LAYOUT 11/22/04-11 INSP 4 12/23/04 - PM

INSP 2 _____ INSP 5 _____

INSP 3 _____ INSP 6 _____

ISSUE DATE: 11/12/04

PERMIT

P 521574

APPROVAL DATE: 2/25/05

A 514944

SANDMOUND SYSTEM
ON-SITE SEWAGE DISPOSAL SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH

Cumberland Development Corp. IS PERMITTED TO INSTALL ☒ ALTER ☐

ADDRESS: 16391 A E Mullinix Road PHONE NUMBER: 301-854-6838

SUBDIVISION: Twin Pines Parcel A

ADDRESS: 3142 Stiles Way PROPERTY OWNER: Cliff & Betty Harrison

SEPTIC TANK CAPACITY (GALLONS): 1250 OUTLET BAFFLE FILTER REQUIRED ☐

PUMP CHAMBER CAPACITY (GALLONS): 1250 COMPARTMENTED TANK REQUIRED ☐

NUMBER OF BEDROOMS: 4

LOCATION:	Sandmound Area #1-Prior to starting work ,review notes on design with inspecting sanitarian during pre-construction inspection. DO NOT begin if soils are wet or frozen, temperature must be above 32 degrees. Mound width = 29' , length = 122'
NOTES:	See mound layout pages attached for lateral layouts.

PLANS APPROVED: Kacie Noonan DATE: 11/8/04

NOTES: PERMIT VOID AFTER 2 YEARS
CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS
WATERTIGHT SEPTIC TANKS REQUIRED
ALL PARTS OF SEPTIC SYSTEM SHALL BE 100 FEET FROM ANY WATER WELL UNLESS SPECIFICALLY AUTHORIZED
MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS UNLESS SPECIFICALLY AUTHORIZED
CONTRACTOR RESPONSIBLE FOR COMPLIANCE WITH APPLICABLE REGULATIONS, GUIDELINES AND THE TERMS OF THIS PERMIT

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM
PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT
ALL 410-313-2640 FOR INSPECTION OF SEPTIC SYSTEM

Curtis Cumberland
301-252-1122

SAND MOUND

P521574

SEPTIC SPECIFICATIONS WORK-SHEET

SUBDIVISION: Kings Grant A 514944

STREET NAME: 3142 Styles Way LOT NUMBER: Parcel A

AVERAGE PERCOLATION RATE: ____ SQUARE FEET PER BEDROOM: ____

NUMBER OF BEDROOMS: 4 LINEAR FEET OF TRENCH PER BEDROOM: ____

TOTAL LINEAR FEET OF TRENCH: ____ SEPTIC TANK CAPACITY: ____

TOP SEAMED TANK REQUIRED? (YES) NO

COMPARTMENTED TANK REQUIRED? (YES) (NO)

TRENCH DIMENSIONS: Trench to be ____ feet wide. Inlet ____ feet below original grade. Bottom maximum depth ____ feet below original grade. Effective area begins at ____ feet below original grade. ____ feet of stone below distribution pipe.

==========

PUMPED SYSTEM PROPOSED: (YES) NO

PUMPED SEPTIC SYSTEM DETAIL: 1250 gallon pump chamber.

(YES) NO Top seamed pump chamber required?

Note 1: Septic pump detail to be provided by installer prior to issuance of septic permit.

Note 2: Pump performance test is necessary prior to Health Department approval of pumped septic system.

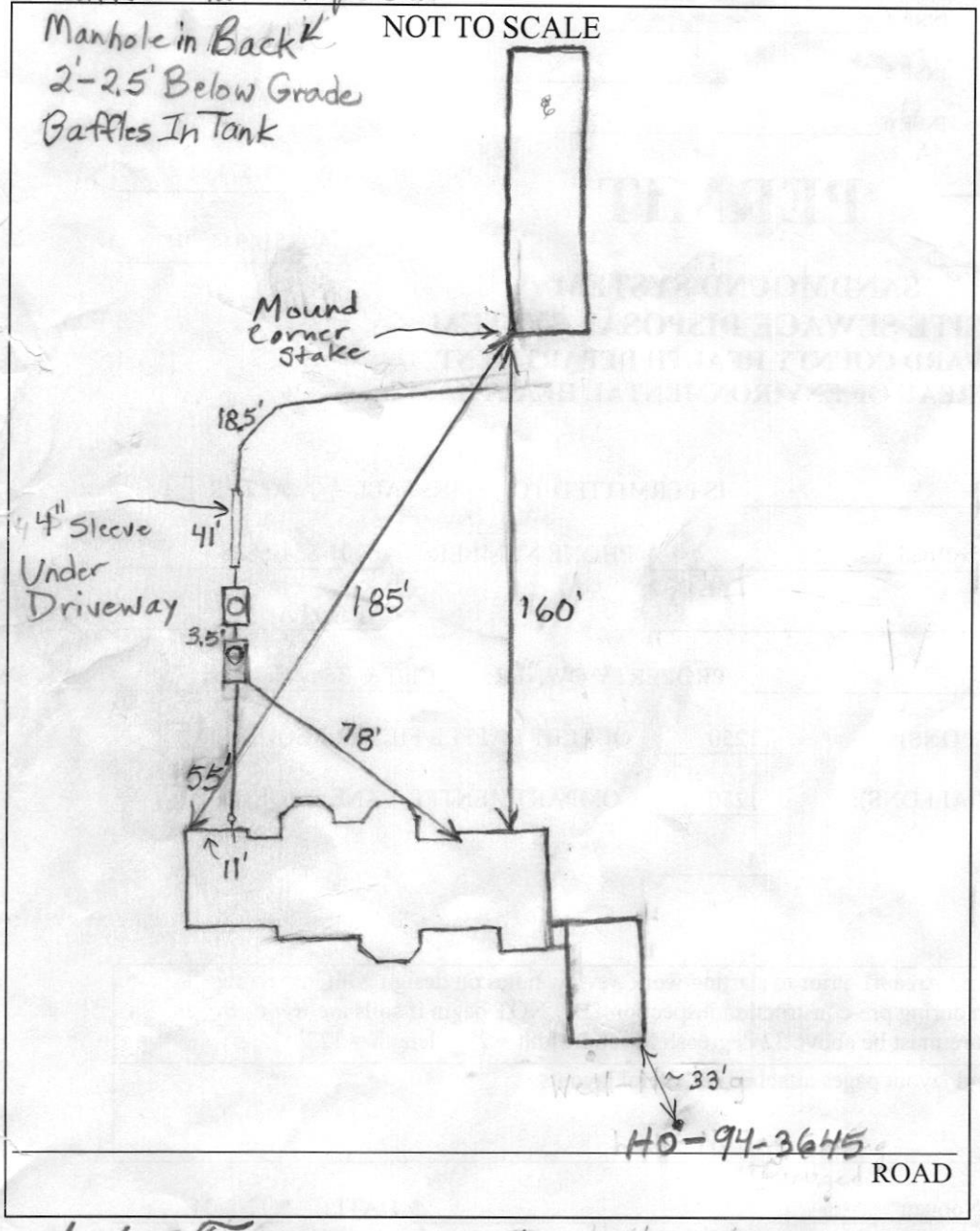
==========

LOCATION: SAND MOUND AREA #1. Prior to starting work, review NOTES ON DESIGN W/ SANITARIAN DURING PRE-CONSTRUCTION. DO NOT BEGIN IF SOILS ARE WET OR FROZEN!!! MOUND WIDTH = 29', LENGTH = 122'

ADDITIONAL NOTES: SEE MOUND LAYOUT PAGES ATTACHED For lateral layouts, pump sizes, etc.

