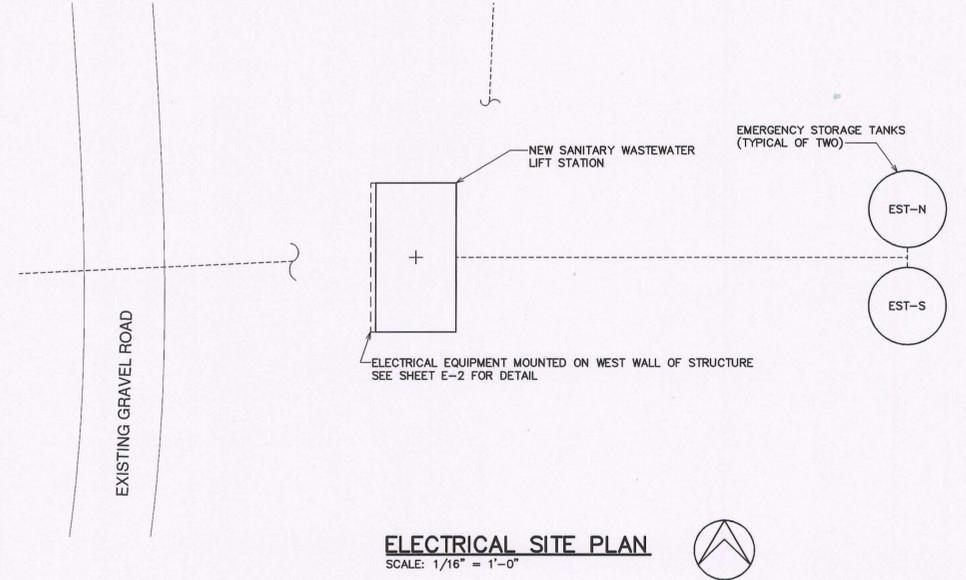


GENERAL NOTES:

(APPLY TO ALL DRAWINGS)

- THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE FIELD CONDITIONS AND THE EXISTING ELECTRICAL INSTALLATION AND UTILITIES (ELECTRICAL AND TELEPHONE) PRIOR TO SUBMITTING HIS BID.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE N.E.C., AND THE LOCAL CODES, ORDINANCES, AND REGULATIONS INCLUDING MIOSHA.
- ALL WORK SHALL BE COORDINATED WITH THE OWNER.
- COORDINATE ALL UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES BEFORE INSTALLATION. CALL MISS DIG, 1-800-482-7171, 72 HOURS BEFORE ANY UNDERGROUND WORK IS DONE.
- ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, INSTALLED WITH WATERTIGHT CONDUIT FITTINGS.
- PROVIDE A PANEL DRAIN AND BREATHER, CROUSE-HINDS "ECD" UNIVERSAL SERIES OF EQUAL MOUNTED TO THE TOP AND BOTTOM OF ALL NEMA 4 ENCLOSURES. THE BREATHER SHALL BE MOUNTED TO THE TOP OF THE PANEL ON A WATERTIGHT HUB AND THE DRAIN SHALL BE MOUNTED TO THE BOTTOM OF THE PANEL ON A BOLT-ON TYPE HUB, SEALED WATERTIGHT.
- ALL ELECTRICAL EQUIPMENT, CONDUIT, AND WIRING WITHIN THE HAZARDOUS LOCATION SHALL BE INSTALLED IN ACCORDANCE WITH THE N.E.C. REQUIREMENTS FOR CLASS I, DIVISION I, GROUP D HAZARDOUS LOCATIONS.
- COORDINATE ALL NEW ELECTRICAL UNDERGROUND WORK WITH NEW AND EXISTING.
- ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A FISH LINE.
- ALL UNDERGROUND CONDUITS AND/OR DUCT BANKS SHALL BE INSTALLED 24" MINIMUM BELOW GRADE (UNLESS OTHERWISE SHOWN ON PLANS) AND SHALL SLOPE (MINIMUM 3" PER 100') TO OTHER STRUCTURES.
- ALL UNDERGROUND CONDUITS AND/OR DUCTS IN DUCT BANKS SHALL BE P.V.C., EXCEPT WHERE ENTERING BUILDINGS, LIGHT POLE BASES, AND EQUIPMENT RACK. UNDERGROUND CONDUITS AND/OR DUCTS SHALL BE RIGID GALVANIZED STEEL WITHIN 10'-0" OF THE STRUCTURE.
- PROVIDE WATERTIGHT HUBS AT CONDUIT ENTRANCES TO ALL ENCLOSURES MOUNTED OUTDOORS AND AT ALL WATERTIGHT (NEMA TYPE 4 & 4X) ENCLOSURES MOUNTED INDOORS. ALL NEMA TYPE 4 & 4X ENCLOSURES, EXCEPT THOSE IN CORROSIVE AREAS, SHALL BE EQUIPPED WITH A DRAIN/BREATHER FITTING.
- EXPANSION OR EXPANSION/DEFLECTION FITTINGS SHALL BE PROVIDED FOR ALL CONDUITS EXITING FROM UNDERGROUND.
- ALL POWER FEEDERS SHALL BE RUN IN INDIVIDUAL CONDUITS, FROM SOURCE TO LOAD, AS INDICATED IN SCHEDULES, WIRING DIAGRAMS, OR BY HOME RUNS ON THE PLANS.
- ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
- ALL CONDUITS FOR POWER FEEDERS, BRANCH CIRCUITS, AND INSTRUMENTATION SHALL BE RUN EXPOSED OVERHEAD, UNLESS SHOWN OTHERWISE ON THE PLANS.
- ALL ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS, AND METALLIC SUPPORT RACKS SHALL HAVE A #2 (UNLESS OTHERWISE NOTED) BARE GROUND CONDUCTOR TIE BETWEEN THE MOTOR FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
- GROUND CONDUCTOR SPLICING AND BONDING SHALL BE ACCOMPLISHED BY THE USE OF EXOTHERMIC WELDING.
- PROVIDE A GREEN GROUND CONDUCTOR IN ALL SYSTEMS CONDUITS, EXCEPT INSTRUMENT SIGNAL AND ALARM CONDUITS, INCLUDING BRANCH CIRCUIT CONDUITS FOR LIGHTING AND RECEPTACLES. GROUND CONDUCTOR SIZING SHALL BE PER N.E.C. TABLE 250.122 (MINIMUM) WHERE NOT SIZED ON THE DRAWINGS.
- COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES WITH MECHANICAL PIPING AND DUCTWORK BEFORE INSTALLATION.
- ALL THREADED MECHANICAL CONNECTIONS ON ELECTRICAL EQUIPMENT (CONDUIT, COUPLINGS, FITTINGS, BOLTS, SCREWS, JUNCTION BOXES, ETC.) INSTALLED WITHIN WET AREAS, CORROSIVE AREAS, OR OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
- ALL WALL AND RACK MOUNTED CONTROL STATIONS, RECEPTACLES, AND LIGHTING SWITCHES SHALL BE 4'-0" A.F.F., UNLESS NOTED OTHERWISE ON THE PLANS.
- ALL WALL AND RACK MOUNTED DISCONNECT SWITCHES, CONTROL PANELS, AND LIGHTING PANELS SHALL BE 5'-6" TO TOP, ABOVE FINISHED FLOOR, OR FINISH GRADE.
- ALL WEATHERPROOF (W.P.) DUPLEX RECEPTACLES SHALL BE INSTALLED SUCH THAT COVER DOORS OPEN UPWARD.
- FOR ALL EQUIPMENT MOUNTED WITHIN CORROSIVE AREAS, USE STAINLESS STEEL ANCHORS AND 1/2" STAINLESS STEEL SPACERS ON STAINLESS STEEL BOLTS IN ORDER TO PROVIDE A 1/2" AIR SPACE BETWEEN EQUIPMENT AND WALL.
- ALL CONDUITS AND/OR SLEEVES THAT PASS THROUGH WALLS OR FLOORS SEPARATING HAZARDOUS AREAS FROM NON-HAZARDOUS AREAS SHALL BE SEALED GAS TIGHT WITH NON-SHRINK GROUT AFTER CONDUIT IS INSTALLED.
- PUMP POWER CABLES, PUMP CONTROL CABLES, AND FLOAT SWITCH CONTROL CABLES SHALL BE SPLICED TO PANEL WIRING WITHIN A J-BOX. LEVEL TRANSDUCER CABLE SHALL BE ROUTED CONTINUOUS, WITH A LOOP IN THE J-BOX, BUT WITH NO SPLICES. DUCT SEAL ALL CONDUITS FROM THE TANKS AND SUMP AFTER CABLES ARE INSTALLED. PROVIDE A CONDUIT SEAL IN THE RUN BACK TO THE CONTROL PANEL.
- ALL WALL MOUNTED ELECTRICAL EQUIPMENT SHALL HAVE A 1/2" (MINIMUM) AIR SPACE BETWEEN WALL AND EQUIPMENT (PROVIDE NON-CORROSIVE SPACERS OR BRACKETS AS REQUIRED).
- ALL BOXES AND CONDUITS WITHIN TANKS FOR INTRINSICALLY-SAFE WIRING AND CIRCUITS SHALL BE NEMA 4X (CORROSION RESISTANT) ENGINEERED PLASTICS WITH CORROSION RESISTANT FASTENERS.
- FOR ALL 120 VAC LIGHTING AND RECEPTACLE CIRCUITS, RUN 2-#12 (MINIMUM) + #12 GRD., 3/4"C. TO THE LIGHTING PANELBOARD INDICATED, UNLESS NOTED OTHERWISE. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR BRANCH CIRCUIT WIRING.
- 4-20mA DC, INSTRUMENT SIGNAL AND DC TOTALIZED PULSE CABLES, MAY BE WITH OTHER DC INSTRUMENT SIGNAL CABLES IN THE INSTRUMENT CONDUIT SYSTEM. INSTRUMENT SIGNALS SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE OF ALARM, CONTROL AND/OR POWER WIRING.
- DC ALARM WIRING SHALL BE #14 AWG AND MAY BE RUN WITH OTHER ALARM WIRING IN THE ALARM CONDUIT SYSTEM. ALARM WIRING SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE INSTRUMENT SIGNAL, CONTROL, OR POWER WIRING, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- PROVIDE A GROUNDING OR INSULATING BARRIER TO ISOLATE LOW ENERGY WIRING AND TERMINALS OF INTRINSICALLY SAFE RELAYS FROM ALL OTHER EQUIPMENT AND WIRING WITHIN THE PUMP CONTROL PANEL. LOCATION AND ARRANGEMENT OF DEVICES IN PANEL SHALL BE IN ACCORDANCE WITH THE N.E.C. ARTICLE 504 INTRINSICALLY SAFE SYSTEMS. (THE CURRENT ACCEPTED VERSION AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION)
- THE EXACT HEIGHT, WIDTH, AND DEPTH OF THE SERVICE ENTRANCE EQUIPMENT SUPPORT RACK SHALL BE DETERMINED BY SIZE AND NUMBER OF ELECTRICAL DEVICES MOUNTED UPON IT.
- ALL EQUIPMENT SUPPORT RACKS TO HAVE ALL EDGES, ABRASIONS, ETC. CLEANED AND TOUCHED UP WITH A HOT GALVANIZING COMPOUND, SUCH AS GALVAVELD, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

