

OLD MONTGOMERY ROAD WATER MAIN RELOCATION



CAPITAL PROJECT NO. W-8248
CONTRACT NO. 44-4622
HOWARD COUNTY, MARYLAND

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LEGEND

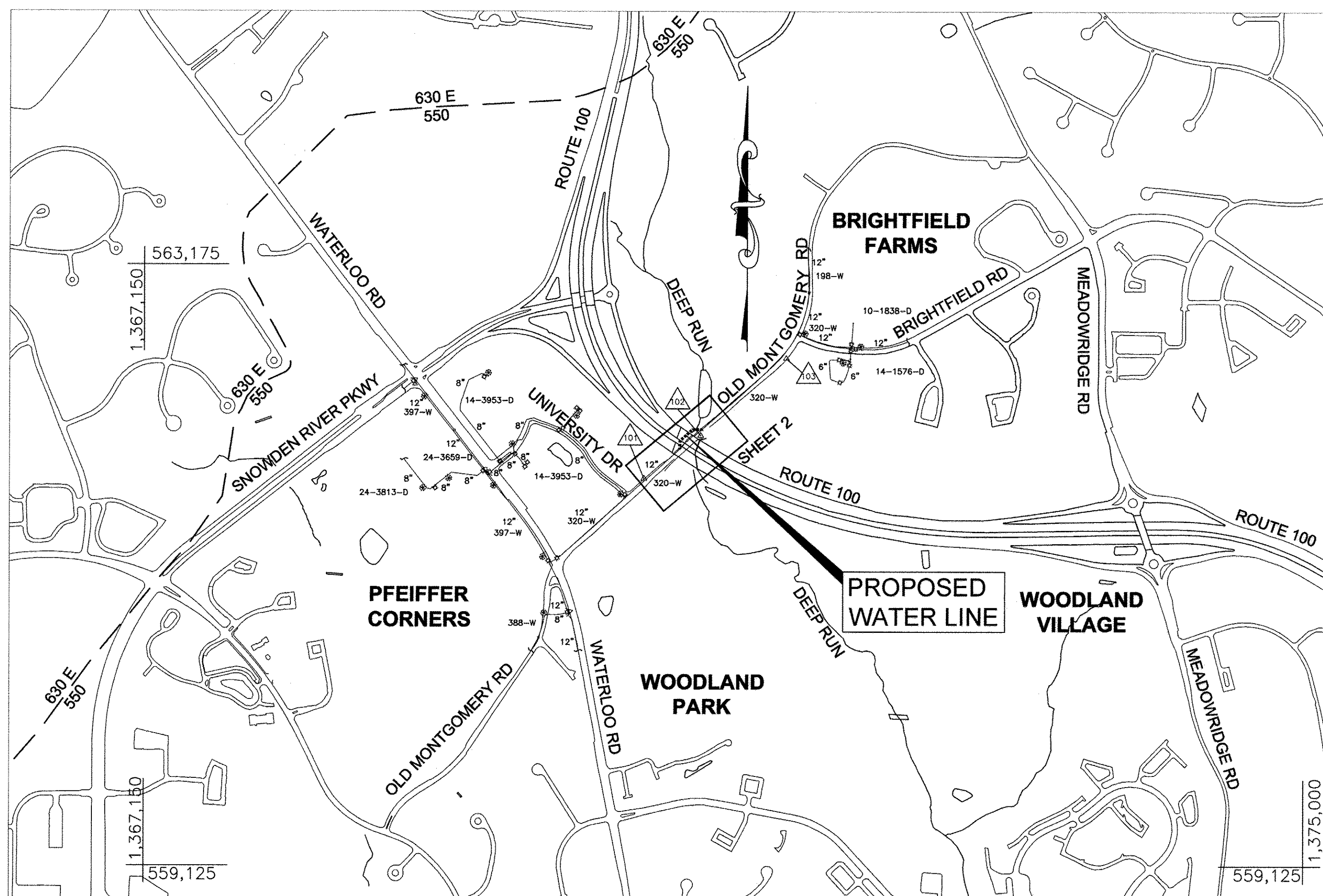
	EXIST. WATER MAIN / VALVE VAULT
	PROP. WATER MAIN
	EXIST. WATER MAIN TO BE ABANDONED
	EXIST. SEWER MAIN / MANHOLE
	PROP. SEWER MAIN / MANHOLE
	EXIST. STORM DRAIN
	EXIST. GAS
	EXIST. ELECTRIC (UNDERGROUND)
	EXIST. ELECTRIC (ABOVE GROUND)
	EXIST. CABLE TV
	RIGHT OF WAY
	10 YEAR FLOOD PLAIN
	100 YEAR FLOOD PLAIN
	GUARDRAIL
	FENCE (CHAINLINK)
	PROPERTY LINE
	SILT FENCE
	SUPER SILT FENCE
	LIMITS OF DISTURBANCE
	ROAD CENTERLINE
	TRAVERSE
	STREAM / WATERWAY EDGE
	WATER ZONE BOUNDARY
	SHRUB
	VALVE
	FIRE HYDRANT
	BGE POLE
	BORING LOCATION
	CONTINUITY TEST STATION
	SAN. MANHOLE IDENTIFICATION

Traverse Coordinate Schedule

Point	Northing	Easting	Elevation	Feature
101	561733.1630	1370535.3540	359.6400	MAG NAIL
102	562023.1220	1370918.9950	345.9200	R&C
103	562544.6700	1371496.7720	393.3300	MAG NAIL

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER /SUPPLIER
12" Water Pipe	252 ft.			
12" - 1/8 HB	4			
Fire Hydrants	1			
12" X 6" Tees	1			
6" Hydrant Shut-off Valves	1			



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. BASE 2 / PID A18507
N 556,281.93
E 1,374,650.30
ELEV. 253.606

TYPE OF BUILDINGS: N.A.
NUMBER OF PARCELS: N.A.
NO. OF WATER CONNECTIONS: 0
DRAINAGE AREA: FATAPSCO
PRESSURE ZONE: 550
TEST GRADIENT: 790 FEET (200 PSI)

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 March 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. BASE 2 / PID A18507.
- All vertical controls are based on NAVD'88. Vertical controls provided on the drawings are J 109 MDSRC / SURVEY DISK SET IN TOP OF CONCRETE MONUMENT (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 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 PVC C900 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.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jay K. Elolo 8/10/09
DIRECTOR OF PUBLIC WORKS DATE
Paul J. Johnson 8/10/09
CHIEF, BUREAU OF ENGINEERING DATE

Blanca 8/10/09
CHIEF, BUREAU OF UTILITIES DATE
Dr. Dan 8/10/09
CHIEF, UTILITY DESIGN DIVISION DATE

URS

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

Pedro R. Ramirez
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: CSP					
DRAWN: BJW					
CHK: PRR					
DATE: 07/24/09	NO.	REVISION	DATE	BY	

TITLE SHEET

60' SCALE MAP NO. 37 BLOCK NO. 2

OLD MONTGOMERY ROAD
WATER MAIN RELOCATION
CAPITAL PROJECT NO. W-8248
CONTRACT NO. 44-4622
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 1 OF 6

WATER MAIN STAKE-OUT SCHEDULE			
STATION	FITTING	EASTING / NORTHING	INVERT
0+00	1/8 DIP HB	E = 1370775.42 N = 561933.23	342.65
0+57.73	1/8 DIP HB	E = 1370778.68 N = 561990.87	329.76
1+74.97	1/8 DIP HB	E = 1370866.14 N = 562068.94	329.76
2+33.78	1/8 DIP HB	E = 1370924.81 N = 562064.91	341.17
2+52.00	12"X6" TEE / FIRE HYDRANT	E = 1370938.53 N = 562076.90	341.72

