ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	UNIT	TOTAL
1	Pavement Removal (Vollmerhausen Road)	SY	0
2	Topsoil Stripping Under Fills	CY	8,000
3	Unclassified Excavation (Roadway)	CY	74,000
4	Borrow Excavation	CY	0
5	Bit. Conc. Surface Course (1½" Th.)	SY	47,030
6	Bit. Conc. Base Course (5" Th.)	SY	47,030
7	Std. 7" Combination Curb and Gutter	L.F.	6,690
8	Barrier Curb	L.F.	2,530
9	Concrete Sidewalk (4" Th.)	L.F.	16,200
10	R/W and Slope Stabilization	SY.	54,000
11	Transition Curb at "A" Inlets	L.F.	362
12	Std. A-5 Inlets	Ea.	30
13	Std. A-10 Inlets	Ea.	10
14	Type "D" Inlets	Ea.	5
15	Special Inlets	Ea.	3
16	Std. Manhole	Ea.	33
17	Std. Type "B" Manhole	Ea.	16
18	18" Std. Conc. End Section (S-22)	Ea.	1
19	30" Std. Conc. End Section (S-20)	Ea.	1
20	36" Std. Conc. End Section (S-14)	Ea.	1
21	Type "A" Headwall (S-19)	Ea.	1
22	15" Std. Metal End Section (S-18)	Ea.	1
23	18" Std. Metal End Section (S-17)	Ea.	1
24	36" Std. Metal End Section (S-16)	Ea.	1
25	42" Std. Metal End Section (S-21)	Ea.	1
26	Temporary 18" Cut-Off Wall (S-15)	Ea.	1
27	15" R.C.P. Cl. IV	L.F.	1,528
28	18" R.C.P. Cl. IV	L.F.	329
29	21" R.C.P. Cl. IV	L.F.	152
30	24" R.C.P. Cl. IV	L.F.	72
31	30" R.C.P. Cl. IV	L.F.	380
32	15" R.C.P. Cl. III	L.F.	2,538
33	18" R.C.P. Cl. III	L.F.	853
34	21" R.C.P. Cl. III	L.F.	177
35	24" R.C.P. Cl. III	L.F.	514
36	27" R.C.P. Cl. III	L.F.	490
37	30" R.C.P. Cl. III	L.F.	392
38	36" R.C.P. Cl. III	L.F.	416
39	15" BCCMP 12 Gage	L.F.	677
40	18" BCCMP 12 Gage	L.F.	31
41	36" BCCMP 12 Gage	L.F.	207
42	42" BCCMP 12 Gage	L.F.	524
43	Ditch Excavation	CY	250
44	Concrete Ditch Paving	SY	0
45	Rip Rap Ditch (9" th.)	SY	300
46	Poly Filter X Cloth	SY	300
47	Ditch Stabilization (Seed)	SY	350
7A	Modified Combination Curb and Gutter	L.F.	20,205
	STORM WATER MANAGEMENT (PONDS No.3 and No.4)		
48	Excavation (Unclassified)	CY	22,300
49	Stabilization (Seeding)	SY	13,785
50	Rip Rap (9" th.)	SY	1560
51	Brick Riser Structure Pond No. 3	Ea.	1
52	Brick Riser Structure Pond No. 4	Ea.	1
*53	30" Reinforced Concrete Pressure Pipe	L.F.	48'
*54	24" Reinforced Concrete Pressure Pipe	L.F.	53'
55	24" R.C.P.	L.F.	4'
*56	18" Reinforced Concrete Pressure Pipe	L.F.	10'
57	30" Concrete End Section	Ea.	1
58	24 Concrete End Section	Ea.	2
59	18" Concrete End Section	Ea.	1
59A	Poly Filter X Cloth	S.Y.	1560
	SEDIMENT CONTROL		
G0	Sediment Traps (Incl. Excav., Stone & Inlet Treatment)	Ea.	8
G1	Diversion Dike (Earth)	L.F.	1150
G2	Straw Bale Dike	L.F.	800
G3	Clean Water Inlet (Incl. Temporary 15" C.M.P.)	Ea.	1
G4	Temporary 15" C.M.P. & Fitting (Trap No. 15)	L.F.	60

*Reinforced Concrete Pressure Pipe shall be Lock Joint Pipe Products/Interpace specification SP-32 or equal (AWWA. Spec. No. C-302).

SHEET INDEX

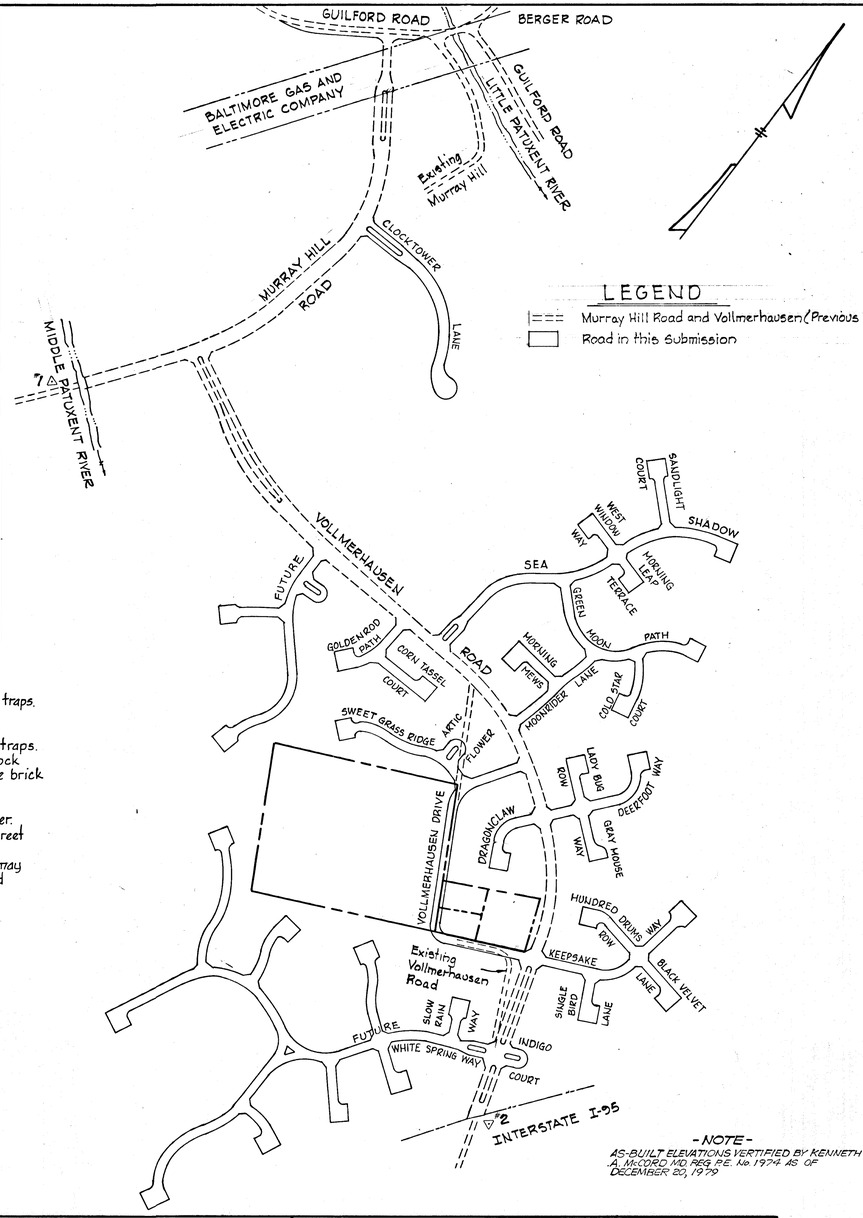
SEQUENCE OF CONSTRUCTION

1. Construct storm water management ponds no. 3 and no. 4.
2. Construct diversion dikes and straw bale dikes for all cul-de-sac sediment traps.
3. Construct sediment traps no. 14 and no. 15.
4. Strip and grade the street areas.
5. Construct the storm drain systems and connect required piping to sediment traps. Construct wood planking and stone filters for all inlets in sediment traps. Block inlets as noted. Construct clean water inlet near sediment trap no. 15. Provide brick bulkhead in storm drain manhole ⑨ sediment trap no. 15.
6. Construct all utilities.
7. Bring all streets to subgrade elevation and construct concrete curb and gutter. Remove cul-de-sac sediment traps, construct curb and gutter and pave all street surfaces.
8. The remaining sediment traps, and the refurbishing of ponds no. 3 and no. 4 may be done after the streets are paved and grass is established on all disturbed graded surfaces.
9. For pond refurbishing see specifications on sheet 37.

REFERENCES

*1 Howard County Survey Point "2141003 - Conc. Mon. South of Middle Patuxent River Bridge - Elev. 238.12 N 483032.15, E 841773.50

*2 Howard County Survey Point "2142006-R-Conc. Mon. Nr. Vollmerhausen Road Bridge - Elev. 359.66 - N 481239.72, E 846013.03

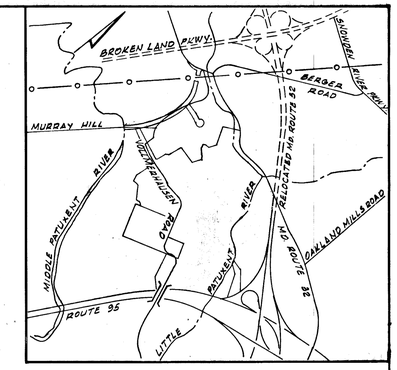


LEGEND

Murray Hill Road and Vollmerhausen (Previous Submission)

Road in this Submission

-NOTE-
AS-BUILT ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD REG. P.E. No. 1974 AS OF DECEMBER 20, 1979



VICINITY MAP

Scale: 1"=2,000'

GENERAL NOTES

1. All work shall be performed in accordance with the SPECIFICATIONS and also the Howard County Road Construction Code and Standard Specifications.
2. All utility companies shall be notified 24 hours in advance of construction.
3. Minor streets are designed for 30 m.p.h. in accordance with AASHO Standards, except in short cul-de-sacs where length dictates a lower design speed.
4. Brick bulkhead shall be installed in all storm drain stubs.
5. All inlets shall be Howard County standards unless otherwise shown.
6. All street curb returns shall have a 35' radii unless otherwise noted.
7. Storm drain trenches within road rights of way shall be backfilled and compacted in accordance with Howard County Road Code.
8. 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 Contractors operations shall be repaired immediately at the Contractor's expense.
9. The Contractor shall test pit existing utilities where directed by the Engineer, a minimum of two weeks in advance of construction operations.
10. 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.
11. Contractor to notify the Howard County Soil Conservation District at least 3 days before starting work shown on these drawings.
12. All disturbed slope areas to be stabilized as soon as grading is completed.
13. On all fills in sump areas, Reliance Plastic & Chemical Company "Flexible Tube Down Drains and Pans" or approved equal shall be used.
14. All reinforced concrete for storm drain structures shall have minimum 28 days strength of 3500 psi.
15. All swales and slopes shall be permanently seeded. See the seed specifications on sheet 27 of 27.
16. Traffic control devices and their installation shall be in accordance with the Manual on Uniform Traffic Control Devices, 1971 Revised Edition.
17. Stone shall be Maryland S.H.A. Class 1 medium Rip Rap. Stone from onsite rock excavation may be substituted for the Md. S.H.A. Class 1 medium Rip-Rap. Rip Rap shall be unpaved unless otherwise noted.
18. Poly Filter-X (filter cloth blanket) or equal shall be placed under all stone rip-rap (full width and length of stone).
19. Curb cuts and ramps for the physically handicapped shall be provided at intersections as shown on the plans. See detail on Sheet 25 of 37.

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."

Signature of Developer — Date 9-7-78

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 P.E. 1974 — Date 9-7-78

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

DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF ENGINEERING — DATE 12-29-78

OFFICE OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-27-78

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

U.S. SOIL CONSERVATION DISTRICT — Date

THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED
HOWARD S.C.D. — Date

PLAN NUMBER

COLUMBIA
VILLAGE OF KINGS CONTRIVANCE
SECTION 3 AREA 1

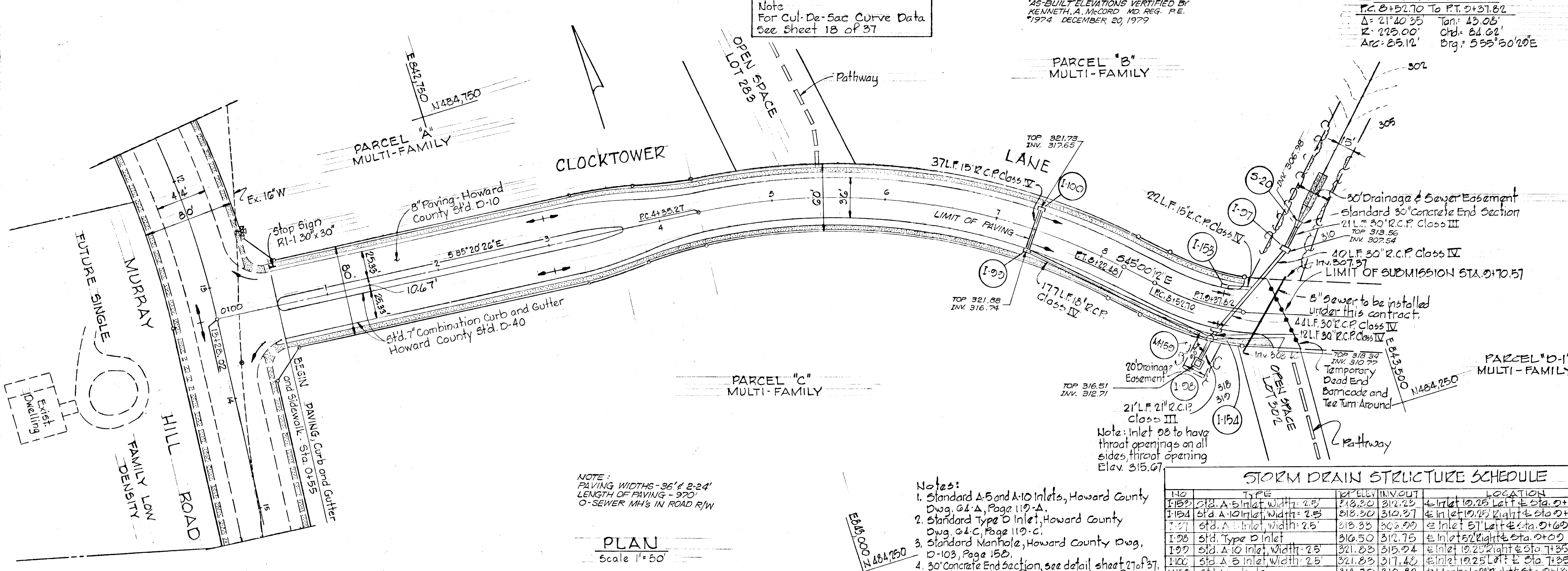
ROAD CONSTRUCTION PLANS

6TH ELECTION DISTRICT OF HOWARD COUNTY MD.

OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.
COLUMBIA MARYLAND

Date — Scale: As Shown

#445
F-79-44
11/31/78



CURVE DATA

P.C. 8+52.70 To P.T. 9+37.82
Δ = 21°40'35" Tan.: 43.08'
R = 225.00' Chd.: 84.62'
Arc: 85.12' Brg.: S 55°50'29"E

NOTE:
PAVING WIDTHS - 36' & 2-24'
LENGTH OF PAVING - 970'
O-SEWER MH's IN ROAD R/W

PLAN
Scale 1" = 50'

Notes:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. 64-A, Page 119-A.
2. Standard Type D Inlet, Howard County Dwg. 64-C, Page 119-C.
3. Standard Manhole, Howard County Dwg. D-103, Page 158.
4. 30" Concrete End Section, see detail sheet 27 of 37.
5. For Storm Drain Profiles, see sheet 23 of 37.

STORM DRAIN STRUCTURE SCHEDULE

NO	TYPE	TOP ELEV	INV. OUT	LOCATION
I-153	Std. A-5 Inlet, Width: 2.5'	318.30	312.23	℄ Inlet 10.25' Left ℄ Sta. 9+16
I-154	Std. A-10 Inlet, Width: 2.5'	318.30	310.37	℄ Inlet 10.25' Right ℄ Sta 9+16
I-97	Std. A-[illegible] Inlet, Width: 2.5'	313.33	309.99	℄ Inlet 57' Left ℄ Sta. 9+69
I-98	Std. Type D Inlet	316.50	312.75	℄ Inlet 52' Right ℄ Sta. 9+09
I-99	Std. A-10 Inlet, Width: 2.5'	321.83	315.94	℄ Inlet 10.25' Right ℄ Sta. 7+35
I-100	Std. A-5 Inlet, Width: 2.5'	321.83	317.48	℄ Inlet 10.25' Left ℄ Sta. 7+35
M-159	Std. Manhole	318.70	310.82	℄ Manhole 28' Right ℄ Sta. 9+13
S-20	30" Concrete End Section	—	306.79	See Plan and Profile

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

DEPARTMENT OF PUBLIC WORKS

W O Lelbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING

John W. Musselman / [illegible] 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CURVE DATA

P.C. 4+35.27 to P.T. 8+22.48
Δ = 40°20'14" Tan = 202.02'
R = 550.00' Chd = 379.26'
Arc. = 387.21' Brg = S 65°10'19"E

Rev. Date	Rev. No.	Revision Description
9/26/80	1	Revised Plan and Profile

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
CLOCKTOWER LANE

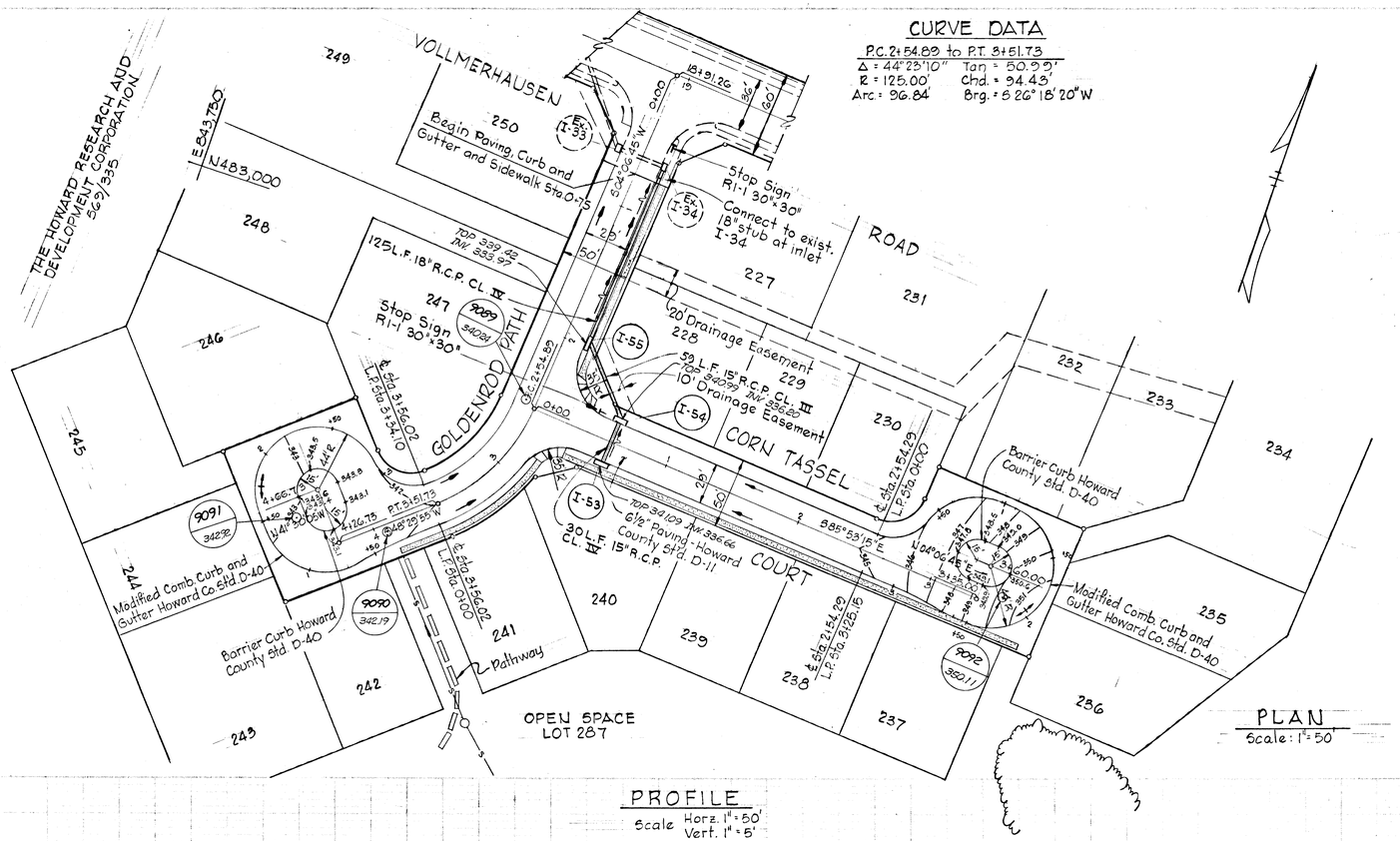
SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

F-79-44c 11/31/78 SHEET 2 OF 37
"C"

F-445



PLAN
Scale: 1" = 50'

STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV	INV. OUT	LOCATION
I-53	Std. A-10 Inlet, Width = 2.5'	340.86	336.08	℄ Inlet 15.92' Rt. of ℄ Sta. 0+57.67
I-54	Std. A-10 Inlet, Width = 2.5'	340.86	335.43	℄ Inlet 15.92' Lt. of ℄ Sta. 0+57.67
I-55	Std. A-10 Inlet, Width = 2.5'	339.26	333.72	℄ Inlet 15.92' Lt. of ℄ Sta. 1+97.22

Notes:
1. Standard A-10 Inlets, Howard County Dwg. 04-A Page 110-A.
2. Standard Type D Inlet, Howard County Dwg. 04-C, Page 110-C.
3. Standard Manhole, Howard County Dwg. D-103, Page 158.
4. For Storm Drain Profiles, see sheet 20 of 37.

E 844,750
N 483,250

Note:
For Cul-De-Sac Curve Data
See Sheet 18 of 37

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 825'
4 SEWER MH's IN ROAD R/W

E 844,750
N 483,000

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING
John W. Musselman 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

"AS-BUILT" ELEVATIONS VERIFIED AS OF DECEMBER 20, 1979 BY KENNETH A. McCORD MD. REG. P.E. No. 1974

Rev. Date	Rev. No.	Revision Description
7/16/80	1	Deleted MH 28 & I-101 - I-34 to A-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
PLAN AND PROFILE
GOLDENROD PATH
CORN TASSEL COURT

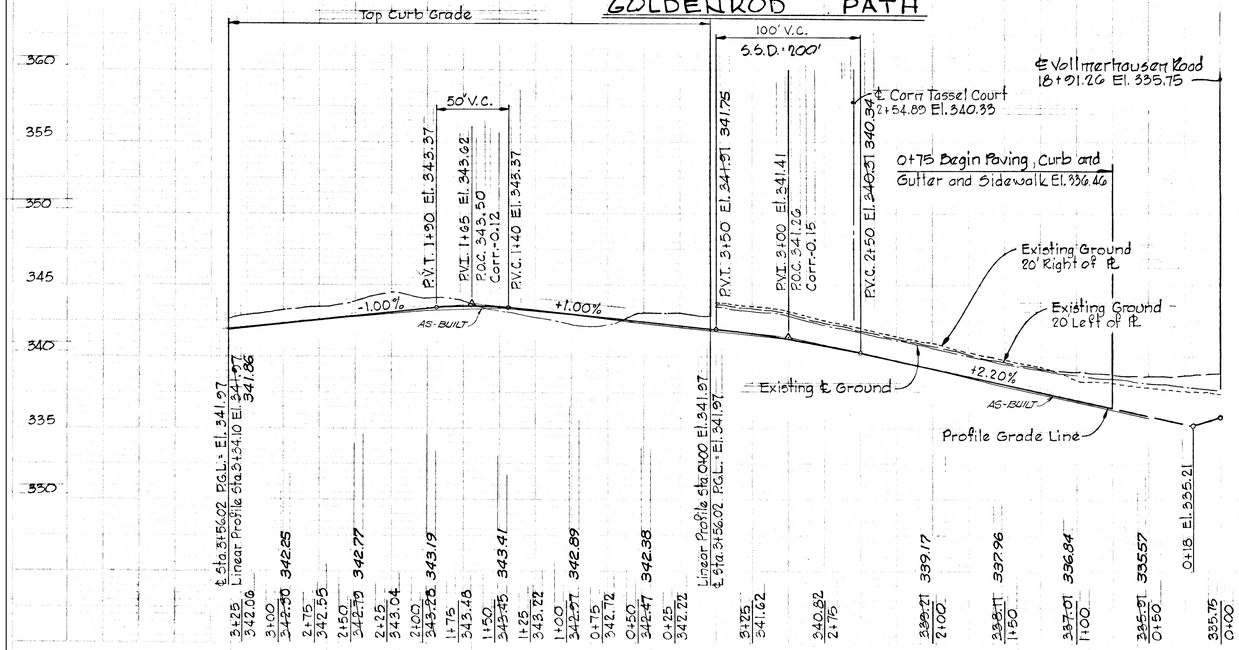
SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

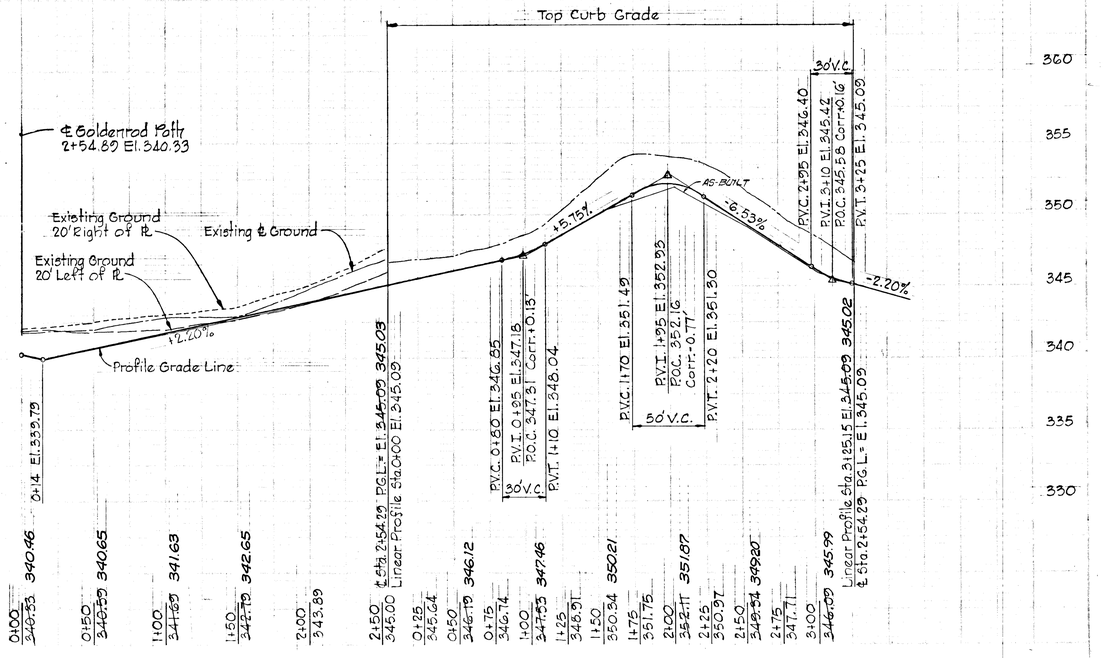
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974

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

GOLDENROD PATH



CORN TASSEL COURT



F-79-44c 11/31/78

F & G

STORM DRAIN STRUCTURE SCHEDULE

No	TYPE	TOP ELEV	INV. OUT	LOCATION
I-81	A-5 Inlet width 2.5'	336.53	330.74	℄ Inlet 15.92' left of ℄ Sta. 8+00 Rd.
I-82	A-10 Inlet width 2.5'	336.53	330.96	℄ Inlet 15.72' right of ℄ Sta. 8+00 Rd.
I-83	A-5 Inlet width 2.5'	336.22	331.60	℄ Inlet 15.92' right of ℄ Sta. 0+54 Rd.
MH-38	Type B MH (For Detail See Sht. 27)	321.20	316.57	See Plan and Profile

Notes:
1. Standard A-5 and A-10 Inlets, Howard County Dwg G-2-2, Page 110-A.
2. Type B Manhole, see detail sheet 27 of 37.
3. For Storm Drain Profiles, see sheet 21 of 37.

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING — DATE
OFFICE OF PLANNING AND ZONING
John W. Musselman/STD 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

"AS-BUILT" ELEVATIONS VERTIFIED AS OF DECEMBER 20, 1979 BY KENNETH A. McCORD MD. REG. P.E. No. 1974

NOTE:
PAVING WIDTH - 29' AND 2-24'
LENGTH OF PAVING - 1900'
7 SEWER MH's IN ROAD R/W

Rev. Date	Rev. No.	Revision Description

COLUMBIA
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.