- PROVIDE IDENTICAL PADLOCKS ON THE SERVICE ENTRANCE SWITCH ENCLOSURE, SURGE PROTECTOR ENCLOSURE, PUMP STARTER PANELS, PUMP CONTROL PANEL, THE PUMP STATION ENTRANCE HATCHES AND MANWAYS AND ALL SWITCH OPERATING HANDLES. ALL PADLOCKS ARE TO BE KEYPED TO THE PLANT'S MASTER PLAN.
- CONTRACTOR SHALL PROVIDE 1-1/4" HIGH X 3" WIDE (MINIMUM) NAMEPLATES ON ALL THE SERVICE ENTRANCE EQUIPMENT DEVICES. NAMEPLATES SHALL BE WHITE LAMINATED PLASTIC WITH 1/8" HIGH (MINIMUM) BLOCK LETTERS ENGRAVED TO A BLACK CORE, AND SHALL BE ATTACHED WITH CORROSION-RESISTANT SCREWS.
- 120VAC CONTROL WIRING SHALL BE #14 AWG MINIMUM AND MAY BE RUN IN THE SAME CONDUIT WITH ASSOCIATED POWER WIRING. 120VAC CONTROL WIRING SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE INSTRUMENT SIGNAL, ALARM, OR UNASSOCIATED CONTROL OR POWER WIRING, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- IN AREAS WHERE ELECTRICAL WORK DISTURBS EXISTING SOD, GROUND SHALL BE REGRADED AS REQUIRED AND SHALL BE RE-SEED, AS REQUIRED, TO RETURN THE SITE TO A CONDITION MEETING OR EXCEEDING THAT PRIOR TO THE BEGINNING OF WORK.
- PROVIDE BACKFILL PER SPECIFICATION. PROVIDE COMPACTED SAND BACKFILL UNDER PAVED AREAS. THE CONTRACTOR IS REQUIRED TO REPAIR ANY DAMAGE TO EXISTING PAVING TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY. DISPOSE OF EXCAVATED MATERIAL PROPERLY.



