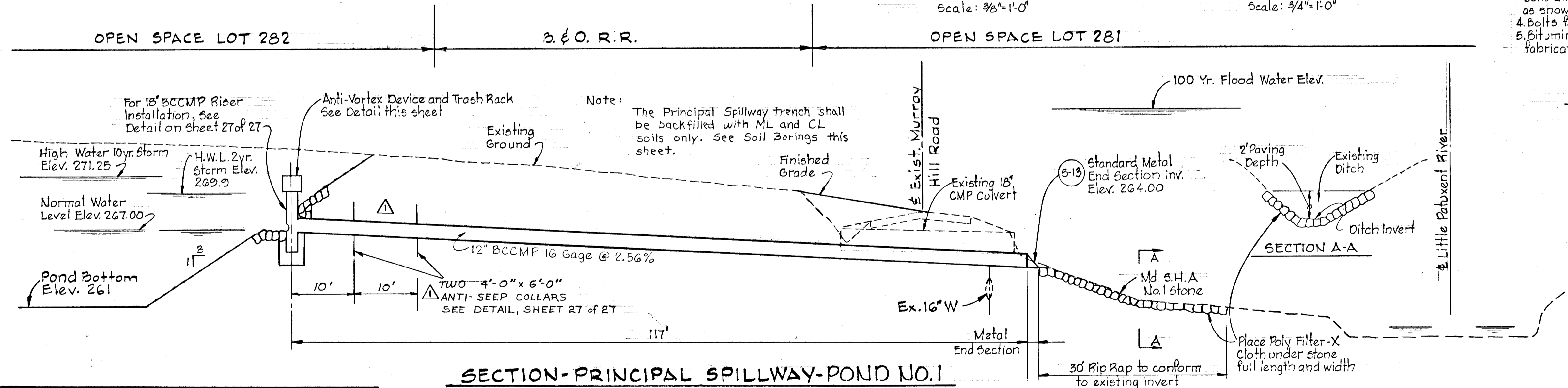
*Ultimate Area - See Drainage Area Map Sheet 27 of 27



SPECIAL NOTES - POND NO. 1
 1. Pond excavation equals 13,700 CY
 2. See Sheet 27 of 27 for General Notes and Pond Specifications

POND NO. 1
SEDIMENT CONTROL
 Drainage Area = 11 Acres *
 Sediment Volume Required = 740 CY
 Sediment Volume Available = 3,400 CY
 Cleanout Elevation = 266.0
 *See Drainage Area Map Sheet 27 of 27

NOTES:
 1. Top plate to be 1/8" steel plate.
 2. Outer shell to be of same gage metal as the riser, may be formed sheet steel or corrugated steel.
 3. Attachment to riser may be welded but recommend bolts as shown with bolts directly under the reinforcing rods as shown for maintenance reasons.
 4. Bolts for risers to be 1/2" diameter.
 5. Bituminous coat all surfaces after fabrication and attachment to riser.



CERTIFICATION BY THE DEVELOPER
 I certify that the construction of this pond will be done according to this plan.
 I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
 I will supply the Howard Soil Conservation office with an as-built plan of this pond within 90 days of the ponds completion.
Walter E. Woodford, Jr. 6-22-78
 Date

CERTIFICATION BY THE ENGINEER
 I certify that this plan for small pond construction 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.
Kenneth A. McCord 6-1-78
 Kenneth A. McCord P.E. 1974 Date

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION
Wynne E. Bundelle
 C. Wayne Ray 6-24-78
 U.S. SOIL CONSERVATION DISTRICT Date

THIS PLAN FOR SMALL POND CONSTRUCTION MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED: *Robert Zielinski*
 6/24/78
 HOWARD S.C.D. Date
 PLAN NUMBER