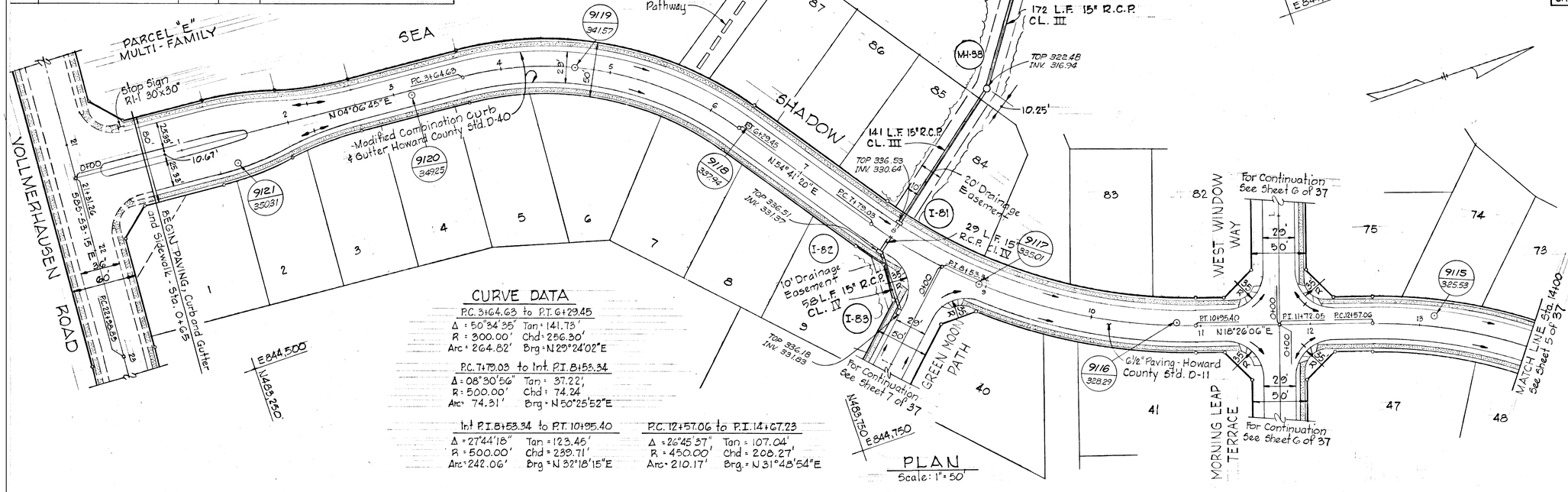
PROJECT AREA
VILLAGE OF KINGS CONTRIVANCE
SECTION 3 AREA 1

PROJECT TITLE
PLAN AND PROFILE
SEA SHADOW
STA. 0+00 TO STA. 14+00

SCALE: AS SHOWN — DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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



CURVE DATA

P.C. 3+64.63 to P.T. 6+29.45
Δ = 50°34'35" Tan = 141.73'
R = 300.00' Chd = 256.30'
Arc = 264.82' Brg = N29°24'02"E

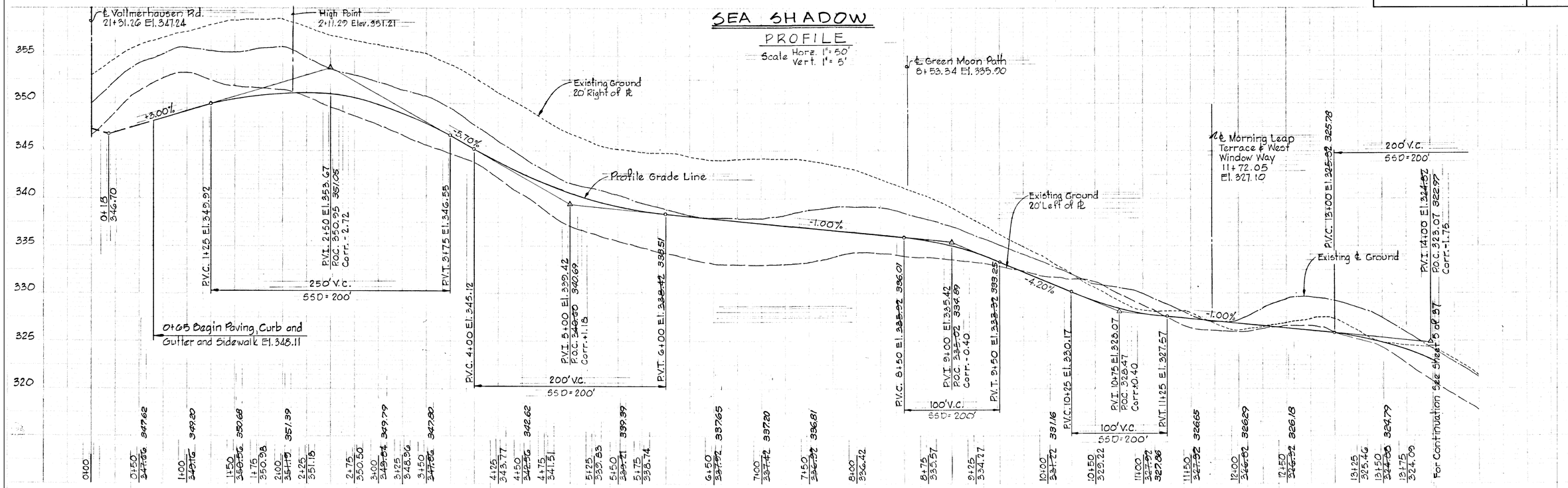
P.C. 7+79.03 to Int. P.I. 8+53.34
Δ = 08°30'56" Tan = 37.22'
R = 500.00' Chd = 74.24'
Arc = 74.31' Brg = N50°25'52"E

Int P.I. 8+53.34 to P.T. 10+95.40
Δ = 27°44'18" Tan = 123.45'
R = 500.00' Chd = 239.71'
Arc = 242.06' Brg = N32°18'15"E

P.C. 12+57.06 to P.I. 14+67.23
Δ = 26°45'37" Tan = 107.04'
R = 450.00' Chd = 208.27'
Arc = 210.17' Brg = N31°48'54"E

PLAN
Scale: 1" = 50'

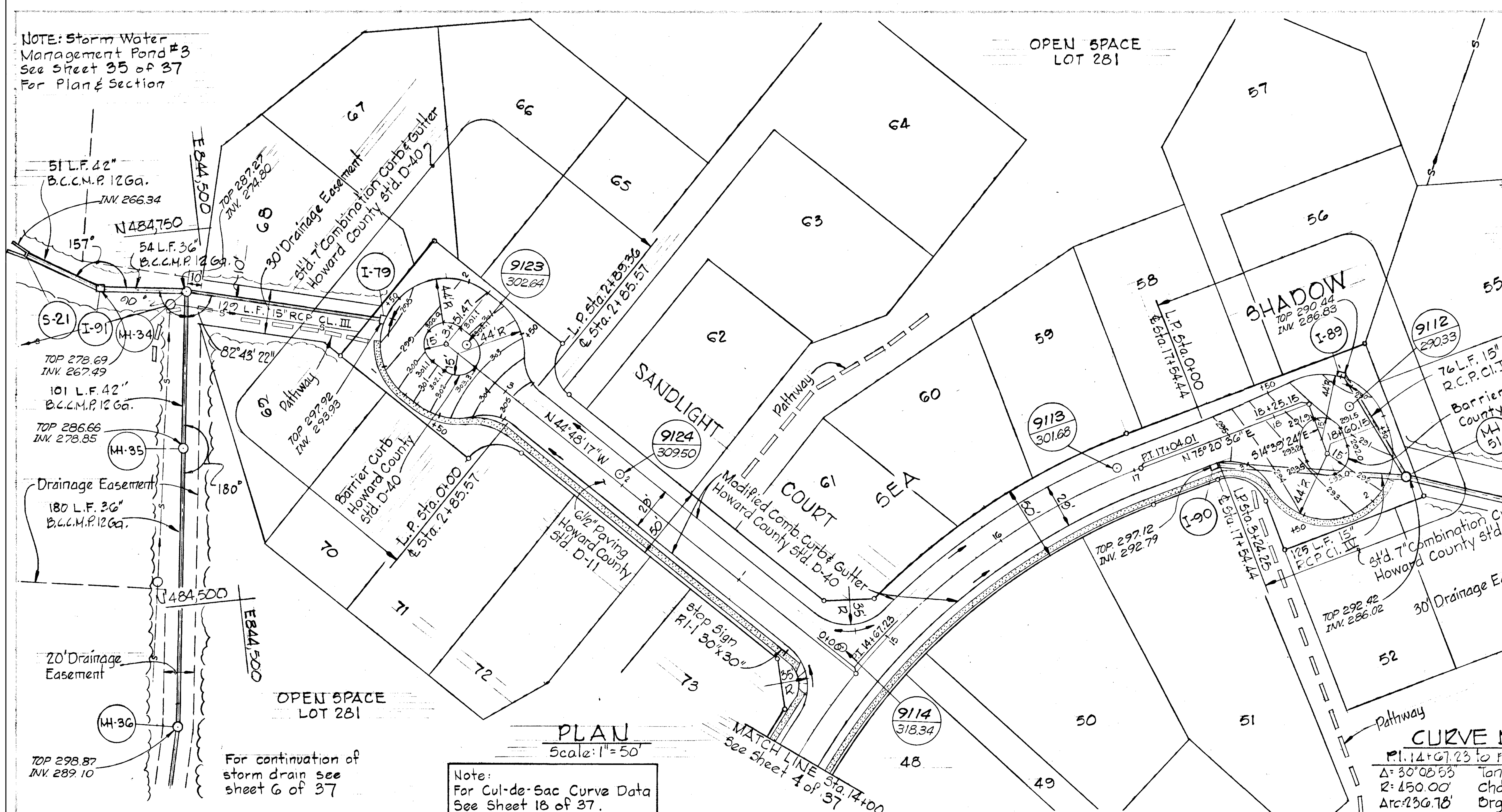
SEA SHADOW
PROFILE
Scale Horz. 1" = 50'
Vert. 1" = 5'



F-79-49c 11/31/78 SHEET 4 OF 37

#445

NOTE: Storm Water Management Pond #3 See Sheet 35 of 37 For Plan & Section



PLAN
Scale: 1" = 50'

Note:
For Cul-de-Sac Curve Data See Sheet 18 of 37.

CURVE DATA

P.I. 14+67.23 to P.T. 17+04.01

Δ = 30°08'53"	Tan. = 121.20'
R = 450.00'	Chd. = 234.06'
Arc = 236.78'	Brg. = N60°19'09"E

STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV.	INV. OUT	LOCATION
I-79	A-5 Inlet, Width = 2.5'	298.00	293.87	℄ Inlet Sta. 1+35 L.P. Rd.
MH-34	Standard Manhole	285.0	274.80	See Plan and Profile
MH-35	Type B MH (See Detail, Sheet 27)	285.3	277.31	See Plan and Profile
MH-36	Type B MH (See Detail, Sheet 27)	295.0	289.02	See Plan and Profile
S-21	42" Metal End Section	——	265.50	See Plan and Profile
I-91	Special Inlet (See Detail, Sheet 27)	279.00	267.20	See Plan and Profile
I-89	A-5 Inlet Width = 2.5'	290.46	286.47	℄ Inlet 1.25' Back of L.P. Sta. 1+05
*I-90	A-5 Inlet Width = 2.5'	296.93	292.25	℄ Inlet 15.92' Right of ℄ Sta. 17+50
MH-49	Type 'B' MH (See Detail, Sheet 27)	281.40	273.75	See Plan and Profile
MH-50	Type 'B' MH (See Detail, Sheet 27)	288.30	284.39	See Plan and Profile
MH-51	St'd. Manhole	292.39	285.80	℄ MH 10' Back of L.P. Sta. 1+78
S-22	18" Concrete End Section	——	273.00	See Plan and Profile

*DENOTES INLET WITH DEFLECTORS

Notes:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. 64-A, Page 119-A.
2. Standard Manhole, Howard County Dwg. D-103, Page 158.
3. 18" Concrete End Section, see detail sheet 27 of 37.
4. 42" Metal End Section, see detail sheet 27 of 37.
5. For Storm Drain Profiles, see sheet 21 of 37.

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 810'
5 SEWER MH's IN ROAD R/W

Note: Storm Water Management Pond #4 See Sheet 36 of 37 For Plan & Section

DEPARTMENT OF PUBLIC WORKS
W O Talbot (signature) 12-29-78
CHIEF, BUREAU OF ENGINEERING — DATE

OFFICE OF PLANNING AND ZONING
John W. Musselman / LTD. (signature) 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

'AS-BUILT' ELEVATIONS VERIFIED AS OF DECEMBER 20, 1979 BY KENNETH A. McCORD MD. REG. P.E. No. 1974

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
SEA SHADOW 14+00 TO 18+60.15
SANDLIGHT COURT

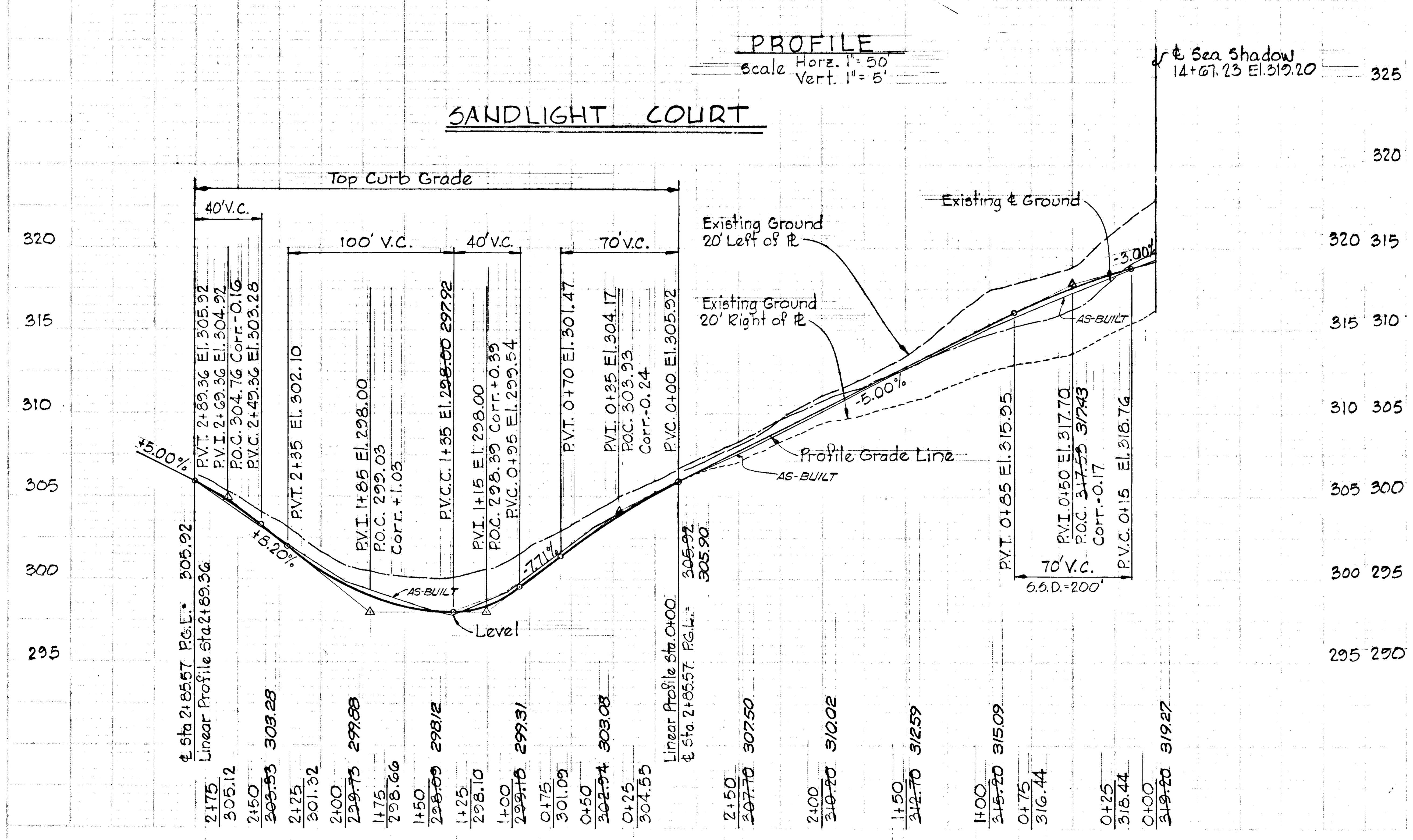
SCALE: AS SHOWN — DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

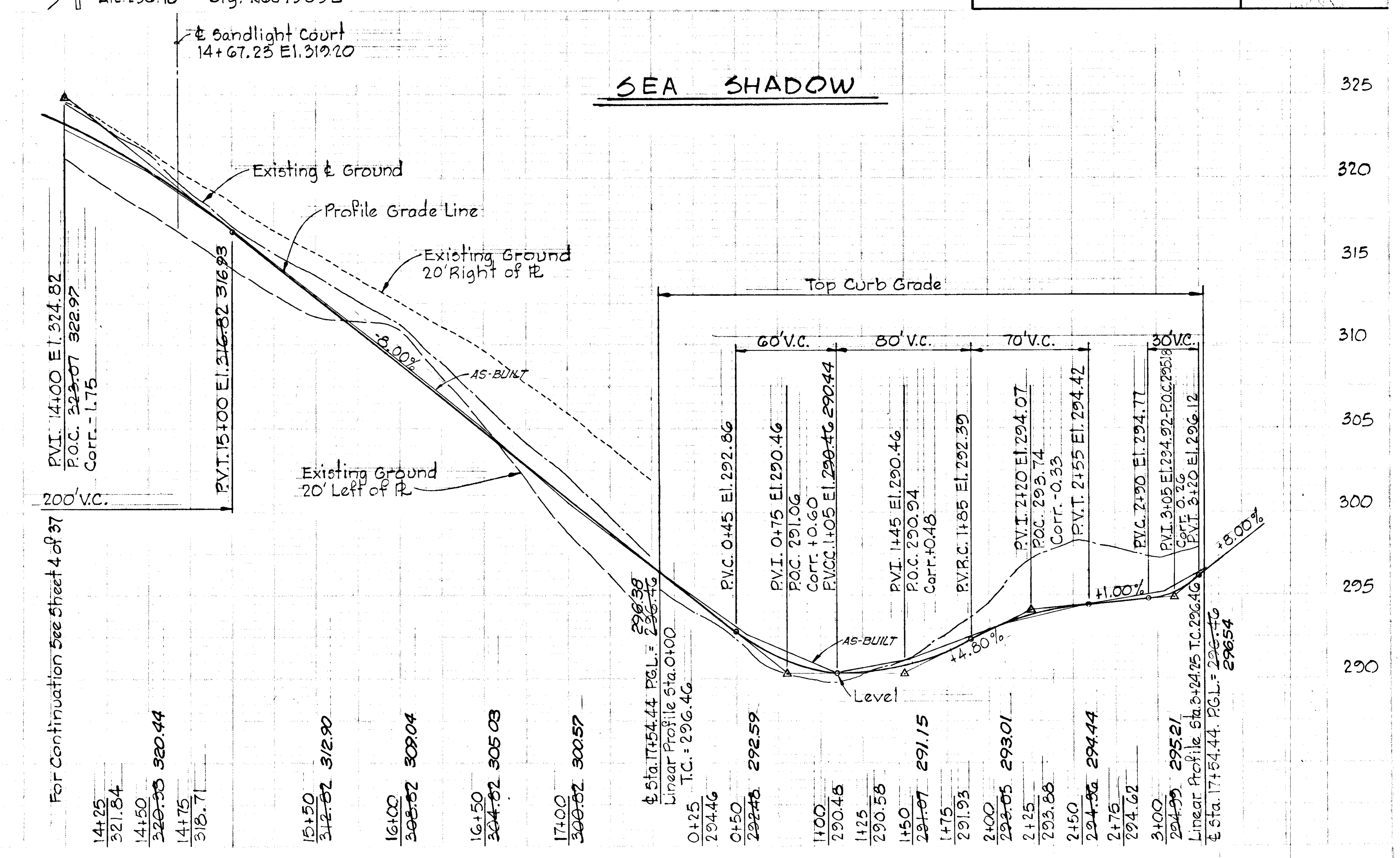
Kenneth A. McCord (signature)
KENNETH A. McCORD
Registered Engineer
No. 1974

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

SANDLIGHT COURT



SEA SHADOW



#445

F-79-44c 11/31/78

H & J

Note
For Cul-De-Sac Curve Data
See Sheet 18 of 37

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 700'
3-SEWER MH's IN ROAD R/W

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Mueller/STD 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD, MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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
WEST WINDOW WAY
MORNING LEAP TERRACE
SINGLE BIRD LANE

SCALE: AS SHOWN DATE

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.	INV. OUT	LOCATION
I-68	Std. A-5 Inlet, Width=2.5'	321.26	316.58	℄ Inlet L.P. Sta. 1+15.38
I-77	Special Inlet (See Detail Sheet 27)	300.77	294.08	See Plan and Profile
I-78	Special Inlet (See Detail Sheet 27)	307.87	300.20	See Plan and Profile
MH-23	Std. Manhole	308.20	302.18	See Plan and Profile
I-80	Std. A-5 Inlet width = 2.5'	308.95	304.70	℄ Inlet @ Sta. 2+00 L.P. Road
MH-39	Std. Manhole	309.91	302.39	℄ MH 15" Rock of L.P. Sta. 2+17
I-84	Std A-5 Inlet Width=2.5'	353.99	350.76	℄ Inlet @ Sta 1+85.77 L.P. Single Bird Lane
MH-27	Type 5 MH (See Detail Sheet 27)	309.50	302.21	See Plan and Profile
S-19	Type A Headwall (See Detail Sheet 28)	——	306.56	See Plan and Profile

Note:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. G-1.2, Page 110-2.
2. Standard Manhole, Howard County Dwg. D-103, Page 158.
3. For Storm Drain Profiles, see sheet 20, 21 and 23 of 37.

PLAN
Scale: 1" = 50'

WEST WINDOW WAY

MORNING LEAP TERRACE

SINGLE BIRD LANE

F-79-44c 11/31/78 SHEET 6 OF 37

K, L & W

#445

Center
7209-2C

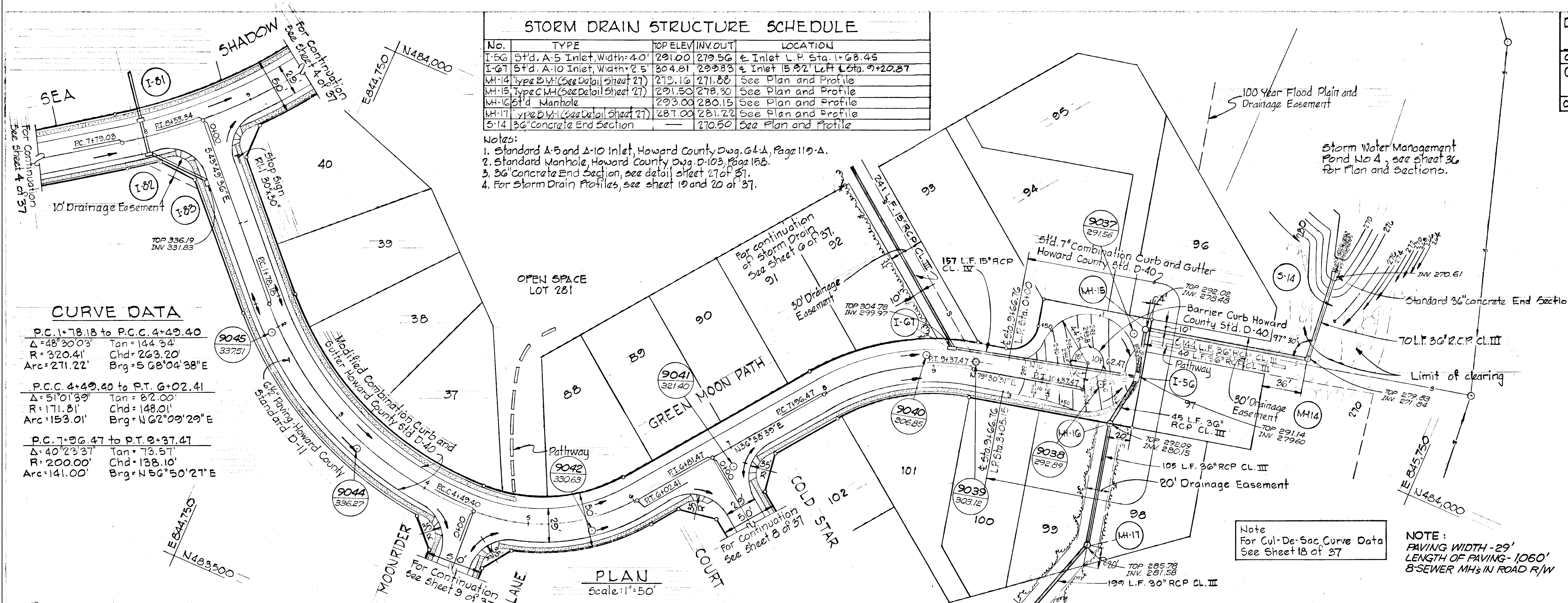
STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV	INV. OUT	LOCATION
I-56	St'd. A-5 Inlet, Width=4.0'	291.00	279.56	℄ Inlet L.P. Sta. 1+68.45
I-67	St'd. A-10 Inlet, Width=2.5'	304.81	299.83	℄ Inlet 15.92' Left ℄ Sta. 9+20.87
MH-14	Type B MH (See Detail Sheet 27)	279.16	271.88	See Plan and Profile
MH-15	Type C MH (See Detail Sheet 27)	291.50	278.30	See Plan and Profile
MH-16	St'd Manhole	293.00	280.15	See Plan and Profile
MH-17	Type B MH (See Detail Sheet 27)	287.00	281.22	See Plan and Profile
S-14	36" Concrete End Section	—	270.50	See Plan and Profile

Notes:
1. Standard A-5 and A-10 Inlet, Howard County Dwg. G4-A, Page 119-A.
2. Standard Manhole, Howard County Dwg. D-103, Page 158.
3. 36" Concrete End Section, see detail sheet 27 of 37.
4. For Storm Drain Profiles, see sheet 19 and 20 of 37.

CURVE DATA

P.C. 1+78.18 to P.C.C. 4+49.40	
Δ = 48°30'03"	Tan = 144.34'
R = 320.41'	Chd = 263.20'
Arc = 271.22'	Brg = S 68°04'38" E
P.C.C. 4+49.40 to P.T. 6+02.41	
Δ = 51°01'39"	Tan = 82.00'
R = 171.81'	Chd = 148.01'
Arc = 153.01'	Brg = N 62°09'29" E
P.C. 7+96.47 to P.T. 9+37.47	
Δ = 40°23'37"	Tan = 73.57'
R = 200.00'	Chd = 138.10'
Arc = 141.00'	Brg = N 56°50'27" E

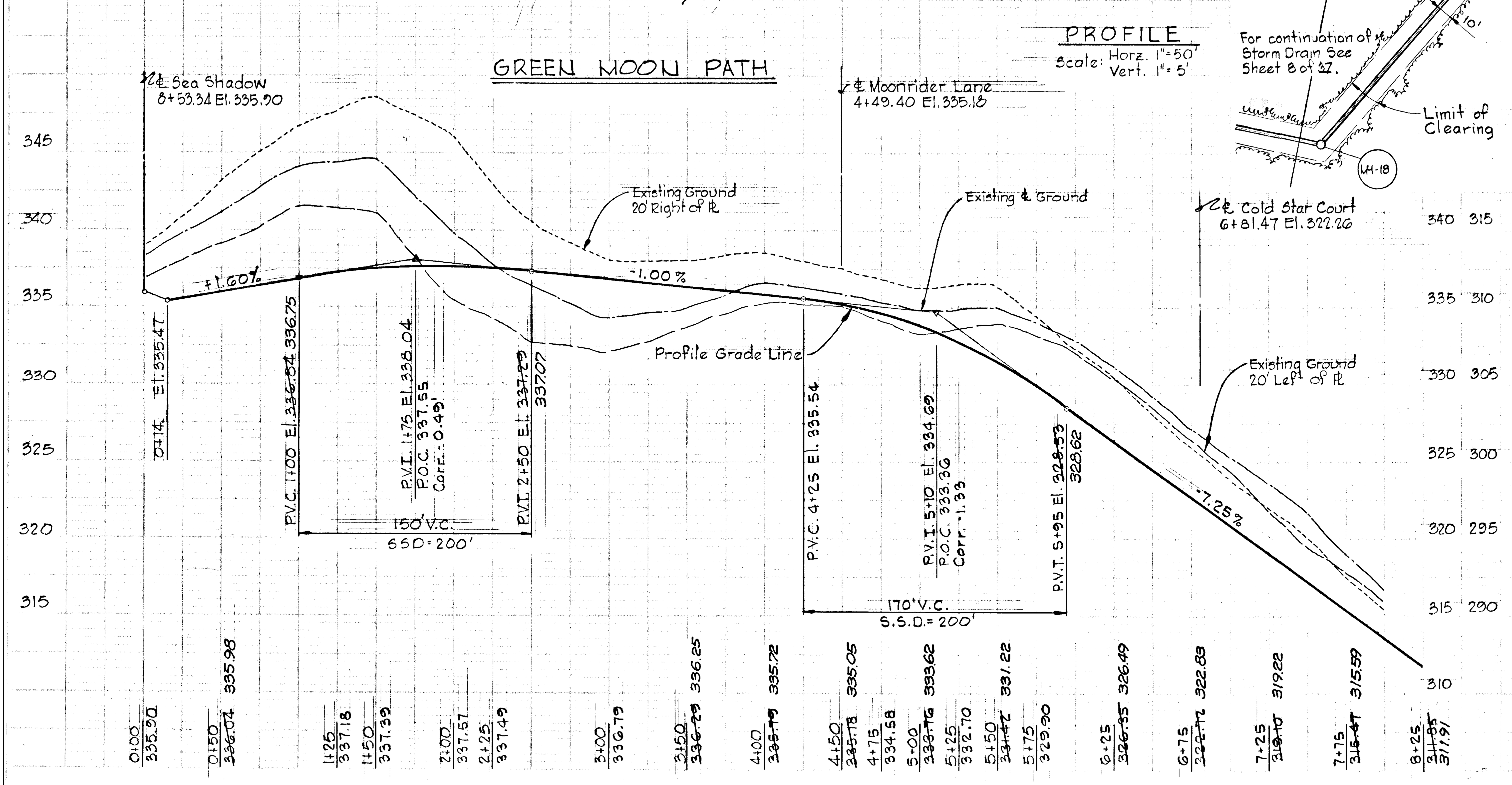


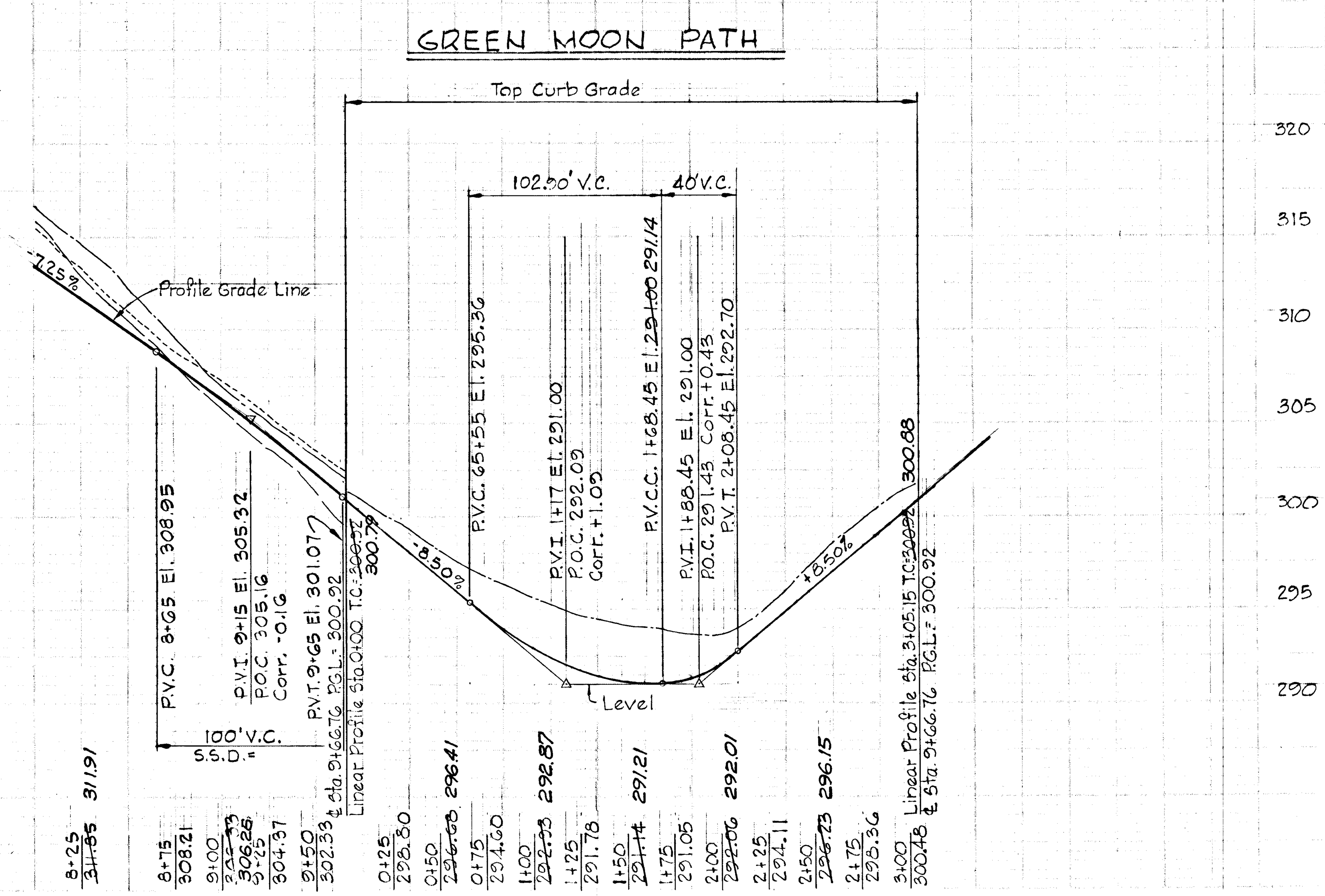
PLAN
Scale: 1" = 50'

Note
For Cul-De-Sac Curve Data See Sheet 18 of 37

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 1,060'
8-SEWER MH's IN ROAD R/W

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





DEPARTMENT OF PUBLIC WORKS

W O Lelbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING

John W. Musselman / LTD. 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

'AS-BUILT' ELEVATIONS VERIFIED BY KENNETH A. McCORD, MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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 I

PROJECT TITLE
PLAN AND PROFILE
GREEN MOON PATH

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

F-79-44 11/31/78

I

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV	INV. OUT	LOCATION
I-57	Std. A-10 Inlet, Width= 2.5'	316.00	307.98	℄ Inlet 15.92' Lt. of ℄ Sta. 2+13.88
I-58	Std. A-5 Inlet, Width= 4.0'	316.00	308.58	℄ Inlet 16.67' Rt. of ℄ Sta. 2+10.89
MH-18	Std. Manhole	301.00	293.20	See Plan and Profile
MH-19	Std. Manhole	319.00	312.70	See Plan and Profile
MH-20	Std. Manhole	332.40	321.76	See Plan and Profile

Note:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. G4-2, Page 119-A.
2. Standard Manhole, Howard County, Dwg. P-103, Page 158.
3. For Storm Drain Profiles, see sheet 10 of 37.

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Muscelman 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD, MD. REG. P.E. No. 1974, AS OF DECEMBER 20, 1979

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
MORNING MEWS
COLD STAR COURT

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

CURVE DATA
P.C. 1+17.88 to P.T. 2+14.10
Δ = 05°30'48" Tan. = 48.15'
R = 1000.00' Chd. = 96.19'
Arc = 96.22' Brg. = N83°07'51"W

CURVE DATA
P.C. 0+75.94 to P.T. 2+17.80
Δ = 40°38'19" Tan. 74.06'
R = 200.00' Chd. 138.90'
Arc = 141.86' Brg. S33°02'12"E

Note
For Cul-De-Sac Curve Data
See Sheet 17 & 18 of 37

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 730'
4-SEWER MH's IN ROAD R/W

For continuation of storm drain see sheet 7 of 37.