Sequence of Construction

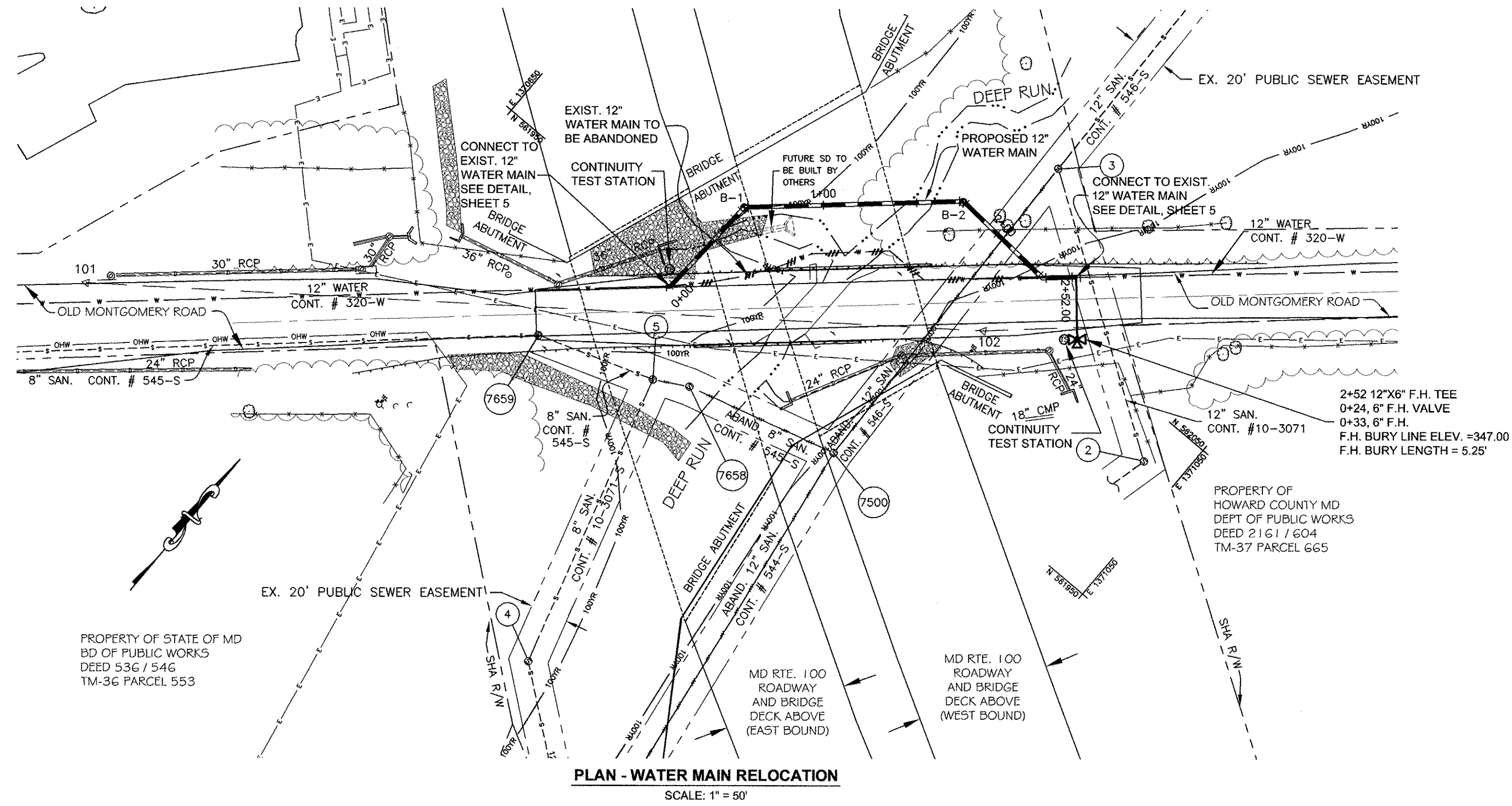
- Obtain all required permits and approvals from appropriate agencies. Obtain grading permit prior to starting construction.
- Notify Howard County Construction Inspection Division - Sediment Control (410) 313 - 1855 seven days prior to starting construction.
- Notify MDE Inspection and Compliance (410) 537 - 3510 seven days prior to starting construction.
- Install all Sediment Control devices, including installation guidelines from the Maryland's Waterway Construction Guidelines for Utility Crossing from the Maryland Department of the Environment (MDE).
- Establish traffic control devices as needed.
- Install new thrust block on existing water main as shown. See detail, sheet 5.
- Allow a minimum of 7 days for thrust block concrete mix to cure.
- Dewater construction area. All dewatering discharges shall be diverted to a dewatering basin before re-entering stream.
- Install proposed 12" water main.
- Install 12" 45° fittings and approaches that will connect to existing water main.
- Perform Hydrostatic Pressure and Leak Tests on installed water main as per the latest edition of the Howard County Design Volume IV.
- Remove stream diversion
- Chlorinate and disinfect new water main as per the latest edition of the Howard County Design Volume IV.
- Flush new main to prepare for connection.
- Contact Howard County Bureau of Utilities (410) 313-4900 to coordinate closing of valve upstream and downstream of relocation area. Contractor must coordinate closing of valve a minimum of 72 hours in advance.
- Dewater isolated section of 12" to be relocated after County personnel has completed shut down and isolation procedures.
- Shut down of water service shall not be in excess of 6 hours.
- Connect proposed approach 12" water main pipes to existing 12" water main as shown on the contract drawings. The contractor shall supply the necessary crews to simultaneously make the upstream and downstream connections within the time frame stated above.
- Reestablish water flow through newly installed 12" water main.
- Check connections for leaks.
- Abandon old water main as per county standards.
- Remove traffic control devices.
- Remove E&S control devices upon approval from Sediment Control Inspector.
- Restore all disturbed areas to conditions prior to construction.

