

**PIPING SCHEMATIC OF WATER HEATER**  
NO SCALE

#### ELECTRICAL COMPONENTS

1. Contractor shall furnish a main breaker panel as manufactured by Siemens Model #g4242mb3200cu or equivalent.
2. Breaker panel shall be single phase, 30-42 circuits, 400 amperes, 4 wire, 230 volt ac.
3. Enclosure shall be NEMA rated for indoor use.
4. 120 volt circuit breakers installed in main breaker panel shall be Siemens or equivalent.
5. Contractor shall supply a heavy duty main switch panel as manufactured by Siemens, Model h1324n rated at 200 amperes, 3-pole, 3 fuse, with solid neutral or equal.
6. Fuses shall be f1nr class rk5, 250/600 vac, dual element, time delay, 1/10-600 amperes as manufactured by Littelfuse, Powr-Gard or equivalent.
7. All electric motors shall be single phase rated. 3-Phase power is unavailable.

#### WWTP CONTROL PANEL

1. The WWTP control panel will be furnished by the manufacturer of the treatment plant.
2. Contractor shall mount and connect the WWTP control panel inside the laboratory building as shown on plans.

#### TELEPHONE INTERFACE

1. The contractor shall supply and mount 1 (one) telephone interface and associated wiring into the building.
2. The interface shall be mounted on the outside of the building as shown on the plans.

#### EMERGENCY ELECTRICAL GENERATOR NOTES

1. Contractor shall provide a complete working generator package, delivered and installed on site.
2. The generator shall be a 30 kw unit as manufactured by Cat/Olympian, diesel fueled, with an electronic governor.
3. The generator shall be equipped with battery(s), 6me10, battery charger pbc3ul, and battery rack.
4. The generator shall be equipped with a b series weather protective enclosure.
5. The generator shall be equipped with a shunt trip (100+ amp breakers).
6. The generator shall be equipped with a UL listed, closed top-diked skid mounted fuel tank base, 24-hour capacity with fuel alarm (low level/leak detected) Model FCUL2.
7. The generator cooling system shall be equipped with a coolant heater.
8. The manufacturer shall provide an operations and maintenance manual and wiring diagrams.
9. The generator shall be covered by a warranty for 12 months from the date of initial startup or 18 months from the date of shipping, whichever occurs first.
10. The generator shall be equipped with an automatic transfer switch, CTG series with control panel. The automatic transfer switch shall have over-current protection installed prior to connection to the main breaker panel(s).

#### ELECTRICAL TROUGH NOTES

1. Electrical contractor shall provide electrical wiring troughs as manufactured by Rittal/Elctromat or equivalent. The troughs shall have appropriate run lengths according to the electrical plan.
2. Troughs shall be equipped with knockouts and hinged covers.
3. Troughs are to be manufactured with 14 or 16 gauge steel.
4. Troughs shall be finished inside and outside in polyester-urethane powder coat, ANSI 61 grey.

#### AUTO DIALER NOTES

1. The contractor shall supply 1 (one) auto dialer device as manufactured by United Security Products, Inc. Model # ad-2000 or equivalent.
2. The manufacturer shall provide an owners manual, operation instructions, and wiring diagrams.
3. A manufacturers representative or the contractor shall program the auto dialer on site.
4. The auto dialer shall be tested prior to acceptance. The contractor shall program emergency numbers and messages in accordance with the state regulations. The owner shall supply phone numbers to the contractor.

