

8/14/01
Layout
1:30 PM
9/14/01 -
pump test
1 PM
Follow-up
NO
type
doc.

Bed inspect.
PM

PERMIT

P 515964-A

SEWAGE DISPOSAL SYSTEM
HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
410-313-2640

A 58596

ISSUE DATE 7/31/2001

APPROVAL DATE 9/14/01

INDEXED

Fogles Septic Clean, Inc IS PERMITTED TO INSTALL ALTER

ADDRESS 580 Obrecht Road, Sykesville, MD 21784 PHONE 410-795-5670

UBDIVISION Laniado Property LOT NUMBER 5 ADDRESS 17029 Frederick Road

PROPERTY OWNER G&M Partnership PROPERTY OWNER'S ADDRESS 7020 Gardner Lane

SEPTIC TANK CAPACITY _____ GALLONS *ANDREW HELZER*

PUMP CHAMBER CAPACITY _____ GALLONS

NUMBER OF BEDROOMS 4 *04-362187*

SQUARE FEET PER BEDROOM _____

LINEAR FEET OF TRENCH REQUIRED _____

TRENCHES: Trenches to be _____ feet wide. Inlet _____ feet below original grade. Bottom maximum depth _____ feet below original grade. _____ feet of stone below distribution box.

LOCATION: _____

BUILDING PERMIT SIGNED

AND RETURNED

5-2803 B00142120-DECK

SEE APPROVED SAND MOUND DESIGN PLANS.

