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INSP 2 //25/0.	2 3/11 INSP 5	
INSP 3 // 9/03	7/25/2003 <b>PERMIT</b>	P 519066
APPROVAL DATE:	SANDMOUND SYST ON-SITE SEWAGE DISPOSA HOWARD COUNTY HEALTH DE BUREAU OF ENVIRONMENTA	AL SYSTEM EPARTMENT
Glassic Plumbing & Hea	t <del>tin</del> g IS PERMIT	TTED TO INSTALL ⊠ ALTER □
ADDRESS: 5806 H	ub Nail Ct., Frederick, MD 21702 PH	HONE NUMBER: 301-695-7934
SUBDIVISION: Vi	neyards at Cattail Creek LC	OT NUMBER: 6
ADDRESS: 3563 C	attail Creek PROPERTY	Y OWNER: Rylea Homes
SEPTIC TANK CAPACE PUMP CHAMBER CAPACE NUMBER OF BEDROOM	PACITY (GALLONS): 1500 CO	UTLET BAFFLE FILTER REQUIRED DE PARTMENTED TANK REQUIRED
LOCATION:	Sand mound to be installed. Install as per pla	an. Mound site should be staked.
NOTES:	Both sand mound sites are to be staked. Mou traffic on upslope and down slope mound area	
PLANS APPROVED:	Brian Baker	DATE: 6/6/2003
WATERTIGHT SEPTIC ALL PARTS OF SEPTI MANHOLE RISERS RI	PONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSP	UNLESS SPECIFICALLY AUTHORIZED UNLESS SPECIFICALLY AUTHORIZED

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** 

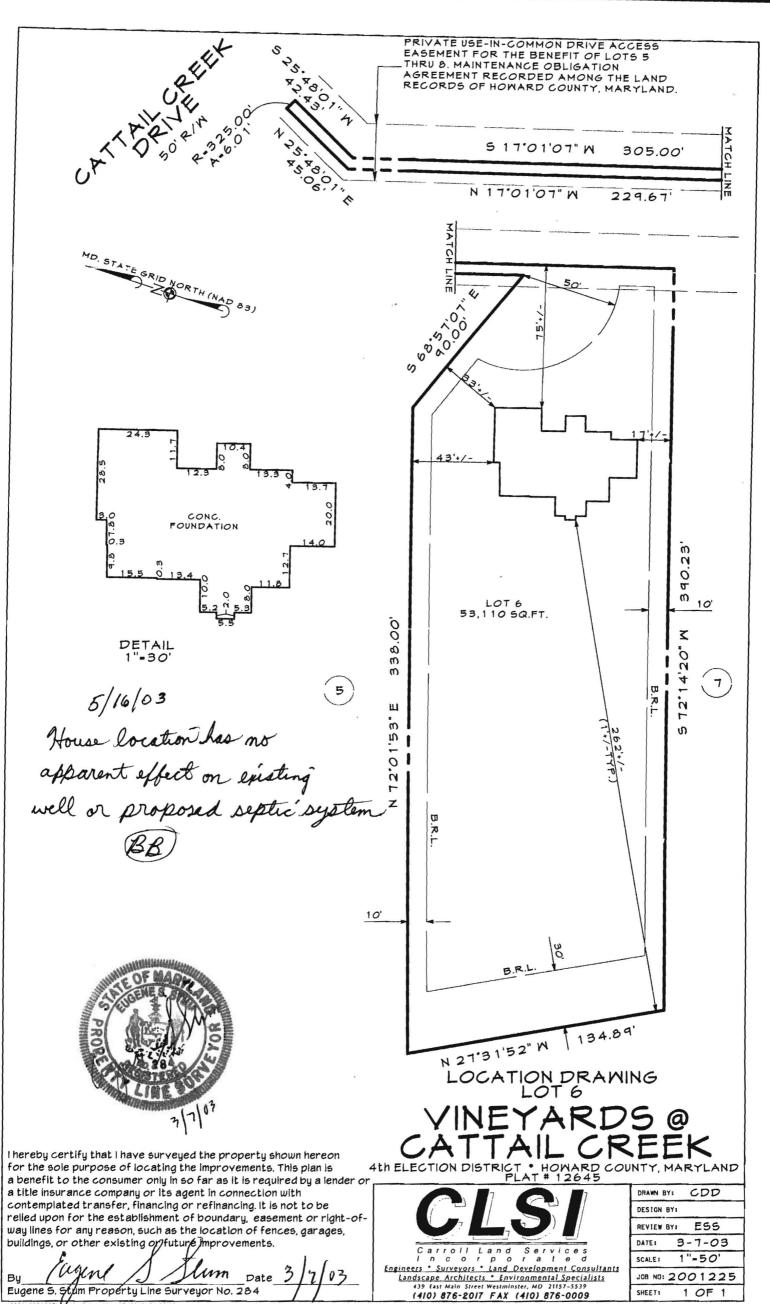
#### **BUILDING PERMIT SIGNED**

7/28/03 B0014 3203 1000 gal. UG LP TANK

7-1-04 BOD149251-GNISH BASEMENT

NDE Janier (410) 537-377 4

NOT TO SCALE	TRENCH/DRAINFIELD DATA WIDTH INLET BOTTOM
	NUMBER OF TRENCHES
	TOTAL LENGTH
	ABSORPTION AREA
	DISTRIBUTION BOX LEVEL_
	DISTRIBUTION BOX BAFFLE
	DISTRIBUTION BOX BAFFLE
	SEPTIC TANK DATA SEPTIC TANK 1 LEVEL
	COMP. CAPACITY 1500 GAL
	SEAM LOC TOP
A CONTRACTOR OF THE PARTY OF TH	SEAM LOC Top  TANK LID DEPTH 2.5
$\mathcal{F}_{-i}$	BAFFLES
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	BAFFLE FILTER
34	MANHOLE LOC FAB
	6" PORT LOC
X 16-6	WATERTIGHT TEST
X Z,	SEPTIC TANK 2 LEVEL
3	CAPACITY /500 GAL
	SEAM LOC 10p
	TANK LID DEPTH 25
	BAFFLES
H094/	BAFFLE FILTER
3094	MANHOLE LOC Buck
ZAOR A	6" PORT LOC
2) Cuttail Creek Draws	WATERTIGHT TEST
PRE-CONSTRUCTION 7/24/03 - 5. M. stalled, contour not a	centrate, shot & staked
gravel bed. More weep hole to bottom of goisat end	Is Tunks set (SO)
INSTALLATION 7/25/03 - Sand installed, cutting a	int grave Land Process
	1/1/02/2/20
3' line installed (50) 7/29/03 - Sand comp	1018 C/05 C/03 C/03
cal & topsoil installed. Pring & Al	un fests needed (30)
10/6/03 Pomp + Alarm test OK (KB/SO)	
	BUILDING PERMITSIGNED
	AND RETURNED
4 12	Sheart a history a seed of
FINAL INSPECTOR Tun Sell DATE OF A	APPROVAL 10/6/03
	1.1





3525 H Ellicott Mills Drive • Ellicott City, MD 21043 (410) 313-2640 Fax (410) 313-2648 TDD (410) 313-2323 Toll Free 1-866-313-6300 website: www.hchealth.org

## Penny E. Borenstein, M.D., M.P.H., Health Officer AGREEMENT AND EASEMENT FOR INSTALLATION OF AN INNOVATIVE AND ALTERNATIVE ON-SITE SEWAGE DISPOSAL SYSTEM

THIS AGREEMENT is made this 12th day of June, 2003, among James Ryan of Rylea Homes, hereinafter referred to as "Owner", the Howard County Health Department hereinafter collectively referred to as the "County", and the Department of the Environment, hereinafter referred to as the "Department".

