

BY THE DEVELOPER:  
 I certify that all development and/or construction will be done according to this plan of development and for Erosion and Sediment Control, and also authorize periodic on-site inspection by the Ho. Co. S.C.D. or other authorized agents as are deemed appropriate. Deviations from this plan will not be made unless authorized by Ho. Co. S.C.D.

*Walter J. [Signature]* 6/4/78 Date  
 Signature Date

APPROVED:  
 FOR SOIL EROSION AND SEDIMENT CONTROL  
 HOWARD SOIL CONSERVATION DISTRICT

*Wes Earp* 10-5-78 DATE  
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED:  
 REVIEWED FOR AND MEETS TECHNICAL  
 REQUIREMENTS

*Walter J. [Signature]* 10-5-78 DATE  
 U.S. SOIL CONSERVATION SERVICE

AS-BUILT SURVEY:  
 8-13-79 VERIFIED  
 BY MALCOLM HARRISON  
 REG. MD. LAND SURVEYOR  
 OR NO. 9075

APPROVED:  
 Howard County Office of Planning and Zoning  
*Shirley [Signature]* 10-3-78 Date  
 Chief, Div. of Land Development

APPROVED:  
 Howard County Dept. of Public Works  
*W. J. [Signature]* 10-5-78 Date  
 Chief, Bureau of Engineering

**ROAD PROFILES & CUL-DE-SAC PLAN**  
 VILLAGE OF OAKLAND MILLS  
 SECTION 3 AREA 1  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**HOWARD RESEARCH & DEVEL.**  
 COLUMBIA, MD.

**Richard P. Browne Associates**  
 professional design & planning consultants  
 wayne, new jersey . columbia, maryland

DRAWN *E.B.* CHKD. *F.V.* SHEET *1* OF *5*

SCALE AS SHOWN DATE *2/21/77* PROJECT NO. *4244*

10-4-78	3	Add Sewer Constr.
5-15-78	2	Revised Outfall at 60" Pipe
3-7-78	1	Realigned 60" Pipe Outfall
Rev. Date	Rev. No.	Revision Description

<b>RICHARD P. BROWNE ASSOCIATES</b>	<b>ENGINEERS PLANNERS ARCHITECTS</b>
Columbia, Maryland	Wayne, New Jersey

<b>TWIN KNOLLS ROAD PLAN AND PROFILE</b>	
VILLAGE OF OAKLAND MILLS SECT. 3 AREA 1	
4th Election District Howard County, Md.	
Des. By E.C., P.V.	Scale As Shown
Drn. By B.M., M.K.	Date 1-11-74
Chk. By P.V.	Approved
Proj. No. 4247	Dwg. No. 2 of 5

APPROVED:  
FOR SOIL EROSION AND SEDIMENT CONTROL  
HOWARD SOIL CONSERVATION DISTRICT

*Wes Farr*  
HOWARD SOIL CONSERVATION DISTRICT  
DATE 10-3-78

APPROVED:  
REVIEWED FOR AND MEETS TECHNICAL REQUIREMENTS

*Wendell Rundle* per PR  
U.S. SOIL CONSERVATION SERVICE  
DATE 10-3-78

**CURVE DATA**

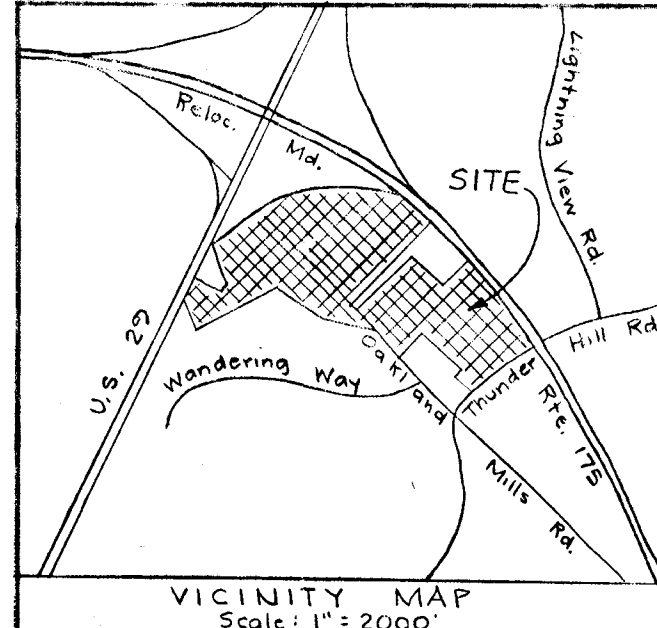
$\Delta = 52^{\circ} 38' 28''$   
 $R = 190.00$   
 $L = 174.56$   
 $T = 93.99$   
 $Ch. = 168.49$   
 $L.C.B. = N54^{\circ} 38' 24'' W$

**CURVE DATA**

$\Delta = 76^{\circ} 47' 25''$   
 $R = 380.00$   
 $L = 509.51$   
 $T = 301.31$   
 $Ch. = 472.19$   
 $L.C.B. = N 60^{\circ} 37' 34'' W$

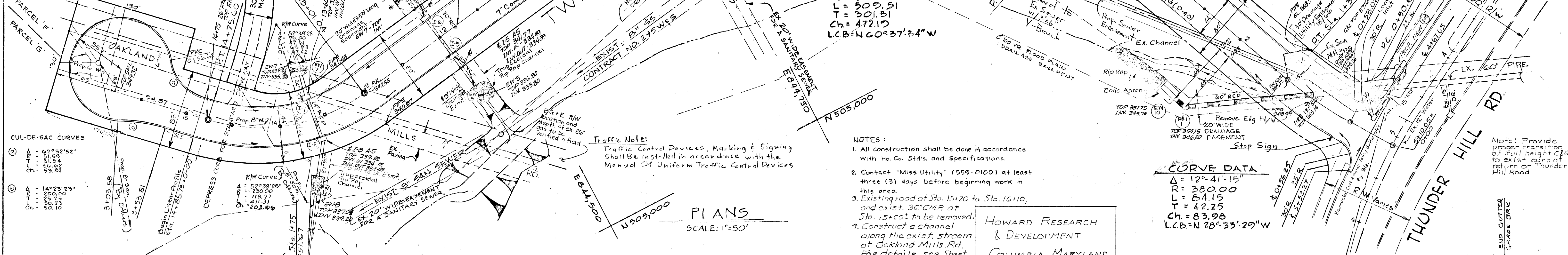
**CURVE DATA**

$\Delta = 12^{\circ} 41' 15''$   
 $R = 380.00$   
 $L = 84.15$   
 $T = 42.25$   
 $Ch. = 83.98$   
 $L.C.B. = N 28^{\circ} 33' 29'' W$



APPROVED:  
Howard County Office of Planning and Zoning  
10-2-78

APPROVED:  
Howard County Department of Public Works  
10-5-78



**CUL-DE-SAC CURVES**

①	$\Delta = 52^{\circ} 38' 28''$
②	$\Delta = 76^{\circ} 47' 25''$
③	$\Delta = 12^{\circ} 41' 15''$

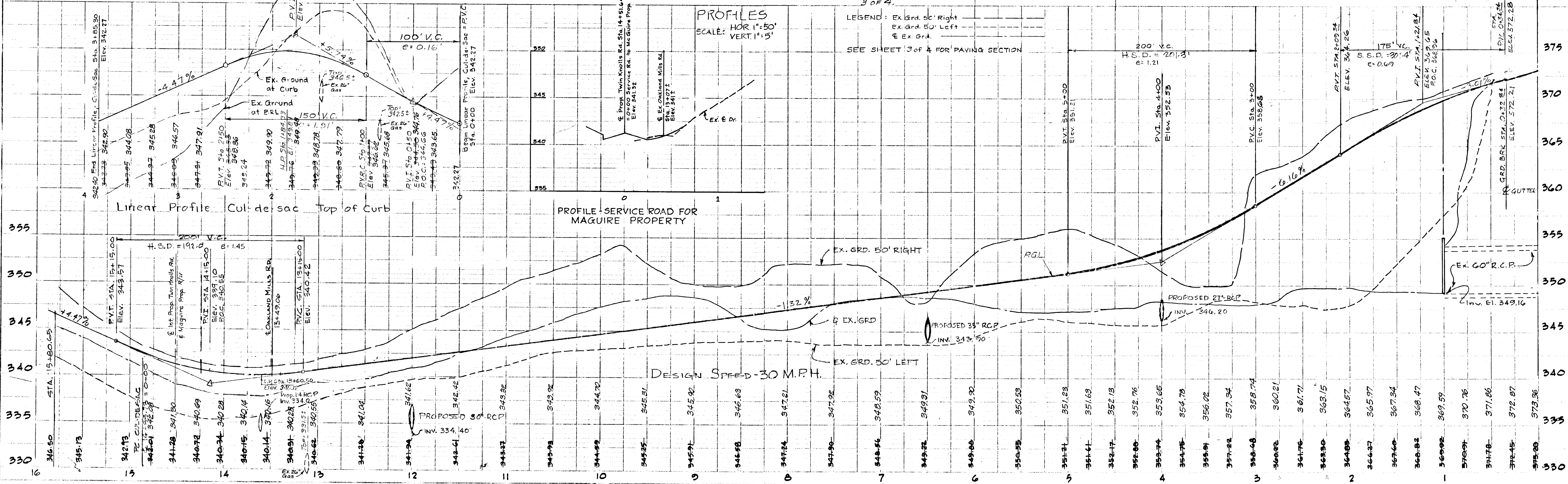
**NOTES:**

- All construction shall be done in accordance with Ho. Co. Specs. and Specifications.
- Contact 'Miss Utility' (559-0100) at least three (3) days before beginning work in this area.
- Existing road at Sta. 15+20 to Sta. 16+10, and exist. 36" CMP at Sta. 15+00 to be removed.
- Construct a channel along the exist. stream at Oakland Mills Rd. For details, see Sheet 3 of 4.