Reviewer: KN Date: 11-8-04

Tank 1 - 1250 Top Seam



DOSING CHAMBER

Tank Level ✓
Capacity 1250 Gal
Seam Location Top
Tank Lid Depth 1.5'-2.5'
Manhole Location Middle
Water Tight Test No
Baffle in Front

FLOAT SETTINGS

Low Off 1 _____
Low On 2 _____
High On 3 _____
Alarm 4 _____
Dose Volume _____

SAND MOUND I

Bed Length _____
Bed Width _____
Bed Area _____ sq ft
Mound Length _____
Mound Width _____
Mound Area _____
Basal Area _____ sq ft

SAND MOUND II

Bed Length _____
Bed Width _____
Bed Area _____ sq ft
Mound Length _____
Mound Width _____
Mound Area _____
Basal Area _____ sq ft

2/23/05 Turn-up extended and hole plugged. (BB)

PRE-CONSTRUCTION 11/22/04 - SRA stake. Individual sand mound needs to be staked. OK to set Tanks & run pressure line (SC)

INSTALLATION 11/29/04 Tanks set. Recommended installing an effluent filter. This will require moving the manhole to the rear of the first tank. Barry is checking on whether sand from S.W. Barrick can be used. Sand from Sloan should be O.K. (BB)
12/6/04 - Sand installed, gravel bed dug out, OK to cont. (SC)
12/3/04 S.W. Barrick sand meets specs. (BB) 12/13/04 - Gravel set in bed laterals installed OK to cont. (SC) 12/15/04 Installing

FINAL INSPECTOR B. Baker DATE OF APPROVAL 2/25/05

Clay cap. Mound fabric looks unusual. Stuart approved? (BB)
Alarm O.K. - hole in pipe at 2 feet on pump. Needs sealed. (PAY 2/16/05

HARRISON PROPERTY

Sand Mound Construction Details and Specifications

Prepared For:

Cumberland Development Corp.
16391 A.E. Mullinix Road
Woodbine, Maryland 21797
301.854.6325

Prepared By:

FSH Associates
8318 Forrest Street
Ellicott City, Maryland 21043
File No. 3123

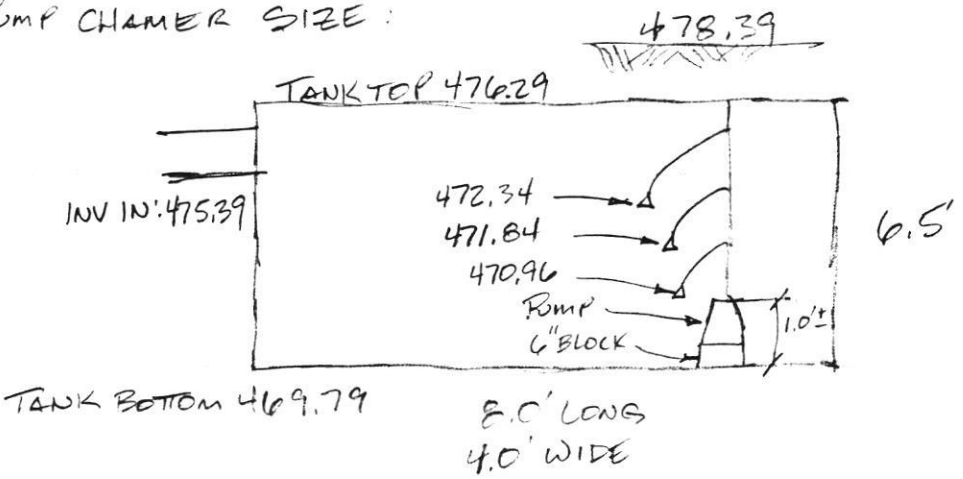
October 22, 2004

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street
ELLICOTT CITY, MD 21043
(410) 750-2251 Fax (410) 750-7350

JOB HARRISON RESIDENCE
SHEET NO. 2 OF 3
CALCULATED BY F. SILL DATE 10.08.04
CHECKED BY _____ DATE _____
SCALE NO SCALE

INV @ MOUND 478.63

PIPE RUN + MANIFOLD : 226'; V = 86.78 GAL @ 3" diameter PVC
MINOR LOSSES : 7 BENDS @ 6' = 42' + 1 DISCONNECT UNION @ 3' = 45'
LATERAL LENGTH : 196'; V = 20.77 GAL (1-1/2" SCH 40 PIPE)
DOSE AMOUNT : 86.78 + 20.77 + (5 x 20.77) = 211 GALLONS
1/6 DESIGN FLOW = 750 x 1/6 = 125 GAL
∴ USE 211 GAL
PUMP CHAMBER CAPACITY : 750 + 211 = 961 GAL
PUMP CHAMER SIZE :



PUMP OFF 470.96
PUMP ON 471.84
HIGH WATER ALARM 472.34

- STORAGE BETWEEN INVERT IN OF PUMP TANK AND HIGH WATER ALARM = 730 GALLONS
80 ADDITIONAL GALLONS OF STORAGE AVAILABLE WITHIN SEPTIC TANK FOR A TOTAL STORAGE OF 810 GALLONS

FSH Associates
Engineers Planners Surveyors
8318 Forrest Street
ELLICOTT CITY, MD 21043
(410) 750-2251 Fax (410) 750-7350

JOB HARRISON RESIDENCE
SHEET NO. 3 OF 3
CALCULATED BY P. SILL DATE 10.11.04
CHECKED BY _____ DATE _____
SCALE NO SCALE

- FLOW FOR 5/16" PERFORATIONS IS 1.63 GPM
  4 LATERALS x 14 PERFORATIONS EACH = 56
  56 x 1.63 GPM = 91.28 GPM
- STATIC HEAD = 478.83 - 470.96 = 7.87'
- FRICTION HEAD = 226' + 45' = 271'
- FRICTION LOSS = 1.78 x 2.71 = 4.82
- TOTAL DYNAMIC HEAD = 7.87' + 4.82' + 2.0' (DISTAL END) = 14.69'

Pump to deliver 91.28 gpm

TWIN PINES
PRES. PARCEL
11% SLOPE
2 LONG SAND
MOUNDS

TABLE 3.1

EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS

Absorption bed ft.² (A × B) = $\frac{\text{Design flow } 750\text{GPD}}{1.2 \text{ gpd/ft.}^2}$ = 625 ft.²

Bed length (B) = 100 ft. (21 ft. to 101 ft. dependent on site)

Bed width (A) = $\frac{\text{Bed } 625 \text{ ft.}^2}{\text{B } 100 \text{ ft.}}$ = 6.25 ft. (15 ft. or less)

Upslope sand fill depth (D) = 48 in. − 2 in. = 12 in. (12 in. min.)

