

ELECTRICAL SYSTEM NOTES

- 1. Village of Pinckney to pay for electrical & phone services to Utility Companies.
- 2. Coordinate all work with Detroit Edison. Furnish, install and connect all equipment not furnished, installed or connected by Detroit Edison. Pad construction shall conform to Detroit Edison requirements.
- 3. Conduit used in concrete floors, walls, block, below grade and outdoors shall be PVC schedule 40 on hot dipped galvanized PVC-RGS, PVC coating shall be 40 mil thick for PVC-RGS conduit and fittings. Conductor indoors may be RGS, IMC, or EMT, except for NEMA 4x areas shall be PVC sch. 40.
- 4. Power wire shall be 600v, single conductor, stranded copper, No.12 minimum. Power wire No. 2 AWG and smaller shall be THHN-THWN and shall be and power wire larger than No. 2 AWG shall be RHW-USE. Control wire shall be THHN-THWN No. 14 minimum.
- 5. Install a single conductor insulated (THHN, THNN or THWN) copper ground wire in each conduit, size us shown on drawings or as a minimum per the National Electrical Code. This ground wire shall be connected at each end to the
- 6. All wire numbers (1,3,5 etc...) shall be prefixed with starter tag numbers. The wire number after the prefix may be the manufactures wire numbering system. Wire markers shall be used at each wire termination point.
- 7. The design, testing, assembly, and methods of installation of the wiring materials, electrical equipment and accessories proposed under this contract shall conform to the National Electrical code and applicable State and Local requirements. UL listing and labeling shall be adhered to under this contact. Any equipment that does not have a UL, FM, CSA or other listed testing laboratory label shall be furnished with a notarized letter signed by the supplier stating that the equipment furnished has been manufactured in accordance with the National Electrical Code and OSHA requirements. Any additional cost resulting from any deviation from codes or local requirements shall be borne by the Contractor.
- 8. Air tight seals shall be provided on all conducts passing through NEMA 4x classed areas. Separate ground wires shall be run in PVC conduit from the enclosures and device boxes in NEMA 4x areas shall be nonmetallic.
- 9. The ground mat shall be made up of four 10" x 3/4" dia. copper clad steel grounding rods interconnected by bare #4 AWG cable. Provide a #4 grounding connection to the transfer switch and to the pad mount transformer. All equipment and system grounding shall be provide in accordance withe the National Electrical Code (NEC).
- 10. Refer to electrical specifications for additional requirement.
- 11. The contractor shall furnish an alarm dialer system compatible with the existing municipal systems. Coordinate the telephone utility signal line and connection to the pump control panel as needed.
- 12. The contractor will provide an emergency power source per municipal requirements. Emergency power source shall be submitted to the Municipality during shop drawing review, and will be as follows.
 - A. On—site generator with auto transfer switch; Natural gas type. B. Generator and Auto transfer must be sized by the factory and match
 - the Village's existing generators and auto transfers for make and equipment type. C. The Village must have finial approval for the equipment and options
 - needed on the generator and auto transfer.
 - D. Sizing of generator and list of equipment and option must be included
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- 13. Underground conduit shall be schedule 40 PVC duct except as noted. Galvanized rigid steel schedule 40 conduit shall be installed in concrete, under roadways and passing thru concrete walls and above grade.
- 14. Electrical warning tape shall be placed 20" below grade above all underground conduit installed on the project. 15. "NO OXIDE" grease shall be applied to all nuts and bolts to facilitate future removal.
- 16. All three phase motors shall have phase loss and phase rotation protection.
- 17. All breakers and controls shall be permanently labeled with name plates.
- 18. All wires shall be in conduit with proper seal offs and bushings per NEC/NFPD.
- 19. The control panel must be rated for UL698 as a min. 20. A weather proof signs must be put on the control cabinet and the generator.

