

# ELKRIDGE WATER MAIN REHABILITATION AND REPLACEMENT

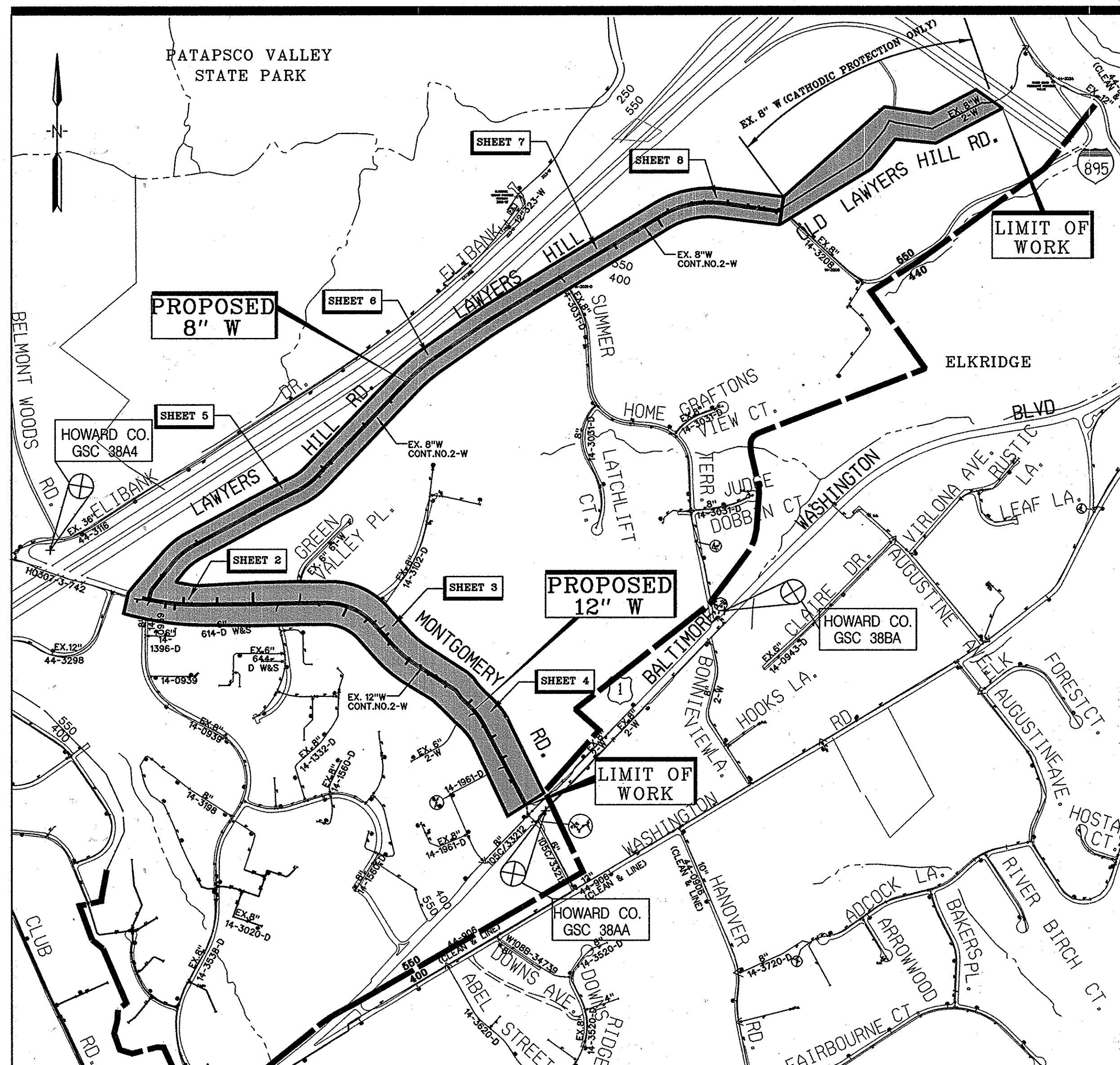
## HOWARD COUNTY, MARYLAND

### DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

#### GENERAL NOTES

1. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT CONTRACTOR EXPENSE.
2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON FEB., 2004 BY KCI TECHNOLOGIES
3. HORIZONTAL AND VERTICAL SURVEY CONTROLS:  
THE COORDINATES SHOWN ON DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE NAD '83/91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION NO. ALL VERTICAL CONTROLS ARE BASED ON NAVD88.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
6. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
7. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL. IN THE LOCATION OF THE TEST PIT, A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
8. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:  
AT&T.....1-800-252-1133  
BGR (CONSTRUCTION SERVICES).....410-850-4620  
BGR (EMERGENCY).....410-685-1400  
BUREAU OF UTILITIES.....410-313-4900  
VERIZON.....1-800-743-0033 / 410-224-9210  
COLONIAL PIPELINE CO.....410-795-1390  
MISS UTILITY.....1-800-257-7777  
STATE HIGHWAY ADMINISTRATION.....410-531-5533
9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
10. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
11. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)313-2450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER MAINS, SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPM REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.
12. ALL DUCTILE IRON PIPES TO BE USED ON THE PUBLIC WATER SYSTEM SHALL BE CLASS 54. DUCTILE IRON FITTINGS SHALL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND SHALL BE EXTERIOR EPOXY COATED IN ACCORDANCE WITH AWWA C116.
13. ALL WATER HOUSE CONNECTIONS SHALL BE 1-INCH COPPER MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
14. ALL WATER MAINS CONSTRUCTED IN FILL AREAS SHALL BE RESTRAINED DUCTILE IRON PIPE CLASS 54 MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
15. ALL WATER MAINS WITHIN CASING PIPES SHALL BE RESTRAINED DUCTILE IRON PIPE CLASS 54 MEETING THE REQUIREMENTS OF AND CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
16. THE FOLLOWING NOTE IS ADDED TO HOWARD COUNTY STANDARD DETAIL W2.22, BUTTRESSES AND ANCHORAGES FOR VERTICAL BENDS. WHEN ANCHORING PVC PIPE, THE STRAPPING IN CONTACT WITH THE PIPE SURFACE SHALL BE 1-INCH WIDE BY 1/4 INCH THICK STEEL. THE REMAINING ON OF THE STRAP SHALL BE REINFORCING BAR SIZED IN ACCORDANCE WITH THE PERTINENT CHART SHOWN ON THE DETAIL.
17. EXCEPT AS INDICATED ON THE PLANS AND NOTED ABOVE, ALL PUBLIC WATER MAINS SHALL BE POLYVINYLCHLORIDE (PVC) PIPE MEETING THE REQUIREMENTS OF AWWA C900 DR18, PRESSURE CLASS 150 AND THE HOWARD COUNTY DESIGN MANUAL VOLUME IV-STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND ALL SUBSEQUENT AMENDMENTS THERETO.
18. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
19. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
20. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
21. FIRE HYDRANTS SHALL BE SET TO BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
22. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
23. THE CONTRACTOR IS RESPONSIBLE FOR CONTRACTING THE VARIOUS BUSINESSES AND COORDINATING HIS WORK ACTIVITIES SO AS NOT TO NEGATIVELY IMPACT CONNECTED CUSTOMERS. THE REHABILITATION OF WATER MAIN SHALL CAUSE A MINIMUM DISTURBANCE TO THE EXISTING BUSINESSES AND NOTIFICATION TO THE BUSINESS OF ANY 'INTERRUPTION OF SERVICE' SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COUNTY REQUIRES THAT THE CONTRACTOR NOTIFY EACH BUSINESS AFFECTED BY LETTER OR DOOR TAGS OF THE IMPENDING SERVICE INTERRUPTION AT LEAST 72 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION.
24. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF UTILITIES HOWARD COUNTY, 15 DAYS PRIOR TO WATER MAIN SHUT DOWNS.
25. THE CONTRACTOR SHALL RETURN ALL SALVAGED FIRE HYDRANTS, FRAMES AND COVERS, VALVES, ROADWAY BOXES TO THE BUREAU OF UTILITIES AT 8250 MONTGOMERY RD, COLUMBIA, MD 21045.
26. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES, GRADES AND ELEVATION OF THE PROPOSED FACILITIES.
27. WATER MAINS SHALL BE FILLED WITH WATER AND BROUGHT TO 200PSI FOR 2 HOURS, VARYING 5PSI. SEE SPECIFICATIONS D-19.
28. ALL VALVES ABANDONED IN PLACE SHALL HAVE ROADWAY BOX REMOVED.  
(EX. VALVES IN LAWYERS HILL AND MONTGOMERY ROADS MAY BE IN VAULTS.)



#### LOCATION MAP

SCALE: 1" = 600'

TYPE OF BUILDING: N/A FOR COUNTY USE ONLY WATER CODE: 009

NUMBER OF PARCELS: N/A

NUMBER OF WATER HOUSE CONNECTIONS: 56

DRAINAGE AREA: PATAPSCO

PRESSURE ZONE: 550

WATER TEST GRADIENT: 700

HOWARD COUNTY GEODETIC SURVEY CONTROL  
THE HORIZONTAL AND VERTICAL DATUM BASED ON  
NAD83(91) (HORIZONTAL)  
NAV88 (VERTICAL)

NO. 388A  
N 562977.611  
E 1386288.08  
ELEV. 223.41

NO. 388A  
N 56158.784  
E 1389726.391  
ELEV. 220.02

PROFESSIONAL CERTIFICATION.  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15323

EXPIRATION DATE: 9/12/09

LEGEND	
	DECIDUOUS TREE
	CONFIROUS TREE
	TRAVERSE POINT
	WATER MAIN
	FIRE HYDRANT
	VALVE
	WATER HOUSE CONNECTION
	LOD - LIMIT OF DISTURBANCE
	EXISTING FIRE HYDRANT
	EXISTING VALVE
	EXISTING WATER MAIN
	EXISTING GAS MAIN
	EXISTING BURIED SERVICE CABLE WIRE
	EXISTING OVERHEAD SERVICE
	EXISTING WATER TO BE ABANDONED IN PLACE

#### INDEX OF SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	12" WATER MAIN PLAN AND PROFILE
3	12" WATER MAIN PLAN AND PROFILE
4	12" WATER MAIN PLAN AND PROFILE
5	8" WATER MAIN PLAN AND PROFILE
6	8" WATER MAIN PLAN AND PROFILE
7	8" WATER MAIN PLAN AND PROFILE
8	8" WATER MAIN PLAN AND PROFILE
9	EROSION & SEDIMENT CONTROL DETAILS
10	CORROSION CONTROL LAYOUT 1
11	CORROSION CONTROL LAYOUT 2
11A	CORROSION CONTROL DETAILS 1
11B	CORROSION CONTROL DETAILS 2
11C	CORROSION CONTROL DETAILS 3
11D	CORROSION CONTROL DETAILS 4

QUANTITIES				
ITEM	UNIT	ESTIMATE	AS-BUILT	MATERIAL SUPPLIER
6" WATER (PVC)	L.F.	100	100	DIAMOND PLASTICS FWH
8" WATER (PVC)	L.F.	5522	5465	DIAMOND PLASTICS FWH
12" WATER (PVC)	L.F.	3404	3404	DIAMOND PLASTICS FWH
FH	EACH	22	22	MUELLER-BELAIR SUPPLY CO
6" V	EACH	24	24	MUELLER-BELAIR SUPPLY CO
8" V	EACH	10	10	MUELLER-BELAIR SUPPLY CO
12" V	EACH	6	6	MUELLER-BELAIR SUPPLY CO
2" AIR RELEASE VALVE	EACH	1	1	VAL MATIC S/B
RECON. 1" WHC (COPPER)	L.F.	1740	1261	MUELLER STEPPPLINE

NAME OF UTILITY CONTRACTOR: MIRABLE CONSTRUCTION Co., Inc.
CHECKBOX
AS-BUILT DATE: 11-19-2009
SURVEY AND DRAFTING DIVISION

RESTORATION SCHEDULE		
LOCATION	DISTANCE	TYPE
MONTGOMERY	3895	BIT. CONCRETE
LAWYERS HILL	5391	BIT. CONCRETE

**AS-BUILT**  
DATE 11-19-2009

PLOTTED: 10/14 PM on Friday, August 17, 2007  
By: Kevin Jackson, Division: Environmental Engineering  
FILE: MA2009.010105.02\_VDrawings.CAD.dgn

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
 DIRECTOR OF PUBLIC WORKS DATE 9-13-07	 CHIEF, BUREAU OF ENGINEERING DATE 9-11-07
 CHIEF, BUREAU OF UTILITIES DATE 9-13-07	 CHIEF, UTILITY DESIGN DIVISION DATE 9-13-07

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI**  
TECHNOLOGIES

10 NORTH PARK DRIVE  
HUNT VALLEY, MD 21030  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
WWW.KCI.COM

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
LICENSE NO. 15323

EXPIRES 9/12/09

DES: JM				
DRN: CK				
CHK: TW				
DATE: LFN	AS BUILT	11-19-09		
DEC. 06				

BY	NO.	REVISION	DATE

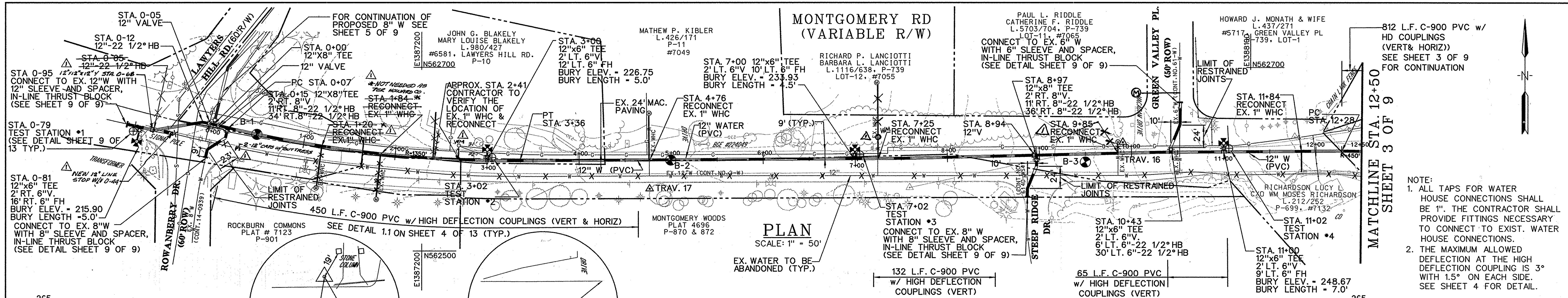
TITLE SHEET

600' SCALE MAP NO. 38 AND 32 BLOCK NO.

ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

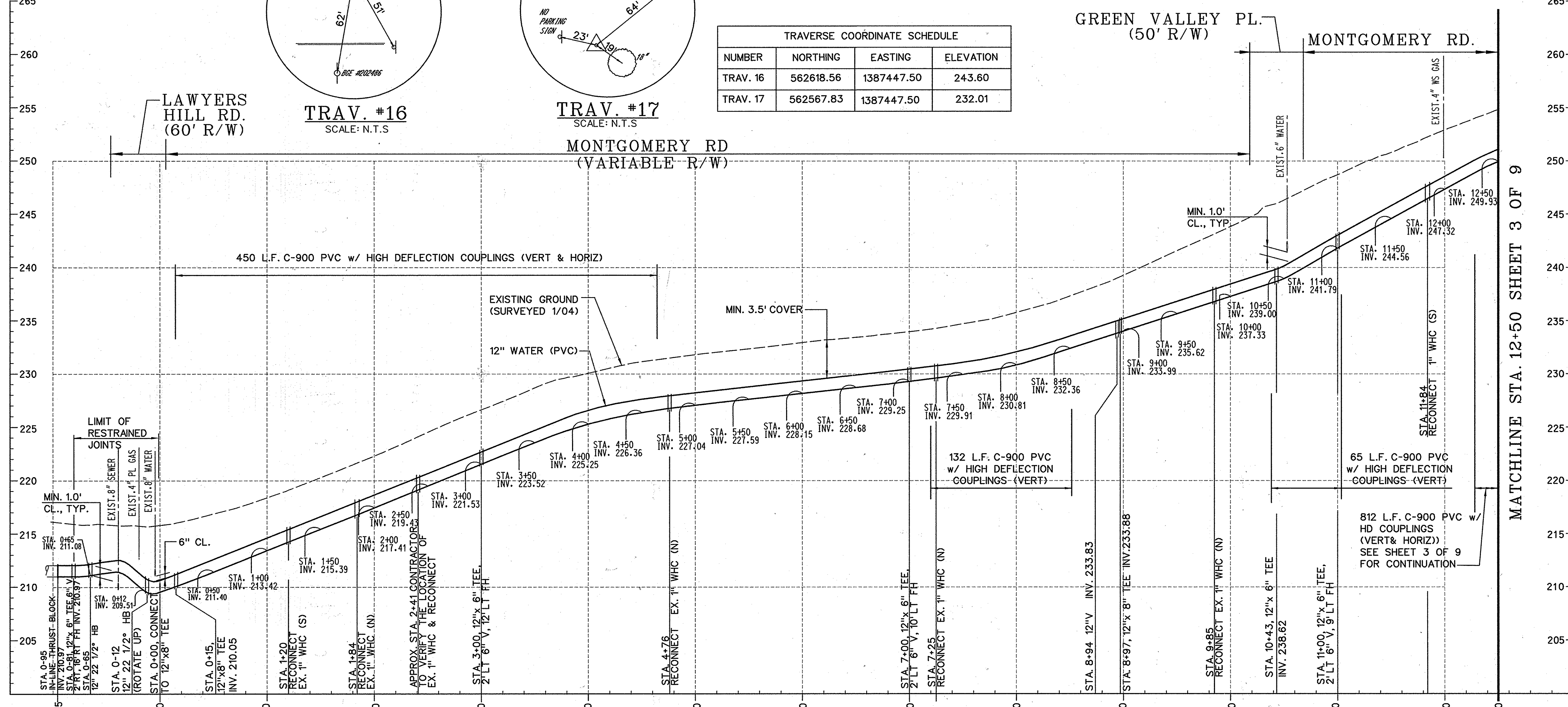
SCALE AS SHOWN  
SHEET 1 OF 11



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

TRAVERSE COORDINATE SCHEDULE

NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 16	562618.56	1387447.50	243.60
TRAV. 17	562567.83	1387447.50	232.01



**PROFILE**  
SCALE: HORIZONTAL 1" = 50'  
VERTICAL 1" = 5'

WATER MAIN COORDINATES SCHEDULE

STATION	FITTING	NORTHING	EASTING
0-95	12" SLEEVE	562638.19	1386880.27
0-81	12"x6" TEE	562634.96	1386894.19
0-81	6" V	562633.00	1386893.73
0-65	22 1/2" H.B.	562631.66	1386909.17
0-012	22 1/2" H.B.	562640.59	1386962.04
0-05	12" V	562638.91	1386969.17
0-00	12"x8" TEE	562637.88	1386974.07
0-05	12" V	562636.66	1386979.10
0-07	P.C.	562636.27	1386980.71
0-15	12"x8" TEE	562632.21	1386989.32
0-15	8" V	562632.35	1386988.88
0-15	22 1/2" H.B.	562623.15	1386986.82
0-00	34 RT. 12" H.B.	562602.24	1386965.05
3-00	12"x6" TEE	562598.66	1387270.87
3-00	6" V	562600.34	1387270.78
3-36	P.T.	562598.41	1387306.87
7-00	12"x6" TEE	562600.69	1387670.86
7-00	6" V	562602.70	1387670.85
8-94	12" V	562604.41	1387864.82
8-97	12"x8" TEE	562604.48	1387867.72
8-97	8" V	562602.45	1387866.46
8-97	22 1/2" H.B.	562592.36	1387867.75
8-87	22 1/2" H.B.	562558.18	1387857.80
8-87	8" SLEEVE	562559.22	1387857.82
10+43	12"x6" TEE	562607.79	1388013.33
10+43	6" V	562609.80	1388013.35
10+53	22 1/2" H.B.	562637.46	1388023.08
10+53	12" V	562637.46	1388023.08
10+53	54" LT. SLEEVE	562661.92	1388023.75
11-00	12"x6" TEE	562608.16	1388070.78
11-00	6" V	562610.16	1388070.77
12-28	P.C.	562608.96	1388199.04

**AS-BUILT**  
DATE: 11-19-2009

PLOTTED: 10:02 AM on Wednesday, February 07, 2007  
 BY: Chandra Kona Division: Environmental Engineering  
 FILE: M:\2006\010105.02\_VDrawings\CO2.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Michael A. Brannan* 9/15/07  
DIRECTOR OF PUBLIC WORKS DATE

*Thomas E. Butler* 9-11-07  
CHIEF, BUREAU OF UTILITIES DATE

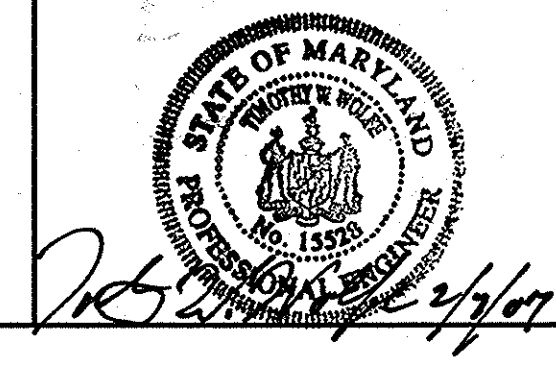
*Michael A. Brannan* 9-12-07  
CHIEF, BUREAU OF UTILITIES DATE

*Michael A. Brannan* 9-12-07  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

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DES: JM  
DRN: CK  
CHK: TW

DATE: 11/19/09  
DATE: DEC. 06

BY: LFN  
NO. AS BUILT

REVISION

**12" WATER MAIN  
PLAN AND PROFILE**

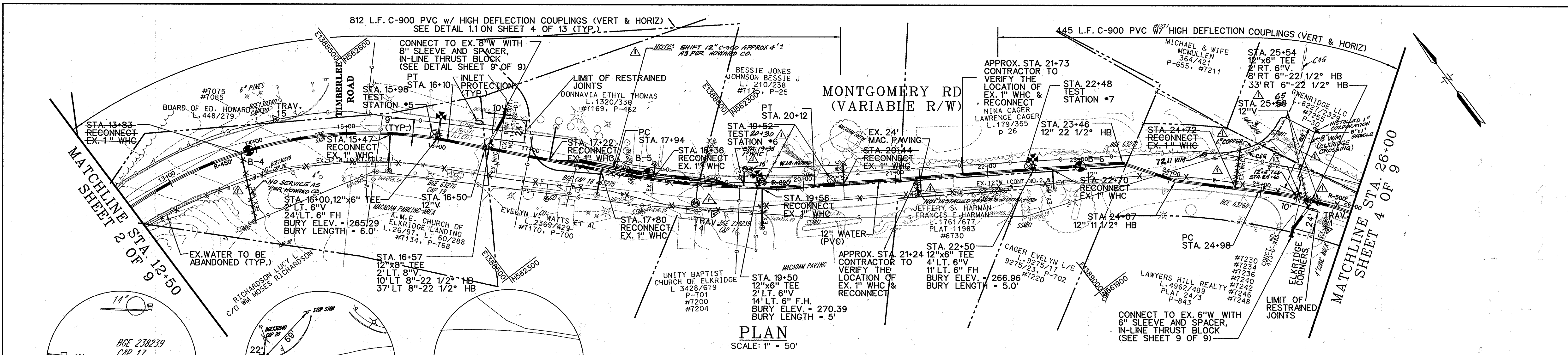
600' SCALE MAP NO. 38 AND 32 BLOCK NO.

**ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT**

CAPITAL PROJECT No. W-8257  
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ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

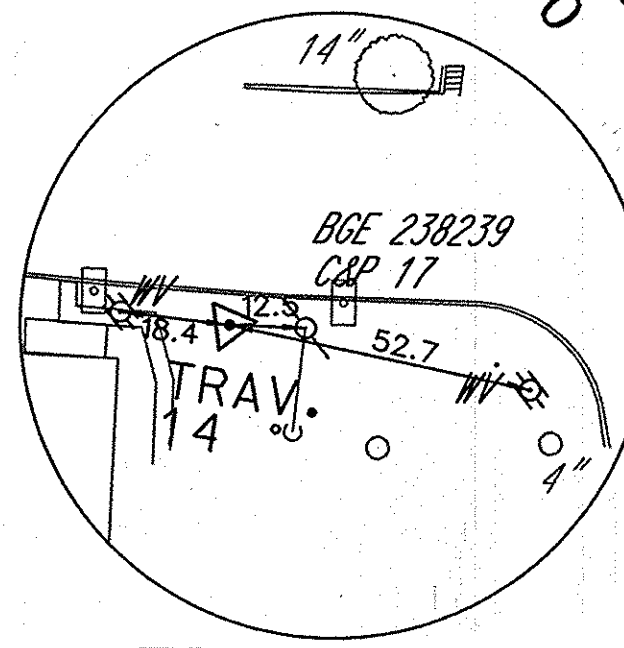
SCALE AS SHOWN  
SHEET 2 OF 11



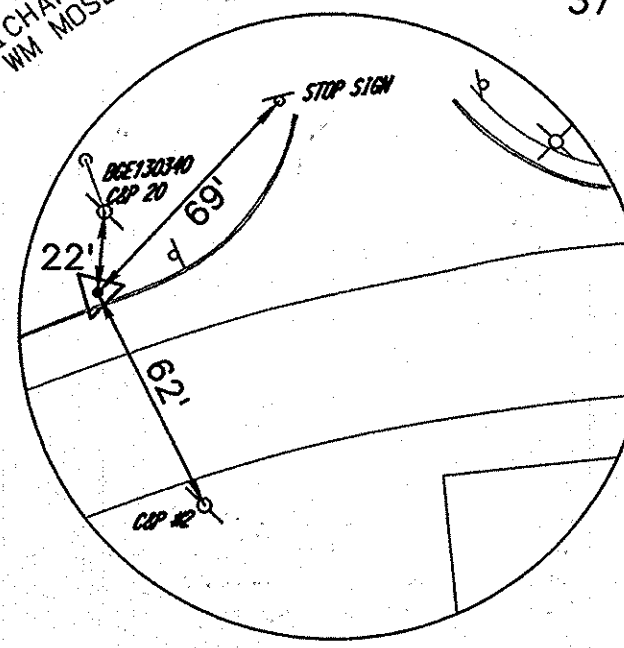
**PLAN**  
SCALE: 1" = 50'

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 11	561804.15	1389238.00	259.83
TRAV. 14	562220.48	1388718.58	270.53
TRAV. 15	562590.10	1388403.24	263.25

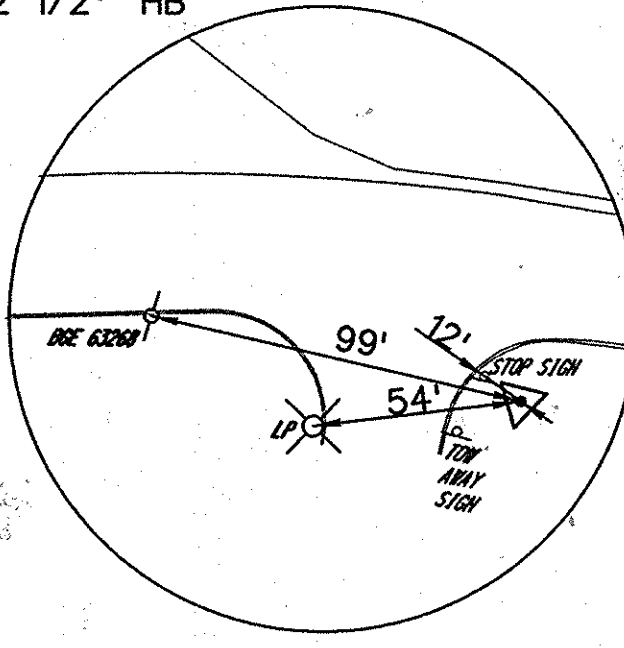
- NOTE:
1. ALL TAPS FOR WATER HOUSE CONNECTIONS SHALL BE 1". THE CONTRACTOR SHALL PROVIDE FITTINGS NECESSARY TO CONNECT TO EXIST. WATER HOUSE CONNECTIONS.
  2. THE MAXIMUM ALLOWED DEFLECTIN AT THE HIGH DEFLECTION COUPLING IS 3" WITH 1.5" ON EACH SIDE. SEE SHEET 4 FOR DETAIL.