WHEREAS, Owner owns a tract of land addressed as 3563 Cattail Creek, in the 4th Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in LIBER LOGY FOLIO 188.

WHEREAS, Owner's land is unsuitable for the installation of a conventional on-site sewage disposal system and owner has requested the County's approval to install an innovative/alternative system of sewage disposal.

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the Department and the County the right to enter upon the property at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data requested and needed by the County to develop accurate and thorough test results.
- B. Owner acknowledges and agrees that the proposed innovative/alternative system is experimental and that his or her participation is voluntary. Owner agrees that there shall be no liability on the part of the County or Department to Owner if this innovative/alternative system fails, and that the County and the Department do not warrant or guarantee that the system will adequately or properly function.

- C. Owner acknowledges and agrees that neither the County nor the Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.
- D. The Owner will devote such care and effort to the maintenance of the system so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.
- E. The Owner agrees, that, should the system be determined by the County to pose a threat to the public health, safety or comfort, the County may order any necessary changes or corrections and the Owner agrees to pay for all such changes or corrections. System modifications may include requirements for holding of sewage waste in tanks and regular pumping from the holding tanks. Upon the County's request, the Owner agrees to enter into a contract acceptable to the County to allow and pay a private entity to pump on a regularly scheduled basis an approved holding tank system.
- F. The Owner agrees to contact the County at least forty-eight (48) hours before system installation begins, so that a layout may be scheduled in the field with the contractor. The Owner must install this system according to the plans and specifications approved by the County and any changes required by the County as a result of the field layout. If installation deviates substantially from the approved plans or changes such that the system will be compromised or reduced, the Owner agrees to pay for all necessary corrections.
- G. This agreement shall run with the land and binds the current Owner and future owners.

  Paragraph A shall be binding for a period of 5 years after installation of the system and occupation of the home. Owner and future owners further agree that they shall inform in writing any purchaser or lessee of

the property that the system may require maintenance or other attention. The Owner agrees to record this agreement in the land records of Howard County.

H. This agreement shall not be construed to limit any authority of the County to protect the public health, safety or comfort or to issue any other orders to take action which is now or may hereafter be within its authority.

I. This agreement may be voided at the discretion of the County if the system construction is not completed within six (6) months of the effective date of this agreement.

J. This agreement contains the entire agreement and understanding between the County and the Owner and the Department. There are no additional terms other than as contained in this agreement. This agreement may not be modified except in writing signed by each of the parties or by their authorized representatives.

K. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated

DATE: 12 June 03

above.

DATE:

7

Department of the Environment James Dieter

Wastewater Permits Program

DATE: 6/12/2003

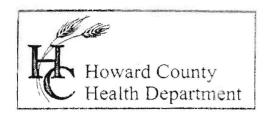
Howard County Health Department

ph. 1 p24

Circuit Court for HOWARD COUNTY Clerk of the Court, MARGARET D. RAPPAPORT 9360 COURT AVENUE ELLICOTT CITY, MD 21043-(410) 313-2111

Transaction Block:	2927
Ref: 321 MISC IMP FD SURE \$5 RECORDING FEE \$20.00	AMOUNT 20.00 20.00
SUBTOTAL:	49.00
TOTAL CHARGES:	40.00
PAYMENTS CASH	100.00
TOTAL TENDERED:	188.00
CHANGE:	68.00

Cashier: MLF Reg # H002 Rcpt # 27441 Date: Jun 12, 2003 Time: 02:48 pm

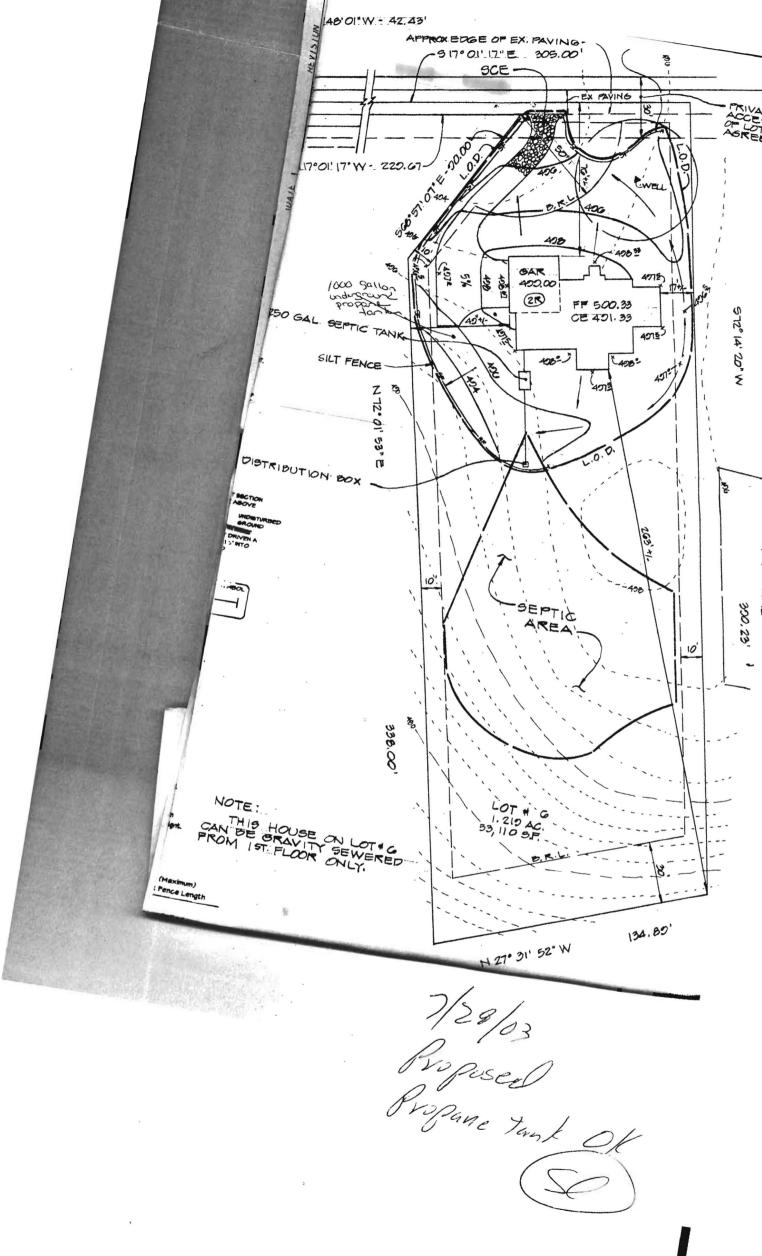


3525 H Ellicott Mills Drive, Ellicott City, MD 21043 (410) 313-2640 Fax (410) 313-2648 TDD (410) 313-2323 Toll Free 1-866-313-6300 website: www.hchealth.org

	Penny E	. Borenstein, M.D., M	I.P.H., Health Offic	cer
	FA	CSIMILE TRANSMIT	TAL SHEET	
TO: Jar	nes Ry	FROM:	Brian Ba	ker
COMPANY: Ry	Ica Hom	DATE:	6/6/03	
FAX NUMBER:	829-9	225 TOTAL	NO. OF PAGES INCLUDING	G COVER:
PHONE NUMBER:			R'S REFERENCE NUMBER:	
RE: Vineya	rds at Cat	tail Creek-co	File	
☐ URGENT	☐ FOR REVIEW	☐ PLEASE COMMENT	□ please reply	□ PLEASE RECYCLE

