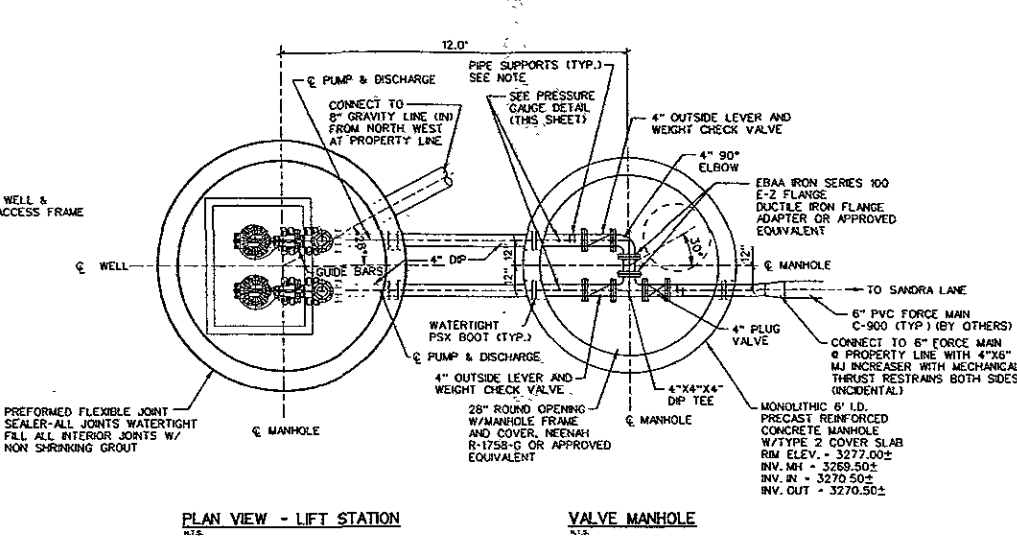
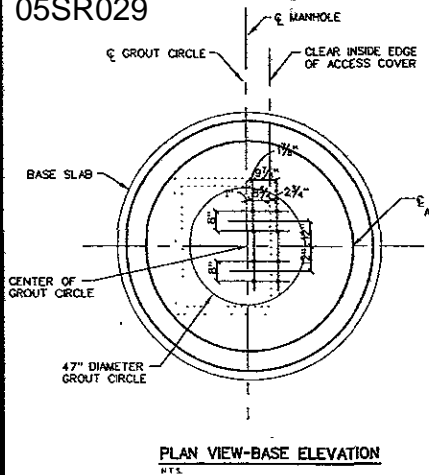