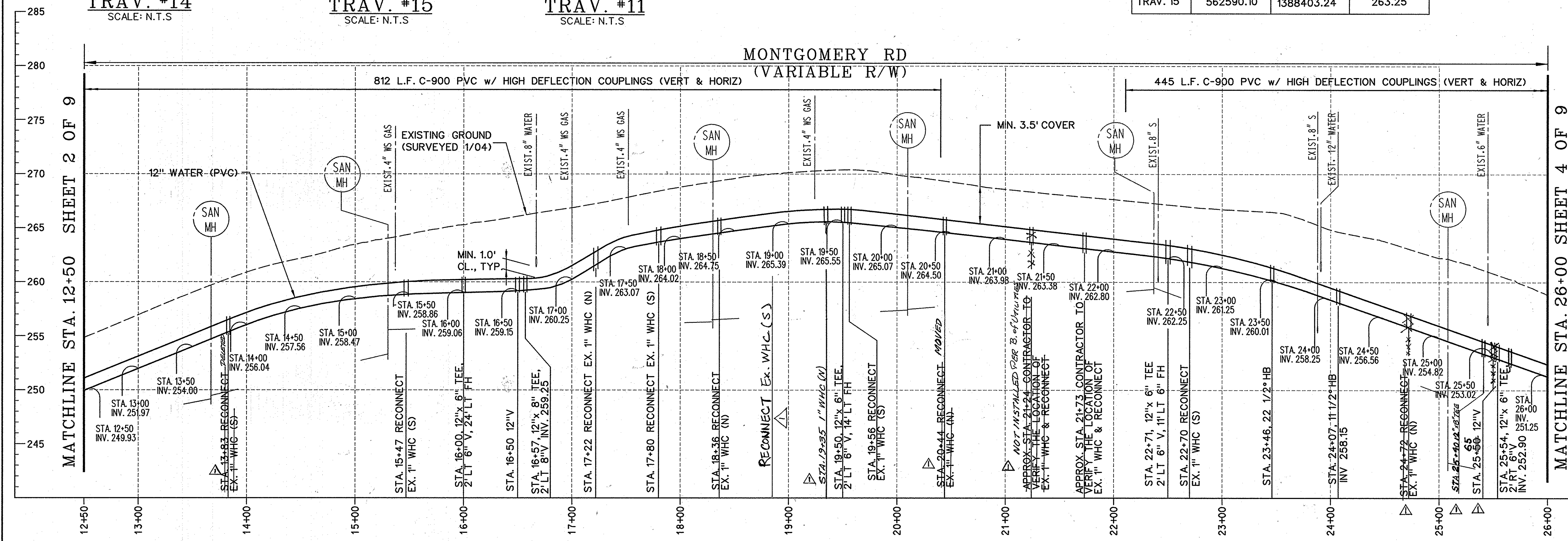
**TRAV. #14**  
SCALE: N.T.S



**TRAV. #15**  
SCALE: N.T.S



**TRAV. #11**  
SCALE: N.T.S



**PROFILE**  
SCALE: HORIZONTAL 1" = 50'  
VERTICAL 1" = 5'

WATER MAIN STAKEOUT COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
16+00	12"x6" TEE	562465.98	1388530.85
16+00	6" V	562467.27	1388532.23
16+10	P.T.	562458.60	1388537.49
16+50	12" V	562428.09	1388564.64
16+57	12"x8" TEE	562423.60	1388568.66
16+57	30" H.B.	562430.79	1388575.65
16+87	30" H.B.	562442.05	1388601.61
16+87	34" L.T.	562448.15	1388608.10
17+94	P.C.	562320.94	1388660.24
19+50	12"x6" TEE	562214.91	1388773.84
19+50	6" V	562216.49	1388775.06
20+12	P.T.	562179.01	1388824.71
22+50	12"x6" TEE	562049.19	1389023.85
22+50	6" V	562052.73	1389025.98
23+48	22 1/2" HB	561997.00	1389104.07
24+07	11 1/4" HB	561946.71	1389138.37
24+50	12" V	561916.35	1389169.42
24+98	P.C.	561882.68	1389203.62
25+54	12" V	561844.41	1389238.74
25+54	12"x6" TEE	561840.45	1389239.41
25+54	21" RT.	561839.69	1389238.39
25+54	22 1/2" HB	561835.71	1389233.62
25+44	22 1/2" HB	561828.12	1389208.54
25+44	43" RT.	561822.48	1389201.65

**AS-BUILT**  
DATE 11-19-2009

PLOTTED: 09:03 AM on Wednesday, February 07, 2007  
 BY: Chandrea Kenta Division: Environmental Engineering  
 FILE: MA-2009-0105-02.dwg

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John A. ...* 9/12/07  
DIRECTOR OF PUBLIC WORKS  
CHIEF, BUREAU OF UTILITIES

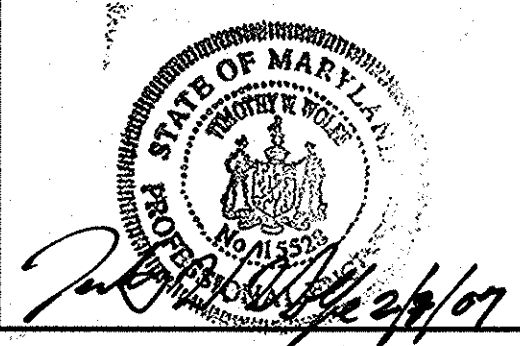
*Thomas S. ...* 9-11-07  
CHIEF, BUREAU OF ENGINEERING  
CHIEF, UTILITY DESIGN DIVISION

*...* 9-4-07  
DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI**  
TECHNOLOGIES

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DES: JM			
DRN: CK			
CHK: TW			
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DEC. 06	BY	NO.	REVISION

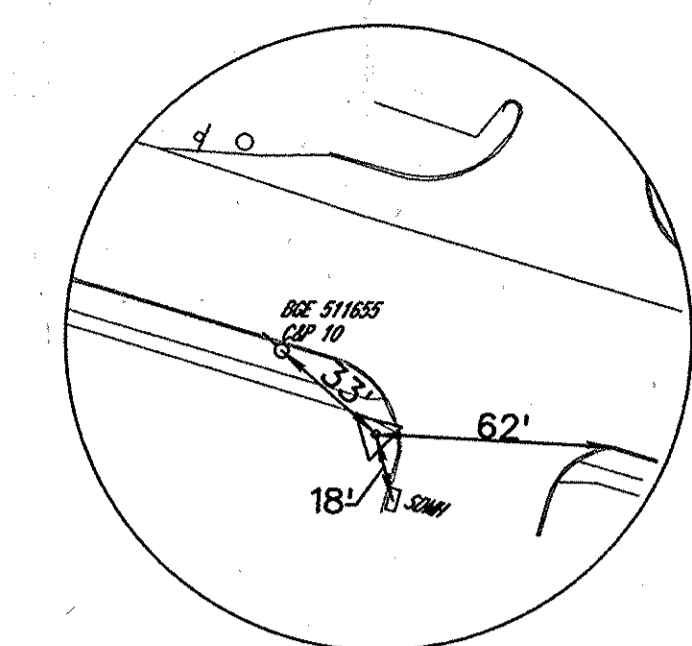
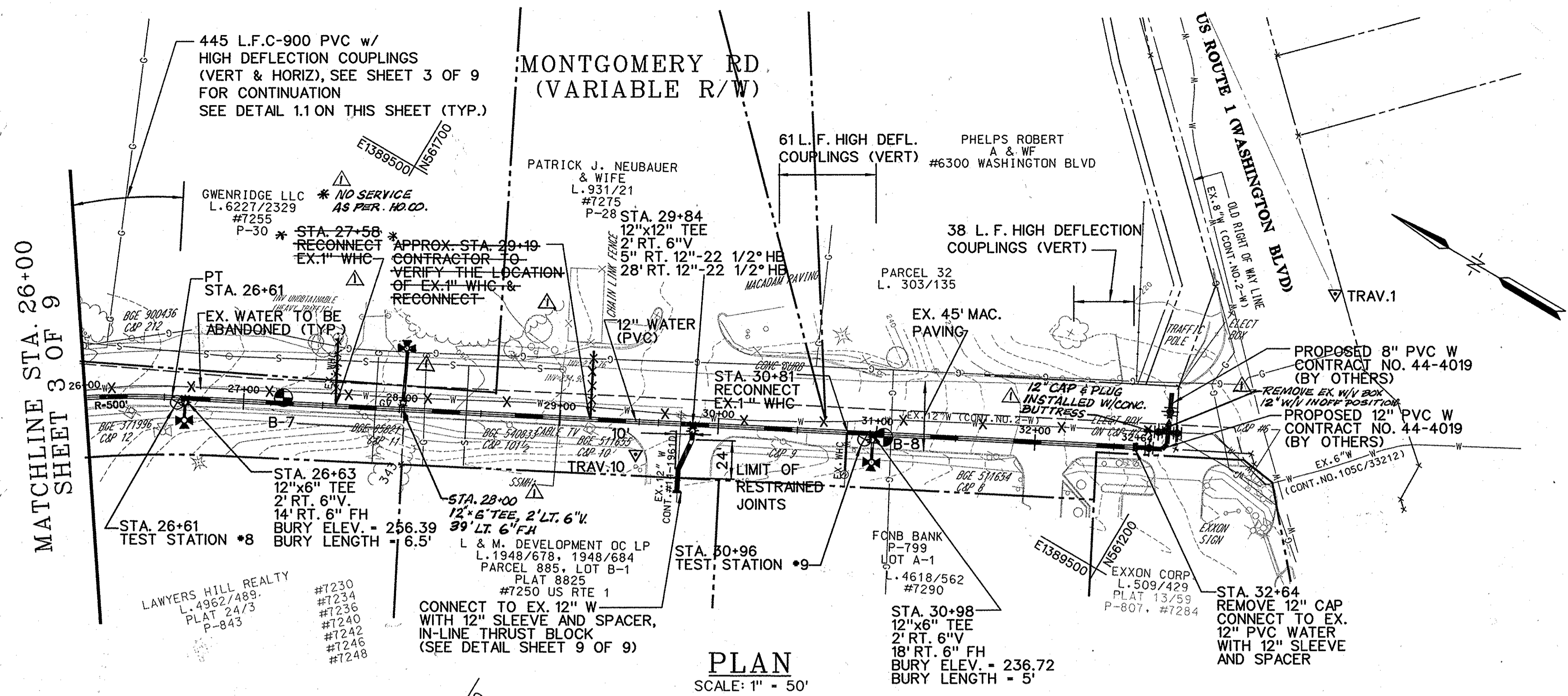
12" WATER MAIN  
PLAN AND PROFILE

600' SCALE MAP NO. 38 AND 32 BLOCK NO.

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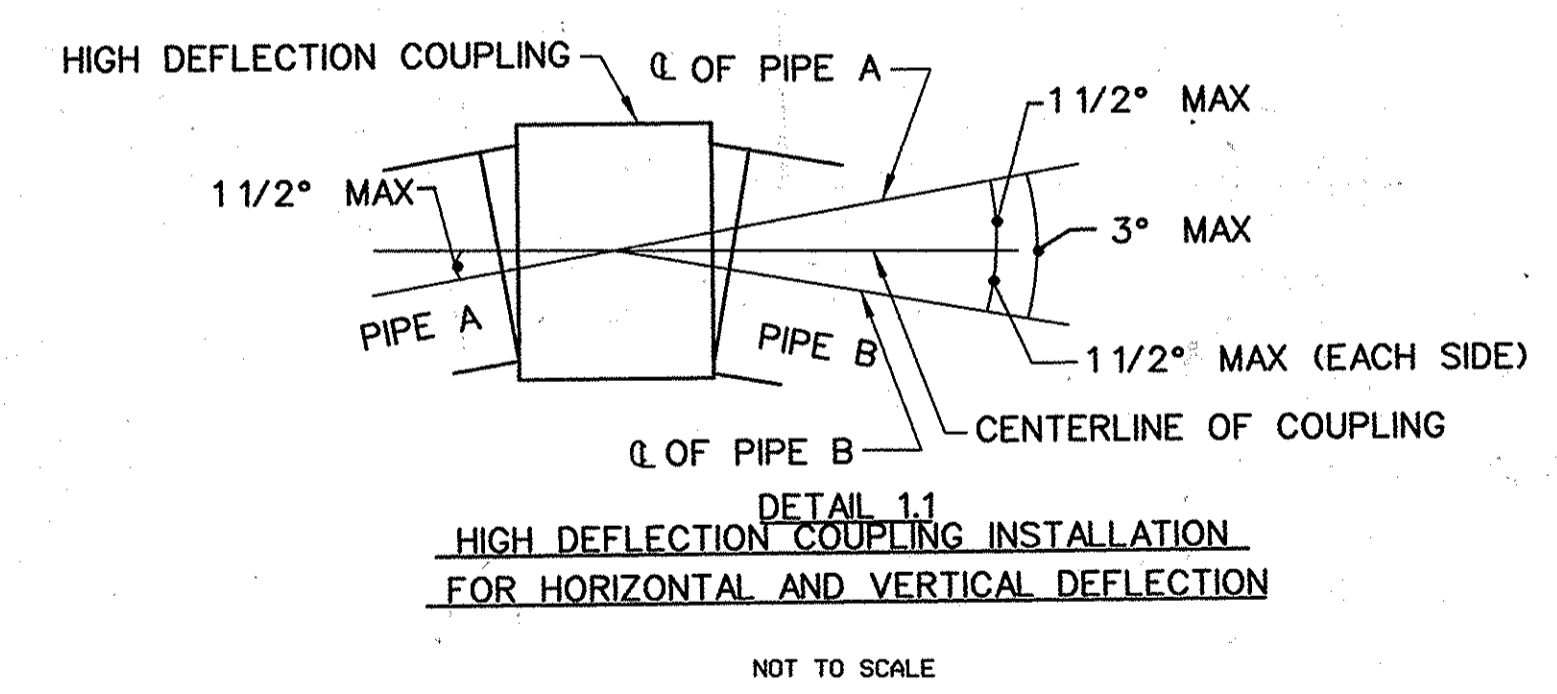
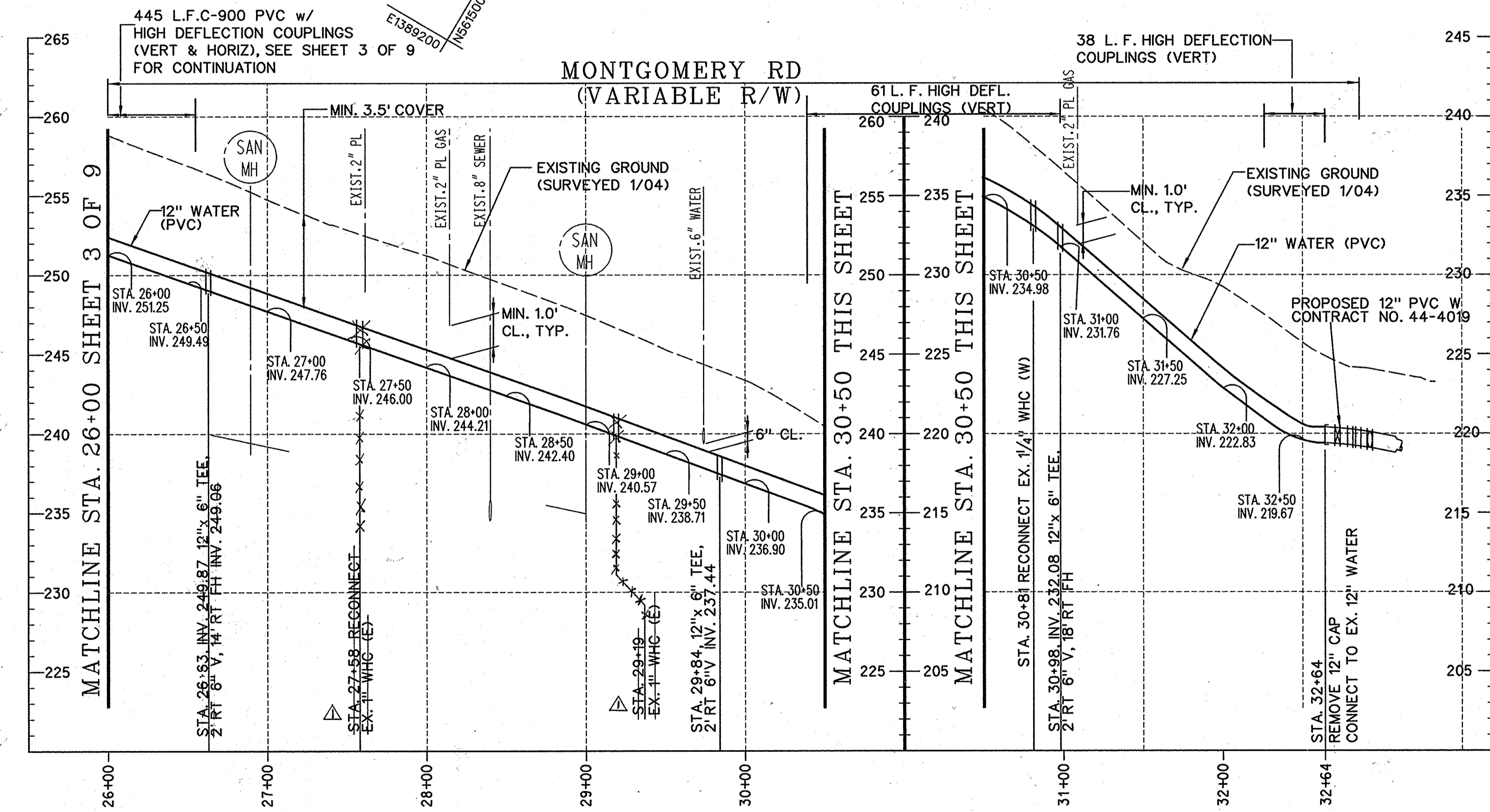
SCALE AS SHOWN  
SHEET 3 OF 11



TRAV. #10  
SCALE: N.T.S

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 10	561487.06	1389414.41	245.25

STAKEOUT WATER MAIN COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
26+55	P.T.	561757.14	1389296.64
26+63	12\"/>		



- NOTE:
1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3\"/>

**AS-BUILT**  
DATE 11-19-2009

PLOTTED: 09:03 AM on Wednesday, February 07, 2007  
 By: Chandra Kanta Division: Environmental Engineering  
 FILE: M:\2006\010105\02\_gramings\CO4.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

ENGINEERS  
 PLANNERS  
 SCIENTISTS  
 CONSTRUCTION MANAGERS  
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 Hunt Valley, MD 21030  
 Phone: (410) 316-7800  
 Fax: (410) 316-7817  
 www.kci.com

Director of Public Works: *Michael A. Krieger* 9-13-07  
 Chief, Bureau of Utilities: *Michael A. Krieger* 9-13-07  
 Chief of Engineering: *Thomas E. Gault* 9-11-07  
 Chief Utility Design Division: *Raymond J. Jones* 9-4-07

STATE OF MARYLAND  
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DES: JM  
DRN: CK  
CHK: TW  
DATE: DEC.. 06

LFN  
 AS BUILT  
 1/19/08

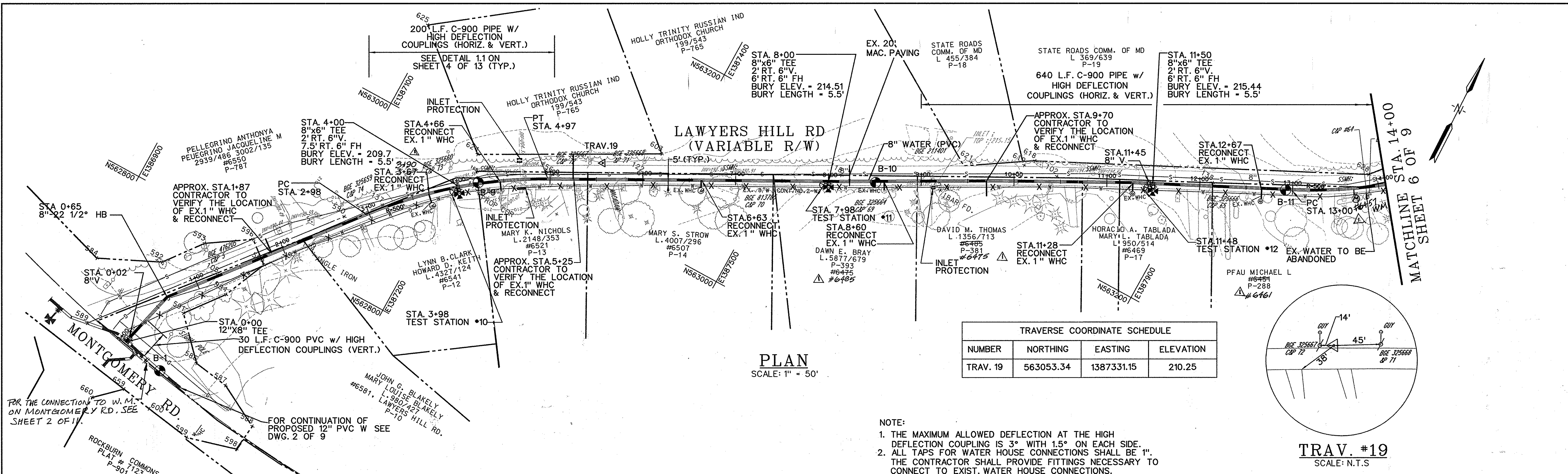
600' SCALE MAP NO. 38 AND 32 BLOCK NO.

12" WATER MAIN  
PLAN AND PROFILE

ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

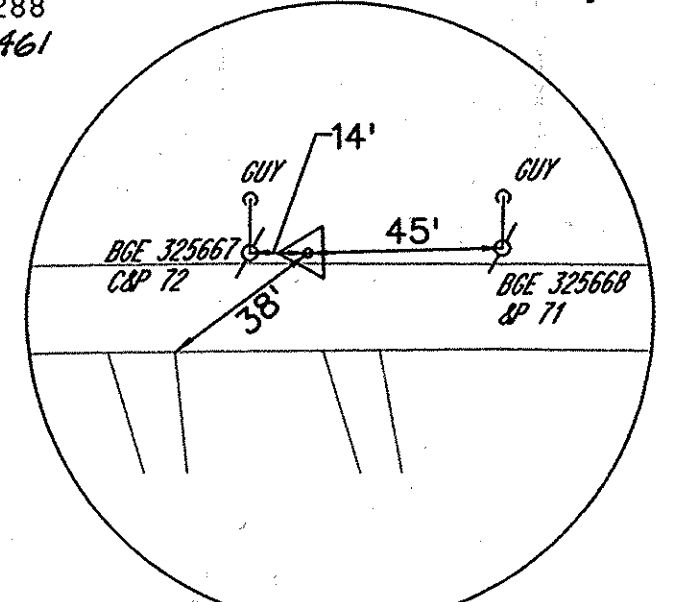
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 4 OF 11



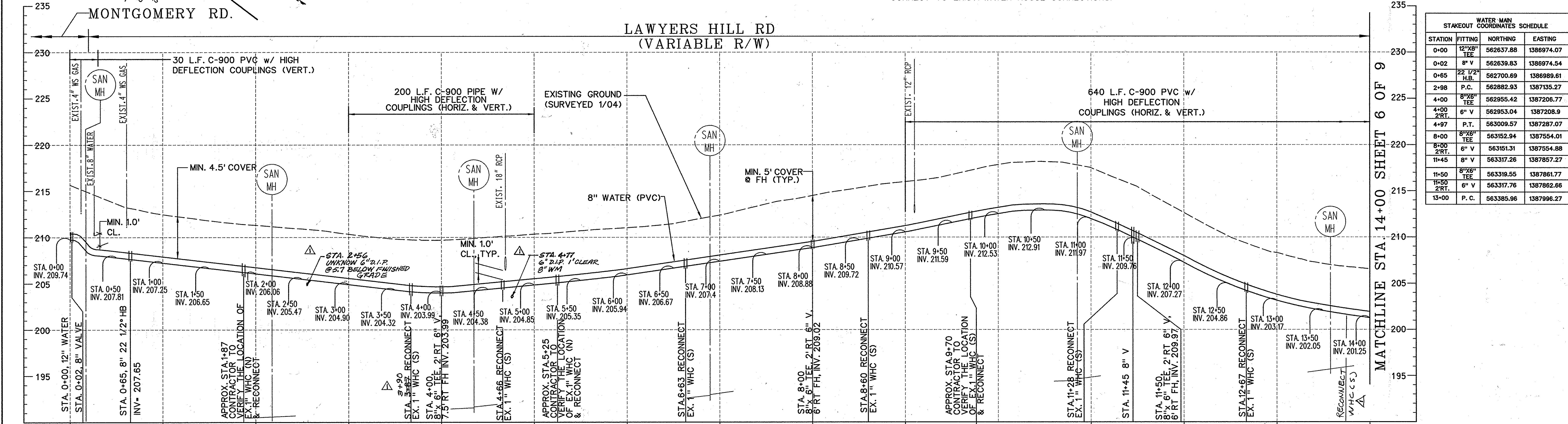
**PLAN**  
SCALE: 1" = 50'

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 19	563053.34	1387331.15	210.25



**TRAV. #19**  
SCALE: N.T.S.

- NOTE:
1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3" WITH 1.5" ON EACH SIDE.
  2. ALL TAPS FOR WATER HOUSE CONNECTIONS SHALL BE 1". THE CONTRACTOR SHALL PROVIDE FITTINGS NECESSARY TO CONNECT TO EXIST. WATER HOUSE CONNECTIONS.



