

ENLARGEMENT  
SCALE: 1" = 20'

N 537,250  
E 831,500

N 537,250  
E 832,750

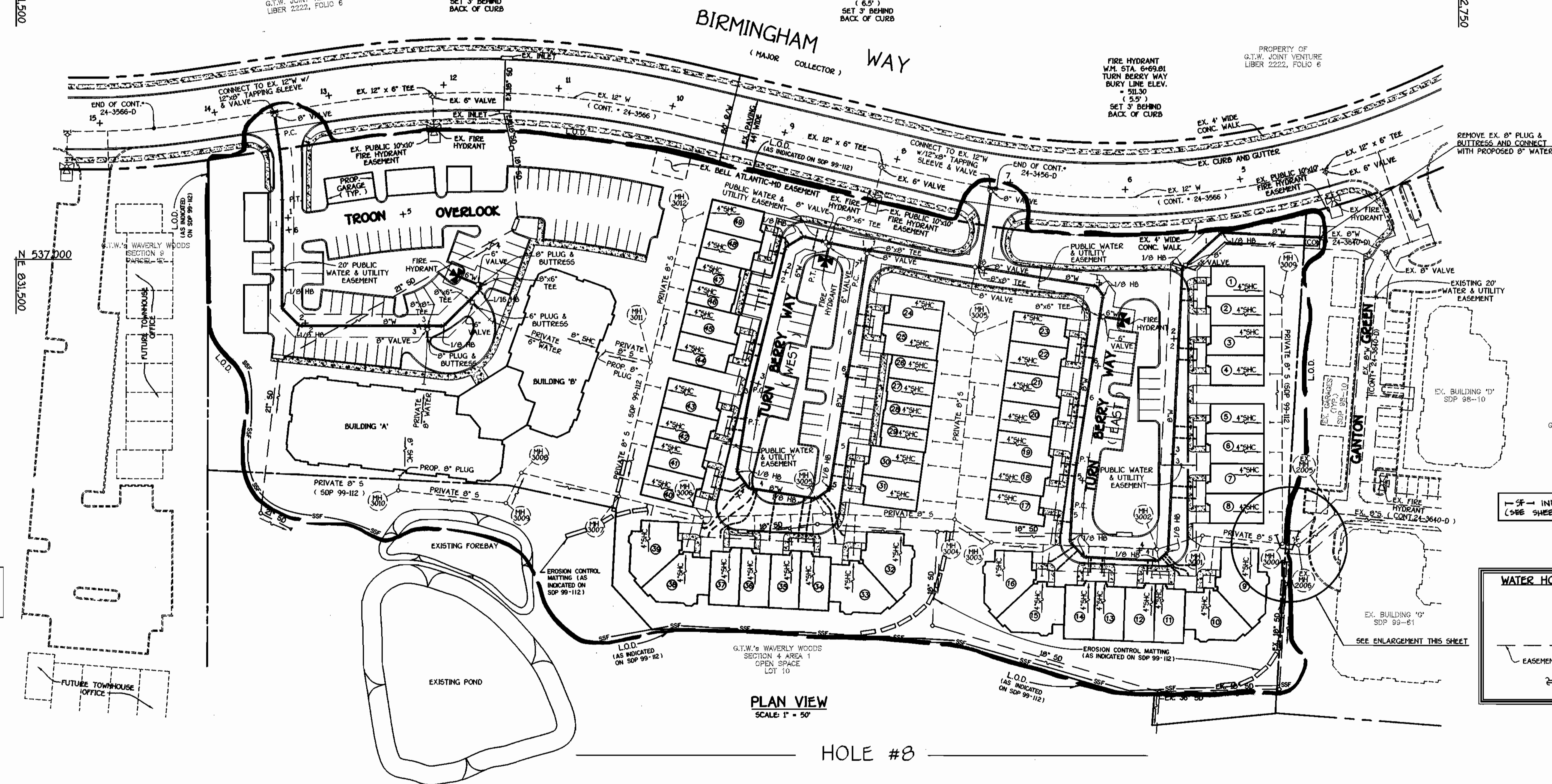
PROPERTY OF  
G.T.W. JOINT VENTURE  
LIBER 2222, FOLIO 6

FIRE HYDRANT  
W.M. STA. 3+49.36  
TROON OVERLOOK  
BURY LINE ELEV.  
= 503.50  
( 6.5' )  
SET 3' BEHIND  
BACK OF CURB

FIRE HYDRANT  
W.M. STA. 1+31.70  
TURN BERRY WAY  
BURY LINE ELEV.  
= 514.30  
( 6.5' )  
SET 3' BEHIND  
BACK OF CURB

FIRE HYDRANT  
W.M. STA. 6+69.81  
TURN BERRY WAY  
BURY LINE ELEV.  
= 511.30  
( 5.5' )  
SET 3' BEHIND  
BACK OF CURB

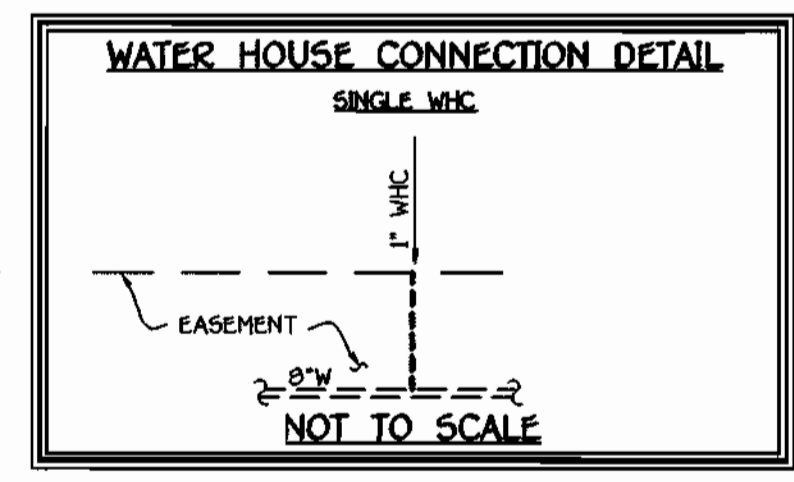
PROPERTY OF  
G.T.W. JOINT VENTURE  
LIBER 2222, FOLIO 6



NOTE: CAST-IRON CURB SERVICE BOXES SHALL BE USED FOR THE WATER HOUSE CONNECTIONS FOR UNIT NOS. 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547. THE CURB SERVICE BOX RIM SHALL BE SET FLUSH W/ PROPOSED PAVING AND/OR PROPOSED DRIVEWAY ELEVATIONS.

NOTE:  
--- L.O.D. DENOTES LIMIT OF DISTURBANCE  
--- SSF --- SSF DENOTES SUPER SILT FENCE

--- SF --- INDICATES SILT FENCE (SEE SHEET 4 FOR DETAILS)



PLAN VIEW  
SCALE: 1" = 50'

HOLE #8

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
*Robert S. Seaman*  
CHIEF, BUREAU OF UTILITIES  
6-9-99  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND  
*David D. Williams*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
6/15/99  
DATE

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 8072 BALTIMORE NATIONAL FREE  
ELLCOTT CITY, MARYLAND 21117  
1989-96 - 2000

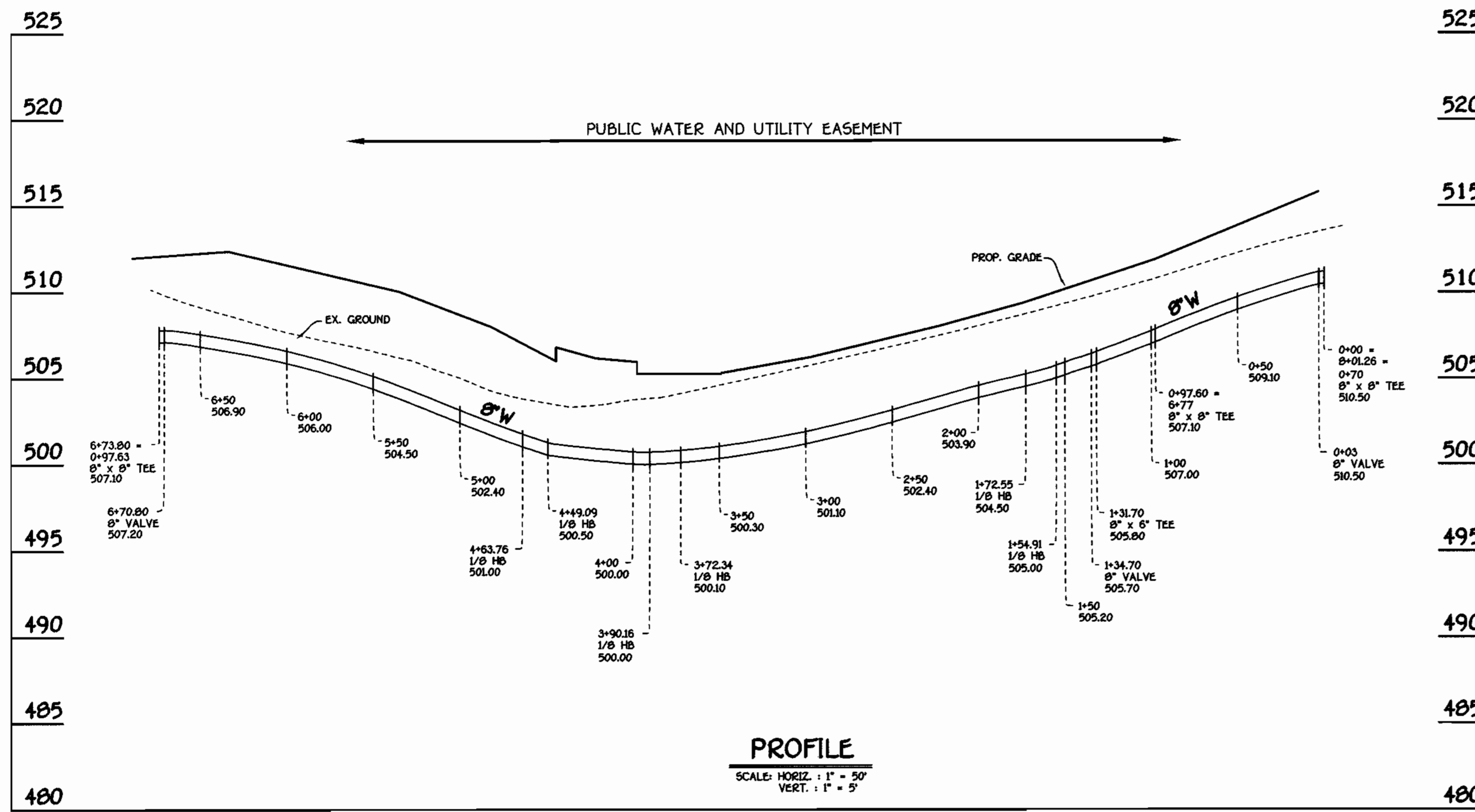


DESIGNED BY: M.D.T.  
DRAWN BY: M.D.T.  
CHECKED BY: M.J.M.  
DATE: MAY 6, 1999  
F.C.C. --- ADDRESS COUNTY COMMENTS PER D.E.D. LETTER OF MAY 27, 1999  
BY NO. REVISION DATE