PLANS APPROVED Amy McMillen *4/25/01 OK (BA)* DATE 4/2/2001

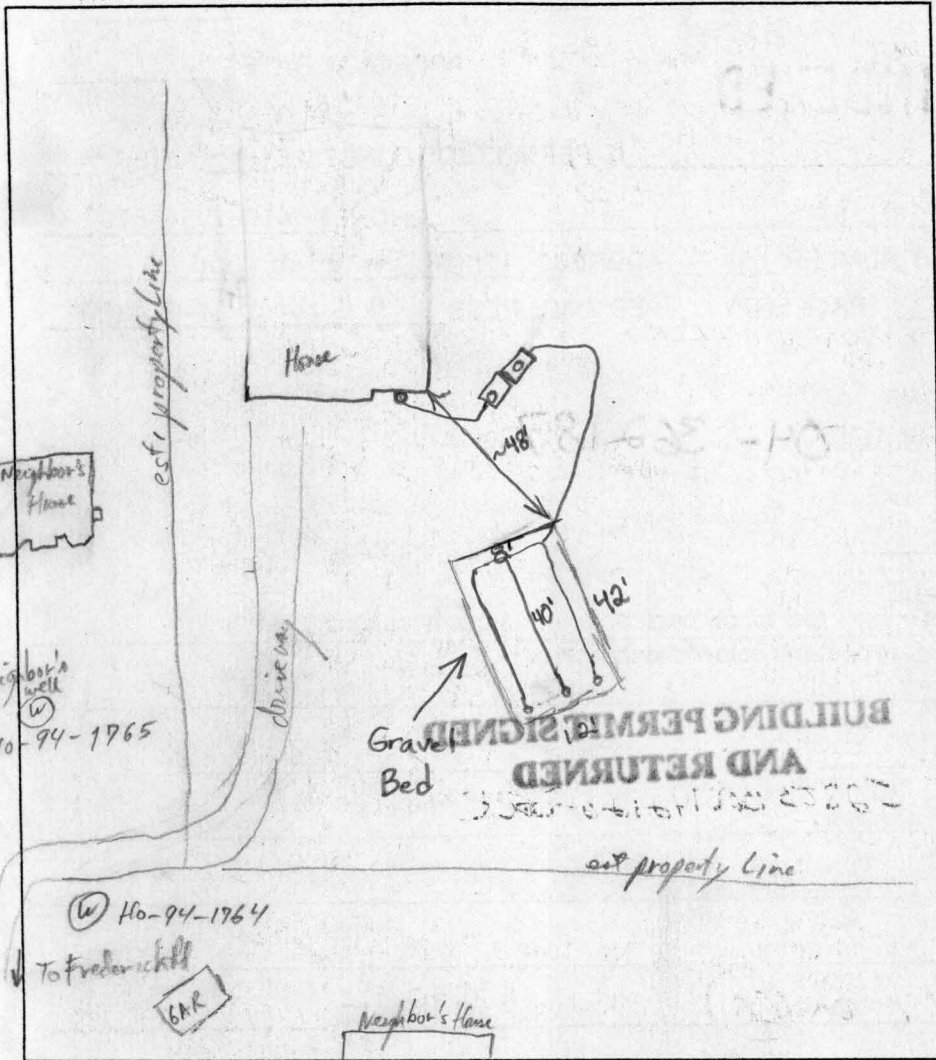
PERMIT VOID AFTER 2 YEARS

- NOTE: CONTRACTOR RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION INSPECTION FOR ALL INSTALLATIONS
- NOTE: TOP OF SEPTIC TANKS ARE TO BE NO DEEPER THAN 3.0 FEET BELOW FINISH GRADE
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: CLEANOUT REQUIRED EVERY 70 FEET OF SEWER LINE AND/OR AT 90° SWEEPS IN LINES FROM HOUSE TO DRAIN FIELDS, 90° ELBOWS ARE NOT ACCEPTABLE
- NOTE: ALL PARTS OF SEPTIC SYSTEMS (I.E. TANK, DISTRIBUTION BOX, DRAINFIELDS) TO BE 100 FEET FROM ANY WATER WELL UNLESS OTHERWISE SPECIFICALLY AUTHORIZED
- NOTE: NO ABSORPTION TRENCH TO EXCEED 100 FEET IN LENGTH UNLESS SPECIFICALLY AUTHORIZED
- NOTE: ALL PIPE FROM HOUSE TO SEPTIC TANK MUST BE CAST IRON OR SCHEDULE 35/40 PVC OR ABS
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: DISTRIBUTION BOXES MUST HAVE BAFFLES
- NOTE: IF PUMPED SEPTIC SYSTEM REQUIRED, (1) SEPTIC PUMP DETAIL TO BE PROVIDED BY INSTALLER PRIOR TO ISSUANCE OF SEPTIC PERMIT (2) PUMP PERFORMANCE TEST IS NECESSARY PRIOR TO HEALTH DEPARTMENT APPROVAL OF SEPTIC 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 CALL 410-313-2640 FOR INSPECTION OF SEPTIC SYSTEM

P 515964-A

NOT TO SCALE



TRENCH DATA *Sand Mound*

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 _____

SEPTIC TANK DATA

SEPTIC TANK 1500 TS ^{2 comp.} GALLONS

MANHOLE RISER (2 FT)

6 INCH INSPECTION PORT No

PUMP CHAMBER DATA

PUMP CHAMBER GALLONS 1250 TS

MANHOLE RISER (2 1/2 FT)

ALARM _____

PUMP PERFORMANCE TEST _____

PRE-CONSTRUCTION INSPECTION: Revised S.T. & P.C. location & sealman & stock pile OK due to tight working area. Sand is OK texture & uniformity. Bed & SM corner stake out is OK - (upper edge of Bed is level ±). SE side slope of SM has minor eroded depression, Near Sand fill replaced - OK Layout is OK to begin SM after. Binside trees stumps are ground down lower (only 4" or less of sticks). *PP8/28/01*

INSPECTION COMMENTS: Septic Tank & pump chamber set OK to cover. *PP8/28/01* Sand is piled on upper *PP8/28/01*

Remove SM site, OK to move & track Bobcat. Note soil is too wet to plan today. I wait until 3rd day of the best rain to plan. *PP8/28/01* ^{8/29/01} Soil check OK & Plan. *PP* - Leray forgot to call for HD inspection as soil was plowed and 6" 10" of sand placed & tractor shaped before inspector arrived on scene - Kurt notified of need for this written documentation. This soil was prepared as per CMAR & requirements of construction. *PP8/29/01* House connection made & covered - OK *PP8/29/01*

8/30/01 - SAND BEING DELIVERED, WORK NOT READY FOR INSP. - (SR) 9/4/01 Gravel bed done. Laterals O.K.

9/14/01 PUMP & ALARM OK; H₂O OVERFLOWS TURN-UP PIPES (MK)