NOTES/COMMENTS: The sand mound system to be installed on this lot is considered antype of innovative and alternative septic system. This is because the percolation test rates for the mound averaged >60 minutes per inch, Sand mounds aren't approvable at this time unless the test rates are < 60 minutes. However, because of the rock encountered on the lot a sand mound was the only option. In order to get the septic permit the following agreement needs to be completed and deeded with the lot, Anfax cannot be used, so you need to come to our office. The form can then be recorded at the nearby courthouse. It you have any questions you can reach me at (410)313-2643,

Thanks,





#### HOWARD COUNTY HEALTH DEPARTMENT

Diane L. Matuszak, M.D., M.P.H., County Health Officer

December 6, 2001

Mr. Chris Rachuba 946-A Marimich Court Eldersburg, Maryland 21784

Dear Mr Rachuba:

This is an update regarding lots 6 & 7 in the Vineyards at Cattail Creek. After several days of percolation testing and discussions conducted in the last couple months, the Howard County Health Department and the Maryland Department of the Environment (Dave Kerr) have decided on some possible areas on lots 6 & 7 that may be sufficient to support an initial system and two repairs for both lots. Several areas on these lots were numbered by Paul Scott. This numbering will be used to help identify locations.

Area 1 on lot 7 appears to be able to support an initial system and one repair for a house on lot 7. These systems may have to be sized for a three bedroom house due to limited available area.

Area 2 is not usable. Trenches cannot be placed within 25 feet of 25% or greater slopes as per Code of Maryland regulations.

One system can probably be squeezed into area 3. The contour makes this area difficult to use.

The three remaining systems required for two houses will have to be comprised of sand mounds. That is if the topography is consistent for the use of sand mounds. Onsite evaluation revealed three sites that showed some promise. Field run topography showing one foot contour levels within and directly around these three sites will be required to determine topographic suitability. Red flags were placed at the rectangular corners of the three possible mound sites.

Some of the sand mound tests showed percolation rates that were slower than the hour time limit that is required for new construction. Sand mounds classified as alternative can be used if percolation rates are under two hours. This type of sand mound is only installed in special situations. Approval of this type of mound requires an agreement by the owner with the Maryland Department of the Environment and the Howard County Director of Environmental Health. This agreement is to be recorded with the deed. Furthermore, there will have to be a recorded easement on part of lot 7 for the construction of a sand mound for lot 6.

The approximate sand mound sites and conventional easement areas are shown on the enclosure.

Sincerely,

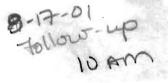
Brian Baker, R.S.

Well and Septic Program

Brian Baker

Cc: File

8/7/01 2:00 Layout 2:00



ISSUE DATE:

APPROVAL DATE:

7/10/2001

**PERMIT** 

P 5/5329

A 58225-MM

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

Catonsville Professiona	l Services	IS PERMITTED TO INSTALL ⊠ ALTER □
ADDRESS: 112 W	yndcrest Avenue, 21228	PHONE NUMBER: 4107190734
SUBDIVISION: Vin	neyards at Cattail Creek	LOT NUMBER: 6
ADDRESS: 3563	Cattail Creek Drive	PROPERTY OWNER: Rachuba Home Builder
SEPTIC TANK CAPA	CITY (GALLONS):	Need 1500 2-Compartment  Need 1500 2-Compartment  Tank  1500 Installed - May Have to  Move
PUMP CHAMBER CA	PACITY (GALLONS):	Need 1500 2-Compartmen
NUMBER OF BEDRO	OMS:	4 Had - May 11 - 1
SQUARE FEET PER I	BEDROOM:	210 Movee
LINEAR FEET OF TR	ENCH REQUIRED:	280
TRENCHES:		e. Inlet 3.5 feet below original grade. Bottom maximum nal grade. Effective area begins at 4.5 feet below original elow distribution pipe.
LOCATION:	Place distribution box at happroximately 135 feet do	highest point of designated sewage disposal easement, own the right (338') lot line and 75 feet off that lot line. In within the designated easement.
NOTES:		or to building permit approval; installation to be itarian is on-site during trench excavation.
PLANS APPROVED:	Ronald Pinkley	DATE: 7/10/01
NOTE: PERMIT VOID AFTER	R 2 YEARS	

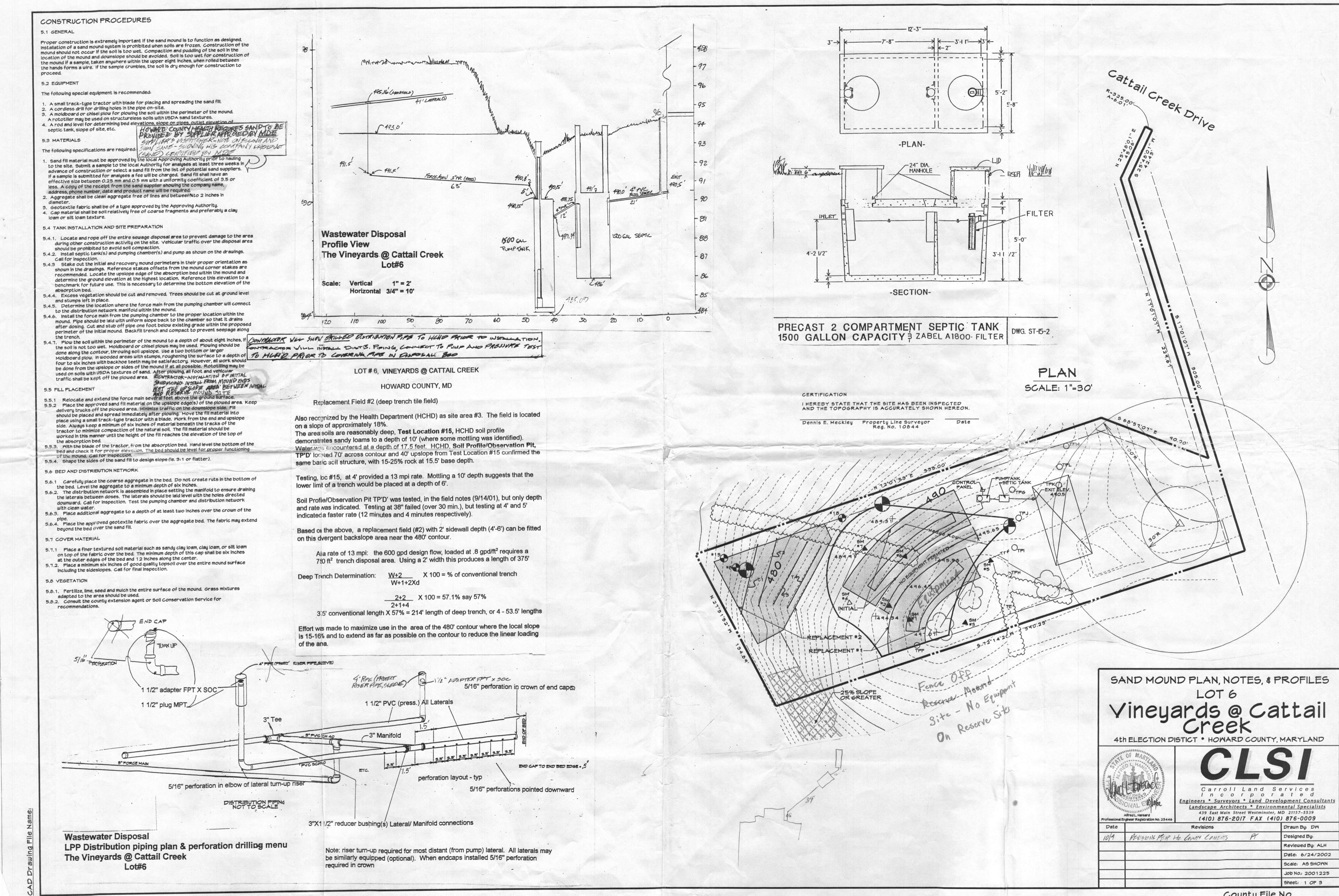
NOTE: CONTRACTOR RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS

NOTE: WATERTIGHT SEPTIC TANKS REQUIRED

NOTE: ALL PARTS OF SEPTIC SYSTMEM SHALL BE 100 FEET FROM ANY WATER WELL NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

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 CALL 410-313-2640 FOR INSPECTION OF SEPTIC SYSTEM

	TRENCH DATA  TRENCH WIDTH  TRENCH INLET DEPTH  TRENCH BOTTOM DEPTH  DEPTH OF STONE  NUMBER OF TRENCHES  TOTAL TRENCH LENGTH  ABSORBENT AREA  DISTRIBUTION BOX LEVEL  BAFFLE IN DISTRIBUTION BOX Yes
	SEPTIC TANK DATA  SEPTIC TANK GALLONS  MANHOLE RISER  6 INCH INSPECTION PORT  PUMP CHAMBER DATA  PUMP CHAMBER Mayor Bros.  GALLONS   1500 T5
HO-94-3094  To Cottail Creck Drive ->  8 7 01 SRASTAKED, BUT VEGETATION FEN  PRE-CONSTRUCTION INSPECTION:	MANHOLE RISER
inspection comments: 8/17/01 Installer entoring while digging top trench. Further I good perce hales near bottom of las borderline line to failure. Further have to use sand mounds. See note	esting resulted in two.  t. Rest of percholes were  tosting required - may  son perc. cert. plat. BB
INSPECTOR DATE	SYSTEM APPROVED



#### SAND MOUND DESIGN

WASTEWATER SYSTEM DISPOSAL
Lot #6 The Vineyards @ Cattail Creek, Howard County, MD

Design for: Carroll Land Services Inc. client, Mr. Chris Rachuba

Design by: INNOVA, LTD.

New Windsor, Md.

Basis: 4 Bedroom Residential Dwelling (new construction) Howard County, Maryland INITIAL DISPOSAL AREA (sand mound) test locs. #6 & #7

Percolation Test, Infiltrometer- sandmound: 13-23 mpi (average: 18 minute/inch), used 23 min. SEPTIC SYSTEM COMPONENTS:

the proposed dwelling will require a minimum Septic Tank size of 1,500 gal. A top-seam, two-compartment concrete tank. An 800 gpd effluent filter (Zabel, model A 1800) is ecommended. A Pump Chamber of 1500 gal capacity will provide dose storage and act as a flow modulator. It will contain the pump and system control floats. A simplex control panel with a magnetic, motor contactor relay using three float switches, on, off, and alarm, will manage dose control, and operate the system. Optionally Installed elapsed time /event registers will record motor operation and permit analysis of system functioning. The effluent is be discharged to the Sand Mound using a three inch diameter force main to the center-feed 3" Manifold and distributed to four (4) - 1 1/2" PVC Laterals. The Mound piping lengths and layout are shown on the plans.

DESIGN FLOW: 4 Bedrooms X 150 gal/day = 600 Gallons per Day DISPOSAL - SAND MOUND [see Plate 3]

DISPOSAL - SAND MOUND [see ]

(In accordance with MDE Construction and Design Manual for Sand Mound Systems, June 1991)
Distribution of effluent to the sand mound will be accomplished with a low pressure piping (LPP)

Number and spacing of laterals: selected absorption bed width: 6', with 3' spacing between the lateral rows. Laterals are setback 1.5' from the upslope/downslope bed edges.

Piping supply method: Bed length (83') over 50' requires a center feed manifold supply, and results in four lateral lengths [83' X 50% = 41.65' per lateral] of 41' 8" each. The laterals are each shortened 8" to 41' to prevent sand fill scouring, beyond the gravel bed end.

Perforation size: 5/16" diameter used [preferred by Howard County Health Dept. (HCHD)]

Perforation spacing: 42" (3.5') used [preferred by HCHD]

Lateral size: 1 1/2" [MDE Design Manual, June 1991, table 4.1] based on perforation data

Perforations/Lateral: 41' ÷3.5'= 11.71, or 12 perforations/Lateral [48 total, all laterals]

The first perforation from the manifold is located at 1.5' (18") [MDE Design Manual,

June 1991, pg 29, 4.2.5] 83'X50%- [(12 perf.-1)X 3.5' spacing]÷ 2 = 1.5'

Force main and manifold diameter: 3"diameter selected [preferred by HCHD]

Plate 1

#### SAND MOUND DESIGN

WASTEWATER SYSTEM DISPOSAL
Lot #6 The Vineyards @ Cattail Creek, Howard County, MD

**DISTRIBUTION** (continued)

#### PUMPING

A standing head (distal) pressure of 2.0' is used to stabilize flow rate at 1.63 g.p.m. when using 5/16" diameter perforations. The measurement is taken at the turn up of the most distant lateral riser. (Preferred by Howard County Health Dept. (HCHD)]

Field flow rate: simultaneous flow of all perforations [48 X 1.63 = 78.24 gal. Per min.]

System Dose: largest of, either 1/6 of Design Flow (600 gal/day), or the volume of the force main/manifold (FM/M) and five (5) X storage volume of all laterals.

[Vol. Capacity: 3" PVC pipe = 38.4 gal./100', 1 1/2" PVC = 10.6 gal./100'] 600gpd + 6 = 100 gallon

73', 3" FM/M = 28 gallon + 5X lateral vol. (17.6 gallon) 88 gallon
Compare 100 gallon and 116 gallon Use 116 gallon

### PUMP SIZING

Field Flow and Total Dynamic Head provide the parameters for pump selection.

#### Field Flow: 78.2 gallon per minute

Total Dynamic Head: Static Lift + Friction Head + Field Pressure (Distal Head)

Static Lift = elev. difference between highest lateral and pump off float position 495.16' - 487.33' = 7.83'

Friction Head: (3" pipe @ 1.44'/100 linear ft. pipe)

70' force main - .70 X 1.44 = 1.08'

3' manifold - .03 X 1.44 = 0.04'

Fittings (3 -90°ells, 3-cpls, 1-tee, 1-2"ball valve) 1.93'

See attached pump curves at 12.87' Head/78.2 gpm

Fittings (3 -90 ells, 3-cpls, 1-tee, 1-2 ball valve)

3.04

Field operating pressure / Distal Head

Total Dynamic Head

12.87

Pump selected: Gould model 3887, 1/2 HP, 230V, 1 Ø, order no. WSO512BF

DOSING SCHEDULE: Six (6) Doses @ 116 gallons/dose

System flow rate [48, 5/16" perforations @1.63 gpm/2.0' Distal head] = 78.2 gal/min.

Pump Run Time: 116 gal ÷ 78.2 gpm = 1.48 min. ea. Dose,

Six times each day 1.48X6 = 8.9 minutes, daily run time @ capacity

Plate 2

#### SAND MOUND DESIGN

Design for: Lot #6

The Vineyards @ Cattail Creek, Howard County, Md.

SAND MOUND CALCULATIONS: Area of sandmound tests (Initial Mound) area 4, tests SM #6 & #7 (Designed in accordance with MDE Design and Construction Manual for Sand Mound Systems, June 1991)

ABSORPTION BED: 600 Gal/1.2 gpd per ft<sup>2</sup>(sand loading rate) = 500 ft<sup>2</sup> (6.0 ft x 83.3 ft)

BED WIDTH (A) = 500/B = 6.0 feet BED LENGTH (B) = 83.3 Feet

UPSLOPE FILL (D) = 12 inches (1 foot)(minimum)

12% slope
tests pits 0n the 493' and 496.5' contours demonstrate adequate soil depths for sand mound
application (no groundwater and/or excessive rock fragments at less than 4' depth).

DOWNSLOPE FILL (E) = 20. 64 inches (1foot 9 inches) 12% slope

CAP+ TOPSOIL FILL (at Bed Center) (H) = 18 inches<sup>h</sup>
CAP+ TOPSOIL FILL (at Bed Edge) (G) = 12 inches
(Sand Fill depth, under Bed Center about 16")<sup>h</sup>
TOTAL BED DEPTH (F) = 10 inches<sup>h</sup>)

h MOUND HEIGHT = 44 inches (above native surface)
SIDE SLOPE SETBACK (K) = 132.96 inches (11 feet 1 inch)

UPSLOPE SETBACK 12% slope (J) = 74.46 inches (6feet 2 inches)

DOWNSLOPE SETBACK 12% slope (I) = 200.83 inches (16 feet 9 inches)

TOTAL WIDTH (W) = 347.29 inches TOTAL LENGTH (L) =1261.92 inches or (W)= 28 feet 11 inches X (L)= 105 feet 2 inches

Basil Area required: 600 gpd Design Flow = 1200 51

O.5 19 gpd/ft<sup>2</sup> [soil Loading Rate (Manual, table 3.3, loams - silt loams)]

Basal Area provided:  $[(A+I) \times B] = 1887.42 \text{ ft}^2$ 

#### INSTALLATION

Follow the recommended installation schedule as found in Section 5, "Construction Procedures" in the DESIGN AND CONSTRUCTION MANUAL FOR SAND MOUND SYSTEMS (June 1991) and in this submittal.

Plate 3

### MODEL 112 control panels

Single-phase, simplex motor contactor control.



### APPLICATIONS The Model 112 control

The Model 112 control panel provides residential and commercial customers with a reliable means of controlling one 120, 208, or 230 VAC single-phase pump in water and sewage installations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system. Common applications include pump chambers, sump pump basins, irrigation systems, and lift stations.

15 13 4 6 3

< 12% SLOPE

#### FEATURES

Entire control system (panel and switches) is UL Labeled to meet

and/or exceed industry safety standards

Dual safety certification for the United States and Canada

Package includes float switches (optional)

Complete, step-by-step installation instructions included

Two-year limited warranty

Enclosure measures 10 x 8 x 4 inches (25.4 X 20.32 X 10.16 cm) with removable mounting flanges. Choice of NEMA 1 (engineered thermoplastic for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic for outdoor use).

2 Magnetic Motor Contactor controls pump by switching both electrical lines

HOA Switch for manual pump control
Green Pump Run Indicator Light

5 Float Switch Terminal Block
6 Control ON/OFF Switch

7 Control and Alarm Fuses

8 Circuit Breaker (optional) provides pump disconnect

(not shown)

9 Input Power Terminal Block

10 Ground Lug

#### ALARM PACKAGE (OPTIONAL)

Red Alarm Beacon provides 360° visual check of alarm condition

Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating)

13 Exterior Horn Silence Switch allows alarm horn to be silenced

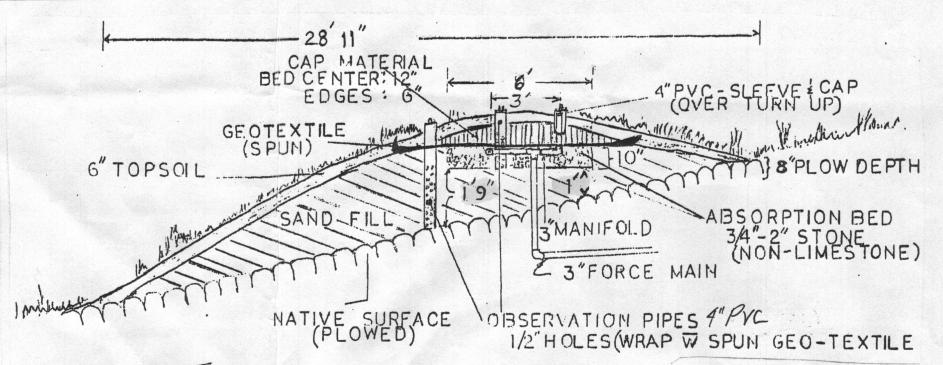
14 Horn Silence Relay automatically resets alarm after alarm condition has been resolved

Exterior Alarm Test Switch allows for testing of horn and light to ensure proper operation of alarm system

CONTAIL #6

Model Shown 1121W114X

58225-MM



#### MOUND PROFILE VIEW

Scale as shown



TYPE 112 INSTALLATION INSTRUCTIONS
Single Phase Simplex Control Panel

#### CAUTION:

Rhombus cannot be responsible for damages caused by the faulty or negligent installation of this control. We recommend that you engage the services of a competent plumber, electrician or qualified service person to install this product in accordance with the national and local electrical codes.

All conduit running from the sump or tank to the control panel must be sealed with conduit sealant to prevent moisture or gases from entering the panel. Nema 1 enclosures are for indoor use primarily to provide a degree of protection against contact with enclosed equipment. Cable connectors are not required to be liquid tight in Nema 1 enclosures. Do not use Nema 1 enclosures if subjected to rain, splashing water, or hose directed water. Nema 4X enclosures are for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose directed water. Cable connectors must be liquid tight in Nema 4X enclosures.

MOUNTING AND WIRING CONTROL PANEL

1. Determine mounting locations for control panels. If distance exceeds the length of either the float switch cables or the pump power cables, splicing will be required. For outdoor or wet installation we recommend the use of a junction box with liquid tight connectors (S.J. Electro System's Model JB70) to make required connections. (When using conduit refer to erclosed conduit connector sheet, and be sure to use conduit sealant to prevent moisture or gases from entering

2. On the control panel, determine the "power in" location (from the building power supply). Check local codes and schematic for power circuit requirements.

CAUTION: BE SURE THE POWER SUPPLY VOLTAGE AID PHASE ARE THE SAME AS THE PUMP MOTORS BEING INSTALLED. IF IN DOUBT, SEE THE PUMP IDENTIFICATION PLATE FOR VOLTAGE PHASE RE-QUIREMENTS.

3. On the control panel, determine the location of the pump power cables, and the float switch cables.

4. Drill proper size holes for connection to panel.

CAUTION: IF USING CONDUIT, BE SURE THAT THE CONDUIT BEING USED IS OF ADEQUATE SIZE TO PULL THE PUMP AND SWITCH CABLES THROUGH. RECOM-

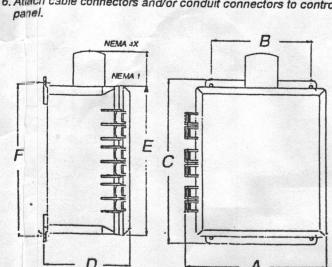
MENDED MINIMUM 1'/4" FOR SIMPLEX APPLICATIONS.

5. M unt control panel (mounting devices are furnished with control panel).

a NEMA 4X mounting flange kit included in the box.

b. NEMA 1 mounting feet are installed on enclosure, rotate feet to desired position.

6. Atlach cable connectors and/or conduit connectors to control



#### FOR INSTALLATION WITHOUT A SPLICE GO TO STEP 12, FOR INSTALLATIONS REQUIRING A SPLICE FOLLOW STEP 7 - 11.

CAUTION: AT THIS POINT, TURN OFF ALL POWER SOURCES.
 Determine location for mounting junction box according to local code requirements. <u>Do not</u> mount the Junction Box inside the sump or basin.