Downslope sand fill depth (E) = [12 A × % slope] + D in. = 20.3 in.

Cap + topsoil at bed center (H) = 18 in.

Cap + topsoil at bed edge (G) = 12 in.

Total Bed Depth (F) = 10 in.

Sideslope setback (K) = $[\frac{(D + E)}{2} + 28 \text{ in.}] \times 3$ = 132.5 in.

Upslope setback (J) = (22 in. + D) × 3 × upslope corr. factor (.73) = 74.5 in.

Downslope setback (I) = (22 in. + E) × 3 × downslope corr. factor (1.57) = 199.2 in.

Total Width of Mound (W) = 12A + J + I = 348.7 in. 29'

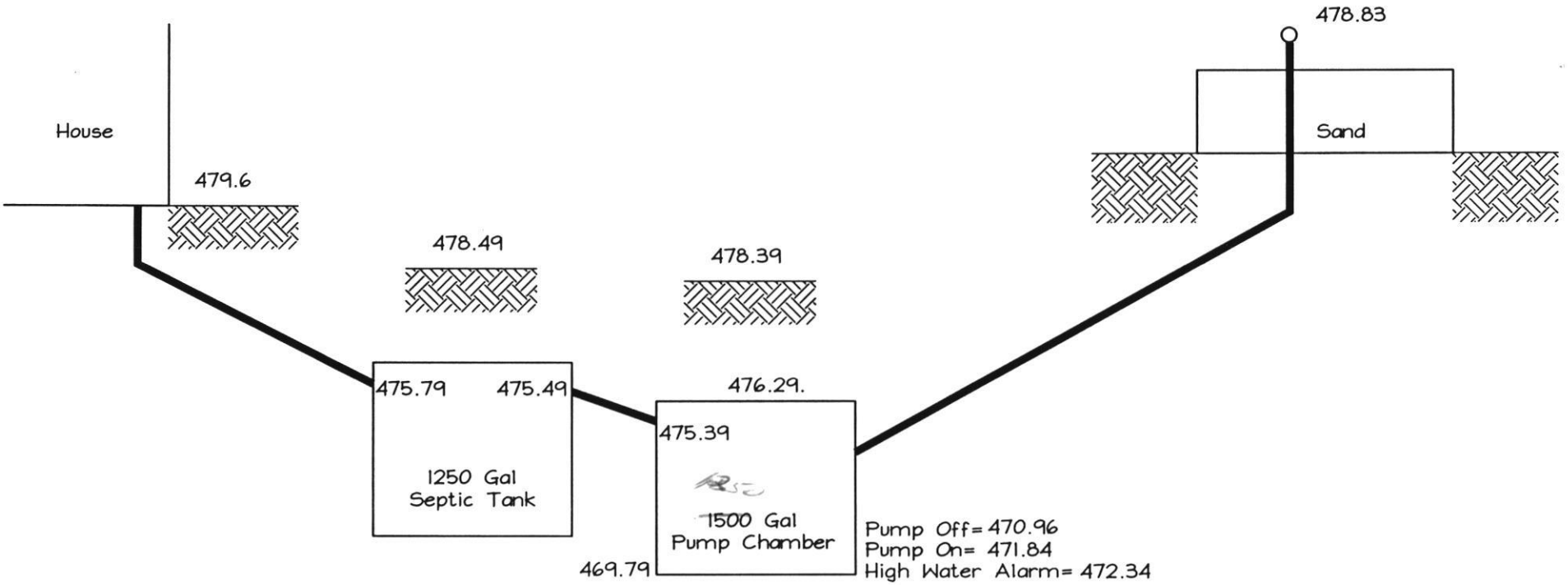
Total Length of Mound (L) = 12B + K + K = 1465.0 in. 122'

BASAL AREA REQUIRED = 1500 ft.²

BASAL AREA PROVIDED = (A+I) B = 2285 ft.²

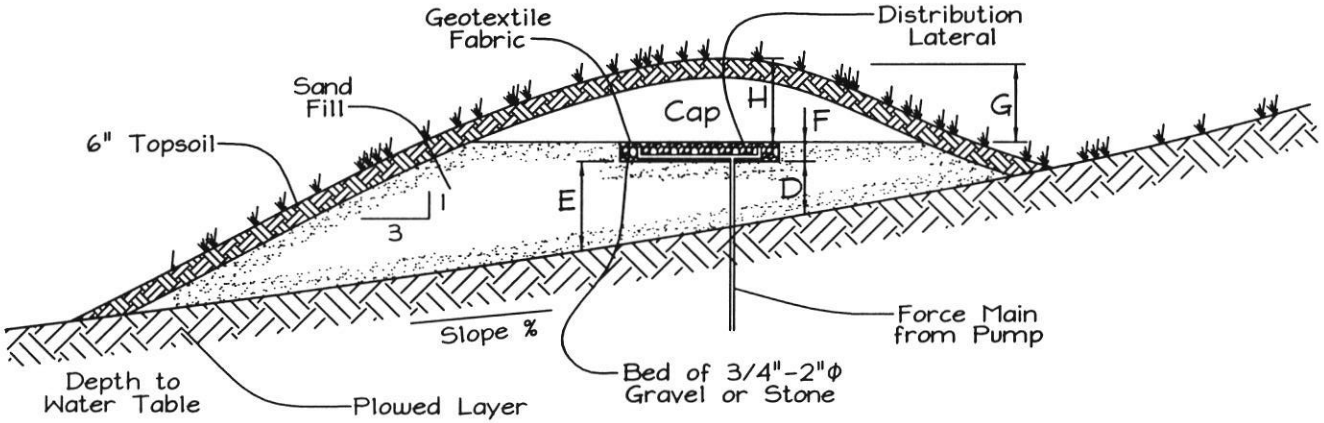
FSH Associates
Engineers Planners Surveyors
8318 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: FSHAssociates@cs.com