LAZY P-6 DEVELOPMENT  
LIFT STATION

LIFT STATION AND  
VALVE MANHOLE DETAILS



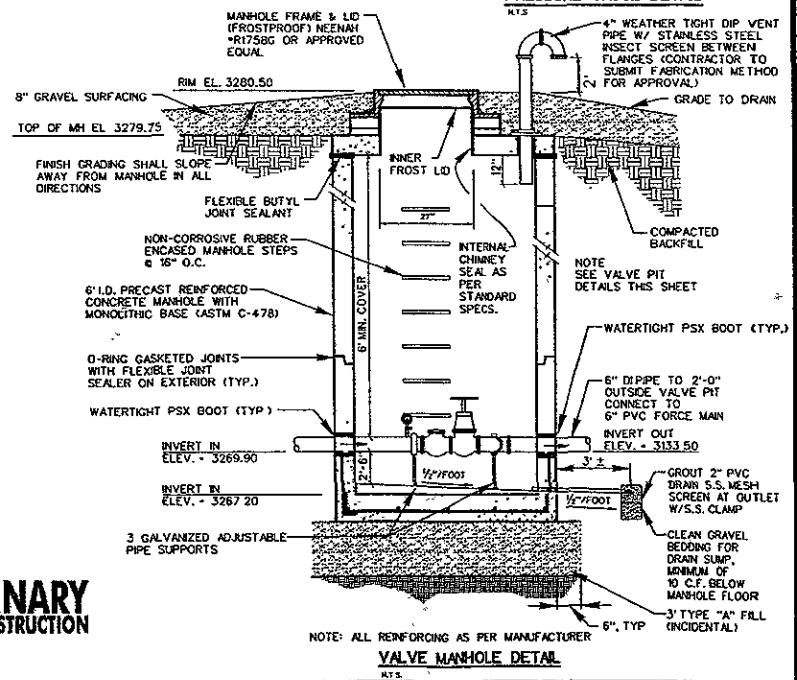
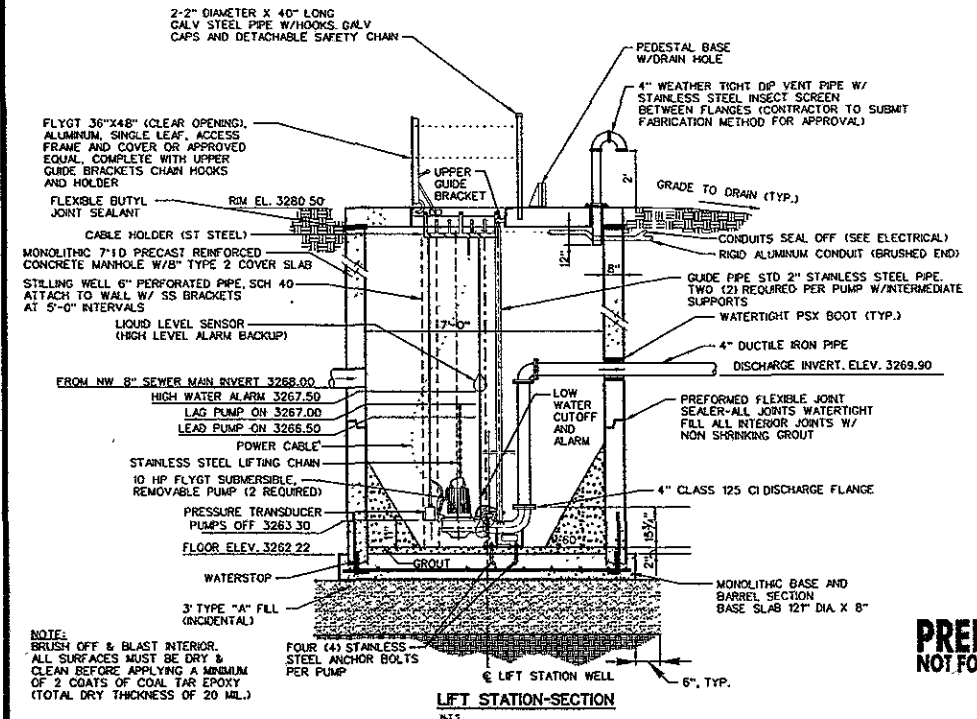
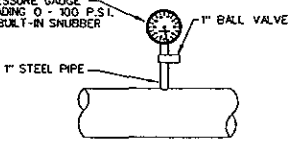
**NOTES**  
LIQUID LEVEL SENSOR CONDUCTORS & PUMP POWER CABLES SHALL BE CONTINUOUS (WITHOUT SPLICES) FROM LIFT STATION TERMINATIONS TO CONTROL PANEL ENCLOSURE.

**PUMPS ALTERNATE LEAD-LAG SEQUENCE**

AT ALL LOCATIONS WHERE PIPE ENTERS OR EXITS THE LIFT STATION OR VALVE PIT WATER TIGHT PSX RUBBER BOOTS SHALL BE INSTALLED TO PREVENT INFILTRATION.

CONTRACTOR SHALL SUPPLY AND INSTALL GALVANIZED, ADJUSTABLE PIPE SUPPORTS TO SUPPORT 400 LBS TOTAL, SPACED AS APPROVED BY THE ENGINEER (3 MINIMUM).

CONTRACTOR TO VERIFY ELEVATIONS PRIOR TO CONSTRUCTION



**PRELIMINARY  
NOT FOR CONSTRUCTION**

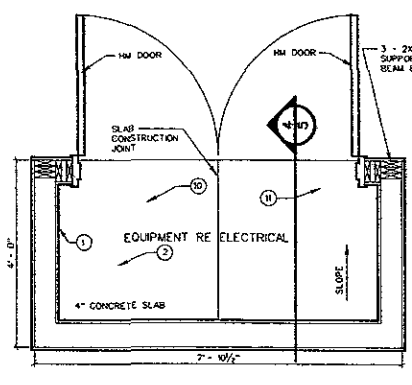
AS NOTED	
Designed by: <b>SAM</b>	Drawn by: <b>SAM, ALP</b>
Approved by: <b>03-11-05</b>	Print Date: <b>03-11-05</b>
Scale: Project No.: <b>04-1053</b>	Sheet No.: <b>03-11-05</b>
File Name: <b>1053DE101.DGN</b>	
Date: <b>03-11-05</b>	