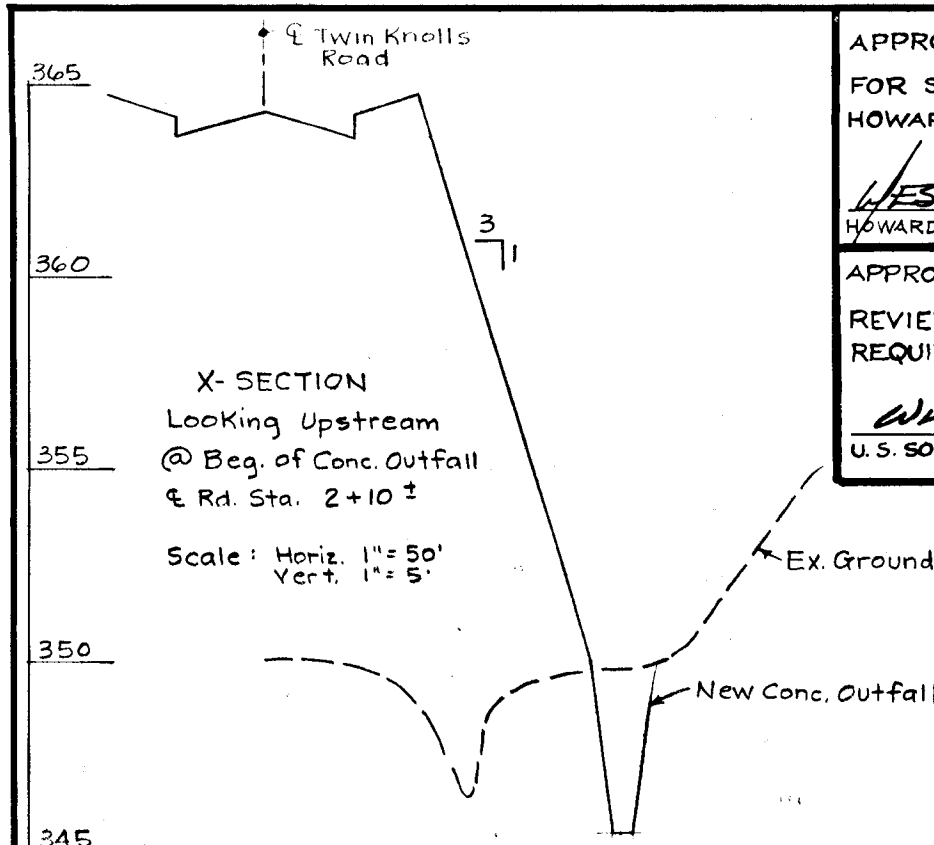
HOWARD RESEARCH & DEVELOPMENT  
COLUMBIA, MARYLAND

**PLANS**  
SCALE: 1"=50'

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



#89  
Sec. 3, Area 1



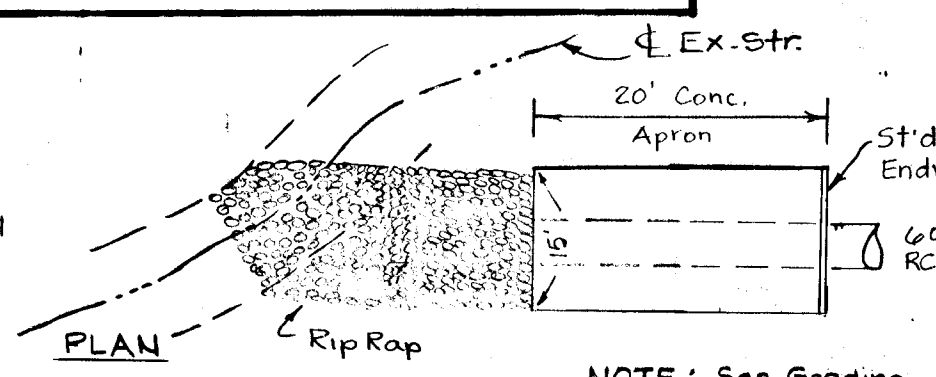
APPROVED:  
FOR SOIL EROSION AND SEDIMENT CONTROL  
HOWARD COUNTY SOIL CONSERVATION DISTRICT

*HES F.R.P.*  
10-3-78  
DATE

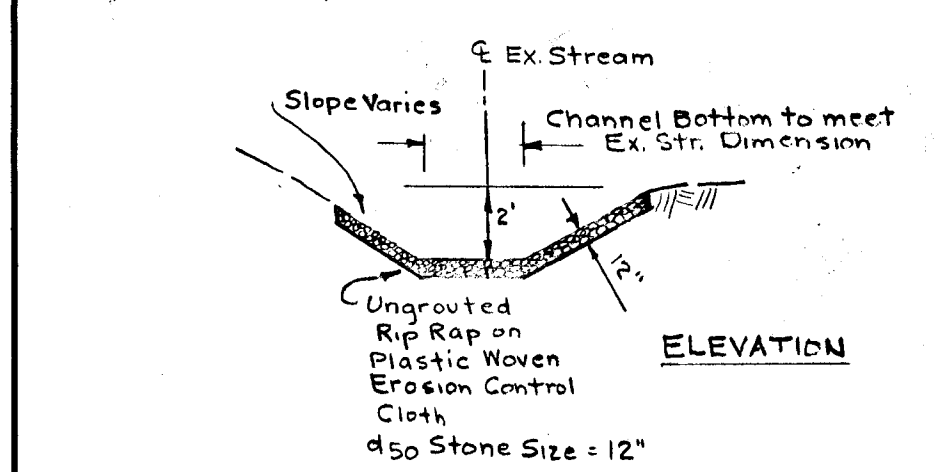
APPROVED:  
REVIEWED FOR AND MEETS TECHNICAL  
REQUIREMENTS

*Winston B. Smith*  
11/1/78  
DATE

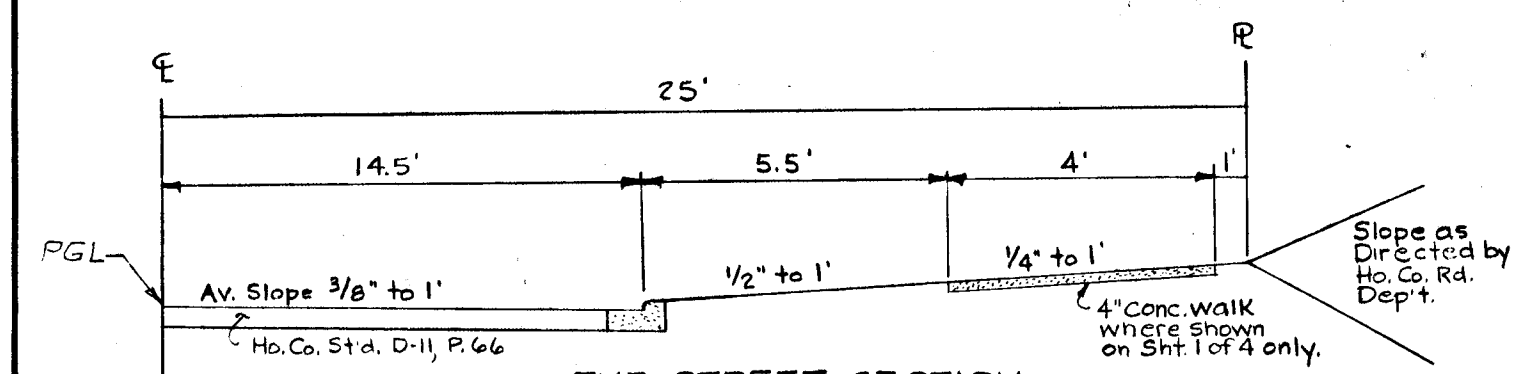
U.S. SOIL CONSERVATION SERVICE



NOTE: See Grading and Sediment Control Plan for grading in this area.



DETAIL - STREAM STABILIZATION (No Scale)