**PROFILE**

SCALE: HORIZONTAL 1" = 50'  
VERTICAL 1" = 5'

WATER MAIN STAKEOUT COORDINATES SCHEDULE		
STATION	FITTING	NORTHING EASTING
0+00	12"x8" TEE	562637.88 1386974.07
0+02	8" V	562639.83 1386974.54
0+65	22 1/2" H.B.	562700.69 1386989.61
2+98	P.C.	562882.93 1387135.27
4+00	8"x8" TEE	562955.42 1387206.77
4+00	2" RT.	562953.04 1387208.9
4+97	P.T.	563009.57 1387287.07
8+00	8"x8" TEE	563152.94 1387554.01
8+00	2" RT.	563151.31 1387554.88
11+45	8" V	563317.26 1387857.27
11+50	8"x8" TEE	563319.55 1387861.77
11+50	2" RT.	563317.76 1387862.66
13+00	P. C.	563385.96 1387996.27

**AS-BUILT**  
DATE 11-19-2009

PLOTTED: 09:04 AM on Wednesday, February 07, 2007  
 BY: Chandra Kanta Division: Environmental Engineering  
 FILE: M:\2006\010105.02\_planning\COB.dgn

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John J. ...* 9/13/01  
DIRECTOR OF PUBLIC WORKS DATE

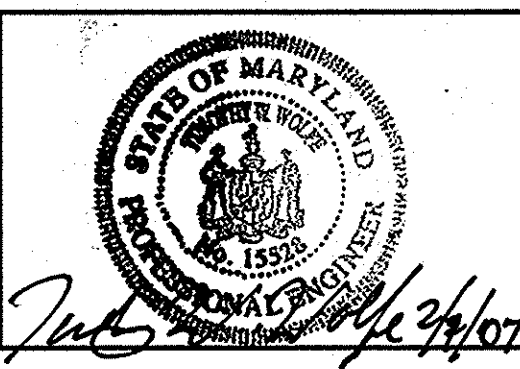
*Mona E. ...* 9-11-07  
CHIEF OF ENGINEERING DATE

*...* 9-4-07  
CHIEF OF UTILITIES DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI**  
TECHNOLOGIES

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Hunt Valley, MD 21030  
Phone: (410) 316-7800  
Fax: (410) 316-7817  
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DES: JM			
DRN: CK			
CHK: TW			
DATE: LFN	AS BUILT	11-19-09	
BY NO.		REVISION	

**8" WATER MAIN  
PLAN AND PROFILE**

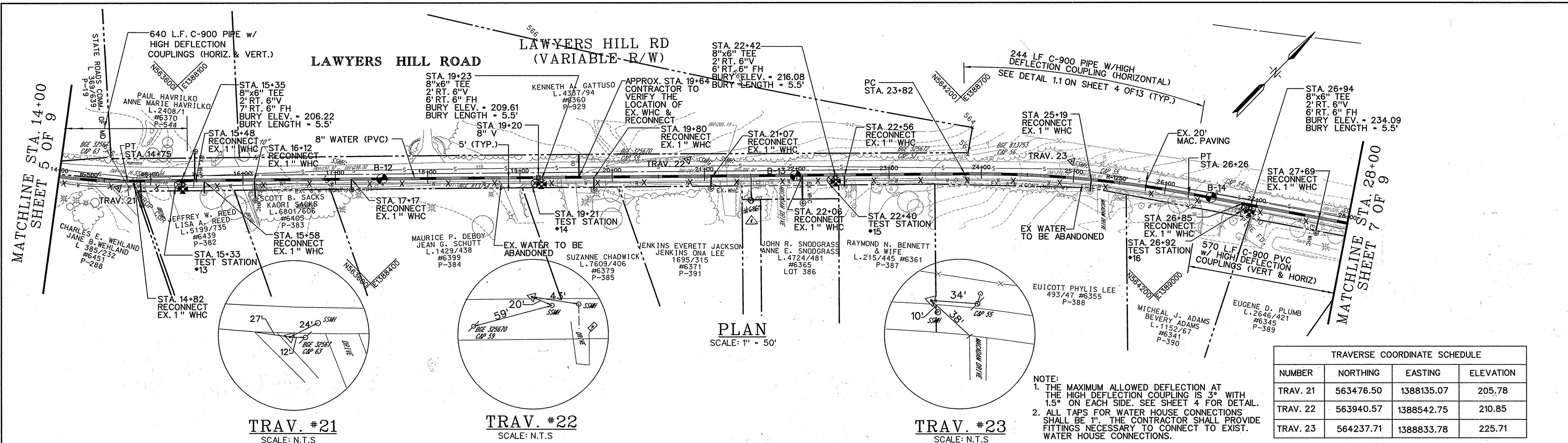
DATE: 11-19-09

**ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT**

CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 5 OF 11



PLAN  
SCALE: 1" = 50'

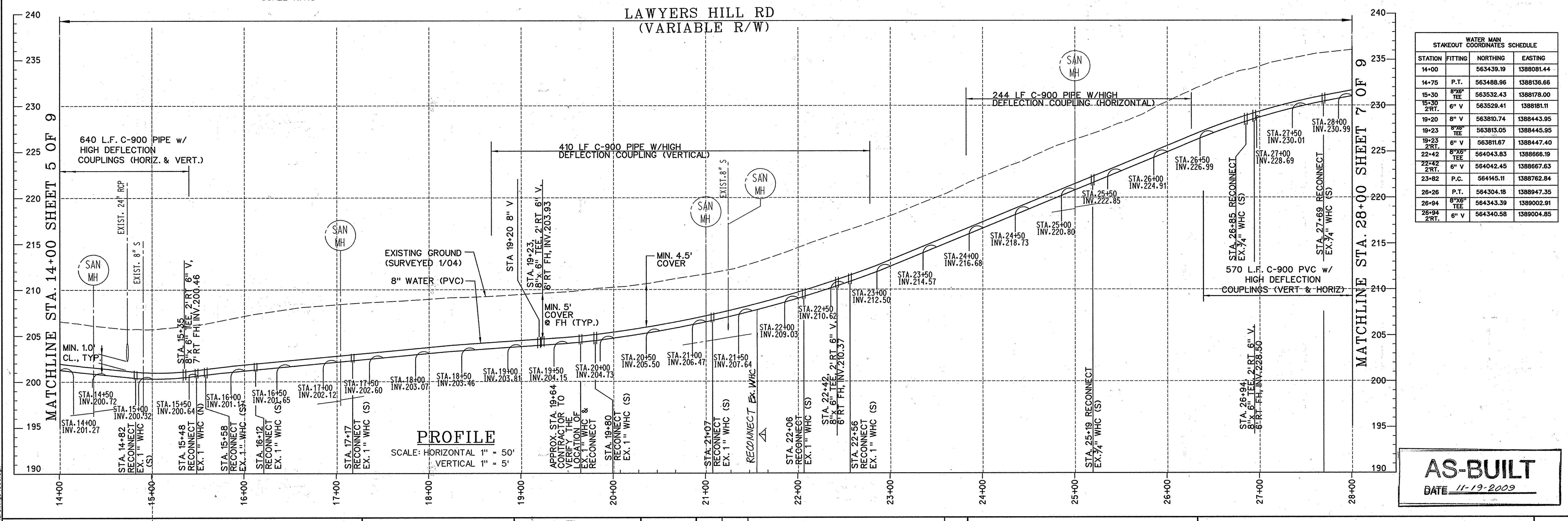
TRAV. #21  
SCALE: N.T.S.

TRAV. #22  
SCALE: N.T.S.

TRAV. #23  
SCALE: N.T.S.

NOTE:  
1. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3" WITH 1.5" ON EACH SIDE. SEE SHEET 4 FOR DETAIL.  
2. ALL TAPS FOR WATER HOUSE CONNECTIONS SHALL BE 1". THE CONTRACTOR SHALL PROVIDE FITTINGS NECESSARY TO CONNECT TO EXIST. WATER HOUSE CONNECTIONS.

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 21	563476.50	1388135.07	205.78
TRAV. 22	563940.57	1388542.75	210.85
TRAV. 23	564237.71	1388833.78	225.71



PROFILE  
SCALE: HORIZONTAL 1" = 50'  
VERTICAL 1" = 5'

STAKEOUT WATER MAIN COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
14+00		563439.19	1388081.44
14+75	P.T.	563488.96	1388136.66
15+30	8" VEE	563532.43	1388178.00
15+30	2" RT.	563528.41	1388181.11
19+20	8" V	563810.74	1388443.95
19+23	8" VEE	563813.05	1388445.95
19+23	2" RT.	563811.67	1388447.40
22+42	8" VEE	564043.83	1388666.19
22+42	2" RT.	564042.45	1388667.63
23+82	P.C.	564445.11	1388762.84
26+26	P.T.	564304.18	1388947.35
26+94	8" VEE	564343.39	1389002.91
26+94	2" RT.	564340.58	1389004.85

**AS-BUILT**  
DATE 11-19-2009

PLOTTED: 10:05 AM on Wednesday, February 07, 2007  
 BY: Chandra Kanta Division: Environmental Engineering  
 FILE: M:\2006\010105\02.dwg

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 9/12/09  
DIRECTOR OF PUBLIC WORKS

*[Signature]* 9-12-09  
CHIEF, BUREAU OF UTILITIES

*[Signature]* 9-11-07  
ARCHIEF, BUREAU OF ENGINEERING

*[Signature]* 9-4-07  
CHIEF, UTILITY DESIGN DIVISION

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

**KCI**  
TECHNOLOGIES

10 NORTH DIXIE DRIVE  
HUNT VALLEY, MD 21030  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
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DES: JM			
DRN: CK			
CHK: TW			
DATE: 11-19-09			
DEC. 06	BY NO.	REVISION	DATE
		AS BUILT	

**8" WATER MAIN  
PLAN AND PROFILE**

600' SCALE MAP NO. 38 AND 32 BLOCK NO.

**ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT**

CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

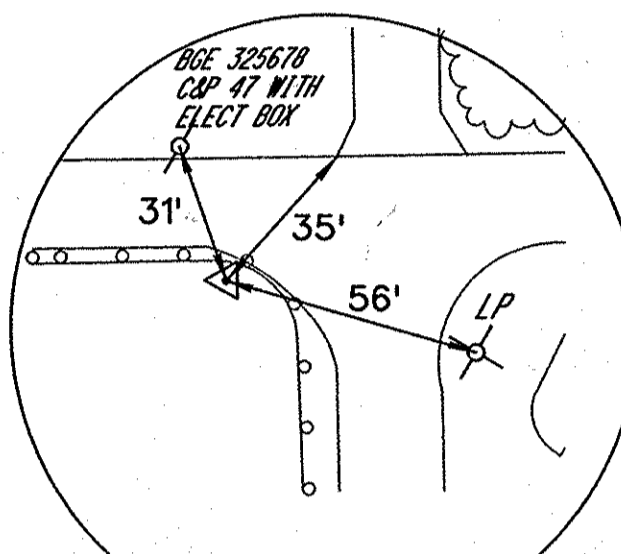
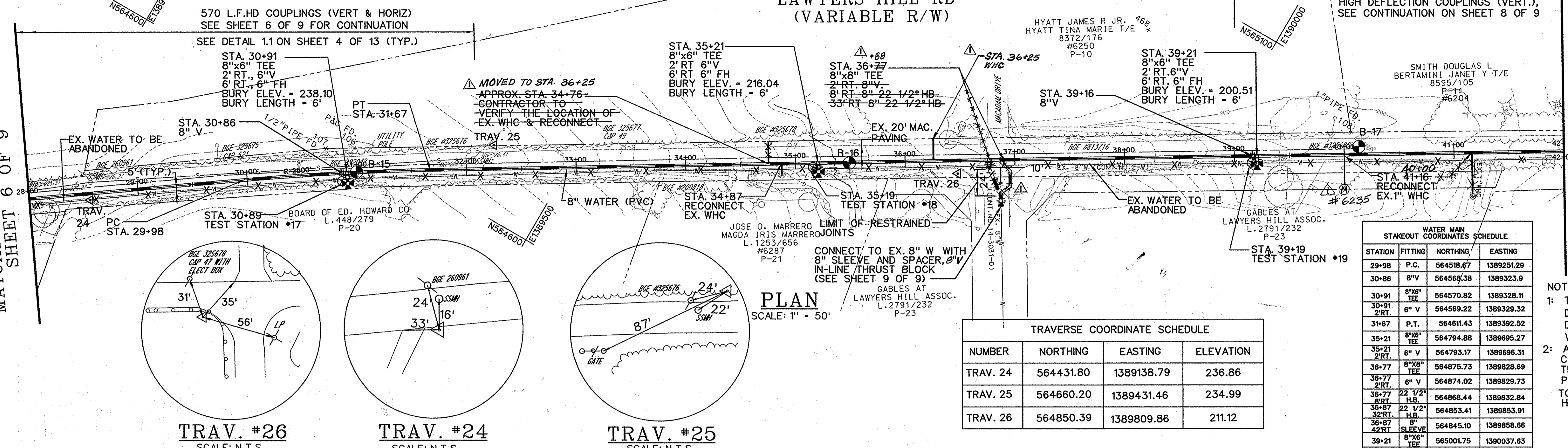
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 6 OF 11

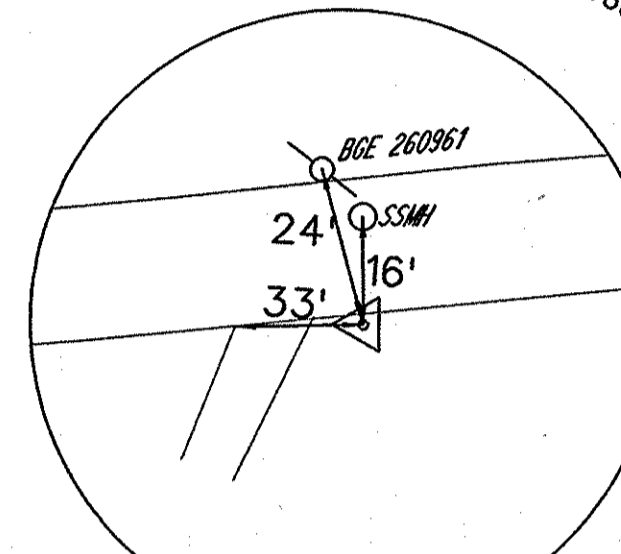
MATCHLINE STA. 28+00  
SHEET 6 OF 9

MATCHLINE STA. 42+00  
SHEET 8 OF 9

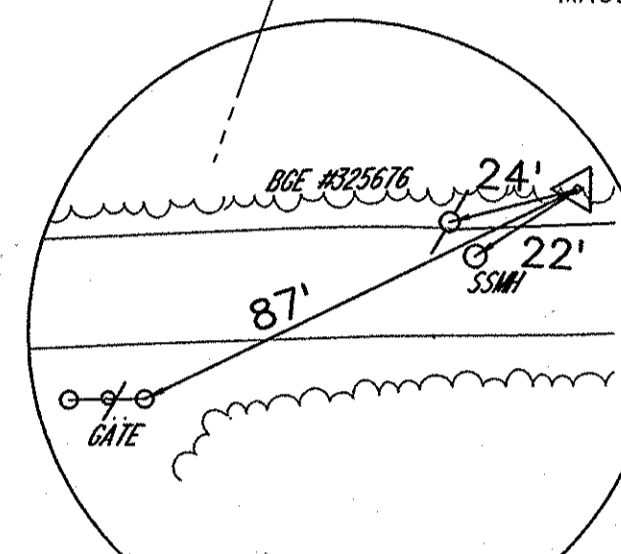
LAWYERS HILL RD  
(VARIABLE R/W)



TRAV. #26  
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TRAV. #24  
SCALE: N.T.S



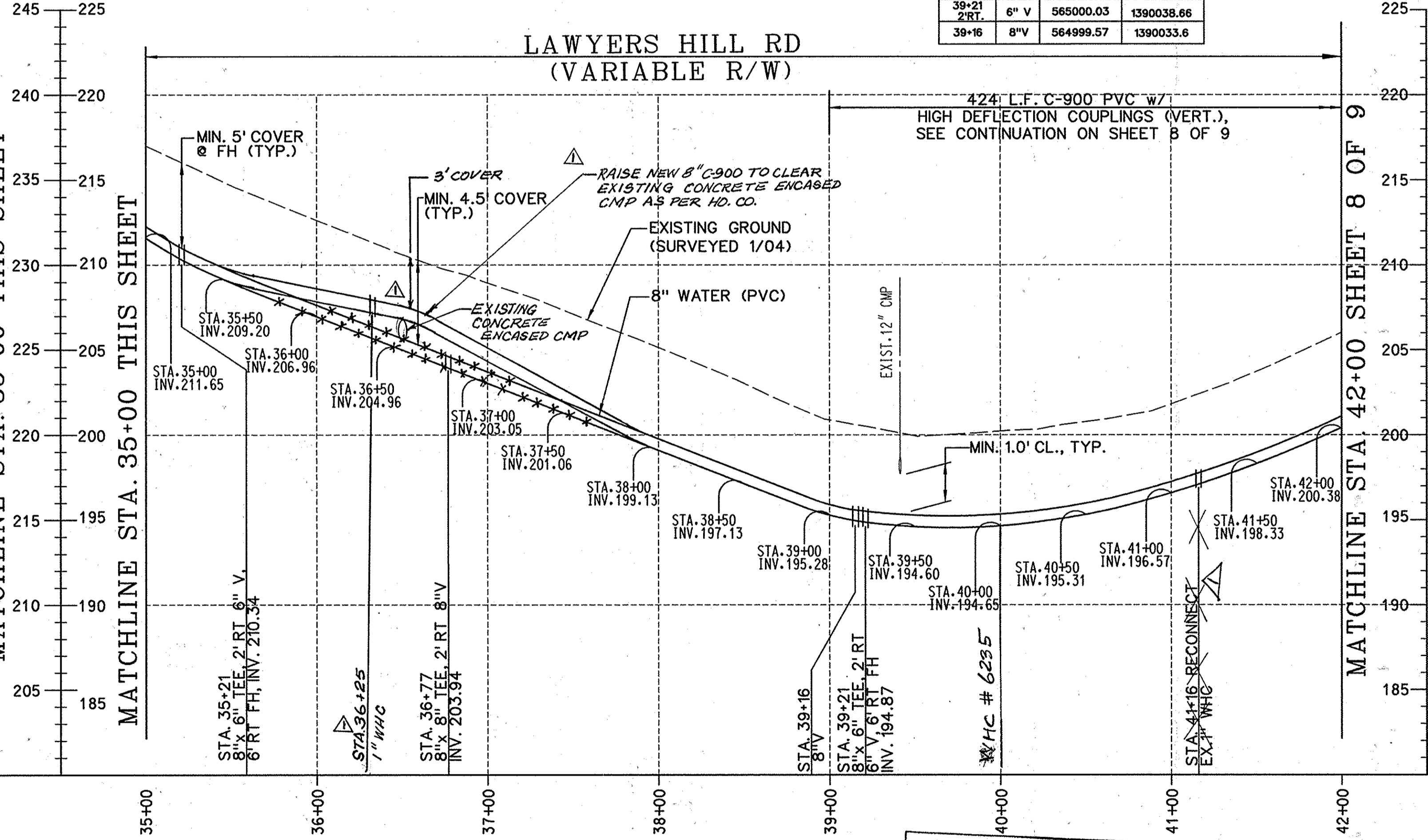
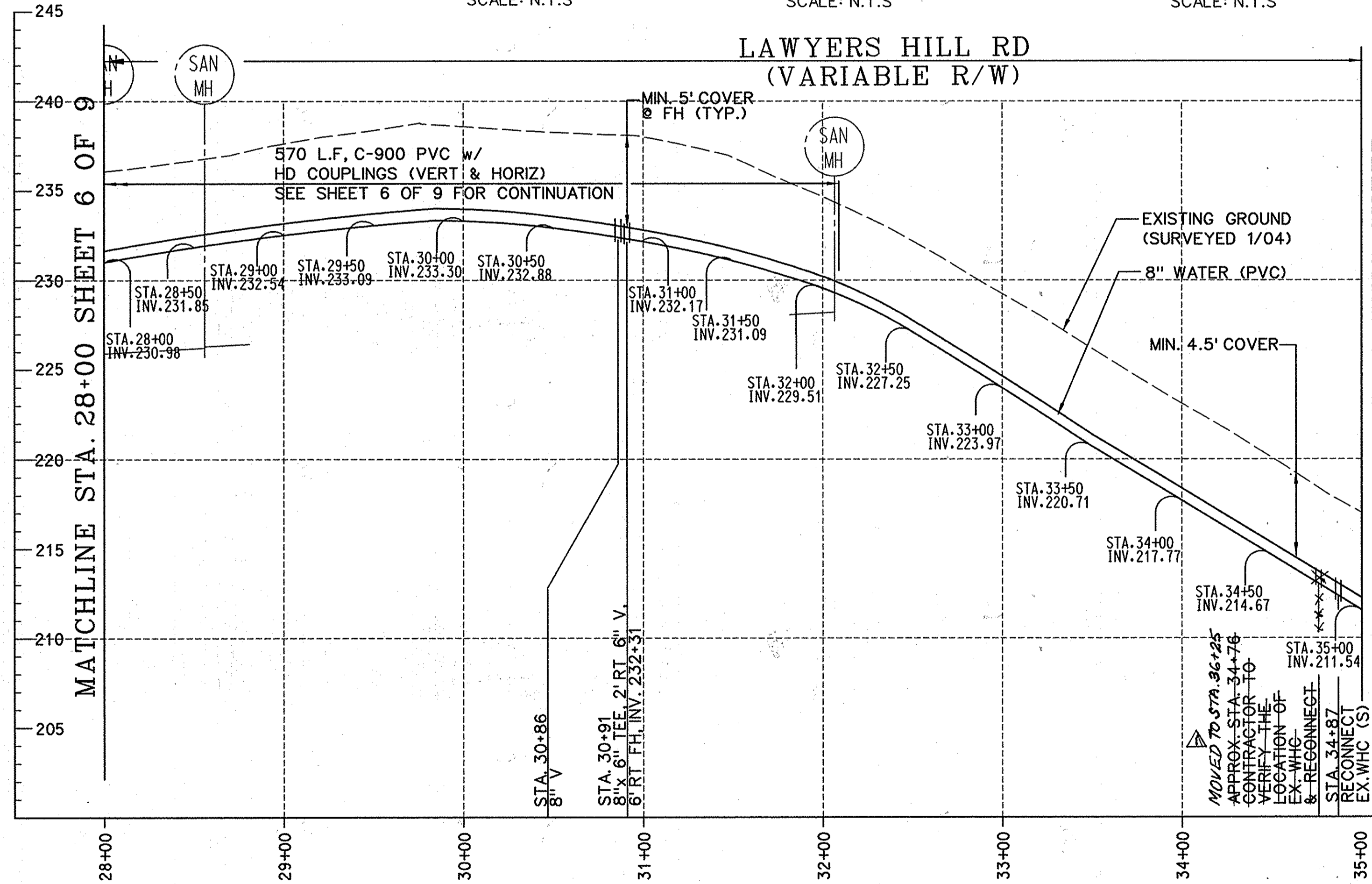
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SCALE: N.T.S

PLAN  
SCALE: 1" = 50'

TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 24	564431.80	1389138.79	236.86
TRAV. 25	564660.20	1389431.46	234.99
TRAV. 26	564850.39	1389809.86	211.12

WATER MAIN COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
29+98	P.C.	564518.67	1389251.29
30+86	8" V	564568.38	1389323.9
30+91	8" x 6" TEE	564570.82	1389328.11
30+91	6" V	564569.22	1389329.32
31+67	P.T.	564611.43	1389392.52
35+21	8" x 6" TEE	564794.88	1389695.27
35+21	6" V	564793.17	1389698.31
36+77	8" x 6" TEE	564875.73	1389828.69
36+77	6" V	564874.02	1389829.73
36+77	22 1/2" H.B.	564868.44	1389832.84
36+87	22 1/2" H.B.	564853.41	1389853.91
36+87	6" SLEEVE	564845.10	1389858.66
39+21	8" x 6" TEE	565001.75	1390037.63
39+21	6" V	565000.03	1390038.86
39+16	8" V	564999.57	1390033.6

NOTE:  
1: THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3" WITH 1.5" ON EACH SIDE.  
2: ALL TAPS FOR WATER HOUSE CONNECTIONS SHALL BE 1". THE CONTRACTOR SHALL PROVIDE FITTINGS NECESSARY TO CONNECT TO EXIST. WATER HOUSE CONNECTIONS.



PROFILE  
SCALE: HORIZONTAL 1" = 50'  
VERTICAL 1" = 5'

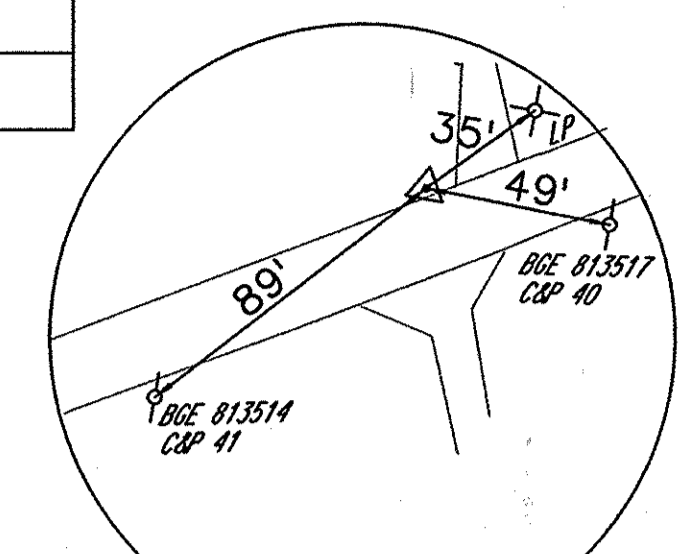
AS-BUILT  
DATE 11-19-09

PLOTTED: 10/05/09 AM on Wednesday, February 07, 2007  
 BY: Chandra Kanta Division: Environmental Engineering  
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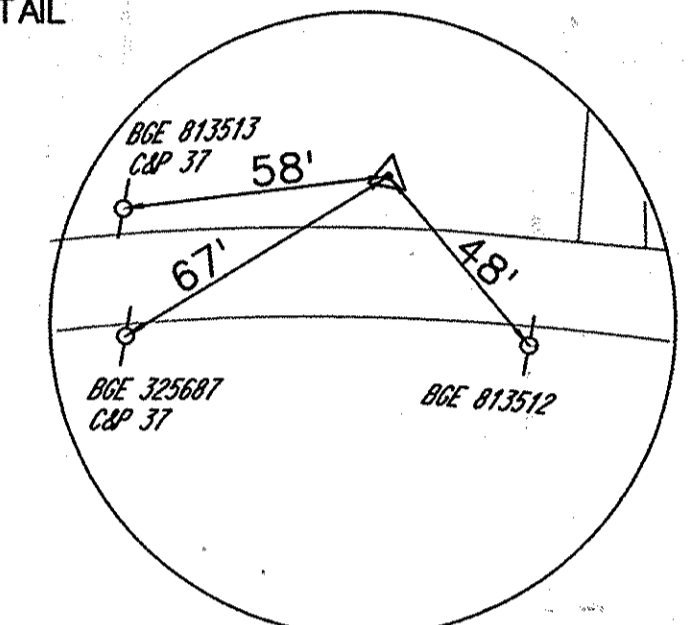
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		 ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS 10 NORTH PARK DRIVE HANTY VALLEY, MD 21030 PHONE: (410) 316-7800 FAX: (410) 316-7817 www.kci.com	DES: JM DRN: CK CHK: TW DATE: DEC.. 06	LFN: AS BUILT BY: NO. REVISION	DATE: 11-19-09 600' SCALE MAP NO. 38 AND 32 BLOCK NO.
Director of Public Works Michael J. ... DATE: 9-13-07	Chief of Utility Design Division ... DATE: 9-11-07		DATE: 9-13-07	DATE: 9-11-07	DATE: 9-11-07

ELKRIDGE WATER MAIN REHABILITATION AND REPLACEMENT CAPITAL PROJECT No. W-8257 CONTRACT No. 44-4280		ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 7 OF 11
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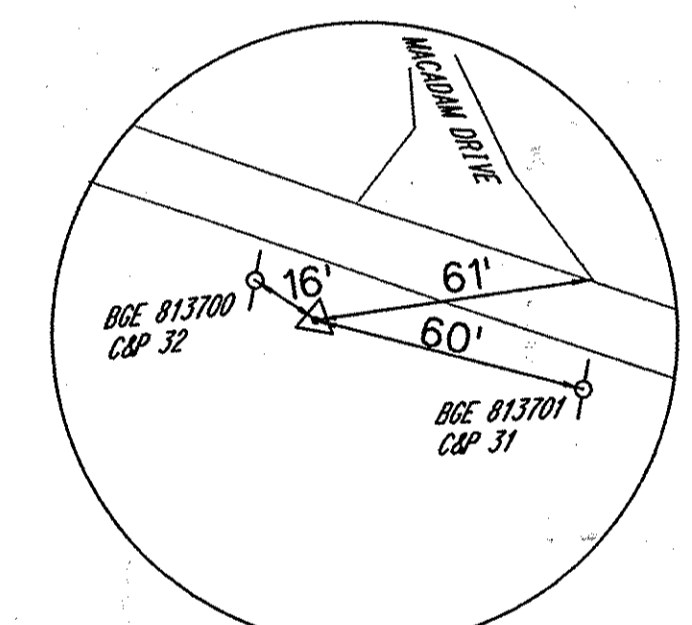
TRAVERSE COORDINATE SCHEDULE			
NUMBER	NORTHING	EASTING	ELEVATION
TRAV. 27	565238.58	1390397.29	215.52
TRAV. 28	565411.57	1390752.57	244.91
TRAV. 29	565349.68	1391128.83	242.75



TRAV. #27  
SCALE: N.T.S.