PLAN
Scale: 1" = 50'

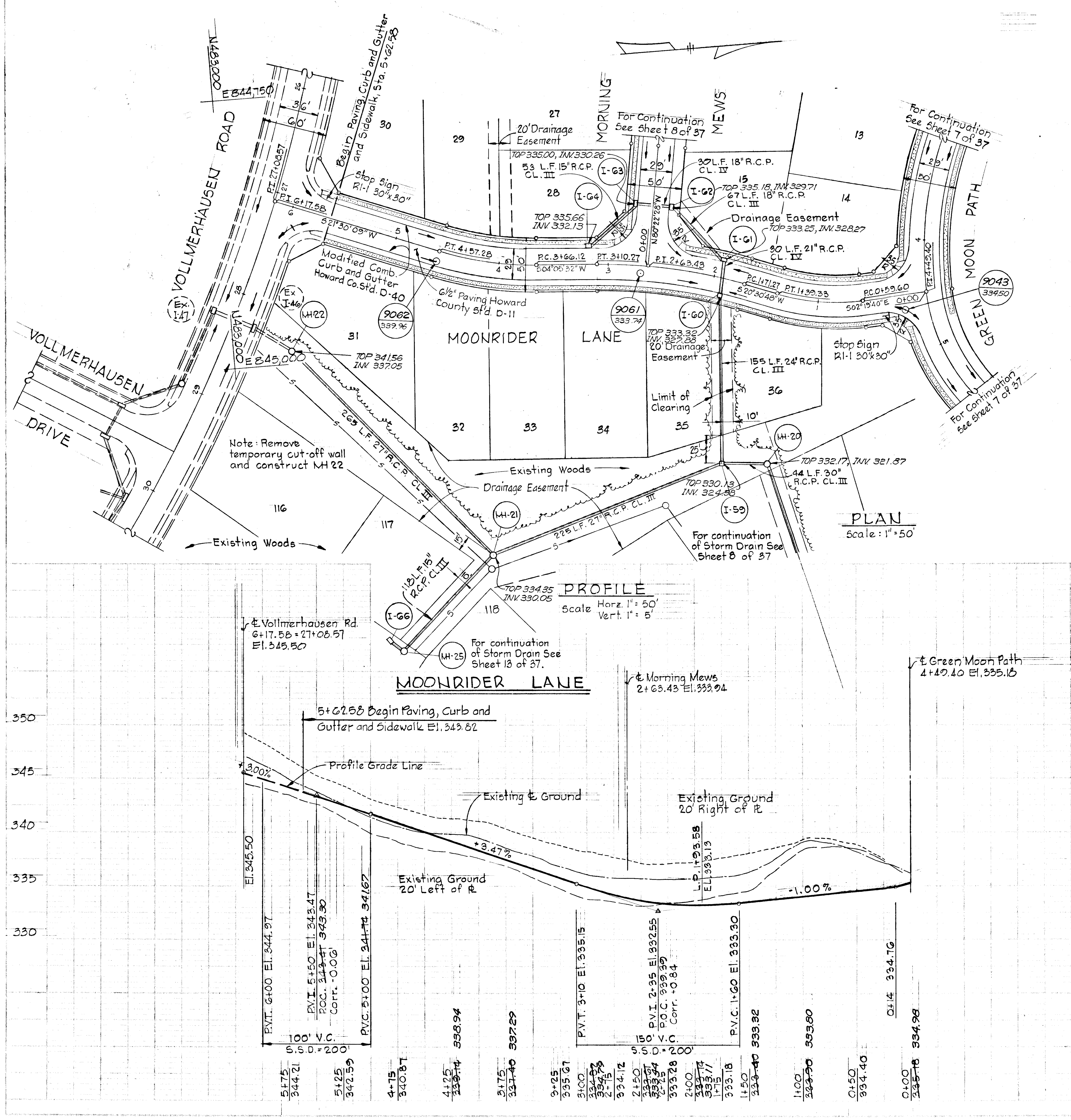
PROFILE
MORNING MEWS
Scale Horz.: 1" = 50'
Vert.: 1" = 5'

PROFILE
COLD STAR COURT

#445

F-79-46 11/31/78 SHEET 8 OF 37

O+M



CURVE DATA

P.C. 0+59.60 to P.T. 1+39.33
Δ = 22°50'28" Tan. = 40.40'
R = 200.00' Chd = 79.20'
Arc = 79.73' Brg. = S 09°05'34"W

P.C. 1+71.27 to P.I. 2+63.43
Δ = 10°53'15" Tan = 46.22'
R = 485.00' Chd = 92.02'
Arc = 92.16' Brg. = S 15°04'10"W

PI 2+63.43 to P.T. 3+10.27
Δ = 05°32'00" Tan. = 23.44'
R = 485.00' Chd. = 46.82'
Arc = 46.84' Brg. = S 06°51'32"W

P.C. 3+66.12 to P.T. 4+57.28
Δ = 17°24'37" Tan = 45.93'
R = 300.00' Chd. = 90.81'
Arc = 91.16' Brg. = S 12°47'51"W

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 617'
3-SEWER MH's IN ROAD R/W

N484,000
E845,000

Note:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. G4-A, Page 119-A.
2. Standard Type D Inlet, Howard County Dwg. G4-C, Page 119-C.
3. Standard Manhole, Howard County Dwg. D-103, Page 158.
4. For Storm Drain Profiles, see sheet 19 and 20 of 37.

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. OUT	LOCATION
I-59	St'd. Type 'D' Inlet	331.33	324.36	See Plan and Profile
I-60	St'd. A-5 Inlet, Width = 2.5'	333.25	327.65	℄ Inlet 15.92' Lt. of ℄ Sta. 1+95.26
I-61	St'd A-5 Inlet, Width = 2.5'	333.24	328.24	℄ Inlet 15.92' Rt. of ℄ Sta. 1+95.58
I-62	St'd. A-10 Inlet, Width = 2.5'	335.02	329.47	℄ Inlet 15.92' Rt. of ℄ Sta. 0+57.67
I-63	St'd. A-10 Inlet, Width 2.5'	335.02	330.25	℄ Inlet 15.92' Lt. of ℄ Sta. 0+57.67
I-64	St'd. A-5 Inlet, Width = 2.5'	335.52	331.90	℄ Inlet 15.92' Rt. of ℄ Sta. 3+17.50
MH 21	Type B MH (See Detail Sheet 27)	334.70	329.56	See Plan and Profile
MH 22	Type B MH (See Detail Sheet 27)	341.90	337.24	See Plan and Profile

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Musselman / ETD 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

"AS-BUILT" ELEVATIONS VERIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

Rev. Date	Rev. No.	Revision Description
7/16/80	1	Deleted MH 24, MH 26 & I-65

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
MOONRIDER LANE

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

F-79-44 11/31/78

N

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. OUT	LOCATION
I-70	St'd. A-5 Inlet, Width=2.5'	364.45	360.28	℄ Inlet 15.92' Lt. of ℄ Sta. 0+50
MH27	St'd. Manhole	361.88	355.53	℄ MH 17.50' Rt. of ℄ Sta. 3+25

Notes:
1. Standard A-5 Inlet, Howard County Dwg. G4-A, Page 119-A.
2. Standard Manhole, Howard County Dwg D-103, Page 158.
3. For Storm Drain Profiles, see sheet 20 and 23 of 37.

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	LOCATION
MH 1A	Standard Manhole	357.25±	352.00	351.80	See Plan and Profile
MH 2A	Standard Manhole	365.40±	358.46	358.26	℄ MH 3.0' from Rd. edge opposite I-1A
I-1A	Std. A-5 Inlet, Width 2.5'	365.40±	—	358.59	℄ Inlet 10' from existing fire hydrant

Notes:
1. Construct Inlet I-1A to meet curb and gutter, Inlet depressed.
2. For Storm Drain Profile see Sheet 20 of 37.
3. See Village of Kings Contrivance Section 3 Area 2 Sheet 11 of 22 for I-1A Drainage Area.

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 1,300'
5-SEWER MH's IN ROAD R/W

CURVE DATA

P.C. 3+50.17 to P.I. 3+67.61
Δ = 06°39'45" Tan = 8.73'
R = 150.00' Chd = 17.43'
Arc = 17.44' Brg = S 28°46'54" W

P.I. 3+67.61 to P.T. 5+08.73
Δ = 53°54'18" Tan = 76.27'
R = 150.00' Chd = 135.98'
Arc = 141.12' Brg = S 01°30'08" E

P.C. 11+33.23 to P.T. 12+83.73
Δ = 86°13'53" Tan = 93.60'
R = 100.00' Chd = 136.70'
Arc = 150.50' Brg = S 71°34'13" E

Note: See Road Construction Dwgs for Village of Kings Contrivance Section 3 Area 2 Sheet 5 of 22 for Storm Drain System beyond Existing MH 63.

"AS-BUILT" ELEVATIONS VERTIFIED BY KENNETH A. McCORD, MD. REG. P.E. No. 1974, AS OF DECEMBER 20, 1979

DEPARTMENT OF PUBLIC WORKS
[signature] 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING
John W. Musselman /[signature] 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Rev. Date	Rev. No.	Revision Description
7-29-81	1	Added Storm Drain between MH-63 & I-1A

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 DRIVE

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

[signature]
KENNETH A. McCORD
Registered Engineer
No. 1974

F-79-46 11/31/78 SHEET 10 OF 37
"X"

CURVE DATA

P.C. 1+05.40 to Int. P.I. 1+84.11
Δ = 20°02'39" Tan. = 39.76'
R = 225.00' Chd = 78.31'
Arc = 78.71' Brg. = N 74°34'18"W

Int. P.I. 1+84.11 to P.T. 3+32.99
Δ = 37°54'39" Tan. = 77.28'
R = 225.00' Chd. = 146.18'
Arc = 148.88' Brg. = S 76°27'03"W

CURVE DATA

P.C. 3+88.24 to P.T. 5+30.07
Δ = 32°30'17" Tan = 72.88'
R = 250.00' Chd = 139.93'
Arc = 141.83' Brg = S 73°44'52"W

P.C. 6+07.65 to P.T. 7+19.65
Δ = 47°32'03" Tan = 59.45'
R = 135.00' Chd = 108.82'
Arc = 112.00' Brg = S 66°13'58"W

Existing Vollmerhausen Road (To be Abandoned)

N482,750 E844,000

Standard Type D Inlet with throat opening on 4 sides, throat opening Elev. 336.0

20' Drainage Easement FUTURE Pathway

7' Comb. Curb & Gutter Howard Co Std. D-4.0

FUTURE 71LF 15" RCP Cl. III

105 LF 15" RCP Cl. III

Sta. 7+38.94 L.F. El. 340.15

Sta. 7+38.94 R.F. El. 340.15

OPEN SPACE LOT 287

Existing Trees

SWEET GRASS RIDGE

Modified Comb. Curb & Gutter Howard Co. Std D-4.0

6½" Paving Howard Co. Std. D-11

Temporary 24 LF 18" RCP Cl. III

20' Drainage Easement INV. 332.16

17 LF 21" RCP Cl. III

4 LF 21" RCP Cl. III

6 LF 18" RCP Cl. III

Barrier Curb, Howard County Std. D-4.0

Sta. 7+38.94 L.F. El. 343.00

Sta. 7+38.94 R.F. El. 343.00

Stop Sign R1-1 30"x30"

I-70

For Continuation See Sheet 10 of 37

For Continuation See Sheet 10 of 37

DRIVE

JAMES H. DORSEY 409/436

VOLLMERHAUSEN

Tract Boundary

E844,000 N482,250

E844,750 N482,500

Note: 21" Storm Drain between I-94 and MH-57 to be connected when future lots are developed.

PLAN
Scale 1"=50'

Note:
For Cul-De-Sac Curve Data
See Sheet 18 of 37

Notes:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. G4-1, Page 119-A.
2. Standard Type D Inlet, Howard County Dwg. G4-C, Page 119-C.
3. Standard Manhole, Howard County Dwg. D-103, Page 158.
4. Temporary Cutoff Wall, see detail sheet 26 of 37.
5. For Storm Drain Profiles, see sheet 18 of 37, 23

STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV.	INV OUT	LOCATION
I-94	Std. A-10 Inlet, Width = 2.5'	336.54	331.24	℄ Inlet L.P. Sta. 1+78
I-95	Std. Type D Inlet	336.83	333.65	See Plan and Profile
I-96	Std. A-5 Inlet, Width = 2.5'	343.60	337.16	℄ Inlet L.P. Sta. 0+22
MH-56	Std. Manhole	338.95	332.72	℄ Manhole 5' LT. L.P. Sta. 2+12
MH-57	Std. Manhole	337.72	330.68	℄ Manhole 16' LT. L.P. Sta. 1+00
S-15	Temporary Cutoff Wall *	—	330.64	See Plan and Profile

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Musselman/STD. 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD NO. REG. P.E. No. 19714 AS OF DECEMBER 20, 1979

Rev. Date	Rev. No.	Revision Description
7/16/80	1	Deleted Artic Howard S.D. System

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

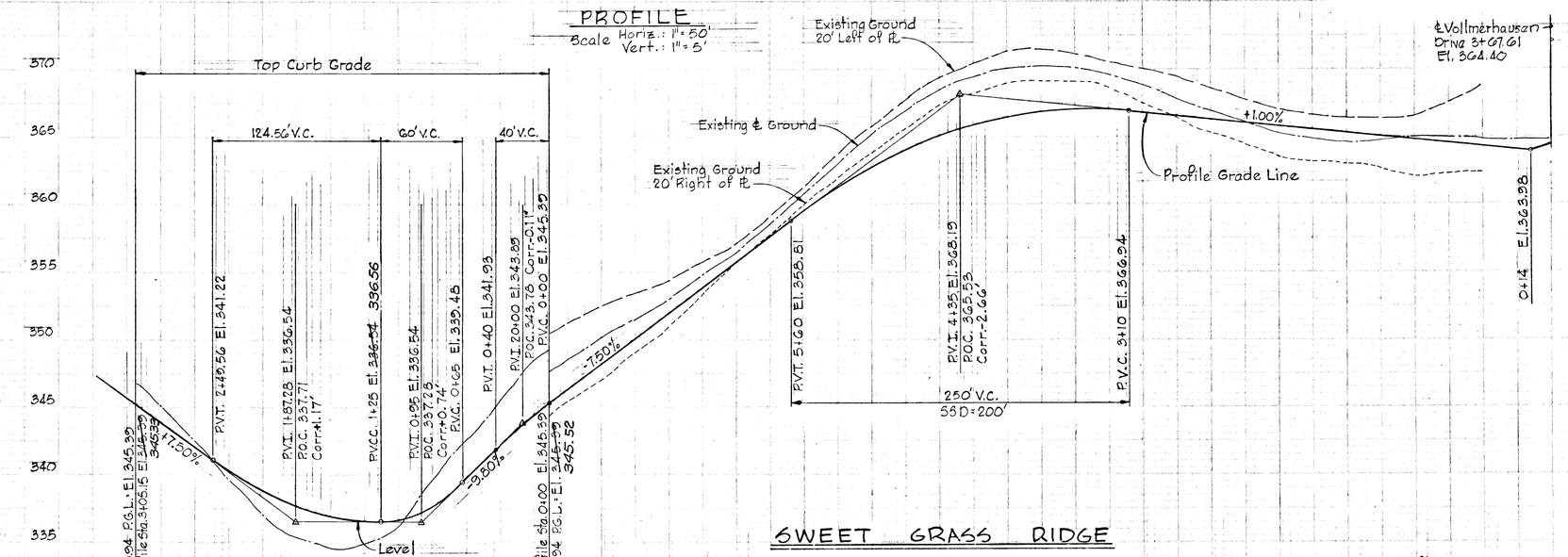
PROJECT TITLE
PLAN AND PROFILE
SWEET GRASS RIDGE

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 19714

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



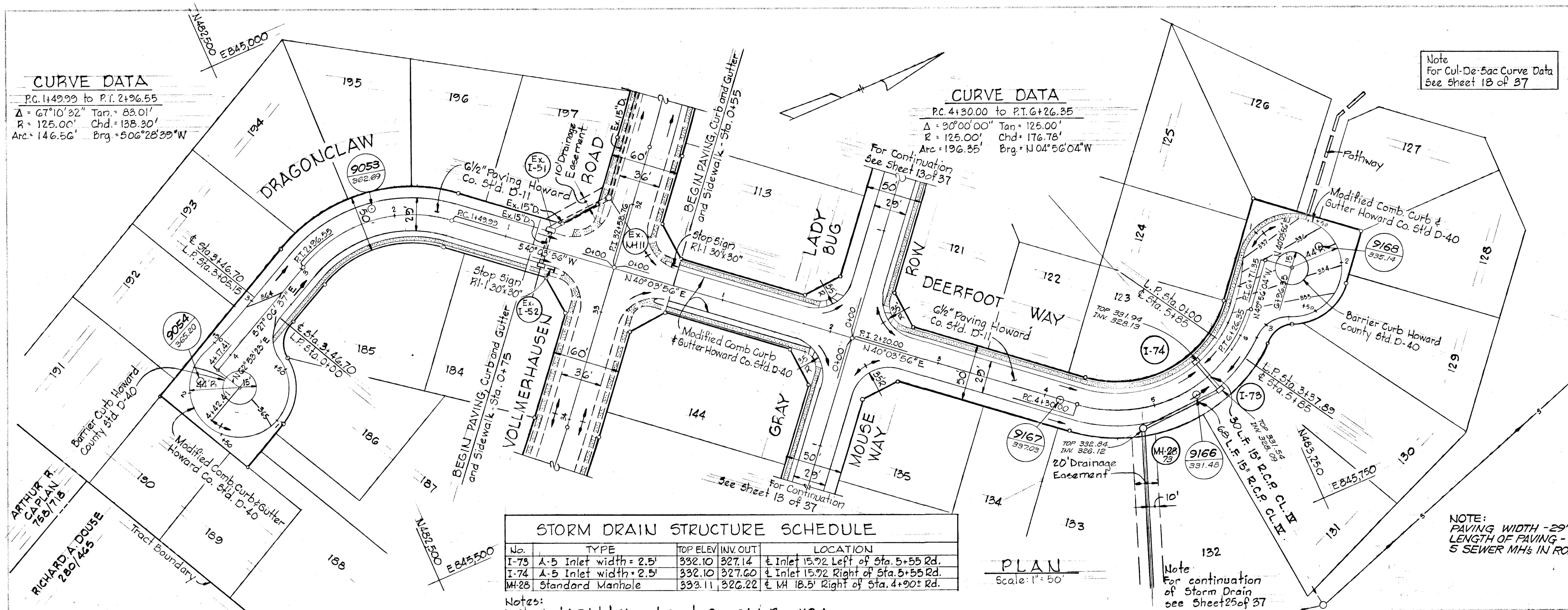
SWEET GRASS RIDGE

3+00	2+75	2+50	2+25	2+00	1+75	1+50	1+00	0+75	0+50	0+25	7+00	6+50	6+00	5+50	5+25	5+00	4+75	4+50	4+25	4+00	3+75	3+50	3+25	3+00	2+50	2+00	1+50	1+00	0+50	0+00
345.00	345.15	341.10	339.56	338.27	337.29	336.79	337.14	339.58	341.12	343.34	348.39	352.06	355.90	359.70	361.25	362.84	363.96	365.13	366.84	366.53	366.87	367.01	367.05	366.84	366.40	366.06	365.17	364.92	364.48	364.40

#445

F-79-44c 11/31/78 SHEET 11 OF 37

I-1 & I-2



STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV	INV. OUT	LOCATION
I-73	A-5 Inlet width = 2.5'	332.10	327.14	℄ Inlet 15.92 Left of Sta. 5+55 Rd.
I-74	A-5 Inlet width = 2.5'	332.10	327.60	℄ Inlet 15.92 Right of Sta. 5+55 Rd.
MH-28	Standard Manhole	333.11	326.22	℄ MH 18.5' Right of Sta. 4+90± Rd.

Notes:
1. Standard A-5 Inlet, Howard County Dwg. 64-A, Page 119-A.
2. Standard Manhole, Howard County Dwg. D-103, Page 158.
3. For Storm Drain Profiles, see sheet 22 of 37.

DEPARTMENT OF PUBLIC WORKS

W O Lelbert 12-29-78

CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING

John W. Musselman/std 12-27-78

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

AS-BUILT ELEVATIONS VERIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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
DEERFOOT WAY
DRAGONCLAW

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

F-79-44c 11/31/78 SHEET 12 OF 37

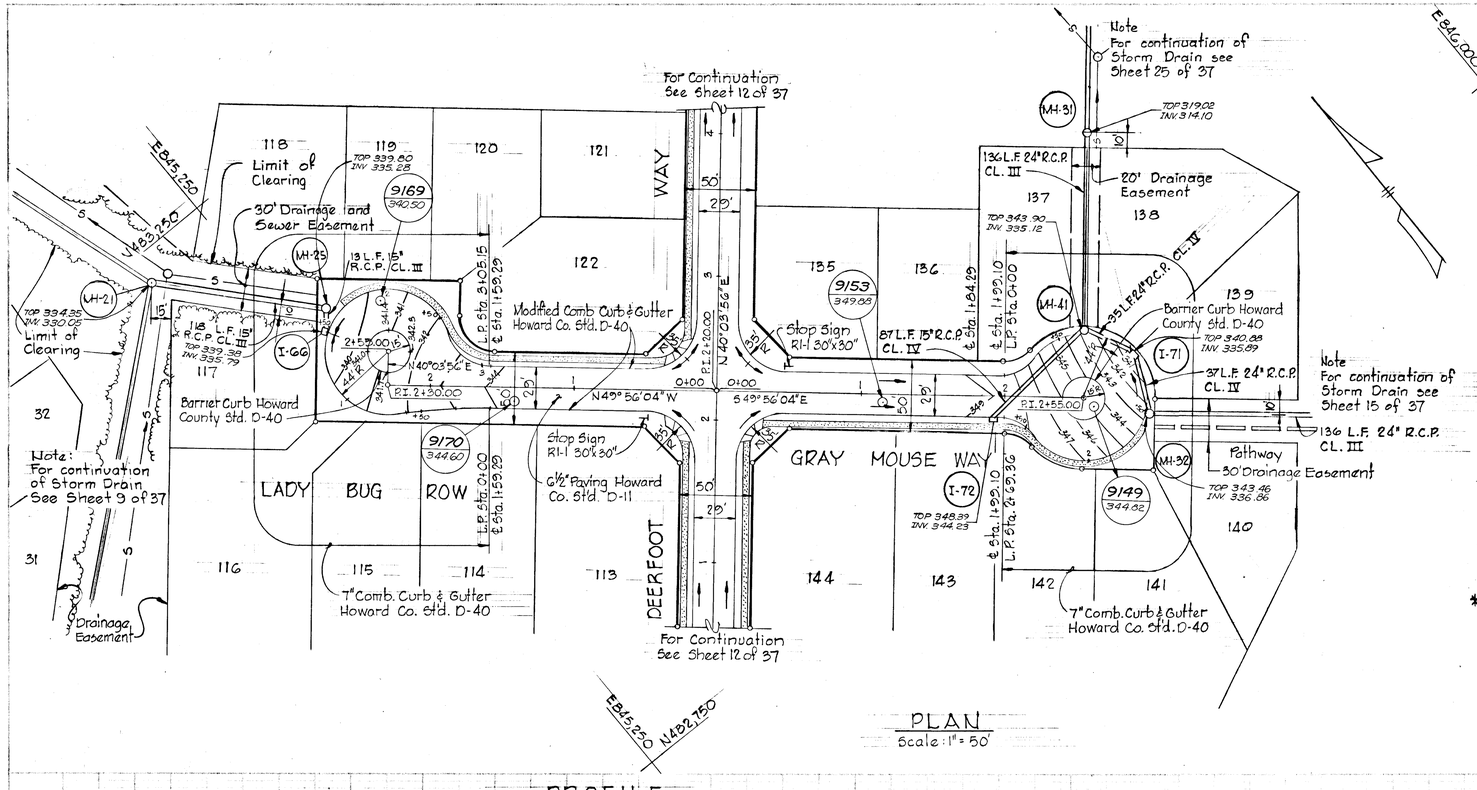
S & P

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Macelman / JHD. 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

"AS-BUILT" ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD. REG. PE. No. 1974 AS OF DECEMBER 20, 1979

Note
For Cul-De-Sac Curve Data
See Sheet 18 of 37

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 485'
4 SEWER MHs IN ROAD R/W



PLAN
Scale: 1" = 50'

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
LADY BUG ROW
GRAY MOUSE WAY

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

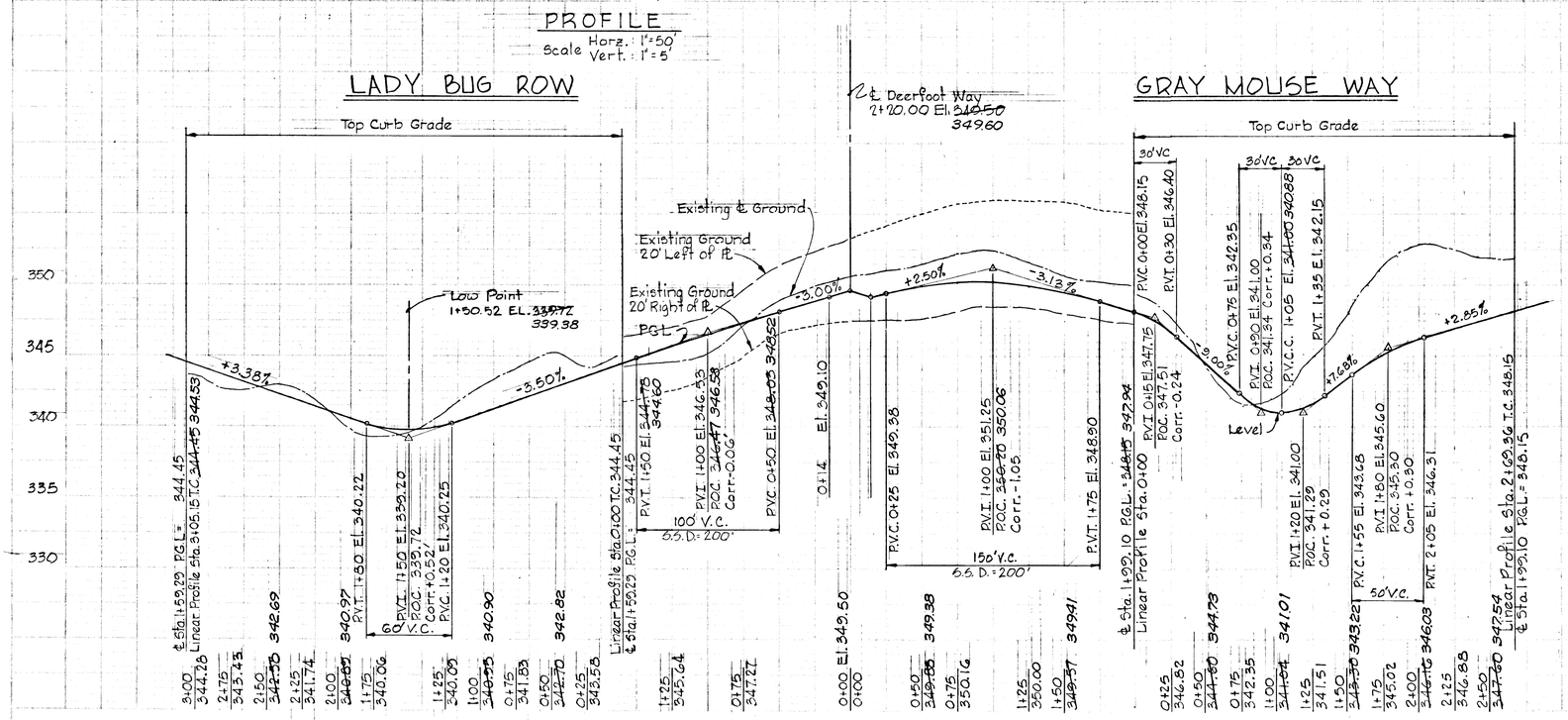
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974

STORM DRAIN STRUCTURE SCHEDULE

	No.	TYPE	TOP ELEV	INV. OUT	LOCATION
	I-66	Std. A-5 Inlet, Width = 2.5'	339.72	335.58	℄ Inlet L.P. Sta. 1+50.52
	MH-21	Standard Manhole	334.90	323.56	℄ MH 9' Back of L.P. Sta. 1+63
	MH-25	Standard Manhole	340.20	335.23	See Plan and Profile
	I-71	Std. A-5 Inlet, Width = 3.0'	341.00	335.67	℄ Inlet L.P. Sta. 1+05
*	I-72	Std. A-5 Inlet, Width = 2.5'	348.48	344.00	℄ Inlet 15.92 Right of ℄ Sta. 1+02 Rd.
	MH-31	Type B MH (See Detail Sht. 27	319.60	314.07	See Plan and Profile
	MH-32	Standard Manhole	343.42	336.49	℄ MH 3.0' Back of L.P. Sta. 1+50 ±
	MH-41	Standard Manhole	342.92	334.99	℄ MH 3.0' Back of L.P. Sta. 0+70

Notes:
1. Standard A-5 Inlet, Howard County Dwg. Std-A, Page 110-1.
2. Standard Manhole, Howard County Dwg. D-103, Page 155,
3. * Denotes Inlet with Deflectors
4. For Storm Drain Profiles, see Sheet 19 and 22 of 37.

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



#445

F-79-41c 11/31/78 SHEET 13 OF 37

Q&R

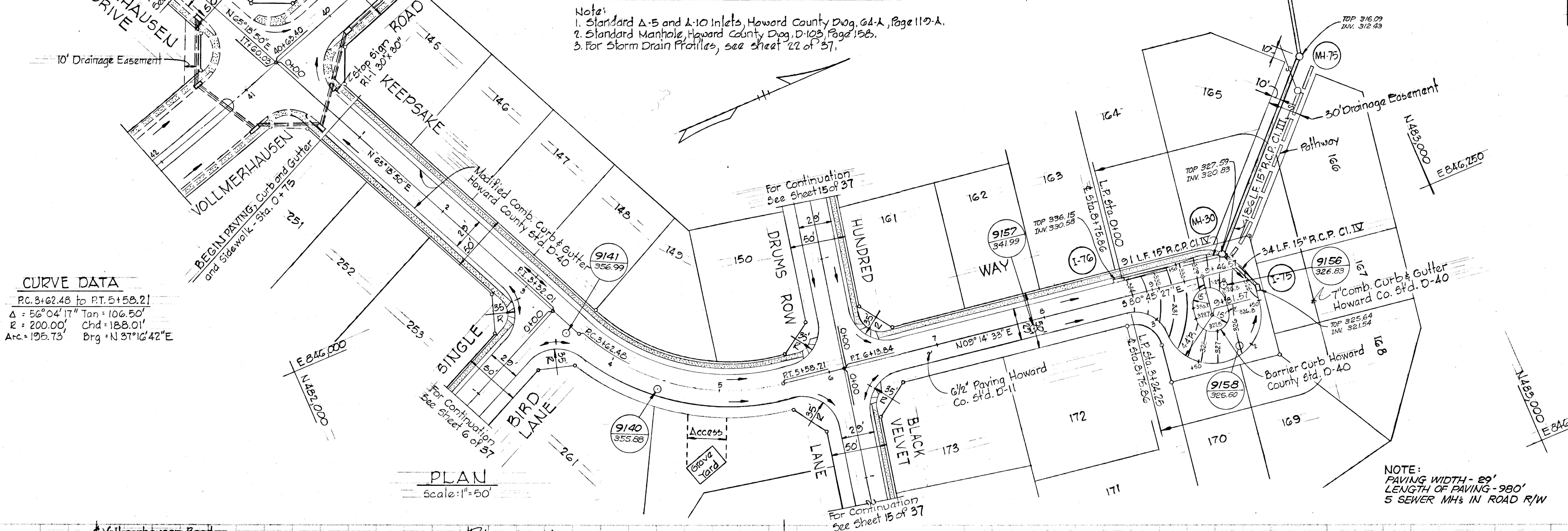
STORM DRAIN STRUCTURE SCHEDULE

No	TYPE	TOP ELEV	INV. OUT	LOCATION
I-75	A-5 Inlet, Width = 2.5'	326.00	321.30	℄ Inlet 1.25' Back of Curb, L.P. Sta. 1+36.67
I-76	A-10 Inlet, Width = 2.5'	335.77	330.49	℄ Inlet 15.92 Left of Sta. 8+70.17 Rd.
MH-30	Standard Manhole	327.72	320.85	℄ MH 3.5' Back of Curb, L.P. Sta. 0+94

Note:
1. Standard A-5 and A-10 Inlets, Howard County Dwg. 64-A, Page 119-A.
2. Standard Manhole, Howard County Dwg. D-103, Page 158.
3. For Storm Drain Profiles, see sheet 22 of 37.

Note
For Cul-De-Sac Curve Data
See Sheet 18 of 37

For Continuation
of Storm Drain
see sheet 25 of 37.



