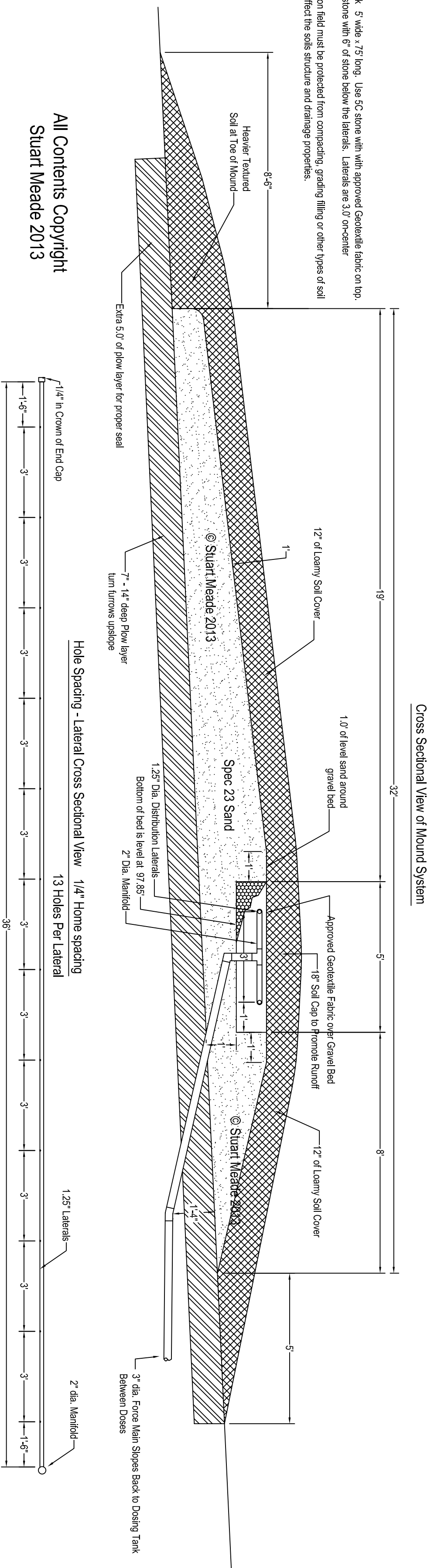


Note: Gravel Bed is 9.5' - 12" thick, 5' wide x 7.5' long. Use 5G stone with approved Geotextile fabric on top. 1 1/4" laterals are covered with 2" of stone with 6" of stone below the laterals. Laterals are 3.0' on-center. The area of the proposed absorption field must be protected from compacting, grading/filling or other types of soil disturbances that may adversely effect the soils structure and drainage properties.



Cross Sectional View of Mound System

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Additional Hydraulic Calculations

Summary of Friction Loss Calculations

0.40 Feet of Friction Loss Through Sim-Tech Filter
0.4759 Feet of Loss in 3" dia. M. 295.99 of Equivalent Pipe Length/100 x 1.02696
2.1989 Feet of Loss in 2" dia. F.M. 295.99 of Equivalent Pipe Length/100 x 7.23469

3.04 Feet of Friction Loss Through Combined 2" dia. + 3" dia. Force Main

Hazen-Williams Equation was used to figure friction loss per 100'

f = 0.2083 (100/C)^{1.49} 852 q^{1.852} / d^{4.8655}

where
f = friction head loss in feet of water per 100 feet of pipe (ft/200/100 ft pipe)

C = Hazen-Williams roughness constant (150 used)

