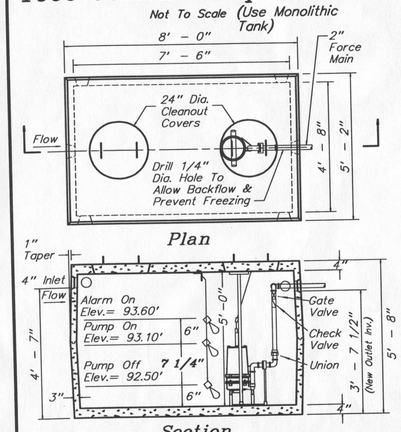
1000 Gallon Pump Station

Not To Scale (Use Monolithic Tank)



Plan

Section

(Tank Shall Be Watertight)

Backflow Calculation:
287 ft x [3.14(1/12)^2]sq ft = 6.26 cu ft = 46.8 Gal's

Dose Calculation:
Dose = Daily Flow / 4 = 110 GPD
Total Dose = (Dose + Backflow) = 440 + 46.8 = 156.8 Gal's

Constant Liquid Depth:
(Backflow Ht + 6 in) 2 in + 6 in = 8 in

Pump Parameters:
T.D.H. = 18.2 ft to 18.8 ft @ 40 G.P.M.

Pump Selected:
Use one (1) submersible wastewater pumps equivalent to model no. SEV412 manufactured by Barnes Pumps Inc., Piqua Ohio.
Motor: 3.12" Dia. Impeller, 0.5 HP, 115 Volt, single phase.

Level Control Switches: (Use Barnes or Equivalent)
NEMA 1 Control Box (115v): model # 65557
Mercury Control Switches (Pipe Mounted): model # 73617
High Water Alarm – Audible and Visual: model # 61487
1" Galvanized, Schedule 40 Switch Mounting Pipe: model # 41839

Note: Mount panel in dwelling at owners specified location. Alarm to be separate circuit from pump controls. Install High Water Visual Alarm in Kitchen Area.

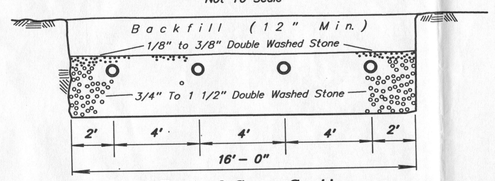
Pump shall be wired to operate in the following sequence:
- Pump Off
- Pump On
- Alarm On

There will be approximately 445 gallons of storage after alarm on.

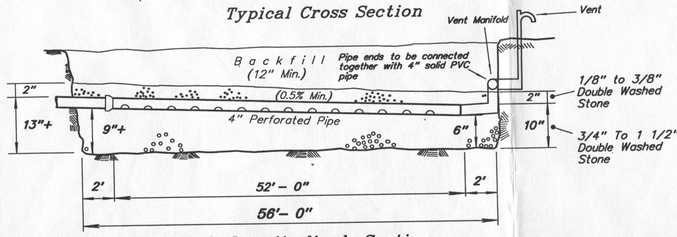
Note: Core New Outlet Invert For 2" Force Main 3' – 3 1/2" From Inside Bottom Of Tank (Inv. Elev Out = 95.30')

Leach Bed (16' x 56')

Not To Scale



Typical Cross Section



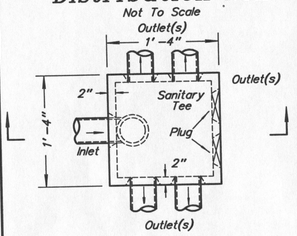
Typical Longitudinal Section

Notes:
1. Double Washed Stone Shall Be Free From Irons, Fines & Dust In Place.
2. Bottom Of Bed Shall Be Scarified to A Depth Of 6" Before Stone Is Placed

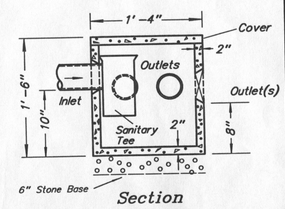
Leach Bed Capacity:
Leach Bed Capacity Based On Percolation Rate Of 2 Min./Inch (Class 1)
Leaching Area Required = 660 G.P.D. / 0.74 G.P.D./S.F. (Based on bottom area only) = 892 S.F.
Use 16' X 56' Leach Bed: Area = 896 S.F., Capacity = 663 Gal.

Distribution Box

Not To Scale



Plan



Section

1 Inlet & 4 Outlet(s)

Note: Outlet distribution lines shall be laid level for a minimum of the first two feet of their length.

