

GENERAL NOTES:

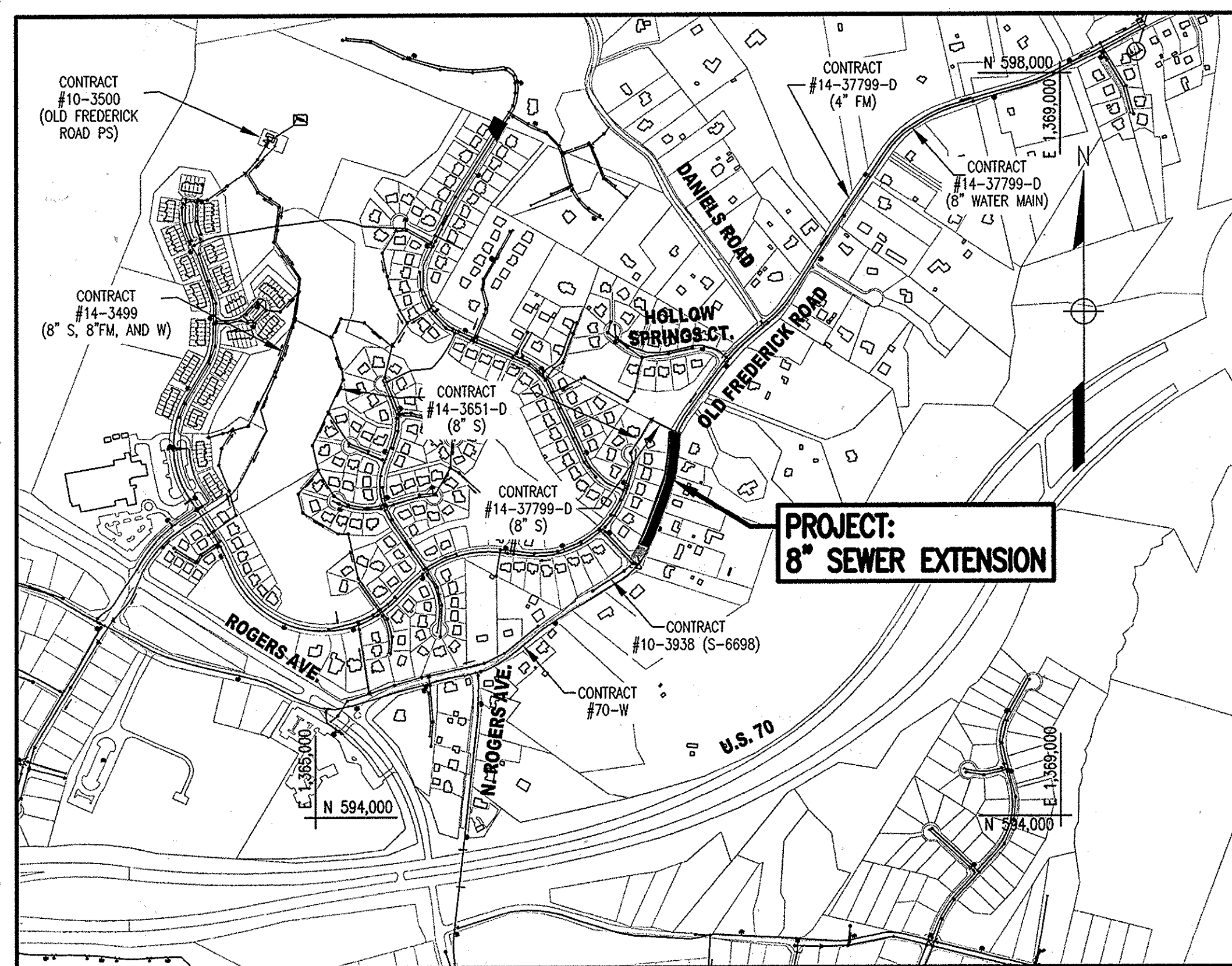
- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN SEPTEMBER 2013 BY WHITMAN, REQUARDT & ASSOCIATES LLP.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE COORDINATE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 18GA AND NO. 17ED. SEE SURVEY INFORMATION THIS DRAWING.
- ALL VERTICAL CONTROLS ARE BASED ON NAVD '88 AND WERE DERIVED FROM SURVEY CONTROL STATION NO. 18GA AND NO. 17ED. SEE SURVEY INFORMATION TABLE ON THIS DRAWING.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM, OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF THE POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR BY TEST PIT TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.

AT&T	1-800-252-1133
BGE (CONSTRUCTION SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO.	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033/410-224-9210
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS, AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE SEWER.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(c) OF THE HOWARD COUNTY CODE.

SANITARY SEWER NOTES:

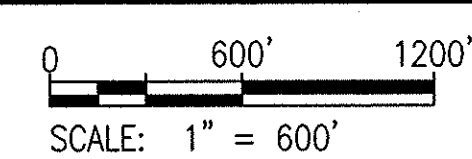
- ALL SEWER MAINS SHALL BE PVC UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" UNLESS OTHERWISE NOTED.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED "WT" IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAILS G5.52. WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATED THAT THE CELLAR CANNOT BE SERVED.

OLD FREDERICK ROAD SEWER EXTENSION CAPITAL PROJECT S-6277 CONTRACT NO. 10-4856 HOWARD COUNTY, MARYLAND



TYPE OF BUILDING: RESIDENTIAL
NUMBER OF PARCELS: 8
SEWER HOUSE CONNECTIONS: 8
DRAINAGE AREA: PATAPSCO

LOCATION MAP
1" = 600'



SURVEY INFORMATION TABLE

GEODETIC CONTROL STA.	NORTHING	EASTING	ELEV.
18GA	591,872.01	1,370,380.43	445.77
17ED	594,315.14	1,357,380.58	478.28

NOTE: GEODETIC CONTROLS INDICATED IN TABLE ABOVE ARE NOT WITHIN THE LIMITS OF THE PROJECT LOCATION MAP ABOVE. THESE GEODETIC CONTROLS WERE USED TO ESTABLISH THE GPS CONTROLS INDICATED ON THE CONTRACT DOCUMENTS.

ABBREVIATIONS

C.E.	CELLAR ELEVATION	NIC	NOT IN CONTRACT
C.N.S.	CELLAR NOT SERVED	PROP	PROPOSED
DIA.	DIAMETER	PVC	POLYVINYL CHLORIDE
ELEV.	ELEVATION	R&C	REBAR AND CAP
EX.	EXISTING	R/W	RIGHT OF WAY
HORIZ.	HORIZONTAL	S	GRAVITY SANITARY SEWER
INV.	INVERT	SAN	SANITARY
LF	LINEAR FOOT	SF	SILT FENCE
LOD	LIMIT OF DISTURBANCE	SSF	SUPER SILT FENCE
MIN.	MINIMUM	TYP.	TYPICAL
N/A	NOT APPLICABLE		

SHEET INDEX

SHEET	DESCRIPTION
1	TITLE SHEET, GENERAL NOTES, LEGEND, AND ABBREVIATIONS
2	SANITARY SEWER PLAN, PROFILE AND DETAILS
3	EROSION & SEDIMENT CONTROL PLAN, NOTES AND DETAILS
4	EROSION & SEDIMENT CONTROL NOTES

BILL OF MATERIALS

ITEM	QUANTITY	MATERIALS	AS-BUILT QUANTITY	MANUFACTURER
48" I.D. PRECAST CONCRETE MANHOLE < 6'	4 EACH			BIG RIVER
48" I.D. PRECAST MANHOLE ADDITIONAL DEPTH > 6'	19 VF			BIG RIVER
8" DIA. SDR 35 PVC SANITARY SEWER	572 LF			BIG RIVER
4" SHC	206 LF			NORTH AMERICAN
NO. OF SHC	8 EACH			NORTH AMERICAN

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		SIGN
		TREE
		SANITARY SEWER & MH
		REDUCER, TEE, VALVE & FIRE HYDRANT
		LIMIT OF DISTURBANCE
		WATER MAIN
		GAS (UNDERGROUND)
		ELECTRIC (UNDERGROUND)
		WATER METER
		WATER AIR RELEASE OR VALVE MANHOLE
		WELL
		STORM DRAIN INLET W/ STORM DRAIN PIPE
		FENCE WIRE
		FENCE WOOD
		PAVED ROADWAY
		TRAVERSE POINT
		BENCHMARK/SURVEY CONTROL POINT
		PROPERTY LINE
		MAILBOX
		POWER/UTILITY POLE WITH GUY WIRE
		STREET LIGHT
		ELECTRIC METER
		SIGN
		GUARDRAIL
		IRON PIPE FOUND

NOTE: OVERHEAD UTILITIES GENERALLY TRAVERSE FROM POLE TO POLE. OVERHEAD UTILITIES ARE NOT INDICATED FOR CLARITY.

