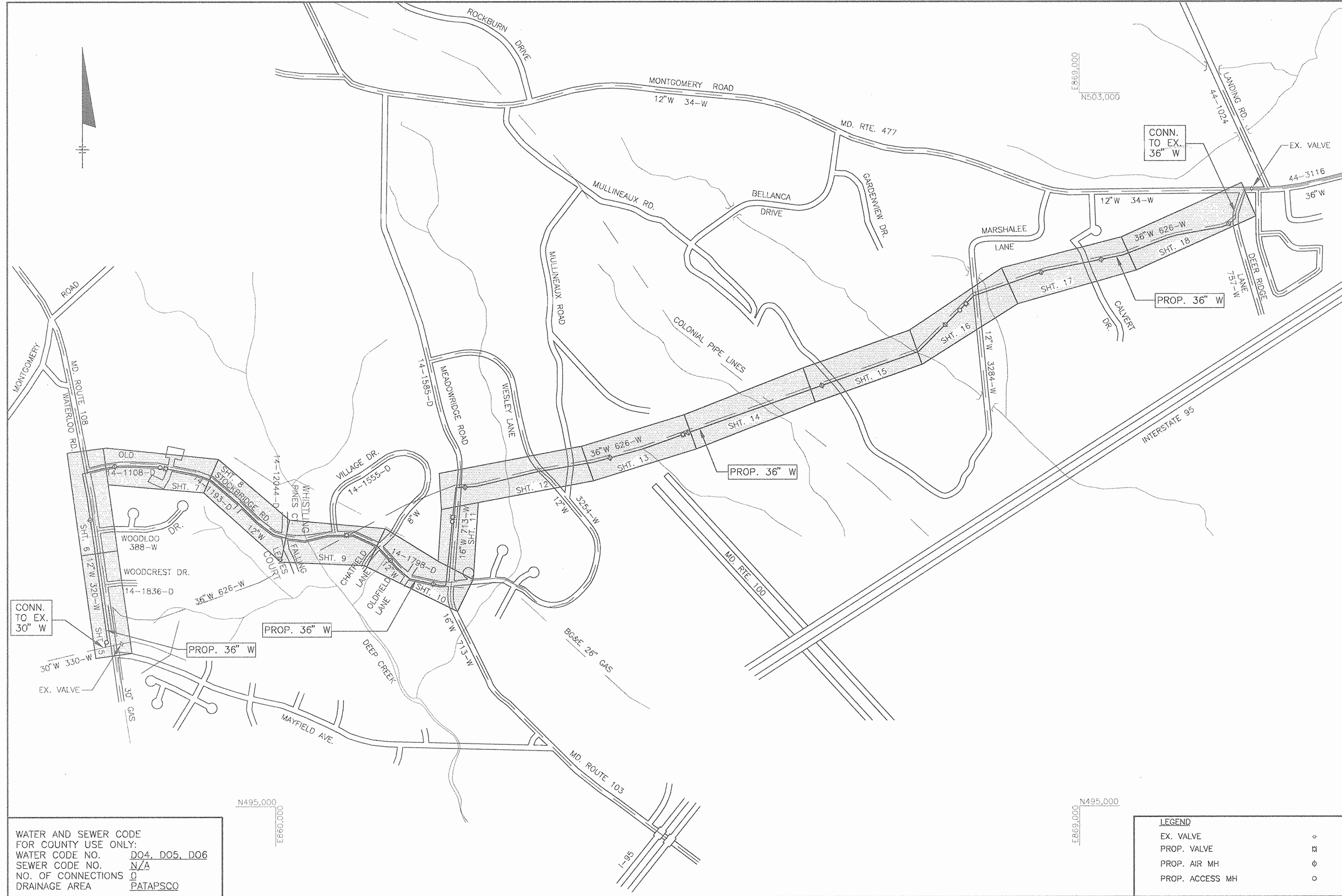


ELKRIDGE

W/S SHT. 2

3327



WATER AND SEWER CODE
 FOR COUNTY USE ONLY:
 WATER CODE NO. DO4, DO5, DO6
 SEWER CODE NO. N/A
 NO. OF CONNECTIONS 0
 DRAINAGE AREA PATAPSCO

LEGEND	
EX. VALVE	o
PROP. VALVE	□
PROP. AIR MH	⊕
PROP. ACCESS MH	○

VICINITY MAP
 APPROX.: 1" = 600'

GRAPHIC SCALE(S)

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

1" = 600'

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Robert B. ... 5/9/95
 DIRECTOR OF PUBLIC WORKS DATE

... 5-9-95
 CHIEF, BUREAU OF UTILITIES DATE

O'BRIEN & GENE
 ENGINEERS, INC.
 8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737



DSN. BY:	DLD		
DRN. BY:	DLD		
CHK. BY:	RJD		
DATE:	05-08-95		
BY	NO.	REVISION	DATE

VICINITY MAP

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
 CONTRACT NO.: 44-3327
 ELECTION DISTRICT NO. 1
 HOWARD COUNTY, MARYLAND

AS-BUILT 10-13-97

SCALE AS SHOWN

SHEET 2 OF 28

J:\2343\017A\017G034.DWG PSF:1

ELKRIDGE

3327 MS SAT. 3

SCHED. COORD. TABLE

RESTORATION SCHEDULE		
STATIONING		RESTORATION TYPE
FROM	TO	
-0+03	17+35	SEEDING, W/ EX. MAC. DRIVEWAYS
17+30	20+64	CURB & GUTTER, & ASPHALT AS REQ'D.
21+60	23+25	CURB & GUTTER, & ASPHALT AS REQ'D.
23+25	66+40	ASPHALT AS REQ'D.
66+40	68+75	SEEDING, SIDEWALK, CURB & GUTTER AS REQ'D.
68+75	78+09	SEEDING
78+09	0+20	GRAVEL & MACADAM DRIVEWAY
0+20	4+94	SEEDING
4+94	5+06	STREAM BANK, SEE STABILIZATION DETAIL SHT. 15
5+06	7+70	SEEDING
7+70	8+40	SIDEWALK, CURB & GUTTER, & ASPHALT AS REQ'D.
8+40	11+60	SEEDING
11+60	12+10	SIDEWALK, CURB & GUTTER, & ASPHALT AS REQ'D.
12+10	20+84	SEEDING
20+84	20+96	STREAM BANK, SEE STABILIZATION DETAIL SHT. 15
20+96	34+16	SEEDING
34+16	34+28	STREAM BANK, SEE STABILIZATION DETAIL SHT. 15
34+28	51+21	SEEDING
51+21	51+33	STREAM BANK, SEE STABILIZATION DETAIL SHT. 15
51+33	54+00	SEEDING
54+00	55+50	SIDEWALK, CURB & GUTTER, & ASPHALT AS REQ'D.
55+50	61+10	SEEDING
61+10	61+90	GRAVEL & SEEDING
61+90	63+09	SEEDING
63+09	63+21	STREAM BANK, SEE STABILIZATION DETAIL SHT. 15
63+21	70+50	SEEDING
70+50	71+90	GRAVEL DRIVE
71+90	72+55	SEEDING
72+55	72+65	GRAVEL DRIVE
72+65	90+57	SEEDING

NOTE: SEEDING MEANS HYDRO SEEDING & MULCH.

COORDINATE TABLE							
STATION	ITEM	COORDINATES		STATION	ITEM	COORDINATES	
		NORTHING	EASTING			NORTHING	EASTING
-0+03	30"x24" TSV	N557380.94	E1370567.73	0+28	PT	N559322.28	E1374551.94
0+08	36"-45" H.B.	N557391.71	E1370566.27	1+50	ACCESS/AIR MH	N559329.47	E1374674.14
0+18	ACCESS MH	N557399.67	E1370572.33	2+05	PC	N559331.58	E1374729.48
0+51	36"-45" H.B.	N557426.35	E1370592.64	3+48	PT	N559359.74	E1374868.87
13+72	PC	N558734.38	E1370415.27	5+27	BLOW-OFF MH	N559422.69	E1375036.22
14+52	PT	N558813.90	E1370406.60	5+86	PC	N559443.69	E1375092.03
14+52	PC	N558813.90	E1370406.60	8+00	PT	N559496.84	E1375298.57
15+81	36"x6" TEE	N558941.70	E1370388.95	15+50	ACCESS/AIR MH	N559604.43	E1376040.44
16+12	PT	N558972.23	E1370383.72	17+20	PC	N559628.82	E1376208.93
17+25	ACCESS/AIR MH	N559084.00	E1370364.57	18+45	PT	N559663.72	E1376328.39
20+12	Z' HORIZ. DEFLECTION	N559366.48	E1370316.17	21+36	BLOW-OFF MH	N559783.57	E1376593.50
20+64	36"-90" H.B.	N559417.99	E1370305.48	23+40	36"x8" TEE	N559867.60	E1376779.39
21+71	36"x6" TEE	N559439.69	E1370410.05	24+29	36" BFV	N559904.34	E1376860.54
22+50	PC	N559451.76	E1370468.22	24+50	ACCESS/AIR MH	N559912.95	E1376879.70
22-70	PT	N559462.60	E1370506.72	34+50	BLOW-OFF MH	N560324.86	E1377790.87
23+00	AIR MH	N559472.10	E1370534.74	42+00	ACCESS/AIR MH	N560633.77	E1378474.16
23+50	PC	N559488.28	E1370582.49	44+30	36"x6" TEE	N560728.52	E1378683.82
24+90	PT	N559522.48	E1370718.15	51+55	BLOW-OFF MH	N561027.43	E1379344.33
25+90	PC	N559541.09	E1370816.40	51+76	PC	N561035.85	E1379363.65
28+10	PT	N559536.38	E1371035.05	52+21	PT	N561055.60	E1379404.25
29+00	ACCESS MH	N559519.63	E1371123.06	58+65	AIR MH	N561354.04	E1379975.56
29+25	36" BFV	N559515.22	E1371145.02	60+80	ACCESS MH	N561453.25	E1380165.81
33+30	PC	N559438.99	E1371546.01	60+83	PC	N561454.64	E1380168.47
37+10	PT	N559256.93	E1371872.24	61+15	36" BFV	N561468.76	E1380196.79
41+90	PC	N558907.25	E1372201.06	61+22	36"x12" TEE	N561471.67	E1380203.27
42+90	PT	N558842.04	E1372276.71	61+68	PT	N561489.81	E1380245.51
43+10	PC	N558830.07	E1372292.74	63+32	BLOW-OFF MH	N561549.89	E1380397.99
47+30	PT	N558717.84	E1372689.10	67+91	PC	N561717.99	E1380824.67
48+50	PC	N558724.62	E1372808.91	68+64	PT	N561738.88	E1380894.95
48+90	PT	N558728.97	E1372848.66	70+00	ACCESS/AIR MH	N561766.24	E1381028.16
49+10	PC	N558731.49	E1372868.50	72+50	36"x6" TEE	N561816.84	E1381272.87
49+30	PT	N558734.70	E1372888.24	77+34	AIR MH	N561914.86	E1381747.80
49+50	PC	N558737.91	E1372907.98	78+55	PC	N561938.17	E1381865.23
49+90	PT	N558746.39	E1372947.07	78+72	PCC	N561942.12	E1381882.69
50+90	PC	N558769.29	E1373044.41	79+03	PT	N561950.50	E1381912.12
51+78	BLOW-OFF MH	N558781.17	E1373131.02	83+57	BLOW-OFF MH	N562099.49	E1382342.33
52+00	36" BFV	N558782.09	E1373153.07	89+10	AIR MH	N562235.49	E1382878.76
54+30	PT	N558741.49	E1373378.31	90+44	36"-45" H.B.	N562268.43	E1383008.69
54+50	PC	N558734.40	E1373397.01	90+57	36"-45" H.B.	N562280.06	E1383013.83
57+50	PT	N558556.89	E1373634.63	----	PSMH #1	N559298.78	E1374641.38
57+90	PC	N558525.91	E1373659.93	----	PSMH #2	N559302.79	E1374596.56
58+30	PT	N558493.65	E1373683.57				
59+00	AIR MH	N558436.83	E1373723.72				
59+70	PC	N558379.31	E1373764.35				
62+00	36"x6" TEE	N558284.37	E1373852.13				
64+00	AIR MH	N558155.29	E1374119.12				
64+90	PT	N558145.32	E1374208.89				
65+85	36"x6" TEE	N558140.75	E1374303.78				
66+10	36"-90" H.B.	N558139.54	E1374328.75				
67+70	PC	N558299.36	E1374336.46				
68+30	PT	N558358.91	E1374343.52				
70+50	PC	N558576.35	E1374377.03				
71+10	PT	N558635.92	E1374384.09				
75+20	ACCESS MH	N559043.43	E1374425.20				
75+35	36" BFV	N559058.29	E1374426.76				
77+08	36"x16" TEE	N559230.82	E1374444.10				
77+30	36"-11.25" H.B.	N559252.79	E1374446.32				
77+90	36"-90" H.B.	N559312.68	E1374440.51				
78+03	36"x12" TEE	N559313.82	E1374452.80				
78+62	PC	N559319.30	E1374512.05				

TABLE OF TEST STATION TYPES AND LOCATIONS			
TEST STATION NUMBER	TYPE	STATION	NOTES
1	IJ	-00+03	BEGINNING OF CONTRACT
2	IR	10+00	
3	CS	20+68	BEGINNING OF CASING
4	CS	21+60	END OF CASING
5	ST	37+00	
6	IR	49+00	
7	ST	66+10	ELBOW
8	CS	78+09	BEGINNING OF CASING
9	CS	78+59	END OF CASING
10	ST	5+37	MIN. 10' FROM MH
11	CS	16+08	BEGINNING OF CASING
12	CS	21+04	END OF CASING
13	ST	34+60	MIN. 10' FROM MH
14	ST	51+70	MIN. 10' FROM MH
15	ST	64+50	NEAR CP SYSTEM
16	IR	70+10	MIN. 10' FROM MH
17		90+57	END OF CONTRACT

SEE REVISED TEST STATION SCHEDULE THIS SHEET

KEY:

CS: CASING INSULATION TEST STATION (SEE DETAIL HC-T5 IN SPECIFICATIONS)

IJ: INSULATING JOINT TEST STATION (SEE DETAIL HC-T2 IN SPECIFICATIONS)

IR: INTERNAL PIPE RESISTANCE TEST STATION (SEE DSI DETAIL c/4.6 IN SPECIFICATIONS)

ST: IN-LINE (STANDARD) TEST STATION (SEE DETAIL HC-T1 IN SPECIFICATIONS)

INSULATED JOINTS SHALL BE PROVIDED AT THE FOLLOWING CONNECTIONS TO THE 36-INCH MAIN

DESCRIPTION	LOCATION	DESCRIPTION	LOCATION
36"x6" TEE	15+81	36"x8" TEE	23+40
36"x6" TEE	21+74	36"x6" TEE	41+36
36"x6" TEE	61+08	36"x12" TEE	61+22
36"x6" TEE	65+86	36"x6" TEE	72+50
36"x16" TEE	77+08		
36"x12" TEE	78+03		

* INSULATED JOINTS AT FH WERE NOT USED

S.E.C. LEGEND

L.O.D. ———— LIMIT OF DISTURBANCE

SCE [] STABILIZED CONSTRUCTION ENTRANCE

TAC/TAB [] TEMPORARY ACCESS CULVERT/ TEMPORARY ACCESS BRIDGE

FB [] FILTER BAG LOCATION

ABBREVIATIONS

APPROX. ARMH	APPROXIMATE AIR RELEASE MANHOLE
BFV	BUTTERFLY VALVE
BG&E	BALTIMORE GAS & ELECTRIC
BUILDING	BUILDING
C&G	CURB & GUTTER
C/O	CENTERLINE
CONC.	CARE OF CONCRETE
CONSTR.	CONSTRUCTION
CONTR.	CONTRACT
C&P	CHESAPEAKE AND POTOMAC
DET. or DTL.	DETAIL
DIP	DUCTILE IRON PIPE
DR.	DRIVE
ESM'T	EASEMENT
EX.	EXISTING
FH.	FIRE HYDRANT
FLG.	FLANGE
FT.	FOOT
G.	GAS
H.B.	HORIZONTAL BEND
H.C.	HOWARD COUNTY
HORIZ.	HORIZONTAL
INV.	INVERT
JT.	JOINT
L.O.D.	LIMIT OF DISTURBANCE
MAC.	MACADAM
MH.	MANHOLE
MIN.	MINIMUM
MD.	MARYLAND
NO.	NUMBER
PC	POINT OF CURVATURE
P.C.C.P.	PRESTRESSED CONCRETE CYLINDER PIPE
PED.	PEDESTAL
P.O.	POST OFFICE
PROP.	PROPOSED
PSMH	PROPOSED SEWER MANHOLE
PT	POINT OF TANGENCY
PVMT.	PAVEMENT
RAD. or R	RADIUS
REQ'D.	REQUIRED
RD.	ROAD
RSV	RESILIENT SEAT GATE VALVE
R/W	RIGHT OF WAY
S	SEWER
SAN.	SANITARY
SD	STORM DRAIN
SHC	SEWER HOUSE CONNECTION
SHT	SHEET
SMH	SEWER MANHOLE
STA.	STATION
STD.	STANDARD
TAB	TEMPORARY ACCESS BRIDGE
TAC	TEMPORARY ACCESS CULVERT
TELE.	TELEPHONE
TEMP.	TEMPORARY
TP	TEST PIT
V.B.	VERTICAL BEND
VERT.	VERTICAL
W	WITH
W/C	WATER HOUSE CONNECTION
WM	WATER METER

GENERAL LEGEND

EX. WATER

EX. WATER (TO BE ABANDONED)

EX. SEWER

EX. STORM DRAIN

EX. GAS

EX. TELEPHONE

EX. ELECTRIC

EX. STREAM

EX. CONTOUR

EX. EASEMENT

EX. FLOODPLAIN

EX. WETLANDS

PROP. CONSTRUCTION STRIP

PROP. WATER

PROP. BFV (PLAN)

PROP. BLOW-OFF MH

PROP. AIR VALVE MH

PROP. FIRE HYDRANT

BORING

TEST PIT

BENCH MARK

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Laura G. Clark 5/9/95
DIRECTOR OF PUBLIC WORKS

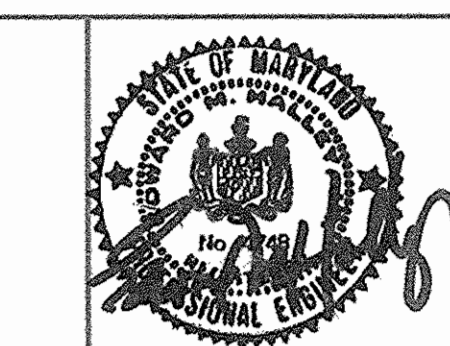
Robert J. Eppson 5/9/95
CHIEF - BUREAU OF ENGINEERING

Robert J. Eppson 5-9-95
CHIEF, BUREAU OF UTILITIES

Robert J. Eppson 5-9-95
CHIEF, UTILITY DESIGN DIVISION

O'BRIEN & GERE
ENGINEERS, INC.

8201 Corporate Drive
Suite 1000
Londontown, Maryland 20785
(301) 731-5822
FAX: (301) 577-4737



DSN. BY: RJD	
DRN. BY: DLD	
CHK. BY: RJD	
DATE: 05-05-95	
BY NO.	REVISION

SCHEDULES, ABBREVIATIONS, AND LEGEND

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

SCALE AS SHOWN

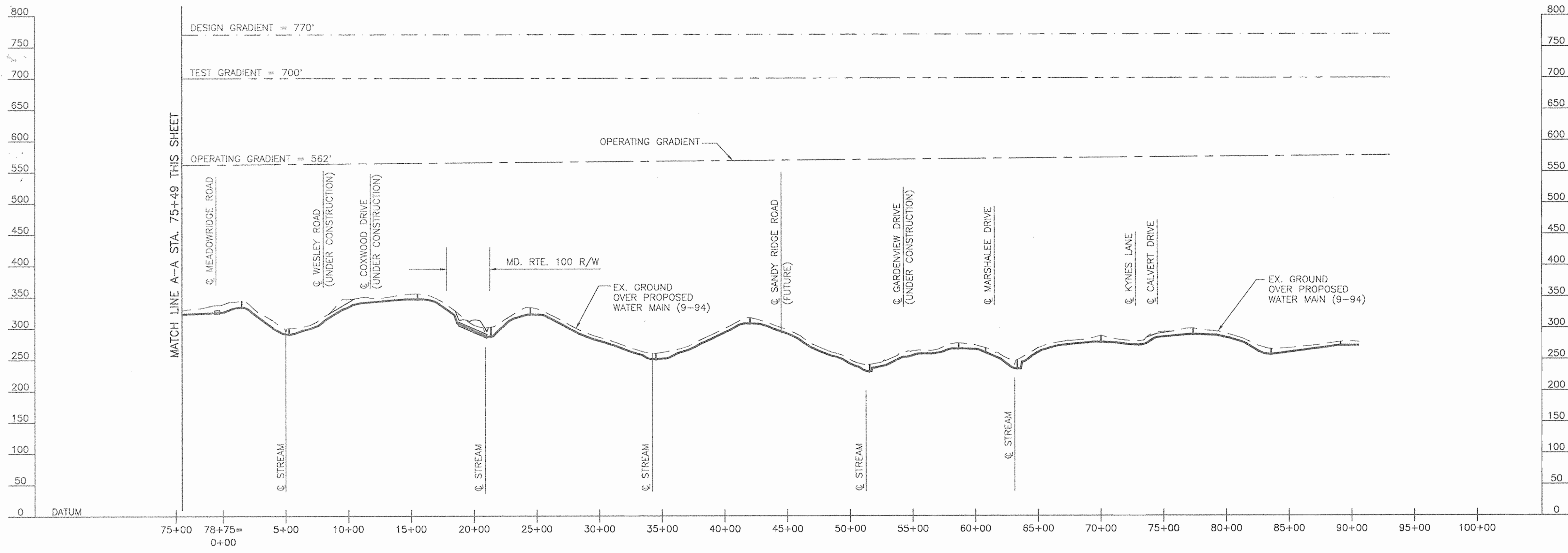
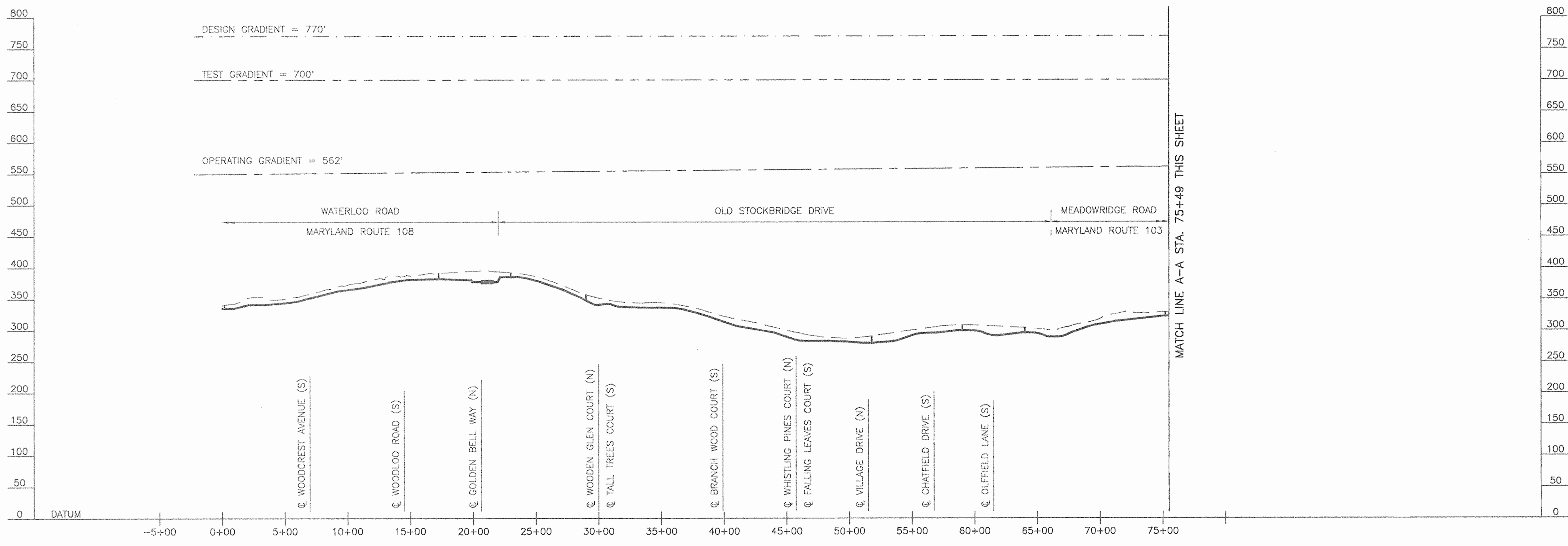
SHEET 3 OF 28

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

AS-BUILT 10-18-97

FILE NO. 2343-017-034F

3327 MS SHT. 4 ELKRIDGE



HYDRAULIC PROFILE
 HORIZ.: 1"=500'
 VERT.: 1"=100'

GRAPHIC SCALE(S)

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

1" = 500'

1" = 100'

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Samuel Lewis 5/9/95
 DIRECTOR OF PUBLIC WORKS DATE

Robert Benin 5-8-95
 CHIEF, BUREAU OF UTILITIES DATE

Paula Johnson 5/9/95
 CHIEF - BUREAU OF ENGINEERING DATE

Debra Linn 5-9-95
 CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
 ENGINEERS, INC.

8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
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DSN. BY:	RJD
DRN. BY:	DLD
CHK. BY:	RJD
DATE:	04-25-95
BY:	NO.
REVISION	DATE

HYDRAULIC PROFILES

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

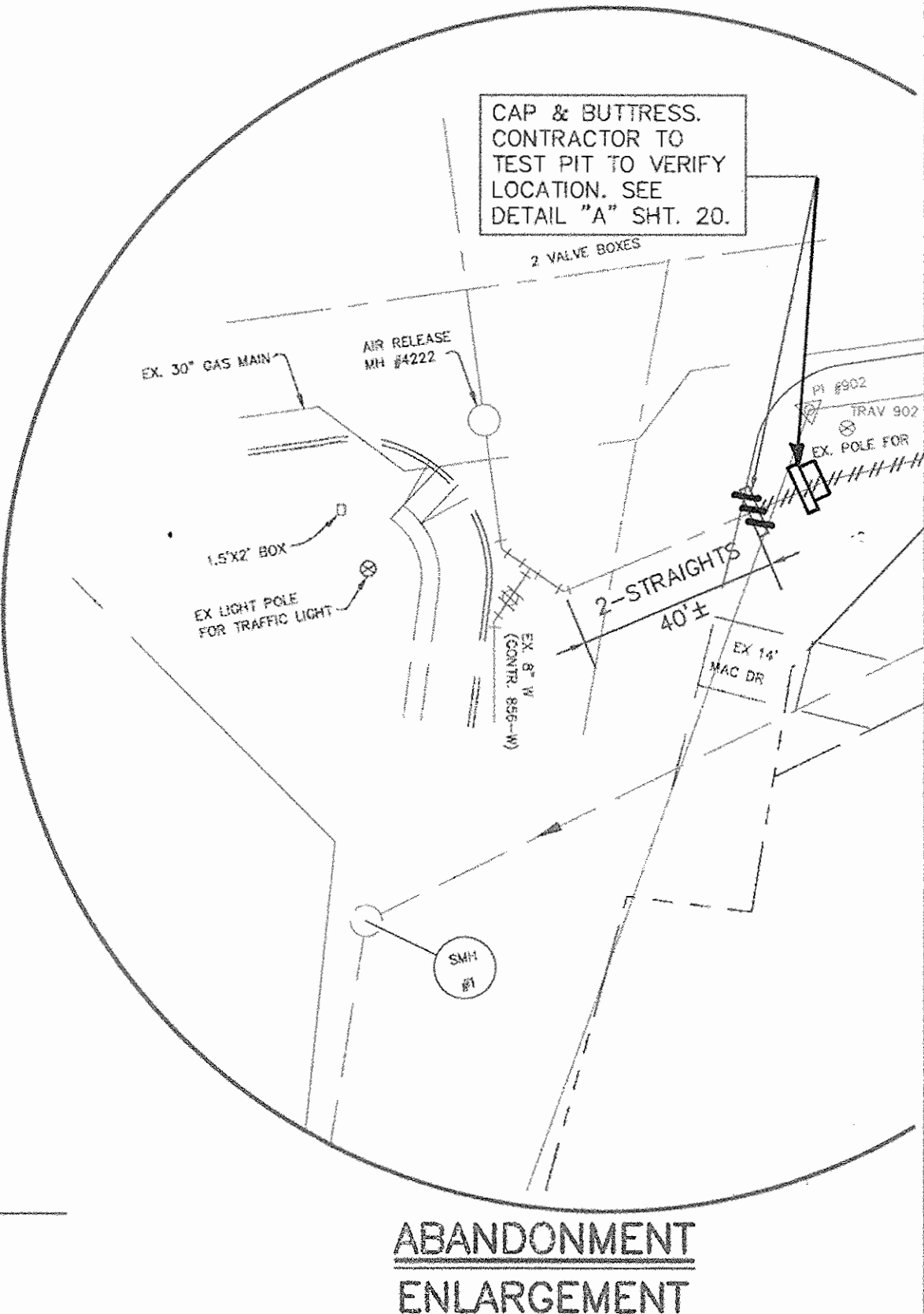
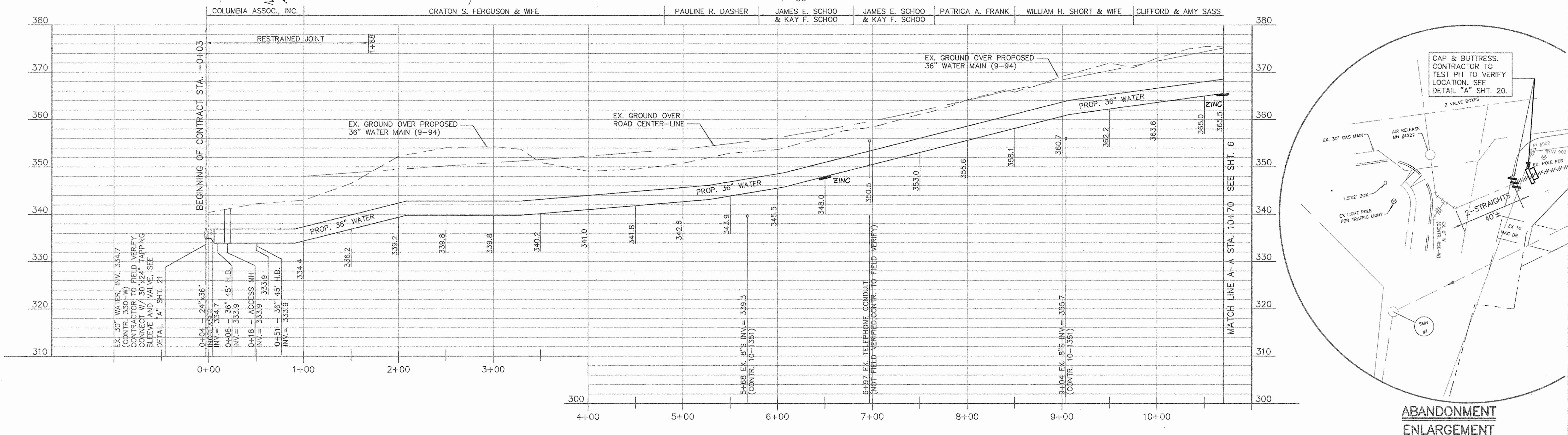
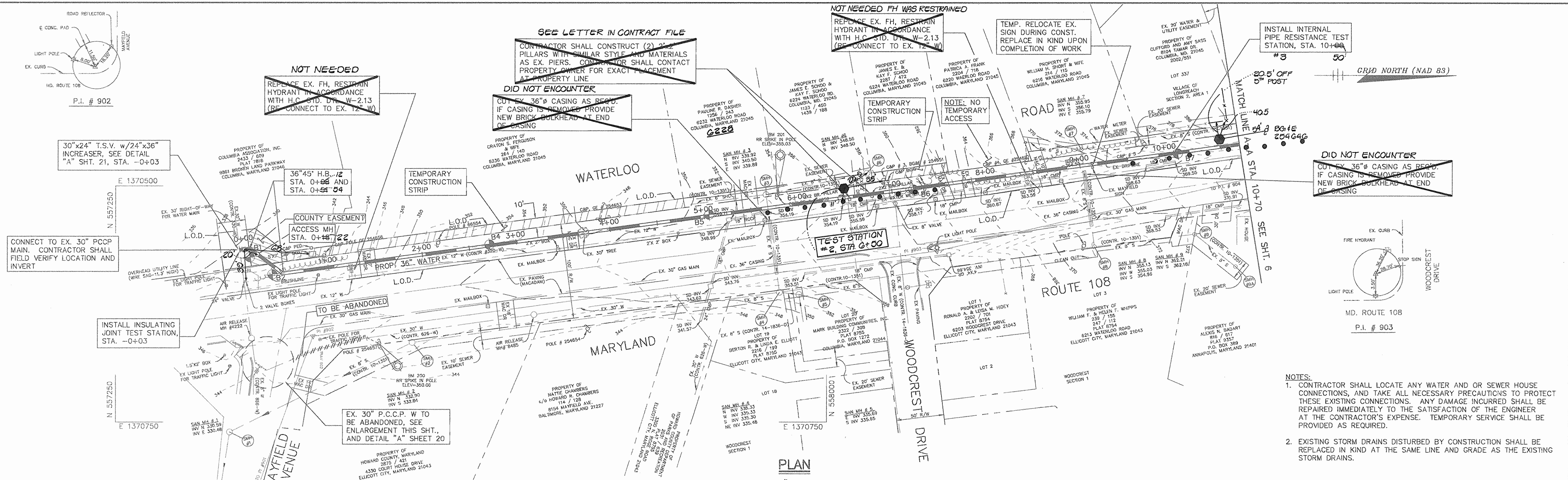
CAPITAL PROJECT: W-8169
 CONTRACT NO.: 44-3327
 ELECTION DISTRICT NO. 1
 HOWARD COUNTY, MARYLAND

AS-BUILT 10-13-97

SCALE AS SHOWN
 SHEET 4 OF 28

ELKRIDGE

3327 Ws SH.T. 5



- NOTES:
- CONTRACTOR SHALL LOCATE ANY WATER AND OR SEWER HOUSE CONNECTIONS, AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THESE EXISTING CONNECTIONS. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. TEMPORARY SERVICE SHALL BE PROVIDED AS REQUIRED.
 - EXISTING STORM DRAINS DISTURBED BY CONSTRUCTION SHALL BE REPLACED IN KIND AT THE SAME LINE AND GRADE AS THE EXISTING STORM DRAINS.

SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION

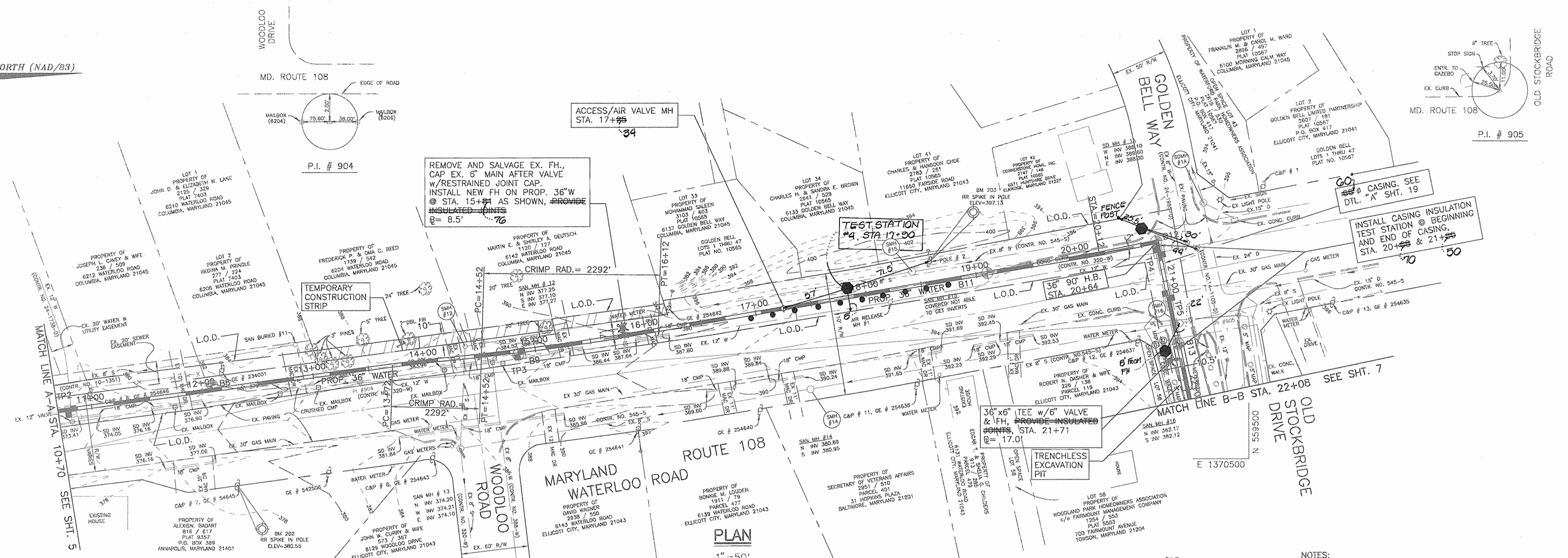
- CONTRACTOR WILL OPEN ONLY THAT LENGTH OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE (1) DAY, SILT FENCE SHALL BE PLACED DOWNSLOPE OF THE TRENCH.
- PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
- ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>James J. ...</i> 5/19/95 Chief, Bureau of Utilities: <i>Robert ...</i> 5-8-95		O'BRIEN & GERE ENGINEERS, INC. 8201 Corporate Drive Suite 1000 Landover, Maryland 20785 (301) 731-5622 FAX: (301) 577-4737		DSN. BY: DLD/HBT DRN. BY: DLD CHK. BY: RJD/HBT DATE: 05-08-95		PLAN AND PROFILE STA. -0+03 TO STA. 10+70 600' SCALE MAP NO. _____ BLOCK NO. _____		ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE CAPITAL PROJECT: W-8169 CONTRACT NO.: 44-3327 ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND AS-BUILT 10-13-97		SCALE AS SHOWN SHEET 5 OF 28	
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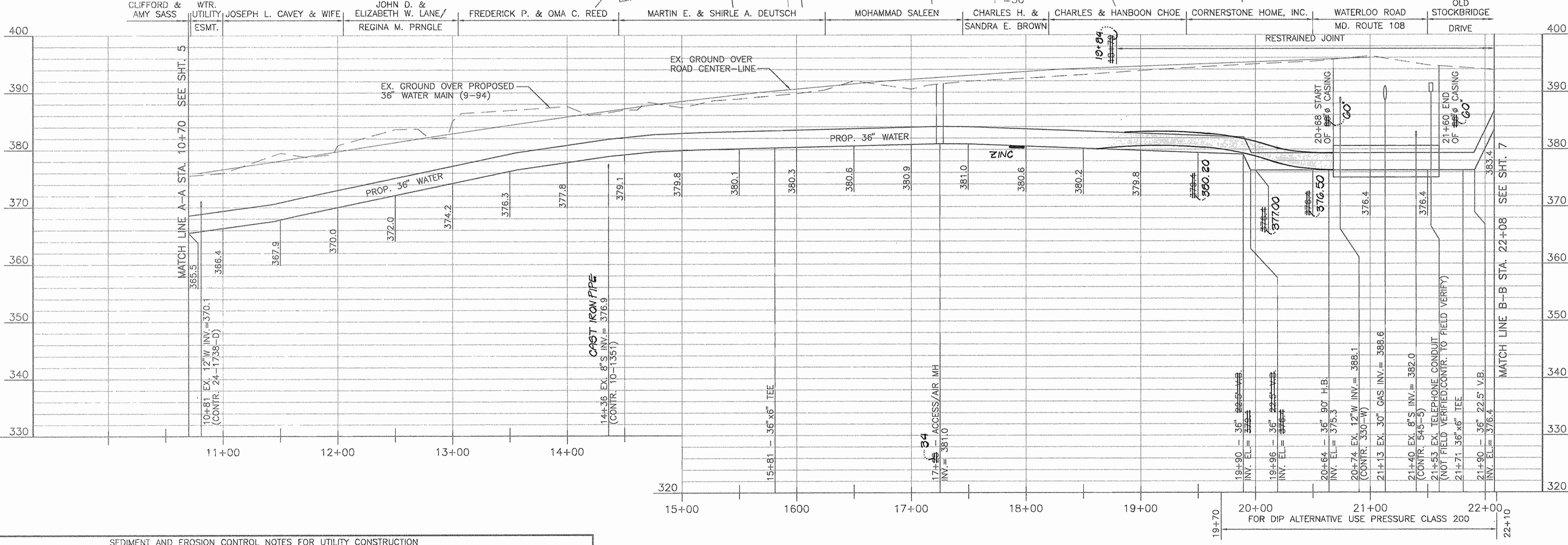
3327 w/s SHT. 6

GRID NORTH (NAD/83)

N 558250
E 1370250
N 558250
E 1370500



PLAN
1"=50'

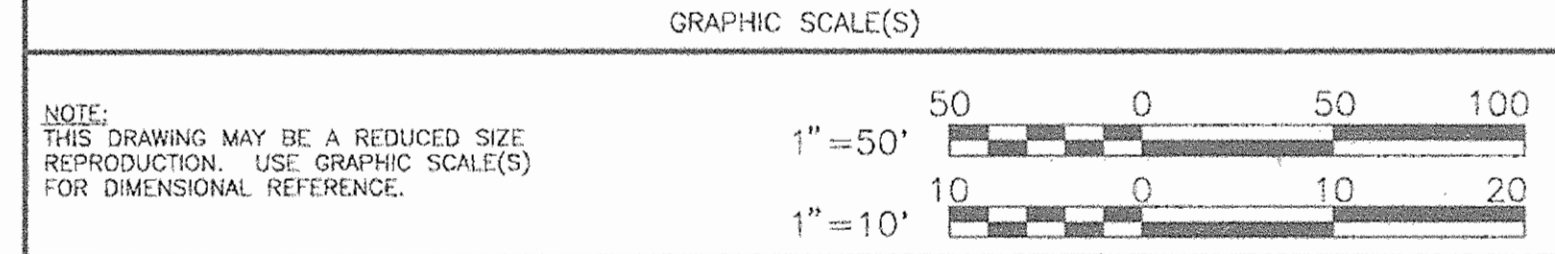


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SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION

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- ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

PROFILE
 HORZ.: 1"=50'
 VERT.: 1"=10'



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James A. Sasso 5/1/95
 DIRECTOR OF PUBLIC WORKS DATE

Robert A. Benner 5-8-95
 CHIEF, BUREAU OF UTILITIES DATE

Charles J. Johnson 5/2/95
 CHIEF - BUREAU OF ENGINEERING DATE

O. J. Donahue 5-9-95
 CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
 ENGINEERS, INC.
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 Landover, Maryland 20785
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 FAX: (301) 577-4737



DSN. BY: DLD/HBT	
DRN. BY: DLD	
CHK. BY: RJD/HBT	
DATE: 05-08-95	
BY NO.	REVISION

PLAN AND PROFILE
 STA. 10+70 TO STA. 22+08

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

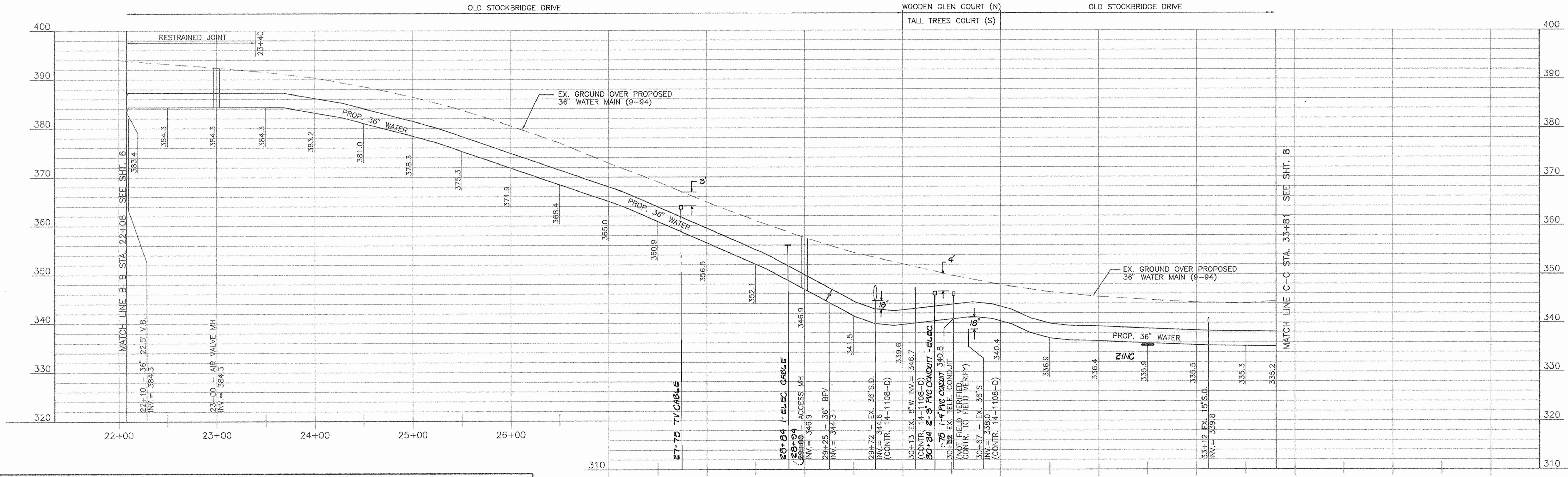
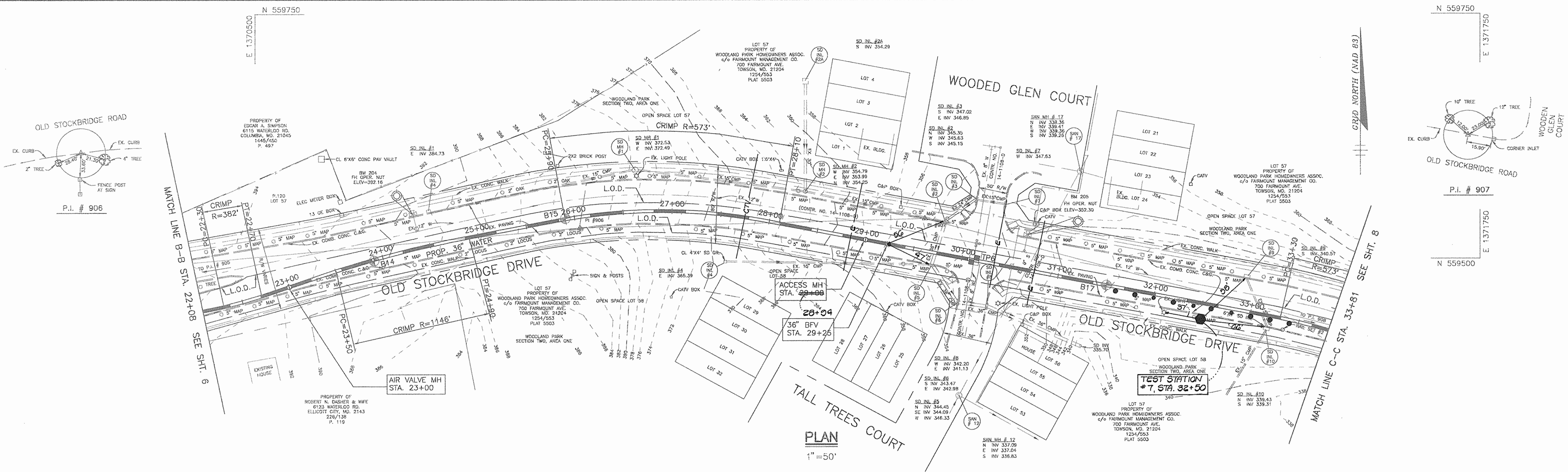
SCALE AS SHOWN

SHEET 6 OF 28

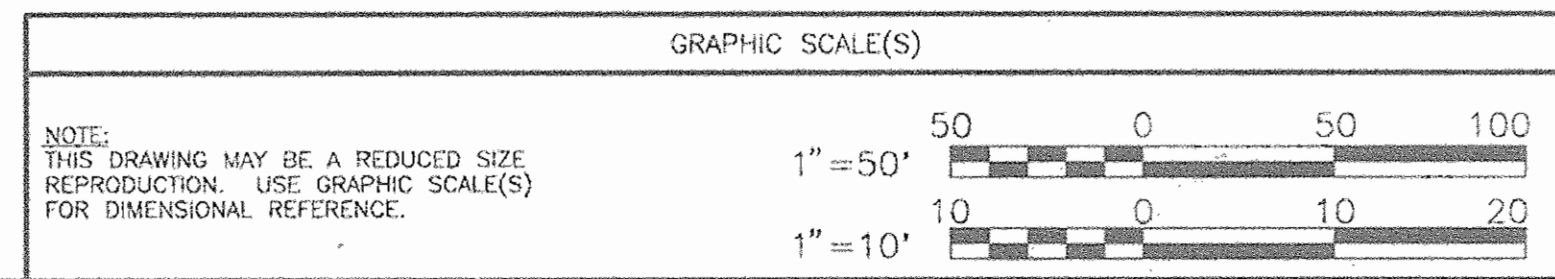
AS-BUILT 10-13-97

3327 W/S SHT. 7

ELKRIDGE



- SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION**
1. CONTRACTOR WILL OPEN ONLY THAT LENGTH OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE (1) DAY, SILT FENCE SHALL BE PLACED DOWNSLOPE OF THE TRENCH.
 2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
 3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. ... 5/9/95
DIRECTOR OF PUBLIC WORKS DATE

Robert ... 5/9/95
CHIEF, BUREAU OF ENGINEERING DATE

Robert ... 5-8-95
CHIEF, BUREAU OF UTILITIES DATE

... 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.

8201 Corporate Drive
Suite 1000
Landover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: DLD/HBT	
DRN. BY: DLD	
CHK. BY: RJD/HBT	
DATE: 05-08-95	
BY NO.	REVISION
	DATE

PLAN AND PROFILE
STA. 22+08 TO STA. 33+81

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

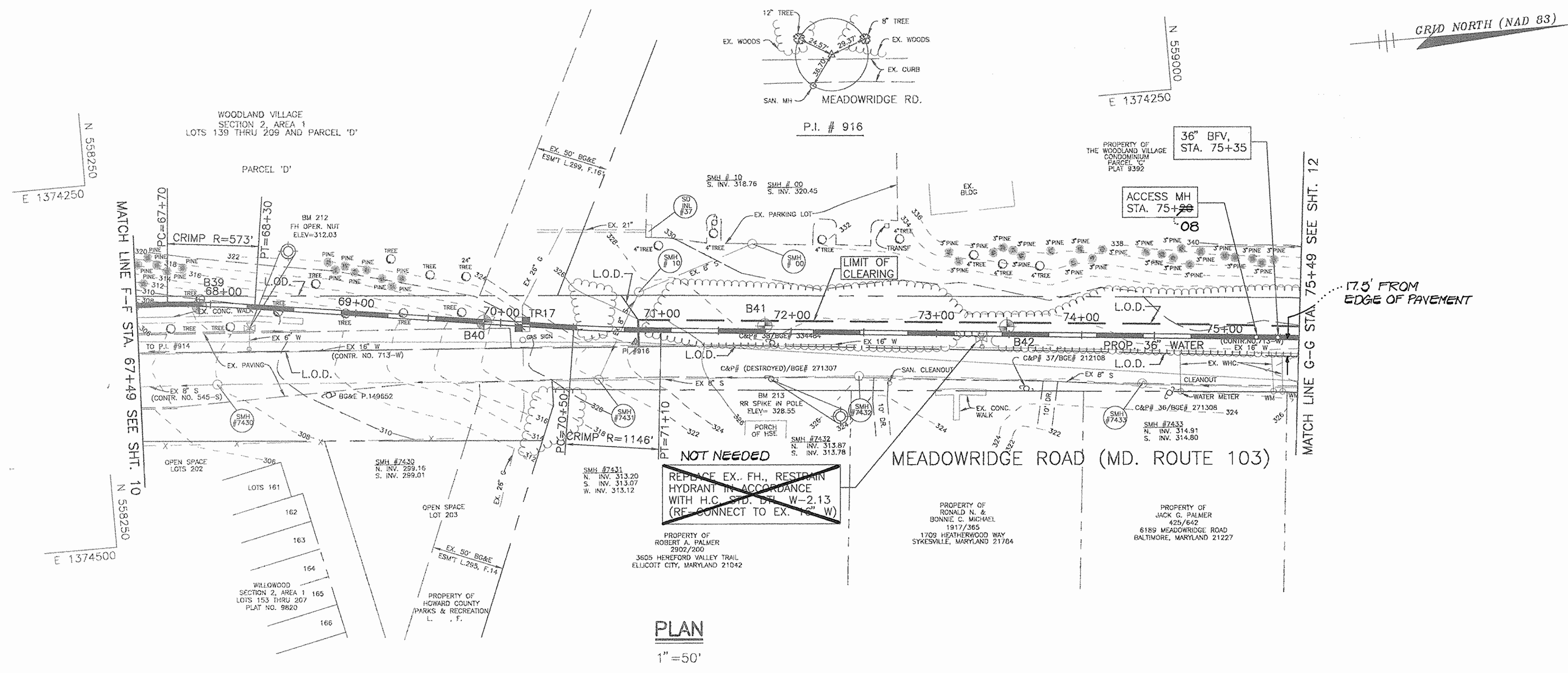
CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 7 OF 28
AS-BUILT 10-13-97

ELKRIDGE

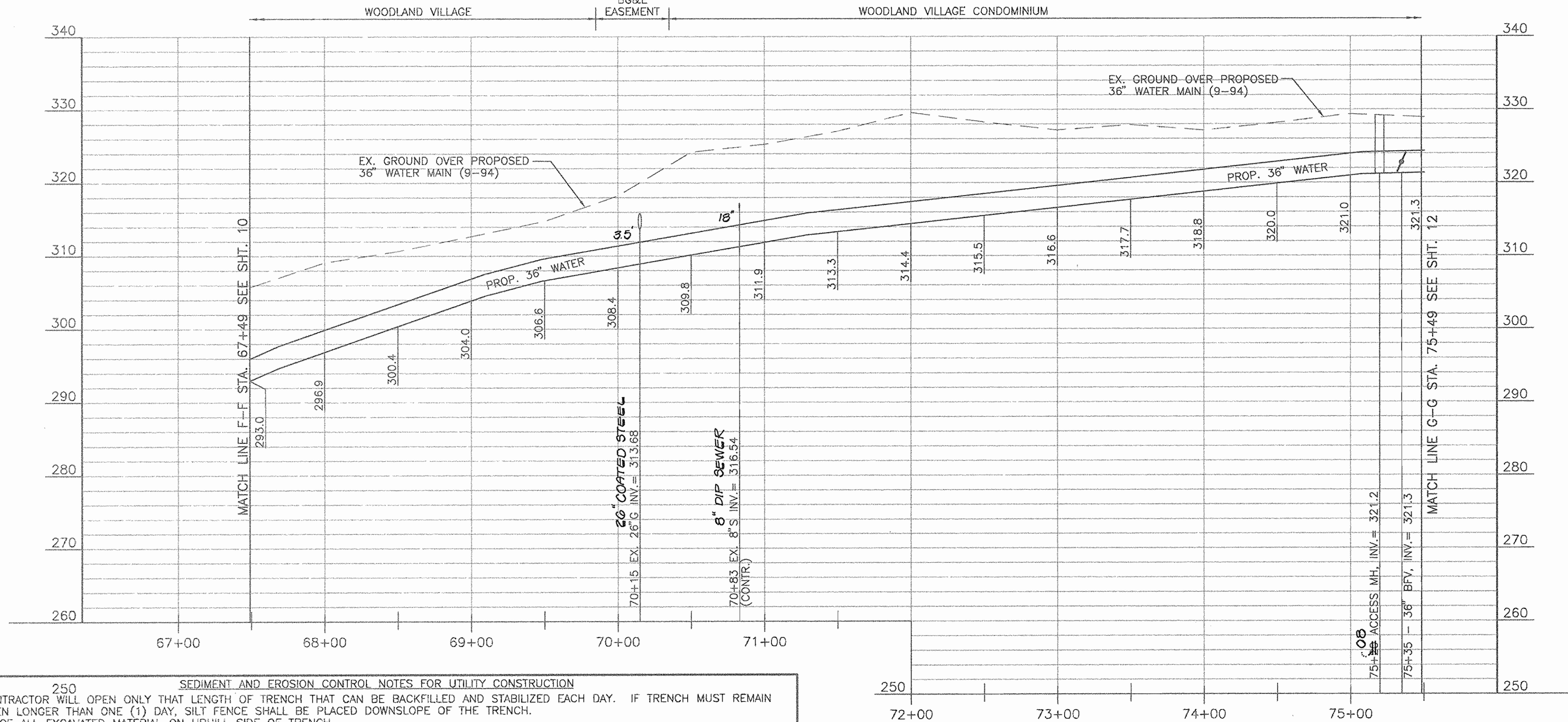
W/S STA 7.11

3327



PLAN
1"=50'

NOTE:
1. ANY TREES DISTURBED BETWEEN STA. 67+49 AND STA. 70+00 SHALL BE REPLACED IN KIND. (3" CALIPER MINIMUM)

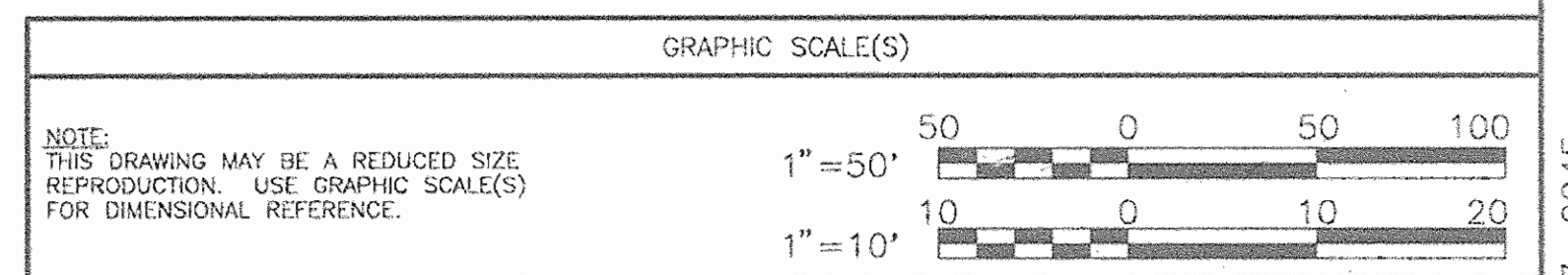


PROFILE

HORZ.: 1"=50'
VERT.: 1"=10'

250 SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Thomas P. Shea 5/2/95
DIRECTOR OF PUBLIC WORKS DATE

John J. Rapp 5/2/95
CHIEF - BUREAU OF ENGINEERING DATE

Ruth Bann 5-8-95
CHIEF, BUREAU OF UTILITIES DATE

John J. Rapp 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.
8201 Corporate Drive
Suite 1000
Londonderry, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: DLD\HBT			
DRN. BY: DLD			
CHK. BY: RJD\HBT			
DATE: 05-08-95			
BY	NO.	REVISION	DATE

PLAN AND PROFILE
STA. 67+49 TO STA. 75+49

600' SCALE MAP NO. _____ BLOCK NO. _____

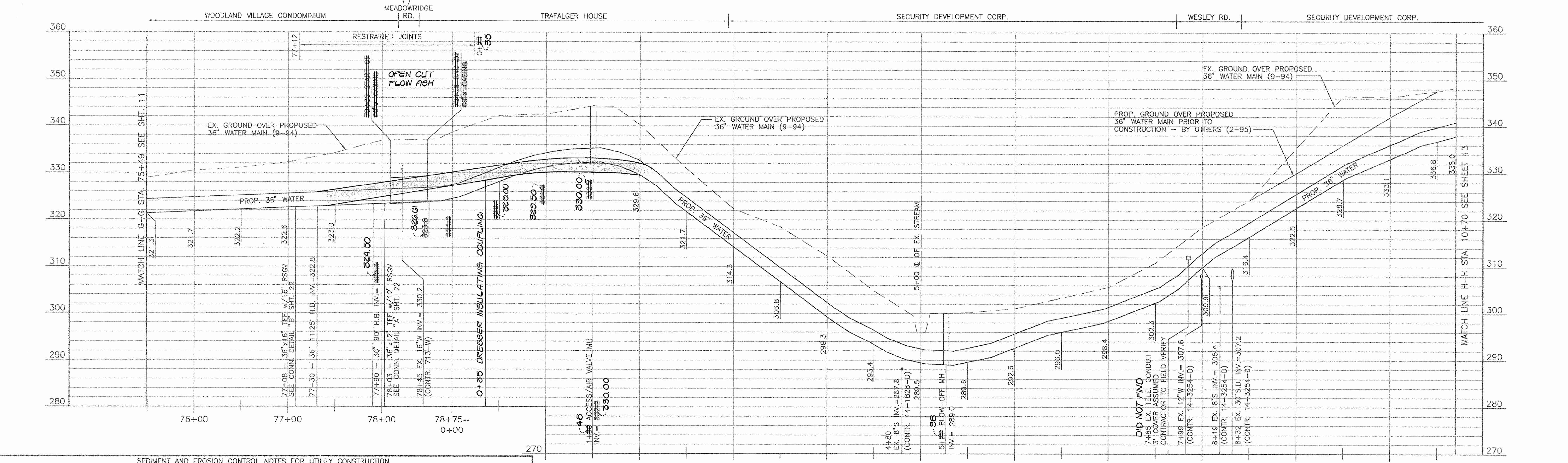
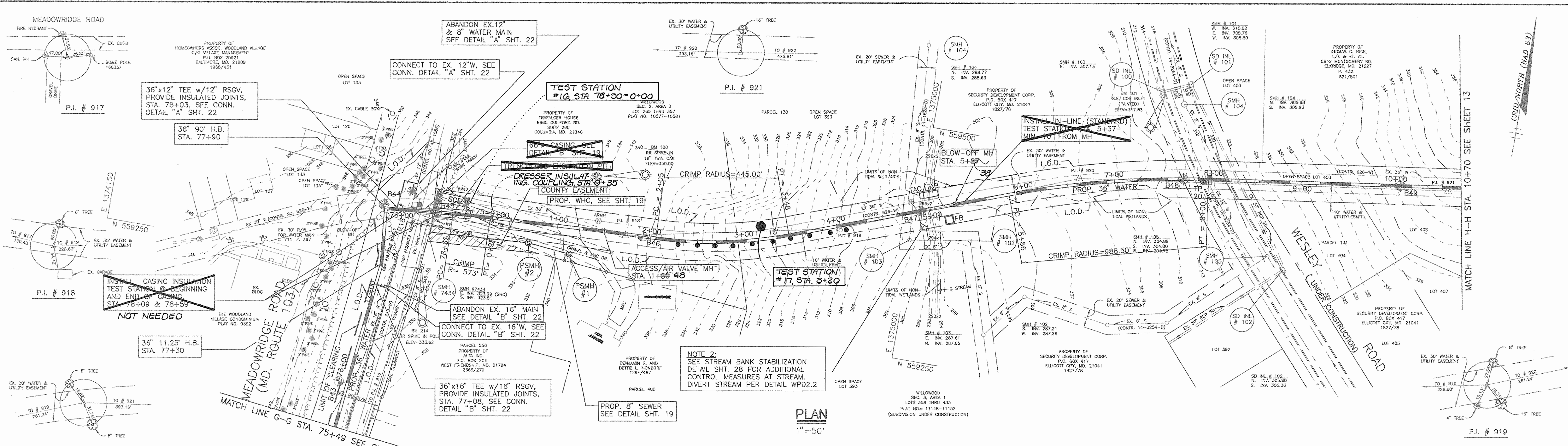
ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 11 of 28
AS-BUILT 10-13-07

ELKRIDGE

3327 W/S SH. 12



SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION

- LIMIT OF DISTURBANCE (L.O.D.) SHALL BE WITHIN THE LIMIT OF CLEARING (STA. -3+75 TO -0+27), AND WITHIN EX. COUNTY EASEMENTS AND CONSTRUCTION STRIPS, (-0+27 TO END OF CONTRACT), AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOT DAMAGE OR REMOVE ANY EX. TREES OR SHRUBS OUTSIDE OF THE EX. 30' WIDE UTILITY EASEMENT (STA. -0+27 TO END OF CONTRACT).
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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James J. Lewis 5/1/95
 DIRECTOR OF PUBLIC WORKS DATE

Charles J. Sisson 5/1/95
 CHIEF - BUREAU OF ENGINEERING DATE

John A. Bann 5-8-95
 CHIEF, BUREAU OF UTILITIES DATE

Clayton D. Lewis 5-9-95
 CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
 ENGINEERS, INC.

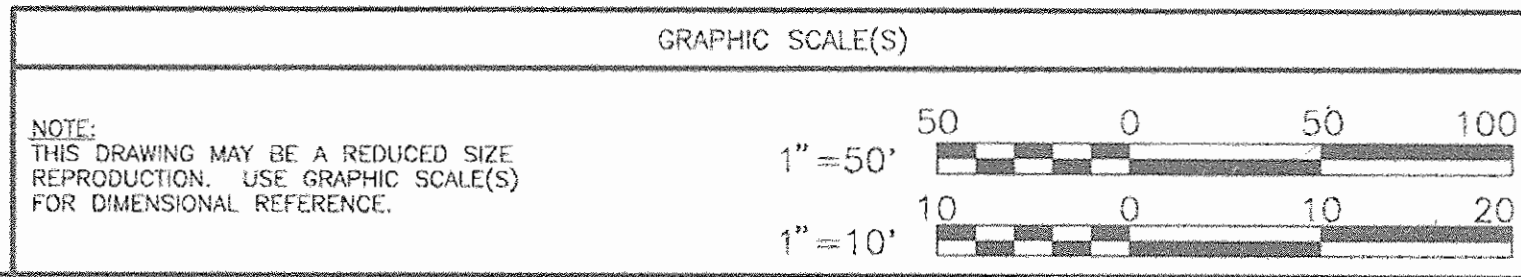
8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737



DSN. BY: HBT	BY: NO.	REVISION	DATE
DRN. BY: DFJ/DLD			
CHK. BY: HBT/RJD			
DATE: 05-08-95			

PLAN AND PROFILE
 STA. 75+49 TO STA. 10+70

600' SCALE MAP NO. _____ BLOCK NO. _____



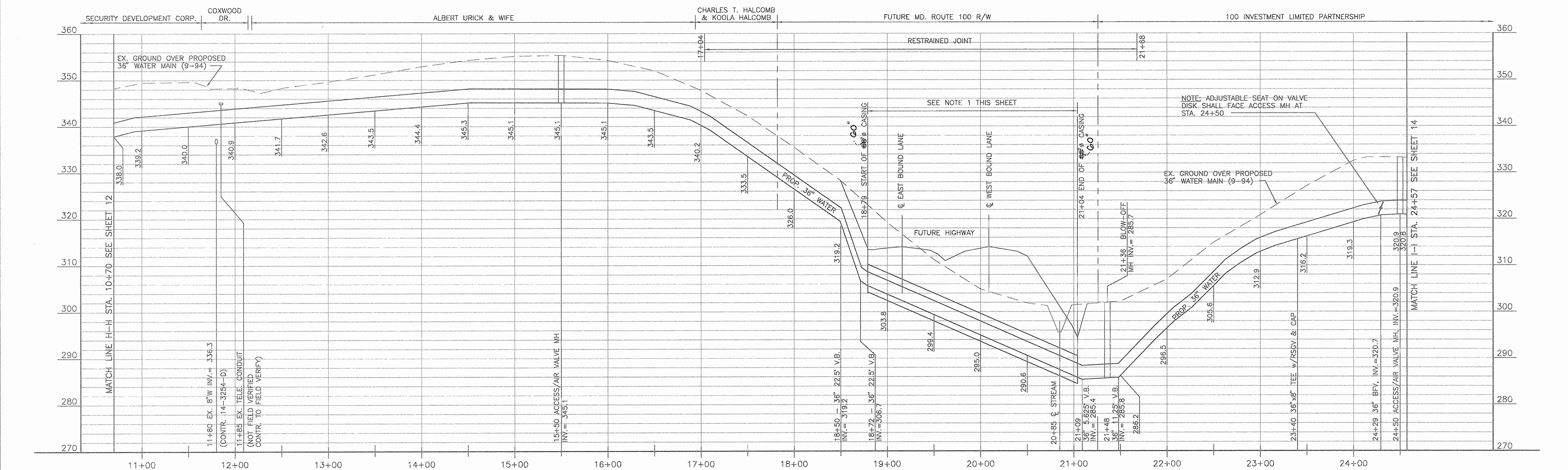
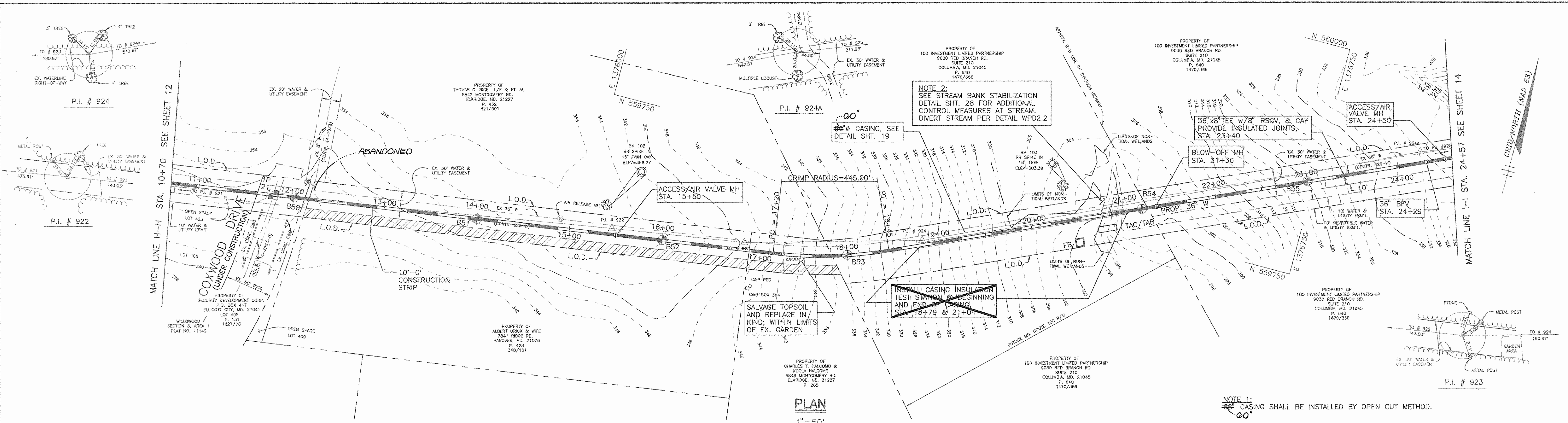
ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE.

