

NO.	FIXTURE	ROAD @ STATION	OFFSET
1	12"x8" TEE, 8" VALVE & 12" VALVE	STA. 18+04.3 @ GORMAN ROAD	7' L
2	1/16" H.B.	STA. 0+46.7 @ WESTOVER BLVD.	6.1' L
3	DEFLECTION ANGLE 2'5"16"	STA. 0+85.7 @ GORMAN ROAD	3.9' L
4	1/16" H.B.	STA. 0+84.9 @ GORMAN ROAD	5.3' L
5	8"x8" TEE & 8" VALVE	STA. 1+05.2 @ WESTOVER BLVD.	9.6' L
6	CRIMP RADIUS = 257'	STA. 1+50.7 @ WESTOVER GLEN CIRCLE	2.0' L
7	1/32" H.B.	STA. 0+47.9 @ WESTOVER GLEN CIRCLE	4.5' L
8	1/32" H.B.	STA. 1+10.3 @ WESTOVER GLEN CIRCLE	8.0' L
9	1/32" H.B.	STA. 1+42.4 @ WESTOVER GLEN CIRCLE	10.2' L
10	1/32" H.B.	STA. 1+74.5 @ WESTOVER GLEN CIRCLE	10.2' L
11	1/32" H.B.	STA. 2+06.0 @ WESTOVER GLEN CIRCLE	8.0' L
12	1/32" H.B.	STA. 2+37.8 @ WESTOVER GLEN CIRCLE	4.5' L
13	1/32" H.B.	STA. 2+69.6 @ WESTOVER GLEN CIRCLE	2.0' L
14	8"x6" TEE & 6" VALVE	STA. 2+90.4 @ WESTOVER GLEN CIRCLE	3.0' L
15	FIRE HYDRANT BURY LINE EL. 345.5' BURY LENGTH = 6.5'	STA. 2+90.4 @ WESTOVER GLEN CIRCLE	21.0' L
16	CRIMP RADIUS = 257'	STA. 2+55.0 @ WESTOVER GLEN CIRCLE	2.0' L
17	8"x6" TEE & 6" VALVE	STA. 5+38.4 @ WESTOVER GLEN CIRCLE	2.0' L
18	8"x6" TEE & 6" VALVE	STA. 5+38.4 @ WESTOVER GLEN CIRCLE	2.0' L
19	FIRE HYDRANT BURY LINE EL. 339.0' BURY LENGTH = 5.5'	STA. 5+38.4 @ WESTOVER GLEN CIRCLE	21.0' L
20	8"x6" TEE & 6" VALVE	STA. 6+70.8 @ WESTOVER GLEN CIRCLE	2.0' L
21	COMBINATION 1/32" & 1/16" H.B.	STA. 7+39.5 @ WESTOVER GLEN CIRCLE	2.0' L
22	8"x6" TEE & 6" VALVE	STA. 7+81.1 @ WESTOVER GLEN CIRCLE	24.8' L
23	COMBINATION 1/16" & 1/8" H.B.	STA. 8+74.4 @ WESTOVER GLEN CIRCLE	1.7' L
24	8"x6" TEE & 6" VALVE	STA. 9+11.4 @ WESTOVER GLEN CIRCLE	2.0' L
25	FIRE HYDRANT BURY LINE EL. 332.5' BURY LENGTH = 6.5'	STA. 9+11.4 @ WESTOVER GLEN CIRCLE	15.0' L
25A	CRIMP RADIUS = 257' LENGTH = 38.6'	STA. 10+28.3 @ WESTOVER GLEN CIRCLE	2.0' L
25B	1/16" H.B.	STA. 10+28.3 @ WESTOVER GLEN CIRCLE	6.3' L
25C	1/16" H.B.	STA. 10+49.7 @ WESTOVER GLEN CIRCLE	8.5' L
26	1/16" H.B.	STA. 11+70.5 @ WESTOVER GLEN CIRCLE	13.0' L
27	1/32" H.B.	STA. 12+40.0 @ WESTOVER GLEN CIRCLE	26.2' L
28	FIRE HYDRANT BURY LINE EL. 327.5' BURY LENGTH = 5.5'	STA. 12+40.0 @ WESTOVER GLEN CIRCLE	21.0' L
29	8"x6" TEE & 6" VALVE	STA. 12+21.0 @ WESTOVER GLEN CIRCLE	26.0' L
30	COMBINATION 1/32" & 1/16" H.B.	STA. 12+51.5 @ WESTOVER GLEN CIRCLE	26.0' L
31	COMBINATION 1/32" & 1/16" H.B.	STA. 12+46.6 @ WESTOVER GLEN CIRCLE	3.3' L
32	8"x6" TEE & 6" VALVE	STA. 13+17.7 @ WESTOVER GLEN CIRCLE	3.3' L
33	8"x6" TEE & 6" VALVE	STA. 15+18.4 @ WESTOVER GLEN CIRCLE	3.3' L
34	FIRE HYDRANT BURY LINE EL. 331.5' BURY LENGTH = 4.8'	STA. 15+18.4 @ WESTOVER GLEN CIRCLE	21.0' L
35	8"x6" TEE & 6" VALVE	STA. 16+27.7 @ WESTOVER GLEN CIRCLE	3.3' L
36	1/16" H.B.	STA. 17+40.2 @ WESTOVER GLEN CIRCLE	1.0' L
37	1/32" H.B.	STA. 17+47.7 @ WESTOVER GLEN CIRCLE	3.5' L
38	1/16" H.B.	STA. 18+18.5 @ WESTOVER GLEN CIRCLE	2.0' L
39	1/16" H.B.	STA. 18+17.7 @ WESTOVER GLEN CIRCLE	2.0' L
40	8"x6" TEE & 6" VALVE	STA. 19+18.1 @ WESTOVER GLEN CIRCLE	2.0' L
41	FIRE HYDRANT BURY LINE EL. 340.5' BURY LENGTH = 6.5'	STA. 19+18.1 @ WESTOVER GLEN CIRCLE	21.0' L
42	CRIMP RADIUS = 257' LENGTH = 51.9'	STA. 19+46.6 @ WESTOVER GLEN CIRCLE	4.5' L
43	COMB. 1/16" & 1/32" H.B.	STA. 19+46.6 @ WESTOVER GLEN CIRCLE	2.0' L
44	1/16" H.B.	STA. 17+38.1 @ WESTOVER GLEN CIRCLE	-
45	1/16" H.B.	STA. 17+31.6 @ WESTOVER GLEN CIRCLE	-
46	1/32" H.B.	STA. 17+22.3 @ WESTOVER GLEN CIRCLE	-
47	DEFLECTION ANGLE 2'20"2"	STA. 16+49.9 @ WESTOVER GLEN CIRCLE	-
48	1/16" H.B.	STA. 16+49.9 @ WESTOVER GLEN CIRCLE	-
49	1/8" H.B.	STA. 15+96.8 @ WESTOVER GLEN CIRCLE	-
50	1/16" H.B.	STA. 14+98.4 @ WESTOVER GLEN CIRCLE	-
51	1/32" H.B.	STA. 12+41.5 @ WESTOVER GLEN CIRCLE	-
52	DEFLECTION ANGLE = 3'48"00"	STA. 7+55.8 @ WESTOVER GLEN CIRCLE	-
53	1/16" H.B.	STA. 7+75.8 @ WESTOVER GLEN CIRCLE	-
54	DEFLECTION ANGLE = 3'13"0"	STA. 4+77.5 @ WESTOVER GLEN CIRCLE	-
55	1/16" H.B.	STA. 2+81.5 @ WESTOVER GLEN CIRCLE	-
56	1/16" H.B.	STA. 1+59.2 @ WESTOVER GLEN CIRCLE	-
57	1/16" H.B.	STA. 1+19.2 @ WESTOVER GLEN CIRCLE	-
58	12"x8" TAPPING SLEEVE & 8" VALVE	STA. 0+00 @ WESTOVER GLEN CIRCLE	-
59	12"x8" TEE & 6" VALVE	STA. 18+35.4 @ GORMAN ROAD	7.0' L
60	FIRE HYDRANT BURY LINE EL. 350.1' BURY LENGTH = 5.0'	STA. 18+35.4 @ GORMAN ROAD	15.7' L
61	CRIMP RADIUS = 556' LENGTH = 194.5'	STA. 22+23.5' @ GORMAN ROAD	7.0' L