NAME OF UTILITY CONTRACTOR: *EP-14-032*

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT (SCD).
John K. Robertson 1/22/15
HOWARD SOIL CONSERVATION DISTRICT DATE

"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27029, EXPIRATION DATE: 01-25-2016."

ENGINEERS/ARCHITECT DESIGN CERTIFICATION

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

Will D. Ding 27029 10/30/14
SIGNATURE REGISTRATION NUMBER DATE

OWNERS/DEVELOPERS CERTIFICATION:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Kim Sien 11/14/2014
SIGNATURE DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
James R. Butler 1/16/14
DIRECTOR OF PUBLIC WORKS DATE
Thomas R. Se 1/16/14
CHIEF, BUREAU OF UTILITIES DATE

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450

DES. F.B.	
DRN. F.B.	
CHK. W.H.	
OCT. 2014	
BY	KES 1 AS-BUILTS 09/24/15
NO.	
REVISION	
DATE	

TITLE SHEET, GENERAL NOTES, LEGEND, AND ABBREVIATIONS

OLD FREDERICK ROAD SEWER EXTENSION
CAPITAL PROJECT NO. S-6277
CONTRACT NO. 10-4856

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

G-1
SCALE AS SHOWN
SHEET 1 OF 4
FINAL

CONSTRUCTION NOTES

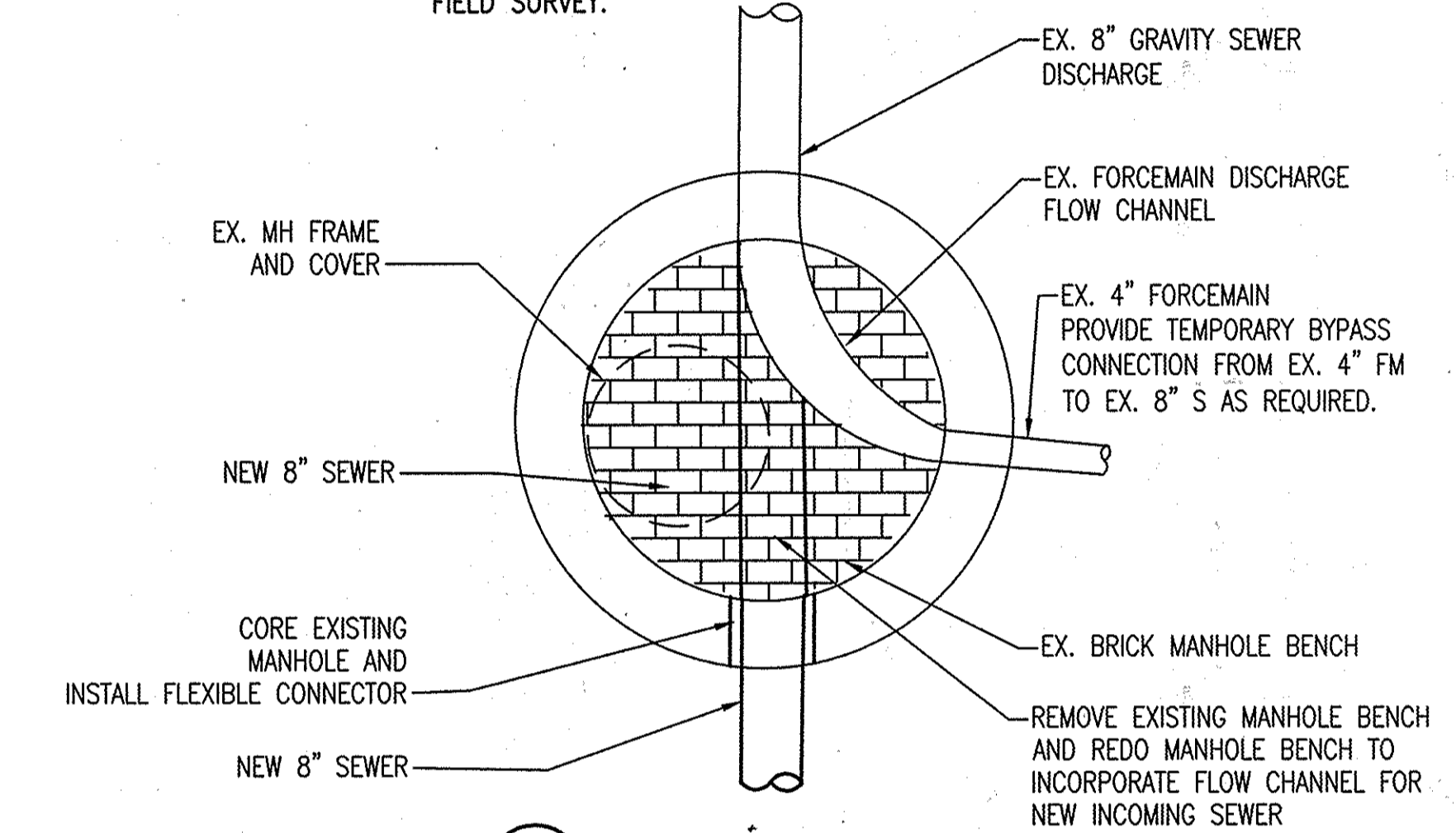
- 1 C.N.S.- CELLAR NOT SERVED.
- 2 CORE INTO EXISTING MANHOLE. SEE DETAIL A THIS DRAWING.
- 3 MILL AND OVERLAY EXISTING TRAVEL LANES AND PAVED SHOULDER. SEE DETAIL B THIS DRAWING.
- 4 REMOVE AND REINSTALL EXISTING GUARDRAIL AS REQUIRED FOR LATERAL INSTALLATION.
- 5 EXISTING BITUMINOUS CURB TO BE REMOVED AND REPLACED AS REQUIRED FOR LATERAL INSTALLATION.
- 6 ROADWAY IS COUNTY MAINTAINED. PROVIDE TRAFFIC CONTROL IN ACCORDANCE WITH SHA STANDARD DETAIL MD-1.04.02-09.
- 7 CORE INTO EXISTING MANHOLE AT INVERT 466.5 +/- WITH LATERAL CONNECTION DISCHARGING ONTO THE TOP OF THE EXISTING MANHOLE BENCH. (EX. MH BOTTOM INVERT = 465.5 +/-).

