

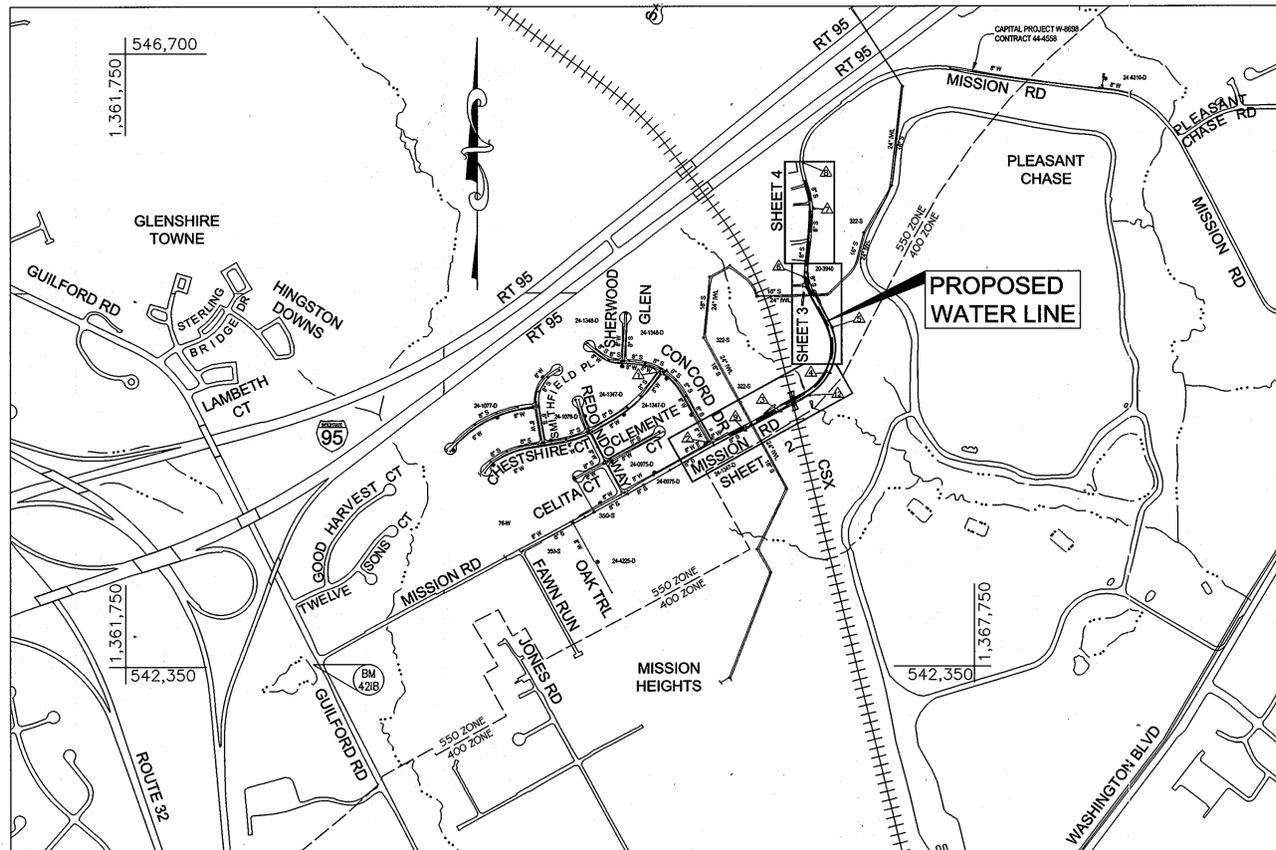
MISSION ROAD WATER MAIN EXTENSION



DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO. W-8285
CONTRACT NO. 24-4626
HOWARD COUNTY, MARYLAND

NO.	INDEX OF SHEETS
1	TITLE SHEET
2-4	12" WATER MAIN PLAN & PROFILE
5	8" SANITARY SEWER PLAN & PROFILE
6	EROSION AND SEDIMENT CONTROL
7	EROSION AND SEDIMENT CONTROL DETAILS
8	MISCELLANEOUS DETAILS
9	MISCELLANEOUS DETAILS
10	TRAFFIC CONTROL
11	WATER MAIN CORROSION CONTROL LAYOUT

LEGEND	
	EXIST. WATER MAIN / VALVE VAULT / METER BOX
	PROP. WATER MAIN
	EXIST. SEWER MAIN / MANHOLE
	PROP. SEWER MAIN / MANHOLE
	EXIST. STORM DRAIN
	EXIST. GAS
	EXIST. ELECTRIC (UNDERGROUND)
	EXIST. ELECTRIC (ABOVE GROUND)
	RIGHT OF WAY
	100YR 100 YEAR FLOOD PLAIN
	GUARDRAIL
	FENCE (CHAINLINK)
	PROPERTY LINE
	SILT FENCE
	SUPER SILT FENCE
	LIMITS OF DISTURBANCE
	STREAM / WATERWAY EDGE
	PRESSURE ZONE
	SHRUB
	VALVE
	FIRE HYDRANT
	BGE POLE
	TRAVERSE POINT
	BORING LOCATION



VICINITY MAP
SCALE: 1" = 600'

HORIZONTAL AND VERTICAL CONTROL BASED ON MARYLAND NAD83 (91) (HORIZONTAL) AND NAVD88 (VERTICAL) DATUM.

HOWARD COUNTY GEODETIC SURVEY CONTROL NUMBERS:

NO. 42IB N 542366.91 E 1363075.95 ELEV. 282	NO. DF8458 N 536345.16 E 1361008.51 ELEV. 259
--	--

TYPE OF BUILDINGS: N.A.
NUMBER OF PARCELS: N.A.
NO. OF WATER CONNECTIONS: 5
DRAINAGE AREA: LITTLE PATUXENT
PRESSURE ZONE: 550
TEST GRADIENT: 700
NUMBER OF SEWER CONNECTIONS: 2

QUANTITIES				
NAME OF UTILITY CONTRACTOR: RUSTLER CONSTRUCTION				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				
ITEMS	QUANTITIES ESTIMATED	QUANTITIES	AS-BUILT TYPE	MANUFACTURER / SUPPLIER
WATER				
12" Water Pipe	2,321 L.F.	2,323 L.F.	C-900 PVC	DIAMOND PLASTICS
Fire Hydrants	6 EA.	6 EA.	AWWA C-502	MUELLER
12" X 6" Tees	6 EA.	7 EA.	DIP	TYLER UNION
8" Valves	1 EA.	1 EA.	GATE VALVE	MUELLER
12" Valves	2 EA.	2 EA.	GATE VALVE	MUELLER
6" Hydrant Shut-off Valves	6 EA.	6 EA.	GATE VALVE	MUELLER
Water House Connections	103 L.F.	128 L.F.	K-COPPER	MUELLER
Water Meter (outside setting)	5 EA.	4 EA.	PLASTIC	DFW PLASTICS
12" - 1/16 HB	4 EA.	4 EA.	DIP	TYLER UNION
12" - 1/32 HB	3 EA.	2 EA.	DIP	TYLER UNION
12" Cap & Buttress	1 EA.	1 EA.	DIP	TYLER UNION
SANITARY SEWER				
8" SAN.	185 L.F.	179.5 L.F.	SDR-35	DIAMOND PLASTICS
4" Dia. Std. MH	20 V.F.	9 V.F.		
4" SHC	27 L.F.	7.5 L.F.	SDR-35	DIAMOND PLASTICS
6" SHC	25 L.F.	6.5 L.F.	SDR-35	DIAMOND PLASTICS
4" Dia. Std. MH	2 EA.	2 EA.	48" PRECAST	CONCRETE PIPER PRODUCTS
6" Water House Conn. Valve	0 EA.	1 EA.	GATE VALVE	MUELLER

Traverse Coordinate Schedule				
Point	Northing	Easting	Elevation	Feature
1	544448.7240	1365574.2150	307.7190	R&C
2	543939.2070	1365859.8195	307.8420	X-Cut
3	544158.2659	1366381.7158	264.4560	R&C
4	544433.1989	1366729.1345	266.2120	R&C
5	544754.9849	1366745.6044	281.5340	R&C
6	545109.9320	1366547.6590	301.5870	R&C
7	545596.7030	1366614.5270	319.1590	R&C
8	545919.6647	1366544.1525	328.3100	R&C
9	544022.4584	1366130.3944	287.6646	R&C
12	544271.5469	1366582.9451	259.4840	R&C

GENERAL NOTES

- Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the contractor's expense.
- Topographic field surveys were performed on January 2009 by J.A.Rice, Inc.
- The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/91' as projected by Howard County Geodetic Control Stations No. 42IB and No. DF8458.
- All vertical controls are based on NAVD'88. Vertical controls provided on the drawings are Rebar w/cap (see Traverse Coordinate Schedule).
- All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- Clear all utilities by a minimum of 12 inches. Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. 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 monies owed by the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- For details not shown on the drawing, 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.
- Where test pits have been made on existing utilities, they are noted by the symbol at the locations of the test pits. 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.
- The 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
BGE (Construction Services)	410-850-4620
BGE (Emergency)	410-685-1400
Bureau of Utilities	410-313-4900
Colonial Pipeline Company	410-795-1390
Miss Utility	1-800-257-7777
State Highway Administration	410-531-5533
Verizon	1-800-743-0033 / 410-224-9210
- The contractor shall remove trees, stumps, and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- The contractor shall notify the Bureau of Highways, Howard County, at (410)313-7450 at least five working days before open cutting or boring/jacking of any County road for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per section 18.114(a) of the Howard County Code.

GENERAL NOTES - WATER CONSTRUCTION

- All water mains to be C-900 or Fusible C-905 PVC unless otherwise noted.
- Tops of all water mains to have a minimum of 3'-6" of cover unless otherwise noted.
- Valves adjacent to tees shall be strapped to tees.
- All fittings shall be buttressed or anchored with concrete in accordance with the Standard Details unless otherwise provided for on the drawings.
- Fire hydrants shall be set to the bury line elevations shown on the drawings. All fire hydrants shall be restrained and buttressed with concrete in accordance with the Standard Details. The soil around the fire hydrant shall be compacted in accordance with Section 1000 and 1005 of the Standard Specifications.
- The contractor shall not operate any water main valves on the existing water system.
- All water house connections shall be for outside meter setting unless otherwise noted on plans or in specifications.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. ... 7/17/09
DIRECTOR OF PUBLIC WORKS DATE

... 7/15/09
CHIEF, BUREAU OF ENGINEERING DATE

... 7-15-09
CHIEF, BUREAU OF UTILITIES DATE

... 7-15-09
CHIEF, UTILITY DESIGN DIVISION DATE

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875

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. 32597, Expiration Date: 01/15/10

PEDRO R. RAMIREZ

DESIGN: PRR				
DRAWN: BJW				
CHK: CSP				
DATE: 07/15/09	NO.	REVISION	DATE	BY

TITLE SHEET

600' SCALE MAP NO. 43 BLOCK NO. 13

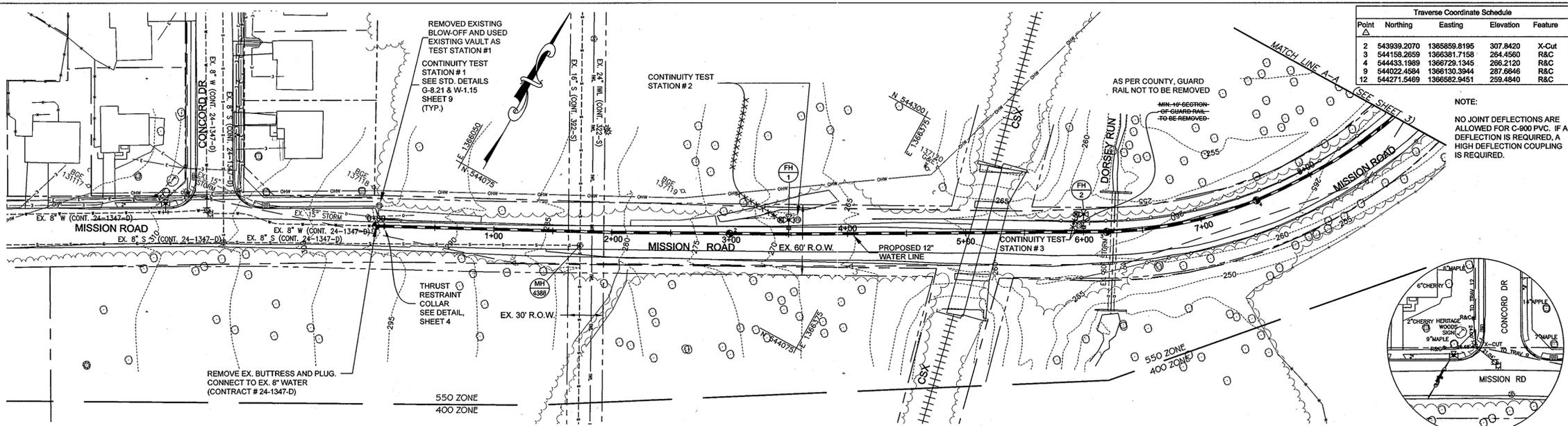
**MISSION ROAD
WATER MAIN EXTENSION**
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO. W-8285
CONTRACT NO. 24-4626
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 1 OF 11