CURVE DATA
P.C. 3+62.48 to P.T. 5+58.21
Δ = 56°04'17" Tan = 106.50'
R = 200.00' Chd = 188.01'
Arc. = 195.73' Brg = N 37°16'42"E

PLAN
Scale: 1" = 50'

NOTE:
PAVING WIDTH - 29'
LENGTH OF PAVING - 980'
5 SEWER MH's IN ROAD R/W

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

DEPARTMENT OF PUBLIC WORKS
W O Filbert 12-29-78
CHIEF, BUREAU OF ENGINEERING — DATE
OFFICE OF PLANNING AND ZONING
John W. Musselman / JFD. 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

"AS-BUILT" ELEVATIONS VERIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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
KEEPSAKE WAY

SCALE: AS SHOWN DATE

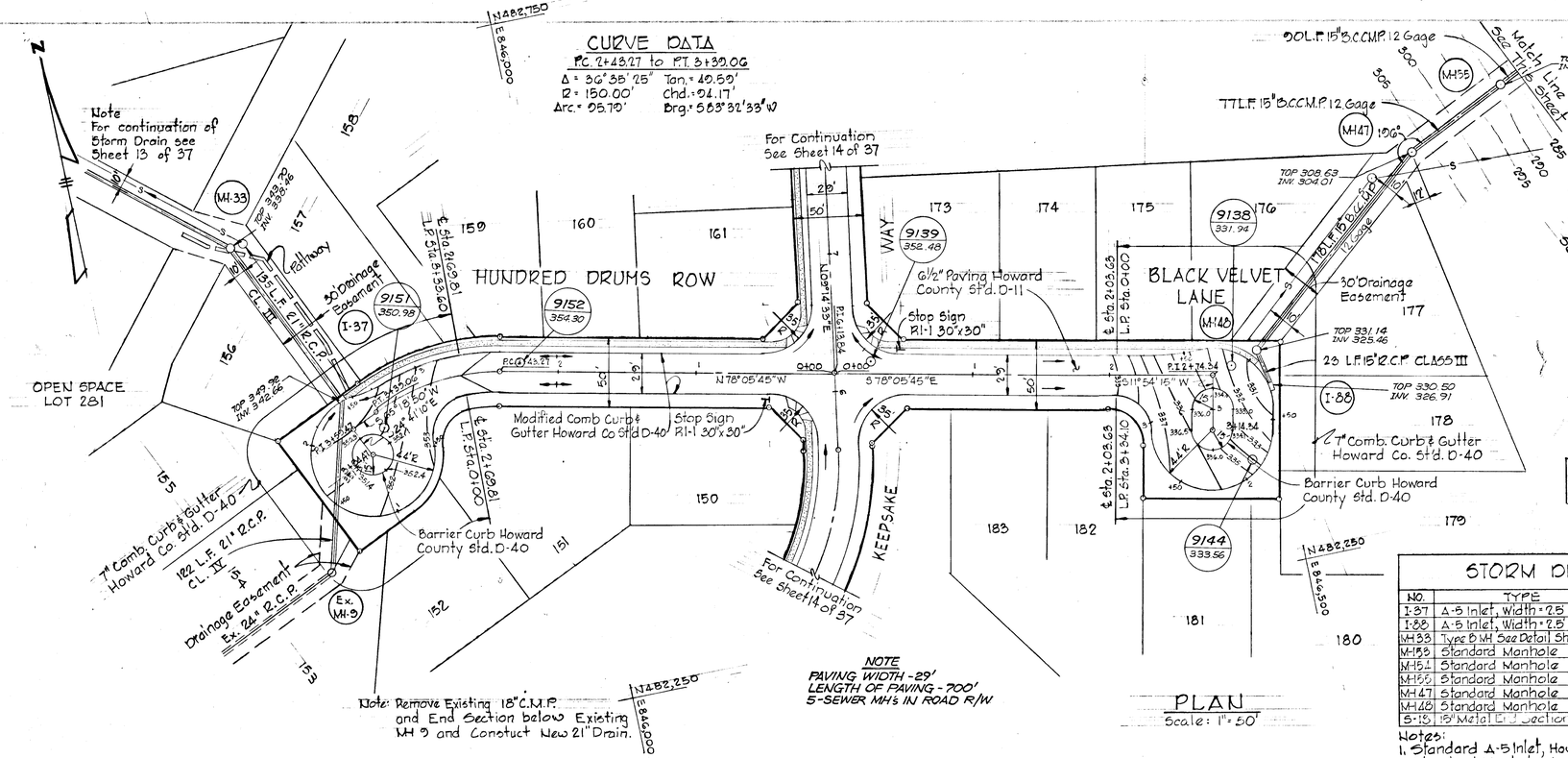
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

F-79-44 11/31/78

"T"



DEPARTMENT OF PUBLIC WORKS
W O Colbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Woodburn 12-29-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

"AS-BUILT" ELEVATIONS AS OF DECEMBER 20, 1979 - VERIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1976

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
HUNDRED DRUMS ROW
BLACK VELVET LANE

SCALE: AS SHOWN DATE

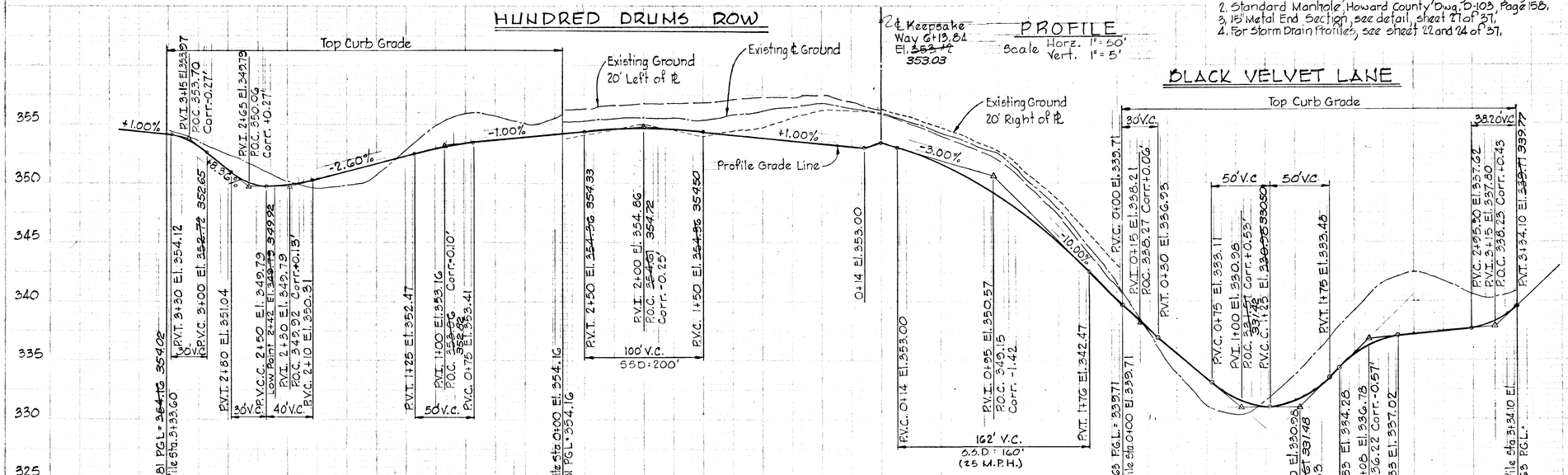
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1976

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV OUT	LOCATION
I-37	A-5 Inlet, Width = 2.5	349.79	342.50	℄ Inlet 1.25 Back of Curb, L.P. Sta. 2+42
I-38	A-5 Inlet, Width = 2.5	330.98	326.66	℄ Inlet 1.25 Back of Curb, L.P. Sta. 1+25
M-33	Type B MH See Detail Sheet 27	348.70	338.57	See Plan and Profile
M-155	Standard Manhole	261.00	244.00	See Plan and Profile
M-154	Standard Manhole	255.00	249.57	See Plan and Profile
M-153	Standard Manhole	290.01	284.81	See Plan and Profile
M-147	Standard Manhole	308.16	302.96	See Plan and Profile
M-148	Standard Manhole	331.31	325.16	℄ MH 10' Back of Curb L.P. Sta. 1+00
S-15	15" Metal End Section	—	243.24	See Plan and Profile

Notes:
1. Standard A-5 Inlet, Howard County Dwg. G2-2, Page 119-2.
2. Standard Manhole, Howard County Dwg. D-103, Page 158.
3. 15" Metal End Section, see detail, sheet 27 of 37.
4. For Storm Drain Profiles, see sheet 22 and 24 of 37.



#445

F-79-42 11/31/78 SHEET 15 OF 37

U & Y

CURVE DATA

P.C. 3+88.12 to P.T. 6+00.88

Δ = 30°28'34" Tan = 108.96'
R = 400.00' Chd = 210.26'
Arc = 212.76' Brg = N50°04'33"E

STORM DRAIN STRUCTURE SCHEDULE

No.	Type	Top Elev.	Inv Out	Location
I-85	Type A-5 Inlet width=2.5'	357.45	353.86	℄ Inlet L.P. Sta. 0+85 Indigo Court
I-86	Type A-5 Inlet width=2.5'	360.20	355.60	℄ Inlet 32.08' Right of ℄ Sta. 2+39 White Spring Way
I-87	Type A-5 Inlet width=2.5'	360.65	355.80	℄ Inlet 32.08' Left of ℄ Sta. 2+39 White Spring Way
MH-46	Standard Manhole	358.60	353.72	See Plan & Profile

Notes:
1. Standard A-5 Inlet, Howard County Dwg. 64-2, Page 119-A.
2. Standard Manhole, Howard County Dwg. D-103, Page 158,
3. For Storm Drain Profiles, see sheet 23 of 37.

DEPARTMENT OF PUBLIC WORKS
W O Gilbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING
John W. Musselman 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974, AS OF DECEMBER 20, 1979

Note
For Cul-De-Sac Curve Data
See Sheet 18 of 37

Rev. Date	Rev. No.	Revision Description

COLUMBIA
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.

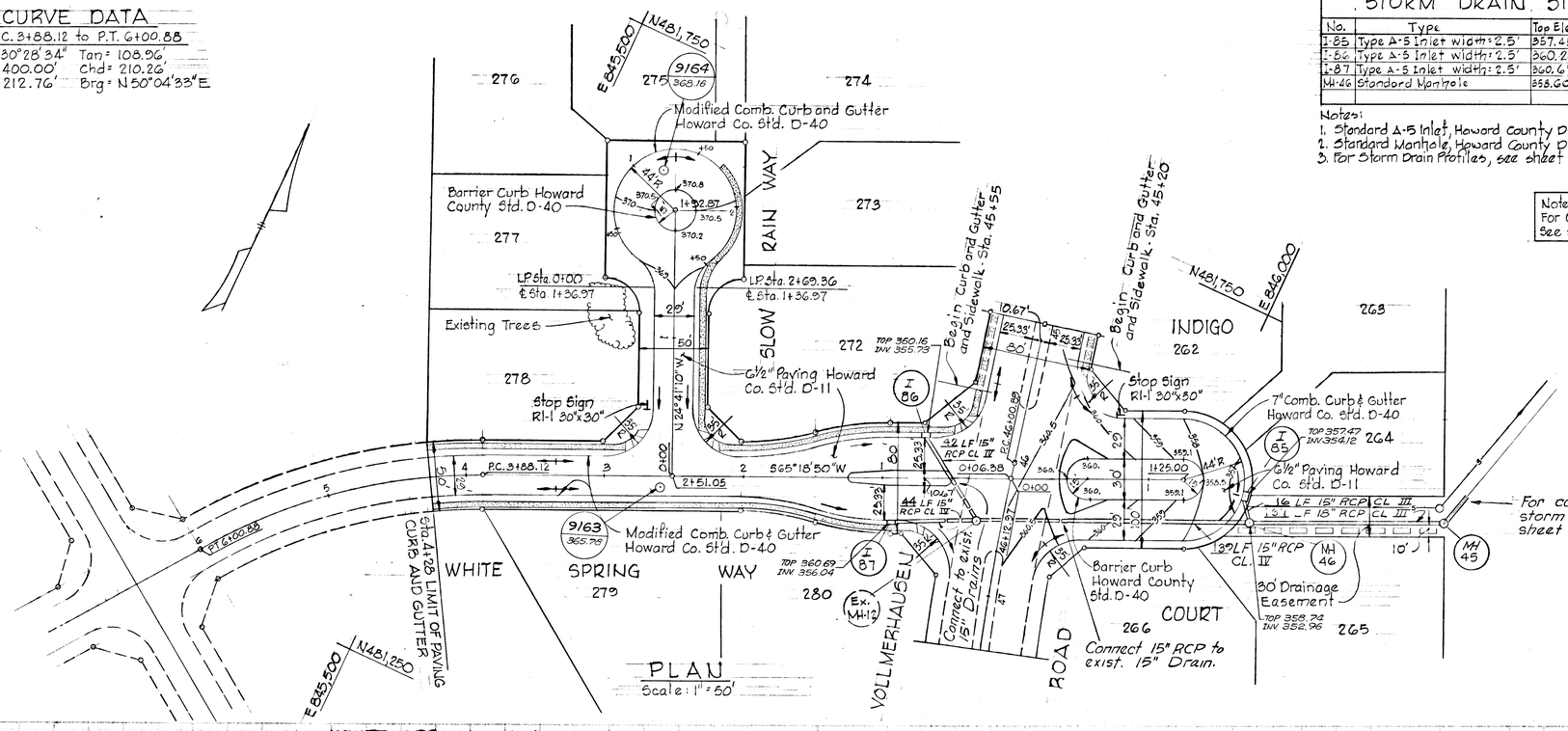
PROJECT AREA
VILLAGE OF KINGS CONTRIVANCE
SECTION 3 AREA 1

PROJECT TITLE
PLAN AND PROFILE
SLOW RAIN WAY
WHITE SPRING WAY
INDIGO COURT

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

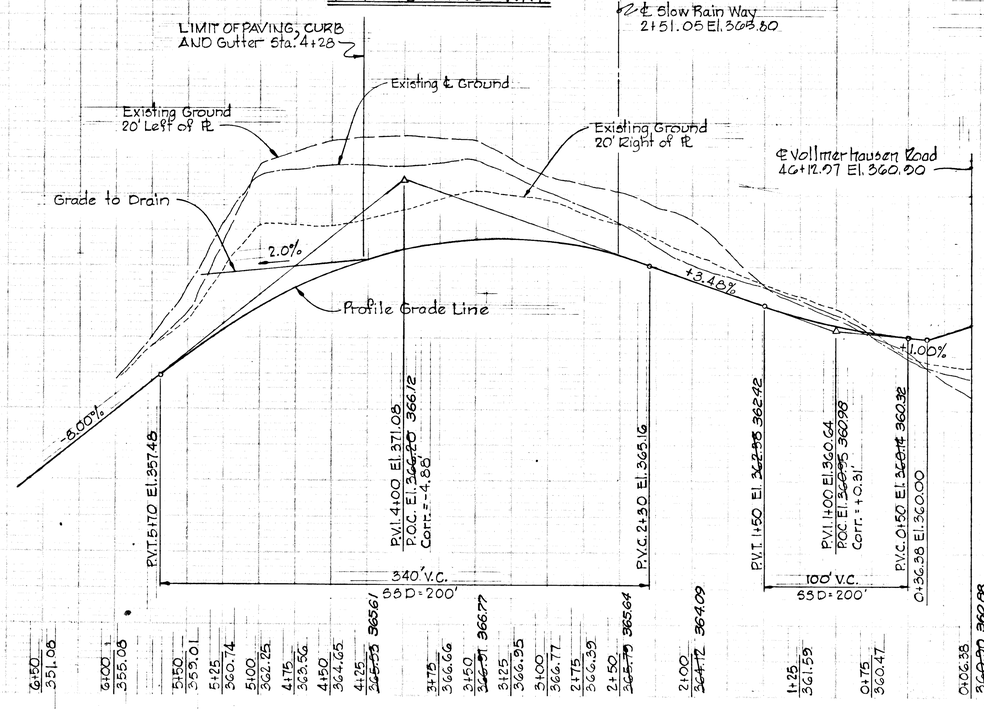
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974



PLAN
Scale: 1" = 50'

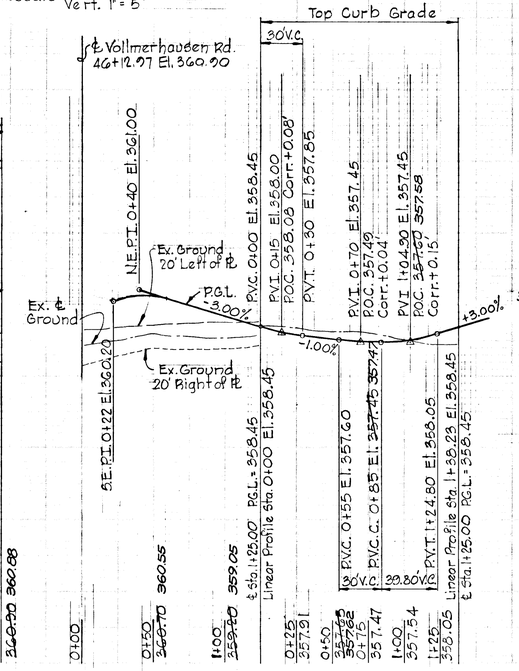
NOTE:
PAVING WIDTHS - 29' AND 2-24'
LENGTH OF PAVING - 745'
2-SEWER MHs IN ROAD R/W

WHITE SPRING WAY

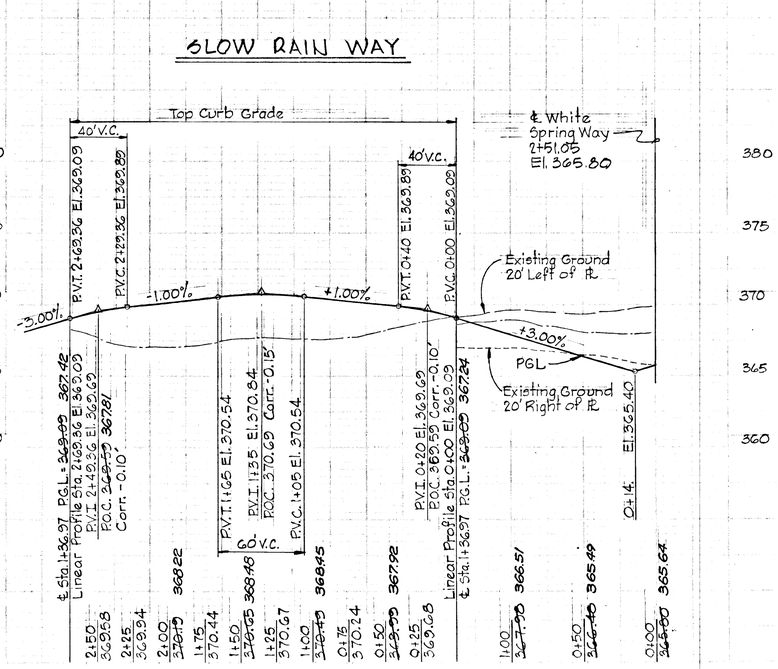


PROFILES INDIGO COURT

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



SLOW RAIN WAY

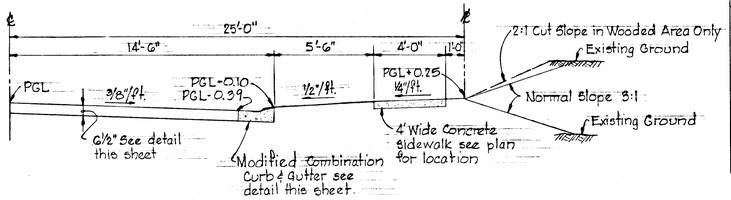


F-79-44e 11/31/78

SHEET 16 OF 37

A1 & 2

#445

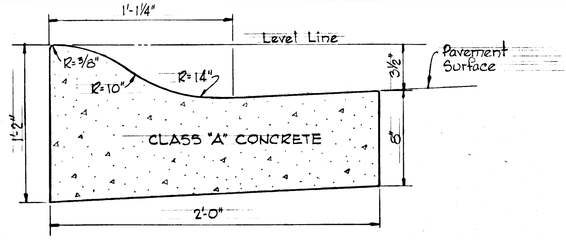


TYPICAL HALF SECTION
50' R/W - 29' ROADWAY

Scale: 1/4" = 1'-0"

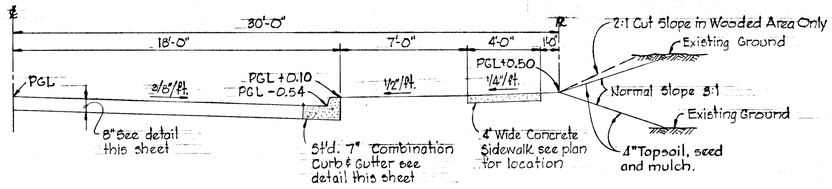
TYPICAL HALF SECTION 50 R/W APPLIES TO:

Golden Rod Path 0+75 to 3+56.02	Vollmerhausen Drive 0+75 to 5+00
Corn Tassel Court 0+00 to 2+54.29	Sweet Grass Ridge 0+00 to 7+38.94
Sea Shadow 2+65 to 7+54.44	Deerboat Way 0+00 to 5+85
Sandlight Court 0+00 to 2+85.57	Dragonclaw 0+00 to 3+46.10
Single Bird Lane 0+00 to 1+54.21	Gray Mouse Way 0+00 to 1+92.10
Morning Leap Terrace 0+00 to 0+96.89	Lady Bug Row 0+00 to 1+59.20
West Window Way 0+00 to 1+41.69	Keepsake Way 0+75 to 8+75.86
Green Moon Path 0+00 to 0+66.76	Hundred Drums Row 0+00 to 2+69.81
Morning Mews 0+00 to 2+36.46	Black Velvet Lane 0+00 to 2+03.63
Cold Star Court 0+00 to 2+56.42	Slow Rain Way 0+00 to 1+36.97
Moonrider Lane 0+00 to 5+62.58	



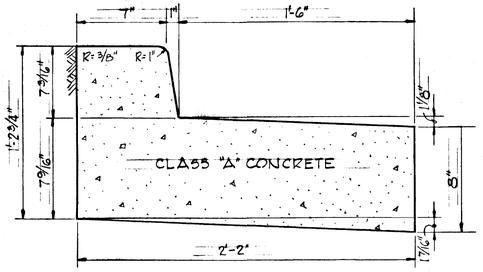
MODIFIED COMBINATION CURB & GUTTER

No Scale



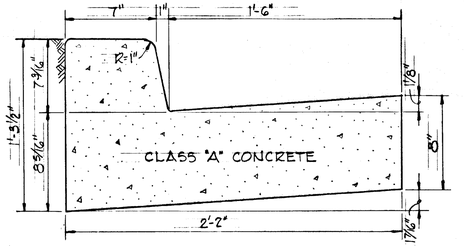
TYPICAL HALF SECTION
CLOCKTOWER LANE (Sta. 3+25 to 8+53.63)

Scale: 1/4" = 1'-0"



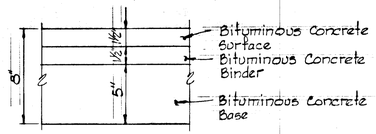
REVERSE 7" COMBINATION CURB & GUTTER

No Scale

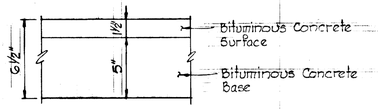


STANDARD 7" COMBINATION CURB & GUTTER

No Scale



Howard County Std. D-10 page 65



Howard County Std. D-11 page 66

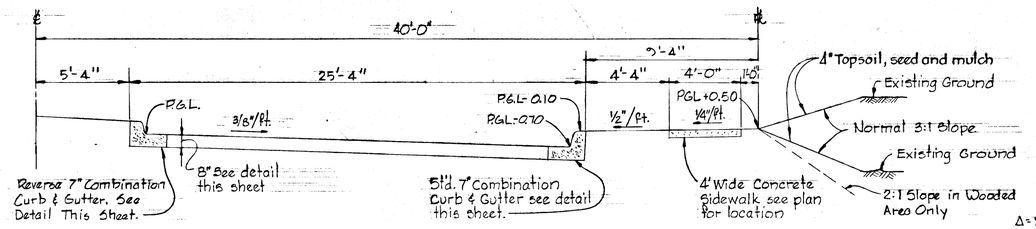
THE DESIGN SPEED IS 30M.P.H. AND THE ZONING IS NEW TOWN FOR ALL TYPICAL SECTIONS SHOWN ON THIS SHEET.

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.

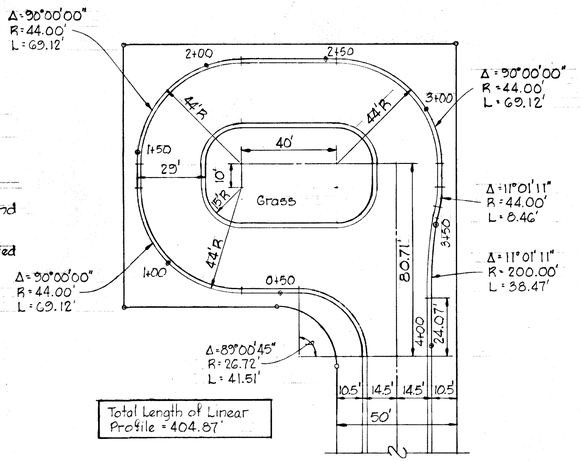
TYPICAL PAVING SECTIONS

No Scale



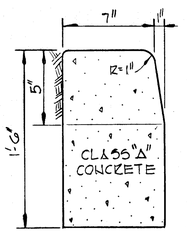
TYPICAL HALF SECTION
CLOCKTOWER LANE (Sta. 0+55 to 3+25)

Scale: 1/4" = 1'-0"



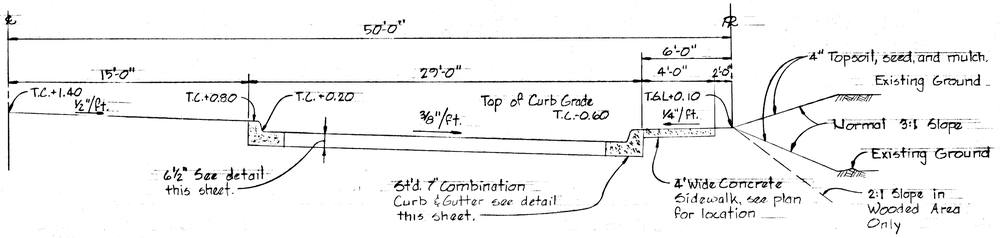
MORNING MEWS

Scale: 1" = 30'



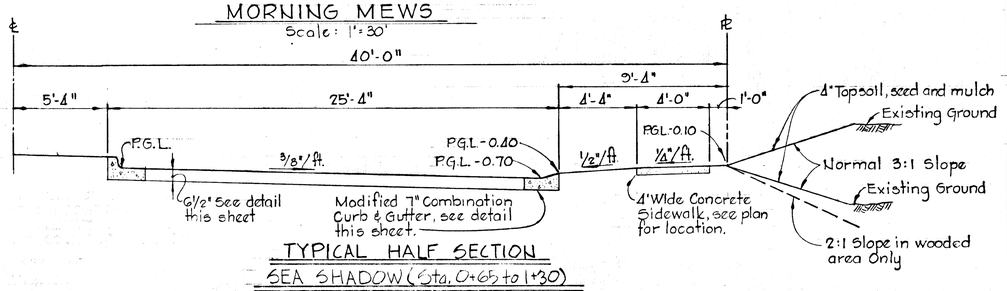
STANDARD BARRIER CURB

No Scale



TYPICAL HALF SECTION
INDIGO COURT AND ARTIC FLOWER

No Scale



TYPICAL HALF SECTION
SEA SHADOW (Sta. 0+65 to 1+30)
WHITE SPRING WAY (Sta. 0+50 to 0+90)

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

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Moulton for 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT

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
ROADWAY DETAILS

SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

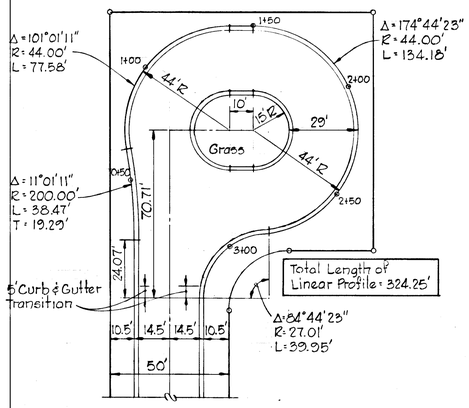
F-79-44c 11/31/78

SHEET 17 OF 37

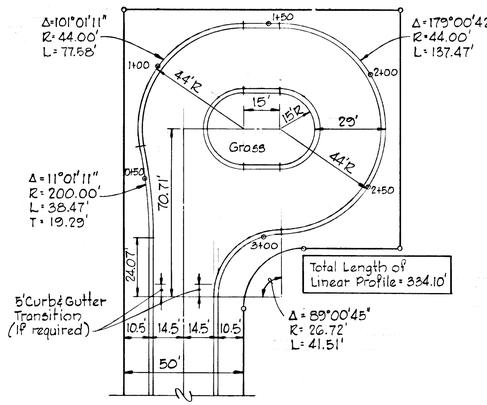
DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Moscrum/JTD. 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT

GENERAL NOTES

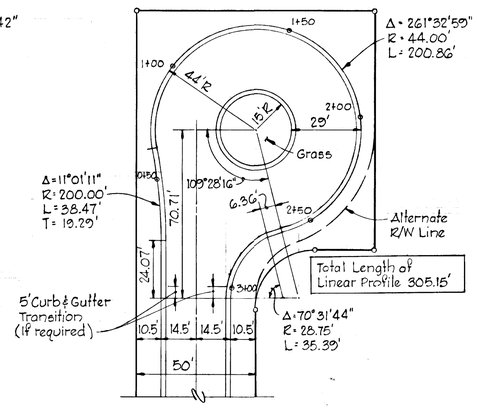
1. All dimensions are to back of curb.
2. See plans for sidewalk locations.
3. Paving is 6½" Bituminous Concrete.
4. Standard 7" Combination Curb and Gutter in sumped Cul-de-Sacs only, otherwise Modified Combination Curb and Gutter.