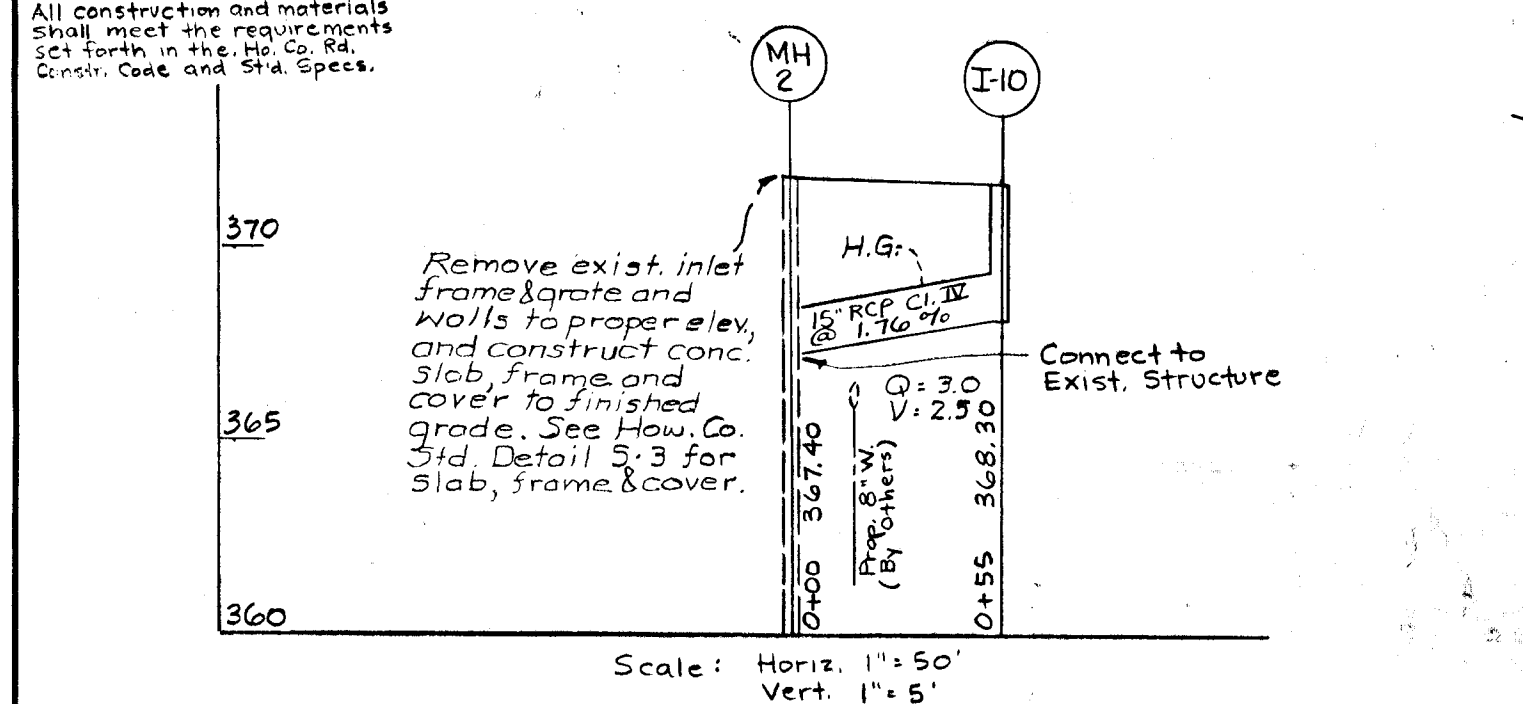


TYP STREET SECTION Ho. Co. Sta. D-11, P.66

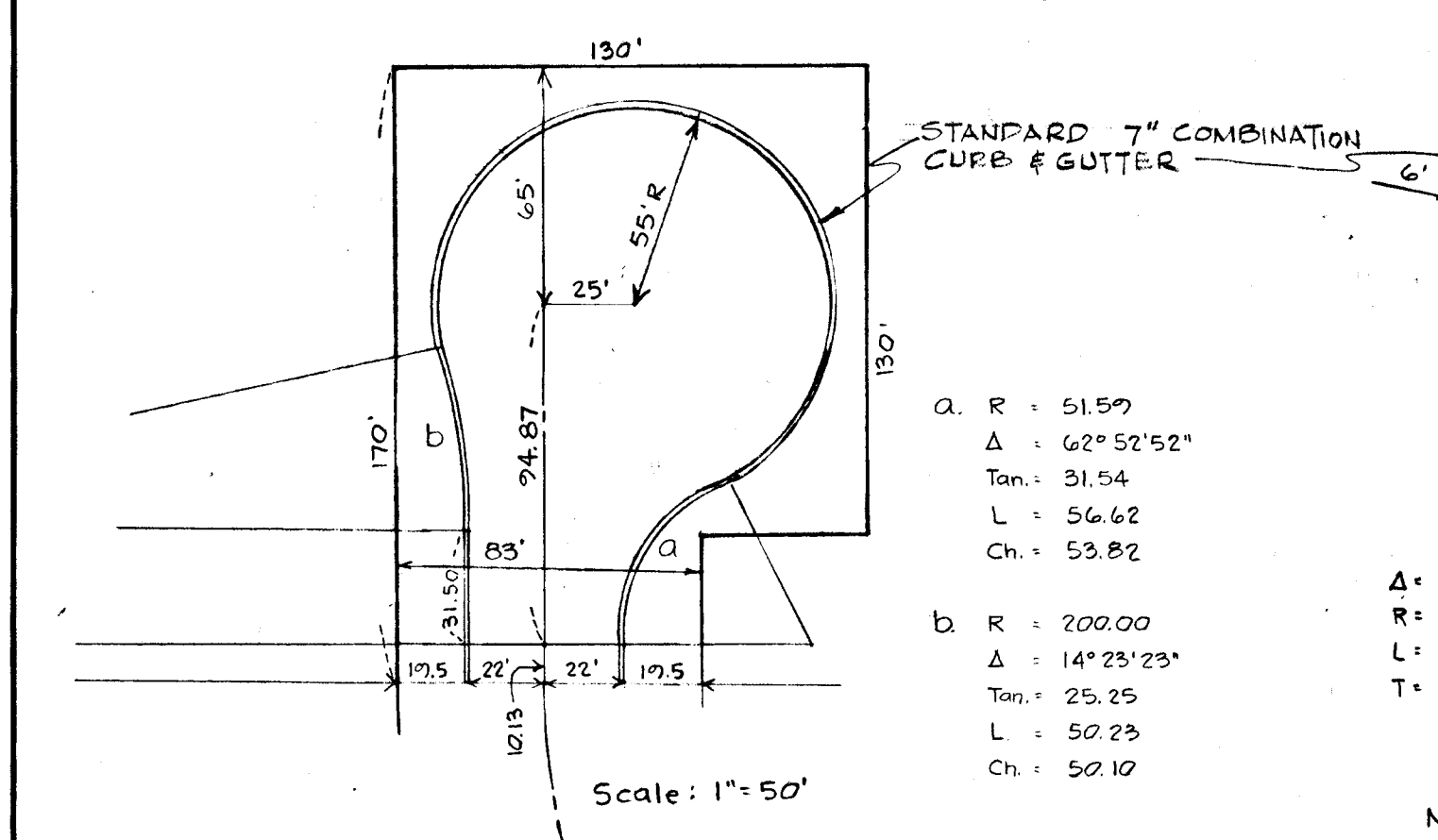
Base will be primed in accordance with Sect. C-30.3 as provided in the Ho. Co. Rd. Constr. Code and Std. Specs.

Tack Coat is req'd. in accordance with Sect. C-31.4 of the Ho. Co. Rd. Constr. Code and Std. Specs.

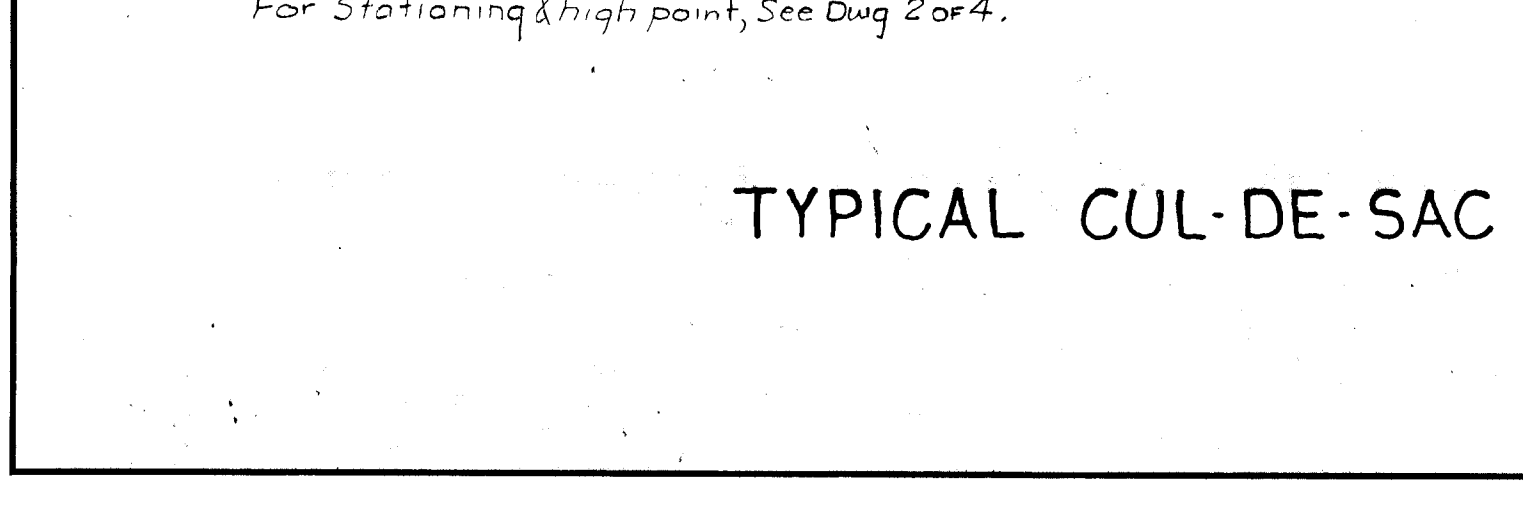
All construction and materials shall meet the requirements set forth in the Ho. Co. Rd. Constr. Code and Std. Specs.



TYP STREET SECTION Ho. Co. Sta. D-18, P.73

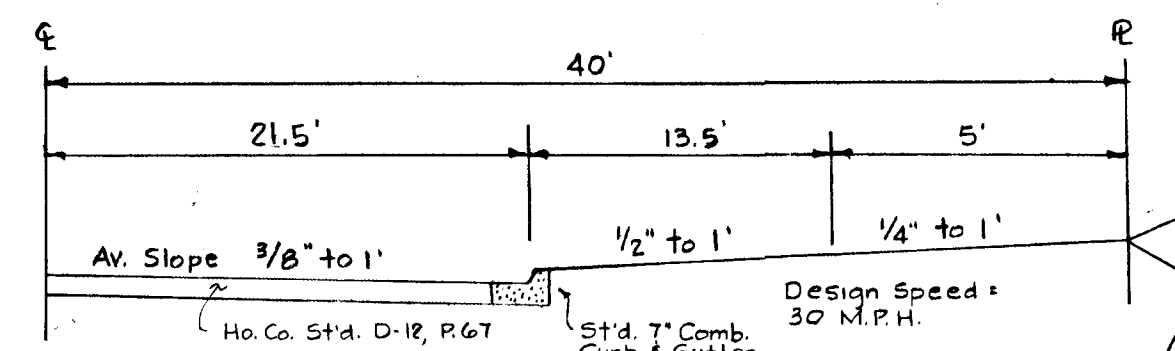


CUL-DE-SAC AT TWIN KNOLLS ROAD For Stationing & High Point, See Dwg. 2 of 4.

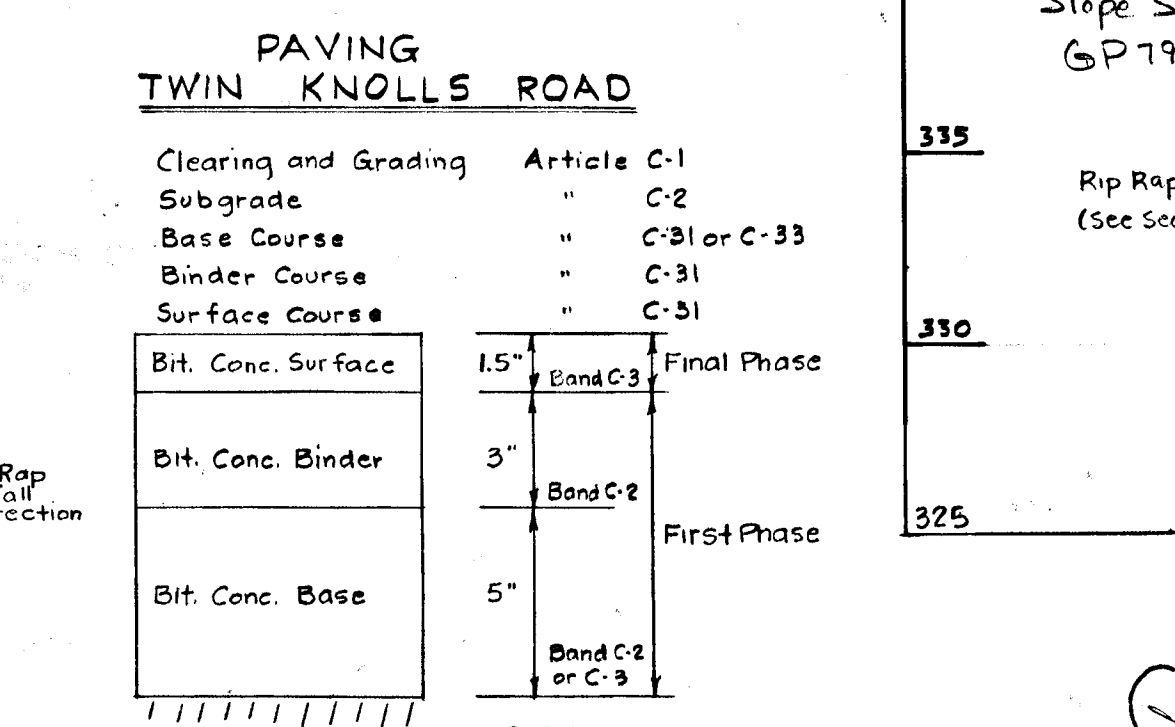


CUL-DE-SAC AT OAKLAND MILLS ROAD For Stationing & Low Point, See Dwg. 1 of 4.

