QUANTITIES					
TOTAL	QUANTITIES	AS-BUILT			
ITEMS	ESTIMATED	QUANTITIES	TYPE	MANUF./SUPPLIER	
SIMPLEX GRINDER PUMP *	4 EA.				
DUPLEX GRINDER PUMP	6 EA.				
1 1/2" HOUSE CONNECTION	400 L.F.				
2" FORCE MAIN	4,382.5 L.F.				
TERMINAL FLUSHING CONNECTION	7 EA.		<del></del>		
"TRANSITION MH"	2 EA.				
4" PVC SCH. 40 PERFORATED LATERAL	4,500 L.F.	_	····		
4"Ø PVC SCH. 40 GRAVITY PIPE	1,635 L.F.	. <i>11</i> 7			
6"Ø PVC SCH. 40 GRAVITY PIPE	915 L.F.				
5,000 GALLON SEPTIC TANK	4 EA.				
DISTRIBUTION BOX (VARIOUS SIZES)	8 EA.				
6" GATE VALVE AND ROADWAY BOX	8 EA.				
SEPTIC TANK EFFLUENT FILTER	4 EA.				
4" Ø PVC SCH. 40 LATERAL INSPECTION 45 EA.					
AIR RELEASE MANHOLE	1 EA.				
4" GATEVALVE & ROADWAY BOX	45 EA.				
NAME OF UTILITY CONTRACTOR					
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:					

*ENVIRONMENTAL	ONE	OR	EQUAL	SEE	SHEET	7	0F	12	

SHARE	SEPTIC	SYSTEM FLOW	TABLE
SHARED SEPTIC SYSTEM	# OF LOTS	# OF BEDROOM HOUSE	TOTAL SYSTEM FLOW
SHARED SEPTIC SYSTEM "A"	8 LOTS	7 - 4 BEDROOMS 1 - 5 BEDROOMS	4,950 GPD
SHARED SEPTIC SYSTEM "B"	8 LOTS	7 - 4 BEDROOMS 1 - 5 BEDROOMS	4,950 GPD

1. A SEPTIC FEE IN AMOUNT OF \$396 PER LOT SERVICED BY THE COMMON SEPTIC SYSTEM SHALL BE PAID TO THE HOWARD COUNTY ENVIRONMENTAL HEALTH DEPARTMENT AT THE TIME OF THE SEPTIC

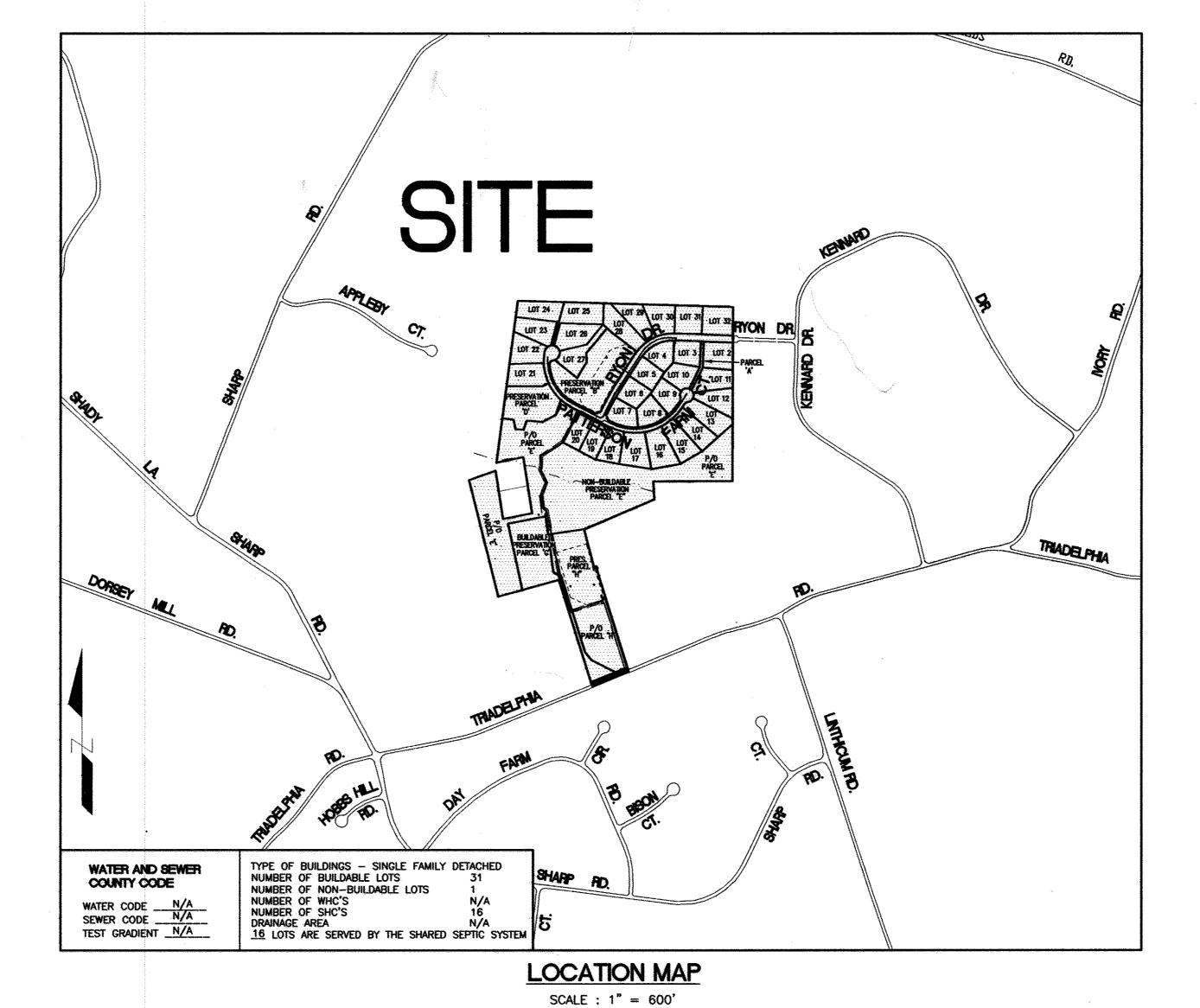
- 2. A SIGNED "DECLARATION OF COVENANTS" WILL BE REQUIRED ON SHARED SEPTIC LOTS
- 3. THE BUILDER SHALL INSTALL BACK FLOW PREVENTER AND BELIEF VENT ON THE SEWER SERVICE AT THE HOUSE, AT THE TIME OF THE HOUSE CONNECTION OR AS REQUIRED BY THE PLUMBING
- SEPTIC TANK SHOP DRAWINGS FROM THE MANUFACTURER SHALL BE PERMITTED TO THE HOWARD COUNTY ENVIRONMENTAL HEALTH DEPARTMENT PRIOR TO ANY INSTALLATION OF THE SEPTIC TANKS.
- 5. THE CONTRACTOR SHALL NOTIFY HOWARD COUNTY HEALTH DEPARTMENT AT 410-313-2540 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY PRESSURE TEST OF PRESSURE SEWERS, AND ANY SEPTIC TANKS
- 6. OBSERVATION WELL TO BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
- 7. THE HOWARD COUNTY HEALTH DEPARTMENT SHALL AS-BUILT THE SEPTIC TRENCH PORTION OF THE COMMON SEPTIC SYSTEM. THE COLLECTION PORTION OF THE THIS SYSTEM SHALL BE AS-BUILT BY OTHERS AS SPECIFIED BY THE DEVELOPER AGREEMENT.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, LOTS 2,113-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 17-22, 27, AND 12. HOWARD COUNTY HEALTH DEPARTMENT
IN HOWARD COUNTY HEALTH OFFICER BE/KN DATE
HOWARD SOIL CONSERVATION DISTRICT: REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  U.S.O.A. NATURAL RESOURCES CONSERVATION DISTRICT AND MEETS  DATE
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD FOIL CONSERVATION DISTRICT HOWARD SOIL CONSERVATION DISTRICT SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE
IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER

ROAD CONSTRUCTION PLANS PER-TO- GA 65- 50

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND



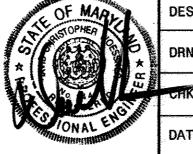
# HOPKINS CHOICE

LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H SHARED SEWAGE DISPOSAL AND FORCE MAIN CONTRACT # 50-4254-D

COLUMBIA, MD. 21044

PRESCRIPTION ACRES, LLC. TRIADELPHIA FARM, LLC c/o DONALD H PATTERSON 6258 CARDINAL LANE PO BOX 1 **GLENELG, MD. 21737** 

> American Land Development and Engineering, Inc. 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21163



VG					TITLE SHEET
N					THEE OTTEET
			•		
21-05	BY	NO.	REVISIONS	DATE	600' SCALE MAP No. 21 BLOCK N

**GENERAL NOTES:** 

- 1. 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.
- 2. All horizontal controls are based on Maryland State Coordinates [North American Datum of 1983 (NAD '83)].
- 3. All vertical controls are based on NAVD 88.
- 4. All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- 5. Clear all utilities by a minimum of 12". Clear all poles by 5'-0" minimum or tunnel as required. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for 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.
- 6. For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Detail for Construction (Latest Edition). The contractor shall have a copy of Volume IV on the job.
- 7. 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 located by the contractor two weeks in advance of construction operations at his own expense.
- 8. Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans:

AF&I	. 1-800-252-1133
BGE Contractor Services	410-850-4620
BGE Under Ground Damage Control	410-291-4607
Bureau of Utilities	410-313-4900
Colonial Pipeline Company	410-795-1390
Miss Utility	1-800-257-7777
State Highway Administration	410-531-553
Verizon 1-800-743-003	3 / 410-224-9210

- 9. 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.
- 10. Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- 11. The contractor shall notify the Bureau of Highways, Howard County at 410-313-7450 at least five (5) working days before any 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 the DPW requirements per Section 18.114(a) of the Howard County Code.
- 12. Place regulation "men working" and warning signs as required to comply with maryland state highway administration manual of traffic control for highway maintenance operations.

- 1. A septic fee in the amount of 396 per lot serviced by the common septic system shall be paid to the Howard County Environmental Health Department at the time of the septic construction permit issuance.
- 2. The builder shall install back flow preventer and relief vent on the sewer service at the house, at the time of the house construction or as required by the plumbing inspector.
- 3. The contractor shall notify howard county health department at (410) 313-2540 at least five (5) working days before any pressure test of pressure sewers, and any septic tanks vacuum or water testing is performed.
- 4. Installation of grinder pumps and appurtenances, and the 4° pvc sewer house connections (shc) are to be installed by the developer. The developer shall be required to prepurchase the specified grinder pumps and provide storage at the manufacturer's facility until such time as they are installed and placed into service. no pumps shall be set until the house is ready for u & o, and any debris which has entered the tank prior to the pump installation shall be pumped out at the developer's expense. The developer will retain responsibility for installation of the grinder pumps and shall contract with the manufacturer to provide start up services just prior to U & O. Gravity connection to the grinder pumps will not be allowed until all work inside the homes is complete and the homes are ready for occupancy.