Q = flow rate in gpm

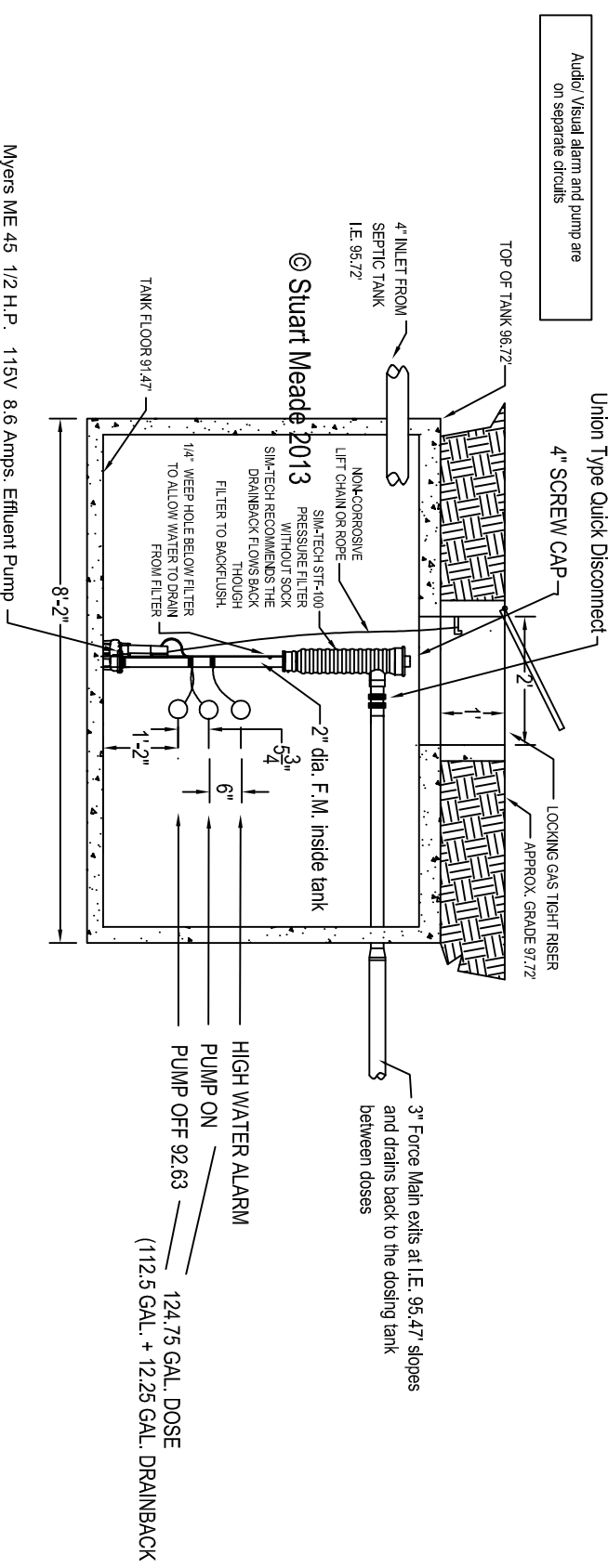
d = inside hydraulic diameter (inches)

Sim Tech Filter Head Used in Calculation		3" Dia. w/ 2" Inside Tank		# Fittings		Eq.	
68.62 GPM	0	0	0	0	0	0	0
0.79 ft. Friction Loss	0.79	4.1	4.1	1	1	15.3	15.3
0.0146 ft. H.L. Screen	0.0146	15.3	15.3	1	1	19.2	19.2
0.0063 psi H.L. Screen	0.0063	15.3	15.3	1	1	44.9	44.9
7.01 Outlet Velocity Loss	7.01	15.3	15.3	1	1	234.67	234.67
0.3859 ft. H.L. 2" Outlet	0.3859	15.3	15.3	1	1		
0.3859 ft. H.L. 3" Outlet	0.3859	15.3	15.3	1	1		
0.3859 ft. Total H.L.	0.3859	15.3	15.3	1	1		
0.1716 psi Total H.L.	0.1716	15.3	15.3	1	1		

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1000 GAL. DOSING TANK BY BECKER & SCRIVENS

21.9 Gallons Per Inch



Proposed Mound Dimensions:

Sand Length: 91 feet
Sand Width: 32 feet
Basal Length: 75 feet
Basal Width: 24 feet
Basal Area: 1800 sq.ft.
Bed Length: 75 feet
Bed Width: 5 feet
Bed Area: 375 sq.ft.

Dosing Tank:

Dosing Tank with Riser to the Ground Surface:
Becker & Scrivens 1000
Gal. per Inch 21.9

Distribution Network:

Diameter of Perforated Distribution Laterals = 1.25 inches
Diameter of Manifold = 2 inch
Length of Manifold = 3 feet
Individual Length of Distribution Laterals = 36 feet
Number of Distribution Laterals = 4
Hole Size Diameter = 1/4"
Hole Spacing = 36"
Number of Holes Per Lateral (Including One in Crown of End cap) = 13
Total Number of Holes in Lats (Including Endcap Holes) = 52
Weep Hole(s) Discharge Rate (with Additional Static Head) : 2.06 GPM

Note: Holes are Drilled every 36" on the Bottom Side of Laterals

Starting 18" in from the Center Line of Manifold

Total Number of Holes Includes one in the Crown of Each End Cap

Distance Between Laterals = 3 feet

Distance From Edge of Gravel Bed = 1 feet

Distance From Ends of Gravel Bed = 1.5 feet

In-Line Design Head = 3 feet
Volume Per Lateral = 2.80 gal
Total Volume of Laterals = 11.19 gal
Flow Per Lateral = 17.15 gpm
Dosing Volume of 112.50 (gal) not including drainback
is > the Volume of Laterals x 7 78.32 gal.