General Notes

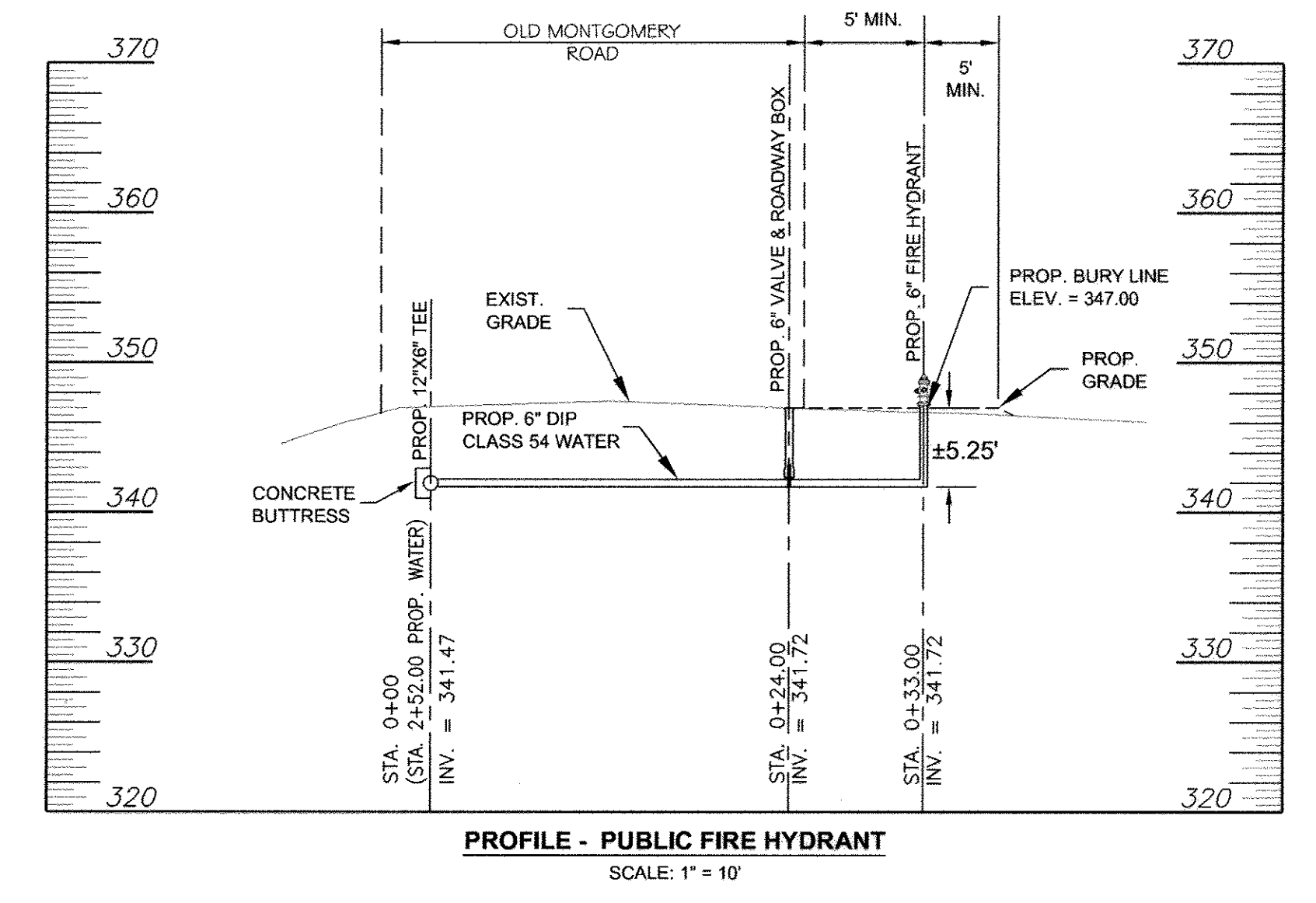
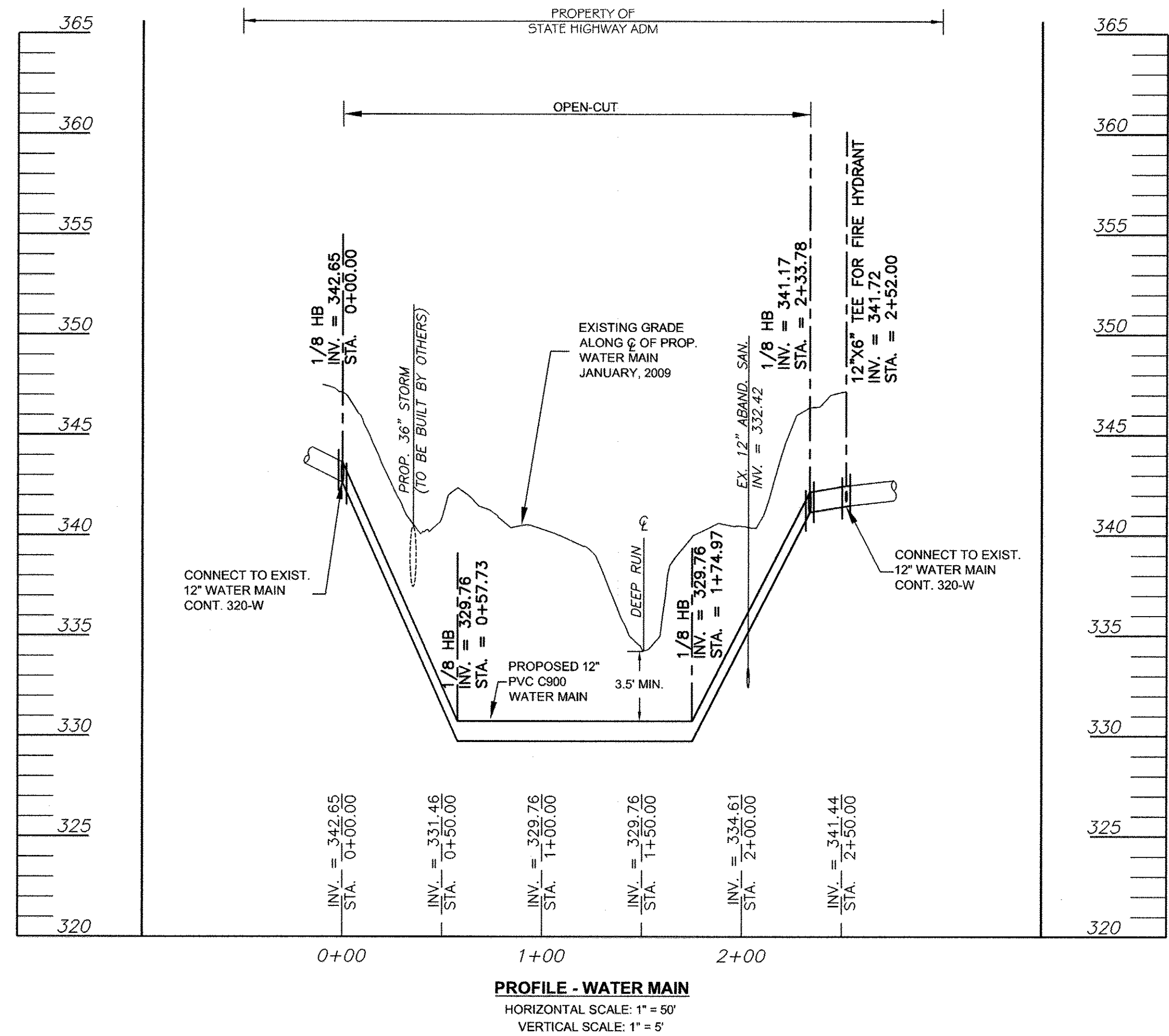
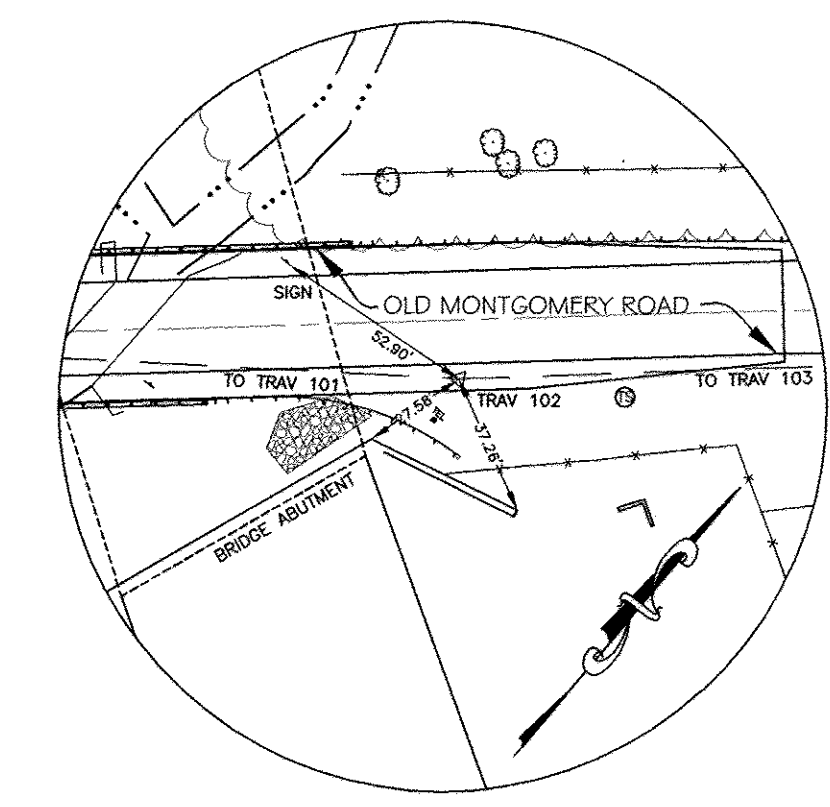
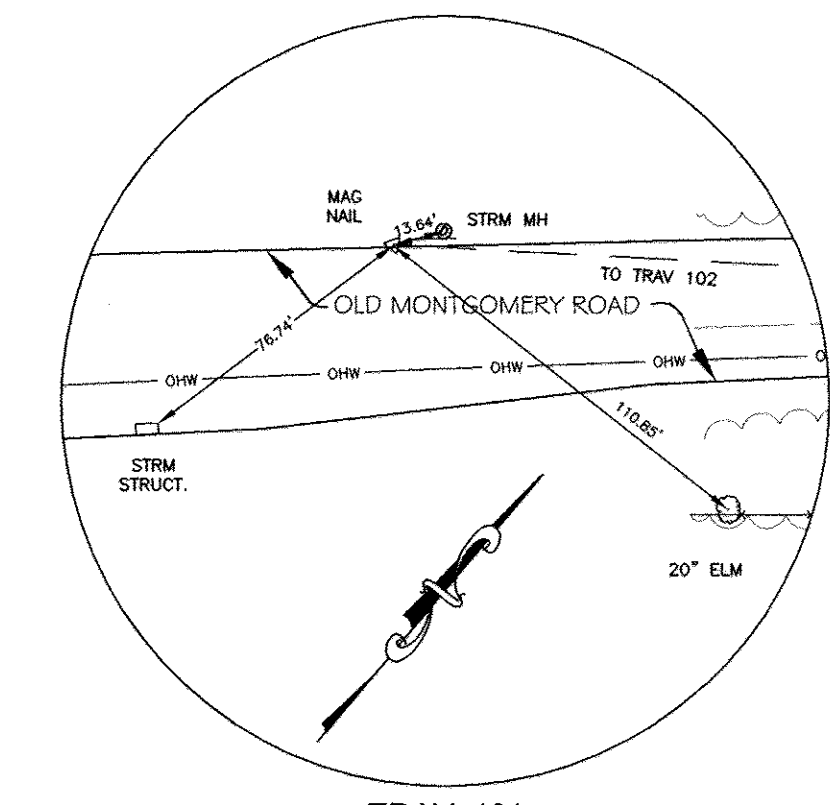
Stockpile and maintain separately the top 6"-12" of topsoil material, to be used as top layer of backfilled material

Remove excess fill or construction material or debris to an upland area. Any unused fill must be promptly removed to a proper disposal site.

Contractor to verify location and pipe material of existing pipe.



