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QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		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.			
"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.			
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 OF 12

SHARED 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

- NOTE :
- 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 CONSTRUCTION PERMIT ISSUANCE.
 - A SIGNED "DECLARATION OF COVENANTS" WILL BE REQUIRED ON SHARED SEPTIC LOTS.
 - THE BUILDER SHALL INSTALL BACK FLOW PREVENTER AND RELIEF VENT ON THE SEWER SERVICE AT THE HOUSE, AT THE TIME OF THE HOUSE CONNECTION OR AS REQUIRED BY THE PLUMBING INSPECTOR.
 - SEPTIC TANKS SHALL BE VACUUM TESTED AND WATER TESTED ON-SITE BY THE MANUFACTURER. 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.
 - 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.
 - OBSERVATION WELL TO BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
 - THE HOWARD COUNTY HEALTH DEPARTMENT SHALL AS-BUILT THE SEPTIC TRENCH PORTION OF THE COMMON SEPTIC SYSTEM. THE COLLECTION PORTION OF THIS SYSTEM SHALL BE AS-BUILT BY OTHERS AS SPECIFIED BY THE DEVELOPER AGREEMENT.

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, 17-22, 27, AND 12. HOWARD COUNTY HEALTH DEPARTMENT

Robert J. White 6/21/05
HOWARD COUNTY HEALTH OFFICER DATE

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

John M. ... 6/15/05
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

John R. ... 6/15/05
HOWARD SOIL CONSERVATION DISTRICT DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

OWNERS: PRESORPTION ACRES, LLC. c/o DONALD H. PATTERSON PO BOX 1 GLENELG, MD. 21737

DEVELOPER: TRIADDELPHIA FARM, LLC. 8258 CARDINAL LANE COLUMBIA, MD. 21044

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

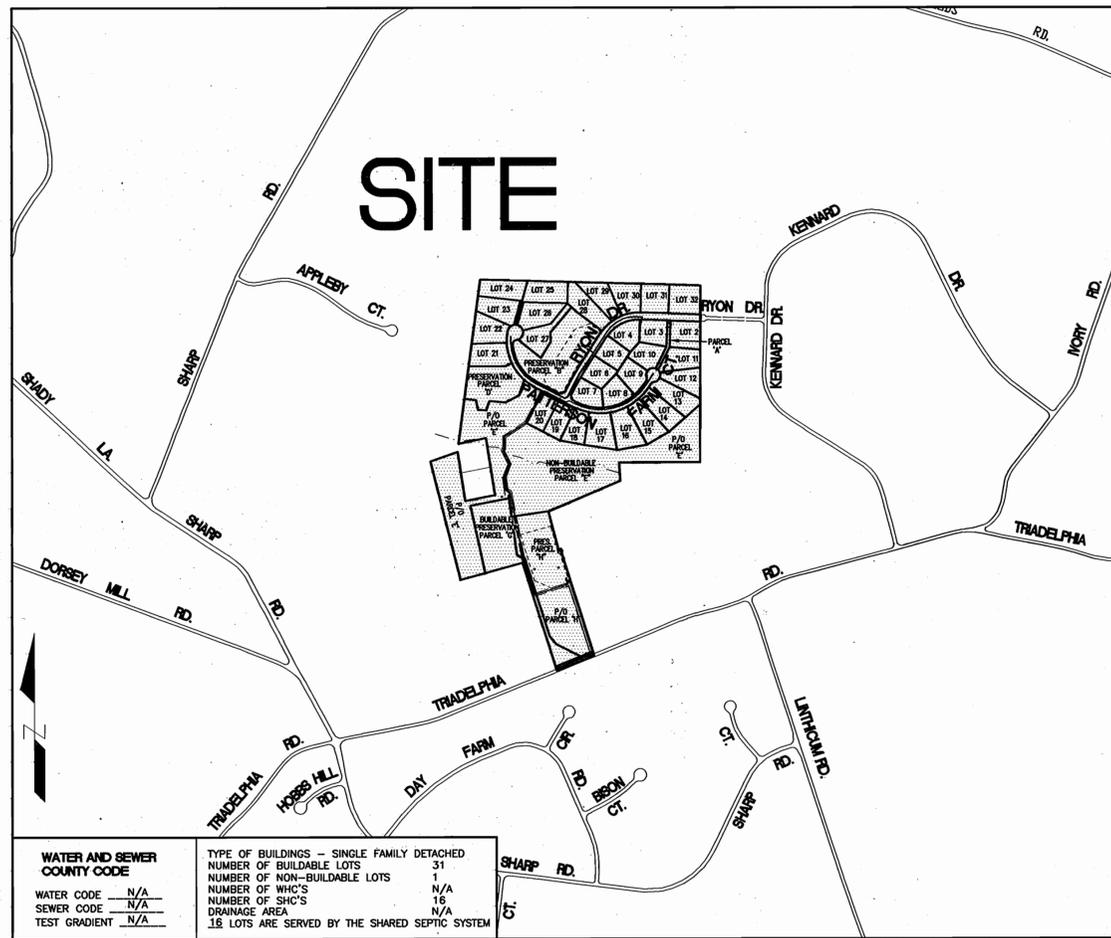


DES.: DW/AG	
DRN.: AVG	
CHK.: DW	
DATE: 4-21-05	
BY NO.	
REVISIONS	
DATE	

600' SCALE MAP No. 21	BLOCK No. 12
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HOPKINS CHOICE
LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H
SHARED SEWAGE DISPOSAL AND FORCE MAIN
CONTRACT No. : 50-4254-D
4th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE : AS SHOWN
SHEET No. 1 OF 12



LOCATION MAP
SCALE : 1" = 600'

WATER AND SEWER COUNTY CODE	TYPE OF BUILDINGS - SINGLE FAMILY DETACHED
WATER CODE N/A	NUMBER OF BUILDABLE LOTS 31
SEWER CODE N/A	NUMBER OF NON-BUILDABLE LOTS 1
TEST GRADIENT N/A	NUMBER OF WH'S 16
	NUMBER OF SHO'S N/A
	DRAINAGE AREA N/A
	16 LOTS ARE SERVED BY THE SHARED SEPTIC SYSTEM

GENERAL NOTES :

- PART I
- Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
 - All horizontal controls are based on Maryland State Coordinates [North American Datum of 1983 (NAD '83)].
 - All vertical controls are based on NAVD 88.
 - 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. 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.
 - 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.
 - Where test pits have been made on existing utilities, they are noted by the symbol \oplus 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.
 - Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans:

AT&T	1-800-292-1133
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	410-531-5533
Verizon	1-800-743-0033 / 410-224-9210
 - Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
 - Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
 - 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.
 - Place regulation "men working" and warning signs as required to comply with Maryland state highway administration manual of traffic control for highway maintenance operations.
- PART II
- 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.
 - 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.
 - 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.
 - 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.
- PART III
- All sewer mains shall be dip and p.v.c. unless otherwise noted.
 - The contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole wall.
 - All manholes shall be 4'-0" inside diameter unless otherwise noted.
 - Force mains shall be HDPE DR11
 - Manholes shown with 12" and 16" walls are for brick manholes only.
 - Manholes designated w.t. in plan and profile shall have watertight frame and covers, standard detail G5.52 where watertight manhole frame and cover is used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.
 - House(s) with the symbol "c.n.s." indicates that cellar cannot be serviced.

HOPKINS CHOICE

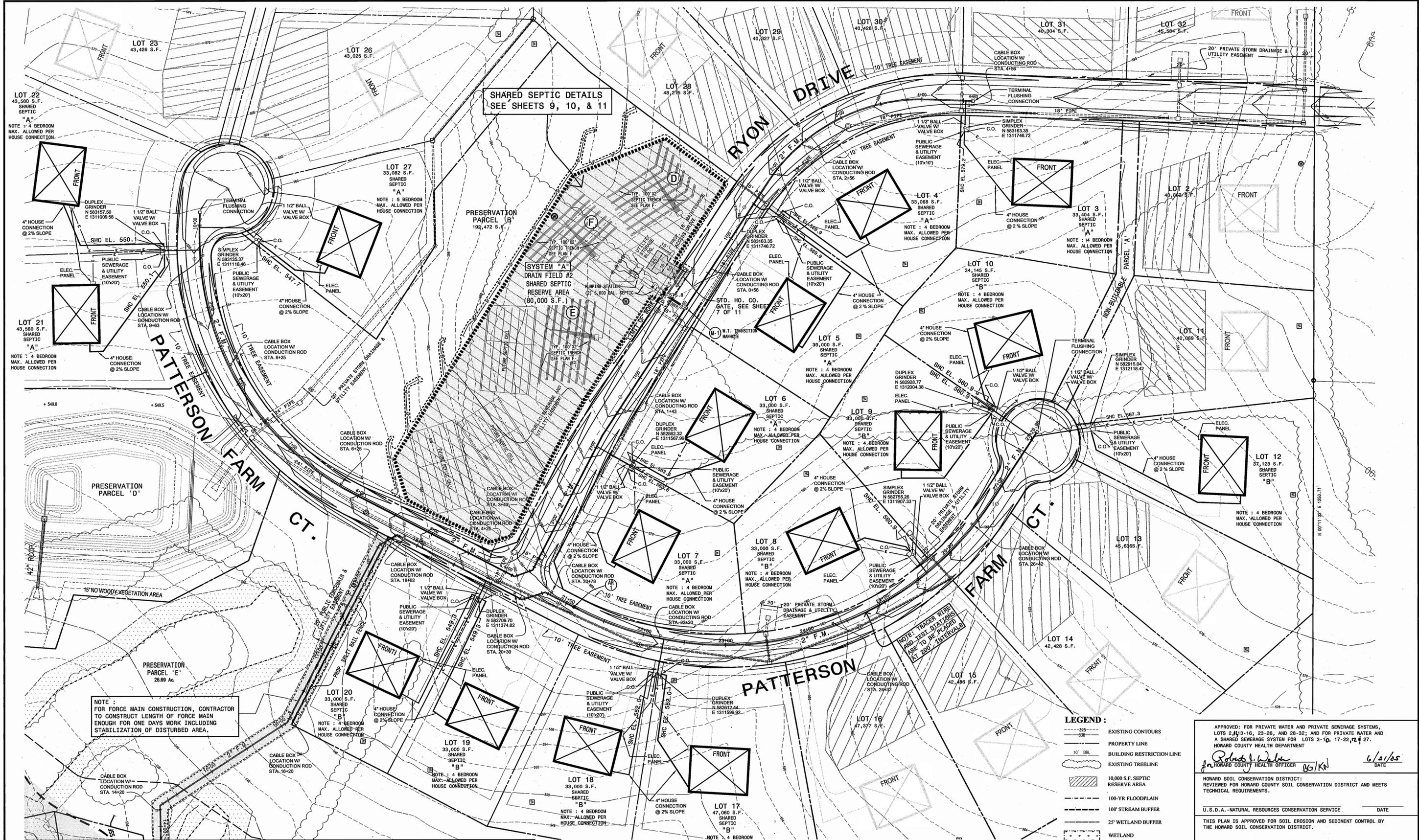
LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H

SHARED SEWAGE DISPOSAL AND FORCE MAIN

CONTRACT # 50-4254-D

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS	
STATE HIGHWAY ADMINISTRATION	531-5533
BALTIMORE GAS & ELECTRIC CO.	850-4620
CONTRACTOR SERVICES	787-9068
BALTIMORE GAS & ELECTRIC CO.	1-800-257-7777
UNDERGROUND DAMAGE CONTROL	795-1390
MISS UTILITY	313-4900
COLONIAL PIPELINE CO	410-313-2640
HOWARD COUNTY DEPT. OF PUBLIC WORKS	
BUREAU OF UTILITIES	
HO. CO. ENVIRONMENTAL HEALTH DEPT	

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SHARED SEPTIC DETAILS
SEE SHEETS 9, 10, & 11

SYSTEM "A"
DRAIN FIELD #2
SHARED SEPTIC
RESERVE AREA
(80,000 S.F.)