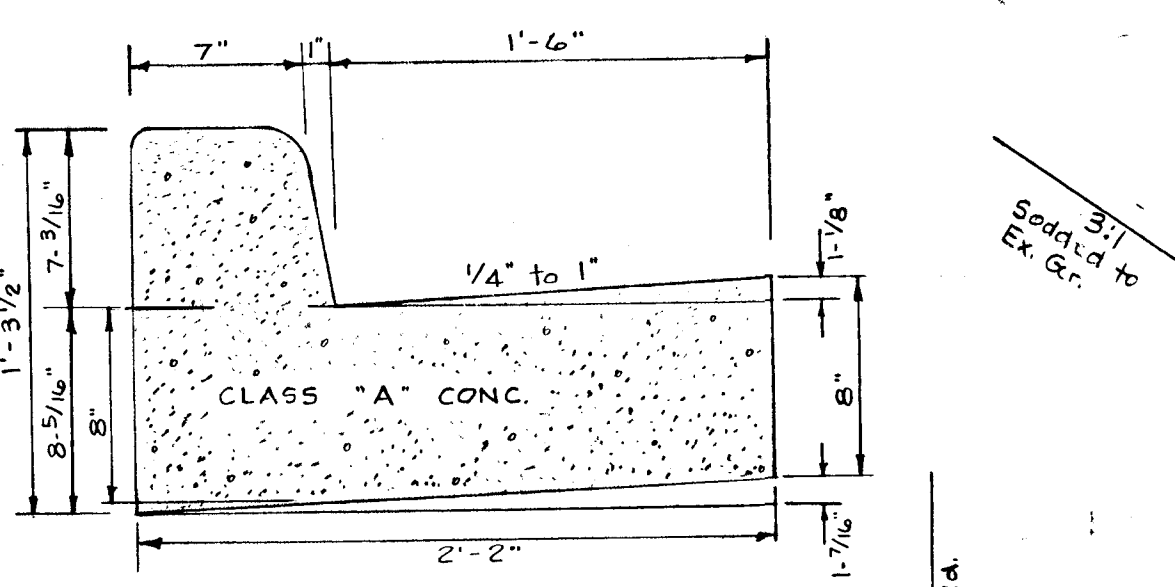
TYPICAL CUL-DE-SAC DETAILS



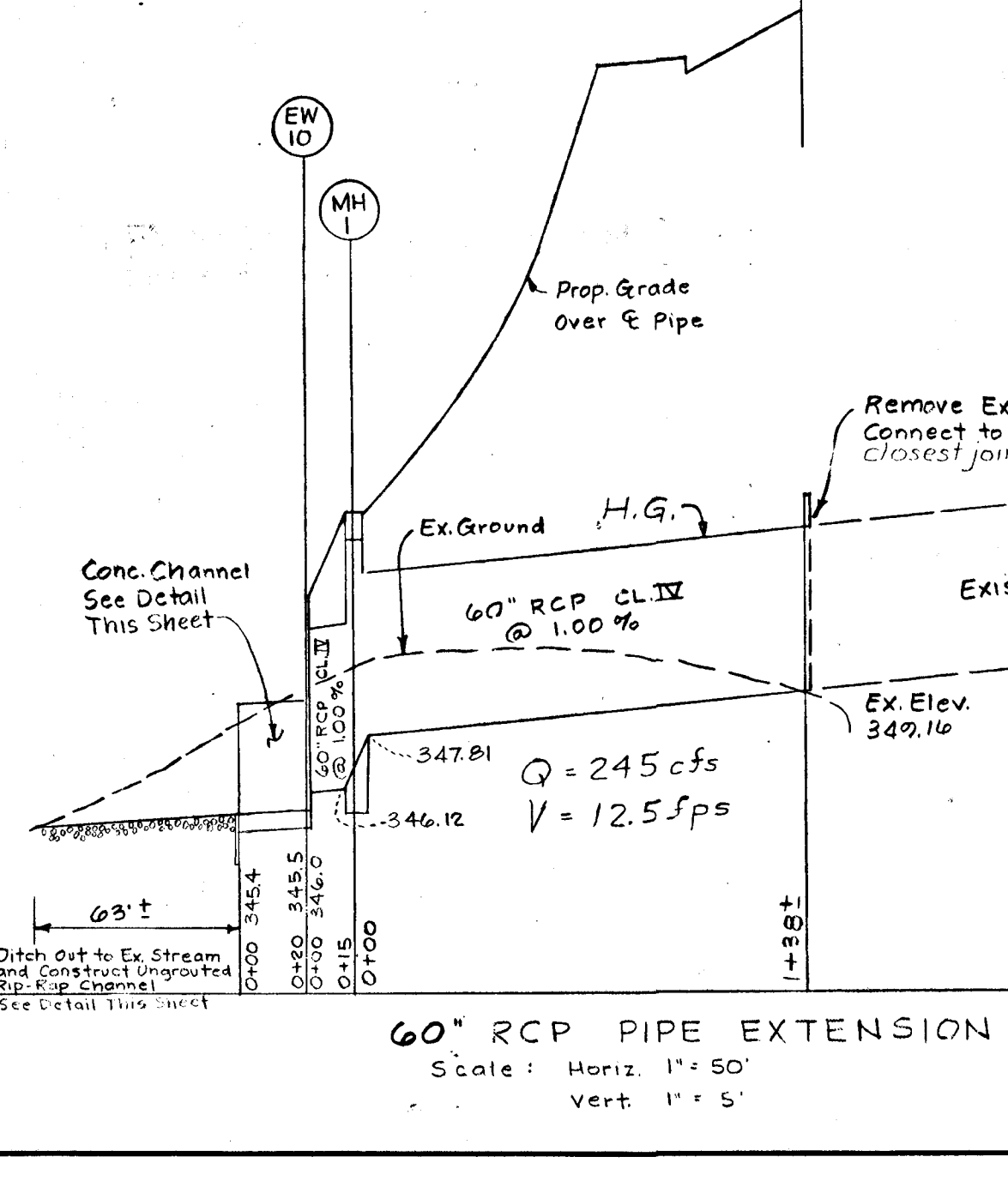
TYP STREET SECTION Ho. Co. Sta. D-19, P.74 TWIN KNOLLS ROAD - Sta. 0+00 to Sta. 14+85.73 (no scale) NT: Commercial



- Base will be primed in accordance with Section C-30.3 as provided in the Howard County Road Construction Code and Standard Specifications.
- Tack Coat is required in accordance with Section C-31.4 of the Howard County Road Construction Code and Standard Specifications.
- All construction and materials shall meet the requirements set forth in the Ho. Co. Rd. constr. Code and Std. Specs.



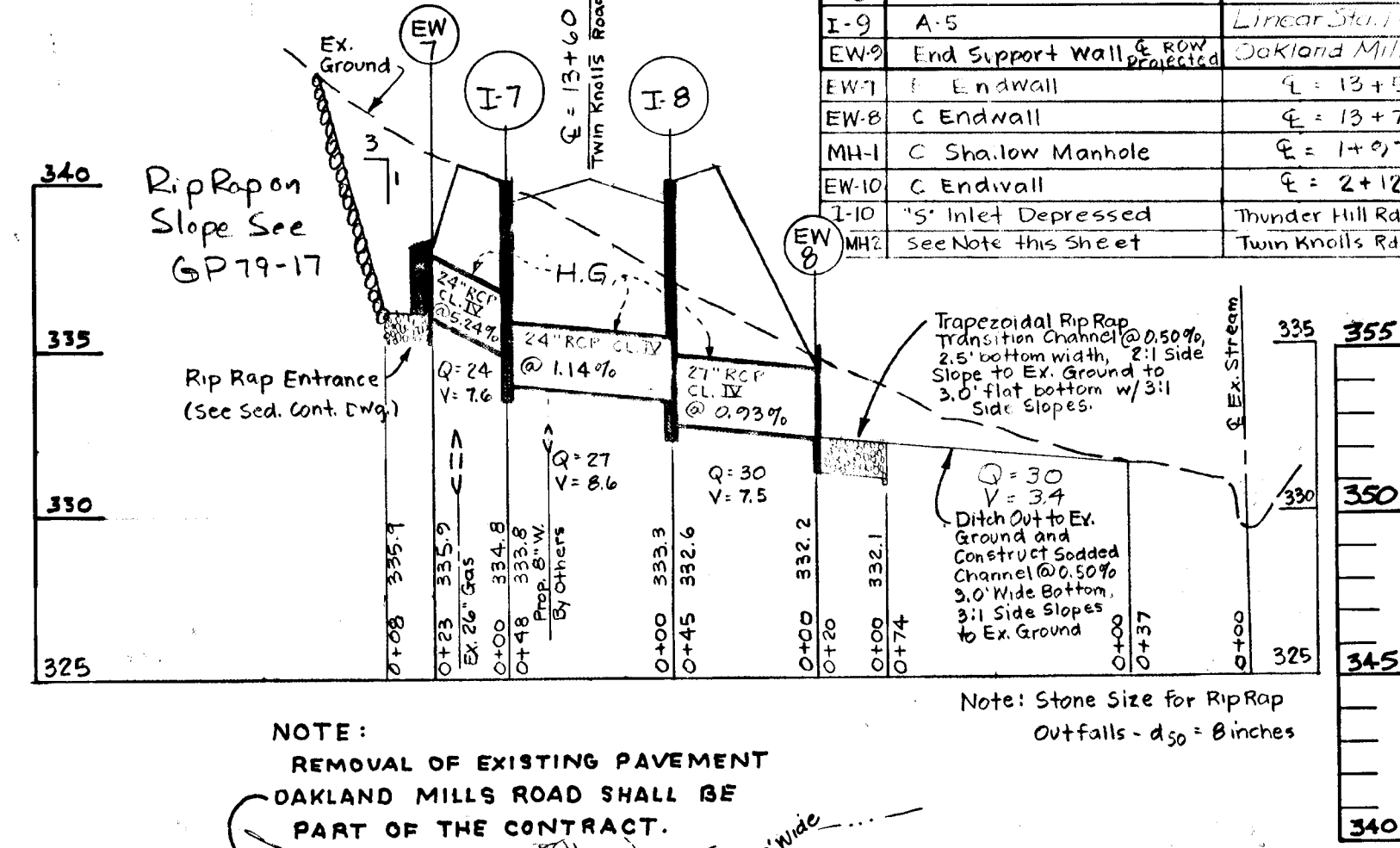
ST'D. 7" COMBINATION CURB & GUTTER Ho. Co. Sta. D-40, P.95