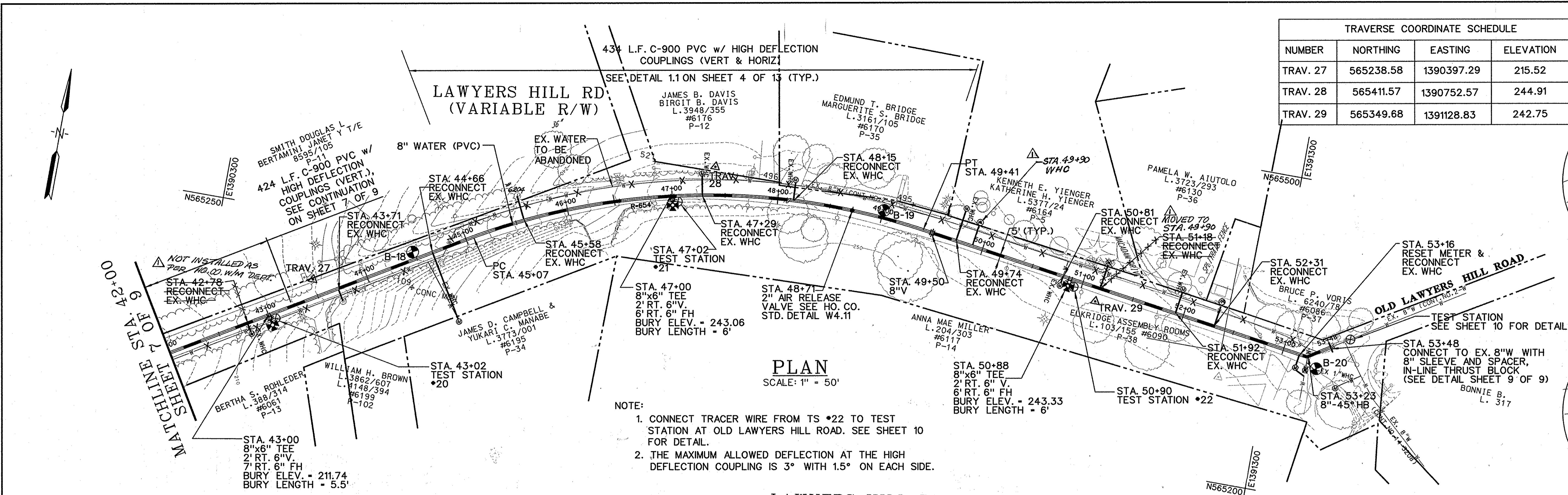
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SCALE: N.T.S.



TRAV. #29  
SCALE: N.T.S.

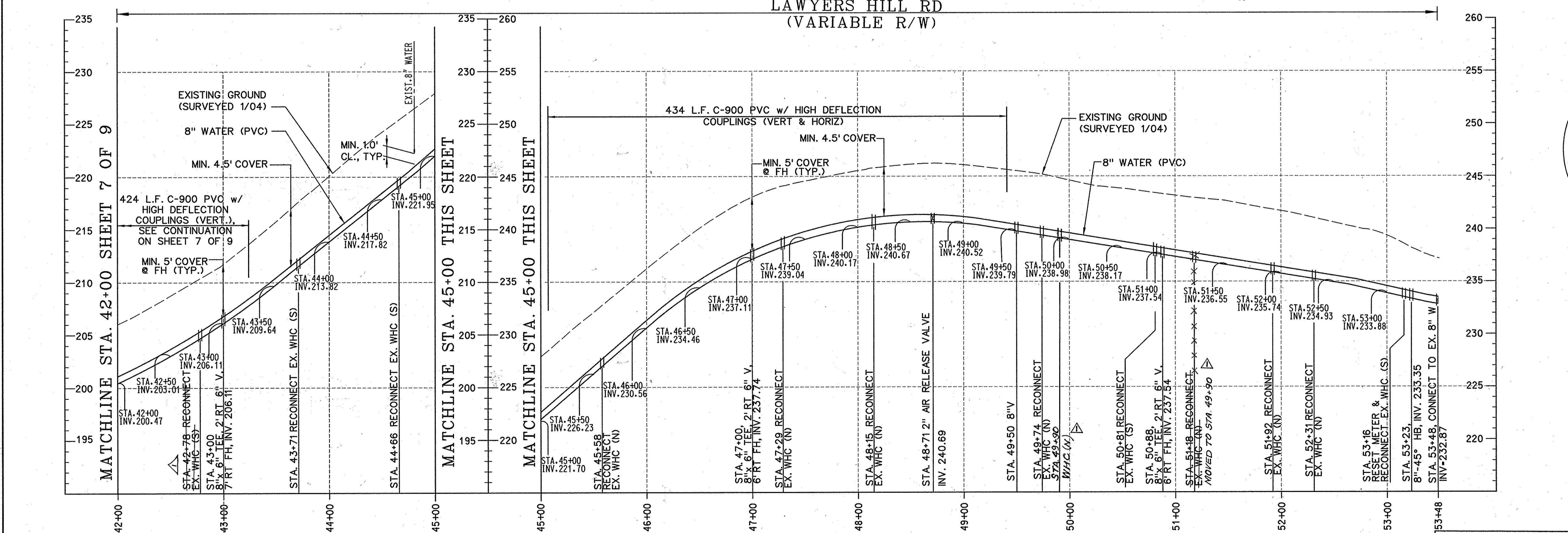
STAKEOUT WATER MAIN COORDINATES SCHEDULE			
STATION	FITTING	NORTHING	EASTING
43+00	8" V TEE	565197.75	1390362.01
43+00	2" RT. V	565196.04	1390363.05
45+07	P.C.	565305.08	1390539.01
47+00	8" V TEE	565376.87	1390717.38
47+00	2" RT. V	565374.93	1390717.84
48+71	2" AIR RELEASE	565393.62	1390887.23
49+41	P.T.	565387.36	1390956.76
49+50	8" V	565386.10	1390965.54
50+88	8" V TEE	565366.63	1391102.26
50+88	2" RT. V	565364.65	1391101.98
53+23	45" H.B.	565333.44	1391335.19

**AS-BUILT**  
DATE 11-19-2009



PLAN  
SCALE: 1" = 50'

- NOTE:
1. CONNECT TRACER WIRE FROM TS #22 TO TEST STATION AT OLD LAWYERS HILL ROAD. SEE SHEET 10 FOR DETAIL.
  2. THE MAXIMUM ALLOWED DEFLECTION AT THE HIGH DEFLECTION COUPLING IS 3° WITH 1.5° ON EACH SIDE.



PROFILE  
SCALE: HORIZONTAL 1" = 50'  
VERTICAL 1" = 5'

PLOTTED: 09:05 AM on Wednesday, February 07, 2010  
 BY: Chandra Kanta Division: Environmental Engineering  
 FILE: M:\2009\010105.02\_Vermonting\COB.dwg

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John P. Buttle* 9/13/09 DATE  
DIRECTOR OF PUBLIC WORKS

*James R. Buttle* 9-11-07 DATE  
CHIEF, BUREAU OF ENGINEERING

*John P. Buttle* 9-13-07 DATE  
CHIEF, BUREAU OF UTILITIES

*John P. Buttle* 9-13-07 DATE  
CHIEF, UTILITY DESIGN DIVISION

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

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STATE OF MARYLAND  
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY

DES: JM				
DRN: CK				
CHK: TW				
DATE: 11-19-09	LFN	AS-BUILT		
DEC.. 06	BY NO.	REVISION	DATE	600' SCALE MAP NO. 38 AND 32 BLOCK NO.

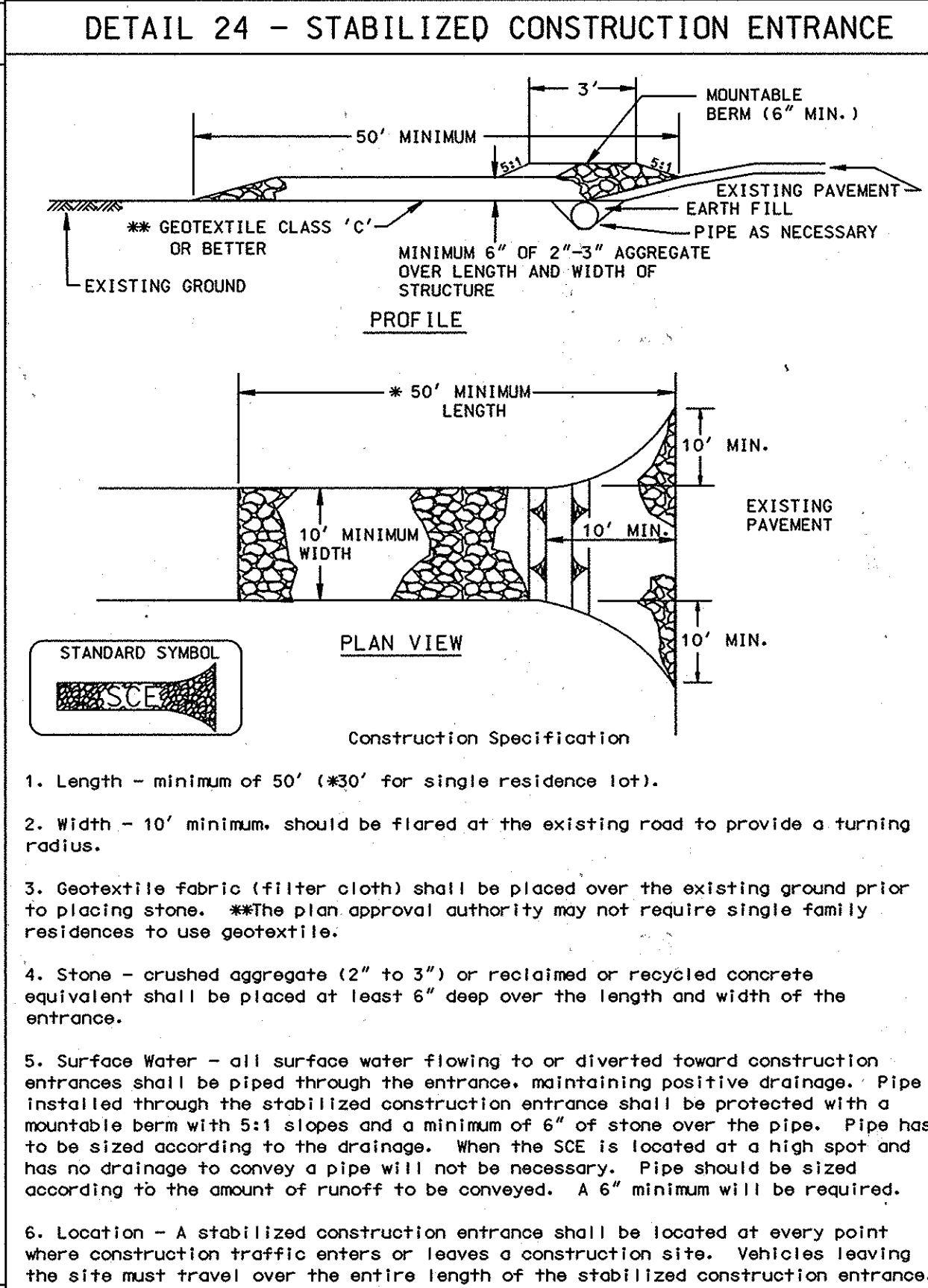
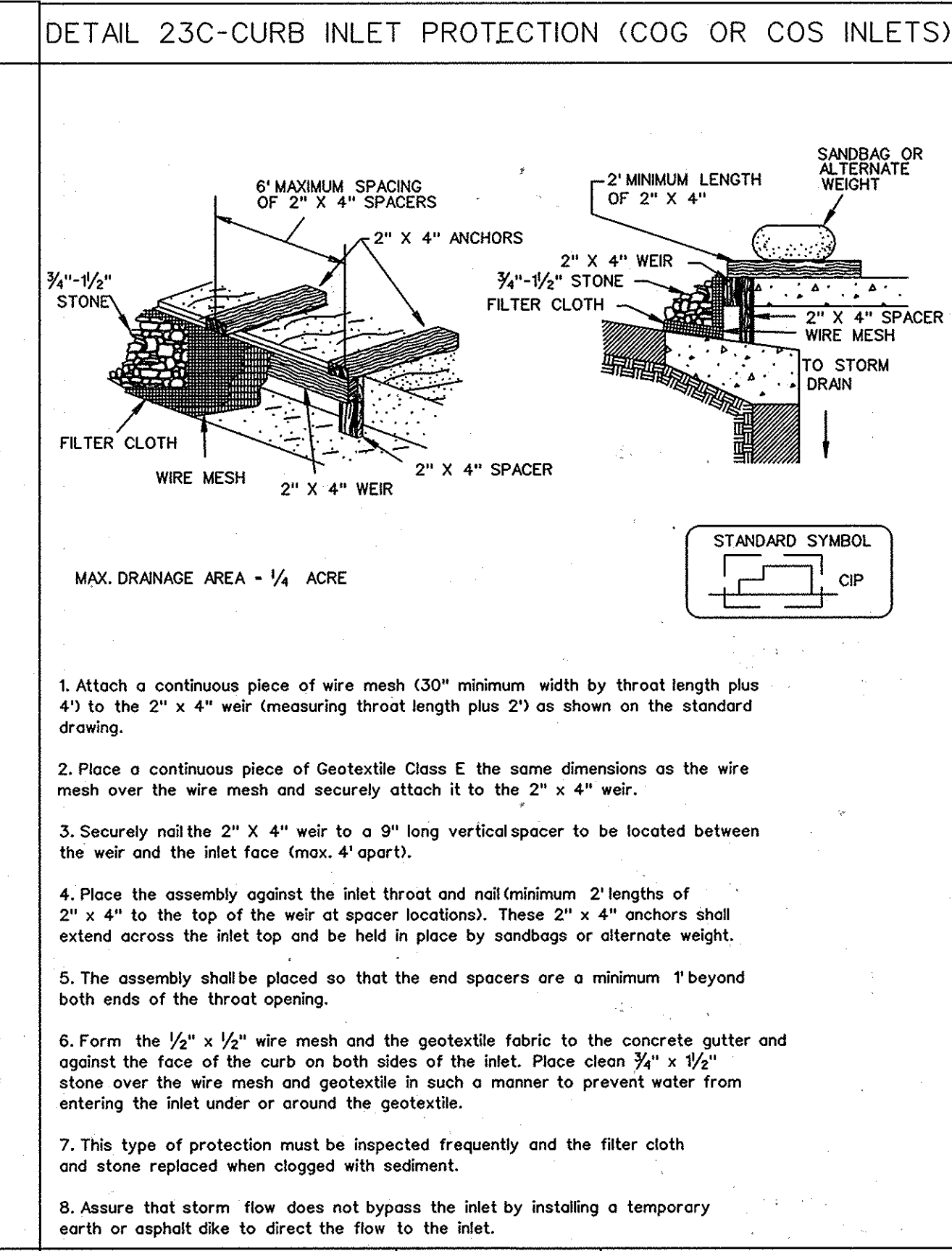
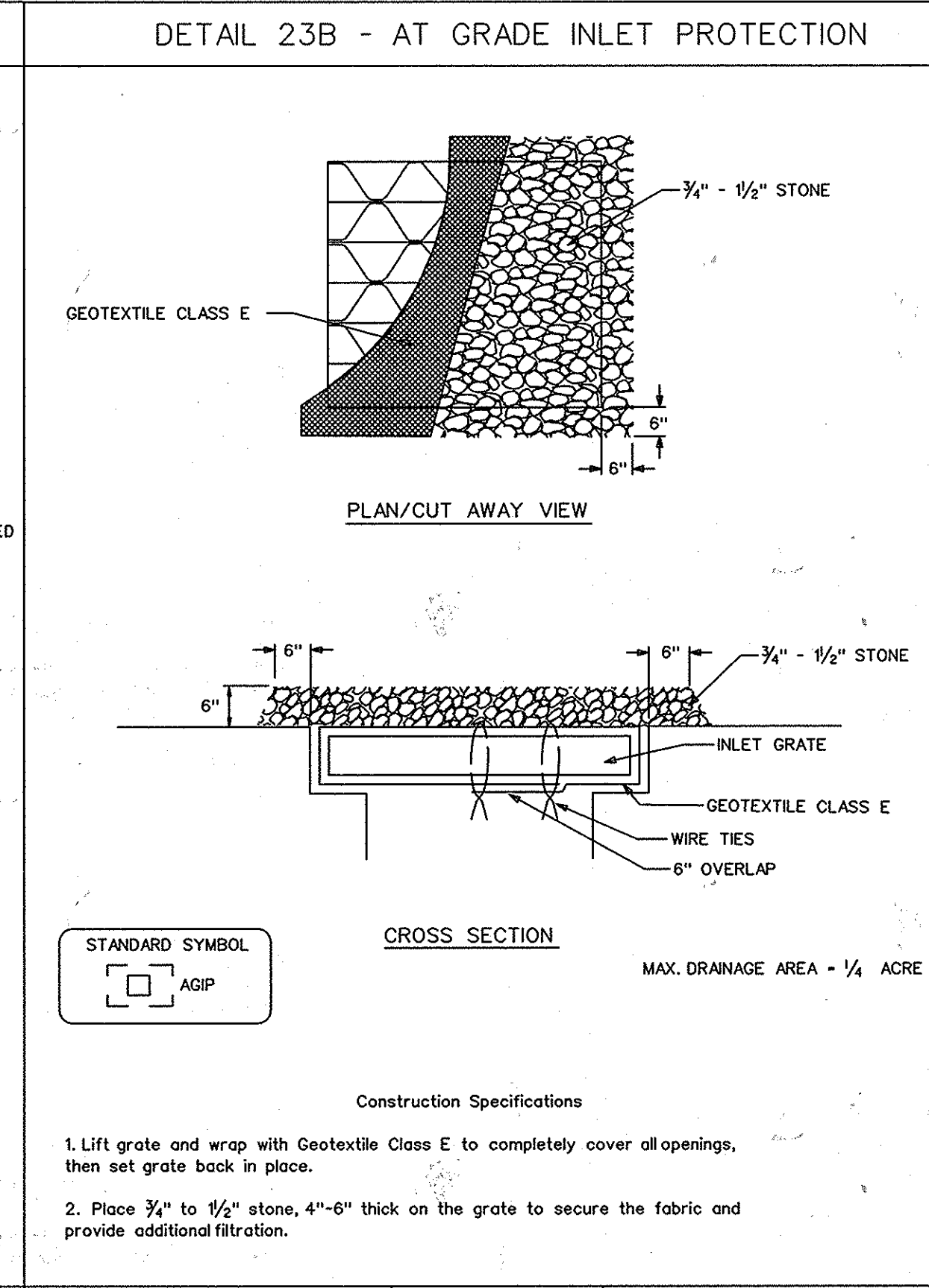
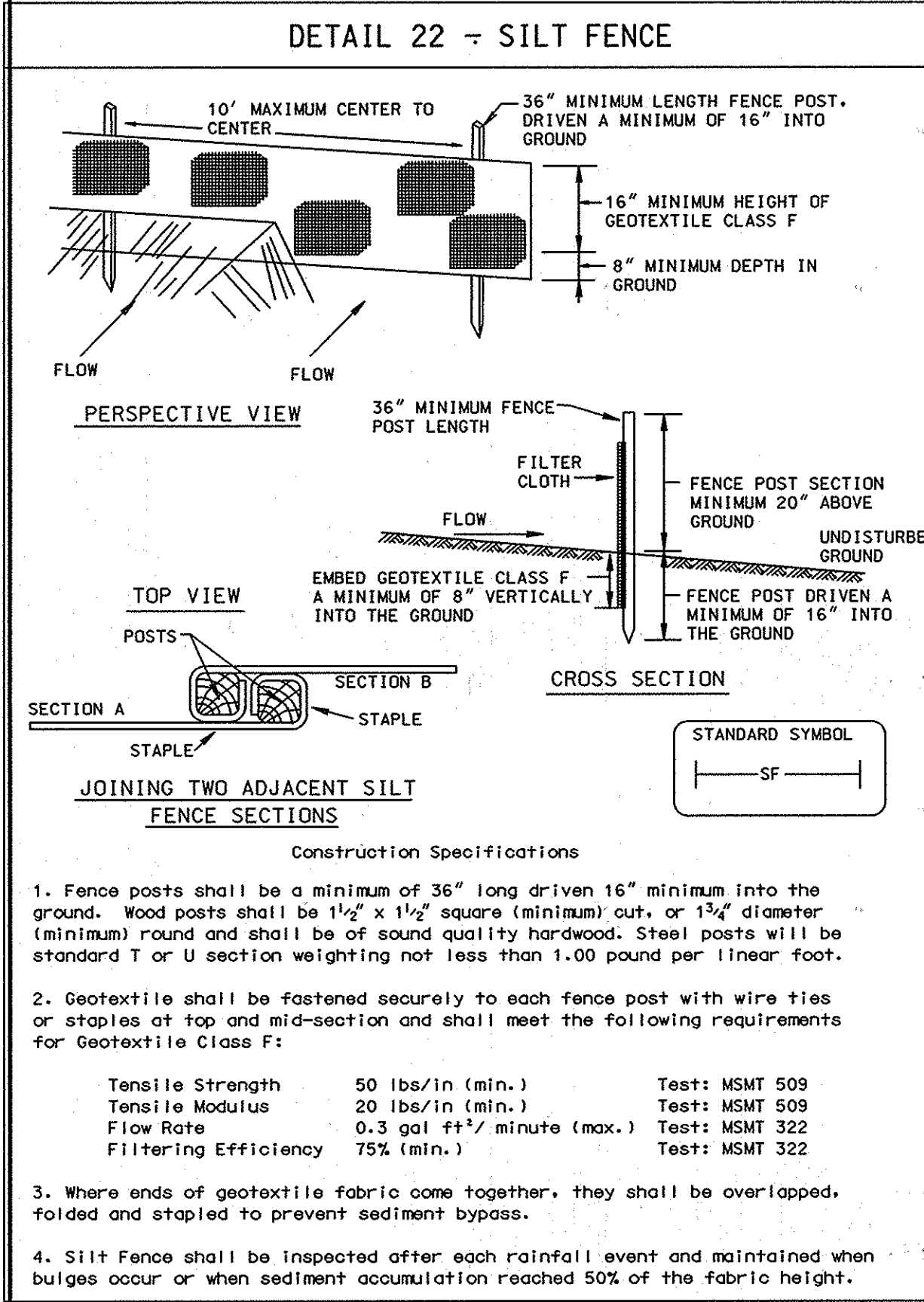
**8" WATER MAIN  
PLAN AND PROFILE**

**ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT**  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE  
AS SHOWN  
SHEET  
8 OF 11





### STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
  - 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (SEC. C26.8) FOR PERMANENT SEEDINGS, SOIL TEMPORARY SEEDING AND MULCHING. TEMPORARY STABILIZATION WITH MULCH ALONE 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 PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:
 

TOTAL AREA OF SITE	N/A ACRES
AREA DISTURBED	0.85 ACRES
AREA TO BE ROOFED OR PAVED	0.84 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.82 ACRES
TOTAL CUT	N/A CU. YDS.
TOTAL FILL	N/A CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF THE DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED BEFORE 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- CONTRACTOR SHALL PLACE EXCAVATED MATERIALS ON UPHILL SIDE OF TRENCH AND PLACE SILT FENCE ON DOWNHILL SIDE OF TRENCH.

### PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

**SEEDBED PREPARATION** - LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENEED.

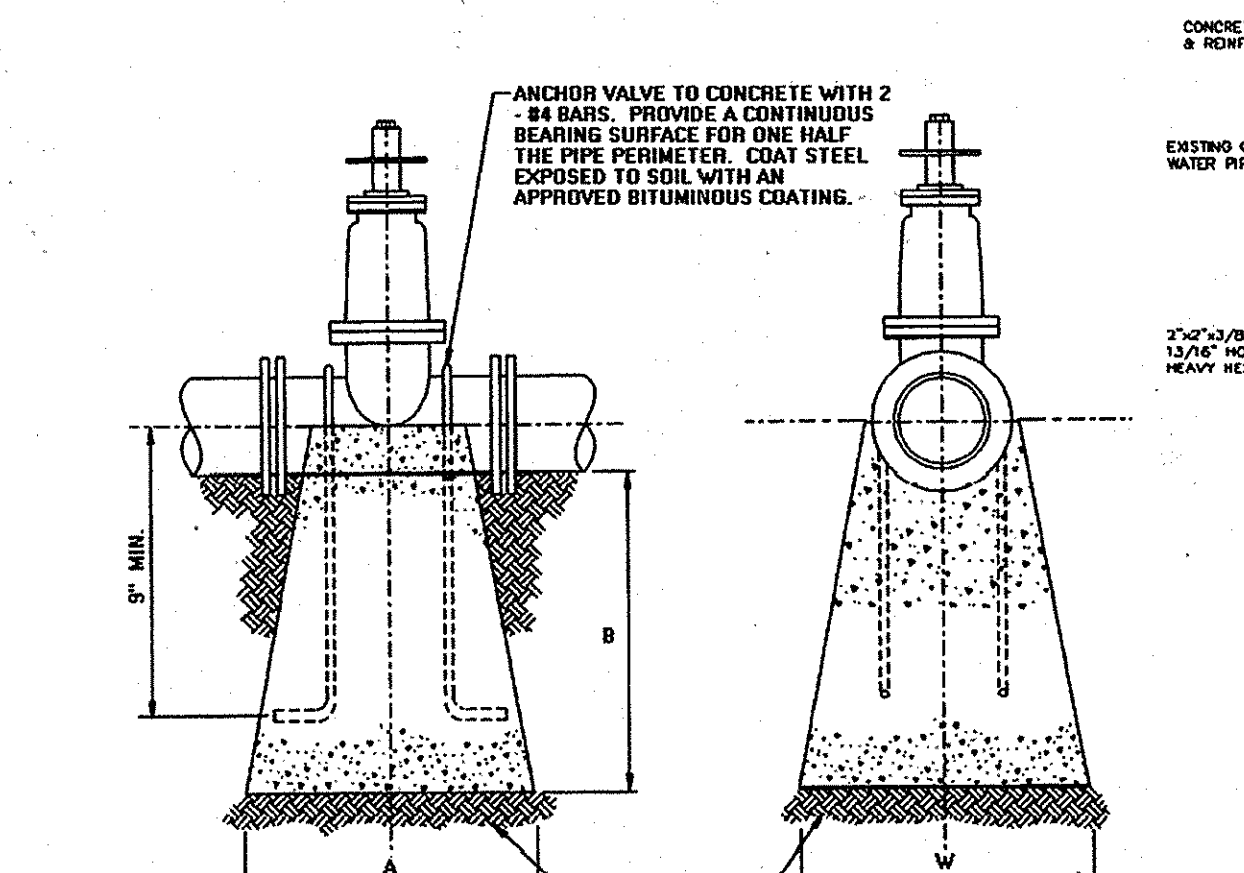
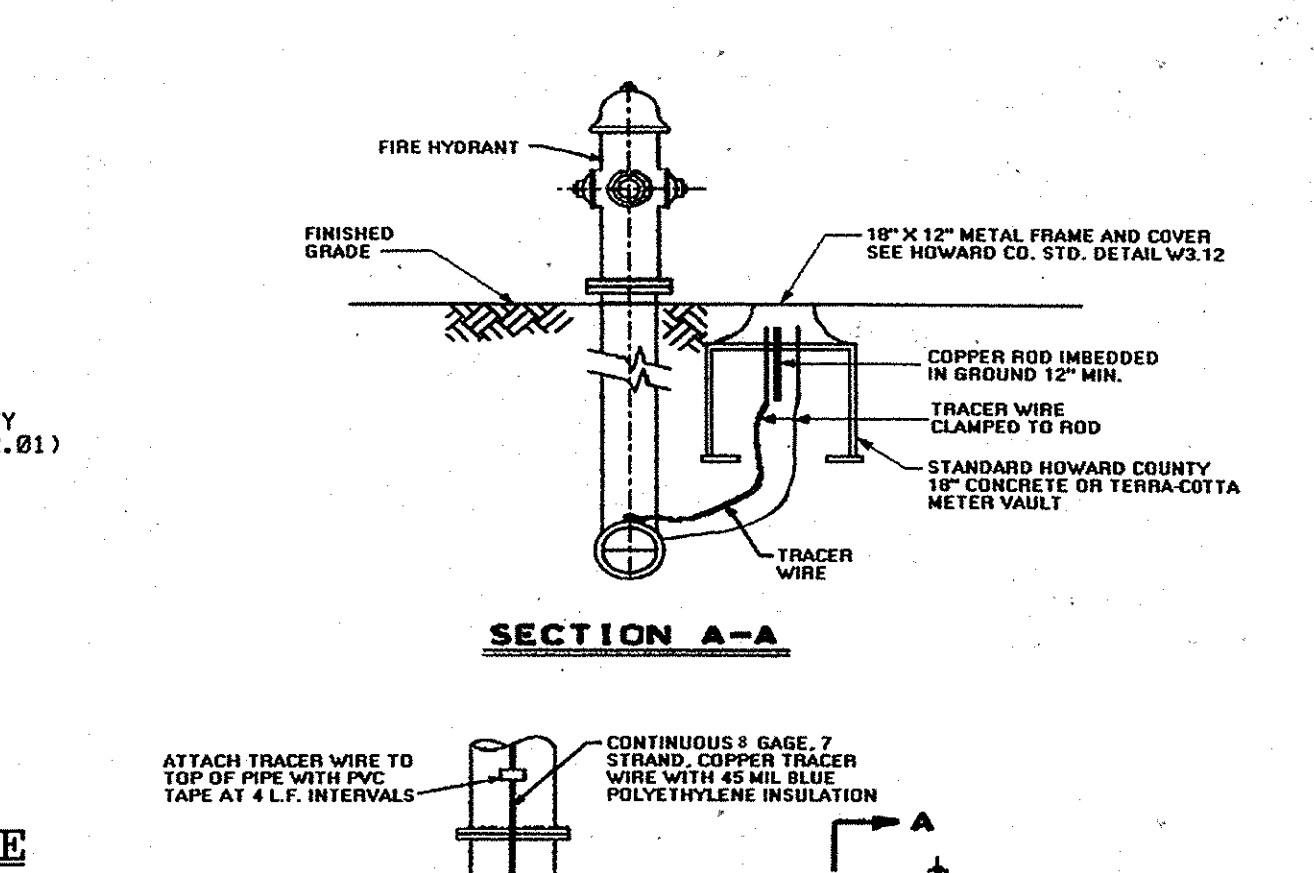
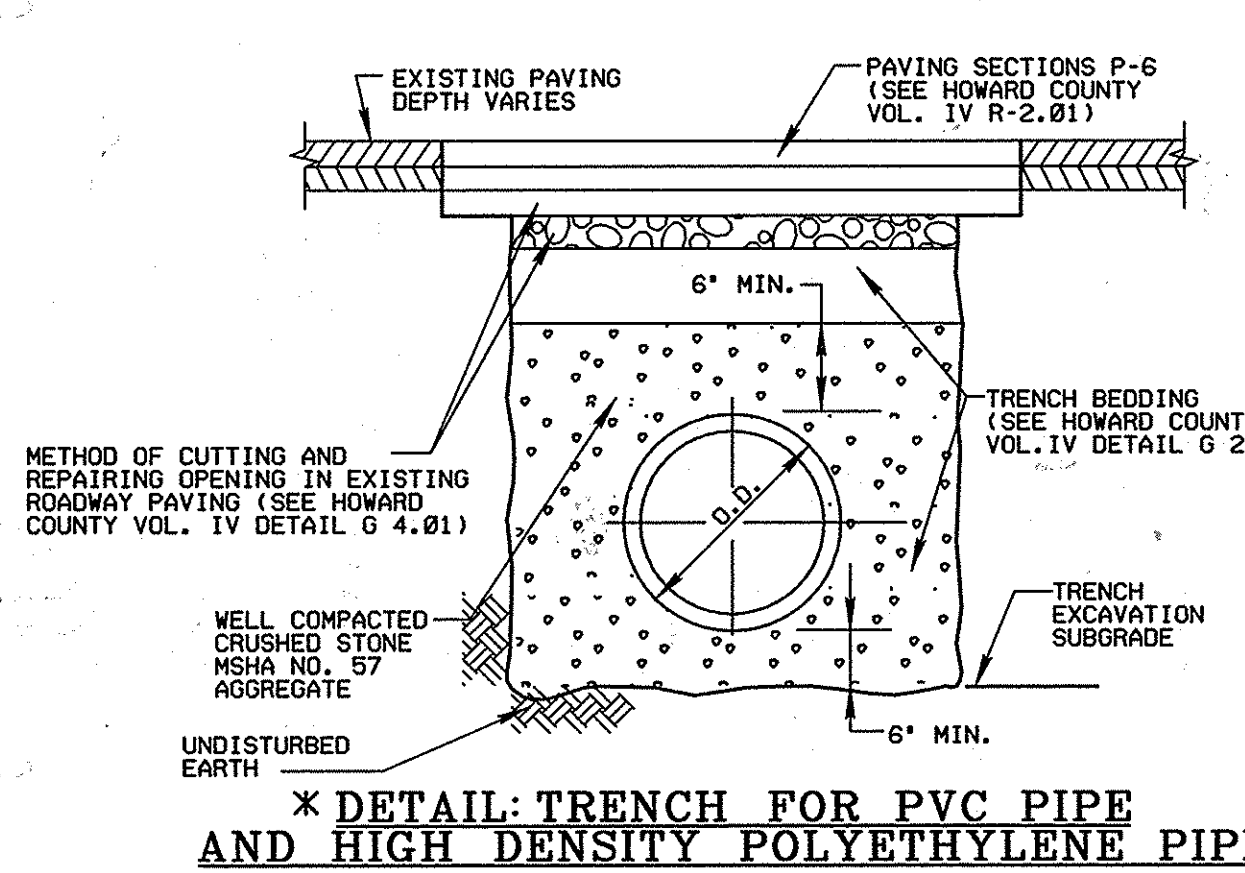
**SOIL AMENDMENTS** - IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT.).
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

**SEEDING** - FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

**MULCHING** - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (.5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (.8 GAL/1000 SQ FT.) FOR ANCHORING.

**MAINTENANCE** - INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.



### IN-LINE THRUST BLOCKING

PIPE DIAMETER INCH	TIE BOLT SIZE	NO. OF BOLT REQUIRED
4	1"	2
6	1"	2
8	1"	3
10	1"	4
12	1"	4

PIPE DIAMETER INCH	THRUST BLOCK DIMENSIONS			THRUST BLOCK REINF.
	T	H	L	
4 AND 6	1'-2"	2'-0"	3'-6"	4#4 12" c/c E.W. + 4#5 ADD'L REINF.
8	1'-2"	3'-0"	4'-0"	4#4 12" c/c E.W. + 4#5 ADD'L REINF.
10	1'-4"	4'-0"	4'-0"	4#5 12" c/c E.W. + 4#5 ADD'L REINF.
12	1'-4"	5'-0"	5'-0"	4#5 12" c/c E.W. + 4#5 ADD'L REINF.
14	1'-4"	6'-0"	6'-0"	4#5 12" c/c E.W. + 4#5 ADD'L REINF.
16	1'-6"	6'-0"	6'-0"	4#5 8" c/c E.W. + 4#5 ADD'L REINF.
18	1'-6"	6'-0"	11'-0"	4#5 8" c/c E.W. + 4#5 ADD'L REINF.

**NOTES:**

- ALL CONCRETE SHALL BE F' C-4000 PSI @ 28 DAYS. PIPELINE SHALL NOT BE INSTALLED UNTIL CONCRETE STRENGTH REACHES 4000PSI. AND TRENCH HAS BEEN BACKFILLED.
- ALL REBARS SHALL BE ASTM A615 GRADE 60.
- STEEL PLATES SHALL BE ASTM A36.
- MAINTAIN 2" CLEAR BETWEEN ALL REBARS AND PIPE.
- COAT ALL EXPOSED STEEL WITH FIELD APPLIED COATING. (SPECIAL PROVISION 27.2)
- TIE RODS SHALL BE PARALLEL TO AXIS OF PIPE.

### TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

**SEEDBED PREPARATION** - LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENEED.

**SOIL AMENDMENTS** - APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT.).

**SEEDING** - FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (.32 LBS/1000 SQ FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.

**MULCHING** - APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 210 GALLONS PER ACRE (.5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT OR HIGHER, USE 348 GAL PER ACRE (.8 GAL/1000 SQ FT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

### DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODING ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

*John K. Blanton* 9/15/07 DATE  
APPROVED  
HOWARD S.C.D.

### ENGINEER'S CERTIFICATION

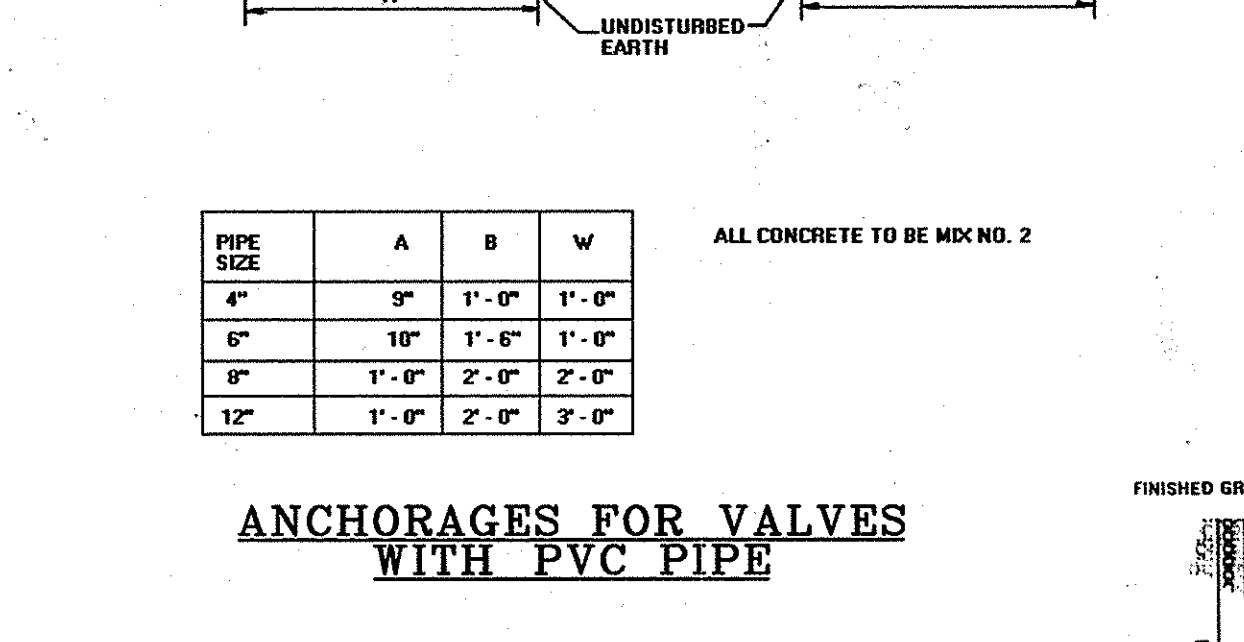
"I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICABLE AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*John K. Blanton* 9/15/07 DATE  
APPROVED  
HOWARD S.C.D.

### CONTINUITY TEST STATION AT FIRE HYDRANT

**NOTES:**

- TEST STATION MUST BE PLACED TO THE RIGHT OR LEFT SIDE OF THE FIRE HYDRANT.
- VALVE VAULT FRAME AND COVER TO BE SET FLUSH WITH FINAL GRADE.
- BUTRESSES AND STRAPPING NOT SHOWN FOR CLARITY.



### SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT.
- LAYOUT ALIGNMENT AT SITE. (1 DAY)
- INSTALL SEDIMENT CONTROL DEVICES, FOR GRASSED AREAS AS SHOWN ON PLAN.
- EXCAVATE DITCH TO THE GRADE SPECIFIED ON THE PROFILE. INSTALL WATER MAIN AND STABILIZE OR BACKFILL TRENCH AND RESURFACE WITH BITUMINOUS PAVING AS APPROPRIATE. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 25' OF PIPE LENGTH OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- CLEAN UP CONSTRUCTION SITE. (1 DAY)
- REMOVE SEDIMENT CONTROL DEVICES AFTER PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR. (1 DAY)

### TRAFFIC MAINTENANCE

FOR TRAFFIC MAINTENANCE REQUIREMENTS SEE SPECIFICATION DOCUMENT D, PARAGRAPH 15.

### DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODING ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

*John K. Blanton* 9/15/07 DATE  
APPROVED  
HOWARD S.C.D.

### ENGINEER'S CERTIFICATION

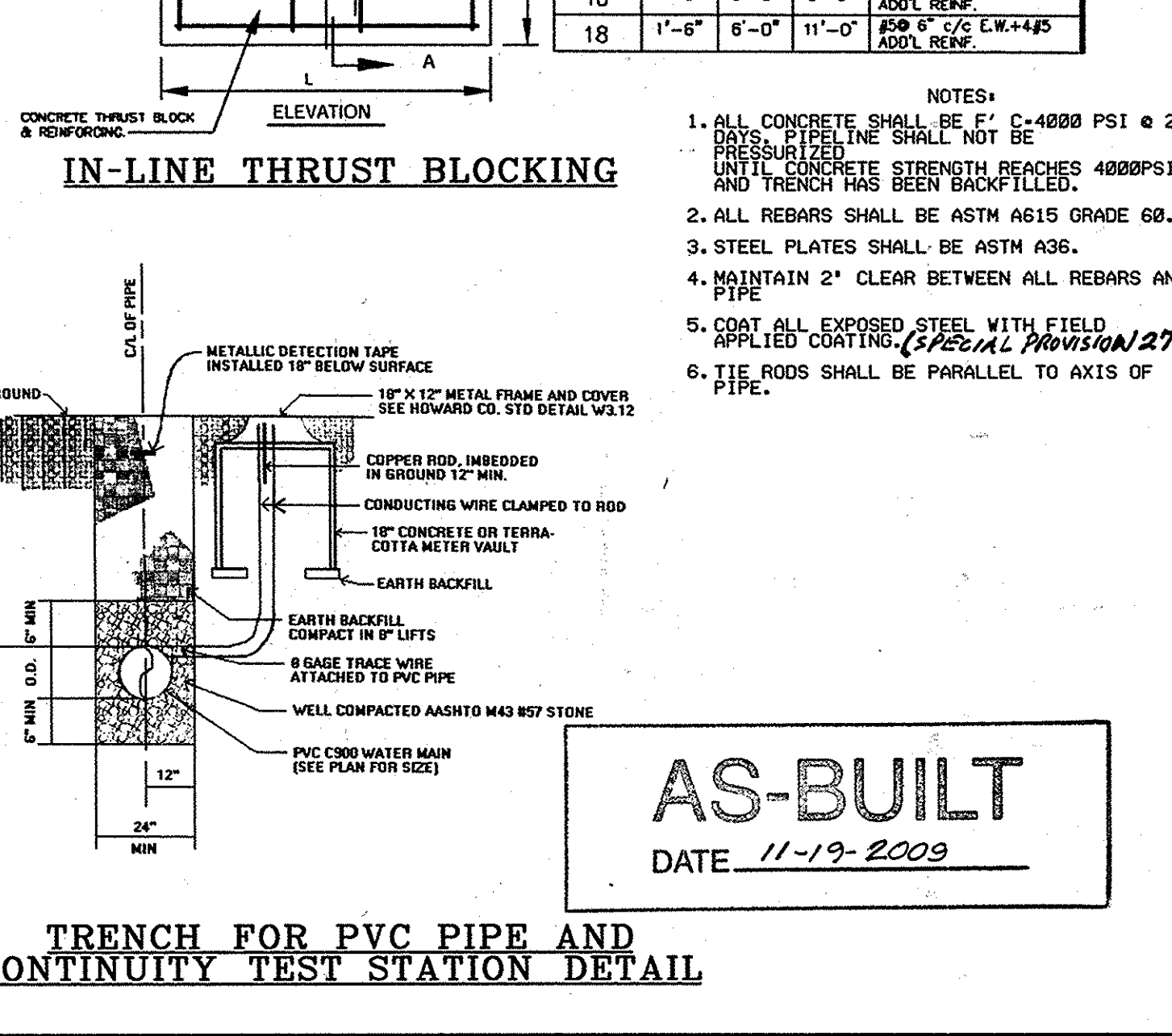
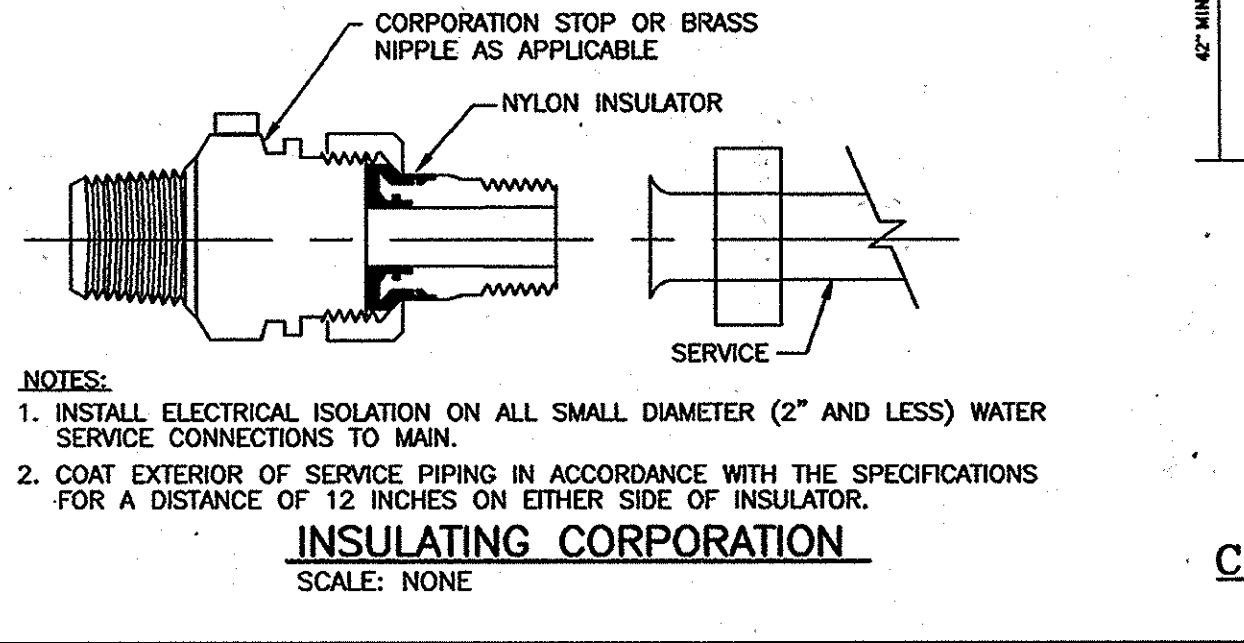
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*John K. Blanton* 9/15/07 DATE  
APPROVED  
HOWARD S.C.D.

### CONTINUITY TEST STATION AT FIRE HYDRANT

**NOTES:**

- TEST STATION MUST BE PLACED TO THE RIGHT OR LEFT SIDE OF THE FIRE HYDRANT.
- VALVE VAULT FRAME AND COVER TO BE SET FLUSH WITH FINAL GRADE.
- BUTRESSES AND STRAPPING NOT SHOWN FOR CLARITY.



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John K. Blanton* 9/15/07 DATE  
DIRECTOR OF PUBLIC WORKS

*John K. Blanton* 9/15/07 DATE  
CHIEF, BUREAU OF UTILITIES

KCI TECHNOLOGIES  
10 NORTH PARK DRIVE  
HUNT VALLEY, MARYLAND 21038

*John K. Blanton* 9/15/07 DATE  
CHIEF, UTILITY DESIGN DIVISION

DES: JM  
DRN: CK  
CHK: TW  
DATE: DEC. 06

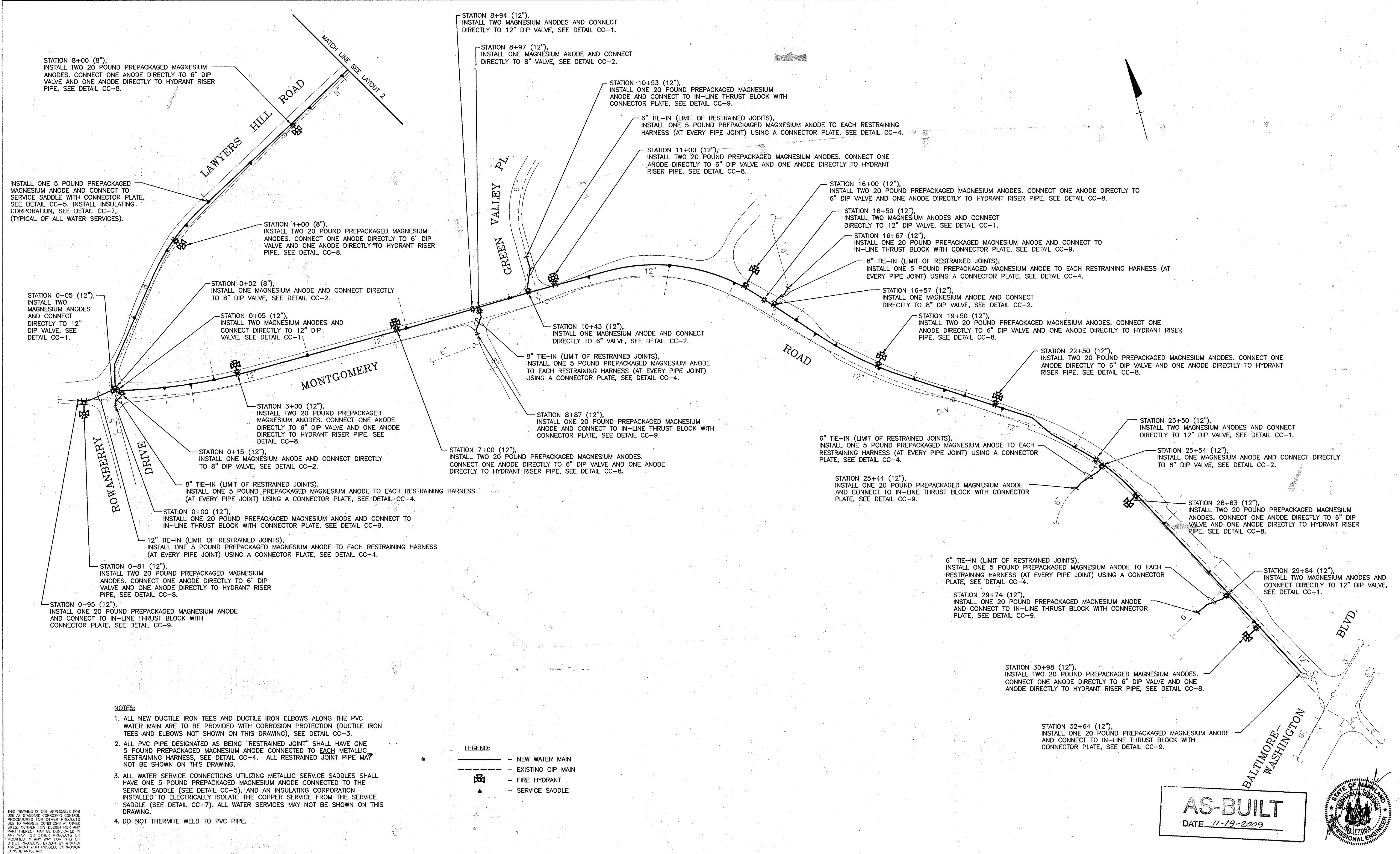
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

600' SCALE MAP NO. 38 AND 32 BLOCK NO.

ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280  
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 9 OF 11

PLOTTED: 08:59 AM on Tuesday, April 24, 2007  
 BY: Grace Wong, Division Environmental Engineering  
 FILE: W-8257\0101\0103\02\Gravimetric\CG9 revised.dgn



**NOTES:**

1. ALL NEW DUCTILE IRON TEES AND DUCTILE IRON ELBOWS ALONG THE PVC WATER MAIN ARE TO BE PROVIDED WITH CORROSION PROTECTION (DUCTILE IRON TEES AND ELBOWS NOT SHOWN ON THIS DRAWING), SEE DETAIL CC-3.
2. ALL PVC PIPE DESIGNATED AS BEING "RESTRAINED JOINT" SHALL HAVE ONE 5 POUND PREPACKAGED MAGNESIUM ANODE CONNECTED TO EACH METALLIC RESTRAINED JOINT PIPE MAY NOT BE SHOWN ON THIS DRAWING.
3. ALL WATER SERVICE CONNECTIONS UTILIZING METALLIC SERVICE SADDLES SHALL HAVE ONE 5 POUND PREPACKAGED MAGNESIUM ANODE CONNECTED TO THE SERVICE SADDLE (SEE DETAIL CC-5), AND AN INSULATING CORPORATION INSTALLED TO ELECTRICALLY ISOLATE THE COPPER SERVICE FROM THE SERVICE SADDLE (SEE DETAIL CC-7). ALL WATER SERVICES MAY NOT BE SHOWN ON THIS DRAWING.
4. DO NOT THERMITE WELD TO PVC PIPE.