NOTE: FOR FORCE MAIN CONSTRUCTION, CONTRACTOR TO CONSTRUCT LENGTH OF FORCE MAIN ENOUGH FOR ONE DAYS WORK INCLUDING STABILIZATION OF DISTURBED AREA.

- LEGEND:**
- EXISTING CONTOURS
 - PROPERTY LINE
 - BUILDING RESTRICTION LINE
 - EXISTING TREELINE
 - 10,000 S.F. SEPTIC RESERVE AREA
 - 100-YR FLOODPLAIN
 - 100' STREAM BUFFER
 - 25' WETLAND BUFFER
 - WETLAND
 - LIMIT OF DISTURBANCE
 - SILT FENCE
 - SUPER SILT FENCE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, LOTS 2, 15, 16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 17-22, 24 & 27.

HOWARD COUNTY HEALTH DEPARTMENT
Robert J. Wilm
 HOWARD COUNTY HEALTH OFFICER
 DATE: 6/2/05

HOWARD SOIL CONSERVATION DISTRICT:
 REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. - NATURAL RESOURCES CONSERVATION SERVICE
 DATE: _____

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT
 DATE: _____

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 F-05-29.

PLAN
SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Rita B...
 CHIEF, BUREAU OF UTILITIES
 DATE: 6-3-05

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

...
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 6/2/05

PREPARED BY:
American Land Development and Engineering, Inc.
 10749 BIRMINGHAM WAY WOODSTOCK, MD. 21183
 TEL. (410) 465-7903 FAX. (410) 465-3045

DES: DWIAG
 CHK: DW
 DATE: 4-21-05

BY	NO.	REVISIONS	DATE

FORCE MAIN PLAN

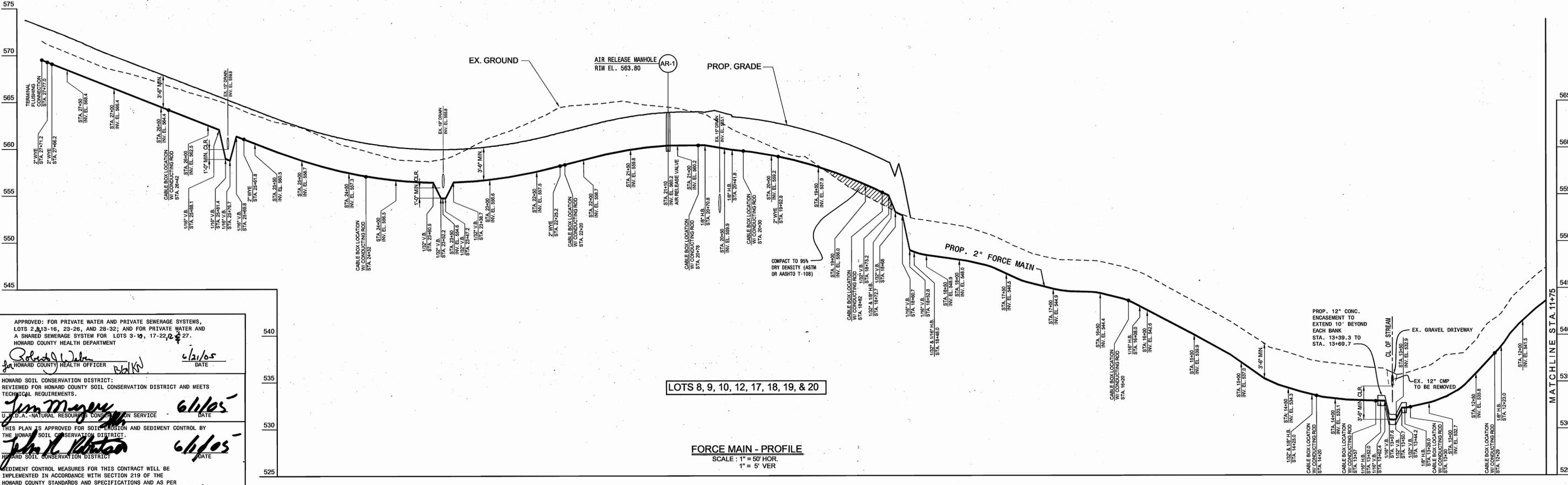
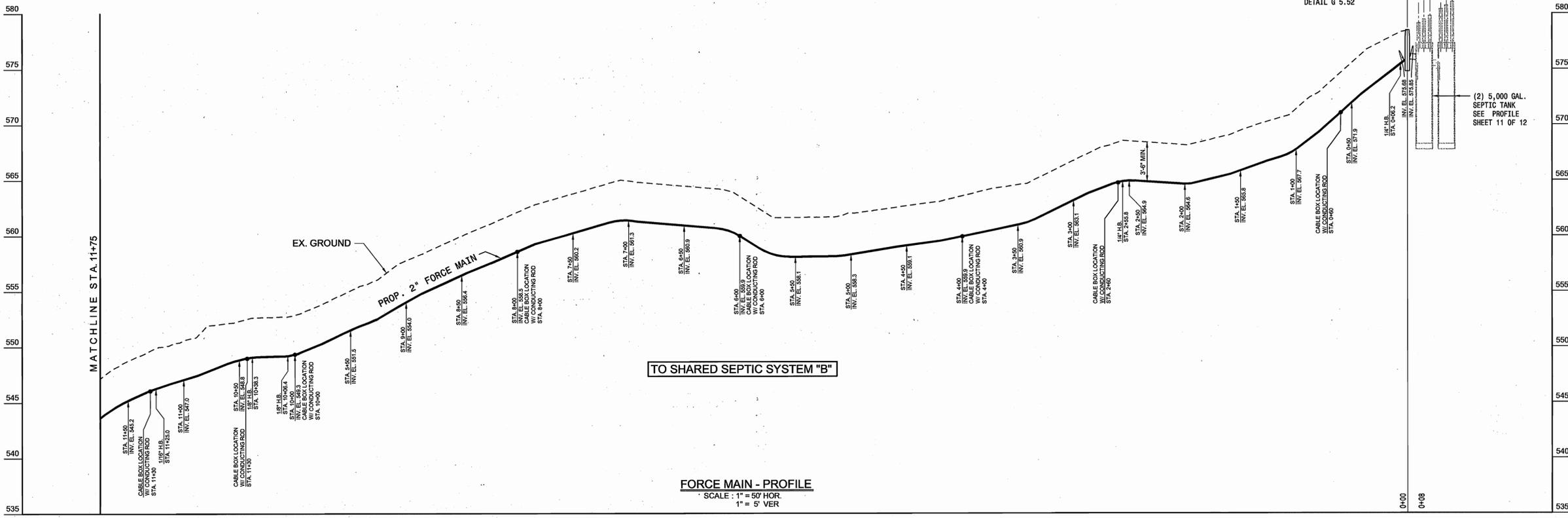
600' SCALE MAP No. 21 BLOCK No. 12

HOPKINS CHOICE
 LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H
 SHARED ON-SITE SEWAGE DISPOSAL AND FORCE MAIN

CONTRACT No. : 50-4254-D
 4th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE: 1" = 50'
 SHEET No. 2 OF 12

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APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, LOTS 2, 13-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 17-22, 25 & 27. HOWARD COUNTY HEALTH DEPARTMENT

Robert J. White 6/21/05
HOWARD COUNTY HEALTH OFFICER DATE

Jim M... 6/1/05
HOWARD SOIL CONSERVATION DISTRICT: REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS. DATE

John H. White 6/1/05
U.S.D.A. - NATURAL RESOURCES CONSERVATION SERVICE DATE

John H. White 6/1/05
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. DATE

GP-05-50
HOWARD SOIL CONSERVATION DISTRICT: EROSION 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 600-SCALE MAP No. 21.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert J. White 6-3-05
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

John H. White 6/23/05
DATE

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



DES: DWAG					
DRN: AVG					
CHK: DW					
DATE: 4-21-05	BY	NO.	REVISIONS	DATE	

FORCE MAIN PROFILE

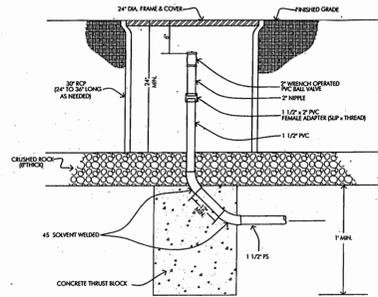
600' SCALE MAP No. 21 BLOCK No. 12

HOPKINS CHOICE
LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H
SHARED SEWAGE DISPOSAL AND FORCE MAIN
CONTRACT No. : 50-4254-D
4th ELECTION DISTRICT HOWARD COUNTY, MD.