ELECTRICAL SITE PLAN
SCALE: 1/16" = 1'-0"

LIFT STATION LOAD SUMMARY		
480VAC, 3-PHASE, 3-WIRE, 100 AMP SERVICE *		
ITEM	DESCRIPTION	F.L.A.
PUMP 1	LIFT PUMP MOTOR, 20 HP, 460VAC, 3-PHASE	27 A
PUMP 2	LIFT PUMP MOTOR, 20 HP, 460VAC, 3-PHASE	27 A
MINI-POWER UNIT	15 KVA 480 X 208Y / 120VAC SERVICE DISTRIBUTION PANEL	18 A
SERVICE SWITCH	SERVICE ENTRANCE SWITCH FOR TOTAL CONNECTED LOAD *	72 A

* SIZED FOR 1 PUMP RUNNING AND 1 PUMP STANDBY

ELECTRICAL DRAWING LIST	
THE DRAWING LIST SHOWN REPRESENTS DRAWINGS ASSOCIATED WITH THIS PROJECT.	
DRAWING NUMBER	DRAWING TITLE
E-1	ELECTRICAL LEGEND, GENERAL NOTES, SITE PLAN AND LOAD SUMMARY
E-2	EQUIPMENT RACK AND BILL OF MATERIALS, LIGHTING SCHEDULE AND MOUNTING DETAILS
E-3	BUILDING PLANS AND TANKS PLAN, WIRING DIAGRAM FOR VENTILATION AND LIGHTING

ELECTRICAL LEGEND					
	FLUORESCENT LIGHTING FIXTURE		LIMIT SWITCH		CONDUIT RUN CONCEALED IN OR BELOW FLOOR SLAB, OR UNDERGROUND
	LIGHTING FIXTURE PENDANT OR CEILING MOUNTED		FLOAT SWITCH		CONDUIT RUN EXPOSED
	LIGHTING FIXTURE WALL MOUNTED		SOLENOID VALVE		CONDUIT SEALING FITTING
	EXIT LIGHT FIXTURE		LIGHTING PANEL		BUILDING GROUND CONDUCTOR
	EMERGENCY LIGHTING FIXT., TYPE "EM" OR TYPE "EMXP"		LEVEL ELEMENT		COPPER GROUND ROD, 3/4" DIA. X 10'-0" LONG
	EMERGENCY FIXTURE REMOTE HEAD		CONTROL PANEL		DIRECT BURIAL HIGH DENSITY POLYETHYLENE SCHEDULE 80 CONDUIT
	SINGLE POLE SWITCH		120 VAC SIMPLEX RECEPTACLE		DIRECT BURIAL RIGID GALVANIZED STEEL CONDUIT
	COMBINATION STARTER (THREE PHASE)		120 VAC DUPLEX RECEPTACLE		DISTRIBUTION PANELBOARD POSITION NUMBER
	MANUAL STARTER (SINGLE PHASE; P = PILOT LIGHT)		POWER RECEPTACLE		P.V.C.
	DISCONNECT SWITCH (F=FUSED)		JUNCTION BOX		R.G.S.
	TEMPERATURE SWITCH		PULL BOX		A.F.F.
	SELECTOR SWITCH		THERMOSTAT		W.T.
	PUSHBUTTON STATION (SEE WIRING DIAG'S FOR TYPE)		MOTOR, 1 PHASE		W.T.X.
	FLOW SWITCH		MOTOR, 3 PHASE		W.P.
	PRESSURE SWITCH		MOTOR, 3 PHASE		X.P.
					EXPLOSIONPROOF (NEMA 7)



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06-18-08	NMOC
05-28-08	OWNER REVIEW
04-10-08	OWNER REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	T.W.H.
DRAWN	T.W.H.
CHECKED	K.L.C.
APPROVED	M.A.O.



WESTERN REFINING - GALLUP

SANITARY WASTEWATER LIFT STATION

JAMESTOWN NEW MEXICO 87347

ELECTRICAL LEGEND, GENERAL NOTES, SITE PLAN AND LOAD SUMMARY

HRC JOB NO. 20070465	SCALE AS NOTED
DATE JANUARY 2008	SHEET NO. E-1

GW - 32

Maps