**NOTES:**

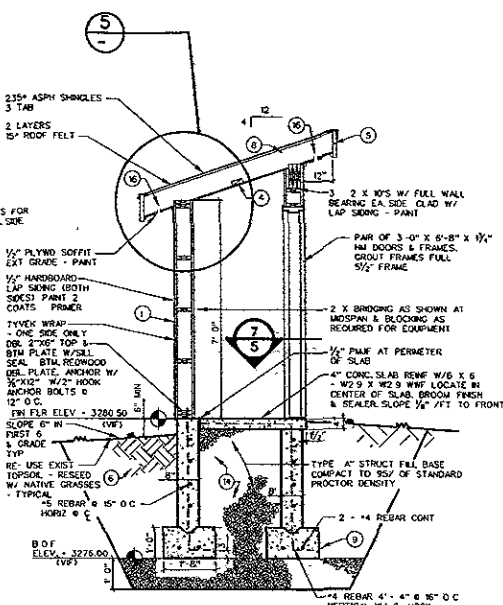
- 2x6 STUDS AT 16" O.C WITH 3/4" EXTERIOR GRADE PLYWOOD SHEATHING BOTH SIDES. WALL FRAMING SHALL BE SPRUCE PINE - FR WITH FB - 1000 PSL E - 1300 PSI. PROVIDE SEASONED LUMBER WITH 19% MAXIMUM MOISTURE AT TIME OF DRESSING AND SHIPMENT.
- THIS PROJECT SHALL NOT CONTAIN ASBESTOS OR PCB'S.
- CONTINUOUS BEAD SEALANT.
- 2x4 ON EDGE BETWEEN 2x8'S
- CUT DOWN 2x10 REDWOOD FASCIA - PAINT
- CONFORM TO OSHA REQUIREMENTS FOR EXCAVATION
- ODD STRUCTURAL 8" PLYWOOD (5/8" SHEATHING PANELS OVER ROOF TRUSSES AND 2 LAYERS OF 15'-FELL.
- 2x8's AT 16" O.C NOTCH AT WALLS & BEAMS AS SHOWN
- CONCRETE STRENGTH SHALL BE 4000 PSI SLUMP SHALL BE FROM 2" TO 4" CONCRETE SHALL NOT BE SUBJECT TO FREEZING AND THAWING SHALL HAVE 42 TO 62 ENTRAINED AIR. ALL OTHER CONCRETE SHALL HAVE 2% TO 4% ENTRAINED AIR. ALL CONCRETE SHALL BE PROTECTED FROM COLD OR HOT WEATHER IN ACCORDANCE TO AMERICAN CONCRETE INSTITUTE (ACI) RECOMMENDATIONS. SLAB ON GRADE CONTRACT JOINTS SHALL BE SAW CUT OR TOOKED 1/4" THE DEPTH OF THE 4" SLAB AND AS SOON AFTER FINISHING AS POSSIBLE APPLY SEALER TO CONCRETE BROOM FINISH. SLOPE TO EXTERIOR AT 1/8" IN 1 FT
- CONFORM TO LATEST APPLICABLE IBC CODES.
- ASSUMED SOIL BEARING CAPACITY TO BE 2000 PSF.
- REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 SPACES SHALL BE LAPPED A MINIMUM OF 24 BAR DIAMETERS AT CORNERS OF FOOTINGS AND WALLS. PROVIDE I SHAPED BARS WITH 24 BAR DIAMETERS FOR EACH LEG.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION METHODS AND SAFETY PRECAUTIONS DURING THE WORK ON THIS PROJECT. CONFORM TO ALL APPLICABLE MECHANICAL AND ELECTRICAL CODES. PROTECT FINISH WORK AS NECESSARY.
- BACK FILLING AND STRUCTURAL FILL**  
BACKFILL AREAS TO CONTOURS AND ELEVATIONS WITH UNFROZEN MATERIALS. DO NOT BACKFILL OVER POROUS, WET, FROZEN OR SLOPED SURFACE. USE 3/4" GRANULAR FILL PLACE AND COMPACT MATERIALS IN CONTINUOUS LAYERS NOT EXCEEDING 8" COMPACTED DEPTH. TYPE "B" SOIL FILL PLACE AND COMPACT MATERIAL ON CONTINUOUS LAYERS NOT EXCEEDING 8" COMPACTED DEPTH.  
USE TYPE "A" FILL PLACE BELOW FOOTINGS TO 30" (STANDARD PROCTOR DENSITY) AS SHOWN (INDICATED) TO ELECTRICAL SHELTER.  
USE SUBSON TYPE "B" FILL TO SUBGRADE ELEVATION EACH 1 FT COMPACTED TO 95% FOR FOUNDATION WALLS AND AROUND STRUCTURE.  
USE A PLACEMENT METHOD THAT DOES NOT DISTURB OR DAMAGE NEW UTILITIES IN TRENCHES. VERIFY FILL MATERIALS TO BE REQUIRED AND ACCEPTABLE WITH AVE. PROVIDE 50% TEST TO VERIFY CONFORMANCE TO DESIGN REQUIREMENTS. MAINTAIN OPTIMUM MOISTURE CONTENT OF BACKFILL MATERIALS TO ACHIEVE REQUIRED COMPACTION DENSITY. BACKFILL SIMULTANEOUSLY ON EACH SIDE OF UNSUPPORTED FOUNDATION WALLS. SLOPE GRADE AWAY FROM BUILDING MINIMUM 1:8 IN 1:00' OR AS SHOWN.  
SAMPLES SUBMIT TO LB. SAMPLE OF EACH TYPE OF FILL TO TESTING LABORATORY. IN AIR-TIGHT CONTAINERS - FOR WRITTEN APPROVAL BY TESTING LAB.  
TESTS AND ANALYSIS OF FILL MATERIAL TO BE PERFORMED IN ACCORDANCE WITH ASTM/ASTM D698 IF TESTS INDICATE WORK DOES NOT MEET SPECIFIED REQUIREMENTS. REMOVE WORK, REPLACE AND RETEST AT NO COST TO OWNER.