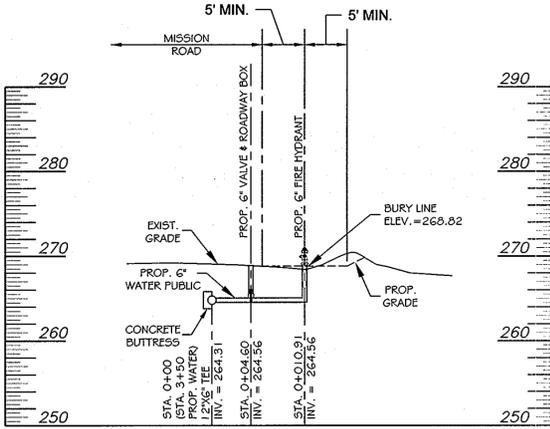
NEW STA.	STATION	FITTING	EASTING / NORTHING	INVERT
	0+00	8"X12" INCREASER	E = 1366102.64 N = 543993.23	298.11
		TEST STATION #1	E = 1366006.71 N = 544009.66	
	0+07.00	THRUST RESTRAINT COLLAR	E = 1366018.86 N = 543996.45	
0+51	0+59.49	3" HD COUPLING (VERT.)	E = 1366109.87 N = 544043.58	284.66
0+71	0+79.49	3" HD COUPLING (VERT.)	E = 1366083.23 N = 544029.78	281.67
0+90	0+99.98	3" HD COUPLING (VERT.)	E = 1366100.62 N = 544038.79	277.64
1+17	1+18.85	3" HD COUPLING (VERT.)	E = 1366118.18 N = 544047.88	274.65
1+36	0+38.76	3" HD COUPLING (VERT.)	E = 1366135.86 N = 544057.03	272.70
1+55	0+58.76	3" HD COUPLING (VERT.)	E = 1366153.62 N = 544066.23	271.79
DELETED	2+09	1" HD COUPLING (HORIZ.)	E = 1366190.24 N = 544085.19	272.07
DELETED	2+38.74	3" HD COUPLING (VERT.)	E = 1366224.33 N = 544103.60	272.33
DELETED	2+58.74	1" HD COUPLING (VERT.)	E = 1366241.93 N = 544113.11	271.43
DELETED	2+78.74	2" HD COUPLING (VERT.)	E = 1366259.52 N = 544122.61	269.82
DELETED	3+18.46	2" HD COUPLING (VERT.)	E = 1366294.48 N = 544141.48	265.91
DELETED	3+50	12" X 6" DIP TEE TO FIRE HYD. 1	E = 1366322.22 N = 544156.48	263.92
DELETED	4+78.44	TEST STATION #2	E = 1366314.30 N = 544165.88	
DELETED	5+20	1.5" HD COUPLING (VERT.)	E = 1366434.12 N = 544219.47	255.85
DELETED	5+48.14	2" HD COUPLING (VERT.)	E = 1366468.72 N = 544238.94	254.38
DELETED	6+00	12" X 6" DIP TEE TO FIRE HYD. 2	E = 1366540.10 N = 544279.10	254.22
DELETED	6+25	TEST STATION #3	E = 1366530.53 N = 544291.01	
DELETED	6+38.14	4" HD COUPLING (HORIZ.)	E = 1366581.86 N = 544291.37	254.18
DELETED	6+50	2" HD COUPLING (VERT.)	E = 1366572.81 N = 544298.58	254.15
6+70	6+76	1" HD COUPLING (HORIZ.)	E = 1366602.61 N = 544320.30	254.64
7+10	7+09	1" HD COUPLING (HORIZ.)	E = 1366621.37 N = 544336.82	255.37
7+30	7+25	1" HD COUPLING (HORIZ.)	E = 1366638.93 N = 544354.62	256.20
7+50	7+45	1" HD COUPLING (HORIZ.)	E = 1366655.21 N = 544373.59	257.00
7+70	7+65	1" HD COUPLING (HORIZ.)	E = 1366670.12 N = 544393.66	257.85
7+90	7+85	1" HD COUPLING (HORIZ.)	E = 1366683.97 N = 544414.47	258.68
8+10	8+09	1" HD COUPLING (HORIZ.)	E = 1366697.08 N = 544435.76	259.50
8+30	8+29	1" HD COUPLING (VERT.)	E = 1366693.42 N = 544429.82	260.10
8+45	8+45	1" HD COUPLING (HORIZ.)	E = 1366708.67 N = 544457.91	260.21
8+65	8+65	1" HD COUPLING (HORIZ.)	E = 1366718.69 N = 544480.82	260.60
8+85	8+85	2" HD COUPLING (VERT.)	E = 1366711.88 N = 544465.25	260.72
8+85	8+75	3" HD COUPLING (HORIZ.)	E = 1366718.69 N = 544480.82	261.58

Traverse Coordinate Schedule				
Point	Northing	Easting	Elevation	Feature
2	543993.2070	1366589.9195	307.8420	X-Cut
3	544158.2959	1366581.7158	284.4800	R&C
4	544433.1989	1366728.1345	266.2120	R&C
9	544022.4584	1366130.3944	287.6846	R&C
12	544271.5469	1366582.9451	259.4840	R&C

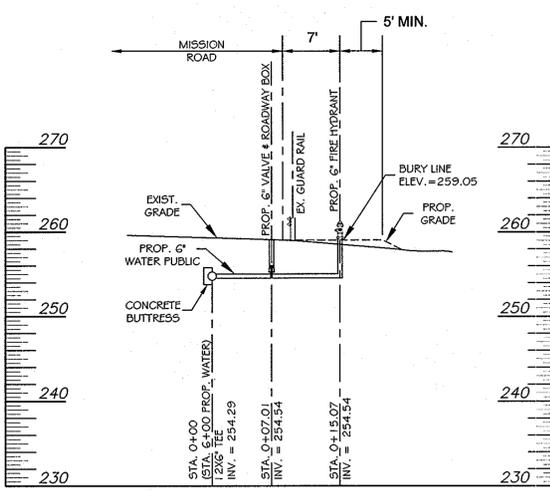
NOTE:
NO JOINT DEFLECTIONS ARE ALLOWED FOR C-900 PVC. IF A DEFLECTION IS REQUIRED, A HIGH DEFLECTION COUPLING IS REQUIRED.



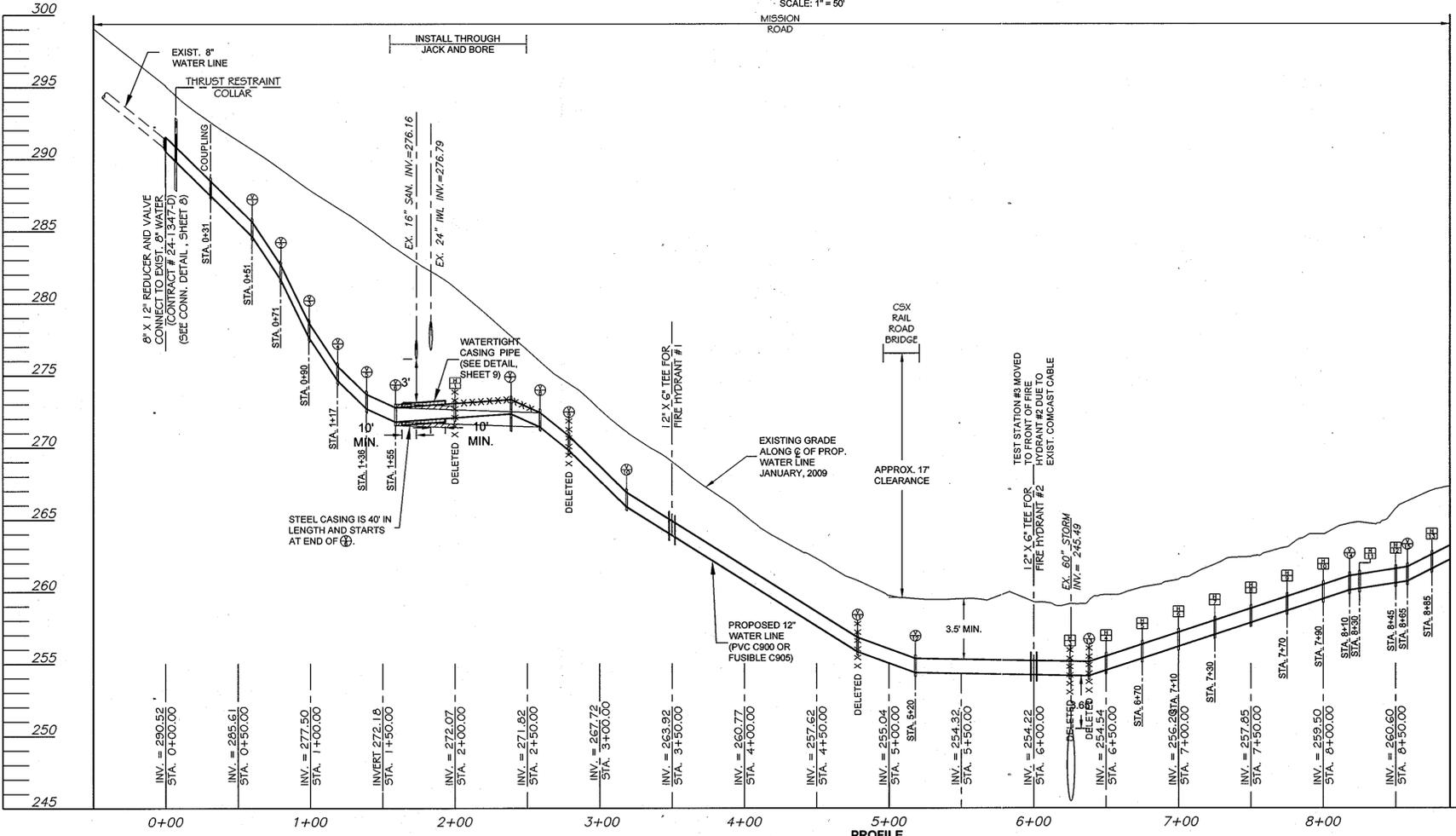
PLAN
SCALE: 1" = 50'



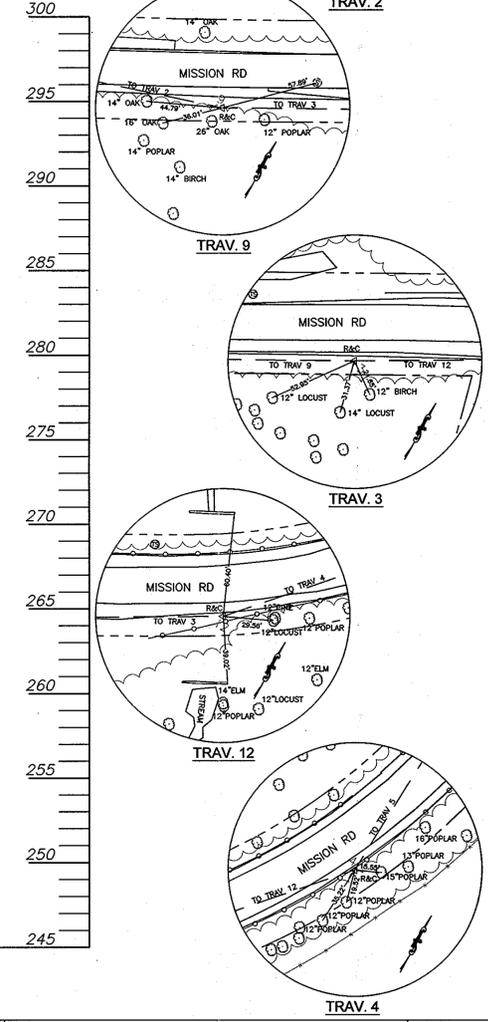
PUBLIC 6" FIRE HYDRANT #1
SCALE: 1" = 10'



PUBLIC 6" FIRE HYDRANT #2
SCALE: 1" = 10'



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



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
7/15/09
DIRECTOR OF PUBLIC WORKS
CHIEF OF BUREAU OF UTILITIES
DATE: 7/15/09
DATE: 7/15/09

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875
PEDRO R. RAMIREZ
PROFESSIONAL ENGINEER

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. 32587
Expiration Date: 01/15/10
DATE: 07/15/09