SHEET 2 OF 2



HYDRAULIC PROFILE

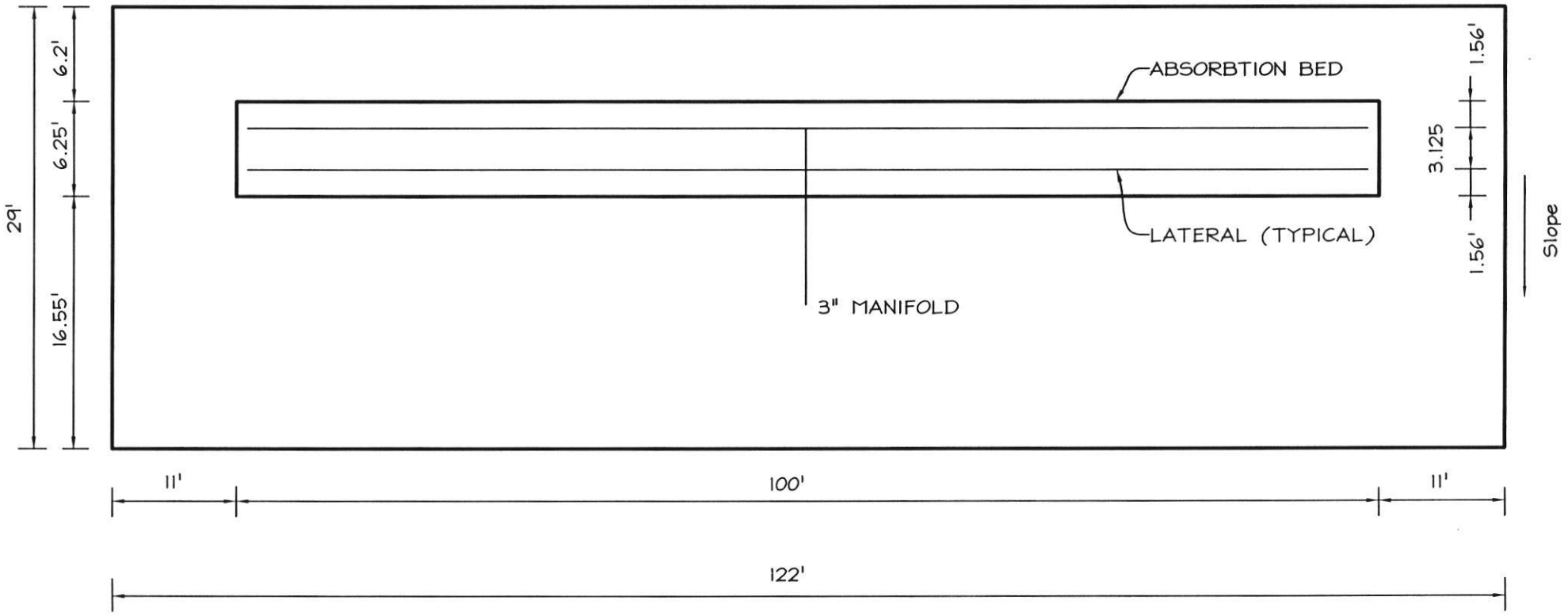
Not to Scale



D = Upslope Sand Fill Depth(inches)
E = Downslope Sand Fill Depth(inches)
F = Bed Depth(inches)
G = Cap and Topsoil Height at Bed Edges(inches)
H = Cap and Topsoil Height at Bed Center(inches)
Z = Depth to Water Table(inches)