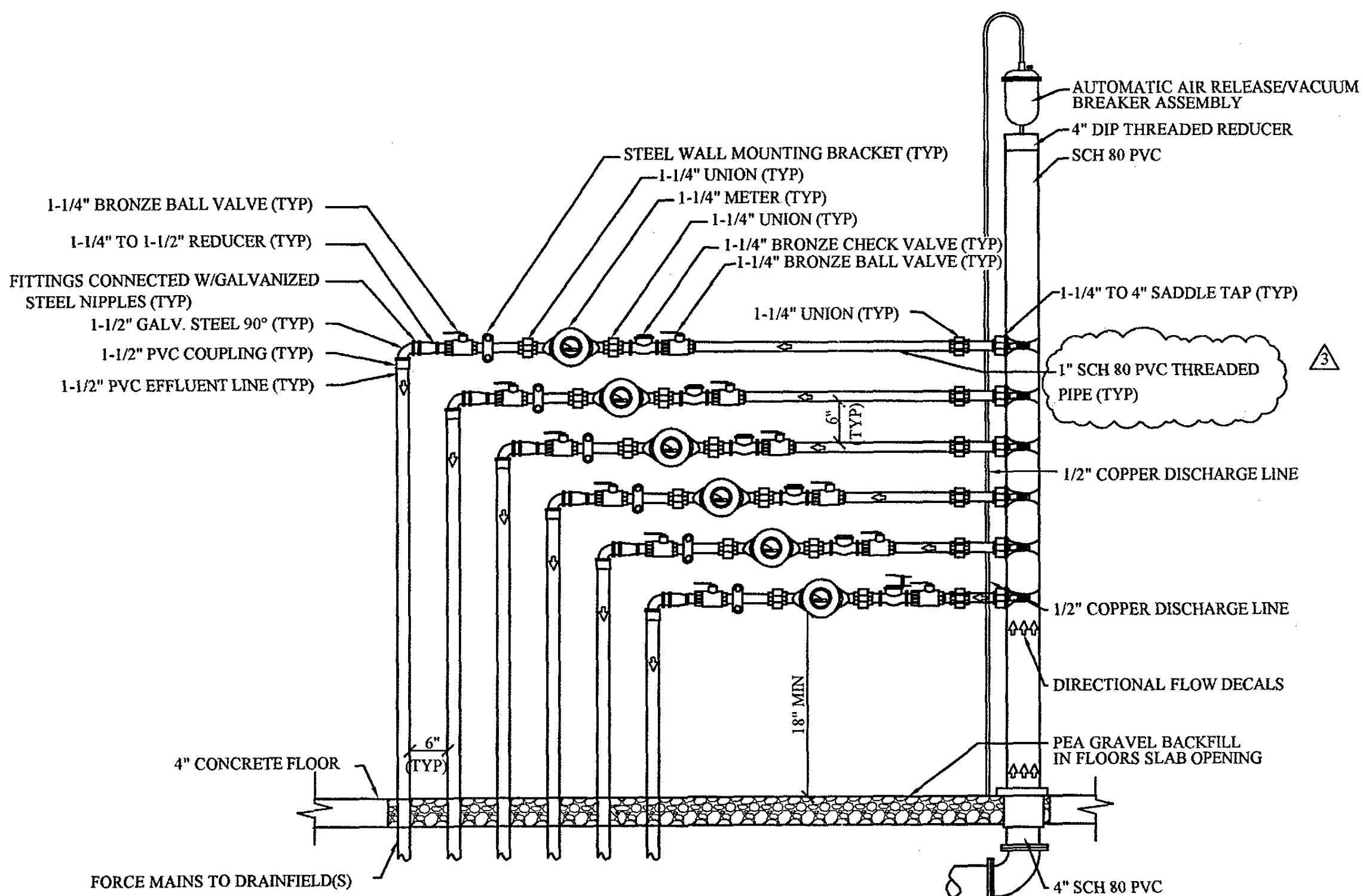
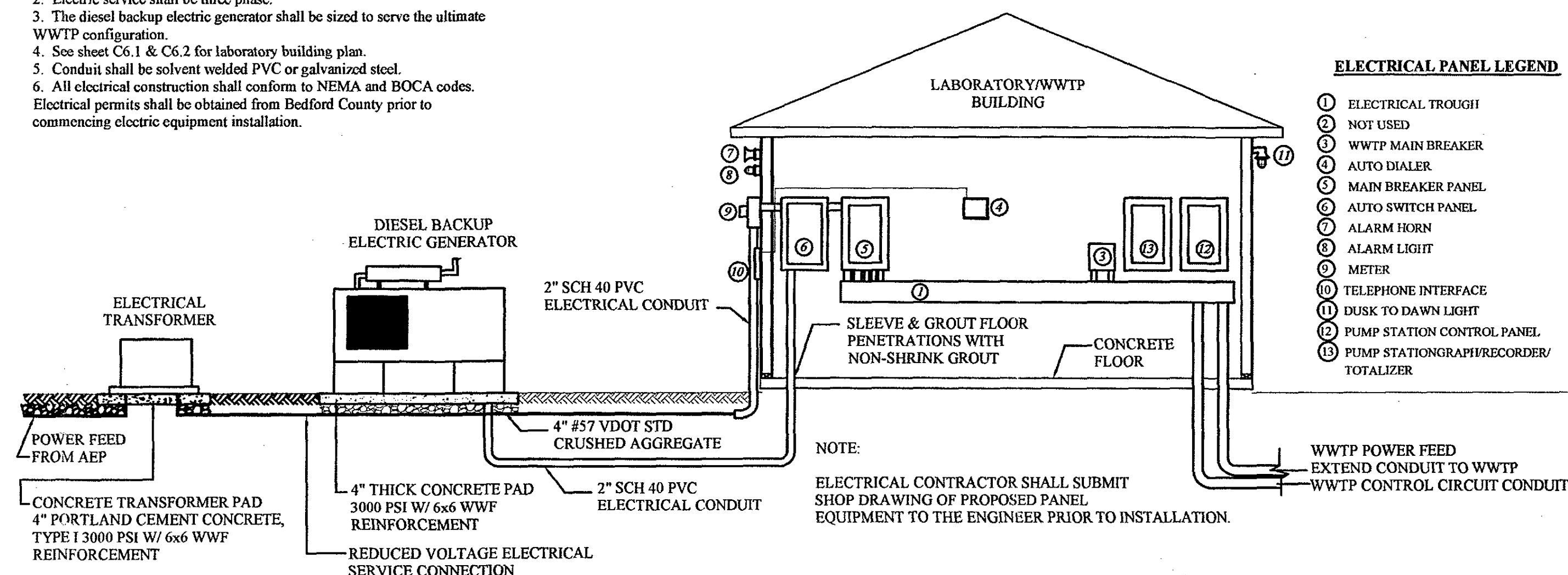
#### AUDIBLE AND VISUAL ALARM NOTES