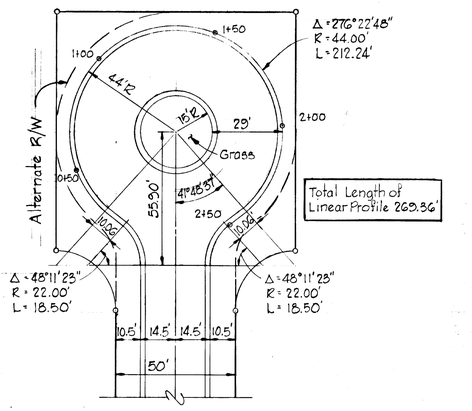
KEEPSAKE WAY
SEA SHADOW
WEST WINDOW WAY (OPPOSITE HAND)
MORNING LEAP TERRACE



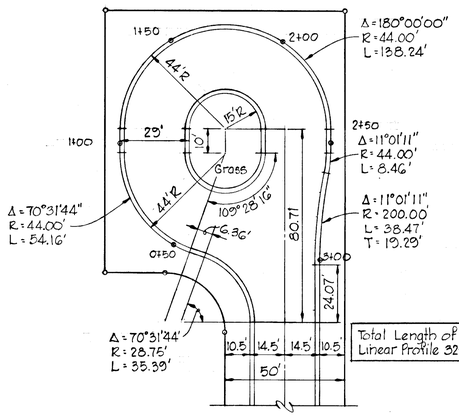
GOLDEN ROD PATH
BLACK VELVET LANE



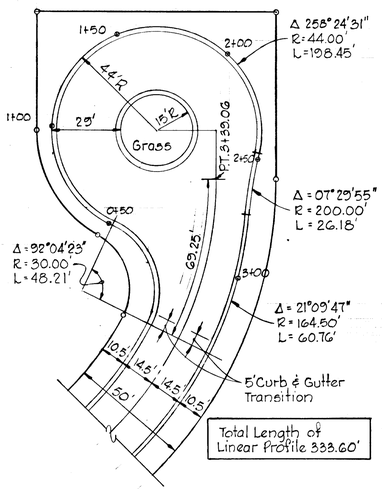
LADY BUG ROW
COLD STAR COURT
SWEET GRASS RIDGE
SINGLE BIRD LANE (OPPOSITE HAND)
DRAGONCLAW (OPPOSITE HAND)
GREEN MOON PATH (OPPOSITE HAND)



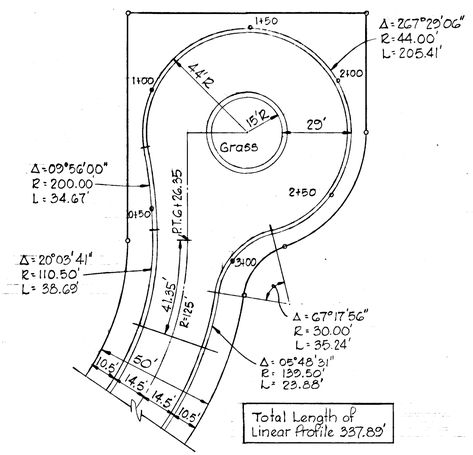
SLOW RAIN WAY
GRAY MOUSE WAY



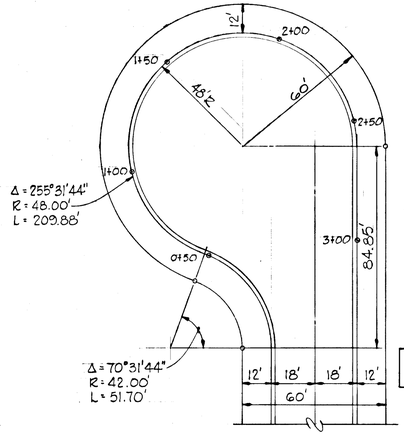
CORN TASSEL COURT



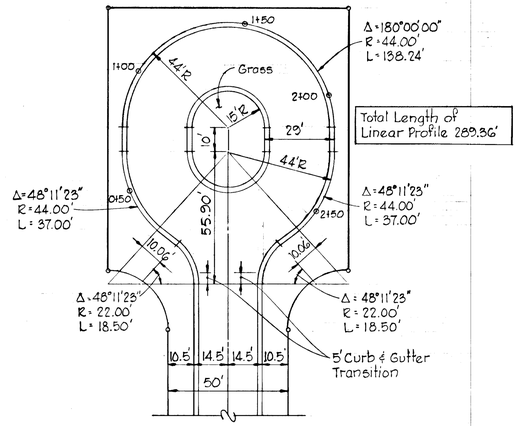
HUNDRED DRUMS ROW



DEERFOOT WAY



CLOCKTOWER LANE



SANDLIGHT COURT

CUL-DE-SAC DETAILS

Scale 1" = 30

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
ROADWAY DETAILS

SCALE: AS SHOWN DATE:

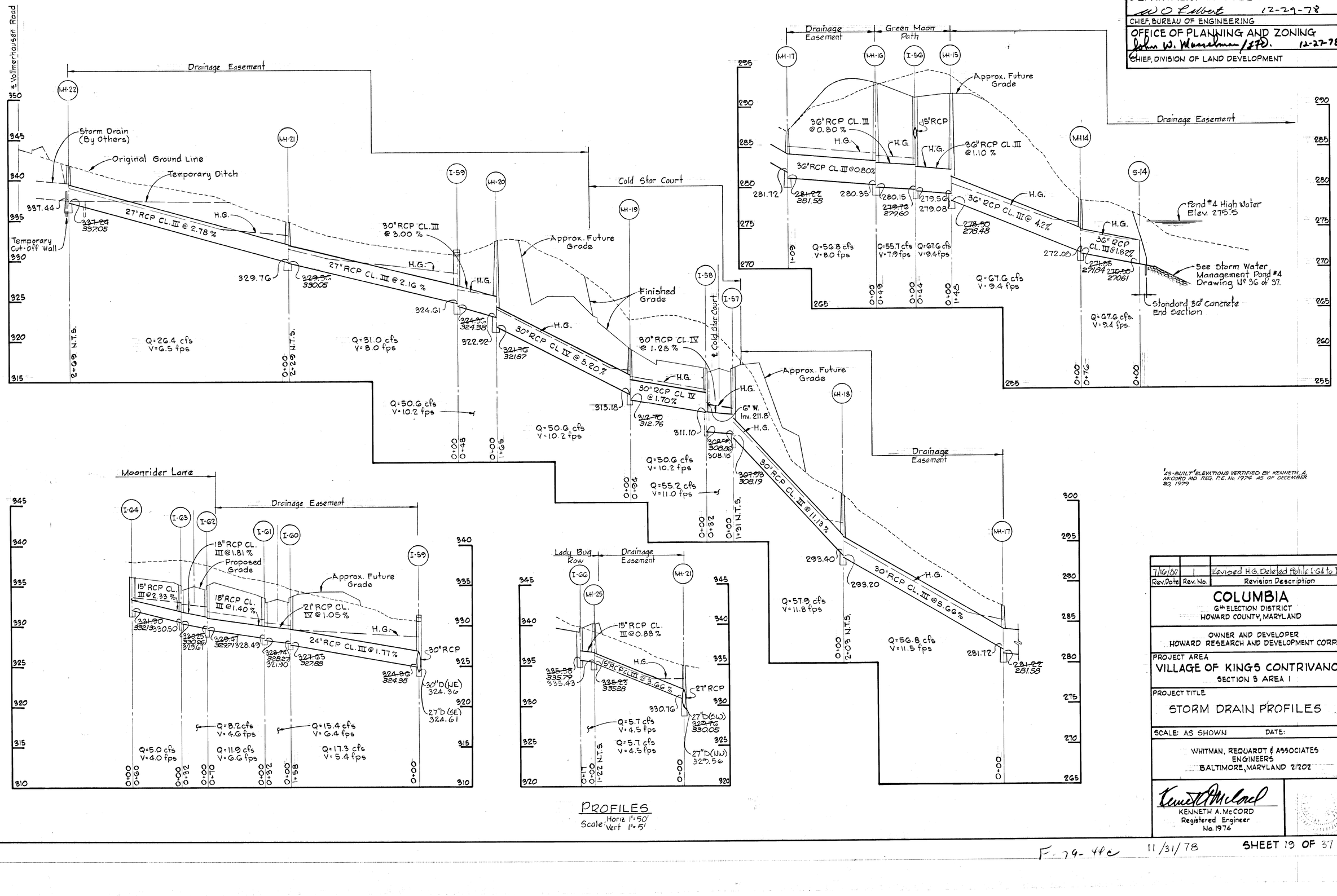
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

445

F-79-44, 11/31/78

DEPARTMENT OF PUBLIC WORKS
W O Rutkert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Wanselman/JTD. 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT



PROFILES
Scale: Horiz 1"=50'
Vert 1"=5'

'AS-BUILT' ELEVATIONS VERIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

Rev. Date	Rev. No.	Revision Description
7/16/80	1	Revised H.G. Deleted profile I-64 to I-65

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 DRAIN PROFILES

SCALE: AS SHOWN DATE:

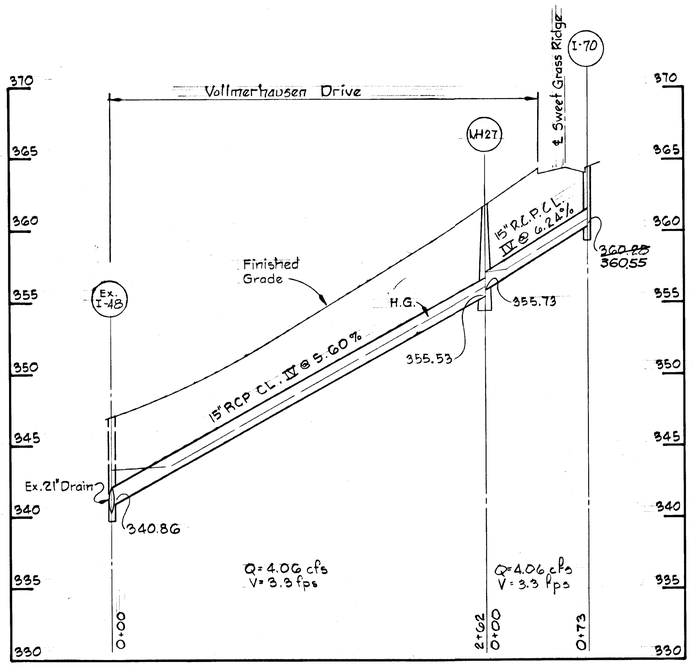
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

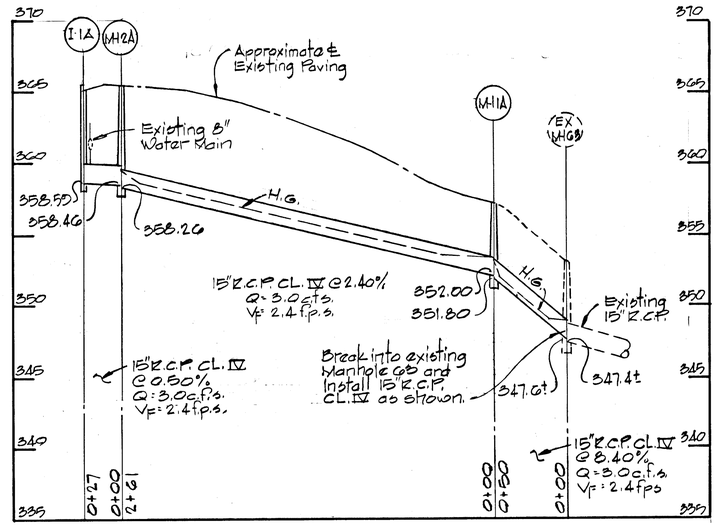
#445

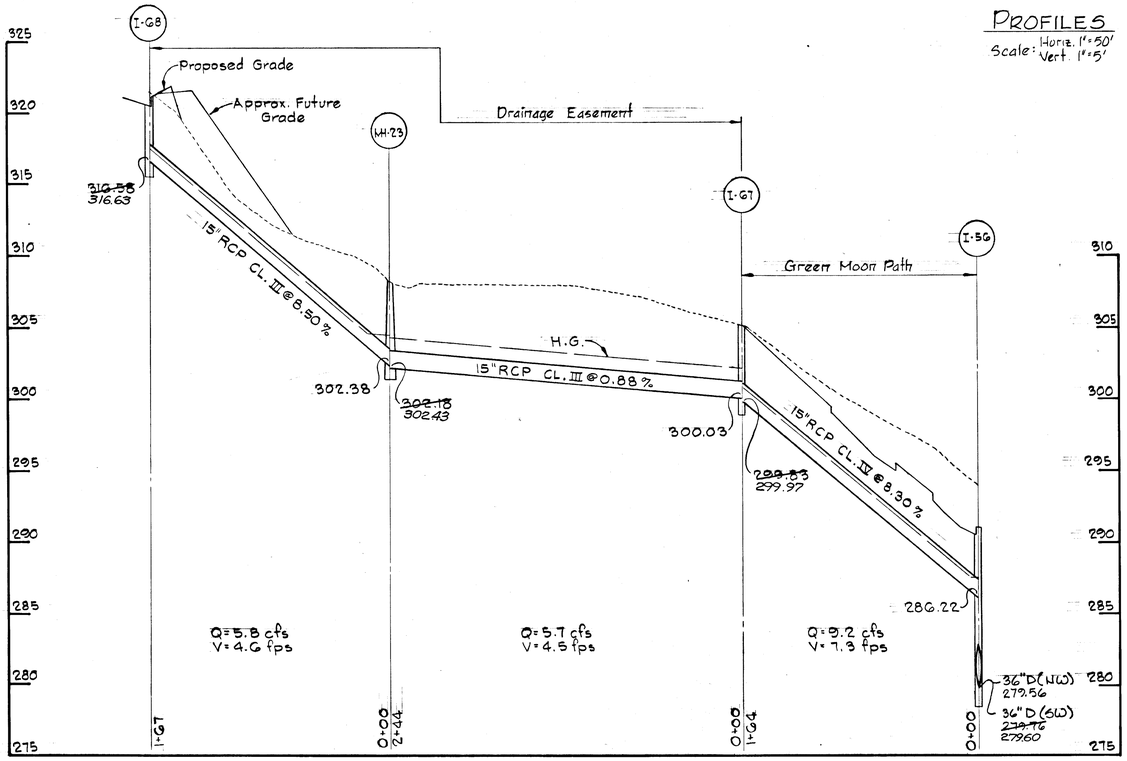
F-79-44e 11/31/78

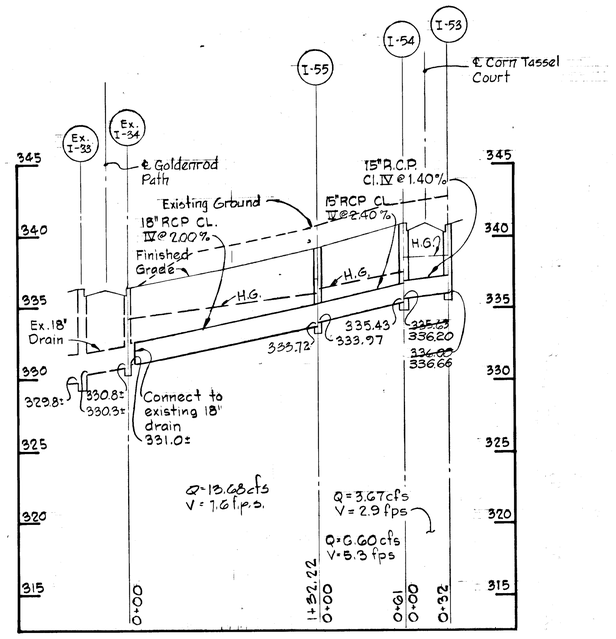
DEPARTMENT OF PUBLIC WORKS
W O Fulbert 12-27-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Moreland 12-27-78
CHIEF, DIVISION OF LAND PLANNING



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







NOTE
"AS-BUILT" ELEVATIONS VERIFIED BY KENNETH A. McCORD, MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

Rev. Date	Rev. No.	Revision Description
7/20/81	2	Added Profile between MH61 & I-1A
7/16/81	1	Revised H.G., Deleted Profile I-2 to I-69, Deleted Profile MH-26 to I-101

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 DRAIN PROFILES

SCALE: AS SHOWN DATE:

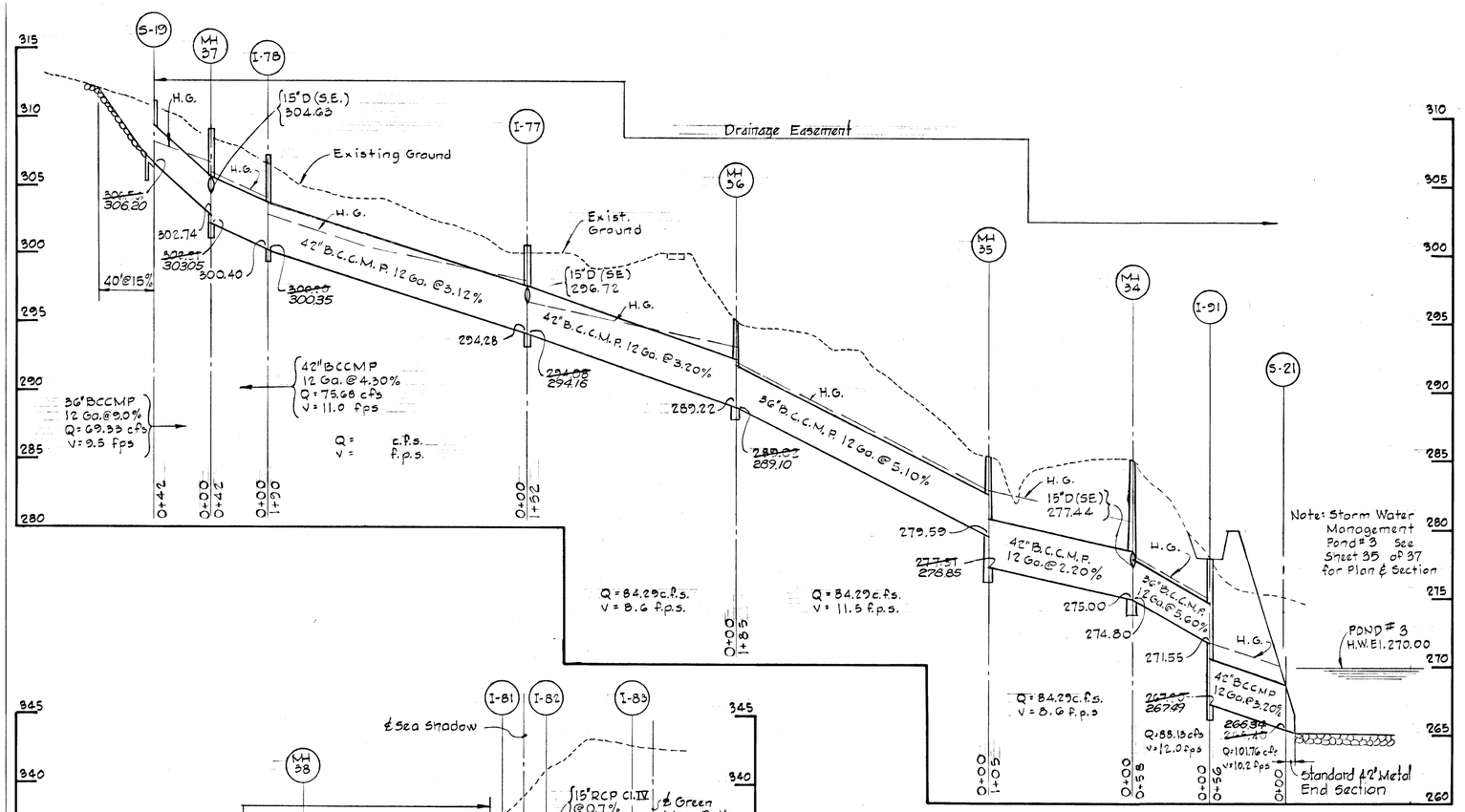
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

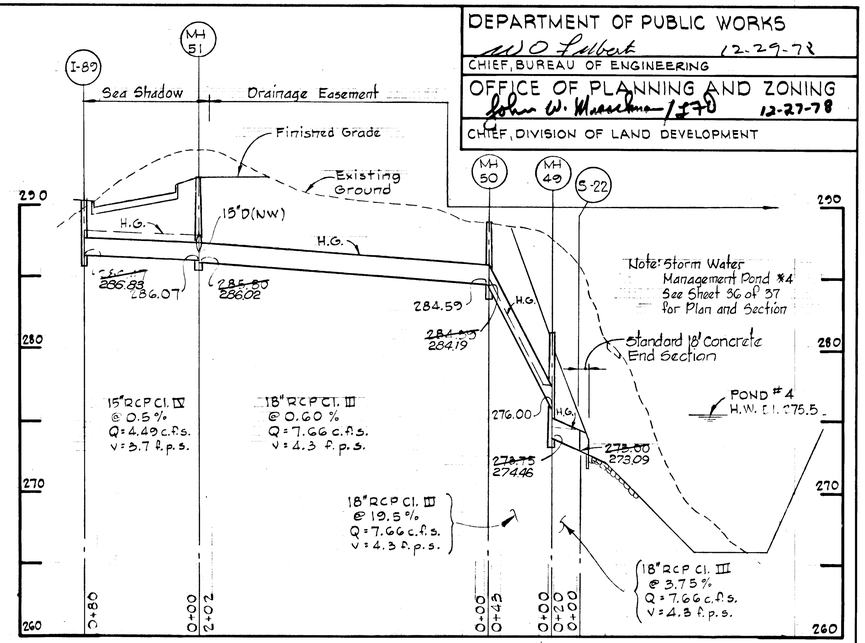
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974

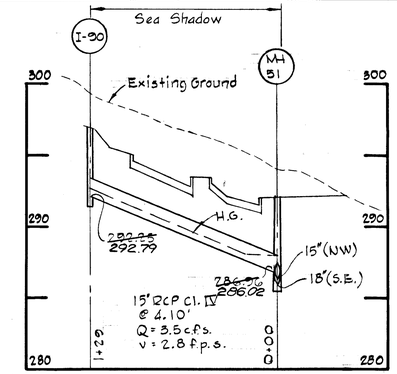
E 445

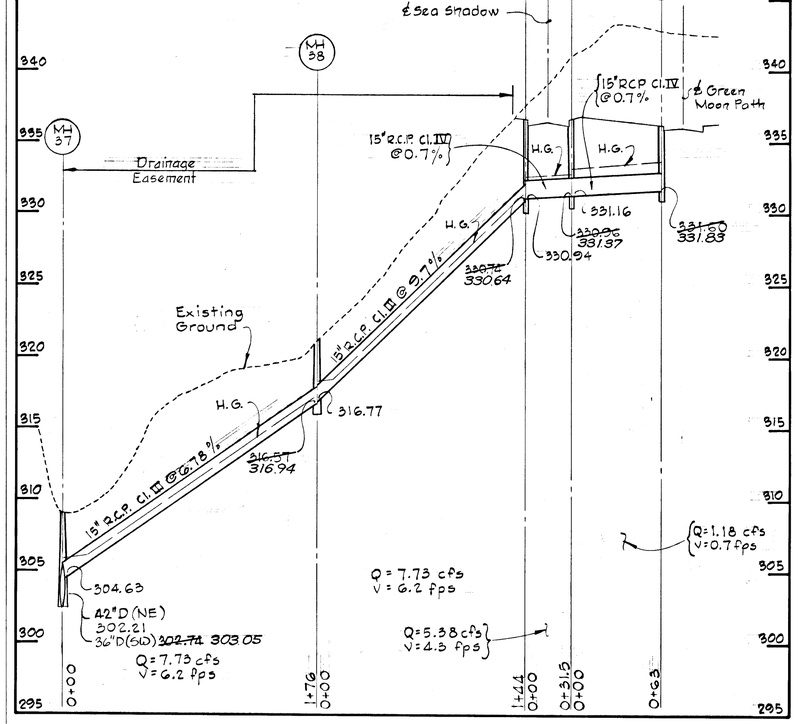
F-79-44 11/31/78

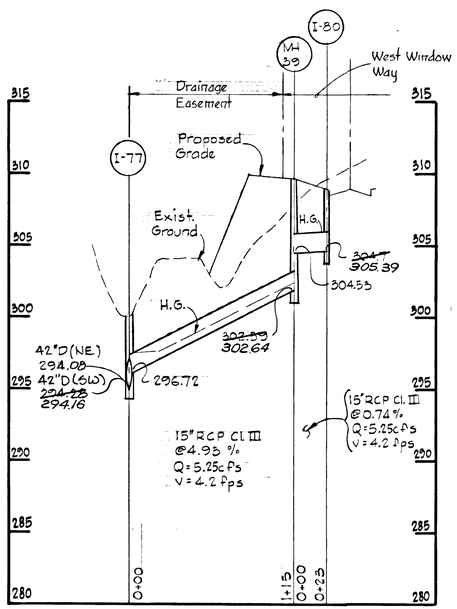
DEPARTMENT OF PUBLIC WORKS
W O Lilbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Moscrippa / FTD 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT

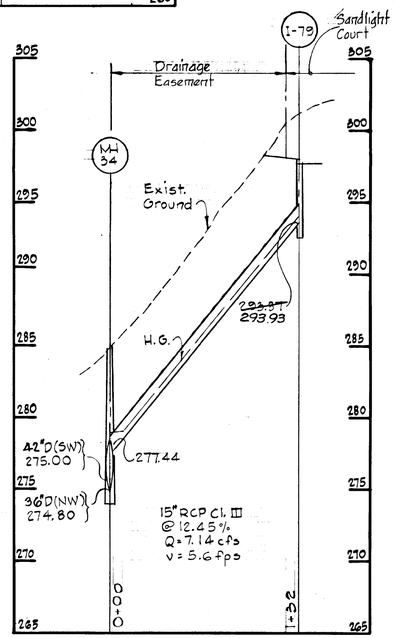












PROFILES
Scale: Horiz. 1" = 50'
Vert. 1" = 5'

NOTE
'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD NO. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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
STORM DRAIN PROFILES

SCALE: AS SHOWN DATE:

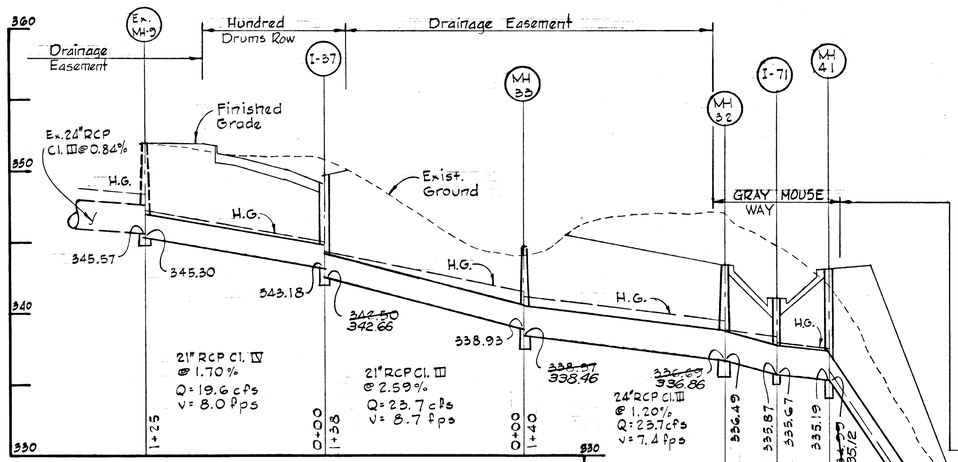
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

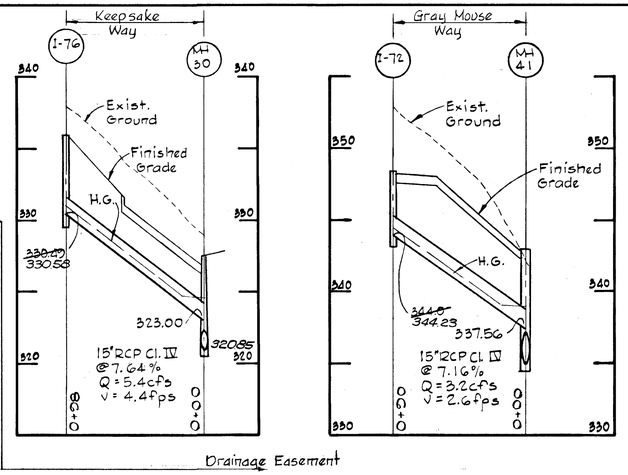
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974

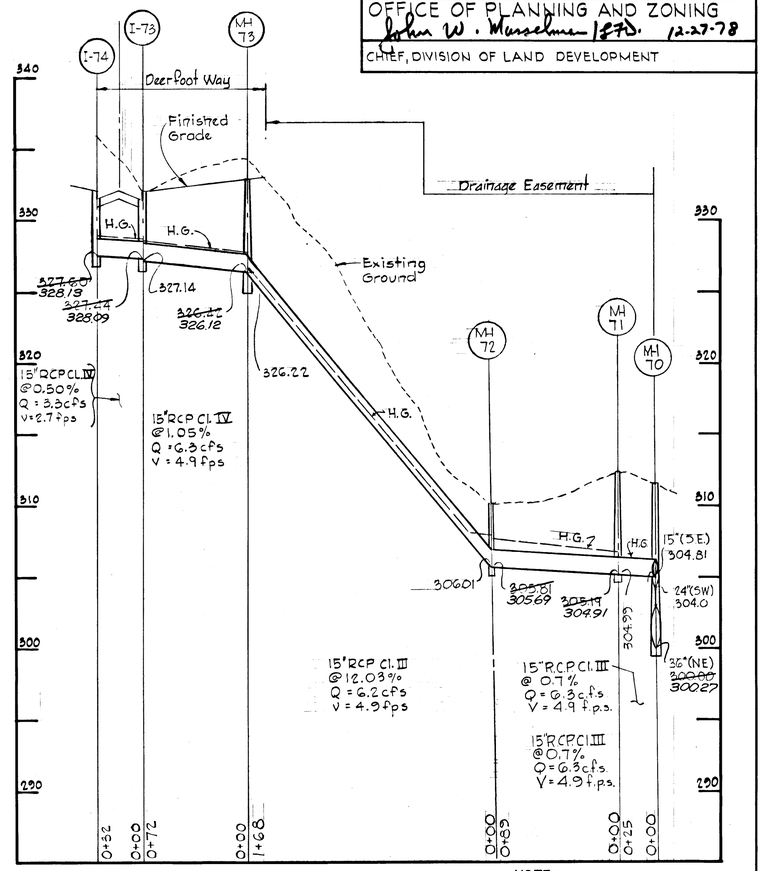
445

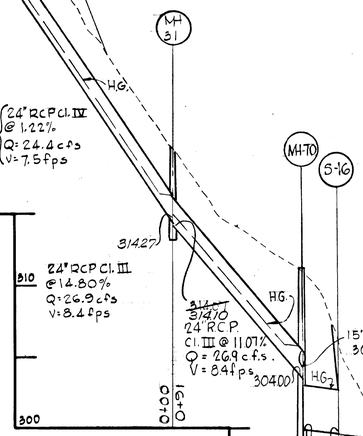
F-79-4Pc 11/31/78

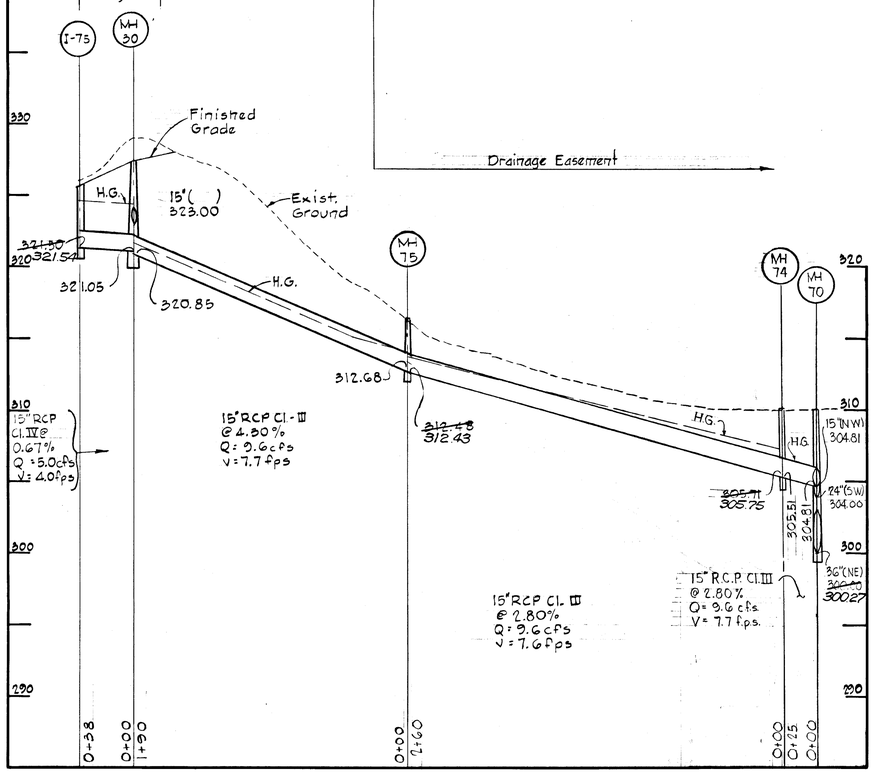
DEPARTMENT OF PUBLIC WORKS
W O Falbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Musselman 12.27.78
CHIEF, DIVISION OF LAND DEVELOPMENT











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

- NOTE -
'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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
STORM DRAIN PROFILES

SCALE: AS SHOWN DATE:

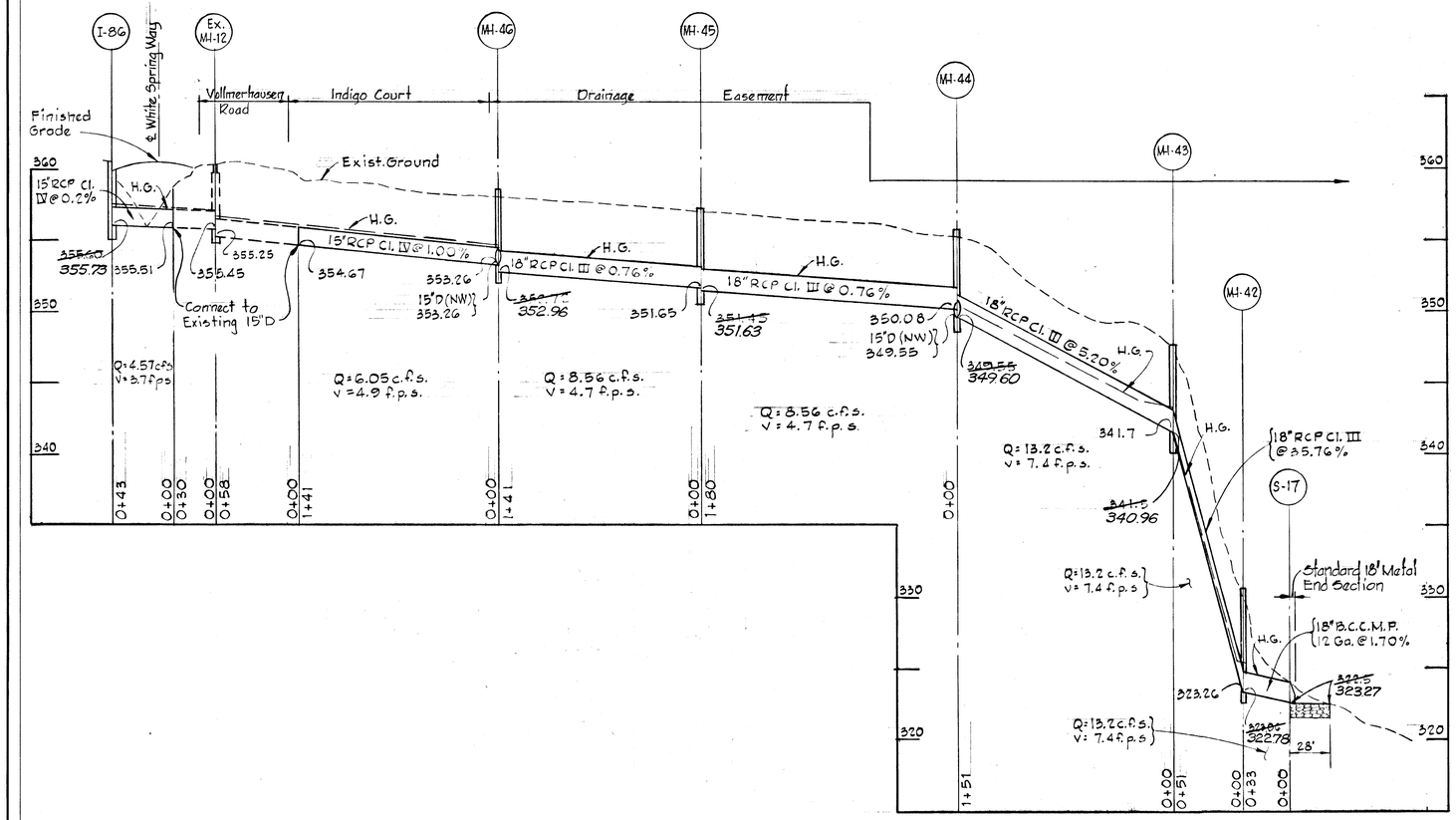
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