CAPITAL PROJECT: W-8169
 CONTRACT NO.: 44-3327
 ELECTION DISTRICT NO. 1
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 12 OF 28

AS-BUILT 10-13-97

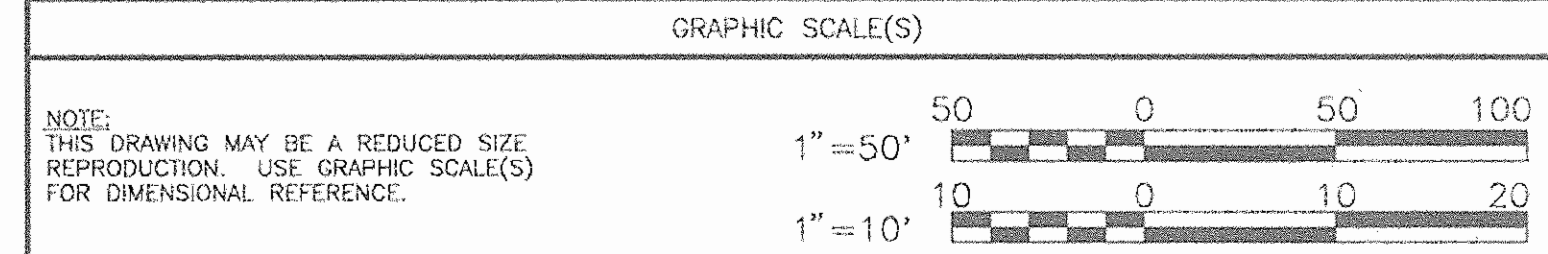
3327 W/S SHT. 13 ELKRIDGE



SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION

- LIMIT OF DISTURBANCE (L.O.D.) SHALL BE WITHIN THE LIMIT OF CLEARING (STA. -3+75 TO -0+27), AND WITHIN EX. COUNTY EASEMENTS AND CONSTRUCTION STRIPS, (-0+27 TO END OF CONTRACT), AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOT DAMAGE OR REMOVE ANY EX. TREES OR SHRUBS OUTSIDE OF THE EX. 30' WIDE UTILITY EASEMENT (STA. -0+27 TO END OF CONTRACT).
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PROFILE
 HORZ.: 1"=50'
 VERT.: 1"=10'



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works: *John J. Lee* 5/1/95
 Chief, Bureau of Engineering: *Paul D. Sorenson* 5/9/95
 Chief, Bureau of Utilities: *Robert Sorenson* 5-8-95
 Chief, Utility Design Division: *John J. Lee* 5-9-95

O'BRIEN & GERE
 ENGINEERS, INC.
 8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5822
 FAX: (301) 577-4737



DSN. BY:	HBT
DRN. BY:	DJF/DLD
CHK. BY:	HBT/RJD
DATE:	05-04-95
BY:	NO.
REVISION:	
DATE:	

PLAN AND PROFILE
 STA. 10+70 TO STA. 24+57

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

SCALE AS SHOWN

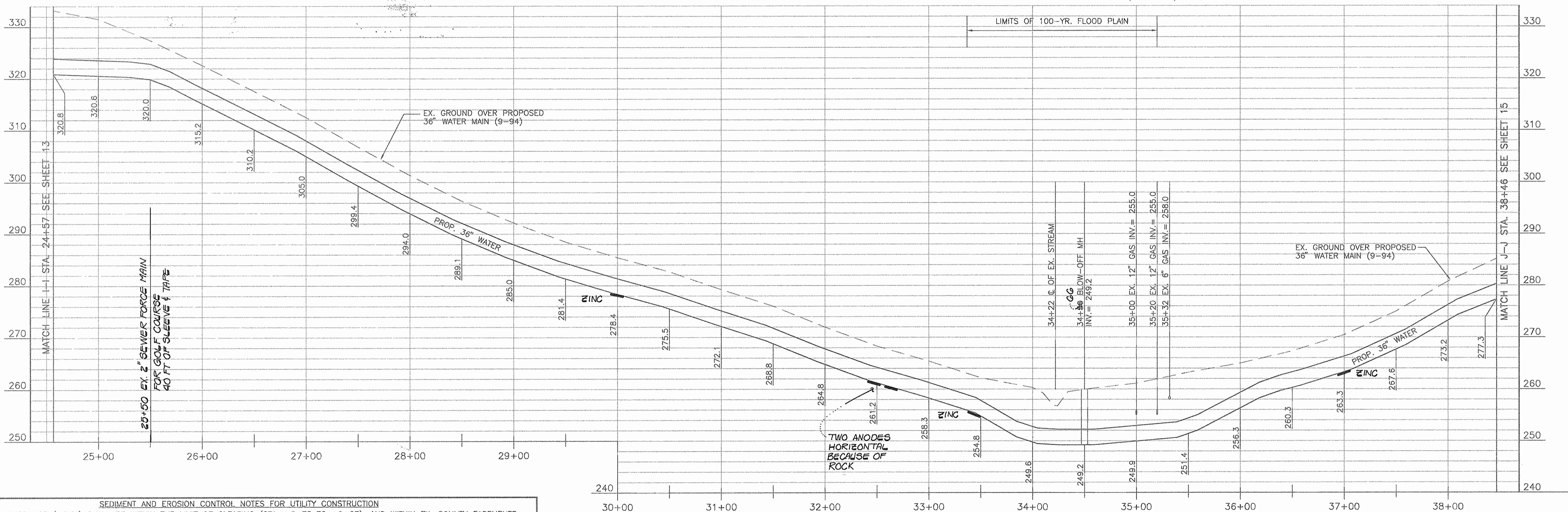
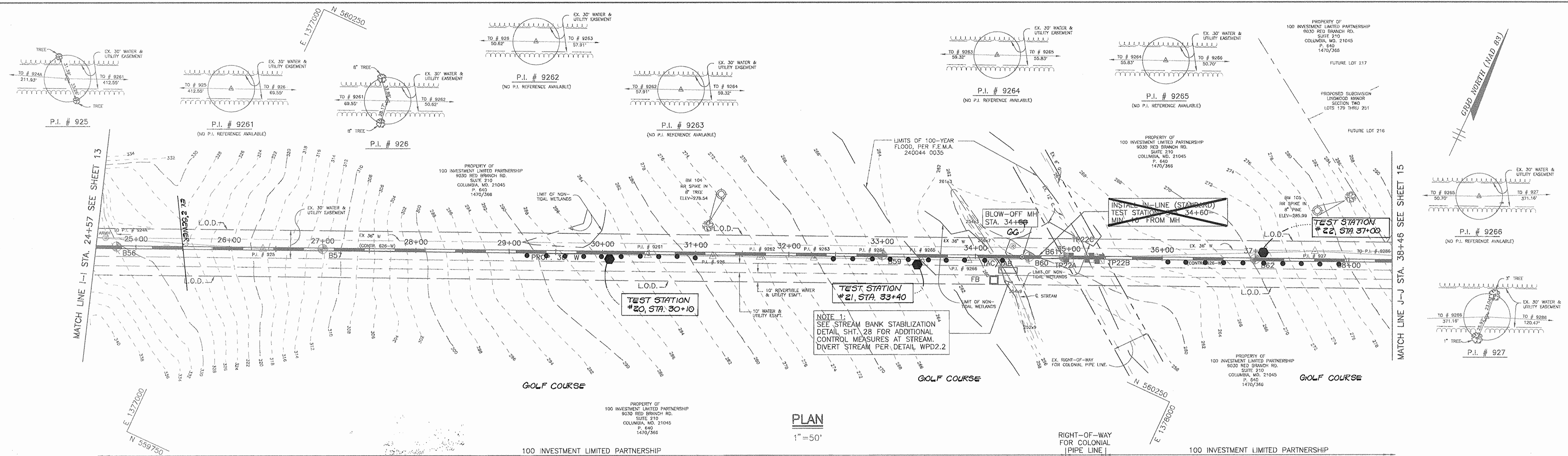
SHEET 13 OF 28

AS-BUILT 10-13-97

ELKRIDGE

SAT 14

3327 W/S



- SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION**
- LIMIT OF DISTURBANCE (L.O.D.) SHALL BE WITHIN THE LIMIT OF CLEARING (STA. -3+75 TO -0+27), AND WITHIN EX. COUNTY EASEMENTS AND CONSTRUCTION STRIPS, (-0+27 TO END OF CONTRACT), AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOT DAMAGE OR REMOVE ANY EX. TREES OR SHRUBS OUTSIDE OF THE EX. 30' WIDE UTILITY EASEMENT (STA. -0+27 TO END OF CONTRACT).
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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James J. Lee 5/9/95
 DIRECTOR OF PUBLIC WORKS DATE

Robert M. Beatty 5-8-95
 CHIEF, BUREAU OF UTILITIES DATE

Charles D. Seaman 5/9/95
 CHIEF - BUREAU OF ENGINEERING DATE

Orlando 5-9-95
 CHIEF UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
 ENGINEERS, INC.

8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737



DSN. BY: HBT	BY NO.	REVISION	DATE
DRN. BY: DJF/DLD			
CHK. BY: HBT/RJD			
DATE: 05-08-95			

PLAN AND PROFILE
 STA. 24+57 TO STA. 38+46

600' SCALE MAP NO. _____ BLOCK NO. _____

GRAPHIC SCALE(S)

1"=50'
 1"=10'

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

SCALE AS SHOWN

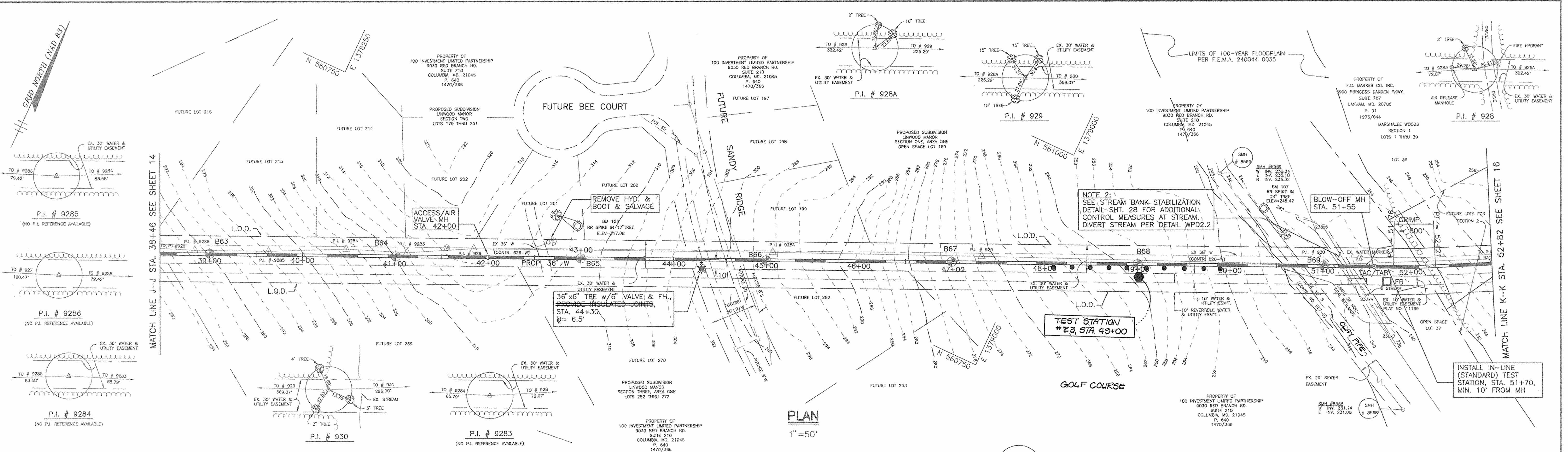
SHEET 14 OF 28

AS-BUILT 10-13-97

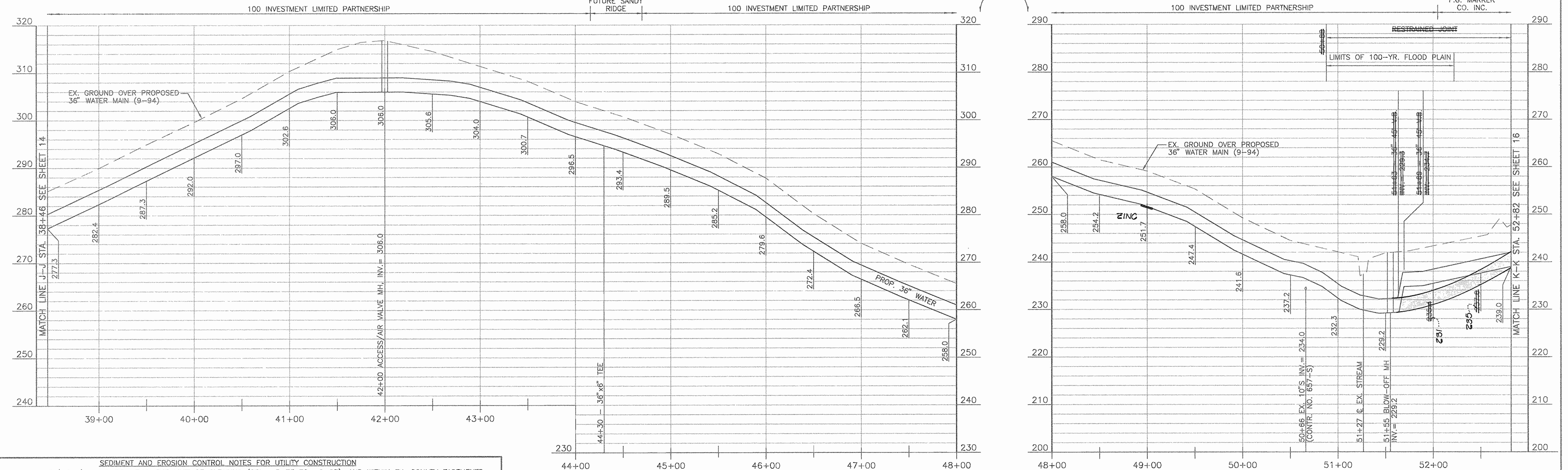
B. W. R. C. A. B.

SHT. 15

3327



PLAN
1"=50'



PROFILE
HORZ.: 1"=50'
VERT.: 1"=10'

- SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION**
- LIMIT OF DISTURBANCE (L.O.D.) SHALL BE WITHIN THE LIMIT OF CLEARING (STA. -3+75 TO -0+27), AND WITHIN EX. COUNTY EASEMENTS AND CONSTRUCTION STRIPS, (-0+27 TO END OF CONTRACT), AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOT DAMAGE OR REMOVE ANY EX. TREES OR SHRUBS OUTSIDE OF THE EX. 30' WIDE UTILITY EASEMENT (STA. -0+27 TO END OF CONTRACT).
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Tom A. Lee 5/0/95
DIRECTOR OF PUBLIC WORKS DATE

Richard J. Seppan 5/0/95
CHIEF - BUREAU OF ENGINEERING DATE

Robert A. Berman 5-8-95
CHIEF, BUREAU OF UTILITIES DATE

Clayton D. ... 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.

8201 Corporate Drive
Suite 1000
Lanover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: HBT			
DRN. BY: DJF/DLD			
CHK. BY: HBT/RJD			
DATE: 05-08-95			
BY NO.	REVISION	DATE	

PLAN AND PROFILE
STA. 38+46 TO STA. 52+82

600' SCALE MAP NO. _____ BLOCK NO. _____

GRAPHIC SCALE(S)

1"=50' 0 50 100
1"=10' 0 10 20

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

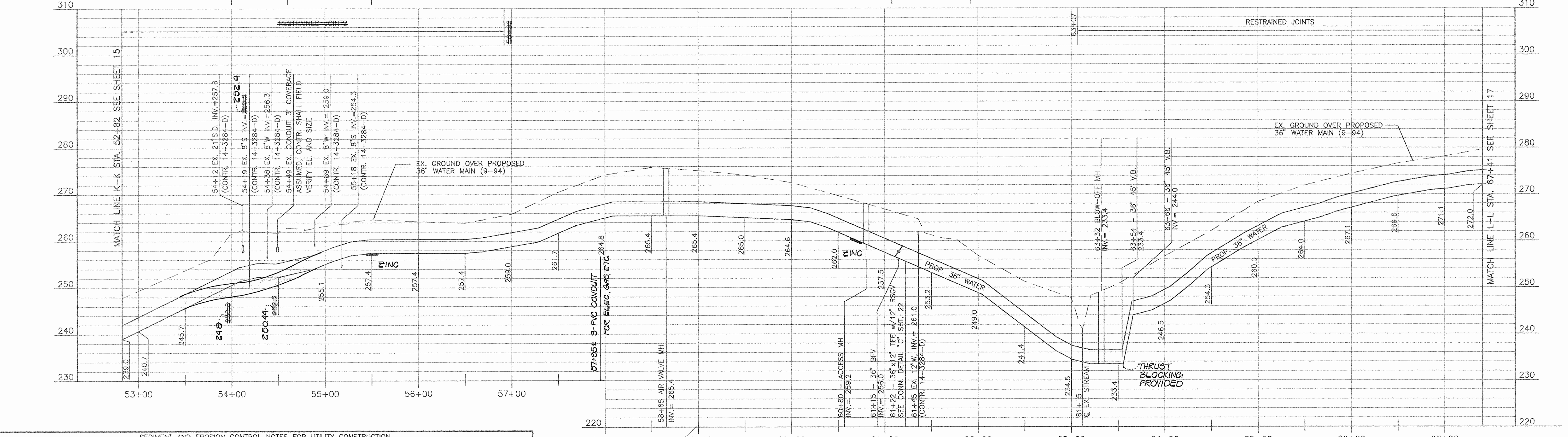
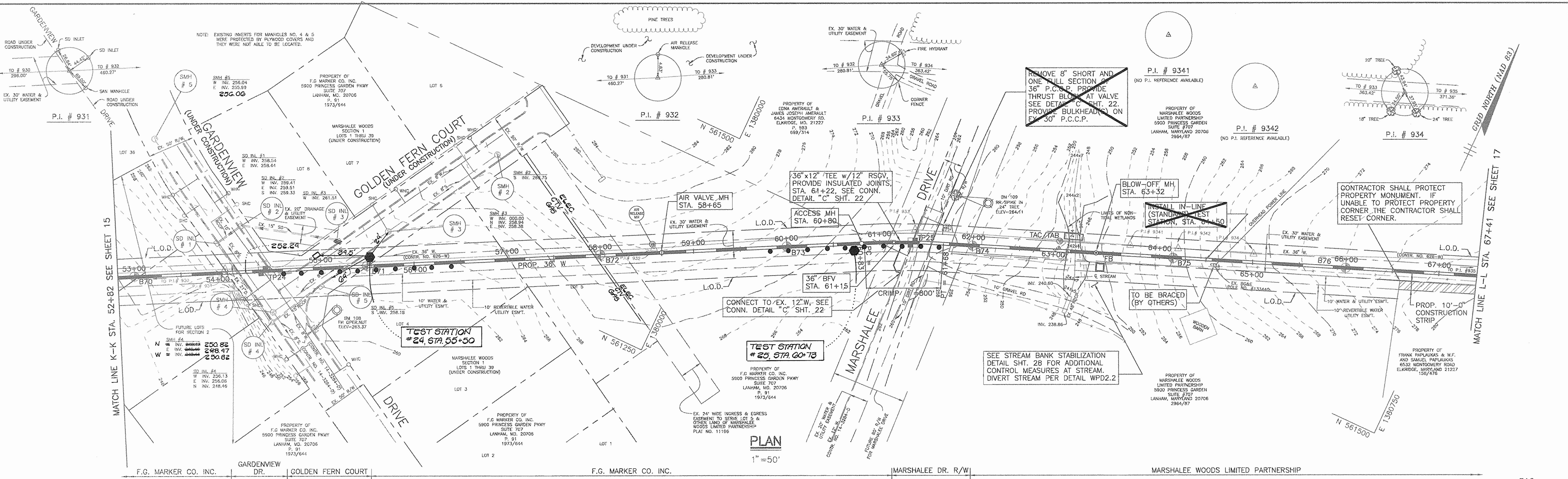
ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE TO DEER RIDGE LANE

SCALE AS SHOWN

SHEET 15 OF 28

AS-BUILT 10-13-97

3327 W/S SAT. 16 ELKRIDGE



SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Slaw 5/1/95
DIRECTOR OF PUBLIC WORKS DATE

Robert J. Seaman 5/9/95
CHIEF - BUREAU OF ENGINEERING DATE

Robert J. Seaman 5-8-95
CHIEF, BUREAU OF UTILITIES DATE

Of Donnan 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN GERE
ENGINEERS, INC.

8201 Corporate Drive
Suite 1000
Lanover, Maryland 20785
(301) 731-5822
FAX: (301) 577-4737



DSN. BY: HBT	BY NO.	REVISION	DATE
DRN. BY: DJF/DLD			
CHK. BY: HBT/RJD			
DATE: 05-04-95			

PLAN AND PROFILE
STA. 52+82 TO STA. 67+41

600' SCALE MAP NO. BLOCK NO.

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

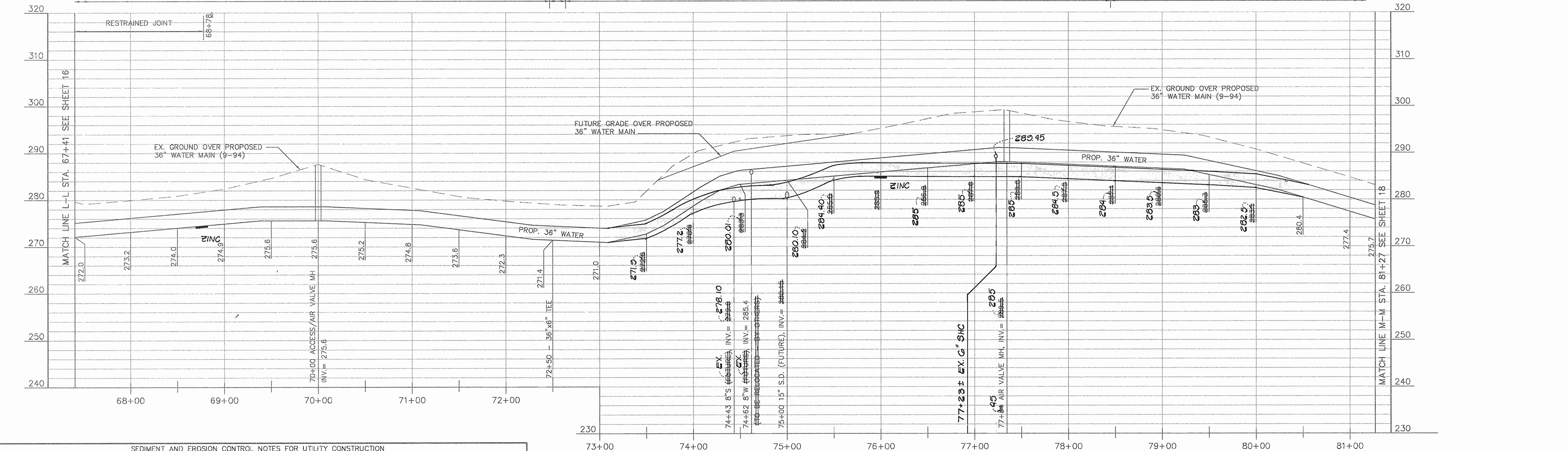
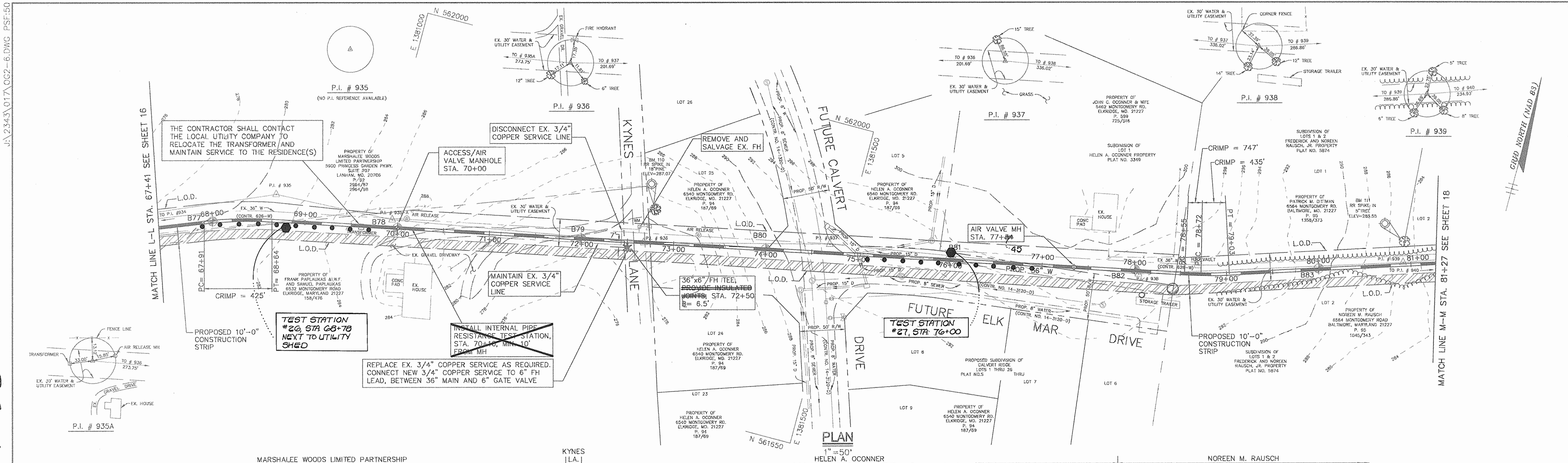
CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 16 OF 28

AS-BUILT 10-13-97

ELKRIDGE

3327 W/S STA. 17



- SEDIMENT AND EROSION CONTROL NOTES FOR UTILITY CONSTRUCTION**
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DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James P. Lewis 5/4/95
 DIRECTOR OF PUBLIC WORKS DATE

Robert J. Brown 5-8-95
 CHIEF, BUREAU OF UTILITIES DATE

Joseph J. Spon 5/10/95
 CHIEF - BUREAU OF ENGINEERING DATE

O. J. Donlin 5-9-95
 CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
 ENGINEERS, INC.

8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737



DSN. BY: HBT	BY NO.	REVISION	DATE
DRN. BY: DJF/DLD			
CHK. BY: HBT/RJD			
DATE: 05-08-95			

PLAN AND PROFILE
 STA. 67+41 TO STA. 81+27

600' SCALE MAP NO. _____ BLOCK NO. _____

GRAPHIC SCALE(S)

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

1"=50'
 1"=10'

SCALE AS SHOWN

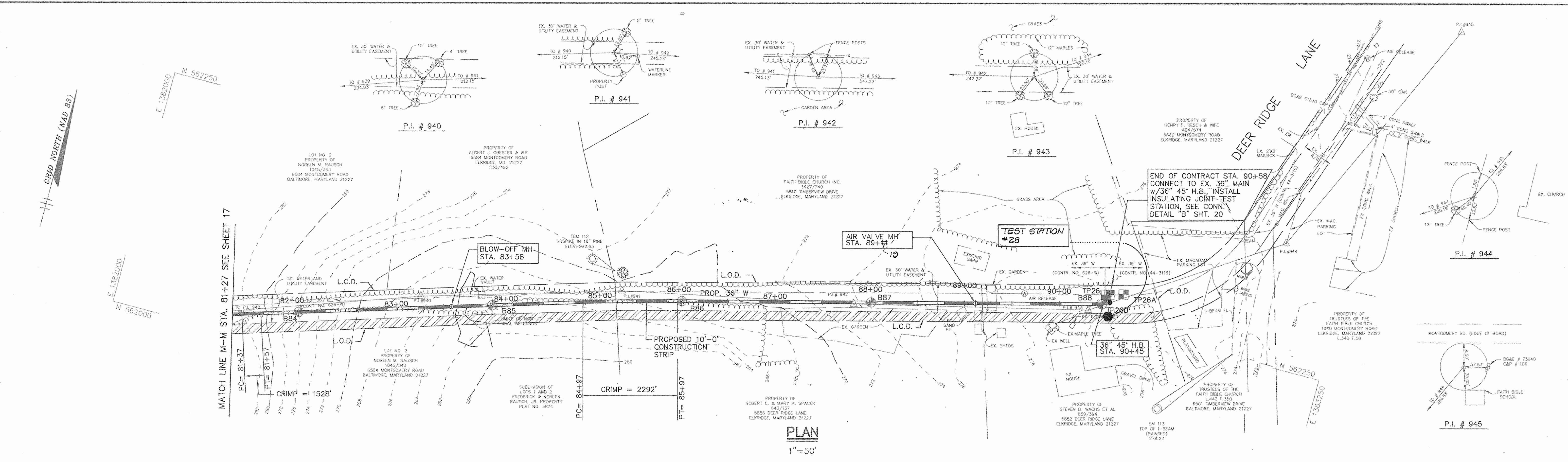
SHEET 17 OF 28

AG-BUILT 10-13-97

ELKRIDGE

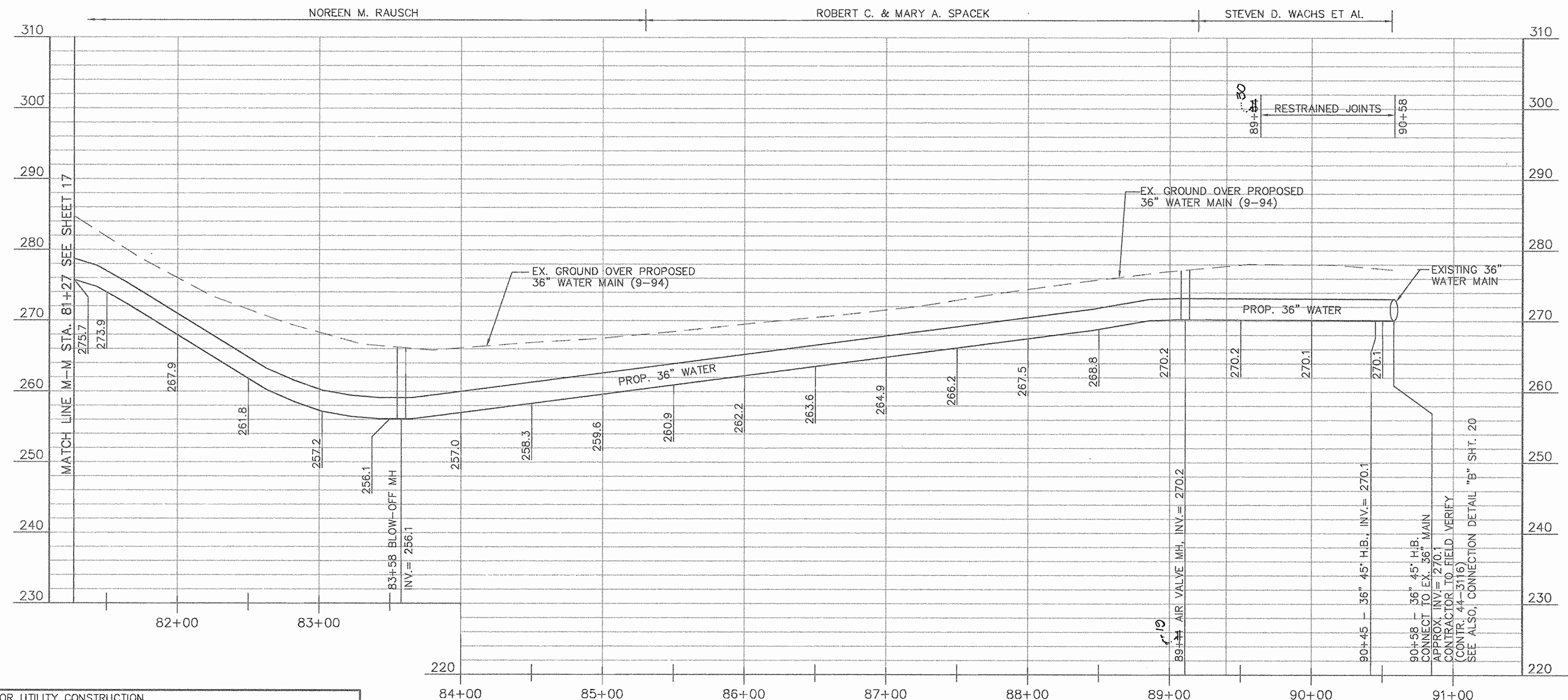
W/S SH.T. 18

3327

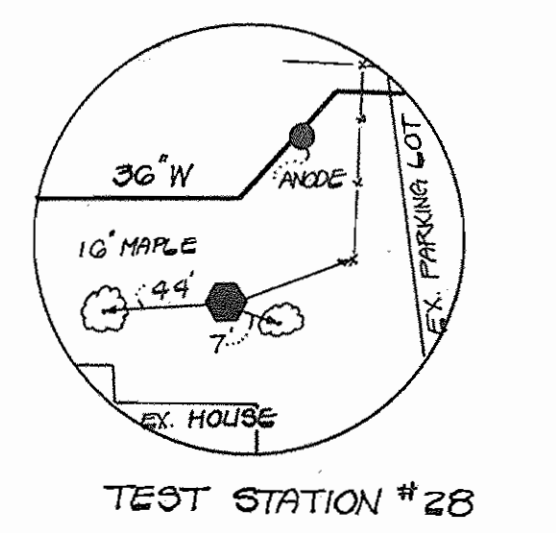


COORDINATE TABLE
SUPERCEDES COORDINATES ON SH.T. 3 OF 28 FROM STA. 81+27 TO 90+58

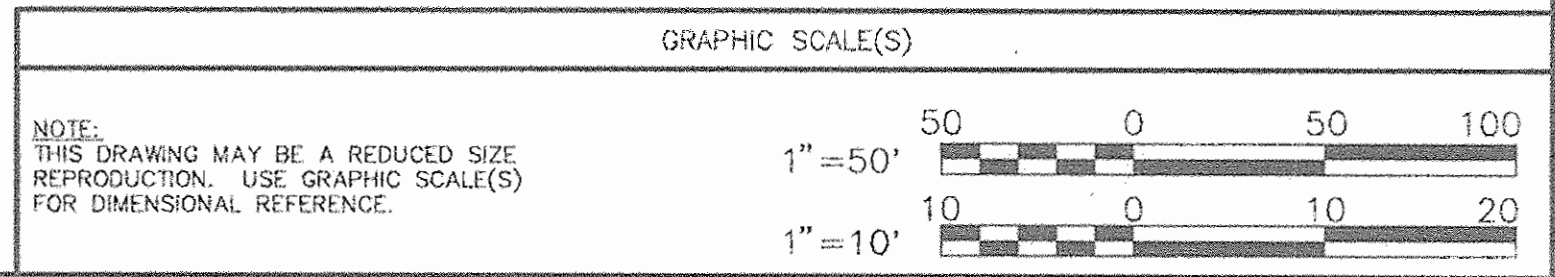
STATION	ITEM	COORDINATES	
		NORTHING	EASTING
81+37	PC	N562022.23	E1382134.83
81+57	PT	N562028.11	E1382153.95
83+57	BLOW-OFF MH	N562087.23	E1382346.10
84+97	PC	N562126.10	E1382478.91
85+97	PT	N562155.02	E1382575.21
89+11	AIR VALVE MH	N562234.50	E1382879.02
90+45	36" - 45" H.B.	N562268.43	E1383008.69
90+58	36" - 45" H.B.	N562280.06	E1383013.83



PROFILE
HORIZ.: 1"=50'
VERT.: 1"=10'



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- LIMIT OF DISTURBANCE (L.O.D.) SHALL BE WITHIN THE LIMIT OF CLEARING (STA. -3+75 TO -0+27), AND WITHIN EX. COUNTY EASEMENTS AND CONSTRUCTION STRIPS, (-0+27 TO END OF CONTRACT), AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL NOT DAMAGE OR REMOVE ANY EX. TREES OR SHRUBS OUTSIDE OF THE EX. 30' WIDE UTILITY EASEMENT (STA. -0+27 TO END OF CONTRACT).
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE	CHIEF - BUREAU OF ENGINEERING	DATE
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE

OBIEN & GERE ENGINEERS, INC.
8201 Corporate Drive
Suite 1000
Londover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: HBT/DLD	
DRN. BY: DJF/DLD	
CHK. BY: HBT/RJD	
DATE: 01-16-96	
BY NO.	REVISION
	DATE

MODIFIED
PLAN AND PROFILE
STA. 81+27 TO STA. 90+58

600' SCALE MAP NO. BLOCK NO.