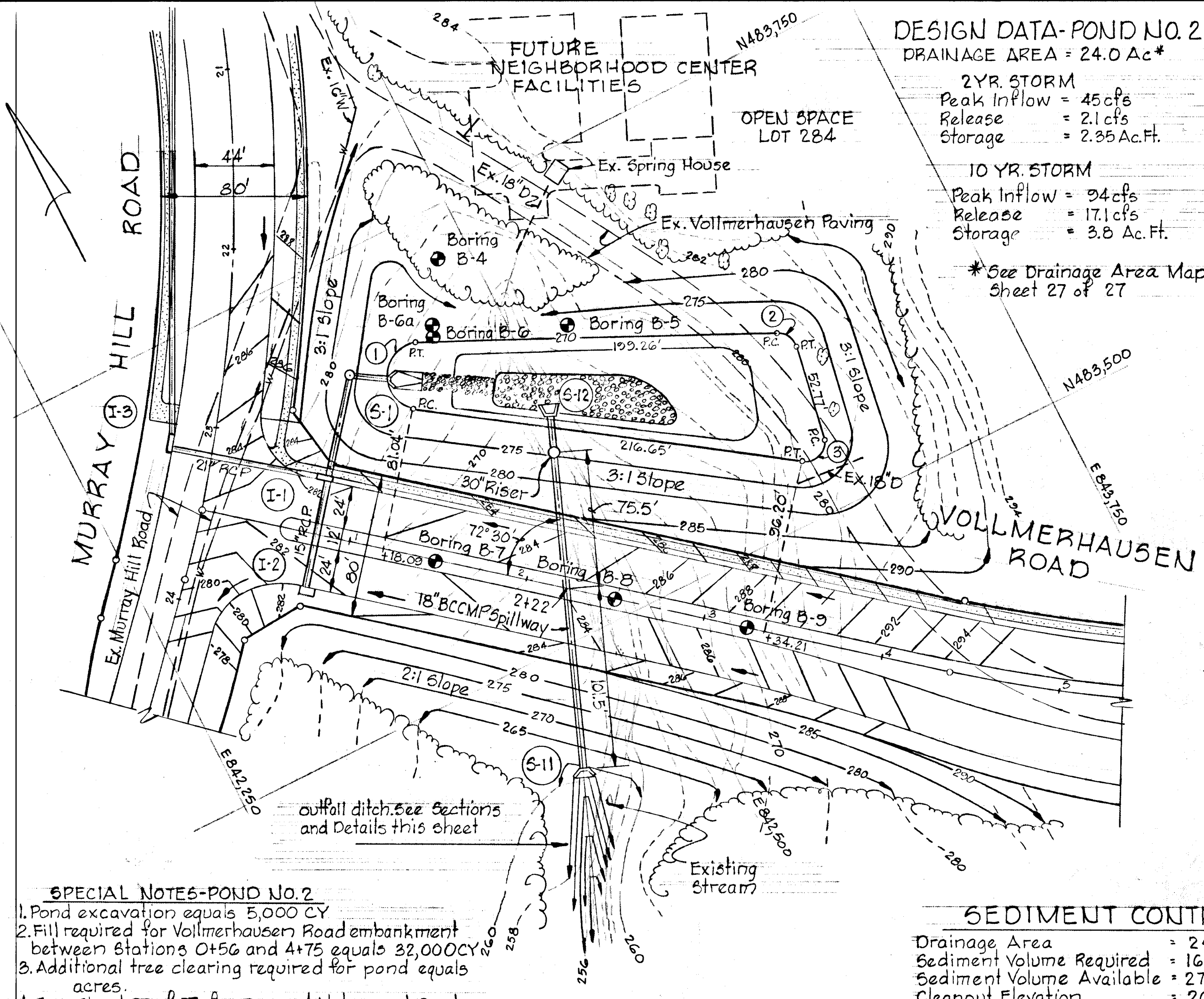
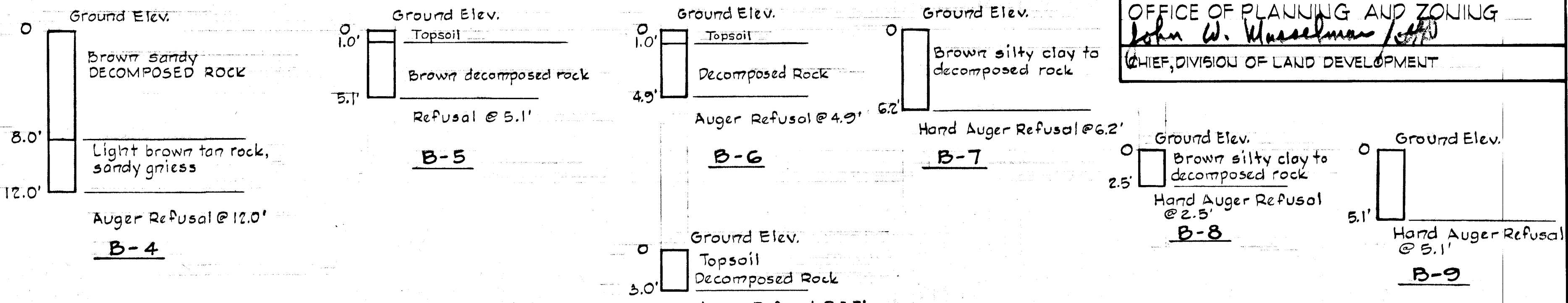
CURVE DATA - POND NO. 1

CURVE ① Δ=111°02'48" Arc= 38.76' R= 20.00' Chd= 32.97' T= 29.15' Brg.= S89°51'13"W	CURVE ② Δ=62°29'30" Arc= 81.80' R= 75.00' Chd= 77.81' T= 45.50' Brg.= N03°22'38"E	CURVE ③ Δ=87°12'35" Arc= 91.33' R= 60.00' Chd= 82.76' T= 57.15' Brg.= N71°28'25"E
CURVE ④ Δ=125°32'15" Arc= 54.78' R= 25.00' Chd= 44.46' T= 48.50' Brg.= N02°03'10"W	CURVE ⑤ Δ=26°17'08" Arc= 91.75' R= 200.00' Chd= 90.95' T= 46.70' Brg.= N47°28'25"E	

8/14/78	Rev. No.	Added Two Anti-seep Collars
	Rev. No.	Revision Description
COLUMBIA 8th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP.		
PROJECT AREA VILLAGE OF KING'S CONTRIVANCE SECTION 5 AREA 1		
PROJECT TITLE STORM WATER MANAGEMENT POND NO. 1 AND POND NO. 2		
SCALE: As Shown DATE: June 22, 1978		
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		

DESIGN DATA-POND NO. 2
 DRAINAGE AREA = 24.0 Ac.*
 2 YR. STORM
 Peak Inflow = 45 cfs
 Release = 2.1 cfs
 Storage = 2.35 Ac.Ft.
 10 YR. STORM
 Peak Inflow = 94 cfs
 Release = 17.1 cfs
 Storage = 3.8 Ac.Ft.
 *See Drainage Area Map Sheet 27 of 27

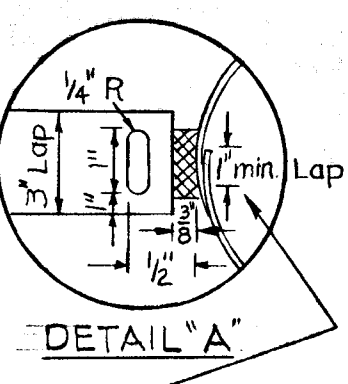
SOIL BORINGS - POND NO. 2



SPECIAL NOTES-POND NO. 2
 1. Pond excavation equals 5,000 CY
 2. Fill required for Vollmerhausen Road embankment between Stations 0+56 and 4+75 equals 32,000 CY
 3. Additional tree clearing required for pond equals acres.
 4. See Sheet 27 of 27 for General Notes and Pond Specifications.