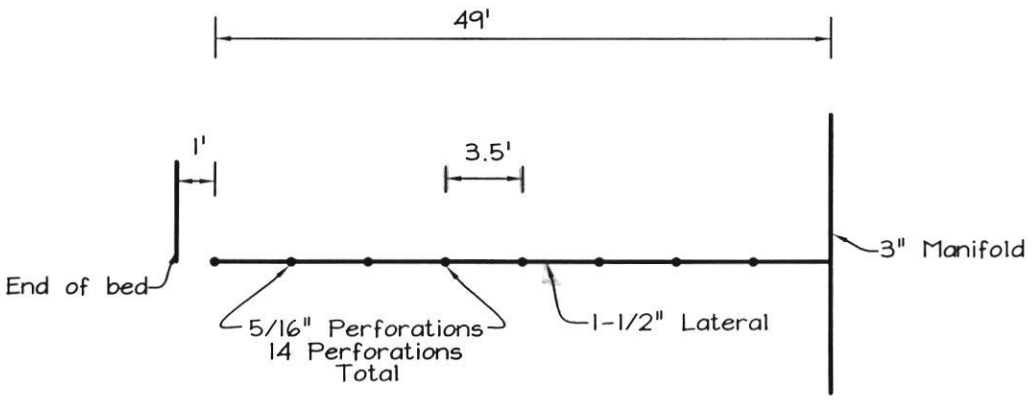
SAND MOUND DETAIL

Not to Scale



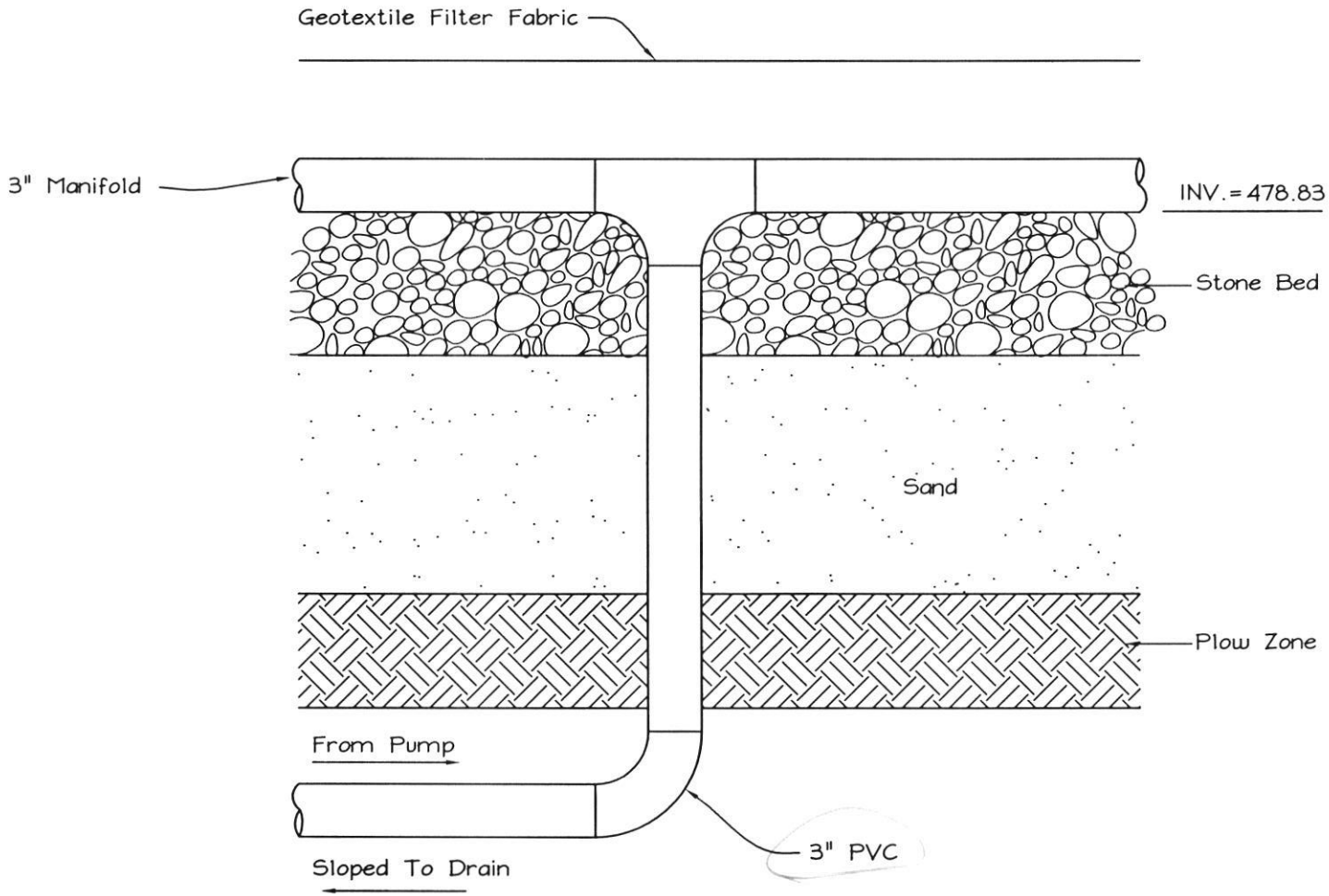
MOUND LAYOUT

Not to Scale



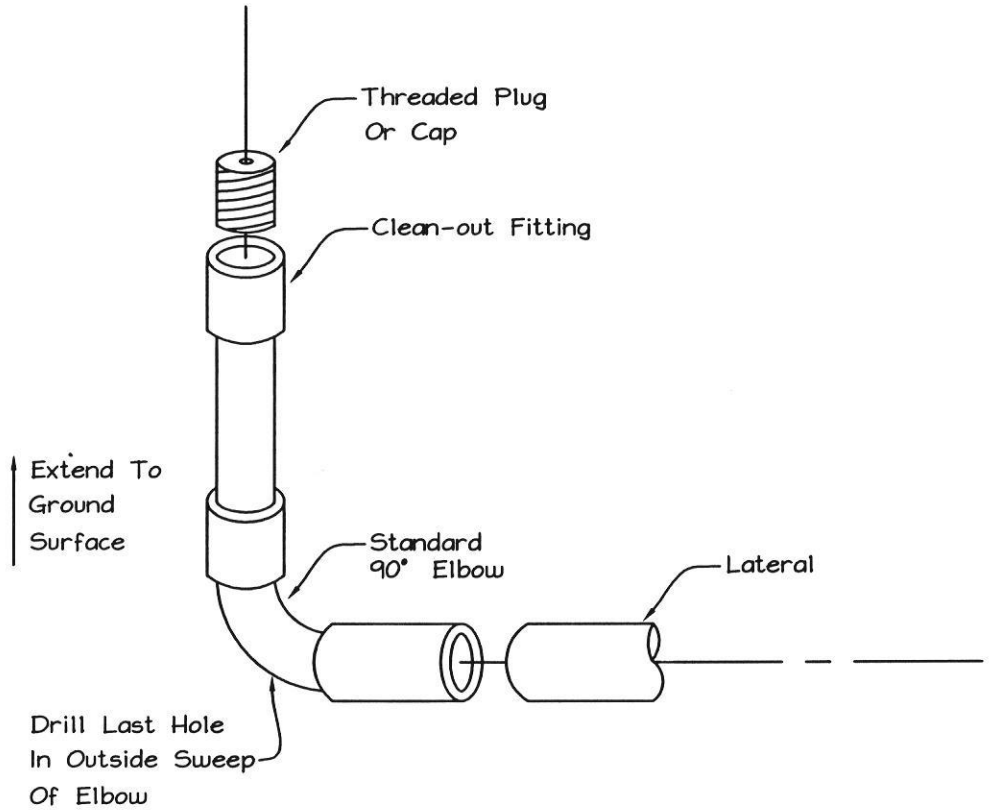
LATERAL DETAIL

Not to Scale



SUPPLY LINE - MANIFOLD DETAIL

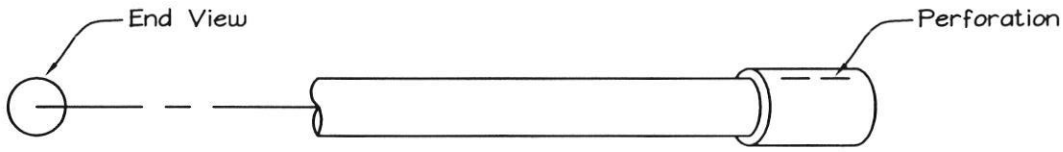
Not to Scale



LATERAL END TURN-UP

USE ON LATERAL FARTHEST FROM PUMP
AND ON LATERAL DIAGONALLY ACROSS BED

Not to Scale



LATERAL END CAP

USE ON LATERAL NOT
EQUIPPED WITH TURN-UP

Not to Scale

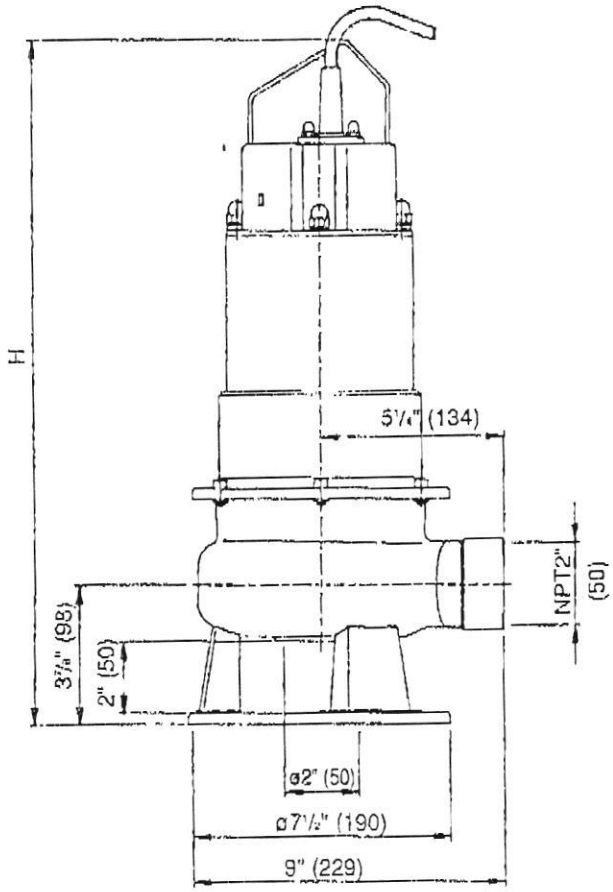
EBARA Submersible Stainless Steel Pumps **DWU – Dominator**

Dimensions

Project: Model: Chk'd: Date:

Model DWU
Manual Operation Pumps

Unit: inch (mm)