8. Run the conduit or connectors to junction box and drill the junction box as required to make the proper connections.

Attach the conduit or connections to the junction box.

9. Mount junction box to proper support

10. Pull cump power cables and float switch cables through

connectors into junction box. Identify and label each wire before pulling through conduit into control panel. Make necessary wire splice connections at junction box.

11. Firmly tighten all fittings on junction box.

12. If a junction box is not required, pull pump cables and float switch cables through connectors/conduit into control panel.

numbered terminals. SEE WIRING DIAGRAM INSIDE CONTROL PANEL.

CAUTION: IF FLOAT SWITCH CABLES ARE NOT WIRED IN THE PROPER ORDER. THE PUMP SYSTEM

13. Attach pump cables and float switch cables to the proper

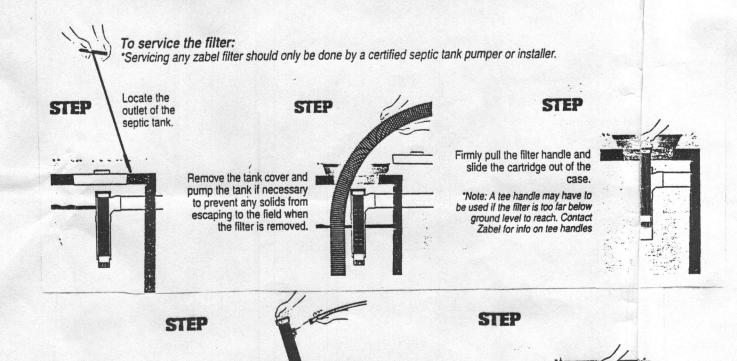
14. Connect "power in" conductors to proper terminals. (SEE WIRING DIAGRAM)

WILL NOT FUNCTION PROPERLY.

	NEMA 1	NEMA 4X
A	93/8"	93/8"
В	61/4"	6"
C	121/4"	113/4"
D	71/4"	71/4"
E	101/2"	131/2"
F	113/4"	103/4"

# A1800's Filter Maintenance

The interval for servicing septic tanks is set by state and local code. Throughout the United States there is a wide differene of opinion on what this interval should be, but most regulatory agencies suggest two to five years. The Zabel<sup>™</sup> filter, which does not increase the frequency of servicing for the tank, should be cleaned when the septic tank is normally inspected and pumped. However, ur filter is virtually self-cleaning. The continued action of the anaerobic organisms on the Zabel filter causes lodged particles to disiregrate and fall to the bottom of the tank. If your filter contains a SmartFilter alarm, you will be notified by an alarm when the filter neds servicing.



Insert the filter cartridge into the

cartridge is completely inserted

Replace the septic tank cover.

tee, making sure the filter

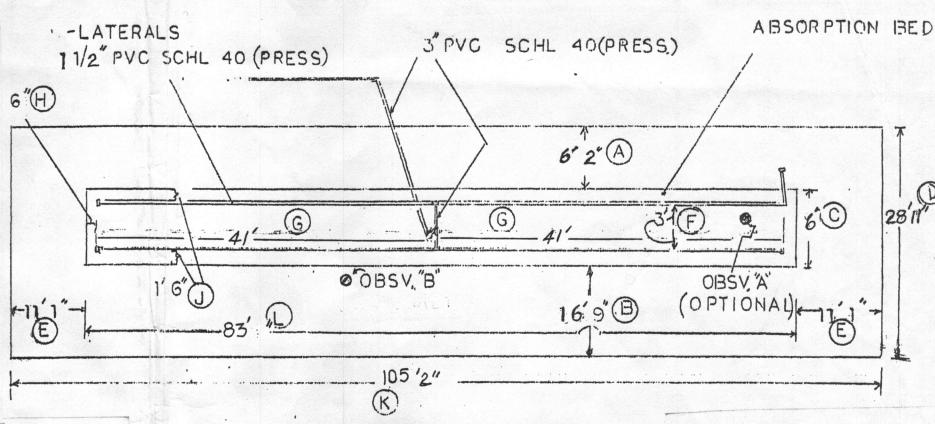
While holding the cartridge over the access

opening rinse off the cartridge with fresh

water, being careful to rinse all septage

"Note: It is not necessary to clean the filter "spotless". The biomass growing on the filter aides in the pretreatment process and should be left on the filter

material back into the tank.



#### MOUND PLAN VIEW

Scale as shown

UPSLOPE SETBACK
DOWNSLOPE SETBACK
ABSORPTION BED WIDTH
MOUND WIDTH
SIDESLOPE SETBACK

DISTRIBUTION LATERAL SEPARATION
LATERAL LENGTH
BED ENDS (PIPE) SETBACK
BED SIDES (PIPE) SETBACK
MOUND LENGTH
ABSORPTION BED LENGTH

### Thombus TECHNOLOGY

INSTALLATION INSTRUCTIONS - Page 2
Control switches with external weights

MANUAL TESTING (To simulate

For ease of installation and safety reasons, we

simplex operation sequence).

#### Figure 1 - Three Float Installation

Float installation shown is for a high level (pump down) system.

mounted at upper level, and a start float mounted at lower level.

Start float remains as shown above. Wire connections to terminal

Normally Open - "ON" Position

Normally Closed - "OFF" Position

**Approximate** 

**Activation Level** 

To install a low level (pump up) system, stop float should be

strip are the same for a high or low level system.

Cable Weight

Figure 2

recommend manual testing of float switch operation prior to attaching floats to discharge pipe in the pump chamber.

1. Make sure all float switches are in off position.

SEE FIGURE 2.

2. Turn on power source. The control panel control switch should be on and the HOA switch should be in automatic position.

3. Tip stop float to an position.

be in automatic position.
3. Tip stop float to on position.
4. While stop float remains tipped, tip start float to on position. At this point the pump and pump run light will turn on.

5. Return start float to off position. Return stop float to off position. Pump and pump run indicator light will now be off.
6. To test alarm operation, tip alarm float to on

position. The red light and horn should be activated.

NOTE: UNIT SHOULD BE PERIODICALLY TESTED TO INSURE PROPER OPERATION.

#### Mounting Control Switches

CAUTION: Do not begin installation in pump chamber until all power source circuit breakers have been turned off. For added safety also turn off the control switch and the HOA switch. Failure to turn off power could result in serious or fatal electrical shock.

#### Cable Weight (Figure 2)

 Lay cable in weight channel.
 Align clip with weight groove and slide towards cable.
 Snap clip snugly up to cable, manually moving clip to the tightest possible position.

Wire cable leads directly into control device.
 Suspend unit at desired activation level. See Figure

#### Float Switch Specifications:

Sensor Float® control switch. HOUSING: 3.38 in. (8.58 cm.) diameter x 4.55 in. (11.56 cm.) long, high impact resistant, non-corrosive PVC plastic for use in liquids up to 140° F (60°C). CABLE: 16 gauge, 2 conductor S.'OW-A (UL), SJOW (CSA) water resistant Neoprene.

## SAND MOUND PLAN, NOTES, & PROFILES

# Vineyards @ Cattail Creek 4th ELECTION DISTICT \* HOWARD COUNTY, MARYLAND



Carroll Land Services
Incorporated

Engineers \* Surveyors \* Land Development Consultants

Landscape Architects \* Environmental Specialists

439 East Main Street Westminster, MD 21157-5539

(410) 876-2017 FAX (410) 876-0009

Revisions

Drawn By: DM

## AFFECT | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

County File No.