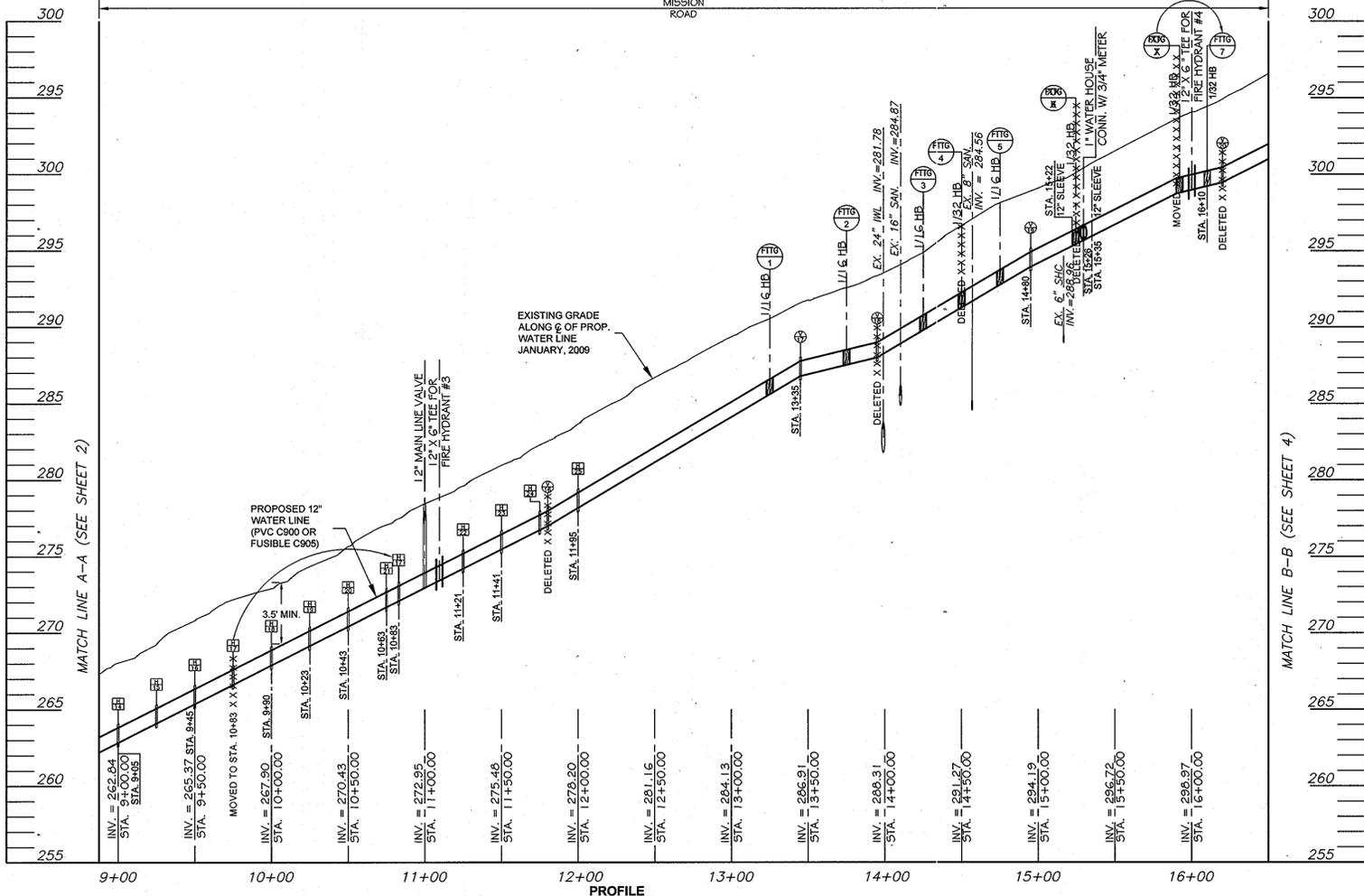
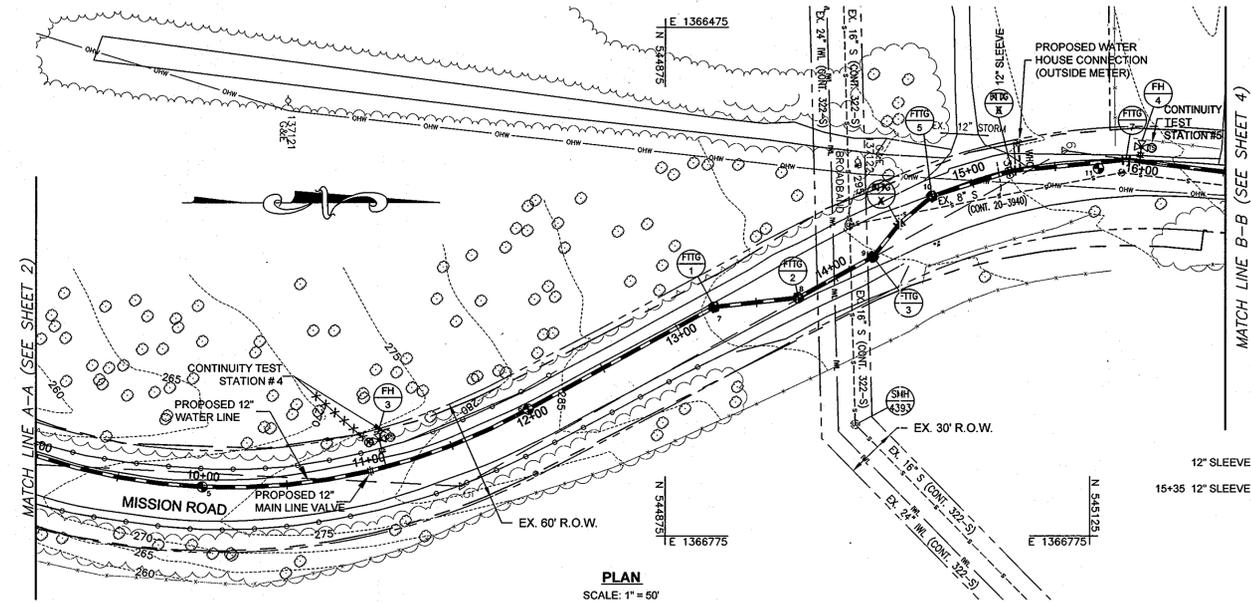
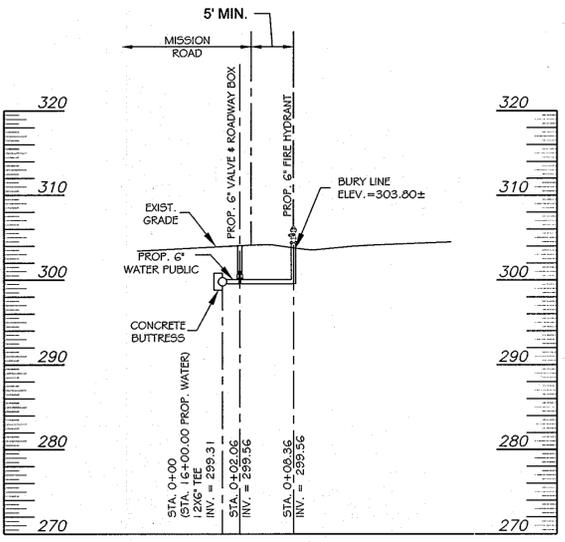
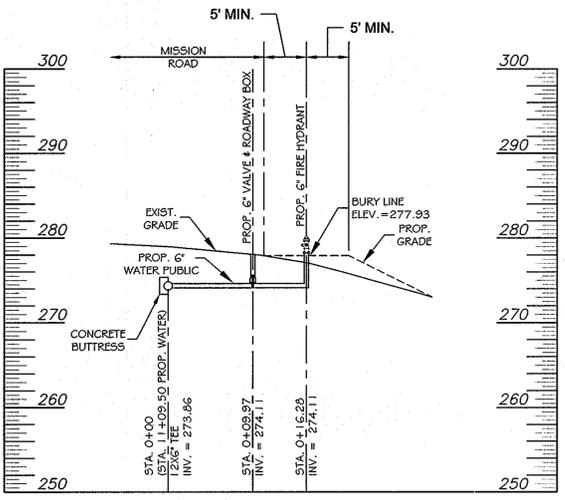
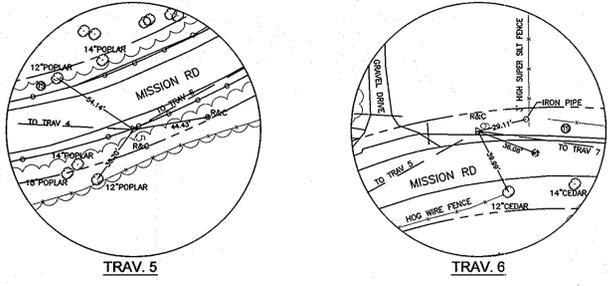
NO.	REVISION	DATE	BY

12" WATER MAIN
PLAN AND PROFILE
600' SCALE MAP NO. 43
BLOCK NO. 13

MISSION ROAD
WATER MAIN EXTENSION
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO. W-8285
CONTRACT NO. 24-4626
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN
SHEET 2 OF 11

Traverse Coordinate Schedule				
Point	Northing	Easting	Elevation	Feature
5	544754.9649	1366745.6044	281.5340	R&C
6	545109.9320	1366547.6590	301.5870	R&C

NOTES:
 NO JOINT DEFLECTIONS ARE ALLOWED FOR C-900 PVC. IF A DEFLECTION IS REQUIRED, A HIGH DEFLECTION COUPLING IS REQUIRED.
 ALL WATER HOUSE CONNECTIONS SHALL BE BUILT FOR OUTSIDE WATER METER SETTINGS. SEE WATER METER DETAIL (SHEET 8)



WATER MAIN STAKE-OUT SCHEDULE				
NEW STA.	STATION	FITTING	EASTING / NORTHING	INVERT
9+05	9+05	1\"/>		

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature] 7/15/09
 Chief, Bureau of Engineering: [Signature] 7/15/09
 Chief, Bureau of Utilities: [Signature] 7/15/09
 Chief, Utility Design Division: [Signature] PSD 7-15-09

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875



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. 32587, Expiration Date: 01/15/10

DESIGN:	DRAWN:	CHK:	DATE:	NO.	REVISION	DATE	BY
PRR	BJW	CSP	07/15/09				

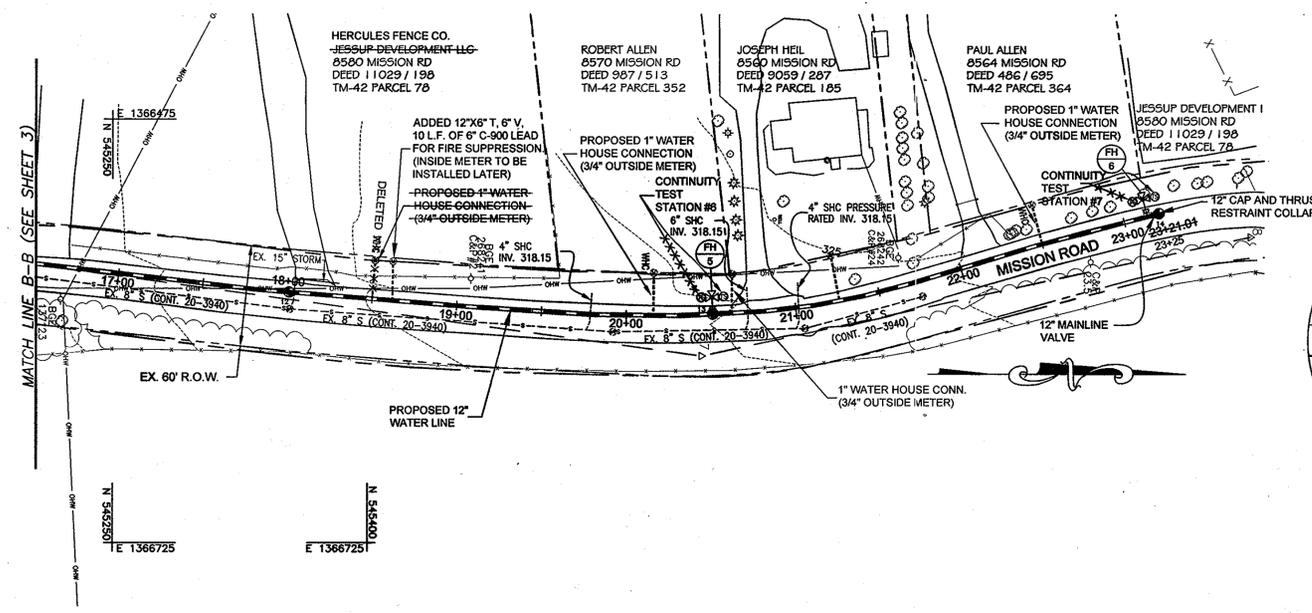
12" WATER MAIN
 PLAN AND PROFILE
 600' SCALE MAP NO. 43
 BLOCK NO. 13

MISSION ROAD
 WATER MAIN EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 CAPITAL PROJECT NO. W-8285
 CONTRACT NO. 24-4626
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

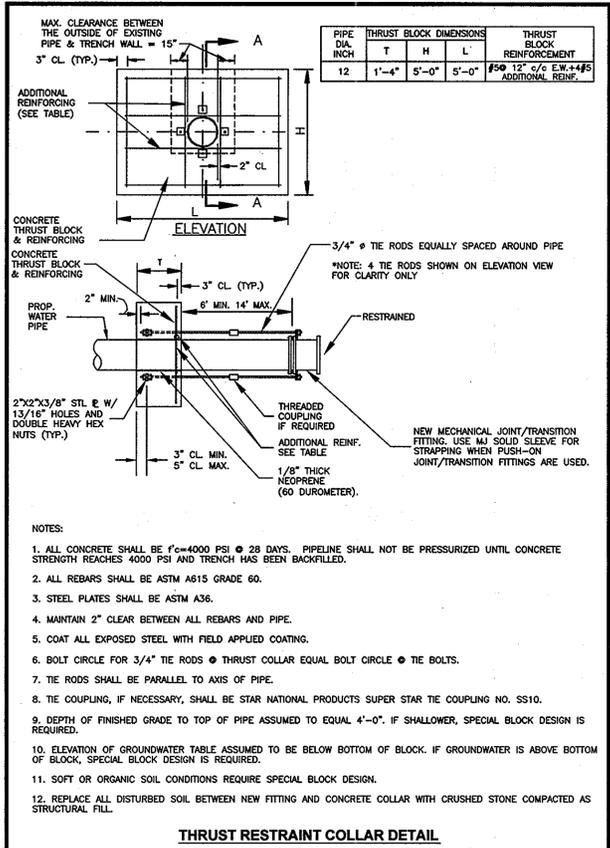
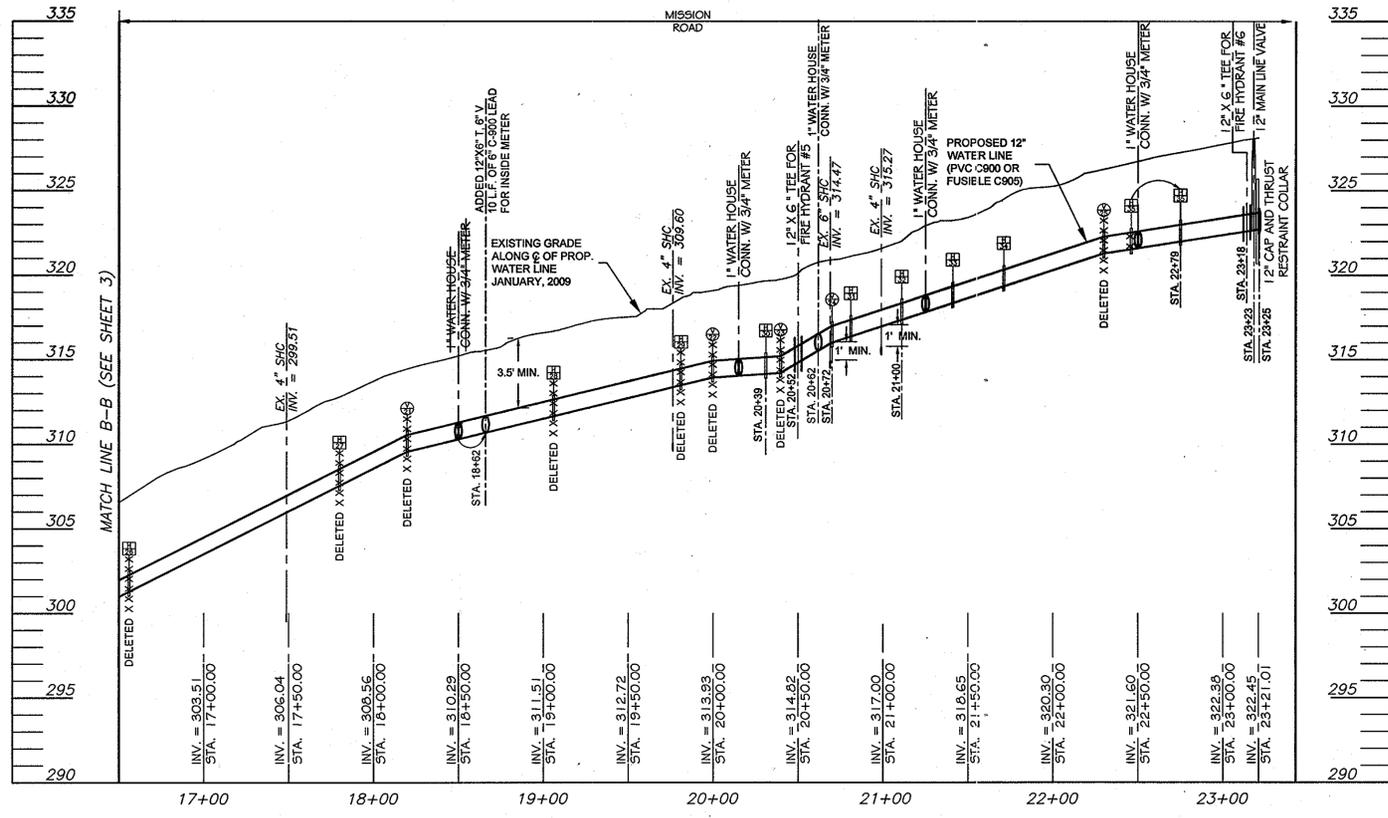
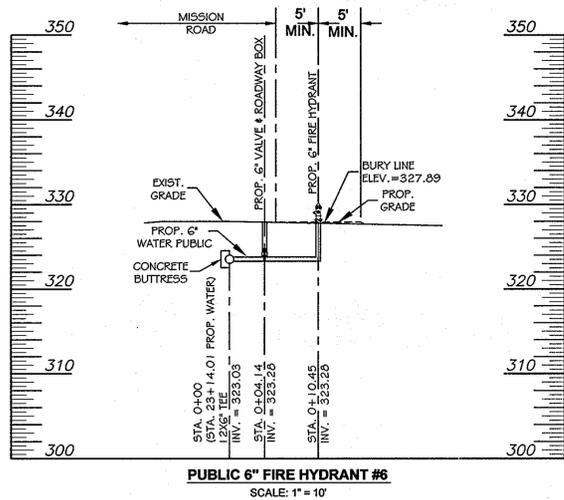
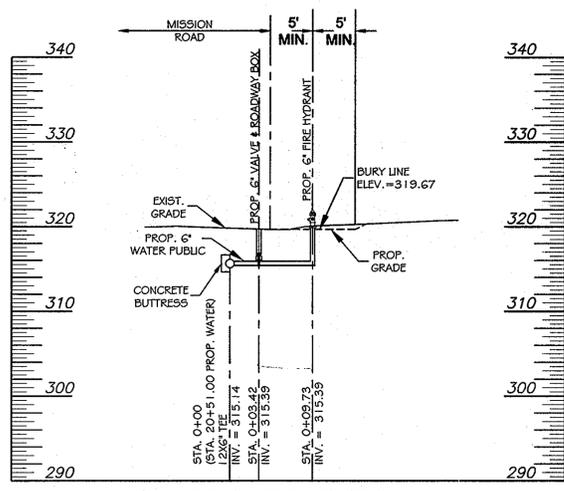
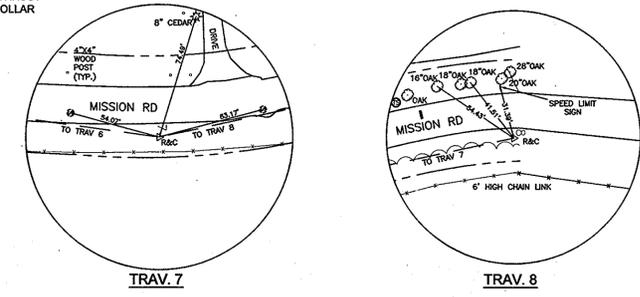
SCALE:
 AS SHOWN
 SHEET
 3 OF 11