Traverse Coordinate Schedule				
Point	Northing	Easting	Elevation	Feature
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102	562023.1220	1370918.9950	345.9200	R&C
103	562544.6700	1371496.7720	393.3300	MAG NAIL



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] DATE: 8/10/09
 Chief, Bureau of Engineering: [Signature] DATE: 8/10/09
 Chief, Bureau of Utilities: [Signature] DATE: 8/10/09
 Chief, Utility Design Division: [Signature] DATE: 8/10/09

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

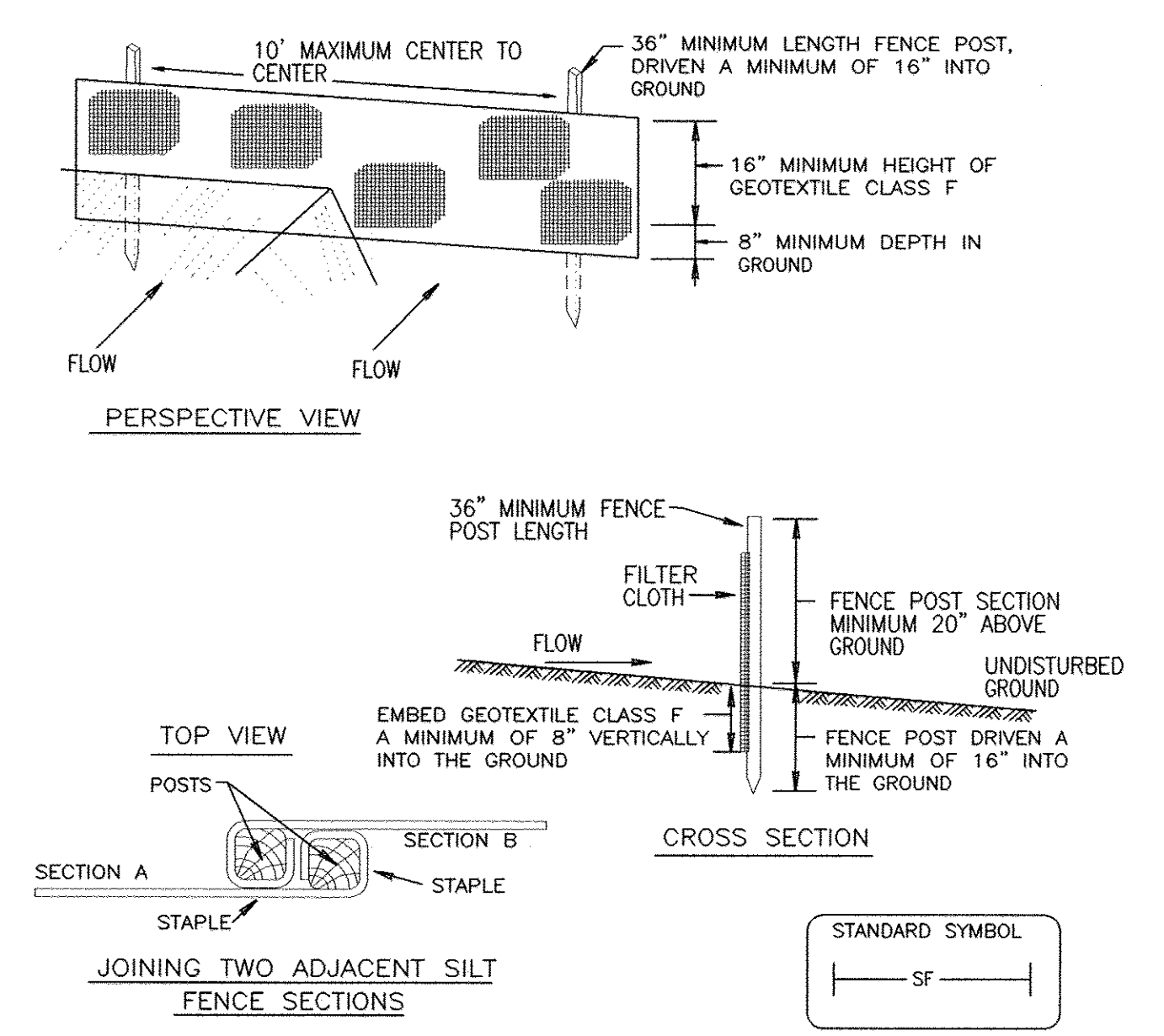
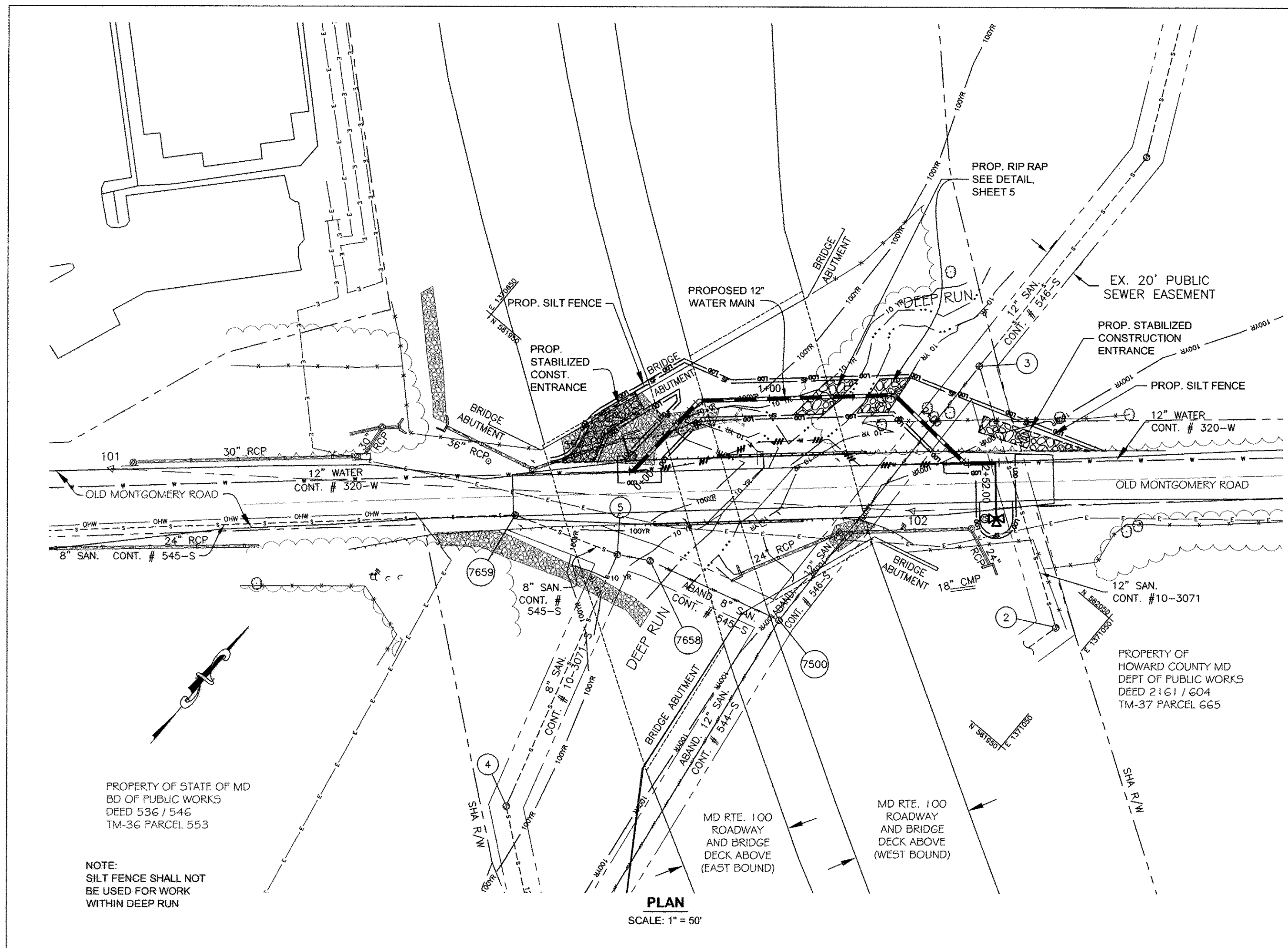
DESIGN: CSP					
DRAWN: B.W					
CHK: PRR					
DATE: 07/24/09	NO.	REVISION	DATE	BY	

PLAN AND PROFILE

60' SCALE MAP NO. 37 BLOCK NO. 2

OLD MONTGOMERY ROAD
 WATER MAIN RELOCATION
 CAPITAL PROJECT NO. W - 8248
 CONTRACT NO. 44-4622
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