NO.	FIXTURE	ROAD @ STATION	OFFSET
62	12"x6" TEE & 6" VALVE	STA. 23+12.8 @ GORMAN ROAD	7.0' L
63	FIRE HYDRANT BURY LINE EL. 327.6' BURY LENGTH = 5.0'	STA. 23+12.8 @ GORMAN ROAD	15.5' L
64	CRIMP RADIUS = 375' LENGTH = 151.2'	STA. 26+44.0 @ GORMAN ROAD	7.0' L
65	12"x6" TEE & 6" VALVE & 12" VALVE	STA. 27+97.9 @ GORMAN ROAD	7.0' L
66	FIRE HYDRANT BURY LINE EL. 363.7' BURY LENGTH = 5.0'	STA. 27+97.9 @ GORMAN ROAD	7.0' L
67	CRIMP RADIUS = 257' LENGTH = 24.7'	STA. 28+25.5 @ GORMAN ROAD	6.2' L
68	1/32" H.B.	STA. 31+17.5 @ GORMAN ROAD	6.8' L
69	1/32" H.B.	STA. 31+37.5 @ GORMAN ROAD	4.8' L
70	1/32" H.B.	STA. 31+59.2 @ GORMAN ROAD	4.8' L
71	1/32" H.B.	STA. 31+79.2 @ GORMAN ROAD	4.4' L
72	1/32" H.B.	STA. 32+00.3 @ GORMAN ROAD	4.2' L
73	12"x6" TEE & 6" VALVE	STA. 32+81.2 @ GORMAN ROAD	7.0' L
74	FIRE HYDRANT BURY LINE EL. 382.4' BURY LENGTH = 5.0'	STA. 32+81.2 @ GORMAN ROAD	15.2' L
67	CRIMP RADIUS = 660' LENGTH = 238.6'	STA. 33+28.3 @ GORMAN ROAD	7.0' L