NEW STA.	STATION	FITTING	EASTING / NORTHING	INVERT
DELETED 46+56		0.5" HD COUPLING (HORIZ.)	E = 1366580.87 N = 545209.82	301.28
DELETED 47+99		2" HD COUPLING (HORIZ.)	E = 1366575.29 N = 545333.99	307.55
DELETED 48+19.74		1.5" HD COUPLING (VERT.)	E = 1366578.41 N = 545372.59	309.56
18+62	18+50	WATER HOUSE CONNECTION	E = 1366580.85 N = 545402.75	310.29
DELETED 19+06		1" HD COUPLING (HORIZ.)	E = 1366585.37 N = 545458.58	311.66
DELETED 19+81		3" HD COUPLING (HORIZ.)	E = 1366590.11 N = 545533.43	313.48
DELETED 19+99.69		1" HD COUPLING (VERT.)	E = 1366590.31 N = 545552.11	313.93
20+16		WATER HOUSE CONNECTION	E = 1366590.49 N = 545568.43	314.05
20+39	20+31	3.5" HD COUPLING (HORIZ.)	E = 1366590.65 N = 545583.43	314.15
DELETED 20+99.68		3" HD COUPLING (VERT.)	E = 1366590.22 N = 545592.09	314.21
20+52	20+51	12" X 6" DIP TEE TO FIRE HYD. 5	E = 1366589.65 N = 545903.40	314.82
		TEST STATION # 6	E = 1366580.06 N = 545900.42	
20+72	20+70	1.5" HD COUPLING (VERT.)	E = 1366588.70 N = 545622.37	316.00
20+81		4" HD COUPLING (HORIZ.)	E = 1366588.15 N = 545633.36	316.37
21+00	21+11	4" HD COUPLING (HORIZ.)	E = 1366584.56 N = 545663.15	317.36
21+25		WATER HOUSE CONNECTION	E = 1366581.73 N = 545677.88	317.82
21+41		4" HD COUPLING (HORIZ.)	E = 1366578.90 N = 545692.61	318.35
21+71		2" HD COUPLING (HORIZ.)	E = 1366571.20 N = 545727.60	319.34
DELETED 22+99.89		1" HD COUPLING (VERT.)	E = 1366554.11 N = 545777.94	321.29
22+79	22+46	2" HD COUPLING (HORIZ.)	E = 1366549.42 N = 545793.38	321.54
		WATER HOUSE CONNECTION	E = 1366548.40 N = 545797.23	321.60
23+18	23+14	12" X 6" DIP TEE TO FIRE HYD. 6	E = 1366531.97 N = 545859.09	322.60
		TEST STATION # 7	E = 1366522.51 N = 545853.99	
23+23	23+16	12" MAIN LINE VALVE	E = 1366530.94 N = 545862.95	322.66
23+25	23+24	12" CAP AND BUTTRESS	E = 1366530.17 N = 545865.86	322.66

NOTES:
 NO JOINT DEFLECTIONS ARE ALLOWED FOR C-900 PVC. IF A DEFLECTION IS REQUIRED, A HIGH DEFLECTION COUPLING IS REQUIRED.
 ALL WATER HOUSE CONNECTIONS SHALL BE BUILT FOR OUTSIDE WATER METER SETTINGS. SEE WATER METER DETAIL (SHEET 8)



Point	Northing	Easting	Elevation	Feature
7	545596.7030	1366614.5270	319.1590	R&C
8	545919.6647	1366544.1525	328.3100	R&C



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature] 7/15/09
 Chief, Bureau of Engineering: [Signature] 7/15/09
 Chief, Bureau of Utilities: [Signature] 7/15/09
 Chief, Utility Design Division: [Signature] 7-15-09

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875

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. 32587, Expiration Date: 01/15/10
 PEDRO R. RAMIREZ

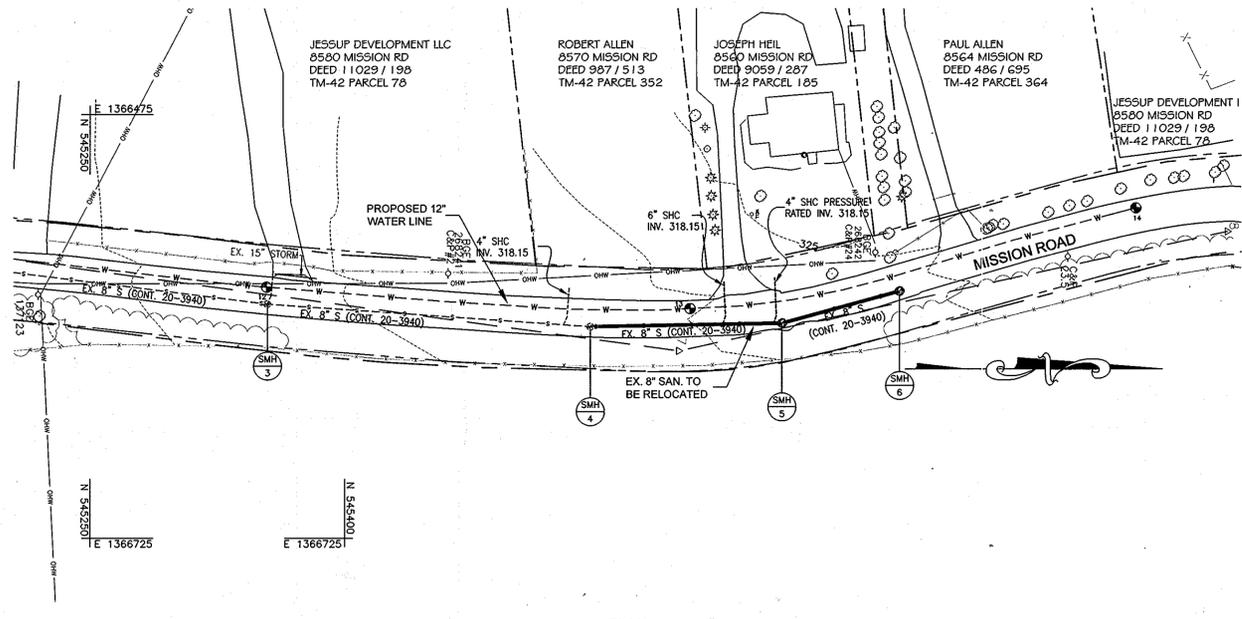
DESIGN: PRR				
DRAWN: BJW				
CHK: CSP				
DATE: 07/15/09				

MISSION ROAD
 WATER MAIN EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 CAPITAL PROJECT NO. W-8285
 CONTRACT NO. 24-4626
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

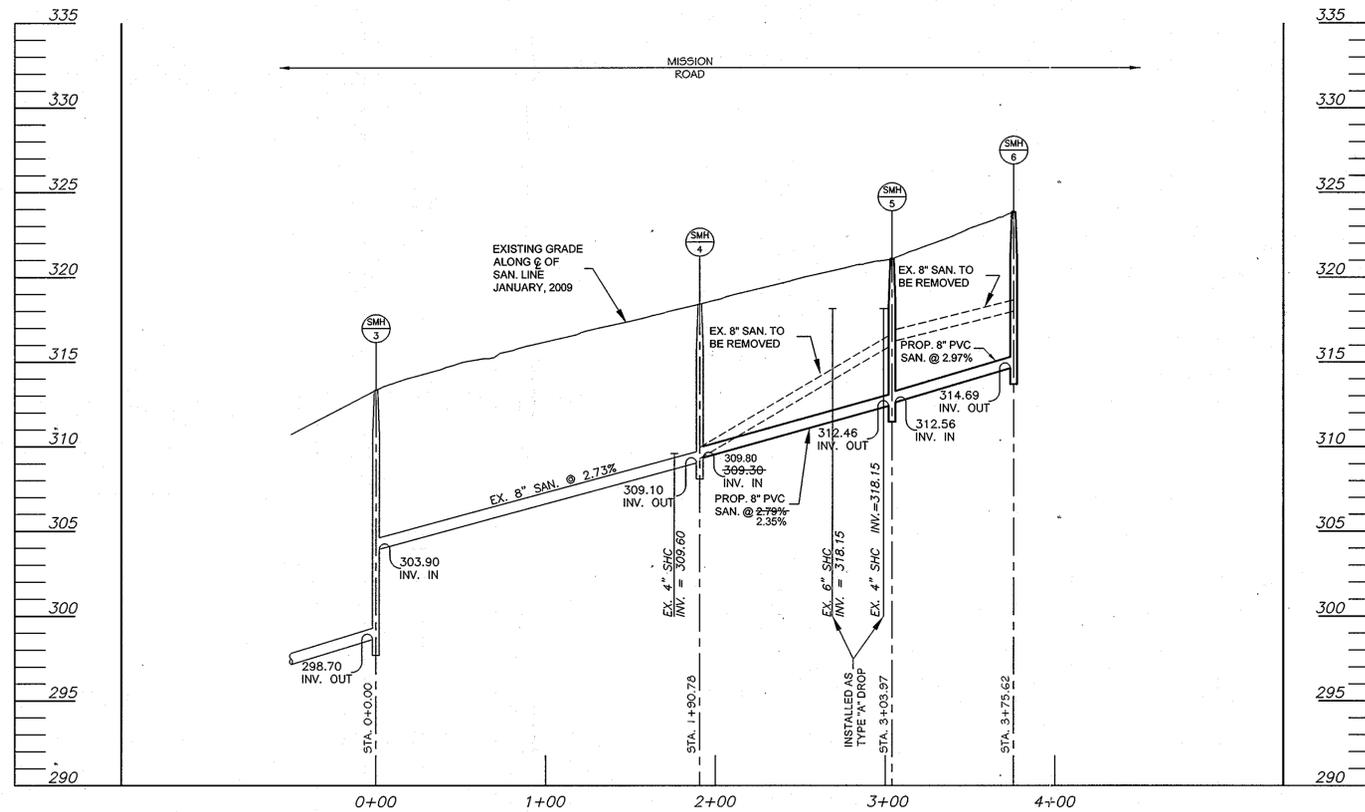
SCALE: AS SHOWN
 SHEET 4 OF 11

600' SCALE MAP NO. 43
 BLOCK NO. 13

SANITARY SEWER STAKE-OUT SCHEDULE		
STATION	MANHOLE	EASTING / NORTHING
0+00	SMH 3	E = 1366586.86 N = 545354.25
1+90.78	SMH 4	E = 1366600.25 N = 545544.66
3+03.97	SMH 5	E = 1366598.21 N = 545667.74
3+75.62	SMH 6	E = 1366579.35 N = 545726.86



PLAN
SCALE: 1" = 50'