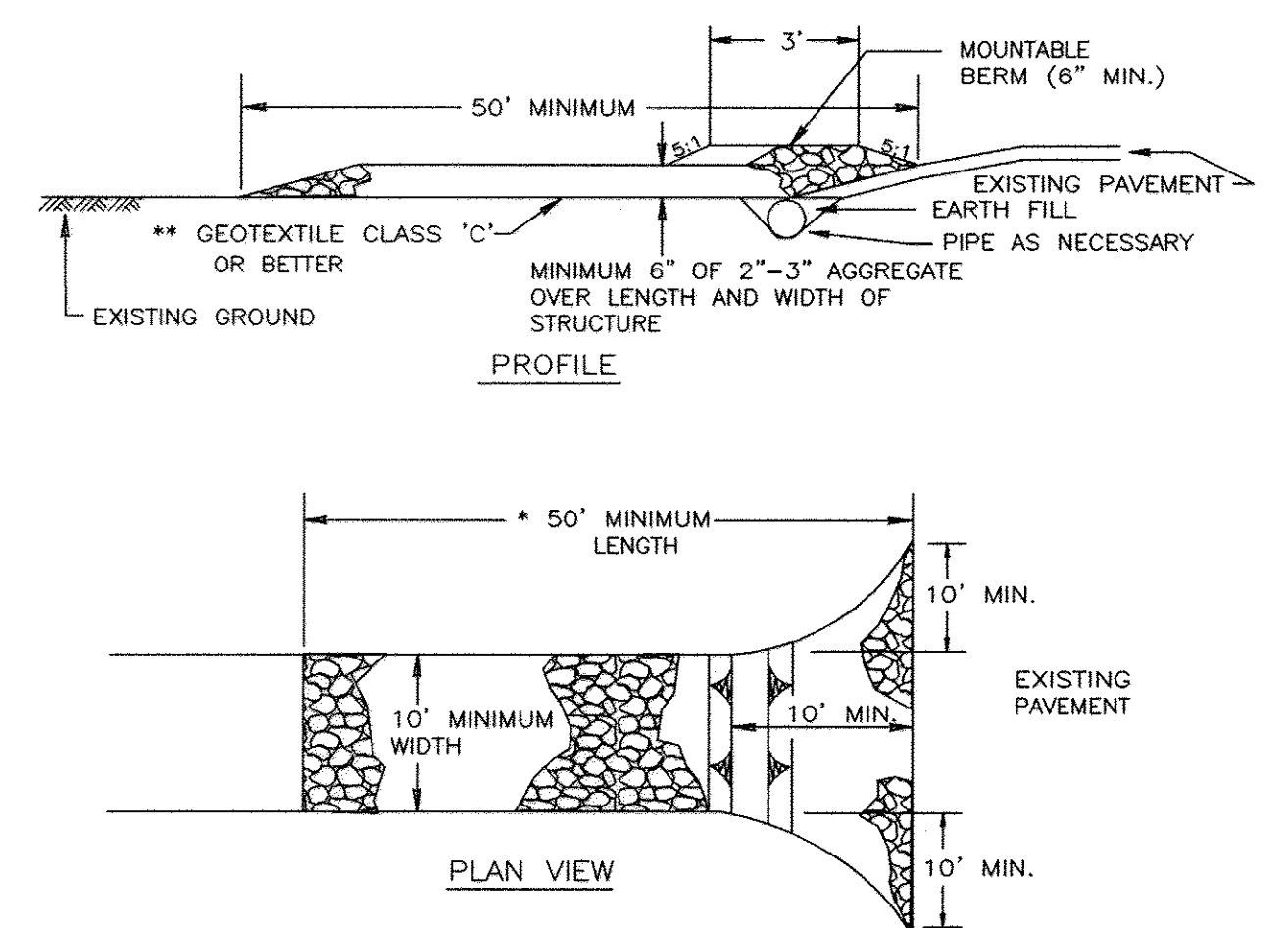
SCALE: AS SHOWN
 SHEET 2 OF 6



Construction Specifications

- 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 pond per linear foot.
- 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
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.



- Construction Specification**
- Length - minimum of 50' (*30' for single residence lot).
 - Width - 10' minimum, should be flared at the existing road to provide a turning radius.
 - Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
 - Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
 - Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
 - Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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.

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

Approved: *[Signature]* 8/10/09
Howard S.C.D. Date

STABILIZED CONSTRUCTION ENTRANCE

SILT FENCE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 8/10/09
Chief, Bureau of Engineering: *[Signature]* 8/10/09

Chief, Bureau of Utilities: *[Signature]* 8/10/09
Chief, Utility Design Division: *[Signature]* 8/10/09

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PEDRO R. RAMIREZ

DESIGN: CSP				
DRAWN: BJW				
CHK: PRR				
DATE: 07/24/08	NO.	REVISION	DATE	BY

EROSION AND SEDIMENT CONTROL / DETAILS

60' SCALE MAP NO. 37 BLOCK NO. 2

OLD MONTGOMERY ROAD
WATER MAIN RELOCATION
CAPITAL PROJECT NO. W - 8248
CONTRACT NO. 44-4622
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 3 OF 6

HOWARD SOIL CONSERVATION DISTRICT

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 (410) 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 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.
- 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 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.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:
 TOTAL AREA OF SITE .12 ACRES
 AREA DISTURBED .12 ACRES
 AREA TO BE ROOFED OR PAVED 0 ACRES
 AREA TO BE VEGETATIVELY STABILIZED 0 ACRES
 TOTAL CUT CU. YDS.
 TOTAL FILL CU. YDS.
 OFFSITE WASTE/BORROW AREA LOCATION:

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL 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 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.
- 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.

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 :

- 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.)
- 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.

Utility Crossing Sequence of Construction

The following is a sequence of construction for the installation of riprap along stream banks and utility across Deep Run.

Material Specifications

- Materials for sandbag and stone stream diversions should meet the following requirements:
- Riprap: Riprap should be washed and have a minimum diameter of 6 inches (15 centimeters).
 - Sandbags: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., Sand, fine gravel, etc.).

Sequence of Construction

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the Maryland Department of the Environment Water Management Administration (WMA) or local authority. Once a slope stabilization project is initiated, preparation and placement of the riprap should immediately follow the initial disturbance to minimize the chances for further slope degradation. The recommended construction procedure for riprap is as follows beginning with initial slope preparations (refer to Detail 2.1, sheet 5):

- The contractor should install all sediment and erosion control devices as the first order of business.
- Excavation should be made in reasonably close conformity with the existing stream slope and bed.
- All fill in the sub-grade should be compacted to a density approximating that of the surrounding undisturbed material.
- Provisions must be made to anchor the riprap at the stream bed as to provide protection against undermining. If this cannot be accomplished by creating a toe trench, an alternative method of protection must receive prior written approval from the WMA or local authority.
- The filter layer or blanket should be placed immediately after slope preparation.
 - The stone for granular filters should be spread in a uniform layer to the specified depth. Where more than one layer is employed, they should be spread such that there is minimal mixing.
 - When cloth filters are used, special care should be taken not to damage the fabric during riprap placement. Damaged fabric must be replaced at contractor's expense.
- Riprap placement should begin with the toe. The larger stones, as specified by the design gradation, should be placed in the toe and along the perimeter of the slope and channel protection. The riprap should be placed with suitable equipment in such a manner as to produce a reasonably graded mass of stones with zero drop height. The placing of stones that cause extensive segregation is not allowed. Where appropriate, a low flow channel shall be constructed through the riprap.
- Any excavation voids existing along the edges of the completed slope and channel protection should be backfilled and compacted.
- All disturbed areas should be permanently stabilized in accordance with an approved sediment and erosion control plan.
- The contractor should insure that a continuous perimeter control barrier is in place to minimize the amount of pollutants entering the flow. A diversion pipe or other measure should be installed and sandbag or stone barriers should be constructed according to specifications to divert the stream flow.
- Excavated topsoil and subsoil should be kept separate, placed on the upland side of the excavation, and replaced in their natural order.
- All construction should take place during stream low flows. The length of construction time should be limited to a maximum of 5 consecutive days for each crossing.
- All utility crossings should be placed a minimum of 3.5 feet beneath the stream bed unless an alternative section is specifically approved by the WMA. A low flow channel shall be constructed through all riprap placements across the stream bed.
- The stream should be diverted by an approved temporary stream diversion, the construction area should be dewatered, and any disturbed banks should be stabilized. The contractor may elect to construct the utility crossing in two stages. In this case, a WMA approved flow barrier may be constructed to keep the construction area dry.
- Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

Depth in Feet	Strata Change	Case Blows (min)	Sampler Blow Par (ft)	Sample Number	Sample Depth Range (ft)	Sample Recovery (in)	Elevation/Depth (ft)	FIELD CLASSIFICATION AND REMARKS
0.0		3	S-1	1	0.0 - 2.0	15"	342.0	Topsoil (2")
2.0		2-4	S-2	2	2.0 - 4.0	15"	342.0	Brown moist micaceous Clayey f-m SAND, Trace small Gravel (SC) (Fill)
4.0		2	S-3	3	4.0 - 6.0	19"	335.2	Brown wet Silty f-m SAND (SM)
6.0		4-4	S-4	4	6.0 - 8.0	14"	334.2	Brown-Gray moist micaceous fine Sandy SILT, some large Gravel (ML)
8.0		5-3	S-5	5	8.0 - 10.0	12"	332.2	Dark Gray-Tan moist Silty fine SAND (SM) (Saprolite)
10.0		13	S-6	6	10.0 - 12.0	22"	328.2	Bottom of Boring @ 14.0 Ft. Took Bag Sample 0-7
12.0		2	S-7	7	12.0 - 13.3	15"	328.2	
13.3		9-20					14.0	
20		12						
		12-30						
		51+						