1. Contractor shall supply an alarm horn as manufactured by Edwards Signaling, Model 876 n5, or equivalent.
2. The alarm unit shall be a weatherproof NEMA 4x enclosure or equivalent.
3. Operating voltage shall be 120 volts.
4. Contractor shall provide a visual alarm light mounted to the outside of the building in accordance with the location on the plans. The light assembly shall consist of an outdoor rated spotlight fixture connected to the audible alarm wiring to indicate alarm conditions. The spot light fixture shall be equipped with a red spotlight bulb.

#### ELECTRIC GENERAL NOTES:

1. Electric service provided by Appalachian Power. Contractor shall coordinate transformer and service installation with electric utility company.
  2. Electric service shall be three phase.
  3. The diesel backup electric generator shall be sized to serve the ultimate WWTP configuration.
  4. See sheet C6.1 & C6.2 for laboratory building plan.
  5. Conduit shall be solvent welded PVC or galvanized steel.
  6. All electrical construction shall conform to NEMA and BOCA codes.
- Electrical permits shall be obtained from Bedford County prior to commencing electric equipment installation.

#### ELECTRIC SERVICE & CONTROL PANEL SCHEMATIC DIAGRAM



**METER STATION PIPING PLAN**  
NO SCALE

#### NOTES:

1. LABEL EACH FORCEMAIN PER THE PROPOSED DRAINFIELD(S) SERVED.
2. POST CONTROL METER FUNCTIONAL SPECIFICATION AT METER STATION.