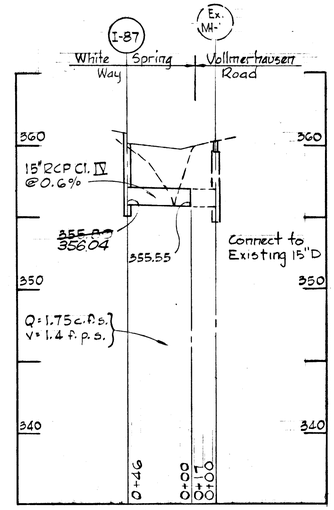
Kenneth A. McCord
KENNETH A. McCord
Registered Engineer
No. 1974

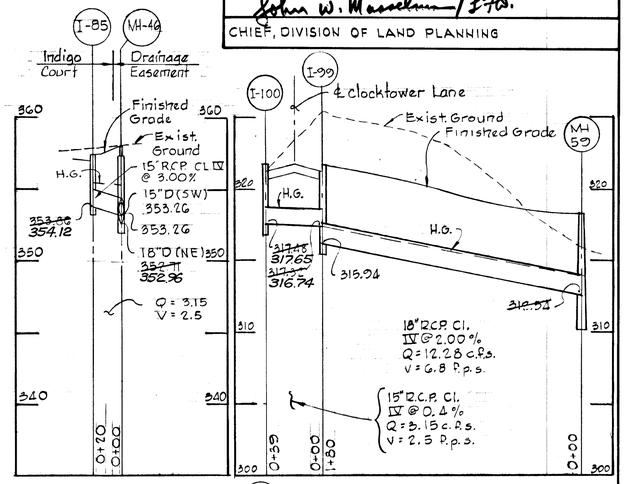
#445

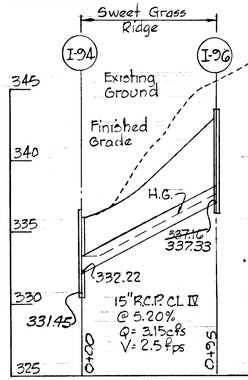
F-79-48_11/31/78 SHEET 22 OF 37

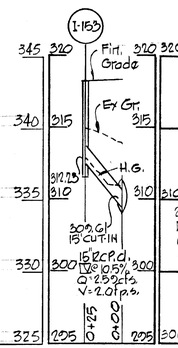
DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Macelwee 1/8/79
CHIEF, DIVISION OF LAND PLANNING

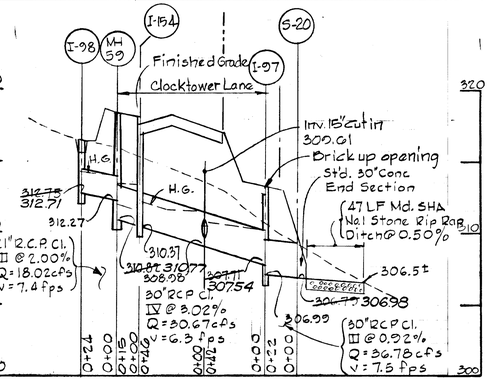


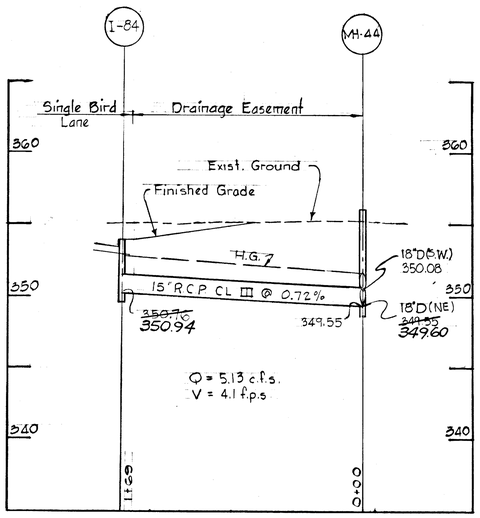


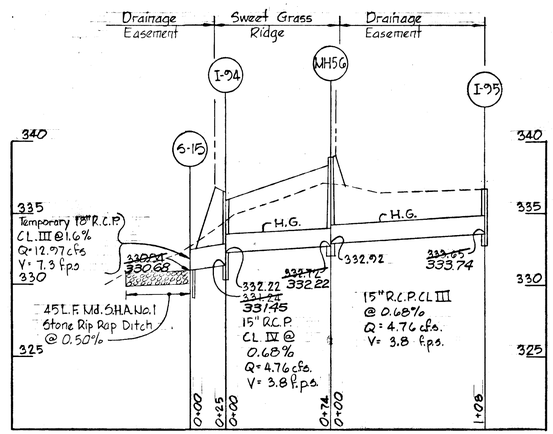




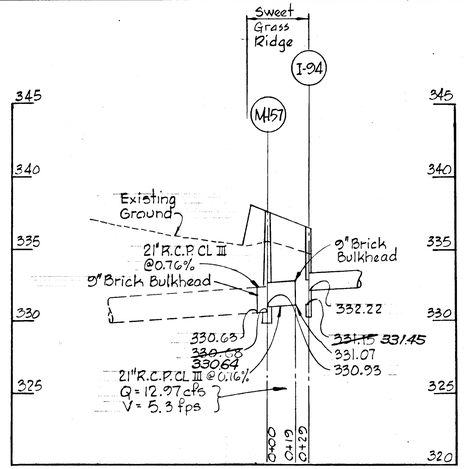








PROFILES
Scale: Horiz. 1"=50'
Vert. 1"=5'



-NOTE-
'AS-BUILT' ELEVATIONS VERIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

Rev. Date	Rev. No.	Revision Description
9/26/80	1	Added I-153 & I-154

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

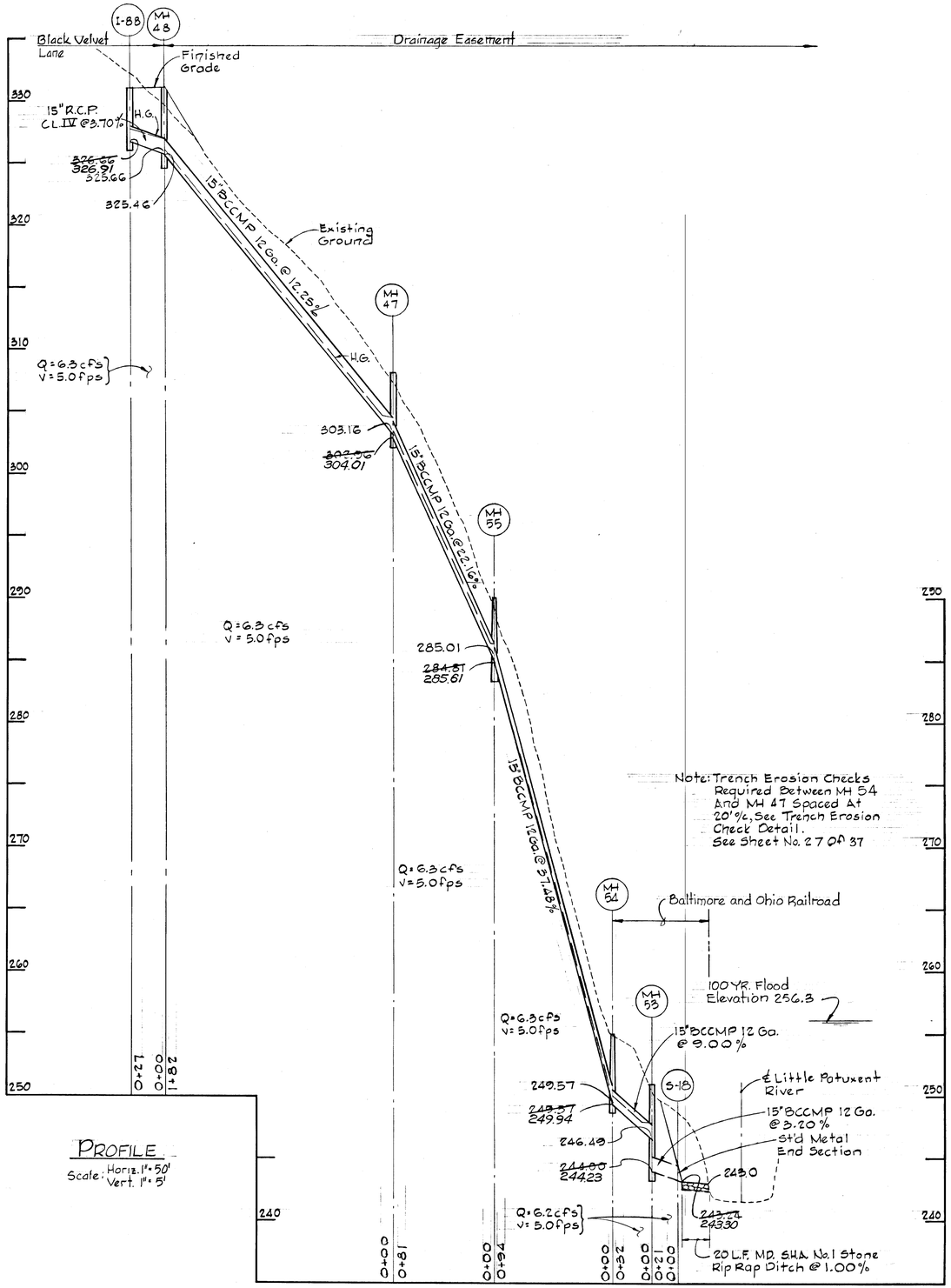
PROJECT TITLE
STORM DRAIN PROFILES

SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

F-79-44e 11/31/78



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

DEPARTMENT OF PUBLIC WORKS
W O Lilbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Marshall 1/5/79
CHIEF, DIVISION OF LAND DEVELOPMENT

-NOTE-
AS-BUILT ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974, AS OF DECEMBER 20, 1979

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
STORM DRAIN PROFILE

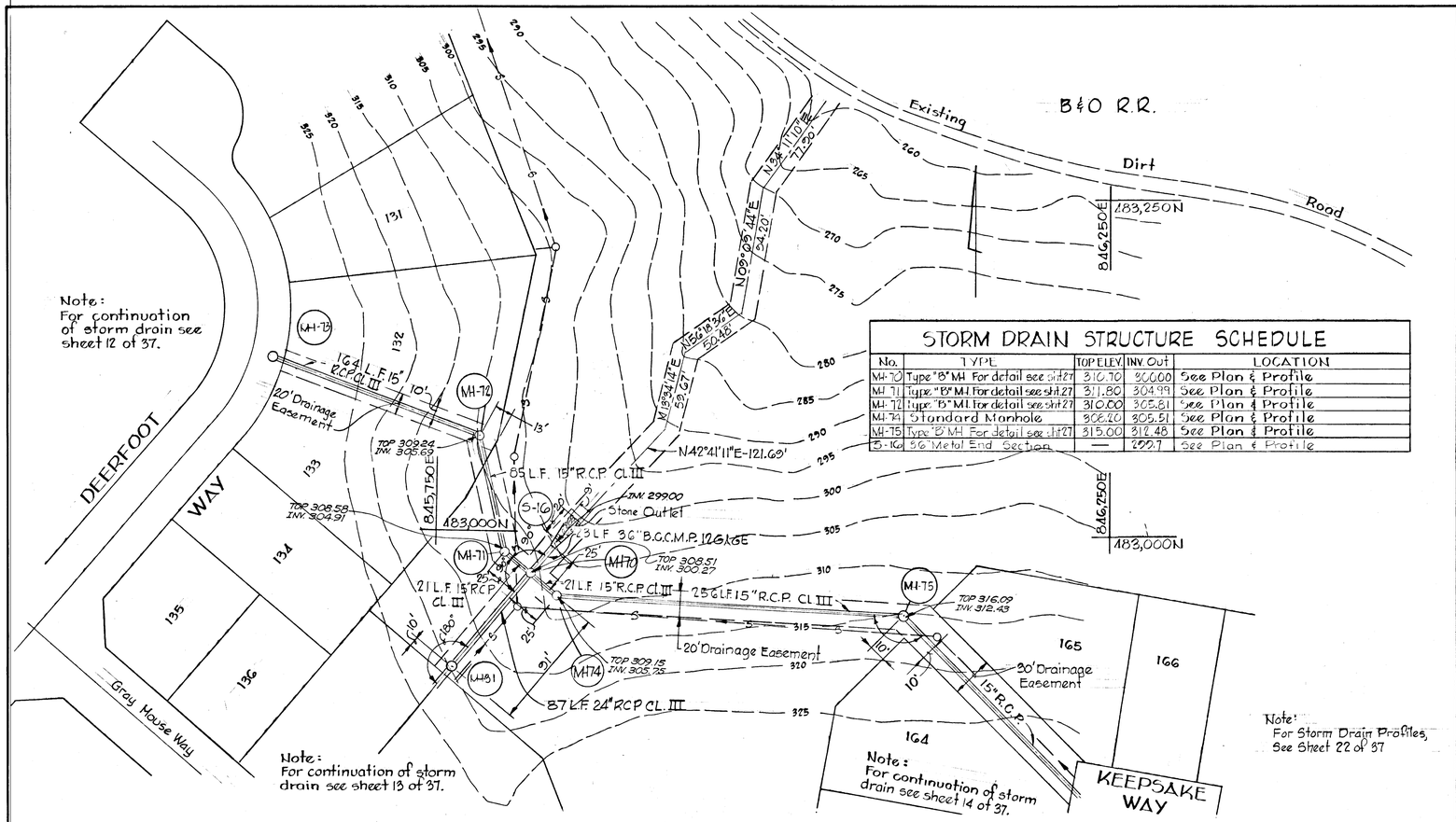
SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

F-445

F-79-44c 11/31/78 SHEET 24 OF 37



Note:
For continuation of storm drain see sheet 12 of 37.

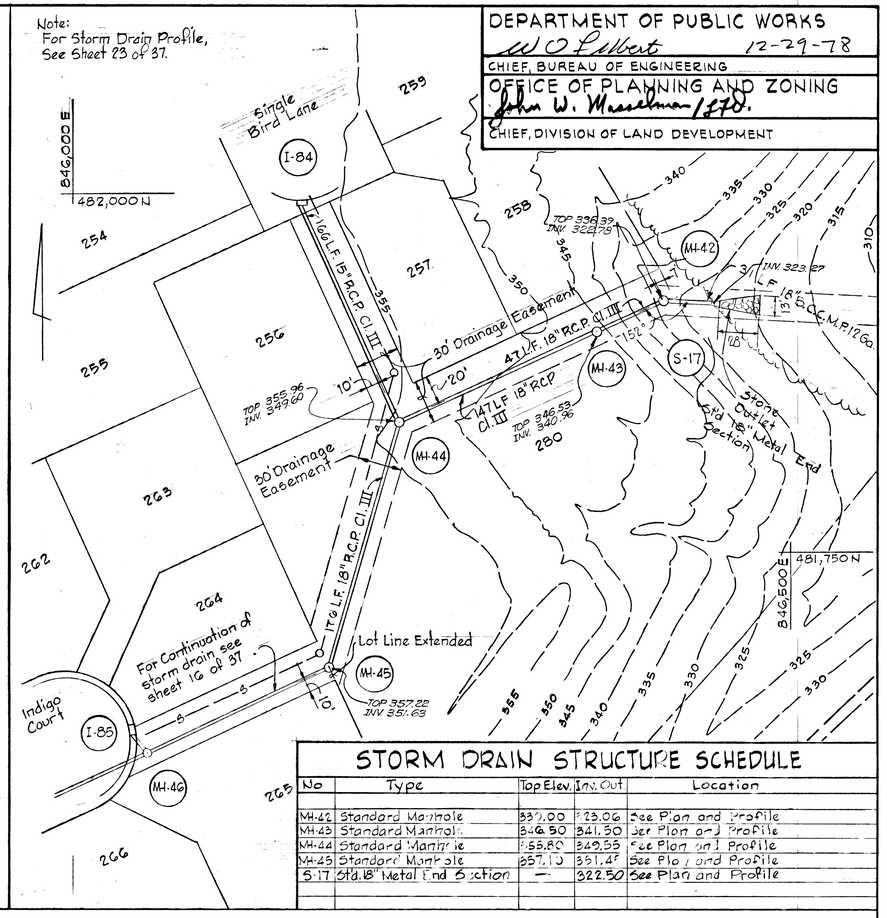
Note:
For continuation of storm drain see sheet 13 of 37.

Note:
For continuation of storm drain see sheet 14 of 37.

Note:
For Storm Drain Profiles, See Sheet 22 of 37

STORM DRAIN STRUCTURE SCHEDULE

No.	TYPE	TOP ELEV.	INV. Out	LOCATION
MH-70	Type "B" MH For detail see sht 27	310.70	300.00	See Plan & Profile
MH-71	Type "B" MH For detail see sht 27	311.80	304.99	See Plan & Profile
MH-72	Type "B" MH For detail see sht 27	310.00	305.81	See Plan & Profile
MH-74	Standard Manhole	308.20	305.51	See Plan & Profile
MH-75	Type "B" MH For detail see sht 27	315.00	312.48	See Plan & Profile
S-16	36" Metal End Section	—	299.7	See Plan & Profile



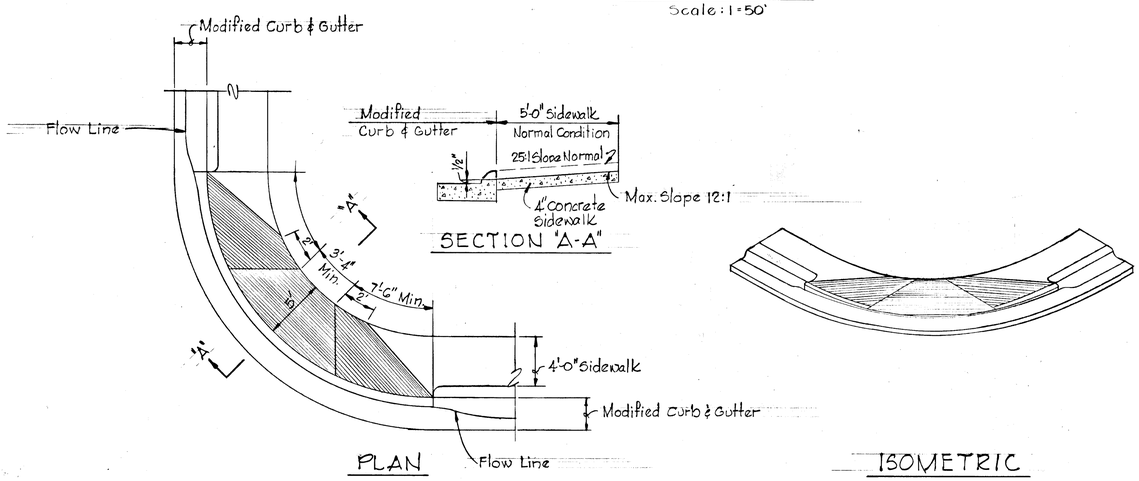
Note:
For Storm Drain Profile, See Sheet 23 of 37.

STORM DRAIN STRUCTURE SCHEDULE

No	Type	Top Elev.	Inv. Out	Location
MH-42	Standard Manhole	338.00	323.06	See Plan and Profile
MH-43	Standard Manhole	346.50	341.50	See Plan and Profile
MH-44	Standard Manhole	355.80	349.55	See Plan and Profile
MH-45	Standard Manhole	357.10	351.68	See Plan and Profile
S-17	Std. 18" Metal End Section	—	322.50	See Plan and Profile

DEPARTMENT OF PUBLIC WORKS
W O Liebert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Messelman 1/8/79
CHIEF, DIVISION OF LAND DEVELOPMENT

PLAN
Scale: 1"=50'



DETAIL - SIDEWALK RAMP
No Scale

PLAN
Scale: 1"=50'

-NOTE-
AS-BUILT ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

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
STORM DRAIN PLANS

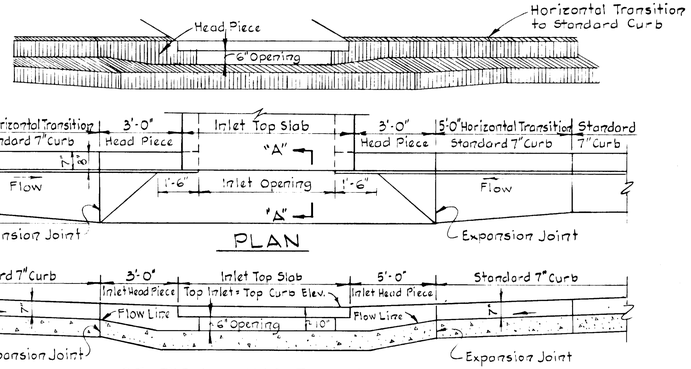
SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

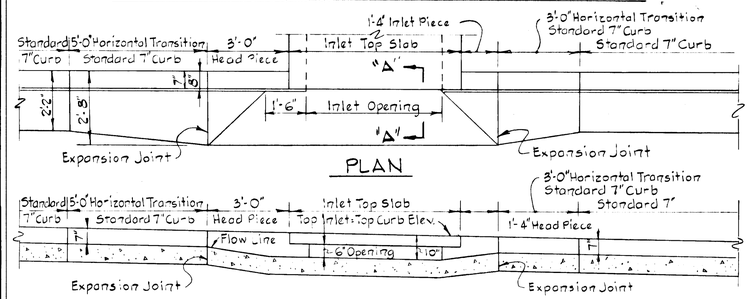
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974

#445

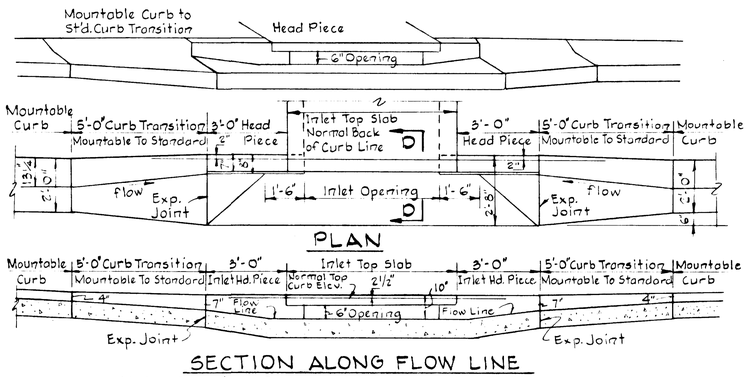
F-79-44 11/31/78



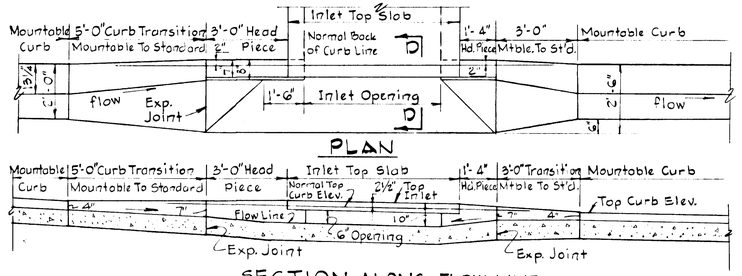
SUMPED "A" INLETS - STANDARD CURB



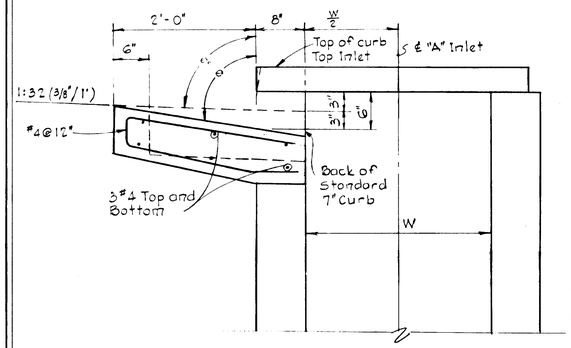
"A" INLETS - STANDARD CURB



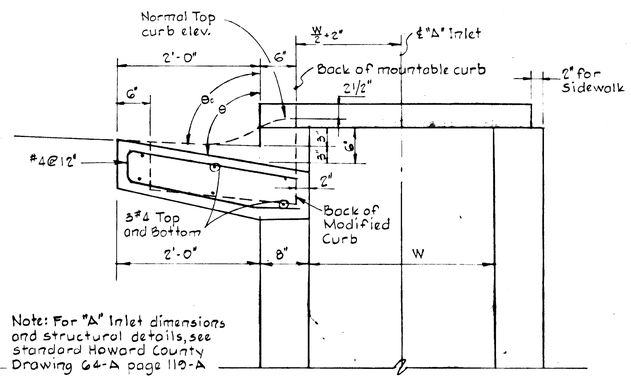
SUMPED "A" INLETS - MOUNTABLE CURB



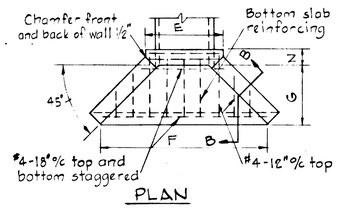
"A" INLETS - MOUNTABLE CURB



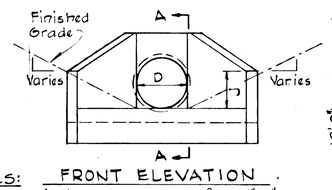
"A" INLET - STANDARD CURB

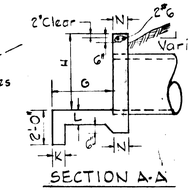


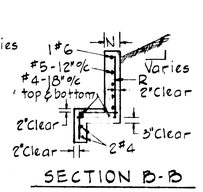
"A" INLET - MOUNTABLE CURB



D	E	F	G	H	J	K	L	N	R
16" / 21"	3'-0" / 3'-6"	7'-6" / 7'-9"	3'-0"	3'-0" / 3'-3"	2'-0" / 2'-0"	8"	8"	8"	#5-12"%
24" / 27"	3'-8" / 3'-11"	8'-0" / 8'-3"	3'-0"	3'-6" / 3'-9"	2'-0" / 2'-0"	8"	8"	8"	#5-12"%
30"	4'-2"	8'-6"	3'-0"	4'-0"	2'-1"	8"	8"	10"	#5-12"%
36"	4'-8"	10'-0"	3'-6"	4'-6"	2'-3"	8"	10"	10"	#5-12"%
42"	5'-3"	11'-6"	4'-0"	5'-0"	2'-5"	8"	10"	10"	#5-12"%
48"	5'-10"	13'-0"	4'-6"	5'-6"	2'-7"	8"	10"	12"	#5-12"%
54"	6'-5"	14'-6"	5'-0"	6'-0"	2'-9"	9"	12"	12"	#6-8"%
60"	7'-0"	16'-0"	5'-6"	6'-6"	3'-0"	9"	12"	12"	#6-8"%
66"	7'-7"	17'-6"	6'-0"	7'-0"	3'-3"	9"	12"	14"	#6-8"%
72"	8'-2"	19'-0"	6'-6"	7'-6"	4'-3"	9"	12"	14"	#6-8"%



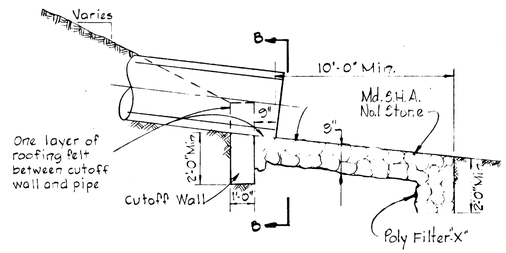


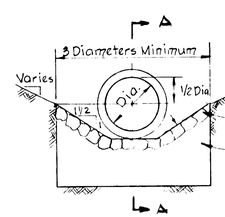


NOTES:
1. Exposed edges shall be chamfered 1"x1".
2. All concrete shall be 3000 psi.

DETAIL - TYPE "A" HEADWALL

No Scale





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

DETAIL - CUTOFF WALL AND OUTLET PAVING

No Scale

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING
John W. Moore (Jr.) 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

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
STORM DRAIN DETAILS

SCALE: As Shown DATE:

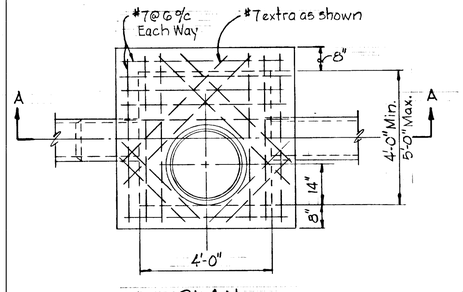
WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

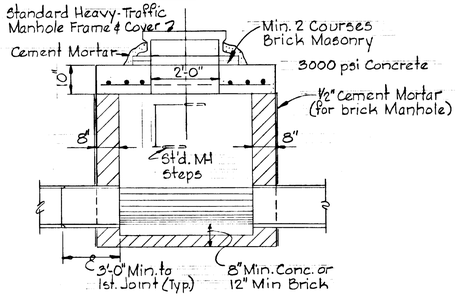
F-79-44 11/31/78 SHEET 26 OF 37

#445

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Macselman / 12-28-78
CHIEF, DIVISION OF LAND DEVELOPMENT

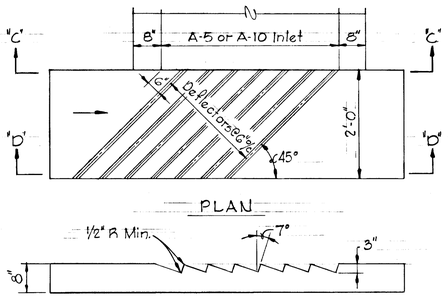


PLAN



SECTION A-A

TYPE 'B' MANHOLE
No Scale

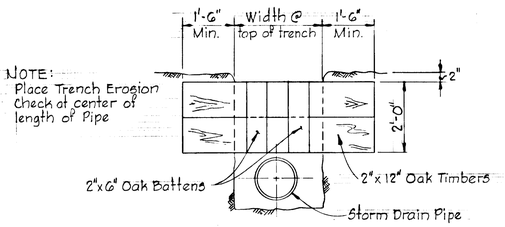


PLAN

SECTION "C-C"

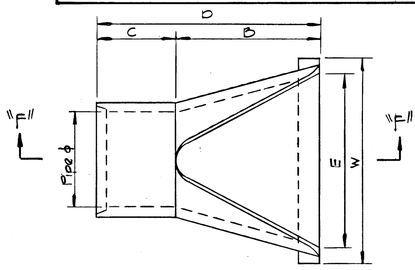
SECTION "D-D"

DEFLECTOR DETAIL
No Scale



FRONT VIEW

TRENCH EROSION CHECK DETAIL
No Scale



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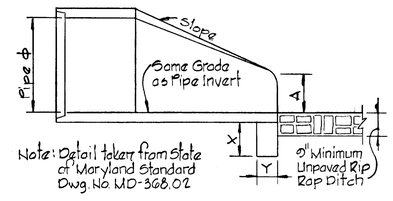
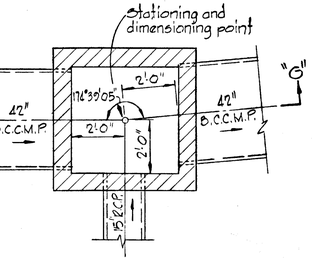


Note: Detail taken from State of Maryland Standard Dwg. No. MD-368.02

SECTION "F-F"

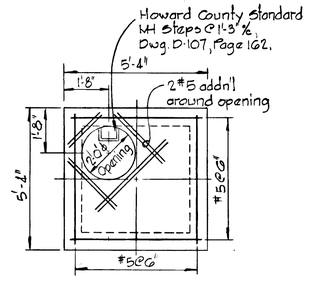
PIPE ϕ	SLOPE	A	B	C	D	E	W	X	Y
18"	3:1	9"	2'-3"	3'-10"	6'-1"	3'-0"	4'-0"	12"	9"
24"	3:1	0'-1½"	3'-7½"	2'-6"	6'-1½"	4'-0"	5'-0"	15"	9"
30"	3:1	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	6'-0"	15"	9"
36"	3:1	1'-3"	5'-3"	2'-10¾"	6'-1¾"	6'-0"	7'-3"	15"	9"

CONCRETE END SECTION DETAIL
No Scale

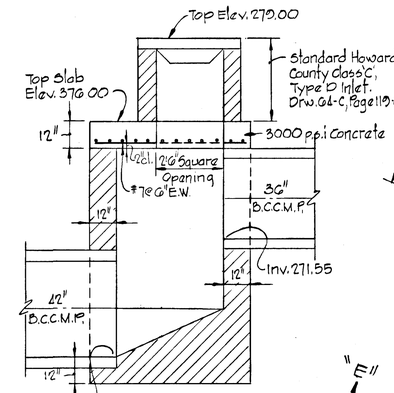


TOP SLAB PLAN

PLAN-INLET I-77

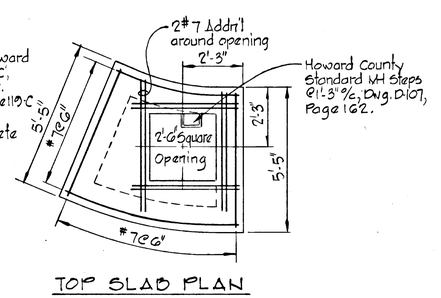


TOP SLAB PLAN
I-77 & I-78

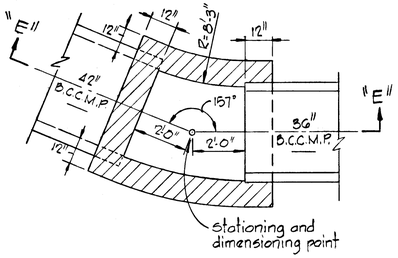


SECTION "E-E"

Note: Inlet I-01 to be sumped and have throat opening on all 4 sides. Throat opening elevation 278.17.