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

GENERAL CONSTRUCTION NOTES

1. THE COST OF CONNECTING TO EXISTING SEWER AND/OR MANHOLES, INCLUDING THE CONSTRUCTION OF A NEW CHANNEL OR MODIFICATION OF AN EXISTING CHANNEL, IS CONSIDERED INCIDENTAL AND WILL BE INCLUDED IN THE UNIT PRICE BID FOR SANITARY SEWER PIPE.
 2. WHEN CONNECTING TO ANY EXISTING MANHOLE, THE MANHOLE MUST BE CORE DRILLED, THE INVERT CHANNEL FORMED AND A FIELD GASKET CONNECTOR SUCH AS "A-LOCK" CONNECTOR, OR APPROVED EQUAL, MUST BE INSTALLED TO SECURE THE NEW SEWER TO THE EXISTING MANHOLE. ALL COSTS TO BE INCLUDED IN THE UNIT PRICE BID FOR PIPE OR MANHOLE.
 3. THE COST FOR CONSTRUCTION UNDER AND/OR OVER ANY EXISTING UTILITIES AND UTILITY SERVICE HOUSE CONNECTIONS INCLUDING GAS, ELECTRIC, CABLE, STORM DRAINS, WATER, AND SEWER SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SANITARY SEWER PIPE.
 4. SEWAGE FLOW IN EXISTING SEWER AND HOUSE CONNECTIONS IS TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. AT NO TIME WILL IT BE PERMITTED FOR SEWAGE TO BE DISCHARGED ONTO THE GROUND OR INTO ANY STREAMS. ALL COSTS TO MAINTAIN FLOW ARE TO BE INCLUDED IN THE UNIT PRICE BID FOR SANITARY SEWER PIPE.
 5. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT POSSIBLE. CONTRACTOR TO REMOVE THE STUMPS AND ROOTS OF ANY TREE OR SHRUB THAT NEEDS REMOVAL. ANY EXISTING STUMPS WITHIN THE LIMIT OF DISTURBANCE ALSO WILL BE REMOVED. ALL COSTS FOR REMOVAL OF TREES, SHRUBS, STUMPS, ETC. WILL BE INCLUDED IN THE UNIT PRICE BID FOR SANITARY SEWER PIPE.
 6. THE EXISTING UTILITIES AND OTHER EXISTING FEATURES SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND THE ACCURACY AND COMPLETENESS OF THIS INFORMATION IS NOT GUARANTEED. THIS INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR TO HIS SATISFACTION PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND SHALL MAINTAIN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE.
 7. UNDERGROUND UTILITIES (ELECTRIC, WATER, ETC.) MAY, OR MAY NOT, EXIST ON THE HOMEOWNERS PROPERTY. THE LOCATION OF THESE SERVICES ARE UNKNOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGING THESE SERVICES. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE.
 8. CONTRACTOR SHALL CONTACT "MISS UTILITIES" AT LEAST 5 WORKING DAYS PRIOR TO START UP.
 9. LOCATIONS OF HOUSE CONNECTIONS ARE TAKEN FROM HOWARD COUNTY AS-BUILT DRAWINGS AND ARE NOT GUARANTEED. CONTRACTOR TO VERIFY LOCATIONS OF HOUSE CONNECTIONS IN THE FIELD. ALL EXIST. HOUSE CONNECTIONS ARE TO BE CONNECTED TO THE NEW 8" SEWER. EXISTING HOUSE CONNECTIONS MUST REMAIN IN SERVICE AT ALL TIMES. EXISTING SEWER HOUSE CONNECTIONS TO BE REPLACED WITH SAME PIPE TYPE AND DIAMETER UNLESS OTHERWISE NOTED OR APPROVED BY THE COUNTY.
- ALL COSTS, INCLUDING BUT NOT LIMITED TO THE COST OF REMOVAL & DISPOSAL OF EXISTING PIPE, INSTALLATION OF NEW PIPE, MAINTAINING SEWER FLOW, CONNECTING TO EXIST. HOUSE CONNECTIONS, & ANY OTHER RELATED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHC.
10. CONTRACTOR TO REMOVE EXISTING 8" SEWER BETWEEN MANHOLES SMH 4, SMH 5 AND SMH 6, AND REPLACE WITH 8" PVC IN THE SAME HORIZONTAL LOCATION AND AT THE GRADE SHOWN. SEWER MUST REMAIN IN SERVICE AT ALL TIMES.
- ALL COSTS, INCLUDING BUT NOT LIMITED TO THE COST OF REMOVAL & DISPOSAL OF EXISTING PIPE, INSTALLATION OF NEW PIPE, MAINTAINING SEWER FLOW, CONNECTING NEW PIPE TO EXIST. MANHOLES, & ANY OTHER RELATED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 8" PVC.
11. FULL TRENCH COMPACTION TO BE USED THROUGHOUT THE ENTIRE LIMITS OF THIS PROJECT.
 12. APPROXIMATE PEAK FLOW = 0.5 M.G.D.
 13. CONTRACTOR SHALL NOTIFY RESIDENTS AT LEAST 5 WORKING DAYS PRIOR TO BEGINNING WORK ON THE SANITARY SEWER.
 14. SANITARY SEWER RELOCATION MUST BE COMPLETED WITHIN 8 HOURS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

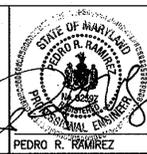
Ja n b 7/15/09
DIRECTOR OF PUBLIC WORKS DATE

Red Henson 7/15/09
CHIEF, BUREAU OF ENGINEERING DATE

Mark Williams 7/15/09
CHIEF, BUREAU OF UTILITIES DATE

Chad 7-15-09
CHIEF, UTILITY DESIGN DIVISION DATE

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875



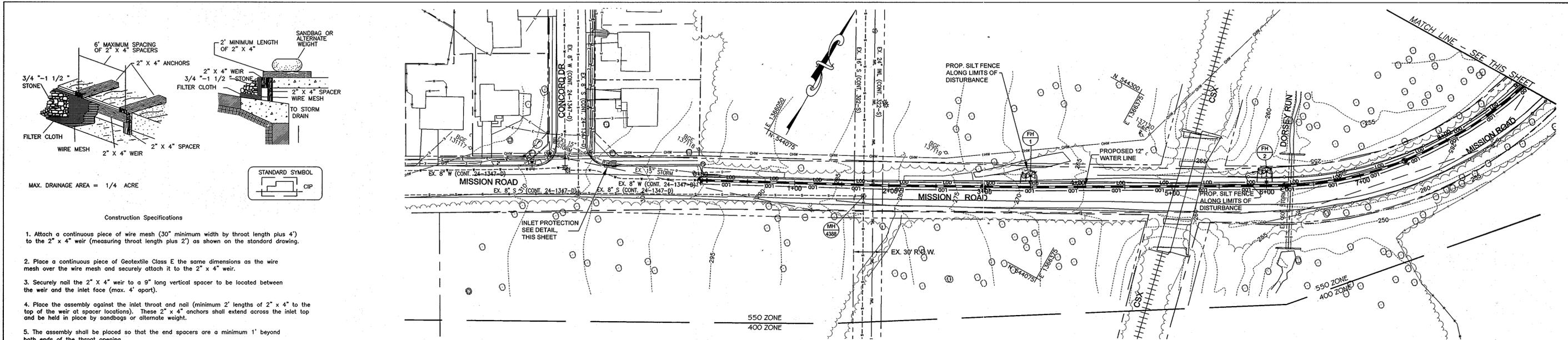
Professional Certification
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 32597, Expiration Date: 01/15/10

DESIGN: PRR					
DRAWN: BJW					
CHK: CSP					
DATE: 07/15/09	NO.	REVISION	DATE	BY	

8" SANITARY SEWER
PLAN AND PROFILE

MISSION ROAD
WATER MAIN EXTENSION
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO. W-8285
CONTRACT NO. 24-4626
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

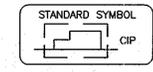
SCALE:
AS SHOWN
SHEET
5 OF 11



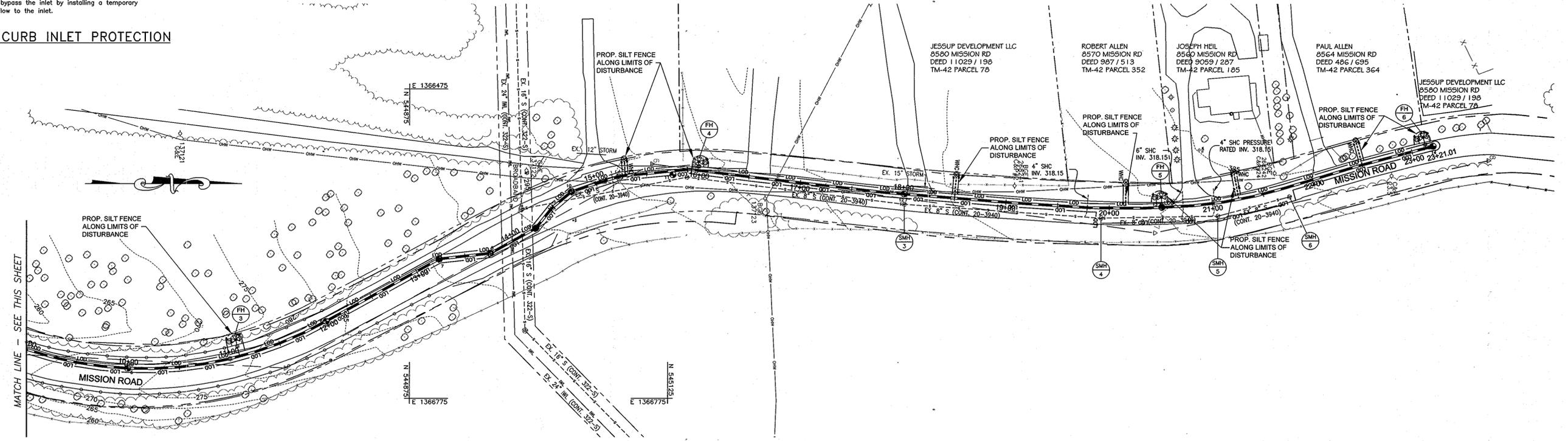
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.



TYPICAL CURB INLET PROTECTION



PLAN SCALE: 1" = 50'

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

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

SOIL CONSERVATION DISTRICT	DATE	U.S. SOIL CONSERVATION DISTRICT	DATE
DEPARTMENT OF PUBLIC WORKS			
HOWARD COUNTY, MARYLAND			
<i>[Signature]</i>	7/15/09	<i>[Signature]</i>	7/15/09
DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
<i>[Signature]</i>	7/15/09	<i>[Signature]</i>	7-15-09
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875

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. 32587, Expiration Date: 01/15/10

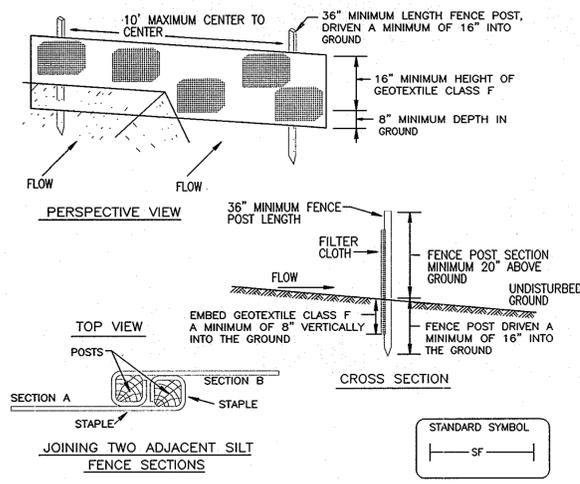
[Signature]
 PEDRO R. RAMIREZ

DESIGN: PRR					
DRAWN: BJW					
CHK: CSP					
DATE: 07/15/09	NO.	REVISION	DATE	BY	

EROSION AND SEDIMENT CONTROL
 600' SCALE MAP NO. 43
 BLOCK NO. 13

MISSION ROAD
 WATER MAIN EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 CAPITAL PROJECT NO. W-8285
 CONTRACT NO. 24-4626
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 6 OF 11



HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. 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 (410) 313-1855.
2. 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.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR 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 AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. 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.
5. 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 FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. 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.

7. SITE ANALYSIS:

TOTAL AREA OF SITE .475 ACRES
 AREA DISTURBED .475 ACRES
 AREA TO BE ROOFED OR PAVED 0 ACRES
 AREA TO BE VEGETATIVELY STABILIZED 0 ACRES
 TOTAL CUT 0 CU. YDS.
 TOTAL FILL 0 CU. YDS.
 OFF-SITE WASTE/BORROW AREA LOCATION: N/A

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. 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.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

SEQUENCE OF CONSTRUCTION

1. OBTAIN ALL REQUIRED PERMITS AND APPROVALS FROM APPROPRIATE AGENCIES. OBTAIN GRADING PERMIT PRIOR TO STARTING CONSTRUCTION.
2. NOTIFY HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION - SEDIMENT CONTROL (410)313-1855 SEVEN DAYS PRIOR TO STARTING CONSTRUCTION.
3. NOTIFY MDE INSPECTION AND COMPLIANCE (410) 537-3510 7 DAYS PRIOR TO STARTING CONSTRUCTION.
4. INSTALL SEDIMENT CONTROL DEVICES.
5. ESTABLISH TRAFFIC CONTROL DEVICES AS NEEDED.
6. RELOCATE SEWER LINE AND INSTALL SEWER HOUSE CONNECTIONS (SEE GENERAL CONSTRUCTION NOTE SHEETS).
7. INSTALL NEW THRUST COLLAR ON EXISTING WATER MAIN.
8. INSTALL PROPOSED WATER MAIN, FIRE HYDRANTS AND WATER HOUSE CONNECTIONS. CONTRACTOR TO COORDINATE WATER METER LOCATION WITH HOME OWNER. LOCATION OF WATER METER AND WATER HOUSE CONNECTION IS SUBJECT TO APPROVAL BY THE COUNTY.
9. PERFORM HYDROSTATIC PRESSURE AND LEAK TEST ON INSTALLED WATER MAIN AS PER THE LATEST EDITION OF THE HOWARD COUNTY VOLUME IV DESIGN MANUAL.
10. DISINFECT AND BACTERIA TEST THE INSTALLED WATER MAIN. SEE HOWARD COUNTY VOLUME IV DESIGN MANUAL SECTIONS 1007 AND 1008.
11. FLUSH NEW WATER MAIN IN PREPARATION FOR CONNECTION.
12. CONNECTION THE WATER MAIN TO THE EXISTING WATER MAIN.
13. CONTACT HOWARD COUNTY BUREAU OF UTILITIES (410) 313-4900 TO COORDINATE CLOSING OF VALVE UPSTREAM OF CONNECTION POINT. CONTRACTOR MUST COORDINATE CLOSING OF VALVE A MINIMUM OF 72 HOURS IN ADVANCE.
14. CHECK CONNECTIONS FOR LEAKS.
15. PERFORM CLEAN-UP AND RESTORATION.
16. REMOVE TRAFFIC CONTROL DEVICES.
17. UPON APPROVAL FROM THE COUNTY, REMOVE SEDIMENT CONTROL DEVICES.