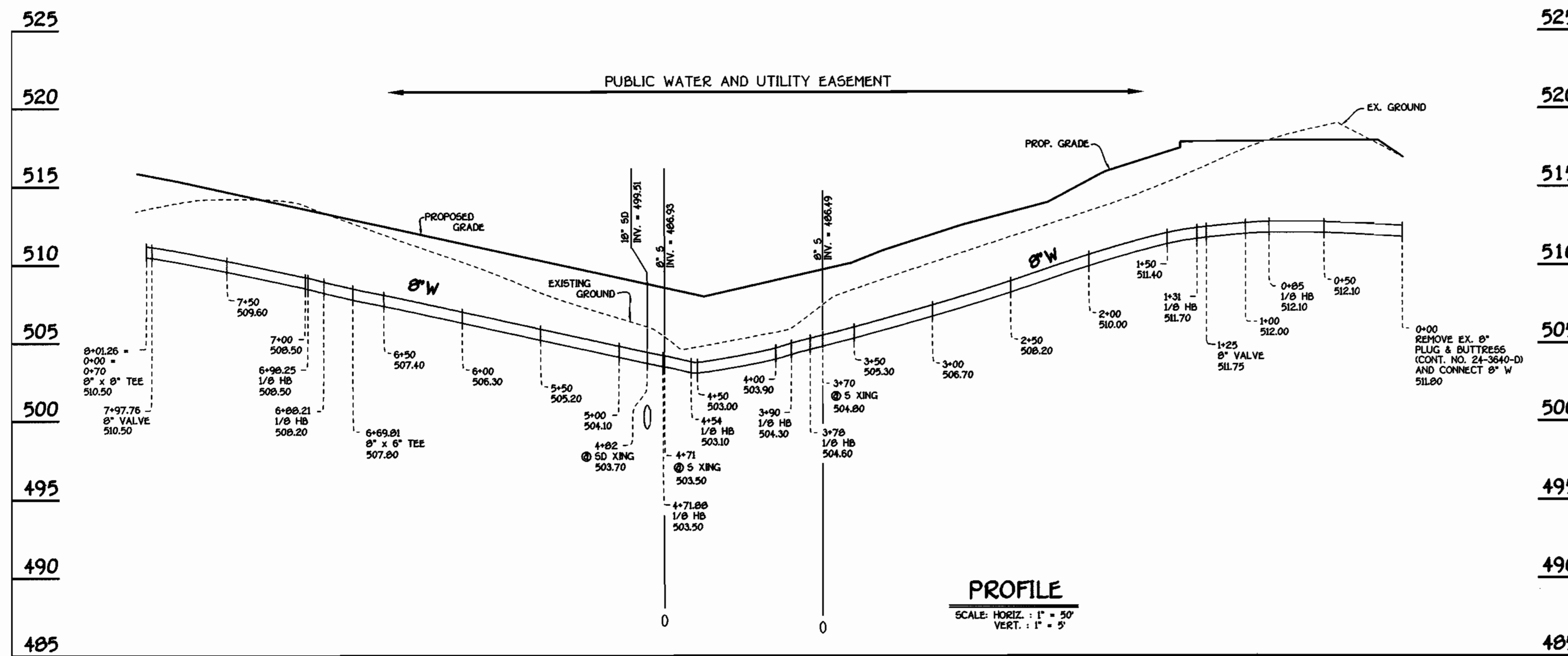
WATER MAIN  
PLAN VIEW  
600' SCALE MAP NO. 16 BLOCK NO. 5  
F.C.C. WORK ORDER NO. 40271  
FILE NAME: 40271PHASE3WATSEW.DWG

VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS  
SECTION 5  
UNITS 1 THRU 49 & BUILDINGS 'A' AND 'B'  
CONTRACT NO. 44-3762-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE  
AS  
SHOWN  
SHEET  
2 OF 4



8" WATER MAIN: TURN BERRY WAY WEST



8" WATER MAIN: TURN BERRY WAY EAST

WATER MAIN TABULATION CHART			
WM STATION	APPURTENANCE	ROAD STATION	DISTANCE
8" W: TURN BERRY WAY EAST			
0+00	REMOVE EX. 8" PLUG & BUTTRESS AND CONNECT W/ PROPOSED 8" WATER	----	----
0+05	1/8 H.B.	----	----
1+31	1/8 H.B.	----	----
3+78	1/8 H.B.	3+77	11' LT.
3+90	1/8 H.B.	3+90	14' LT.
4+54	1/8 H.B.	4+41	18' LT.
4+71.80	1/8 H.B.	4+53	15' LT.
5+00.49	P.C.	4+74	6' LT.
5+41.05	P.T.	5+14	6' LT.
6+66.81	8" VALVE	6+40	4' LT.
6+69.81	8" x 6" TEE	6+43	4' LT.
6+88.21	1/8 H.B.	6+62	4' LT.
6+98.25	1/8 H.B.	0+98	4' RT.
7+97.76	8" VALVE	0+03 WEST	4' RT.
8+01.26+0+00 = 0+70	8" x 8" TEE	0+05 WEST	4' RT.
8" W: TURN BERRY WAY WEST			
0+00=8+01.26 = 0+70	8" x 8" TEE	0+05	4' RT.
0+03	8" VALVE	0+08	4' RT.
0+97.63	8" x 8" TEE	1+03	1' LT.
1+00.84	P.C.	1+06	1' LT.
1+31.70	8" x 6" TEE	1+37	2' LT.
1+34.70	8" VALVE	1+40	2' LT.
1+37.94	P.T.	1+44	2' LT.
1+54.91	1/8 H.B.	1+57	5' RT.
1+72.55	1/8 H.B.	1+71	9' RT.
2+93.57	P.C.	2+91	7' RT.
3+24.90	P.T.	3+22	6' RT.
3+72.34	1/8 H.B.	3+69	2' RT.
3+90.16	1/8 H.B.	3+87	8' LT.
4+49.09	1/8 H.B.	4+68	6' LT.
4+63.76	1/8 H.B.	4+86	1' RT.
6+70.80	8" VALVE	6+93	6' RT.
6+73.80	8" x 8" TEE	6+96	6' RT.
8" W: FROM BIRMINGHAM TO TURN BERRY WAY			
0+00	12" x 8" TAPPING SLEEVE & VALVE	0+05	5' RT.
0+03	8" VALVE	0+08	5' RT.
0+70=0+00 = 8+01.26	8" x 8" TEE	0+78	5' RT.
8" W: FROM BIRMINGHAM TO TROON OVERLOOK			
0+00	12" x 8" TAPPING SLEEVE & VALVE	0+06	7' RT.
0+03	8" VALVE	0+09	7' RT.
0+19.87	P.C.	0+27	7' RT.
0+76.53	P.T.	0+85	5' RT.
1+70.80	1/8 H.B.	1+78	4' RT.
1+92.45	1/8 H.B.	1+98	4' RT.
3+03.05	8" x 8" TEE	3+07	2' RT.
3+17.11	1/8 H.B.	3+20	8' RT.
3+49.36	8" x 6" TEE	3+49	6' RT.
3+60.41	1/16 H.B.	3+59	8' RT.
3+65.41	8" x 6" TEE	3+63	7' RT.
3+67.41	8" PLUG & BUTTRESS	3+65	7' RT.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*R. J. Sullivan*  
6-9-99  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

*[Signature]*  
6/15/99  
DATE

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
BELLGATE CITY, MARYLAND 21154  
(410) 461-2225



DESIGNED BY: M.D.T.  
DRAWN BY: J.C.L.  
CHECKED BY: M.J.M.  
DATE: MAY 6, 1999

F.C.C. -- ADDRESS COUNTY COMMENTS PER D.E.D. LETTER OF MAY 27, 1999  
6/3/99

FILE NAME: G/40271/PHASES 3 & 4/WATSEW/PROFILES2.DWG

WATER MAIN PROFILES

600' SCALE MAP NO. 16 BLOCK NO. 5  
F.C.C. WORK ORDER NO. 40271

VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS SECTION 5  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
CONTRACT NO. 44-3762-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 3 OF 4

CONTRACT NO. 44-3762-D  
VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
SECTION 5  
WATER AND SEWER MAIN EXTENSIONS  
HOWARD COUNTY, MARYLAND

**SECTION 20 :  
STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

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

**PURPOSE:**  
Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized 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 WHERE PRACTICE APPLIES:**  
This practice shall be used on denuded 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 vegetative 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 stockpiles, cleared areas being left between construction phases, earth areas, etc. and for Permanent Seeding are bare, down, cut and fill slopes and other exposed areas.

**EFFECTS ON WATER QUALITY AND QUANTITY:**  
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff. Infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by transmitting these substances present within the root zone. Sediment control devices must remain in place during grading, seedbed 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**
- Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
  - Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
  - Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- B. Soil Amendments (Fertilizer and Lime Specifications)**
- 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.
  - 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 baled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and ingredients of the product.
  - Lime materials shall be ground limestone (quarried) or burnt lime may be substituted which contains at least 50% total oxides calcium oxide plus magnesium oxide. Limestone shall be ground to such fineness that at least 50% will pass through a #20 mesh sieve and 90-100% will pass through a #20 mesh sieve.
  - Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.
- C. Seeded Preparation**
- 1. Temporary Seeding**
- Seedbed 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 or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or disking smooth but left in the roughened condition. Slopes greater than 3:1 should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
  - Apply fertilizer and lime as prescribed on the plans.
  - Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.
- 2. Permanent Seeding**
- Minimum soil conditions required for permanent vegetative establishment:
    - Soil shall be between 6:0 and 7:0.
    - Soil shall contain less than 500 parts per million (ppm).
    - The soil shall contain less than 40% clay, but enough fine grained material (30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if loess or loessic sandstone is to be planted, then a sandy soil (30% silt plus clay) would be acceptable.
    - Soil shall contain sufficient pore space to permit adequate root penetration.
    - If these conditions cannot be met by soils on site, adding topsoil is required.
  - Areas previously graded in conformance with the drawings shall be maintained in a true and even grade. Then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
  - Apply soil amendments as per soil test or as included on the plans.
  - Fix soil amendments into the top 3-5" of topsoil by disk or other suitable means. Lawn areas should be rolled to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a disk leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 3-5" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- D. Seed Specifications**
- All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months preceding the date of sowing such material on the job.
  - Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
  - Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add inoculant as directed on the label. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75-80° F. can weaken bacteria and make the inoculant less effective.
- E. Methods of Seeding**
- Hydroseeding - Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeding.
    - If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: Nitrogen maximum of 100 lbs. per acre total of soluble nitrogen; P2O5 (phosphorous) 200 lbs. per acre; K2O (potassium) 150 lbs. per acre.
    - Lime - use only ground agricultural limestone; 500 lbs. per acre may be applied by hydroseeding. Normally, not more than 2 tons per acre are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
    - Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
  - Dry Seeding - This includes use of conventional drop or broadcast spreaders.
    - Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summary or Table 200 or 201.
    - When practical, seed shall be rolled with a weighted roller to provide good seed to soil contact.
    - Where practical, seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
  - Drill or Cultipacker Seeding - Mechanized seeders that apply and cover seed with soil.
    - Outdrilling seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.
    - Where practical, seed shall be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
  - Mulch Specifications (in order of preference)
    - Straw shall consist of thoroughly threshed wheat, rice or oat straw, reasonable bright in color, and shall not be moist, moldy, chaffed, or excessively dirty and shall be free of noxious weed seeds as specified on the contract "Mulch" section.
    - Wood Cellulose Fiber Mulch (WCFM)
      - WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical entity.
      - WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformity spread rate.
      - WCFM, including dye, shall contain no germination or growth inhibiting factors.
      - WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a mortar-like ground cover, on application having moisture absorption and porosity properties and shall cover and hold green seed in contact with the soil without inhibiting the growth of the grass seedlings.
      - WCFM material shall contain no elements or compounds at concentration levels that will be phytotoxic to the seed.
      - WCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 6.5, ash content of less than 5% and water holding capacity of 200%.
- Note: Only sterile straw mulch should be used in areas where one species of grass is desired.
- F. Mulching Seeded Areas - Mulch shall be applied to seeded areas immediately after seeding.**
- If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
  - When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
  - Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per 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.
  - Securing Straw Mulch Mulch Anchoring - Mulch 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:
    - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to better slopes where equipment can operate easily. Seed on nearby land, this practice should be used on the contour if possible.
    - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be tested at a net dry weight of 1,500 lbs. per acre. The fiber binder shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
    - Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crests of banks. The remainder of area should be seeded uniform after binder application. Synthetic binders - such as Acrylic ULR (Auro-Tack), DCA-70 Petro-Tack, Terra-Tax Terra-Tack, or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
    - Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

**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 (33-4929).
- 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 THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 72 HOURS CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, BARRIERS, SLOPED AREAS AND ALL SLOPES STEEPER THAN 3:1, 30 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 1986 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PERMANENT SEEDING (SEC. 30), SOIL (SEC. 31), TEMPORARY SEEDING (SEC. 32), AND MULCHING (SEC. 33). TEMPORARY STABILIZATION WITH MULCH 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	7.78 ACRES
AREA DISTURBED	7.42 ACRES
AREA TO BE ROOFED OR PAVED	2.91 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.27 ACRES
TOTAL CUT	526 C.Y.DS.
TOTAL FILL	23.34 C.Y.DS.
OFFSITE WASTE/BORROW AREA LOCATION	CLYDES
- ANY SEDIMENT CONTROL PRACTICES WHICH DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE DISTURBED AREAS.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UNDER COMPLETION OF THE DISTURBED AREAS AND SEDIMENT CONTROL STRUCTURES, 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.
- TRUCKS FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PER LENGTHS OF THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**PERMANENT SEEDING NOTES**

- ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:
- SEEDING PREPARATION:**  
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
- SOIL AMENDMENTS:**  
APPLY TWO TONS PER ACRE DOLOMITE LIME (52 LBS./1,000 SQ.FT.) AND 400 LBS. PER ACRE 0-20-20 FERTILIZER (4 LBS./1,000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK UP TO THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREA-NITROGEN FERTILIZER (4 LBS./1,000 SQ.FT.) AND 100 LBS. PER ACRE 0-15 LBS./1,000 SQ.FT. OF 10-20-20 FERTILIZER.