Design Data

1. Percolation test was performed on March 14, 2002 by Neve Associates, Inc. and observed by Kendell Longo for the Boxford Board of Health.
2. Percolation rate: 1" in <2 minutes. (Class 1)
3. Design flow (Title 5): 4 bedrooms x 110 gallons per bedroom per day = 440 G.P.D.
4. Septic tank required: Design flow; 440 G.P.D. x 200% equals 880 gallons per day.
5. Septic tank selected: 2–compartment, monolithic, 1500–gallon tank
6. Design flow (Local Board of Health): 4 bedrooms x 165 gallons per bedroom per day = 660 G.P.D.
7. Leaching area required: (see system section detail)
8. Piping shall be 4" schedule 40 P.V.C., unless noted otherwise. (see system profile)
9. Any unused inlets or outlets shall be plugged. Use hydraulic compound connections to provide watertightness at septic tank and distribution box inlets and outlets.
10. This system design will accommodate a garbage grinder. However, the use of one is not recommended by the design engineer.
11. Materials and installation shall be in accordance with the Massachusetts Environmental Code (Title 5) and the Sanitary Code of the Local Board of Health.
12. The Design Engineer in the presence of the town health agent shall perform periodic inspections of this facility. Upon completion of the construction, the Design Engineer shall certify that the installation was made in accordance with his design.
13. No driveways shall be constructed within 10 feet of any portion of this sanitary disposal system.
14. No portion of this sanitary disposal system shall be within 10 feet of any constructed water service.
15. This design is not a guarantee of the system's performance. This system shall be serviced on an annual basis to increase its' overall life expectancy.
16. There are no wells or wetlands within 150' of this leaching facility.
17. This design complies with the Massachusetts Wetlands Protection Act.
18. Fill Requirement: Remove all topsoil, subsoil & fill for a distance of 5 feet beyond the leaching facility. Replace with fill as specified in 310 CMR 15.000, "Title 5" section 15.255 (3). For the boundary of the fill requirement, see plan view, cross–hatched area.

Impervious Barrier:

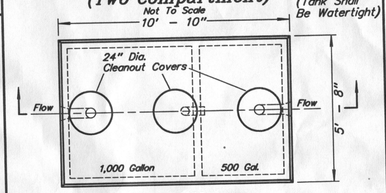
Use High Density Polyethylene (HDPE) Barrier or Equivalent, 40 Mil Thick.

Top Elev. = 102.7'
Bottom Elev. = 96.4'

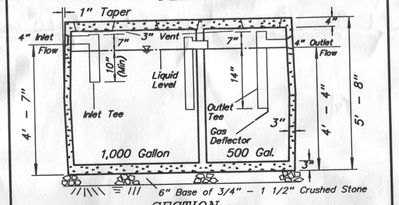
Barrier shall be installed at least 5' from leach bed. Backfill with clean fill with stones no larger than 3" diameter.

Monolithic 1500 Gallon Septic Tank (Two Compartment)

Not To Scale (Tank Shall Be Watertight)