HOWARD SOIL CONSERVATION DISTRICT 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 loosened.

Soil Amendments : In lieu of soil test recommendations, use one of the following schedules :

1. Preferred -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/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/acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/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 -- April 30, and August 1 -- October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue.

For the period May 1 -- July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass.

During the period of October 16 -- February 28, protect site by:

- Option 1 -- Two 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/acre Kentucky 30 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 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re-disturbed 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 loosened.

Soil Amendments : -- Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding: -- For periods March 1 -- April 30 and from August 15 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 -- February 28, protect site by applying 2 tons/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/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 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 additional rates and methods not covered.

SEDIMENT CONTROL CERTIFICATIONS

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 periodic on-site inspection by the Howard Soil Conservation District."

Paul R. Ramirez 7/15/09
 Bureau of Engineering Date
 Department of Public Works

Engineer's Certification:

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Paul R. Ramirez 7/23/09
 Signature of Engineer Date
 Pedro R. Ramirez, P.E.

Howard Soil Conservation District:

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.
John R. Robinson 7/22/09
 Howard SCD Date

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs./in. (min.)	Test: MSMT 509
Tensile Modulus	20 lbs./in. (min.)	Test: MSMT 509
Flow Rate	0.3 gal. ft./minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note:
 In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

SILT FENCE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

John R. Robinson 7/15/09
 DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING

Paul R. Ramirez 7/15/09
 CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DESIGN DIVISION

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875

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. 32597, Expiration Date: 01/15/10

Pedro R. Ramirez
 PEDRO R. RAMIREZ

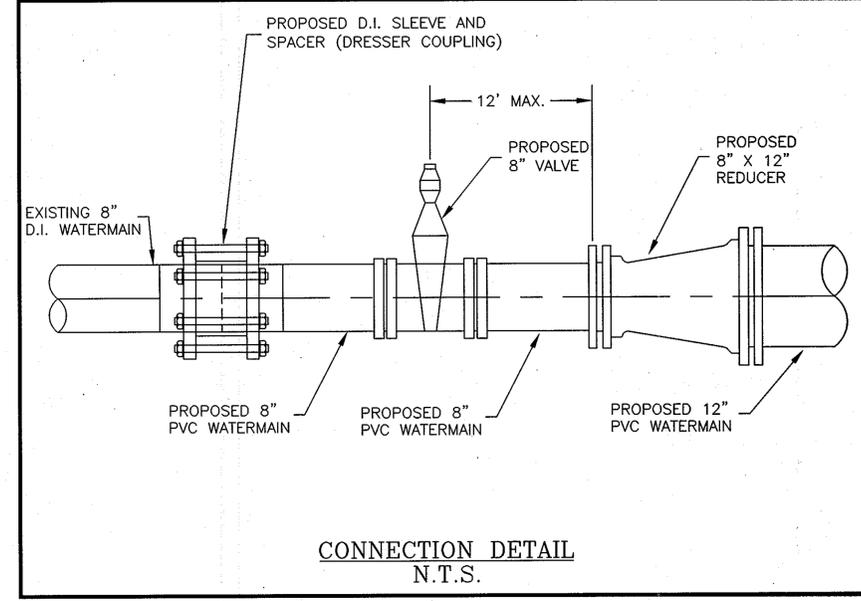
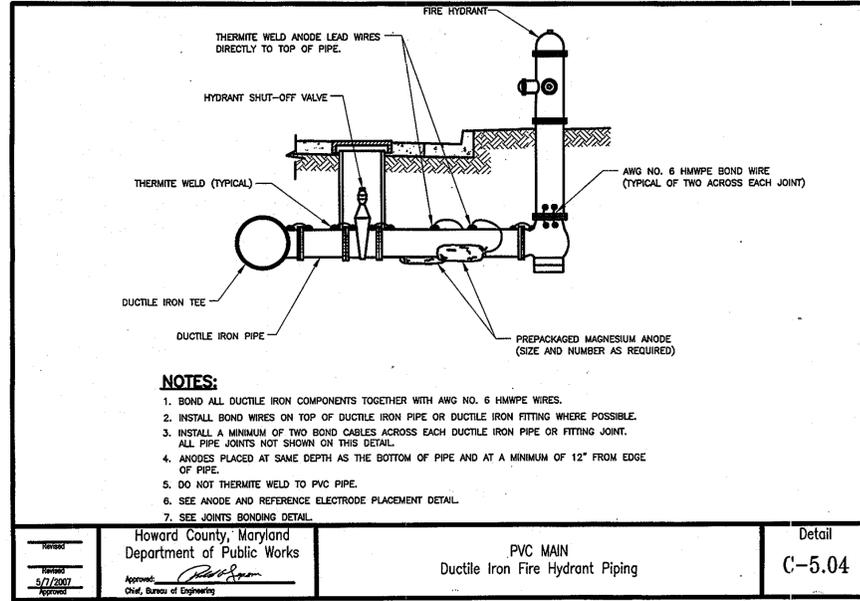
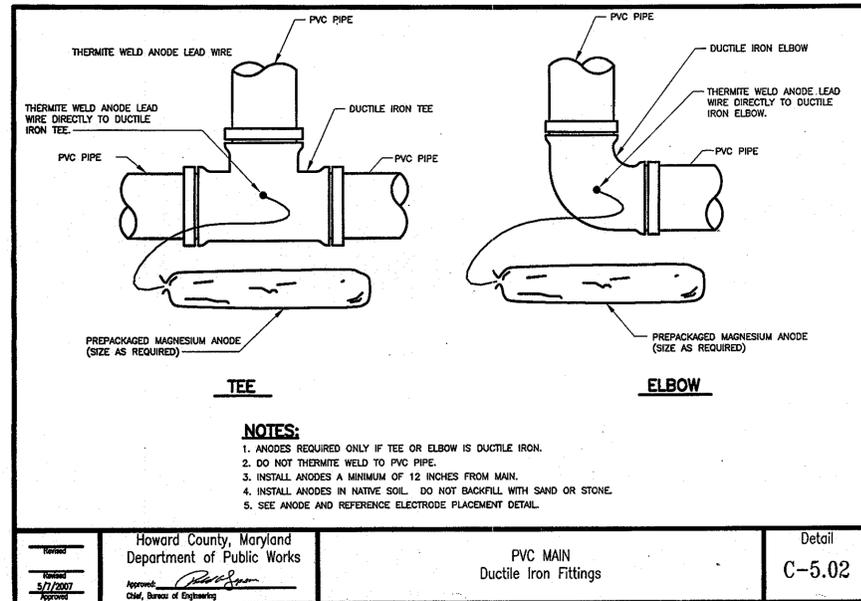
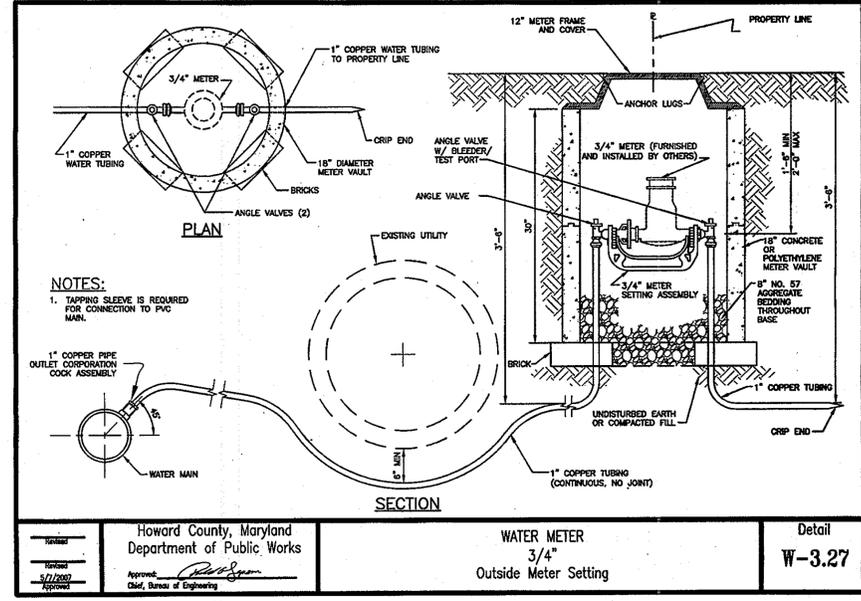
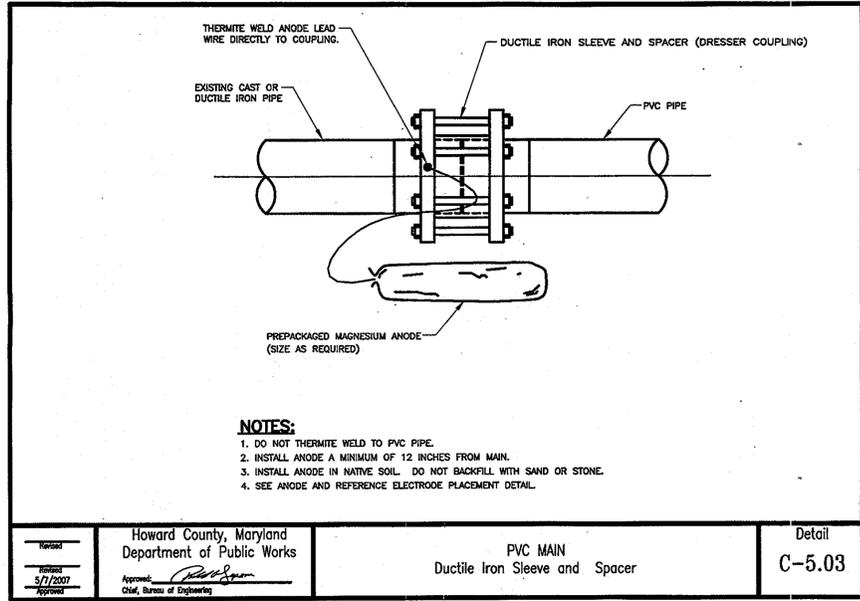
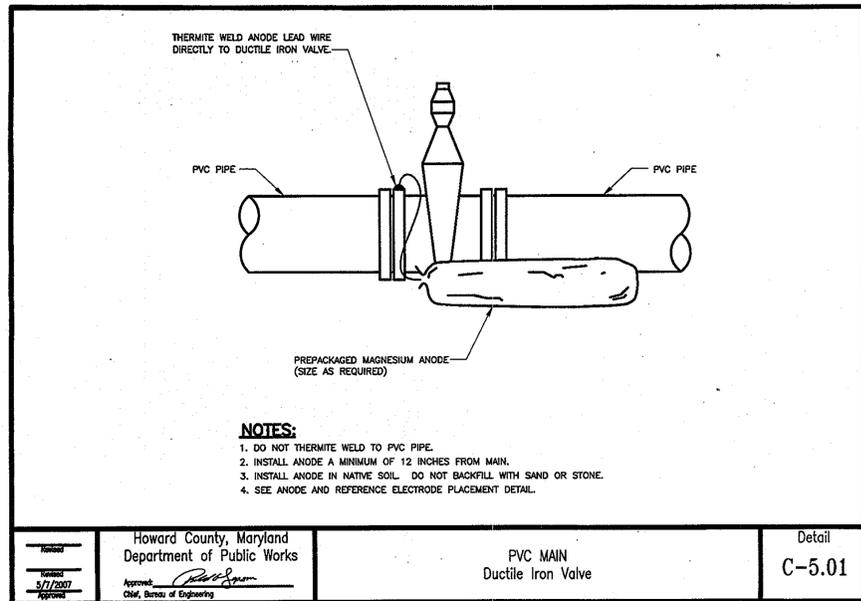
DESIGN: PRR					
DRAWN: BJW					
CHK: CSP					
DATE: 07/15/09	NO.	REVISION	DATE	BY	

EROSION & SEDIMENT CONTROL DETAILS

600' SCALE MAP NO. 43 BLOCK NO. 13

MISSION ROAD
 WATER MAIN EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 CAPITAL PROJECT NO. W-8285
 CONTRACT NO. 24-4626
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 7 OF 11



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 7/15/02
 DIRECTOR OF PUBLIC WORKS DATE
[Signature] 7/15/02
 CHIEF, BUREAU OF ENGINEERING DATE
[Signature] 7/15/02
 CHIEF, BUREAU OF UTILITIES DATE
 CHIEF, UTILITY DESIGN DIVISION PSD

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875

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. 32597, Expiration Date: 01/15/10

PEDRO R. RAMIREZ

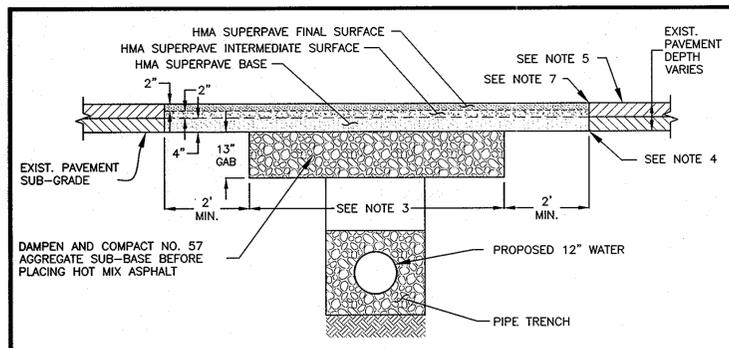
DESIGN: PRR					
DRAWN: BJW					
CHK: CSP					
DATE 07/15/09	NO.	REVISION	DATE	BY	

MISCELLANEOUS DETAILS

600' SCALE MAP NO. 43 BLOCK NO. 13

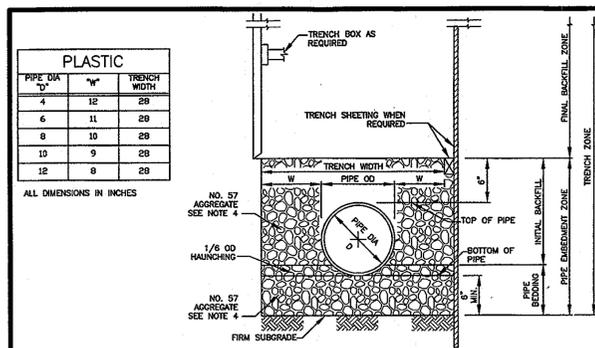
MISSION ROAD
 WATER MAIN EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 CAPITAL PROJECT NO. W-8285
 CONTRACT NO. 24-4626
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 8 OF 11