#### Effluent Manifold Calibration Specification

1. Contractor shall inspect all effluent disposal structures, equipment, and piping to ensure that the effluent disposal system is ready for normal operation. Calibration of the disposal system shall not be performed unless the effluent pump station, magnetic flowmeter(s), distribution manifold(s), forcemain piping, and mass drainfield(s) have been properly installed, cleaned, inspected, and determined suitable for normal operation.
2. Fill the effluent pump station completely full with clean water from a suitable water source. Water shall be procured by the contractor at contractor's expense. Sufficient quantities and/or sources of clean water shall be available to conduct and complete the calibration testing. Untreated wastewater shall not be used for testing. Contractor shall take all necessary precautions to ensure that dirt, debris, and any solid materials are not introduced into the effluent disposal system.
3. Open all gate valves in the master valve vault and at the effluent distribution manifold.
4. Energize the effluent pump and allow pump to operate for five minutes or until flow rate at the magnetic meter has stabilized. Record the flow value on a flow distribution chart developed for the effluent disposal system. The effluent pump station for this project is rated at approximately 69.4 GPM, but final installation conditions may result in a slightly different flow rate.
5. Begin calibration of the effluent forcemains by adjusting the valves located on the effluent distribution manifold to achieve the following flow rate values for this project:

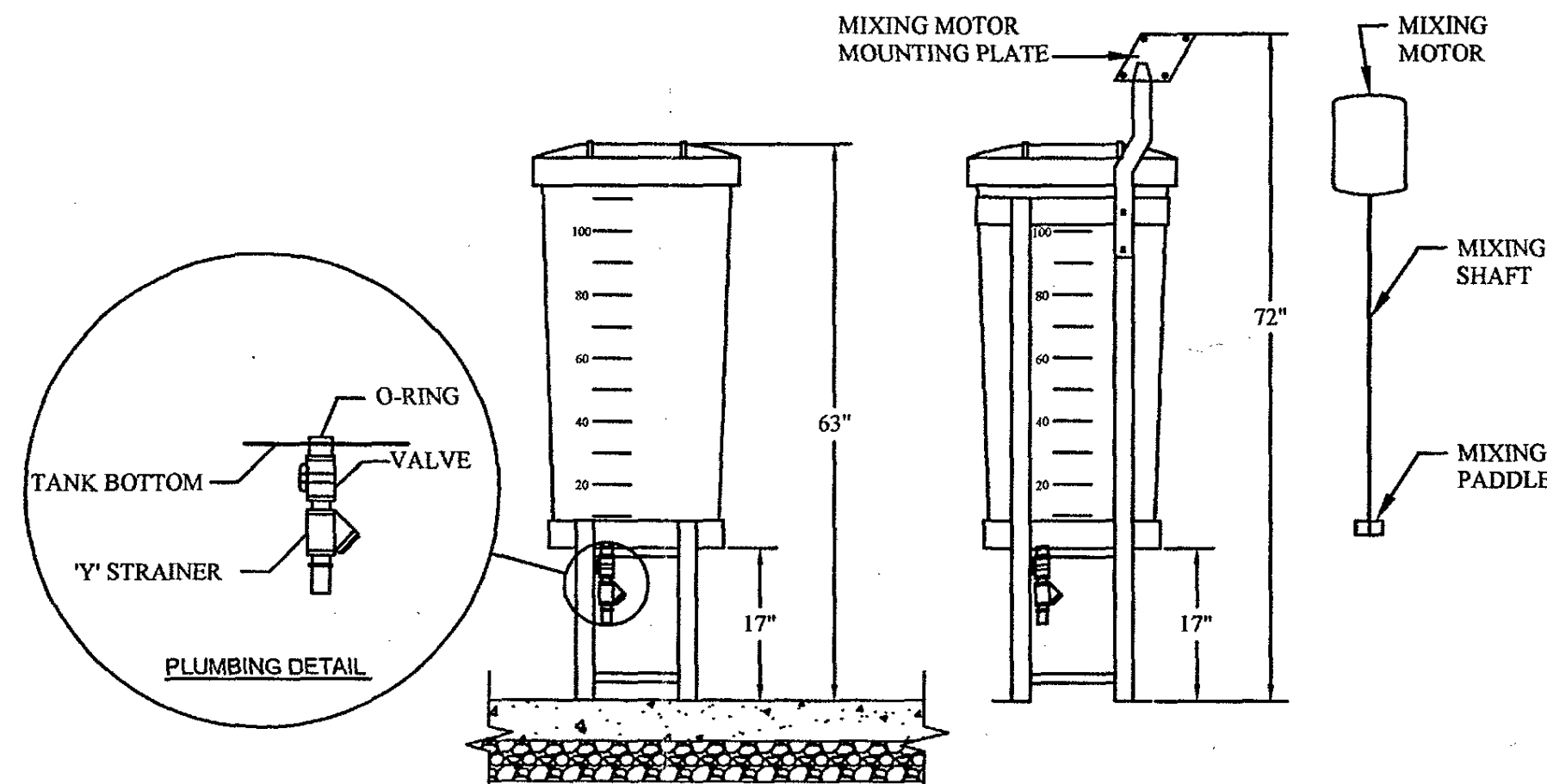
Drainfield 'A'	9.04	GPM (13.04%)
Drainfield 'B'	10.35	GPM (14.91%)
Drainfield 'C'	15.52	GPM (22.37%)
Drainfield 'D'	16.82	GPM (24.23%)
Drainfield 'E'	10.09	GPM (14.54%)
Drainfield 'F'	7.56	GPM (10.90%)