MANHOLE COORDINATES

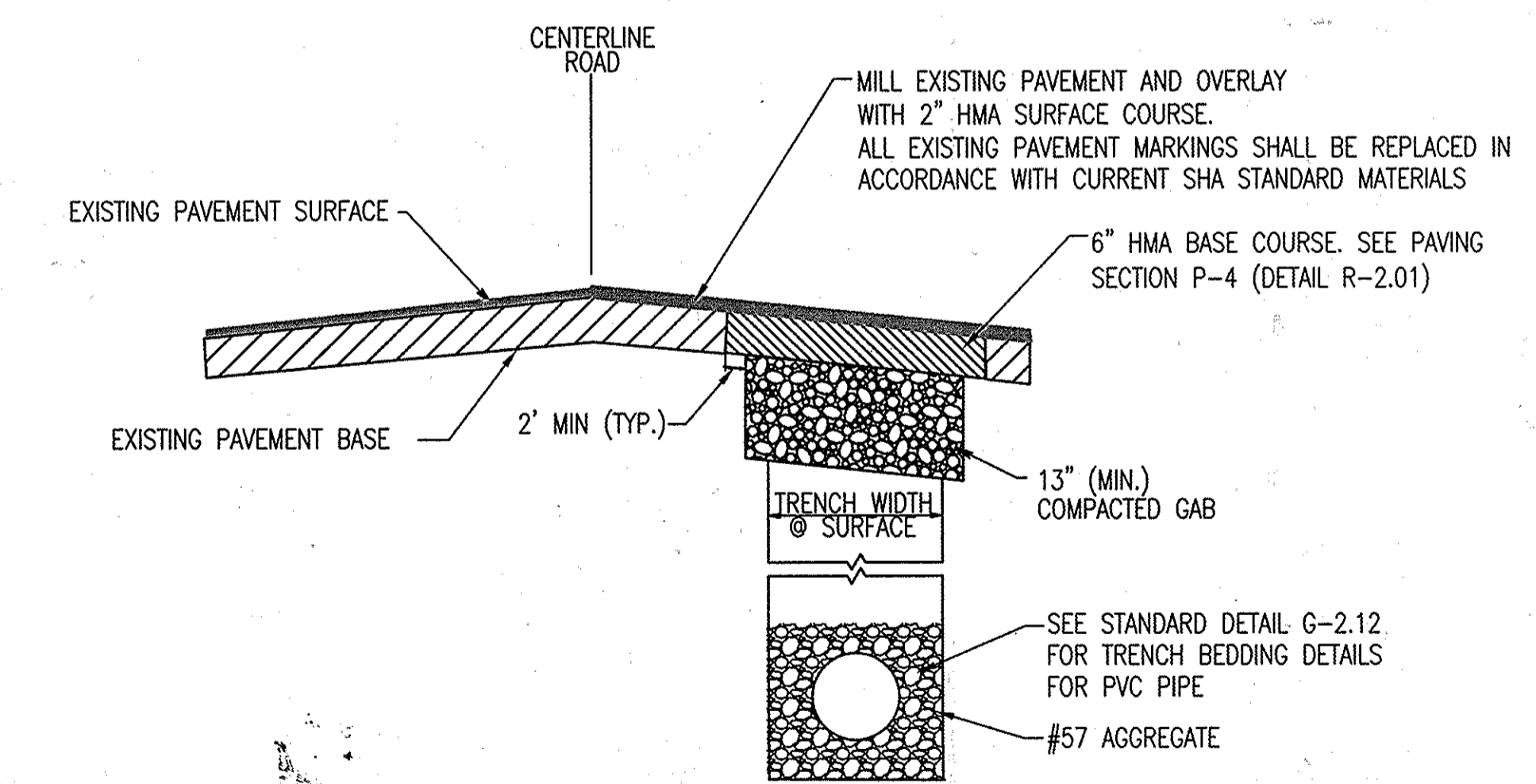
MANHOLE	NORTH	EAST
2	596,050.99	1,366,935.64
3	595,848.02	1,366,910.43
4	595,760.65	1,366,887.57
5	595,516.68	1,366,798.03

GENERAL NOTES

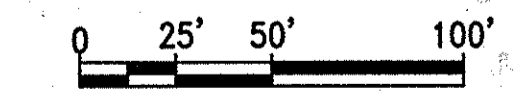
1. THE PROPERTY LINES SHOWN HEREON ARE BASED ON DEEDS, TAX MAPS AND THE BEST AVAILABLE INFORMATION AND ARE NOT BASED ON AN ACTUAL BOUNDARY OR FIELD SURVEY.