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

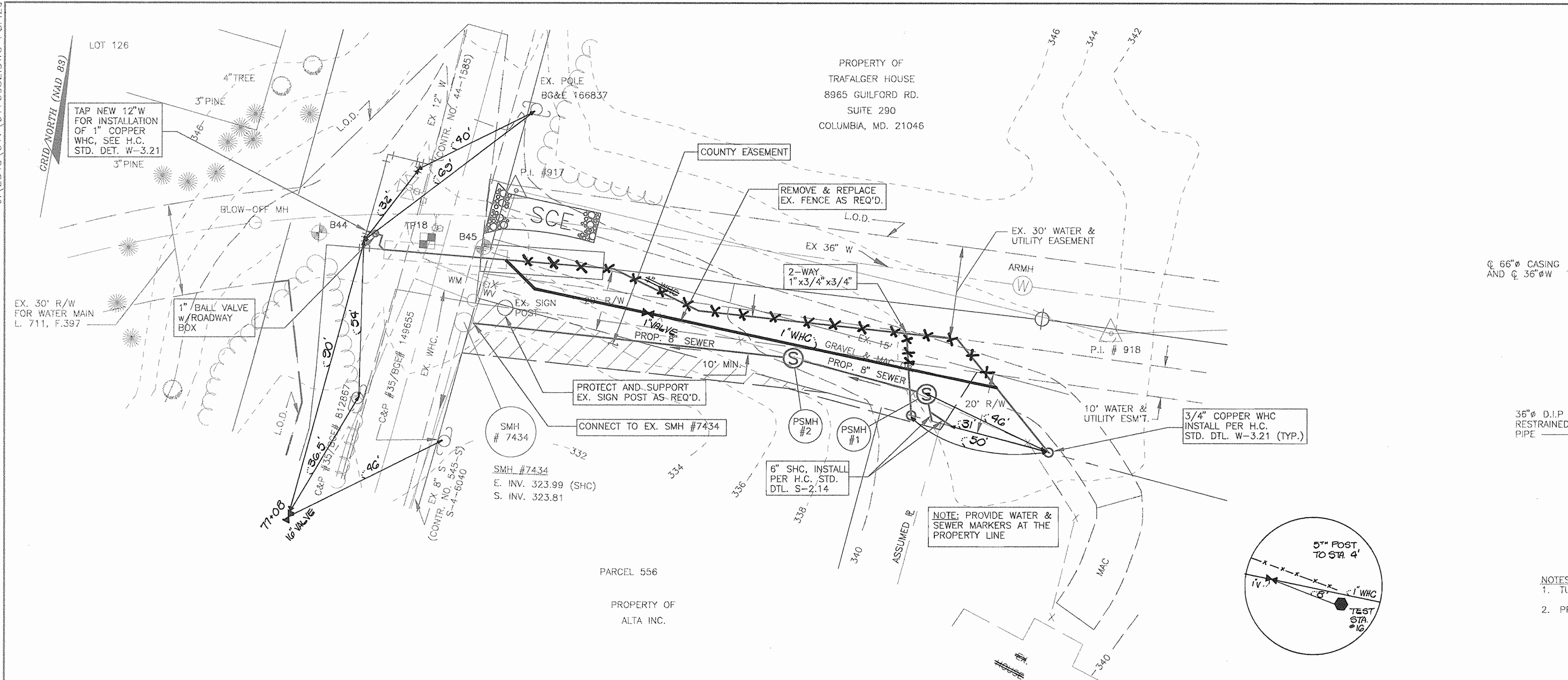
CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET Z-1
18 OF 28
AS-BUILT 10-13-97

J:\2343\017\017G032.DWG PSF-20

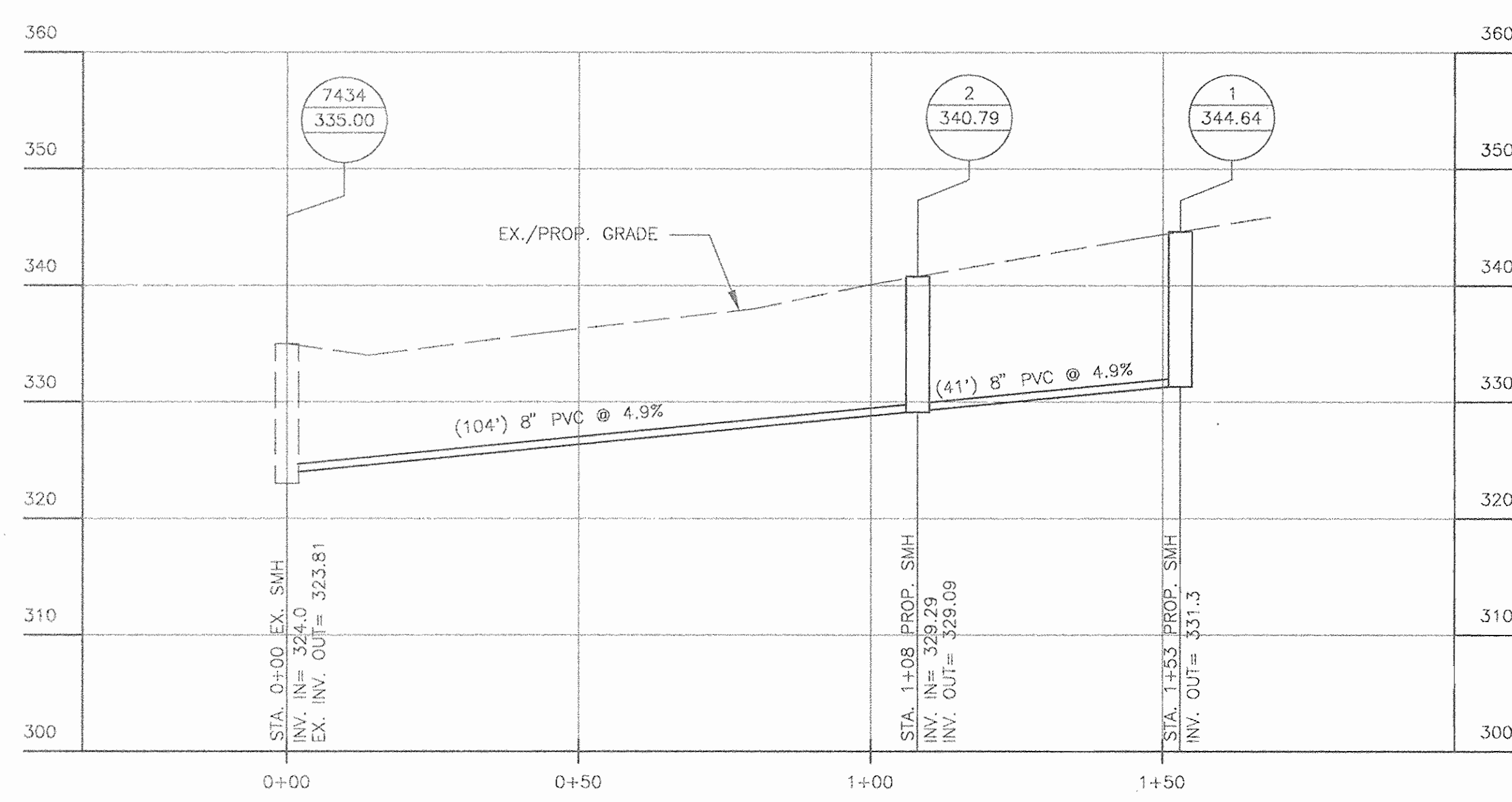
ELKRIDGE

3327 W/S SHT. 19



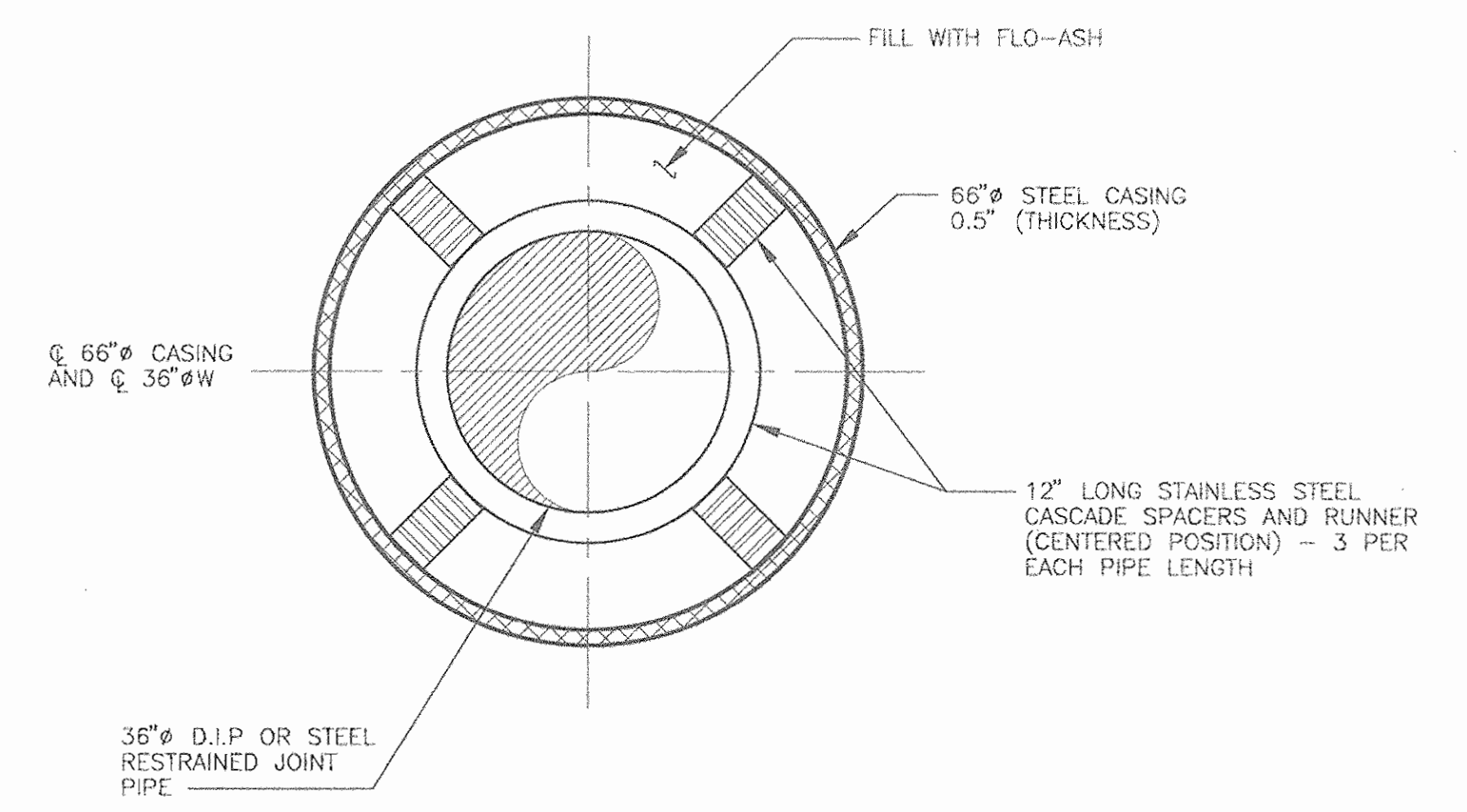
PROP. 8" SEWER, 1" AND 3/4" WHC'S - PLAN

1"=20'



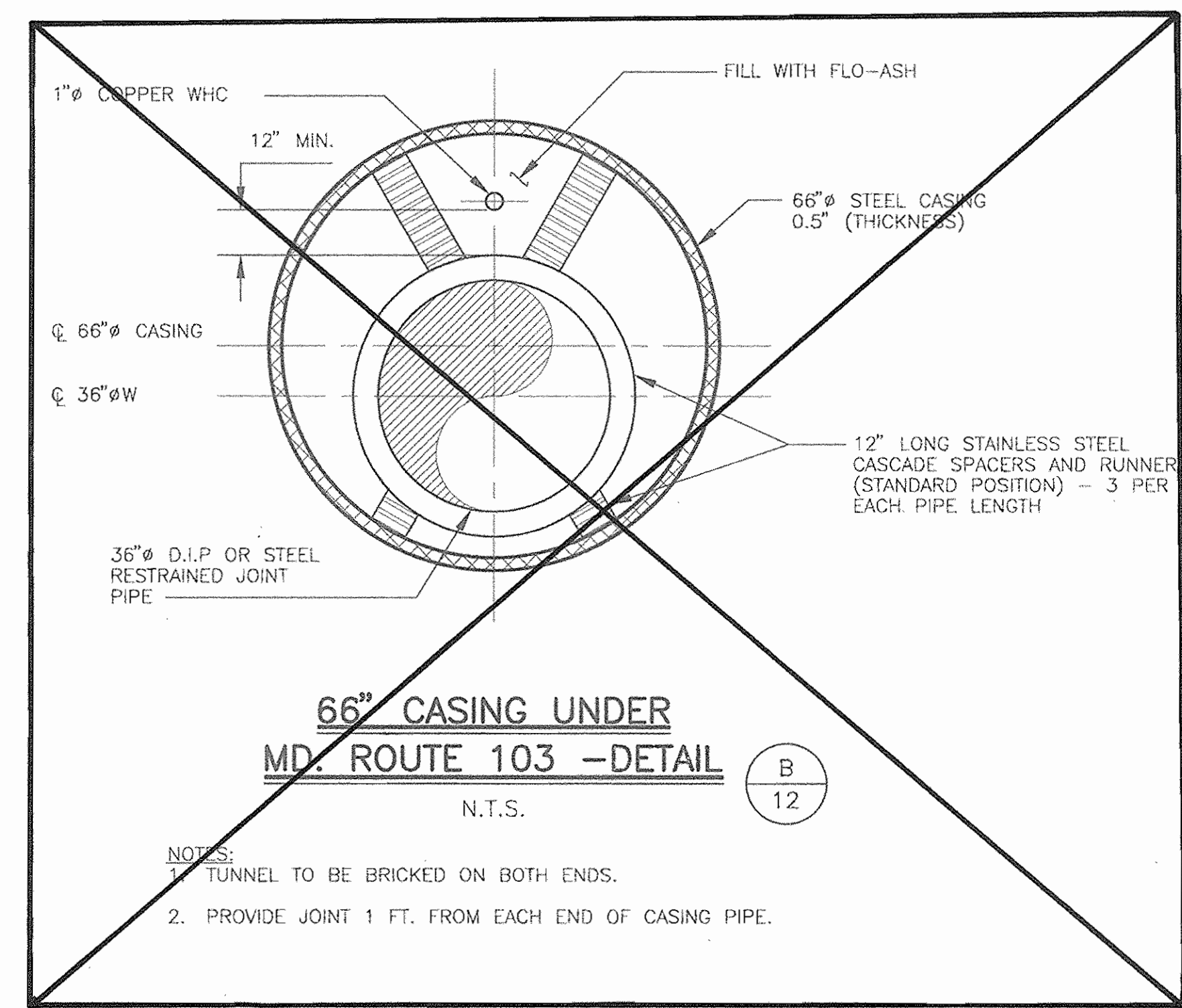
PROP. 8" SEWER - PROFILE

HORIZ.: 1"=20'
VERT.: 1"=10'



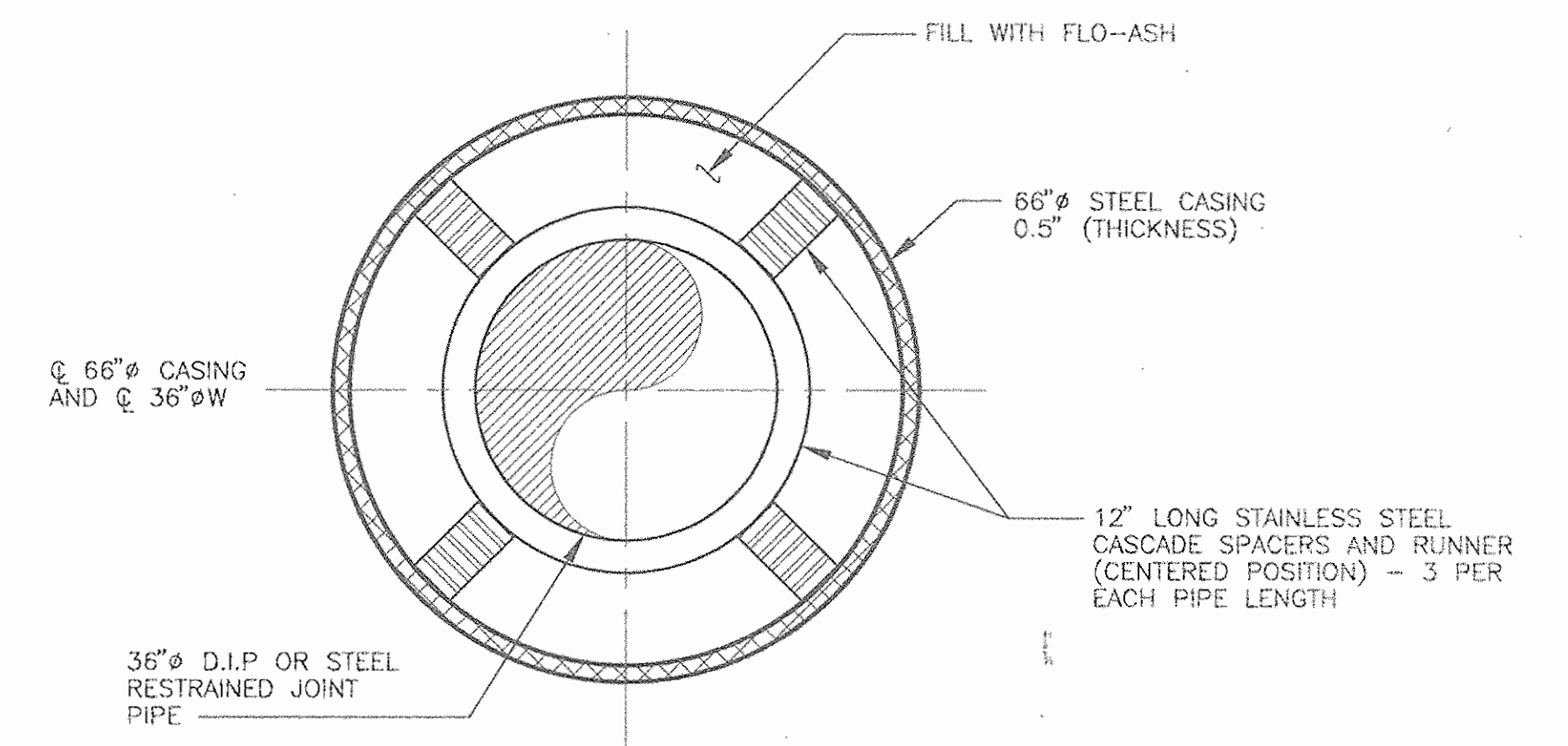
60" CASING UNDER MD. ROUTE 108 - DETAIL

N.T.S. 1. TUNNEL TO BE BRICKED ON BOTH ENDS.
2. PROVIDE JOINT 1 FT. FROM EACH END OF CASING PIPE.



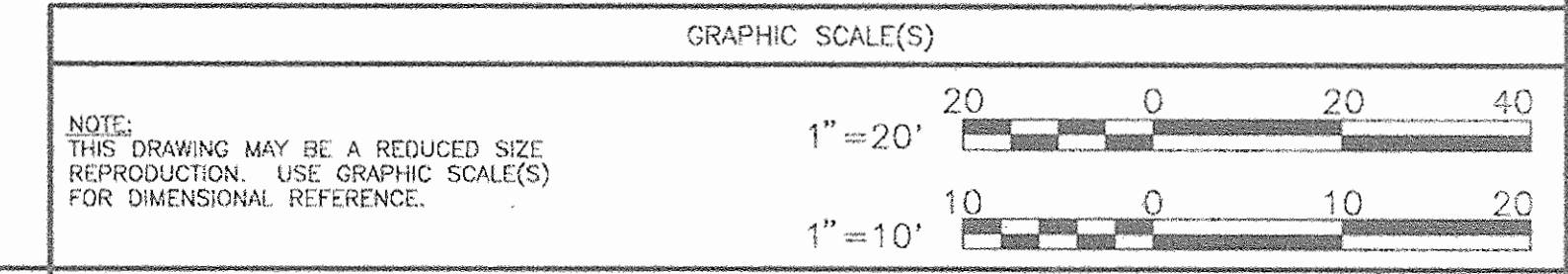
66" CASING UNDER MD. ROUTE 103 - DETAIL

N.T.S. 1. TUNNEL TO BE BRICKED ON BOTH ENDS.
2. PROVIDE JOINT 1 FT. FROM EACH END OF CASING PIPE.



60" CASING UNDER MD. ROUTE 100 - DETAIL

N.T.S. 1. TUNNEL TO BE BRICKED ON BOTH ENDS.
2. PROVIDE JOINT 1 FT. FROM EACH END OF CASING PIPE.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Lee 5/9/95
DIRECTOR OF PUBLIC WORKS DATE

Richard J. Brown 5/8/95
CHIEF, BUREAU OF UTILITIES DATE

Richard J. Brown 5/10/95
CHIEF - BUREAU OF ENGINEERING DATE

Oy D. Brown 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.
8201 Corporate Drive
Suite 1000
Londonderry, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737

DSN. BY: RJD
DRN. BY: DLD
CHK. BY: RJD
DATE: 05-04-95

BY NO. REVISION DATE

INSTALLATION PLAN FOR
PROP. 8" SEWER,
1" AND 3/4" COPPER WHC'S -
CASING DETAILS

600' SCALE MAP NO. BLOCK NO.

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

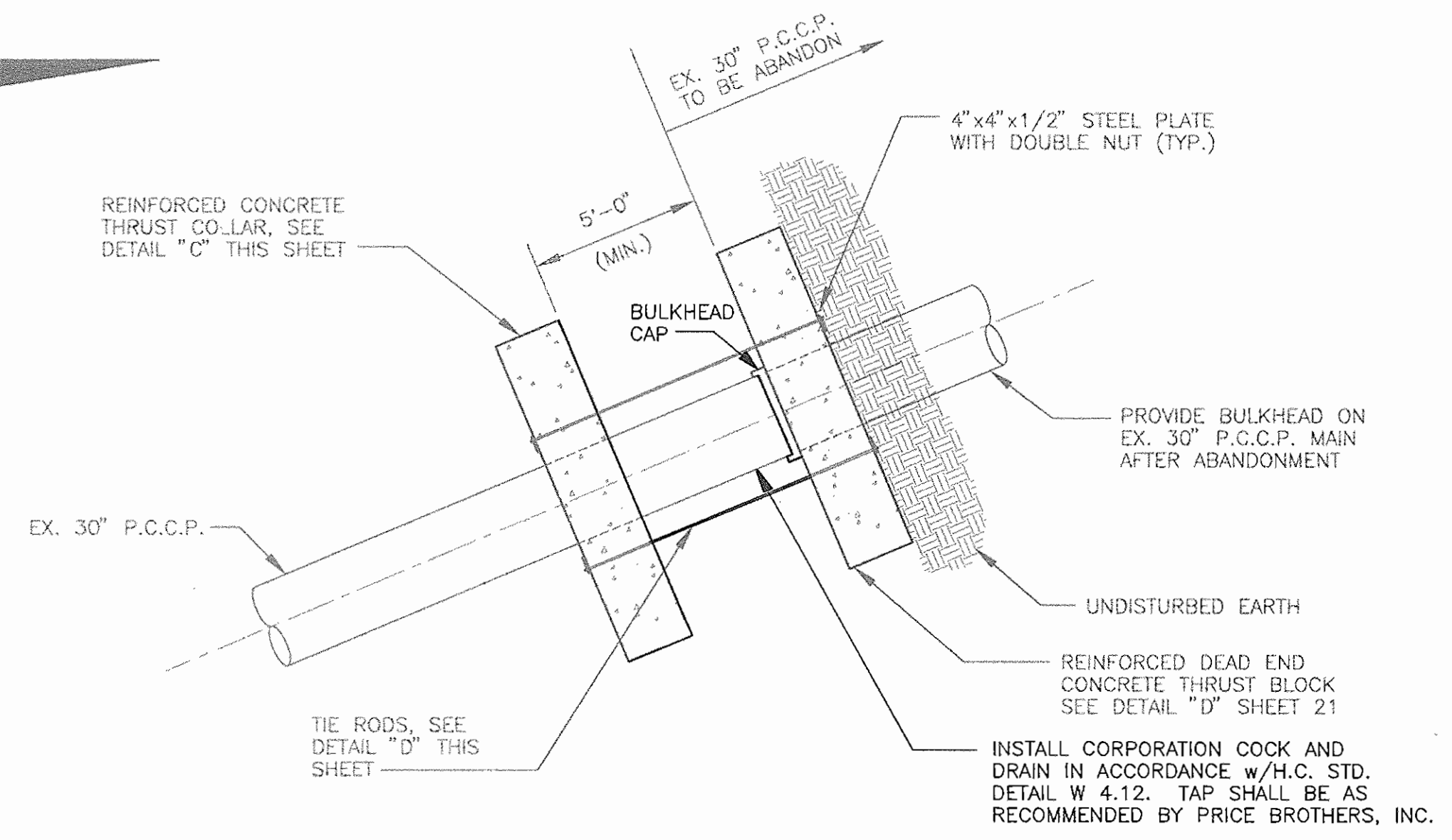
SCALE AS SHOWN
SHEET 19 OF 28

FILE NO. 2343.017 - 032F

ELKRIDGE

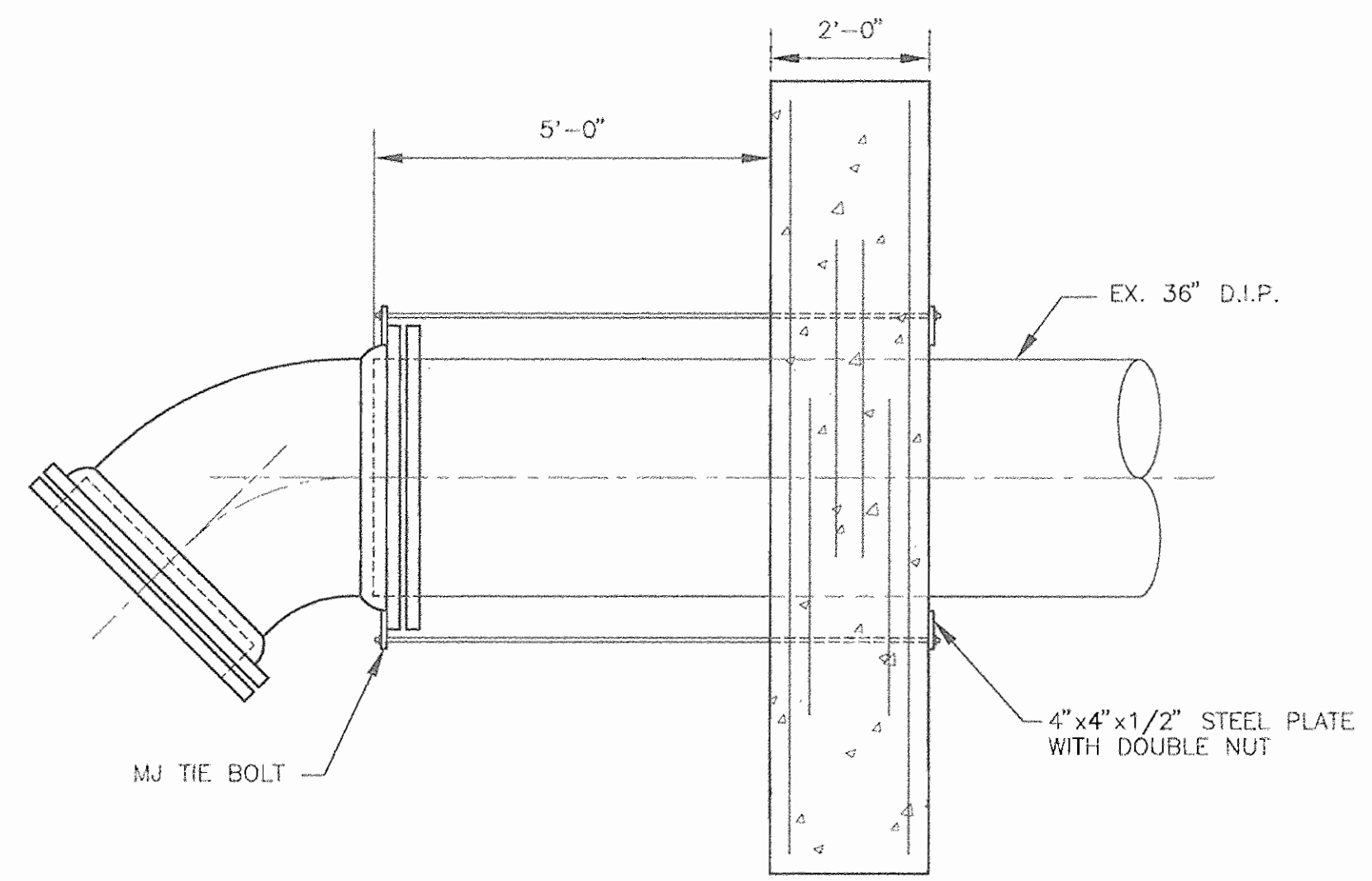
SAT. 20

3327 WLS

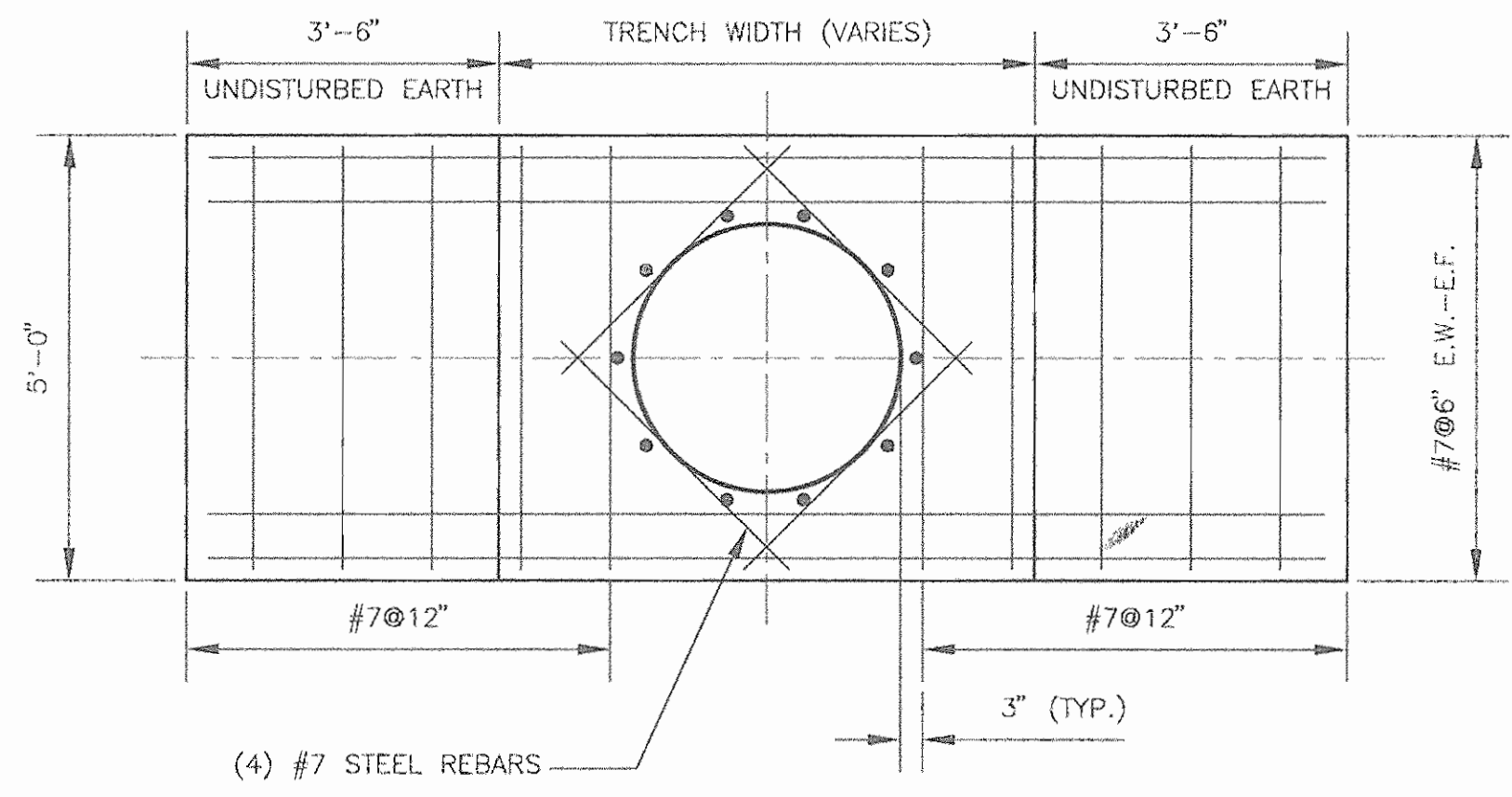


EXISTING 30" P.C.C.P. ABANDONMENT AT MAYFIELD AVE. - DETAIL A
1/4" = 1'-0" (5)

- NOTES:
1. INSTALL BULKHEAD CAP 2 STRAIGHT LENGTHS BEYOND 45° BEND AS PER DETAILED ENLARGEMENT, SEE SHEET 5.
 2. MAXIMUM SHUT-DOWN TIME OF EXISTING MAIN SHALL BE TEN HOURS.
 3. REINFORCED CONCRETE THRUST COLLAR SHALL BE INSTALLED A MINIMUM OF 14 DAYS PRIOR TO MAKING CONNECTION.
 4. REINFORCED CONCRETE THRUST COLLAR AND REINFORCED DEAD END CONCRETE THRUST BLOCK SHALL BE LOCATED WITHIN THE SAME 30" P.C.C.P. STRAIGHT LENGTH OF PIPE.



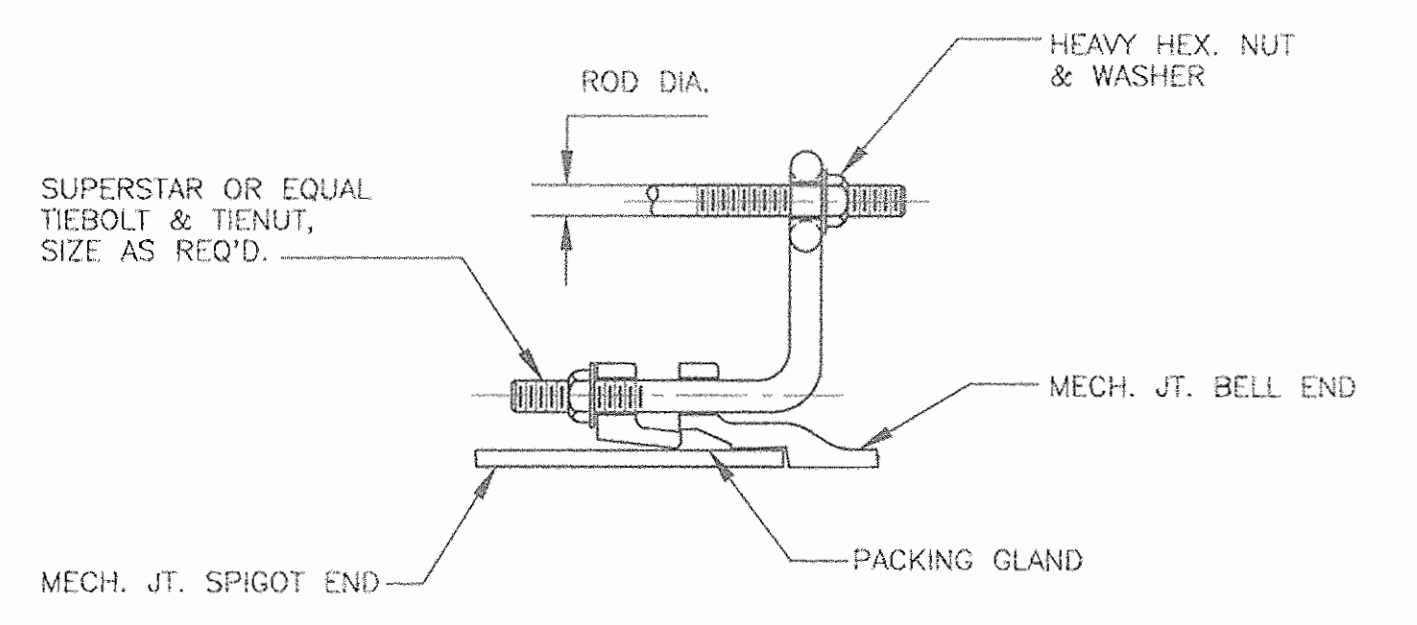
PLAN VIEW



ELEVATION

REINFORCED CONCRETE THRUST COLLAR - DETAIL C
N.T.S. (20)

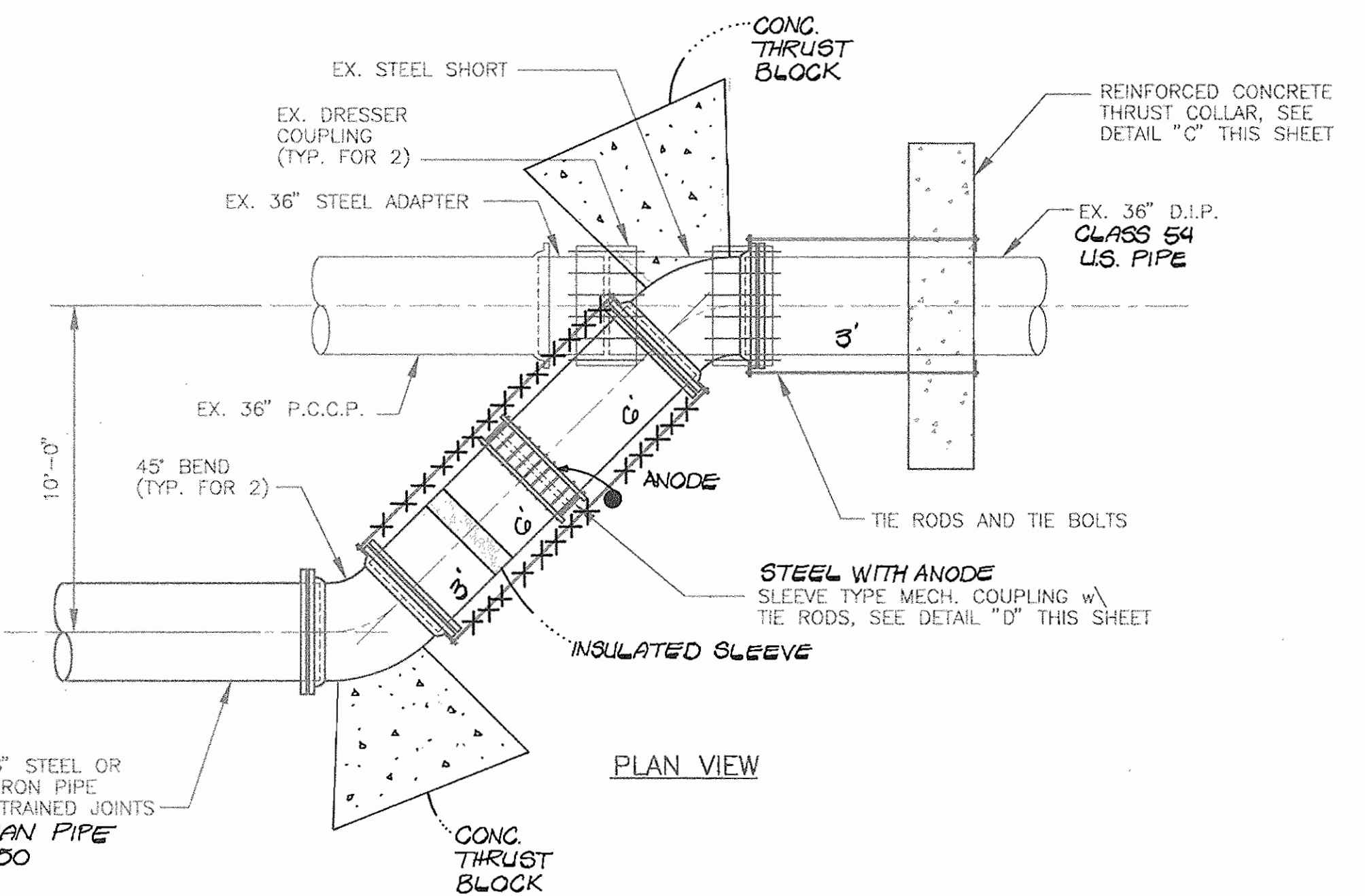
- NOTES:
1. ALL CONCRETE TO BE MIX NO. 3.
 2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED EARTH.
 3. ALL BACKFILL IN FRONT OF THE CONCRETE ANCHOR SHALL BE CAREFULLY COMPACTED.
 4. APPLY COAL TAR PROTECTIVE COATING TO ALL EXPOSED STEEL PER AWWA C-203.
 5. PROVIDE A MINIMUM OF 3" COVER OVER ALL REBAR.
 6. DETAIL "A" IS AN EXISTING 30" P.C.C.P. WITH A BULKHEAD CAP.