Adjustments will require the use of a stopwatch timer and an indicating style flow meter as specified in the construction drawings. Calibration will typically require a series of adjustments to the valves in order to achieve the aforementioned initial proportional flow rates.

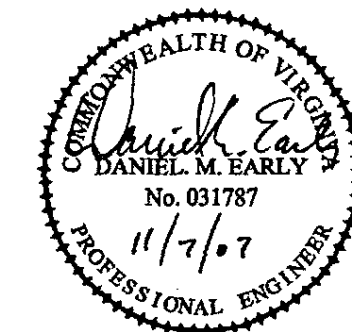
6. The contractor or owner shall repeat this procedure six months after the effluent disposal system has been in operation. Calibration at this time period must take into account the magnetic flow meter totalized flow values as well as the individual effluent forcemain total flow values such that a determination of individual drainfield loading values can be made. The contractor shall submit this information to the engineer for review and confirmation prior to making additional flow value adjustments. This procedure shall be repeated twelve months after system start-up.
7. Contractor shall post a sign adjacent to the effluent distribution manifold indicating that valves have been adjusted and shall not be adjusted further without notification from the owner or the owner's consulting engineer.
8. The aforementioned calibration specification shall be printed on a laminated 11x17 foam core board and mounted to the wall adjacent to effluent distribution manifold.

#### CHEMICAL SOLUTION TANK NOTES:

1. PROVIDE CHEMICAL SOLUTION TANKS.
2. CHEMICAL SOLUTION TANK DETAIL SHOWN HEREON IS SCHEMATIC ONLY. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF SPECIFIED TANKS FOR REVIEW AND APPROVAL BY THE ENGINEER.
3. REFER TO SHEET C6.1 FOR PROPOSED LOCATION OF SODA/ASH TANKS.
4. CHEMICAL MIXING MOTORS AND FEED PUMPS SHALL BE INSTALLED PER THE WWTP LAB BUILDING DRAWINGS AND PROJECT SPECIFICATIONS.
5. PROVIDE TIMER CONTROL FOR METERING & MIXING OF SODA ASH.



**CHEMICAL SOLUTION TANK (TYP)**  
NO SCALE



**ACS DESIGN**

ENGINEERING • SURVEYING  
LANDSCAPE ARCHITECTURE  
CONSTRUCTION MANAGEMENT

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The Coves at Smith Mountain Lake  
Optima Properties-Smith Mountain Lake, LLC  
Franklin County, Virginia

DRAWN BY: AH  
DESIGNED BY: DME  
CHECKED BY: DME  
DATE: 01 MAY 2006  
JOB NUMBER: 05271

REVISIONS:  
No. 1 8/23/06  
Per ACS/FGVH  
No. 2 5/11/07  
Final For Construction  
No. 3 11/7/07  
Sewer System Revisions  
No. 4

SHEET NO.:  
C6.3

WWTP  
LABORATORY  
NOTES & DETAILS