#### Zabel Filter Model A1800

The New Zabel A1800 Residential Septic Filter M is a true 1/ " filter that will fit in a 4" Sanitary Tee providing a real Residential Septic Filter<sup>TM</sup> at a very low cost.

Effective: A Zabel A1800 Residential Septic Filter<sup>rst</sup> installed in a 4" Sanitary Tee provides the protection and effectiveness of 1/16" filter slots, the same size as found in the Big A100 Commercial Septic Filter. No other filter or screen has been proven more effective.

No Increase in Servicing Frequencies: Solids filtered out of the effluent stream attach to the vertical cylinder wall and drop to the bottom of the tank when the tank is in a resting state. The A1800 Filter may be serviced at the time the tank is normally inspected and pumped and does not increase the frequency of service.

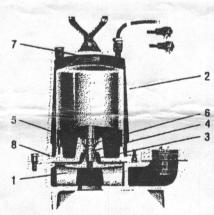
Easy to Install: The A1800 fits a 4" Sanitary Tee.

Easy to Service: When the tank is normally inspected, pull the cartridge out by grasping the handle and pulling upward. Tap the cartridge on the inside of the inspection port or hose off into the tank if needed and reinstall.

> Table 1 How the Filter Works

- The filter first stills the water exiting the Tank by forcing the effluent over a horizontal Weir. This prevents solids carried by wastewaters or gases from exiting the tank as in tanks with a conventional tee. Contained within the filter are over 61 lineal feet of weir dams.
- Second, the opening between each weir dam is only 1/16 of an inch. Solids any larger than 1/16 of an inch are trapped within the filter and tend to fall back to the bottom of the tank.
- Finally, microorganisms grow on the edges of the weir. The microorganisms not only reduce the size of the opening for solid particles exiting the tank, but they also tend to digest the solids passing over the weir, further treating the effluent.

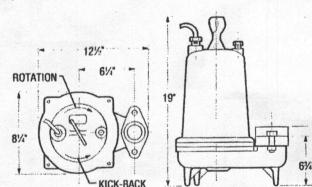




**Submersible Sewage Pump** 

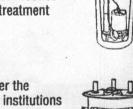
3887

(All dimensions are in inches. Do not use for construction purposes.)



SIMPLEX AND DUPLEX SYSTEMS

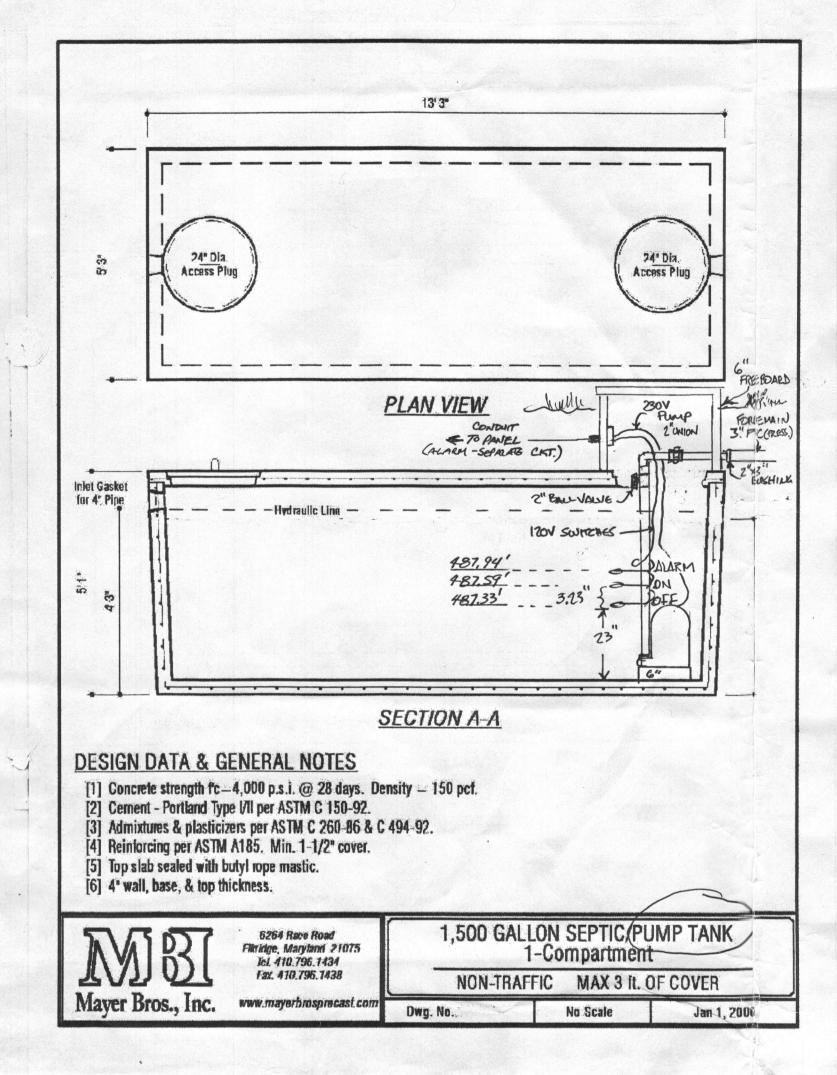
Simplex Ejector Systems: are used where drain facilities are below existing sewer lines. Also can be used for septic tank applications where wastewater must be pumped away from tank for treatment

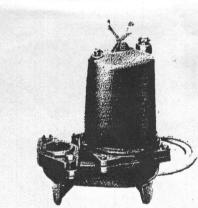


necessary safety required by institutions

	Flan	ged Dis	charge Se	wage Pumps,	2" Soli	ds						Perfo	rman	ce Ra	tings (	gallon	s per m	inute)						
			I		Mary Land		100 (Iba )			^			Tota	l Head	I – Fe	et of V	Vater							
Order No.	HP	PH	Volts	Max. Amps.	RPM	Heaters	Wt. (lbs.)	5	10	(15)	20	25	30	35	40	45	50	55	60	65	70	75		
WS0311BF		1/3 1	115	9.8		NA	63	108	76	30		1			100									
WS0312BF	1/3		230	4.9	INA	TWO .	03,	100	10	30														
WS0511BF			115	14.5		NA																		
WS0512BF		1.	230	7.3			197	IVA																
WS0538BF	1/2		200	3.8		A STATE OF THE PARTY OF THE PAR	K31	150	150   120   9	120 90	90	52	52 8	8										
WS0532BF		3	230	3.3																				
WS0534BF		1	460	1.7		K21														- 34	-			
WS0712BF		1	230	9.4	1750	1750 NA				1 .1	,													
WS0738BF	1/4		200	4.1	K	K33	170	0 150 122	90	46	12	0												
WS0732BF	74	3	230	3.6		K32			100 12	1	00													
WS0734BF			460	1.8		K23																		
WS1012BF ·		1	230	12.3		NA																		
WS1038BF			200	6.0	K42 85 K41 K29			158 1	127	7 96	62	20												
WS1032BF	•	3	230	5.8		K41 K29		1																
WS1034BF			460	2.9																				
WS1012BHF		1	230	12.5		NA			164	164 13						20								
WS1038BHF			200	8.1		K43					138	116 95	95 69	69	41									
WS1032BHF		3	230	7.0		K43							-											
WS1034BHF			460	3.5		K32																		
WS1512BHF		1	230	17.0	3500	NA																		
WS1532BHF	11/2	3	200/230	10.0/9.6	K54	9.6				192	178	160	140	120	100	78	55	35	16					
WS1534BHF		3	460	4.8		K37	92																	
WS2012BHF		1	230	18.0		NA	32														1			
WS2032BHF	2	3	200/230	12.0/11.6		K55					214	198	183	168	151	135	118	99	80	62	13	25		
WS2034BHF		3	460	5.8		K41																		

**MIT Industries** 





m Casing: Cast iron flanged

efficiency. Designed for easy estallation on A10-20 slide rail.

m Mechanical Seal: SILICON

CARBIDE VS. SILICON

**CARBIDE** sealing faces for superior abrasive resistance,

stainless steel metal parts,

400 series stainless steel.