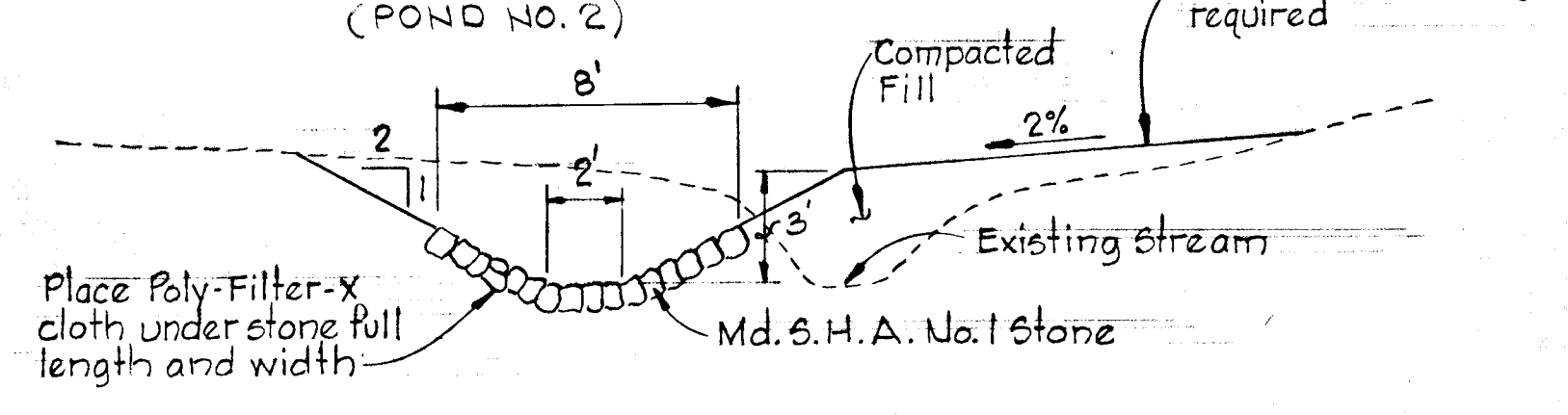
PLAN - POND NO. 2
 Scale 1" = 50'

SEDIMENT CONTROL
 Drainage Area = 24 Acres*
 Sediment Volume Required = 1600 CY
 Sediment Volume Available = 2700 CY
 Cleanout Elevation = 269.0
 *See Drainage Area Map Sheet 27 of 27

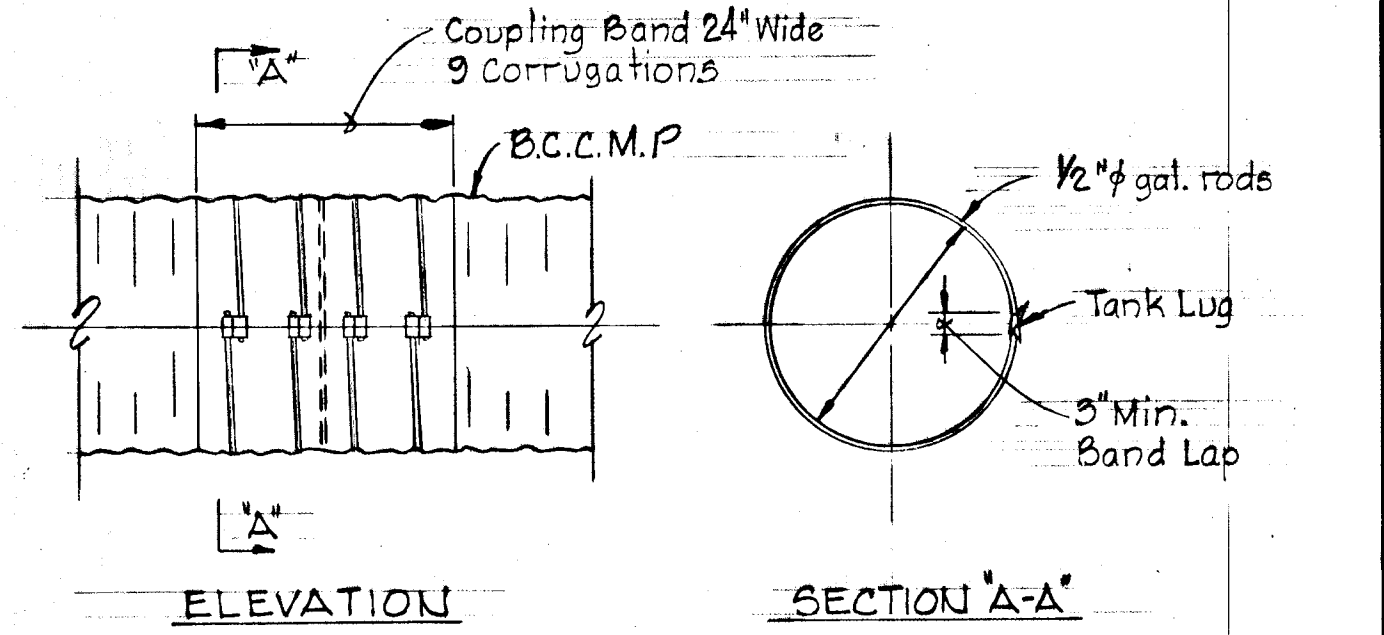


1. Provide match for yoke of opposing section.
2. During assembly fill in open area with burlap impregnated with asphalt cement to make watertight.
3. Diaphragm to be located at other than culvert joints.