**DOOR NOTES:**

- DOORS TO BE PAIR  
3'-0" x 6'-8" x 1 1/2" INSULATED  
HM DOOR & FRAME BY  
NORTH CENTRAL SUPPLY OR EQ  
500-100 GRADE 8 BUCKLES 2 & 3  
W/ RUBBER SILENCERS
- DOOR TO HAVE
- 5 HINGES
  - 1 LOCKSET
  - 1 EXTENDER
  - 1 DOOR STOP
  - 1 THRESHOLD
  - 1 DOOR SWEEP
  - 1 WEATHERSTRIP
- CR100 4.5x4.5 US10 & NRP STANLEY  
MATCH EXISTING DEPARTMENT LOCKSET KEYED ALIKE (V1F)  
MATCH EXISTING DEPARTMENT LOCKSET  
220ES 612 (BRICK)  
ALUMINUM 1/2" WF  
120621P L AR  
S800 HEAD & JAMBS PEMCO



**1 ELECTRICAL SHELTER PLAN**  
SCALE 1/2" = 1'-0"  
EXACT LOCATION W/ W/ENGINEER RE SHEET





LAZY P6 DEVELOPMENT  
LIFT STATION  
RAPID CITY,  
SOUTH DAKOTA

Scale	AS NOTED
Checked By	WJS
Drawn By	WJS
Design Date	03-14-2005
Issue Date	03-14-2005
WPE Project No.	R05016
File Name	R05016-EL
Submitted by	WJS
Checked by	WJS

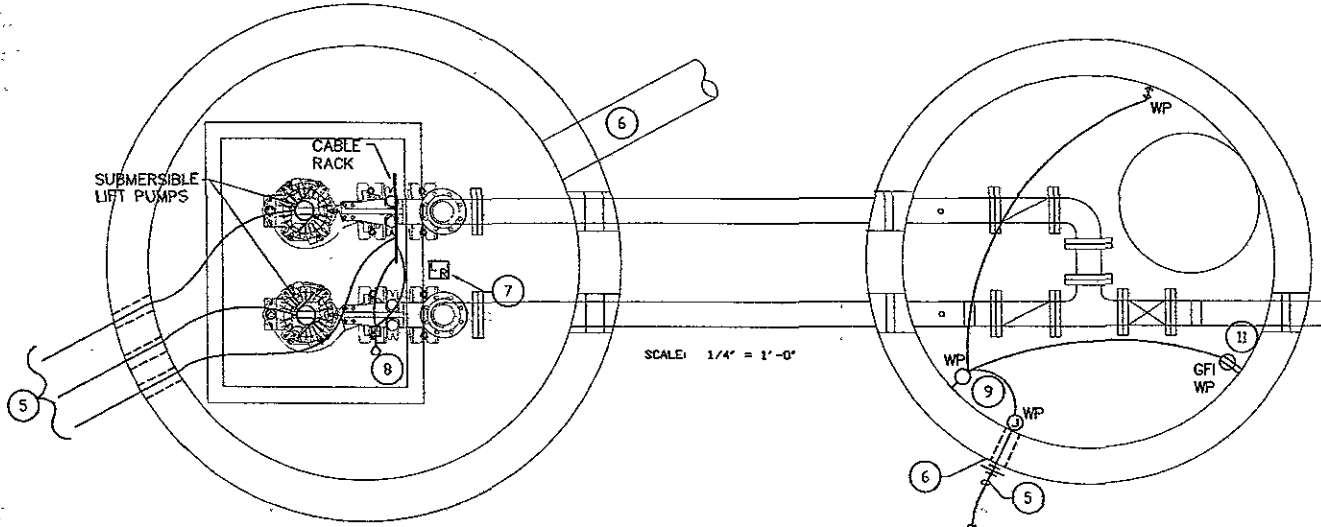
ELECTRICAL  
PLANS

MISCELLANEOUS ELECTRICAL NOTES:

- A. SEE SPECIFICATIONS FOR MATERIALS AND METHODS
- B. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL HAVE A MINIMUM RATING OF NEMA 3R, AND HIGHER AS NOTED.
- C. ALL CONDUIT BETWEEN THE PUMP CONTROL PANEL AND THE LIFT STATION SUMP AND VALVE MANHOLE SHALL BE PLASTIC COATED STEEL. PROVIDE SEAL OFFS AT THE MAIN CONTROL PANEL FOR CONDUITS EXTENDING TO THE LIFT STATION SUMP, AS SHOWN.