THIS DRAWING IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL PROCEDURES FOR OTHER PROJECTS DUE TO VARIOUS CONDITIONS AT OTHER SITES. NEITHER THIS DESIGN NOR ANY PART THEREOF MAY BE REPRODUCED IN ANY WAY FOR OTHER PROJECTS OR MODIFIED IN ANY WAY FOR THIS OR OTHER PROJECTS, EXCEPT BY WRITTEN AGREEMENT WITH RUSSELL CORROSION CONSULTANTS, INC.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Jay D. Gable* 9-13-07  
DIRECTOR OF PUBLIC WORKS DATE

*Nancy Butler* 9-11-07  
CHIEF, BUREAU OF ENGINEERING DATE

*Chris Deane* 9-4-07  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
CONSTRUCTION MANAGERS

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TECHNOLOGIES

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HENT VALLEY, MD 21030  
PHONE: (410) 316-7800  
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WWW.KCI.COM

RUSSELL CORROSION CONSULTANTS, INC.  
Columbia, Maryland

DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: AUGUST, 07	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 38 AND 32 BLOCK NO.

**CORROSION CONTROL LAYOUT 1**

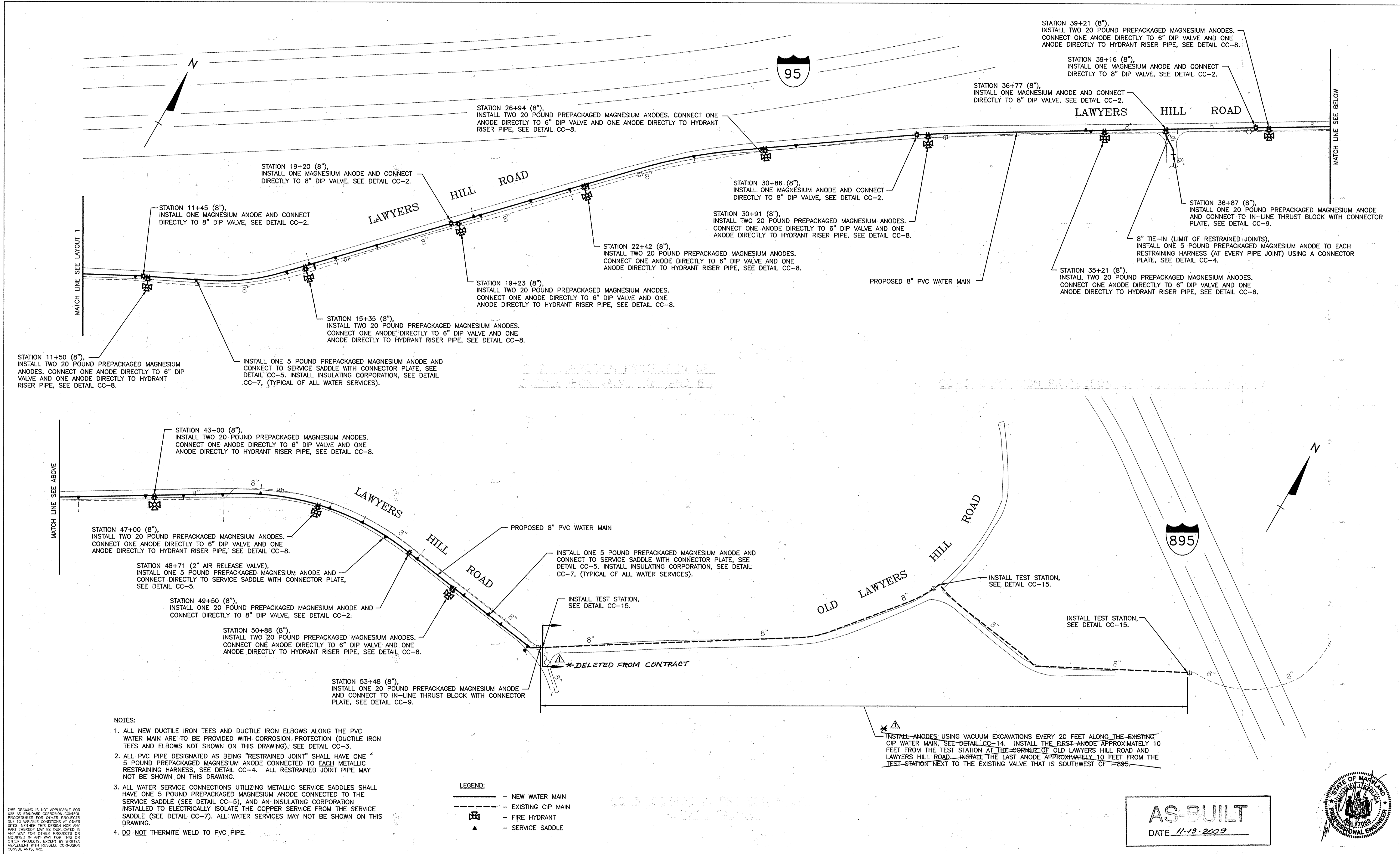
**ELKRIDGE WATER MAIN REHABILITATION AND REPLACEMENT**  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE NONE  
SHEET 10 OF 11



**AS-BUILT**  
DATE 11-19-2009



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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John De...* 9-11-07  
DIRECTOR OF PUBLIC WORKS DATE

*Michael...* 9-13-07  
CHIEF, BUREAU OF UTILITIES DATE

*Thomas...* 9-11-07  
CHIEF, BUREAU OF ENGINEERING DATE

*...* 9-4-07  
CHIEF, UTILITY DESIGN DIVISION DATE

ENGINEERS  
PLANNERS  
SCIENTISTS  
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RUSSELL CORROSION CONSULTANTS, INC.  
Columbia, Maryland

DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: AUGUST, 07	LFN	AS BUILT			11-19-09
BY	NO.	REVISION			DATE

**CORROSION CONTROL LAYOUT 2**

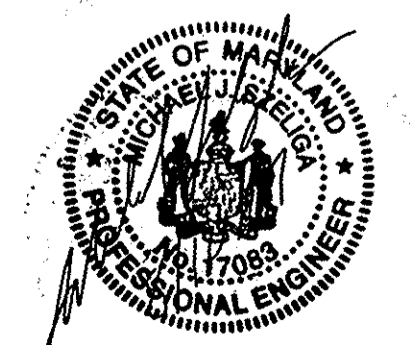
600' SCALE MAP NO. 38 AND 32 BLOCK NO.

**ELKRIDGE WATER MAIN REHABILITATION AND REPLACEMENT**

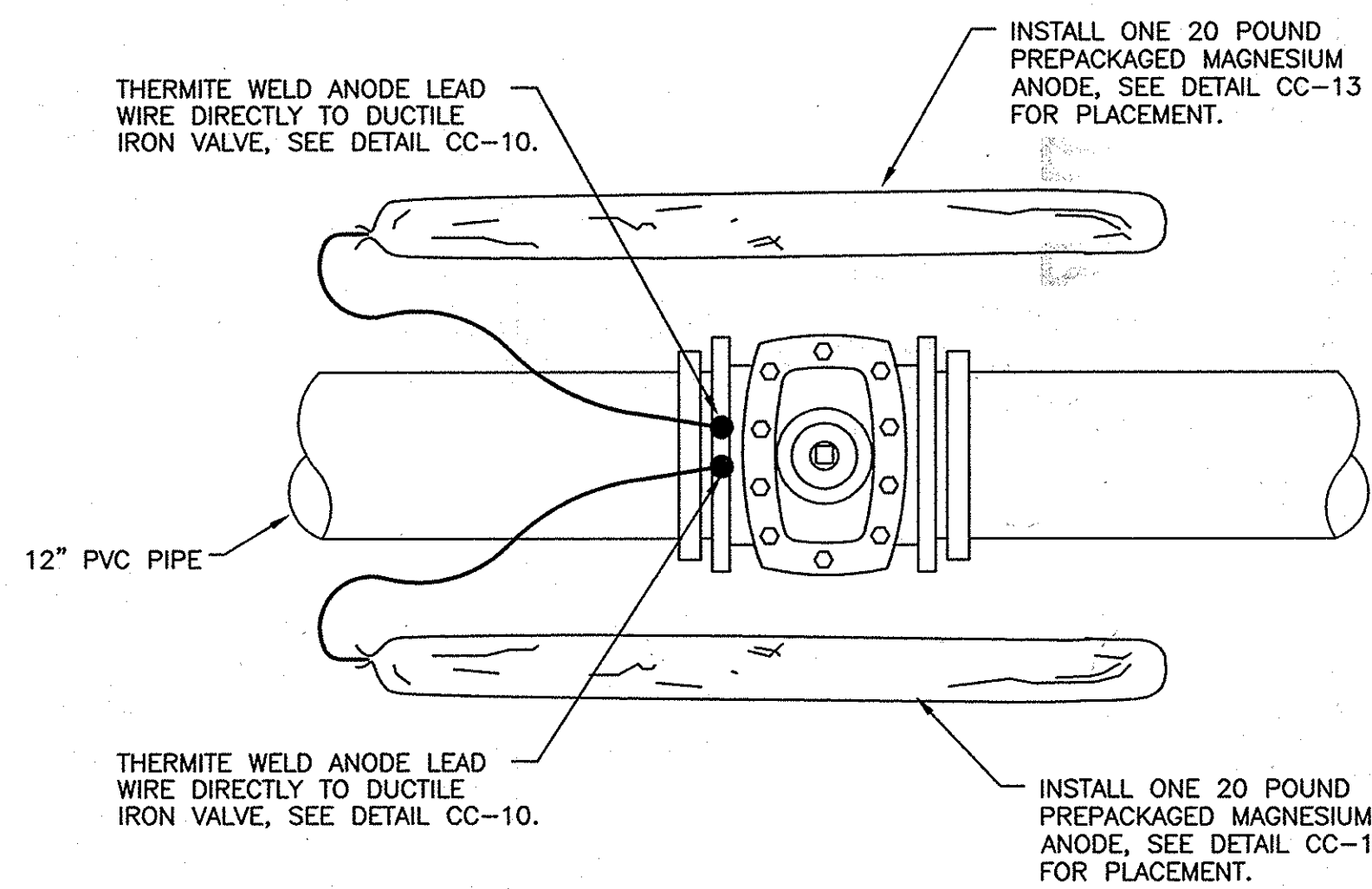
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE NONE  
SHEET 11 of 11

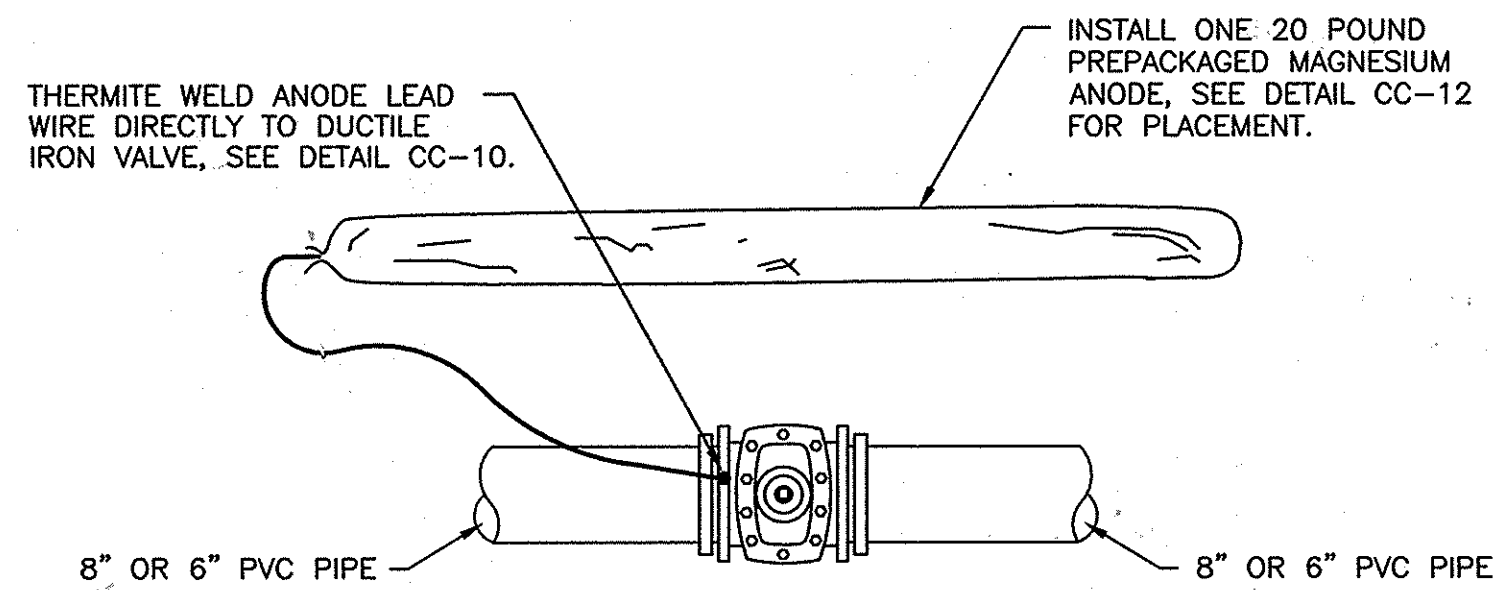


**AS-BUILT**  
DATE 11-19-2009



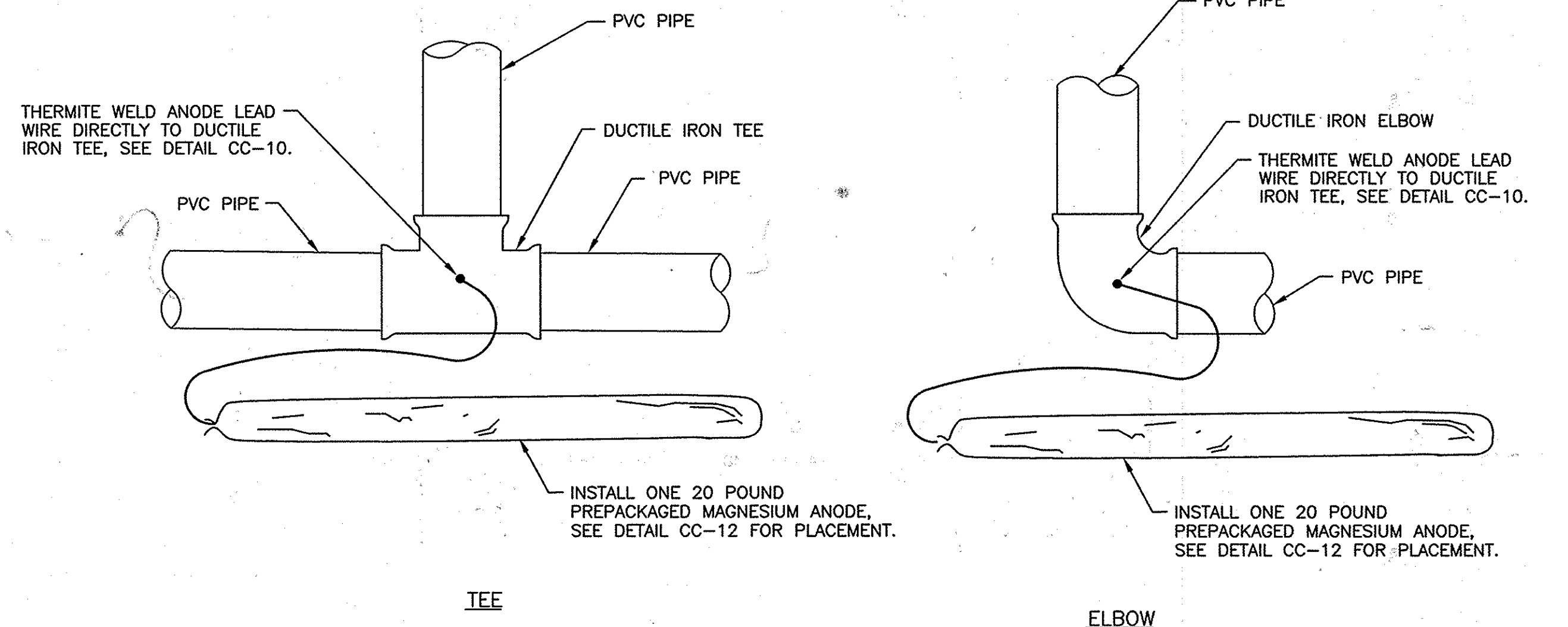
- NOTES:**
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-13.
  2. DO NOT THERMITE WELD TO PVC PIPE.

**CC-1: CORROSION PROTECTION OF DUCTILE IRON VALVE (12")**  
SCALE: NONE



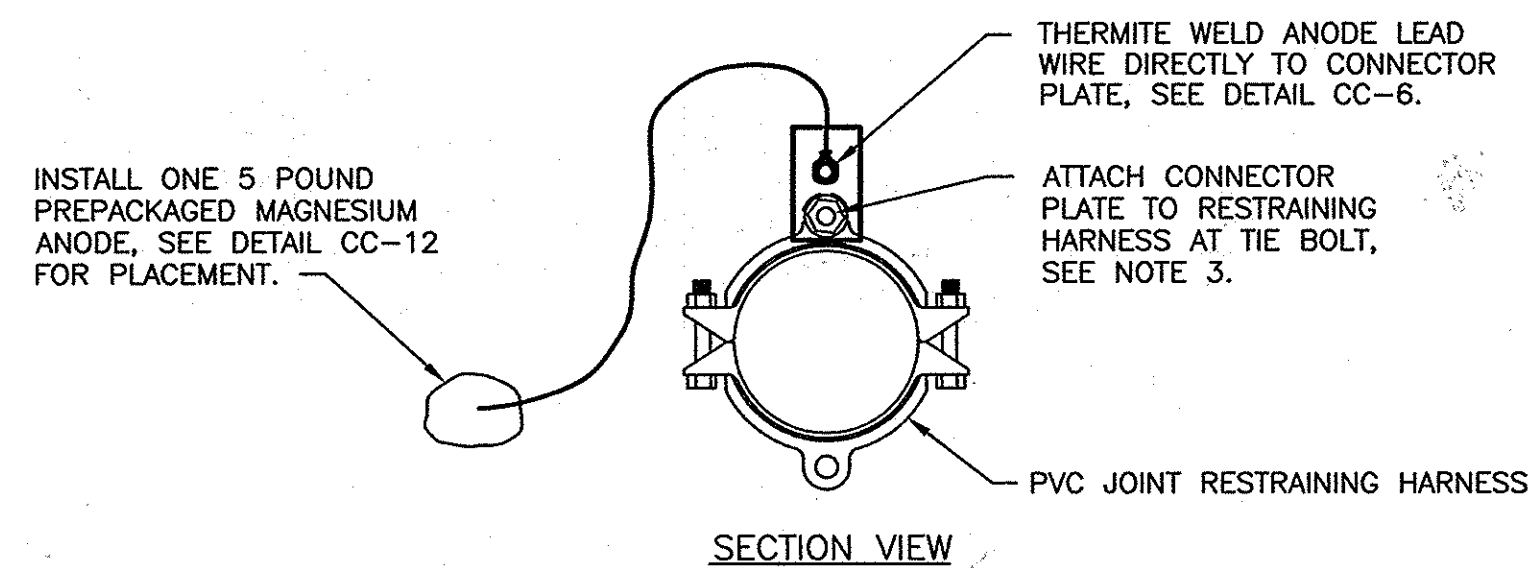
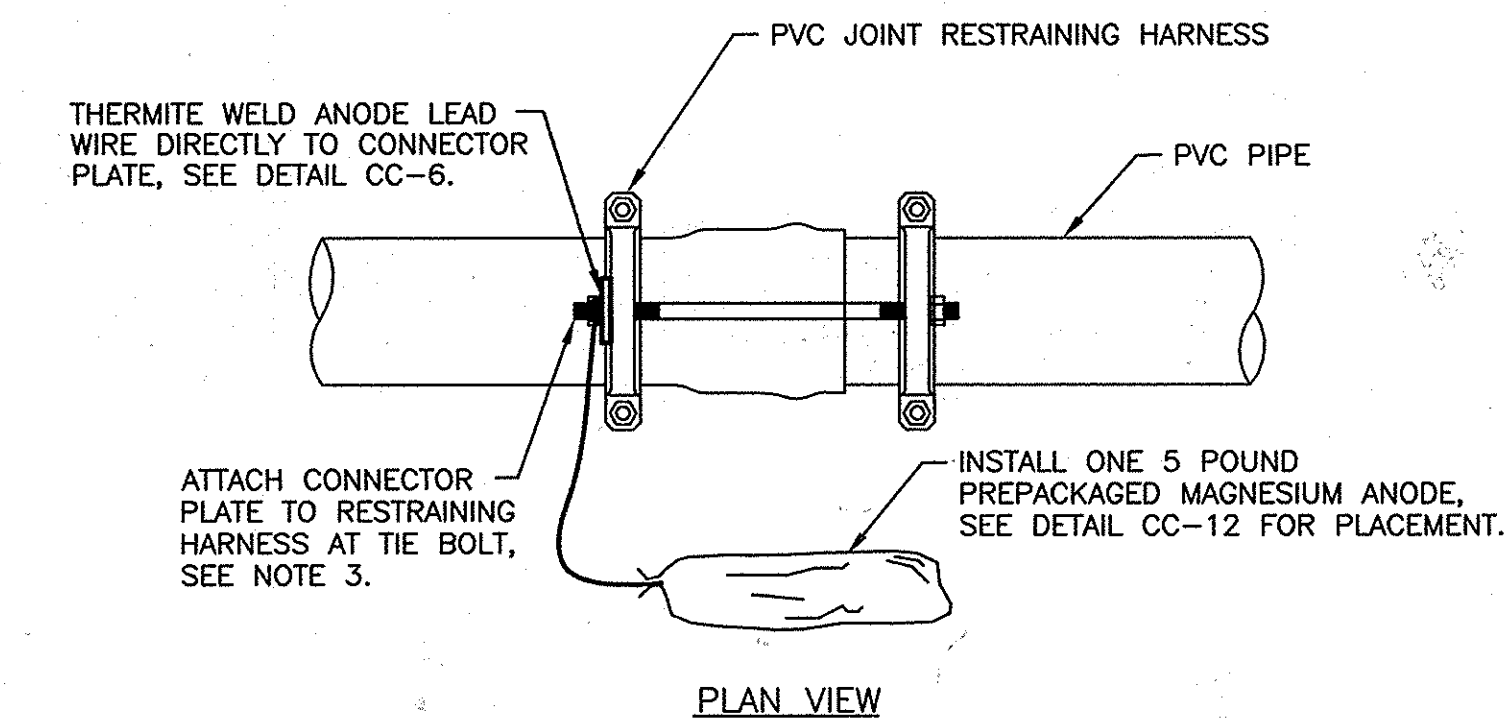
- NOTES:**
1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
  2. DO NOT THERMITE WELD TO PVC PIPE.

**CC-2: CORROSION PROTECTION OF DUCTILE IRON VALVE (8" AND 6")**  
SCALE: NONE



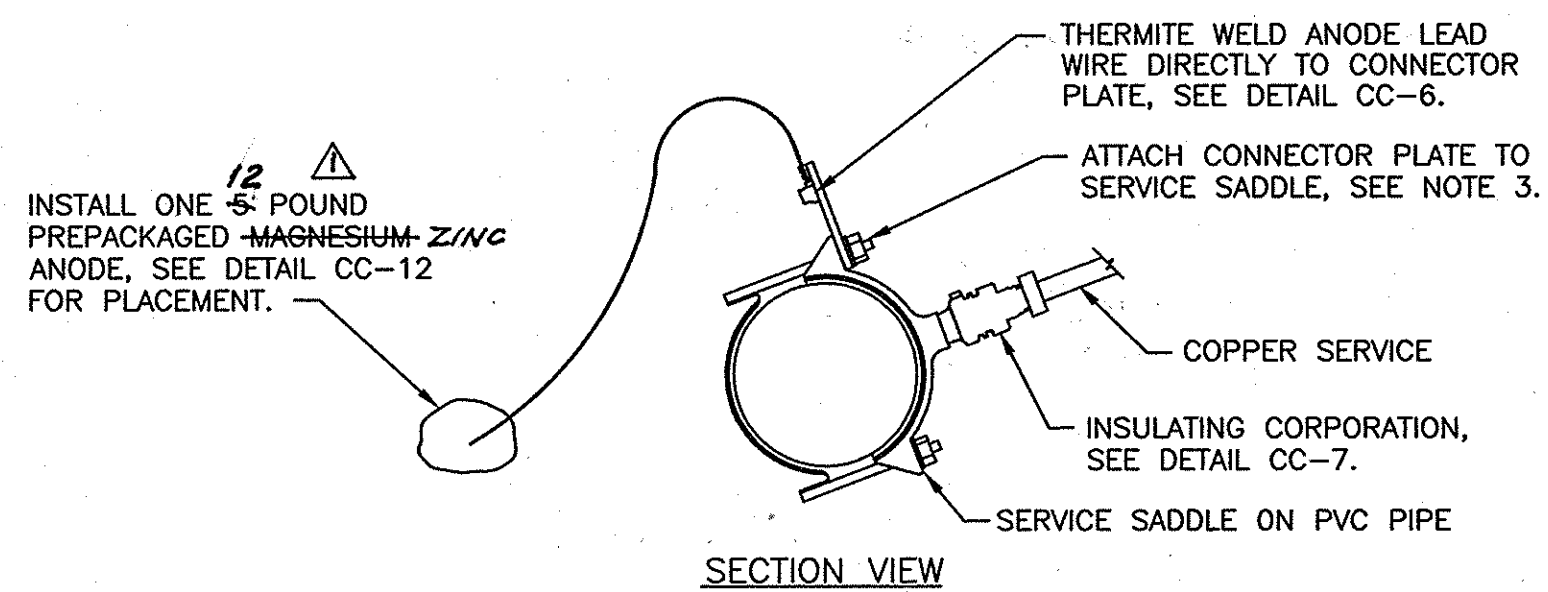
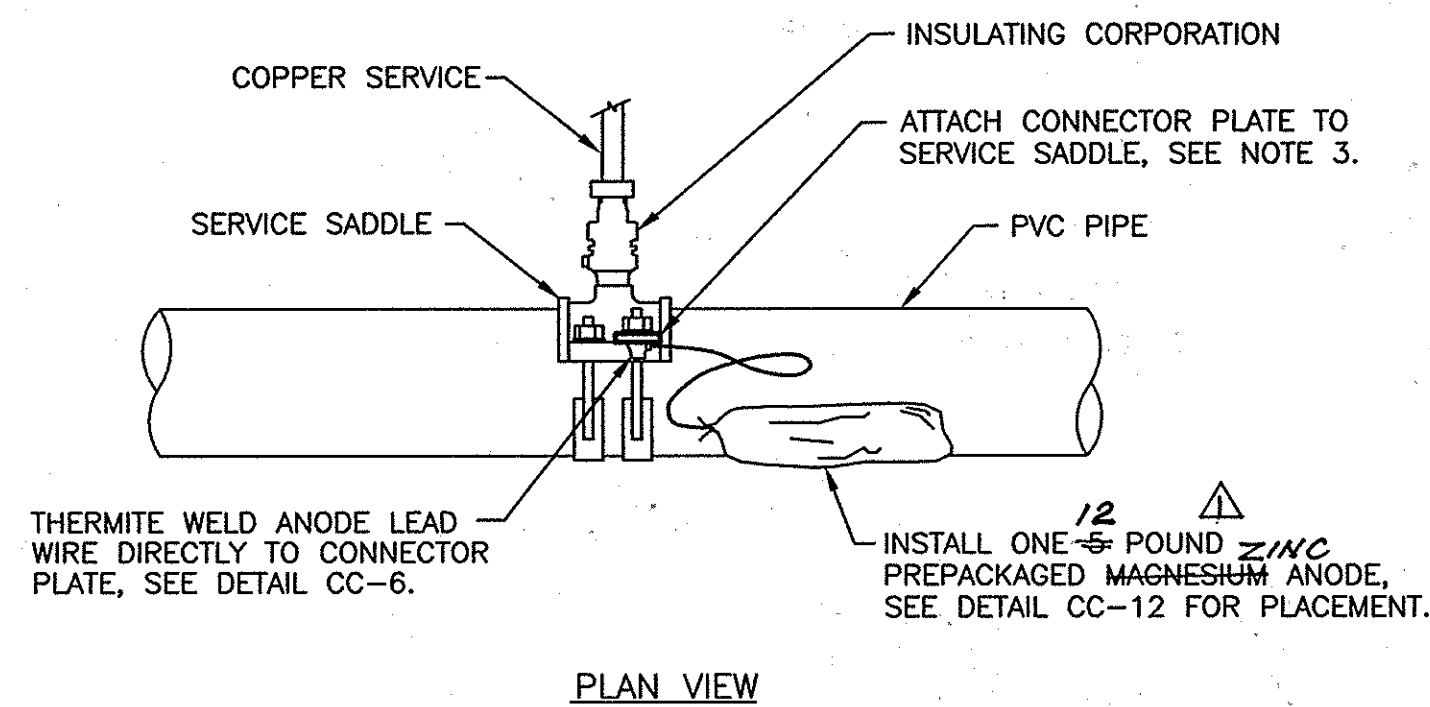
- NOTES:**
1. ANODES REQUIRED ONLY IF TEE OR ELBOW IS DUCTILE IRON.
  2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
  3. DO NOT THERMITE WELD TO PVC PIPE.