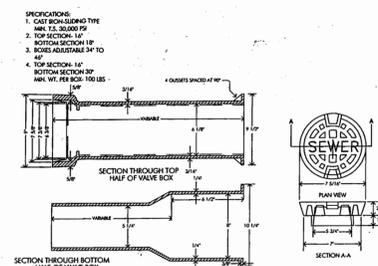
SCALE:
1" = 50'

SHEET No.
4 OF 12

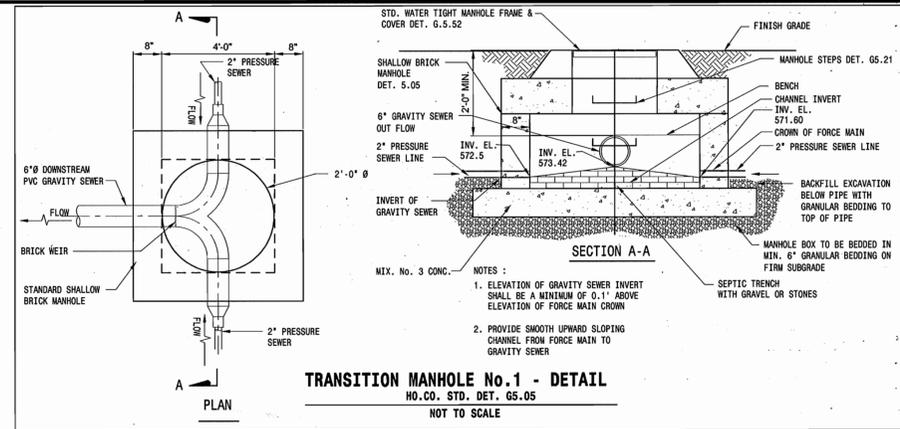
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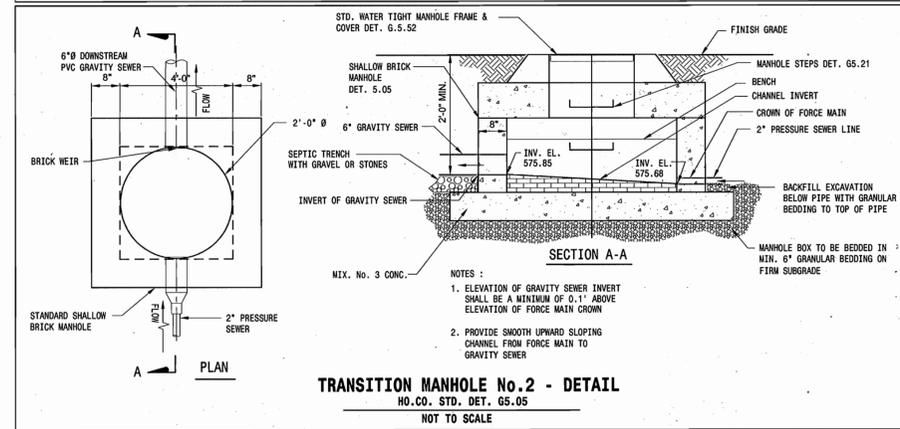
TERMINAL FLUSHING CONNECTION
NOT TO SCALE



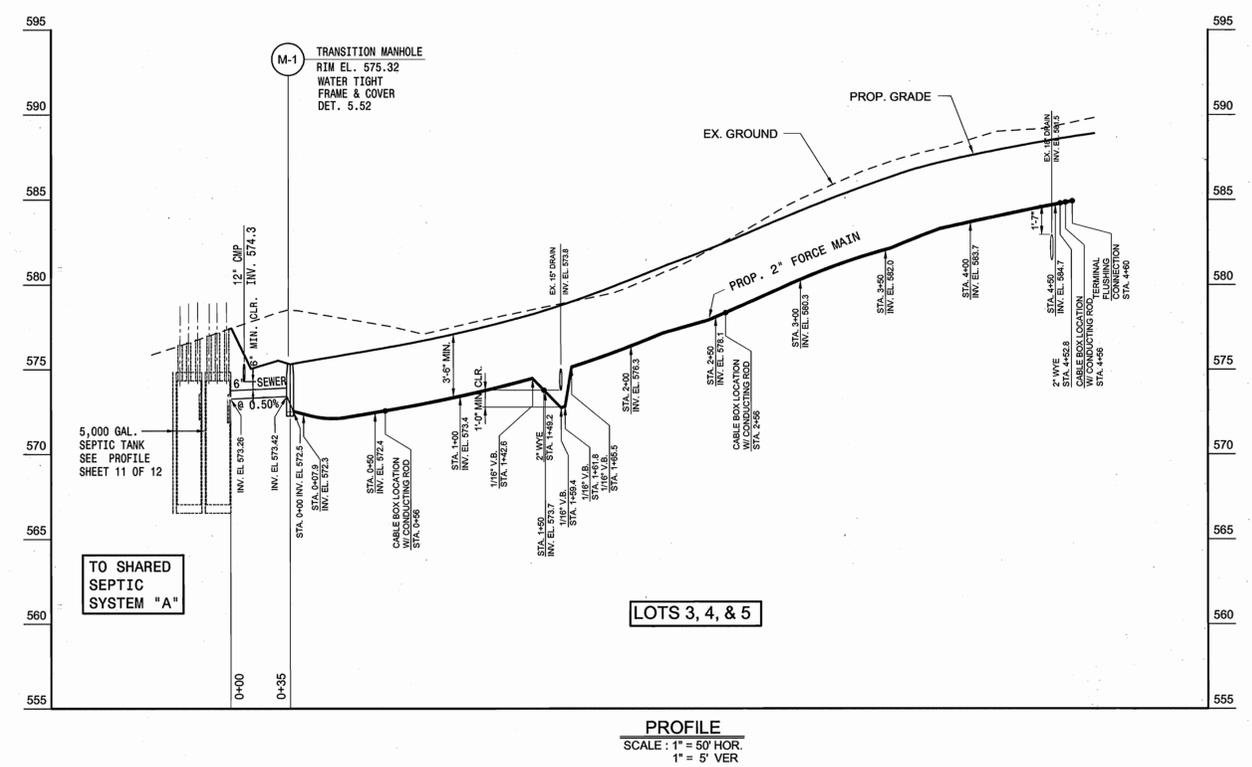
ADJUSTABLE VALVE BOX ROUND HEAD SLIDING TYPE
NOT TO SCALE



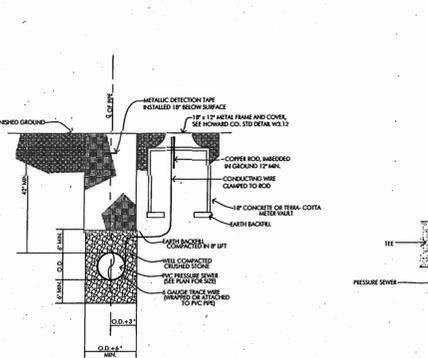
TRANSITION MANHOLE No. 1 - DETAIL
NO. CO. STD. DET. 05.05
NOT TO SCALE



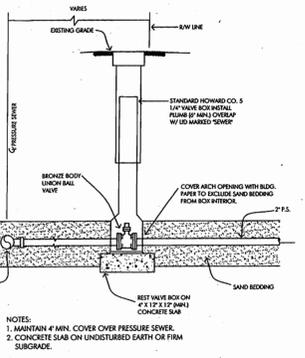
TRANSITION MANHOLE No. 2 - DETAIL
NO. CO. STD. DET. 05.05
NOT TO SCALE



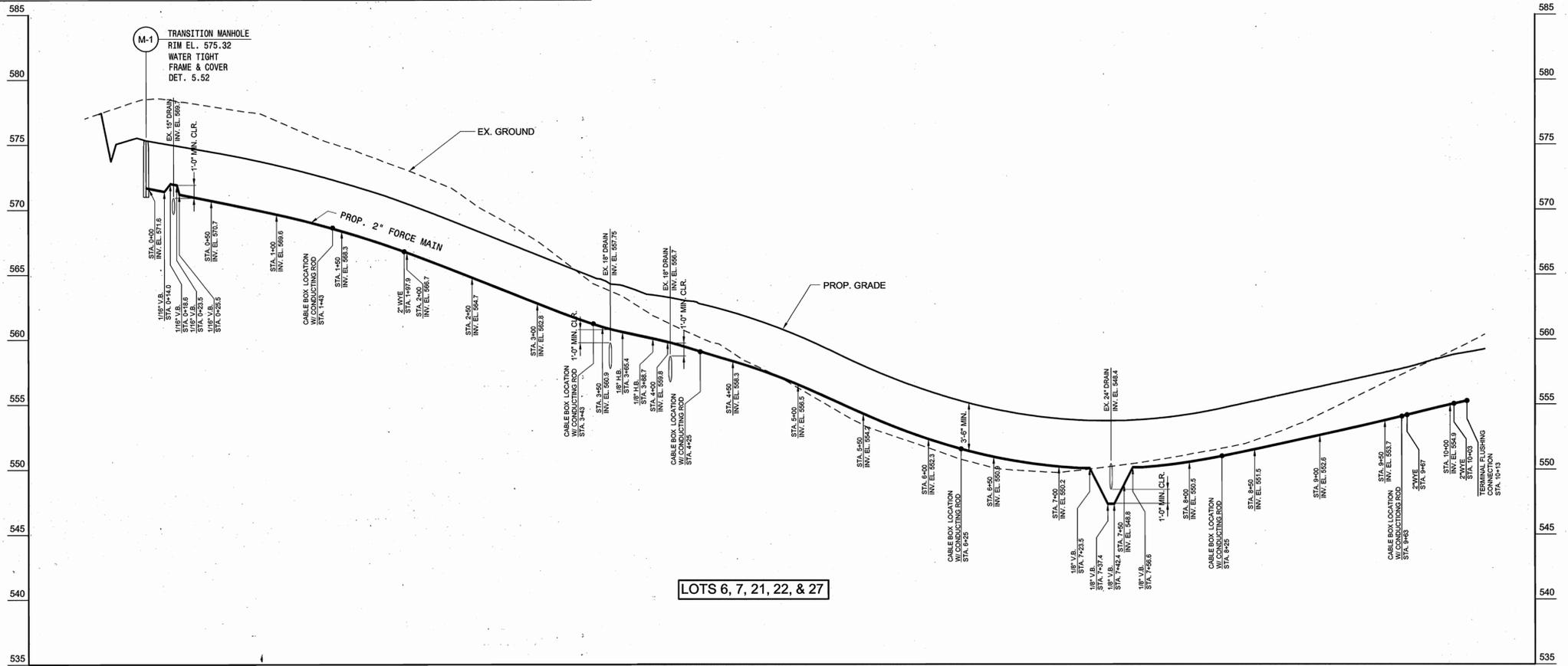
PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VER



PRESSURE SEWER TRENCH, BEDDING & CONDUCTING ROD CABLE BOX LOCATION - DETAIL
NOT TO SCALE



UNION BALL VALVE ASSEMBLY
NOT TO SCALE



PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VER

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 3-15, 17-22, 24, 27, 31, 32.
HOWARD COUNTY HEALTH DEPARTMENT
Robert J. Wain
HOWARD COUNTY HEALTH OFFICER
DATE: 6/2/05

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
Jim Moxley
U.S. NATURAL RESOURCES CONSERVATION SERVICE
DATE: 6/1/05

THIS PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Jim Moxley
HOWARD SOIL CONSERVATION DISTRICT
DATE: 6/1/05

SETBACK CONTROL MEASURES AND EROSION CONTROL CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS PER 66-05-50

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
R. L. B. Jr.
CHIEF, BUREAU OF UTILITIES
DATE: 6-3-05

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
Mr. Cannon
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE:

PREPARED BY:
American Land Development and Engineering, Inc.
10749 BIRMINGHAM WAY WOODSTOCK, MD. 21153
TEL. (410) 465-7903 FAX: (410) 465-3945



DES: DW/AG	DRN: AVG	CHK: DW	DATE: 4-21-05
BY	NO.	REVISIONS	DATE

FORCE MAIN PROFILE AND DETAILS
600' SCALE MAP No. 21
BLOCK No. 12

HOPKINS CHOICE
LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H
SHARED SEWAGE DISPOSAL AND FORCE MAIN
CONTRACT No. : 50-4254-D
4th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE: 1" = 50'
SHEET No. 5 OF 12

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

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

PURPOSE
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 lanes, dunes, cut and fill slopes and other areas of final grade, former stockpiles and staging areas, etc.