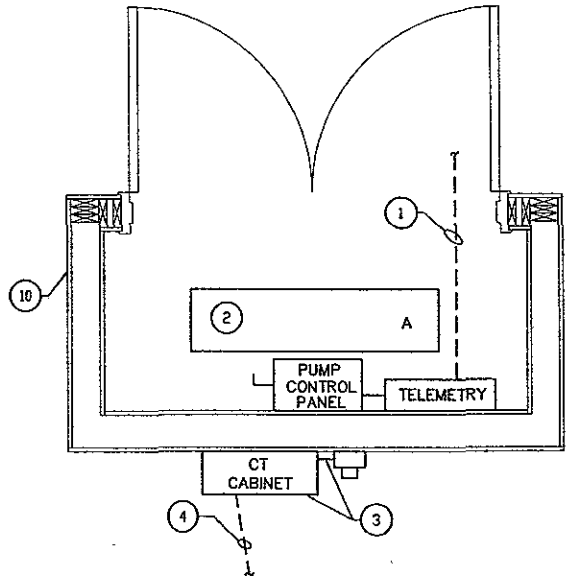
SPECIFIC ELECTRICAL NOTES: (B)

- 1. PROVIDE 12" SQUARE BY 6" DEEP, NEMA 4 ENCLOSURE FOR TELEPHONE SERVICE TERMINATION. PROVIDE 2" PVC CONDUIT UNDERGROUND TO 5' BEYOND PROTECTIVE ENCLOSURE. COORDINATE WITH US WEST.
- 2. FIXTURE TYPE "A" SHALL BE SURFACE MOUNTED FLUORESCENT GASKETED FIXTURE WITH 2/F32T8 LAMPS AND ELECTRONIC BALLAST. EQUIVALENT TO WILLIAMS #8622-A-DR, WITH 0'F RATED BALLAST SUITABLE FOR OUTDOOR OPERATION.
- 3. PROVIDE 30" SQUARE BY 11" DEEP, NEMA 3R LOCKABLE CT ENCLOSURE, AND CT METER BASE. CT'S AND METER BY UTILITY. COORDINATE WITH BHP&L.
- 4. EXTEND (4) #1 COPPER CONDUCTORS IN 1-1/2" PVC CONDUIT UNDERGROUND TO BHP&L TRANSFORMER. VERIFY LOCATION.
- 5. EXTEND CONDUIT AND WIRE TO PUMP CONTROL PANEL.
- 6. GROUT AND SEAL CONDUIT PENETRATIONS WATERTIGHT.
- 7. SUBMERSIBLE LEVEL SENSOR/TRANSDUCER HEAD, MOUNTED INSIDE SUMP STILLING WELL.
- 8. REDUNDANT HIGH LEVEL FLOAT SWITCH.
- 9. FIXTURE TYPE "B" SHALL BE A WALL MOUNTED VAPOR TIGHT INCANDESCENT FIXTURE WITH (3) 100 WATT LAMP, EQUIVALENT TO HUBBELL #VWX-152, WITH GLOBE GUARD. PROVIDE INTEGRAL WALL BOX.
- 10. 3-SIDED PROTECTIVE ENCLOSURE WITH SHED ROOF, BY GENERAL CONTRACTOR
- 11. PROVIDE WP/GFI RECEPTACLE. (2 SUCH)

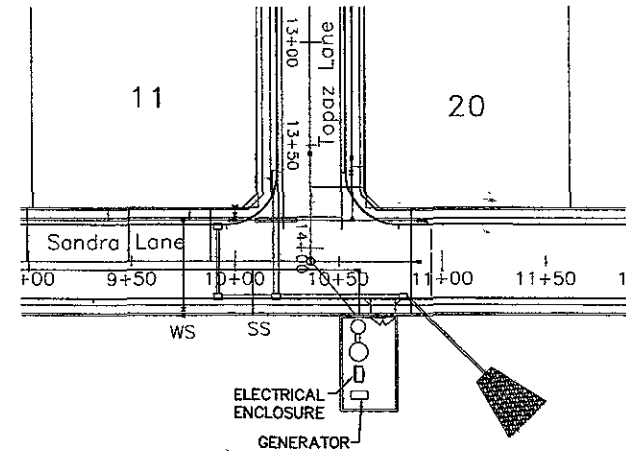


PLAN VIEW - LIFT STATION SUMP  
SCALE: 1/2" = 1'-0"

PLAN VIEW - VALVE MANHOLE  
SCALE: 1/2" = 1'-0"