**NOTE :**  
ALL SEWER ON THIS SHEET IS PRIVATE.

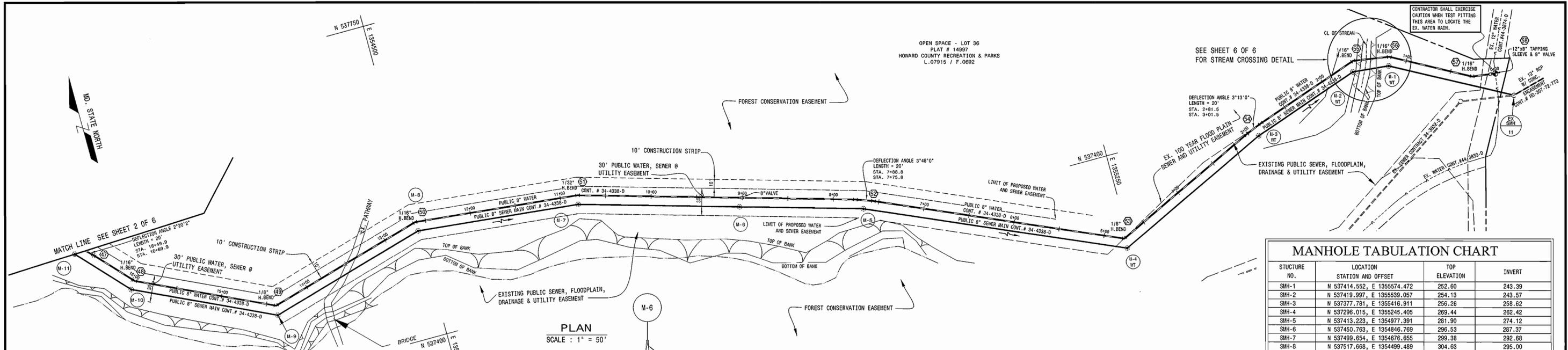
**NOTE :**  
A 3/4" INSIDE METER SETTING WILL BE USED. SEE EXPLODED CONNECTION DETAIL AND HO. CO. DETAIL W 3.21 ON SHEET 4 OF 5.

**UTILITY NOTE**  
Notify "Miss Utility" at 1-800-257-7777 - 48 hours prior to doing any excavation in this area.

The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

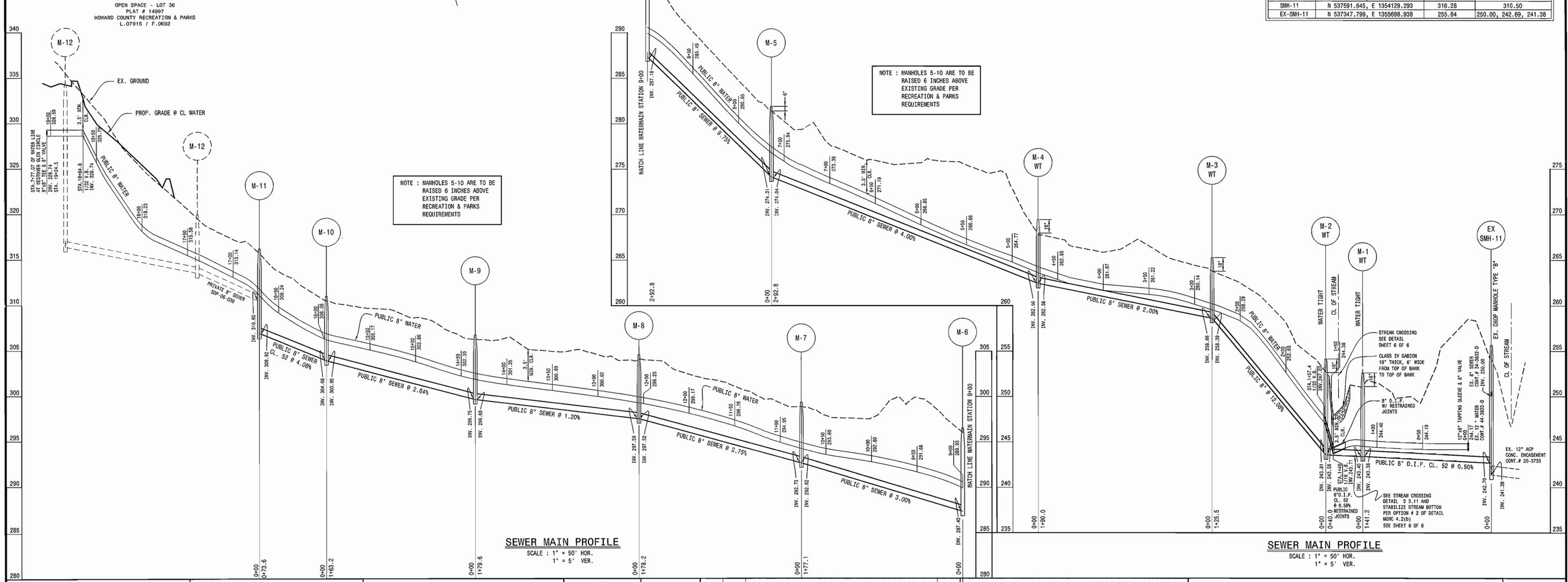
**PLAN**  
SCALE : 1" = 50'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND CHIEF, DEVELOPMENT ENGINEERING DIVISION	PREPARED BY : <b>American Land Development and Engineering, Inc.</b> 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21163 TEL. (410) 465-7903 FAX. (410) 465-3845		DES. : DW/AG DRN. : AVG CHK. : DW DATE : 7-27-06	<b>ON SITE WATER AND SEWER PLAN VIEW</b> 600' SCALE MAP No. 35 BLOCK No. 17	<b>WESTOVER GLEN</b> ELECTION DISTRICT No. 6th CONTRACT NO. : 34-4338-D	SCALE : 1" = 50' SHEET NO. 2 OF 6
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**MANHOLE TABULATION CHART**