EFFECTS OF WATER QUALITY AND QUANTITY
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. Vegetation on sites with disturbed areas will reduce the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment and other chemicals carried by run-off to receiving waters. Plants will also help protect groundwaters supplies by assisting those substances present within the root zone. Sediment control devices must retain in place during grading, seeding preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. Site Preparation

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

B. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratio and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
1. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Name and manufacturer shall be substituted for fertilizer with the appropriate approval authority. Fertilizers shall all be delivered to site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
- 1.1. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Name and manufacturer shall be substituted for fertilizer with the appropriate approval authority. Fertilizers shall all be delivered to site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
- 1.1.1. Lime materials shall be ground 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 it will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve. 1. Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.

C. Seeding Preparation

1. Temporary Seeding a. Seeding preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrow or chisel plow or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope. Apply fertilizer and lime as required on the plan. b. Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.
1. Permanent Seeding

1. Soil shall be required for permanent vegetative establishment:

1. Soil shall be required for permanent vegetative establishment:
- 1.1. Soil shall be required for permanent vegetative establishment:
- 1.1.1. Soil shall be required for permanent vegetative establishment:

2. Seeding

1. 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 seeding such material on this job. Where seed tags shall be made available to the inspector to verify type and rate of seed used.
- 1.1. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria produced specifically for the species. Inoculants shall not be used later than 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 and make the inoculant less effective.

E. Methods of Seeding

1. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cutlapper seeder.
1. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total of soluble nitrogen: P2O5 (phosphorus): 200 lbs/acre; K2O (potassium): 200 lbs/acre.
1. Line - Use only ground agricultural limestone, 10 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.
1. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
- 1.1. Dry Seeding: This includes use of conventional drop or broadcast spreaders. a. Seed spread dry shall be incorporated into the substrate at the rates prescribed on the Temporary or Permanent Seeding Summary or Tables 265 or 28. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact. b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- 1.1.1. Drill or Cutlapper Seeding: Mechanized seeders that apply and cover seed with soil.
- 1.1.2. Cutlapper seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.
- 1.1.3. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seed rate in each direction.

F. Mulch Specifications (In order of preference)

1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall be free of noxious weed seeds as specified in the attached Seed Law.
- 1.1. Wood Cellulose Fiber Mulch (WCFM)

1. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

1. 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.
1. WCFM, including dye, shall contain no germination or growth inhibiting factors. c. WCFM materials shall be manufactured in such a manner as to be applied in water under suspension and will remain in suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall have a water-lime-green color, on application, having moisture absorption and retention properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedings.

1. Erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, berms, waterways, or sediment control basins.

1. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
- 1.1. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratio and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
1. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Name and manufacturer shall be substituted for fertilizer with the appropriate approval authority. Fertilizers shall all be delivered to site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
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- 1.1.1. Lime materials shall be ground 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 it will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve. 1. Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.

C. Seeding Preparation

1. Temporary Seeding a. Seeding preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrow or chisel plow or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope. Apply fertilizer and lime as required on the plan. b. Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.
1. Permanent Seeding

1. Soil shall be required for permanent vegetative establishment:

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2. Seeding

1. 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 seeding such material on this job. Where seed tags shall be made available to the inspector to verify type and rate of seed used.
- 1.1. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria produced specifically for the species. Inoculants shall not be used later than 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 and make the inoculant less effective.

E. Methods of Seeding

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APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS,
LOTS 2, 4, 16, 18, 20, 22, 24, 26, 28, 30, AND 32, AND FOR PRIVATE WATER AND
A SHARED SEWERAGE SYSTEM FOR LOTS 2-10, 17-22, 12 & 27.

HOWARD COUNTY HEALTH DEPARTMENT
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND METRO
TECHNICAL REQUIREMENTS.

U.S. G.A. - NATURAL RESOURCES CONSERVATION SERVICE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

HOWARD COUNTY SOIL CONSERVATION DISTRICT

SEDIMENT CONTROL MEASURES FOR THIS PROJECT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS PER F-05-29.

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

PREPARED BY:
American Land Development and Engineering, Inc.
10749 BIRMINGHAM WAY
FAX: (410) 465-7803

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

REVISIONS

DATE: 6/21/05

CHIEF, BUREAU OF UTILITIES
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

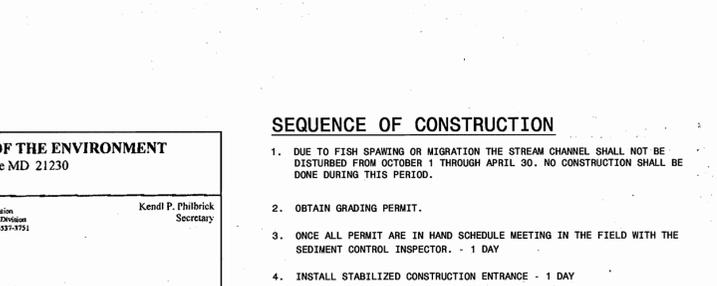
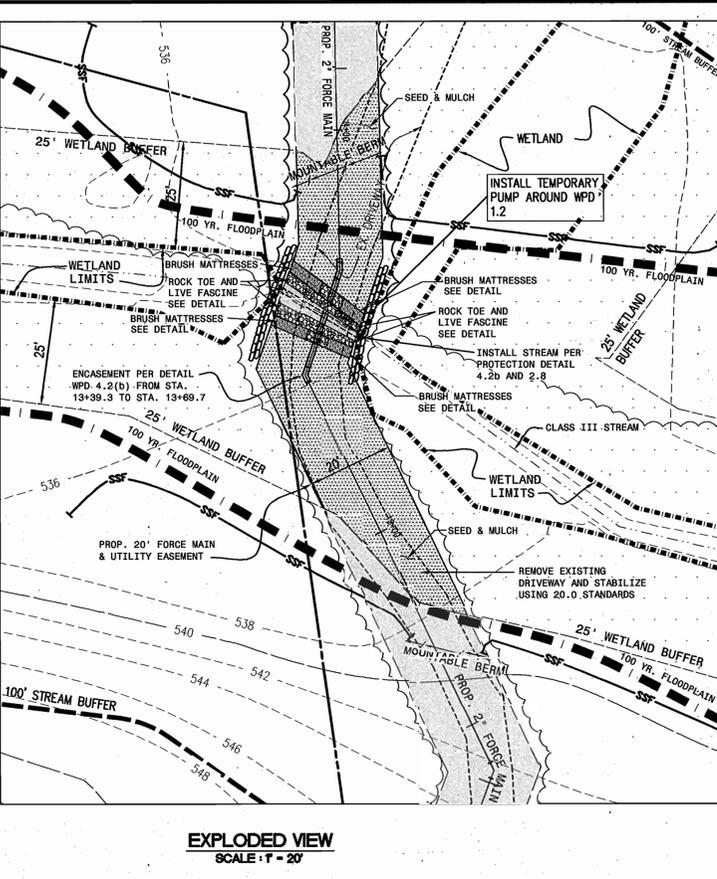
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SEQUENCE OF CONSTRUCTION

1. DUE TO FISH SPAWNING OR MIGRATION THE STREAM CHANNEL SHALL NOT BE DISTURBED FROM OCTOBER 1 THROUGH APRIL 30. NO CONSTRUCTION SHALL BE DONE DURING THIS PERIOD.
2. OBTAIN GRADING PERMIT.
3. ONCE ALL PERMIT ARE IN HAND SCHEDULE MEETING IN THE FIELD WITH THE SEDIMENT CONTROL INSPECTOR. - 1 DAY
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE - 1 DAY
5. INSTALL SILT FENCE AND OTHER EROSION AND SEDIMENT CONTROL MEASURES. - 1 WEEK
6. INSTALL SUPER SILT FENCE PARALLEL TO THE 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 CONCRETE AND STREAM BOTTOM STABILIZED PER OPTION # 1 OF DETAIL MGWC 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
12. REMOVE TEMPORARY PUMP AND PRACTICE. - 1 DAY
13. CONSTRUCT FOREMAIN ENOUGH FOR ONE DAY'S WORK, INCLUDING BACKFILL AND STABILIZING AREA DISTURBED.
14. CONTINUE NO. 13 ABOVE UNTIL TOTAL FORCE MAIN LENGTH IS INSTALLED. - 4 WEEKS
15. CONSTRUCT DRAIN FIELDS AND STABILIZE WITH PERMANENT SEEDING. - 4 WEEKS
16. ONCE SEDIMENT CONTROL INSPECTOR'S SATISFIED THAT THE DISTURBED AREAS HAVE BEEN STABILIZED REMOVE SEDIMENT CONTROL. - 3 DAYS

Dear Mr. Revelle:

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 Wetlands and Waterways Letter of Authorization (LOA) for the proposed activity.

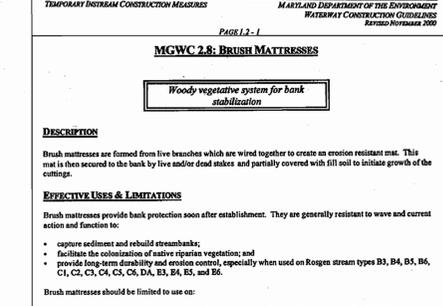
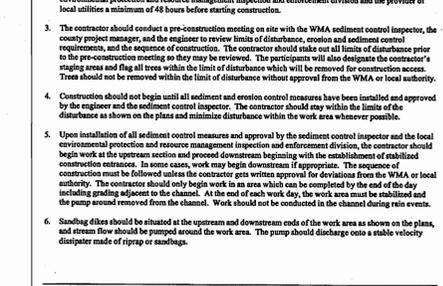
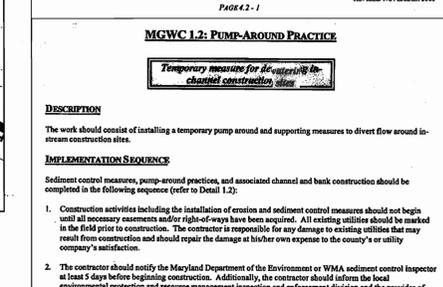
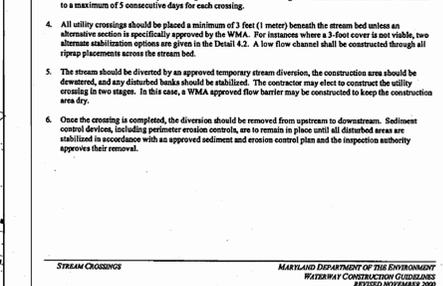
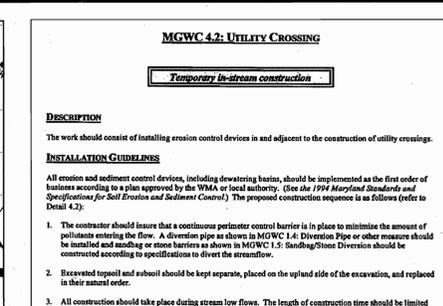
In order to issue the LOA two sets of final signed construction drawings for the project are needed. The plans must include limits of nontidal wetlands, the nontidal wetland buffer, and waters of the State (including the 100-year floodplain), limits of disturbance, "Best Management Practices for Working in Nontidal Wetlands" (attached), a sequence of construction, and approved erosion and sediment control plans.