1. All sewer mains shall be dip and p.v.c. unless otherwise noted.

2. The contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole wall.

3. All manholes shall be 4'-0" inside diameter unless otherwise noted.

- 4. Force mains shall be HDPE DR11
- 5. Manholes shown with 12" and 16" walls are for brick manholes only.
- 6. Manholes designated w.t. in plan and profile shall have watertight frame and covers, standard detail G5.52 where watertight manhole frame and cover is used, set top of frame 1.6" above finished grade unless otherwise noted on
- 7. House(s) with the symbol "c.n.s." indicates that cellar cannot be serviced.

COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS 531-5533 STATE HIGHWAY ADMINISTRATION BALTIMORE GAS & ELECTRIC CO. 850-4620 CONTRACTOR SERVICES BALTIMORE GAS & ELECTRIC CO.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY

UNDERGROUND DAMAGE CONTROL MISS UTILITY COLONIAL PIPELINE CO HOWARD COUNTY DEPT. OF PUBLIC WORKS BUREAU OF UTILITIES

1-800-257-7777 313-4900 410-313-2640

HO. CO. ENVIRONMENTAL HEALTH DEPT HOPKINS CHOICE

LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H

787-9068

SCALE:

AS SHOWN

CONTRACT No. : 50-4254-D

4th ELECTION DISTRICT

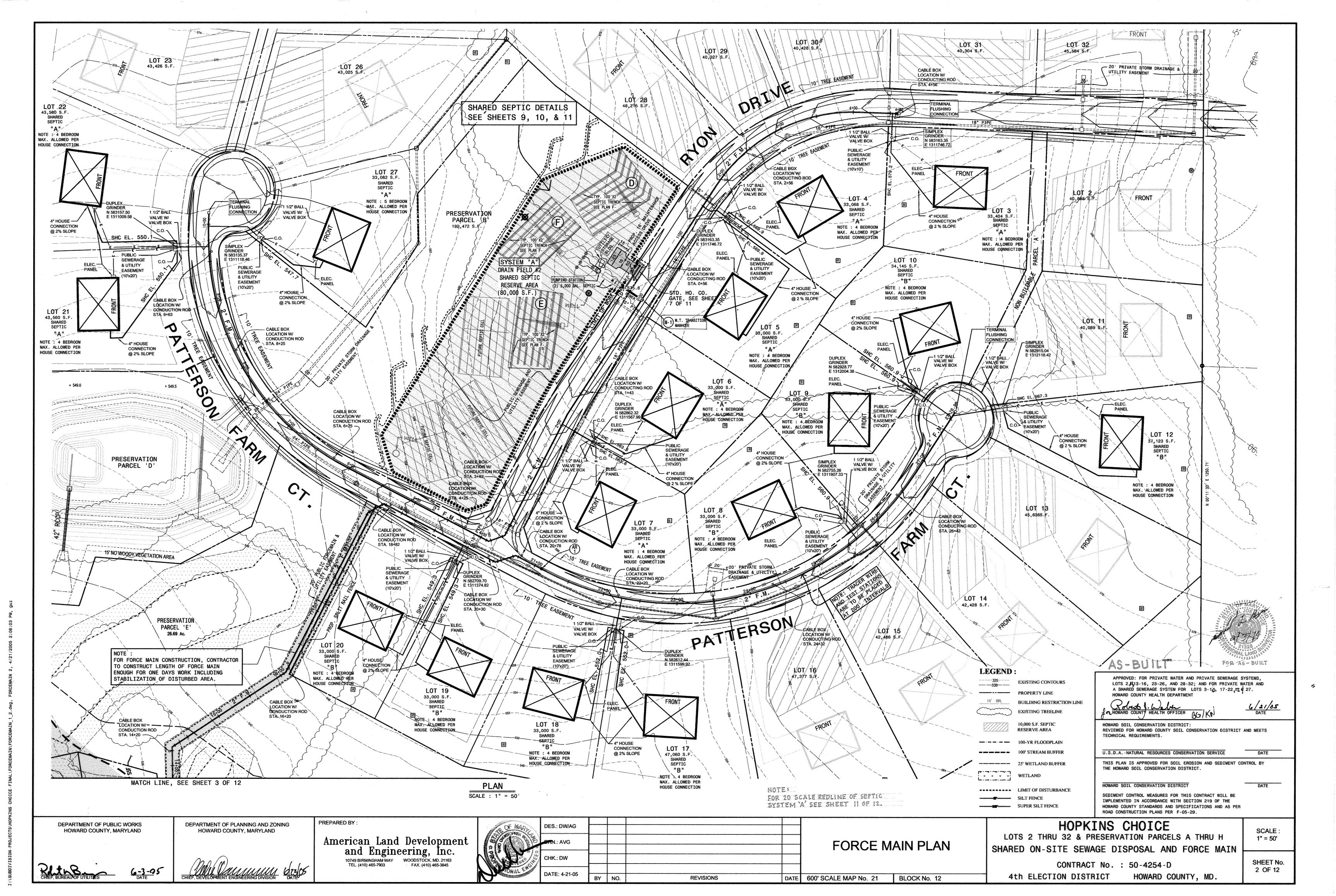
SHARED SEWAGE DISPOSAL AND FORCE MAIN

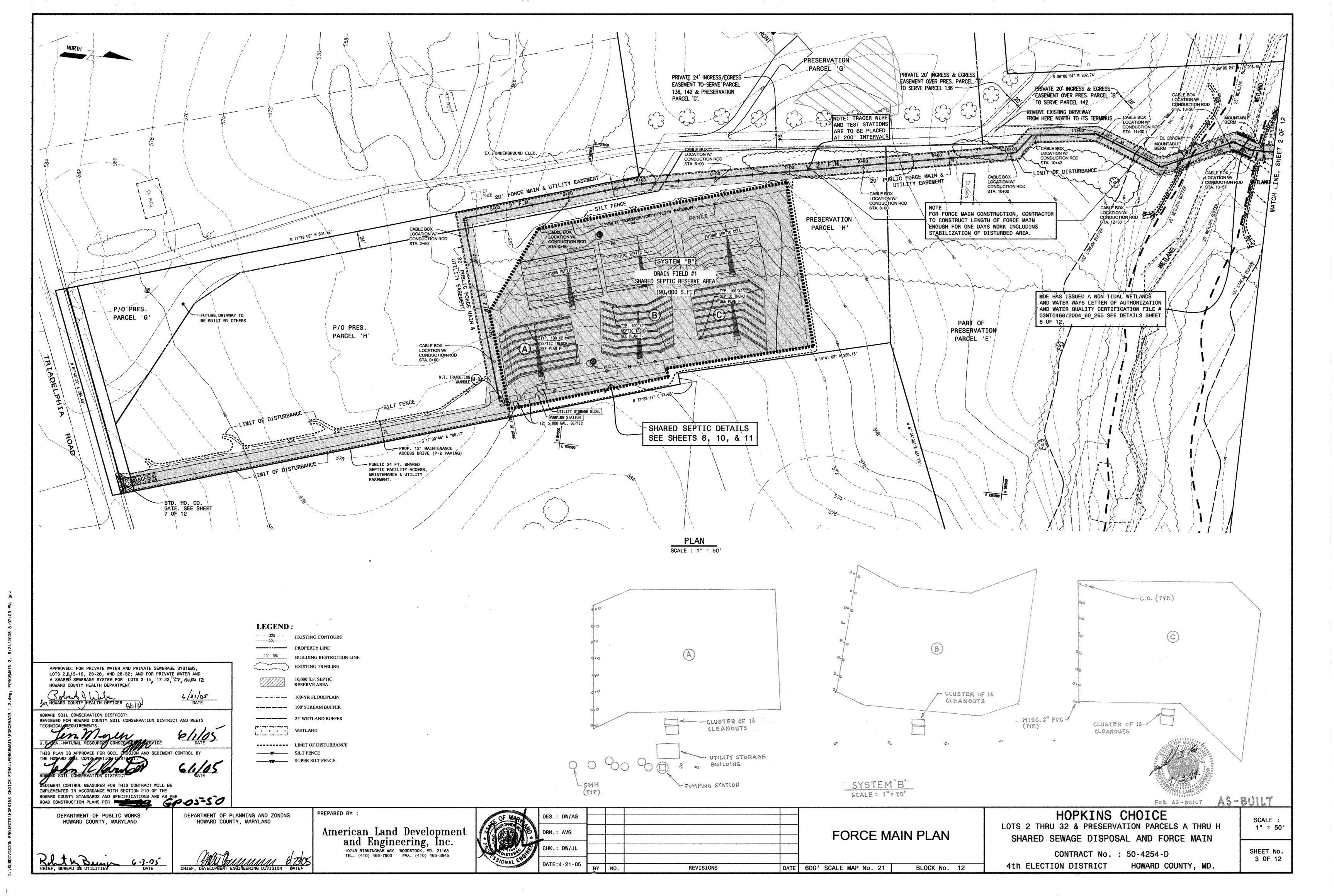
SHEET NO. 1 OF 12 HOWARD COUNTY, MD.