STRUCTURE NO.	LOCATION STATION AND OFFSET	TOP ELEVATION	INVERT
SMH-1	N 537414.552, E 1355574.472	252.60	243.39
SMH-2	N 537419.997, E 1355539.057	254.13	243.57
SMH-3	N 537377.781, E 1355416.911	256.26	258.62
SMH-4	N 537296.015, E 1355245.405	269.44	262.42
SMH-5	N 537413.223, E 1354977.391	281.90	274.14
SMH-6	N 537450.763, E 1354846.769	296.53	287.37
SMH-7	N 537499.654, E 1354676.655	299.38	292.68
SMH-8	N 537517.668, E 1354499.489	304.63	295.00
SMH-9	N 537466.258, E 1354326.801	306.79	302.00
SMH-10	N 537537.693, E 1354179.152	311.06	306.00
SMH-11	N 537591.645, E 1354129.293	316.28	310.50
EX-SMH-11	N 537347.799, E 1355698.938	255.64	250.00, 242.69, 241.38

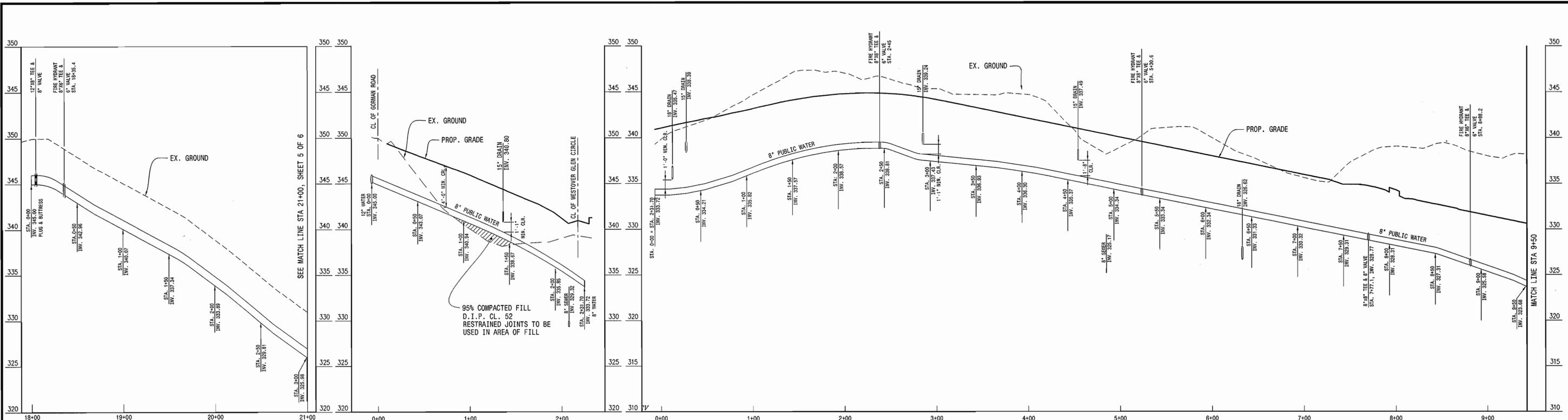


DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	PREPARED BY : <b>American Land Development and Engineering, Inc.</b> 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21183 TEL. (410) 465-7903 FAX. (410) 465-3845	DES.: DW/AG DRN.: AVG CHK.: DW DATE: 7-27-06
<b>8" SEWER MAIN</b>		<b>WESTOVER GLEN</b> ELECTION DISTRICT No. 6th	
CONTRACT NO. : 34-4338-D		SCALE : 1" = 50' SHEET NO. 3 OF 6	