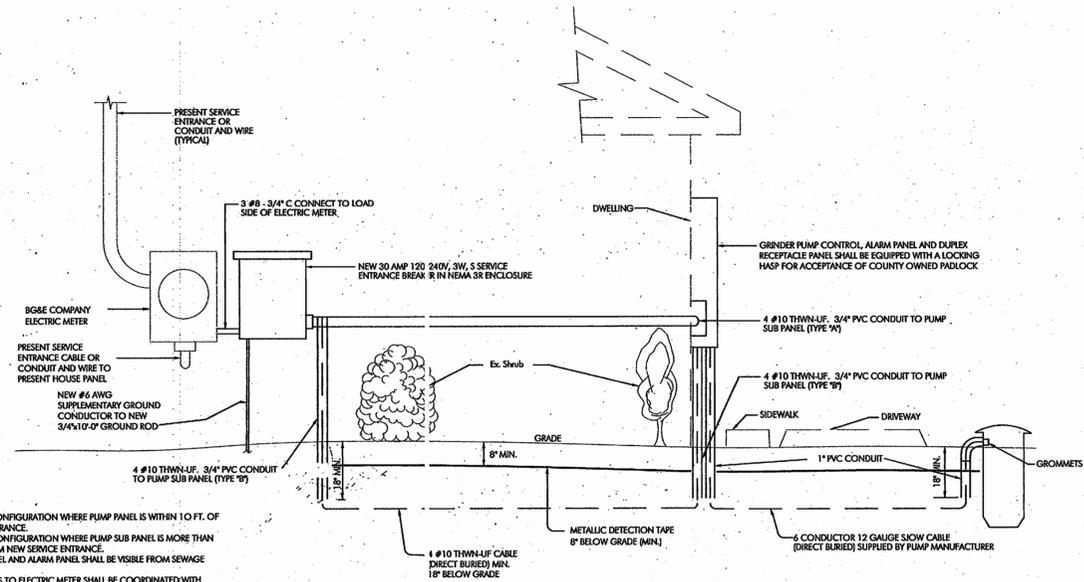
The LOA will be issued following receipt, review, and approval of the information requested. Approved plans will be distributed to the Authorized Person and to the Compliance Program of the WMA.

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

Sincerely,
David B. Boellner, Project Manager
WMA, Nontidal Wetlands and Waterways Division

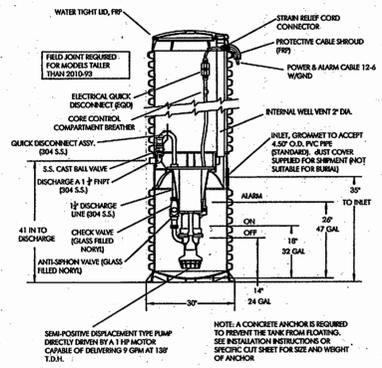
Attachment



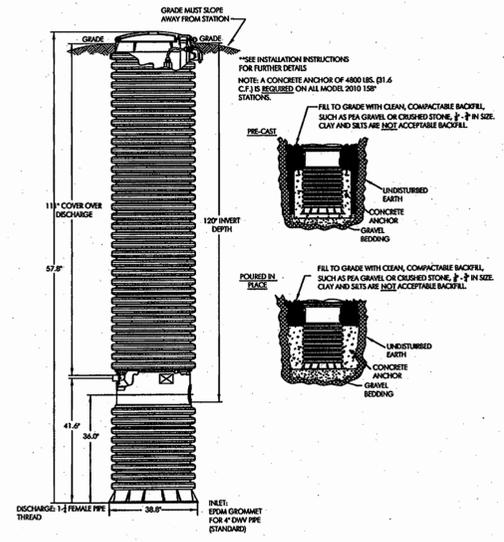


1. USE TYPE 'W' CONFIGURATION WHERE PUMP PANEL IS WITHIN 10 FT. OF NEW SERVICE ENTRANCE.
2. USE TYPE 'P' CONFIGURATION WHERE PUMP SUB PANEL IS MORE THAN 10 FT. AWAY FROM NEW SERVICE ENTRANCE.
3. PUMP SUB PANEL AND ALARM PANEL SHALL BE VISIBLE FROM SEWAGE GRINDER PUMP.
4. CONNECTIONS TO ELECTRIC METER SHALL BE COORDINATED WITH POWER COMPANY.
5. ALL PVC CONDUIT SHALL TERMINATE 18\"/>

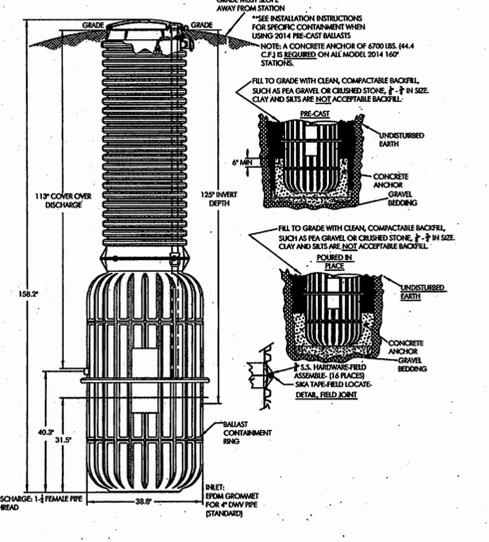
TYPICAL GRINDER PUMP ELECTRIC POWER
NOT TO SCALE



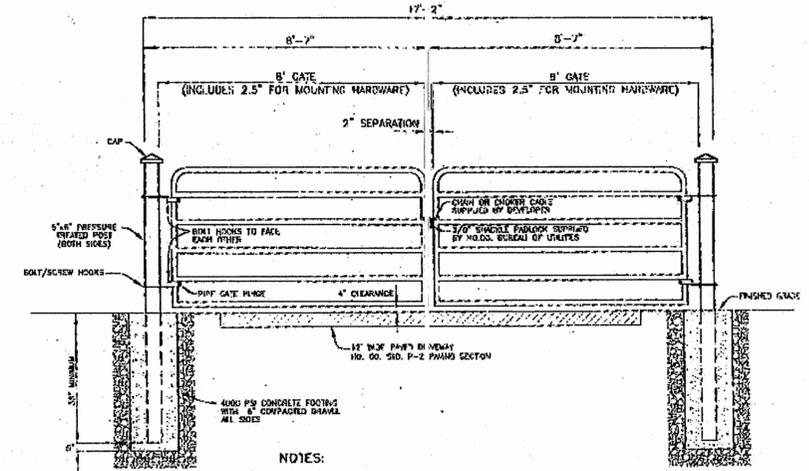
SIMPLEX ENVIRONMENT ONE GRINDER PUMP MODEL 2010-158
NOT TO SCALE



SIMPLEX ENVIRONMENT ONE GRINDER PUMP MODEL 2010-158
NOT TO SCALE

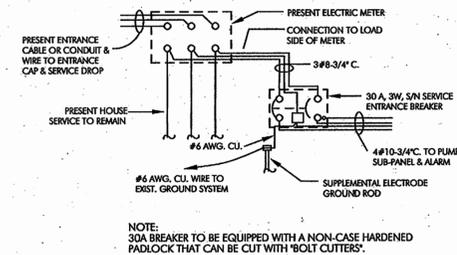


DUPLEX ENVIRONMENT ONE GRINDER PUMP MODEL 2014-160
NOT TO SCALE

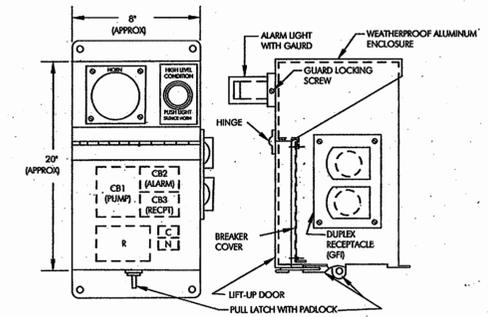


- NOTES:
1. GATES TO BE 2\"/>

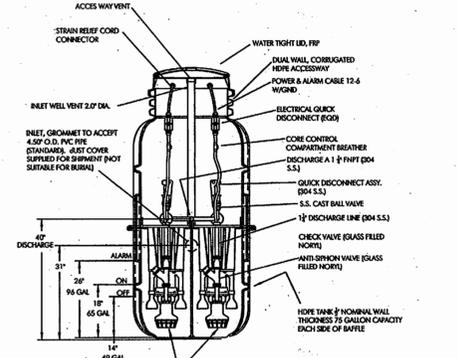
GATE DETAIL
NOT TO SCALE



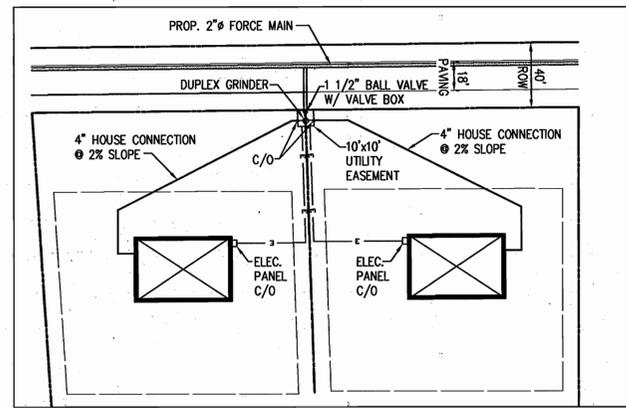
NEW SERVICE ENTRANCE WIRING DIAGRAM
NOT TO SCALE



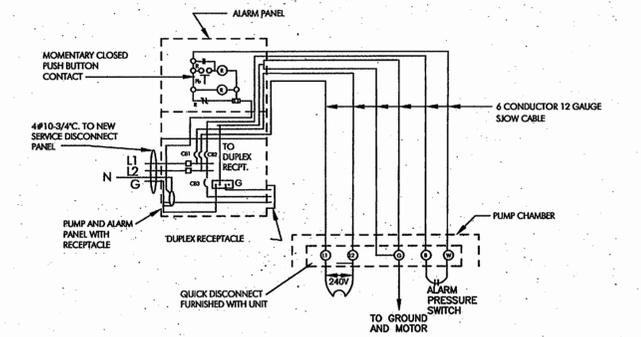
GRINDER PUMP CONTROL & ALARM PANEL
NOT TO SCALE



DUPLEX ENVIRONMENT ONE GRINDER PUMP MODEL 2014-160
NOT TO SCALE



TYPICAL SEWER HOUSE CONNECTION FOR DUPLEX GRINDER
NOT TO SCALE



SEWAGE GRINDER PUMP WIRING DIAGRAM (240v) TYPICAL EACH PUMP UNIT
NOT TO SCALE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS, LOTS 211, 13-16, 23-26, AND 28-32; AND FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM FOR LOTS 3-10, 17-22, 24 & 27. HOWARD COUNTY HEALTH DEPARTMENT