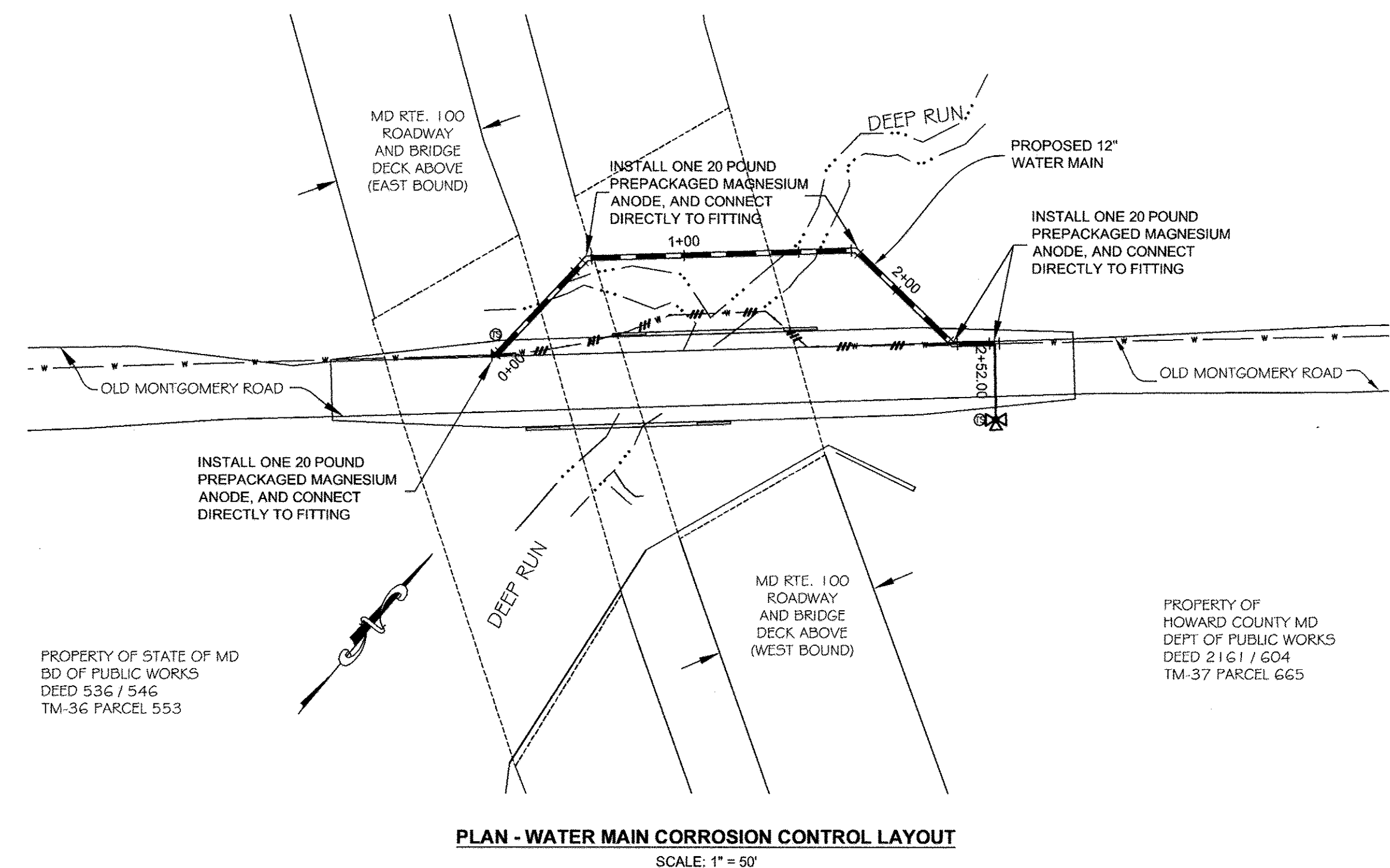
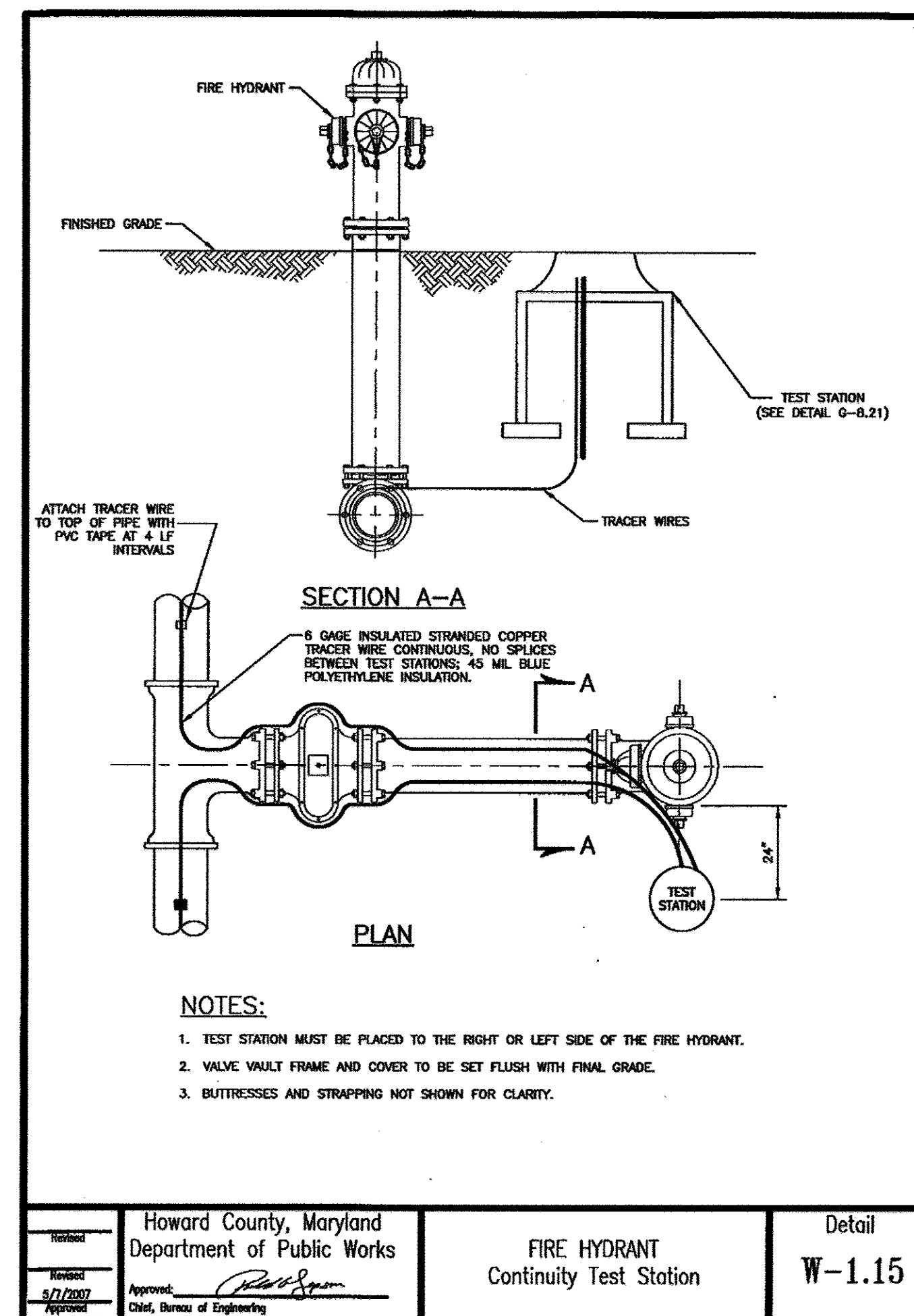
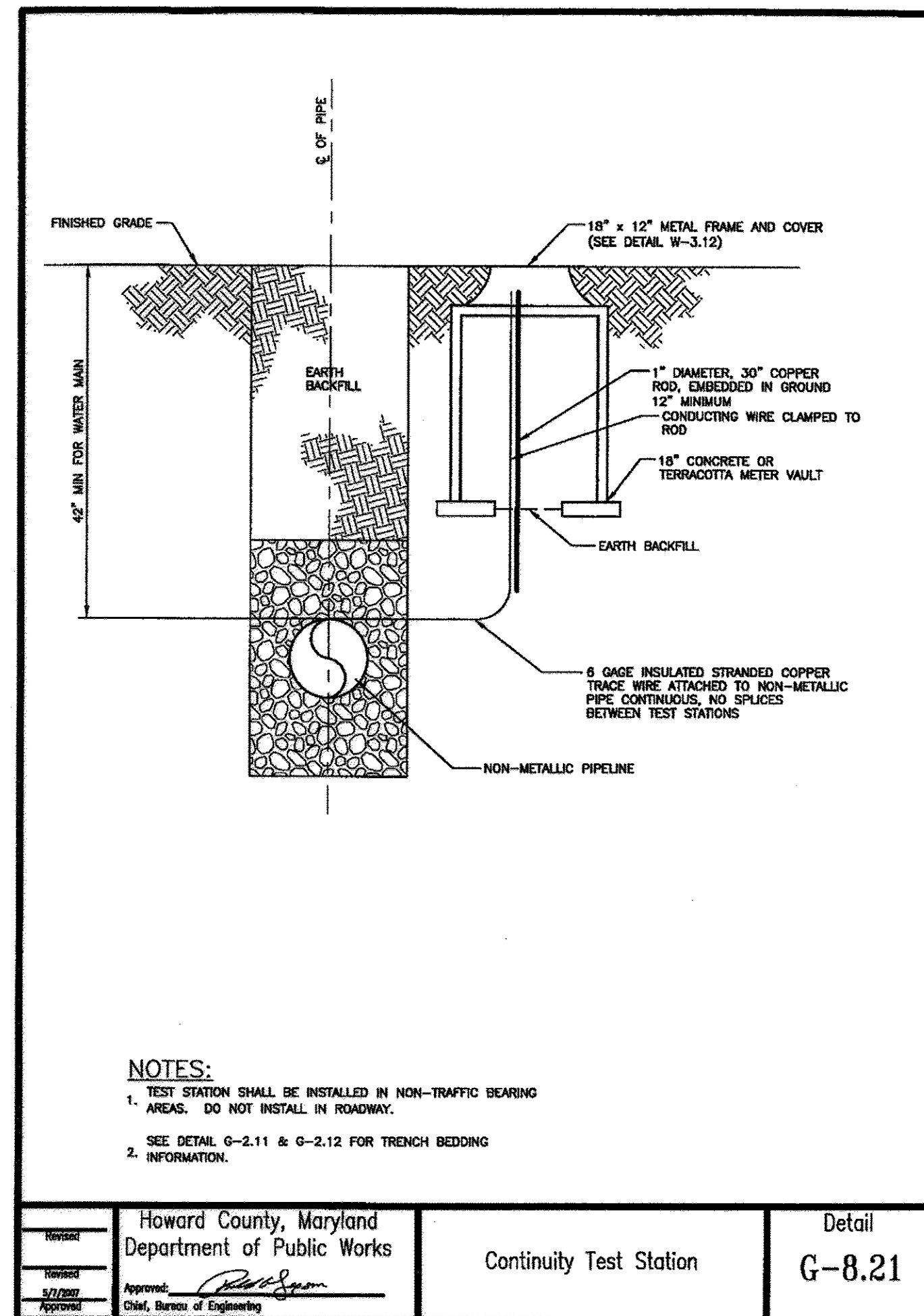
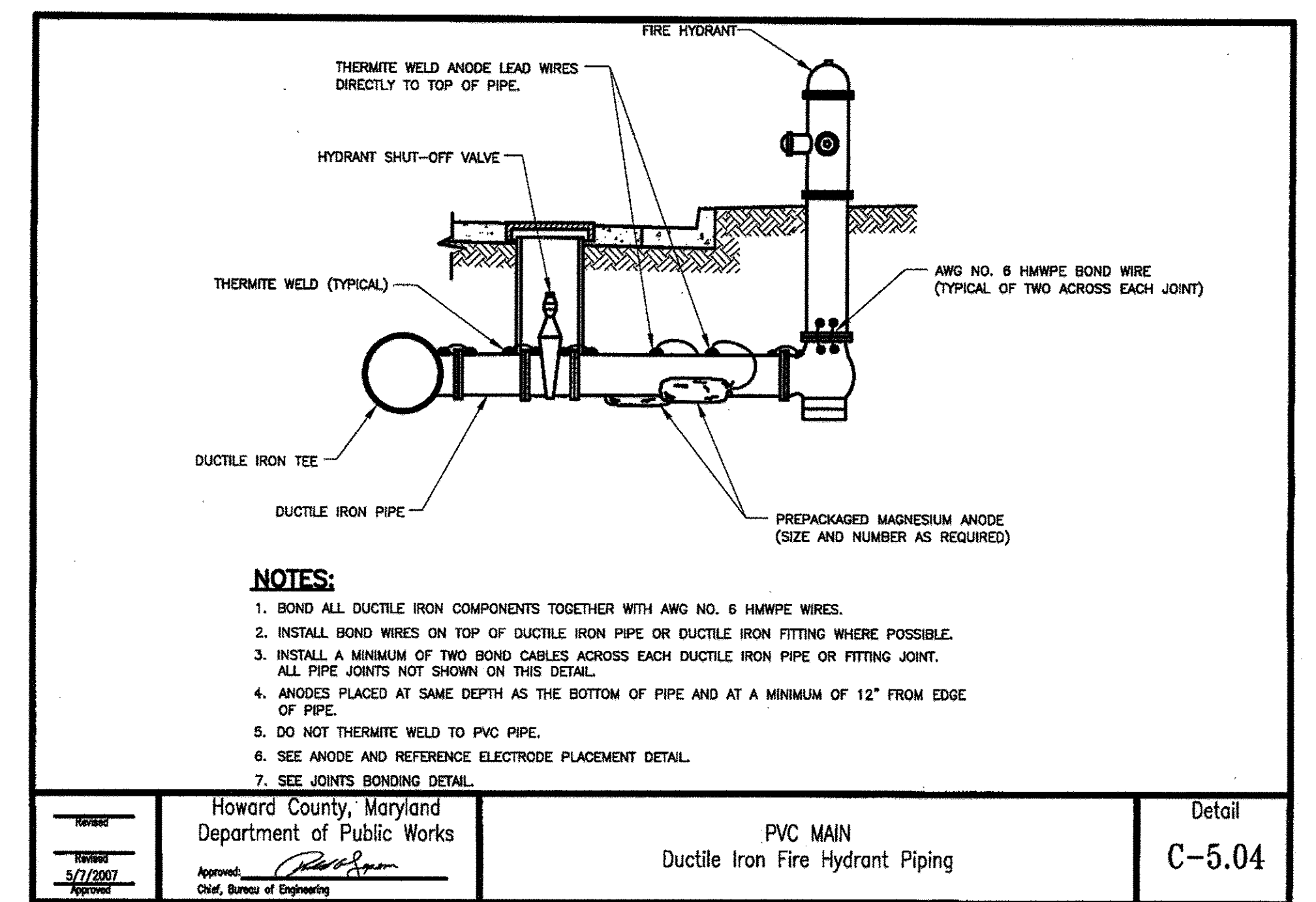
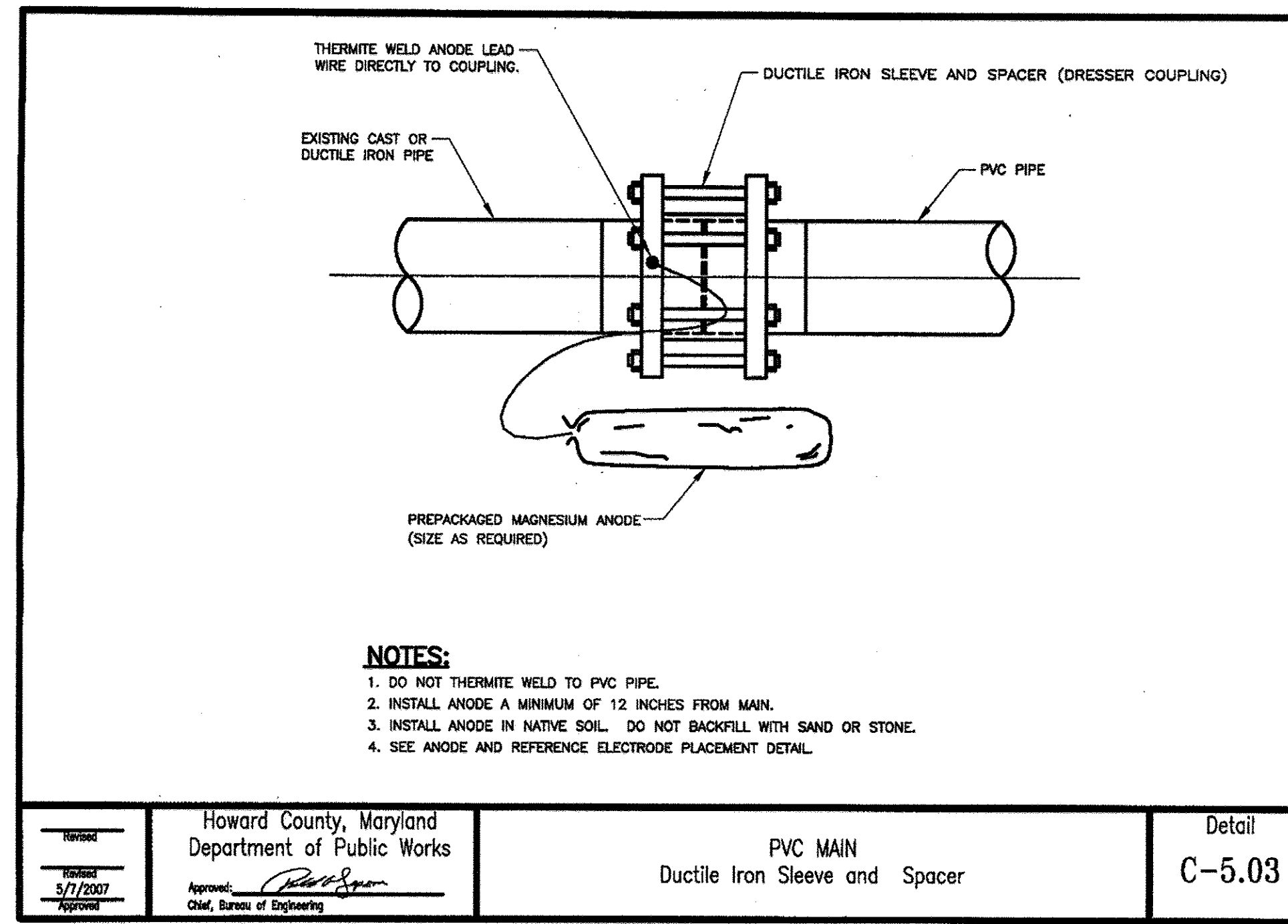
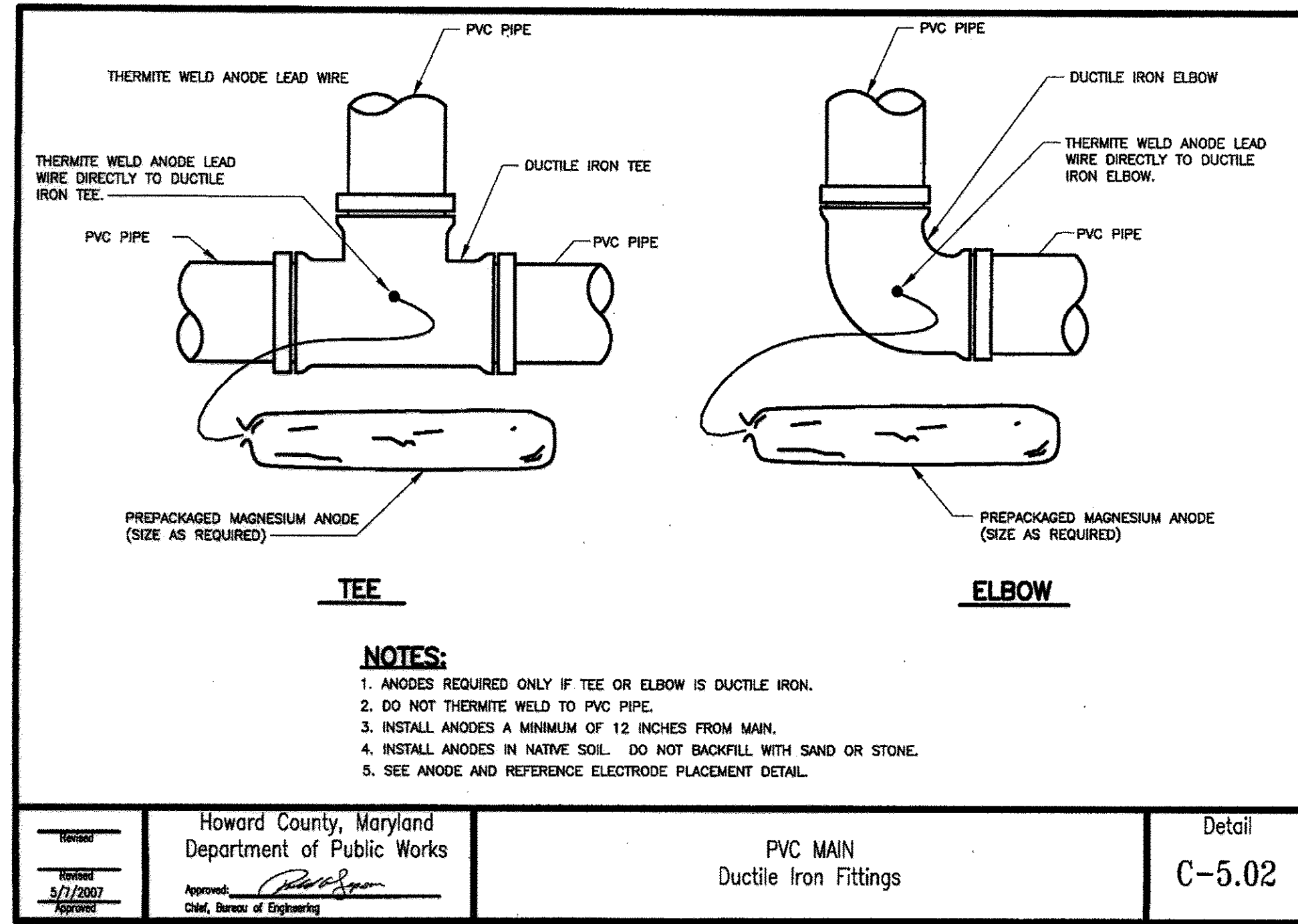
BORING B-1