TIE ROD - DETAIL D
N.T.S. (20)

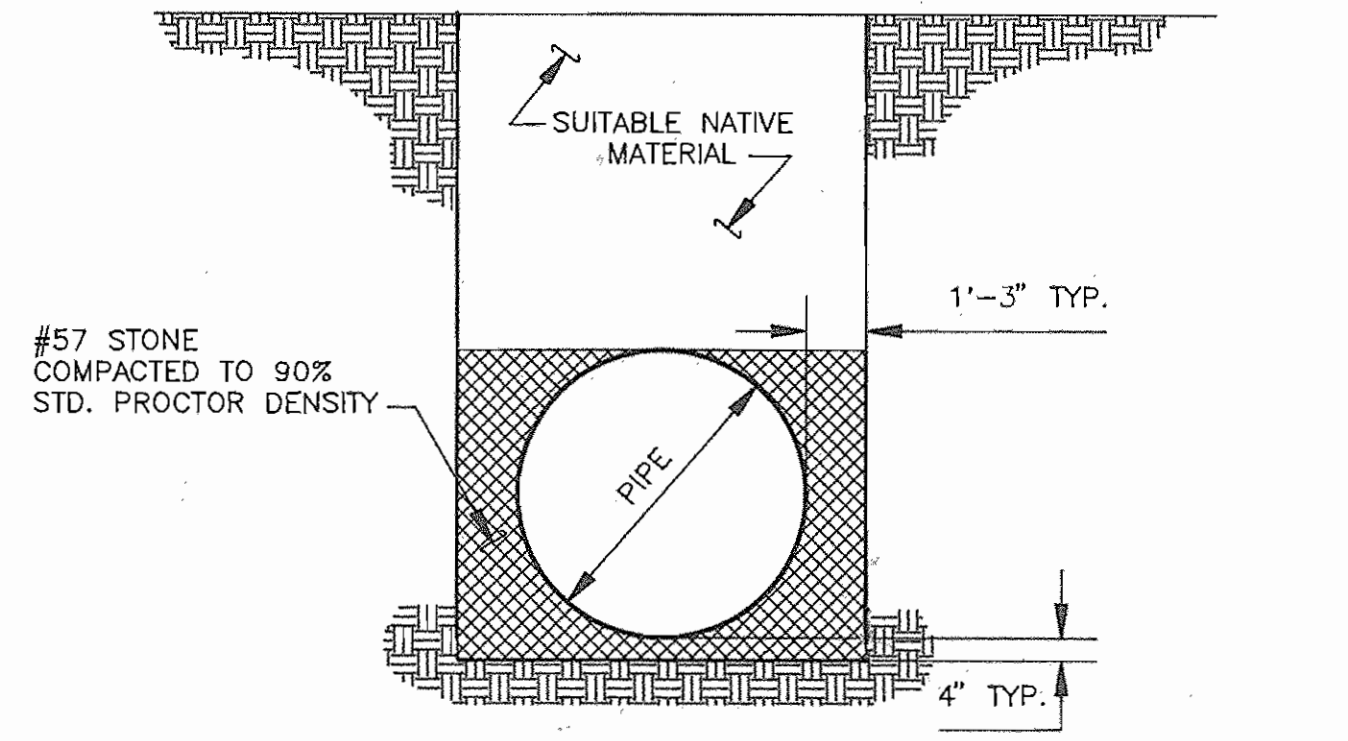
- NOTES:
1. ALL TIE RODS SHALL HAVE A MINIMUM TENSILE YIELD STRENGTH OF 70,000 PSI & MINIMUM ULTIMATE STRENGTH OF 110,000 PSI, AMERICAN COURSE THREADS.
 2. ALL BURIED TIE RODS SHALL BE CADMIUM PLATED.
 3. ALL BURIED TIE RODS, NUTS & TIEBOLTS SHALL BE PAINTED WITH 2 COATS OF TAR PITCH PRESERVATIVE COATING.
 4. SEE TIE ROD SCHEDULE FOR ROD SIZE.

TIE ROD SCHEDULE			
NOMINAL PIPE SIZE (INCHES)	BEND	ROD DIAMETER	NO. OF RODS REQUIRED
12"	DEAD END	7/8"	4
16"	DEAD END	7/8"	6
30"	DEAD END	1"	8
36"	45°	1"	8



CONNECTION TO EXISTING 36" D.I.P. MAIN AT STATION 90+57 - DETAIL B
1/4" = 1'-0" (18)

- NOTES:
1. MAXIMUM SHUT-DOWN TIME OF EXISTING MAIN SHALL BE TEN HOURS.
 2. REINFORCED CONCRETE THRUST COLLAR SHALL BE INSTALLED A MINIMUM OF 14 DAYS PRIOR TO MAKING CONNECTION.
 3. REMOVE EXISTING DRESSER COUPLING (2), STEEL SHORT AND ONE LENGTH OF EXISTING 36" P.C.C.P. MAIN. PROVIDE BULKHEAD ON EX. 36" P.C.C.P. MAIN.



TYPICAL PIPE TRENCH - DETAIL E
N.T.S. (VARIES)

GRAPHIC SCALE(S)

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

1/4" = 1'-0" 2 0 2 4 6 8 10

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Leo 5/4/95
DIRECTOR OF PUBLIC WORKS DATE

Paul J. Seaman 5/10/95
CHIEF - BUREAU OF ENGINEERING DATE

Robert Benin 5-8-95
CHIEF, BUREAU OF UTILITIES DATE

Clayton L. Pinner 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE ENGINEERS, INC.
8201 Corporate Drive Suite 1000
Londover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY: HBT	
DRN. BY: DLD	
CHK. BY: HBT/RJD	
DATE: 04-07-95	
BY NO.	REVISION
	DATE

MISCELLANEOUS DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

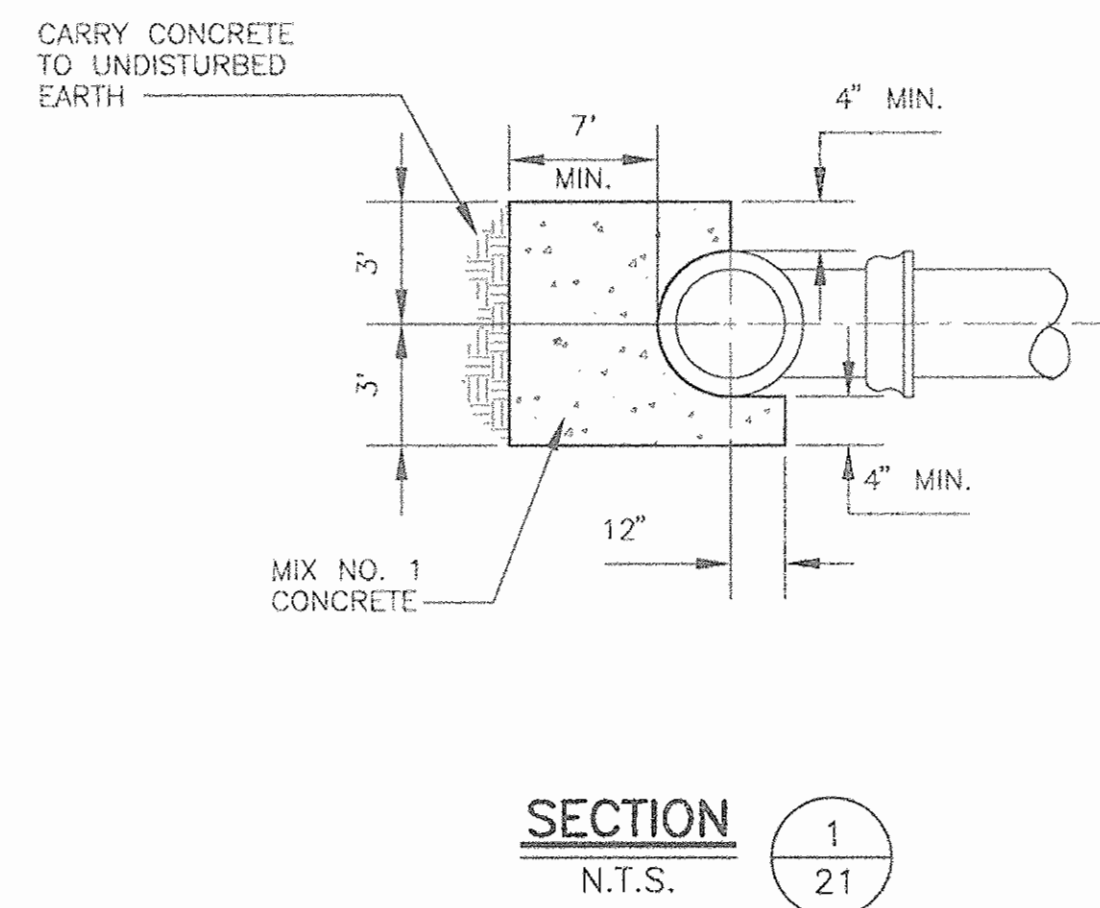
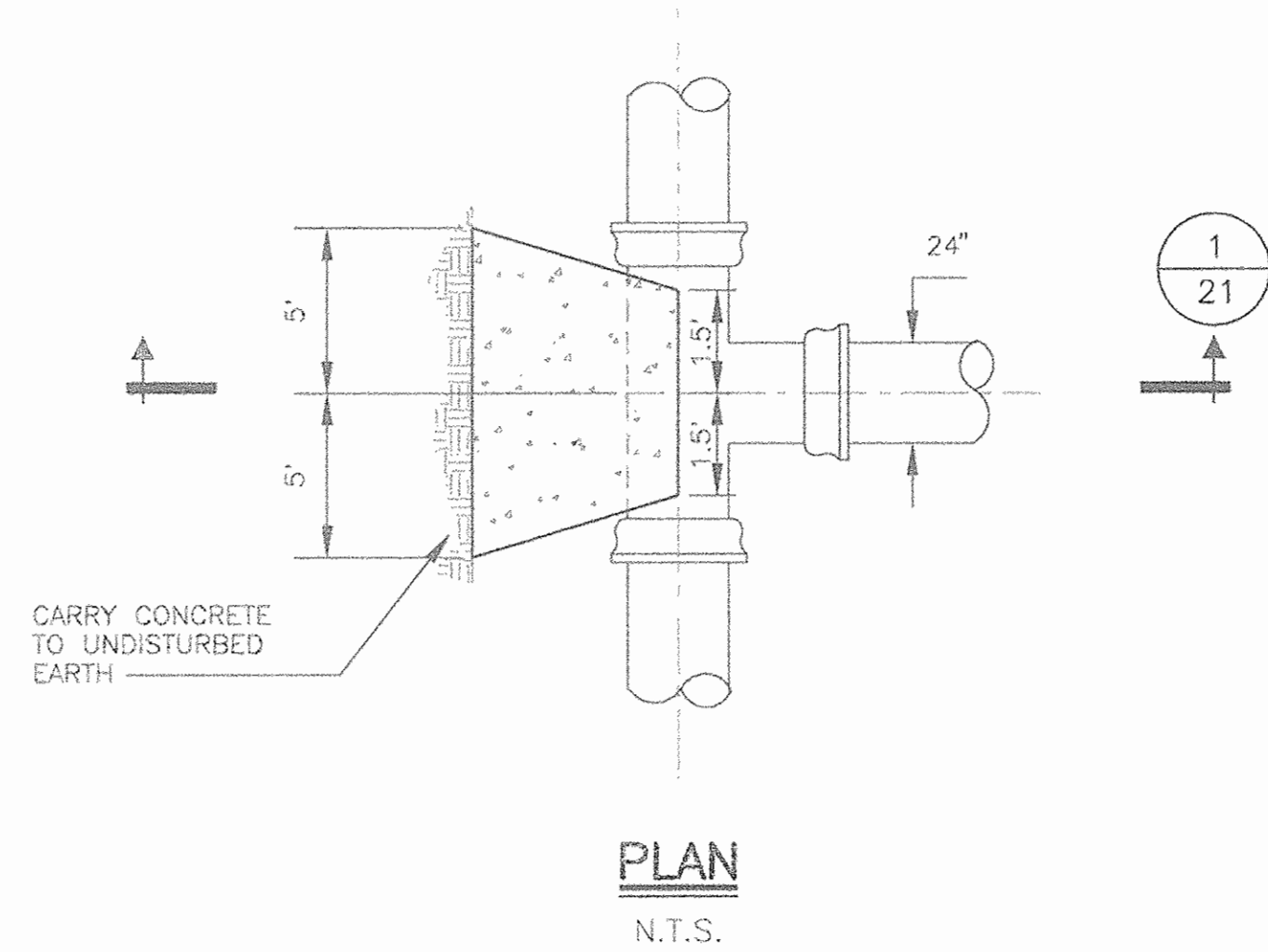
CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 20 OF 28
AS-BUILT 10-13-97

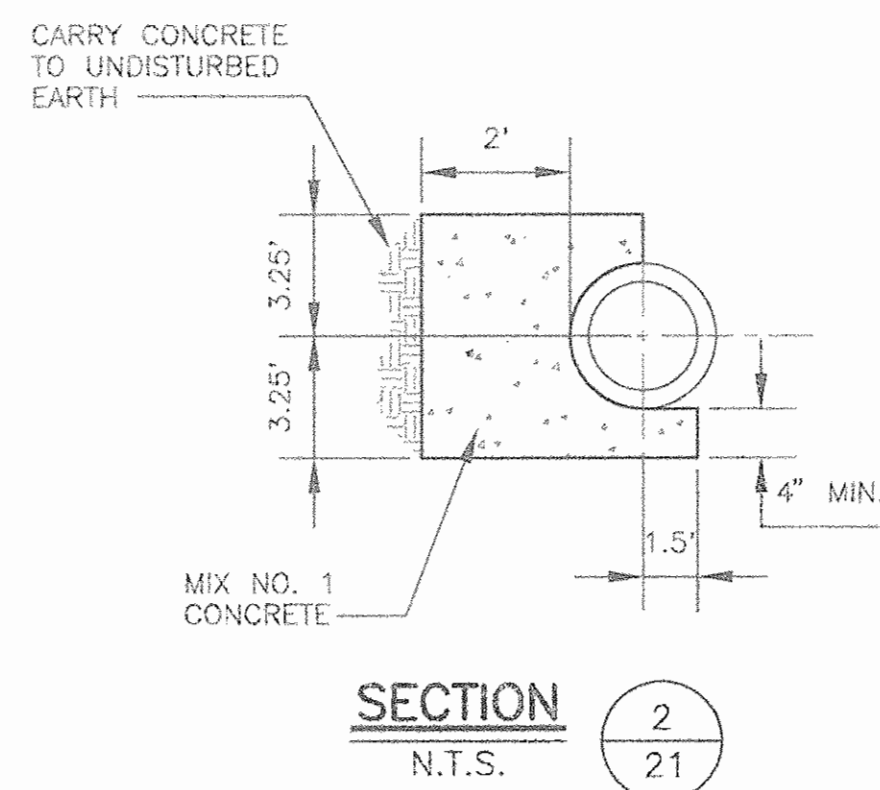
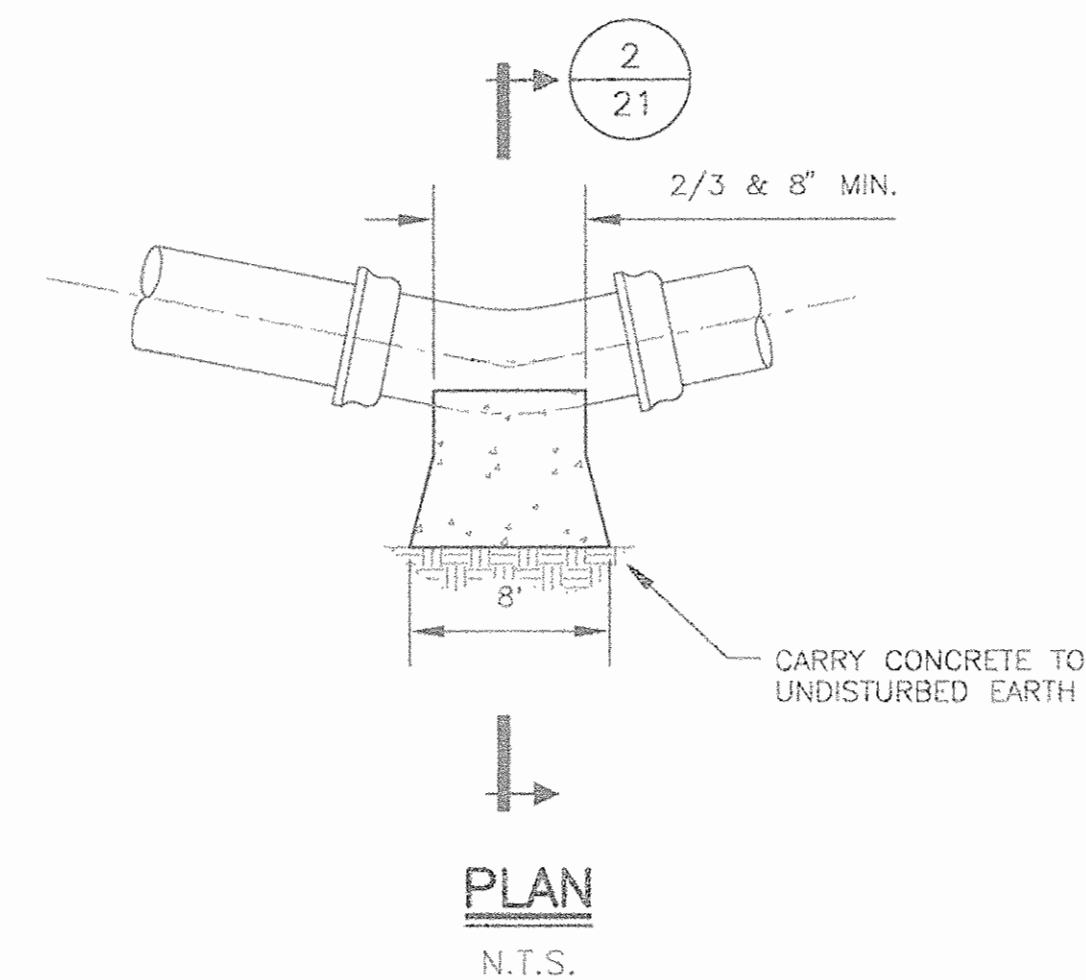
ELKRIDGE

SHT. 21

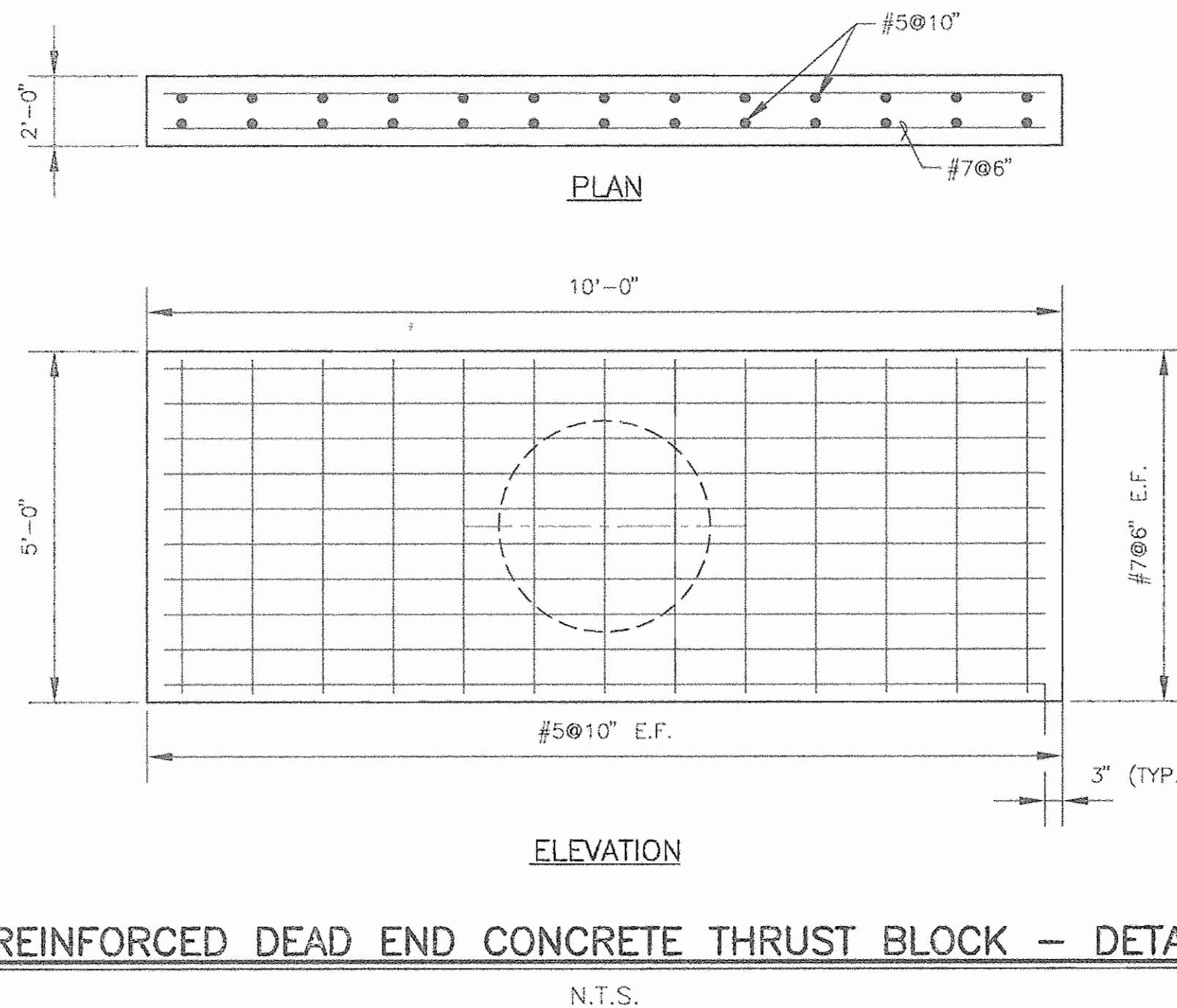
3327 W/S



30"x24" TSV BUTTRESS - DETAIL B 5 N.T.S.

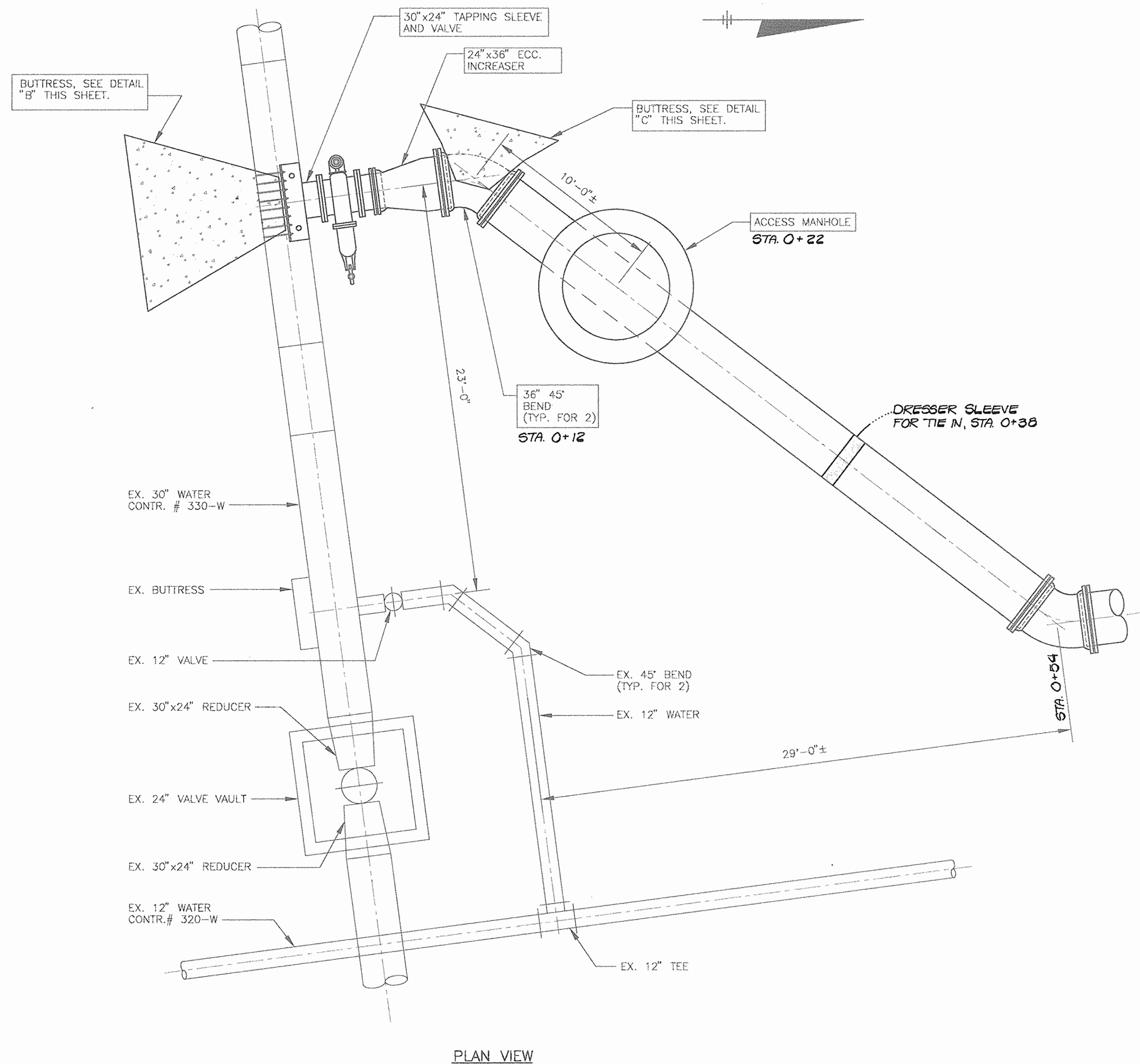


45" H.B. @ STA. 0+08 BUTTRESS - DETAIL C 5 N.T.S.



REINFORCED DEAD END CONCRETE THRUST BLOCK - DETAIL D 20 N.T.S.

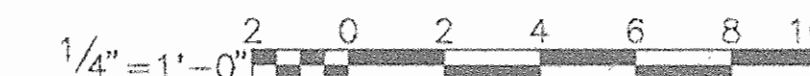
- NOTES:
1. ALL CONCRETE TO BE MIX NO. 3.
 2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED EARTH.
 3. ALL BACKFILL IN FRONT OF THE CONCRETE ANCHOR SHALL BE CAREFULLY COMPACTED.
 4. APPLY COAL TAR PROTECTIVE COATING TO ALL EXPOSED STEEL PER AWWA C-203.
 5. PROVIDE A MINIMUM OF 3" COVER OVER ALL REBAR.



CONNECTION TO EX. 30" P.C.C.P. MAIN AT STATION -0+03 - DETAIL A 5 1/4" = 1'-0"

GRAPHIC SCALE(S)

NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.



DETAIL SH.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 5/9/95 DATE

Chief, Bureau of Engineering: *[Signature]* 5/9/95 DATE

Chief, Bureau of Utilities: *[Signature]* 5-8-95 DATE

Chief, Utility Design Division: *[Signature]* 5-9-95 DATE

O'BRIEN & GERE
ENGINEERS, INC.
8201 Corporate Drive
Suite 1000
Lanover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY:	HBT
DRN. BY:	DLD
CHK. BY:	HBT/RJD
DATE:	05-05-95
BY:	NO.
REVISION:	
DATE:	

MISCELLANEOUS DETAILS

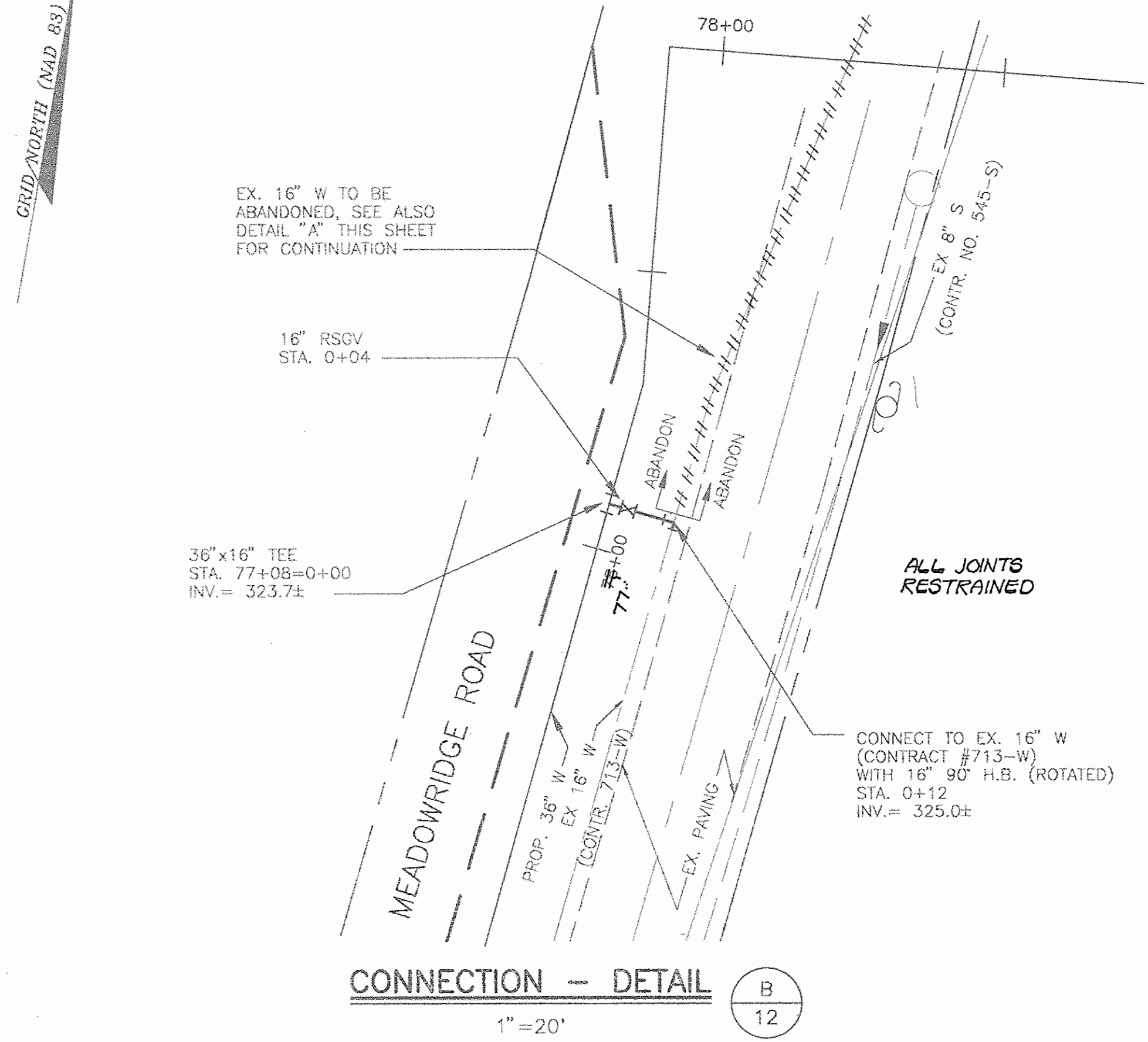
600' SCALE MAP NO. BLOCK NO.

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

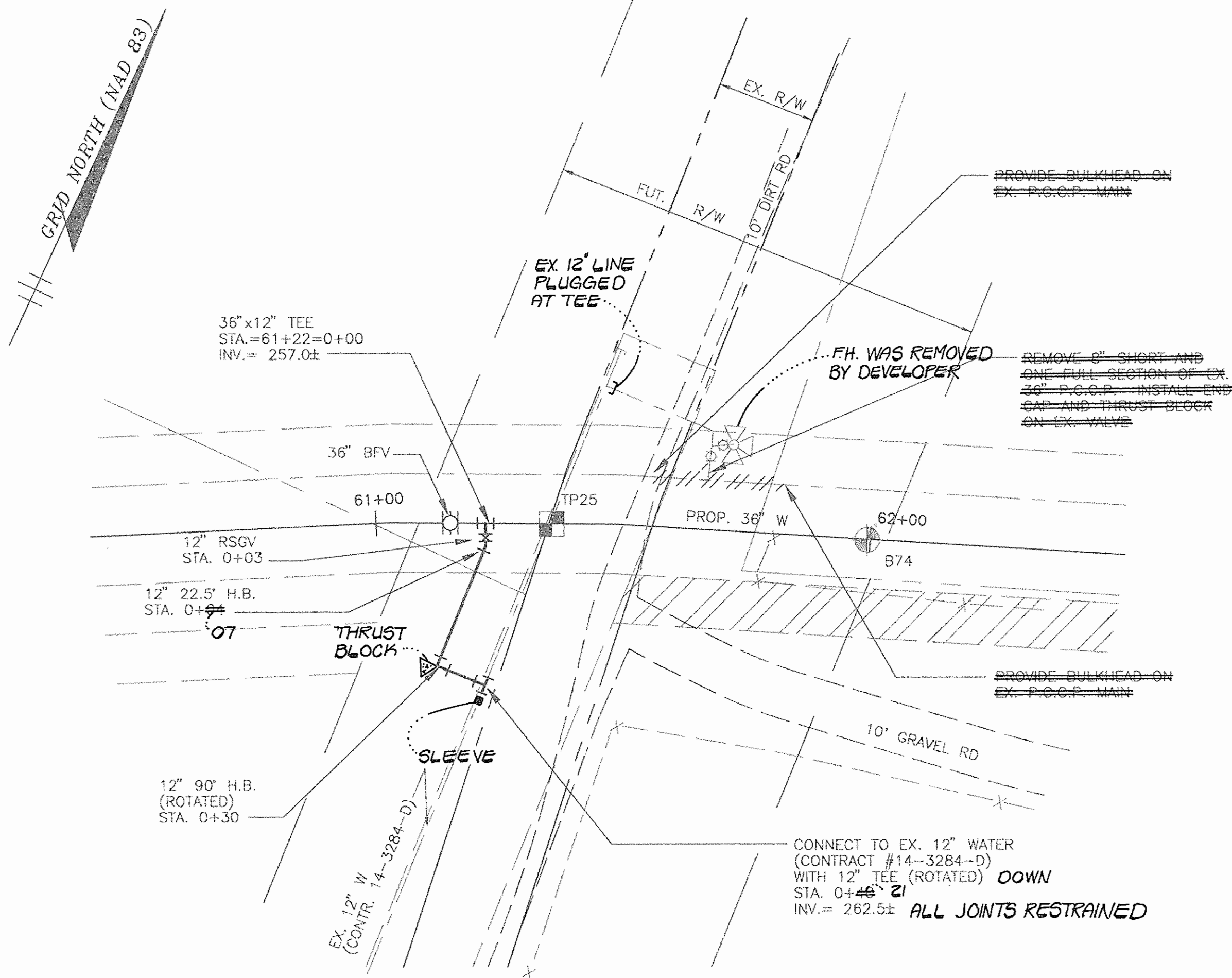
AS-BUILT 10-13-97

SCALE AS SHOWN
SHEET 21 OF 28



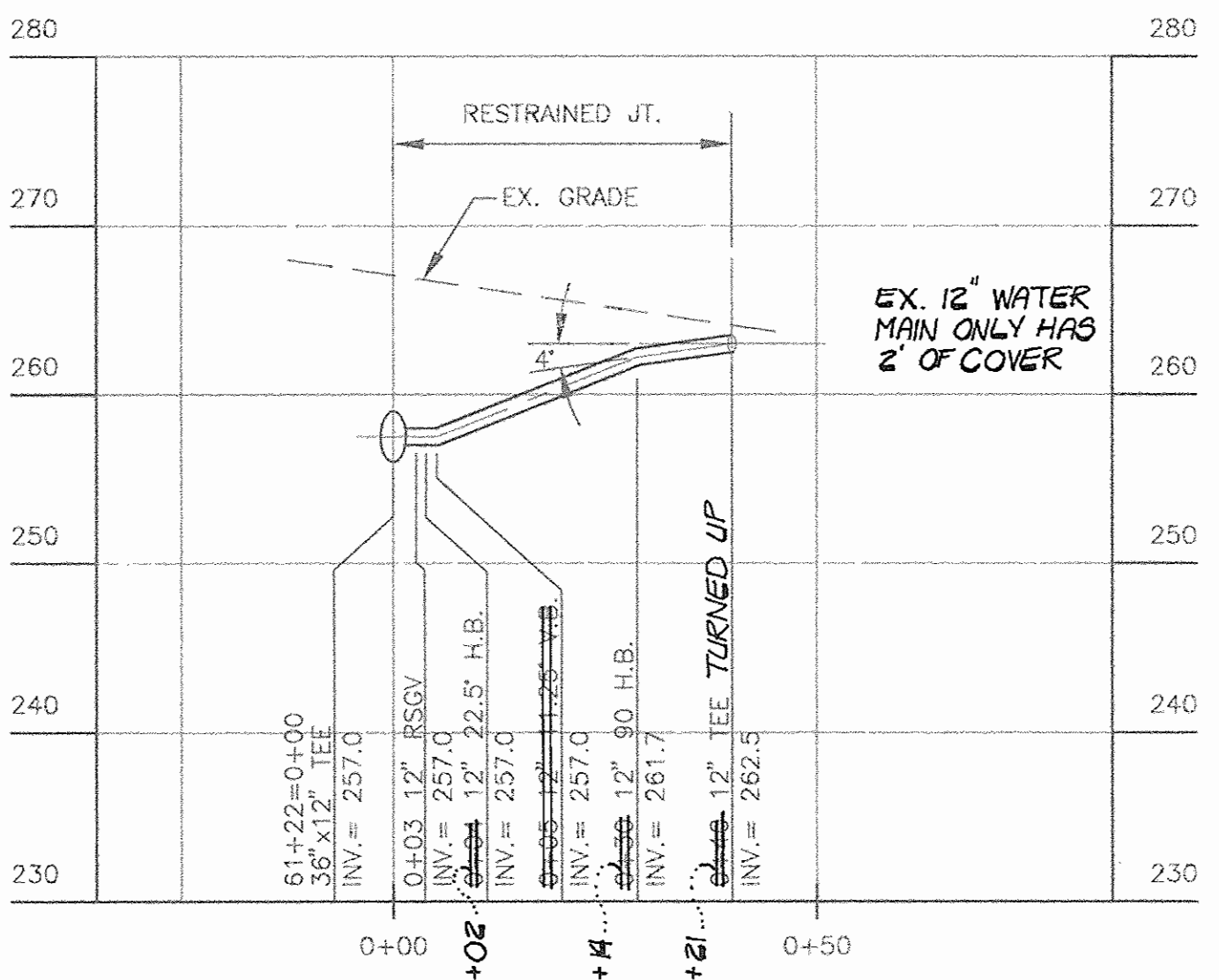
CONNECTION - DETAIL B
1" = 20'

- NOTES:
1. ROTATE 36" x 16" TEE AND 16" 90" BEND, AS REQUIRED, TO MAKE PROPER CONNECTION
 2. PROVIDE THRUST BLOCKS PER H.C. STD. DETAILS.