- SEEDING:**  
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 100 LBS. PER ACRE (2 LBS./1,000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THROUGH AUGUST 31, SEED WITH 100 LBS./ACRE (2 LBS./1,000 SQ.FT.) KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE (0.05 LBS./1,000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 15 THROUGH FEBRUARY 28, PROJECT SITE BY OPTION (2) - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (3) - USE SOIL OPTION (3) - SEED WITH 100 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STRAW. ALL SLOPES SHOULD BE HYDROSEEDING.

- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ.FT.) OF UNWEIGHED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GAL./1,000 SQ.FT.) OF PREPARED ASPHALT ON FLAT AREAS, ON SLOPES 5 FEET OR HIGHER USE 340 GALLONS PER ACRE (8 GAL./1,000 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 REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
- SEEDING PREPARATION:**  
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
- SOIL AMENDMENTS:**  
APPLY 500 LBS. PER ACRE 10-10-10 FERTILIZER (4 LBS./1,000 SQ.FT.)
- SEEDING:**  
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH NOVEMBER 15, SEED WITH 15 BUSHELS PER ACRE OF ANNUAL RYE (32 LBS./ACRE) OF WEEPING LOVEGRASS (07 LBS./1,000 SQ.FT.). FOR THE PERIOD NOVEMBER 15 THRU FEBRUARY 28, PROJECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOIL.

- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ.FT.) OF UNWEIGHED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 200 GALLONS PER ACRE (5 GALLON SQ.FT.) OF PREPARED ASPHALT ON FLAT AREAS ON SLOPES 5 FEET OR HIGHER, USE 340 GALLONS PER ACRE (8 GAL./1,000 SQ.FT.) FOR ANCHORING.

- REFER TO THE 1986 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL, FOR RATE AND METHODS NOT COVERED.
- |                      |                             |                |
|----------------------|-----------------------------|----------------|
| Tensile Strength     | 50 lb/in (min)              | Test: MSHT 509 |
| Tensile Modulus      | 20 lb/in (min)              | Test: MSHT 509 |
| Flow Rate            | 0.3 gal / ft / minute (max) | Test: MSHT 322 |
| Filtering Efficiency | 75% (min)                   | Test: MSHT 322 |

**SECTION 21 :  
STANDARD AND SPECIFICATIONS FOR TOPSOIL**

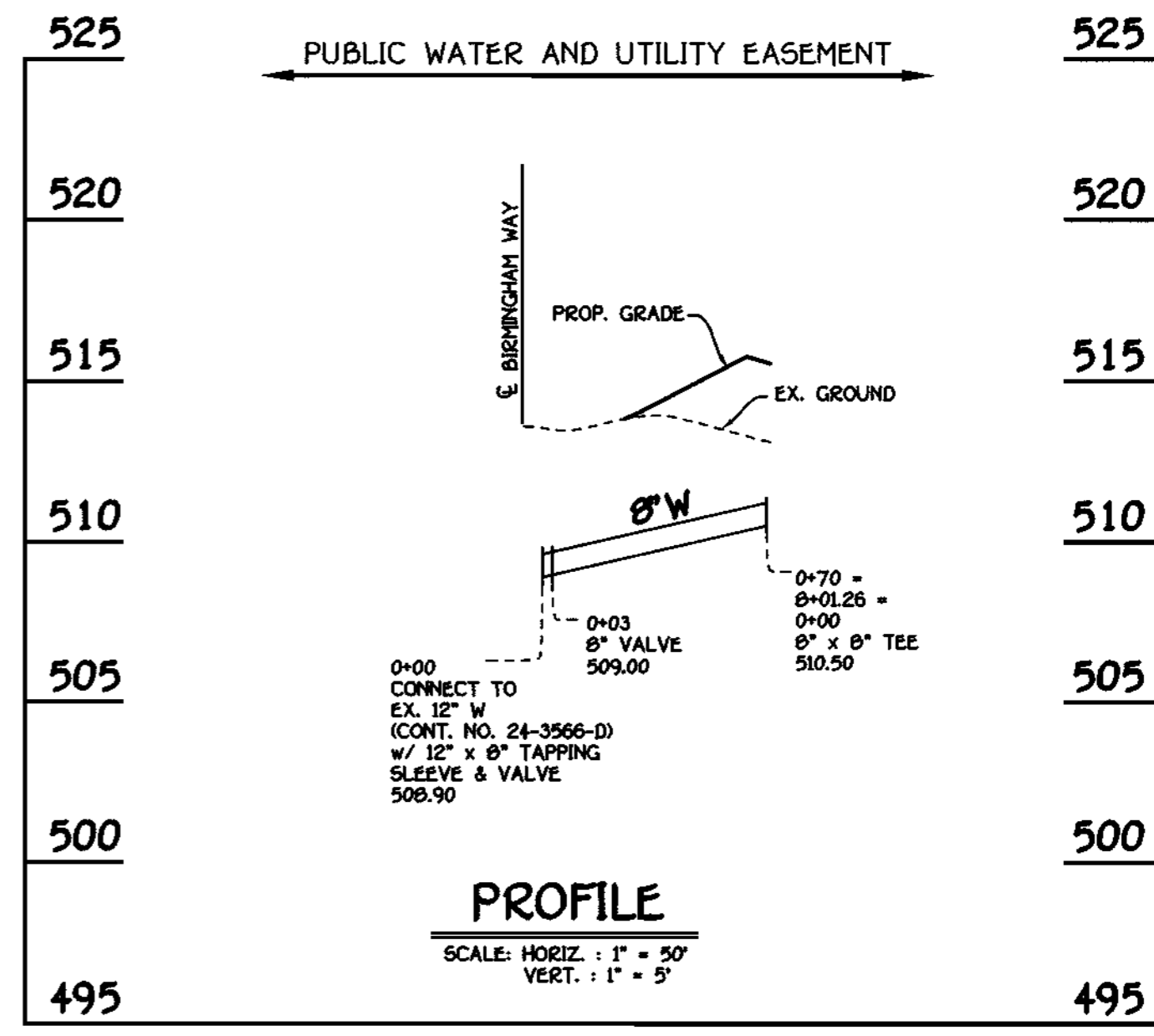
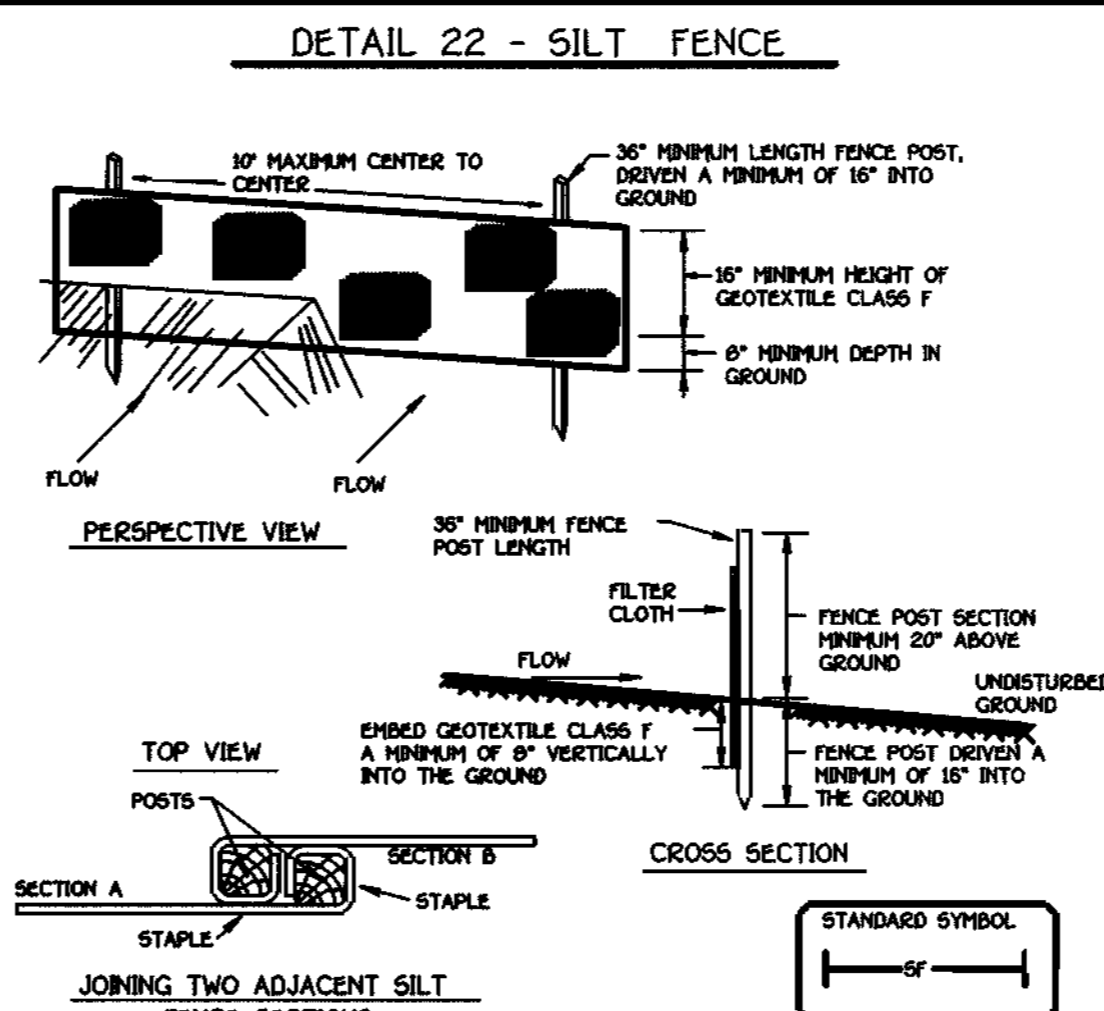
- DEFINITION:** PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.
- PURPOSE:** TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
- SPECIFICATIONS:** A TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS. TOPSOIL SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHESNA, GRAVEL, STICKS, ROOTS, TREAS, OR OTHER MATERIALS LONGER THAN 6" IN LENGTH. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 6" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". AVOID SURFACE ROUGHENING, BURNING, TOPSOIL, AND APPLY SOIL AMENDMENTS IN STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION. TOPSOIL SHALL NOT BE PLACED DURING FROZEN, MUDDY, OR EXCESSIVELY WET CONDITIONS.