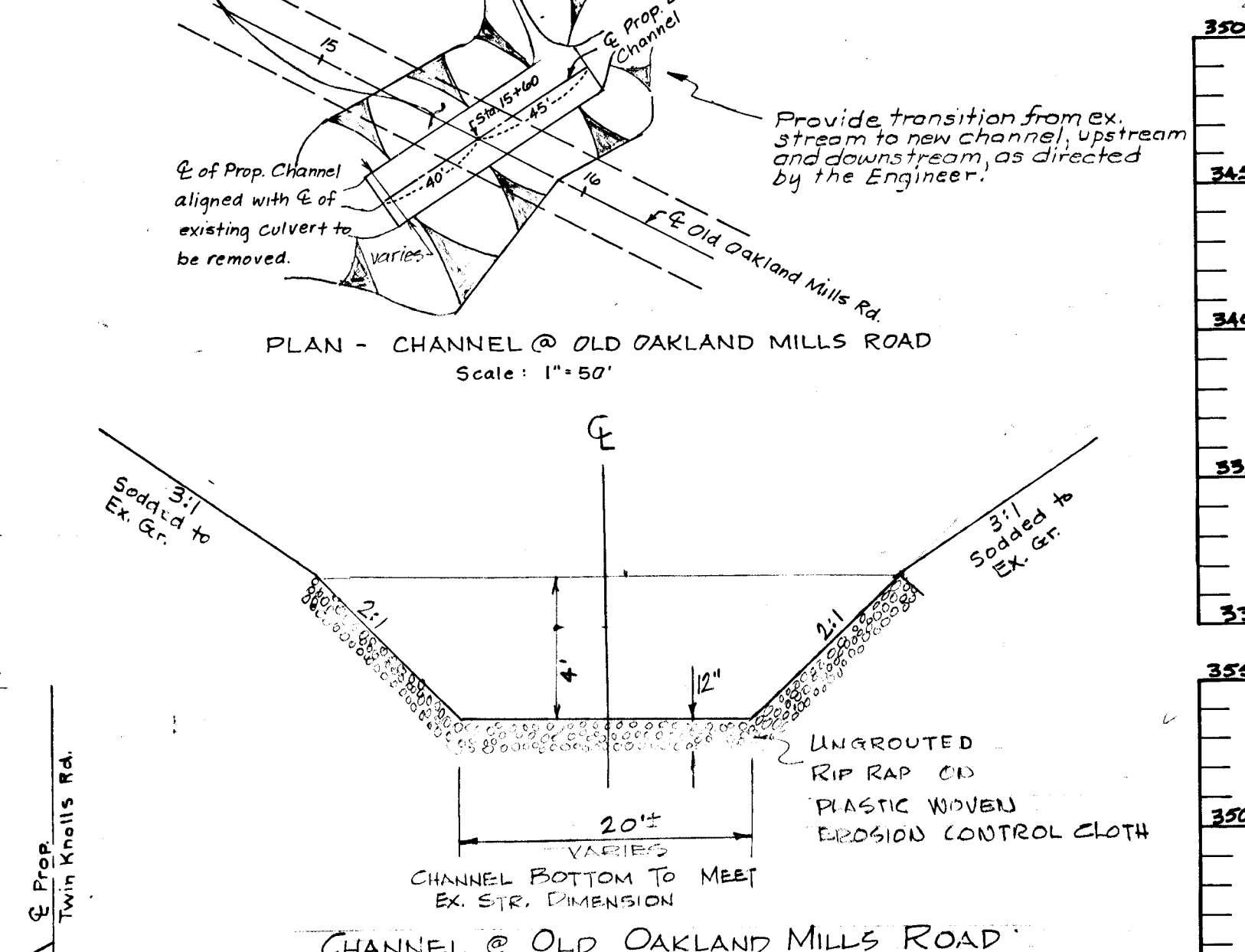
60" RCP PIPE EXTENSION Scale: Horiz. 1"=50', Vert. 1"=5'

STORM DRAIN STRUCTURE SCHEDULE

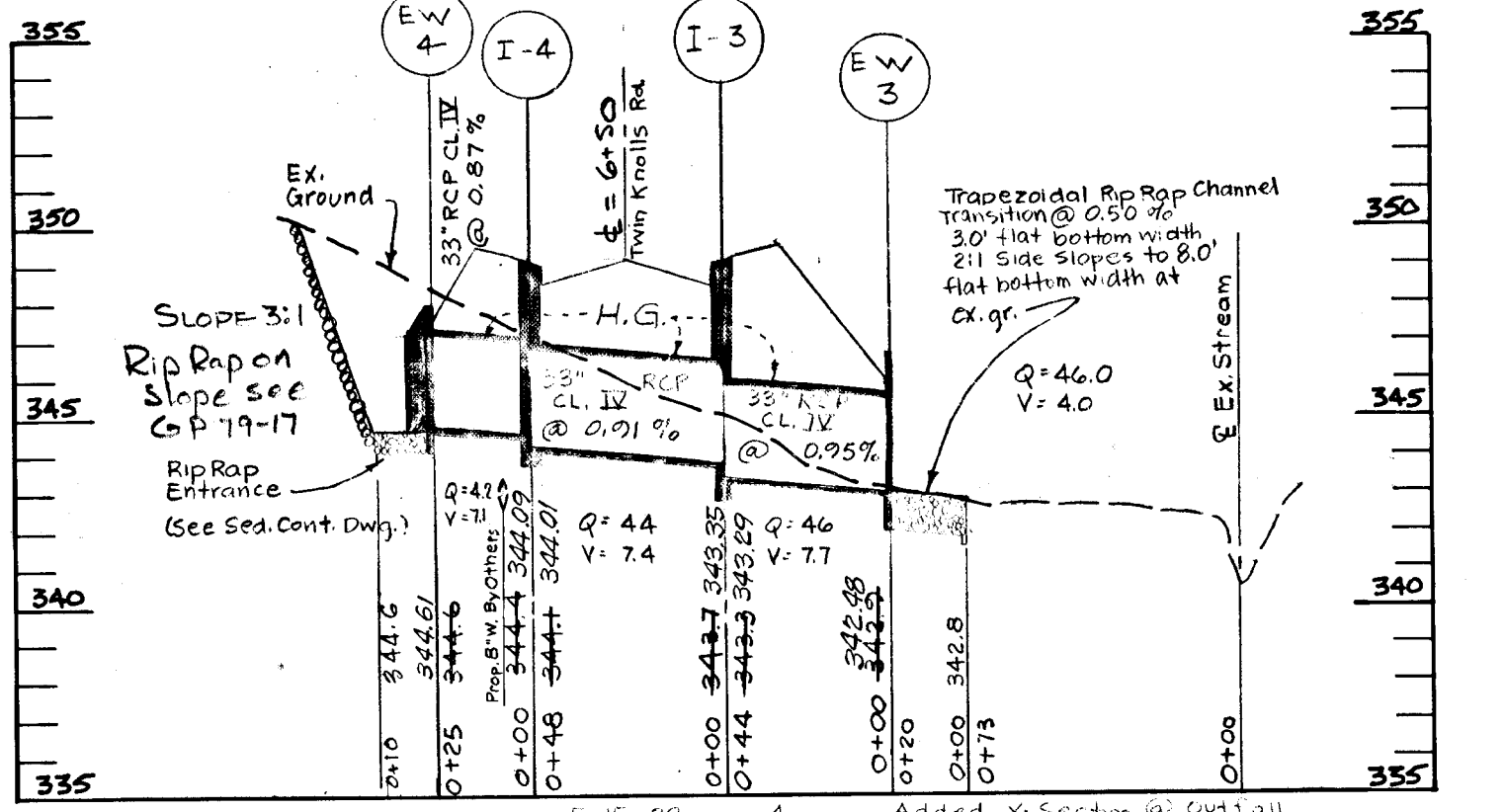
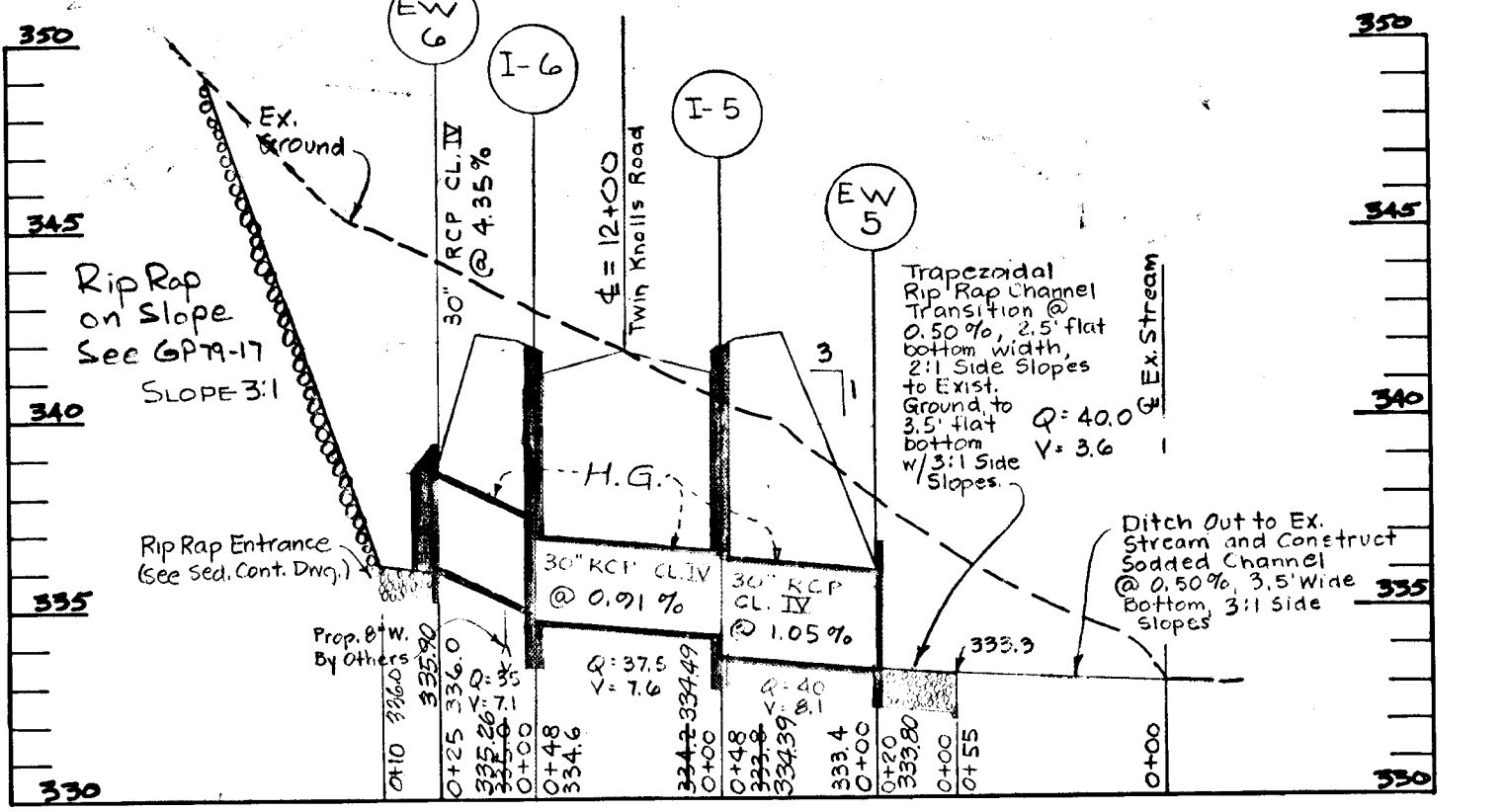
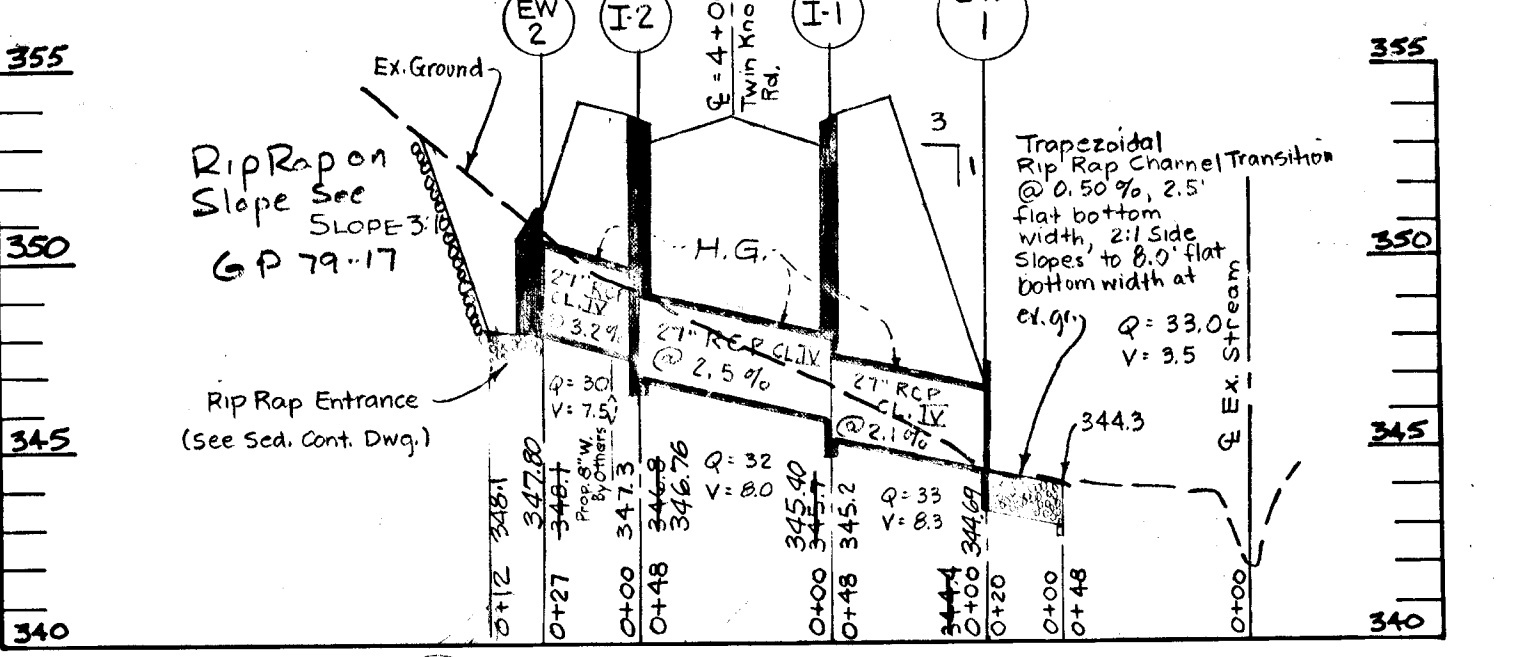
NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	REMARKS
I-1	A-5 w/Defl.	€ = 4+00 LT.	345.70	345.20	345.20	Base Sta. 1+04.113A
EW-1	C Endwall	" " 65' LT.	344.40	344.40	347.40	" D-52 P.107
I-2	A-5 w/Defl.	" " RT.	347.30	346.80	347.30	" D-64A P.119A
EW-2	F Endwall	" " 50' RT.	348.10	348.10	351.20	" D-56 P.118
I-3	A-5 w/Defl.	€ = 6+50 LT.	343.70	343.30	349.13	" D-64A P.119A
EW-3	C Endwall	" " 60' LT.	344.40	344.40	346.90	" D-52 P.107
I-4	A-5 w/Defl.	" " RT.	344.40	344.10	349.13	" D-64A P.119A
EW-4	F Endwall	" " 51' RT.	344.60	344.60	348.18	" D-56 P.118
I-5	A-5 w/Defl.	€ = 12+00 LT.	334.20	333.80	341.85	" D-64A P.119A
EW-5	C Endwall	" " 65' LT.	333.40	333.40	336.90	" D-52 P.107
I-6	A-5 w/Defl.	" " RT.	335.00	334.60	341.85	" D-64A P.119A
EW-6	F Endwall	" " 50' RT.	336.00	336.00	339.40	" D-56 P.118
I-7	A-5	€ = 13+60 LT.	334.80	333.80	341.05	" D-64A P.119A
I-8	A-5	" " RT.	333.30	332.6	340.05	" " "
I-9	A-5	€ = 14+50 LT.	331.50	331.50	337.15	" " "
EW-9	End Support Wall	Dakland Mills Rd Sta. 16+19.11 LT	---	332.2	332.2	" D-46 P.101
EW-7	F Endwall	€ = 13+55 49' RT	335.90	335.90	338.65	" " "
EW-8	C Endwall	€ = 13+75 62' LT.	---	332.20	335.20	" D-52 P.107
MH-10	C Shallow Manhole	€ = 1+97 93' LT.	347.81	346.12	354.80	" Fig. 3.03
EW-11	C Endwall	€ = 2+12 94' LT.	345.50	345.50	352.20	" D-52 P.107
I-10	S' Inlet Depressed	Thunder Hill Rd € Sta. 4+43 RT.	368.30	368.30	371.80	" D-78 P.153
MH-12	See Note this Sheet	Twin Knolls Rd € Sta. 0+31-10 RT.	367.40	---	---	" " "