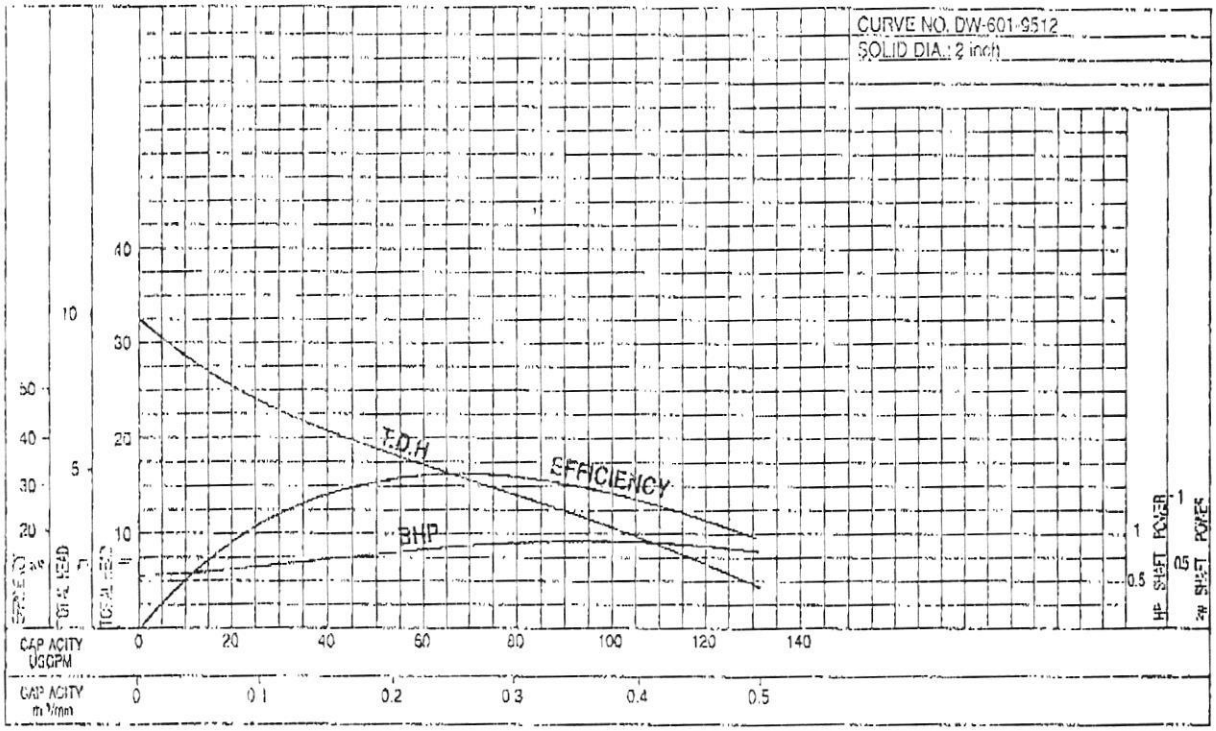
Phase	Size ø	Model	Output		Pump	Weight Lbs (kg)
			kw	HP	H	
Single	2" (50mm)	50DWU6.4S	0.4	½	21⅝ (550)	35 (16)
		50DWU6.75S	0.75	1	22¹⁹/₃₂ (580)	40 (18)
		50DWU6.4S2	0.4	½	19⅛ (485)	35 (16
		50DWU6.75S2	0.75	1	20¼ (515)	40 (18)
		50DWU61.1S2	1.1	1½	20¼ (515)	44 (20)
		50DWU61.5S2	1.5	2	24 (610)	51 (23)
Three	2" (50mm)	50DWU6.4	0.4	½	19⅛ (485)	33 (15)
		50DWU6.75	0.75	1	19⅛ (485)	35 (16)
		50DWU61.1	1.1	1½	20¼ (515)	40 (18)
		50DWU61.5	1.5	2	20¼ (515)	44 (20)

EBARA Submersible Stainless Steel Pumps **DWU, DWXU – Dominator**

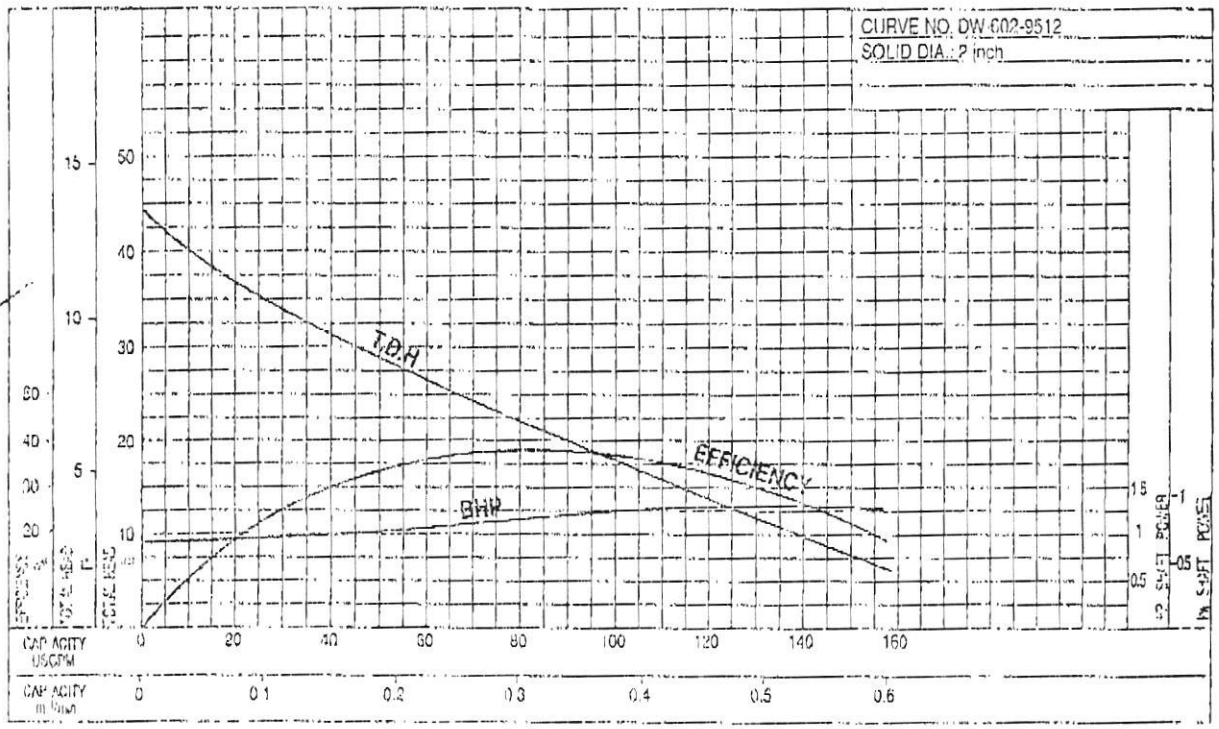
Performance Curves

Project: GPM: TDH: EFF: HP: Chk'd: Date:

50DW6.4 (½HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



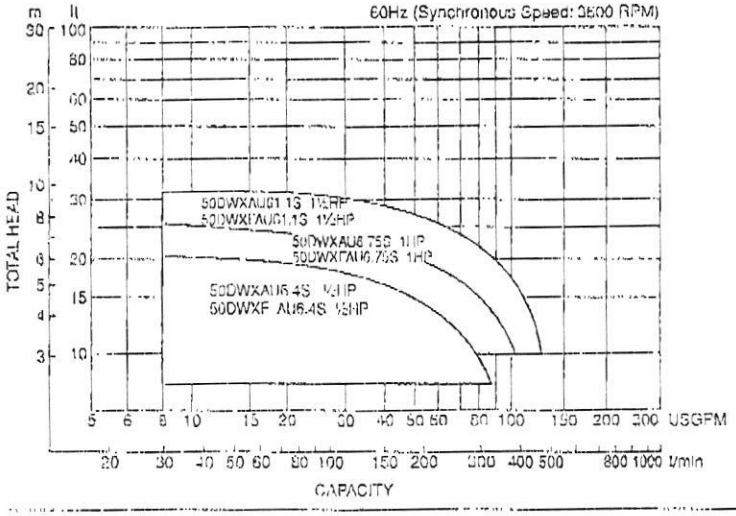
50DW6.75 (1HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