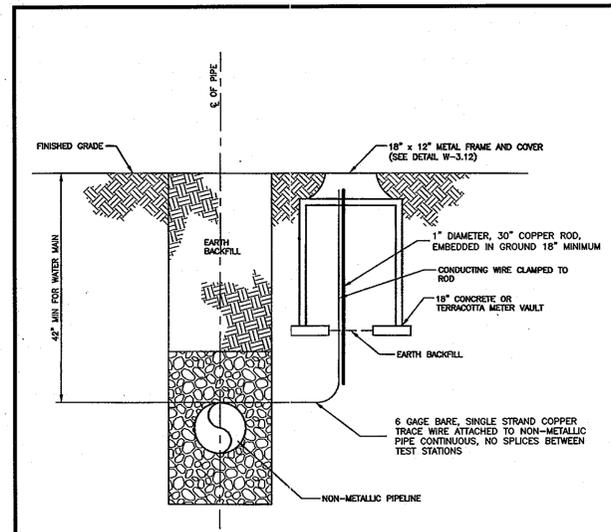
- NOTES:**
- WHEREVER A TRENCH CROSSES A CONCRETE ROADWAY THAT HAS JOINT INSTALLATIONS THE ENTIRE SLAB BETWEEN THE EDGE OF THE TRENCH AND THE NEAREST JOINT SHALL BE REMOVED IF THE DISTANCE IS LESS THAN 10 FEET.
 - CLEAN AND WET EDGES OF CUT AND SUBGRADE BEFORE PLACING CONCRETE.
 - AGGREGATE SUB-BASE WIDTH SHALL BE 6 FT MINIMUM OR ACTUAL TRENCH WIDTH, WHICHEVER IS GREATER.
 - CLEAN EXPOSED VERTICAL SURFACE OF ADJACENT PAVEMENT AND PLACE TACK COAT ON ALL VERTICAL SURFACES PRIOR TO PLACING HMA.
 - IF THE REMAINING EXISTING PAVEMENT IS LESS THAN 4' WIDE, THE RESIDUAL PAVEMENT SHALL BE REMOVED IN ITS ENTIRETY AND REPLACED.
 - CONCRETE REPLACEMENT SHALL BE 10" MINIMUM MIX NO. 6.
 - SAW CUT FULL DEPTH ALL JOINTS OF EXISTING CONCRETE, BITUMINOUS AND BASE PAVEMENTS.
 - TOTAL REPAIR WIDTH SHALL BE EQUAL TO THE LANE WIDTH IN ACCORDANCE WITH THE SPECIFICATIONS

UTILITY TRENCH ROADWAY REPAVING
SCALE: 1/2" = 1'

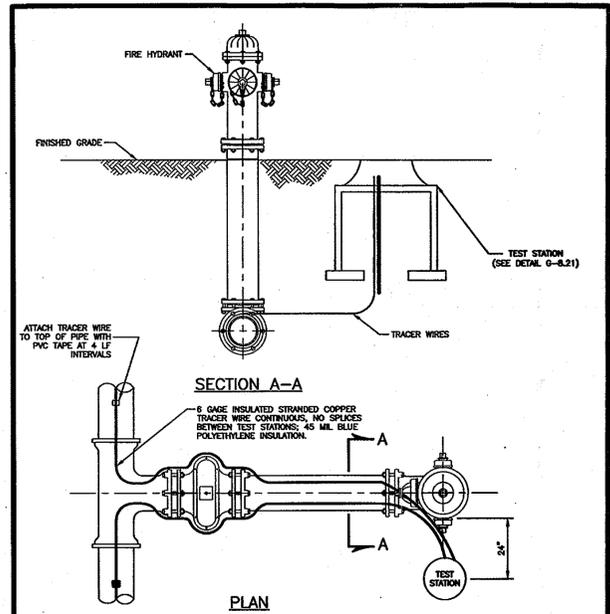


- PLASTIC**
- | PIPE DIA "D" | "W" | TRENCH WIDTH |
|--------------|-----|--------------|
| 4 | 12 | 28 |
| 6 | 11 | 28 |
| 8 | 10 | 28 |
| 10 | 9 | 28 |
| 12 | 8 | 28 |
- ALL DIMENSIONS IN INCHES
- NOTES:**
- THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
 - FOR TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS NOT REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN.
 - FOR TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN PLUS 24 INCHES.
 - FOR COPPER, PVC AND HDPE PIPE, 3 INCHES OR SMALLER: PIPE EMBEDMENT ZONE MATERIAL IS FINE AGGREGATE (SAND) UNDER PIPE IS 4" MINIMUM. FOR TRENCHES IN ROCK, MINIMUM BEDDING THICKNESS IS 6 INCHES.
 - SPECIAL DESIGN IS REQUIRED AND SHALL BE SPECIFIED OR DETAILED IN THE CONTRACT DOCUMENTS FOR THE FOLLOWING PIPES:
PVC AWWA C-905 LARGER THAN 12 INCHES
PVC SANITARY SEWERS LARGER THAN 12 INCHES
HDPE CORRUGATED DRAIN PIPE
STREAM CROSSINGS SEE DETAILS S-3.11 AND S-3.12

Howards	Howard County, Maryland Department of Public Works	Pipe Trench Plastic & Copper	Detail G-2.12
Revised	Approved: <i>[Signature]</i> Chief, Bureau of Engineering		
5/7/2007			



- NOTES:**
- TEST STATION SHALL BE INSTALLED IN NON-Traffic BEARING AREAS. DO NOT INSTALL IN ROADWAY.
 - SEE DETAIL G-2.11 & G-2.12 FOR TRENCH BEDDING INFORMATION.
- CONTINUITY TEST STATION**
N.T.S.

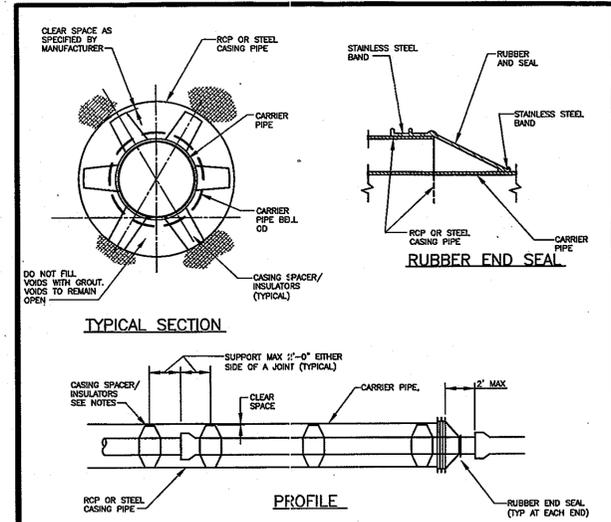


- NOTES:**
- TEST STATION MUST BE PLACED TO THE RIGHT OR LEFT SIDE OF THE FIRE HYDRANT.
 - VALVE VAULT FRAME AND COVER TO BE SET FLUSH WITH FINAL GRADE.
 - BUTTRESSES AND STRAPPING NOT SHOWN FOR CLARITY.

Howards	Howard County, Maryland Department of Public Works	FIRE HYDRANT Continuity Test Station	Detail W-1.15
Revised	Approved: <i>[Signature]</i> Chief, Bureau of Engineering		
5/7/2007			

Paving Section Number	Road and Street Classification	California Bearing Ratio (CBR)	
		Pavement Material (inches)	3 TO <5 Min. HMA with GAB
P - 4	MINOR COLLECTORS: NON-RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE	2.0
		12.5 MM, PG 64-22, LEVEL 2 (LOW ESAL)	
		HMA SUPERPAVE INTERMEDIATE SURFACE	2.0
		12.5 MM, PG 64-22, LEVEL 2 (LOW ESAL)	
		HMA SUPERPAVE BASE	4.0
19.0 MM, PG 64-22, LEVEL 2 (LOW ESAL)			
		GRADED AGGREGATE BASE (GAB)	13.0

- NOTES:**
- HMA SUPERPAVE LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED LIFT THICKNESS:
19.0 MM BASE (2.0" MIN. TO 4.0" MAX.)
12.5 MM SURFACE (1.5" MIN. TO 3.0" MAX.)
9.5 MM SURFACE (1.0" MIN. TO 2.0" MAX.)
 - GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED IN 6" MAX. COMPACTED THICKNESS LAYERS.
 - THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 2 WEEKS OF PLACEMENT OF BASE COURSE AND IS REQUIRED PRIOR TO SUBSTANTIAL COMPLETION INSPECTION AND BOND REDUCTION.
 - IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL / INDUSTRIAL ENTRANCE APRONS WITHIN THE COUNTY RIGHT-OF-WAY WHERE AUXILIARY LANES ARE NOT REQUIRED, THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER.
 - THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CRB VALUE FOR EACH ROADWAY.



- NOTES:**
- MATERIAL AND INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE W/SPECIFICATION SECTION 963 AND 1012.
 - FOR WATER AND SEWER MAIN, THE MINIMUM STEEL CASING DIAMETER SHALL BE 36" WITH A MINIMUM WALL THICKNESS OF 1/2". JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
 - REINFORCED CONCRETE CASING SHALL BE MINIMUM STRENGTH CLASS V MINIMUM THICKNESS WALL B, WITH RUBBER JOINTS.
 - CASING SPACER/INSULATORS SHALL BE AS SPECIFIED, OR AS APPROVED BY THE COUNTY FOR INSERTING, SUPPORTING, SPACING AND INSULATING THE CARRIER PIPE.
 - A MINIMUM OF 3 SPACER/INSULATORS PER PIPE LENGTH SHALL BE SPACED PER MANUFACTURER'S RECOMMENDATIONS FOR THE PARTICULAR CASING AND CARRIER PIPES SPECIFIED.
 - A JOINT IN THE CARRIER PIPE SHALL BE PROVIDED WITHIN 2 FEET OF EACH OUTSIDE END OF CASING.

Howards	Howard County, Maryland Department of Public Works	Jack and Bore Casing with Casing Spacers	Detail G-7.31
Revised	Approved: <i>[Signature]</i> Chief, Bureau of Engineering		
5/7/2007			

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 7/15/09
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 7/15/09
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 7/15/09
CHIEF, UTILITY DESIGN DIVISION DATE

[Signature] 7/15/09
BUREAU OF UTILITIES DATE

URS

MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875

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. 32597, Expiration Date: 01/15/10

PEDRO R. RAMIREZ

DESIGN: PRR				
DRAWN: BJW				
CHK: CSP				
DATE: 07/15/09	NO.	REVISION	DATE	BY

MISCELLANEOUS
DETAILS

600' SCALE MAP NO. 43
BLOCK NO. 13

MISSION ROAD
WATER MAIN EXTENSION
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO. W-8285
CONTRACT NO. 24-4626
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET
9 OF 11

TEMPORARY TRAFFIC CONTROL GENERAL NOTES

1. AT THE COMPLETION OF THE WORK ACTIVITY, CONDITIONS WITHIN THE PROJECT SITE SHALL BE FULLY RESTORED TO THOSE WHICH EXISTED PRIOR TO THE WORK ACTIVITY.
2. ALL WARNING SIGNS SHALL BE FULLY REFLECTORIZED WITH HIGH INTENSITY, REFLECTIVE SHEETING AS PER THE CURRENT EDITION AND REVISIONS OF THE FEDERAL HIGHWAY MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (M.U.T.C.D.).
3. ALL TRAFFIC CONTROLS MUST BE IN ACCORDANCE WITH THE CURRENT EDITION AND REVISIONS OF THE FEDERAL HIGHWAY M.U.T.C.D AND THE MARYLAND STATE HIGHWAY ADMINISTRATION WORK ZONE TRAFFIC CONTROL STANDARDS.
4. AT THE DIRECTION OF THE ENGINEER, THE SPACING OF TEMPORARY SIGNING MAY BE ADJUSTED SLIGHTLY TO IMPROVE VISIBILITY OF THE SIGN.
5. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL LOCAL BUSINESSES AND BUILDINGS DURING CONSTRUCTION AND COORDINATE WITH LOCAL BUSINESSES ABOUT THE RESTRICTIONS ON INGRESS AND EGRESS TRAFFIC CONTROL.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT OF ANY PAVEMENT MARKINGS REMOVED OR DESTROYED DURING CONSTRUCTION.
7. PROPERLY EQUIPPED FLAGGERS SHALL BE USED TO DIRECT TRAFFIC FOR A LANE CLOSURE OF A TWO-LANE STREET AND WHEN CONSTRUCTION VEHICLES ARE ENTERING AND EXITING THE WORK AREA OR AT OTHER LOCATIONS. FLAGGERS' CLOTHING AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITION OF THE M.U.T.C.D.
8. MUD AND CONSTRUCTION DEBRIS ON STREETS OR SIDEWALKS SHALL BE CLEANED OFF IMMEDIATELY.
9. TRAFFIC CONTROL DEVICES WHEN NOT IN USE SHALL BE COMPLETELY COVERED OR REMOVED FROM THE CONSTRUCTION SITE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES ON AN AROUND THE CLOCK BASIS, WHETHER OR NOT WORK IS ACTIVELY BEING PURSUED AND ANY DEFICIENCIES NOTED SHALL BE CORRECTED IMMEDIATELY.
11. THE TRAFFIC CONTROL REQUIREMENTS SHOWN ON THESE PLANS ARE MINIMUM REQUIREMENTS ONLY AND DO NOT ATTEMPT TO ADDRESS IN DEPTH THE VARIETY OF SITUATIONS THAT MAY OCCUR ONCE CONSTRUCTION HAS STARTED. IN NO WAY DO THE REQUIREMENTS SHOWN ON THESE PLANS RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR SELECTING THE PROPER TRAFFIC CONTROL DEVICES AND IMPLEMENTATION PROCEDURES THAT WILL ASSURE THE SAFETY OF MOTORIST, PEDESTRIANS, AND WORKERS AT ALL TIMES.
12. SHOULD THE CONTRACTOR FAIL TO ENFORCE THE TRAFFIC CONTROL PLAN OR FAIL TO CLEAN, REPAIR, REPLACE OR OTHERWISE MAINTAIN THE TRAFFIC CONTROL DEVICES WHEN DIRECTED TO DO SO BY THE ENGINEER OR HIS REPRESENTATIVE, HOWARD COUNTY MAY STOP THE WORK UNTIL DEFICIENCIES ARE CORRECTED.
13. ANY PERMANENT SIGN CONFLICTING WITH THIS TRAFFIC CONTROL PLAN SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
14. ACCESS SHALL BE MAINTAINED TO ALL DRIVES AND SIDE STREETS.
15. CONSTRUCTION VEHICLES SHALL BE PARKED ALONG STREETS SO AS NOT TO RESTRICT SIGHT DISTANCE FOR VEHICLES EXITING AT STREETS OR ANY DRIVES.
16. DURING ALL CONSTRUCTION PERIODS, THE CONTRACTOR SHALL HAVE AT THE JOBSITE ALL NECESSARY TRAFFIC CONTROL DEVICES (APPROPRIATE SIGNS, LIGHTED ARROW DISPLAY, CHANNELIZING DEVICES, ETC.) TO PROPERLY CLOSE AT LEAST ONE LANE OF TRAFFIC.
17. CONSTRUCTION SHALL BE SEQUENCED TO PROVIDE THE LEAST POSSIBLE ADVERSE EFFECT TO RESIDENCES.
18. THE CONTRACTOR IS RESPONSIBLE FOR AVOIDING ANY AND ALL UTILITIES WHEN SETTING SIGN POSTS AND WILL BE REQUIRED TO COORDINATE HIS ACTIVITIES WITH ANY AND ALL UTILITY COMPANIES WHETHER THEIR FACILITY IS INDICATED ON THE PLANS OR NOT.
19. STREET PLATES, WHEN USED SHALL BE A36 CERTIFIED STEEL AT LEAST 1" THICK WITH LIFT HOOKS AND SECURELY FASTENED TO THE PAVEMENT WITH STAKES, PINS OR ASPHALT WEDGE COURSE.