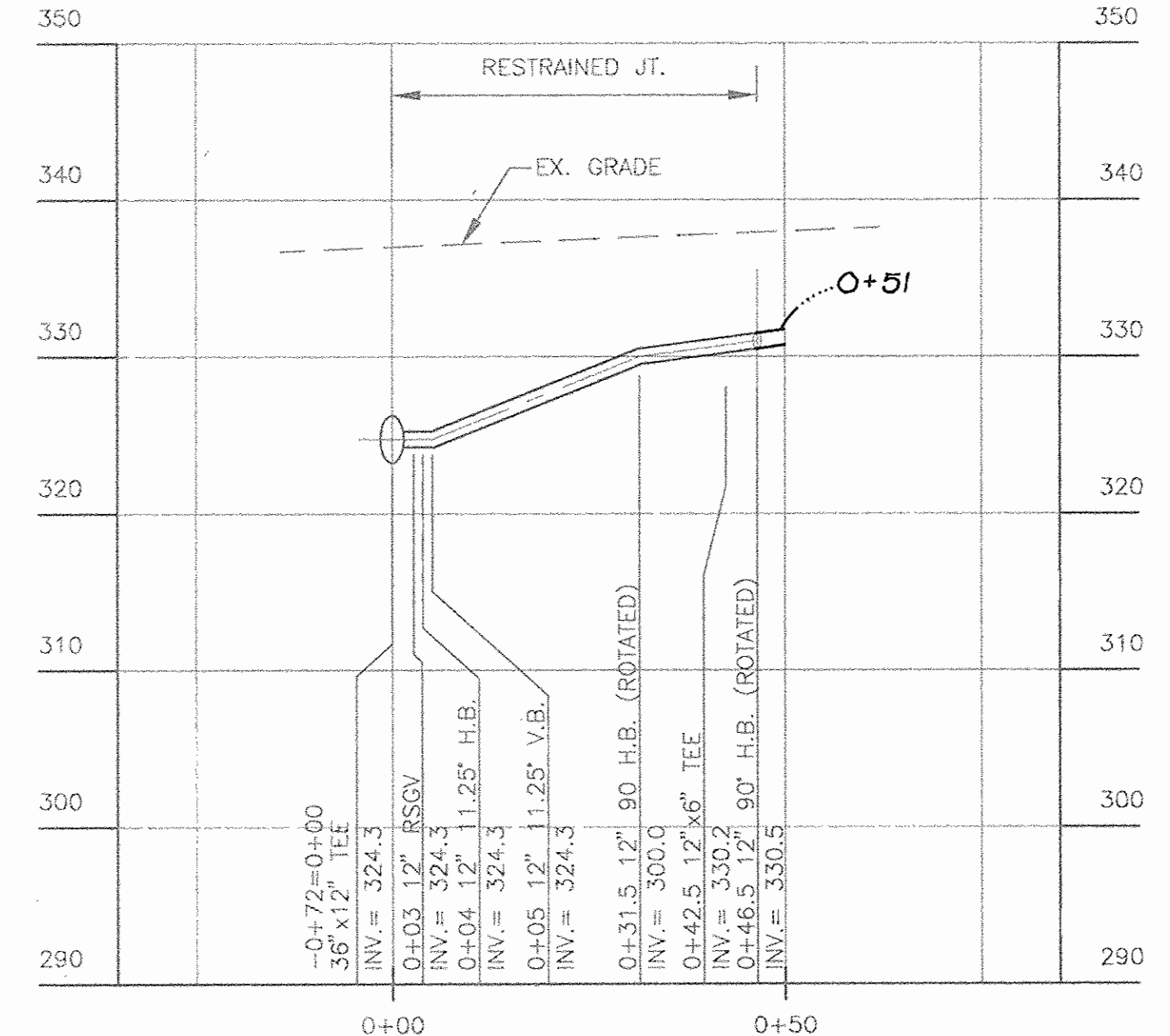


CONNECTION - DETAIL C
1" = 20'

- NOTE:
1. PROVIDE THRUST BLOCKS PER H.C. STD. DETAILS.

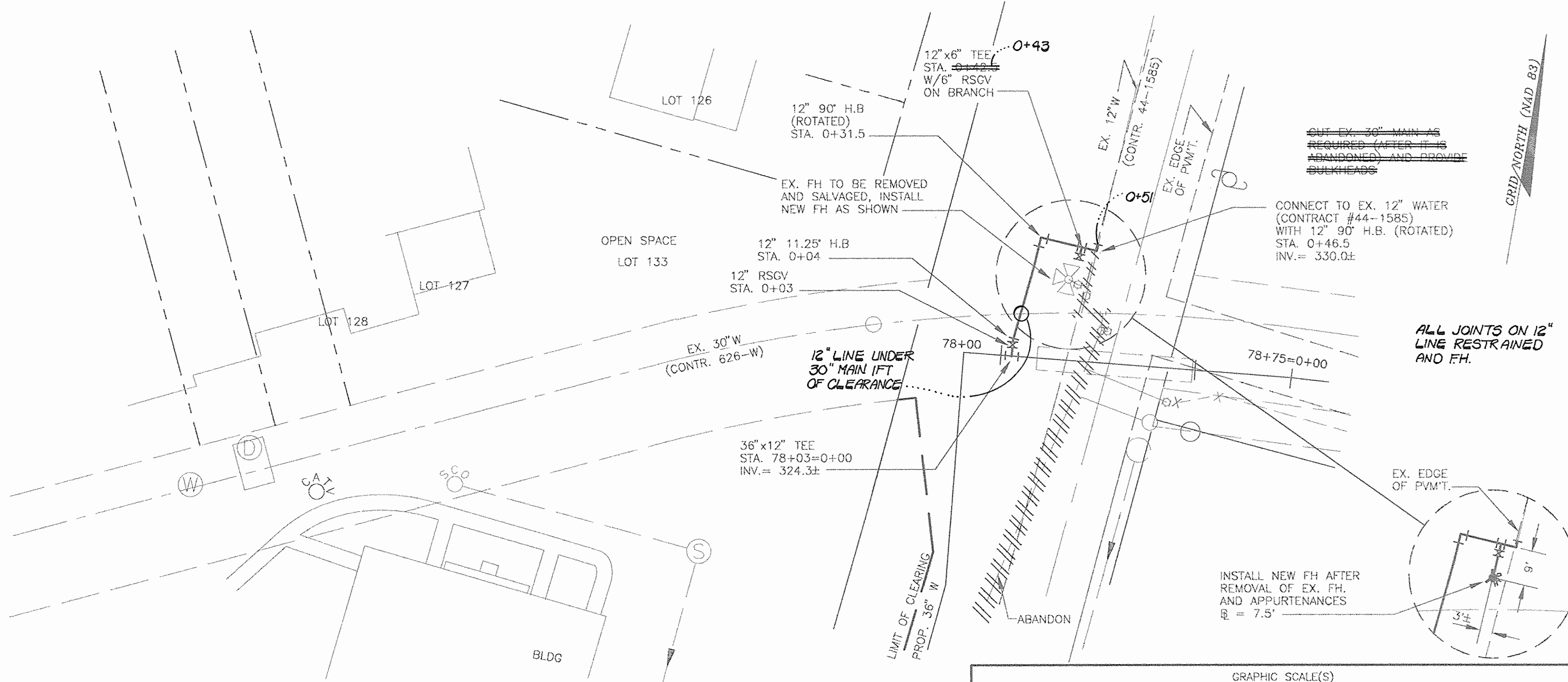


CONNECTION DETAIL C - PROFILE
HORIZ.: 1" = 20'
VERT.: 1" = 10'

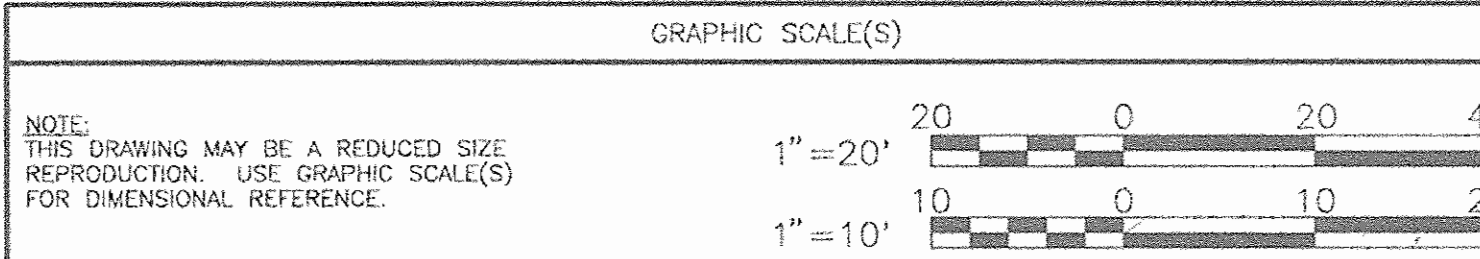


CONNECTION DETAIL A - PROFILE
HORIZ.: 1" = 20'
VERT.: 1" = 10'

- NOTES:
1. W/C PIPING NOT SHOWN FOR CLARITY.
 2. PROVIDE THRUST BLOCKS PER H.C. STD. DETAILS.



CONNECTION - DETAIL A
1" = 20'



NOTE:
THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Lewis 5/1/95
DIRECTOR OF PUBLIC WORKS DATE
Robert B. Baird 5-8-95
CHIEF, BUREAU OF UTILITIES DATE
Charles J. Spon 5/10/95
CHIEF - BUREAU OF ENGINEERING DATE
Dy. D. P. 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GENE
ENGINEERS, INC.
8201 Corporate Drive
Suite 1000
Lanover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY:	DLD				
DRN. BY:	DLD				
CHK. BY:	RJD				
DATE:	05-08-95	BY	NO.	REVISION	DATE

MISCELLANEOUS DETAILS

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

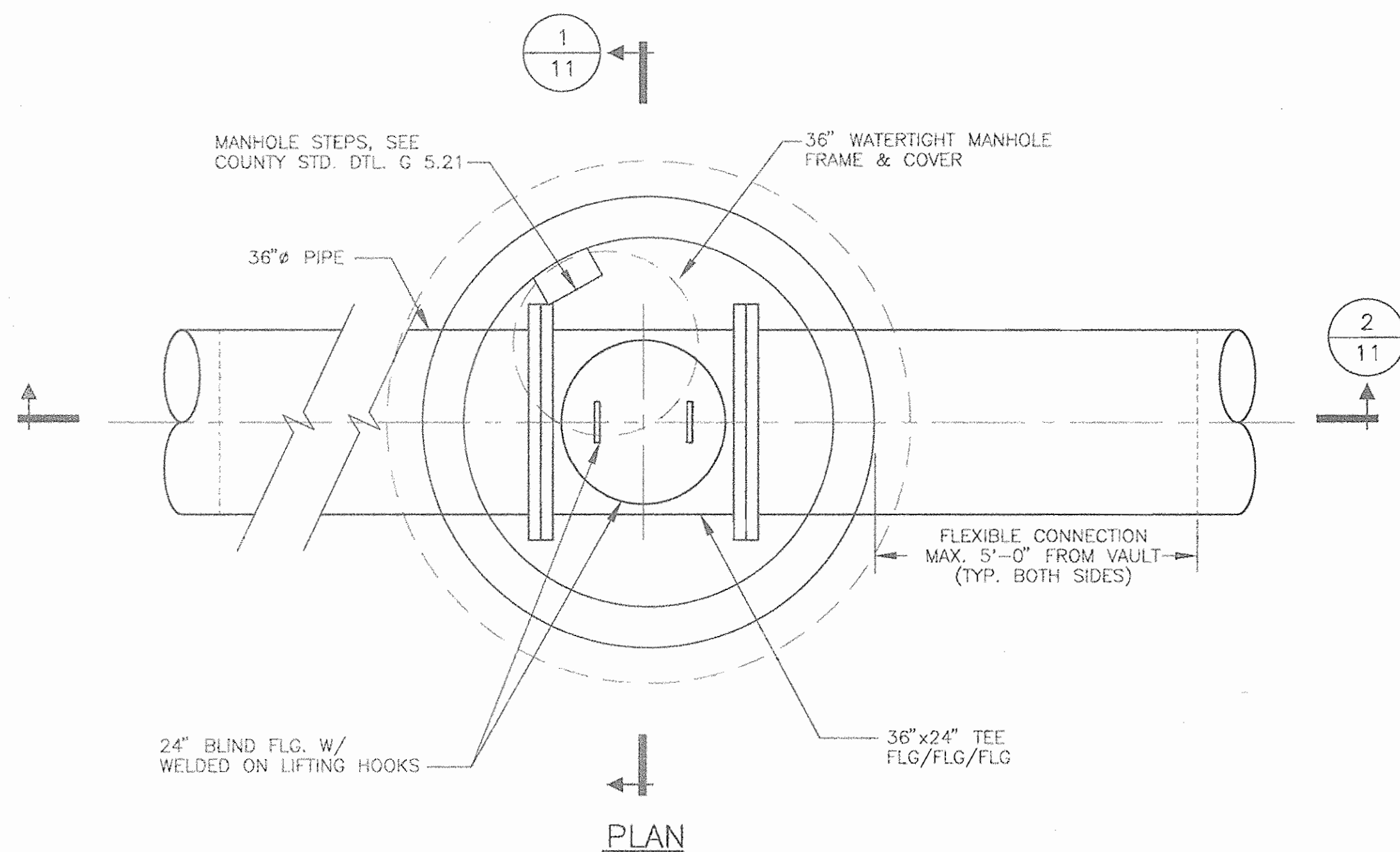
SCALE AS SHOWN

SHEET 22 OF 28

RSBUILT 10-13-97

ELKRIDGE

3327 M/S SAT. 23

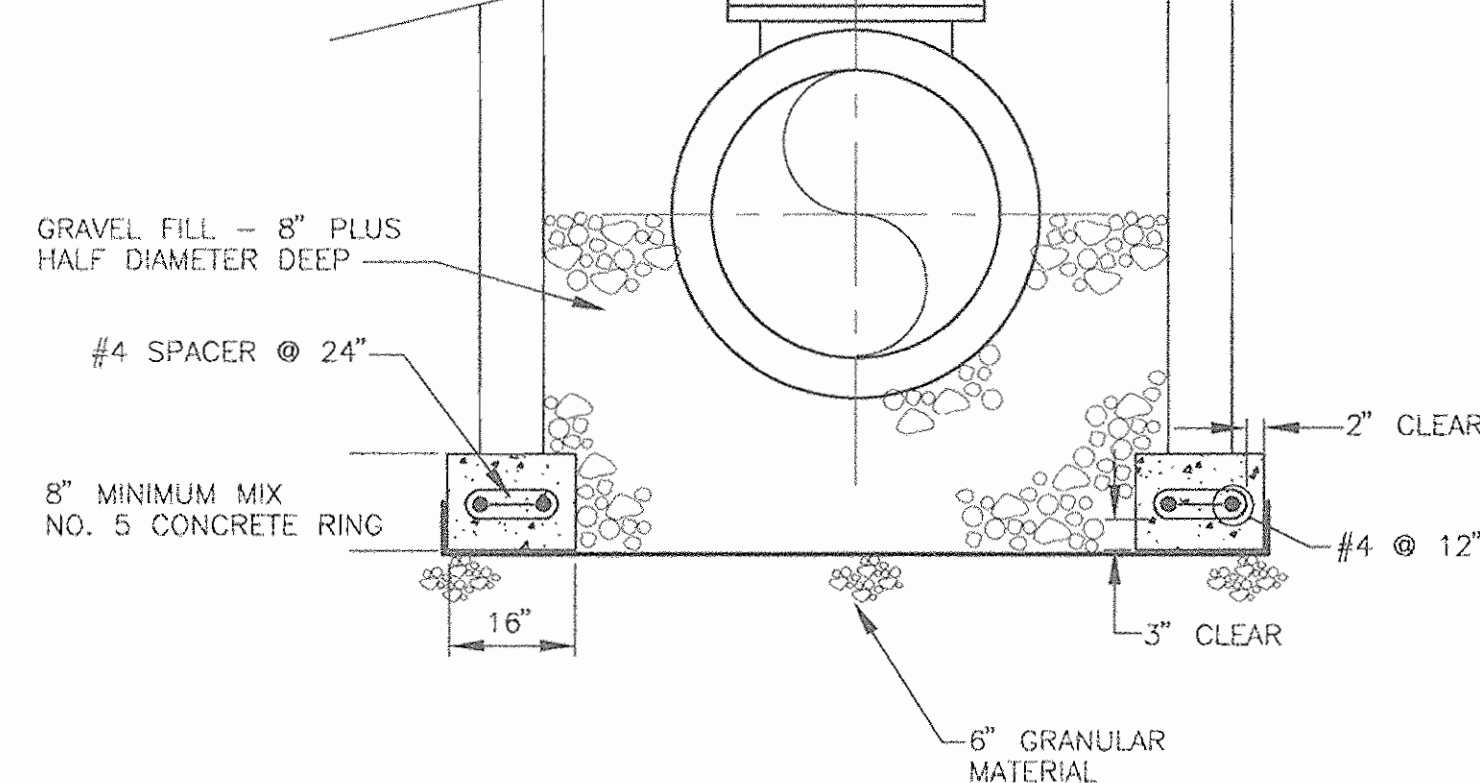


TYPICAL MANHOLE -- DETAIL

1/2" = 1'-0"



VARIES

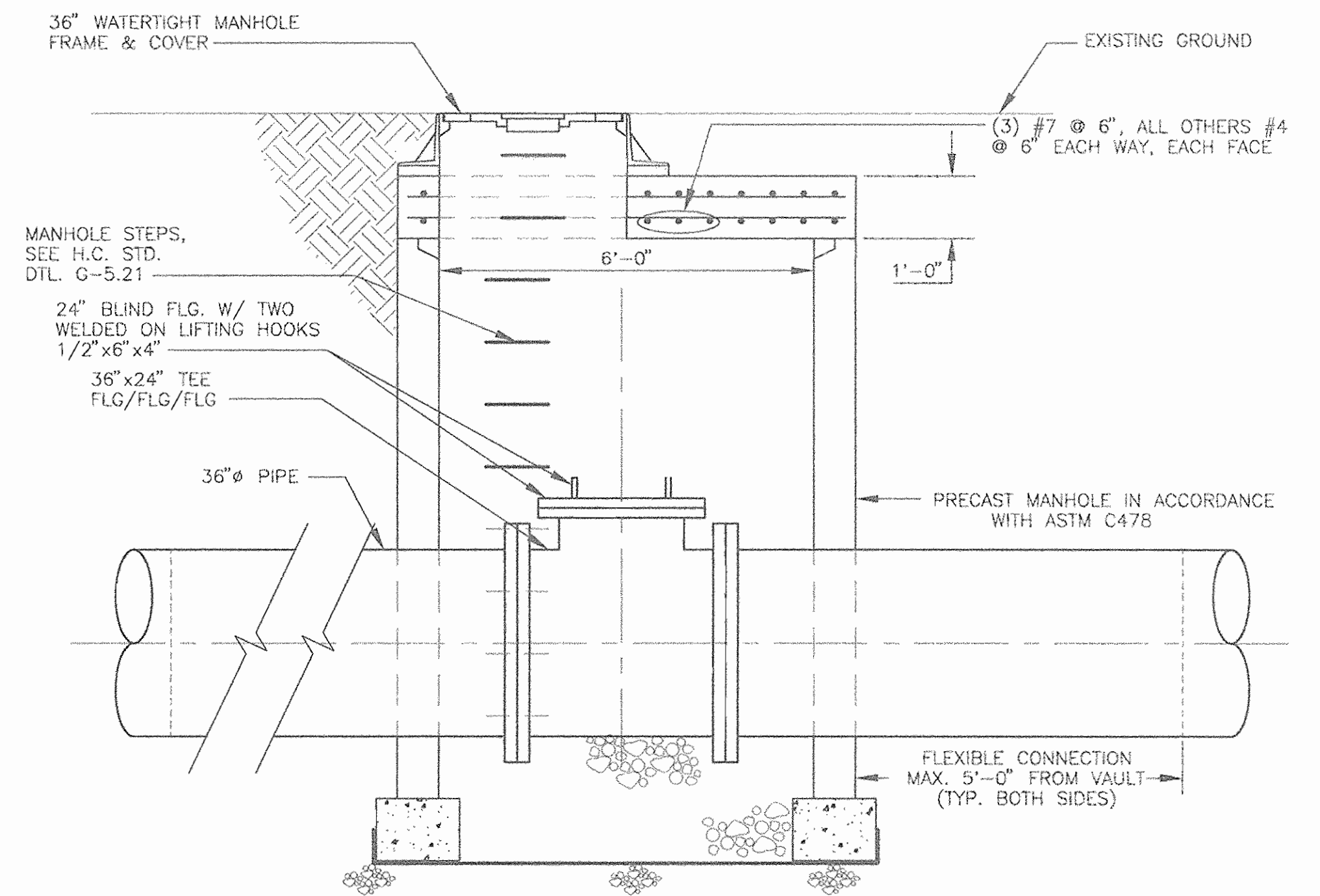


SECTION 1

1/2" = 1'-0"



23

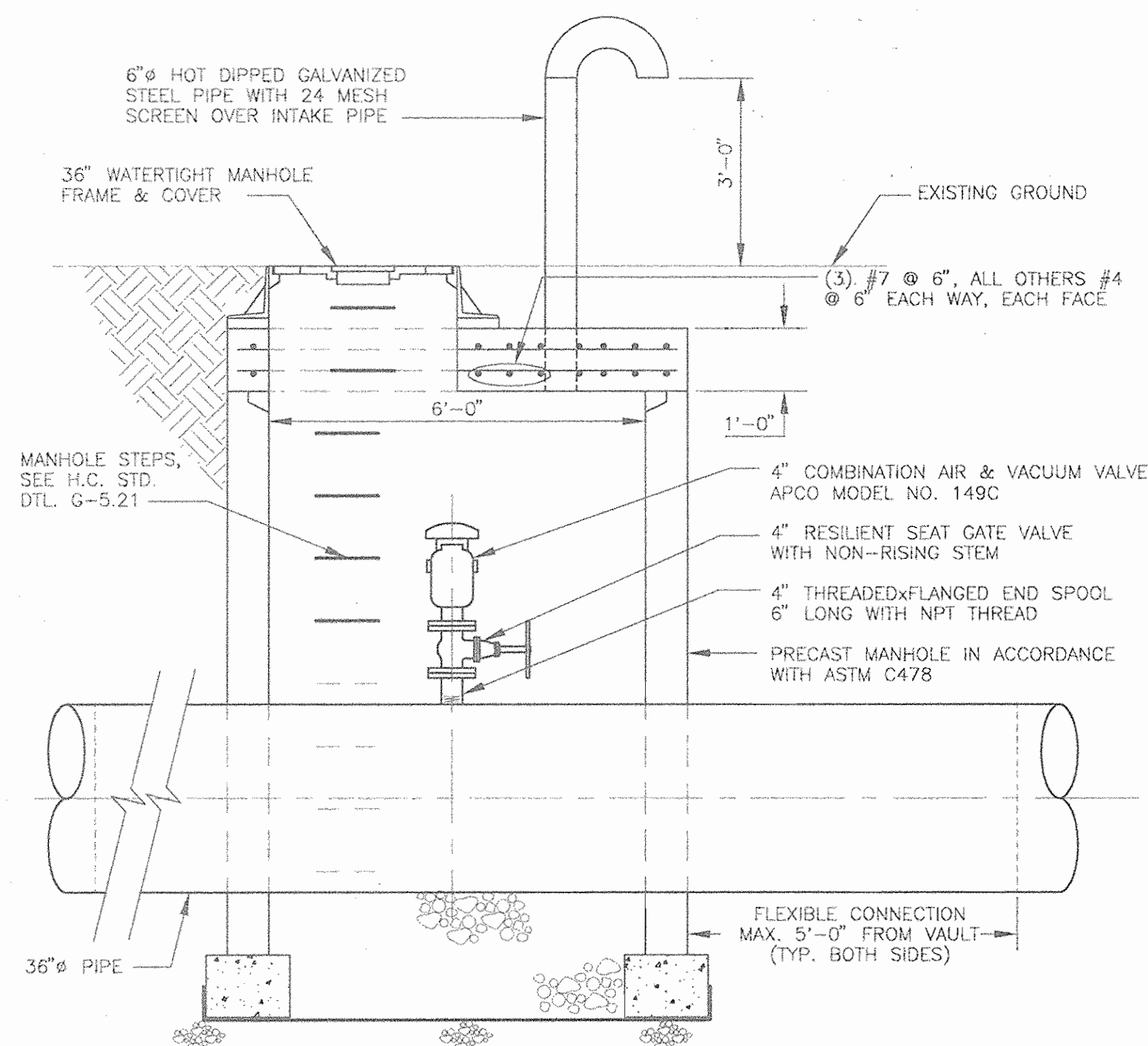


SECTION 2

1/2" = 1'-0"

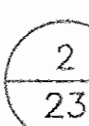


23



SECTION 2

1/2" = 1'-0"



23

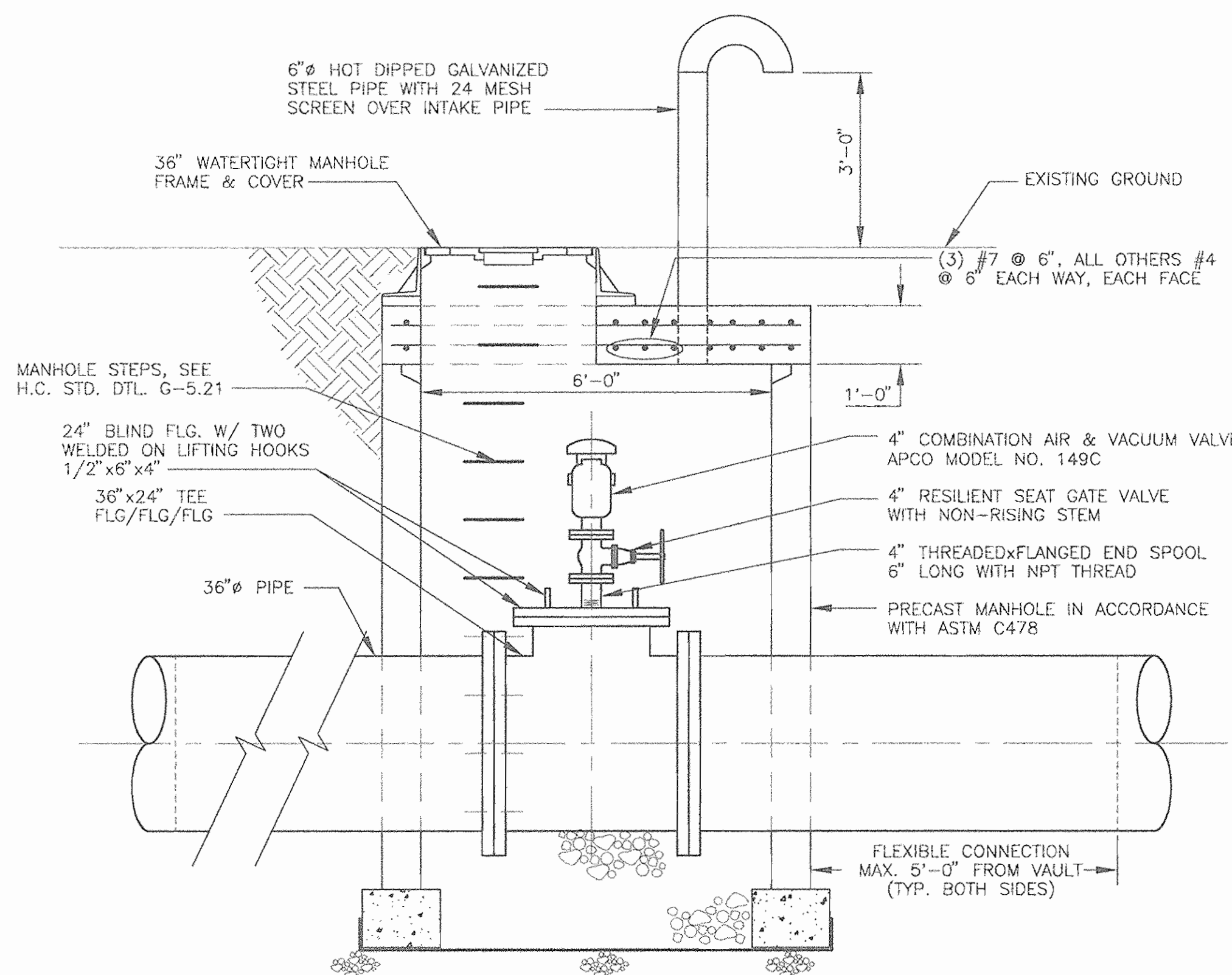
TYPICAL AIR VALVE MANHOLE ASSEMBLY -- DETAIL

1/2" = 1'-0"



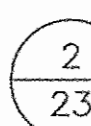
VARIES

NOTE: 1. FOR AIR VALVE MANHOLES WITHIN PAVED SURFACES, DELETE GOOSENECK VENT.



SECTION 2

1/2" = 1'-0"



23

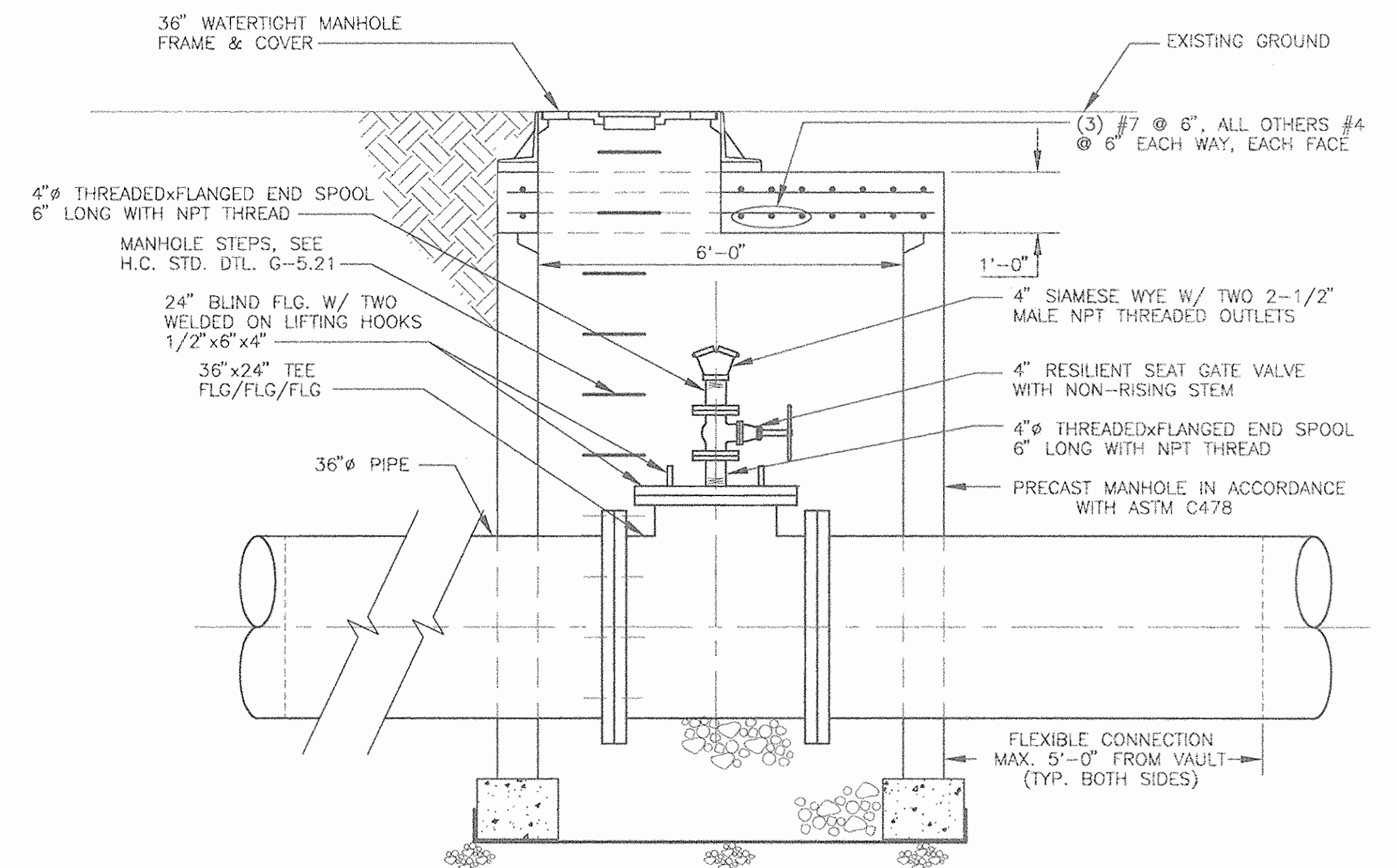
TYPICAL ACCESS/AIR VALVE MANHOLE ASSEMBLY -- DETAIL

1/2" = 1'-0"



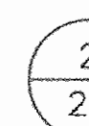
VARIES

NOTE: 1. FOR ACCESS/AIR VALVE MANHOLES WITHIN PAVED SURFACES, DELETE GOOSENECK VENT.