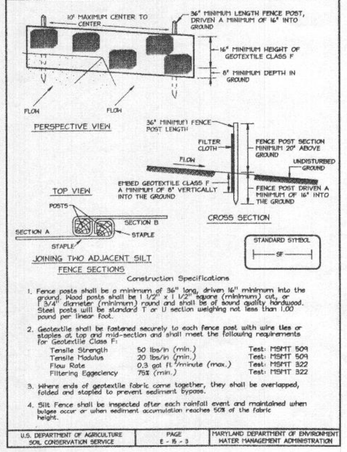
Model DWXAU
DWXFAU
Automatic Operation Pumps

	Standard	Optional
Discharge Size	2 inch	
Range of HP	½ HP to 1½ HP	
Range of Performance	Capacity 8 to 140 GPM Head 8 to 32 feet	
Limitation		
Maximum Water Temperature	104°F (40°C)	
Synchronous Speed	3600 RPM	
Materials		
Casing	304 Stainless Steel	
Impeller	304 Stainless Steel	
Shaft	303 Stainless Steel	
Motor Frame	304 Stainless Steel	
Fastener	304 Stainless Steel	
Mechanical Seal	Double Mechanical Seal	
Material – Upper Side	Carbon/Ceramic	
Material – Lower Side	Silicon Carbide/Silicon Carbide	
Impeller Type	Vortex	
Bearing	Prelubricated Ball Bearing	
Motor	Air-filled, Insulation Class F	
Single Phase	115 V (½, 1HP), 208/230V	
Motor Protection	Built-in Overload Protection (Single Phase models)	
Accessories	Submersible Cable 20 ft.	QDC System

Selection Chart
Single Phase



DETAIL 22 - SILT FENCE



Construction Specifications

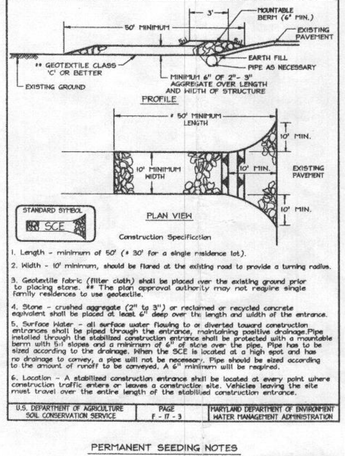
1. Fence posts shall be a minimum of 36" long, driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Eggeciency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reaches 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

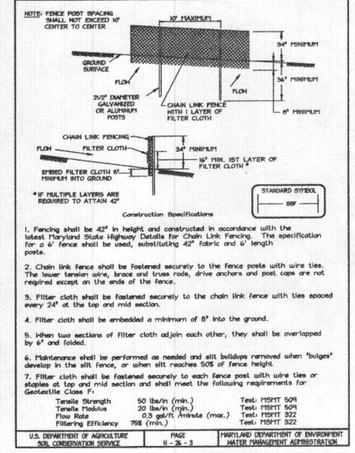


Construction Specification

1. Length - minimum of 50' (* 30' for a single residence lot).
2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. ** The plan approval authority may not require single family residences to use geotextile.
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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 posts.
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.
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 by 6" and folded.
6. Maintenance 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 meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE II - 36 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetation and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or redisturbance, 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 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis :

Total Area	13.97 Acres
Area Disturbed	0.84 Acres
Area to be roofed or paved	0.24 Acres
Area to be vegetatively stabilized	0.60 Acres
Total Cut	540 CY
Total Fill	690 CY
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 controls 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 lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

* Earthwork quantities are solely for the purpose of calculating fees. Contractor to verify all quantities prior to the start of construction.

** To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved and active grading permit

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following schedules:

1) Preferred-Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq.ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq.ft.)
2) Acceptable-Apply 2 tons per acre dolomatic limestone (92 lbs/1000 sq.ft.) and apply 1000 lbs. per acre 10-10-10- fertilizer (23 lbs/1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil.

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs/1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 50 lbs. per acre (1.15 lbs/1000 sq.ft.) of Kentucky 31 Tall Fescue and 2 lbs. per acre (.05 lbs./1000 sq.ft.) of Sericea Lespedeza. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre 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 31 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 unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using a mulch anchoring tool or 218 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 seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

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

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of unrotted 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 slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq.ft.) for anchoring.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

21.0 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

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

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

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 recommendative soil profile section in the Soil Survey published by USDA-SCS 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 a 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, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger that 1 and 1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, 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.

III. 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 not be less than 1.5 percent by weight.
c. Topsoil having soluble salt content greater than 500 parts per million (ppm) shall not be used.
d. No sod or seed shall be placed on soil 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 toxic materials.

NOTE: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

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

V. Topsoil Application

I. 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.

II. Grades on the areas to be topsoiled, 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 seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

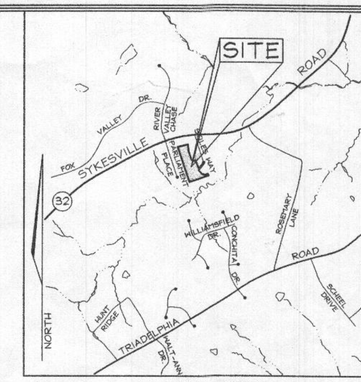
IV. Topsoil shall not be place while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

GENERAL NOTES

1. Reference: F-03-018, Plat #: 15948-15952.
2. Topography is taken from Road Construction Plan F-03-018.
3. Contractor to confirm all dimension, utilities and topography in the field. If any conflicts arise, contact Engineer before beginning any work.
4. Driveway entrance to be constructed in accordance with Howard County Standard Detail R.6.06.
5. Private water, and Private sewer will be used within this site.
6. ▨ This area designates a private sewage easement of at least 10,000 sf as required by the Maryland State Department of the Environment for individual sewage disposal (COMAR 26.04.03). Improvements of any nature in this area are restricted until public sewage is available. These easements shall become null and void upon connection to a public sewage system. The County Health Officer shall have the authority to grant adjustments to the private sewage easement area. Recordation of a modified sewage easement shall not be necessary.
7. All gravity sewer house connections and septic lines to be 4" PVC. All pressure sewer lines to be 1-1/2" PVC.
8. The septic field proposed for the Sand Mound system on Preservation Parcel 'A' is located on areas with slopes less than 12%. The septic area for Preservation Parcel 'A' is suitable for Sand Mound type systems only.
9. Total Area of Disturbance: 37,633sf
10. Driveway culvert at right-of-way has been designed under F-03-018.