Formula for Determining Taper Length

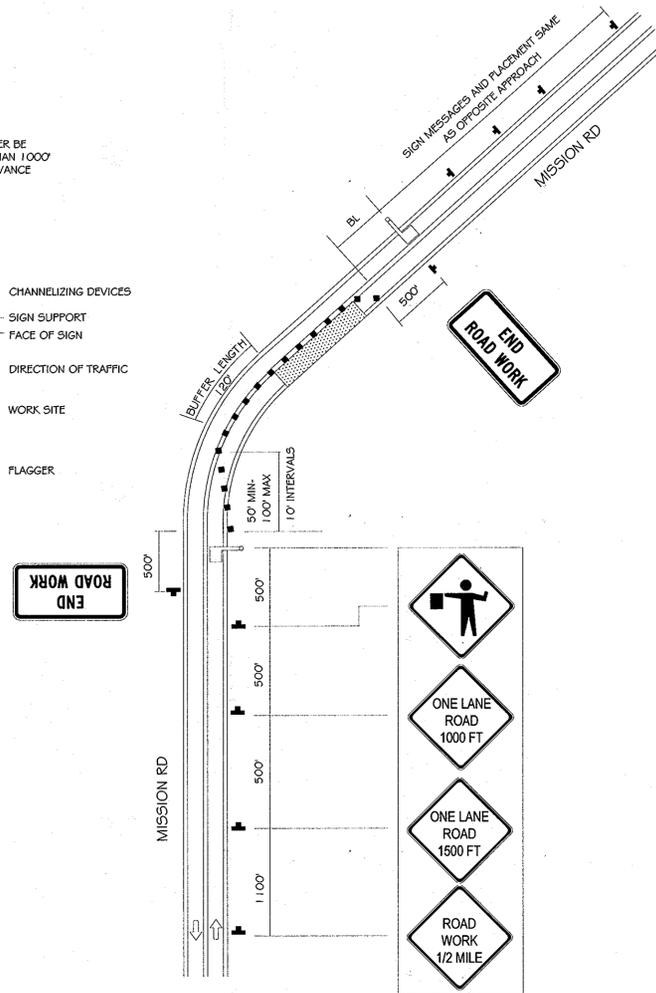
Speed (S) in mph	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet
W = width of offset in feet
S = posted speed limit

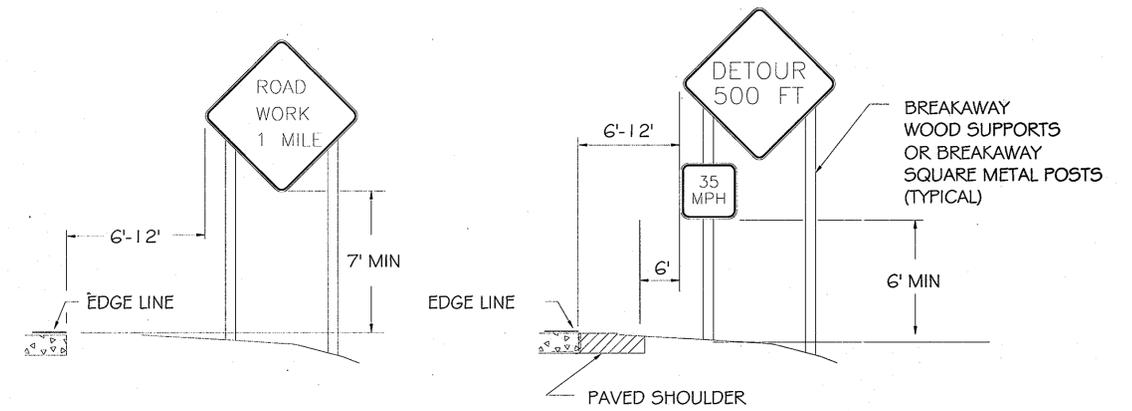
Guidelines for Length of Longitudinal Buffer Space	
Speed* (mph)	Length (feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280

NOTE:
FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

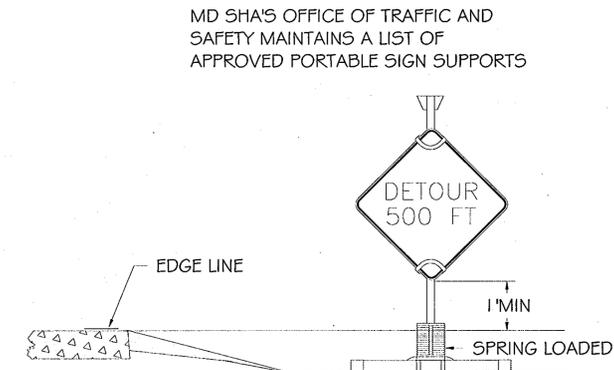
- KEY:**
- CHANNELIZING DEVICES
 - SIGN SUPPORT
 - FACE OF SIGN
 - ↑ DIRECTION OF TRAFFIC
 - ▨ WORK SITE
 - FLAGGER



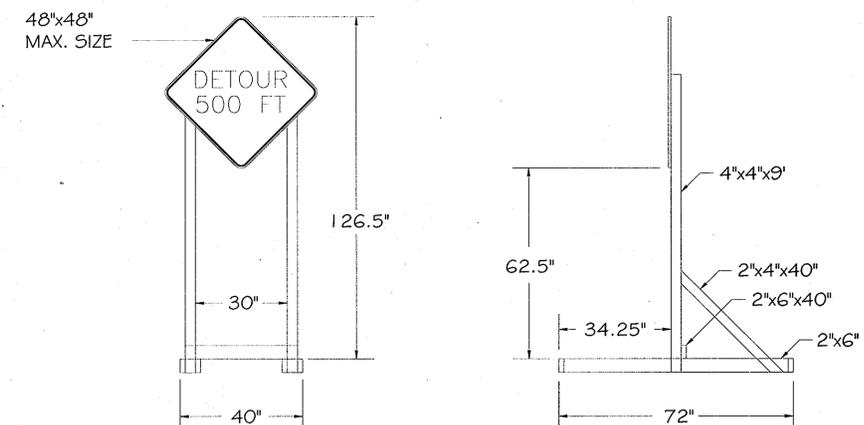
TRAFFIC CONTROL PLAN (TYPICAL)



SIGN SUPPORT PLACEMENT



TEMPORARY SIGN SUPPORT PLACEMENT



SKID MOUNTED SIGN SUPPORT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 7/15/09
 Chief, Bureau of Engineering: *[Signature]* 7/15/09
 Chief, Bureau of Utilities: *[Signature]* 7/15/09
 Chief, Utility Design Division: *[Signature]* 7-15-09

URS
MONTGOMERY PARK BUSINESS CENTER
1800 WASHINGTON BOULEVARD, SUITE 410
BALTIMORE, MARYLAND 21230
(410) 468-0875

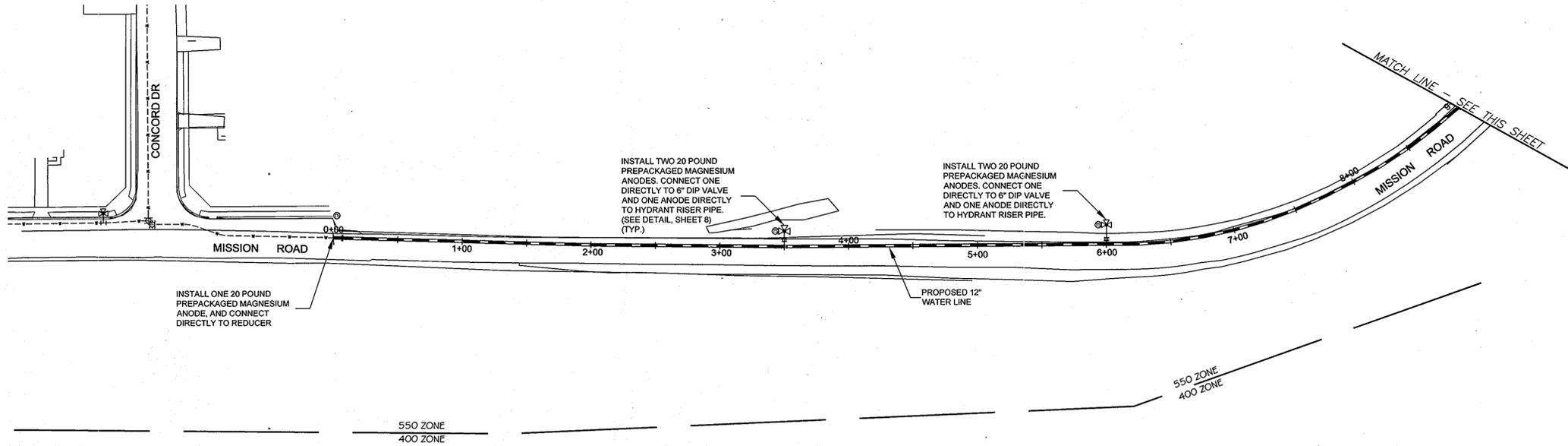
Professional Certification
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 32587, Expiration Date: 01/15/10
PEDRO R. RAMIREZ

DESIGN:	PRR	DATE:	07/15/09
DRAWN:	BJW	NO.	REVISION
CHK:	CSP	DATE:	BY

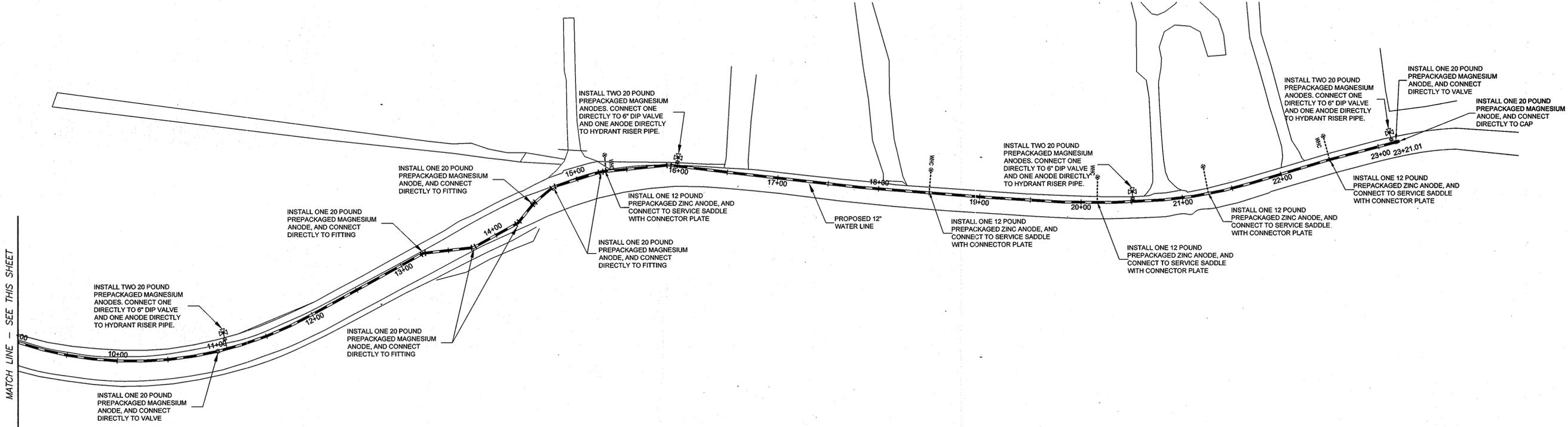
600' SCALE MAP NO.	43	BLOCK NO.	13

MISSION ROAD
WATER MAIN EXTENSION
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT NO. W-8285
CONTRACT NO. 24-4626
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 10 OF 11



CORROSION CONTROL LAYOUT
SCALE: 1" = 50'



CORROSION CONTROL LAYOUT
SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *[Signature]* 7/15/09
 Chief, Bureau of Engineering: *[Signature]* 7/15/09
 Chief, Utility Design Division: *[Signature]* 7-15-09
 Bureau of Utilities: *[Signature]* 7/15/09

URS
 MONTGOMERY PARK BUSINESS CENTER
 1800 WASHINGTON BOULEVARD, SUITE 410
 BALTIMORE, MARYLAND 21230
 (410) 468-0875

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. 32597, Expiration Date: 01/15/10
PEDRO R. RAMIREZ

DESIGN: PRR					
DRAWN: BJW					
CHK: CSP					
DATE: 07/15/09	NO.	REVISION	DATE	BY	

WATER MAIN CORROSION CONTROL LAYOUT
 600' SCALE MAP NO. 43
 BLOCK NO. 13

MISSION ROAD WATER MAIN EXTENSION
 DEPARTMENT OF PUBLIC WORKS
 CAPITAL PROJECT NO. W-8285
 CONTRACT NO. 24-4626
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 11 OF 11