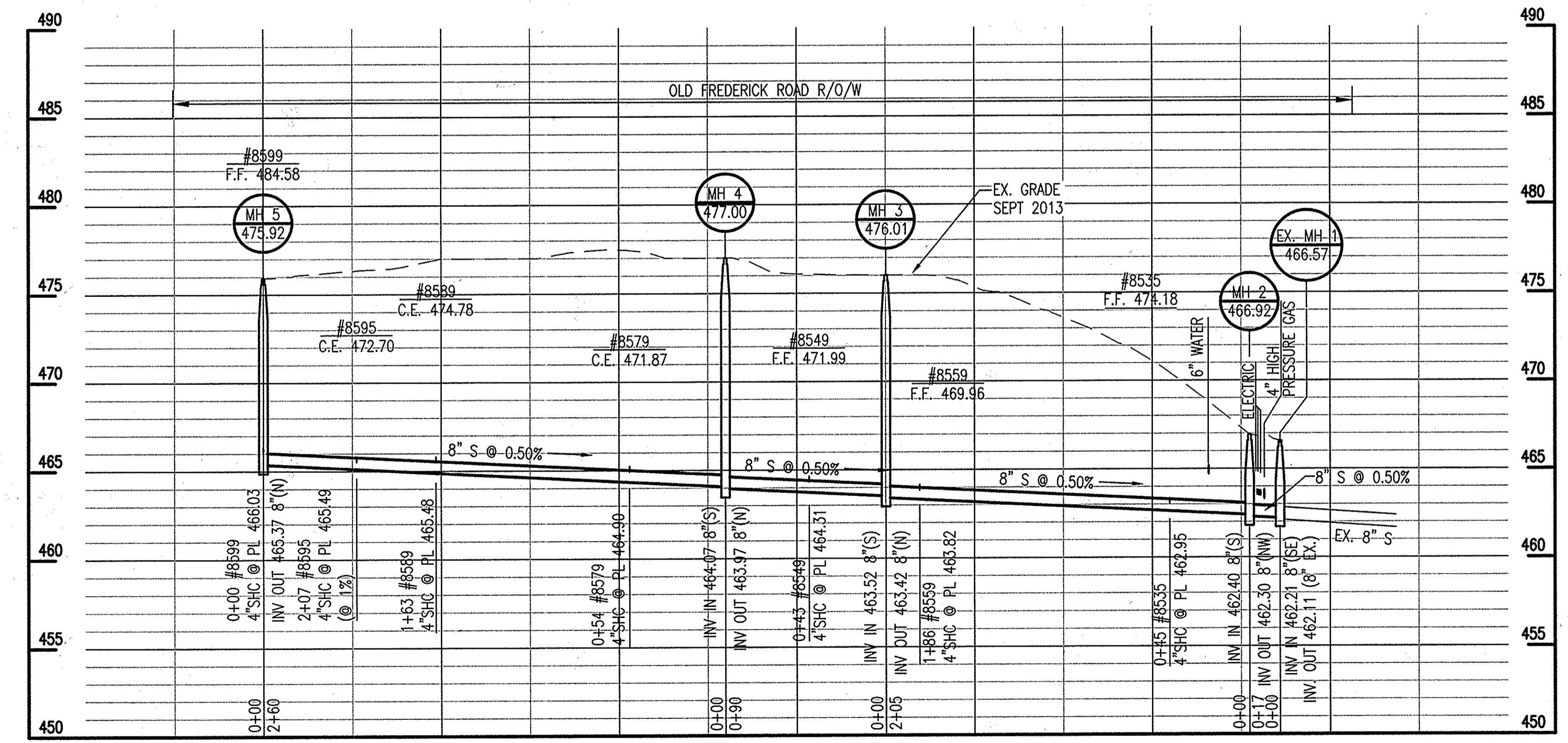
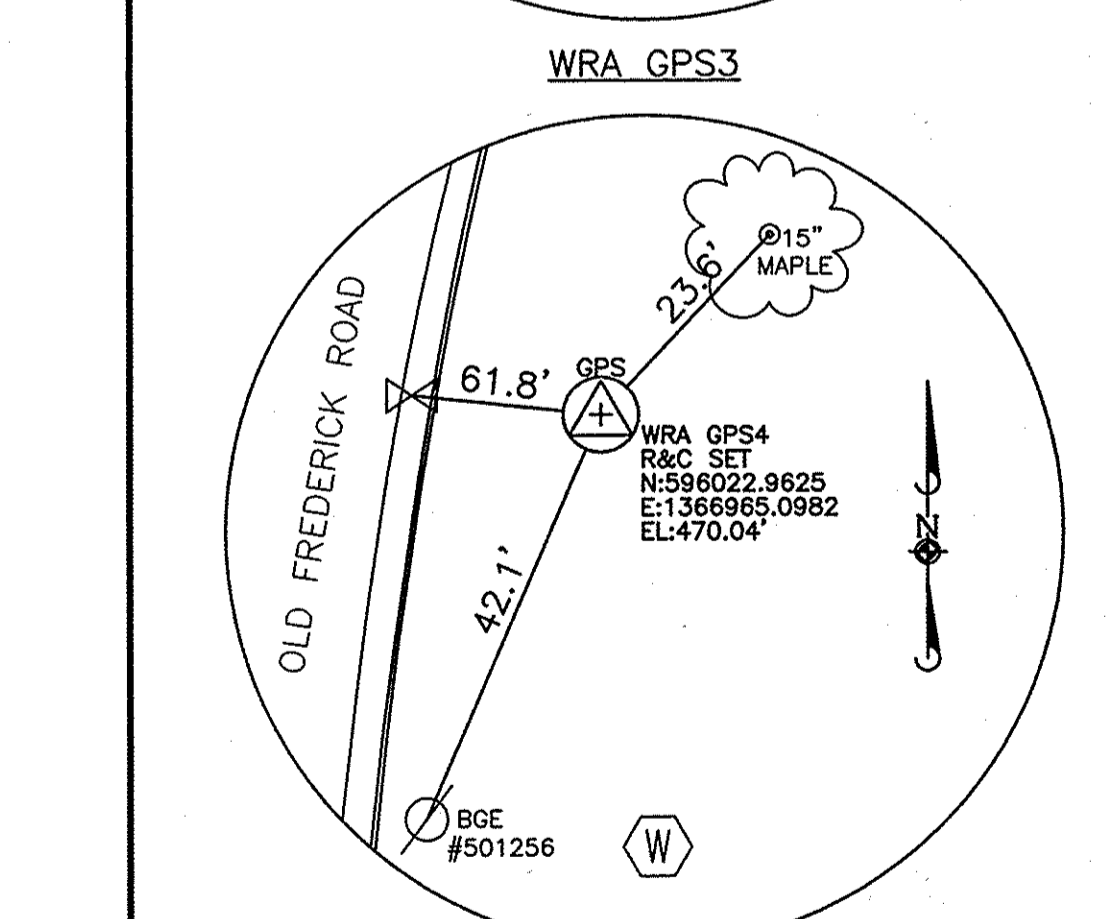
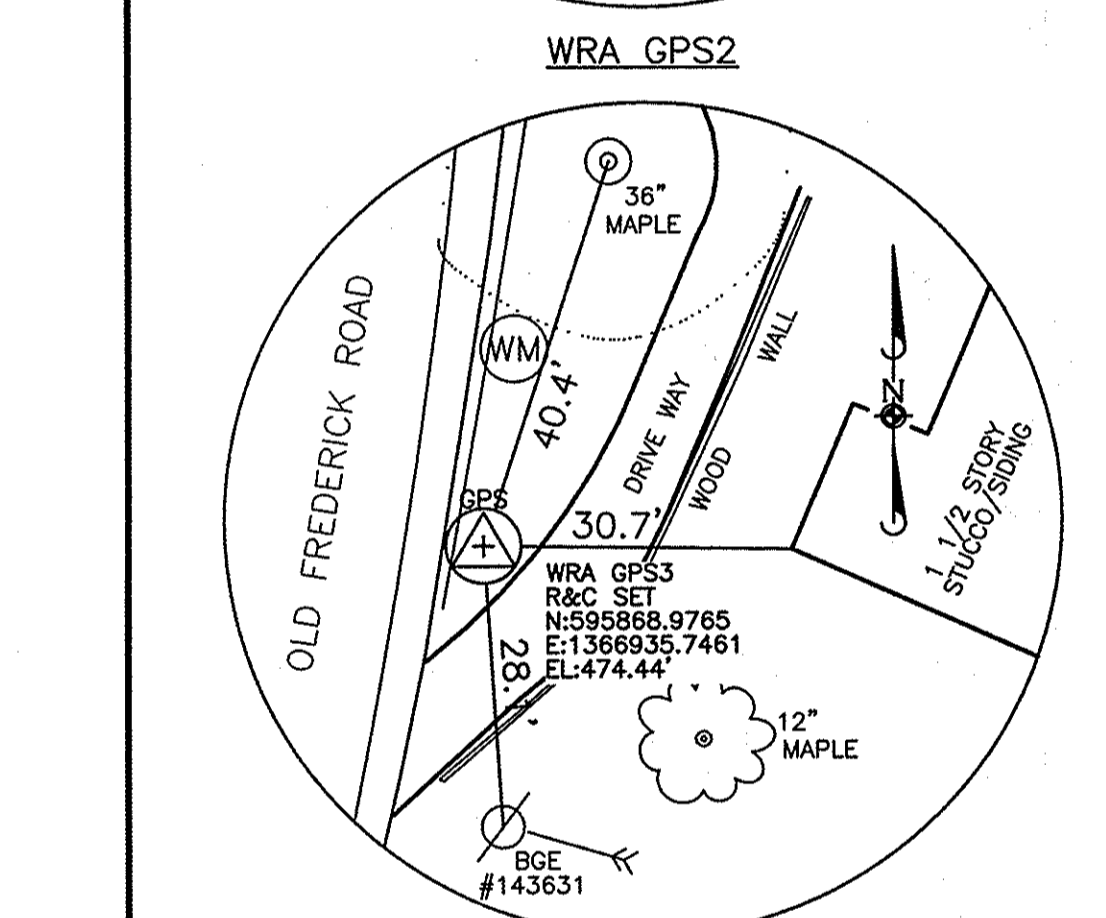
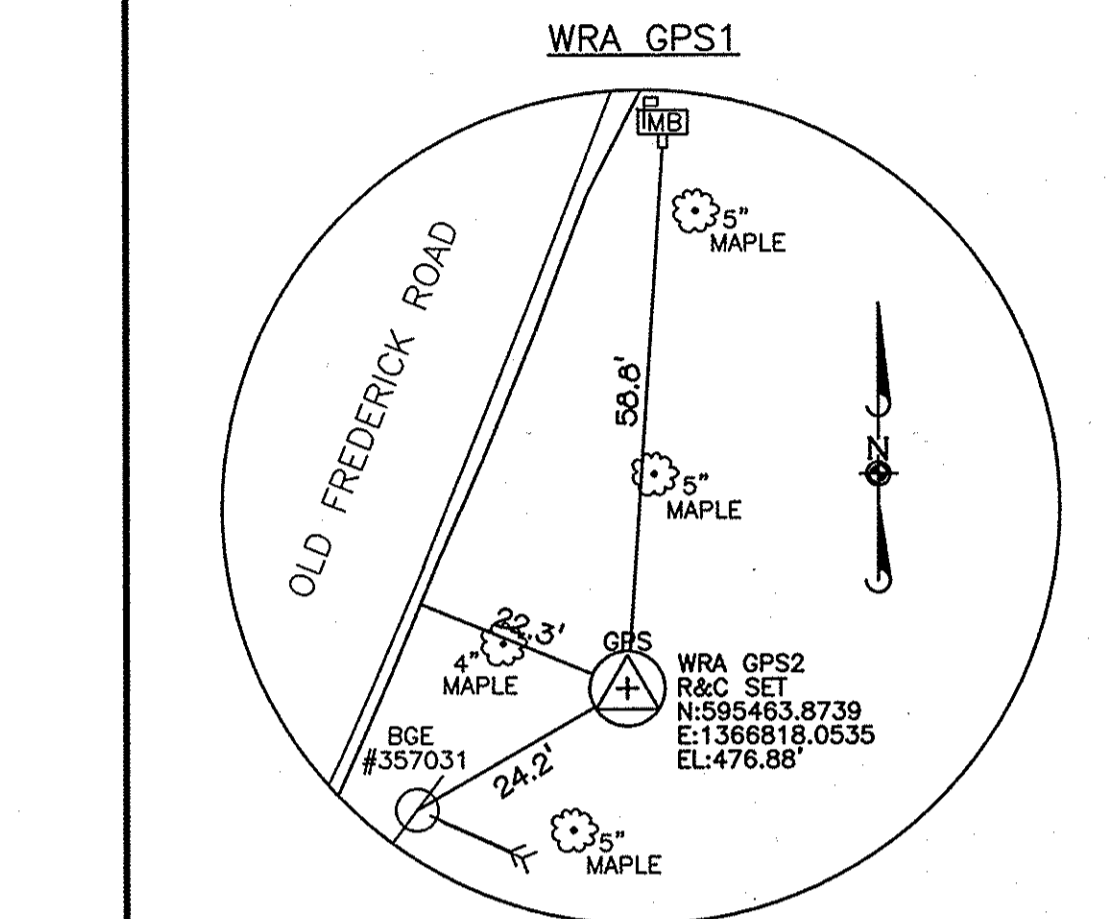
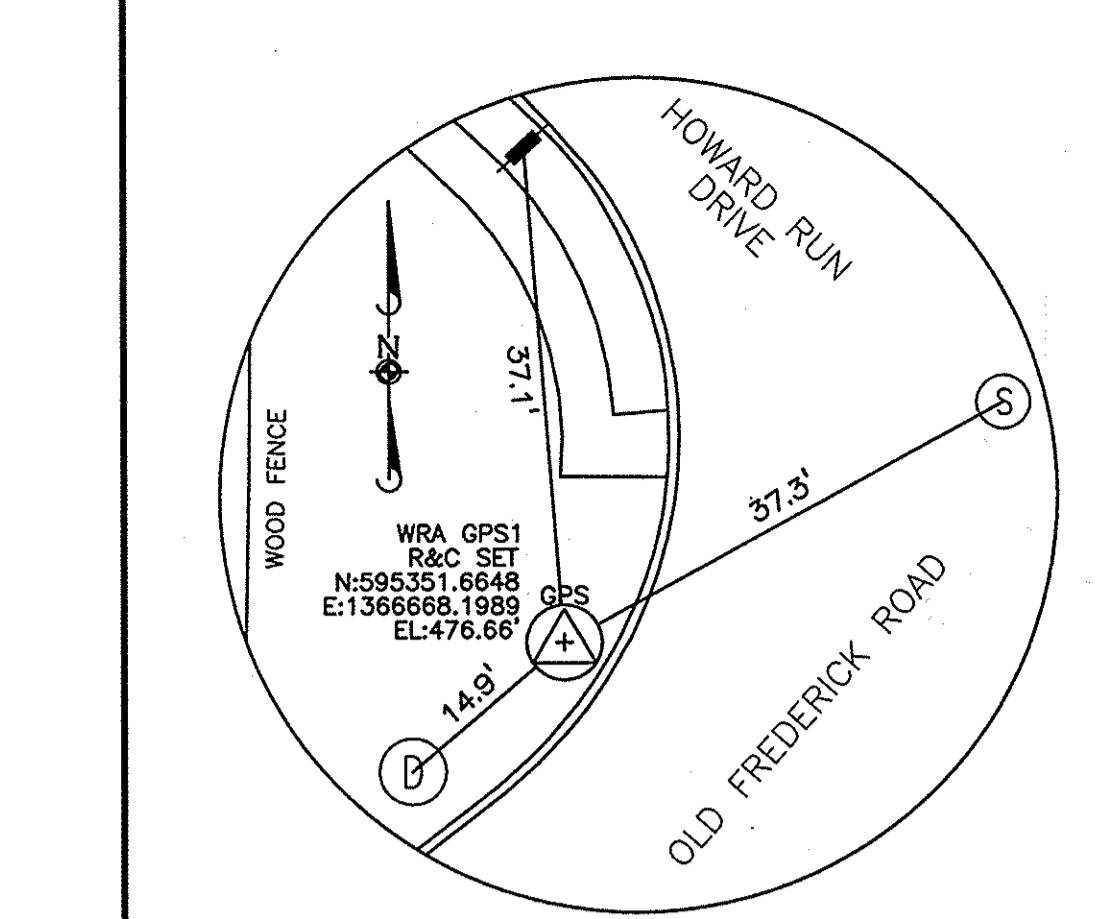
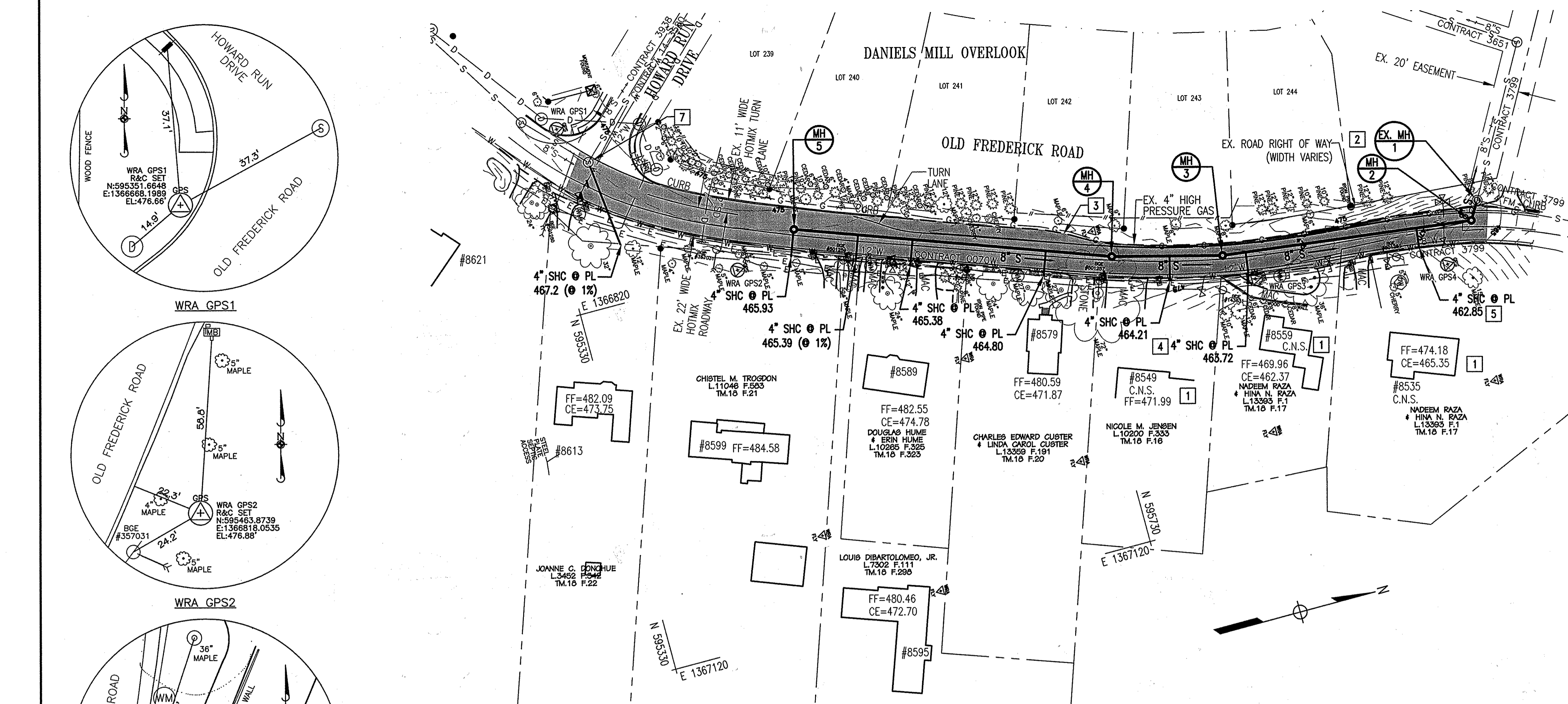
A EX. MANHOLE CONNECTION
C-1 NOT TO SCALE