**SILT FENCE**

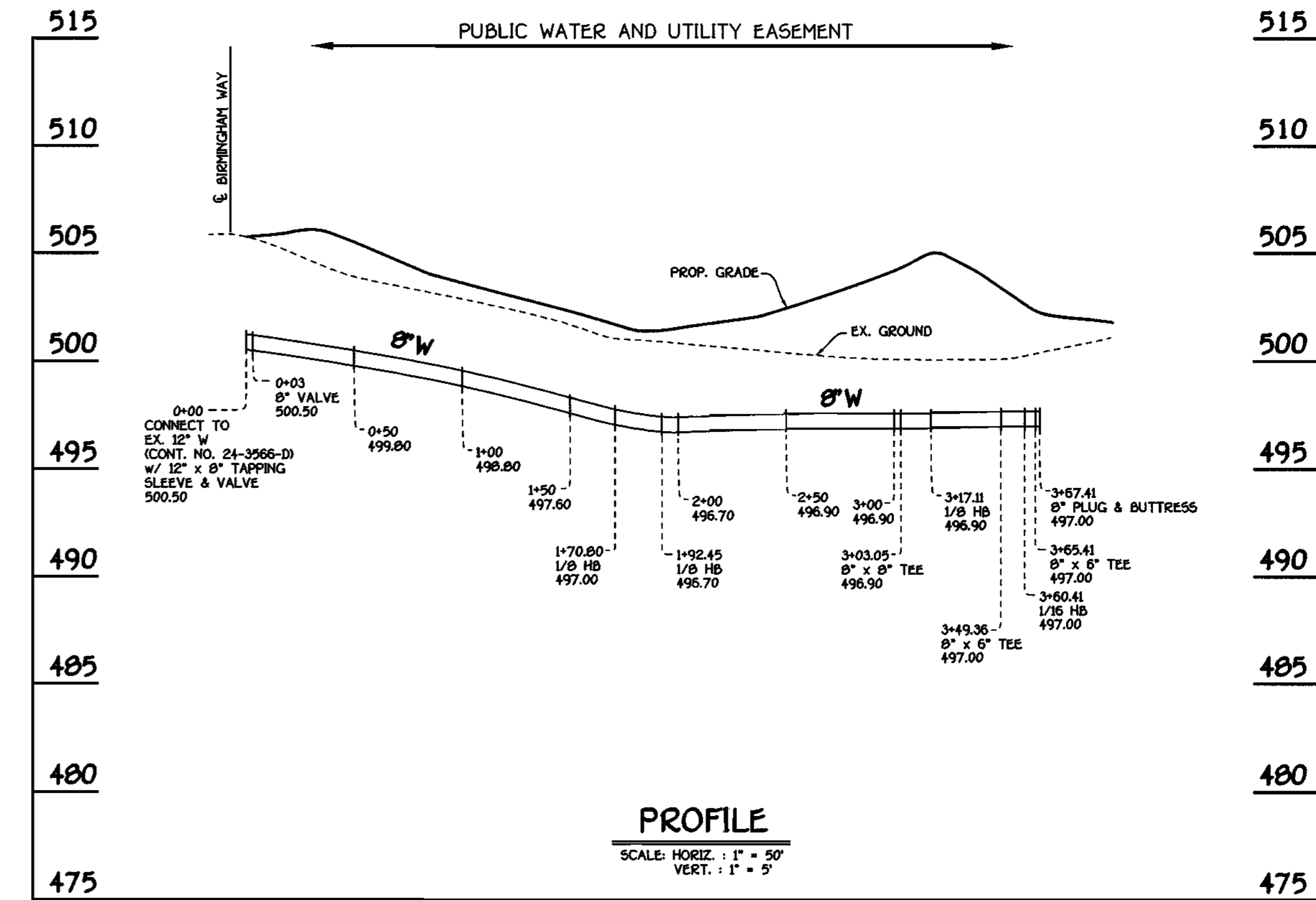
Silt Fence Design Criteria

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.



**8" WATER MAIN FROM BIRMINGHAM WAY TO TURN BERRY WAY**



**8" WATER MAIN FOR TROON OVERLOOK**

CONTRACT NO. 44-3762-D  
VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS  
SECTION 5  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
WATER AND SEWER MAIN EXTENSIONS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

6-9-99 DATE

6/15/99 DATE

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

13720 BALTIMORE NATIONAL Pk.  
SUITE 201  
CLUETT CITY, MARYLAND 21046  
(410) 461-1995

STATE OF MARYLAND  
REGISTERED PROFESSIONAL ENGINEER  
No. 1176  
TERRELL W. FISHER

DESIGNED BY: M.D.T.

DRAWN BY: J.C.L.

CHECKED BY: M.J.M.

DATE: MAY 6, 1999

F.C.C. - - - ADDRESS COUNTY COMMENTS PER D.E.D. LETTER OF MAY 27, 1999

6/3/99

BY NO. REVISION

WATER MAIN PROFILES

60' SCALE MAP NO. 15 BLOCK NO. 5

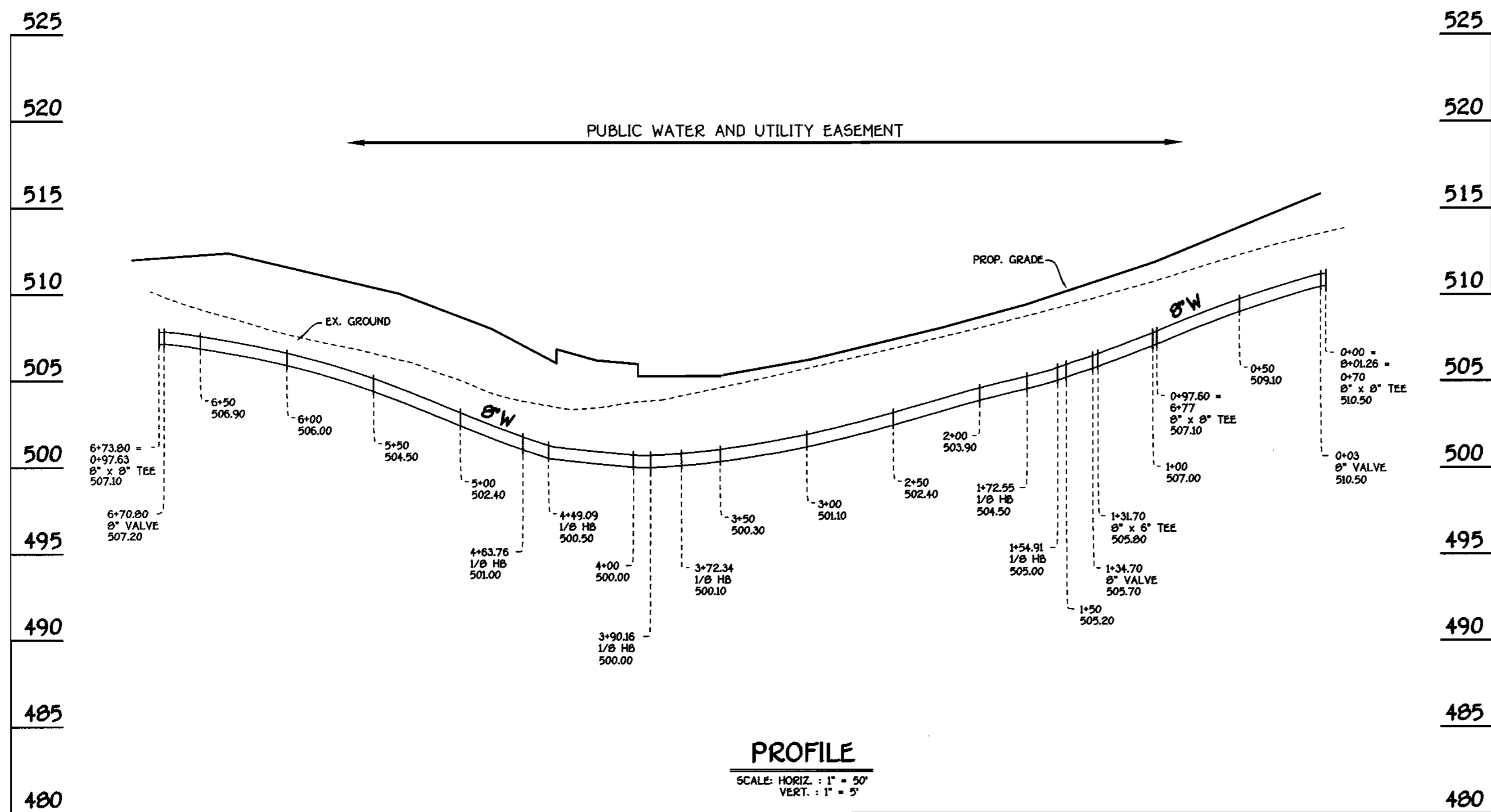
F.C.C. WORK ORDER NO. 40271

FILE NAME: G:\0271\PHASES 3 & 4\WATERMAIN\PROFILES.DWG

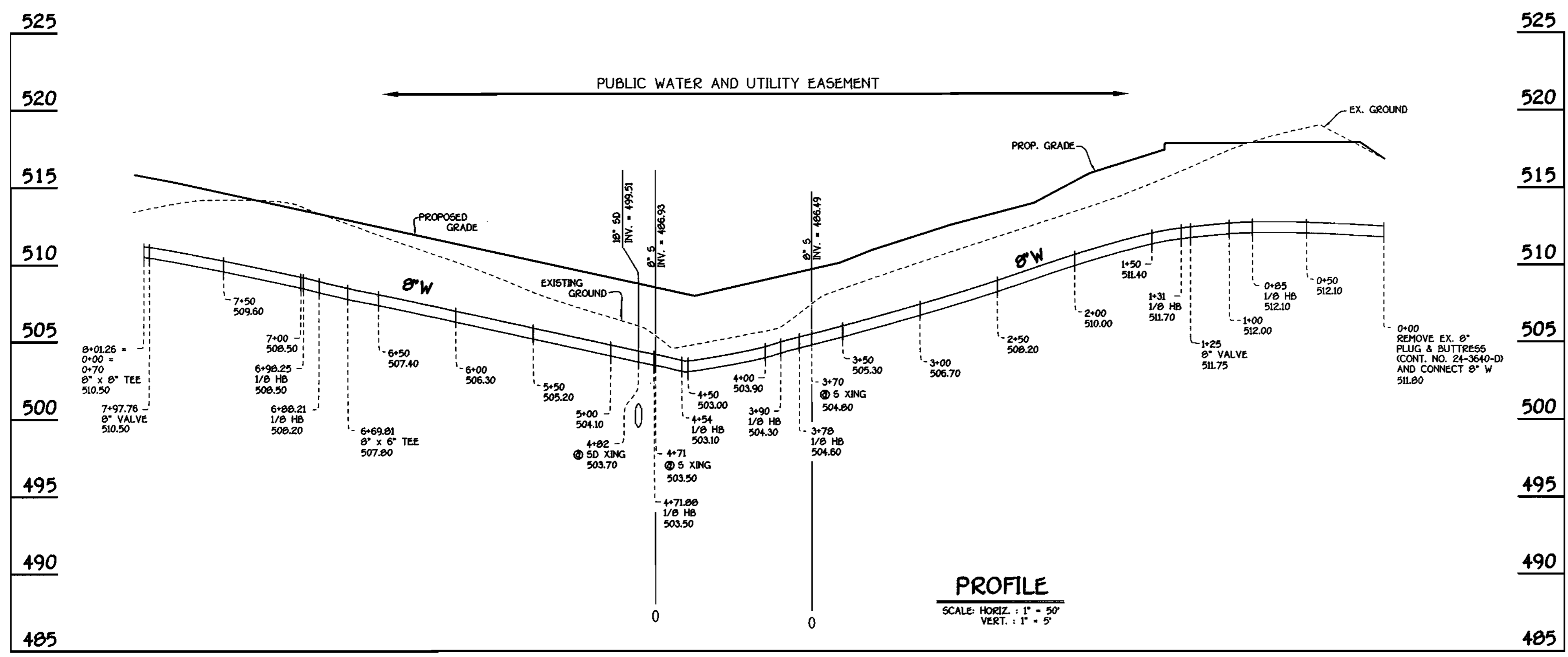
VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS  
SECTION 5  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
CONTRACT NO. 44-3762-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 4 OF 4



8" WATER MAIN: TURN BERRY WAY WEST



8" WATER MAIN: TURN BERRY WAY EAST

WATER MAIN TABULATION CHART			
WM STATION	APPURTENANCE	€ ROAD STATION	DISTANCE
8" W: TURN BERRY WAY EAST			
0+00	REMOVE EX. 8" PLUG & BUTTRESS AND CONNECT W/ PROPOSED 8" WATER	----	----
0+85	1/8 HB.	----	----
1+31	1/8 HB.	----	----
3+78	1/8 HB.	3+77	1' LT.
3+90	1/8 HB.	3+90	14' LT.
4+54	1/8 HB.	4+41	16' LT.
4+71.80	1/8 HB.	4+53	15' LT.
5+00.49	P.C.	4+74	6' LT.
5+41.05	P.T.	5+14	6' LT.
6+66.81	8" VALVE	6+40	4' LT.
6+69.81	8" x 6" TEE	6+43	4' LT.
6+88.21	1/8 HB.	6+62	4' LT.
6+98.25	1/8 HB.	6+98	4' RT.
7+97.76	8" VALVE	0+03 WEST	4' RT.
8+01.26=0+00 =0+70	8" x 8" TEE	0+05 WEST	4' RT.
8" W: TURN BERRY WAY WEST			
0+00=8+01.26 =0+70	8" x 8" TEE	0+05	4' RT.
0+03	8" VALVE	0+08	4' RT.
0+97.63	8" x 8" TEE	1+03	1' LT.
1+00.84	P.C.	1+06	1' LT.
1+31.70	8" x 6" TEE	1+37	2' LT.
1+34.70	8" VALVE	1+40	2' LT.
1+37.94	P.T.	1+44	2' LT.
1+54.91	1/8 HB.	1+57	5' RT.
1+72.55	1/8 HB.	1+71	9' RT.
2+93.57	P.C.	2+91	7' RT.
3+24.90	P.T.	3+22	6' RT.
3+72.34	1/8 HB.	3+69	2' RT.
3+90.16	1/8 HB.	3+87	8' LT.
4+49.09	1/8 HB.	4+68	6' LT.
4+63.76	1/8 HB.	4+86	1' RT.
6+70.80	8" VALVE	6+93	6' RT.
6+73.80	8" x 8" TEE	6+96	6' RT.
8" W: FROM BIRMINGHAM TO TURN BERRY WAY			
0+00	12" x 8" TAPPING SLEEVE & VALVE	0+05	5' RT.
0+03	8" VALVE	0+08	5' RT.
0+70=0+00 =8+01.26	8" x 8" TEE	0+78	5' RT.
8" W: FROM BIRMINGHAM TO TROON OVERLOOK			
0+00	12" x 8" TAPPING SLEEVE & VALVE	0+06	7' RT.
0+03	8" VALVE	0+09	7' RT.
0+19.87	P.C.	0+27	7' RT.
0+76.53	P.T.	0+85	5' RT.
1+70.80	1/8 HB.	1+78	4' RT.
1+92.45	1/8 HB.	1+96	4' RT.
3+03.05	8" x 8" TEE	3+07	2' RT.
3+17.11	1/8 HB.	3+20	8' RT.
3+49.36	8" x 6" TEE	3+49	6' RT.
3+60.41	1/8 HB.	3+59	8' RT.
3+65.41	8" x 6" TEE	3+63	7' RT.
3+67.41	8" PLUG & BUTTRESS	3+65	7' RT.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

*Robert D. ...* 6-9-99  
CHIEF, BUREAU OF UTILITIES

*Michael ...* 6/15/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTONAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE  
BELLGATE CITY, MARYLAND 20814  
(410) 461-2895

STATE OF MARYLAND  
TERRELL A. FISHER  
REGISTERED PROFESSIONAL ENGINEER  
NO. 9787

DESIGNED BY: M.D.T.  
DRAWN BY: J.C.L.  
CHECKED BY: M.J.M.  
DATE: MAY 6, 1999

F.C.C. - - - ADDRESS COUNTY COMMENTS PER D.E.D. LETTER OF MAY 27, 1999 6/3/99  
BY NO. REVISION DATE

WATER MAIN PROFILES

600' SCALE MAP NO. 16 BLOCK NO. 5  
F.C.C. WORK ORDER NO. 10271  
FILE NAME: G/10271/PHASES 3 & 4/WATSEW/PROFILES2.DWG

VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS SECTION 5  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
CONTRACT NO. 44-3762-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

CONTRACT NO. 44-3762-D  
VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
SECTION 5  
WATER AND SEWER MAIN EXTENSIONS  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 3 OF 4

**SECTION 20 :  
STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

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

**PURPOSE:**  
Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas, and improving water habitat and visual resources.

**CONDITIONS WHERE PRACTICE APPLIES:**  
This practice shall be used on denuded 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 vegetative 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 stockpiles, cleared areas being left idle between construction phases, earth dikes, etc., and for Permanent Seeding are: lawns, dunes, cut and fill slopes and other areas of final grade, former stockpiles and eroding areas, etc.

**EFFECTS ON WATER QUALITY AND QUANTITY:**  
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, 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 help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seeded 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**
- Site Preparation**
    - Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
    - Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
    - Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.
  - Soil Amendments (Fertilizers)**
    - 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 abrasion tests for engineering purposes may also be used for chemical analyses.
    - Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Fertilizer 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.
    - Lime materials shall be ground limestone hydrated or burnt lime may be substituted which contains at least 90% active calcium oxide plus magnesium oxide. Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
    - Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.
  - Seeded Preparation**
    - 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 or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas lighter than 3:1 should be treated leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
      - Apply fertilizer and lime as prescribed on the plans.
      - Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.
    - Permanent Seeding**
      - Minimum soil conditions required for permanent vegetative establishment:
        - pH shall be between 5.0 and 7.0
        - Soluble salts shall be less than 500 parts per million (ppm).
        - The soil shall contain less than 40% clay, but enough fine grained material (clay) will also provide the capacity to hold a moderate amount of moisture. An exception is if loesslike or waste materials to be sited, then a sandy soil (30% silt plus clay) would be acceptable.
        - Soil shall contain 1.25 minimum organic matter by weight.
        - Soil must contain sufficient pore space to permit adequate root penetration.
        - If these conditions cannot be met by soils on site, adding topsoil is required.
      - Soil must contain sufficient pore space to permit adequate root penetration. Use four times the amount of topsoil as specified in the specifications for Topsoil.
      - Areas previously graded in conformity with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
      - Soil amendments as per soil test or as included on the plans.
      - Mix soil amendments into the top 3-5" of topsoil by diking or other suitable means. Lawn areas should be rolled to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seeded preparation, loose surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be treated by diking leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 3-5" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- Seed Specifications**
  - All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.
  - Note: Seed test data shall be made available to the inspector to verify type and rate of seed used.
  - Incubant** - The incubant for testing legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Incubants shall not be used later than the date specified on the container (incubant as directed) and shall be kept in a cool and dark place until used. Incubants above 75°F or 20°C can weaken bacteria and make the incubant less effective.
- Methods of Seeding**
  - Hydroseeding** - Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seed, or a cultipacker seeder.
    - If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: Nitrogen maximum of 100 lbs. per acre total of soluble nitrogen; P2O5 (phosphorous) 200 lbs/acre; K2O (potassium) 200 lbs/acre.
    - Lime - use only ground agricultural limestone, 1/2 to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
    - Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
  - Dry Seeding** - This includes use of conventional drop or broadcast spreaders.
    - Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 20a or 20b. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
    - Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
  - Drill or Cultipacker Seeding** - Mechanized seeders that apply and cover seed with soil.
    - Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after rolling.
    - Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- Mulch Specifications (in order of preference)**
  - Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall be as specified in the Maryland Seed Law.
  - Wood cellulose fiber mulch (WCFM)
    - WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
    - WCFM shall be dried green or contain a green dye in the package that will provide an accurate color to facilitate visual inspection of the material.
    - WCFM, including dye, shall contain no germination or growth inhibiting factors.
    - WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a batter-like ground cover, on application having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
    - WCFM material shall contain no elements or compounds at concentration levels that will be phytotoxic.
    - WCFM 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 1.5% maximum and water holding capacity of 90% minimum.

- Note:** Only sterile straw mulch should be used in areas where species of grass is desired.
- Mulching Seeded Areas** - Mulch shall be applied to all seeded areas immediately after seeding.
  - If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
  - When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
  - Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per 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.
- Securing Straw Mulch (Mulch Anchoring)** - Mulch 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 site of area and erosion history.
  - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to better slopes where equipment can operate safely. Used on sloping land, this practice should be used on the contour if possible.
  - Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 1/2 ton per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
  - Application of liquid binders should be heavier at the edges where wind catches such as on ridges and crests of berms. The remainder of the area should be applied in uniform application. Synthetic binders - such as Acrylic Latex, Urethane, DCP, Petrobond, Terra Tex II, Terra Trak AK or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
  - Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

**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 (312-1855).
- 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 THERE TO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 30 TO 7 CALENDAR DAYS FOR ALL PERMITTED SEDIMENT CONTROL STRUCTURES, DICES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 BY 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 15 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1996 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 20, 500 (SEC. 24), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 50). 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	7,751 ACRES
AREA TO BE ROADED OR PAVED	742 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2,27 ACRES
TOTAL CUT	8258 CUBIC YDS.
TOTAL FILL	2338 CUBIC YDS.
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY OTHER ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ALL DISTURBED AREAS IN EXCESS OF 5 ACRES SHALL BE MAINTAINED IN CONFORMANCE WITH 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. APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EROSION DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE REQUIRED 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 WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**PERMANENT SEEDING NOTES**

- ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:
- SEEDING PREPARATION:**  
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
- SOIL AMENDMENTS:**  
APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 600 LBS. PER ACRE 0-20-20 FERTILIZER (94 LBS./1000 SQ.FT.) BEFORE SEEDING. HAND OR DISC INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. APPLY 400 LBS. PER ACRE 38-0-0 UREAFORM FERTILIZER (9 LBS./1000 SQ.FT.) AND 500 LBS. PER ACRE (15 LBS./1000 SQ.FT.) OF 10-10-10 FERTILIZER.
- SEEDING:**  
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 100 LBS./ACRE (3 LBS./1000 SQ.FT.) OF CENTURY 31 TALL FESCUE FOR THE PERIOD MAY 1 THROUGH JULY 31, SEED WITH 80 LBS./ACRE (4 LBS./1000 SQ.FT.) OF CENTURY 31 TALL FESCUE AND 2 LBS. PER ACRE (0.05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS DURING THE PERIOD OF SEEDING THROUGH FEBRUARY 28, PROJECT SITE BY OPTION (D) - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (C) - USE SOO, OPTION (C) SEED WITH 100 LBS./ACRE CENTURY 31 TALL FESCUE AND MULCH WITH TWO TONS/ACRE WELL ANCHORED STRAW. ALL SLOPES SHOULD BE HYDROSEEDED.
- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (90 TO 90 LBS./1000 SQ.FT.) OF UNROTTED STRAW MULCH IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, OR SLOPES @ FEET OR HIGHER, USE 346 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) FOR ANCHORING.
- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (90 TO 90 LBS./1000 SQ.FT.) OF UNROTTED STRAW MULCH IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 200 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES @ FEET OR HIGHER, USE 346 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) FOR ANCHORING.
- REFER TO THE 1996 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.**

- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (90 TO 90 LBS./1000 SQ.FT.) OF UNROTTED STRAW MULCH IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 200 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES @ FEET OR HIGHER, USE 346 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) FOR ANCHORING.
- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (90 TO 90 LBS./1000 SQ.FT.) OF UNROTTED STRAW MULCH IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 200 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES @ FEET OR HIGHER, USE 346 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) FOR ANCHORING.
- REFER TO THE 1996 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.**

**TEMPORARY SEEDING NOTES**

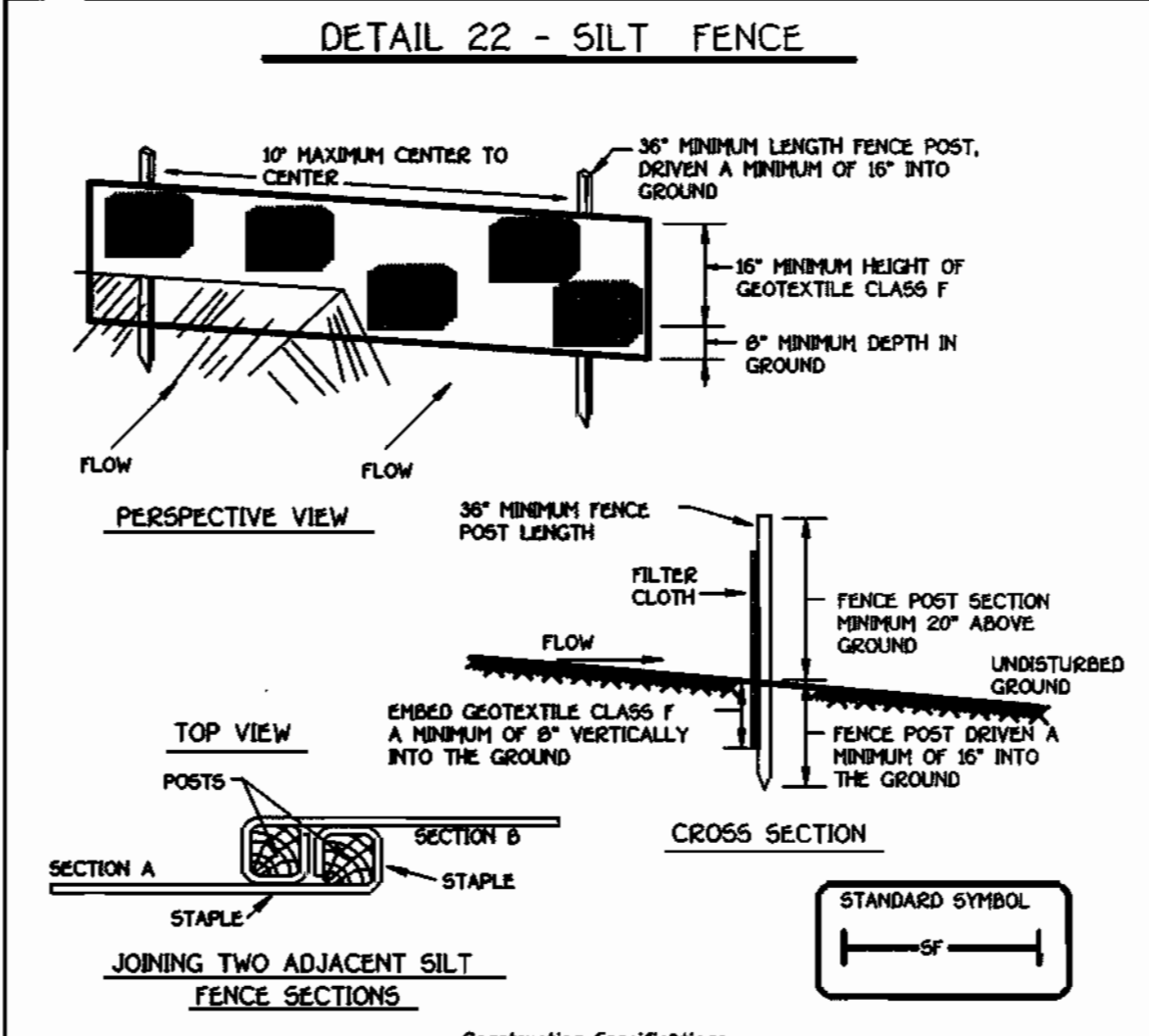
- APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REINTEGRATED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
- SEEDING PREPARATION:**  
LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
- SOIL AMENDMENTS:**  
APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (6 LBS./1000 SQ.FT.)
- SEEDING:**  
FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 1 THROUGH NOVEMBER 15, SEED WITH 1.5 BURELLS PER ACRE OF ANNUAL GRASS (3 LBS./ACRE) OF WEEPING LOVEGRASS (07 LBS./1000 SQ.FT.) FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROJECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.
- MULCHING:**  
APPLY 1.5 TO 2 TONS PER ACRE (90 TO 90 LBS./1000 SQ.FT.) OF UNROTTED STRAW MULCH IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 200 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES @ FEET OR HIGHER, USE 346 GALLONS PER ACRE (5 GALLONS/1000 SQ.FT.) FOR ANCHORING.
- REFER TO THE 1996 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.**

**SECTION 21 :  
STANDARD AND SPECIFICATIONS FOR TOPSOIL**

- DEFINITION:** PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.
- PURPOSE:** TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
- SPECIFICATIONS:**
  - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND.
  - TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS.
  - TOPSOIL SHALL CONTAIN LESS THAN 5% BY VOLUME OF CONCRETE, GRAVEL, STICKS, LIMBS, TRASH, OR OTHER MATERIALS WHICH WILL INHIBIT VEGETATIVE GROWTH.
  - TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 6" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4"; AVOID SURFACE IRREGULARITIES, SPLICE TOPSOIL AND APPLY SOIL AMENDMENTS AS SPECIFIC IN STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.
  - TOPSOIL SHALL NOT BE PLACED DURING FROZEN, MUDDY, OR EXCESSIVELY WET CONDITIONS.
- APPLICATION:**

Slope Steepness	0 (Maximum) Slope Length	0 (Maximum) Silt Fence Length
Filterer 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 2X 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.



**Construction Specifications**

- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1/2" x 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 100 point 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:
 

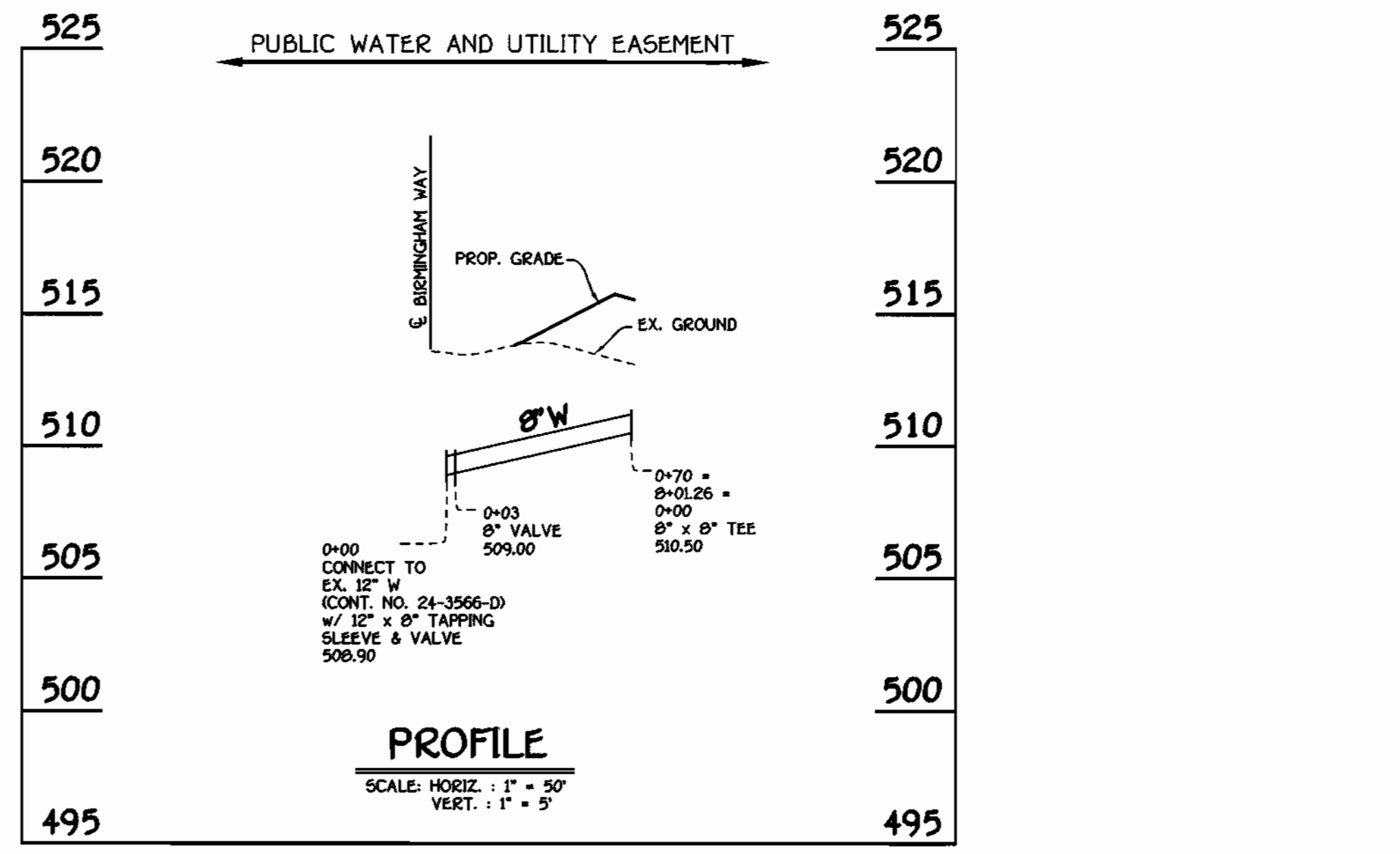
Tensile Strength	50 lb/in (min)	Test: MSMT 509
Tensile Puncture	20 lb/in (min)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max)	Test: MSMT 322
Filtering Efficiency	75% (min)	Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment 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.

**SILT FENCE**

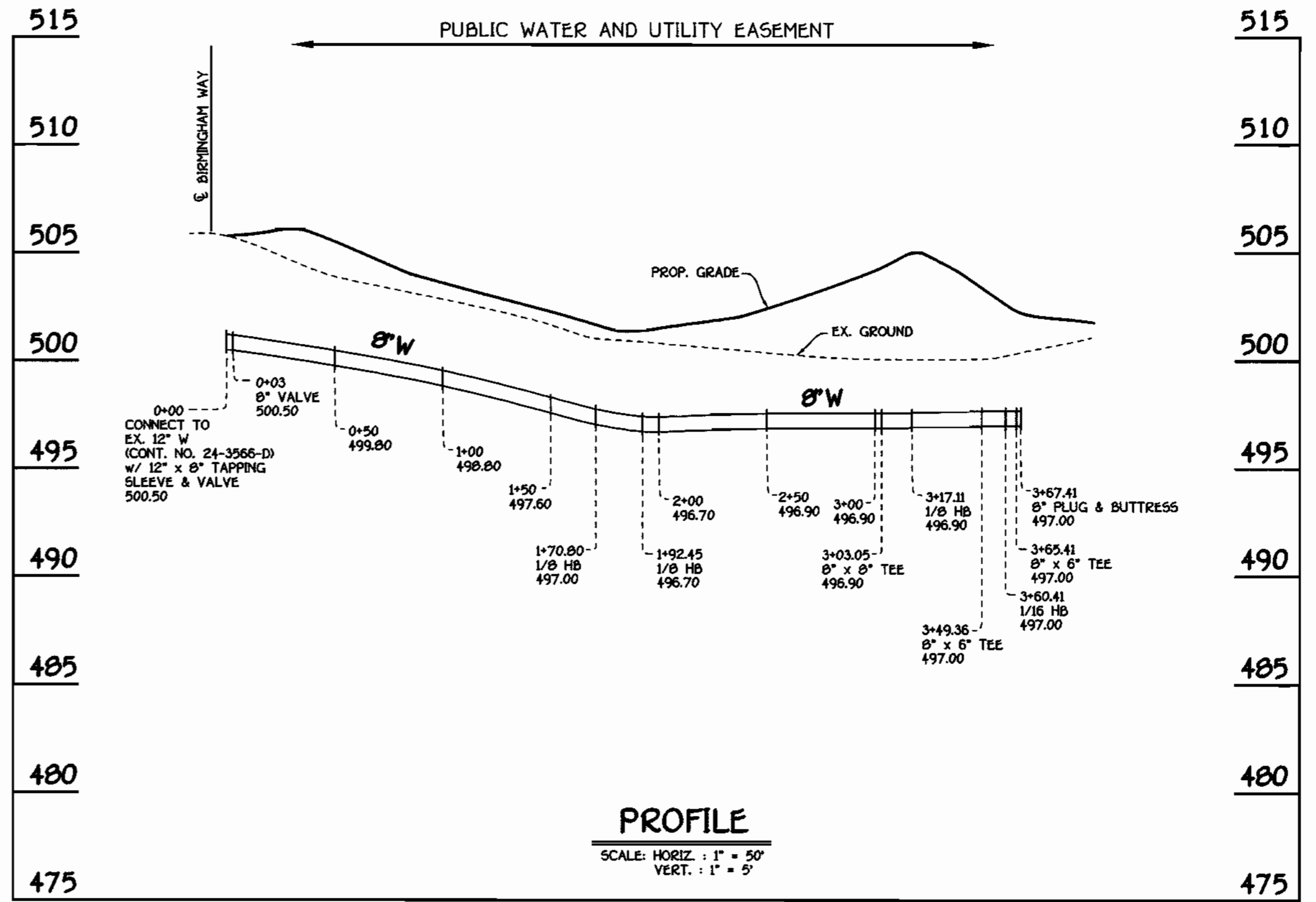
**Silt Fence Design Criteria**

Slope Steepness	0 (Maximum) Slope Length	0 (Maximum) Silt Fence Length
Filterer 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 2X 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.



**8" WATER MAIN FROM BIRMINGHAM WAY TO TURN BERRY WAY**



**8" WATER MAIN FOR TROON OVERLOOK**

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

DATE: 6-9-99

DATE: 6/15/99

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

1977

STATE OF MARYLAND

DESIGNED BY: M.D.T.

DRAWN BY: J.C.L.

CHECKED BY: M.J.M.

DATE: MAY 6, 1999

FILE NO.:

WATER MAIN PROFILES

600' SCALE MAP NO. 36 BLOCK NO. 5

F.C.C. WORK ORDER NO. 43271


FILE NAME: G:\0271\PHASES 3 & 4\WATSEW/PROFILES.DWG

VILLAGE GREEN - PHASE 3  
GTW'S WAVERLY WOODS  
SECTION 5  
UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
CONTRACT NO. 44-3762-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

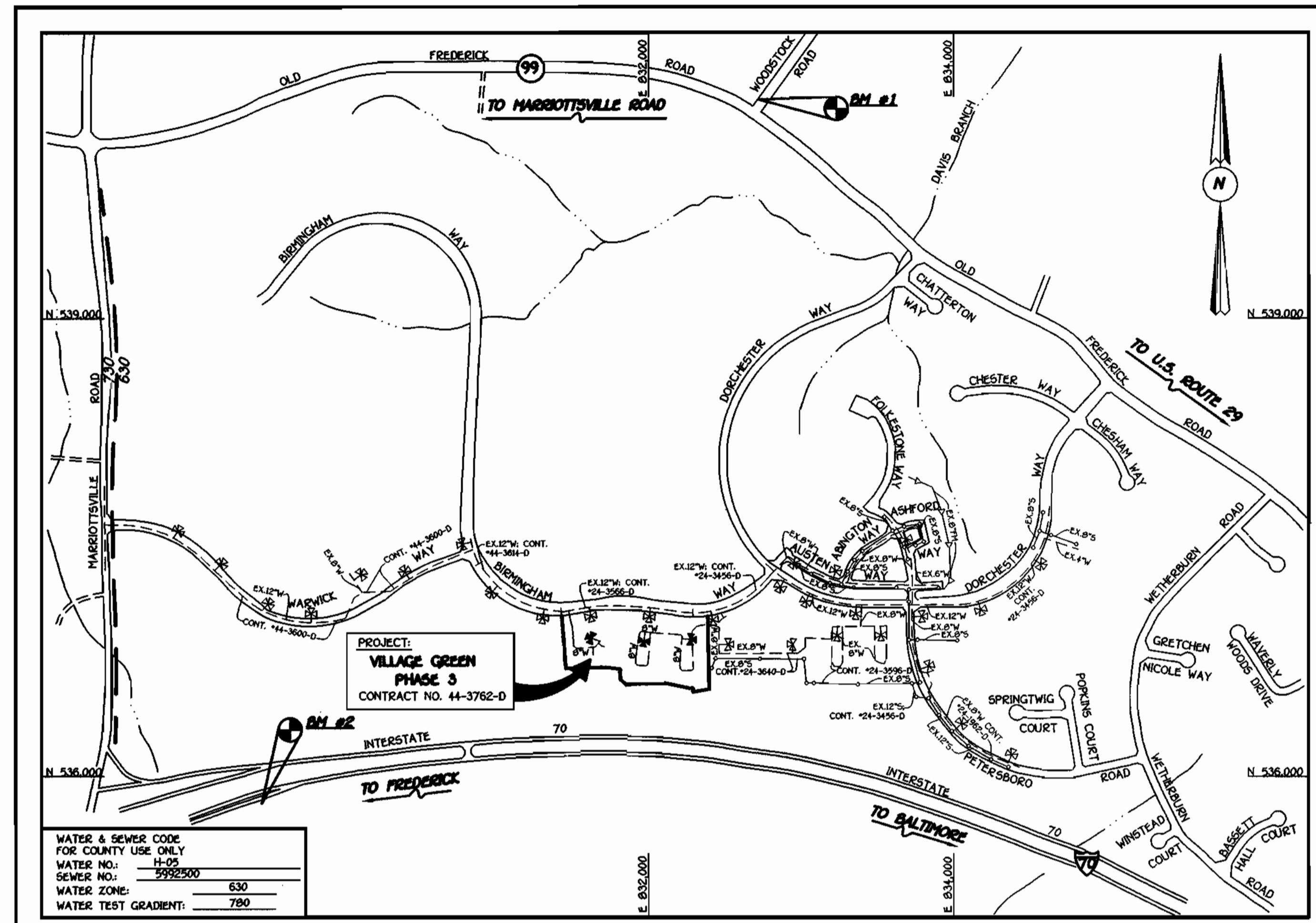
SHEET 4 OF 4

**GENERAL NOTES**

- APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES.
- ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATUM.
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 6". CLEAR ALL POLES BY 2'-0" MINIMUM.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (1991 AMENDMENTS); THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB SITE.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL  AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK, FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE VERIFIED BY THE CONTRACTOR TO HIS OWN SATISFACTION. ANY DAMAGE TO EXISTING FACILITIES DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
  - STATE HIGHWAY ADMINISTRATION - 531-5533
  - BALTIMORE GAS & ELECTRIC CO. - CONTRACTOR SERVICES - 950-4620
  - BALTIMORE GAS & ELECTRIC CO. - UNDER GROUND DAMAGE CONTROL - 787-9068
  - MESG UTILITY - 1-800-257-7777
  - COLONIAL PIPELINE CO. - 795-1390
  - BUREAU OF UTILITIES, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - 313-4900
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- 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.
- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- T.S. DENOTES TEST BORING.
- MANHOLES SHOWN WITH 12" AND 18" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVERS, STANDARD DETAIL G 5.52.
- WHERE WATERTIGHT MANHOLE FRAME AND COVER IS USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
- HOUSES WITH THE SYMBOL "C.A.S." INDICATES THAT THE CELLAR CANNOT BE SERVED.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR INSIDE METER SETTING, UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
- MANHOLES LOCATED WITHIN THE PROPOSED ROADWAY SHALL HAVE STANDARD HEAVY TRAFFIC MANHOLE FRAMES AND COVERS, STANDARD DETAIL G5.51.
- WATER MAINS AND WATER HOUSE CONNECTION LINES MUST BE PLACED AS TO HAVE ONE (1) FOOT SEPARATION FROM THE SEWER MAIN OR SEWER HOUSE CONNECTION AS THEY PASS ABOUT IT.
- ALL WATER MAINS SHALL BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-1/2" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TREES SHALL BE STRAPPED TO TREES.
- 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 ELEVATION SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE RESTRAINED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS (M111 AND W213). 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 D.I.P. FITTINGS SHALL BE IN ACCORDANCE WITH ANWA SPECIFICATIONS C-153; DUCTILE IRON COMPACT FITTINGS, 3-INCH THROUGH 12-INCH FOR WATER AND OTHER LIQUIDS.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, • (410) 313-2450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPM REQUIREMENTS PER SECTION 18.114(d) OF THE HOWARD COUNTY CODE.

QUANTITIES				
ITEM	ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	SUPPLIER
8" WATER	1,922.47 L.F.	1,919 L.F.	C.L. 52	U.S. PIPE & FOUNDRY
6" WATER	67.44 L.F.	58 L.F.	C.L. 52	"
FIRE HYDRANTS	3 EACH	3	BURY (3/4")	MUELLER CO.
1" WATER	1,084.76 L.F.	1,207 L.F.	SOFT COPPER	READING TUBE
8" x 8" TEE	3 EACH	3	M.J. DUCTILE	U.S. PIPE & FOUNDRY
8" x 6" TEE	4 EACH	4	"	"
8" VALVE	6 EACH	6	O.R. GATE	MUELLER CO.
6" VALVE	4 EACH	4	"	"
8"-1/8" H.B.	17 EACH	17	M.J. DUCTILE	U.S. PIPE & FOUNDRY
8"-1/16" H.B.	1 EACH	1	"	"
12" x 8" TAPPING SLEEVE & VALVE	2 EACH	2 SLEEVES	STEEL TAPPING	POWER SEAL
		2 VALVE	O.R. TAPPING	MUELLER CO.
8" PLUG & BUTTRESS	2 EACH	2	M.J. DUCTILE	U.S. PIPE & FOUNDRY
			SOUP CAP	"
6" PLUG & BUTTRESS	1 EACH	1	"	"
8" SEWER	3 L.F.			
8" PLUG	1 EACH			

NAME OF UTILITY CONTRACTOR: \_\_\_\_\_  
 SURVEY & DRAFTING DIVISION AS-BUILT DATE: \_\_\_\_\_



WATER & SEWER CODE FOR COUNTY USE ONLY	TYPE OF BUILDING: RESIDENTIAL (TOWNHOUSE & CONDO/BIHUSES)
WATER NO.: H-05	NUMBER OF LOTS & PARCELS: 1 BUILDABLE
SEWER NO.: 5992500	NO. OF WATER HOUSE CONNECTIONS: 51
WATER ZONE: 630	NO. OF SEWER HOUSE CONNECTIONS: 0
WATER TEST GRADIENT: 780	DRAINAGE AREA: PATAPSCO
	TREATMENT PLANT: PATAPSCO WASTEWATER TREATMENT PLANT VIA THE ROUTE 106 PUMPING STATION

THE PRIVATE 8" SEWER MAIN AND APPURTENANCES ARE TO BE CONSTRUCTED UNDER SDP 99-112.

**VICINITY MAP**

SCALE: 1"=600'

PLAN REFERENCE NUMBERS: SDP 99-112

BENCHMARK INFORMATION	
B.M.#1	- HOWARD COUNTY MONUMENT NO. 3341002 ELEV. 440.42; DESCRIPTION: CONC. MONUMENT • SURFACE APPROX. 9' EAST OF EDGE OF RD. IN GRASS ISLAND IN PARKING LOT OF BETHANY LANE METHODIST CHURCH
B.M.#2	- HOWARD COUNTY MONUMENT NO. 3341001 ELEV. 421.74; DESCRIPTION: CONC. MONUMENT 1.3' BELOW SURFACE 0.3' EAST OF EDGE OF RD. APPROX. 120' SOUTH OF C @ DRIVEWAY TO BETHANY LANE BAPTIST CHURCH

CONTRACT No. 44-3762-D

**VILLAGE GREEN - PHASE 3**

GTW'S WAVERLY WOODS SECTION 5

UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
 WATER AND SEWER MAIN EXTENSIONS  
 HOWARD COUNTY, MARYLAND

CONTRACT NO. 44-3762-D  
**VILLAGE GREEN - PHASE 3**  
 GTW'S WAVERLY WOODS SECTION 5  
 UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B'  
 WATER AND SEWER MAIN EXTENSIONS  
 HOWARD COUNTY, MARYLAND