NOTE: REMOVAL OF EXISTING PAVEMENT OAKLAND MILLS ROAD SHALL BE PART OF THE CONTRACT.



CHANNEL @ OLD OAKLAND MILLS ROAD (No Scale)



AS-BUILT SURVEY: 8-13-79  
VERIFIED BY MALCOLM HUDKINS, MD. REG. LAND SURVEYOR NO. 5095

APPROVED:  
Howard County Office of Planning and Zoning  
*W.O. Albert* 10-5-78  
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED:  
Howard County Department of Public Works.  
*John W. Murchison* 10-3-78  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Rev Date	Rev No.	Revision Description
10-23-77	1	ADDED CHANNEL TO OAKLAND MILLS RD
7-23-77	2	ADDED CHANNEL TO OAKLAND MILLS RD
12-1-77	3	ADDED CHANNEL TO OAKLAND MILLS RD
3-7-78	4	ADDED CHANNEL TO OAKLAND MILLS RD
10-4-78	5	ADD RIP RAP

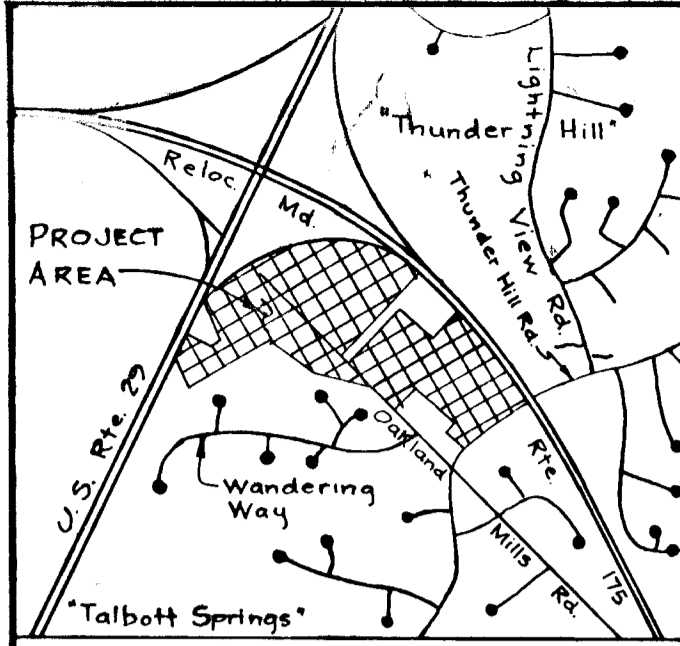
**RICHARD P. BROWNE ASSOCIATES**  
ENGINEERS SURVEYORS PLANNERS ARCHITECTS  
COLUMBIA, MD. WAYNE, N. J.

**DETAIL SHEET**  
VILLAGE OF OAKLAND MILLS THUNDER HILL AREA I  
6th Election District Howard County, Maryland

Des. By E.C., RV. Scale (as shown) Dwg. No. 3 of 5  
Dwn. By D.J. & B.M. Date 1-11-74 Proj. No. 4249  
Chk. By T.V. Approved



*Harlan E. Vandendael* 7/20/78  
Harlan E. Vandendael 7/20/78



NOTE:  
THE LOTS OR PARCELS SHOWN ON THIS PLAN ARE SUBJECT TO THE SUPPLEMENTAL SEWER-IN-AID-OF-CONSTRUCTION CHARGE CREATED BY SEC. 20.31A OF THE HOWARD COUNTY CODE AND TO EXECUTIVE ORDER NO. 72-9.

OPEN SPACE LOTS 36 and 56, 4/1 Decided to C.A. 7-10-71, Plat Recorded 8-6-69

VICINITY MAP  
Scale 1" = 2000'

Manhole	Invert Elev.	Top Elev.
3494	345.50	351.71
3495	345.50	351.70
3496	345.50	351.70
3497	345.50	351.70
3498	345.50	351.70
3499	345.50	351.70
3500	345.50	351.70
3501	345.50	351.70
3502	345.50	351.70
3503	345.50	351.70
3504	345.50	351.70
3505	345.50	351.70
3506	345.50	351.70
3507	345.50	351.70
3508	345.50	351.70
3509	345.50	351.70
3510	345.50	351.70

APPROVED:  
FOR SOIL EROSION AND SEDIMENT CONTROL  
HOWARD SOIL CONSERVATION DISTRICT

*WES EARP* 10-5-78  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED:  
REVIEWED FOR AND MEETS TECHNICAL REQUIREMENTS

*Wendell Boudette* 10/5/78  
U.S. SOIL CONSERVATION SERVICE DATE

- GENERAL NOTES:
- ZONING - NEW TOWN
  - TOPOGRAPHY TAKEN FROM MAPS SUPPLIED BY THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION.
  - PUBLIC WATER AND SEWER SYSTEMS TO BE MADE AVAILABLE AND UTILIZED.
  - ALL BUILDING RESTRICTION LINES SHALL CONFORM TO THE FINAL DEVELOPMENT PLAN CRITERIA, PHASE FORTY THREE.
  - EROSION CONTROL MEASURES TO BE SUBMITTED WITH FINAL SUBMISSION.
  - DESIGN SPEED-TWIN KNOLLS ROAD = 30 MPH.