Robert J. Wale 6/21/05
HOWARD COUNTY HEALTH OFFICER DATE

HOWARD SOIL CONSERVATION DISTRICT: REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. - NATURAL RESOURCES CONSERVATION SERVICE DATE

THIS PLAN IS APPROVED FOR SOIL EROSION PREVENTION CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT DATE

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert J. Wale 6-7-05
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

Carl J. ... 6/22/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

PREPARED BY:
American Land Development 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

NO.	REVISIONS	DATE

600' SCALE MAP No. 21
BLOCK No. 12

HOPKINS CHOICE
LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H
SHARED SEWAGE DISPOSAL AND FORCE MAIN
CONTRACT No. : 50-4254-D
4th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE : AS SHOWN
SHEET No. 7 OF 12

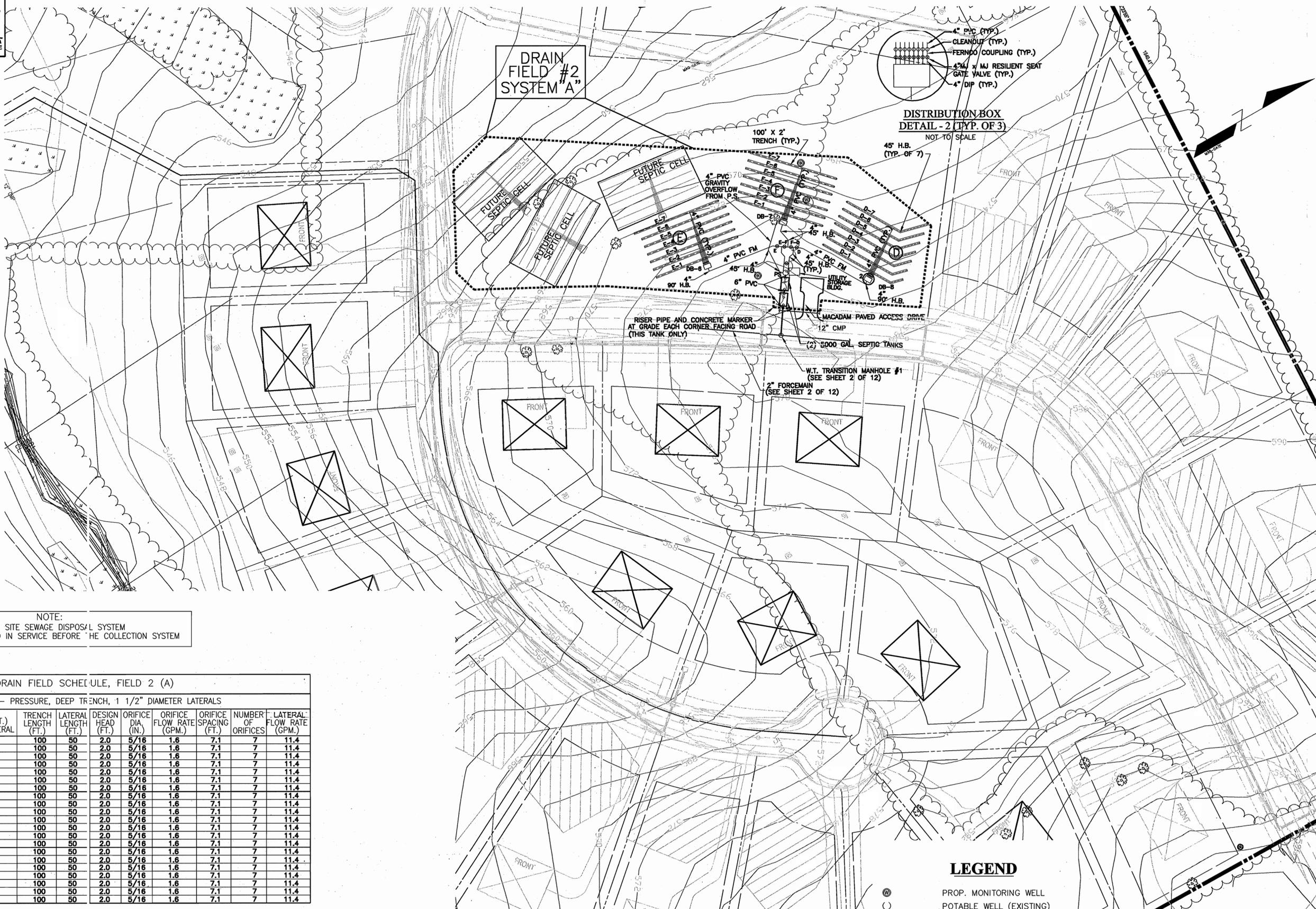
DETAILS

I:\SUBDIVISION-PROJECTS\HOPKINS CHOICE-FINAL\FORCEMAIN\FORCEMAIN_1_2.dwg, FORCEMAIN 7, 4/21/2005 2:25:45 PM, gdc

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 J. Walker
for HOWARD COUNTY HEALTH OFFICER

6/21/05
DATE



DRAIN FIELD SCHEDULE, FIELD 2 (A)

TRENCH LAYOUT- PRESSURE, DEEP TRENCH, 1 1/2" DIAMETER LATERALS										
TRENCH NO.	LATERAL INV.	STONE DEPTH (FT.) BELOW LATERAL	TRENCH LENGTH (FT.)	LATERAL LENGTH (FT.)	DESIGN HEAD (FT.)	ORIFICE DIA. (IN.)	ORIFICE FLOW RATE (GPM.)	ORIFICE SPACING (FT.)	NUMBER OF ORIFICES	LATERAL FLOW RATE (GPM.)
D-1	568.4	4	100	50	2.0	5/16	1.6	7.1	7	11.4
D-2	568.4	4	100	50	2.0	5/16	1.6	7.1	7	11.4
D-3	568.0	4	100	50	2.0	5/16	1.6	7.1	7	11.4
D-4	568.0	4	100	50	2.0	5/16	1.6	7.1	7	11.4
D-5	568.0	4	100	50	2.0	5/16	1.6	7.1	7	11.4
D-6	567.5	4	100	50	2.0	5/16	1.6	7.1	7	11.4
D-7	567.0	4	100	50	2.0	5/16	1.6	7.1	7	11.4
E-1	570.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
E-2	570.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
E-3	570.0	5	100	50	2.0	5/16	1.6	7.1	7	11.4
E-4	569.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
E-5	569.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
E-6	569.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
E-7	569.0	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-1	568.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-2	568.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-3	568.0	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-4	567.5	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-5	567.0	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-6	566.3	5	100	50	2.0	5/16	1.6	7.1	7	11.4
F-7	565.7	5	100	50	2.0	5/16	1.6	7.1	7	11.4

NOTE:
FOR SEPTIC TANK, DISTRIBUTION BOX AND TRENCH DETAILS SEE SHEET 10 OF 12.

PLAN
SCALE: 1"=50'

Mar 31, 2005 - 10:44am User: kanta M:\2004\01042370\Drawings\FEB 05-NEW\3-PLAN.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert J. Walker
6-3-05
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

John J. ...
6/21/05
DATE

KCI
TECHNOLOGIES

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

10 Normi Park Drive
Hunt Valley, MD 21080
Phone: (410) 316-7800
Fax: (410) 316-7817
www.kci.com

STATE OF MARYLAND
PROFESSIONAL ENGINEER

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

PLAN

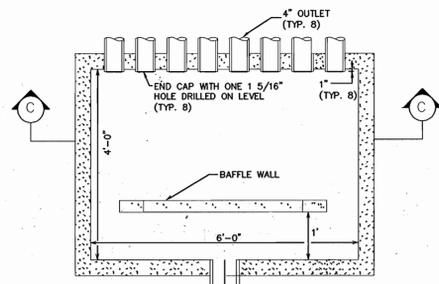
600' SCALE MAP No. 21
BLOCK No. 12

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

CONTRACT No.:
4th ELECTION DISTRICT
HOWARD COUNTY, MD.

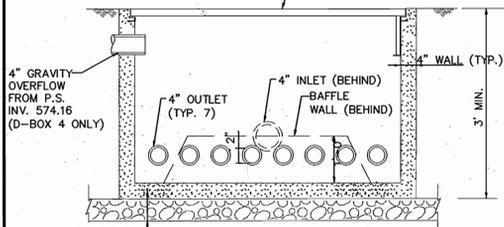
SCALE:
AS SHOWN

SHEET No.
9 OF 12



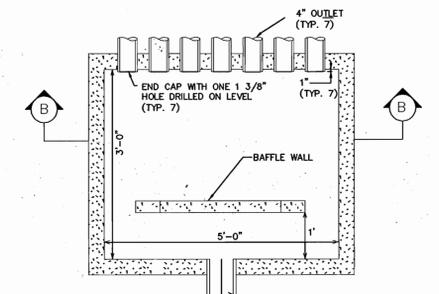
PROPOSED 6'-0"x4'-0" DISTRIBUTION BOX (D2,D3,D4)

PLAN VIEW
NOT TO SCALE



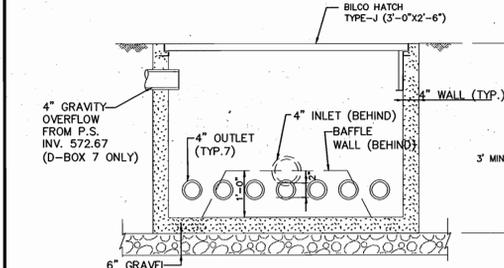
PROPOSED 6'-0"x4'-0" DISTRIBUTION BOX (D2,D3,D4)

SECTION "C-C"
NOT TO SCALE



PROPOSED 5'-0"x3'-0" DISTRIBUTION BOX (D6,D7,D8)

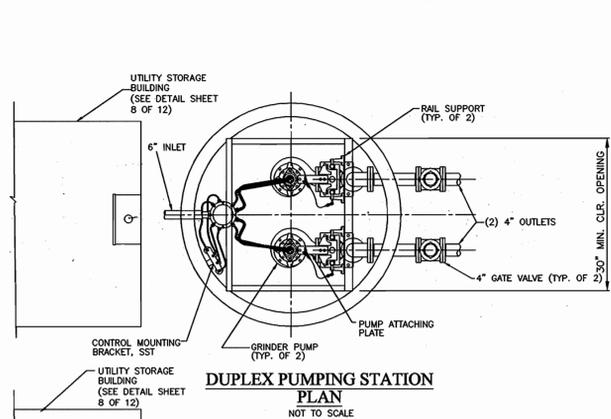
PLAN VIEW
NOT TO SCALE



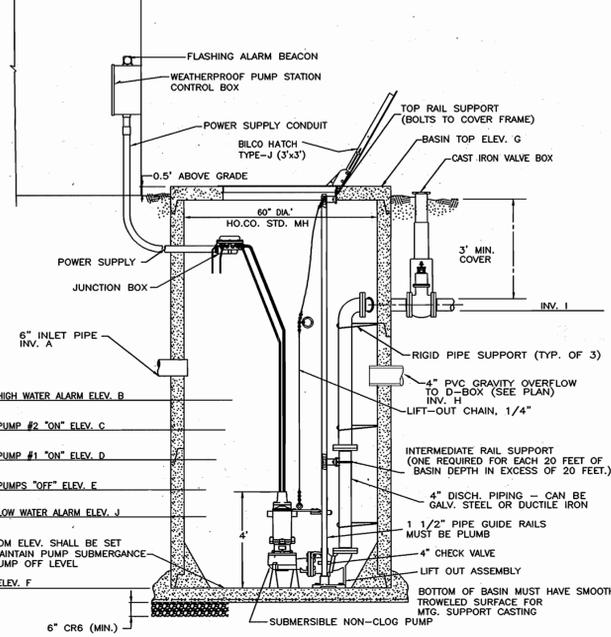
PROPOSED 5'-0"x3'-0" DISTRIBUTION BOX (D6,D7,D8)