Threaded design. Locknut on

BUNA-N elastomers.

**Submersible Sewage Pump** 

3887

Specifically designed for the Sewage systems Light industrial Commercial applications Anywhere waste or drainage must be disposed of quickly

SPECIFICATIONS · Solids handling capabilities: 2" maximum. · Capacities: up to 220 GPM.

 Total heads: up to 81 feet TDH. as standard. 3" option available but must be ordered 104°F (40°C) continuous 140°F (60°C) intermittent. Fasteners: 300 series stainless

damage to components.

 Designed for continuous operation, when fully submerged.

dynamically balanced with

seal protection. Semi-open

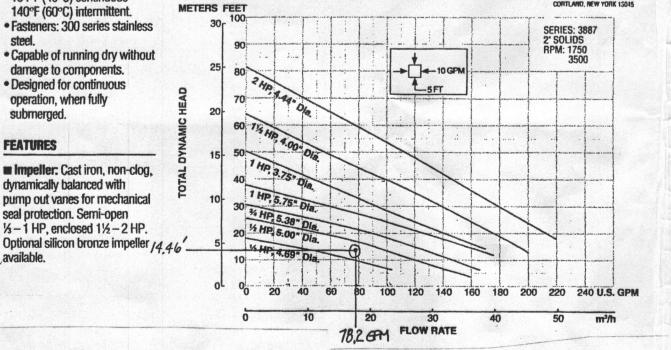
Single phase (60 Hz): • % - 1 HP, 230 V, 1750 RPM •1-2 HP, 230 V, 3500 RPM with 115 V or 230 V three Three phase (60 Hz):

• ½-1 HP. 200 V or 230 V or three phase models to quard against component damage on • 1 HP, 200 V or 230 V or accidental reverse rotation. 460 V, 3500 RPM • 11/2 - 2 HP, 200/230 V c 460 V, 3500 RPM. Overload protection must be provided in starter unit. grade turbine oil for lubrication • ½-2 HP-14/4 STO with and efficient heat transfer. All bare leads. On CSA listed ratings are within the working models - 20 foot length

■ Bearings: Upper and lower m Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available. **■ Motor Cover O-ring:** Assures contaminant and oil leakage Consult factory for information on CSA listed models.

Underwriters Laboratories
File #83318 ETL Listed Submersible Pure G1086131480/File #23649 CLASS II AND II DVI. 2 AND CLASS III DVI. 1 AND 2 ETL TESTING LABORATORIES, INC. CORTLAND, NEW YORK 15045

**AGENCY LISTINGS** 



VINHIAKUS CE CATTAIL CREEK REPLACEMENT SAND MOULD (LANDSTATE POSITION) 600 GPH DESIGN FLOW **EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS** Absorption bed ft.<sup>2</sup> (A  $\times$  B) = Design flow = 500 ft.<sup>2</sup> 1.2 gpd/ft.2 Bed length (B) = 55.5 ft. (21 ft. to 101 ft. dependent on site) Bed width (A) = Bed  $500 \text{ ft.}^2 = 9 \text{ ft.}$  (15 ft. or less) Upslope sand fill depth (D) = 48 in. – Z in. =  $\frac{12}{100}$  in. (12 in. min.) Downslope sand fill depth (E) = [12 A × % slope] + D in. =  $\frac{24.96}{11}$  ir (2.08) (2'1") Cap + topsoil at bed center (H) = 18 in. Cap + topsoil at bed edge (G) = 12 in. (F) = 10 in.Sideslope setback (K) =  $[(D + E) + 28 \text{ in.}] \times 3 = 139.44 \text{ in.} (11.67)$ SLOPE 11-12% (USED , 2 %) Upslope setback (J) = (22 in. + D)  $\times$  3  $\times$  upslope corr. factor =  $\frac{74.46}{6}$  (6.2') (6'2") Downslope setback (I) =  $(22 \text{ in.} + \text{E}) \times 3 \times \text{downslope corr. factor} = \frac{221.18 \text{ in} (18.4 \times 18.5)}{221.18 \text{ in} (18.4 \times 18.4)}$ Total Width of Mound (W) = 12A + J + I =  $\frac{403.64}{100}$  in  $\frac{(33.63)}{(337)}$ Total Length of Mound (L) = 12B + K + K = 944.88 in (18.74)(787)ADDITIONAL DATA [if required]

Basal Area [Ft'] required: design flow (gpd)

Soil perc. rate (loading rate) 600 GPL - 1200 FT Slope:[Bed width+downslope setback] X Bed length 27.4' x555 = 1521-ft |

26% LABER THAN REQ.

4 BED ROOM GOOGRI DESIGN FLOW TABLE 3.1 (30 MN € ZI". **EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS** CANDSCAPE PESITIONS DIVERSENT BACKSLOPE (DBS) Absorption bed ft.<sup>2</sup> (A  $\times$  B) = Design flow = 500 ft.<sup>2</sup> Bed length (B) = 85 ft. (21 ft. to 101 ft. dependent on site)  $ft.^2 = 6 ft.$  (15 ft. or less) Upslope sand fill depth (D) = 48 in. -Z in. = \_\_\_\_\_\_ in. (12 in. min.) Downslope sand fill depth (E) = [12 A × % slope] + D in. =  $\frac{20.64}{1.72}$  (1.72) (1'9") 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) =  $[(D + E) + 28 \text{ in.}] \times 3 = 132.96 \text{in.} (11.0) (11.1)$ Upslope setback (J) = (22 in. + D)  $\times$  3  $\times$  upslope corr. factor =  $\frac{74.16}{10.00}$  in. (6.2) (6.2") Downslope setback (I) =  $(22 \text{ in.} + \text{E}) \times 3 \times \text{downslope corr. factor} = \frac{200,83 \text{ in}}{(16.74)(16.9)}$ Total Width of Mound (W) = 12A + J + I = 347.29 in. (28.94')(8'11'')Total Length of Mound (L) = 12B + K + K = 1261.92 in (105.16)(05'2")ADDITIONAL DATA [if required]

Basal Area [Ft\*] required: design flow (gpd)

Soil perc. rate (loading rate)

600

75 (23HIN/IN) Slope:[Bed width+downslope setback] X Bed length 22.74 183 = 1887,4 FT<sup>2</sup>
Level: Mound length X width 135% LARGER

INTIAL SAND MOUND DISPOSAL AREA (GREA 4 - TESTS SM #6:#7)

VINLYMUSE CALLALL CKEIN

LOT# 6

SAND MOUND PLAN, NOTES, & PROFILES LOT 6

Vineyards @ Cattail Creek 4th ELECTION DISTICT \* HOWARD COUNTY, MARYLAND



Engineers \* Surveyors \* Land Development Consultants Landscape Architects \* Environmental Specialists (410) 876-2017 FAX (410) 876-0009

Drawn By: DM 10/4 KENSIONS PER HO. CONT CONDENTS PS Designed By: Reviewed By: ALH Date: 6/24/2002 Scale: AS SHOWN Job No.: 2001225 Sheet: 3 of 3

County File No.