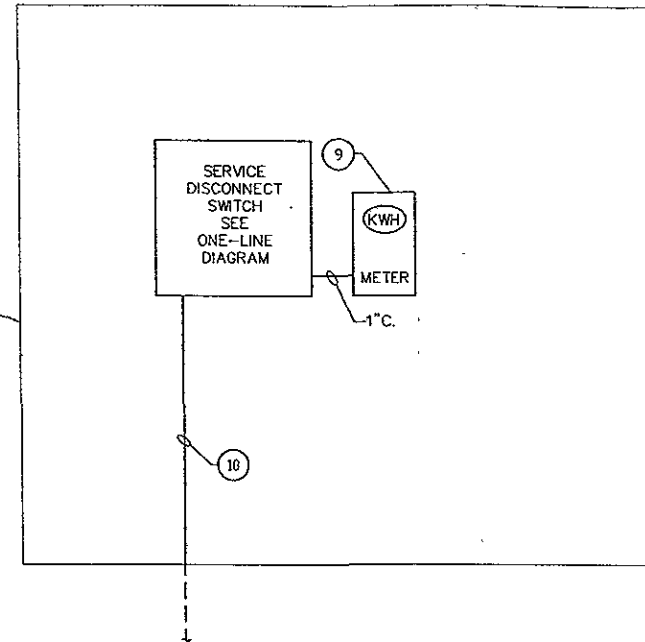
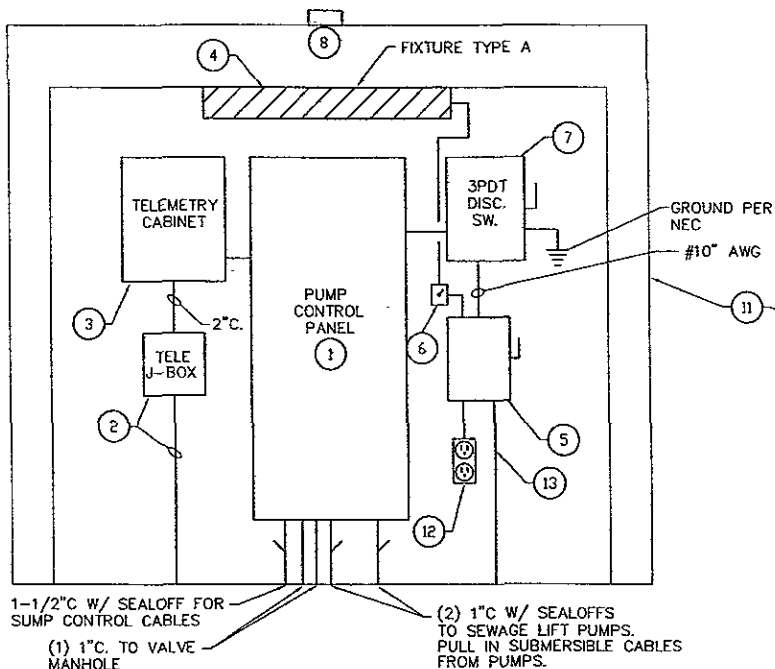
ELECTRICAL PLAN  
SCALE: 1/2" = 1'-0"



ELECTRICAL SITE PLAN  
SCALE: 1" = 60'-0"

**PRELIMINARY**  
DO NOT USE FOR CONSTRUCTION

**WPE** WESTERN ENGINEERING  
CONSULTING ENGINEERS  
1705 HAWK ROAD - RAPID CITY, SD 57702  
PHONE: (605) 348-7405 FAX: (605) 348-6446



**LIFT STATION ELECTRICAL ENCLOSURE ELEVATIONS**

SCALE: 1/2" = 1' - 0"

**MISCELLANEOUS ELECTRICAL NOTES:**

- A. SEE SPECIFICATIONS FOR MATERIALS AND METHODS. ALL PUMP CONTROLS AND PUMP CONTROLLER IS FURNISHED BY OTHERS, INSTALLED AND WIRED BY THIS CONTRACTOR. START UP BY CONTROLS SUPPLIER. PROVIDE AND TERMINATE ALL WIRING AS REQUIRED. SUBMERSIBLE CABLES ARE FURNISHED BY OTHERS AND SHALL BE PULLED IN CONDUIT (UNSPliced) TO CONTROLLER.
- B. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL HAVE A MINIMUM RATING OF NEMA 3R, AND HIGHER AS NOTED.
- C. ALL CONDUIT BETWEEN THE PUMP CONTROL PANEL AND THE LIFT STATION SUMP AND VALVE MANHOLE SHALL BE PLASTIC COATED STEEL. PROVIDE SEAL OFFS AT THE MAIN CONTROL PANEL FOR CONDUITS EXTENDING TO THE LIFT STATION SUMP, AS SHOWN.

**SPECIFIC ELECTRICAL NOTES: (#)**

1. PUMP CONTROL PANEL FURNISHED BY OTHERS, INSTALLED AND WIRED BY THIS CONTRACTOR. ALL PUMP POWER CABLES AND LEVEL CONTROL CABLES SHALL BE RUN UNSPLICED FROM THE LIFT STATION SUMP TO THE CONTROL PANEL AND TERMINATED AS REQUIRED.