SECTION "B-B"
NOT TO SCALE

D-BOX	TOP ELEV.	BOTTOM ELEV.	4" INLET INV.	OUTLET INV.
1	NOT USED	NOT USED	NOT USED	NOT USED
2	579.0	576.6	576.67	576.5
3	577.5	574.5	575.16	575.0
4	575.5	572.5	573.16	573.0
5	NOT USED	NOT USED	NOT USED	NOT USED
6	575.0	572.0	572.67	572.5
7	574.0	571.0	571.67	571.5
8	574.5	571.5	570.67	570.5

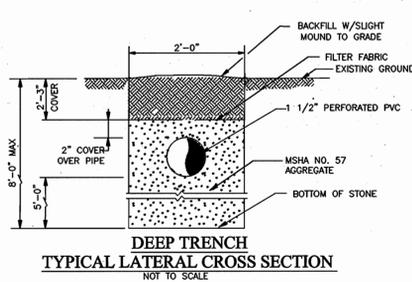


DUPLEX PUMPING STATION
PLAN
NOT TO SCALE

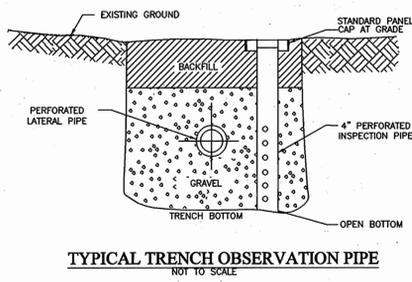


DUPLEX PUMPING STATION
SECTION
NOT TO SCALE

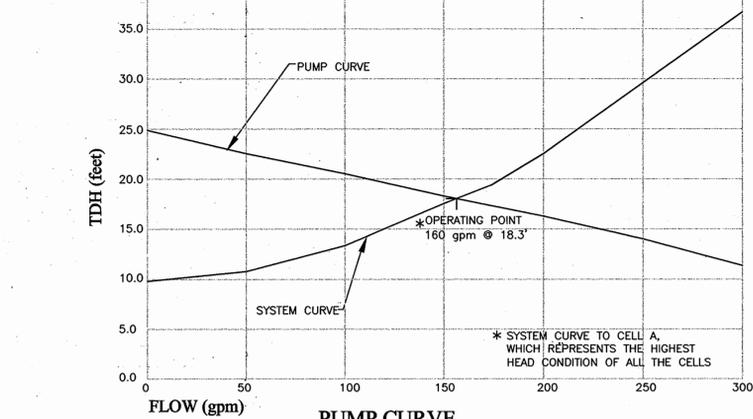
ELEVATION	DRAIN FIELD 1 PS	DRAIN FIELD 2 PS
A	575.2	572.7
B	574.7	572.2
C	574.2	571.7
D	573.7	571.2
E	567.1	564.6
F	563.1	560.6
G	581.5	576.5
H	574.8	572.3
I	577.5	572.5
J	566.8	564.1



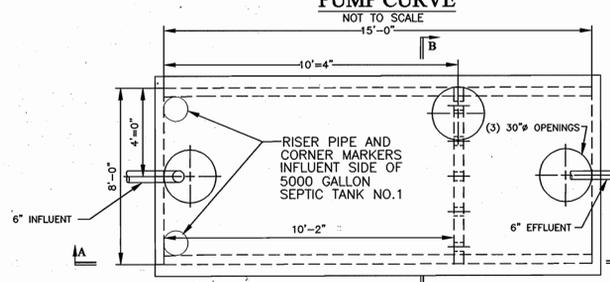
TYPICAL LATERAL CROSS SECTION
NOT TO SCALE



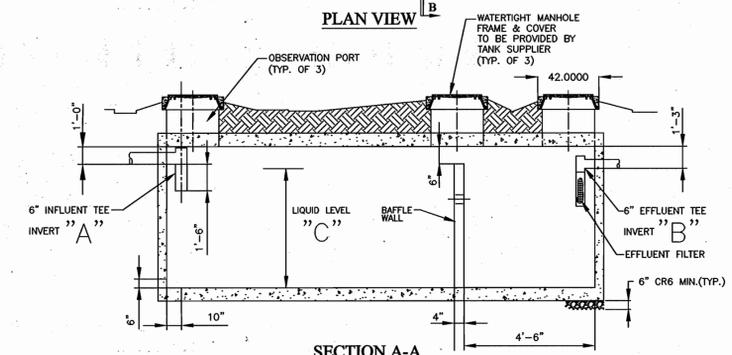
TYPICAL TRENCH OBSERVATION PIPE
NOT TO SCALE



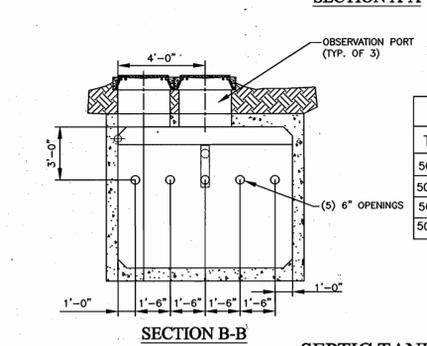
PUMP CURVE
NOT TO SCALE



PLAN VIEW
NOT TO SCALE



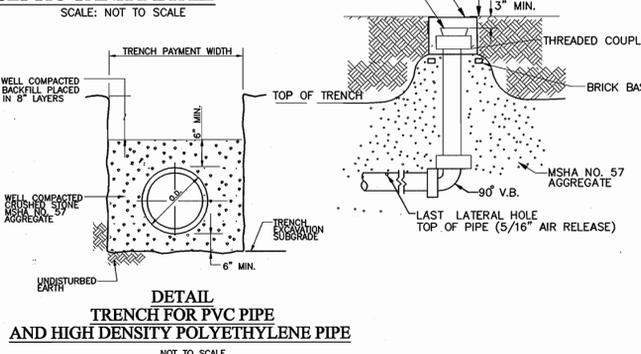
SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

TANK SIZE	"A"	"B"	"C"
5000 gal No.1	573.26	573.01	6'
5000 gal No.2	573.0	572.75	6'
5000 gal No.3	575.75	575.50	6'
5000 gal No.4	575.47	575.22	6'

SEPTIC TANK DETAIL
SCALE: NOT TO SCALE



DETAIL
TRENCH FOR PVC PIPE
AND HIGH DENSITY POLYETHYLENE PIPE
NOT TO SCALE

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 gal/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. Effluent filter shall be installed within the Septic Tank Effluent Tee.

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.

Trench Design

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:
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 Orange 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 punched, 6oz. per square yard minimum placed within trench as shown on the details. Trench gravel shall meet the requirements of SHA # 57 stone placed within trench as shown on the details.

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 A, B, C 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 Giolfetty 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.
c. Septic Tank installation and pump startup by Pump Manufacturer.
d. Pump Station installation and pump startup by Pump Manufacturer.
e. 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'
Total Dynamic Head =
Static Head loss.....8.9'
Friction Head.....8.4'
Induced Head in D Box.....1.0'
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 HO.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.

Note

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 Brick style storage building, 8'x12' Vinyl sided with 6" 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 1, 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 J. Weber
HOWARD COUNTY HEALTH OFFICER
6/21/05
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
Robert J. Weber 6-3-05
CHIEF, BUREAU OF UTILITIES
DATE
Robert J. Weber
CHIEF, DEVELOPMENT ENGINEERING DIVISION
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ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
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10 Norm Park Drive
Horn Valley, MD 21050
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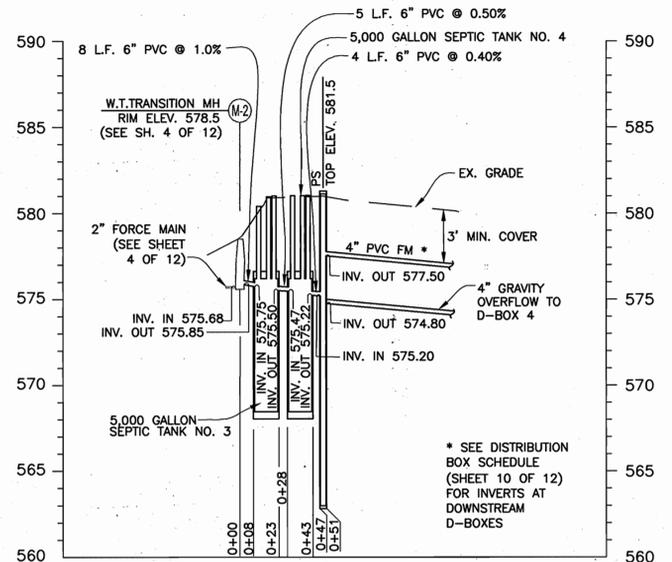


DES.: KAK
DRN.: CK
CHK.: TWW
DATE: Mar 31, 2005
BY NO. REVISIONS DATE

SEPTIC TANK,
DISTRIBUTION BOX
AND TRENCH
DETAILS AND NOTES

600' SCALE MAP No. 21 BLOCK No. 12

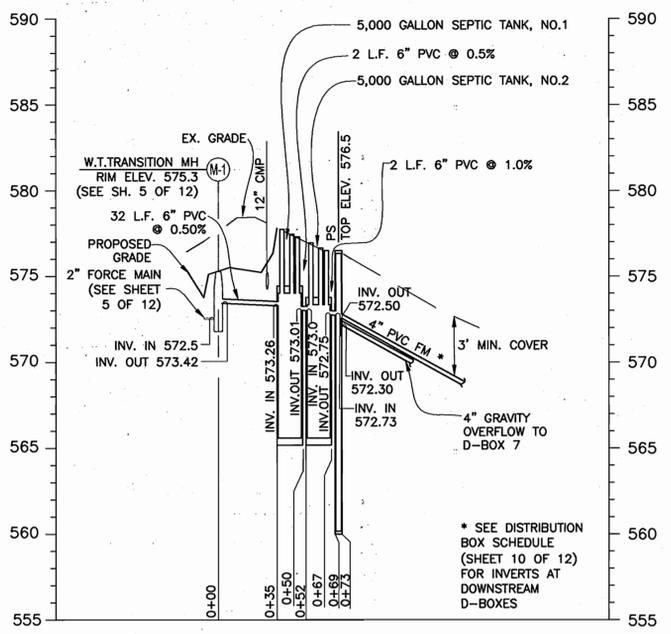
HOPKINS CHOICE
LOTS 1 THRU 31 & PRESERVATION PARCELS A THRU B
SHARED SEWERAGE
DISPOSAL SYSTEM
CONTRACT No.:
4th ELECTION DISTRICT HOWARD COUNTY, MD.
SCALE:
AS SHOWN
SHEET No.
10 OF 12