B PAVEMENT RESTORATION
C-1 NOT TO SCALE



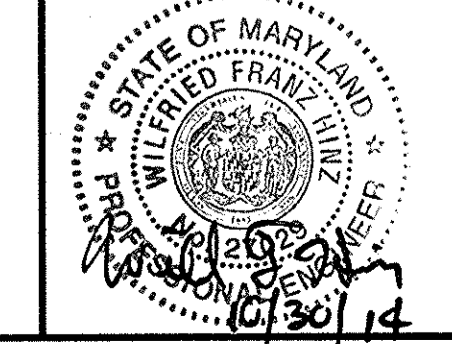
As-Built
09/24/2015



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: [Signature] 11/12/14
Chief, Bureau of Engineering: [Signature] 11/12/14
Bureau of Utilities: [Signature] 11/12/14
Chief, Utility Design Division: [Signature] 11/12/14

WR&A
WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 SOUTH CAROLINE STREET
BALTIMORE, MARYLAND
410 - 235 - 3450



DES: F.B.							
DRN: F.B.							
CHK: W.H.							
OCT. 2014	BY	NO.	REVISION	DATE	600 SCALE MAP NO. 32	BLOCK NO. 21.	

C-1
SCALE AS SHOWN
SHEET 2 OF 4
FINAL
ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. S-6277
CONTRACT NO. 10-4856

GENERAL SEDIMENT CONTROL NOTES

1. FOR UTILITY INSTALLATIONS, ALL DISTURBED AREAS SHALL BE STABILIZED THE SAME DAY. IF UNFORESEEN CONDITIONS REQUIRE THAT AN EXCAVATION MUST REMAIN OPEN BEYOND THE WORK DAY, THE FOLLOWING PROVISIONS MUST BE FOLLOWED:

- A) TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY; AND
- B) ANY PILES OF EXCAVATION SPOILS MATERIALS MUST BE SECURELY COVERED TO ENSURE THAT SEDIMENTS ARE NOT TRANSPORTED FROM THE PILE.

2. PAVEMENTS ADJACENT TO THE EXCAVATION MUST REMAIN SEDIMENT FREE. CONTRACTOR SHALL PLACE PLASTIC SHEETING BENEATH THE EXCAVATED MATERIAL PILES, AND SWEEP PAVEMENTS CLEAN OF SEDIMENTS AS REQUIRED.

3. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT THE DIRECTION OF THE SEDIMENT AND EROSION CONTROL INSPECTOR.

4. ALL SPOILS FROM THE EXCAVATION ARE TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISION OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND ALL REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A THREE (3) CALENDAR DAYS FOR ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3), TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

6. SITE ANALYSIS

TOTAL AREA OF SITE	0.50	ACRES
AREA DISTURBED	0.50	ACRES
AREA TO BE ROOFED OR PAVED	0.00	ACRES
TOTAL CUT	1200	CU. YDS.
TOTAL FILL	1200	CU. YDS.
OFFSITE WASTE/BORROW		
AREA LOCATION (IF KNOWN)		ACRES

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

8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE SEDIMENT AND EROSION CONTROL INSPECTOR.

9. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

10. TRENCHES FOR THE CONSTRUCTION OF UTILITIES SHALL BE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED AT THE END OF EACH WORKING DAY, WHICHEVER IS SHORTER.

11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PROCEEDING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

OVERALL PROJECT SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT FROM HOWARD COUNTY.
2. CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS BEFORE ANY CONSTRUCTION IS TO BEGIN.
3. NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION AT LEAST 2 DAYS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE A PRE CONSTRUCTION MEETING.
4. INSTALL AND STABILIZE SEDIMENT CONTROL MEASURES AS REQUIRED BY SEDIMENT AND EROSION CONTROL INSPECTOR.
5. BEFORE PROCEEDING WITH ANY EARTH DISTURBANCE OR GRADING, NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION UPON INSTALLATION OF SEDIMENT CONTROL MEASURES.
6. EXCAVATE FOR AND INSTALL SEWER MAINS. EXCAVATION FROM TRENCHING OPERATIONS SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
7. VEGETATIVELY STABILIZE BACKFILLED TRENCH OR TEMPORARY STABILIZE ANY PAVED AREAS DISTURBED AS WORK PROGRESSES.
8. NOTIFY HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (CID, 410-313-1880) AND OBTAIN APPROVAL TO REMOVE EROSION AND SEDIMENT CONTROL MEASURES
9. REMOVE CONTROLS AND PERMANENTLY STABILIZE ANY AREAS DISTURBED DURING REMOVAL OF CONTROLS.

SOIL INFORMATION

PER NRCS SOIL MAPS, ALL SOILS WITHIN THE PROJECT AREA ARE CLASSIFIED AS GbB - GLADSTONE LOAM 3 TO 8% SLOPES.

"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27029, EXPIRATION DATE: 01-25-2016."

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
Director of Public Works <i>[Signature]</i> DATE: 11/19/14	Chief, Bureau of Engineering <i>[Signature]</i> DATE: 11/19/14
Bureau of Utilities <i>[Signature]</i> DATE: 11/19/14	Chief, Utility Design Division <i>[Signature]</i> DATE: 11/19/14

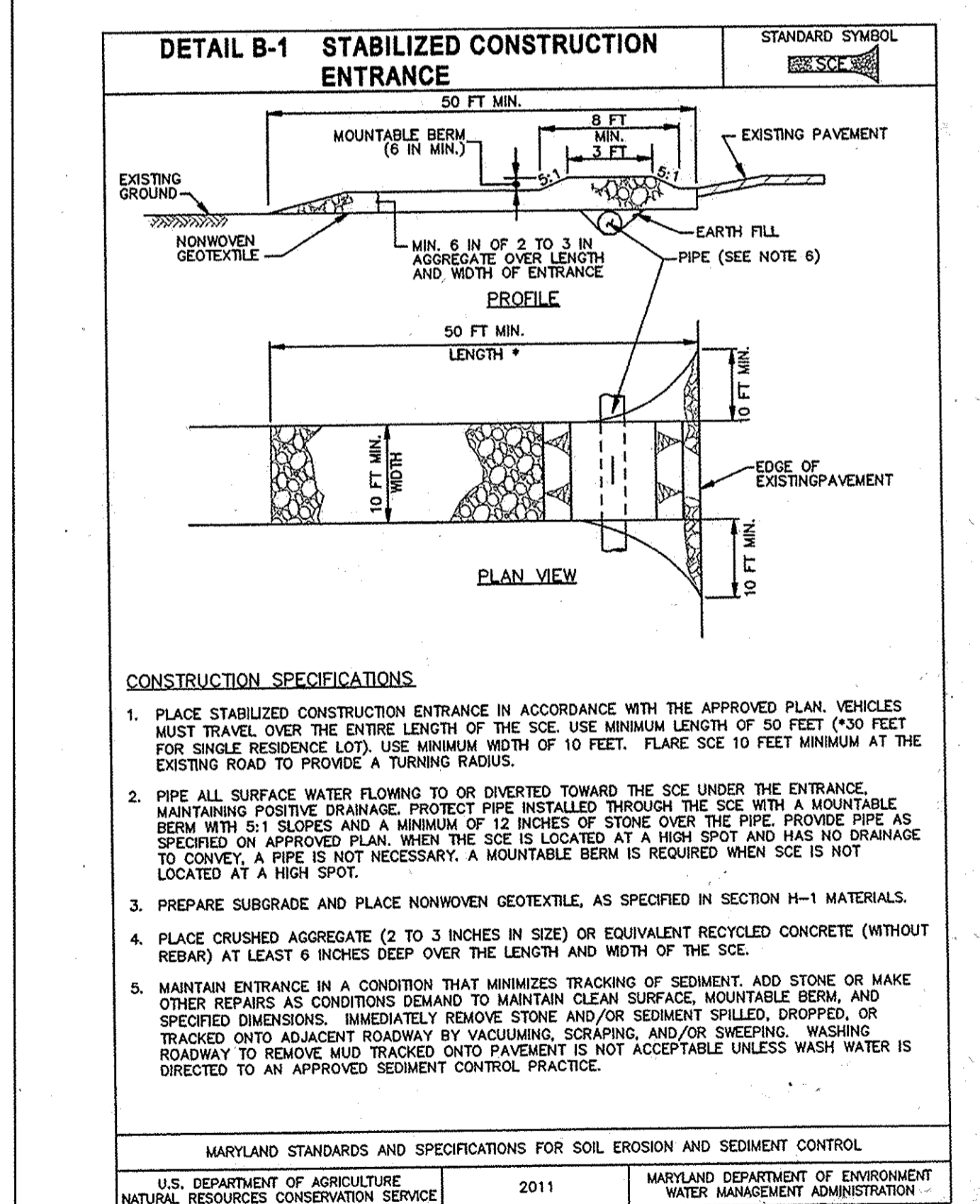
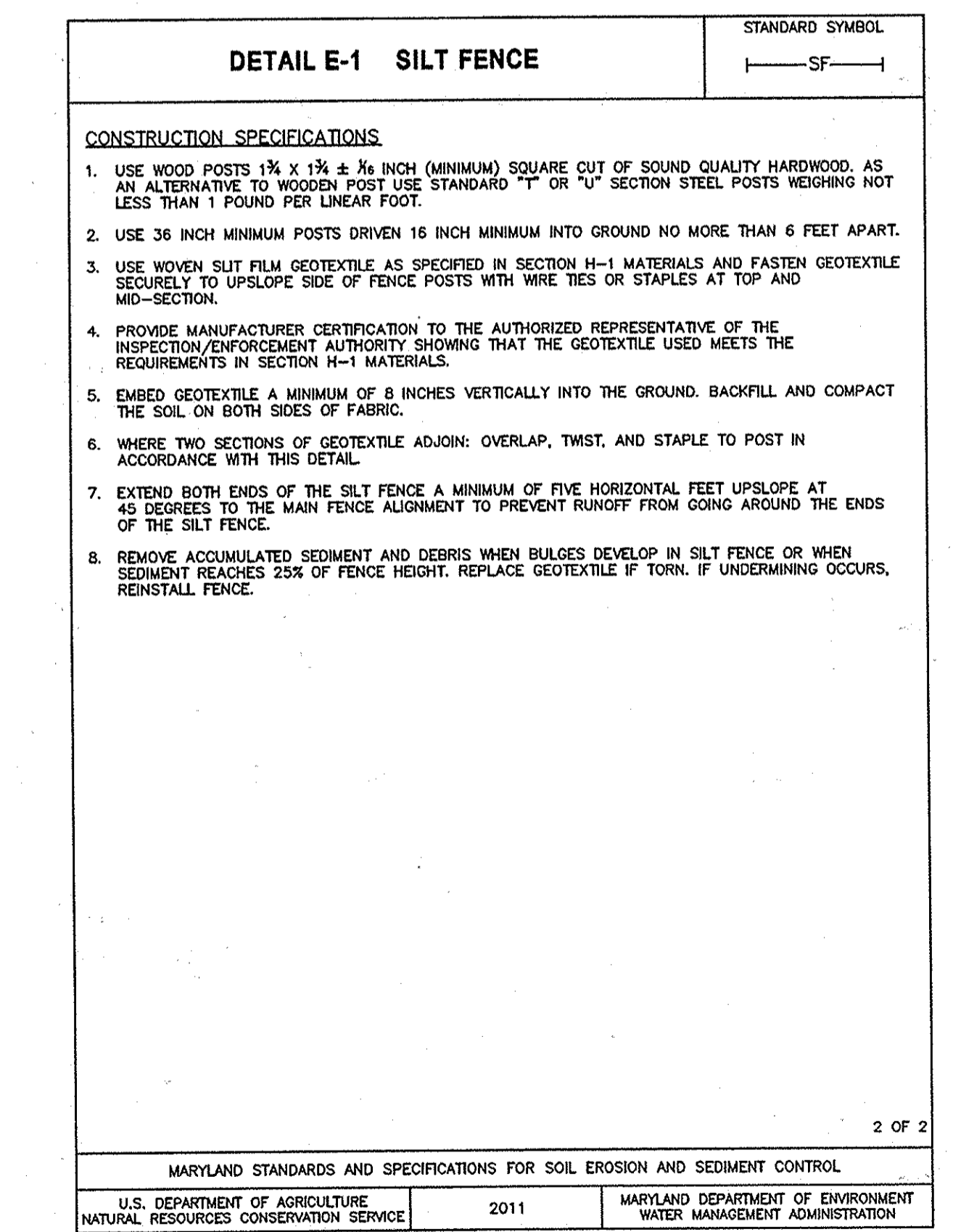
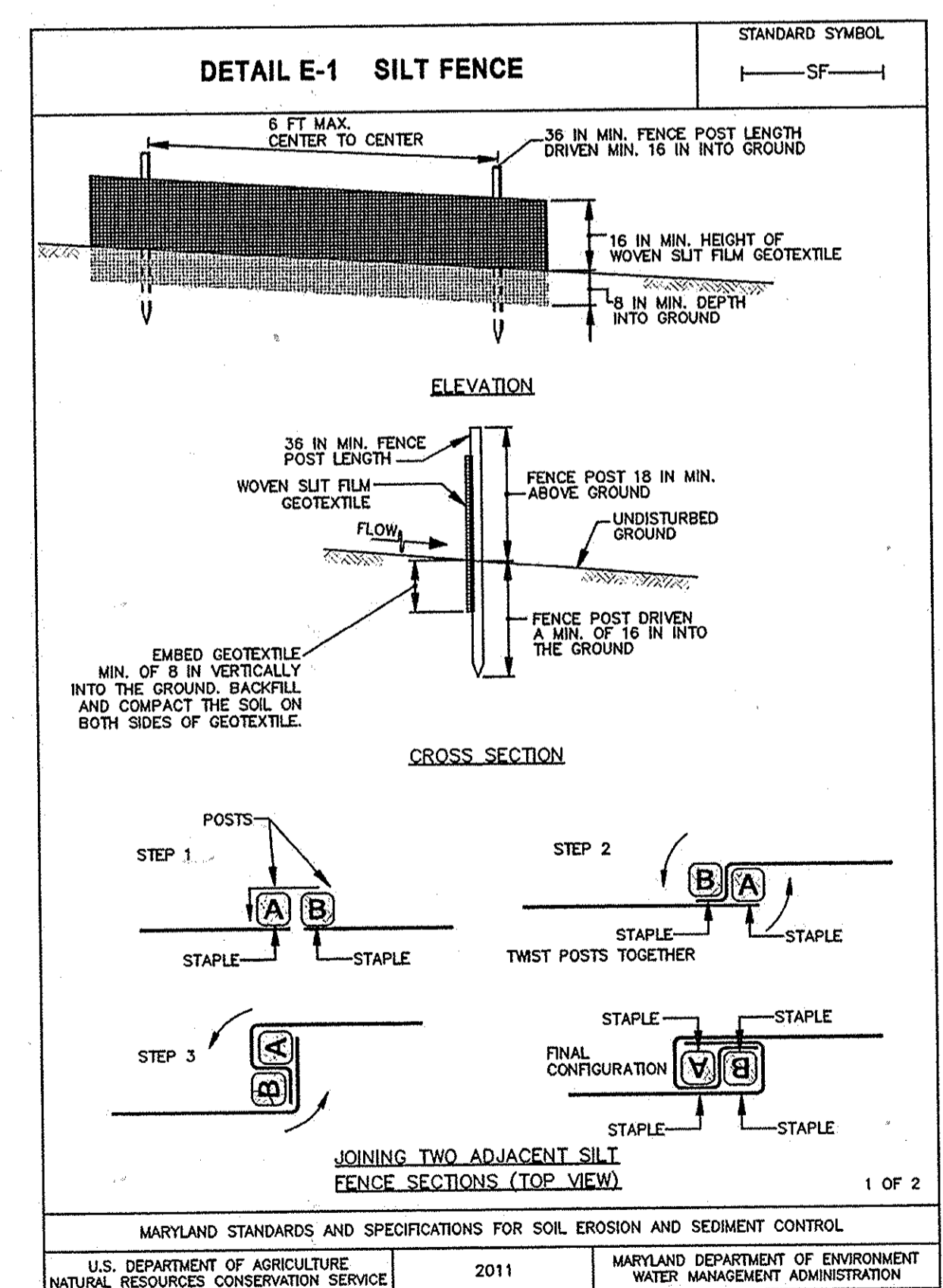
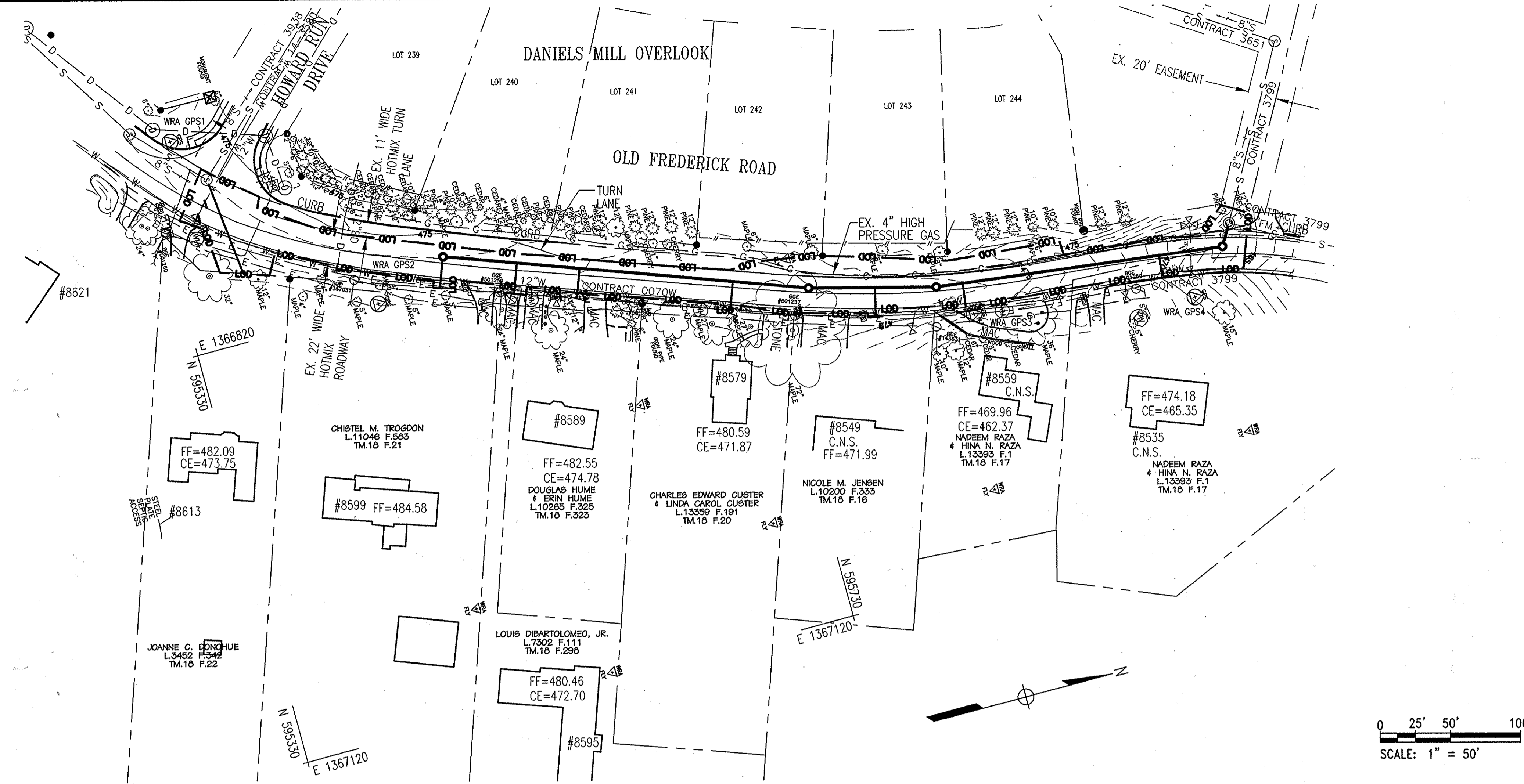
WR&A
 WHITMAN, REQUARDT AND ASSOCIATES, LLP
 801 SOUTH CAROLINE STREET
 BALTIMORE, MARYLAND
 410 - 235 - 3450