BY	NO.	REVISIONS	DATE

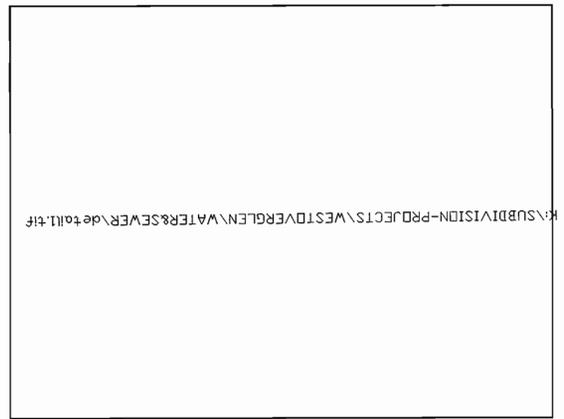
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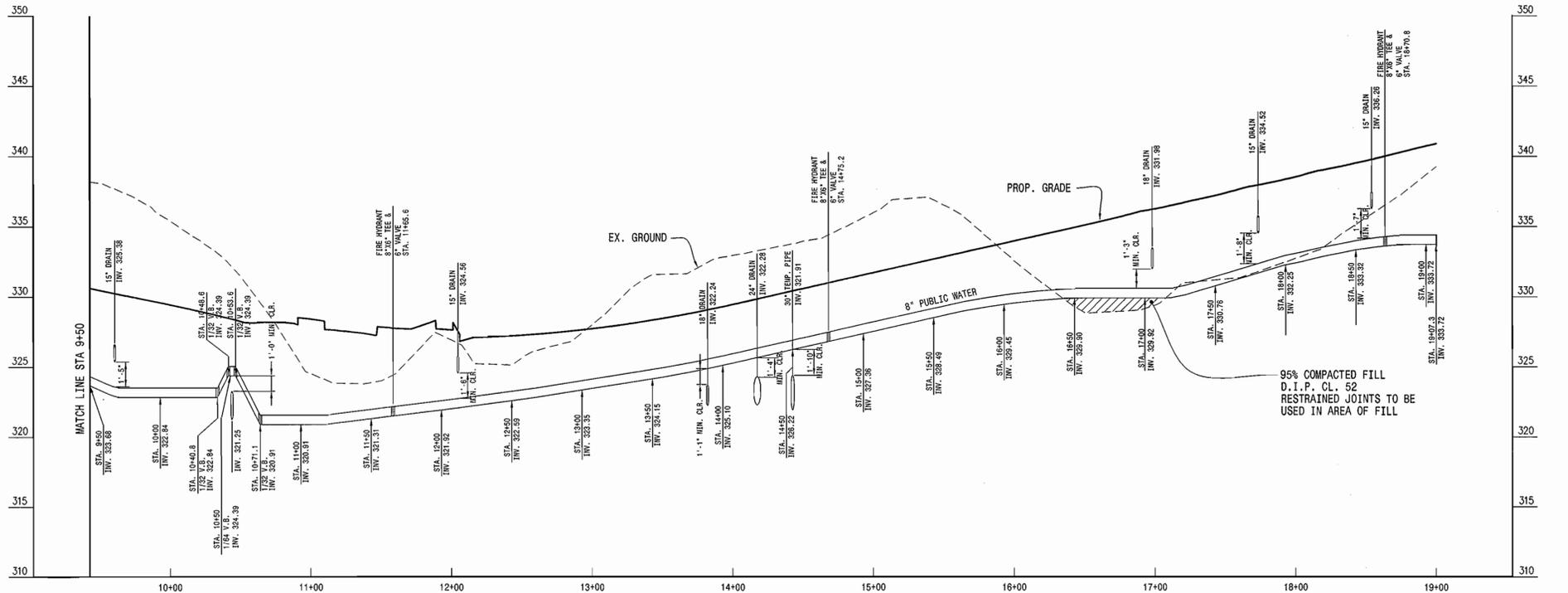
**12" WATER MAIN @ GORMAN ROAD**  
SCALE : 1" = 50' HOR.