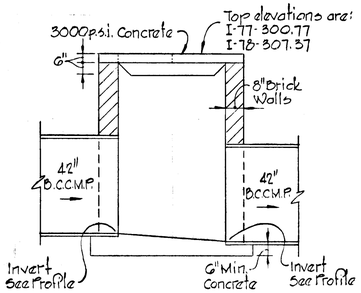


TOP SLAB PLAN

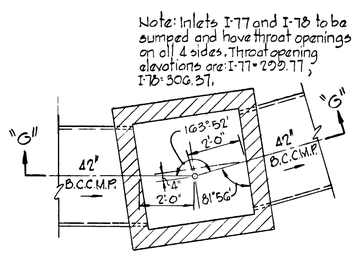


PLAN BELOW TOP SLAB

DETAIL - SPECIAL INLET I-01
Scale: 3/8" = 1'-0"

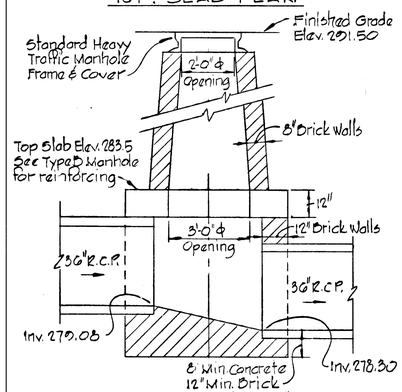


SECTION "G-G"



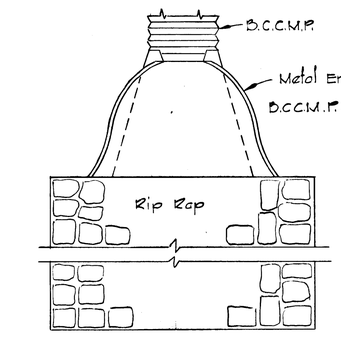
PLAN-INLET I-78

DETAIL - SPECIAL INLETS I-77 & I-78
Scale: 3/8" = 1'-0"

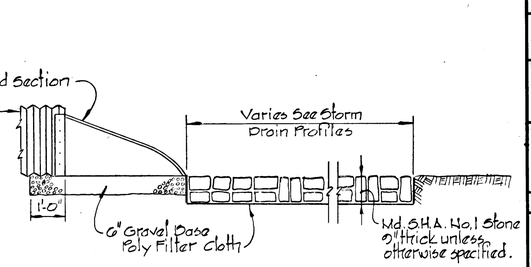


SECTION "B-B"

DETAIL - MANHOLE 15
Scale: 3/8" = 1'-0"



PLAN



RIP RAP SECTION

DETAIL - METAL END SECTION
No Scale

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
STORM DRAIN DETAILS

SCALE: As Shown DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

445

F-79-440

11/31/78

SHEET 27 OF 37

DEPARTMENT OF PUBLIC WORKS
W O Lubert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Wessel 12/29/78
CHIEF, DIVISION OF LAND DEVELOPMENT

GUILFORD ROAD
LITTLE PATUXENT ROAD
MURRAY HILL ROAD
BALTIMORE AND OHIO RAILROAD
PATUXENT RIVER
BALTIMORE GAS AND ELECTRIC CO.
CLOCKTOWER LANE
LIMIT OF SUBMISSION (RECORD PLAT)
FUTURE PARCEL "A"
FUTURE PARCEL "B"
OPEN SPACE LOT 283
100 YEAR FLOOD LEVEL
Storm Water Management Pond #1
Flood Elev. 218.0
A=1.4 Ac. C=0.8 COMMERCIAL
A=1.2 Ac. C=0.7 MULTI FAMILY
A=6.0 Ac. C=0.6 MULTI-FAMILY OFFSITE
A=1.04 Ac. C=0.75 I-10 MULTI FAMILY
A=2.0 Ac C=0.55 I-11 MULTI FAMILY OFFSITE
A=2.8 Ac C=0.55 I-12 MULTI FAMILY OFFSITE
A=1.7 Ac C=0.70 I-13 MULTI FAMILY
A=1.0 Ac C=0.75 I-14 MULTI FAMILY
A=1.9 Ac C=0.65 I-15 MULTI FAMILY S.F.L.D.
A=1.10 Ac C=0.40 I-8 SFLD
A=1.70 Ac C=0.70 I-9 MULTI FAMILY
S-13
S-2
E842,000
E842,500
E843,000
E843,500
E844,000
N485,500
N486,000
N486,500
N484,500

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
DRAINAGE AREA MAP

SCALE: 1"=100' DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

7263-2C

F-79-44

11/31/78 SHEET 28 OF 37

DEPARTMENT OF PUBLIC WORKS
W O Lubert 12-29-78
CHIEF, BUREAU OF ENGINEERING

OFFICE OF PLANNING AND ZONING
John W. Mussellman 1/2/79
CHIEF, DIVISION OF LAND DEVELOPMENT

LIMIT OF SUBMISSION (RECORD PLAT)
EXISTING MURRAY HILL ROAD
MURRAY HILL ROAD
CLOCKTOWER LANE
FUTURE PARCEL "A"
FUTURE PARCEL "B"
FUTURE PARCEL "C"
FUTURE PARCEL "D"
FUTURE PARCEL "E"
FUTURE PARCEL "F"
FUTURE OPEN SPACE LOT 283
FUTURE OPEN SPACE LOT 284
FUTURE OPEN SPACE LOT 285
FUTURE OPEN SPACE LOT 286
OPEN SPACE LOT 281 (FUTURE)
VOLLMERHAUSEN ROAD
BALTIMORE AND OHIO RAILROAD
Storm Water Management Pond #2
Future 20' Easement
100 YEAR FLOOD LEVEL
MIDDLE PATUXENT RIVER
PATUXENT RIVER
LITTLE PATUXENT RIVER
N 485,500
E 844,000
E 849,500
E 852,500

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
DRAINAGE AREA MAP

SCALE: 1" = 100' DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

445

F-79-44c 11/31/78 SHEET 29 OF 37

DEPARTMENT OF PUBLIC WORKS
W.O. Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Macelwee / F.O.
CHIEF, DIVISION OF LAND DEVELOPMENT

LIMIT OF SUBMISSION (RECORD PLAT)

PARCEL "E"

FUTURE OPEN SPACE LOT 281

FUTURE PARCEL "B"

FUTURE PARCEL "D"

LIMIT OF SUBMISSION (RECORD PLAT)

Future 20' Easement

BALTIMORE AND OHIO RAILROAD

STORM WATER MANAGEMENT POND #3

Flood Elev 271.0

Flood Elev 270.4

Flood Elev 269.9

Flood Elev 269.0

Flood Elev 267.4

Flood Elev 264.6

100 YEAR FLOOD PLAIN AND DRAINAGE EASEMENT

100 YEAR FLOOD LEVEL

GUILFORD ROAD

PATUXENT RIVER

LITTLE

LIMIT OF SUBMISSION (RECORD PLAT)

STORM WATER MANAGEMENT POND #4

GOLDEN ROD PATH

CORN TASSEL COURT

SWEET GRASS

ARTIC

FLOWER

VOLLMERHAUSEN

MORNING MEWS

MOONRIDER LANE

LADY BUG ROW

GREEN MOON PATH

COLD STAR COURT

MORNING LEAP TERRACE

SHADOW

SAND LIGHT COURT

WEST WINDOW WAY

N485,500

N484,000

E844,000

E844,500

E845,000

E845,500

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
DRAINAGE AREA MAP

SCALE: 1" = 100' DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

F-79-44C

11/31/78 SHEET 30 OF 37

DEPARTMENT OF PUBLIC WORKS

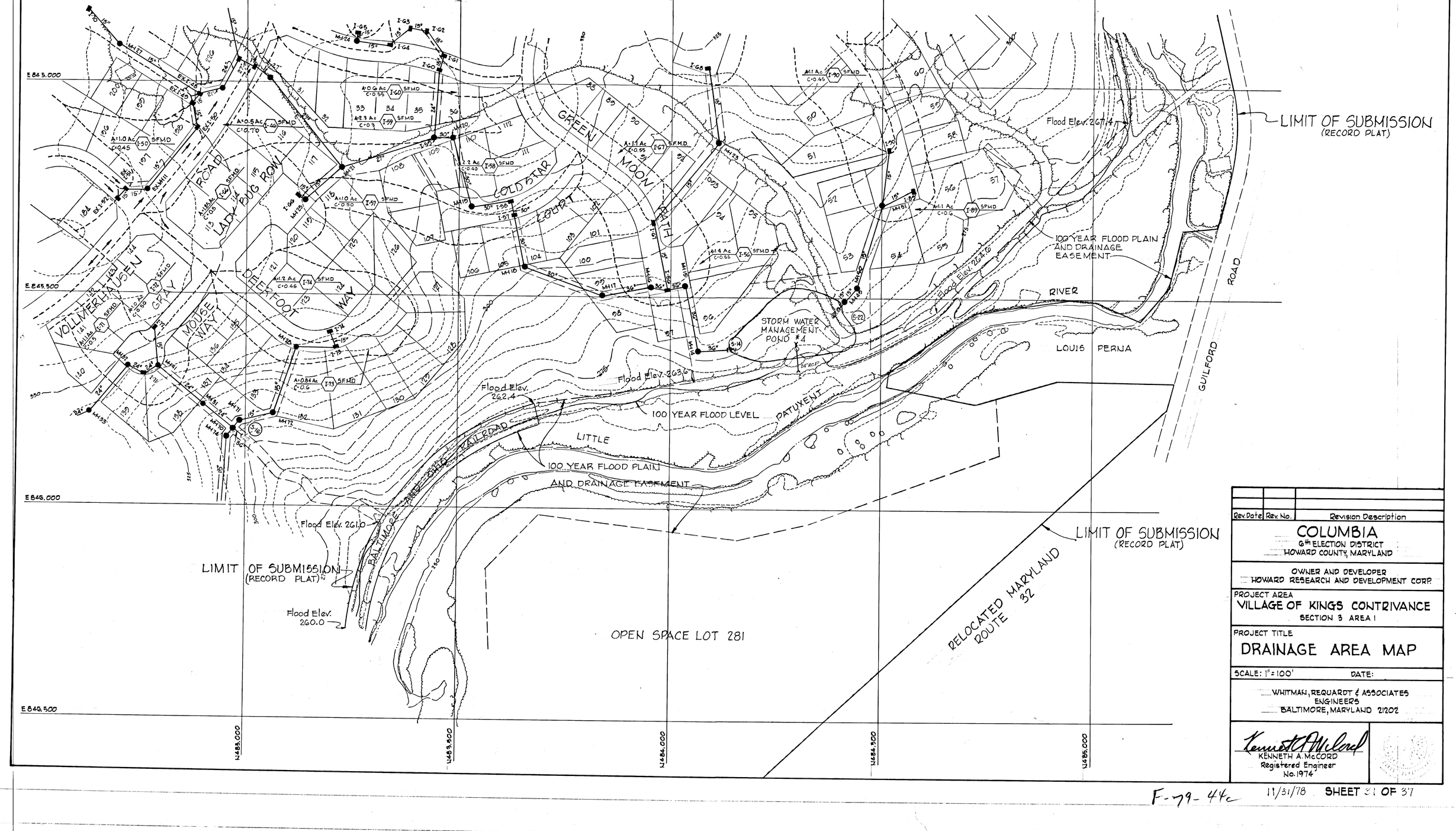
W O Talbert 12-29-78

CHIEF, BUREAU OF ENGINEERING

OFFICE OF PLANNING AND ZONING

John W. Mussellman 1/2/79.

CHIEF, DIVISION OF LAND DEVELOPMENT



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

DRAINAGE AREA MAP

SCALE: 1" = 100' DATE:

WHITMAN, REQUARDT & ASSOCIATES

ENGINEERS

BALTIMORE, MARYLAND 21202

Kenneth A. McCord

KENNETH A. McCORD

Registered Engineer

No. 1974

#445

F-79-44c 11/31/78 SHEET 21 OF 37

DEPARTMENT OF PUBLIC WORKS

W O Gilbert 12-29-78

CHIEF, BUREAU OF ENGINEERING

OFFICE OF PLANNING AND ZONING

John W. Moscheman 12/28.

CHIEF, DIVISION OF LAND DEVELOPMENT

LIMIT OF SUBMISSION (RECORD PLAT)

LIMIT OF SUBMISSION (RECORD PLAT)

LIMIT OF SUBMISSION (RECORD PLAT)

DRAGONCLAW DRIVE

VOLLMERHAUSEN DRIVE

DEERFOOT WAY

GRAY MOD CT.

HUNDRED DRUMS

KLEPSAKE WAY

SLOW RAIN WAY

WHITE SPRING WAY

SINGLE BIRD LANE

INDIGO COURT

BLACK VELVET LANE

OPEN SPACE LOT 281

OPEN SPACE LOT 280

ARTHUR V. CAPLAN 758/718

RICHARD E. GREGG 186/121

RICHARD A. LOUSE 680/168

100 YEAR FLOOD PLAIN AND DRAINAGE EASEMENT

100 YEAR FLOOD LEVEL

Flood Elev. 260.80

Flood Elev. 260.10

Flood Elev. 258.4

Flood Elev. 254.51

Flood Elev. 254.81

100 YEAR FLOOD LEVEL

Exist. 20' Water Easement

LITTLE PATUXENT RIVER

BALTIMORE AND OHIO R.R.

RELOCATED MARYLAND ROUTE 32

STATE OF MARYLAND

E 845,500 E 846,000 E 846,500 E 847,000

N 481,000 N 481,500 N 482,000 N 482,500 N 483,000

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

DRAINAGE AREA MAP

SCALE: 1"=100' DATE:

WHITMAN, REQUARDT & ASSOCIATES

ENGINEERS

BALTIMORE, MARYLAND 21202

Kenneth A. McCord

KENNETH A. McCORD

Registered Engineer

No. 1974

445

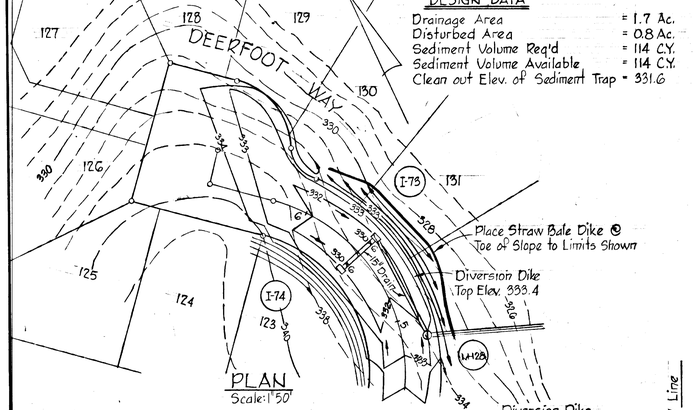
F-79-44

11/31/78 SHEET 32 OF 37

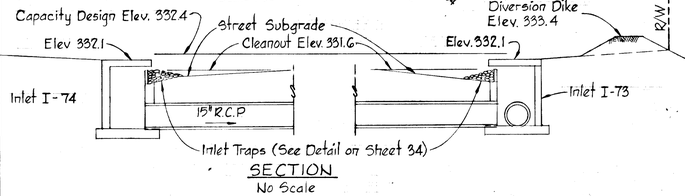
DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-27-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Macelwee 1/29
CHIEF, DIVISION OF LAND DEVELOPMENT

DESIGN DATA

Drainage Area	= 1.7 Ac.
Disturbed Area	= 0.8 Ac.
Sediment Volume Req'd	= 114 C.Y.
Sediment Volume Available	= 114 C.Y.
Clean out Elev. of Sediment Trap	= 331.6

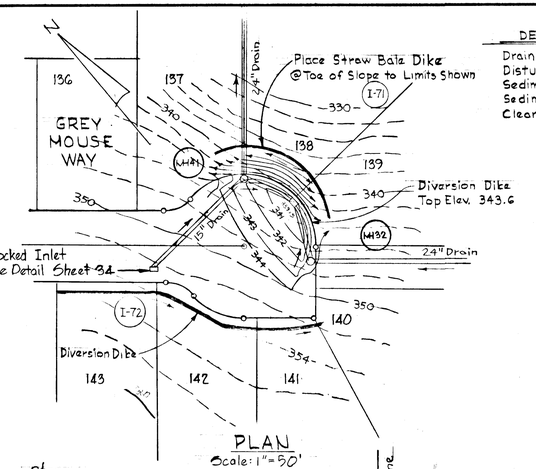


PLAN
Scale: 1"=50'

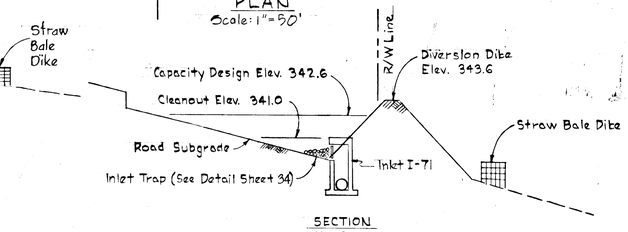


SECTION
No Scale

DETAIL - SEDIMENT TRAP No.8



PLAN
Scale: 1"=50'

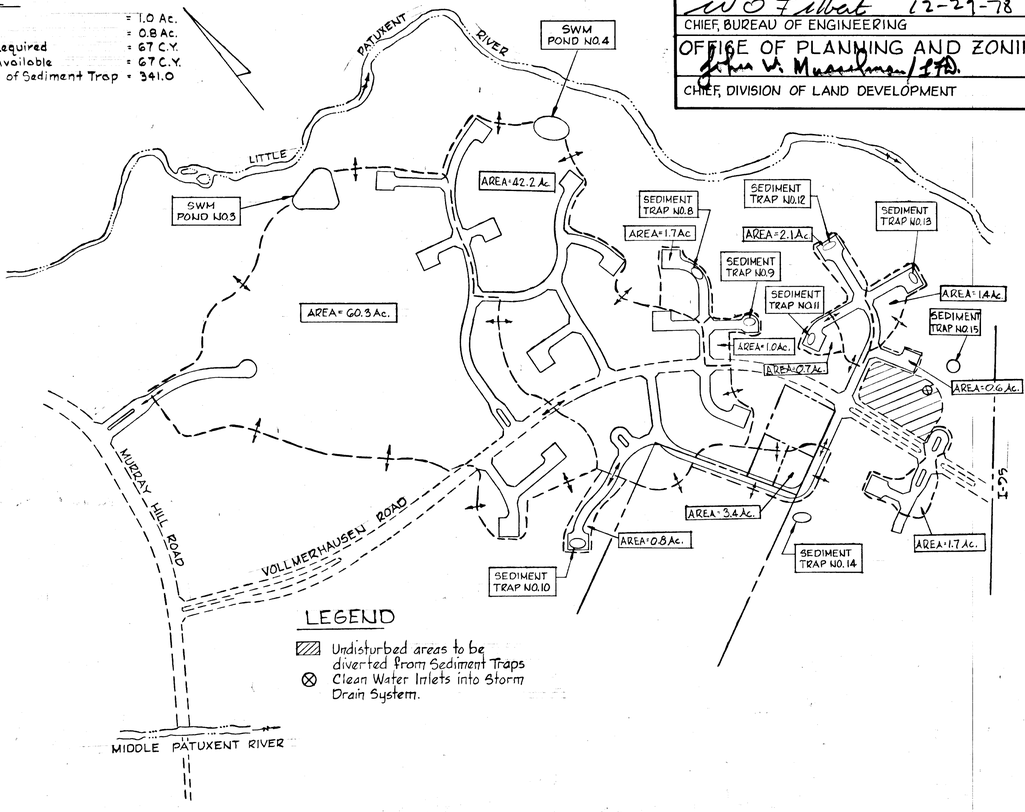


SECTION
No. Scale

DETAIL - SEDIMENT TRAP NO.9

DESIGN DATA

Drainage Area	= 1.0 Ac.
Disturbed Area	= 0.8 Ac.
Sediment Volume Required	= 67 C.Y.
Sediment Volume Available	= 67 C.Y.
Cleanout Elevation of Sediment Trap	= 341.0

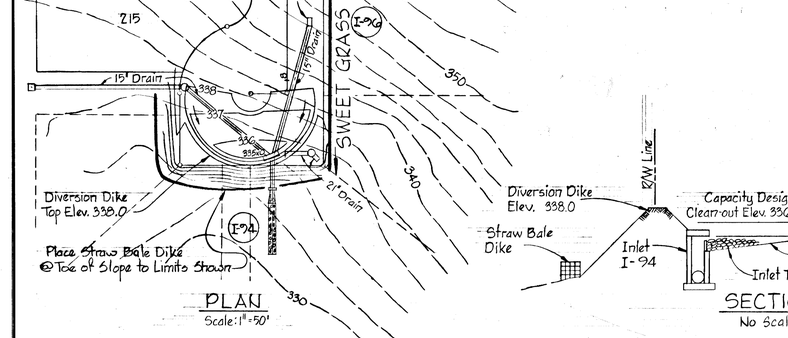


LEGEND

▨ Undisturbed areas to be diverted from Sediment Traps & Clean Water Inlets into Storm Drain System.

NOTE: ALL CONTOURS SHOWN WITHIN STREET PAVING AREAS DENOTE SUBGRADES

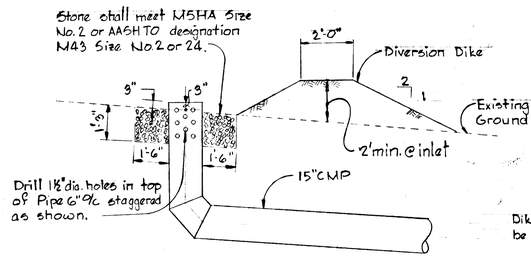
STORM WATER MANAGEMENT AND SEDIMENT CONTROL
DRAINAGE AREA MAP
Scale: 1"=400'



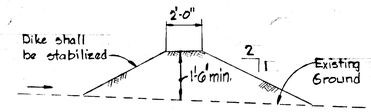
PLAN
Scale: 1"=50'

SECTION
No Scale

DETAIL - SEDIMENT TRAP NO.10



CLEAN WATER INLET
Scale: 3/8"=1'-0"



TYPICAL SECTION-DIVERSION DIKE
No Scale

GENERAL NOTES

1. See "Sequence of Construction" on Sheet 1.
2. Prior to starting any work, the Contractor shall notify the Howard Soil Conservation District at least 24 hours in advance of notice to begin.
3. The sediment control measures shall be constructed as shown on these drawings.
4. The storm water management ponds No.3 and No.4 are initially sediment basins. See sheets 35, 36 and 37 for details and specifications.
5. All diversion dikes shall be seeded as specified in notes 6 and 7. All other surfaces to be seeded shall be permanently seeded. See specifications on sheet 37.
6. The diversion dikes shall be hydroseeded as follows: a. ground limestone-(50#/1000¢), one ton/acre
   b. Fertilizer-10-10-10 (25#/1000¢), ½ ton/acre
   c. Seed - Italian Rye Grass 40#/acre
7. Mulch with straw at the rate of 50#/1000¢ or one ton per acre. Anchor with asphalt at the rate of 480 gallons/acre.
8. Silt Fences may be substituted for straw bale dikes.

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 Woodford — 9-2-78
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 — 9-2-78
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 Ray 12/1/78
U.S. SOIL CONSERVATION ~~DISTRICT~~ SERVICE — DATE:

THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: Edward Zichow 12/21/78
HOWARD S.C.D. — DATE:

PLAN NUMBER

REV. DATE	REV. NO.	REVISION DESCRIPTION

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
TEMPORARY SEDIMENT TRAPS NO. 8 THRU NO. 10 AND DETAILS

SCALE: As Shown — DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

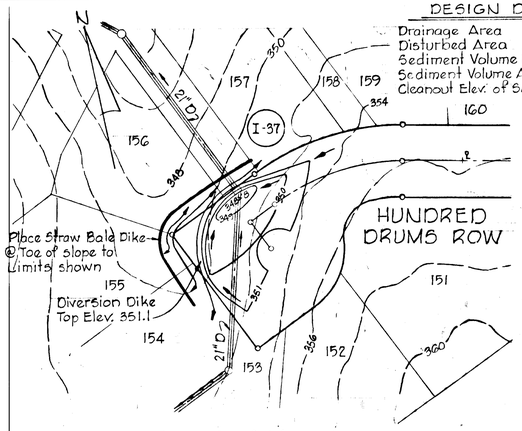
Kenneth A McCord
KENNETH A. McCORD
REGISTERED ENGINEER
NO. 1974

445

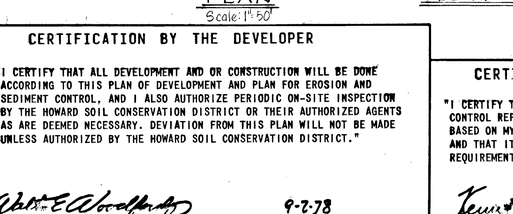
F-79-44 11/31/78 . SHEET 33 OF 37

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE
OFFICE OF PLANNING AND ZONING
John W. Hessellman for 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DESIGN DATA
Drainage Area = 0.7 Ac.
Disturbed Area = 0.5 Ac.
Sediment Volume Req'd = 47 CY
Sediment Volume Available = 47 CY
Cleanout Elev. of Sediment Trap = 349.5



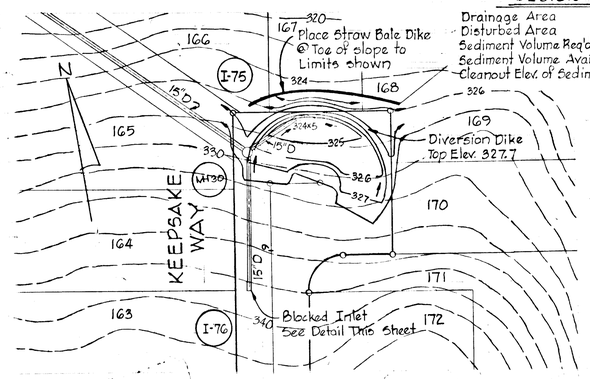
PLAN
Scale: 1" = 50'



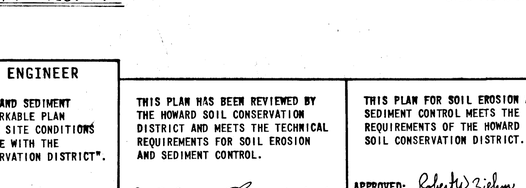
SECTION
No Scale

DETAIL - SEDIMENT TRAP NO. 11

DESIGN DATA
Drainage Area = 2.1 Ac.
Disturbed Area = 1.5 Ac.
Sediment Volume Req'd. = 140 C.Y.
Sediment Volume Available = 140 C.Y.
Cleanout Elev. of Sediment Trap = 325.5



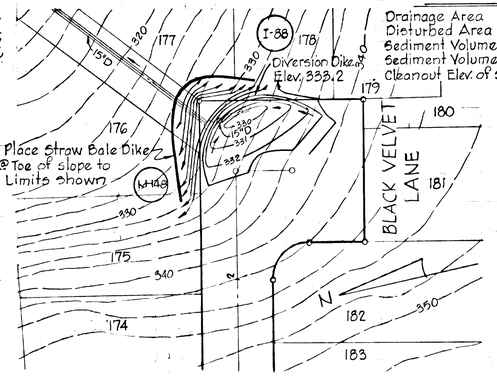
PLAN
Scale: 1" = 50'



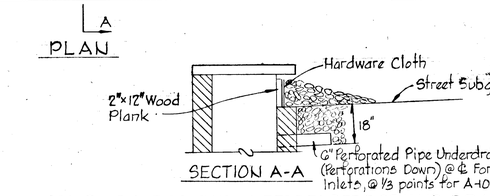
SECTION
No Scale

DETAIL - SEDIMENT TRAP NO. 12

DESIGN DATA
Drainage Area = 1.4 Ac.
Disturbed Area = 1.0 Ac.
Sediment Volume Req'd. = 94 C.Y.
Sediment Volume Available = 94 C.Y.
Cleanout Elev. of Sediment Trap = 330.5

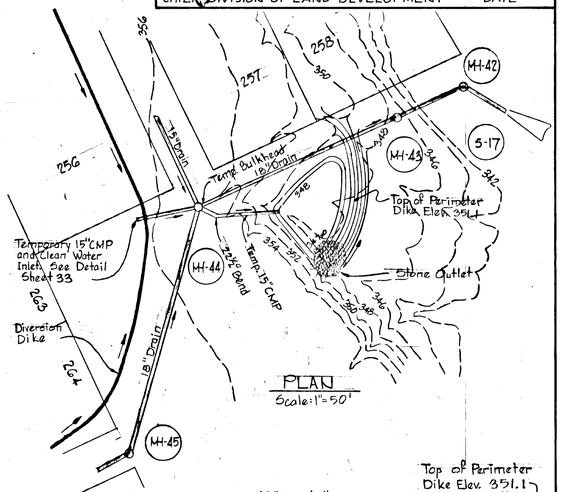


PLAN
Scale: 1" = 50'



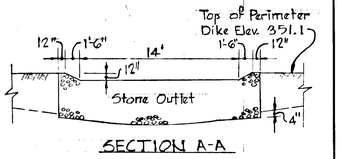
SECTION
No Scale

DETAIL - SEDIMENT TRAP NO. 13

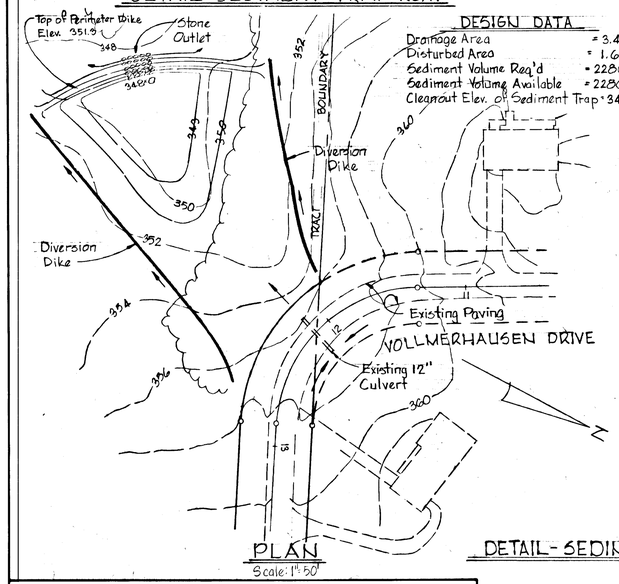


PLAN
Scale: 1" = 50'

DESIGN DATA
Drainage Area = 2.3 Ac.
Disturbed Area = 1.9 Ac.
Sediment Volume Req'd = 154 CY
Sediment Volume Available = 154 CY
Cleanout Elev. of Sediment Trap = 348.3

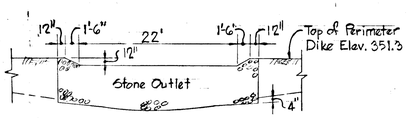


SECTION A-A

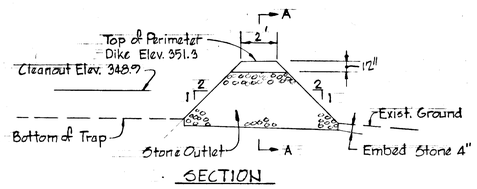


PLAN
Scale: 1" = 50'

DESIGN DATA
Drainage Area = 3.4 Ac.
Disturbed Area = 1.6 Ac.
Sediment Volume Req'd = 228 CY
Sediment Volume Available = 228 CY
Cleanout Elev. of Sediment Trap = 348.9

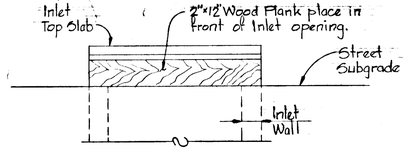


SECTION A-A

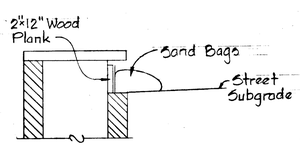


SECTION

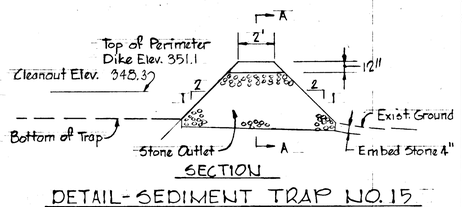
DETAIL - SEDIMENT TRAP NO. 14



FRONT ELEVATION



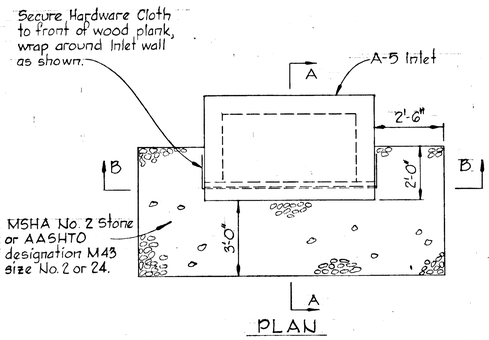
SECTION A-A



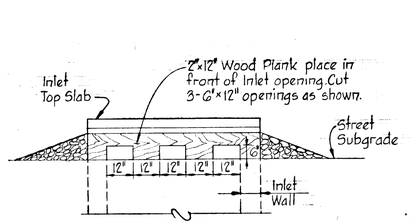
SECTION

DETAIL - SEDIMENT TRAP NO. 15

BLOCKED INLETS @ I-72, I-76 AND I-96



PLAN



SECTION B-B

SECTION A-A

Note: Install Perforated Underdrain at the Inlet Construction

TRAP @ INLETS I-37, I-71, I-73, I-74, I-75, I-88 AND I-94
Scale 3/8" = 1'-0"

REV. DATE	REV. NO.	REVISION DESCRIPTION

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
TEMPORARY SEDIMENT TRAPS NO.11 THRU NO.15 AND DETAILS

SCALE: AS SHOWN DATE:

WHITMAN REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

Kenneth A. McCord
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."