DETAIL-ANTI SEEP COLLAR (POND NO. 2)



SECTION B-B
 Scale: 1" = 5'



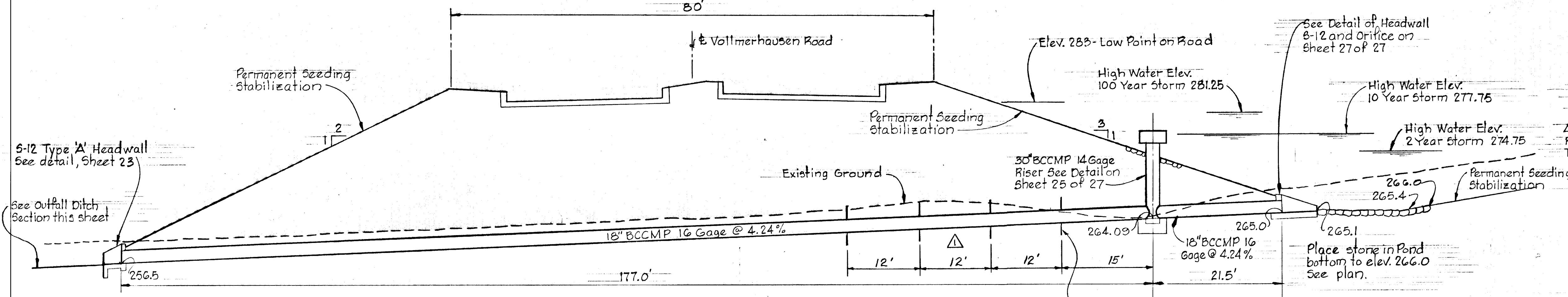
- Notes**
1. Galvanized rods shall be 1/2" dia. and threaded 9" at both ends. 55" long for 12" pipe, 72" long for 18" pipe.
 2. The coupling band shall have sufficient length to give a minimum 3" band lap.
 3. The coupling band shall be 16 gage.
 4. Rivets in the longitudinal seam under the collar to be omitted and seam stitch welded.
 5. The coupling band shall be asphalt coated-Type A.
 6. Field application of asphalt base shall be cement coated with asbestos fibers (roof cement) applied at lap of the coupling bands.

DETAIL - WATERTIGHT JOINT
 No Scale

CURVE DATA - POND NO. 2

CURVE ①	CURVE ②
Δ = 170° 38' 56"	Δ = 75° 30' 07"
R = 18.00'	R = 10.00'
T = 220.09'	T = 7.74'
Chd = 35.85'	Chd = 12.25'
Brg = N 30° 16' 46" E	Brg = S 26° 38' 43" E

Rev. Date	Rev. No.	Revision Description
8/14/78	1	Added Anti-Seep Collars and Detail
8/14/78	2	Removed Conc. Paving, added stone @ S-11



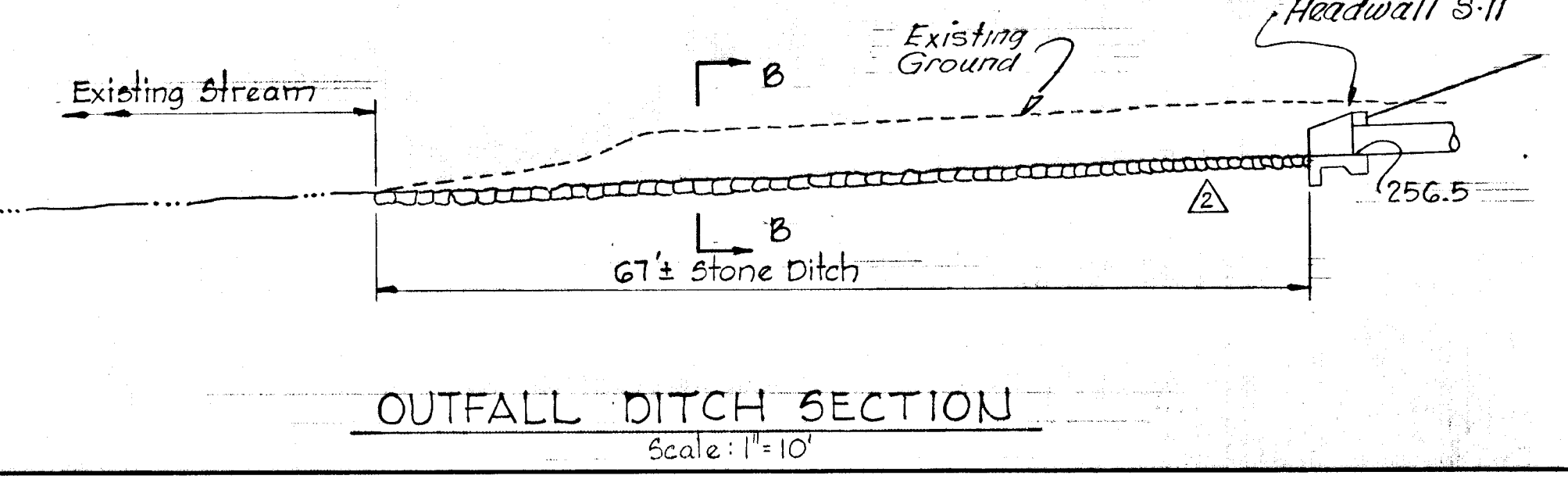
SECTION - PRINCIPAL SPILLWAY - POND NO. 2
 Scale: 1" = 10'