Force Main (Delivery Line):

Diameter of Force main = 3" dia. From Outside of Dosing tank to Manifold
2" dia. Pump to Outside of Dosing Tank
Length of Force Main (Includes 2" dia. Inside Dose Tank) = 33 feet
Friction Loss in Force Main = 3.04 feet
Drain Back to Dose Tank (Including Manifold) = 12.25 gal.

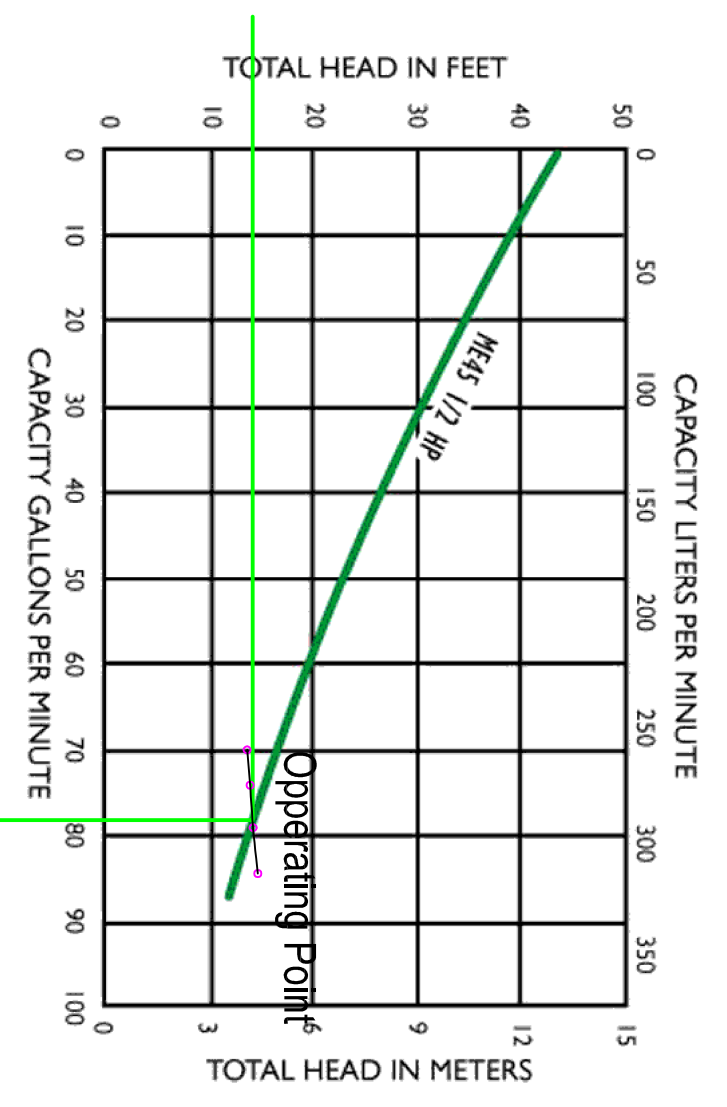
System Head:

Friction Loss: 3.04 feet (includes all fittings, valves, etc)
Static Lift: 5.83 feet
System Design Head: 3 feet
Total Dynamic Head: 11.87 feet

Pumping:	68.62 GPM (Includes Actual Weep Hole Discharge Rate)
TDH:	11.87 feet

Drainback:

Amount of Dose: 12.25 gal
Inches Between On and Off: 5.70 inches
Tank Floor: 91.47
Pump On Elevation: 93.10
Pump Off Elevation: 92.63
Pump : Myers ME 45 1/2 H.P. 115V 8.6 Amps. Effluent Pump
Pump On/Off Must be set to Deliver 124.75 gals. Per dose including drain back



10/02/13 Corrected Gravity Sewer Specs, Added Lateral with Holes, Added new Borings

DATE	REVISION

MEADE SEPTIC DESIGN Inc.

WWW.SEPTICDESIGN.COM

John Andrews - IOWPA
4430 s. 500 W. Pleasant Lake
Steuben County

- All measurements must be confirmed by the excavator prior to installation
- Surface inspection shows no signs of buried obstructions
- All utilities must be marked prior to any digging or excavation
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DATE 09/17/13 ANDREWS2_2756.DWG
SCALE 1" = 3' PAGE 2 of 2 JOB# 2756

Myers ME 45 1/2 H.P. 115V 8.6 Amps. Effluent Pump