**CC-3: CORROSION PROTECTION OF DUCTILE IRON FITTINGS**  
SCALE: NONE



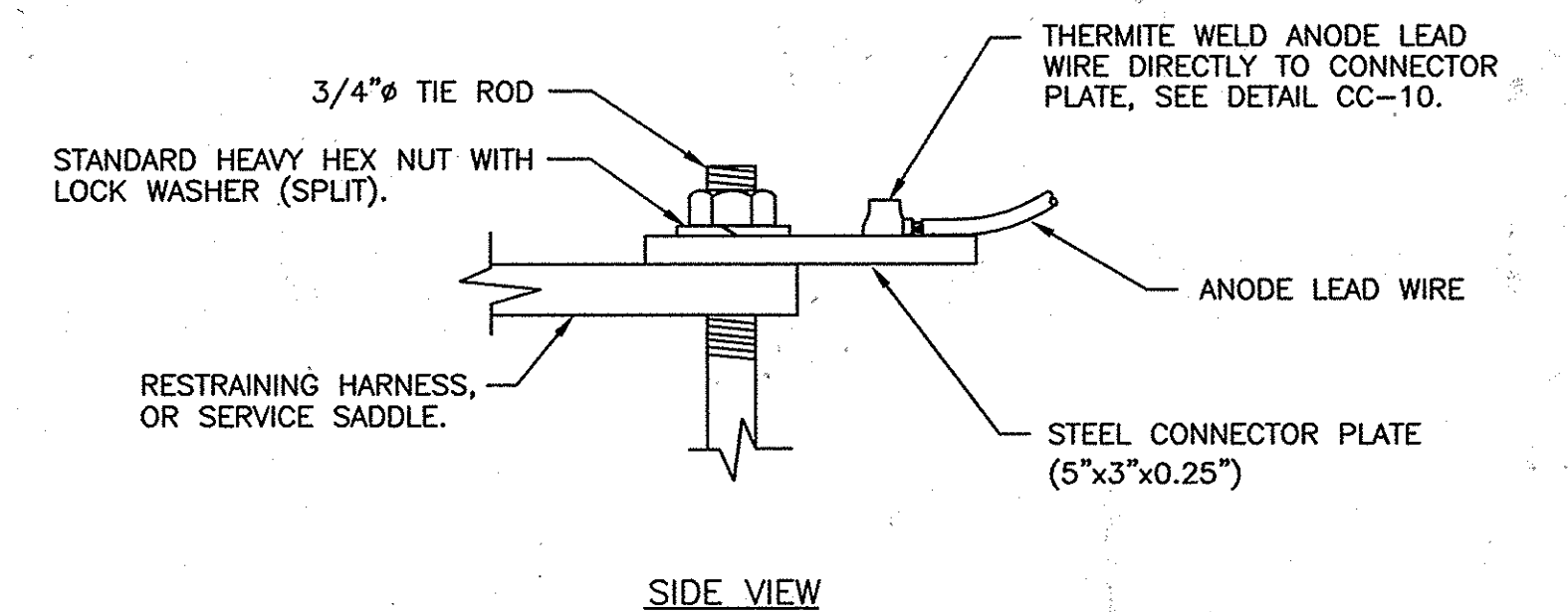
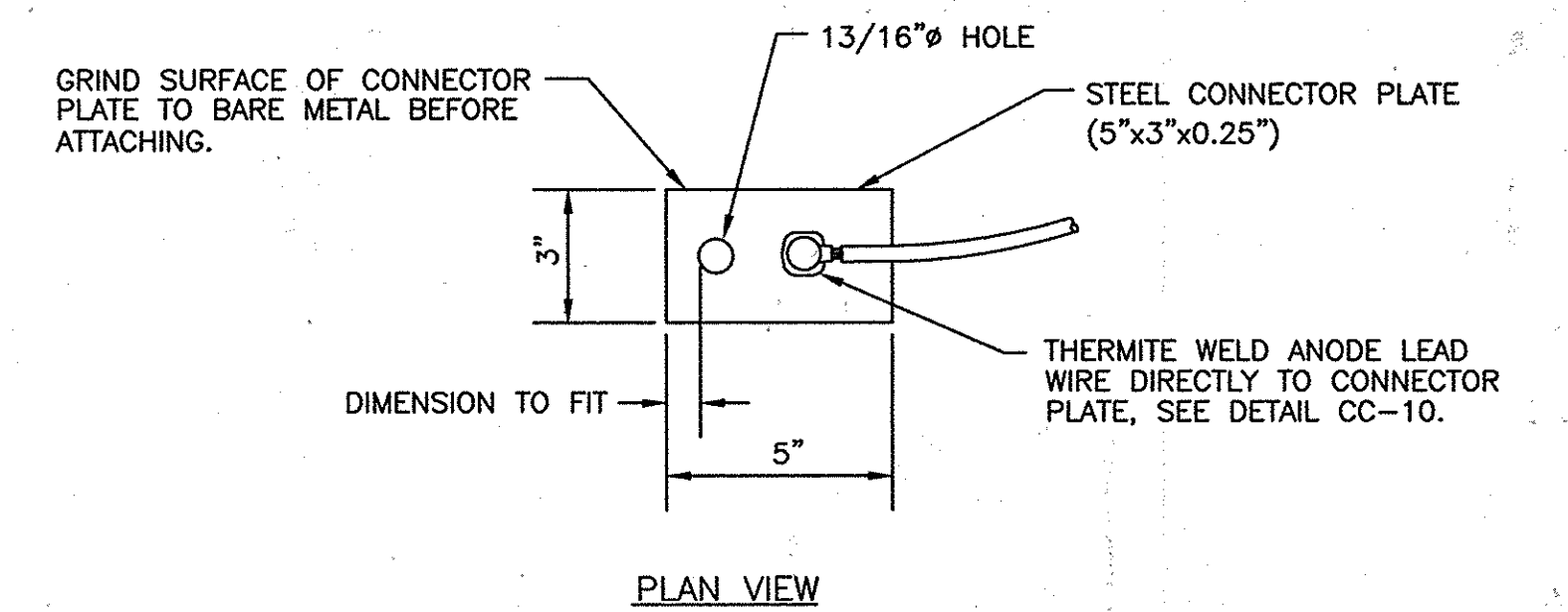
- NOTES:**
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO RESTRAINING HARNESS.
  2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
  3. REMOVE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED. REMOVE COATING IMMEDIATELY PRIOR TO ATTACHING THE CONNECTOR PLATE.
  4. DO NOT THERMITE WELD TO PVC PIPE.

**CC-4: CORROSION PROTECTION OF RESTRAINING HARNESS**  
SCALE: NONE



- NOTES:**
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO SERVICE SADDLE.
  2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
  3. REMOVE COATING FROM SERVICE SADDLE WHERE CONNECTOR PLATE IS TO BE MOUNTED. REMOVE COATING IMMEDIATELY PRIOR TO ATTACHING THE CONNECTOR PLATE.
  4. DO NOT THERMITE WELD TO PVC PIPE.

**CC-5: CORROSION PROTECTION OF SERVICE SADDLE**  
SCALE: NONE



- NOTES:**
1. CONNECTOR PLATE TO BE THERMITE WELDED TO ANODE LEAD WIRE PRIOR TO ATTACHING CONNECTOR PLATE TO RESTRAINING HARNESS, OR SERVICE SADDLE.
  2. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.

**CC-6: CONNECTION PLATE DETAIL**  
SCALE: NONE

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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John A. ...* 9-13-07  
DIRECTOR OF PUBLIC WORKS  
DATE

*Thomas E. ...* 9-11-07  
CHIEF, BUREAU OF ENGINEERING  
DATE

**KCI TECHNOLOGIES**  
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HUNT VALLEY, MD 21030  
PHONE: (410) 316-7800  
FAX: (410) 316-7817  
WWW.KCI.COM

**RUSSELL CORROSION CONSULTANTS, INC.**  
Columbia, Maryland

DES: MJS					
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DATE: AUGUST, 07	LFN	AS BUILT			11-19-09
	BY	NO.	REVISION		DATE

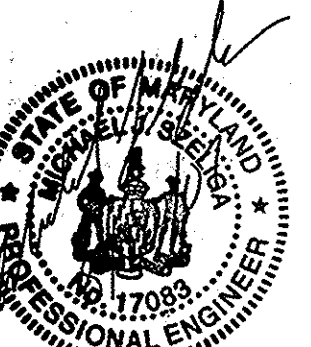
**AS-BUILT**  
DATE 11-19-2009

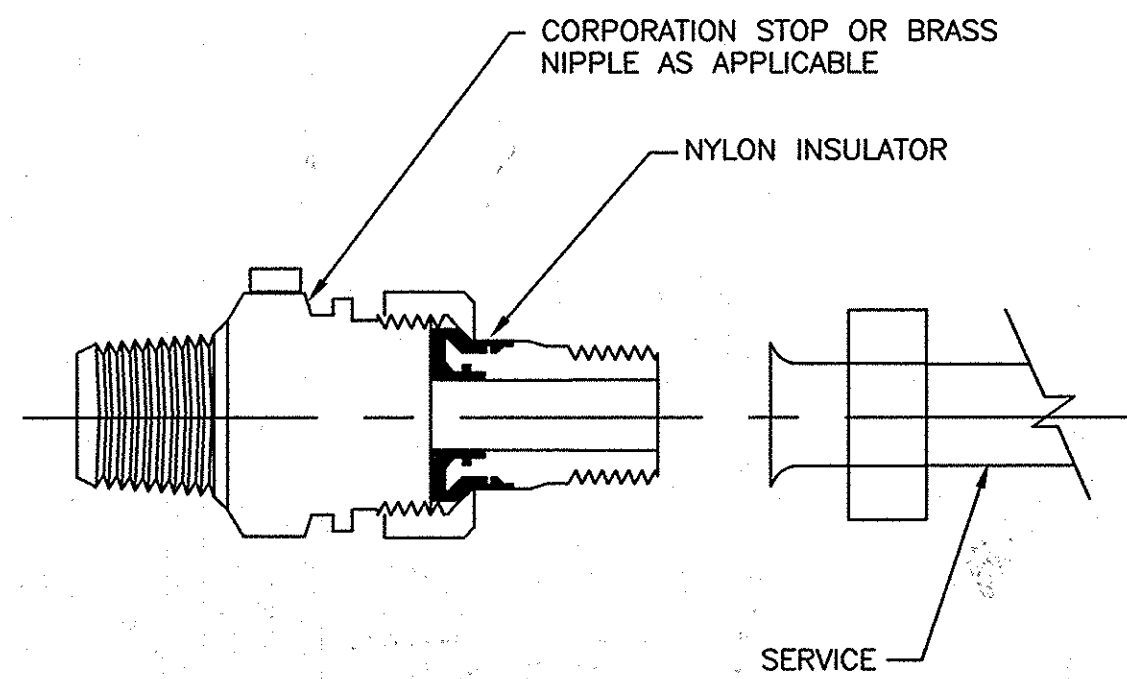
CORROSION CONTROL  
DETAILS 1

ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE  
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SHEET  
11A OF 11

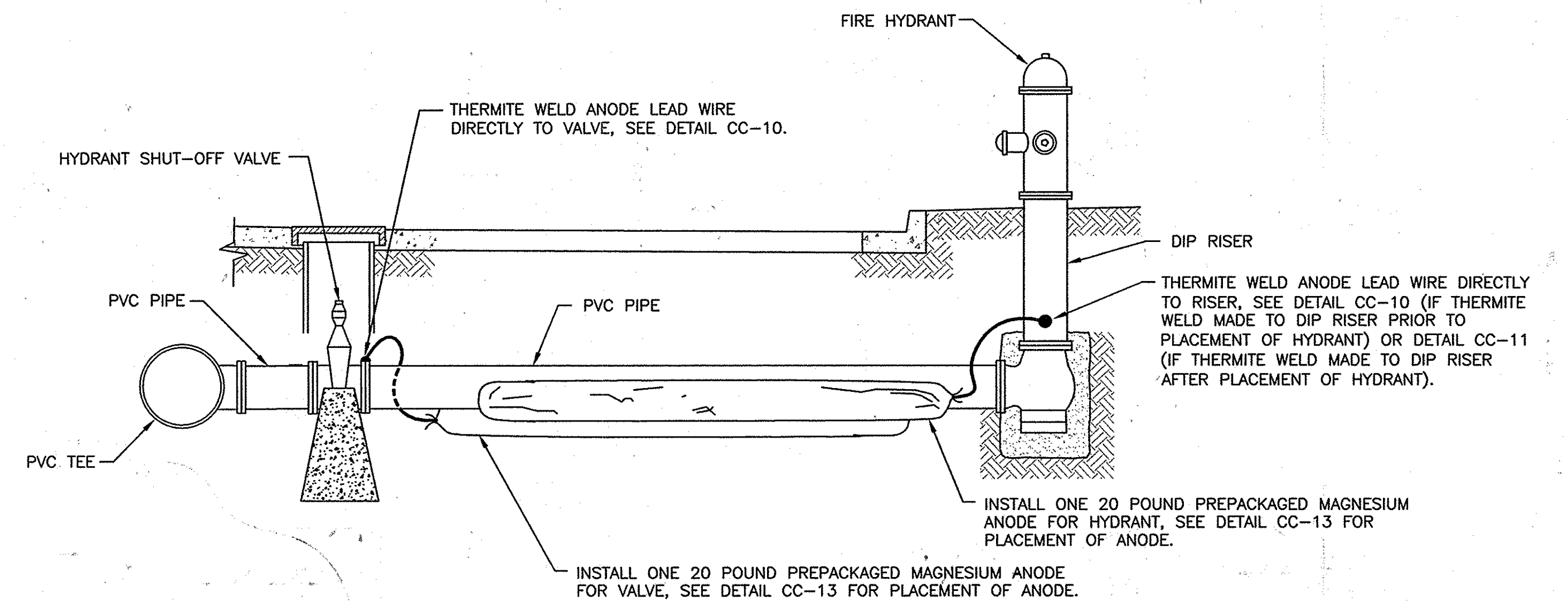




**NOTES:**

1. INSTALL ELECTRICAL ISOLATION ON ALL SMALL DIAMETER (2" AND LESS) WATER SERVICE CONNECTIONS TO MAIN.
2. COAT CORPORATION STOP, AND SERVICE PIPING FOR A DISTANCE OF 12 INCHES WITH MASTIC COATING (ROYSTON ROSKOTE R28). MASTIC COATING TO BE MINIMUM OF 20 MILS IN THICKNESS.

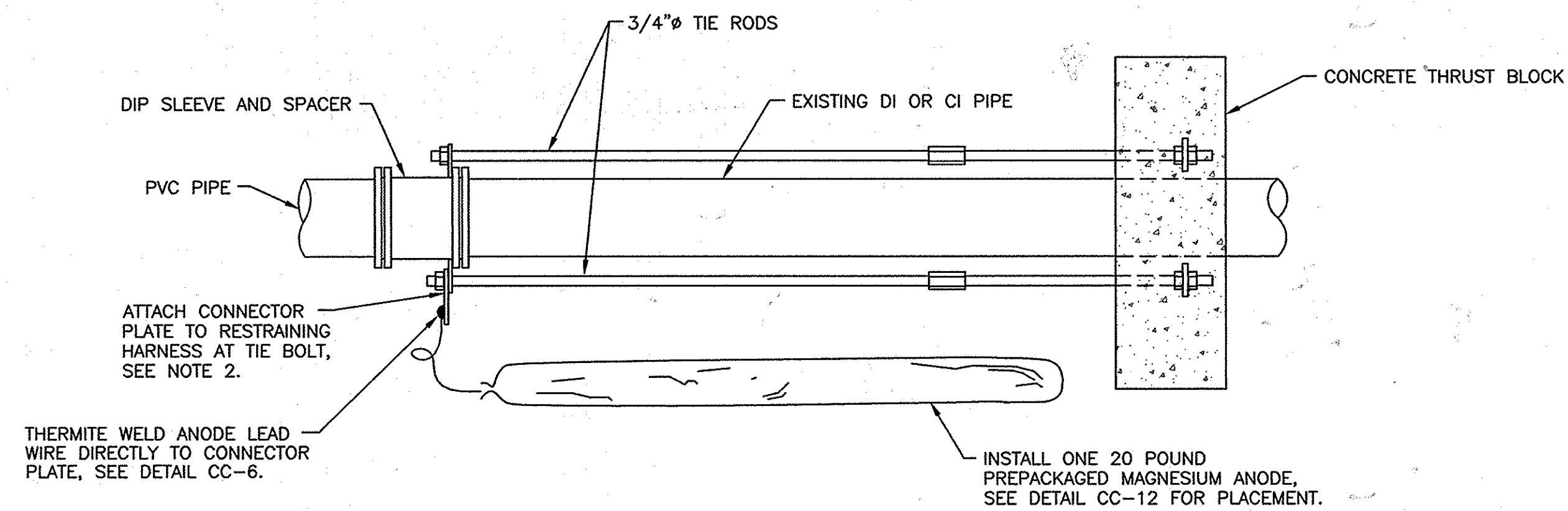
**CC-7: INSULATING CORPORATION**  
SCALE: NONE



**NOTES:**

1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-13.
2. DO NOT THERMITE WELD TO PVC PIPE.

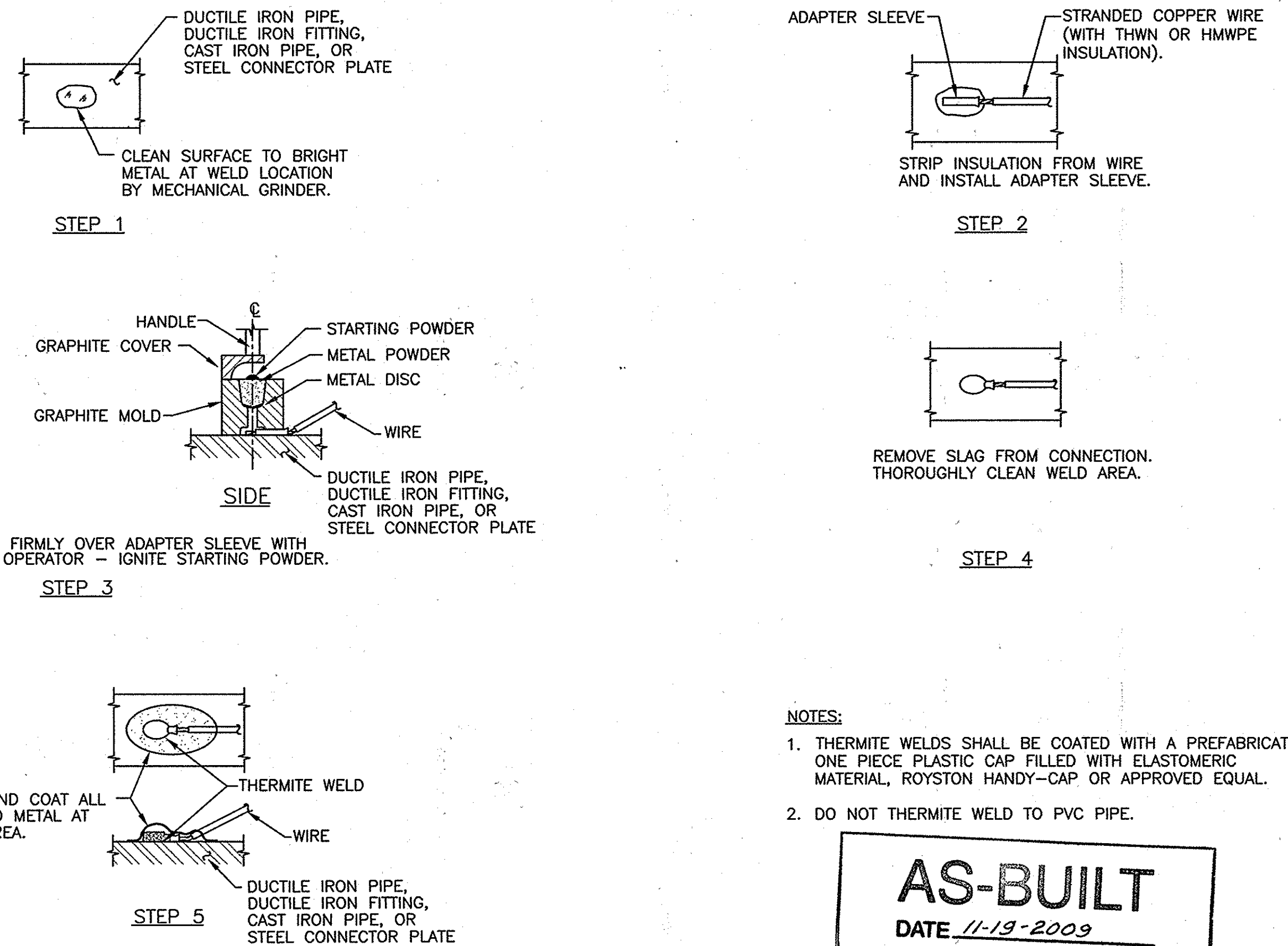
**CC-8: CORROSION PROTECTION AT FIRE HYDRANT**  
SCALE: NONE



**NOTES:**

1. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12" FROM EDGE OF PIPE, SEE DETAIL CC-12.
2. REMOVE COATING FROM RESTRAINING HARNESS WHERE CONNECTOR PLATE IS TO BE MOUNTED. REMOVE COATING IMMEDIATELY PRIOR TO ATTACHING THE CONNECTOR PLATE.
3. DO NOT THERMITE WELD TO PVC PIPE.

**CC-9: CORROSION PROTECTION AT IN-LINE THRUST BLOCK**  
SCALE: NONE



**NOTES:**

1. THERMITE WELDS SHALL BE COATED WITH A PREFABRICATED ONE PIECE PLASTIC CAP FILLED WITH ELASTOMERIC MATERIAL, ROYSTON HANDY-CAP OR APPROVED EQUAL.
2. DO NOT THERMITE WELD TO PVC PIPE.

**AS-BUILT**  
DATE 11-19-2009

**CC-10: TYPICAL THERMITE WELD**  
SCALE: NONE

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DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: *John A. ...* 9-13-07  
 Chief, Bureau of Utilities: *...*  
 Chief, Bureau of Engineering: *...* 9-11-07  
 Chief, Utility Design Division: *...* 9-4-07

**KCI TECHNOLOGIES**  
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS  
10 NORTH PARK DRIVE  
HUNT VALLEY, MD 21030  
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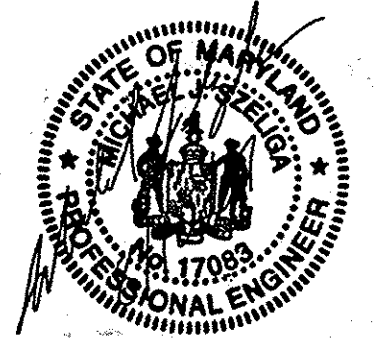
**RUSSELL CORROSION CONSULTANTS, INC.**  
Columbia, Maryland

DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: AUGUST, 07	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 38 AND 32 BLOCK NO.

