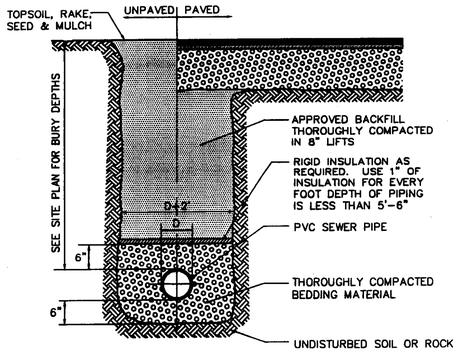
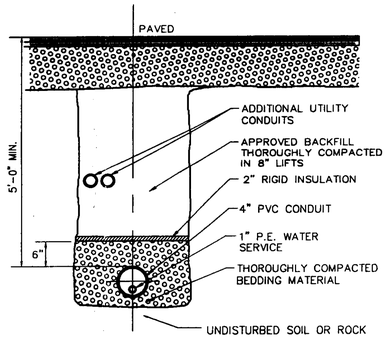


TYPICAL SEWER TRENCH DETAIL

N.T.S.

NOTES:

1. Compaction of backfill and bedding shall be a minimum of 90% (95% under roadway surfaces) of maximum dry density determined in the standard proctor test (ASTM D698).
2. Bedding material shall not be placed on frozen subgrade.
3. Approved backfill shall not contain any stones more than 12" in largest dimension (6" in roadways, 2" maximum diameter within 2' of the outside of the pipe), or contain any frozen, wet, or organic material.
4. Trenches shall be completely dewatered prior to placing of pipe bedding material and kept dewatered during installation of pipe and backfill.
5. In trenches with unstable materials, trench bottom shall first be stabilized by placement of filter fabric then crushed stone (3/4" maximum).
6. The sides of trenches 4' or more in depth entered by personnel shall be sheeted or sloped to the angle of repose as defined by O.S.H.A. standards.
7. Bedding material shall consist of crushed stone, gravel or sand with a maximum size of 3/4". Submit a sample to the Engineer for approval.



WATER SERVICE TRENCH DETAIL

N.T.S.

NOTES:

1. EXCAVATIONS FOUR FEET OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE AS DEFINED BY OSHA STANDARDS. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.
2. PROTECTION OF ALL EXISTING UTILITIES, FOUNDATIONS, ROADS AND SIGNIFICANT TREES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. ALL SURFACE DRAINAGE SHOULD BE DIVERTED AROUND THE WET WELL.
4. ELECTRICAL SERVICE TO THE PUMP STATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. UNLESS OTHERWISE INDICATED ON THE PLANS, ALL DISTURBED AREAS SHALL BE RESTORED TO AT LEAST THE ORIGINAL CONDITIONS.
6. THE CONTRACTOR SHALL PROVIDE ALL FITTINGS, COUPLINGS AND APPURTENANCES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.
7. SHORING, BRACING OR DEWATERING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE CONTRACT BID.

PUMP STATION DESIGN DATA

Design Daily Flow:

New Bridge Shop
5 Employees x 15 gpd/employee = 75 gpd
Garage
10 Employees x 15 gpd/employee = 150 gpd
State Building
35 Employees x 15 gpd/employee = 525 gpd
16 Seat Conference x 5 gpd/Seat = 80 gpd
Future Employees
5 Employees x 15 gpd/employee = 75 gpd
20% Municipal reduction = −180 gpd
Total 725 gpd

Average Daily Flow:

– 725 gpd/(16 hrs/day)(60 min/hr) = 0.75 gpm

Peak Flow:

– 0.75 gpm x 5.0 = 3.75 gpm

Required Storage

– 725 gpd x 4 hrs/16 hrs or 1 day of design = 725 gallons

Available Storage

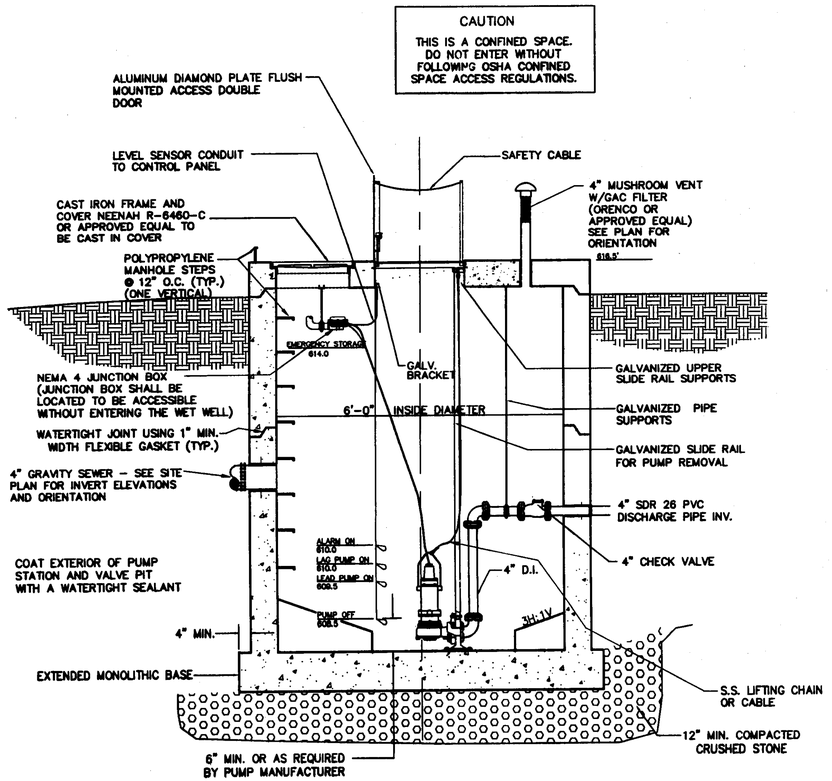
– 6' Dia Pump Station x 211 gal/vlf x 4 ft = 844 gallons

Minimum Pumping Requirements

3" minimum diameter solids
2.5 fps = 100 GPM (4" force main)
5 minutes minimum run time
TDH at 100 GPM
Hloss 4" at 100 gpm = 0.66/100'
= 2200x0.66/100' = 14.5'
Elevation = 625–608 = 17'
Minor Headlosses = 3.5'
Total = 35'

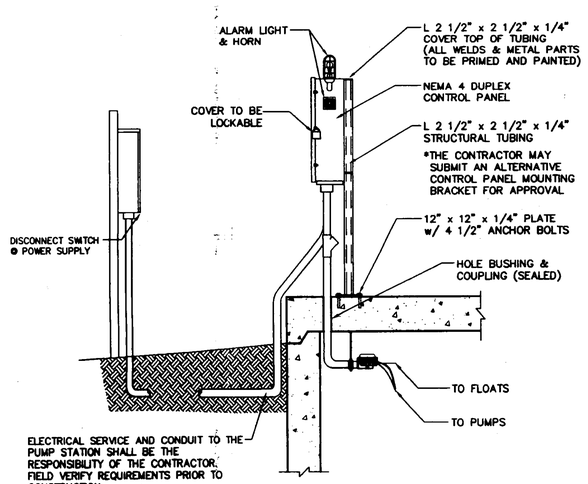
Pump Selection

Myers Model 4V, 1750 rpm, Single Phase
230 V, 60 Hz, 3 Hp, 7" impeller
100 gpm at 35 TDH
Run Cycle = 211 gals./(100 gpm – 0.8 gpm) = 2.2 min.
Retention in wet well = 211 gals./0.8 gpm = 264 min.



PUMP STATION & VALVE PIT SECTION

NTS



CONTROL PANEL DETAIL

N.T.S.

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
P.O. BOX 486 SHELBURNE, VT 05482
802-985-8888 FAX: 802-985-8871 web: www.cea-vt.com

COPYRIGHT © 2005 – ALL RIGHTS RESERVED

DRAWN: PJM
CHECKED: BCE
APPROVED: BCE

OWNER:

STATE OF VERMONT
VERMONT AGENCY OF TRANSPORTATION
MONTPELIER, VERMONT

PROJECT:

ST. JOHNSBURY GARAGE

ROUTE
ST. JOHNSBURY, VERMONT

DATE	CHECKED	REVISION
1/06/05	BCE	REV. PUMP REQUIREMENTS/ REV. CONTROL PANEL NOTATION.
10/26/04	BCE	REV. PUMP STA. DESIGN DATA.
10/5/04	BCE	GENERAL REVISIONS.

SITE DETAILS

DATE: JUNE, 2004
SCALE: N.T.S.
PROJ. NO.: 04128.01

DRAWING NUMBER: C2