**DEVELOPER'S CERTIFICATION**  
 I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

W.McCann for Land Design & Development 6/7/99  
 SIGNATURE OF DEVELOPER DATE

**ENGINEER'S CERTIFICATION**  
 I HEREBY 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.

John P. Robertson 6/7/99  
 SIGNATURE OF ENGINEER DATE

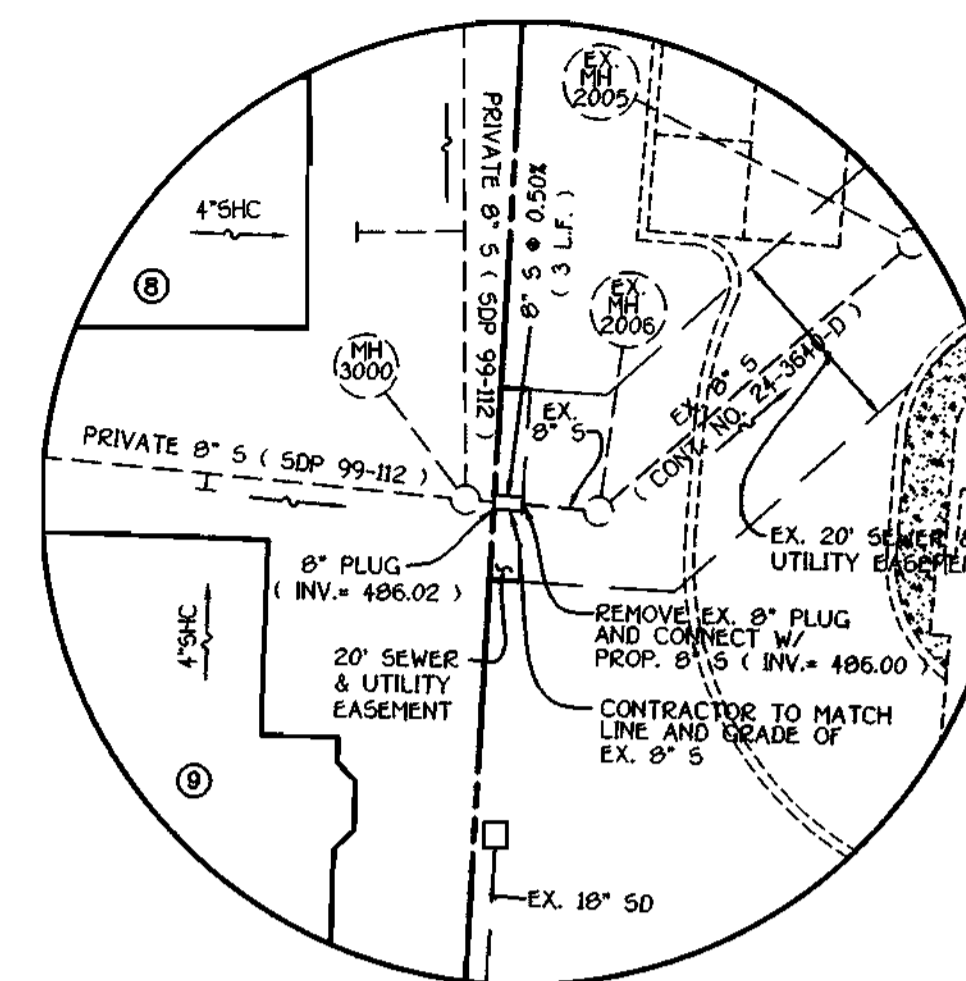
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
 Cheryl Simmons 6/14/99  
 U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.  
 APPROVED: John P. Robertson 6/14/99  
 HOWARD SOIL CONSERVATION DISTRICT DATE

SEDDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY DESIGN MANUAL & STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS AS SHOWN ON SDP 99-112.

W.McCann for Land Design & Development 6/7/99  
 SIGNATURE OF DEVELOPER DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND R. H. B... 6-9-99 CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND [Signature] 6/15/99 CHIEF, DEVELOPMENT ENGINEERING DIVISION	FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTRAL SQUARE OFFICE PARK - 1872 BALTIMORE NATIONAL PkE ELKLOTT CITY, MARYLAND 21042 (410) 481-2555	STATE OF MARYLAND TERRELL A. FISHER REGISTERED PROFESSIONAL ENGINEER No. 9787	DESIGNED BY: M.D.T. DRAWN BY: M.D.T. CHECKED BY: M.J.M. DATE: MAY 6, 1999	AS-BUILT CONDITIONS SHOWN ON PLAN (WATER) 1/14/00 ADDRESS COUNTY COMMENTS PER D.E.D. LETTER OF MAY 27, 1999 6/3/99 REVISION	TITLE SHEET 600' SCALE MAP NO. 15 BLOCK NO. 5 F.C.C. WORK ORDER NO. 40271 FILE NAME: G:\0271\PHASES-344\WATSEW/TITLESHEET.DWG	VILLAGE GREEN - PHASE 3 GTW'S WAVERLY WOODS SECTION 5 UNITS 1 THRU 49 AND BUILDINGS 'A' & 'B' THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 1 OF 4
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**ENLARGEMENT**  
SCALE: 1" = 20'

N 537.250  
E 831.500

N 537.250  
E 832.750

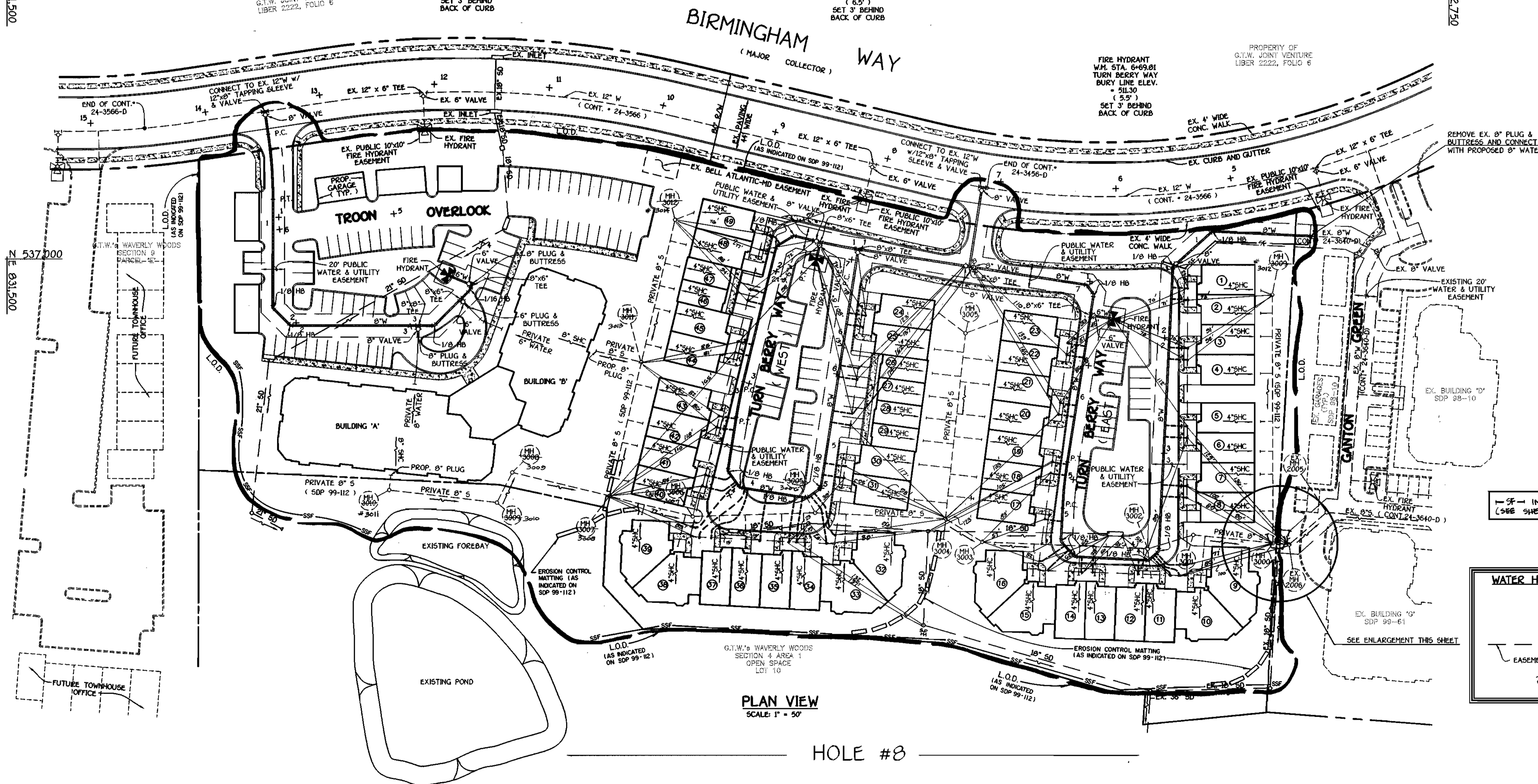
PROPERTY OF  
G.T.W. JOINT VENTURE  
LIBER 2222, FOLIO 6

FIRE HYDRANT  
W.M. STA. 3+49.36  
TROON OVERLOOK  
BURY LINE ELEV.  
= 503.50  
( 6.5' )  
SET 3' BEHIND  
BACK OF CURB

FIRE HYDRANT  
W.M. STA. 1+31.70  
TURN BERRY WAY  
BURY LINE ELEV.  
= 514.30  
( 6.5' )  
SET 3' BEHIND  
BACK OF CURB

FIRE HYDRANT  
W.M. STA. 6+69.81  
TURN BERRY WAY  
BURY LINE ELEV.  
= 513.30  
( 5.5' )  
SET 3' BEHIND  
BACK OF CURB

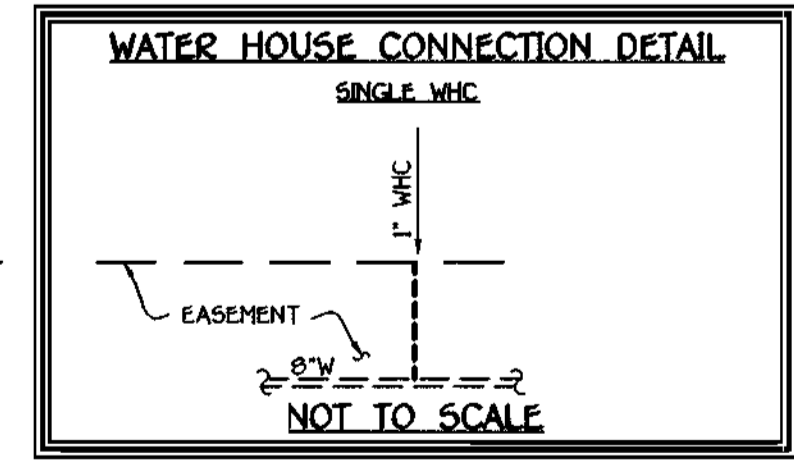
PROPERTY OF  
G.T.W. JOINT VENTURE  
LIBER 2222, FOLIO 6



NOTE: CAST-IRON CURB SERVICE BOXES SHALL BE USED FOR THE WATER HOUSE CONNECTIONS FOR UNIT NOS. 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, & 920. THE CURB SERVICE BOX RM SHALL BE SET FLUSH W/ PROPOSED PAVING AND/OR PROPOSED DRIVEWAY ELEVATIONS.

NOTE:  
L.O.D. DENOTES LIMIT OF DISTURBANCE  
SSF DENOTES SUPER SILT FENCE

— SF — INDICATES SILT FENCE  
(SEE SHEET 4 FOR DETAILS)

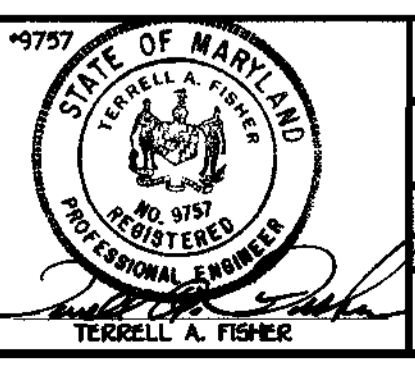


CONTRACT NO. 44-3762-D  
**VILLAGE GREEN - PHASE 3**  
GTW'S WAVERLY WOODS  
SECTION 5  
UNITS 1 THRU 49 & BUILDINGS 'A' AND 'B'  
WATER AND SEWER MAIN EXTENSIONS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
*Robert W. Bainger*  
CHIEF, BUREAU OF UTILITIES  
6-9-99  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND  
*Michael J. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/15/99  
DATE

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 18272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21117  
(410) 461-2895



DESIGNED BY:	M.D.T.	
DRAWN BY:	M.D.T.	
CHECKED BY:	KCI	AS-BUILT CONDITIONS ADDED TO PLAN
DATE:	MAY 6, 1999	
BY:	NO.	REVISION

WATER MAIN PLAN VIEW	
600' SCALE MAP NO. 15	BLOCK NO. 5
F.C.C. WORK ORDER NO. 40271	
FILE NAME:	40271PHASE3WATSEW.DWG

**VILLAGE GREEN - PHASE 3**  
GTW'S WAVERLY WOODS  
SECTION 5  
UNITS 1 THRU 49 & BUILDINGS 'A' AND 'B'  
CONTRACT NO. 44-3762-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 2 OF 4