**8" WATER MAIN @ ENTRANCE - PROFILE**  
SCALE : 1" = 50' HOR.

**8" WATER MAIN @ WESTOVER GLEN CIRCLE - PROFILE**  
SCALE : 1" = 50' HOR.  
1" = 5' VER.



**TYPICAL WATER SERVICE CONNECTION FOR INSIDE METER SETTINGS**  
SCALE : 1" = 20'

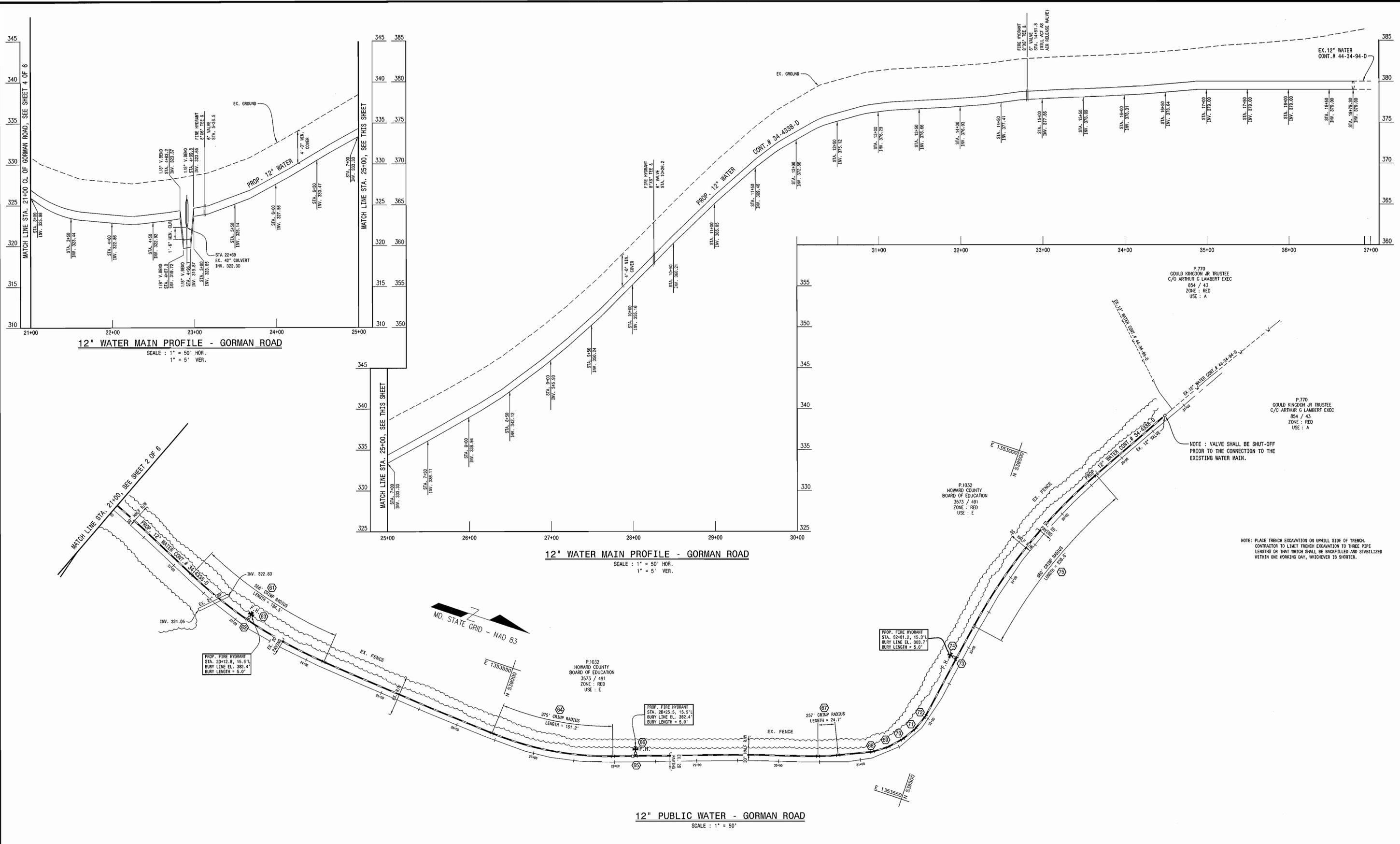


**8" WATER MAIN @ WESTOVER GLEN CIRCLE - PROFILE**  
SCALE : 1" = 50' HOR.  
1" = 5' VER.

NOTE: PLACE TRENCH EXCAVATION ON UPHILL SIDE OF TRENCH. CONTRACTOR TO LIMIT TRENCH EXCAVATION TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND		DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND		PREPARED BY : <b>American Land Development and Engineering, Inc.</b> 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21163 TEL. (410) 465-7903 FAX. (410) 465-3845				DES. : DW/AG DRN. : AVG CHK. : DW DATE : 7-27-06		<b>ON SITE WATER MAIN PROFILE</b>		SCALE : 1" = 50' SHEET NO. 4 OF 6	
CHIEF, BUREAU OF UTILITIES		CHIEF, DEVELOPMENT ENGINEERING DIVISION		REVISIONS		600' SCALE MAP No. 35		BLOCK No. 17		CONTRACT NO. : 34-4338-D		DATE	

I:\WESTOVERGLEN\WESTOVERGLENWATERSEWER\SP.LANG.DWG, WPRF14, 9/18/2008 10:00:13, g12



**12" WATER MAIN PROFILE - GORMAN ROAD**  
 SCALE: 1" = 50' HOR.  
 1" = 5' VER.

**12" WATER MAIN PROFILE - GORMAN ROAD**  
 SCALE: 1" = 50' HOR.  
 1" = 5' VER.

**12" PUBLIC WATER - GORMAN ROAD**  
 SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND  CHIEF, BUREAU OF UTILITIES _____ DATE _____	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND  CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____	PREPARED BY: <b>American Land Development and Engineering, Inc.</b> 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21163 TEL. (410) 465-7903 FAX. (410) 465-3845		DES.: DW/AG DRN.: AVG CHK.: DW DATE: 7-27-06	<b>WATER PLAN AND PROFILE</b>	<b>WESTOVER GLEN</b> ELECTION DISTRICT No. 6th CONTRACT NO. : 34-4338-D	SCALE: 1" = 50'
		BY NO. _____ DATE _____ REVISIONS _____ DATE _____		600' SCALE MAP No. 35 BLOCK No. 17			SHEET NO. 5 OF 6

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE  
 Stabilization of eroded areas with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS THESE PRACTICES APPLIES  
 This practice shall be used on eroded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding to quickly establish vegetation cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are Temporary Soil Stabilization, cleared areas being left idle during construction phases, earth cuts, etc. and for Permanent Seeding are lawns, dunes, cut and fill slopes and other areas of final grade, former stockpiles and staging areas, etc.

EFFECTS OF WATER QUALITY AND DISTURBANCE  
 Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of run-off. Fertilization, irrigation, precipitation, and groundwater recharge. Vegetation over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will reduce the movement of sediment, nutrients and other chemicals carried by run-off to receiving waters. Plants will also help protect groundwater supplies by maintaining those substances present within the root zone. Sediment control devices must retain in place during grading, seeding preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation

1. Install erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, serees, weeways, or sediment control basins.
2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
3. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.

C. Seeded Preparation

1. Temporary Seeding - Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows, rotary tillage or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the rough condition. Seeded areas greater than 20' should be tracked leaving the surface in an irregular condition with ripples running parallel to the contour of the slope.

E. MCFM material shall contain no elements or compounds at concentration levels that will be phytotoxic.

F. MCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 8.5, ash content of 1.0% maximum and water holding capacity of 50% minimum. Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

H. Securing Straw Mulch (Mutch Anchoring): Mutch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:

I. A muck anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a maximum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely on a sloping land, this practice should be used on the contour if possible.

II. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a wet dry weight of 750 lbs./acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

III. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should appear uniform after binder application. Synthetic binders such as Acrylic 508 (Aqua-Tech), 500-70 Polymer, Terra Tex II, Terra Tex AA or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

IV. Lightweight plastic netting may be stapled over the mulch according to the manufacturer's recommendations. Netting is usually available in rolls 4' to 15' wide and 300 to 3,000 feet long.

J. Incremental Stabilization - Cut Slopes

1. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.