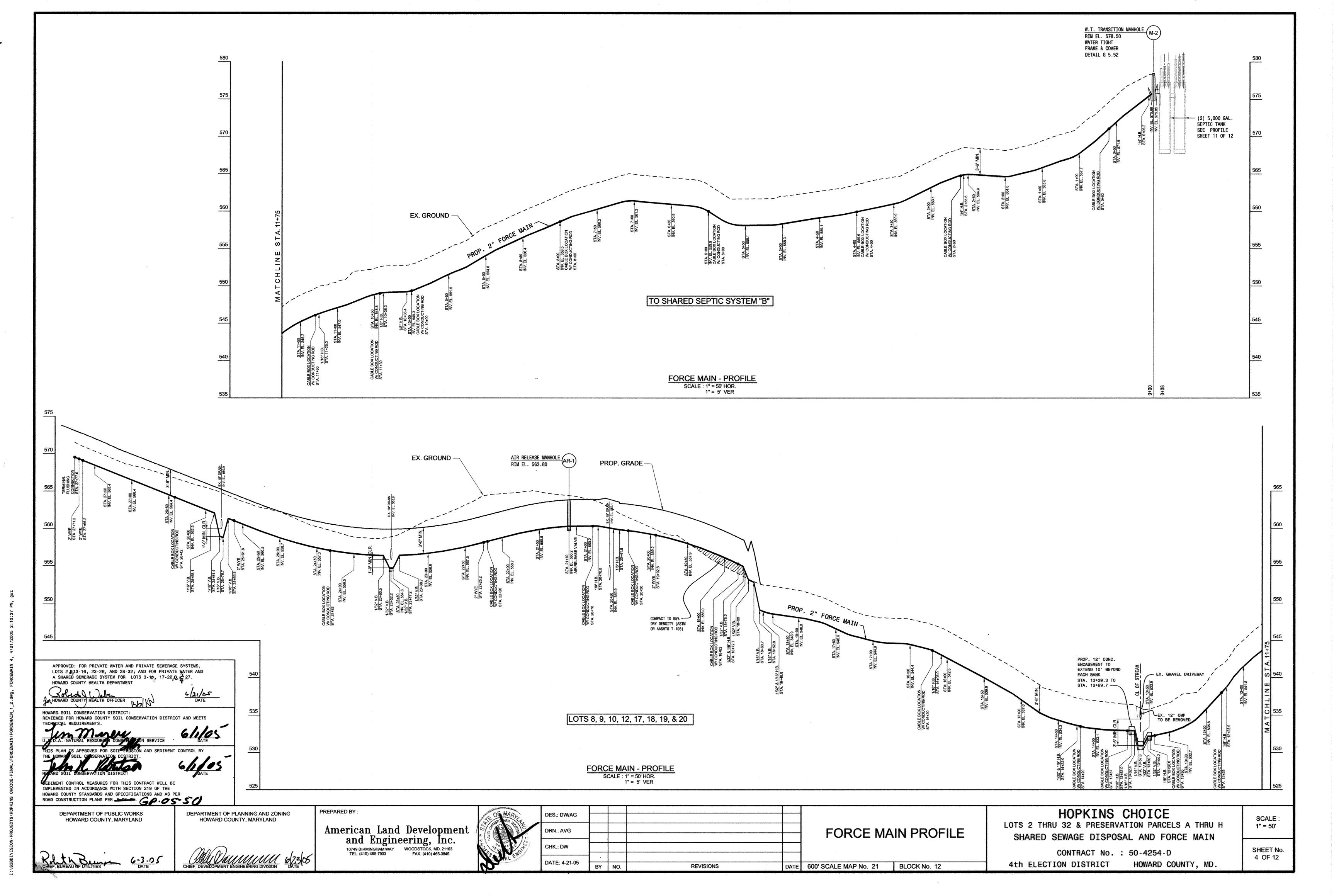
DEPARTMENT OF PLANNING AND ZONING

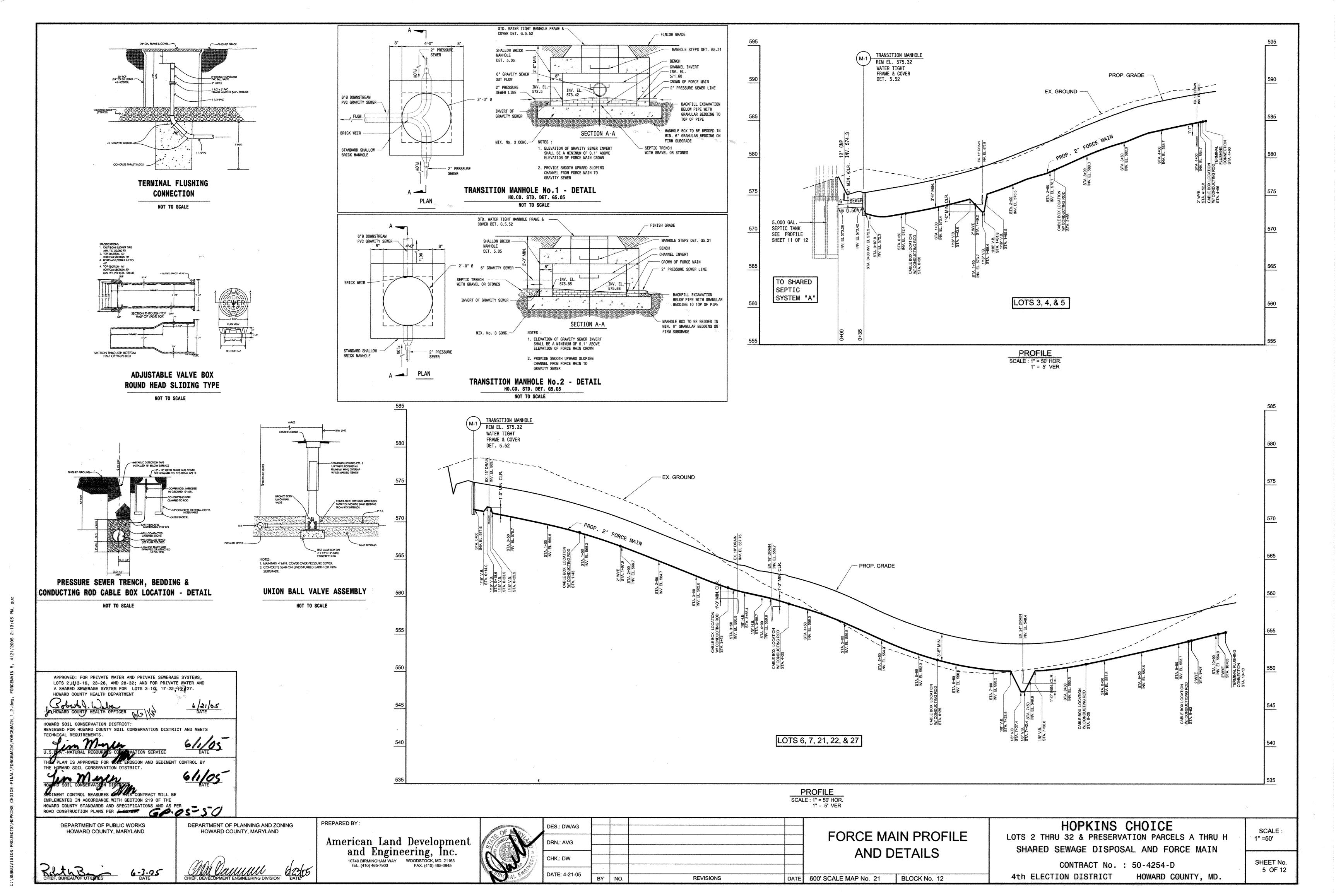
HOWARD COUNTY, MARYLAND

TEL. (410) 465-7903 FAX. (410) 465-3845









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 idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas of final grade, former stockpile and staging

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of run-off, infiltration, evaporation, transpiration, percolation, and groundwater recharge egetation 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 run-off to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must retain 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

A. Site Preparation

EFFECTS OF WATER QUALITY AND QUANTITY

usually necessary for temporary seeding.

i. Install erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, berms, waterways, or sediment control basins. ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

i. 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 maybe performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering

approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the

ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by

iii. Lime materials shall be occuped limestone (hydrated 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 #100 mesh sieve and 98-100 % will pass through a #20 mesh sieve. iv. Incorporate lime and fertilizer into the top 3-5° of soil by disking or other suitable

i. Temporary Seeding a. 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 dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked eaving 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 plane. c. In corporate lime and fertilizer into the

a. Winimum soil conditions required for permanent vegetative establishment:

Seedbed loosening may not be necessary on newly disturbed areas.

1. Soil pH shall be between 6.0 and 7.0. . 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 lovegrass or serecia lespedezas 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, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoi

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 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 d. Mix sail 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, abd ready the area for seed and application. Where site conditions will not permit normal seedbed 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 tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slopee. The top 1-3° of soil should be loose and friable.

D. Seed Specifications

i. 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 tags shall be made

ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of m-fixing bacteria prepared specially for the species. Inoculants shall not be used later tha the date indicated in the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperature above 75 °-80°F. can weaken bacteria amd make the inoculant less effective.

i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast

a. 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: P205 (phosphorus); 200

b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by ding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Bo not use burnt or hydrated lime when hydroseeding. c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without

ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders. a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled with a weighted roller to provide

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. a. Cultipacking 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. b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half

F. Mulch Specifications (In order of preference i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFN) a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical

b. 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 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 seedings.

PROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, EUTS 2,113-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 17-22, 12 27. HOWARD COUNTY HEALTH DEPARTMENT OWARD SOIL CONSERVATION DISTRICT: REVIEWED FOR HOWARD COUNTY SOIL CONSERVA U.S.A.-NATURAL RESOURCES CONSERVATION SERVICE THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. HOWARD SOIL CONSERVATION DISTRICT SEDIMENT CONTROL MEASURES FOR THIS CALLY WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COLUMN STANDARD AND ADDRESS AND HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS PER F-05-29.

E. WCFM material shall contain no elements or compounds at concentration levels that will be phytol-toxic

F. WCFN 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 1.6 % maximum and water holding capacity of 90 % minimum. Note: Only sterile straw mulch should be used in areas where one

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding. 1. If grading is completed outside of the seeding season, mulch along shall be applied as prescribed in this section and maintained until the

eeding 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

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 size of area and erosion hazard:

water and the mixture shall contain a maximum of 50 lbs. of wood

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. 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 750 lbs./acre. The wood cellulose 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 crest of banks. The remainder of area should appear uniform after binder application. Synthetic binderssuch as Acrylic DLR (Agro-Tack), DCA-70 Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the

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

i. All cuts slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal

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

that will be used to convey runoff from the excavation.

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

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

J. Incremental Stabilization of Embankments - Fill Slopes i. Embankments shall be constructed in lifts as prescribed on the plans.

prescribed in the plans, a sediment trapping device. iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to invercept surface

runoff and convey it down the slope in a non-erosive manner to iv. Construction sequence: Refer to Figure 4 (below)

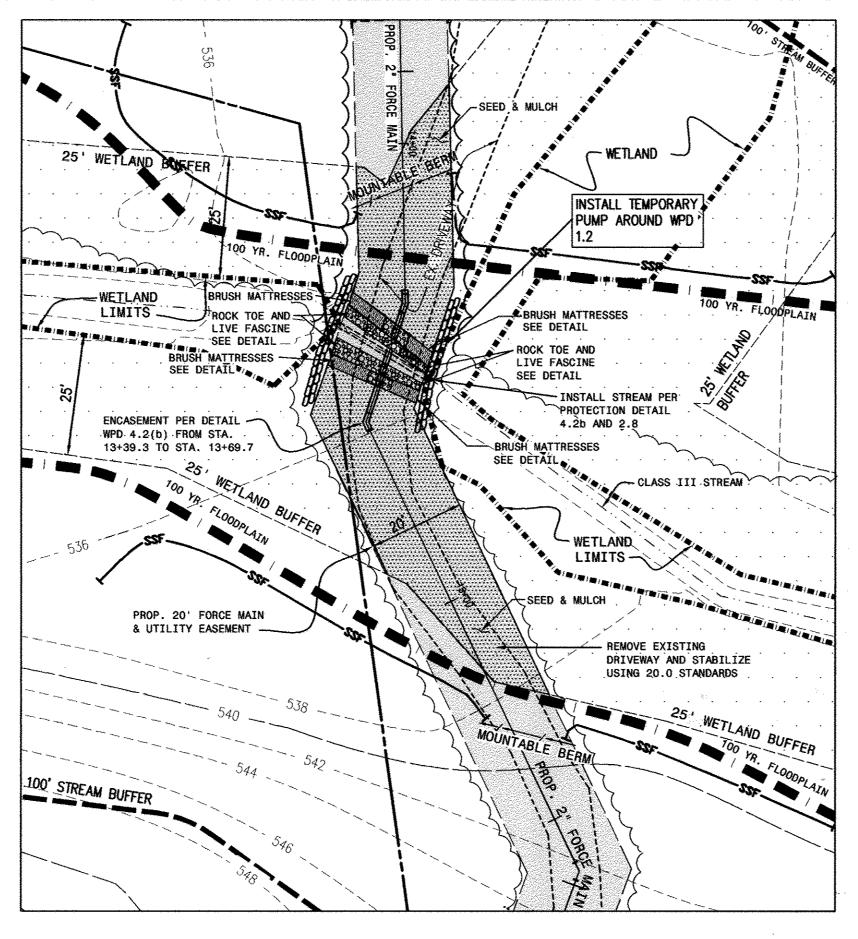
a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct slopr sill fence on low side of fill as shown in Figure 5, unless other methods shown

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

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

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

MDE 410-537-3000 • 1-800-633-6101



EXPLODED VIEW SCALE : T = 20'

## SEQUENCE OF CONSTRUCTION

1. DUE TO FISH SPAWING OR MIGRATION THE STREAM CHANNEL SHALL NOT BE DISTURBED FROM OCTOBER 1 THROUGH APRIL 30. NO CONSTRUCTION SHALL BE DONE DURING THIS PERIOD.

2. OBTAIN GRADING PERMIT.

3. ONCE ALL PERMIT ARE IN HAND SCHEDULE NEETING IN THE FIELD WITH THE SEDIMENT CONTROL INSPECTOR. - 1 DAY

4. INSTALL STABILIZED CONSTRUCTION ENTRANCE - 1 DAY

- 1 WEEK

6. INSTALL SUPER SILT FENCE PARALLEL TO THE 100 YR. FLOODPLAIN LIMITS AS SHOWN. - 3 DAYS

7. INSTALL PUMP AROUND PRACTICE PER DETAIL MGWC 1.2. - 2 DAYS

8. REMOVE GRAVEL DRIVEWAY AND EXISTING (DAMAGED) 12" CMP. - 1 WEEK

9. INSTALL 2" HDPE FORCE MAIN PIPE. THE PIPE WILL BE ENCASED IN 4.2(b). - 1 WEEK

10. STABILIZE SLOPES UP GRADIENT OF THE STREAM BOTTOM PROTECTION WITH BRUSH MATTRESSES PER DETAIL MGWC 2.8. 4 DAYS

11. SEED AND STABILIZE AREAS OUTSIDE OF THE STREAM BANKS PER "STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION". - 2 DAYS

AND STABILIZING AREA DISTURBED.

14. CONTINUE No.13 ABOVE UNTIL TOTAL FORCE MAIN LENGTH IS INSTALLED.

15. CONSTRUCT DRAIN FIELDS AND STABILIZE WITH PERMANENT SEEDING. - 4

AREAS HAVE BEEN STABILIZED REMOVE SEDIMENT CONTROL. - 3 DAYS

5. INSTALL SILT FENCE AND OTHER EROSION AND SEDIMENT CONTROL MEASURES.

CONCRETE AND STREAM BOTTOM STABILIZED PER OPTION # 1 OF DETAIL NGWC

12. REMOVE TEMPORARY PUMP AND PRACTICE. - 1 DAY

13. CONSTRUCT FORCEMAIN ENOUGH FOR ONE DAY'S WORK, INCLUDING BACKFILL

16. ONCE SEDIMENT CONTROL INSPECTOR'S SATISFIED THAT THE DISTURBED

MARYLAND DEPARTMENT OF THE ENVIRONMENT

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-

IMPLEMENTATION SEQUENCE

MGWC 4.2: UTILITY CROSSING

Temporary in-stream construction

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

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of

business according to a plan approved by the WMA or local authority. (See the 1994 Maryland Standards and

Specifications for Soil Erosion and Sediment Control.) The proposed construction sequence is as follows (refer to

The contractor should insure that a continuous perimeter control barrier is in place to minimize the amount of

be installed and sandbag or stone barriers as shown in MGWC 1.5: Sandbag/Stone Diversion should be

constructed according to specifications to divert the streamflow.

riprap placements across the stream bed.

STREAM CROSSINGS

DESCRIPTION

pollutants entering the flow. A diversion pipe as shown in MGWC 1.4: Diversion Pipe or other measure should

Excavated topsoil and subsoil should be kept separate, placed on the upland side of the excavation, and replaced

All construction should take place during stream low flows. The length of construction time should be limited

alternative section is specifically approved by the WMA. For instances where a 3-foot cover is not viable, two

alternate stabilization options are given in the Detail 4.2. A low flow channel shall be constructed through all

The stream should be diverted by an approved temporary stream diversion, the construction area should be

dewatered, and any disturbed banks should be stabilized. The contractor may elect to construct the utility

crossing in two stages. In this case, a WMA approved flow barrier may be constructed to keep the co

Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment

control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are

tabilized in accordance with an approved sediment and crosion control plan and the inspection authority

PAGE 4.2 - 1

MGWC 1.2: Pump-Around Practice

4. All utility crossings should be placed a minimum of 3 feet (1 meter) beneath the stream bed unless an

DESCRIPTION

INSTALLATION GUIDELINES

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

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

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

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

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

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

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

TEMPORARY INSTREAM CONSTRUCTION MEASURE

## MGWC 2.8: BRUSH MATTRESSES

## DESCRIPTION

mat is then secured to the bank by live and/or dead stakes and partially covered with fill soil to initiate growth of the

Brush mattresses provide bank protection soon after establishment. They are generally resistant to wave and current action and function to: capture sediment and rebuild streambanks

Brush mattresses should be limited to use on: sites having only low to moderate water level fluctuations and slope gradients not exceeding 2H:1V,

trenches backfilled with topsoil may be required on rocky slopes. Additionally, this measure should be initiated in conjunction with a revegetation strategy since brush mattresses

MATERIAL SPECIFICATIONS

1. Woody branches up to 2.5 inches (6 centimeters) in diameter and 5 to 10 feet (1 to 3 meters) in length cao 2. Commonly used woody plants for this measure include willow, poplar, and alder since they are versatile and have high growth rates with shrubby habits, fibrous root systems, and high transpiration rates,

onservation Service is presented in MGWC 2.4: Live Stakes. Live branch cuttings should be kept covered and moist at all times and should be placed in cold storage if more

MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELING REVISED NOVEMBER 200 PAGE 2.8 - 1

## MGWC 1.2: PUMP-AROUND PRACTICE

Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into

0. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon

drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.

work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.

MARYLAND DEPARTMENT OF THE ENVIRONS WATERWAY CONSTRUCTION GUIDEL PAGE 1.2 - 1

## Brush mattresses are formed from live branches which are wired together to create an erosion resistant mat. This

**EFFECTIVE USES & LIMITATIONS** 

facilitate the colonization of native riparian vegetation; and

provide long-term durability and erosion control, especially when used on Rosgen stream types B3, B4, B5, B6, C1, C2, C3, C4, C5, C6, DA, E3, E4, E5, and E6. streams with low to moderate suspended sediment loads since high loads may precipitate the burial of these bioengineering systems and complicate future planting efforts at the site, and

native fill soils which contain enough fine material to allow the live branches to root and grow readily; key make it more difficult to propagate vegetative pleatings once the mats become establishe

When choosing and preparing woody material for brush mattresses, the following guidelines should be followed: Live branches should be cut from fresh, green, healthy, dormant parent plants which are adapted to the site conditions whenever possible with the following guidelines:

3. A partial listing of woody plants recommended by the United States Department of Agriculture's Soil

Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should

be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with

. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm

reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed

. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.

4. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

MARYLAND DEPARTMENT OF THE ENVIRONMENT

PAGE 1.2 - 2

## MGWC 2.8: BRUSH MATTRESSES

### Approximate Cost (\$1999 \$33.50 per square ft

Brush mattresses should be installed as follows (refer to Detail 2.8):

Live branches should be oriented in crisscross layers perpendicularly to the flow of water in alight manmade depressions along the embankment. The butt ends should alternate to provide a uniform mat thickness of at least 12 inches (0.3 meters) and a minimum percentage of air voice Approximately 20 to 50 branches should be used per running meter provided their lengths are the same as

Once in position, the mattresses should be bound with wire and secured with 3-foot (0.9-meter) wooden stakes spaced at 2 to 3-foot (0.60 to 0.90-meter) intervals. The wire should be tied to notches in the stakes before they are driven into the ground; this allows for tension to develop in the wire when the stakes are driven, thereby pulling the mattress firmly to ground.

Finally, the toe of the embankment should be reinforced against undercutting with a rock toe and vegetative

measure such as a live fascine. (Refer to MGWC 2.1: Riprap and Figure 2.1.)

SLOPE PROTECTION AND STABILIZATION TECHNIQUES

HOPKINS CHOICE

4th ELECTION DISTRICT

LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H SHARED SEWAGE DISPOSAL AND FORCE MAIN

intake hose sumo-hole length not to exceed that which can be onto a stable velocity dissipator made of rip rap or sandbags cross section of sandbag dike Maryland's Guidelines To Waterway Construction **DETAIL 2.8: BRUSH MATTRESSES** brush mattress w min. 12-inch live or dead stake notched for wire or rope w/min, 3-ft (0.9-m) length PLAN VIEW Adapted From USDA-SCS (1994) rock toe and live fascine to

imum toe trench depth below channel invert shall be designed based on site characteristics and to prevent failure due to scou SECTION VIEW

REVISED NOVEMBER 2000 MARTILAND DEPARTMENT OF THE ENVIRONMENT PAGE 28 - 3 WATER MANAGEMENT ADMINISTRATION

HOWARD COUNTY. MD.

disturbance

Maryland's Guidelines To Waterway Construction

PLAN VIEW

A--

25-ft (8-m)

buffer zone

DETAIL 4.2(a): UTILITY CROSSING

SECTION A-A

SECTION B-B 3-ft (1 m) utility pipe

(38 to 61-cm) -

riprap

Maryland's Guidelines To Waterway Construction DETAIL 1.2: PUMP-AROUND PRACTICE

PLAN VIEW

Maryland's Guidelines To Waterway Construction

SECTION VIEW:

6 ft (2 m)

SECTION VIEW:

ALTERNATE OPTION 2

12-in (30-cm) riprap

low flow channel

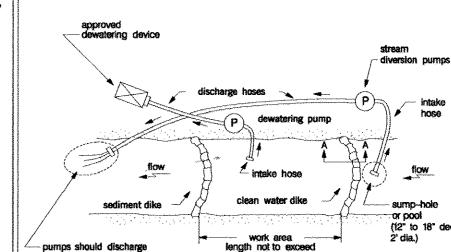
low flow channel

18 in (46 cm)

6 in (15 cm

ALTERNATE OPTION

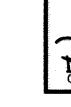
DETAIL 4.2(b): UTILITY CROSSING



MARYLAND DEPARTMENT OF THE ENVIRONM

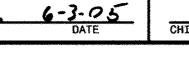
PAGE 2.8 - 2

CONTRACT No. : 50-4254-D



DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND



DEPARTMENT OF PLANNING AND ZONING

HOWARD COUNTY. MARYLAND

I. Incremental Stabilization - Cut Slopes

cellulose fiber per 100 gallons of water.

a. Excavate and stabilize all temporary swales, side ditches, or berms b. Perform Phase 1 excavation, dress, and stabilize.

ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15°, or when the grading operation ceases as

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Water Management Administration

Nontidal Weslands and Waterways Division Telephone: 410-537-3768, Fax: 410-537-3751

1800 Washington Boulevard • Baltimore MD 21230

Michael S. Steele Lt. Governor

6258 Cardinal Lane

Columbia, Maryland 21044

Governor

Robert L. Ehrlich, Jr.

July 21, 2004 Paul M. Revelle Triadelphia Farm LLC

Application Tracking Number 03-NT-0468/200460265 Project: TRIADELPHIA FARM LLC/UTILITY LINE - Howard County Dear Mr. Reveile:

Wetlands and Waterways Letter of Authorization (LOA) for the proposed activity. In order to issue the LOA two sets of final signed construction drawings for the project are needed. The plans must include limits of nontidal wetlands, the nontidal wetland buffer, and waters of the State (including the 100-year floodplain), limits of disturbance, "Best Management Practices for Working in

Nontidal Wetlands" (attached), a sequence of construction, and approved erosion and sediment control

The LOA will be issued following receipt, review, and approval of the information requested. Approved

plans will be distributed to the Authorized Person and to the Compliance Program of the WMA.

If you have any questions I may be reached at 410-537-3768 or at dboellner@mdc.state.md.us.

The Nontidal Wetlands and Waterways Division of the Water Management Administration (WMA) has

completed its review of the application for the project listed above and intends to issue a Nontidal

Attachment

PREPARED BY:

WMA, Nontidal Wetlands and Waterways Division

American Land Development and Engineering, Inc. 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21163 TEL. (410) 465-7903 FAX. (410) 465-3845



CHK.: DW DATE: 4-21-05 BY

DES.: DW/AG

REVISIONS

STREAM CROSSING

**DETAILS** 

seed and mulch or seed and matting as specified on the plans 2. If a tributary is to be restored, construction should take place on the tributary before work on the main stem

TEMPORARY INSTREAM CONSTRUCTION MEASURES

INSTALLATION GUIDELINES

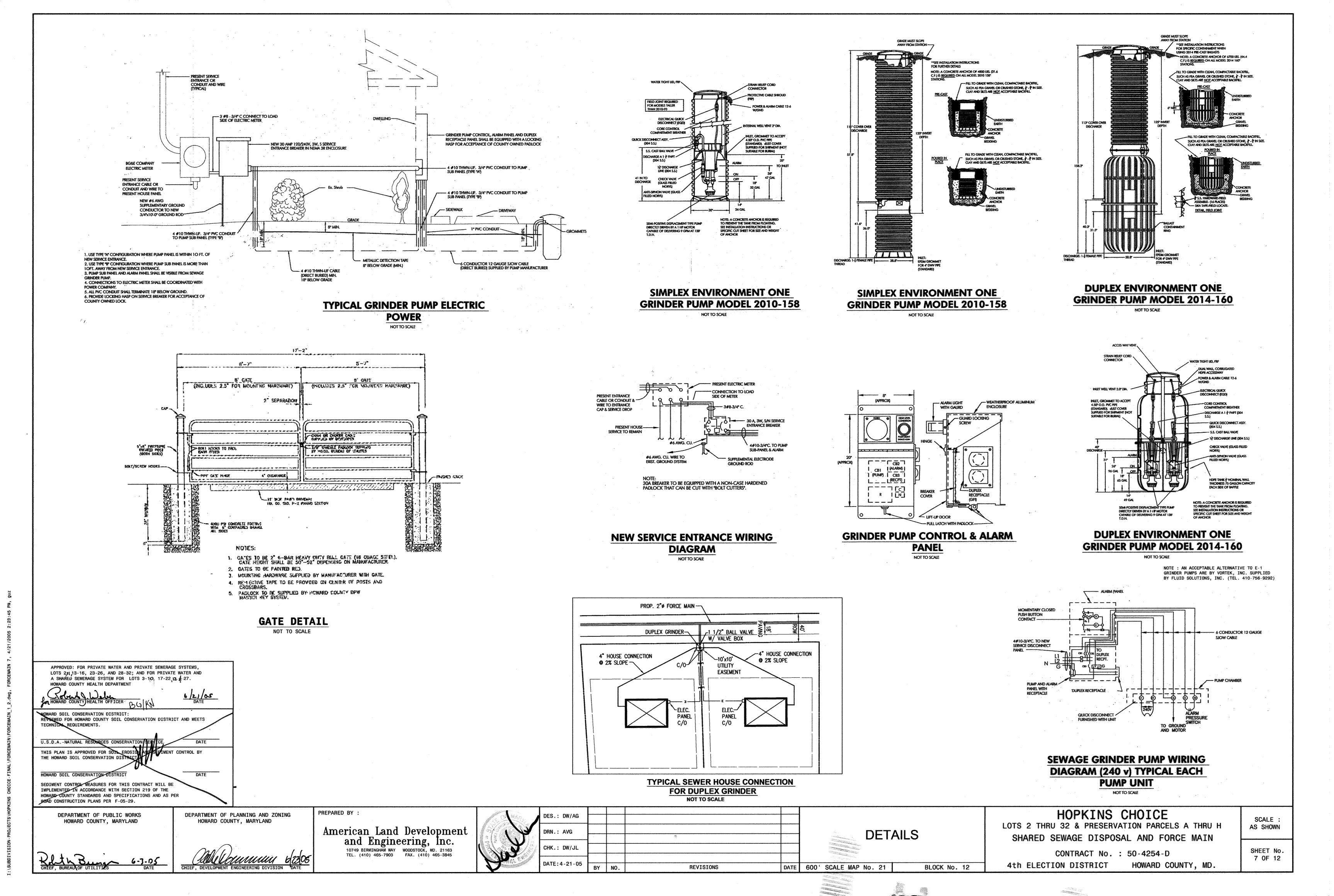
If the branches are not long enough to cover the entire slope from the toe to the top of slope, multiple layers should be utilized with the branches in the lower layers overlapping those in the upper layers by at least !

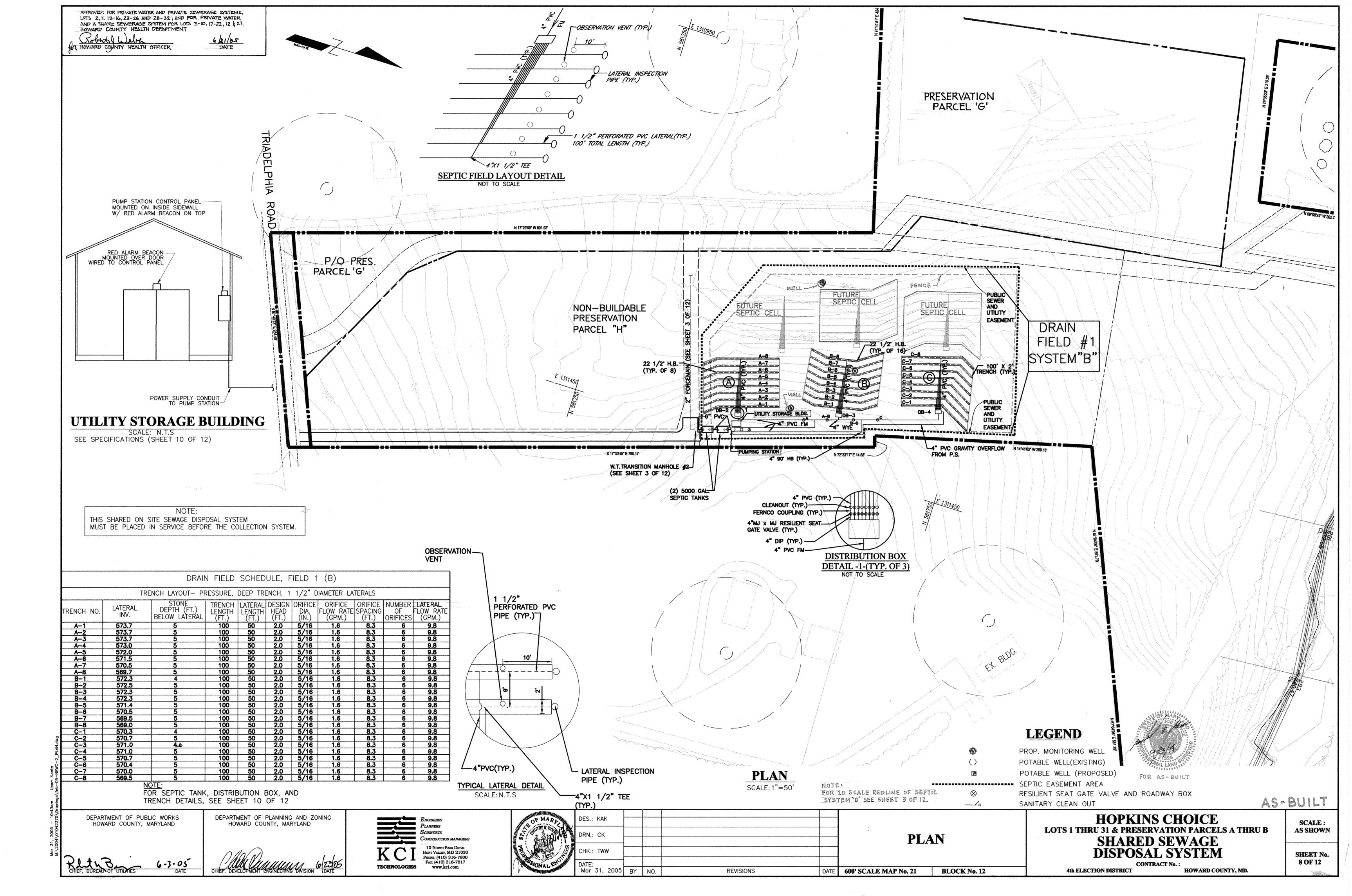
Upon being bound and secured to the embankment, the mattresses should be covered with alternating layers of soil and water until only a portion of the top layer of branches is exposed, but all butt ends must be covered. The use of alternating applications of soil and water helps to insure a proper soil-branch interface to initiat

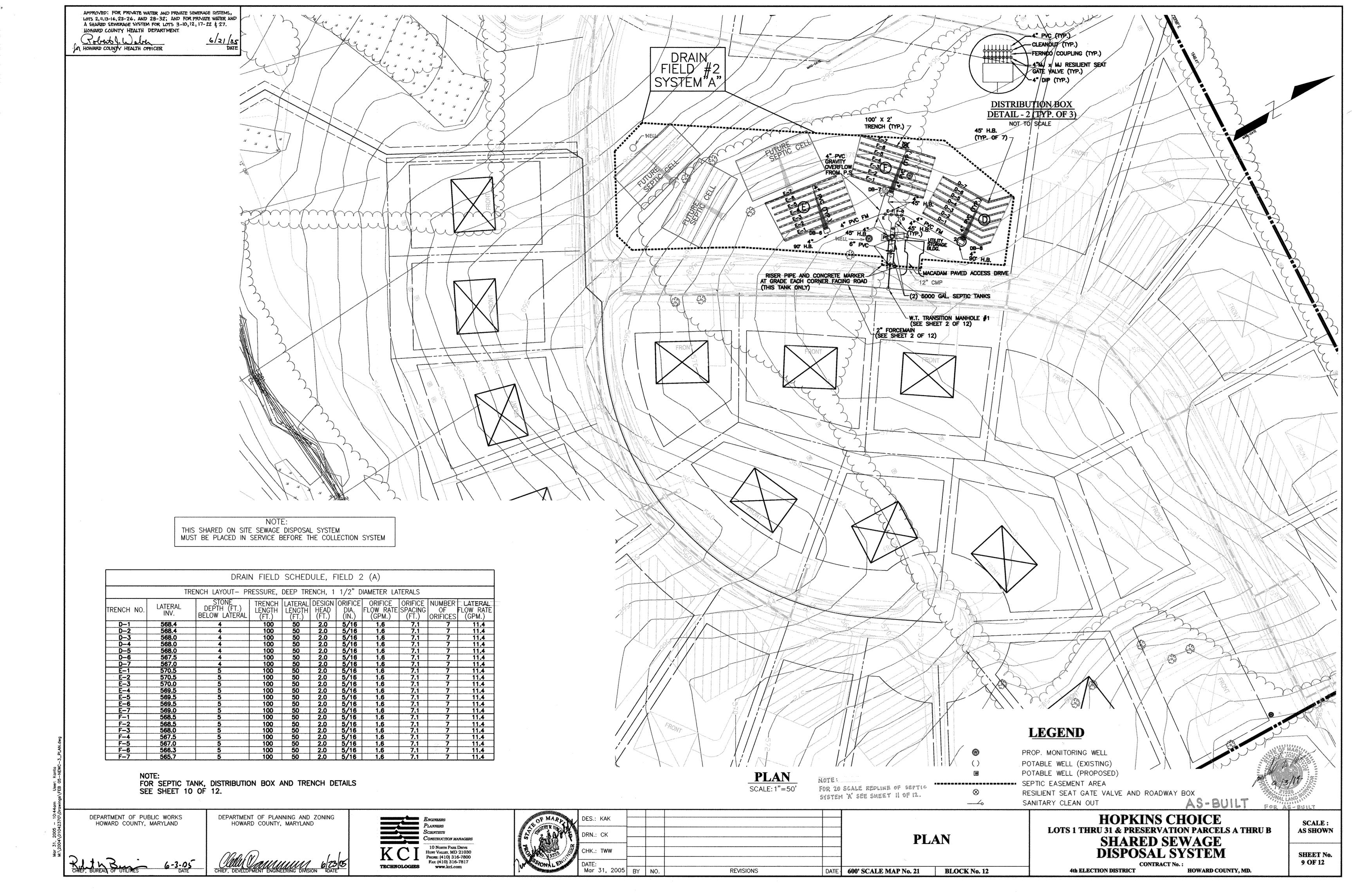
SCALE: AS SHOWN

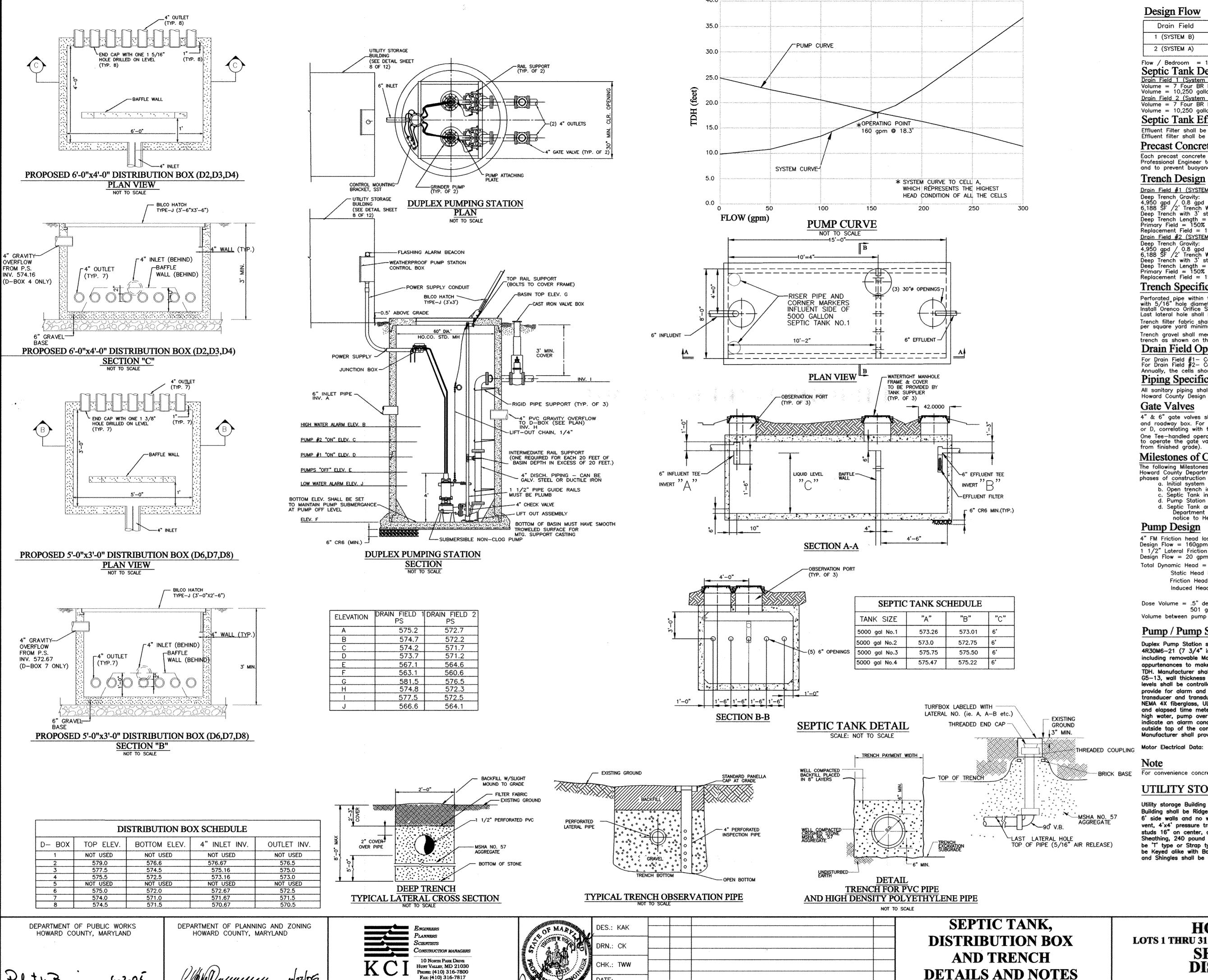
SHEET No. 6 OF 12

600' SCALE MAP No. 21 BLOCK No. 12









BY

NO.

**REVISIONS** 

Fax: (410) 316-7817

TECHNOLOGIES

6-3-05

**Design Flow** 

Drain Field	Design Flow
1 (SYSTEM B)	4,950 gpd
2 (SYSTEM A)	4,950 gpd

Flow / Bedroom = 150gpd / Bedroom

Septic Tank Design

Drain Field 1 (System B) Volume = 7 Four BR Homes x 1250 gal/Home + 1 Five BR Home x 1500 gpd/Home Volume = 10,250 gallons, Use (2) 5,000 gallon tanks

Drain Field 2 (System A) Volume = 7 Four BR Homes x 1250 gal/Home + 1 Five BR Home x 1500 gal/Home Volume = 10,250 gallons, Use (2) 5,000 gallon tanks

Septic Tank Effluent Filter

Effluent Filter shall be 4" Zabel Effluent Filter A100 Series, 12 x 36 vc, with spare cartridge.

**Precast Concrete Specifications** 

Each precast concrete septic tank shall be certified by a Professional Engineer to support earth load as presented on plans and to prevent buoyancy with ground water at finished grade.

Drain Field #1 (SYSTEM B)

Deep Trench Gravity:
4,950 gpd / 0.8 gpd / SF = 6,188 SF of std. trench
6,188 SF /2' Trench Width = 3,094 LF of std. trench
Deep Trench with 3' stone depth = 44.4% std.trench required
Deep Trench Length = 3,094 LF x 0.444 = 1,374 LF (100% of Design)
Primary Field = 150% x 1,374 LF = 2,060 LF
Replacement Field = 150% x 1,374 LF = 2,060 LF

Drain Field #2 (SYSTEM A)

Deep Trench Gravity: Deep Trench Gravity:
4,950 gpd / 0.8 gpd / SF = 6,188 SF of std. trench
6,188 SF /2' Trench Width = 3,094 LF of std. trench
Deep Trench with 3' stone depth = 44.4% std.trench required
Deep Trench Length = 3,094 LF x 0.444 = 1,374 LF (100% of Design)
Primary Field = 150% x 1,374 LF = 2,060 LF
Replacement Field = 150% x 1,374 LF = 2,060 LF

**Trench Specifications** 

Perforated pipe within trench shall be 1 1/2" PVC (schedule 40) as shown on the plans, with 5/16" hole diameter, hole spacing as called out on the plans in the drain field schedule install Orenco Orifice Shields, model code OS150, on each lateral orifice. Last lateral hole shall be placed on top of pipe (5/16").

Trench filter fabric shall be non-woven polyester fabric, needle pinched, 60z. per square yard minimum placed within trench as shown on the details.

Trench gravel shall meet the requirements of SHA # 57 stone placed within

**Drain Field Operating Sequence** 

For Drain Field #1— Cells A and B shall be placed into operation initially, with Cell C in rest mode. For Drain Field #2— Cells D and E shall be placed into operation initially, with Cell F in rest mode. Annually, the cells should be rotated such that any one field operates for 2 years and rests for 1 year. **Piping Specifications** 

All sanitary piping shall be PVC Schedule 40. All material shall conform with Howard County Design Manual Standard Specifications and Details for Construction

Gate Valves

4" & 6" gate valves shall be Resilient seat "Baltimore Standard, open right" furnished with a non-rising stem and roadway box. For all 6" valves, roadway box cover shall cast with letters A, A-B, B-C, C, E, E-F, F-D, or D, correlating with the cell letter(s) that each gate valve controls, as shown on the Contract Drawings. One Tee—handled operating wrench shall be provided by the gate valve manufacturer to operate the gate valves from finished grade (with adequate length to operate from finished grade).

Milestones of Construction

The following Milestones of Construction must be approved by Barry Glotfelty MDE (410-537-4156) and the Howard County Department of Health (410-313-2640). The Engineer shall be contacted during the following phases of construction for system installation inspection.

a. Initial system stakeout by registered surveyor. b. Open trench inspection.

2. Septic Tank installation. 1. Pump Station installation and pump startup by Pump Manufacturer.

d. Septic Tank and Pump Station must be watertight to the satisfaction of Howard County
Department of Health. Contractor shall supply test water and provide forty—eight(48) hours
notice to Health Department for water tightness testing.

Pump Design

4" FM Friction head loss Design Flow = 160gpm, HL= 17.9'/1000', 4" Friction Loss = 6.8' 1 1/2" Lateral Friction head loss Design Flow = 20 gpm, HL= 32'/1000', 1 1/2" Friction loss = 1.6' Static Head loss Friction Head.. Induced Head in D Box.

Total Dynamic Head......18.3 Dose Volume = .5" depth in trench gravel for 1 cell + 1 D Box + manifold volume 501 gal. + 179 gal. + 202 gal. = 883 gallons. Volume between pump off float level and pump #1 on float level shall be dose volume

Pump / Pump Station Specifications

Duplex Pump Station shall be provided with two Meyers 4" non-clog wastewater pumps model no. 4R30M6-21 (7 3/4" impeller) or equal with direct mounted control panel, lift-out assemblies, including removable Mast (Hoist) for pump removal, check valves, controls, access cover and all other appurtenances to make a complete system. Pumps shall have an operating point of 160 gpm @ 18.3' TDH. Manufacturer shall provide one spare pump. Wet well shall be 60" diameter H0.CO. STD. manhole G5-13, wall thickness per appropriate depth, without the eccentric top section. Pump on, off and alarm levels shall be controlled by ultrasonic level transmitter flowline model L430 with relay level controller to provide for alarm and pump on/off levels as shown on the detail. Manufacturer shall provide spare transducer and transducer cable to receiving unit for Level detection system. Control panel shall be NEMA 4X fiberglass, UL listed as an assembly. Control Panel shall be furnished with a cycle counter and elapsed time meter for each pump. Indicating lights and labels shall be furnished for pump run, high water, pump over temperature and seal failure. Acknowledge alarm circuit shall be provided to indicate an alarm condition, which operates in conjunction with the red alarm beacons mounted on the outside top of the control panel, and on the top of outside door to utility storage building. Pump Manufacturer shall provide start up services.

Motor Electrical Data: 3 HP, 1150 RPM, 1 Phase, 230 Volt.

600' SCALE MAP No. 21

BLOCK No. 12

For convenience concrete reinforcement not shown

UTILITY STORAGE BUILDING

Utility storage Building shall be provided at each Pump Station with Control Panel mounted inside Building shall be Ridge Cabinet Company High Wall Barn style storage building, 8'x12' Vinyl sided with side walls and no windows with one double door on end of building. Building shall have 10' ridge vent, 4'x4' pressure treated skids, 2x4 floor joists 16" on center, 5/8" plywood floor Sheathing, 2x4 studs 16" on center, all walls to be plated at bottom and double plated at the top, 1/2" roof Sheathing, 240 pound asphalt 20 Year Shingles, doors and frame to be reinforced, door hinges must be 'T' type or Strap type, three hinges per door side. Piano hinges are not acceptable. Locks are to be Keyed alike with Bauer CH 751 lock. Vinyl Siding and Trim shall be Almond color and Shingles shall be brown color. Red alarm Beacon shall be mounted on the top of outside door.

> APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS. LOTS 2, 11, 13-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 12, 17-22 & 27. HOWARD COUNTY HEALTH DEPARTMENT Robert 1. Walth OFFICER 6/21/05

**HOPKINS CHOICE** LOTS 1 THRU 31 & PRESERVATION PARCELS A THRU B **SHARED SEWAGE DISPOSAL SYSTEM** 

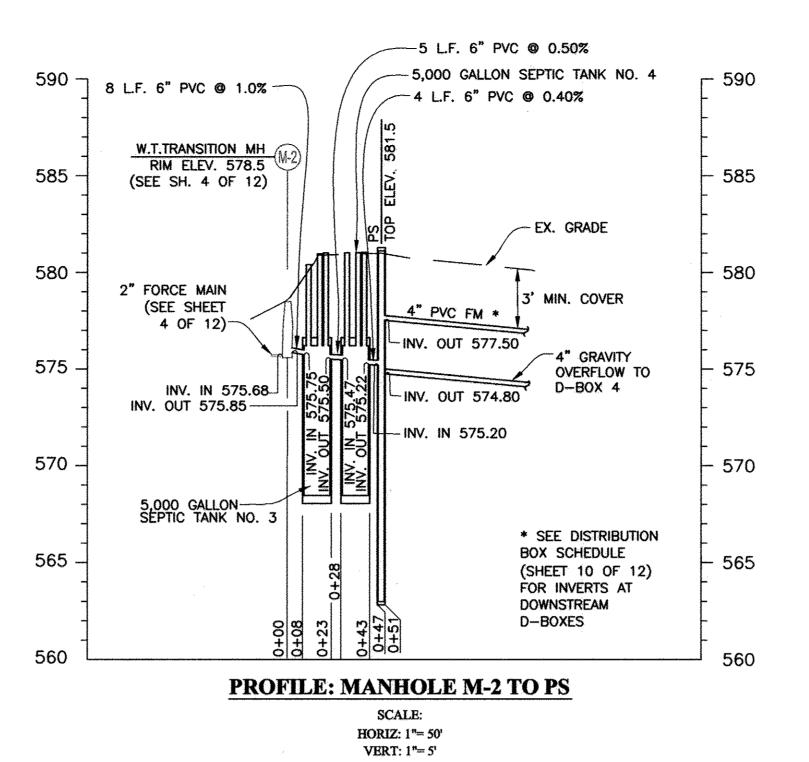
SHEET No. 10 OF 12

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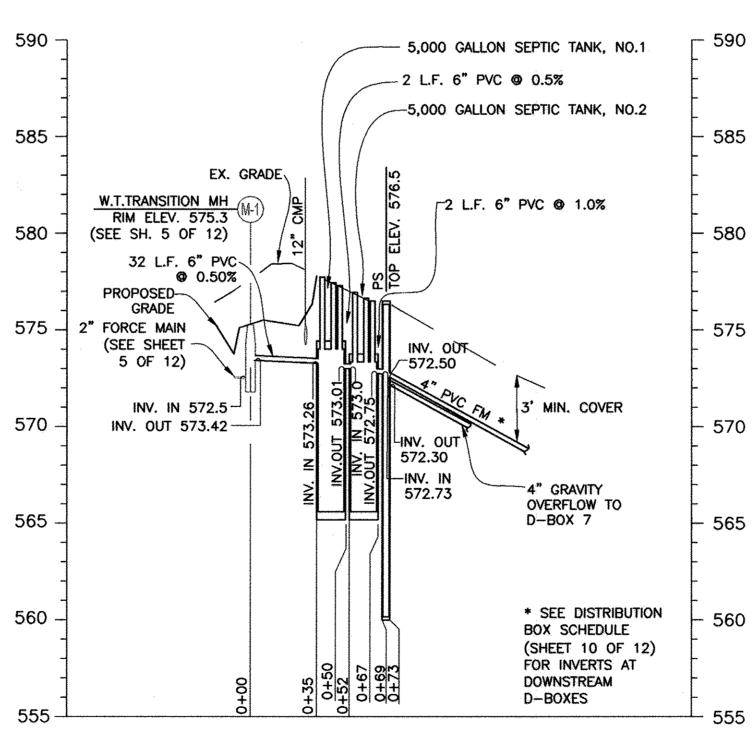
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DATE

HOWARD COUNTY, MD. 4th ELECTION DISTRICT



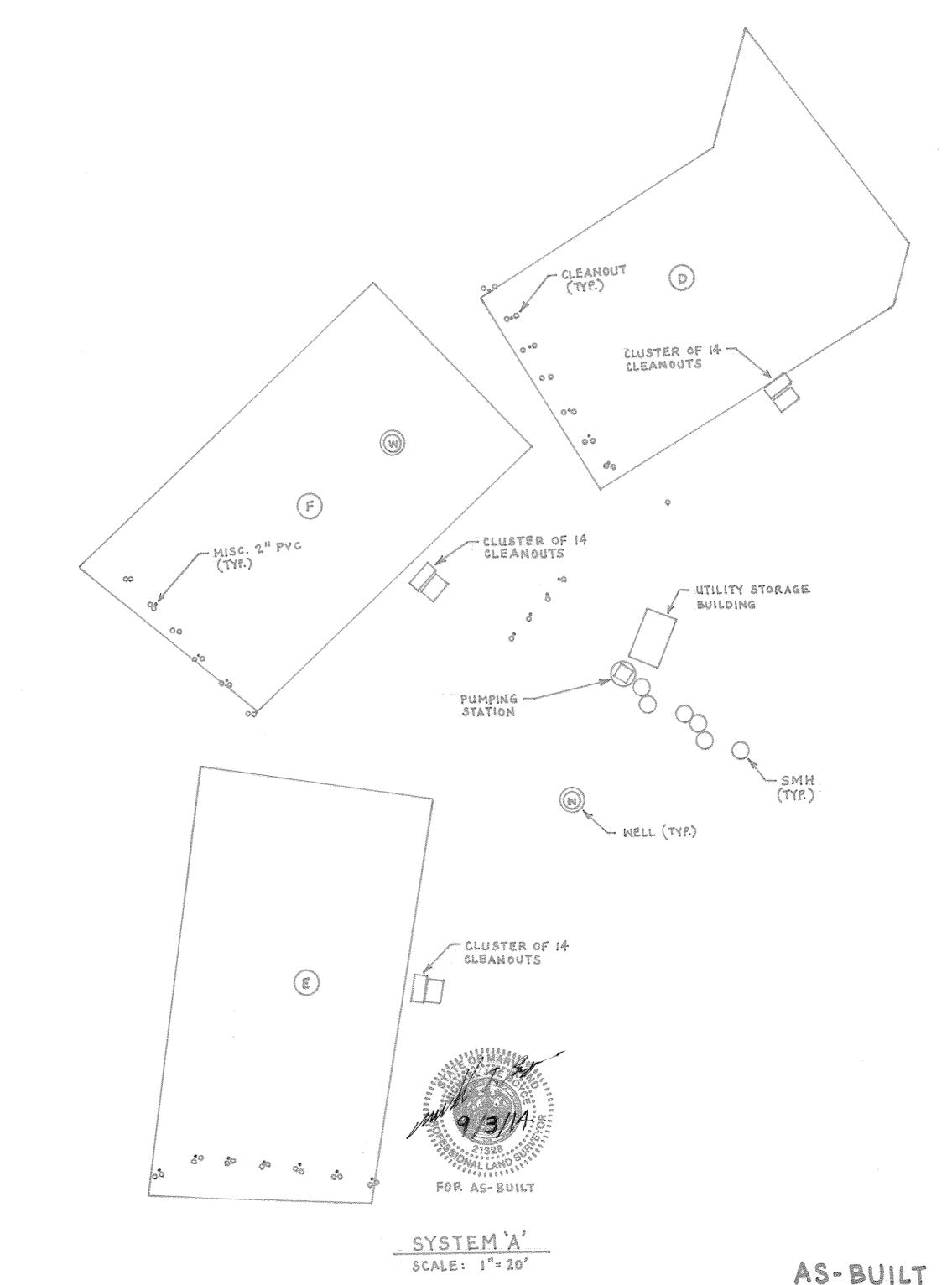
## DRAINFIELD #1 PROFILE



PROFILE: MANHOLE M-1 TO PS

SCALE: HORIZ: 1"= 50' VERT: 1"= 5'

## DRAINFIELD #2 PROFILE



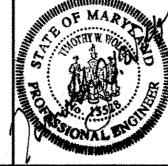
APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, LOTS 2, II, 13-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 12, 17-22 | 27. HOWARD COUNTY HEALTH DEPARTMENT 6/21/05 DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

IN HOWARD COUNTY HEALTH OFFICER

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND





DES.: KAK				
DRN.: CK				
CHK.: TWW				
DATE:		-		-
Mar 31, 2005	BY	NO.	REVISIONS	DATE
	CHK.: TWW	DRN.: CK  CHK.: TWW  DATE:	DRN.: CK CHK.: TWW	DRN.: CK CHK.: TWW

**PROFILES** 

600' SCALE MAP No. 21

BLOCK No. 12

**HOPKINS CHOICE** LOTS 1 THRU 31 & PRESERVATION PARCELS A THRU B SHARED SEWAGE DISPOSAL SYSTEM

4th ELECTION DISTRICT HOWARD COUNTY, MD. SHEET No. 110F 12

**SCALE:** 

AS SHOWN

2. All vegetative and structural practice are to be installed according to the provisions of this plan and are to be conformance with the most current MARYLANI STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

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, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.

4. 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.

5. All disturbed areas must be fenced within the time period specified above in accordance with 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (sec. 51), sod (sec. 54), temporary seeding (sec. 50) and mulching (sec. 52). Temporary stabilization with mulch alone can be done only when recommended seeding dates do not allow for proper germination and establishment of

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 Inspector.

### 7. Site Analysis :

Total Area of Site	66.84 Acres
Area Disturbed	5.72 Acres
Area to be roofed or paved	0.15 Acres
Area to be vegetatively stabilized	5.57 Acres
Total Cut	4,600 Cu. Yds.
Total Fill	4,600 Cu. Yds.
Offsite waste/borrow area location :	

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 control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10. 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.

11. Trenches for the construction of utilities is limited to three pipe length or that which should be back-filled and stabilized by the end of each work day, whichever is shorter.

### PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived wegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments : In lieu of soil test rescommendations, use one of the following schedules

- Preferred -- Apply 2 tons/acre dolomitic limestone (92 bls/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk upper three inches of soil. At time of seeding, apply 400 lbs/acre 30-0-0 ureaform
- fertilizer (9 lbs/1000 sq. ft.) Acceptable -- Apply 2 tons/acre dolomitic limestone (92 bls/1000 sq. ft.) and 600

lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk

upper three inches of soil. Seeding -- For the periods Warch 1 -- April 30, and August 1 -- October 15, seed with 60

lbs/acre (1.4 lbs/sq. ft.) of Kentuky 31 Tall Fescue. For the perion May 1 -- July 31, seed with 601bs Kentucky 31 tall Fescue per acre and 2 1bs/acre (.05 1bs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 -- February 28, protect site by :

Option 1 -- Two tons per acre of well anchored straw mulch and seed as soon as possible

the spring. Option 2 -- Use sod. Option 3 -- Seer : with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of rooted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance -- Inspect all seeding areas and make needed repairs, replacements and reseedings

### TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be 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, unless previously loosened.

Soil Amendments: -- Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 lbs/1000 sq ft).

Seeding: -- For periods March 1 -- April 30 and from August 15 -- October 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.) for the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07lbs/1000 sq. ft.). For the period November 16 -- Ferbruary 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: -- Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free, small grain straw immediately after seeding, anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/ 1000 sq. ft.) of emulsified asphalt on flat areas. on slopes, 8 ft. or higher, use 348 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rate and methods not covered.

### STANDARDS AND SPECIFICATIONS FOR TOPSOIL

### **DEFINITION**

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

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

### CONDITIONS WHERE PRACTICE APPLIES

I. This practice is limited to areas having 2:1 or flatter slopes where:

gradation.

- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative
- b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of maisture 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. II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

### CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that 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-SCA in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slags, coarse fragments, gravel, sticks, roots, trash, or other materials larger the 11/12" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres. i. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall 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 phyto-toxic materials. Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate authority, may be used in lieu of natural topsoil, ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization — Section I — Vegetative Stabilization Methods and Materials.

## V. Topsoil Application

i. When topsoilling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4"-8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seed line can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from top soiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen of muddy condition. when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding — Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 1b/1,000 square feet, and 1/3 the normal lime application rate.

References, Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

NOTE FENCE POST SPACING
SHALL NOT EXCEED 10
CENTER TO CENTER MINIMEN THE THE THE TIES GALVANIZED DR ALUMINUM FLOW \_\_\_\_ FILTER CLOTH-EMBED FILTER CLOTH 8'---

DETAIL 33 - SUPER SILT FENCE

Construction Specifications 1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42' fabric and 6' length

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

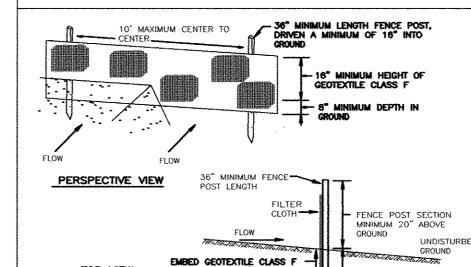
STANDARD SYNBOL

4. Filter cloth shall be embedded a minimum of 8° into the ground. 5. When two sections of filter cloth adjoin each other, they shall be overlapped

6. Naintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height 7. Filter cloth shall be fastened securely to each fence post with wire ties or

staples at top and mid section and shall neet the following requirements for Geotextile Class F: Tensile Strength 50 lbs/in (pin.) Test MSMT 509 20 lbs/in (nin.) Tensile Modulus Test: MSMT 509 0.3 gal/ft\*/minute (nox.) Testi MSNT 32 Filtering Efficiency 75% (min.)

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION U.S. DEPARTMENT OF AGRICULTURE # - 26 - 3 DETAIL 22 - SILT FENCE

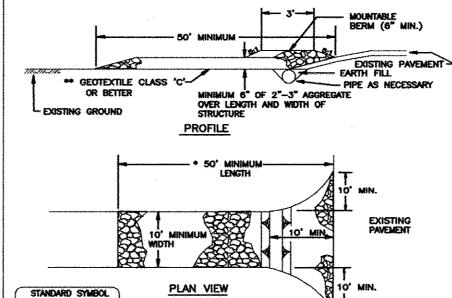


- FENCE POST DRIVEN A MINIMUM OF 16" INTO CROSS SECTION STANDARD SYMBOL -----SF------JOINING TWO ADJACENT SILT

FENCE SECTIONS 1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be  $11/2^{\circ} \times 11/2^{\circ}$  square (minimum) out, or  $13/4^{\circ}$  diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be

50 lba/in (min.) 20 lbe/in (min.) Test: MSMT 509

 Silt Fence shall be inspected after each rainfall event and maintained when ILS DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



SCE

5. Geotextile fabric (filter cloth) shall be placed over the existing ground prior

4. Stone — crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 8" deep over the length and width of the

5. Surface Water — all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance PAGE MARYLAND DEPARTMENT OF ENVIRONMENT
F - 17 - 3 WATER MANAGEMENT ADMINISTRATION U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

> SEDIMENT CONTROL NOTES AND DETAILS

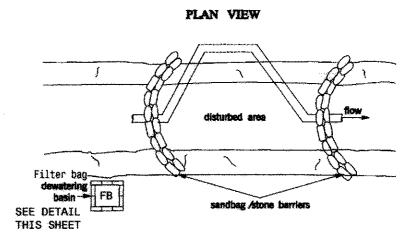
## HOPKINS CHOICE

SHARED SEWAGE DISPOSAL AND FORCE MAIN

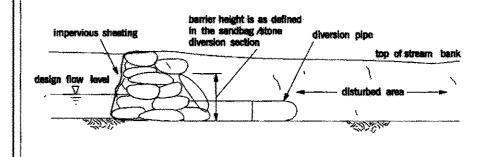
CONTRACT No. : 50-4254-D

**DETAIL 1.4: DIVERSION PIPE** 

Maryland's Guidelines To Waterway Construction



## LONGITUDINAL



TEMPORARY DISTURBAL ZEPTED MOTERATE SEE MARKLAND DEPARTMENT OF THE ENVIRONMENT CONSTRUCTION MEASURES PAGE 14 - 1 WATER MANAGEMENT ADMINISTRATION MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap. Sandhao or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank accur are observed during the construction time or if project time is expected to last more than 2 weeks.

Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.

Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the unspecting authority approves their removal.

MARYLAND DEPARTMENT OF THE ENVIRONM

Waterway Construction Guide.

The height of the sandbag/stone diversion should be a function of the duration of the project in the stream read

For projects with a duration less than 2 weeks, the height of the diversion should be one half the streambank height, measured from the channel bed, plus I foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For iversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a

MGWC 1.4: DIVERSION PIPE

Temporary measure for dewatering in

channel construction sites

The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when

Diversion pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe

erosion of the disturbed channel section under construction. Therefore, in-channel construction activities should

Sandbags. Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and

puncture and should be woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).

Sheeting: Sheeting should consist of polyethylene or other material which is impervious and resistant to

All erosion and sediment control devices including mandatory dewatering basins should be installed as the first

order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during low flow conditions. If necessary, sait fence or straw bales should be installed

Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The

All accepated material should be deposited and stabilized in an approved area outside the 100-year floodplain

The diversion pipe should have a minimum capacity sufficient to convey the 2-year flow for projects with a

duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced

Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

imporary measure for dewatering in

channel construction sites

Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction

Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporar

Sandbags: Sandbage should consist of materials which are resistant to ultra-violet radiation, tearing, and

Sheeting. Sheeting should consist of polyethylene or other meterials which are impervious and resistant to

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the

Sandbag/stone diversions can be used independently or as components of other stream diversion techniques. Installation of this measure should proceed as follows (refer to Detail 1.5):

The diversion structure should be installed from upstream to downstream

puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.

Naterials for sandbag and stone stream diversions should meet the following requirements

Riprap: Riprap should be weshed and have a minimum diameter of 6 inches (0.15 meters).

The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

WATERWAY CONSTRUCTION GUIDELIN

Diversion pipes with sandbag or stone barriers should be completed as follows (refer to Detail 1.4):

Sediment-laden water from the construction area should be pumped to a dewatering basin.

If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Riprap: Stone should be washed and have a minimum diameter of 6 inches (15 centimeters)

DESCRIPTION

EFFECTIVE USES & LIMITATIONS

Materials for stream diversions should meet the following requirements

MATERIAL SPECIFICATIONS

puncture and tearing.

INSTALLATION GUIDELINES

unless otherwise authorized by the WMA

authority approves their removal.

EFFECTIVE USES & LIMITATIONS

MATERIAL SPECIFICATIONS

INSTALLATION GUIDELINES

STAKE THROUGH CONSTRUCT!
FENCE TO RESTRAIN, IF SLO
IS ONFATER THAN 5 PERCEN

CUT OPEN CORNER ( BAG AND CLAMP ON DEVATERING HOSE

neasure may not be practical in large channels.

DESCRIPTION

TEMPORARY INSTREAM CONSTRUCTION MEASURE

All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.

Sediment-laden water from the construction area should be pumped to a dewatering basin. TEMPORARY INSTRUMENT CONSTRUCTION MEASURES

1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.

3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE. 4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.

Tensile Strength 50 ibs/in (min.) Test: MSMT 509
Tensile Modulus 20 ibs/in (min.) Test: MSMT 509
Flow Rote 0.3 gol ft\*/ minute (mox.) Test: MSMT 509
Fittering Efficiency 75% (min.) Test: MSMT 322

TEMPORARY EROSION CONTROL MEASURE FB

5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA. 6. FILTER FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE

MARYLAND DEPARTMENT OF THE ENVIRONME WATERWAY CONSTRUCTION GUIDELIN

Maryland's Guidelines To Waterway Construction DETAIL 1.5: SANDBAG/STONE DIVERSION SECTION VIEW

STANDARD SYNEO

Test: MSMT 509 Test: MSMT 509

H/2+1 ft (0.3 m) for projects of duration < 2 weeks; 2-year flood elevation for projects of longer duration PLAN VIEW

SEE DETAIL THIS SHEET

TEMPORARY DISTREAM CONSTRUCTION MEASURES ENVERSO MOVIMIES 2000 MANTLAND DEPARTMENT OF THE ENVISIONMENT PAGE 15 - 2 WATER MANAGEMENT ADMINISTRATION

LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H

HOWARD COUNTY. MD.

SHEET No. 12 OF 12

SCALE:

AS SHOWN

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

DIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE

HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER

IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

PREPARED BY :

and Engineering, Inc. 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21163 TEL. (410) 465-7903 FAX. (410) 465-3845

DES.: DW/AG DRN.: AVG CHK.: DW/JL DATE: 4-21-05 REVISIONS BY

DATE 600' SCALE MAP No. 21 BLOCK No. 12

4th ELECTION DISTRICT

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, LOTS 2,413-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND

A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 17-22,12 € 27.

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS

HOWARD COUNTY HEALTH DEPARTMENT

HOWARD SOIL CONSERVATION DISTRICT:

ROAD CONSTRUCTION PLANS PER F-05-29

American Land Development