STATE OF MARYLAND
 WALTER FRANKLIN
 PROFESSIONAL ENGINEER
 LICENSE NO. 10120
 EXPIRES 10/31/14

DES:	F.B.				
DRN:	F.B.				
CHK:	W.H.				
OCT. 2014					
BY	NO.	REVISION	DATE	600 SCALE MAP NO. 32	BLOCK NO. 21.

OLD FREDERICK ROAD SEWER EXTENSION
 CAPITAL PROJECT NO. S-6277
 CONTRACT NO. 10-4856
 ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

SC-1
 SCALE
 AS SHOWN
 SHEET
 3 OF 4
 FINAL



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 06/28/2014 12:07pm

B-4.2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization

- a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches 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 must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked 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 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

- a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - i. Soil pH between 6.0 and 7.0.
 - ii. Soluble salts less than 500 parts per million (ppm).
 - iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - iv. Soil contains 1.5 percent minimum organic matter by weight.
 - v. Soil contains sufficient pore space to permit adequate root penetration.
- b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
- c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

B.12

- d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

- e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

- 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- 2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- 3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - c. The original soil to be vegetated contains material toxic to plant growth.
 - d. The soil is so acidic that treatment with limestone is not feasible.

- 4. Areas having slopes steeper than 2:1 require special consideration and design.

- 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
 - b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

- 6. Topsoil Application

- a. Erosion and sediment control practices must be maintained when applying topsoil.
- b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
- c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

B.13

and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

- 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
- 2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
- 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
- 5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B.14

B-4.3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. 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 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
- d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

2. Application

- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

B.15

PERMANENT STABILIZATION

Hardiness Zone (from Figure B.3): 7A		Seed Mixture: SWITCH GRASS			Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ O	
1	SMITHGRASS	10	FEB 15 TO APRIL 30	1/4-1/2 in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)
	CREeping RED FESCUE	15	AND	1/4-1/2 in				
	BUSH CLOVER	2	MAY 1 TO MAY 31	1/4-1/2 in				

Hardiness Zone (from Figure B.3): 6b		Seed Mixture: CREeping RED FESCUE			Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ O	
11	CREeping RED FESCUE	30	MAR 1 TO MAY 15	1/4-1/2 in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)
	BLUE RYEGRASS	15	AND	1/4-1/2 in				
			AUG 1 TO OCT 15	1/4-1/2 in				

MAINTENANCE FERTILIZATION FOR PERMANENT SEEDINGS

USE SOIL TEST RESULTS OR RATES SHOWN BELOW

SEEDING MIXTURE	TYPE	LB/AC	LB/1000 SF	TIME	MOWING
TALL FESCUE MAKES UP 70% OR MORE OF COVER	10-10-10 OR 30-10-10	500	11.5	YEARLY OR AS NEEDED, FALL	NOT CLOSER THAN 3" IF OCCASIONAL MOWING IS DESIRED
CROWNVEITCH SERICEA LESPEDEZA BIRDSFOOT TREFLOIL	0-20-0	400	9.2	SPRING, THE YEAR FOLLOWING ESTABLISHMENT AND EVERY 4-5 YEARS THEREAFTER	DO NOT MOW CROWNVEITCH
FAIRLY UNIFORM STAND OF TALL FESCUE AND SERICEA LESPEDEZA, OR BIRDSFOOT TREFLOIL	5-10-10	500	11.5	FALL THE YEAR FOLLOWING ESTABLISHMENT AND EVERY 4-5 YEARS THEREAFTER	NOT REQUIRED, NO CLOSER THAN 4" IN THE FALL AFTER SEED HAS MATURED.
WEEPING LOVEGRASS & SERICEA LESPEDEZA FAIRLY UNIFORM PLANT DISTRIBUTION	5-10-10	500	11.5	SPRING, THE YEAR FOLLOWING ESTABLISHMENT AND EVERY 4-5 YEARS THEREAFTER	NOT REQUIRED, NO CLOSER THAN 4" IN THE FALL AFTER SEED HAS MATURED.
RED & CHEWING FESCUE, KENTUCKY BLUEGRASS, HARD FESCUE MIXTURES	20-10-10	250	5.8	SEPTEMBER, 30 DAYS LATER, DECEMBER, MAY 20, JUNE 30, IF NEEDED.	MOW NO CLOSER THAN 2" FOR RED FESCUE AND KENTUCKY BLUEGRASS, 3" FOR FESCUE.

B-4.4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4.3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 7a		Seed Mixture (from Table B.1):			Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths		
1	ANNUAL RYEGRASS (Use appropriate seed)	40	FEB 15 - APR 30	0.5	436 lb/acre (10 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)
1	WATS (Use site)	72	FEB 15 - APR 30	1.0		
2	FOXTAIL MILLET (Use site)	30	MAY 1 - AUG 14	0.5		
2	PEARL MILLET (Preventive action)	20	MAY 1 - AUG 14	0.5		

B.16

- b. 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. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P₂O₅ (phosphorus), 200 pounds per acre; K₂O (potassium), 200 pounds per acre.
 - ii. Lime: Use only ground agricultural limestone (up 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.
 - iii. Mix seed and fertilizer on site and seed immediately and without interruption.
 - iv. When hydroseeding do not incorporate seed into the soil.

B.16

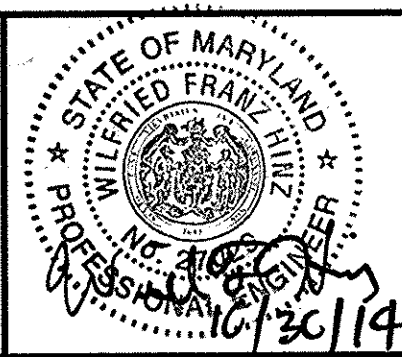
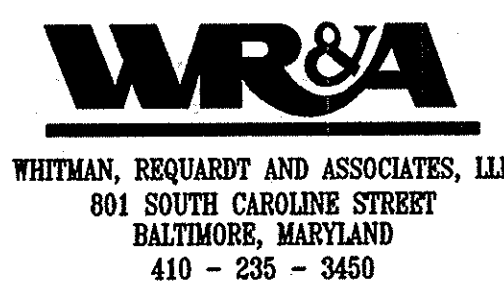
2. Application

- a. Apply mulch to all seeded areas immediately after seeding.
- b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
- c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- 3. Anchoring
 - i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. 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 follow the contour.
 - ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petrosol, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
 - iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B.17

"PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27029, EXPIRATION DATE: 01-25-2016."

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
[Signature] 11/19/14 DIRECTOR OF PUBLIC WORKS DATE	[Signature] 11/19/14 CHIEF, BUREAU OF ENGINEERING DATE
[Signature] 11/19/14 CHIEF OF UTILITIES DATE	[Signature] 11/19/14 CHIEF, UTILITY DESIGN DIVISION DATE



DES:	
DRN:	
CHK:	
OCT. 2014	

BY	NO.	REVISION	DATE

EROSION AND SEDIMENT CONTROL NOTES

600 SCALE MAP NO. 32 BLOCK NO. 21

OLD FREDERICK ROAD SEWER EXTENSION

CAPITAL PROJECT NO. S-6277
CONTRACT NO. 10-4856

ELECTION DISTRICT NO. 1 HOWARD COUNTY, MARYLAND

September 24, 2015
As-Built
09/24/2015

SC-2

SCALE AS SHOWN

SHEET 4 OF 4

FINAL