2. PROVIDE 12' SQUARE BY 6" DEEP, NEMA 4 ENCLOSURE FOR TELEPHONE SERVICE TERMINATION. PROVIDE 2" PVC CONDUIT UNDERGROUND TO 5' BEYOND PROTECTIVE ENCLOSURE. COORDINATE WITH US WEST.
3. PROVIDE NEMA 4 ENCLOSURE, SIZED AS REQUIRED, FOR TELEMETRY SYSTEM EQUIPMENT. SEE SPECIFICATIONS FOR REQUIREMENTS. PROVIDE 120V POWER FROM CIRCUIT BREAKER IN PACKAGED POWER SUPPLY.
4. FIXTURE TYPE 'A' SHALL BE SURFACE MOUNTED FLUORESCENT GASKETED FIXTURE WITH 2/F32T8 LAMPS AND ELECTRONIC BALLAST. EQUIVALENT TO WILLIAMS #8622-A-DR, WITH 0'F RATED BALLAST SUITABLE FOR OUTDOOR OPERATION.
5. PROVIDE 7.5KVA PACKAGE POWER SUPPLY IN WEATHER-RESISTANT ENCLOSURE, TO PROVIDE 120V POWER FOR LIGHTS, RECEPTACLES, CONTROLS, ETC.
6. PROVIDE 20AMP, SINGLE POLE WEATHERPROOF SWITCH TO CONTROL TYPE 'A' LIGHT FIXTURE.
7. AUTO TRANSFER SWITCH IN NEMA 3R ENCLOSURE. SEE ONE-LINE DIAGRAM.

8. PROVIDE RED ALARM LIGHT EQUAL TO RAB MODEL VA100DG WITH G100R. PROVIDE 100 WATT, 130V LAMP. PROVIDE WIRING TO CONTROL PANEL AS REQUIRED.
9. PROVIDE NEMA 3R METER BASE PER UTILITY REQUIREMENTS. METER BY UTILITY. COORDINATE WITH BHP.
10. SECONDARY BY UTILITY. SEE ONE-LINE DIAGRAM.
11. 4-SIDED PROTECTIVE ENCLOSURE WITH SHED ROOF, BY GENERAL CONTRACTOR.
12. PROVIDE WP/GFI RECEPTACLE. (2 SUCH).
13. PROVIDE 3 - #10 CU IN 3/4" CONDUIT TO GENERATOR (FOR MISCELLANEOUS 120V REQUIREMENTS).

**PRELIMINARY**  
DO NOT USE FOR CONSTRUCTION

**WPE** WEST PLAINS  
ENGINEERING  
CONSULTING ENGINEERS  
7750 RAND ROAD - RAPID CITY, SD 57702  
PHONE: 605-349-7350 FAX: 605-349-4444



LAZY P6 DEVELOPMENT  
LIFT STATION  
RAPID CITY,  
SOUTH DAKOTA

Scale AS NOTED  
Designed By SAH Drawn By VLS  
Design Date: 03-14-2005 Plot Date: 03-14-2005  
WPE Project No.: R05018  
File Name: R05018E3-E4  
Scheduled for Review

ELECTRICAL  
ELEVATIONS

PANEL P		VOLTS: 120/240		PHASE 1		WIRE: 3		MAIN CAP. 40		AMPERES.				
CCT NO	ITEM FED	MOUNTING: SURFACE		FEEDER SIZE: SEE ONE-LINE DIAGRAM				MAIN CONNECTION: MCB		ITEM FED	CCT NO			
		DISTRIBUTION WATTS	WIRE SIZE	CIRCUIT BREAKER AMPS	POLES	FRAME	NEUTRAL	CIRCUIT BREAKER FRAME	POLES			AMPS	WIRE SIZE	DISTRIBUTION WATTS
1	SPARE	-	-	20	1	-	L1	-	1	20	12	300	LIGHTING/RECEPACLE	2
3	SPARE	-	-	20	1	-	L2	-	1	30	10	2900	GENERATOR MISC. POWER	4
5	SPACE	-	-	-	-	-	L1	-	1	20	-	-	SPARE	6
7	SPACE	-	-	-	-	-	L2	-	1	20	-	-	SPARE	8
9	SPACE	-	-	-	-	-	L1	-	-	-	-	-	SPACE	10

APPROXIMATE CONNECTED LOAD  
 L1 1 KW  
 L2 3 KW

### ELECTRICAL SYMBOLS

THESE SYMBOLS COMPRISE A STANDARD LIST; NOT ALL SYMBOLS MAY APPEAR ON THIS PROJECT.