K. Construction sequence (Refer to Figure 3 below):

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.

b. Perform Phase 1 excavation, dress, and stabilize.

c. Perform Phase 2 excavation, dress, and stabilize. Overseed Phase 1 as necessary.

d. Perform final phase excavation, dress, and stabilize. Overseed previously seeded areas as necessary. Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruption in the operation of completing out of the seeding season will necessitate the application of temporary stabilization.

e. Lightweight plastic netting may be stapled over the mulch according to the manufacturer's recommendations. Netting is usually available in rolls 4' to 15' wide and 300 to 3,000 feet long.

L. Incremental Stabilization - Fill Slopes

1. Embankments shall be constructed in lifts as prescribed on the plans.
2. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans, a sediment trapping device.
3. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface water and convey it down the slope in a non-erosive manner to the stream.

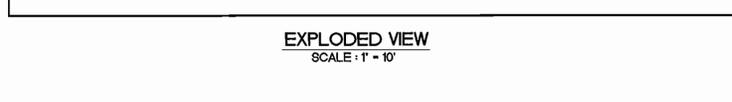
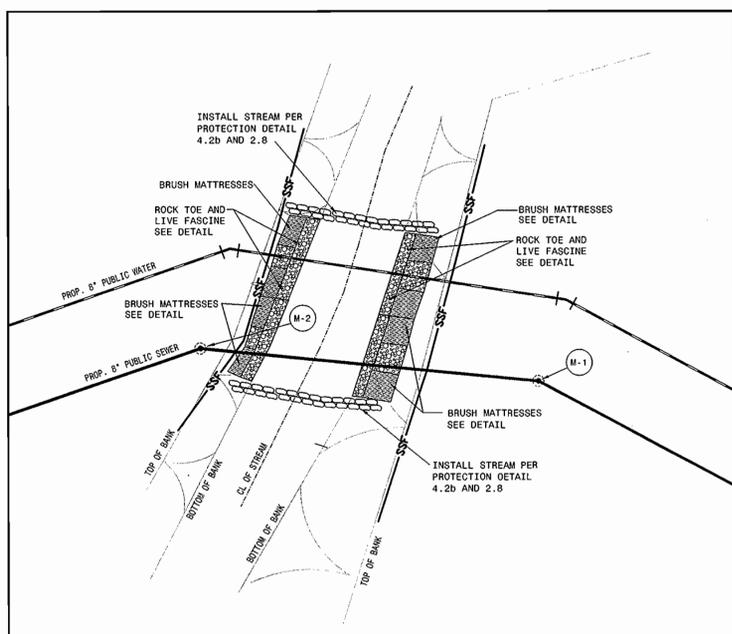
iv. Construction sequence: Refer to Figure 4 (below).

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.

b. Place Phase 1 embankment, dress, and stabilize.

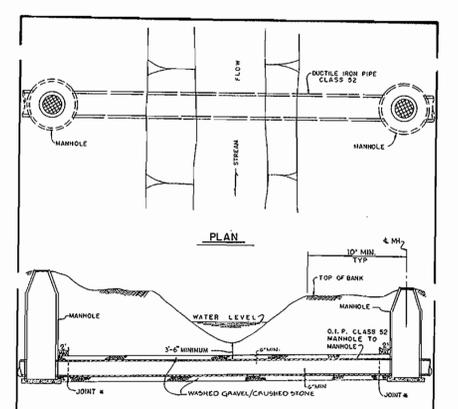
c. Place Phase 2 embankment, dress, and stabilize.

d. Place final phase embankment, dress, and stabilize. Overseed previously seeded areas as necessary. Note: Once placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruption in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



SEQUENCE OF CONSTRUCTION

1. DUE TO FISH SPAWNING OR MIGRATION THE STREAM CHANNEL SHALL NOT BE DISTURBED FROM OCTOBER 1 THROUGH APRIL 30. NO CONSTRUCTION SHALL BE DONE DURING THIS PERIOD.
2. OBTAIN GRADING PERMIT.
3. ONCE ALL PERMIT ARE IN HAND SCHEDULE MEETING IN THE FIELD WITH THE SEDIMENT CONTROL INSPECTOR. - 1 DAY
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE - 1 DAY
5. INSTALL SILT FENCE AND OTHER EROSION AND SEDIMENT CONTROL MEASURES. - 1 WEEK
6. INSTALL SUPER SILT FENCE PARALLEL TO THE STREAM BANKS AS SHOWN. - 3 DAYS
7. INSTALL PUMP AROUND PRACTICE PER DETAIL MGWC 1.2. - 2 DAYS
8. INSTALL 8" WATER AND SEWER MAIN PIPES. STABILIZE STREAM BOTTOM PER OPTION # 2 OF DETAIL MGWC 4.2(b). - 1 WEEK
9. STABILIZE SLOPES UP GRADIENT OF THE STREAM BOTTOM PROTECTION WITH BRUSH MATTRESSES PER DETAIL MGWC 2.8. 4 DAYS
10. SEED AND STABILIZE AREAS OUTSIDE OF THE STREAM BANKS PER "STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION". - 2 DAYS
11. REMOVE TEMPORARY PUMP AND PRACTICE. - 1 DAY
12. CONSTRUCT ENOUGH FOR ONE DAY'S WORK, INCLUDING BACKFILL AND STABILIZING AREA DISTURBED.
13. CONTINUE NO. 13 ABOVE UNTIL TOTAL FORCE MAIN LENGTH IS INSTALLED. - 4 WEEKS
14. ONCE SEDIMENT CONTROL INSPECTOR'S SATISFIED THAT THE DISTURBED AREAS HAVE BEEN STABILIZED REMOVE SEDIMENT CONTROL. - 3 DAYS



MGWC 4.2: UTILITY CROSSING

Temporary in-stream construction

DESCRIPTION  
 The work should consist of installing erosion control devices in and adjacent to the construction of utility crossings.