CERTIFICATION BY THE DEVELOPER
 I certify that the construction of this pond will be done according to this plan.
 I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
 I will supply the Howard Soil Conservation office with an as-built plan of this pond within 30 days of the ponds completion.
Walter E. Woodford, Jr. 6-22-78
 Date

CERTIFICATION BY THE ENGINEER
 "I certify that this plan for small pond construction 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."
Kenneth A. McCord 6-1-78
 Date
 Kenneth A. McCord P.E. 1974

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION
W. Matthew Sundt
C. Wayne Ray 8-24-78
 U.S. SOIL CONSERVATION DISTRICT Date

THIS PLAN FOR SMALL POND CONSTRUCTION MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT
Robert J. Zahn
 APPROVED: *Wes E. H. 8-24-78*
 HOWARD S.C.D. Date
 PLAN NUMBER



OUTFALL DITCH SECTION
 Scale: 1" = 10'

COLUMBIA
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA
 VILLAGE OF KINGS CONTRIVANCE
 SECTION 3 AREA 1

PROJECT TITLE
 STORM WATER
 MANAGEMENT POND NO. 1
 AND POND NO. 2

SCALE: As Shown DATE: June 22, 1978

WHITMAN, REQUARD & ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21202

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

SPECIFICATIONS - PONDS NO.1 AND NO.2

PERMANENT SEEDING (See General Notes)

Lime = 2 tons/acre agricultural ground limestone
 Fertilizer = 1000 lbs/acre (10-10-10)
 Seeding = 100 lbs/acre of the following
 20% Kentucky Blue Grass
 20% Merion Blue Grass
 55% Creeping Red Fescue
 5% Redtop
 Mulch required - Mulch areas with straw at the rate of 75 lbs/1000 sq ft or 1.5 tons/acre.
 Anchor with asphalt at the rate of 480 gallons/acre
 Stabilization of slopes steeper than 3:1 shall be planted with crownvetch including 15 lbs/acre (0.34 lbs/1000 sq ft) Kentucky 31 Tall Fescue 40 lbs/acre (1 lb./1000 sq ft)

EARTH DAM EMBANKMENT (Pond No.2 Only)

- Suitable material from the pond excavation may be used for the embankment.
- Suitable material shall be placed in 8" loose layers and compacted to 90% of AASHO T-180.
- Moisture content of the suitable material shall be within the range of 2% below optimum moisture to 2% above optimum moisture.
- Area under the embankment shall be cleared and grubbed to remove all trees, vegetation, roots or other objectionable material and topsoil stripped.
- The fill material shall be free from roots, stumps, wood, rubbish, oversize stones, frozen earth or other objectionable materials. The fill height all along the length of the embankment shall be increased by 10%.
- Fill materials shall be placed in 8" maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous material shall be placed in the downstream portions of the embankment.
- Compaction shall be by multiple wheel pneumatic tired roller, vibratory roller or other types of acceptable rollers. Rolling of each layer shall be continuous over its entire area and the roller shall make sufficient coverages to insure that the required density has been obtained.

PRINCIPLE SPILLWAY

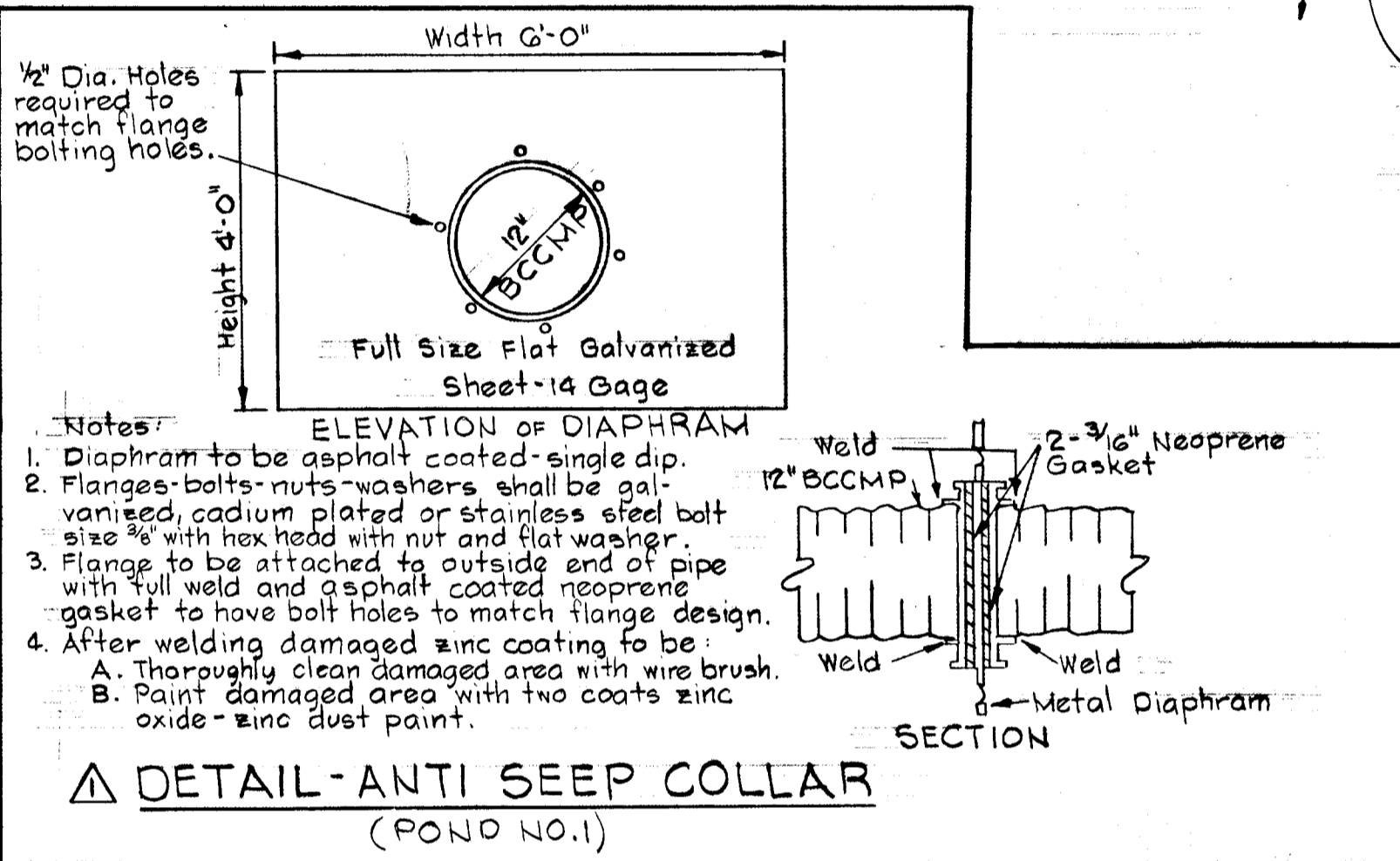
- Backfill around B.C.C.M.P. barrel shall be placed in horizontal layers not to exceed 4 inches in thickness and compacted by hand tampers or other compaction equipment. At no time during the backfilling operation, shall construction equipment be allowed to operate closer than 4 feet to any part of the B.C.C.M.P. barrel. Under no circumstances shall the contractor drive equipment over any part of the B.C.C.M.P. barrel unless there is a compacted fill to a depth of 24 inches or greater over the B.C.C.M.P. barrel.
- The B.C.C.M.P. barrel shall be firmly and uniformly bedded throughout its entire length. Where rock or other unsuitable soil is encountered under the pipe, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