INSPECTOR M. Ripkin DATE SYSTEM APPROVED 9/14/01

#1201
Approved
Calc. JDC

$$14 \text{ Bed rooms} \times 150 = 600 \text{ gpd} -$$

$$\text{DESIGN APPLICATION RATE} - 1.2 \text{ gpd/ft}^2$$

$$600 / 1.2 = 500 \text{ Sq. Ft.} \quad \text{BED} - 12' \times 42' = 504 \text{ Sq. Ft.}$$

$$\text{SLOPE} = 12 \text{ } 70$$

$$\text{SAND DEPTH} - 24'' \text{ high side} -$$

$$\text{Low side} = 24'' + (0.12 \times 144) = 24'' + 17.3'' = 41.5''$$

$$\text{UP SLOPE SETBACK} = (24'' + 22'') (3) (0.73) = 101'' = \underline{8' - 5''}$$

$$\text{DOWN SLOPE SETBACK} = (41.5'' + 22'') (3) (1.57) = 298'' = \underline{24' - 10''}$$

$$\text{SIDE SLOPE SETBACK} = \left[\frac{24'' + 41.5''}{2} + 28'' \right] (3) = 182'' = \underline{15' - 2''}$$

$$\text{MOUND LENGTH} = 42' + 15' - 2'' + 15' - 2'' = 72' - 4''$$

$$\text{MOUND WIDTH} = 12' + 8' - 5'' + 24' - 10'' = 45' - 3''$$

* Basal area calculations not needed - 17 mpi. perc rate

$$\text{Dose} - 5 \times 40.25 = 201' \text{ of } 1\frac{1}{2}'' - 2.01 \times 10.6 = 23 \text{ gal.}$$

$$20' - 3'' = 0.2 \times 38.4 = 8 \text{ gal.}$$

$$\sqrt{600/6} = 100 \text{ gal. dose} = 13.4 \text{ cu ft.} \quad (100/7.48 \text{ gal/liquid/cubic ft.})$$

$$\text{base of Pump Chamber} = 40 \text{ Sq. Ft.} \left(8' \text{ L} \times 5' \text{ W} \right)$$

$$13.4 \text{ cu ft.} / 40 \text{ Sq. Ft.} = 0.33' = \underline{4''} \text{ depth}$$

$$\text{EMERGENCY STORAGE} - \text{TO EXIT INVERT ELEV. OF} -$$

$$\text{SEPTIC TANK} = 26'' = 2.17' \left(\leq 24.3'' \right)$$

$$2.17' \text{ dept} \times 40 \text{ Sq. Ft. Chamber bottom} = 86.8 \text{ cu ft.}$$

$$86.8 \text{ cu ft. storage} = 649 \text{ gal.}$$

$$\text{Pump Rate} - @ 2' distal head - 5/16'' perforation = 1.63 \text{ gpm}$$

$$3 \text{ laterals @ 12 perforations} = 36 \times 1.63 = \underline{59 \text{ gpm.}}$$

$$\sqrt{\text{TDH} - \text{ELEV. DIFFERENCE} = 723.66 - 714.5 = 9.2'}$$

DISTAL HEAD 2.0'

Friction - 59 gpm -

2" line = (in pump chamber) - equiv. Length

6' + ball valve + 90° + union + 90° + 90°

$$6 + 1.3 + 7 + 2 + 7 + 7 = 30.3'$$

THIS FORMULA COMES FROM MANUFACTURERS (PVC) HANDBOOK - NOT MDE

F @ 59 gpm - 30.3' of 2" PVC

$$F = 0.0984 \frac{Q^{1.85}}{d^{4.87}} = \frac{59^{1.85}}{2.067^{4.87}} = 0.0984 \frac{1888.3}{34.33} = 5.4/100$$

$$F - 2' = (30.3)(5.4) = \underline{1.6'} \text{ ft of head friction loss}$$

$$\sqrt{3" \text{ Line} = 20' + 90' + T}$$

$$20 + 15 + 10 = 45'$$

F @ 59 gpm - 45' of 3" PVC

$$F = 0.0984 \frac{59^{1.85}}{3.068^{4.87}} = 0.0984 \frac{1888.3}{234.96} = 0.8/100'$$

$$F - 3" = (0.45)(0.8) = 0.36'$$

$$\text{Total } F = 0.36' + 1.6' = 2'$$

$$\text{TDH} = 9.2' + 2.0' + 2' = 13.2'$$

59 gpm @ 13.2' TDH

Pump should be Goulds Model 3885-WE0311 M
or equal

TERTIARY

TABLE 3.1

EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS

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

Bed length (B) = $\underline{63}$ ft. (21 ft. to 101 ft. dependent on site)

Bed width (A) = $\frac{\text{Bed } 625 \text{ ft.}^2}{B \ 63 \text{ ft.}} = \underline{10}$ ft. (15 ft. or less)

Upslope sand fill depth (D) = 48 in. - Z in. = $\underline{12}$ in. (12 in. min.)

Downslope sand fill depth (E) = [12 A x % slope] + D in. = $\underline{23 \ 35''}$ in.

Cap + topsoil at bed center (H) = $\underline{18}$ in.