SYMBOLS:

Existing: \_\_\_\_\_

WATER: \_\_\_\_\_

STORM DRAINS: \_\_\_\_\_

JANITARY SEWERS: \_\_\_\_\_

GAS MAINS: \_\_\_\_\_

CONTOURS: 300

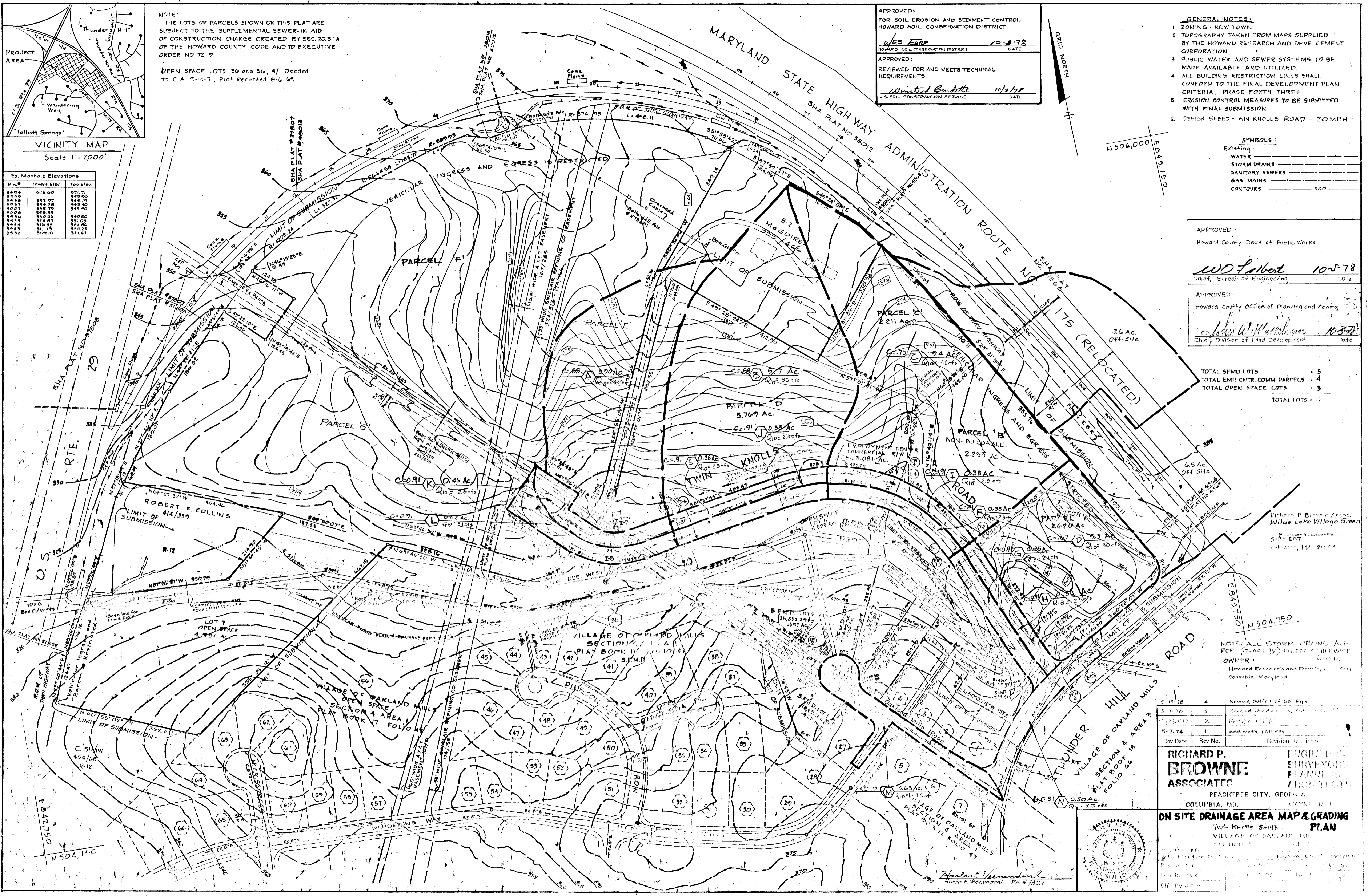
APPROVED:  
Howard County Dept. of Public Works

*W.O. Lambert* 10-5-78  
Chief, Bureau of Engineering Date

APPROVED:  
Howard County Office of Planning and Zoning

*John W. Williams* 10-5-78  
Chief, Division of Land Development Date

TOTAL SFMD LOTS . . . 5  
TOTAL EMP CNTR. COMM. PARCELS . . . 4  
TOTAL OPEN SPACE LOTS . . . 3  
TOTAL LOTS . . . 12



Richard B. Browne Assoc.  
Wild Lake Village Green  
Site 167  
Robert L. McDaniel

NOTE: ALL STORM DRAINS ARE RCP (FLAS 30) UNLESS OTHERWISE NOTED.

OWNER:  
Howard Research and Development, Inc.  
Columbia, Maryland

Rev. No.	Rev. Date	Revision Description
1	5-15-78	Revised Outfall of 60" Pipe
2	5-7-78	Revised Dashed Lines, Add to 10'
3	5-7-78	Revised
4	5-7-74	add work, pathway

**RICHARD P. BROWNE ASSOCIATES**  
ENGINEERS SURVEYORS PLANNERS ARCHITECTS

PEACHTREE CITY, GEORGIA  
COLUMBIA, MD. WAYNE, N.C.

**ON SITE DRAINAGE AREA MAP & GRADING PLAN**

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 3 PLAT BOOK 18 AREA 3 FOLIO 66

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 4 AREA 3 PLAT BOOK 18 AREA 3 FOLIO 67

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 5 PLAT BOOK 18 AREA 3 FOLIO 68

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 6 PLAT BOOK 18 AREA 3 FOLIO 69

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 7 PLAT BOOK 18 AREA 3 FOLIO 70

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 8 PLAT BOOK 18 AREA 3 FOLIO 71

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 9 PLAT BOOK 18 AREA 3 FOLIO 72

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 10 PLAT BOOK 18 AREA 3 FOLIO 73

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 11 PLAT BOOK 18 AREA 3 FOLIO 74

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 12 PLAT BOOK 18 AREA 3 FOLIO 75

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 13 PLAT BOOK 18 AREA 3 FOLIO 76

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 14 PLAT BOOK 18 AREA 3 FOLIO 77

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 15 PLAT BOOK 18 AREA 3 FOLIO 78

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 16 PLAT BOOK 18 AREA 3 FOLIO 79

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 17 PLAT BOOK 18 AREA 3 FOLIO 80

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 18 PLAT BOOK 18 AREA 3 FOLIO 81

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 19 PLAT BOOK 18 AREA 3 FOLIO 82

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 20 PLAT BOOK 18 AREA 3 FOLIO 83

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 21 PLAT BOOK 18 AREA 3 FOLIO 84

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 22 PLAT BOOK 18 AREA 3 FOLIO 85

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 23 PLAT BOOK 18 AREA 3 FOLIO 86

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 24 PLAT BOOK 18 AREA 3 FOLIO 87

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 25 PLAT BOOK 18 AREA 3 FOLIO 88

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 26 PLAT BOOK 18 AREA 3 FOLIO 89

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 27 PLAT BOOK 18 AREA 3 FOLIO 90

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 28 PLAT BOOK 18 AREA 3 FOLIO 91

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 29 PLAT BOOK 18 AREA 3 FOLIO 92

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 30 PLAT BOOK 18 AREA 3 FOLIO 93

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 31 PLAT BOOK 18 AREA 3 FOLIO 94

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 32 PLAT BOOK 18 AREA 3 FOLIO 95

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 33 PLAT BOOK 18 AREA 3 FOLIO 96

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 34 PLAT BOOK 18 AREA 3 FOLIO 97

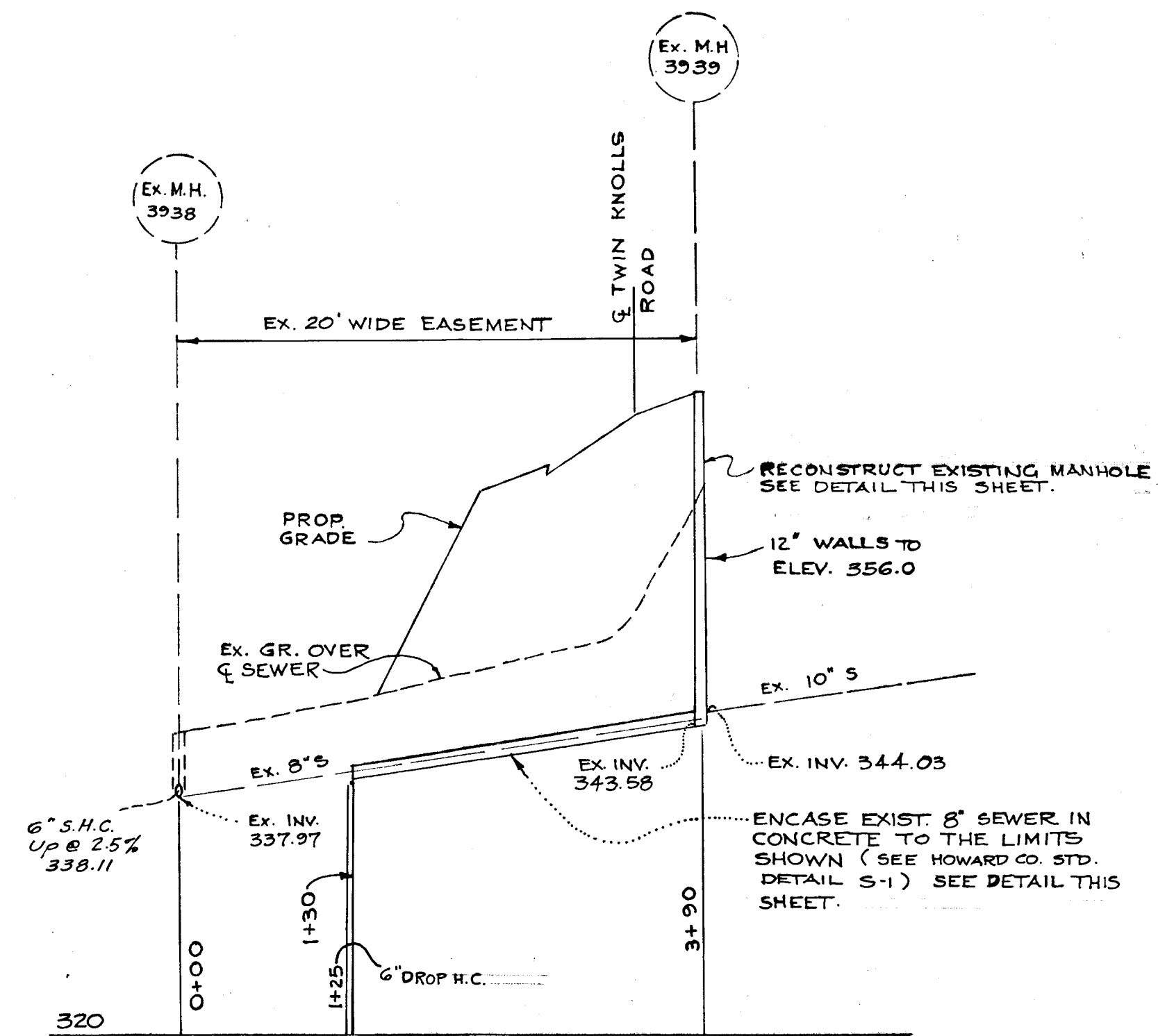
THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 35 PLAT BOOK 18 AREA 3 FOLIO 98

THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 36 PLAT BOOK 18 AREA 3 FOLIO 99

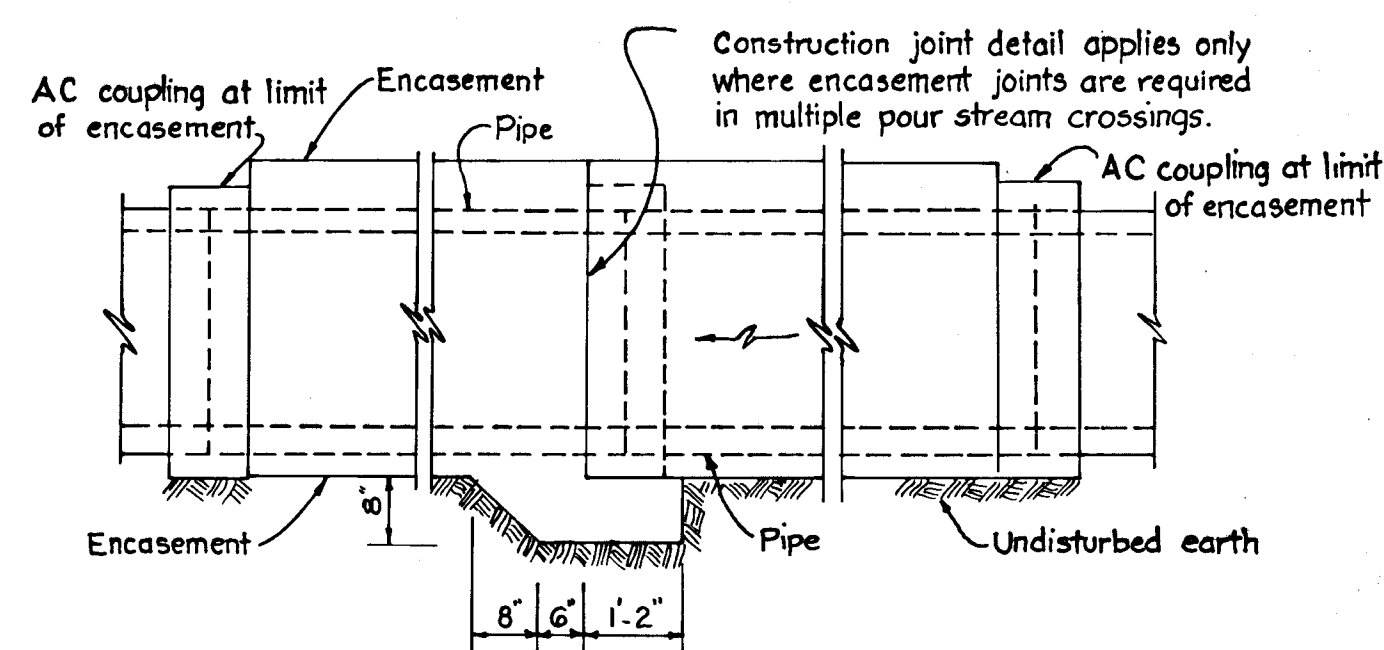
THUNDER HILL VILLAGE OF OAKLAND MILLS SECTION 37 PLAT BOOK 18 AREA 3 FOLIO 100



*Harlan E. Wehndael*  
Harlan E. Wehndael P.E. # 7327

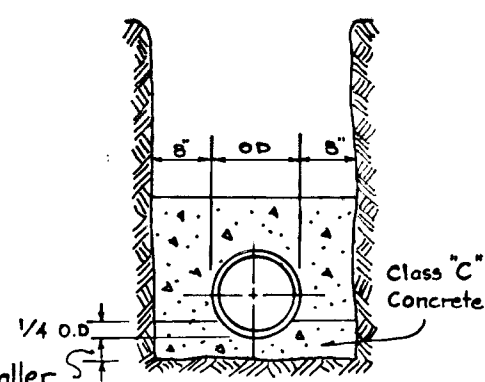


**PROFILE SEWER MAIN**  
SCALE: VERT: 1"=10'  
HOR: 1"=100'



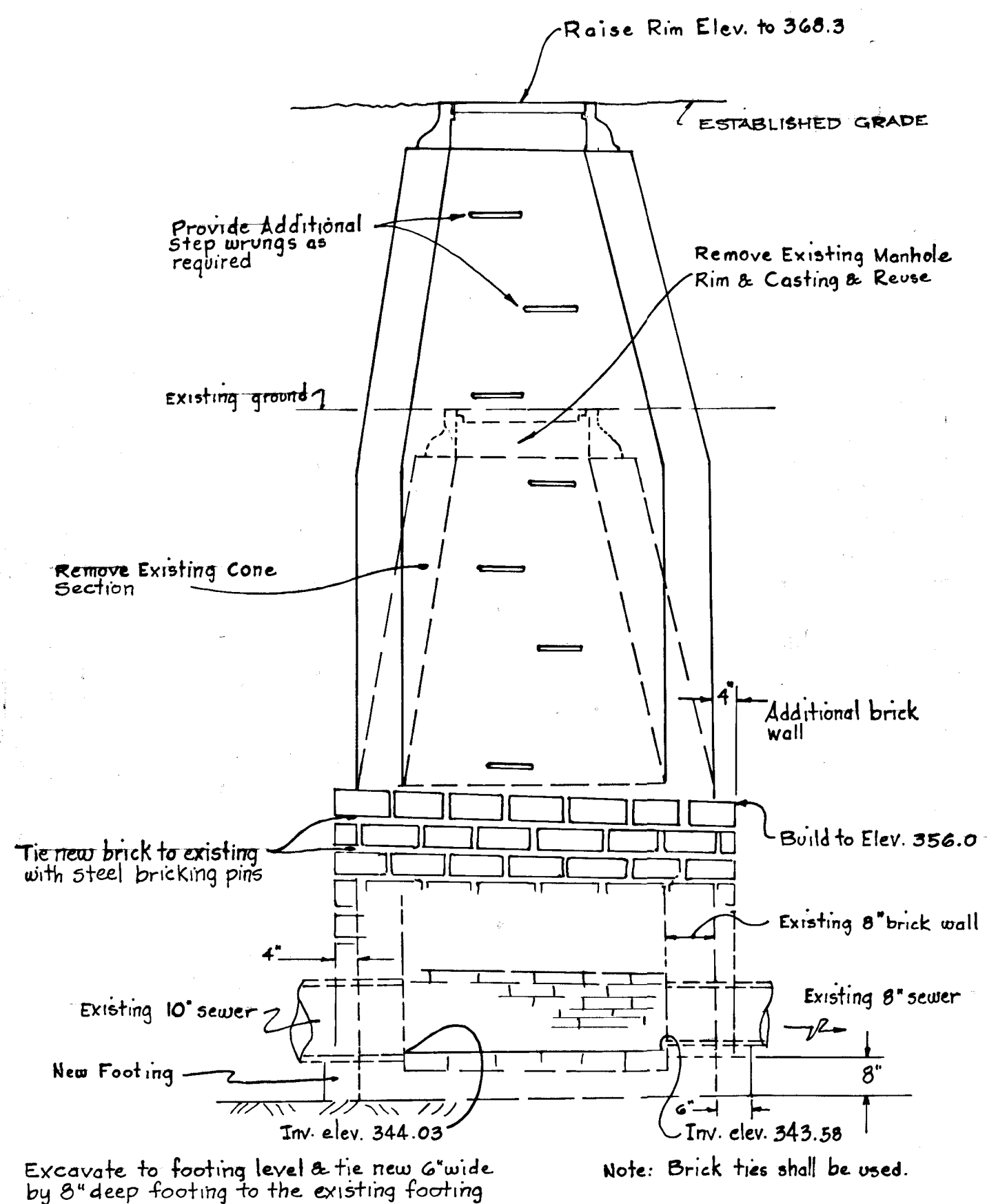
**ENCASEMENT FOR ACP**  
Not to Scale

Note: For details not shown, see standard Detail S-1



**DETAIL OF ENCASEMENT**  
Not to Scale

Note: Pour concrete against undisturbed earth. Remove sheeting before pouring concrete or leave lower portion of sheeting in place.



**RECONSTRUCTION OF EXISTING MANHOLE 3939**  
Not to Scale

Note: All reconstruction of brick manholes shall be performed according to the provisions of Section 13 of the Howard County W&S General Specs.

**GENERAL NOTES**

1. CONTRACTOR SHALL NOTIFY "MISS UTILITY" (559-0100) AT LEAST 3 DAYS PRIOR TO BEGINNING ANY CONSTRUCTION SHOWN HEREON.
2. CONTRACTOR SHALL NOTIFY BALTIMORE GAS AND ELECTRIC CO. 72 HOURS PRIOR TO ANY CONSTRUCTION IN THE VICINITY OF ANY GAS AND ELECTRIC FACILITIES BY CALLING 539-8000 EXT. 69. THE CONTRACTOR SHALL NOTIFY THE C&P TELEPHONE CO. PRIOR TO ANY CONSTRUCTION IN THE VICINITY OF ANY TELEPHONE CO. FACILITIES BY CALLING COLLECT 685-0400.
3. CONTRACTOR SHALL CONTACT HOWARD COUNTY BUREAU OF UTILITIES (997-2366) 24 HOURS PRIOR TO ANY CONSTRUCTION.
4. CONTRACTOR SHALL CONTACT HOWARD COUNTY BUREAU OF INSPECTIONS AND SURVEYS (992-2418) 24 HOURS PRIOR TO ANY CONSTRUCTION.

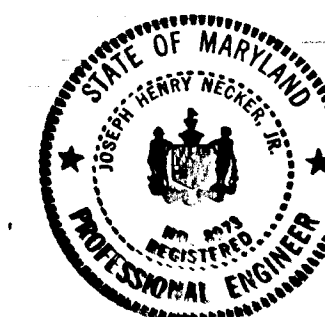
DEPARTMENT OF PUBLIC WORKS  
*W. O. Gilbert* 10-8-78  
 CHIEF, BUREAU OF HIGHWAYS DATE  
 OFFICE OF PLANNING AND ZONING  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER & DEVELOPER:  
 THE HOWARD RESEARCH & DEVELOPMENT CORPORATION

ENGINEER:

COLUMBIA, MARYLAND 21044

*Joseph H. Necker, Jr.*  
 JOSEPH H. NECKER, JR.  
 THE ROUSE COMPANY  
 COLUMBIA, MARYLAND 21044



**SUPPLEMENTAL SEWER PLAN**  
 VILLAGE OF OAKLAND MILLS  
 SECTION 3 AREA 1

6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND