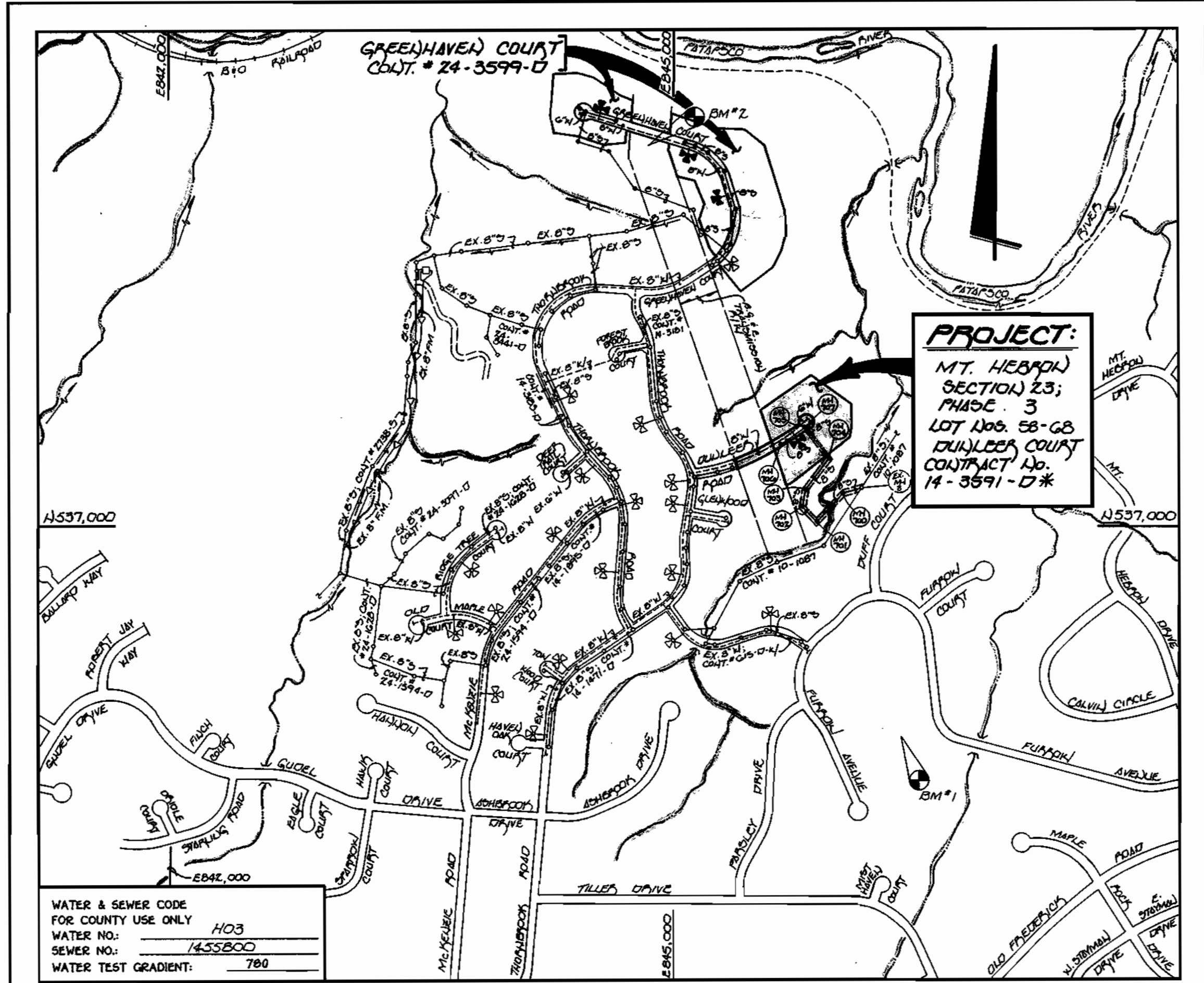


QUANTITIES				
ITEM	ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	SUPPLIER
8" SEWER	455 L.F.			
8" SEWER (DIP)	110 L.F.			
MANHOLES	6 EACH			
4" SEWER	280 L.F.			
8" WATER	390 L.F.			
6" WATER	150 L.F.			
PIPE HYDRANT	1 EACH			
1" W/C	90 L.F.			
3/4" W/C	232 L.F.			
8"x6" JEL	1 EACH			
6" VALVE	1 EACH			
6"x6" REDUCER	1 EACH			
6" PLUS 4" BUTTRESS	1 EACH			
1 1/2" DRYWALL	1 EACH			

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



VICINITY MAP
SCALE: 1"=600'

TYPE OF BUILDING: RESIDENTIAL: SINGLE FAMILY DETACHED
 NUMBER OF LOTS: 41 (TOTAL 58 BUILDABLE LOTS IN CONTRACT)
 NO. OF WATER HOUSE CONNECTIONS: 11
 NO. OF SEWER HOUSE CONNECTIONS: 11
 DRAINAGE AREA: PATAPSCO
 TREATMENT PLANT: PATAPSCO W.W.T.P.; CITY OF BALTIMORE VIA THE MT. HEBRON PUMPING STATION

* ONE CONTRACT NO. 24-3599-D FOR THE REMAINING WATER & SEWER MAINS EXTENSIONS TO SERVE THE BUILDABLE LOTS IN GREENHAVEN COURT. (31)

PLAN REFERENCE NUMBERS: F-97-78

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 \square 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
 - MISS 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.A. 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 WATER-TIGHT FRAME AND COVERS, STANDARD DETAIL G.5.52.
- WHERE WATER-TIGHT 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.N.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 G.5.51.
- 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 (W.11 AND W.213). 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 DPW REQUIREMENTS PER SECTION 10.114(D) OF THE HOWARD COUNTY CODE.

DEVELOPER'S CERTIFICATE
 "I HEREBY CERTIFY THAT ALL DEVELOPMENT & CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT & PLAN FOR EROSION & SEDIMENT CONTROL & 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 CONTROL OF EROSION & SEDIMENT BEFORE COMMENCING THE HOWARD SOIL CONSERVATION DISTRICT OF THEIR AUTHORIZED ASPECTS, AS ARE DEEMED NECESSARY."
 Michael J. McCann for H.J. Bauer 2-24-97
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE
 "I HEREBY CERTIFY THAT THIS PLAN FOR EROSION & SEDIMENT CONTROL REPRESENTS A PRACTICAL & WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE DATE CONDITIONS & THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 Paul W. Reichel 03/25/97
 SIGNATURE OF ENGINEER DATE

BENCHMARKS

BM #1	N 535, 573.107	ELEV. 466.0
	E 846, 324.490	
HOWARD COUNTY MONUMENT # 3442011; 3/4" REINFORCING ROD		
BM #2	N 539, 292.909	ELEV. 426.0
	E 844, 040.447	
HOWARD COUNTY MONUMENT # 3541004; 3/4" REINFORCING ROD		

CONTRACT NO. 14 - 3591 - D*
MT. HEBRON
SECTION 23 , PHASE 3
LOT NOS. 58 - 68
DUNLEER ROAD
WATER AND SEWER MAIN EXTENSIONS
HOWARD COUNTY, MARYLAND

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
 Cheryl Simmons 4/24/97
 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 R. Robertson 4/24/97
 HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT 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 THESE PLANS AND UNDER F-97-18.
 Michael J. McCann for H.J. Bauer 2-24-97
 SIGNATURE OF DEVELOPER DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 4-17-97 CHIEF, BUREAU OF UTILITIES	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND 4/20/97 CHIEF, DEVELOPMENT ENGINEERING DIVISION	Fisher, Collins & Carter, Inc. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE OFFICE PARK 10272 Baltimore National Pike Ellicott City, Maryland 21042 (410) 461-2855	DESIGNED BY: M.J.M. DRAWN BY: M.J.M. / J.H.M. CHECKED BY: P.W.K. DATE: 2/24/97	TITLE SHEET 600' SCALE MAP NO. 17 BLOCK NO. 3 F.C.C. WORK ORDER NO. 30482 FILE NAME: G:/DRAWINGS/30482/30482B.DWG	MT. HEBRON SECTION 23 , PHASE 3 LOT NOS. 58 - 68 DUNLEER ROAD CONTRACT NO. 14 - 3591 - D* SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 1 of 4
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CONTRACT NO. 14-3591-D*
 MT. HEBRON
 SECTION 23, PHASE 3
 LOT NOS. 58 - 68
 DUNLEER ROAD
 WATER AND SEWER MAIN EXTENSIONS
 HOWARD COUNTY, MARYLAND

DEVELOPER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT & CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT & PLAN FOR EROSION & SEDIMENT CONTROL & THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTRACTIVENESS AT A DEPARTMENT OF THE ENVIRONMENT APPROVED QUALITY PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE THE DDIC ON-SITE INSPECTOR BY THE HOWARD SOIL CONSERVATION DISTRICT ON THEIR AUTHORIZED AGENTS, TO APE DEEMED NECESSARY."

Michael J. McNamee for H.J. Baker 3-24-97
SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION & SEDIMENT CONTROL REPRESENTS TO A PRACTICAL & WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS & THAT IT IS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

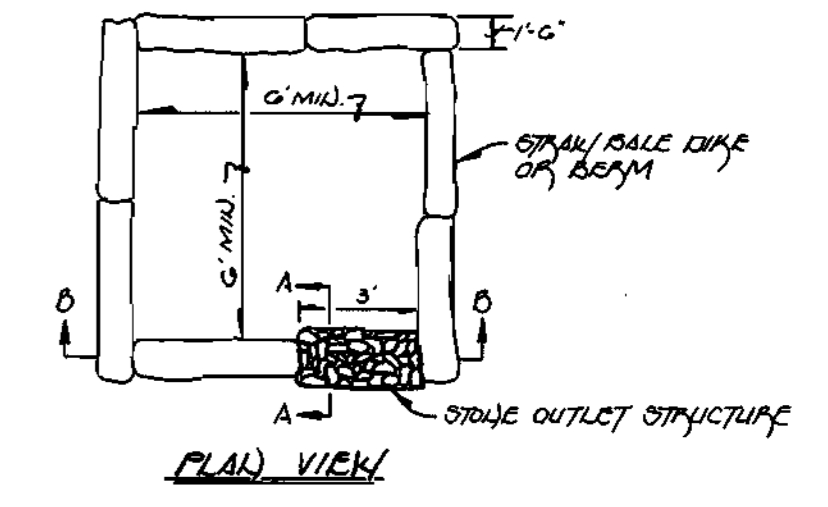
Paul W. Keisler 03/25/97
SIGNATURE OF ENGINEER DATE

SEQUENCE OF CONSTRUCTION

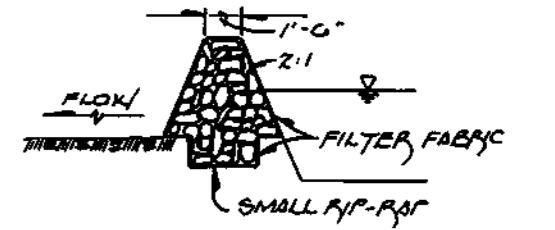
1. OBTAIN THE REQUIRED GRADING PERMIT.
2. NOTIFY MTD, UTILITY 48 HOURS BEFORE BEGINNING ANY WORK (1-800-257-1777). NOTIFY HOWARD COUNTY CONSTRUCTION / INSPECTION DIVISION 24 HOURS BEFORE STARTING ANY WORK (410)313-1870.
3. INSTALL THE REQUIRED SEDIMENT & EROSION CONTROL DEVICES AS INDICATED ON THIS SHEET & THOSE PROVIDED UNDER PART-78. THE START OF CONSTRUCTION ON THE WETLAND & STREAM CROSSING SHALL BE LIMITED TO A 5-DAY CLEAR WEATHER FORECAST FROM THE N.W.D. CONSTRUCTION WITHIN THESE LIMITS MUST BE COMPLETED WITHIN 5 DAYS.
4. THE CONTRACTOR SHALL MAINTAIN & PROVIDE NECESSARY MAINTENANCE ON ALL THIS SHEET & THOSE PROVIDED UNDER PART-78. AFTER EACH BACKFILL & DAILY DRAIN.
5. CLEAR & GRADE AS NECESSARY ONLY AS REQUIRED FOR EXCAVATION & INSTALLATION OF THE SEWER MAIN & ONLY WITHIN THE DESIGNATED EASEMENTS.
6. NOTE: THE LENGTH OF OPEN DITCH MAIN TRENCH SHALL BE LIMITED TO THREE (3) FIVE LENGTHS OF THAT WHICH WILL BE BACKFILLED & STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.
7. CONSTRUCT THE SEWER MAIN & STABILIZED THE CONTRACTOR SHALL REFERENCE THIS SHEET FOR A LIST OF CONDITIONS & MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS. THESE CONDITIONS APPLY TO ALL UTILITY WORK CONDUCTED WITHIN THE NON-TIDAL WETLANDS & BUFFER AS SHOWN ON THESE PLANS.
8. STABILIZE, REED & MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE SEQUENCING NOTES & SEDIMENT & EROSION CONTROL NOTES PROVIDED UNDER PART-78. THE WETLAND & STREAM CROSSING SHALL BE STABILIZED IN ACCORDANCE WITH CONDITION "G" OF THE CONDITIONS & MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS (BELOW).
9. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS & AFTER REWETLANDING HAS BEEN OBTAINED FROM THE HOWARD COUNTY SOIL CONSERVATION DISTRICT INSPECTOR, REMOVE ALL EROSION & SEDIMENT CONTROL DEVICES.

CONDITIONS & MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS

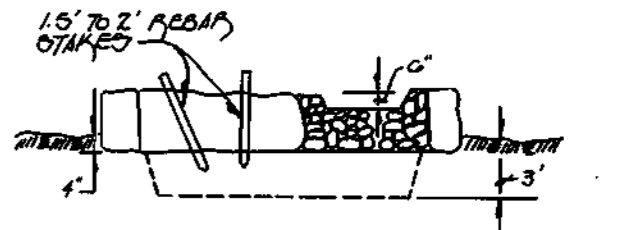
- A. STOCKPILE & MAINTAIN SEPARATELY THE TOP 6"-12" OF TOPSOIL MATERIAL, TO BE REPLACED AS THE LAYER OF BACKFILLED MATERIAL.
- B. REMOVE EXCESS FILL OR CONSTRUCTION MATERIAL OR DEBRIS TO AN UPLAND DISPOSAL AREA.
- C. PLACE MATERIAL IN A LOCATION & MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NON-TIDAL WETLAND.
- D. MAINTAIN THE HYDROLOGIC REGIME OF THE NON-TIDAL WETLANDS UPSTREAM, DOWNSTREAM OR ADJACENT TO THE DISTURBANCE.
- E. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY DESIGNED EQUIPMENT TO PREVENT DAMAGE TO THE NON-TIDAL WETLANDS.
- F. USE PREVIOUSLY EXCAVATED MATERIAL AS BACKFILL UNLESS IT CONTAINS WASTE METAL PRODUCTS, UNSTABLE DEBRIS, TOXIC MATERIAL OR ANY OTHER DETERMINED SUBSTANCE. USE CLEAN BOROUGH MATERIAL WHEN EXCAVATED MATERIAL IS NOT SUITABLE FOR USE AS BACKFILL.
- G. ALL STABILIZATION IN THE WETLAND & BUFFER SHALL BE OF THE FOLLOWING SPECIES: ANNUAL HYSSOPUS (LEUCUM MULTIFLORUM), MILLET (COENZYMA ITALICA), BARE SPECIES (CHORDUM SP.) GRASS (LITOLA SP.) AND BARN YARD. THESE SPECIES SHOULD ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY VEGETATION OF THE NATURAL WETLAND SPECIES. OTHER NON-PROBABLE VEGETATION MAY ALSO BE ACCEPTABLE BUT MUST BE APPROVED BY THE DIVISION. RESISTANCE TO PESTICIDES SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS. AN AREA SHOULD BE SUCCESS & MULCHED TO PROMOTE EROSION AFTER CONSTRUCTION.
- H. UPON COMPLETION OF THE PROJECT ADDITIONAL WETLANDS & THE 25-FOOT HORIZONTAL WETLAND BUFFER WILL NOT BE MOVED OR OTHERWISE MANAGED TO PREVENT THE RE-ESTABLISHMENT OF FORECLOSED COVER.
- I. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE FOOT CONSTRUCTION GRADES & ELEVATIONS OF NON-TIDAL WETLANDS THE SAME AS THE ORIGINAL GRADES & ELEVATIONS.



PLAN VIEW

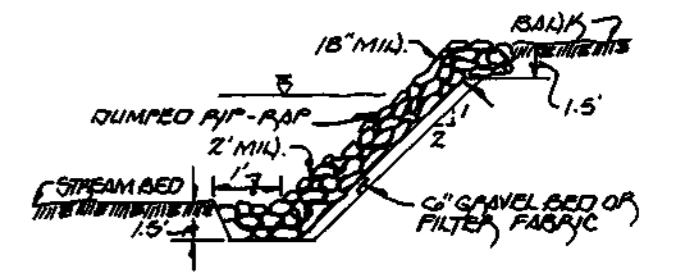


SECTION A-A

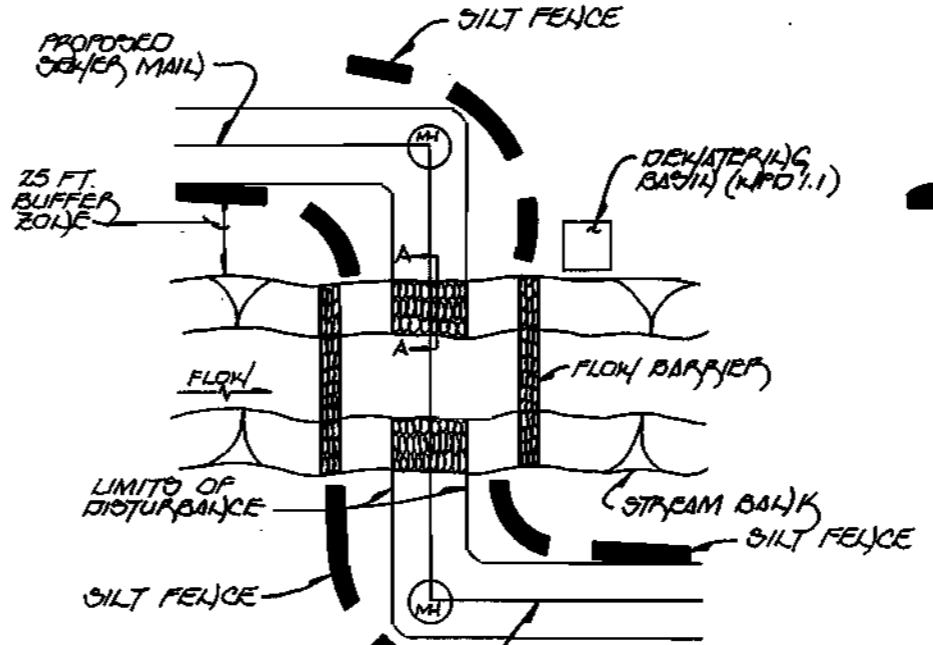


SECTION B-B

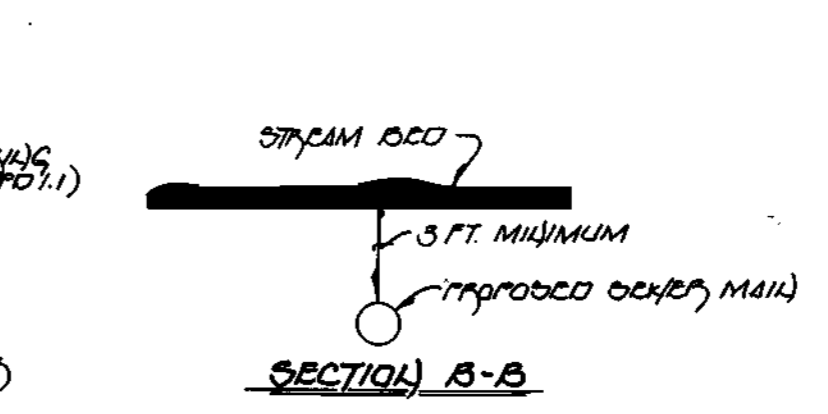
DEWATERING BASIN
(N.P.D. 11)
1/20 SCALE



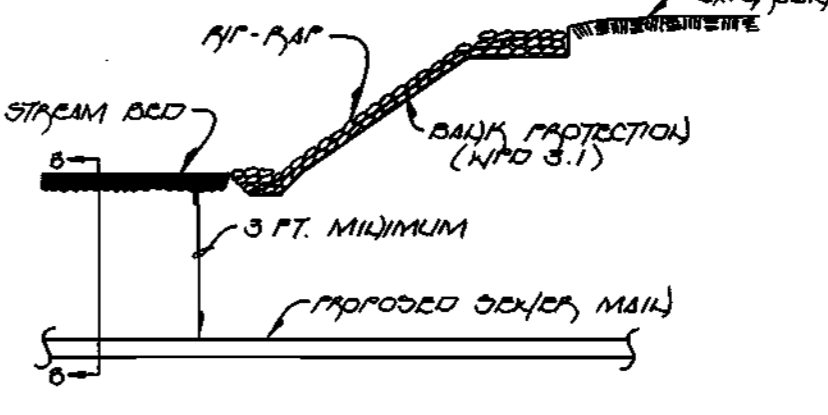
RIP-RAP BANK PROTECTION DETAIL
(N.P.D. 31)
1/20 SCALE



UTILITY CROSSING DETAIL
(N.P.D. 51)
1/20 SCALE

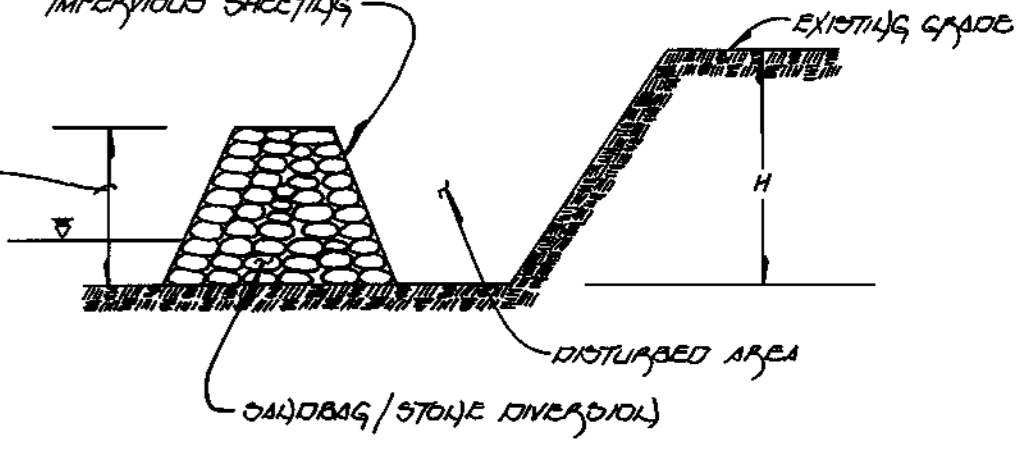


SECTION B-B



SECTION A-A

SANDBAG/STONE STREAM FLOW DIVERSION



SECTION A-A

DETAIL
1/20 SCALE

NOTE: SEE THIS SHEET FOR "CONDITIONS & MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS," & THE SEQUENCE OF CONSTRUCTION.

NOTE: THE START OF CONSTRUCTION AT THE WETLANDS & STREAM CROSSING SHALL BE LIMITED TO A 5-DAY CLEAR WEATHER FORECAST FROM THE N.W.D. CONSTRUCTION WITHIN THESE LIMITS MUST BE COMPLETED WITHIN 5 DAYS.

NOTE: SEE SHEET 4 FOR SEDIMENT & EROSION CONTROL NOTES.

NOTE: SEDIMENT & EROSION CONTROL MEASURES SHOWN ON THIS CONTRACT ARE TO BE PROVIDED IN ADDITION TO THOSE SHOWN UNDER PART-78.

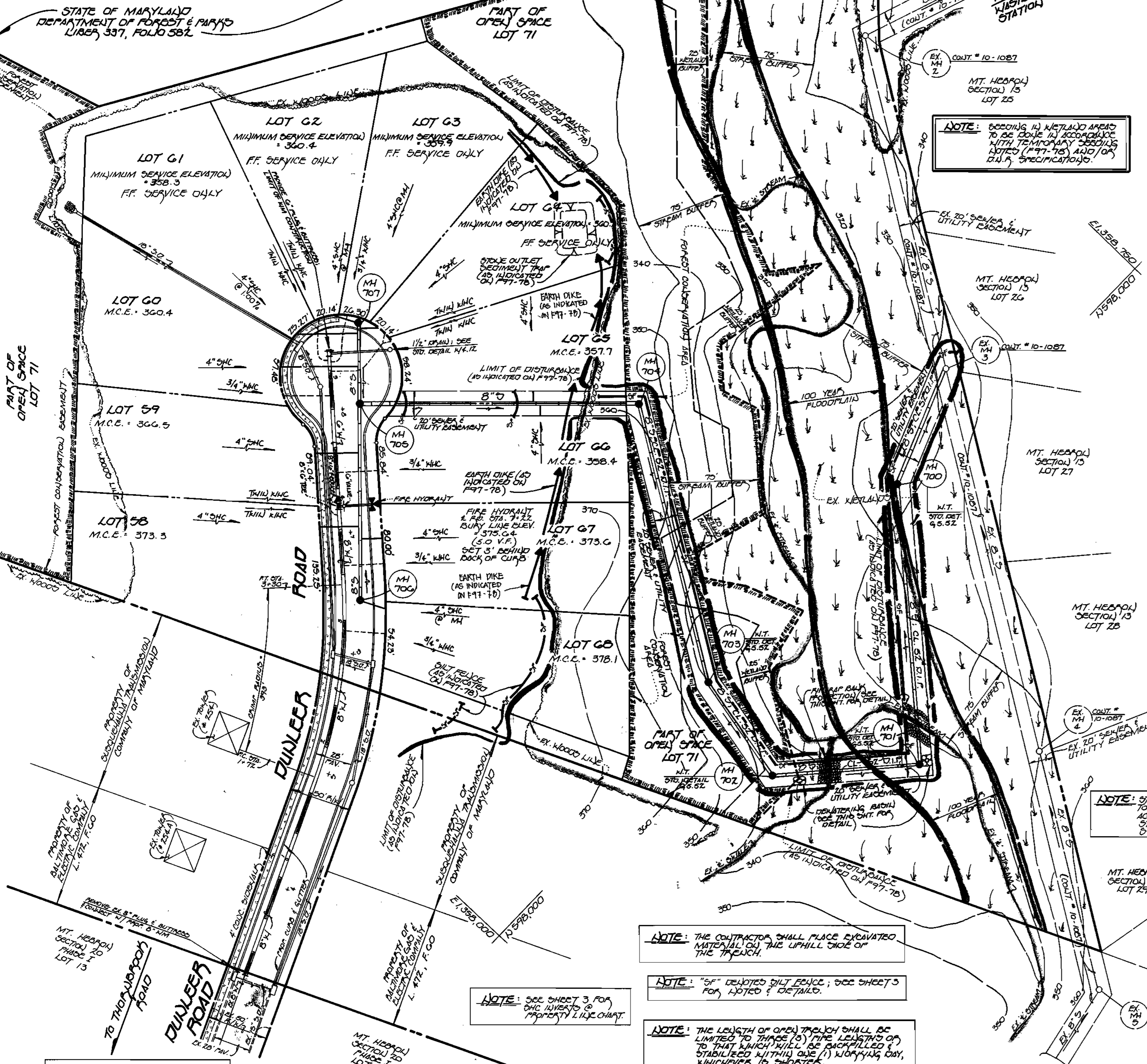
NOTE: THE CONTRACTOR SHALL PLACE EXCAVATED MATERIAL ON THE UPHILL SIDE OF THE TRENCH.

NOTE: "S" DEGRADED SILT FENCE, SEE SHEETS 3 FOR LAYOUT & DETAILS.

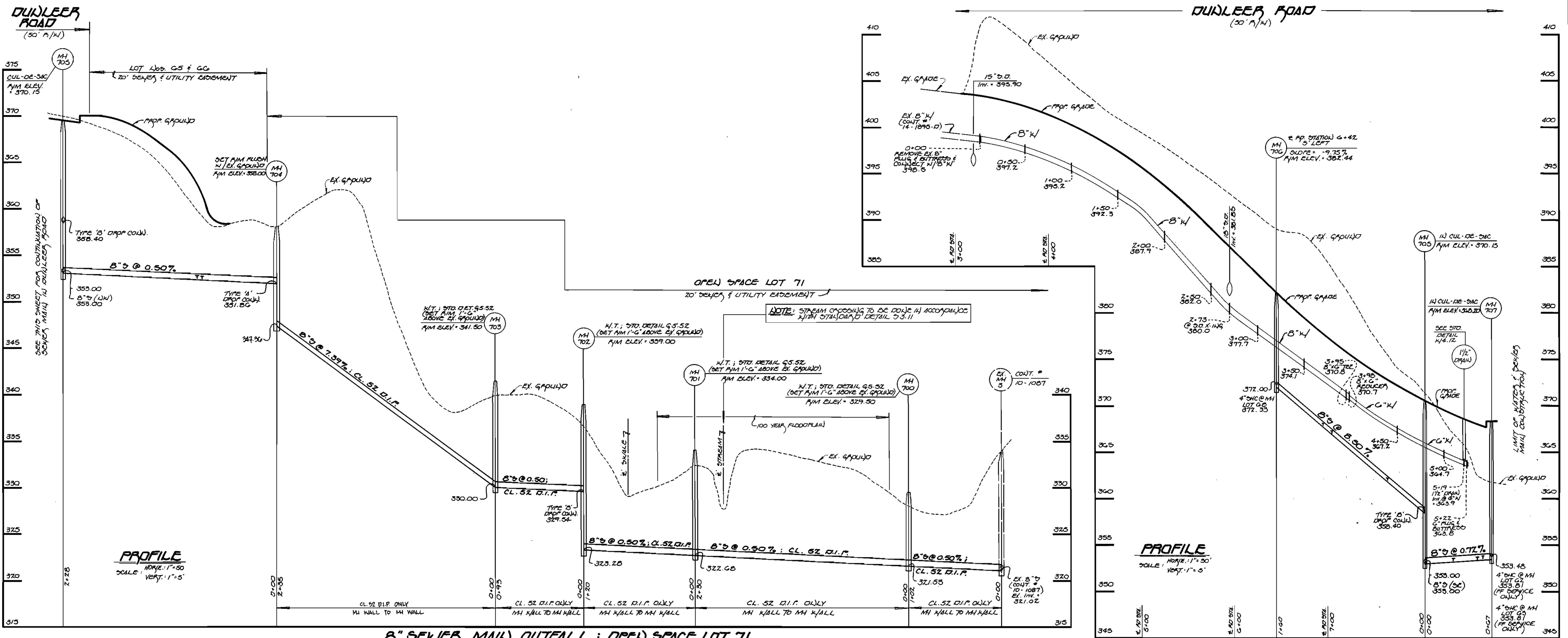
NOTE: THE LENGTH OF OPEN TRENCH SHALL BE LIMITED TO THREE (3) FIVE LENGTHS OF THAT WHICH WILL BE BACKFILLED & STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.

NOTE: SEE SHEET 3 FOR ONE NUMBER TO PROPERTY LINE CHART.

NOTE: THE EXISTING WATER MAIN, SANITARY, & GAS MAINS SHALL BE PROTECTED UNDER CONTRACT NO. 14-1095-D.

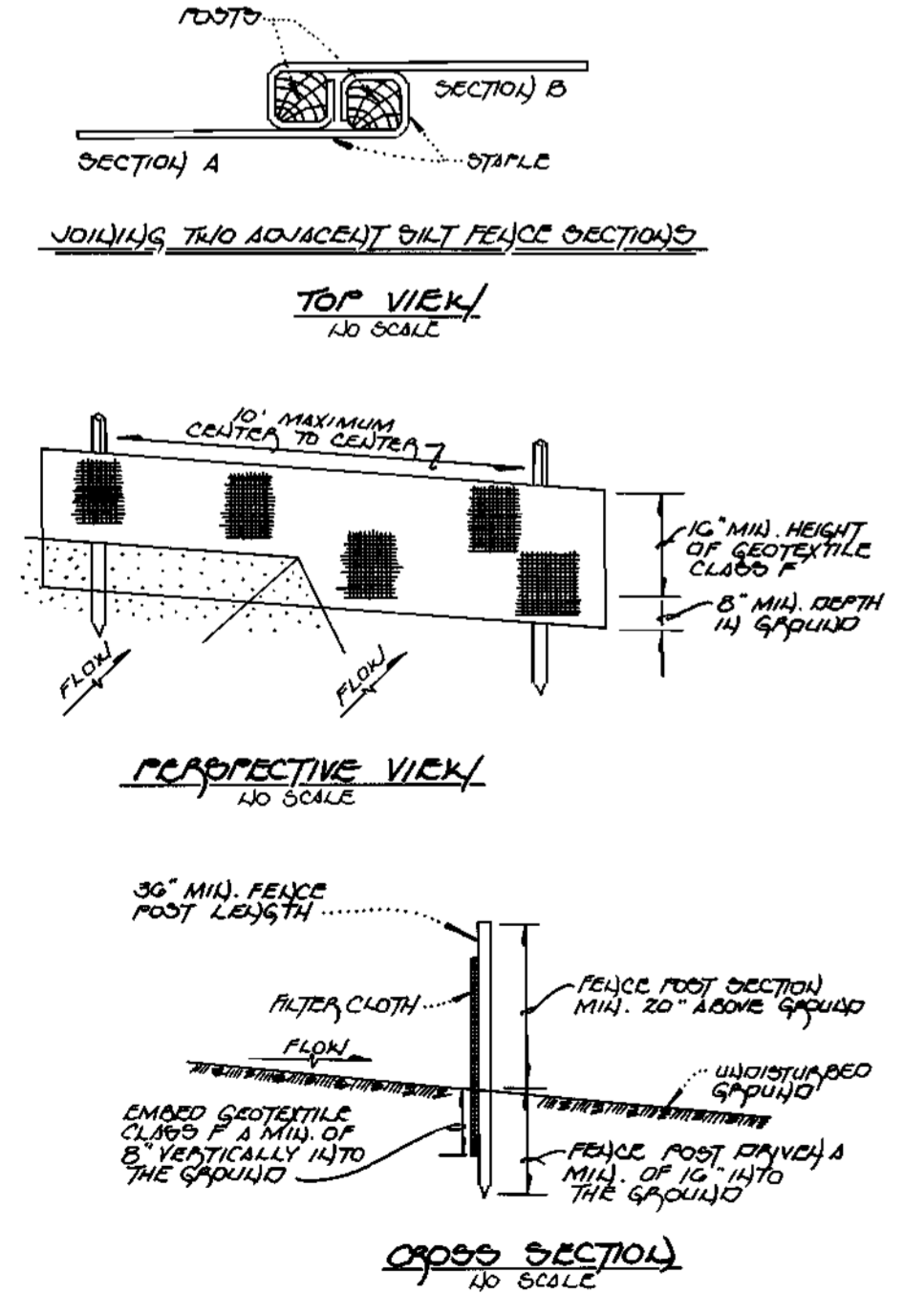


<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p>Robert Berman 4-17-97 CHIEF, BUREAU OF UTILITIES DATE</p>	<p>DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND</p> <p>Paul W. Keisler 4/28/97 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE</p>	<p>Fisher, Collins & Carter, Inc. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE OFFICE PARK 10272 Baltimore National Pike Ellicott City, Maryland 21042 (410) 461-2885</p>	<p>STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER TERRELL A. FISHER</p>	<p>DES: M.J.M. DRAWN: J.M.M. CHK: P.W.K. DATE: 3/24/97</p>	<p>BY NO. REVISION DATE</p>	<p>60' SCALE MAP NO. 17 BLOCK NO. 3</p>	<p>MT. HEBRON SECTION 23 - PHASE 3 LOT Nos. 58-68 DUNLEER ROAD CONTRACT No. 14-3591-D SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p>	<p>SCALE AS SHOWN SHEET 2 OF 4</p>
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8" SEWER MAINS OUTFALL : OPEN SPACE LOT 71

WATER & SEWER MAINS : DUNLEER ROAD



- SILT FENCE**
1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 1/2" MINIMUM INTO THE GROUND. 1000 POSTS SHALL BE 1/2" x 1/2" SQUARE (MINIMUM) CUT OR 1 1/4" DIAMETER (MINIMUM) ROUND & SHALL BE OF SOLID QUALITY HARDWOOD. STEEL POSTS WILL BE SPACED 10' ON A SECTION REQUIRING 100 LOAD TRAILERS TO BE TOWED FROM THE SITE.
 2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIDE TIED OR STAPLED AT TOP & MID-SECTION & SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:
 - TENSILE STRENGTH 50 LBS (IN. MIN.) TEST: MOMT 509
 - TENSILE MODULUS 20 LBS (IN. MIN.) TEST: MOMT 509
 - FLOW RATE 0.3 GAL. FT² TEST: MOMT 322
 - FILTERING EFFICIENCY 75% (MIN.) TEST: MOMT 322
 3. WHEN A SWATH OF GEOTEXTILE FABRIC COMES TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED & STAPLED TO PREVENT SEDIMENT BYPASS.
 4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT & MAINTAINED WHERE BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 30% OF THE FABRIC HEIGHT.

ENGINEER'S CERTIFICATE

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

Paul W. Koebel 03/25/97
SIGNATURE OF ENGINEER DATE

DEVELOPER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT & CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT & PLAN FOR EROSION & SEDIMENT CONTROL & 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 CONTROL OF EROSION SEDIMENT & FLOODS BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

Michael J. McLean P.E. H.J. BAKER 3-24-97
SIGNATURE OF DEVELOPER DATE

SHC INVERTS @ PROPERTY LINE CHART

MH 704 TO MH 705		
0+80 LT.	G6	352.63
0+85 FT.	G5	352.66
MH 705 TO MH 706		
0+40 FT.	G9	362.09
1+00 FT.	G8	367.75
1+10 LT.	G7	368.28
@ MH 706 LT.	G8 (SHC @ MH)	372.79
MH 706 TO MH 707		
0+30 LT.	G0	354.07
0+37 LT.	G1 (@ 1.00%) F.F. SERVICE ONLY	354.09
0+62 FT.	G4 F.F. SERVICE ONLY	353.94
@ MH 707 LT.	G2 (SHC @ MH) F.F. SERVICE ONLY	354.21
@ MH 707 CTN.	G3 (SHC @ MH) F.F. SERVICE ONLY	353.91

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Robert W. Bauman 4-17-97 CHIEF, BUREAU OF UTILITIES DATE	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND [Signature] 4/20/97 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE	Fisher, Collins & Carter, Inc. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE OFFICE PARK 10272 Baltimore National Pike Ellicott City, Maryland 21042 (410) 481-2885	#9757 TERRELL A. FISHER	DES: M.J.M. DRWN: J.M.M. CHK: P.W.K. DATE: 3-14-97	BY NO. REVISION DATE	WATER AND SEWER MAIN PROFILES 600' SCALE MAP NO. 16 BLOCK NO. 6 & 12	MT. HEBRON SECTION 23, PHASE 3 LOT NOS. 58 - G8 DUNLEER ROAD CONTRACT NO. 14-3591-D SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN SHEET 3 OF 4
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STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION
 Using vegetation as cover for barren soil to protect it from forces that cause erosion.
 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 (0 to 1 year), and Permanent Seeding, for long-term vegetative cover. Applicable areas for Temporary Seeding are Temporary Seeding 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 at final grade, former stockpile and staging areas, etc.

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

- A. Site Preparation**
1. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, 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 Amendment (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 analyses.
 2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment to 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 product.
 3. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxidized plus magnesium oxide. Limestone shall be ground to a fineness that at least 50% will pass through a #100 mesh sieve and 95-100% will pass through a #20 mesh sieve.
 4. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.

- C. Seeded Preparation**
1. Temporary Seeding
 - a. 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 (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
 2. Permanent Seeding
 - a. Seeded preparation conditions required for permanent vegetative establishment:
 1. Soil pH shall be between 6.0 and 7.0.
 2. Soluble salts shall be less than 500 parts per million (ppm).
 3. 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 loesslike or sericea lespedeza is to be planted, then a sandy soil (30% silt plus clay) would be acceptable.
 4. Soil shall contain 1.5% minimum organic matter by weight.
 5. Soil must contain sufficient pore space to permit adequate root penetration.
 6. If these conditions cannot be met by soils on site, additional topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 - b. 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 from sliding down a slope.
 - c. Apply soil amendments as per soil test or as included on the plans.
 - d. Mix soil amendments into the top 3-5" of topsoil by disking or other suitable means. Lawn areas should be raked 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 disking with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- D. Seed Specifications**
1. All seed must meet the requirements of the Maryland 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 the job.
 2. Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
 3. Inoculant - The inoculant for testing legume seed in the seed mixtures shall be a pure culture of nitrogen fixing bacteria for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate which 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**
- a. Hydroseeding - Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeding.
 - i. 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) 500 lbs/acre; K2O (potassium) 200 lbs/acre.
 - ii. Lime - use only ground agricultural limestone. Up to 3 tons per acre may be applied by hydroseeding. Normally, soil more than 2 tons are applied by hydroseeding at any one time. Do not use burn or hydrated lime when hydroseeding.
 - b. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

- ii. Dry Seeding - This includes use of conventional drop or broadcast spreaders.
 - i. Seed spread dry shall be incorporated into the substrate at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 266. The seeded area shall then be covered with a seedbed or other suitable material to protect seed to soil contact.
 - ii. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 - iii. Drill or Cultipacker Seeding - Mechanized seeders that apply and cover seed with soil.
 - i. Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - ii. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- F. Mulch Specifications (in order of preference)**
1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, restorable bright in color, and shall not be mostly mold, chaff, decays or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
 2. Wood Cellulose Fiber Mulch (WCFM)
 - a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - b. WCFM shall be dried green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
 - d. 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 blotter-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.
 - e. WCFM material shall contain no elements or compounds of concentration levels that will be phytotoxic.
 - f. 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 15% maximum and water holding capacity of 90% minimum.
- Note: Only sterile straw mulch should be used in areas where one 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.

- ii. 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.
- iii. 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.
- H. 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 hazards:
 - i. 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 deep. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on 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 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 pounds 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 creel of banks. The remainder of area should be applied uniform after binder application. Synthetic binders, such as Acrylic D.K. Ugo-Tack, DCA-70 Petro-Tack, Terra-Tack II, Terra-Tack AR 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 manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSING AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION OR DEMOLITION.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED IN ACCORDANCE 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 AND REVISIONS THEREOF.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, b) 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHALL BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 20), SOIL (SEC. 24), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL DIVISION.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	47.73 ACRES
AREA DISTURBED	17.97 ACRES
AREA TO BE ROOFED OR PAVED	4.12 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2.54 ACRES
TOTAL CUT	16,880 CU.YDS.
TOTAL FILL	16,880 CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 5 ACRES, THE APPROVAL OF THE INSPECTION AGENCY IS REQUIRED PRIOR TO THE UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

PERMANENT SEEDING NOTES

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:
SEEDBED PREPARATION
 LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS:
 APPLY TWO TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1,000 SQ.FT.) AND 600 LBS. PER ACRE 0-20-20 FERTILIZER (14 LBS./1,000 SQ.FT.) BEFORE SEEDING HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1,000 SQ.FT.) AND 900 LBS. PER ACRE (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 (2.3 LBS./1,000 SQ.FT.) OF CENTURY 31 FESCUE OR 100 LBS. PER ACRE (2.3 LBS./1,000 SQ.FT.) OF CENTURY 31 FESCUE AND 2 LBS. PER ACRE (0.05 LBS./1,000 SQ.FT.) OF WEEDING LOVEGRASS. DURING THE PERIOD OF OCTOBER 15 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE 500; OPTION (3) - 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 1/2 TO 2 TONS PER ACRE (90 TO 90 LBS./1,000 SQ.FT.) OF UNBOTTLED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING 200 GALLONS PER ACRE (5 GALL./1,000 SQ.FT.) OF GRISSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 5 FEET OR HIGHER USE 340 GALLONS PER ACRE (8.5 GALL./1,000 SQ.FT.) FOR ANCHORING.

MAINTENANCE:
 INSPECT ALL SEEDED 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.

SEEDBED 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 (14 LBS./1,000 SQ.FT.)

SEEDING:
 FOR THE PERIODS MARCH 1 THROUGH APRIL 30, AND AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 17 BUSHEL PER ACRE OF ANNUAL RYE (32 LBS./ACRE) OF WEEDING LOVEGRASS (0.7 LBS./1,000 SQ.FT.). FOR THE PERIOD NOVEMBER 15 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE 500.

MULCHING:
 APPLY 1 1/2 TO 2 TONS PER ACRE (90 TO 90 LBS./1,000 SQ.FT.) OF UNBOTTLED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHORING TOOL OR 210 GALLONS PER ACRE (5 GALL./1,000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES 5 FEET OR HIGHER, USE 340 GALLONS PER ACRE (8.5 GALL./1,000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1989 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

STANDARD AND SPECIFICATIONS FOR TOPSOIL

- 1) DEFINITION: PLACEMENT OF TOPSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.
- 2) PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
- 3) SPECIFICATIONS: A TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM OR LOAMY SAND. B. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS. C. TOPSOIL SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, GRAVEL, STICKS, ROOTS, TRASH OR OTHER MATERIALS LARGER THAN 1" IN DIAMETER. D. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 6" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4" TO AVOID SURFACE IRREGULARITIES. E. PLACE TOPSOIL AND APPLY SOIL AMENDMENTS AS DETAILED IN STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION. F. TOPSOIL SHALL NOT BE PLACED DURING FROZEN, HUDDY, OR EXCESSIVELY WET CONDITIONS.
- 4) APPLICATION: A TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 6" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4" TO AVOID SURFACE IRREGULARITIES. D. PLACE TOPSOIL AND APPLY SOIL AMENDMENTS AS DETAILED IN STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION. F. TOPSOIL SHALL NOT BE PLACED DURING FROZEN, HUDDY, OR EXCESSIVELY WET CONDITIONS.

SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT.
2. NOTIFY MISS. UTILITY 48 HOURS BEFORE BEGINNING ANY WORK (1-800-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION/INSPECTION DIVISION 24 HOURS BEFORE STARTING (410) 313-1870.
3. INSTALL THE REQUIRED SEDIMENT & EROSION CONTROL DEVICES AS INDICATED ON SHEET 2 OF THIS CONTRACT.
4. CLEAR & GRADE AS NECESSARY, ONLY AS REQUIRED FOR EXCAVATION & INSTALLATION OF THE WATER & SEWER MAINS, & ONLY WITHIN THE DESIGNATED WATER, SEWER & UTILITY EASMENTS.
5. NOTE: THE LENGTH OF OPEN TRENCH SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH WILL BE BACKFILLED & STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.
6. CONSTRUCT THE WATER MAIN, SEWER MAIN & APPURTENANCES.
7. STABILIZE WITH A MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES CHECK ON THIS SHEET.
8. FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS & AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL EXCESSIVE SEDIMENT CONTROL DEVICES.

DEVELOPER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT & CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN AND SPECIFICATIONS, THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION OF THIS PROJECT WILL HAVE A GOOD UNDERSTANDING OF THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT."

Michael J. McCann for H.J. BAKER 3-24-97
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION & SEDIMENT CONTROL REPRESENTS A PRACTICAL & FEASIBLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS & THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT."

Paul W. Kiehl 03/25/97
 SIGNATURE OF ENGINEER DATE

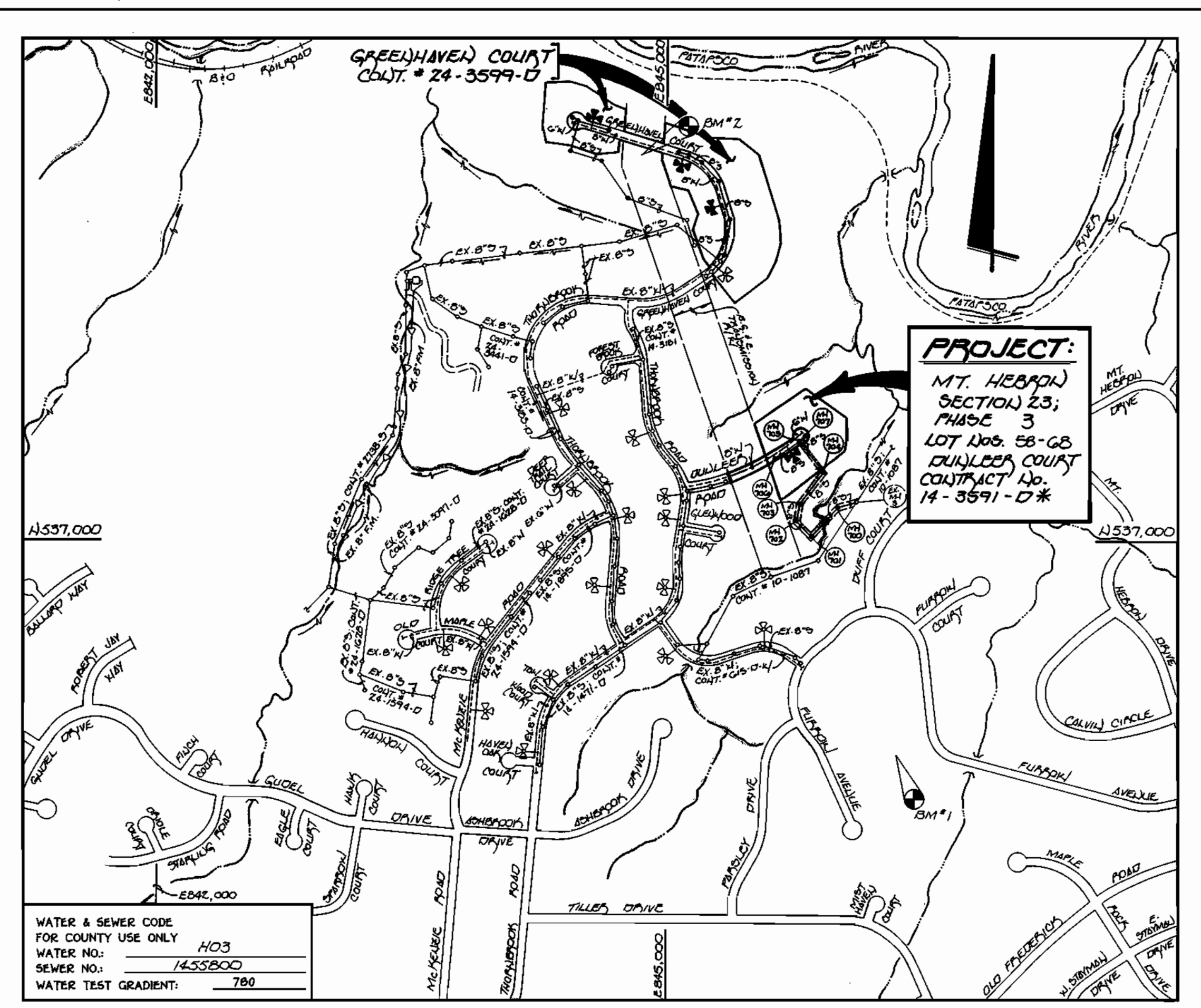
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND R. J. Berman CHIEF, BUREAU OF UTILITIES DATE: 4-17-97	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND [Signature] CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 4/20/97	49757 Fisher, Collins & Carter, Inc. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE OFFICE PARK 10275 Baltimore National Pike Elkocott City, Maryland 21042 (410) 481-2855 [Signature] FERRELL A. FISHER	DESIGNED BY: H.J.M. DRAWN BY: H.J.M. CHECKED BY: P.W.K. DATE: 3-24-97	BY NO. _____ REVISION _____ DATE _____	MT. HEBRON SECTION 23 - PHASE 3 LOT NOS. 58 - 68 DUNLEER ROAD WATER AND SEWER MAIN EXTENSIONS HOWARD COUNTY, MARYLAND SEDIMENT AND EROSION CONTROL NOTES 600' SCALE MAP NO. 17 BLOCK NO. 3 F.C.C. WORK ORDER NO. 30482 FILE NAME: G:/DRAWINGS/30482	SCALE AS SHOWN SHEET 4 OF 4
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QUANTITIES				
ITEM	ESTIMATED	QUANTITIES	AS-BUILT	SUPPLIER
8" SEWER	456 L.F.	456 L.F.	PVC SDR 35	J-M
6" SEWER (OLD)	179 L.F.	775 L.F.	CL 52	U.S. PIPE FOUNDRY
MANHOLES	6 @ EACH	7	STANDARD	ATLANTIC CONCRETE
4" SEWER	280 L.F.	330 L.F.	PVC SDR 35	J-M MANUFACTURING
MANHOLE	1	1	1/2" DROP	ATLANTIC CONCR.
MANHOLE	1	1	1/2" DROP	"
6" WATER	378 L.F.	398 L.F.	CL 52	U.S. PIPE FOUNDRY
6" WATER	150 L.F.	145 L.F.	"	"
PIPC HYDRANT	1 EACH	1	6" BURY	MUELLER CO.
1" WMC	70 L.F.	100 L.F.	SOFT K COPPER	READING TUBE
3/4" WMC	232 L.F.	224	"	"
8" x 6" TEE	1 EACH	1	MJ COMPACT RI	U.S. PIPE FOUNDRY
G" VALVE	1 EACH	1	O.L. GATE	MUELLER CO.
6" x 6" REDUCER	1 EACH	1	MJ COMPACT RI	U.S. PIPE FOUNDRY
G" PLUG & BUSHING	1 EACH	1	"	"
1 1/2" COPING	1 EACH	1	See below	"
1 1/2" COPING	1 EACH	1	H-18000 CL XL	MUELLER CO.
1 1/2" BRASS NIPPLE	1 EACH	1	CLOSE	MERIT BRASS
1 1/2" TUBING	60 L.F.	60 L.F.	SOFT K COPPER	READING TUBE
12" FRACTIONAL	1 EACH	1	METER	FORD METER BOX
18" x 30" METER	1 AT	1	PLASTIC	AMETEX FURMOUTH

NAME OF UTILITY CONTRACTOR: CONSOLIDATED CONSTRUCTION SERVICES (CCS)
SURVEY & DRAFTING DIVISION AS-BUILT DATE:

DEVELOPER'S CERTIFICATE
 "I HEREBY CERTIFY THAT ALL DEVELOPMENT & CONSTRUCTION SHALL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT & SHALL FOR PERIOD OF EROSION & SEDIMENT CONTROL & THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ADEQUACY AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION & SEDIMENT BECAUSE RELATED TO PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."
 Michael J. McCann for H.J. Bauer 7-24-97
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE
 "I HEREBY CERTIFY THAT THIS PLAN FOR EROSION & SEDIMENT CONTROL MEETS TO A PRACTICAL & WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS & THAT IT HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 Paul W. Kiechel 03/25/97
 SIGNATURE OF ENGINEER DATE



WATER & SEWER CODE FOR COUNTY USE ONLY: HO3
 WATER NO.: 1435800
 SEWER NO.: 1435800
 WATER TEST GRADIENT: 780

TYPE OF BUILDING: RESIDENTIAL: SINGLE FAMILY DETACHED
 NUMBER OF LOTS: 45 (TOTAL: 52 BUILDINGS) (A BUILDABLE 2ND CONTRACT)
 NO. OF WATER HOUSE CONNECTIONS: 11 #
 NO. OF SEWER HOUSE CONNECTIONS: 11 #
 DRAINAGE AREA: PATAPSCO W.W.T.P.: CITY OF BALTIMORE VIA THE MT. HEBRON PUMPING STATION

PLAN REFERENCE NUMBERS: F-97-75

SCALE: 1"=600'

* SEE CONTRACT NO. 24-3599-D FOR THE REMAINING WATER & SEWER MAINS DETERMINED TO SERVICE THE BUILDABLE LOTS IN GREENHAVEN COURT. (31)

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 FITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL \square AT THE LOCATION OF THE TEST FIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST FIT OR FITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST FITS HAVE NOT BEEN MADE 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 - 850-1620
 - BALTIMORE GAS & ELECTRIC CO. - UNDER GROUND DAMAGE CONTROL - 787-9068
 - MISS 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.B. DENOTES TEST BORING.
- MANHOLES SHOWN WITH 12" AND 16" 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.
- HOUSE(S) WITH THE SYMBOL "C.N.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 (W11) 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 AWWA 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 DEW REQUIREMENTS PER SECTION 19.10(A) OF THE HOWARD COUNTY CODE.

CONTRACT NO. 14 - 3591-D*
MT. HEBRON
SECTION 23 , PHASE 3
LOT NOS. 58 - 68
DUNLEER ROAD
WATER AND SEWER MAIN EXTENSIONS
HOWARD COUNTY, MARYLAND

BENCHMARKS

BM #1	4335, 573, 189	ELEV.: 466.0
	2 846, 324, 470	
HOWARD COUNTY MONUMENT # 3442011, 3/4"		
RELATIONSHIP 750		
BM #2	4339, 792, 409	ELEV.: 420.0
	2 844, 040, 447	
HOWARD COUNTY MONUMENT # 3341004, 3/4"		
RELATIONSHIP 750		

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
 Chief Simmons 4/24/97
 U.S.B.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED:
 John R. Salton 4/24/97
 HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT 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 THESE PLANS AND UNDER F - 97-18.
 Michael J. McCann for H.J. Bauer 7-24-97
 SIGNATURE OF DEVELOPER DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Robert B. Boney 4-17-97 CHIEF, BUREAU OF UTILITIES DATE	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND [Signature] 4/24/97 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE	Fisher, Collins & Carter, Inc. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS CENTENNIAL SQUARE OFFICE PARK 10272 Baltimore National Pike Ellicott City, Maryland 21042 (410) 481-2855	DESIGNED BY: RJJM DRAWN BY: RJJM CHECKED BY: P.W.K. DATE: 3/24/97 BY NO. [] REVISION []	TITLE SHEET 600' SCALE MAP NO. 17 BLOCK NO. 3 F.C.C. WORK ORDER NO. 30482 FILE NAME: G:\DRAWINGS\30482\30482UL.DWG	MT. HEBRON SECTION 23, PHASE 3 LOT NOS. 58 - 68 DUNLEER ROAD CONTRACT NO. 14 - 3591 - D* SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE AS SHOWN SHEET 1 OF 4
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