	WALL FIXTURE		MOTOR THERMAL SWITCH
	POLE LIGHT FIXTURE		TRANSFORMER
	SINGLE POLE SWITCH		GROUND
	LOADCENTER OR ELECTRICAL PANEL		CONDUIT IN WALL OR CEILING SPACE. CROSS MARKS INDICATE NUMBER OF WIRES. NO MARKS INDICATE TWO WIRES. ARROWS INDICATE HOME RUNS TO PANEL. NUMBERS INDICATE PANEL AND CIRCUIT IN PANEL.
	SPECIAL PURPOSE OUTLET OR CONNECTION		SWITCHLEG
	JUNCTION BOX		TRAVELER
	MOTOR CONNECTION		NEUTRAL WIRE
	DISCONNECT SWITCH		HOT
	COMBINATION STARTER/DISCONNECT		INDICATES SEPARATE GROUND WIRE TO BE INSTALLED IN RACEWAY

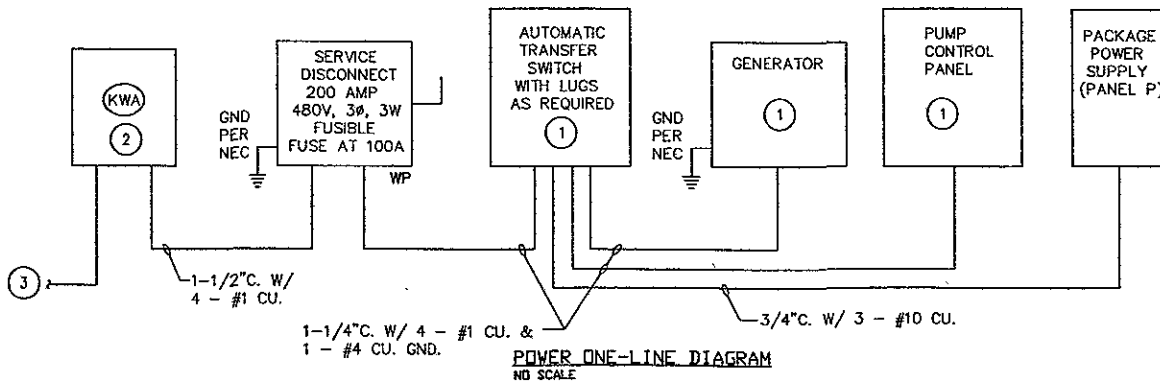
### ABBREVIATIONS

A STANDARD LIST. NOT ALL WORDS APPEAR IN THESE DRAWINGS.

A or AMP	AMPERE	LT.	LIGHT LIGHTING
C. or COND.	CONDUIT	N.E.C	NATIONAL ELECTRIC CODE
CB or C/B	CIRCUIT BREAKER	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
CCT	CIRCUIT	NEUT.	NEUTRAL
CU	COPPER	PH.	PHASE
DISC.	DISCONNECT	PVC	PLASTIC CONDUIT
E.C.	ELECTRICAL CONTRACTOR	PWR.	POWER
EM	EMERGENCY	REC or RECEPT	RECEPTACLE
EMT	ELECTRICAL METALLIC TUBING	TR or TRANS.	TRANSFORMER
G.C.	GENERAL CONTRACTOR	U G	UNDERGROUND
GEN.	GENERATOR	W.	WATT or WIRE
GND or GRND	GROUND	W/WP	WITH WEATHERPROOF
HZ	HERTZ (CYCLES)	Y	WYE Connected
JB	JUNCTION BOX	φ	PHASE
KCMIL	THOUSAND CIRCULAR MIL		
KV	KILOVOLT		
KVA	KILOVOLT-AMPERE		
KW	KILOWATT		

**SPECIFIC NOTES:**

- SEE PLANS FOR ADDITIONAL REQUIREMENTS. ALL EQUIPMENT SHALL BE NEMA 3R.
- COORDINATE ALL REQUIREMENTS WITH UTILITY (BHP). PROVIDE METER SOCKET PER UTILITY REQUIREMENTS. CONTACT: GREG, BHP AT 721-2223.
- SECONDARY SERVICE WIRE BY UTILITY. ELECTRICAL CONTRACTOR SHALL PROVIDE TRENCH PER UTILITY REQUIREMENTS. COORDINATE WITH UTILITY (BHP).



**PRELIMINARY**  
DO NOT USE FOR CONSTRUCTION

**WPE**  
 CONSULTING ENGINEERS  
 1750 HANCOCK ROAD - RAPID CITY, SD 57702  
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LAZY P6 DEVELOPMENT  
 LIFT STATION  
 RAPID CITY,  
 SOUTH DAKOTA

Scale: AS NOTED

Designed By:	Drawn By:
SAJ	WJS
Issue Date:	Print Date:
05-14-2005	05-14-2005
WPE Project No.:	
PC5018	
File Name:	
PC5018ELEC	
Submitted for Review:	

ELECTRICAL PANEL, DIAGRAM,  
 AND SYMBOLS