CONCRETE

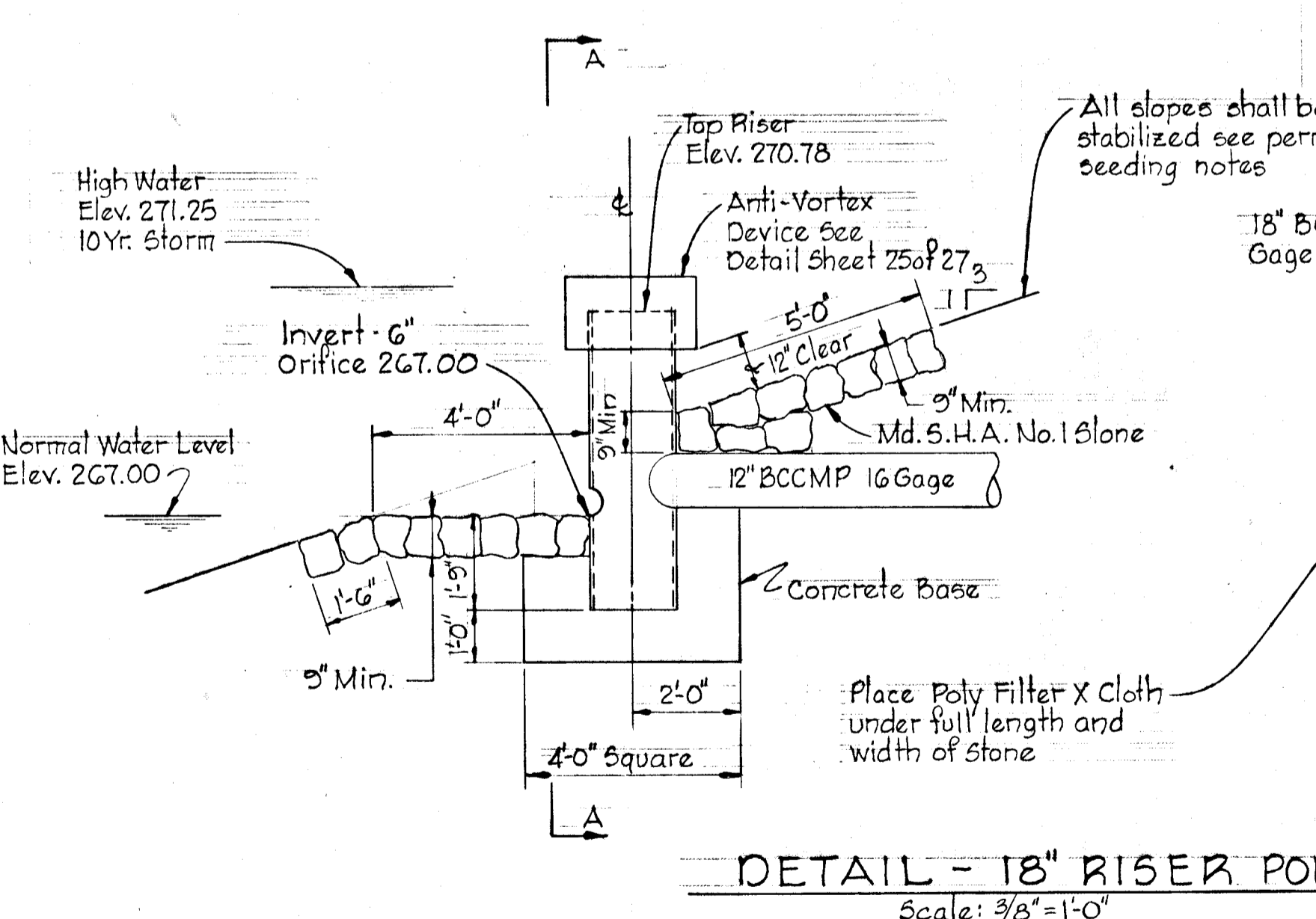
- Concrete shall have a minimum of 6 bags of cement per cubic yard and water content not to exceed 6 gallons per bag of cement. Slump shall range 3"-4". All concrete shall be transit mix.