TELEPHONE DIALER SELECTION GUIDE

ACCEPTABLE CHATTERBOX BY RACO TELEPHONE DIALER ALARM SIGNALS

1-800-722-6999 7. PUMP #2 SEAL FAILURE -Installing contractor to work with the Village to program as needed. -Village of Pinckney to furnish a current list of phone numbers to be programmed into the alarm dialer for call outs, by the alarm dialer

INSTRUMENTATION CONTROL SEQUENCE

THE FOLLOWING CONTROL SEQUENCE SHALL BE USED TO PROVIDE RELAY OR PLC CONTROL LOGIC FOR TWO DUPLEXING PUMPS:

- 1. When in the "AUTO" mode, the pump control panel shall automatically operate the pumping system in response to the signals:
 - A. Lead pump ON signal from the floats or multitrode: START the lead pump. Pump run light ON.
 - B. All pumps OFF signal from float or multitrode: STOP all pumps. ALTERNATE lead and lag pumps.
 - Low level ALARM and redundant OFF signal from the float or multitrode: STOP all pumps. External alarm light ON. Dialer activated after delay (PUMP FAILURE). Pump run lights OFF.
 - LAG pump signal from the float or multitrode: START all pumps. Pump run lights ON. External alarm light ON.
 - High water level ALARM signal from the float or multitrode: START all pumps. Pump run lights ON. External alarm light ON.
 - Dialer activated after delay (HIGH WATER ALARM). F. Alarm RESET/SILENCE switch signal:
 - External alarm light OFF.

 - External alarm light ON, while switch is depressed, automatic OFF.
 - Battery backup power supply made available to dialer. Upon continuous loss of power, dialer activated after
 - 5 minute delay (POWER FAILURE). Motor high temperature signal: STOP pump, automatic reset. External alarm light ON dialer
 - J. Motor seal failure signal: Red pilot light ON. External alarm light ON. Automatic reset.

Note:—Service from Detroit Edison review with service planner -Conduit between electrical componets are 2" ridged galv. conduit. -Stainless Steel "J-Hook" type cable support to attach floats & pump cords. -Grounding #4 Copper wire to grd. rod. -3/4"x10' copper clade steel grd. rod. -Control panel to mfg. by Ohlo Electric Control, Inc. (See: JETT Pump & Valve 248-673-2530) -Control components in new control panel must match existing control panel at Village Edge lift station. at Village Edge lift station. -110v duplex 20amp GFI outdoor rated outlet & cover must be provided within the control panel & outside the -The electrical contractor is Install the ELECTRICAL, GAS & PHONE SERVICE DTE 480V 3PH Wet Well SERVICE PEDESTAL DETAIL

GENERAL NOTES

activated after delay (PUMP FAILURE).

- 1. Contractor to ascertain location of all utilities and take necessary precaution to avoid damage - contact "MISS DIG" and the Village of Pinckney
- 2. All electrical work shall be in strict accordance with the National Electrical Code (NEC), and local contractor shall obtain all required permits and inspections and shall guarantee the installation for one full year from the date of owners acceptance proof of final electrical inspection and approval to be given to the owner,
- All equipment and material shall be new and unused approved for the purpose and bear a UL label when ever such material or equipment is listed
- Take all precautions necessary to protect pedestrian and vehicle traffic and allow movement as required by the owners and/or the Village of Pinckney.
- Shop drawings for all new equipment shall be submitted to the engieer for
- approval by the engineer and the Village of Pinckeny prior to installation. 6. All system components shall be identified per the Village of Pinckneys standards.
- 7. Conduit locations including all bends and fittings shall be accurately witnessed in the field by the contractor. Witnesses shall consist of accurate measurements to a minimum of 3 existing physical features (shown on the plans).
- 8. After all electrical work is complete the contractor shall arrange for the equipment to be tested and operated. The owner, plant operator and engineer shall be present for this procedure. All manufacture data, specifications and drawings shall be available. The contractor shall explain and demonstrate the start up and maintenance procedures and provide seven (7) bound copies of the system maintenance and operation manuals.
- 9. The contractor shall install a weatherproof sign showing the voltage, phase and phase rotation (min. 1" letters) at the emergency auto transfer disconnect. A sign showing "High Voltage" stuck to the control panel. A sign showing "Confined Space Entree" attached to the wet well & valve vault hatch covers. A sign showing "No Trespassing" attached to the fence on four sides.
- 10. All nuts, bolts, washers, clamps & anchors shall be noncorrosive (ie Brass,
- 11. Location of the service pedestal for the electrical and the gas utility pedestal
- must be mutually agreed on with, the Village of Pinckney DPW before installing. 12. Contractor is responsible to get detailed drawings from the utility companies, for the contractors review and proper installation of the Detroit Edison and Consumers Energy meter connections/pedestals.
- 13. All underground m.j. fittings are to have retaining type glands.
- 14. Lift Station area shall be fenced with commercial grade fencing and posts. The materials shall be a minimum of:
 - 1 Corner post 3" schedule 40 galvanized.
 - 2 Gate post 4" schedule 40 galvanized.