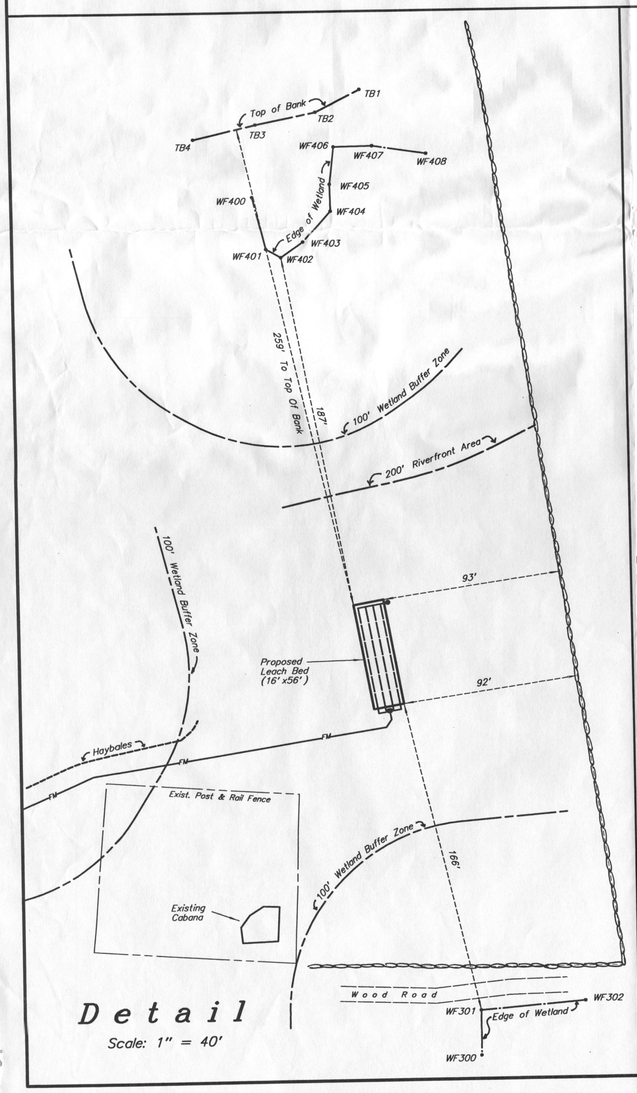


~ PLAN ~



~ SECTION ~

Notes: 1. Reinforcing: 6x6/10x10 W.W.M. and fibers.
2. Heavy duty septic tank tops reinforced with 5/8" rebar @ 12" O.C., each way.



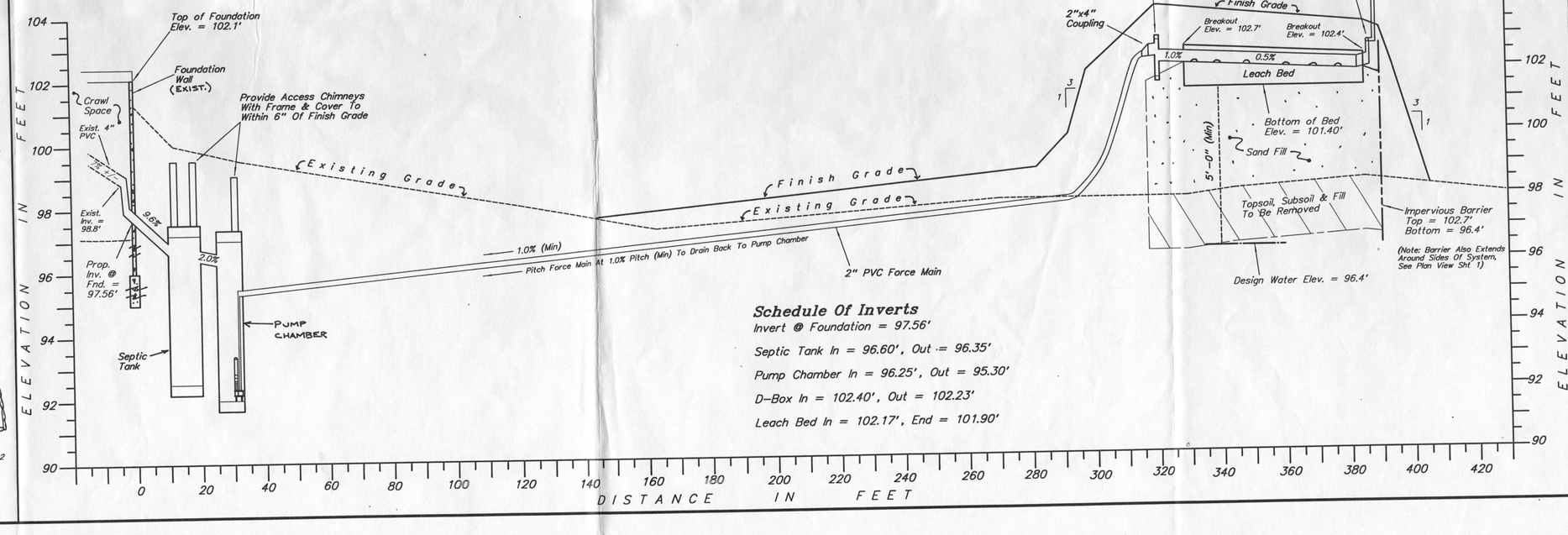
Detail

Scale: 1" = 40'

System Centerline Profile

Scales: Hor. 1" = 20' Ver. 1" = 2'

[Note: All pipe to be 4" P.V.C. (Sch. 40).]



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Designed By: J.M.M./G.J.H.
Drafted By: J.M.M./G.J.H.
Checked By: J.M.M.
Scale: As Noted
Date: April 1, 2002

No.	Revisions: Description	Date

Sanitary Disposal System Repair
Designed For
Richard Freund
12 Mortimer Road
Boxford, Massachusetts

Drawing No. S–2156
Sheet No. 2 Of 2