Albert E. Woodfield 9-2-78
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 9-8-78
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 Ray 12/21/78
U.S. SOIL CONSERVATION ~~DISTRICT~~ SERVICE DATE:

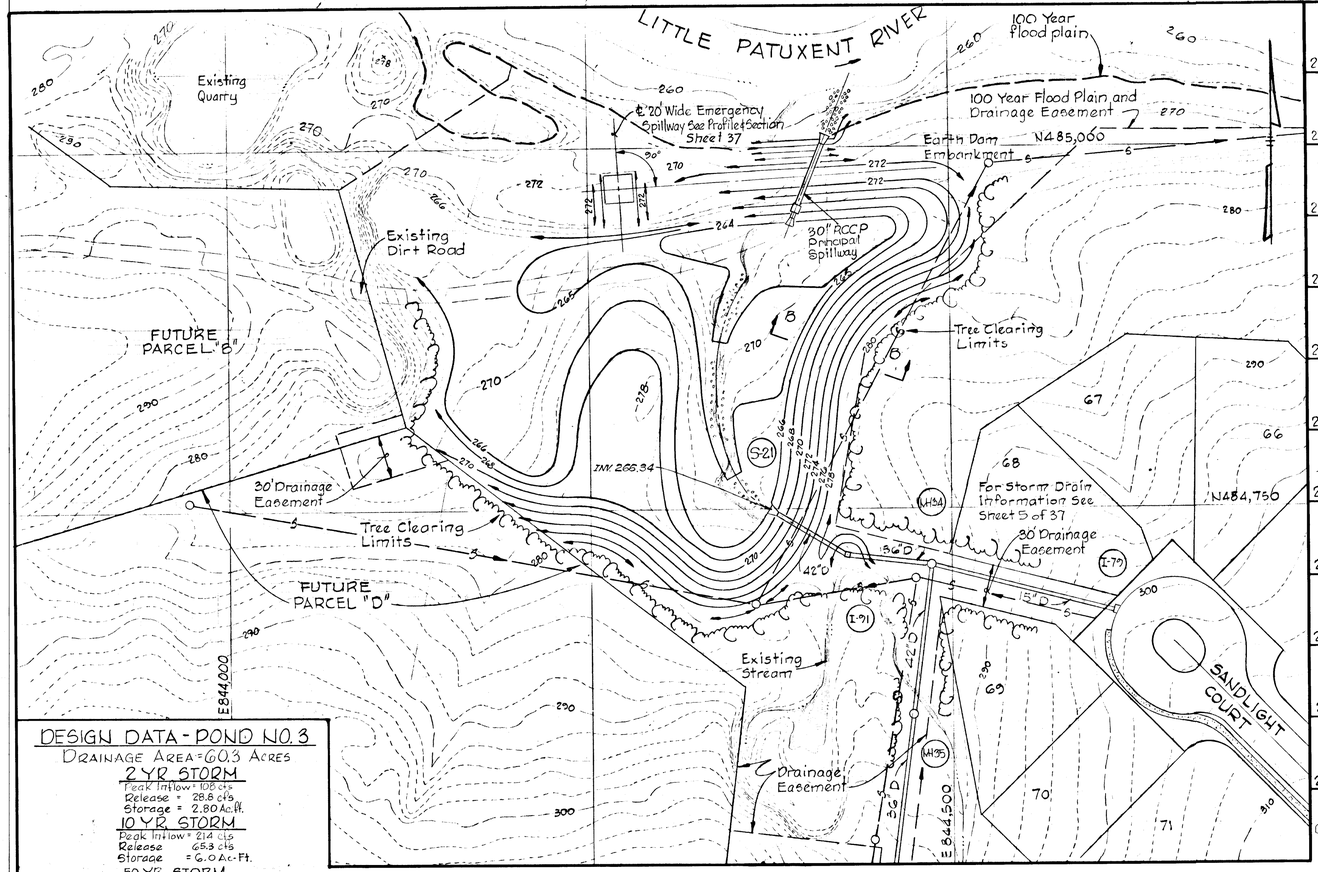
THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: Robert W. Zielke 12/21/78
HOWARD S.C.D. DATE:

PLAN NUMBER

F-79-42c 11/31/78 SHEET 34 OF 37

DEPARTMENT OF PUBLIC WORKS	
W O Falbert	12-29-78
CHIEF, BUREAU OF ENGINEERING	DATE
OFFICE OF PLANNING & ZONING	
John W. Mussetman / JWM	12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE



SITE PLAN - POND NO. 3

Scale: 1" = 50'

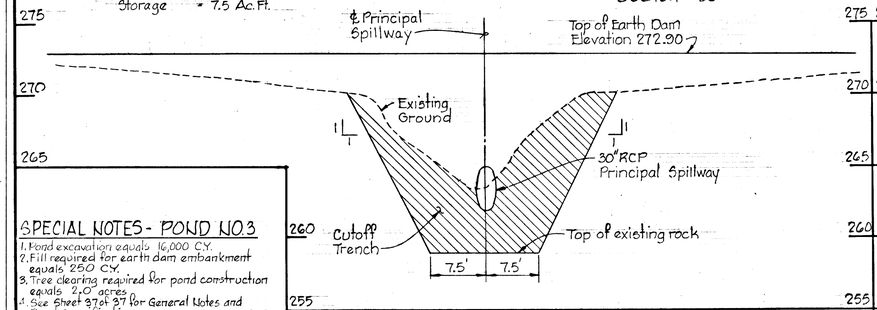
DESIGN DATA - POND NO. 3

DRAINAGE AREA = 60.3 ACRES

2 YR STORM
Peak Inflow = 108 cfs
Release = 28.8 cfs
Storage = 2.80 Ac.ft.

10 YR STORM
Peak Inflow = 214 cfs
Release = 63.3 cfs
Storage = 6.0 Ac.-Ft.

50 YR. STORM
Peak Inflow = 282 cfs
Release = 112 cfs
Storage = 7.5 Ac. Ft.

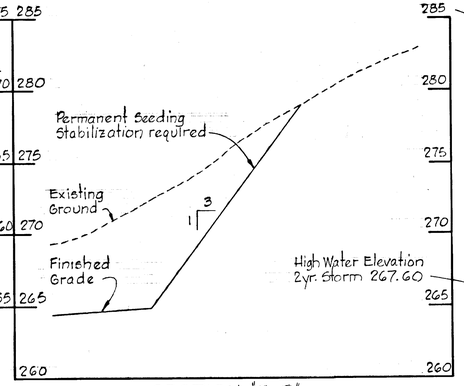


PROFILE - EARTH DAM

Scale: Horz. 1" = 10'
Vert. 1" = 5'

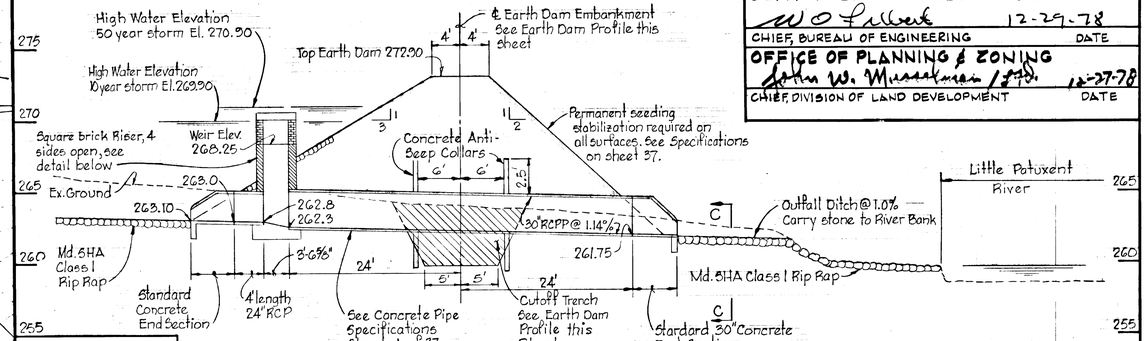
SPECIAL NOTES - POND NO. 3

1. Pond excavation equals 16,000 C.Y.
2. Fill required for earth dam embankment equals 250 C.Y.
3. Tree clearing required for pond construction equals 2.0 acres.
4. See Sheet 37 of 37 for General Notes and Pond Specifications.



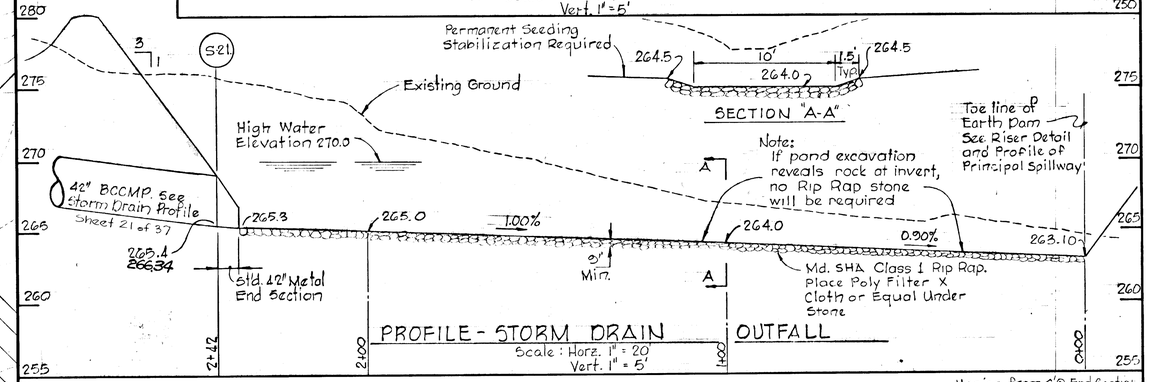
SECTION "B-B"

Scale: Horz. 1" = 20'
Vert. 1" = 5'

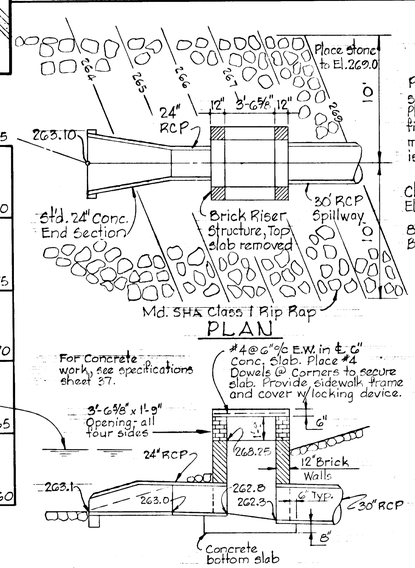


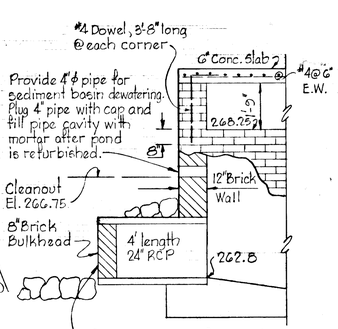
PROFILE - PRINCIPAL SPILLWAY AND SECTION EARTH DAM

Scale: Horz. 1" = 10'
Vert. 1" = 5'



Scale: Horz. 1" = 20'
Vert. 1" = 5'



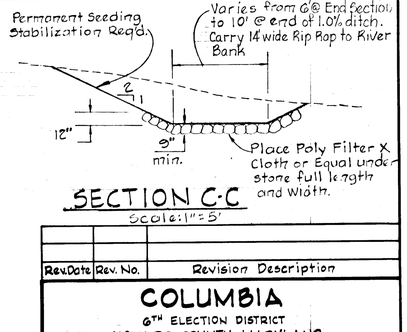


RISER DETAIL
SEDIMENT BASIN DEWATERING

Scale: 3/8" = 1'-0"

SECTION
RISER DETAIL

Scale: 3/16" = 1'-0"



SECTION C-C

Scale: 1" = 5'

SEDIMENT CONTROL

Drainage Area	60.3 acres
Sediment Volume required	2.5 Ac. FT.
Sediment Volume available	4.0 Ac. FT.
Cleanout elevation	267.25

-NOTE-
'AS-BUILT' ELEVATIONS VERTIFIED BY KENNETH A. McCORD MD. REG. P.E. No. 1974 AS OF DECEMBER 20, 1979

CERTIFICATION BY THE DEVELOPER

"I certify that all development and or 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 authorize a registered professional engineer to supply the Howard Soil Conservation District office with an as-built plan of this pond within 30 days of the ponds completion

Walter E. Woodford, Jr. — 9-2-78 — 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 P.E. 1974 — 9-2-78 — Date

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION

U.S. SOIL CONSERVATION DISTRICT — Date 12-21-78

THIS PLAN FOR SMALL POND CONSTRUCTION MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED Robert W. Bellm — HOWARD S.C.D. — Date 12/21/78

PLAN NUMBER

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
STORM WATER MANAGEMENT POND NO. 3 AND DETAILS

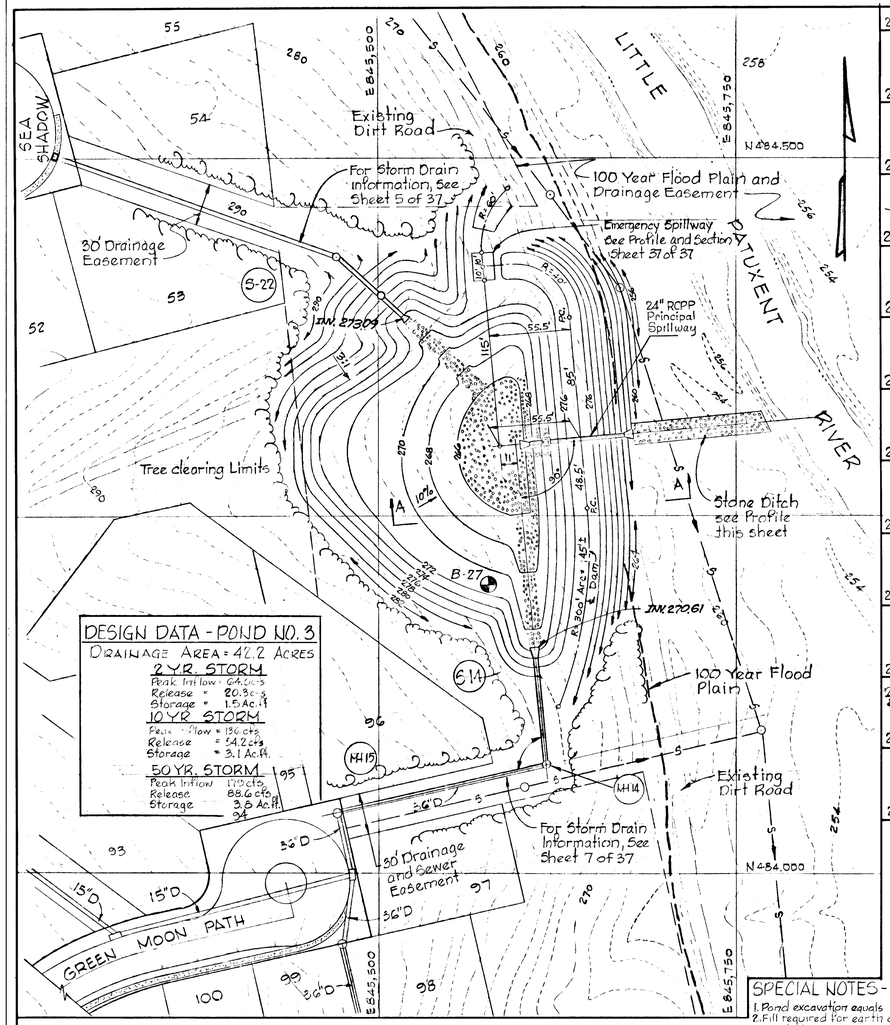
SCALE: AS SHOWN — DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE MARYLAND 21202

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

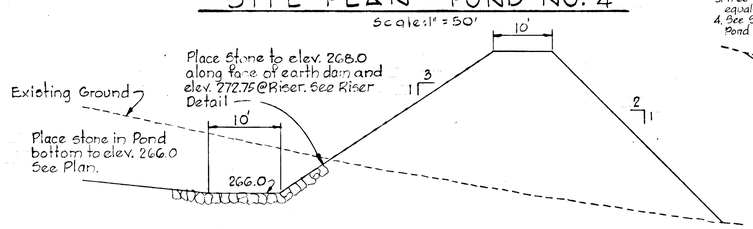
445

F-79-44c 11/31/78



SITE PLAN - POND NO. 4

Scale: 1" = 50'

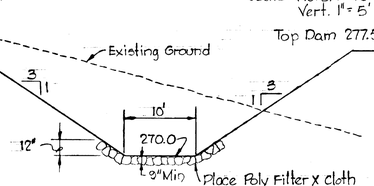


SECTION "A-A"

Scale: None

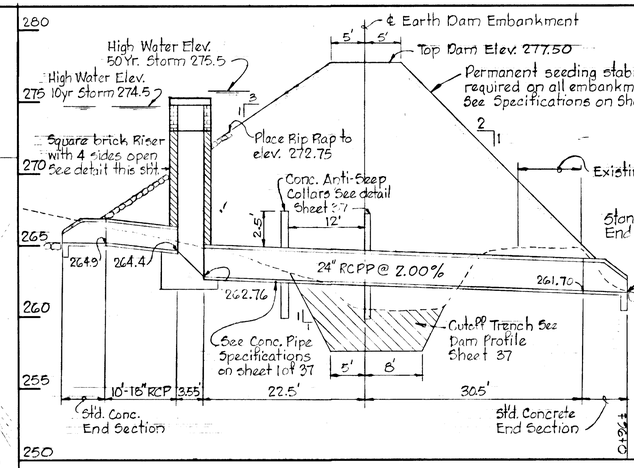
SPECIAL NOTES - POND NO. 3

1. Pond excavation equals 6,300 C.Y.
2. Fill required for earth dam embankment equals 2,700 C.Y.
3. Tree clearing required for pond construction equals 1.2 acres.
4. See Sheet 37 of 37 for General Notes and Pond Specifications.



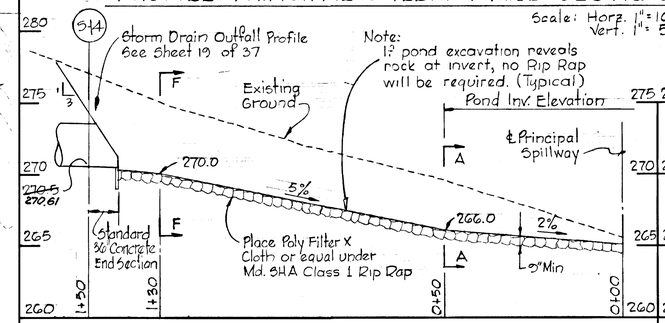
SECTION F-F

Scale: Horz. 1" = 10'
Vert. 1" = 5'



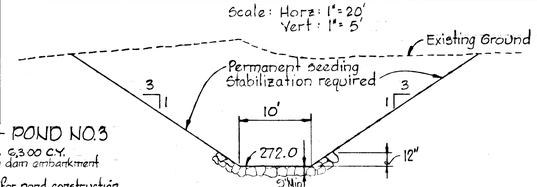
PROFILE - PRINCIPAL SPILLWAY AND SECTION EARTH DAM

Scale: Horz. 1" = 10'
Vert. 1" = 5'



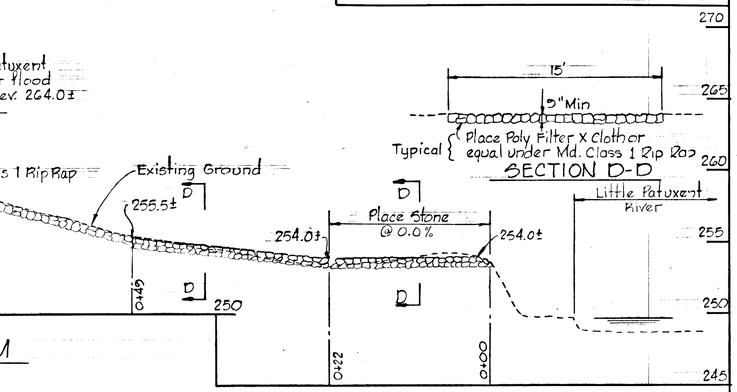
PROFILE - STORM DRAIN OUTFALL S-4

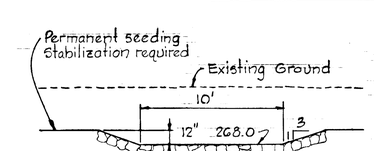
Scale: Horz. 1" = 20'
Vert. 1" = 5'

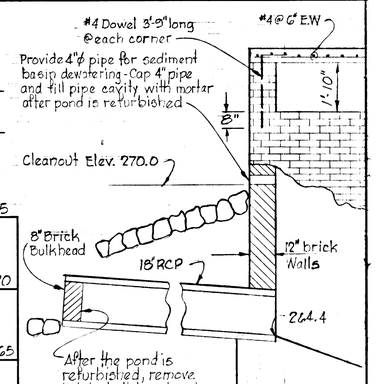


SECTION "C-C"

Scale: Horz. 1" = 10'
Vert. 1" = 5'

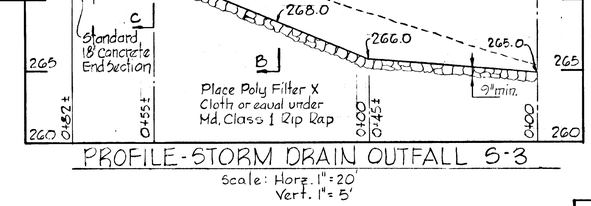


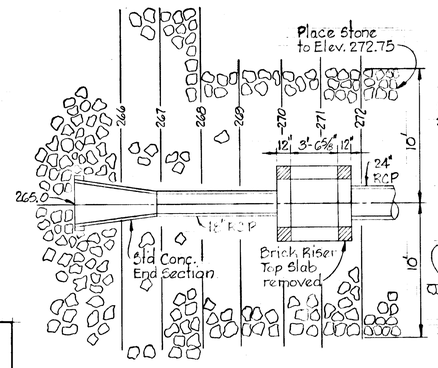




PROFILE - STORM DRAIN OUTFALL S-3

Scale: Horz. 1" = 20'
Vert. 1" = 5'





RISER DETAIL

Scale: 3/16" = 1'-0"

SEDIMENT CONTROL

Drainage Area	42.2 acres
Sediment Volume required	1.75 Ac.Ft.
Sediment Volume available	2.1 Ac.Ft.
Cleanout elevation	270.00

DEPARTMENT OF PUBLIC WORKS
W O Gilbert 12-29-78
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING & ZONING
John W Hessellman for 12-27-78
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CERTIFICATION BY THE DEVELOPER

"I certify that all development and or 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 authorize a registered professional engineer to supply the Howard Soil Conservation District office with an as-built plan of this pond within 30 days of the ponds completion."

Walter E. Woodford, Jr. 9-2-78
Walter E. Woodford, Jr. 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 9-2-78
Kenneth A. Mc Cord P.E 1974 Date

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION

Winifred Bamblette 12/26/78
U.S. SOIL CONSERVATION DISTRICT Date

THIS PLAN FOR SMALL POND CONSTRUCTION MEETS THE REQUIREMENT OF THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED Robert W Zahn 12/27/78
HOWARD S.C.D. Date

PLAN NUMBER

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
STORM WATER MANAGEMENT POND NO. 4 AND DETAILS

SCALE: AS SHOWN DATE

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE MARYLAND 21207

Kenneth A McCord
KENNETH A McCORD
Registered Engineer
No 1974

#445

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POND SPECIFICATIONS

PERMANENT SEEDING (See General Notes)

LIME = 2 Tons/acre agricultural ground limestone

FERTILIZER = 100 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 area with straw at the rate of 75 lbs./1000 s.f. 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./acres (0.34 lbs./1000 s.f.) Kentucky 31 Tall Fescue 40 lbs./acres (1 lb./1000 s.f.)

EARTH DAM EMBANKMENT

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

PRINCIPLE SPILLWAYS (24" AND 30")

1. Backfill around the RCP Spillways 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 RCP Spillways. Under no circumstances shall the contracter drive equipment over any part of the RCP Spillways unless there is a compacted fill to a depth of 24" inches or greater over the pipes.
2. The RCP Spillway 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.
3. Reinforced concrete pressure pipe shall have a rubber gasket joint and shall equal or exceed AWWA Standard C302.
4. 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 on the entire line, the bedding shall be placed so that all spaces under the pipe are filled.

CONCRETE

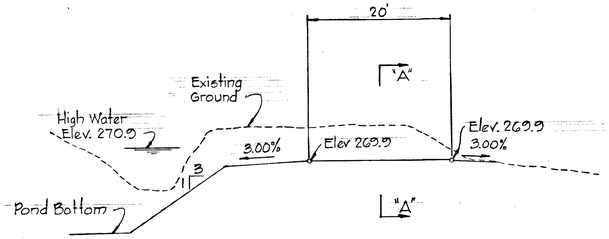
1. Concrete shall have a minimum of 6 bags of cement per cubic yard and water content not to exceed 6 gallons per bag of cement. Slump shall range 3"-4". All concrete shall be transit mix.

CUT OFF TRENCH

1. The backfill material for the Cut Off Trench shall be the most imperulous material available from the pond excavation. The material shall be placed in 8" loose layers and compacted to 90% of ASSHTO T-180. Moisture content of the suitable material shall be within the range of 2% below optimum moisture to 2% above optimum moisture.

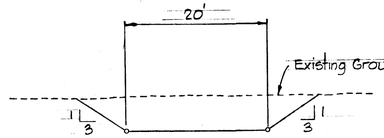
GENERAL NOTES - PONDS NO.3 AND NO.4

1. Ponds No.3 and No.4 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 shee 33 of 37.
2. Initial construction shall include all the work as shown except Pond invert seeding and the 18" and 24" Concrete End Sections. (Upstream ends)
3. 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 the Ponds shall be permanently seeded after the ponds are refurbished.
   Refurbishing of the ponds shall be done after all comstruction is completed and grass is established within the pond drainage areas. Refurbishing of the ponds shall include the removal of all sediment; the restoration of the ponds to the lines and grades as shown on the Plans; the replacement of all filter cloth and rip rap stone where necessary; installation of the metal end sections; permanent reseeding of all the disturbed graded surfaces and the cleaning of the principal spillways and outfall ditches.
4. After the Ponds are completely refurbished the owner shall submit "As Built" drawings to the Howard County Soil Conservation District.
5. Poly Filter-X cloth (CARTHAGE MILLS INCORPORATED) or equal, shall be placed under all rip-rap construction, full length and width of rip-rap.
6. Stone shall be Maryland S.H.A. Class 1 medium Rip-Rap.
   Stone from onsite rock excavation may be substituted for the Maryland S.H.A. Class 1 medium Rap-Rap.



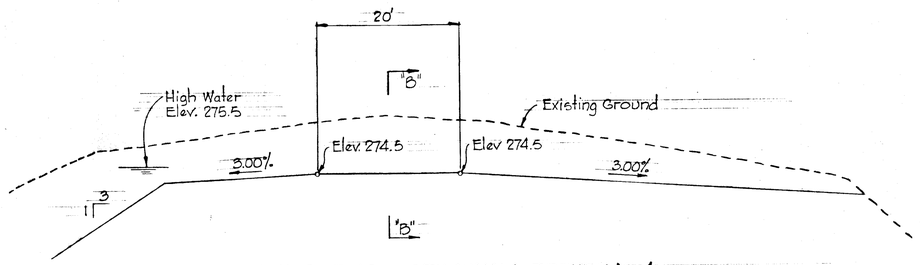
PROFILE ~ EMERGENCY SPILLWAY POND NO.3

Scale: Horz: 1"=10'
Vert: 1"=5'



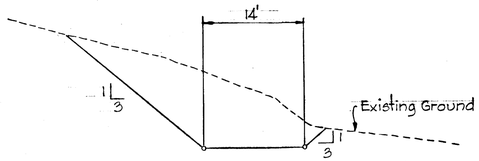
SECTION "A-A"

Scale Horz.: 1"=10'
Vert.: 1"=5'



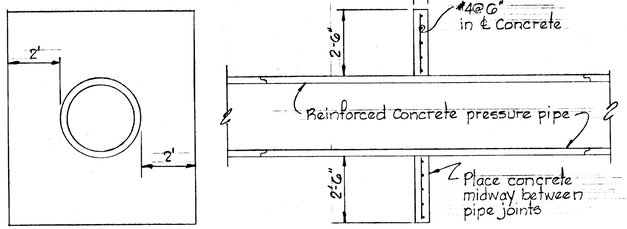
PROFILE ~ EMERGENCY SPILLWAY POND NO.4

Scale: Horz: 1"=10'
Vert 1"=5'



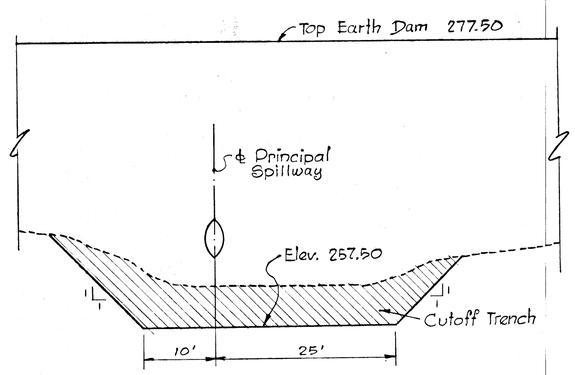
SECTION "B-B"

Scale: Horz. 1"=10'
Vert. 1"=5'



DETAIL ~ ANTI - SEEP COLLAR

No Scale



PROFILE - EARTH DAM (Pond - 4)

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

SOIL BORNING B-27

Ground Elevation

1.0	Rootmat
	Reddish Brown sandy clayey SILT, some fine gravel
8.0	Brown clayey SILT
9.9	Brown and green fine sandy SILT
13.5	Green micaceous silty fine SAND, some decomposed rock fragments
21.3	Bottom of Boring = 21.3

CERTIFICATION BY THE DEVELOPER

"I certify that all development and or 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 thier authorized agents as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District. I will authorize a registered professional engineer to supply the Howard Soil Conservation District office with an as-built plan of this pond within 30 days of the ponds completion."

Signature of Developer — Date 9-27-78

CERTIFICATION BY THE ENGINEER

"I certify that this plan for small pond construction represents a practical and workabe 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 P.E. 1974 — Date 9-27-78

THIS PLAN HAS BEEN REVIEWED BY THE HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

C. Wayne Rau 12/21/78
U.S. SOIL CONSERVATION Date
~~DISTRICT~~ SERVICE

THIS PLAN FOR SMALL POND CONSTRUCTION MEETS THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

APPROVED: Robert W. Zeller 12/2/78
HOWARD S.C.D. Date

PLAN NUMBER

DEPARTMENT OF PUBLIC WORKS
W O Talbert 12-29-78
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING AND ZONING
John W. Mueschman 12/28/78
CHIEF, DIVISION OF LAND DEVELOPMENT

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
STORM WATER MANAGEMENT
POND NO.3 AND POND NO.4
DETAILS AND SPECIFICATIONS

SCALE: As Shown DATE:

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21202

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

#445

F-79-44c

11/31/78 SHEET 37 OF 37