Drawings shall be provided to the owner.

- 3 Line post 2" schedule 40 galvanized. 4 - Fencing to be green chain link (9 gauge)
- 5 Gate to be a double gate with two 12' gates
- 6 The chain link fencing shall have green slats.
- 15. The excavator installing the wet well will be responsible for any dewatering required to make a complete installation as per the drawings.
- The yard light must be installed above the wet well.
- 17. The wet well and valve vault will need to be cleaned and shown to
- the Village to prove that there is no debris or leaking in the wet well.

CLIENT:

NOTES FOR SUBMERSIBLE PUMP STATION

- 1. Contractor shall provide a complete pumping system; Providing pumps, valve vault, controls to operate, alarm dialer, service/controls cabinet, generator, but to limited to.
- 2. Provide a complete mechanical installation.
- Provide a complete electrical installation. Provide 7 copies of submittals to be approved.
- Detail notes showing the conduit and piping runs and depths must be provide in the "As Builts"
- 6. Provide corrosion resistant materials for inside wet well, such as stainless steel, cast iron, ductile iron, PVC or other materials approved be the Village. Plated or galvanized steels are unacceptable
- 7. Provide a 6 feet high galvanized chain link fenced area (see: plan view), with two 12' gates to be used to enter as shown on the site plan. The 24ft. wide gate opening shall face as shown on the site plan. Provide two strands of barbwire on top of fence.
- 8. Provide gasketed 300psf aluminum hatch cover for wet well
- 9. Provide 1" yard hydrant next to the wet well, (see: site plan for location) The yard hydrant to by furnished & installed by the underground contractor. With curb box to shut off service to the hydrant.
- 10. Provide a lift hoist for the Village of Pinckney DPW to use for pulling the pumps for day to day service (see: detail drawing)
- 11. The pumps will have a five year non prorated warranty by the pump manufacture. A copy of the warranty must be included in the submittals. All other equipment must have a two year warranty for defects in labor and materials.
- 12. Provide pressure gauges on each of the discharge piping in the valve vault. The pressure gauges shall have a 4" face with a back feed gauge. It will be glacial filled and read 0-15 psi. All piping and fitting plumbing in the pressure gauge must be stainless steel (see: detail).
- 13. The generator battery charger must be installed in the generator enclosure.
- 14. The bolts that are exposed to the weather shall be stainless steel.

REVISIONS			
REV	DESCRIPTION	DATE	APPROV
Α	PUMP STATION DESIGN	10/6/06	10/10/0
В	REDESIGN & EDIT DRAWINGS PER STANTEC	3/21/07	
С	EDIT DRAWINGS PER STANTEC	3/30/07	
D	EDIT DRAWINGS PER STANTEC & VILLAGE	4/26/07	
E			
F			

PROJECT NAME:

VILLAGE OF PINCKNEY

M-36 WATER & SEWER EXTENTION Drawing Title:

CONTACT INFO.:

SANITARY LIFT STATION Wet Well/Pump DETAILS SHEET NAME: Sanitary PUMP STA. SHEET NO.

Builders Exchange of Lansing and Central Michigan, 1240 E. Saginaw Street, Lansing, MI 48906 (517) 372-8930