Cap + topsoil at bed edge (G) = $\underline{12}$ in.

Total Bed Depth (F) = $\underline{10}$ in.

Sideslope setback (K) = $\frac{[(D + E) + 28 \text{ in.}] \times 3}{2} = \underline{137. \ 172.5}$ in. = $\underline{14,375'}$ (1438 ft)

Upslope setback (J) = (22 in. + D) x 3 x upslope corr. factor = $\underline{82'' \ 110.4''}$ in. = $\underline{9.2ft}$

Downslope setback (I) = (22 in. + E) x 3 x downslope corr. factor = $\underline{195}$ in. = $\underline{20.52ft}$

Total Width of Mound (W) = 12A + J + I = $\underline{397}$ in. = $\underline{33.09}$ spec 40' SM 35'

Total Length of Mound (L) = 12B + K + K = $\underline{1030}$ in. = $\underline{85.8}$ spec 92'

TABLE 3.1

#1
PRIMARY & SECONDARY

EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS

Loose cases

Absorption bed ft.² (A x B) = Design flow / 1.2 gpd/ft.² = 750 GPD / 1.2 gpd/ft.² = 625 ft.²

Bed length (B) = 63' ft. (21 ft. to 101 ft. dependent on site)

Bed width (A) = Bed / B = 625 / 63 = 10' ft. (15 ft. or less)

Upslope sand fill depth (D) = 48 in. - Z in. = 12" - 24" in. (12 in. min.)

Downslope sand fill depth (E) = [12 A x % slope] / 12 (in) (0.05) + D in. = 24" + 12" = 36" 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) = [(D + E) + 28 in.] x 3 = (12 + 36) + 28 = 76 x 3 = 228 in. = 19.0' (Note: 24+30=54, 54+28=82, 82x3=246, 246/12=20.5')

Upslope setback (J) = (22 in. + D) x 3 x upslope corr. factor = (22 + 12) x 3 x 0.89 = 91 x 0.89 = 80.91 in. = 6.74'

Downslope setback (I) = (22 in. + E) x 3 x downslope corr. factor = (22 + 36) x 3 x 1.22 = 147 x 1.22 = 179.34 in. = 14.94'

Total Width of Mound (W) = 12A + J + I = 12(10) + 81 + 147 = 358 in. = 29.8'

Total Length of Mound (L) = 12B + K + K = 12(63) + 228 + 228 = 1014 in. = 84.5' (Note: 90.5')

Use biggest envelope for manhole
Septic Area - if cost plus allow for smaller

Use along calculate on 24" sand fill
for dedicating Sewage Disposal Easement
Sand Mound upper edge of beds may vary 12" up and as they calculate

not because of poor orientation to above contours, the long ends of beds (and in between) will be placed over sites as slightly above contours (est 1/4") therefore greater vertical soil fill will be necessary to ensure a level gravel bed as required. actual width of sideslope downslope + upslopes will all be bigger than originally calculated.

Lincoln Property Co

Paul Bogle 301-865-5858
of Neuff

#1
PRIMARY & SECONDARY

TABLE 3.1

EQUATIONS FOR CALCULATING SAND MOUND DIMENSIONS

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

Bed length (B) = 63' ft. (21 ft. to 101 ft. dependent on site)

Bed width (A) = $\frac{\text{Bed } 625 \text{ ft.}^2}{B \text{ } 63 \text{ ft.}} = \underline{10'}$ ft. (15 ft. or less)

Upslope sand fill depth (D) = 48 in. - 2 in. = 12" in. (12 in. min.) (24")

Downslope sand fill depth (E) = $\left[\frac{12 \text{ A} \times \% \text{ slope}}{12 \text{ (in)}} (0.05) \right] + D \text{ in.} = \underline{18}$ in. (38")

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) = $\frac{12 + 18}{2} \times 3 = \underline{129}$ in. = 10.75 ft (13.75')

Upslope setback (J) = $(22 \text{ in.} + D) \times 3 \times \text{upslope corr. factor} = \underline{91}$ in. = 7.6 ft (10.24')

Downslope setback (I) = $(22 \text{ in.} + E) \times 3 \times \text{downslope corr. factor} = \underline{147}$ in. = 12.2 ft (15.86')

Total Width of Mound (W) = $12A + J + I = \underline{358}$ in. 30' (36.1')

Total Length of Mound (L) = $12B + K + K = \underline{1014}$ in. 85' (90.5')

Calc's for 2 FT Sand Fill (as expected at bed ends)
= are shown in parenthesis