Depth in Feet	Strata Change	Case Blows (min)	Sampler Blow Par (ft)	Sample Number	Sample Depth Range (ft)	Sample Recovery (in)	Elevation/Depth (ft)	FIELD CLASSIFICATION AND REMARKS
0.0		17-24	S-1	1	0.0 - 2.0	15"	339.6	Topsoil (6")
2.0		9	S-2	2	2.0 - 4.0	16"	338.1	Brown moist Silty f-m SAND (SM) (Fill)
4.0		14-6	S-3	3	4.0 - 6.0	16"	336.1	Orange-Brown moist Clayey f-c SAND, some Gravel (SC) (Fill)
6.0		12-6	S-4	4	6.0 - 8.0	16"	334.1	Brown moist micaceous Silty f-c SAND, trace Gravel (SM)
8.0		7	S-5	5	8.0 - 10.0	20"	332.1	Dark Gray-Brown-Tan very moist Silty fine SAND, trace weathered Rock Fragments (SM) (Saprolite) with some boulders and wet sand seams
10.0		7	S-6	6	10.0 - 12.0	20"	326.1	Bottom of Boring @ 14.0 FT.
12.0		12-11	S-7	7	12.0 - 14.0	16"	326.1	
14.0		2						
		7-10						
		10						
		51+						