GENERAL NOTES - PONDS NO.1 AND NO.2

- Ponds No.1 and No.2 shall function initially as SEDIMENT BASINS. Both Ponds shall be constructed prior to any construction work intended within their drainage areas. See drainage area map on this sheet.
- Initial construction shall include all the work as shown except Pond No.2 invert seeding.
- Permanent seeding is required for all the graded surfaces within the limits where permanent seeding is required. Initial permanent seeding shall be applied to all cut and fill embankments from toe to top of slope and top elevation at the earth dam construction. The invert of Pond No.2 shall be permanently seeded after the pond is refurbished. Refurbishing of the ponds shall be done after all construction is completed and grass is established within the pond drainage areas. Refurbishing of the pond shall include the removal of all sediment; the restoration of the ponds to the lines and grade as shown on the Plans; the replacement of all filter cloth and rip rap stone where necessary; installation of the riser orifices; permanent seeding of Pond No.2 invert, and permanent re-seeding of all the disturbed graded surfaces; the cleaning of the principle spillways, and outfall ditches.
- After the Ponds are completely refurbished the owner shall submit "As Built" drawings to the Howard County Soil Conservation District.
- Poly Filter-X cloth (CARTHAGE MILLS INCORPORATED) or equal, shall be placed under all rip rap construction, full length and width of rip rap.
- Stone shall be Maryland S.H.A. Class I medium Rip Rap unless otherwise noted.



DETAIL - ANTI SEEP COLLAR (POND NO.1)



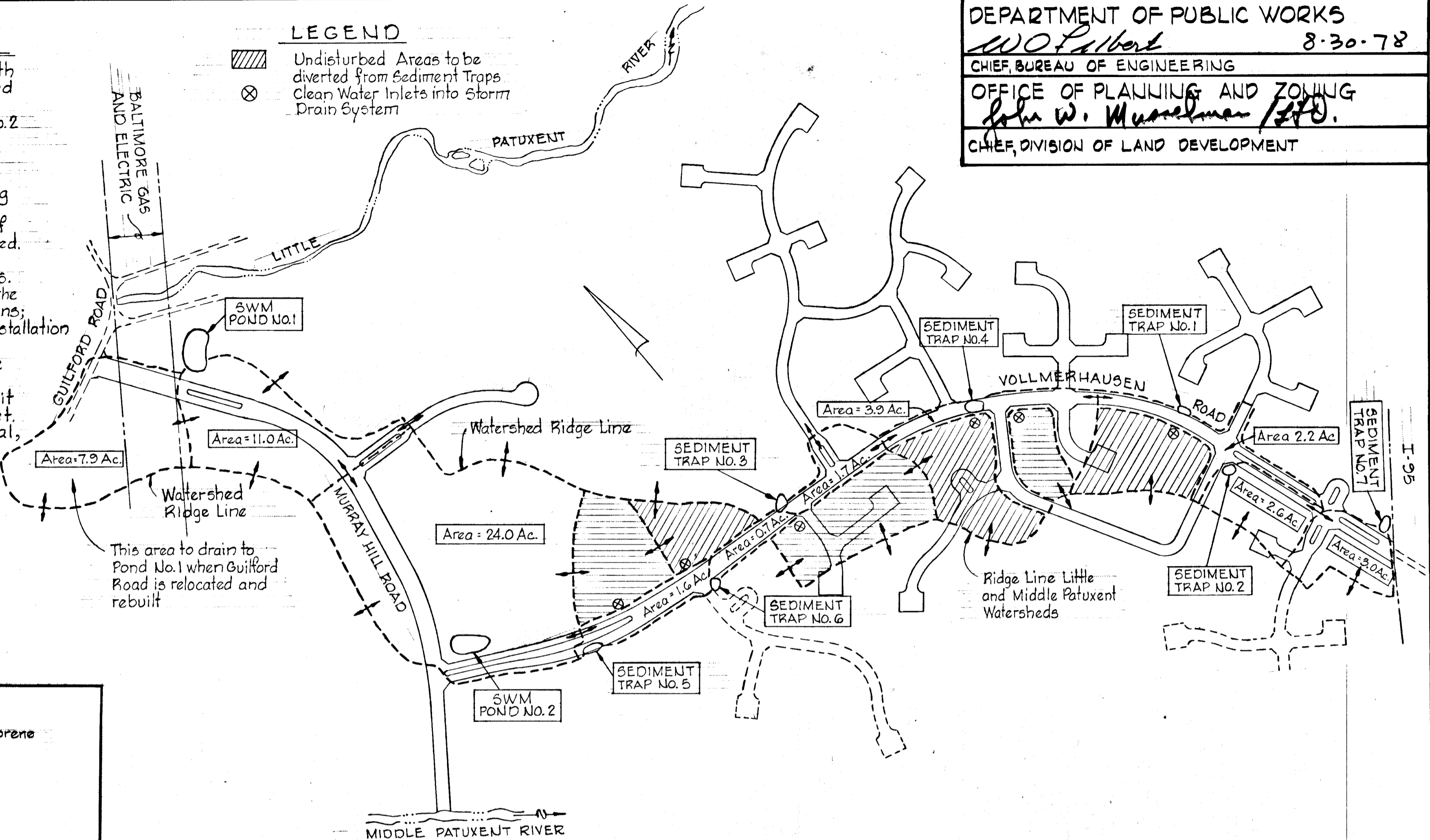
DETAIL - 18" RISER POND NO.1
Scale: 3/8" = 1'-0"