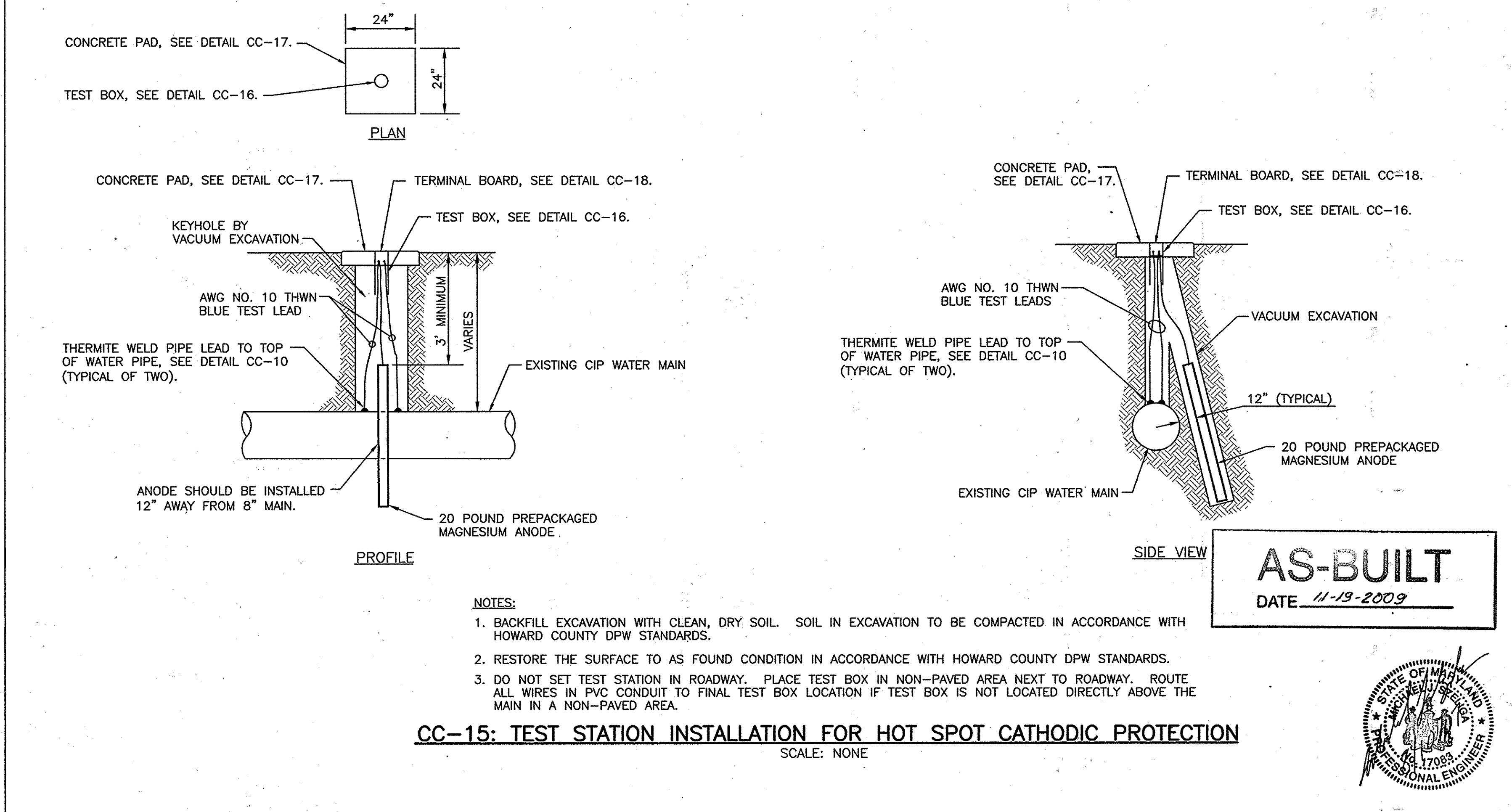
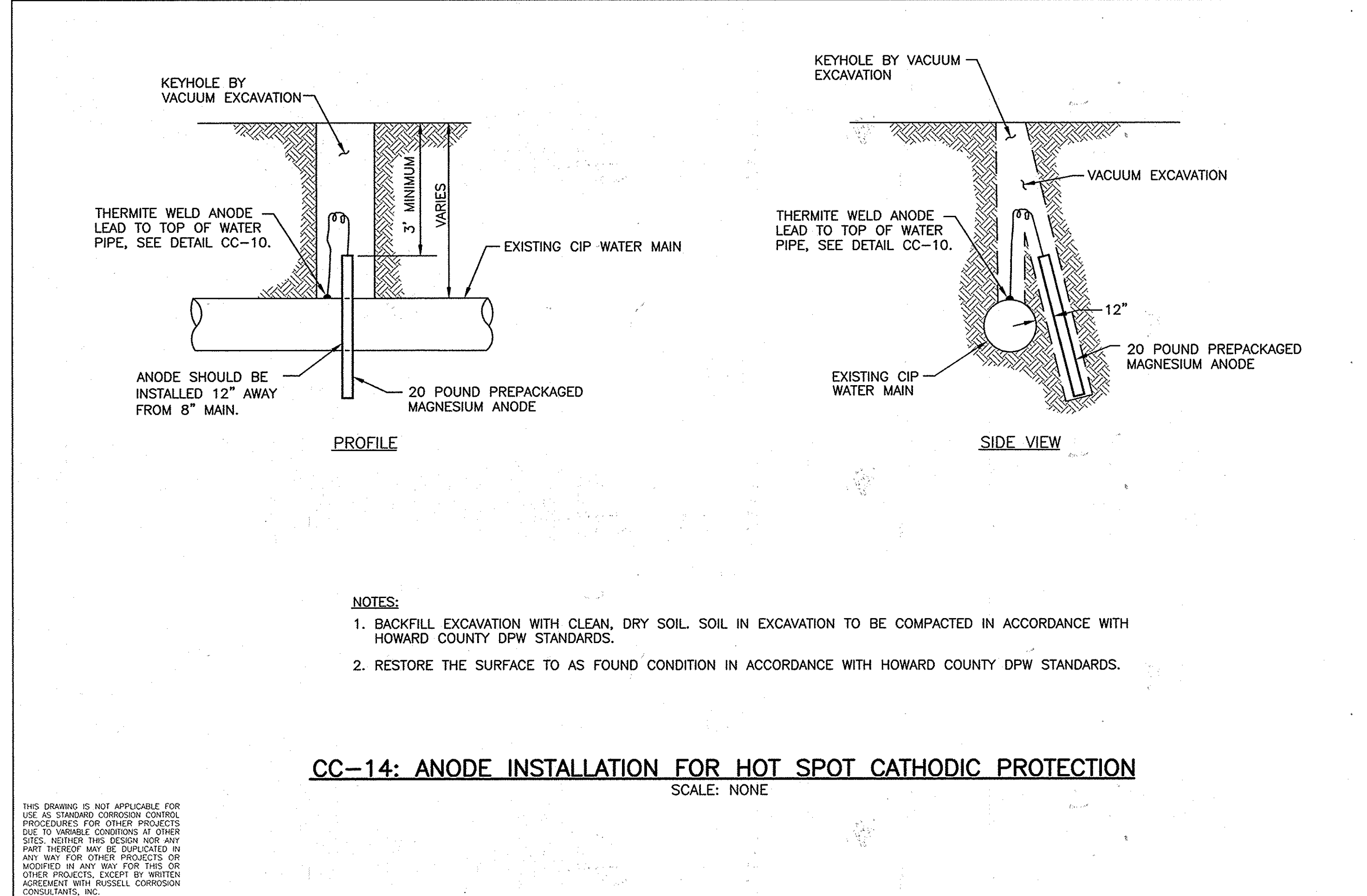
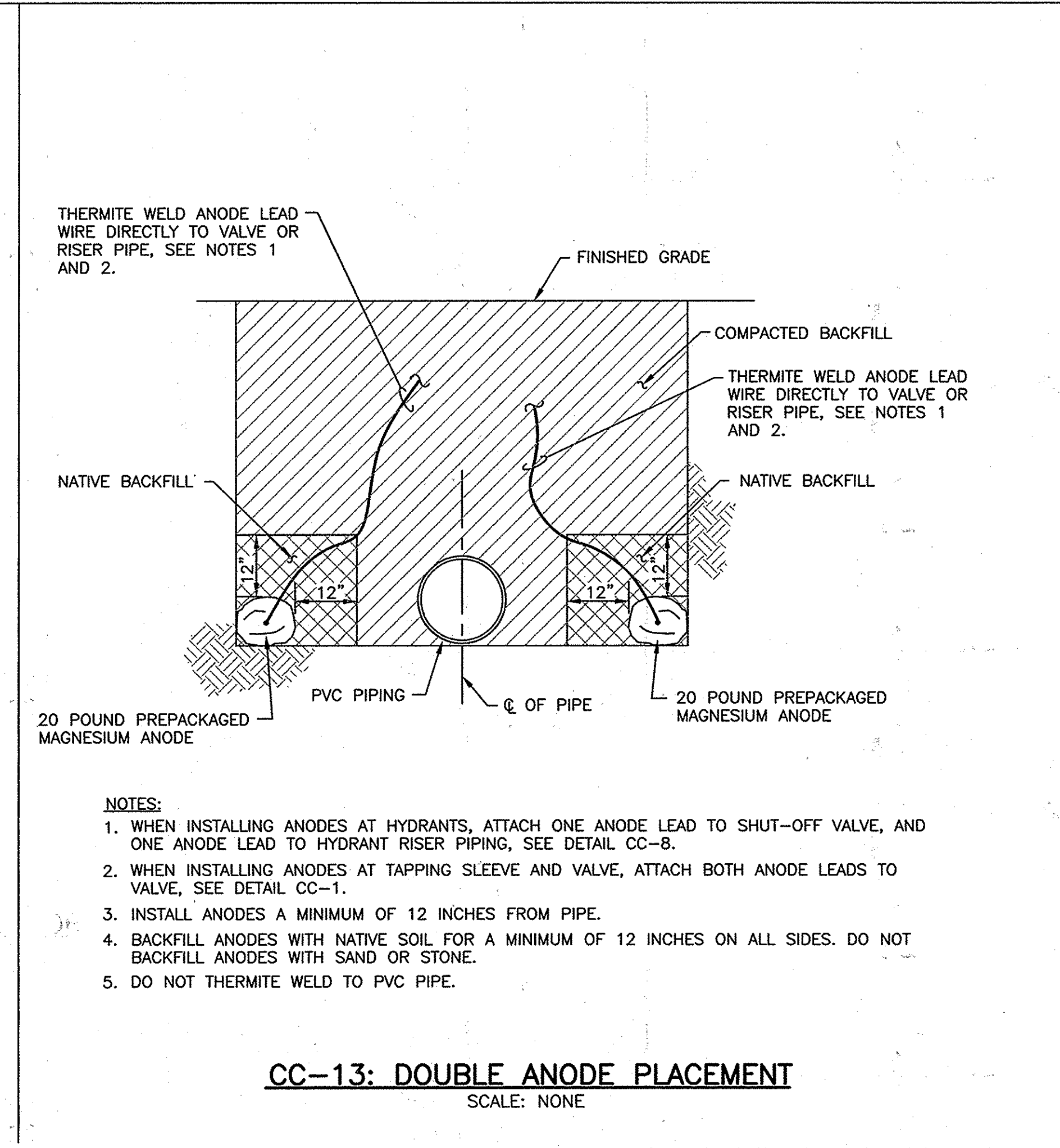
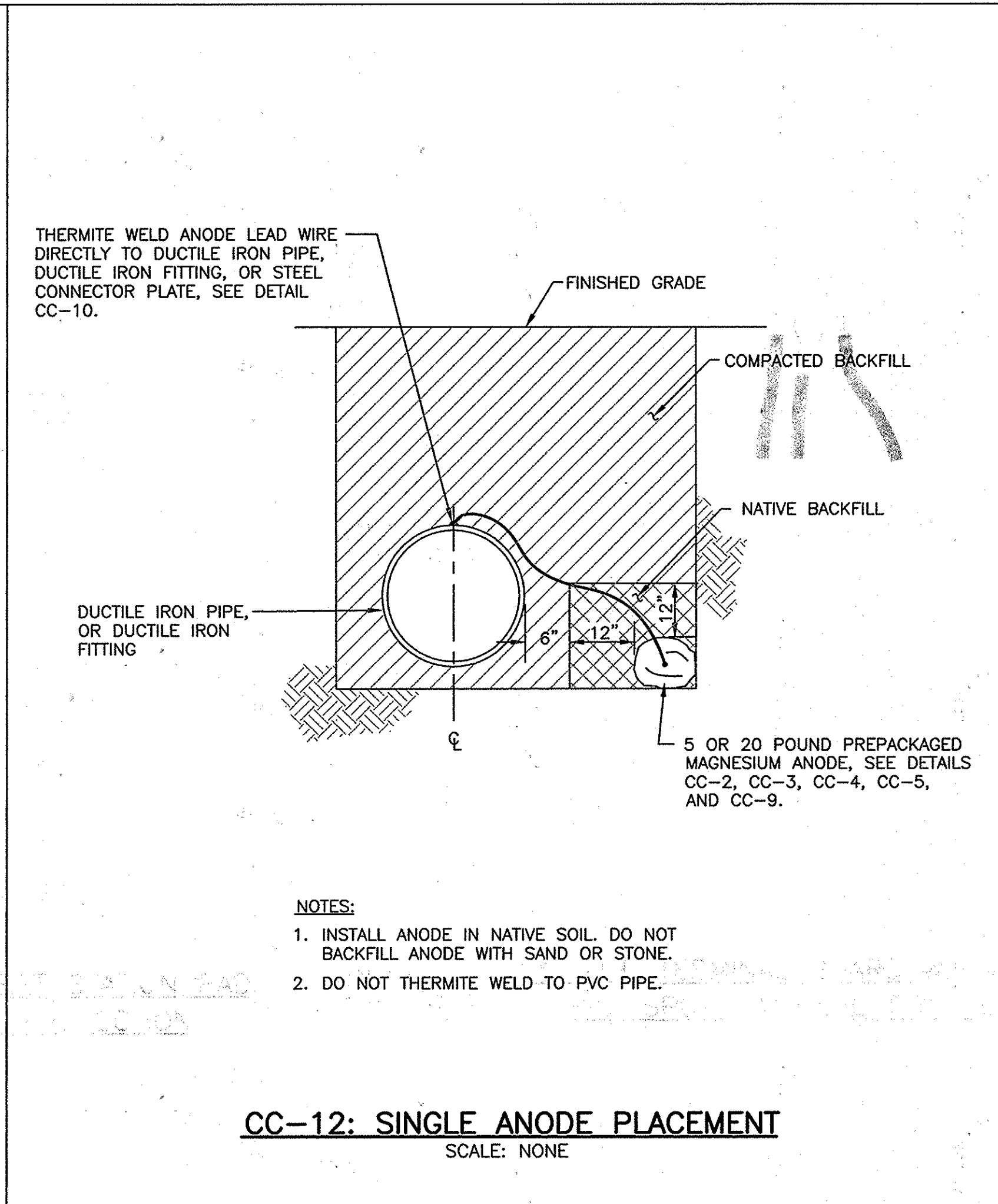
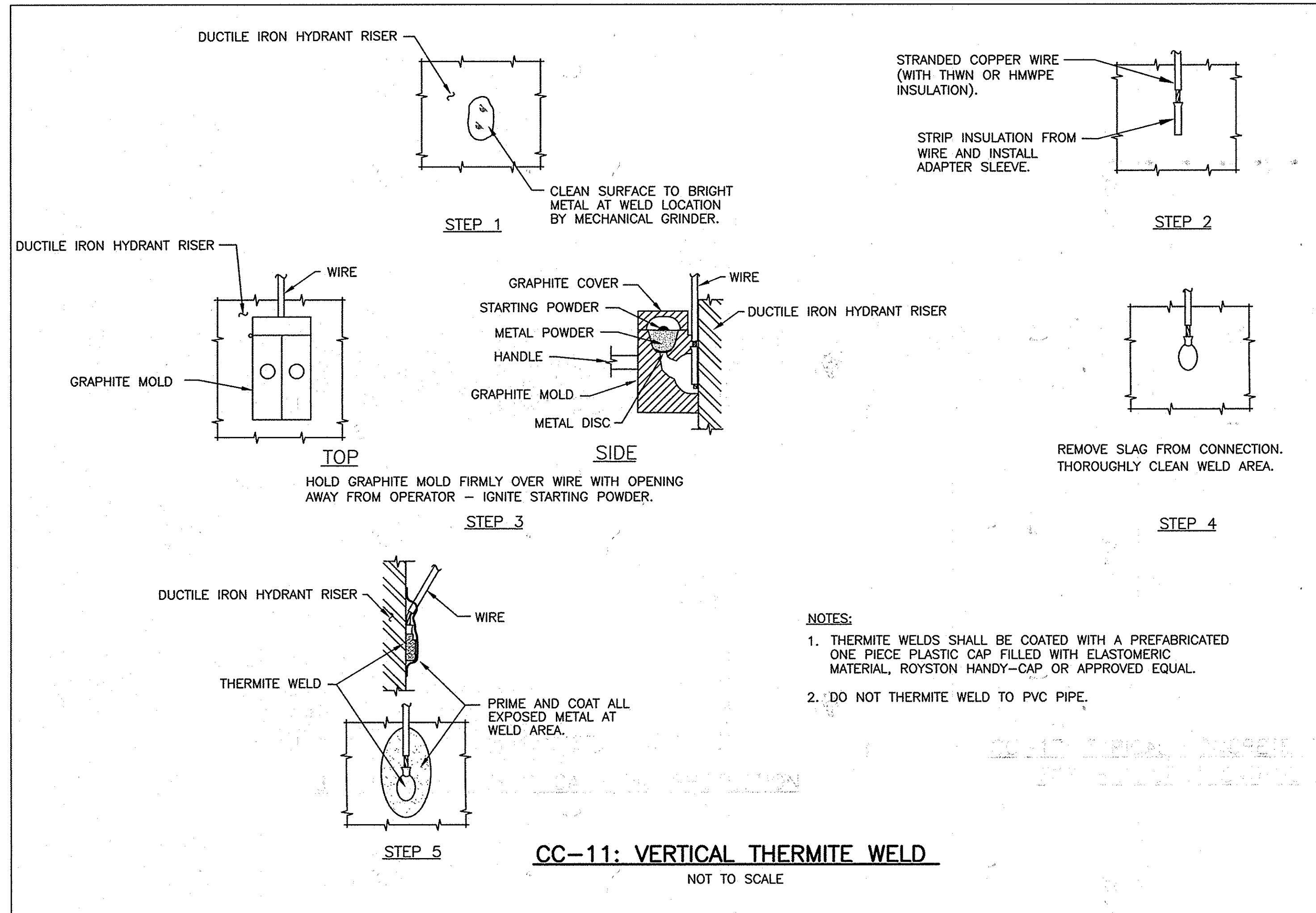
**CORROSION CONTROL  
DETAILS 2**

**ELKRIDGE WATER MAIN  
REHABILITATION AND REPLACEMENT**  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

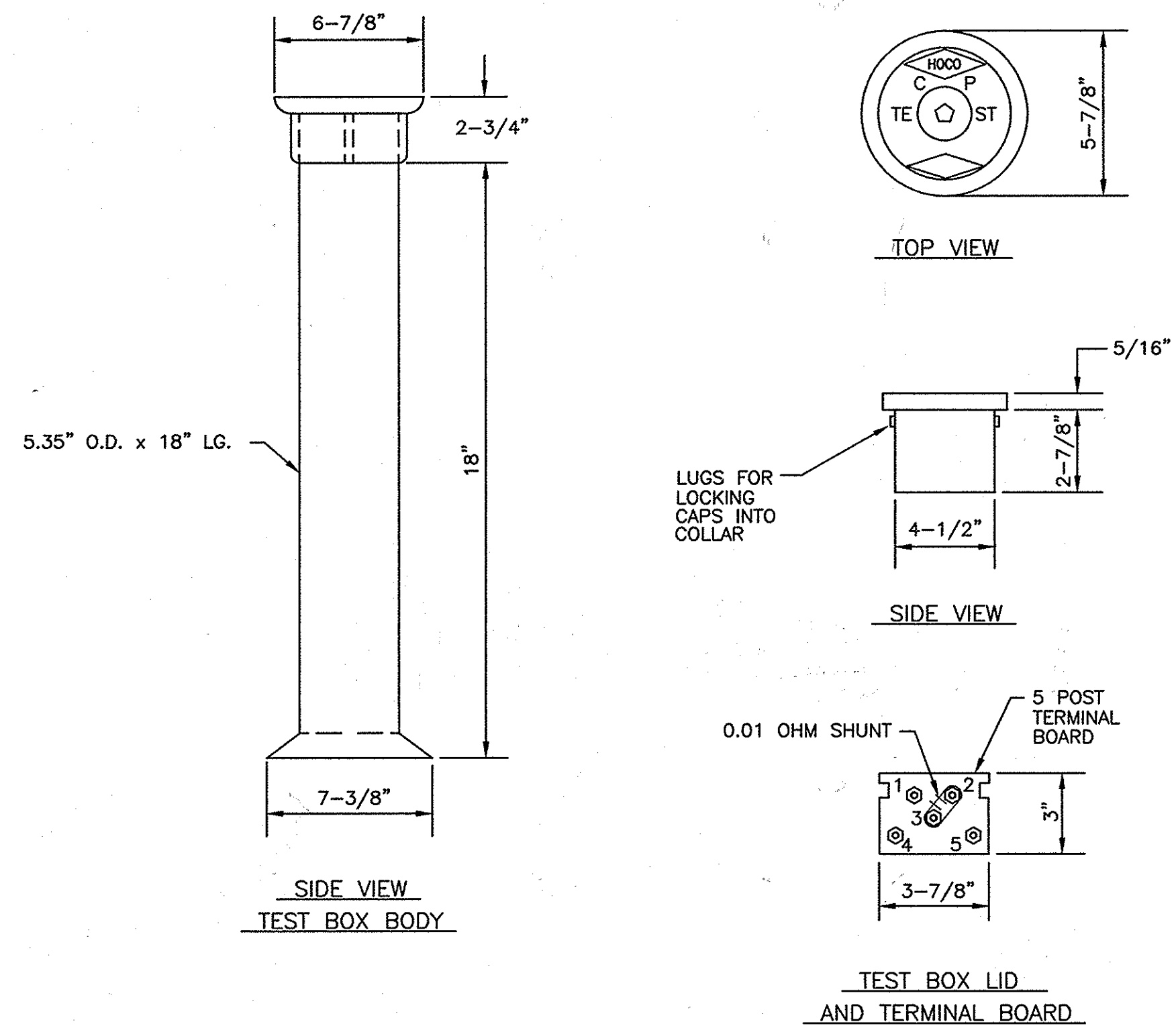
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND



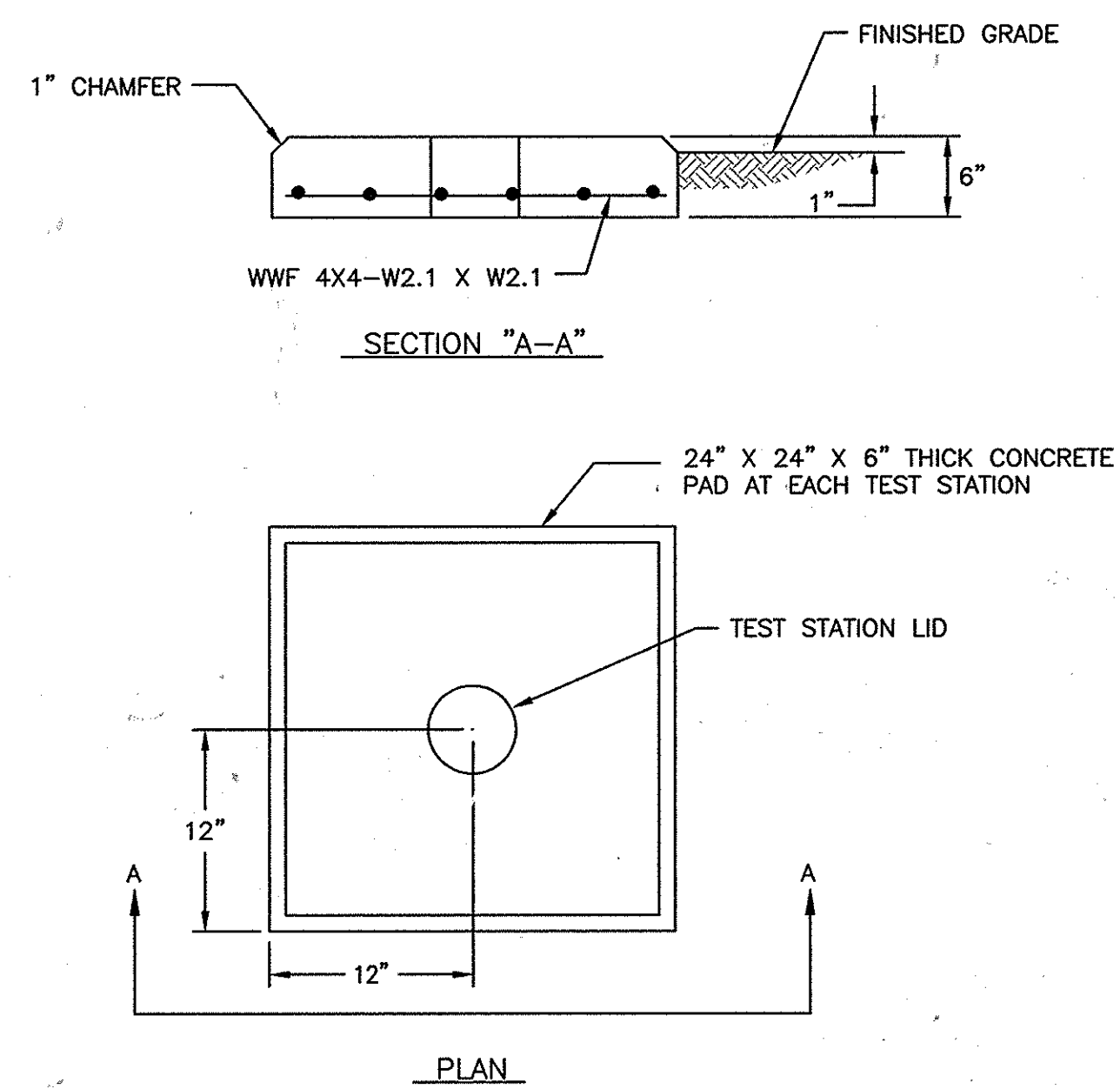
SCALE: NONE  
SHEET: 11B OF 11



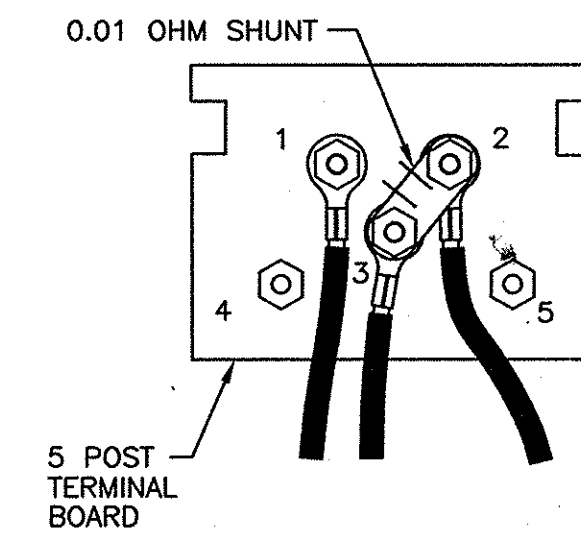
**AS-BUILT**  
DATE 11-19-2009



**CC-16: TYPICAL TEST BOX FOR HOT SPOT CATHODIC PROTECTION**  
SCALE: NONE



**CC-17: TYPICAL CONCRETE TEST STATION PAD FOR HOT SPOT CATHODIC PROTECTION**  
SCALE: NONE

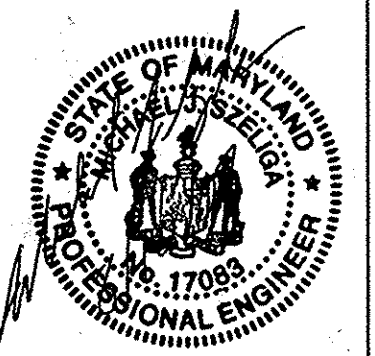


- TERMINAL 1 - AWG NO. 10 THWN BLUE WIRE (LEAD FROM PIPE)
- TERMINAL 2 - AWG NO. 10 THWN BLUE WIRE (2ND LEAD FROM PIPE)
- TERMINAL 3 - AWG NO. 12 TW BLACK WIRE (LEAD FROM ANODE)
- TERMINAL 4 - NOT USED
- TERMINAL 5 - NOT USED

**CC-18: TERMINAL BOARD WIRING FOR HOT SPOT CATHODIC PROTECTION**  
SCALE: NONE

THIS DRAWING IS NOT APPLICABLE FOR USE AS STANDARD CORROSION CONTROL PROCEDURES FOR OTHER PROJECTS DUE TO VARIABLE CONDITIONS AT OTHER SITES. NEITHER THIS DESIGN NOR ANY PART THEREOF MAY BE REPLICATED IN ANY WAY FOR OTHER PROJECTS OR MODIFIED IN ANY WAY FOR THIS OR OTHER PROJECTS, EXCEPT BY WRITTEN AGREEMENT WITH RUSSELL CORROSION CONSULTANTS, INC.

**AS-BUILT**  
DATE 11-19-2009



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John A. Durkin* 9-13-07  
DIRECTOR OF PUBLIC WORKS DATE

*James E. Butler* 9-11-07  
CHIEF, BUREAU OF ENGINEERING DATE

*Clayton* 9-13-07  
CHIEF, UTILITY DESIGN DIVISION DATE

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WWW.KCI.COM



DES: MJS					
DRN: DJD					
CHK: MJS					
DATE: AUGUST, 07	BY	NO.	REVISION	DATE	

**CORROSION CONTROL DETAILS 4**

600' SCALE MAP NO. 38 AND 32 BLOCK NO.

**ELKRIDGE WATER MAIN REHABILITATION AND REPLACEMENT**  
CAPITAL PROJECT No. W-8257  
CONTRACT No. 44-4280

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SCALE NONE  
SHEET 11 OF 11