PROFILE: MANHOLE M-2 TO PS

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

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,
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HOWARD COUNTY HEALTH DEPARTMENT

Robert W. Jahn 6/21/05
HOWARD COUNTY HEALTH OFFICER DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

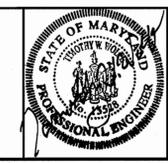
R. B. ... 6-3-05
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

... .. 6/21/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

KCI
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PROFILES

600' SCALE MAP No. 21 BLOCK No. 12

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

CONTRACT No.:
4th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE:
AS SHOWN

SHEET No.
11 OF 12

STANDARD SEDIMENT CONTROL NOTES

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permit, Sediment Control Division prior to the start of any construction (913-1855).
- 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 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- 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 for all other disturbed or graded areas on the project site.
- All sediment traps/basins shall be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12 of the Howard County Design Manual, Storm Drainage.
- 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 grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis :

Total Area of Site	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	4,000	Cu. Yds.
Total Fill	4,600	Cu. Yds.
Offsite waste/borrow area location :	0.8
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested 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.
- 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 vegetative cover is needed.
- Seeded 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 recommendations, use one of the following schedules :
- Preferred -- Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Narrow or disk into 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 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Narrow or disk into upper three inches of soil.
- Seeding --** For the periods March 1 - April 30, and August 1 - October 15, seed with 60 lbs/acre (1.4 lbs/sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 - July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/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 in the spring.
 - Option 2 -- Use sod. Option 3 -- Seed 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 216 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 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 reseedsings.

TEMPORARY SEEDING NOTES

- Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.
- Seeded Preparation:** Loosen upper three inches of soil by raking, disking 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 (.07 lbs/1000 sq. ft.). For the period November 16 - February 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 unrouted weed free, small grain straw immediately after seeding; anchor mulch immediately after application using mulch anchoring tool or 216 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.
- PURPOSE**
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.
- CONDITIONS WHERE PRACTICE APPLIES**
- This practice is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - 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.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible. If, 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.

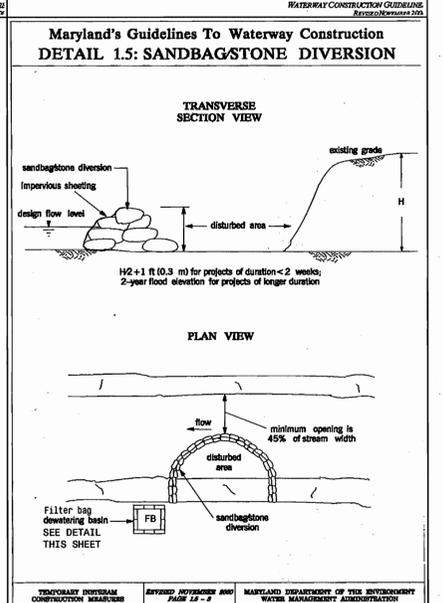
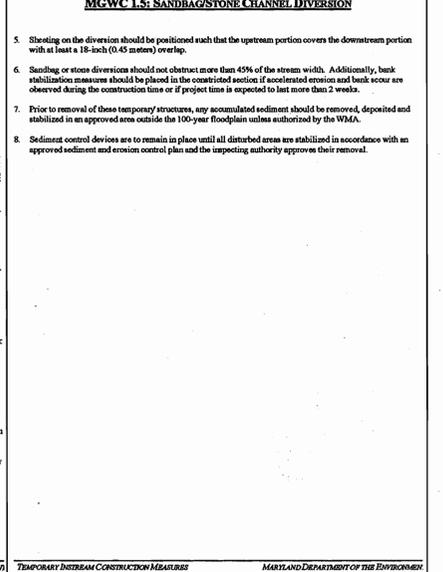
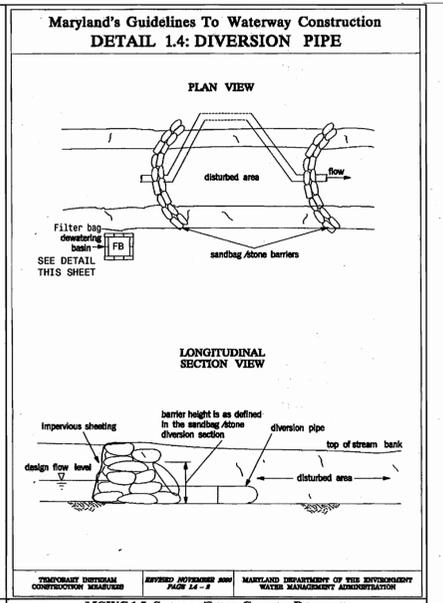
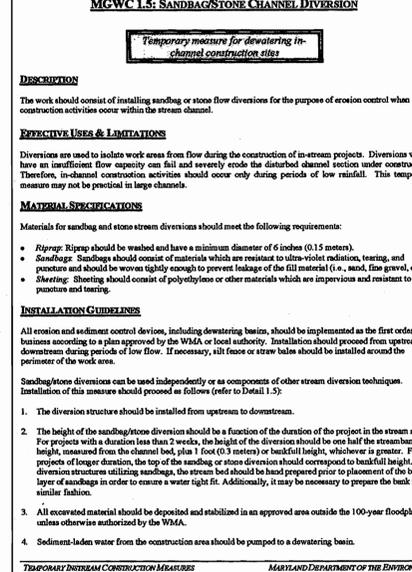
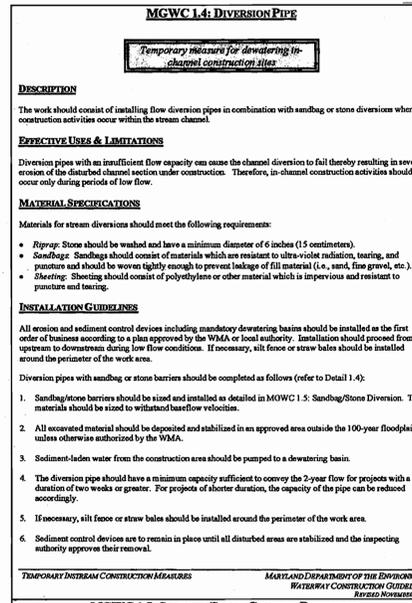
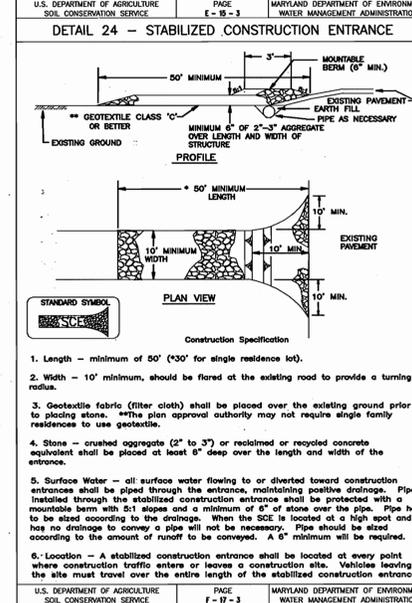
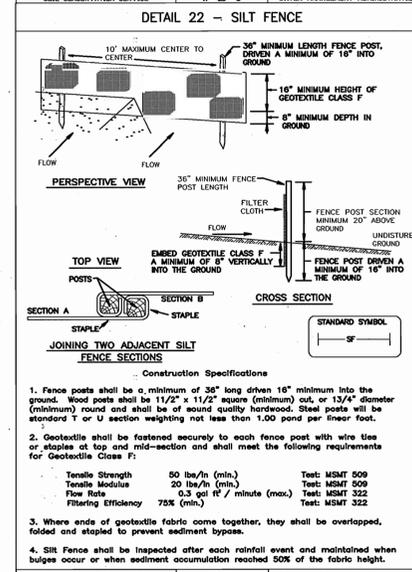
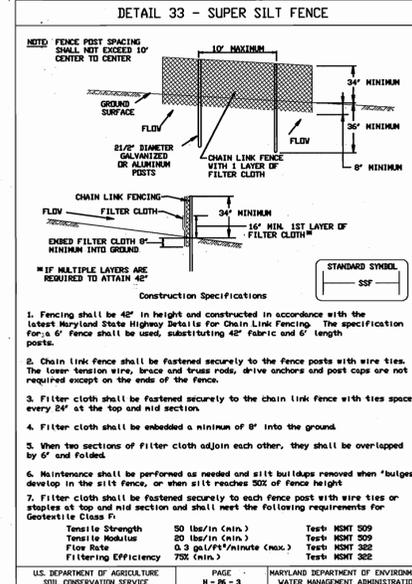
- CONSTRUCTION AND MATERIAL SPECIFICATIONS**
- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCA in cooperation with Maryland Agricultural Experimental Station.
 - Topsoil Specifications -- Soil to be used as topsoil must meet the following:
 - 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 than the 1 1/2" in diameter.
 - 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.
 - 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.

- For sites having disturbed areas under 5 acres:
 - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- 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:
 - 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.
 - Organic content of topsoil shall be not less than 1.5 percent by weight.
 - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
- 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 phytotoxic 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**
- When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
 - Grades on the areas to be top soiled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation.
 - 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
 - Topsoil shall not be placed while 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.

- 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:
- 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:
 - 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.
 - 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 use.
 - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/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.



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/ 17-22, 24 & 27. HOWARD COUNTY HEALTH DEPARTMENT

Robert J. Weln 6/21/05
HOWARD COUNTY HEALTH OFFICER

HOWARD SOIL CONSERVATION DISTRICT: REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

Jim M. ... 6/11/05
U.S.D.A. - NATURAL RESOURCES CONSERVATION SERVICE

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

John K. ... 6/11/05
HOWARD COUNTY SOIL CONSERVATION DISTRICT

SEEDING 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 F-05-29.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Ruth B... 6-7-05
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

...
CHIEF, DEVELOPMENT ENGINEERING DIVISION

PREPARED BY :

American Land Development 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	
BY NO.	
REVISIONS	
DATE	

600' SCALE MAP No. 21

BLOCK No. 12

SEDIMENT CONTROL NOTES AND DETAILS

HOPKINS CHOICE
LOTS 2 THRU 32 & PRESERVATION PARCELS A THRU H
SHARED SEWAGE DISPOSAL AND FORCE MAIN
CONTRACT No. : 50-4254-D
4th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE : AS SHOWN

SHEET No. 12 OF 12

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