CERTIFICATION BY THE DEVELOPER
 I certify that the construction of these ponds will be done according to this plan.
 I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
 Walter E. Woodford, Jr. 6-22-78
 Date

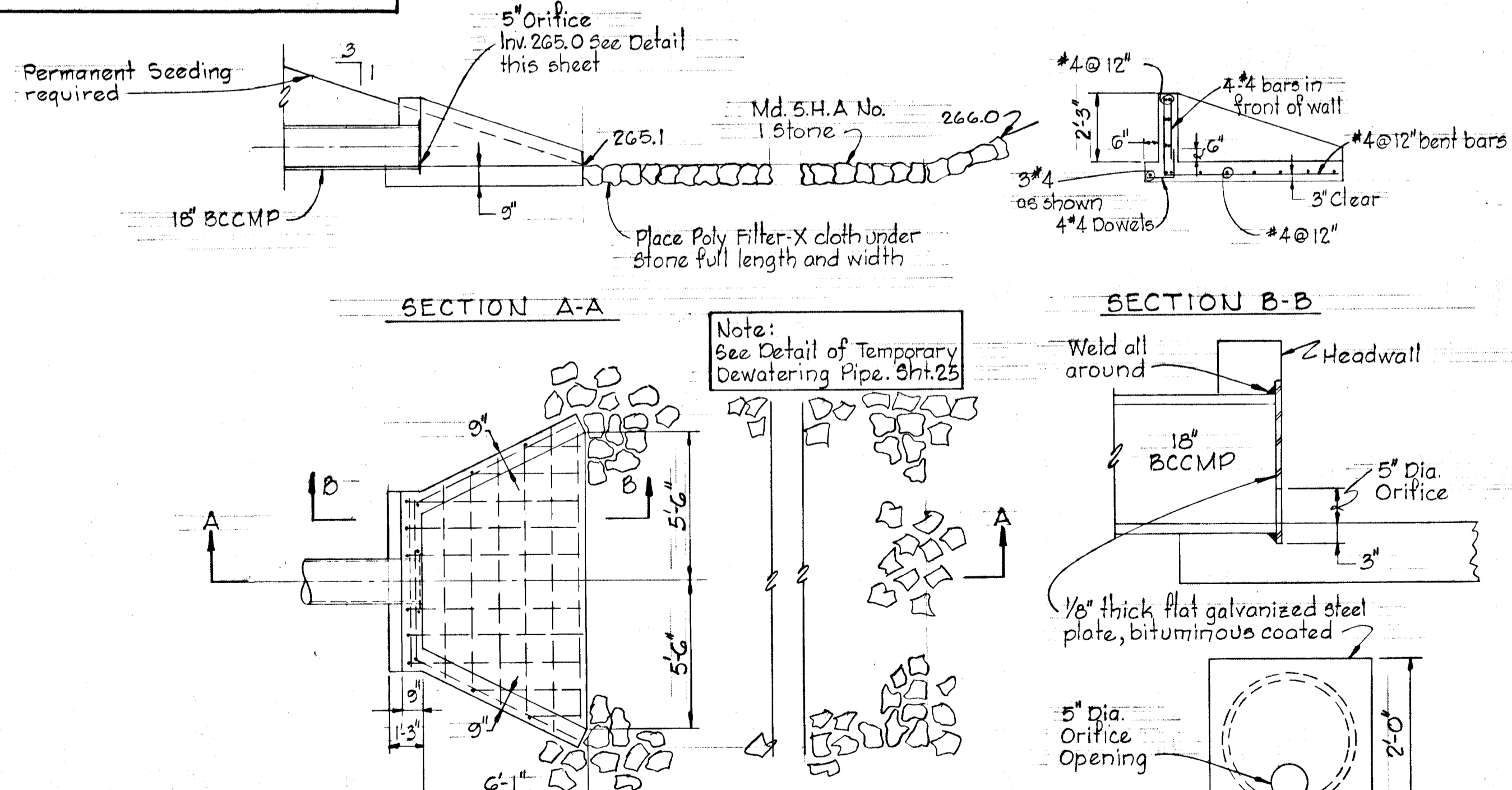
CERTIFICATION BY THE ENGINEER
 I certify that this plan for small pond construction represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Kenneth A. McCord 6-1-78
 Kenneth A. McCord PE 1974 Date

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION
 W. Wayne Ray 4-24-78
 U.S. SOIL CONSERVATION DISTRICT Date

THIS PLAN FOR SMALL POND CONSTRUCTION MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT
 APPROVED: Robert Zielinski
 Wes Kirk 6-24-78
 HOWARD S.C.D. Date
 PLAN NUMBER



STORM WATER MANAGEMENT AND SEDIMENT CONTROL DRAINAGE AREA MAP
Scale: 1" = 400'



DETAIL - STRUCTURE 5:12 AND ORIFICE
Scale: 1/4" = 1'-0"

DEPARTMENT OF PUBLIC WORKS
 W.O. Sibert 8-30-78
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 John W. Muselman, Jr.
 CHIEF, DIVISION OF LAND DEVELOPMENT

8/14/78	Added Anti-Seep Collar Detail
Rev. Date	Rev. No. Revision Description
COLUMBIA 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORP	
PROJECT AREA VILLAGE OF KING'S CONTINUANCE SECTION 3 AREA 1	
PROJECT TITLE STORM WATER MANAGEMENT POND NO.1 AND POND NO.2	
SCALE: As Shown	DATE: June 22, 1978
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21202	
Kenneth A. McCord KENNETH A. MCCORD Registered Engineer No. 1974	