SECTION 2

1/2" = 1'-0"



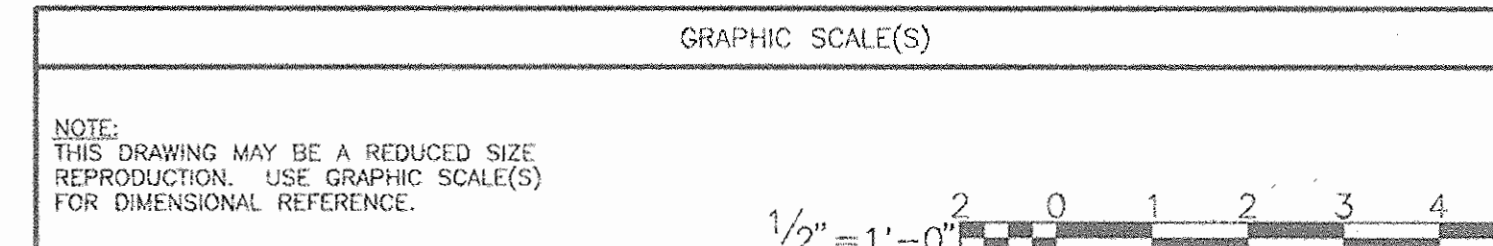
23

TYPICAL BLOW-OFF VALVE MANHOLE ASSEMBLY -- DETAIL

1/2" = 1'-0"



VARIES



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James A. Law 5/9/95
DIRECTOR OF PUBLIC WORKS DATE

Robert B. Berman 5/9/95
CHIEF - BUREAU OF ENGINEERING DATE

Robert Berman 5-8-95
CHIEF, BUREAU OF UTILITIES DATE

By [Signature] 5-9-95
CHIEF, UTILITY DESIGN DIVISION DATE

O'BRIEN & GERE
ENGINEERS, INC.
8201 Corporate Drive
Suite 1000
Landover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



DSN. BY:	HBT		
DRN. BY:	DLD		
CHK. BY:	HBT		
DATE:	05-09-95		
BY	NO.	REVISION	DATE

TYPICAL ACCESS, AIR VALVE, ACCESS/AIR VALVE, AND BLOW-OFF VALVE MANHOLE DETAILS

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

AS-BUILT 10-13-97

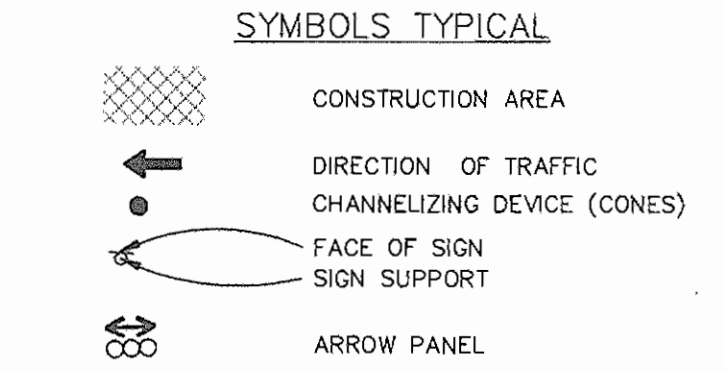
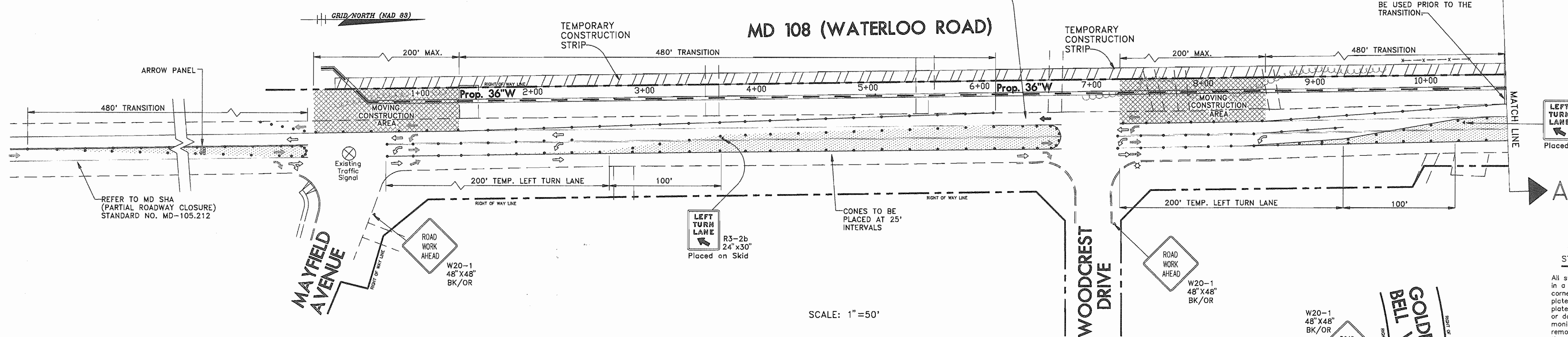
SCALE AS SHOWN
SHEET 23 OF 28

ELKRIDGE

SHT. 24
W/S
3327

TYPICAL
FOR MD 108 (WATERLOO ROAD)
BETWEEN MAYFIELD AVE. AND WOODCREST DR.

TYPICAL
FOR MD 108 (WATERLOO ROAD)
BETWEEN WOODCREST DR. AND WOODLOO RD.

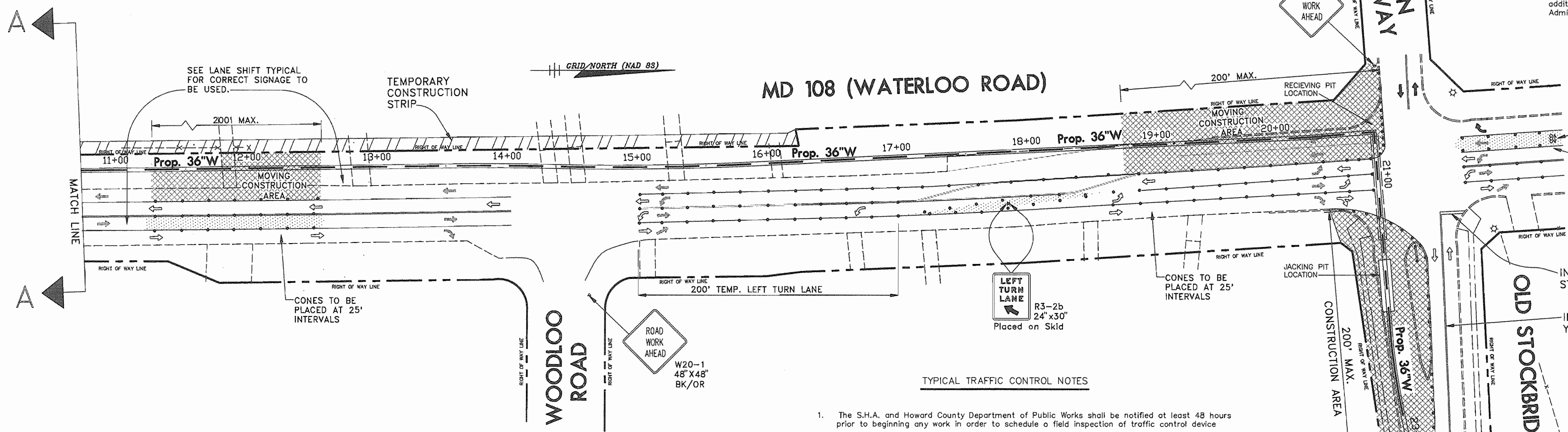


STEEL PLATES STANDARDS AND SPECIFICATIONS

All steel plates will be placed flush with road surface or wedged in a manner to prevent rocking or shifting. Each of the four (4) corners will be pinned or spiked down, sufficiently to prevent plate movement. Cold mix will be placed around all sides of the plate to allow motor vehicles to cross without moving the plate or damaging the vehicle. The plate(s) while in place will be monitored twice a day, seven (7) days a week, until they can be removed. No steel plates shall remain on the traveled portion of the roadway in excess of ten (10) days. Any work requiring additional time must be approved in writing by the State Highway Administration.

SCALE: 1"=50'

MD 108 (WATERLOO ROAD)



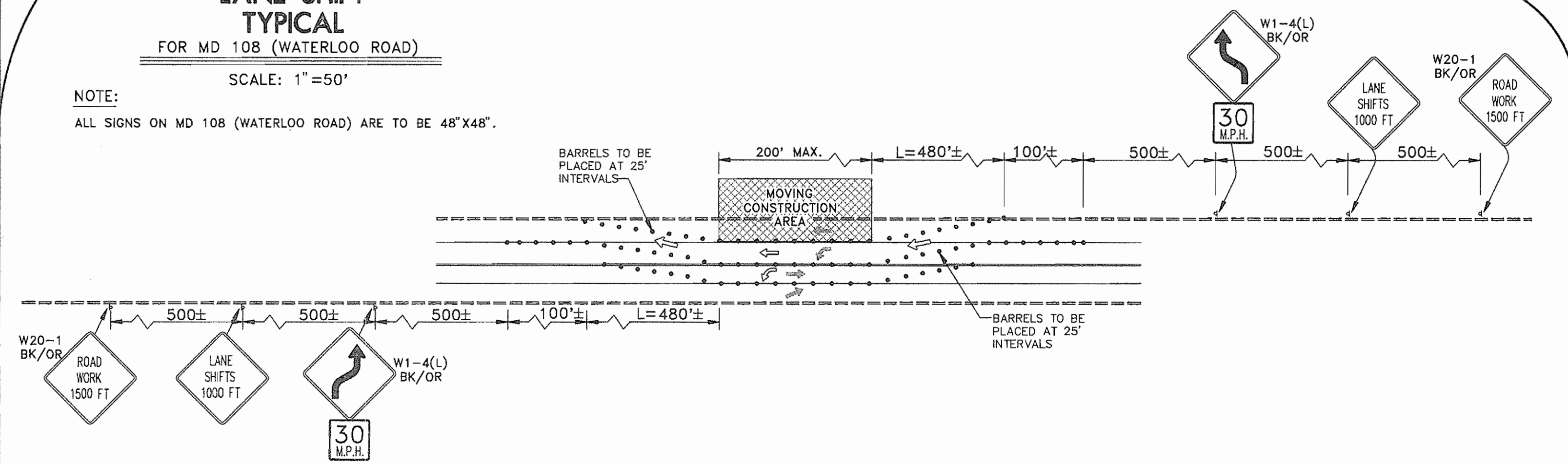
TYPICAL TRAFFIC CONTROL NOTES

- The S.H.A. and Howard County Department of Public Works shall be notified at least 48 hours prior to beginning any work in order to schedule a field inspection of traffic control device.
- All Work Zone traffic control devices shall be in accordance with the Standard Specifications contained in the Manual on Uniform Traffic Control Devices and the State Highway Admin.
- No work shall be performed in the roadway from 6 AM to 9 AM & 3 PM to 7 PM.
- Travel lanes shall be a minimum of ten feet in width. When only one lane is open, a flag person(s) properly trained and attired with the appropriate signing shall be provided. The roadway should be reopened to two lanes in accordance with work hour restrictions.
- All open trenches shall be closed at the end of each day. If steel plates are to be used, appropriate signing will be required.
- Existing Regulatory Warning and Guide signs that do not apply due to temporary traffic conditions will be covered with the approval of the engineer.
- Access shall be provided to all existing driveways at all times. The contractor is to insure during one lane flagging operation that no vehicles exit from any driveways between both flag persons in the incorrect direction.
- All cones and flag person(s) shall be moved accordingly as construction progresses.
- All work zone signing shall be in accordance with the typical sign placement shown on this plan and shall not obstruct existing Traffic Control Devices.
- If the road is to be closed, a detailed detour plan shall be submitted to the S.H.A. and Howard County Department of Public Works for review and approval prior to any road closure.
- If temporary parking restrictions will be required, the contractor will be responsible for installing signs and for notifying at least one day in advance all affected residents. The contractor must contact S.H.A. and Howard County Traffic Engineering before any parking restrictions are enacted.
- Construction vehicles shall not be parked in a manner that will impede traffic or impair sight distance.

LANE SHIFT TYPICAL
FOR MD 108 (WATERLOO ROAD)

SCALE: 1"=50'

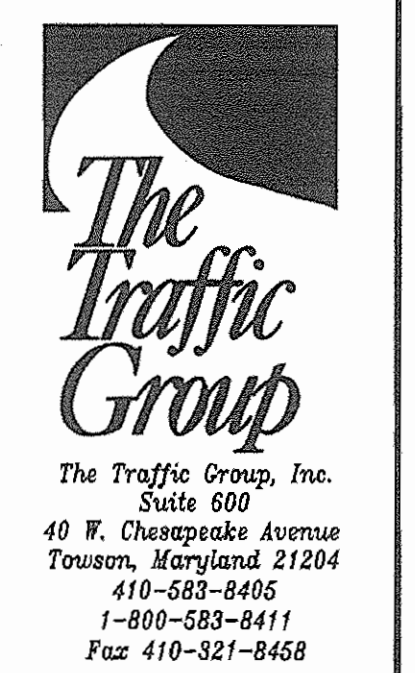
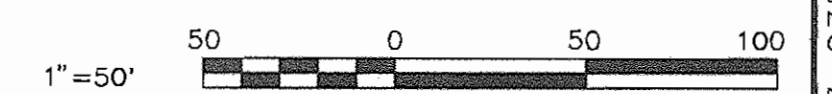
NOTE:
ALL SIGNS ON MD 108 (WATERLOO ROAD) ARE TO BE 48"X48".



* SEE NEXT SHEET FOR LANE SHIFT TYPICAL FOR OLD STOCKBRIDGE DR.

GRAPHIC SCALE(S)

NOTE:
THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.

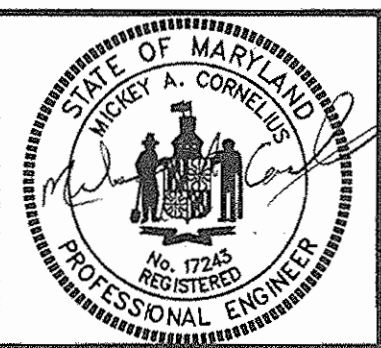


TRAFFIC CONTROL

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *James A. Lewis* 5/3/95
 Chief, Bureau of Engineering: *Robert J. Brown* 5/3/95
 Chief, Bureau of Utilities: *Robert J. Brown* 5-8-95
 Chief, Utility Design Division: *Robert J. Brown* 5-9-95

O'BRIEN & GERE
 ENGINEERS, INC.
 8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
 FAX: (301) 577-4737



DSN. BY:	PRD				
DRN. BY:	PRD				
CHK. BY:	JAB				
DATE:	1-16-95	BY NO.		REVISION	

Traffic Control Plan
and Typicals

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 AND MAYFIELD AVE. TO DEER RIDGE LANE

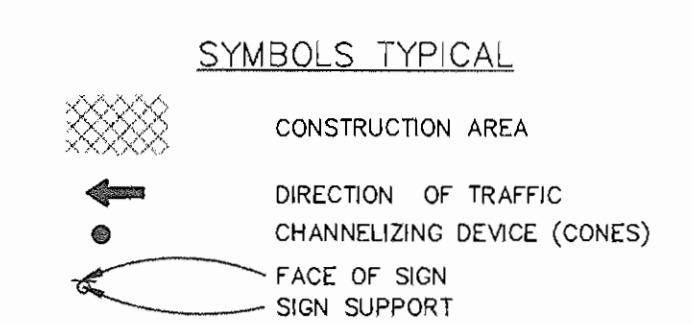
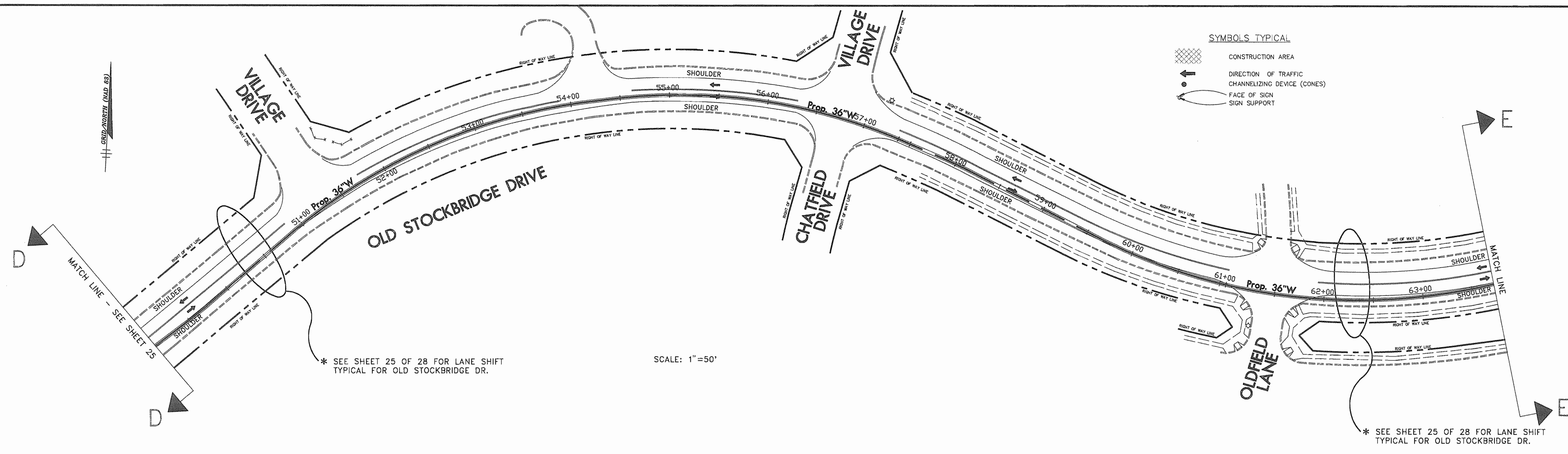
CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 24 OF 28

FILE NO. 2343.017-035F

3327 WIS SAT. 26 ELKRIDGE



* SEE SHEET 25 OF 28 FOR LANE SHIFT TYPICAL FOR OLD STOCKBRIDGE DR.

SCALE: 1"=50'

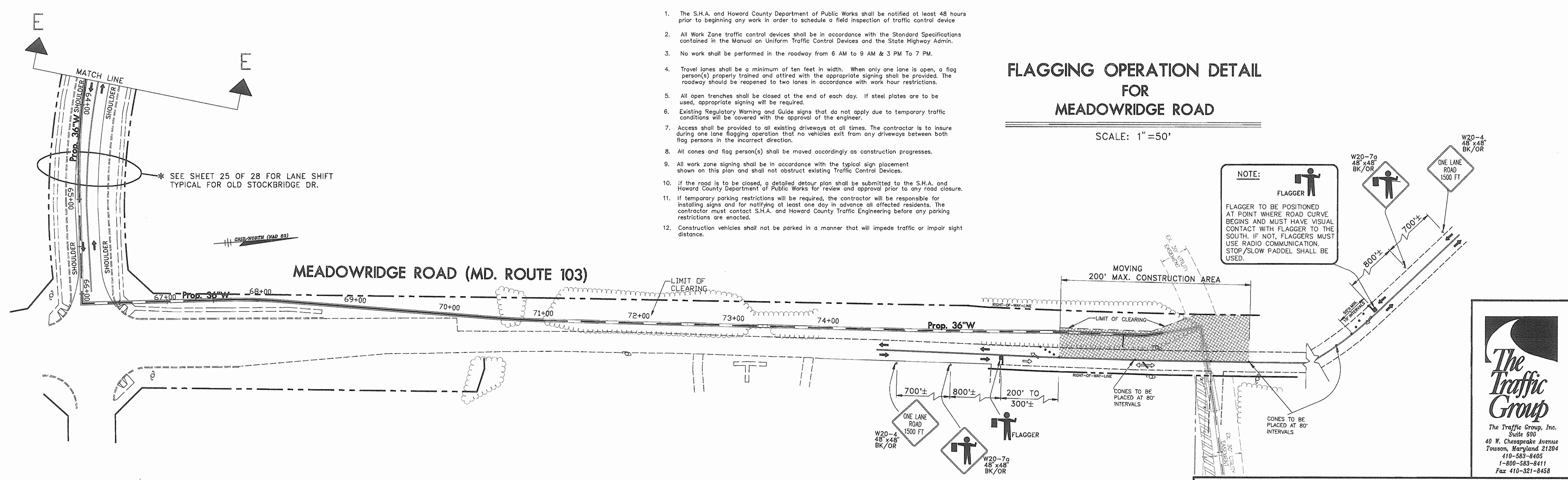
* SEE SHEET 25 OF 28 FOR LANE SHIFT TYPICAL FOR OLD STOCKBRIDGE DR.

TRAFFIC CONTROL NOTES FOR MEADOWRIDGE ROAD

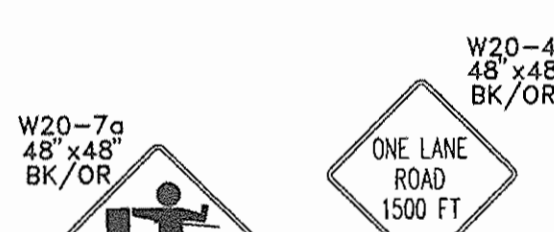
- The S.H.A. and Howard County Department of Public Works shall be notified at least 48 hours prior to beginning any work in order to schedule a field inspection of traffic control device.
- All Work Zone traffic control devices shall be in accordance with the Standard Specifications contained in the Manual on Uniform Traffic Control Devices and the State Highway Admin.
- No work shall be performed in the roadway from 6 AM to 9 AM & 3 PM To 7 PM.
- Travel lanes shall be a minimum of ten feet in width. When only one lane is open, a flag person(s) properly trained and attired with the appropriate signing shall be provided. The roadway should be reopened to two lanes in accordance with work hour restrictions.
- All open trenches shall be closed at the end of each day. If steel plates are to be used, appropriate signing will be required.
- Existing Regulatory Warning and Guide signs that do not apply due to temporary traffic conditions will be covered with the approval of the engineer.
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- All cones and flag person(s) shall be moved accordingly as construction progresses.
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- Construction vehicles shall not be parked in a manner that will impede traffic or impair sight distance.

FLAGGING OPERATION DETAIL FOR MEADOWRIDGE ROAD

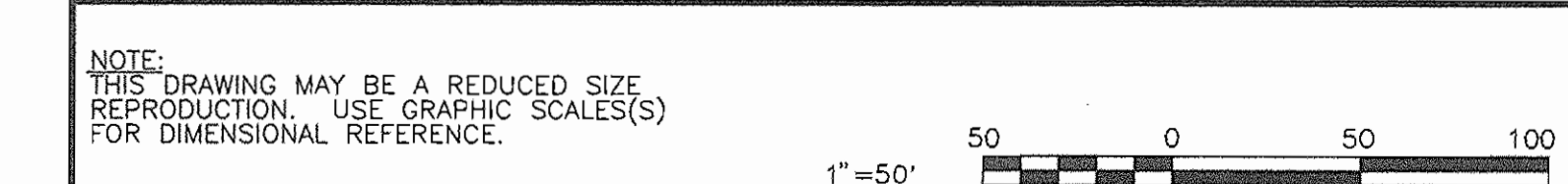
SCALE: 1"=50'



NOTE:
FLAGGER TO BE POSITIONED AT POINT WHERE ROAD CURVE BEGINS AND MUST HAVE VISUAL CONTACT WITH FLAGGER TO THE SOUTH. IF NOT, FLAGGERS MUST USE RADIO COMMUNICATION. STOP/SLOW PADDLE SHALL BE USED.



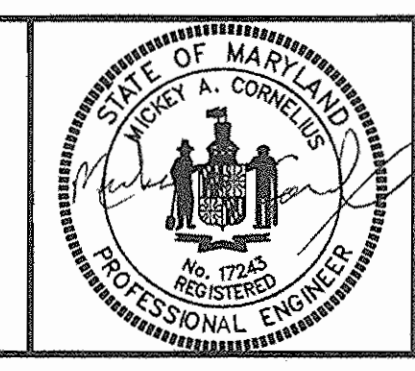
The Traffic Group
The Traffic Group, Inc.
Suite 600
40 W. Chesapeake Avenue
Towson, Maryland 21284
410-583-8405
1-800-583-8411
Fax 410-321-8458



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *James P. Lewis* 5/12/95
Chief, Bureau of Engineering: *Robert S. Brown* 5/12/95
Chief, Bureau of Utilities: *Robert S. Brown* 5-8-95
Chief, Utility Design Division: *Clifford J. Dargatzis* 5-7-95

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Landover, Maryland 20785
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FAX: (301) 577-4737



DSN. BY: PRD					
DRN. BY: PRD					
CHK. BY: JAB					
DATE: 1-16-95	BY NO.	REVISION	DATE	600' SCALE MAP NO.	BLOCK NO.

Traffic Control Plan and Typical

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 AND MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

DATE: 5-7-95

SCALE AS SHOWN
SHEET 26 OF 28

FILE NO. 2343.017-037F

3327 WIS SH7.25 ELKRIDGE

WOODED GLEN COURT
 OLD STOCKBRIDGE DRIVE

TALL TREES COURT

OLD STOCKBRIDGE DRIVE

BRANCH WOOD COURT
 RUSTING BARK COURT

WHISTLING PINES COURT

FALLING LEAVES COURT

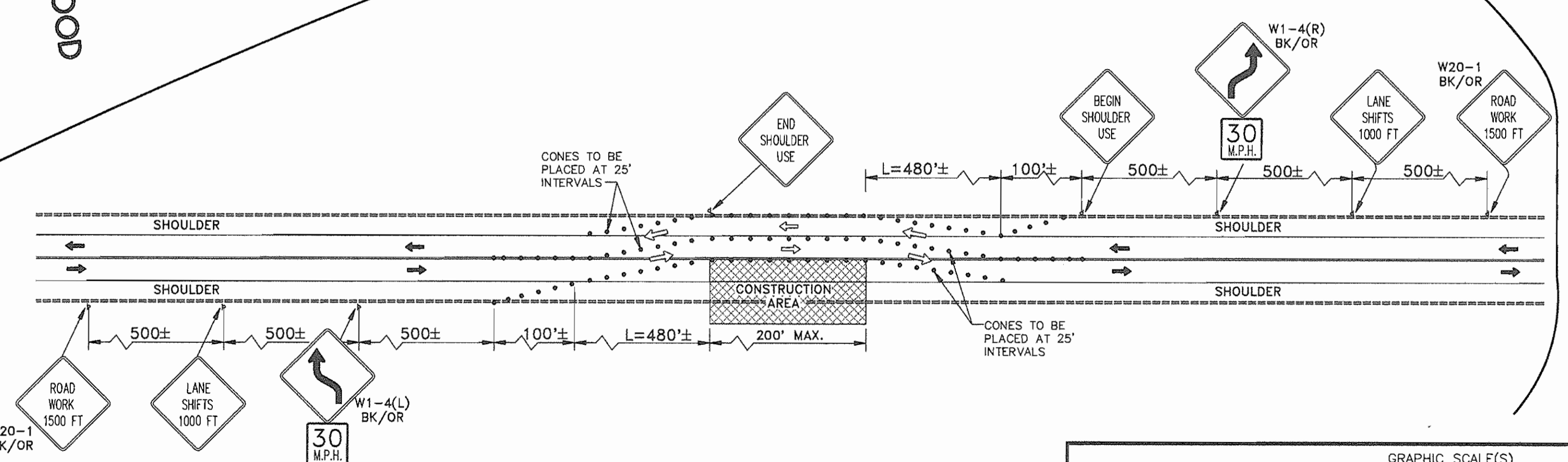
TRAFFIC CONTROL NOTES FOR OLD STOCKBRIDGE DRIVE

1. The S.H.A. and Howard County Department of Public Works shall be notified at least 48 hours prior to beginning any work in order to schedule a field inspection of traffic control device
2. All Work Zone traffic control devices shall be in accordance with the Standard Specifications contained in the Manual on Uniform Traffic Control Devices and the State Highway Admin.
3. No work shall be performed in the roadway from 6 AM to 9 AM & 3 PM To 7 PM.
4. Travel lanes shall be a minimum of ten feet in width. When only one lane is open, a flag person(s) properly trained and attired with the appropriate signing shall be provided. The roadway should be reopened to two lanes in accordance with work hour restrictions.
5. All open trenches shall be closed at the end of each day. If steel plates are to be used, appropriate signing will be required.
6. Existing Regulatory Warning and Guide signs that do not apply due to temporary traffic conditions will be covered with the approval of the engineer.
7. Access shall be provided to all existing driveways at all times. The contractor is to insure during one lane flagging operation that no vehicles exit from any driveways between both flag persons in the incorrect direction.
8. All cones and flag person(s) shall be moved accordingly as construction progresses.
9. All work zone signing shall be in accordance with the typical sign placement shown on this plan and shall not obstruct existing Traffic Control Devices.
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12. Construction vehicles shall not be parked in a manner that will impede traffic or impair sight distance.

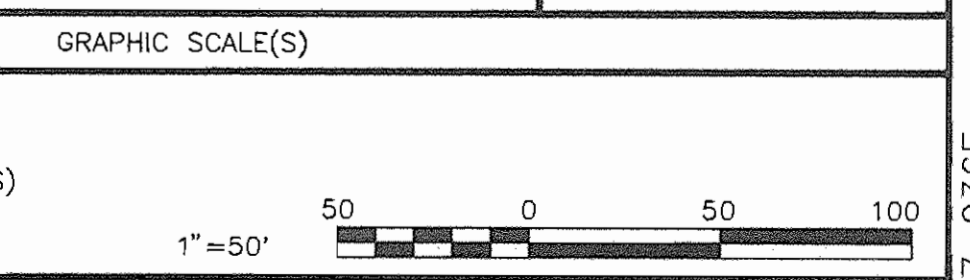
SCALE: 1"=50'

LANE SHIFT TYPICALS FOR OLD STOCKBRIDGE DRIVE

NOTE: SCALE: 1"=50'
 ALL SIGNS ON OLD STOCKBRIDGE DR. ARE TO BE 48"x48".



- SYMBOLS TYPICAL
- CONSTRUCTION AREA
 - DIRECTION OF TRAFFIC
 - CHANNELIZING DEVICE (CONES)
 - FACE OF SIGN
 - SIGN SUPPORT



The Traffic Group
 The Traffic Group, Inc.
 Suite 600
 40 W. Chesapeake Avenue
 Towson, Maryland 21204
 410-583-8405
 1-800-585-8411
 Fax 410-321-8458

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James J. Lee 5/9/95
 DIRECTOR OF PUBLIC WORKS DATE

Robert J. Bauman 5-9-95
 CHIEF, BUREAU OF UTILITIES DATE

Paul J. Szymon 5/10/95
 CHIEF - BUREAU OF ENGINEERING DATE

Oliver J. Donohue 5-9-95
 CHIEF, UTILITY DESIGN DIVISION DATE

O'Brien & Gere
 ENGINEERS, INC.
 8201 Corporate Drive
 Suite 1000
 Landover, Maryland 20785
 (301) 731-5622
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DSN. BY:	PRD				
DRN. BY:	PRD				
CHK. BY:	JAB				
DATE:	1-16-95	BY	NO.	REVISION	DATE

Traffic Control Plan and Typicals

600' SCALE MAP NO. _____ BLOCK NO. _____

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
 MD. RTE. 108 AND MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
 CONTRACT NO.: 44-3327
 ELECTION DISTRICT NO. 1
 HOWARD COUNTY, MARYLAND

AS-BUILT 10-13-97

SCALE AS SHOWN

SHEET 25 OF 28

FILE NO. 2343.017-036F

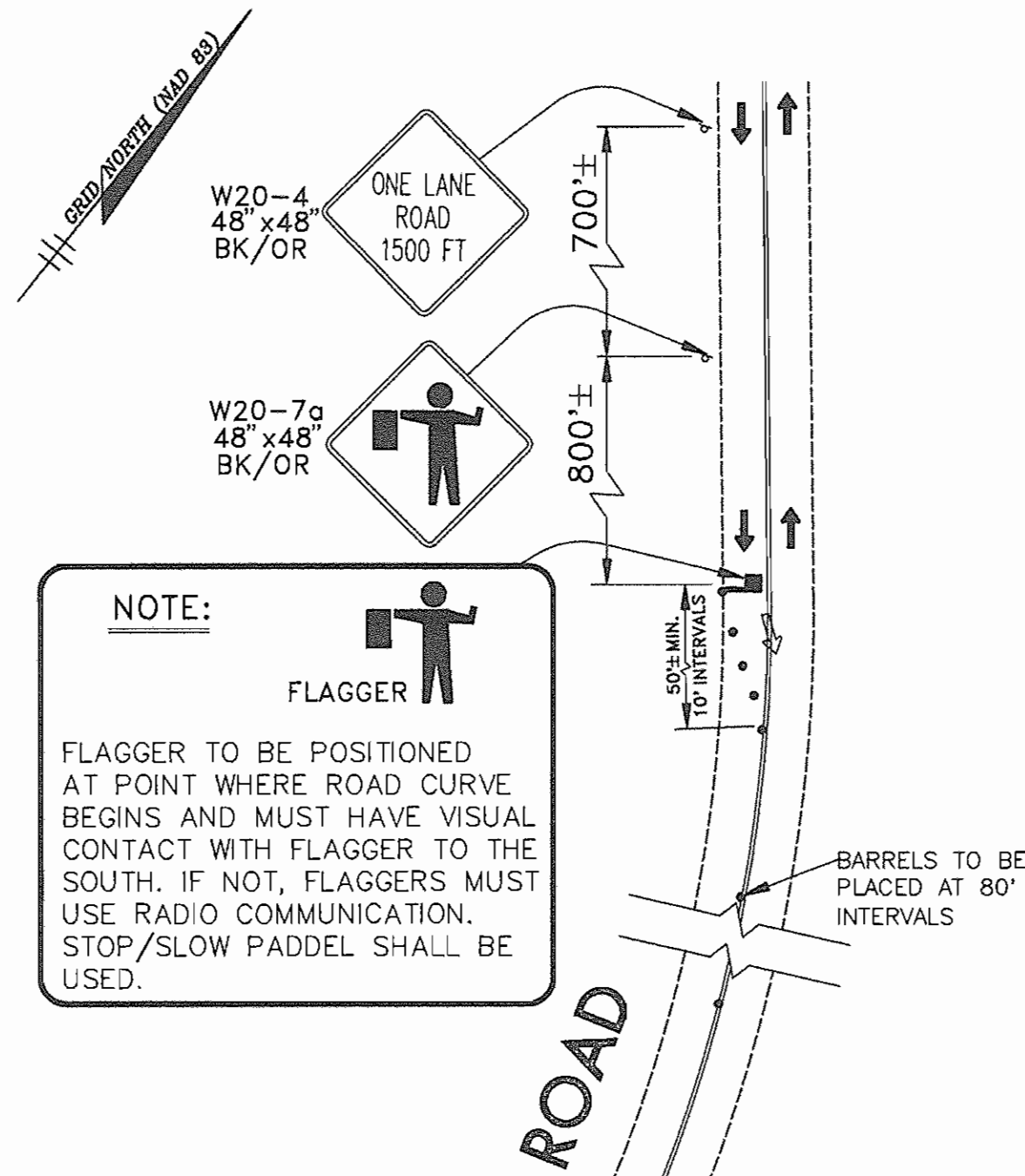
3327 W/S SAT.27 ELKRIDGE

FLAGGING OPERATION DETAIL FOR MEADOWRIDGE ROAD

SCALE: 1"=40'

TRAFFIC CONTROL NOTES FOR MEADOWRIDGE ROAD

- The S.H.A. and Howard County Department of Public Works shall be notified at least 48 hours prior to beginning any work in order to schedule a field inspection of traffic control device.
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- Construction vehicles shall not be parked in a manner that will impede traffic or impair sight distance.



FLAGGING OPERATION TYPICALS

SCALE: 1"=40'

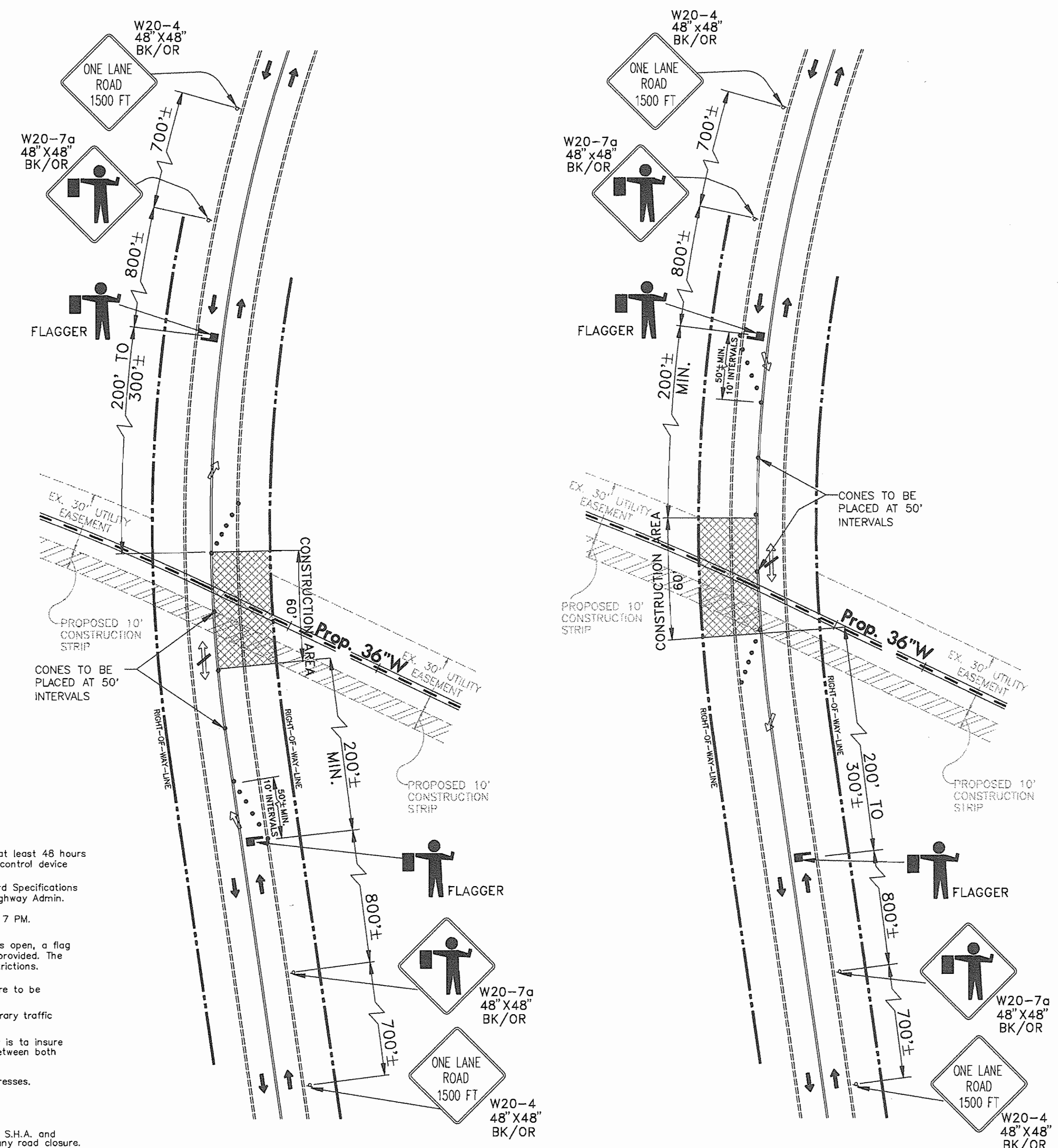
PAVEMENT DROP-OFF

During Construction and maintenance activities involving pavement surface work, it often becomes necessary to maintain traffic along-side or near lanes and shoulders having different elevations. Special traffic control devices are needed to safely guide traffic through such areas, and the traffic control requirements are described in these guidelines.