BORING B-2

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT. DATE: 8/11/09 SIGNATURE: [Signature] TITLE: CHIEF, BUREAU OF ENGINEERING	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. DATE: 8/10/09 SIGNATURE: [Signature]	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. DATE: 7/23/09 SIGNATURE: [Signature] TITLE: PEDRO R. RAMIREZ, P.E.
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS DATE: 8/10/09 SIGNATURE: [Signature] TITLE: CHIEF, BUREAU OF ENGINEERING	MONTGOMERY PARK BUSINESS CENTER 1800 WASHINGTON BOULEVARD, SUITE 410 BALTIMORE, MARYLAND 21230 (410) 468-0875	PROFESSIONAL CERTIFICATION I hereby certify that the 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: CSP									
DRAWN: BJW									
CHK: PRR									
DATE: 07/24/09	NO.	REVISION	DATE	BY	600' SCALE MAP NO. 37	BLOCK NO. 2	EROSION & SEDIMENT CONTROL NOTES / BORING DETAILS		
							OLD MONTGOMERY ROAD WATER MAIN RELOCATION CAPITAL PROJECT NO. W - 8248 CONTRACT NO. 44-4622 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
							SCALE: AS SHOWN SHEET 4 OF 6		



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John A. ...* DATE: 8/10/09
 Chief, Bureau of Engineering: *Richard ...* DATE: 8/10/09
 Chief, Bureau of Utilities: *William ...* DATE: 8/10/09
 Chief, Utility Design Division: *...* DATE: 8/10/09

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: CSP					
DRAWN: BJW					
CHK: PRR					
DATE: 07/24/09	NO.	REVISION	DATE	BY	

MISCELLANEOUS DETAILS /
CORROSION CONTROL LAYOUT

600' SCALE MAP NO. 37
BLOCK NO. 2

OLD MONTGOMERY ROAD
WATER MAIN RELOCATION
CAPITAL PROJECT NO. W - 8248
CONTRACT NO. 44-4622
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 6 OF 6