INSTALLATION GUIDELINES

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 WMA or local authority. (See the 1999 Maryland Standards and Specifications for Soil Erosion and Sediment Control). The proposed construction sequence is as follows (refer to Detail 4.2):

1. 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 as shown in MGWC 1.6, Diversion Pipe or other measure should be installed and anchored or riprap barriers as shown in MGWC 1.5, Sandbag/Diversion Diversion should be constructed according to specifications to divert the streamflow.

2. Excavated topsoil and subsoil should be kept separate, placed on the upland side of the excavation, and replaced in their natural order.

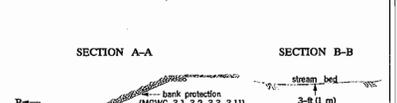
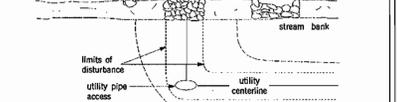
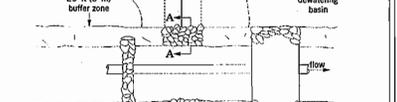
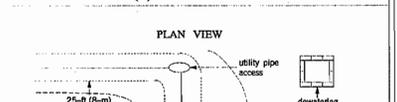
3. All construction should take place during stream low flows. The length of construction time should be limited to a maximum of 5 consecutive days for each crossing.

4. All utility crossings should be placed a minimum of 3 feet (1 meter) beneath the stream bed unless an alternative section is specifically approved by the WMA. For instances where a 3-foot cover is not viable, two alternate stabilization options are given in the Detail 4.2. A low flow channel shall be constructed through all riprap placement across the stream bed.

5. The stream should be dewatered by an approved temporary stream diversion, the construction area should be dewatered, and any disturbed banks should be stabilized. The contractor must erect 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.

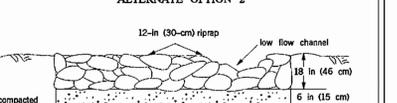
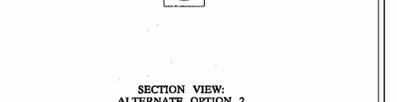
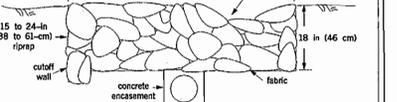
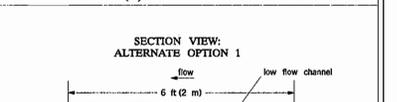
6. Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment control devices, including perimeter erosion control, are to remain in place until the stream channel is stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

Maryland's Guidelines To Waterway Construction DETAIL 4.2(a): UTILITY CROSSING



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Maryland's Guidelines To Waterway Construction DETAIL 4.2(b): UTILITY CROSSING



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MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION  
 The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.

2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of landfills in a minimum of 48 hours before starting construction.

3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all areas within the limit of disturbance which will be removed for construction access. These should not be removed within the limit of disturbance without approval from the WMA or local authority.

4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should inform the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work in the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.

6. Sandbag practices should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

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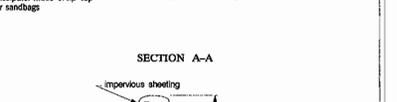
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MGWC 2.8: BRUSH MATTRESSES

Woody vegetative system for bank stabilization

DESCRIPTION  
 Brush mattresses are formed from live branches which are wired together to create an erosion resistant mat. This mat is then secured to the bank by live and/or dead stakes and partially covered with fill soil to initiate growth of the erpings.

EFFECTIVE USES & LIMITATIONS

Brush mattresses provide bank protection areas after establishment. They are generally resistant to wave and current action and function to:

- capture sediment and rebuild streambanks;
- facilitate the colonization of native riparian vegetation; and
- provide long term durability, especially when used on Rogen stream types B3, B4, B5, B6, C1, C2, C3, C4, C5, C6, D4, B4, B5, B6, and E6.

Brush mattresses should be limited to use on:

- sites having only low to moderate water level fluctuations and slope gradients not exceeding 2H:1V;
- streams with low to moderate suspended sediment loads since high loads may preclude the burial of these bioengineering systems and complicate future planting efforts in the site; and
- native fill soils which contain enough fine material to allow the live branches to root and grow readily; key trenches backfilled with topsoil may be required on rocky slopes.

Additionally, this measure should be utilized in conjunction with a revegetation strategy since brush mattresses make it most difficult to propagate negative plantings once the mats become established.

MATERIAL SPECIFICATIONS

When choosing and preparing woody material for brush mattresses, the following guidelines should be followed:

- Live branches should be cut from fresh, green, healthy, dormant parent plants which are adapted to the site conditions whenever possible with the following guidelines:

1. Woody branches up to 2.5 inches (6 centimeters) in diameter and 5 to 10 feet (1 to 3 meters) in length can be used for brush mattresses.
2. Commonly used woody plants for this measure include willow, poplar, and alder since they are versatile and have high growth rates with sturdy habits, fibrous root systems, and high transpiration rates, especially when in leaf.
3. A partial listing of woody plants recommended by the United States Department of Agriculture's Soil Conservation Service is presented in MGWC 2.4: Live Stakes.

- Live branch cuttings should be kept covered and moist at all times and should be placed in cold storage if more than a few hours elapse before installation.

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