LEGEND

Existing Contour 382
Proposed Contour 82
Spot Elevation +82.53
Direction of Flow
Existing Trees to Remain
Stabilized Construction Entrance SCE
Ex. Silt Fence per F-03-018 Ex. SF
Ex. Earth Dike per F-03-018
Limit of Disturbance LOD
Landscape trees per F-03-018
FCE Easement
Silt Fence SF SF
Super Silt Fence SSF SSF
Erosion Control Matting ECM



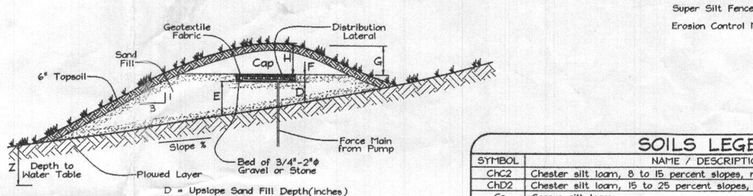
VICINITY MAP
SCALE: 1"=2000'

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Ce	Comus silt loam	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MlB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MlD2	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MlD3	Manor loam, 15 to 25 percent slopes, rsloderately eroded	B
MlE	Manor loam, 25 to 45 percent slopes	B
MnF	Manor very stony loam, 25 to 60 percent slopes	B

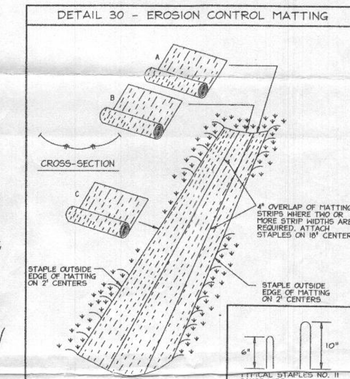
SAND MOUND DETAIL

Not to Scale



D = Upslope Sand Fill Depth(inches)
E = Downslope Sand Fill Depth(inches)
F = Bed Depth(inches)
G = Cap and Topsoil Height at Bed Edges(inches)
H = Cap and Topsoil Height at Bed Center(inches)
Z = Depth to Water Table(inches)

DETAIL 30 - EROSION CONTROL MATTING

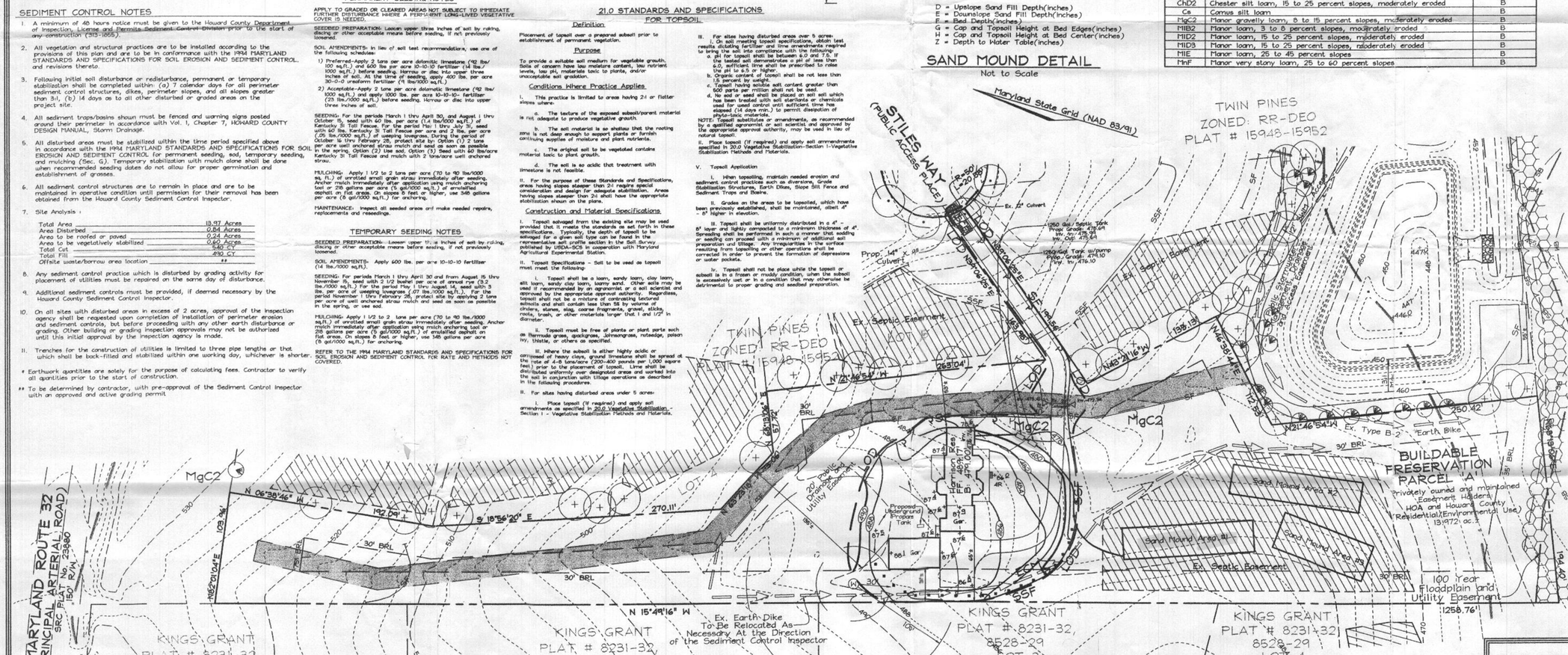


Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



OWNER

Clifton E. & Betty K. Harrison
P.O. Box 267
West Friendship, Maryland 21794

BUILDER

Cumberland Development Corp.
16391 A.E. Mullinix Road
Woodbine, Maryland 21797
(301)-854-6325

GP-04-103

SEQUENCE OF CONSTRUCTION

1. Obtain Grading permit.
2. Notify Howard County Department of Inspections, License and Permits at (410) 313-1880 at least 24 hours before starting any work.
3. Install stablized construction entrances Sf and Ssf. (3 day)
4. Rough grade site and begin house and driveway construction. (2 weeks)
5. Complete house and driveway construction and fine grade site and install erosion control matting. (1 week)
6. During grading and after each rainfall, contractor will inspect and provide necessary maintenance to the sediment control measures on this plan.
7. Following initial soil disturbance or any redisturbances, permanent or temporary stabilization shall be completed within:
   A. 7 calender days for all perimeter sediment control structures, dikes, swales and all slopes greater than 3:1.
   B. 14 calender days for all other disturbed areas.
8. Upon stabilization of all disturbed areas and with the permission of the sediment control inspector, remove all sediment control measures and stabilize any remaining disturbed area. (1 week)

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/8/04

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

HOWARD SCD — DATE 6/8/04

ENGINEERS CERTIFICATE

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

Zacharia Y. Fisch — 6/8/04

SIGNATURE OF ENGINEER — DATE

ZACHARIA Y. FISCH

DEVELOPER'S CERTIFICATE

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

Clifton Cumberland — 6/8/04

SIGNATURE OF DEVELOPER — DATE

6/29/04 — Approved Sediment & Erosion Control Plan Howard County Health Department

Date

MUST SEE ATTACHED DESIGN PACKET FOR SM details

SEDIMENT & EROSION CONTROL PLAN
HARRISON RESIDENCE
BUILDABLE PERSERVATION PARCEL 'A'

TAX MAP 22, GRID 8 — PARCEL 17
3RD ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STATE OF MARYLAND — ZACHARIA YOSEF FISCH — 22418 — PROFESSIONAL ENGINEER

FSH Associates
Engineers Planners Surveyors
8316 Forrest Street Ellicott City, MD 21043
Tel:410-750-2251 Fax: 410-750-7350
E-mail: fsh@toad.net

DESIGN BY:	PS
DRAWN BY:	BB
CHECKED BY:	ZYF
SCALE:	1"=50'
DATE:	June 8, 2004
W.O. No.:	3241
SHEET No.	1 OF 1