- Drop-off of 2 inches or less:**
Pavement elevation differences of two inches (2) or less may be freely crossed by traffic. Drop-offs of 2 inches or less shall be indicated to traffic through the use of the Uneven Pavement Warning sign, either the Word Message sign or the Symbol sign.
The Uneven Pavement Warning sign is to be placed supplemental to other work zone traffic control devices and shall provide advance warning along the approach to the area of uneven pavement, and be repeated within such an area.
The sign size and spacing, and how it complements other traffic control devices is covered in the SHA Standard Specifications and the MUTCD.
- Drop-offs greater than 2 inches but 5 inches or less:**
Pavement with vertical elevation differences exceeding 2 inches but not exceeding 5 inches shall be marked with drums or other suitable channelizing devices so as to prevent traffic from crossing from one area to the other.
While it is intended that traffic traveling in the same direction drive to one side of the drop-off or the other, such traffic may be permitted to drive along both sides under properly controlled conditions, but such traffic may not be permitted to freely cross.
Drop-offs exceeding 2 inches but not exceeding 5 inches may be provided with an abutting wedge with a minimum slope of 3:1. Pavement drop-offs not exceeding 5 inches that are provided with wedges may be freely crossed by traffic. The standard Word Message or Symbol Uneven Pavement Warning sign shall be used where traffic is allowed to cross.
Pavement drop-offs exceeding 2 inches but not exceeding 5 inches along which traffic passes in opposite directions shall be marked with drums or other suitable channelizing devices and traffic shall not be permitted to cross.
- Drop-offs exceeding 5 inches:**
Pavement drop-offs exceeding 5 inches if next to a lane of traffic, or within 12 feet of a lane of traffic, shall be provided with a positive barrier to preclude crossing the drop-off throughout the entire length.
Unused pavement areas, and pavement areas exceeding 12 feet in width along which a positive barrier is not placed, shall be marked with drums or other suitable channelizing devices.

TYPICAL TRAFFIC CONTROL NOTES

- The S.H.A. and Howard County Department of Public Works shall be notified at least 48 hours prior to beginning any work in order to schedule a field inspection of traffic control device.
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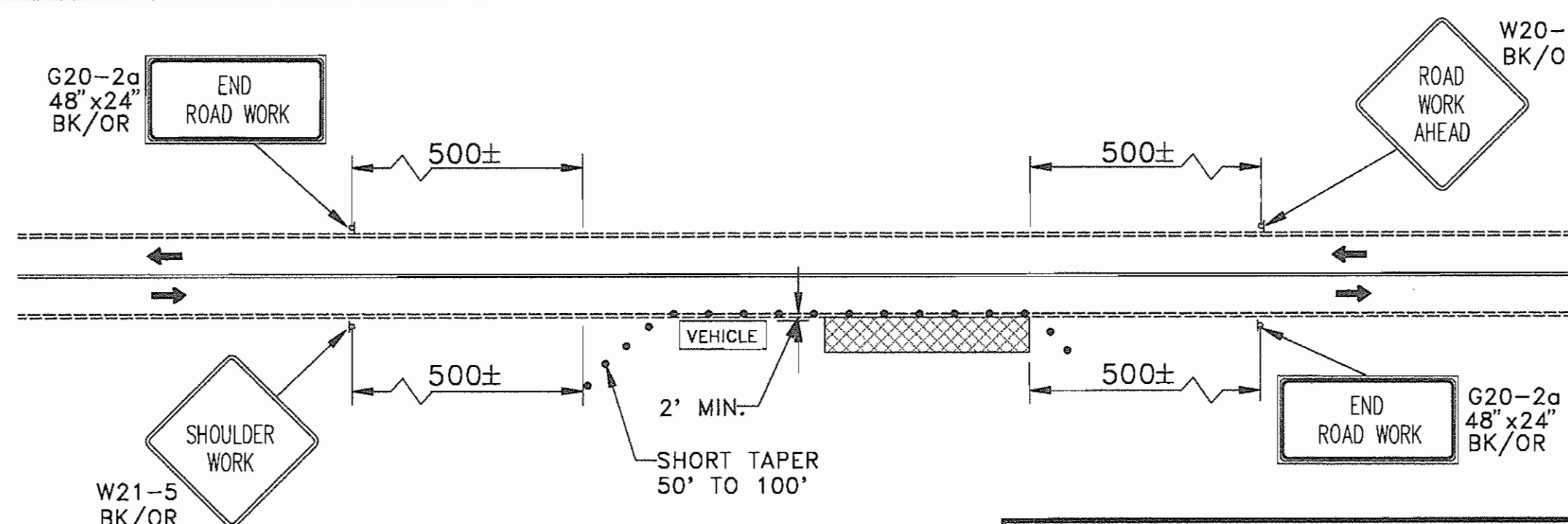


SHOULDER WORK TYPICALS

SCALE: 1"=40'

NOTE:

ALL SIGNS ARE TO BE 48"x48".



SYMBOLS TYPICAL

- CONSTRUCTION AREA
- DIRECTION OF TRAFFIC CHANNELIZING DEVICE (CONES)
- FACE OF SIGN SIGN SUPPORT



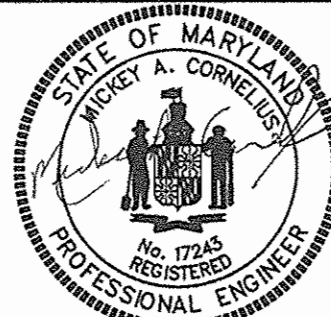
The Traffic Group, Inc.
Suite 600
40 W. Chesapeake Avenue
Towson, Maryland 21284
410-583-8405
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NOTE: THIS DRAWING MAY BE A REDUCED SIZE REPRODUCTION. USE GRAPHIC SCALE(S) FOR DIMENSIONAL REFERENCE.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

O'BRIEN & GERE
ENGINEERS, INC.



DSN. BY: PRD			
DRN. BY: PRD			
CHK. BY: JAB			
DATE: 1-16-95			
BY NO.	REVISION	DATE	

Traffic Control Plan and Typicals

ELKRIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 AND MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 27 OF 28

AS-BUILT 10-13-97

FILE NO. 2343.017-038F

TEMPORARY SEEDING NOTES

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

Seeding Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously done.

Soil Amendments: Apply 800 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq ft).

Seeding: For periods March 2 thru April 30 and from August 15 thru November 15, seed with 27-72 lbs. per acre of Phos (23 lbs. per 1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs. per acre of Phos (1.4 lbs. per 1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring, or use seed.

Mulch: Apply 1" to 2" to 2 tons per acre (70 to 90 lbs. per 1000 sq ft) of unbleached small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq ft) of emulsified asphalt on flat areas. On slopes 1% or higher, use 347 gal. per acre (8 gal. per 1000 sq ft) for anchoring.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent vegetative cover is needed.

Seeding Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously done.

Soil Amendments: Apply 800 lbs. per acre 10-10-10 fertilizer, use one of the following amounts:

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq ft) and 800 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq ft) before seeding. Increase or decrease upper three inches of soil. At time of seeding, apply 450 lbs. per acre 20-20-20 urea/ammonia fertilizer (10 lbs. per 1000 sq ft).
- 2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq ft) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs. per 1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

- 3) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.
 - 4) Use seed.
 - 5) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well-anchored straw.
- Mulch:** Apply 1" to 2" to 2 tons per acre (70 to 90 lbs. per 1000 sq ft) of unbleached small grain straw immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq ft) of emulsified asphalt on flat areas. On slopes 1% or higher, use 347 gal. per acre (8 gal. per 1000 sq ft) for anchoring.
- Maintenance:** Inspect 20-30 percent area and make needed repairs, replacements and reseeds.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT AND OTHER NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. ALL SEDIMENT EROSION CONTROL SHALL CONFORM TO THE LATEST MD STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. (1 WEEK)
 - 2. STAKEOUT WATERMAIN ALIGNMENT. (2 WEEKS)
 - 3. INSTALL SEDIMENT AND EROSION CONTROL DEVICES AS REQUIRED BY INSPECTOR. (2 WEEKS)
 - 4. BEGIN CONSTRUCTION. CONTRACTOR WILL OPEN ONLY THAT LENGTH OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. TRENCH MUST REMAIN OPEN LONGER THAN ONE (1) DAY. SILT FENCE SHALL BE PLACED DOWN-SLOPE OF THE TRENCH. COMPLETE EACH STREAM CROSSING DURING A 3 DAY CLEAR WEATHER FORECAST. (20 WEEKS)
- NOTE:** STREAM-UTILITY CROSSINGS SHALL BE MADE IN ONE (1) DAY WHILE STREAM IS SANDBAGGED. STREAM FLOW SHALL BE CONTINUOUSLY PUMPED (OVER NIGHT PUMPING TO BE APPROVED) OR DIVERTED WITH A 24" CMP. UNDISTURBED AREA IN WETLANDS SHALL BE STABILIZED PER TYPICAL CROSS SECTION WITH FASCINES, LIVE CANES, AND SPECIAL SEEDING AS SHOWN ON STREAM BANK STABILIZATION DETAIL. CONTRACTOR TO USE TEMPORARY ACCESS CULVERTS OR BRIDGES TO CROSS STREAMS.
 - 5. COMPLETE WATER MAIN AND SEWER CONSTRUCTION. (20 WEEKS)
 - 6. PROVIDE SEEDING OR PLANTING AS APPLICABLE. PLANTING TO BE PER CONSTRUCTION PLANS AND SPECIFICATIONS. COMPLETE SITE CLEANUP. (4 WEEKS)
 - 7. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT EROSION CONTROL AND STAKEOUT AREAS DISTURBED BY THIS PROCESS WITH PERMANENT SPECIAL SEEDING IN WETLANDS AS REQUIRED. (3 WEEKS)

SEDIMENT CONTROL NOTES

A minimum of 48 hours notice must be given to the Howard County Department of Inspections and Permits prior to the start of any construction (D3-1665).

All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL, and revisions thereto.

Temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, (b) 14 days or less for all disturbed or graded areas on the project site.

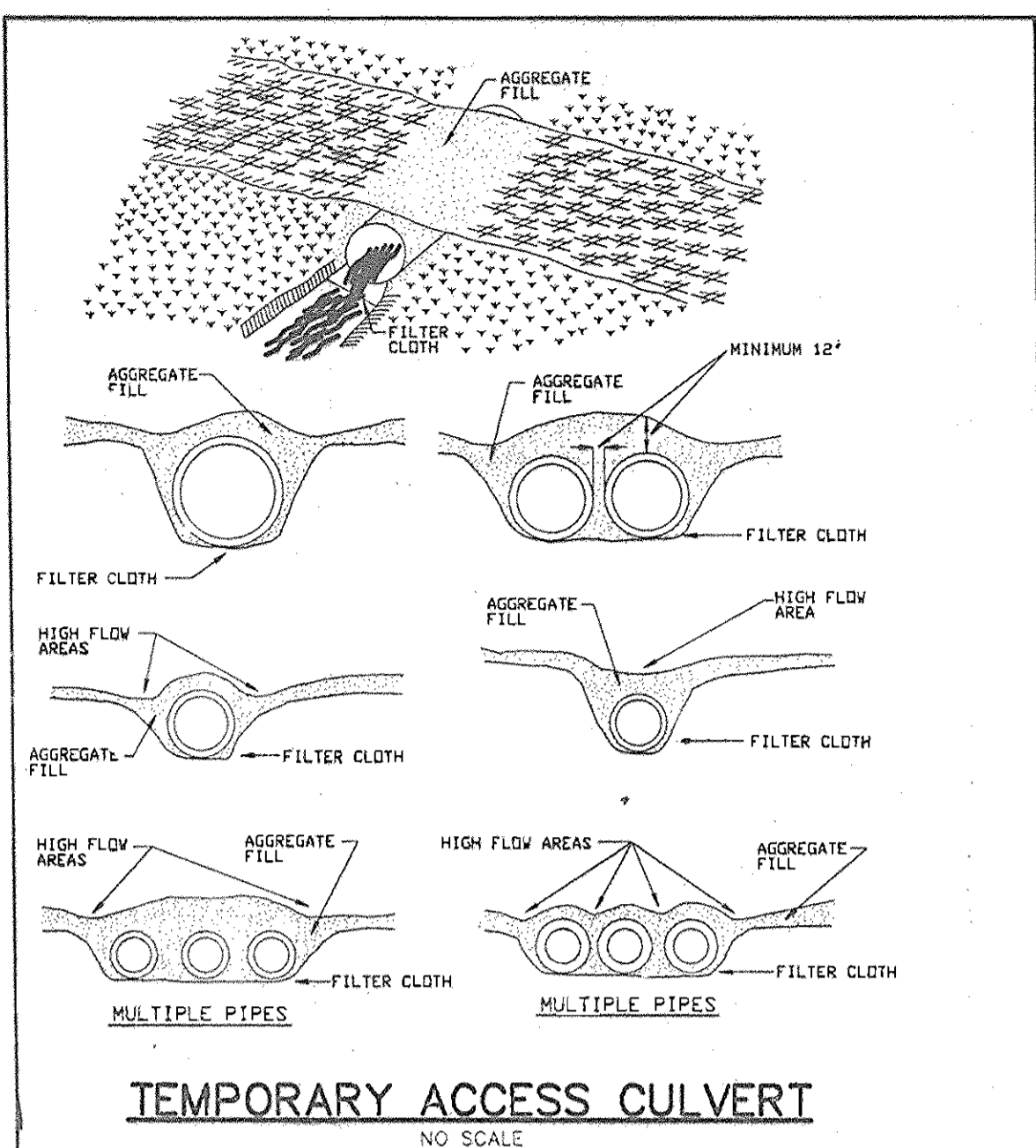
All disturbed areas must be reseeded within the time period specified above in accordance with the MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL for permanent seedings. (Sec. 51), and (Sec. 53), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary seeding with straw cover can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.

Site Analysis:

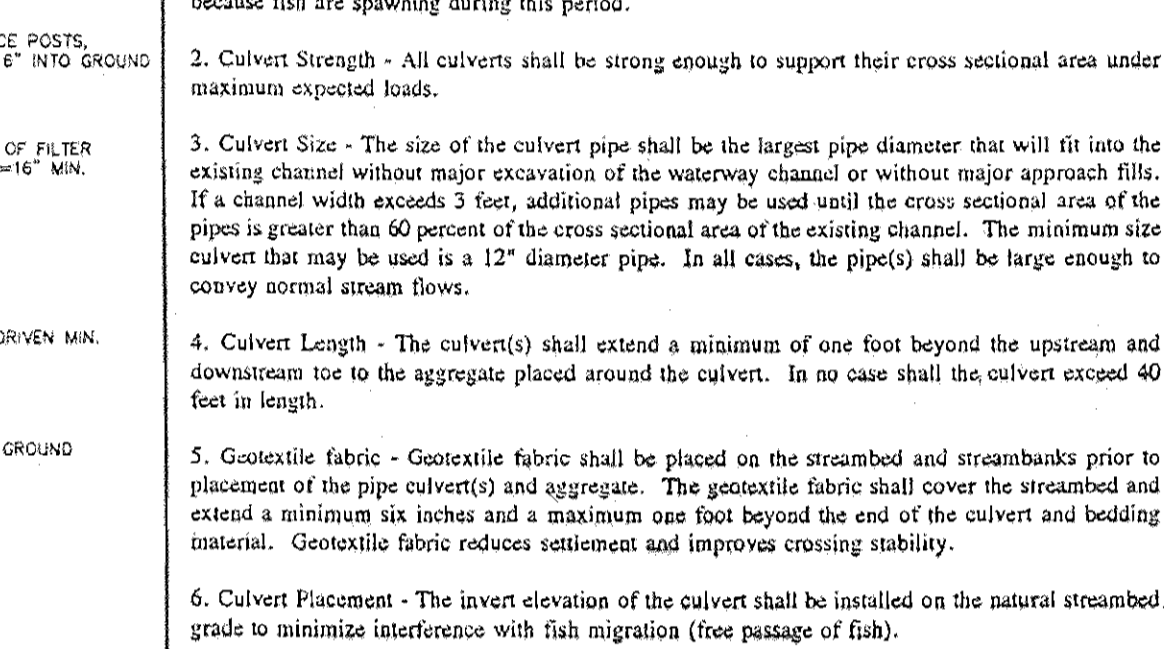
Total Area of Site	15.3 acres
Area to be seeded or paved	5.96 acres
Area to be vegetatively stabilized	9.34 acres
Total FFI:	3,983cu. yds. @ 48000. yds.

- 7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 8. Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- 9. Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
- 10. Cut and fill quantities provided under site drawings do not represent bid quantities. These quantities do not distinguish between topsoil, structural fill or embankment material, nor do they reflect consideration of undercutting or removal of unstable material. The contractor shall familiarize himself with site conditions which may affect the work.
- 11. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- 12. Contractor shall make every effort to avoid damage to existing trees.
- 13. Contractor shall not allow soil to enter existing storm drains or be tracked onto existing roadways.
- 14. Dewatering basins to be field located to minimize land disturbance and promote a high-recovery outlet.
- 15. All streams are Class II.
- 16. At All Construction Access Points Contractor Shall Install A Stabilized Construction Entrance As Required.



Construction Specifications

- 1. Restrictions - No construction or removal of a temporary access culvert will be permitted between Class III, October 1 through April 30 and Class IV, March 1 through May 31. For other streams, use or removal of a temporary culvert will be prohibited from March 1 through June 15 of each year because fish are spawning during this period.
- 2. Culvert Strength - All culverts shall be strong enough to support their cross sectional area under maximum expected loads.



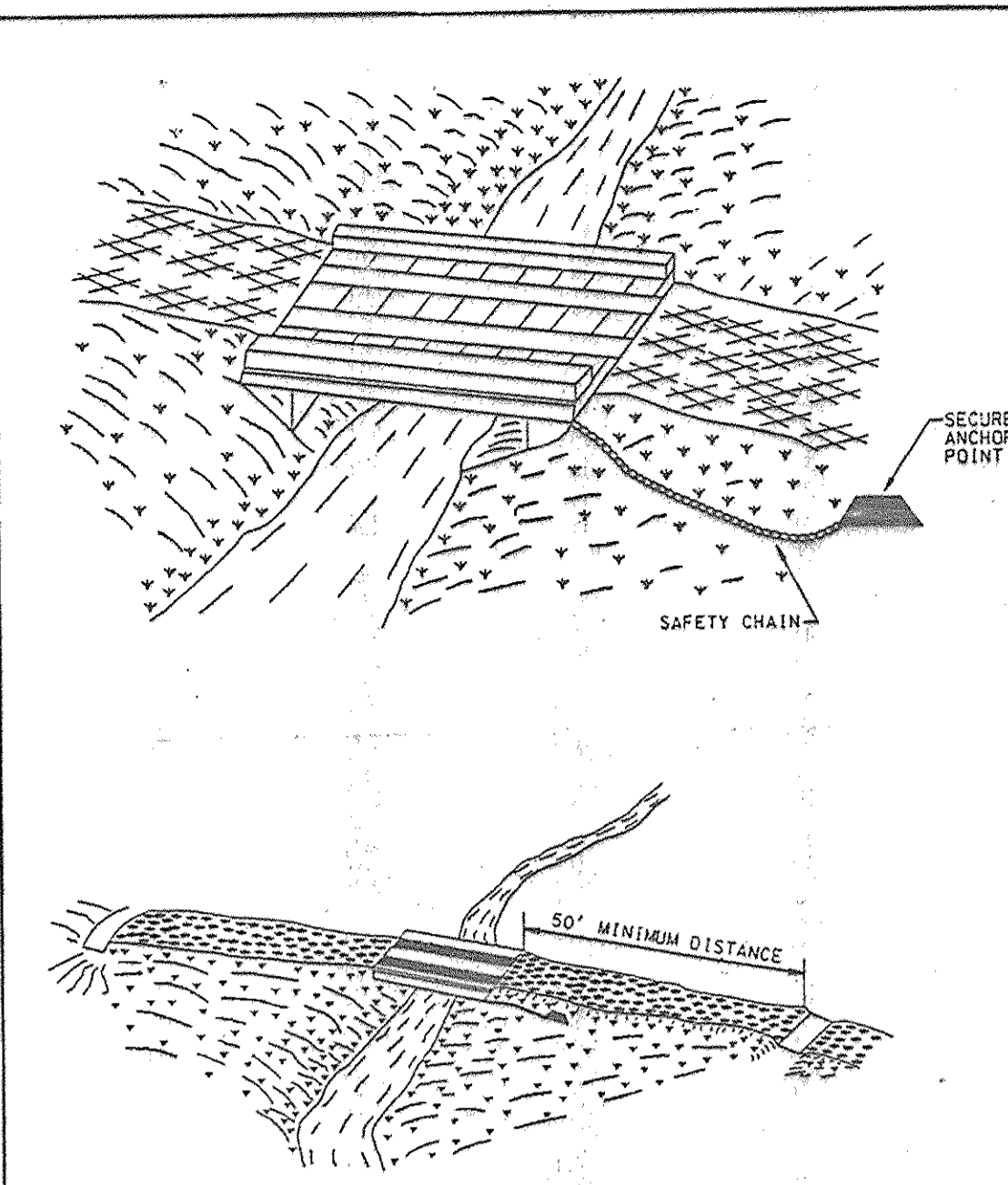
- 3. Culvert Size - The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe. In all cases, the pipe(s) shall be large enough to convey normal stream flows.
- 4. Culvert Length - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe to the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
- 5. Geotextile fabric - Geotextile fabric shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The geotextile fabric shall cover the streambed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Geotextile fabric reduces settlement and improves crossing stability.
- 6. Culvert Placement - The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).
- 7. Culvert Protection - The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill.
- 8. Stabilization - All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

Culvert Maintenance Requirements

- 1. Inspection - Periodic inspection shall be performed to ensure that the culverts, streambed, and streambanks are not damaged, and that sediment is not entering the stream or blocking fish passage or migration.
- 2. Maintenance - Maintenance shall be performed, as needed in a timely manner to ensure that structures are in compliance with this standard and specifications. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of and stabilized outside of the waterway floodplain.

Culvert Removal and Clean-Up Requirements

- 1. Removal - When the crossing has served its purpose, all structures including culverts, bedding and geotextile fabric materials shall be removed within 14 calendar days. In all cases, the culvert materials shall be removed within one year of installation. No structure shall be removed during the spawning season as defined in the general temporary access criteria.
- 2. Final Clean-Up - Final clean-up shall consist of removal of the temporary structure from the waterway, removal of all construction materials, restoration of original stream channel cross section, and protection of the stream banks from erosion. Removed material shall be stored outside of the waterway floodplain.
- 3. Method - Removal of the structure and clean up of the area shall be accomplished without construction equipment working in the waterway channel.
- 4. Final Stabilization - All areas disturbed during culvert removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."



Construction Specifications

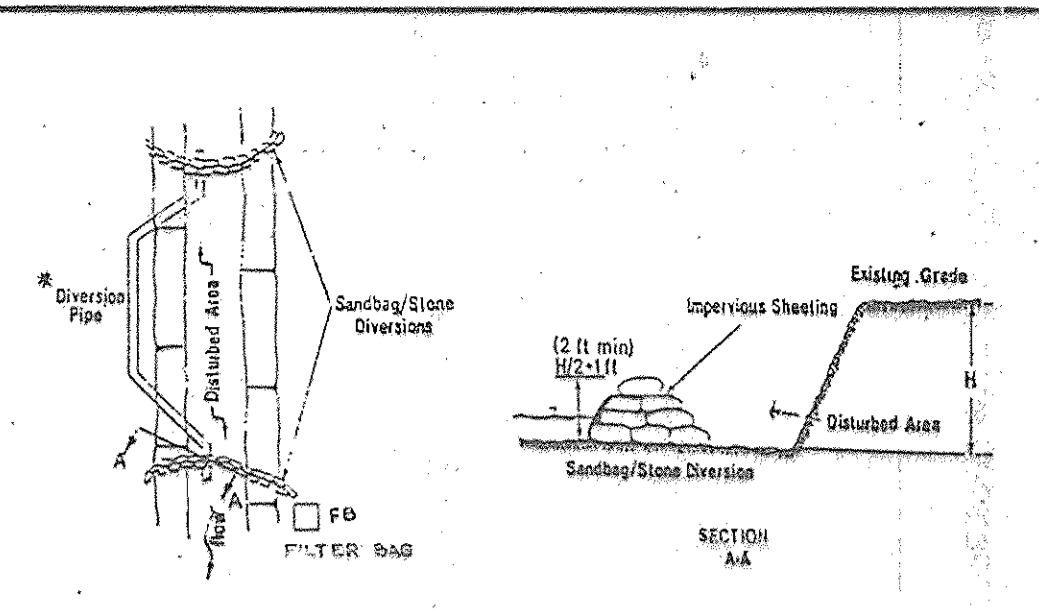
- 1. Restriction - Construction, use, or removal of a temporary access bridge will not normally have any time of year restrictions since construction, use, or removal should not affect the stream or its banks, unless the bridge is built with a pier(s) in the water.
- 2. Bridge Placement - A temporary bridge structure shall be constructed at or above the bank elevation to prevent the entrapment of floating materials and debris.
- 3. Abutments - Abutments shall be placed parallel to, and on, stable banks.
- 4. Bridge Span - Bridges shall be constructed to span the entire channel. If the channel width exceeds 8 feet, (as measured from top-of-bank to top-of-bank), then a footing, pier, or bridge support may be constructed within the waterway. One additional footing, pier, or bridge support will be permitted for each additional 8 foot width of the channel. However, no footing, pier, or bridge support will be permitted within the channel for waterways less than 8 feet wide.
- 5. Stringers - Stringers shall either be logs, sawn timber, prestressed concrete beams, metal beams, or other approved materials.
- 6. Deck Material - Decking materials shall be of sufficient strength to support the anticipated load. All decking members shall be placed perpendicular to the stringers, **hatted lightly**, and securely fastened to the stringers. Decking materials must be banded tightly to prevent any soil material tracked onto the bridge from falling into the waterway below.
- 7. Run Planks (optional) - Run planking shall be securely fastened to the length of the span. One run plank shall be provided for each track of the equipment wheels. Although run planks are optional, they may be necessary to properly distribute loads.
- 8. Curbs or fenders - Curbs or fenders may be installed along the outer sides of the deck. Curbs or fenders are an option which will provide additional safety.
- 9. Bridge Anchors - Bridges shall be securely anchored at only one end using steel cable or chain. Anchoring at only one end will prevent channel obstruction in the event that floodwaters float the bridge. Acceptable anchors are large trees, large boulders, or driven steel anchors. Anchoring shall be sufficient to prevent the bridge from floating downstream and possibly causing an obstruction to the flow.
- 10. Stabilization - All areas disturbed during installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

Bridge Maintenance Requirements

- 1. Inspection - Periodic inspection shall be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged.
- 2. Maintenance - Maintenance shall be performed, as needed to ensure that the structure complies with the standard and specifications. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of outside of the flood plain and stabilized.

Bridge Removal and Clean-Up Requirements

- 1. Removal - When the temporary bridge is no longer needed, all structures including abutments and other bridging materials shall be removed within 14 calendar days. In all cases, the bridge materials shall be removed within one year of installation.
- 2. Final Clean-Up - Final clean-up shall consist of removal of the temporary bridge from the waterway, protection of banks from erosion, and removal of all construction materials. All removed materials shall be stored outside the waterway floodplain.
- 3. Method - Removal of the bridge and clean up of the area shall be accomplished without construction equipment working in the waterway channel.
- 4. Final Stabilization - All areas disturbed during removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."



Construction Specifications

- 1. Diversion Pipe - The diversion pipe shall consist of installing a flow diversion structure when construction activities take place within the stream channel such as culvert construction or culvert replacement.
- 2. Material Specifications - The diversion pipe shall consist of materials which are resistant to ultraviolet radiation, having low moisture and water tightly enough to prevent leakage of 100% material (i.e., sand, flow gravel, etc.).
- 3. Filter - The filter shall be made of a minimum diameter of 1/2 inch.
- 4. Sheeting - Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
- 5. Construction Requirements - All erosion and sediment control devices shall be installed as the first order of work.
- 6. The height of the sandbag/diversion structure shall be one half the distance from the stream bed to the bank plus one foot, as indicated in section A-A.
- 7. The sandbags shall be placed on a smooth, graded surface.
- 8. All covered materials shall be disposed of in a PSD approved closed area outside the 100-year floodplain unless otherwise approved on the plan by the MWA.
- 9. All sheeting of the construction area shall be secured to a filter bag.
- 10. Sheeting shall be overlapped a minimum of 18 inches.
- 11. The diversion pipe shall have a minimum diameter of sufficient area to convey the normal stream flow.
- 12. If necessary, silt fences or structures shall be installed around the perimeter of the work area.
- 13. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

TEMPORARY EROSION CONTROL MEASURE (FB)

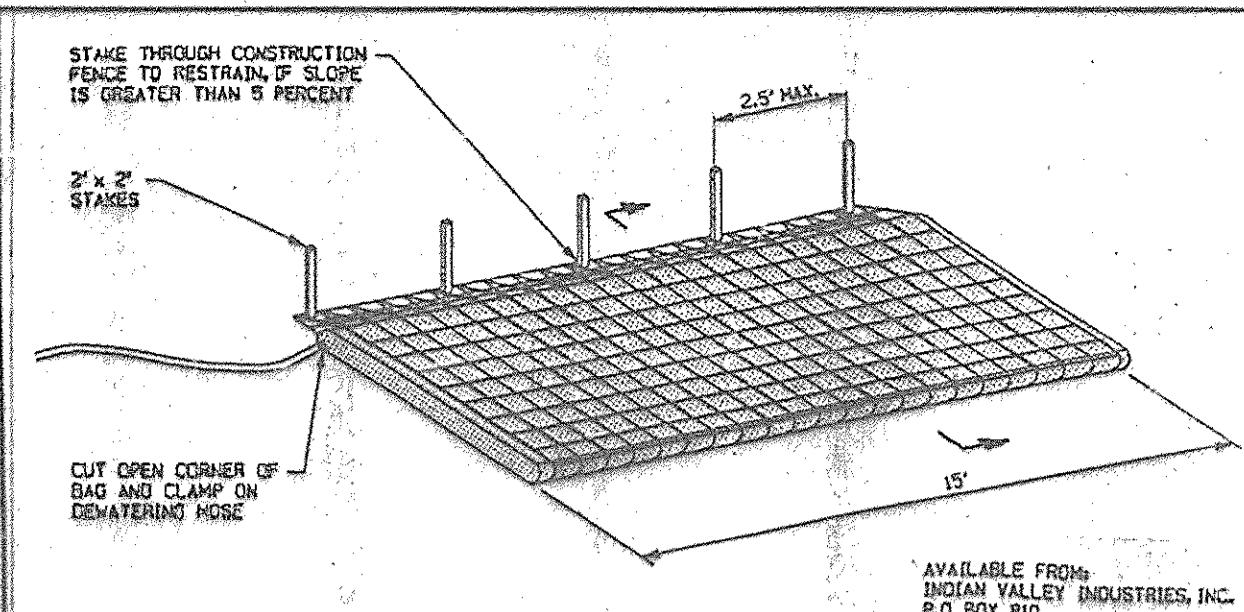
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE 11 - 29 - 9	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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WATER RESOURCES ADMINISTRATION

Diversion Pipe

Approved On 1/24/95
M. J. [Signature]
CHIEF, WATERWAY PERMITS

WPD 2.2



Construction Specifications

- 1. Description - The fence shall consist of installing a flow diversion structure when construction activities take place within the stream channel such as culvert construction or culvert replacement.
- 2. Material Specifications - The fence shall consist of materials which are resistant to ultraviolet radiation, having low moisture and water tightly enough to prevent leakage of 100% material (i.e., sand, flow gravel, etc.).
- 3. Filter - The filter shall be made of a minimum diameter of 1/2 inch.
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- 13. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

TEMPORARY EROSION CONTROL MEASURE (FB)

AVAILABLE FROM
INDIAN VALLEY INDUSTRIES, INC.
P.O. BOX 510
JOHNSON CITY, NEW YORK 13790
(603) 655-5111

STAKE AT 2' O.C. TO HOLD ON SLOPES

CONSTRUCTION FENCE FOR RESTRAINT AND AID IN LIFTING USED BAG

FILTER FABRIC (PHILLIPS FIBERS SURFACE 80P)

WATER AND SEDIMENT

0 TO 10% SLOPE

15'

2.5' MAX.

CUT OPEN CORNER OF BAG AND CLAMP ON EXISTING HOSE

SECTION A-A

PLAN VIEW

OVERFLOW PIPE TO BE LOCATED IN CHANNEL, STREAM, CAN BE PUMPED W/ PUMP CAPACITY 1.5 X STREAM FLOW.

1. Description - The fence shall consist of installing a flow diversion structure when construction activities take place within the stream channel such as culvert construction or culvert replacement.

2. Material Specifications - The fence shall consist of materials which are resistant to ultraviolet radiation, having low moisture and water tightly enough to prevent leakage of 100% material (i.e., sand, flow gravel, etc.).

3. Filter - The filter shall be made of a minimum diameter of 1/2 inch.

4. Sheeting - Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

5. Construction Requirements - All erosion and sediment control devices shall be installed as the first order of work.

6. The height of the sandbag/diversion structure shall be one half the distance from the stream bed to the bank plus one foot, as indicated in section A-A.

7. The sandbags shall be placed on a smooth, graded surface.

8. All covered materials shall be disposed of in a PSD approved closed area outside the 100-year floodplain unless otherwise approved on the plan by the MWA.

9. All sheeting of the construction area shall be secured to a filter bag.

10. Sheeting shall be overlapped a minimum of 18 inches.

11. The diversion pipe shall have a minimum diameter of sufficient area to convey the normal stream flow.

12. If necessary, silt fences or structures shall be installed around the perimeter of the work area.

13. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

14. Final Stabilization - All areas disturbed during removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."

15. Final Clean-Up - Final clean-up shall consist of removal of the temporary structure from the waterway, removal of all construction materials, restoration of original stream channel cross section, and protection of the stream banks from erosion. Removed material shall be stored outside of the waterway floodplain.

16. Method - Removal of the structure and clean up of the area shall be accomplished without construction equipment working in the waterway channel.

17. Final Stabilization - All areas disturbed during removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."

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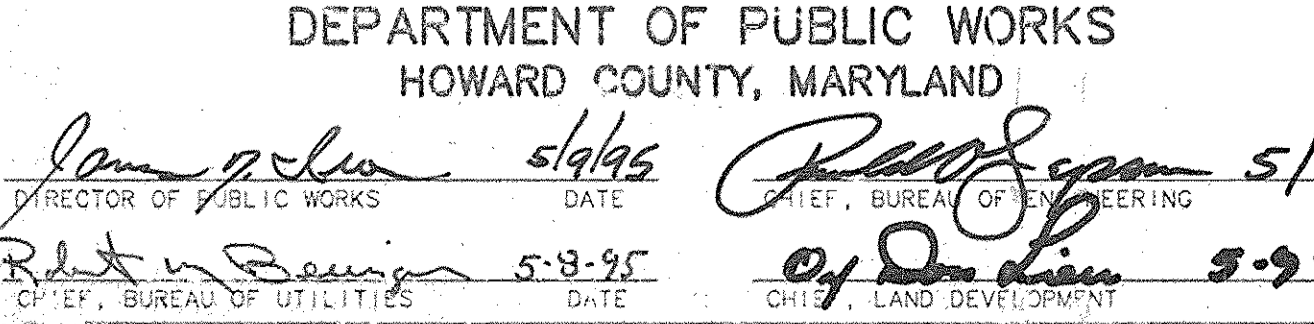
22. Final Stabilization - All areas disturbed during removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."

23. Final Stabilization - All areas disturbed during removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."

24. Final Stabilization - All areas disturbed during removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."

STABILIZED CONSTRUCTION ENTRANCE

NO SCALE



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] DATE: 5/9/95
Chief, Bureau of Engineering: [Signature] DATE: 5/9/95
Chief, Bureau of Utilities: [Signature] DATE: 5-9-95
Chief, Land Development: [Signature] DATE: 5-9-95

RIEMER MUEGGE & ASSOCIATES, INC.
Planners • Engineers • Surveyors
8810 Centre Park Drive • Suite 200 • Columbia, MD 21046
410-997-9800 FAX: 410-997-9282

J. Lueck
JAYKANT D. PAREKH '94B

DES: AAP/OK
DRN: WRW/RJC
CHK: J.D.P.
DATE: 4/21/95

B? NO. REVISION DATE

SEDIMENT AND EROSION CONTROL
NOTES AND DETAILS

3327 WIS SAT. 28

ELK RIDGE 36" TRANSMISSION MAIN REPLACEMENT
MD. RTE. 108 & MAYFIELD AVE. TO DEER RIDGE LANE

CAPITAL PROJECT: W-8169
CONTRACT NO.: 44-3327
ELECTION DISTRICT NO. 1
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 28 OF 28
AS-BUILT 10-13-97