

### ABBREVIATION LIST

A	AMPERE	JB	JUNCTION BOX	SHT	SHEET
AC	ALTERNATING CURRENT	J BOX	JUNCTION BOX	SIG	SIGNAL
A/C	AIR CONDITIONING			S1, S2	START CONTACTOR COILS
AF	AMPERE FRAME, CKT. BKR. RATING	KVA	KILO VOLT AMPERES	SP	SPARE
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS	SPDT	SINGLE POLE DOUBLE THROW
AHU	AIR HANDLING UNIT	KWH	KILOWATT HOUR	SPECS	SPECIFICATIONS
AL	ALUMINUM	KCMIL	1,000 CIRCULAR MILS	SP HTR	SPACE HEATER
AM	AMMETER			SPST	SINGLE POLE SINGLE THROW
ANN	ANNUNCIATOR	LC	LIGHTING CONTACTOR	SS	SOLID STATE
AMP	AMPERES, AMPERAGE	LCB	LOCAL CONTROL BOARD	ST	SHUNT TRIP
APPD	APPROVED	LCP	LOCAL CONTROL PANEL	STA	STATION
AS	AMMETER SWITCH	LOC	LOCAL	STD	STANDARD
AT	AMPERE TRIP	LOC	LOCAL	STL	STEEL
ATS	AUTOMATIC TRANSFER SWITCH	LO	LOCKOUT	STR	STARTER
AUTO	AUTOMATIC	LOS	LOCKOUT STOP	SOV	SOLENOID OPERATED VALVE
AUX	AUXILIARY	LS	LEVEL SWITCH	SW	SWITCH
AWG	AMERICAN WIRE GAUGE	LT	LIGHT	SYS	SYSTEM
		LTC	LIGHTING	SYM	SYMMETRICAL
		LTS	LIGHTS		
BATT	BATTERY	M	MOTOR CONTACTOR COIL	TB	TERMINAL BOX
BKR	BREAKER	MA	MILLIAMPS	TC	TIME CLOCK
BLDG	BUILDING	MAN	MANUAL	TACH	TACHOMETER
		MAC	MAGNETIC	TEMP	TEMPERATURE
		MAX	MAXIMUM	TERM	TERMINAL
C	CONDUIT	MCC	MOTOR CONTROL CENTER	T*STAT	THERMOSTAT
CAB	CABINET	MCB	MAIN CONTROL BOARD	TR	TIMING RELAY
CB	CIRCUIT BREAKER	MCP	MOTOR CIRCUIT PROTECTOR	TD	TIME DELAY
CKT	CIRCUIT	MD	MOTORIZED DAMPER	TS	TEMPERATURE SWITCH
CO	CONDUIT ONLY	MH	MANHOLE	TYP	TYPICAL
COND	CONDUIT	MH	MOUNTING HEIGHT	TDON	TIME DELAY - ON
COMPT	COMPARTMENT	MIN	MINIMUM, MINUTES	TDOFF	TIME DELAY - OFF
COMP	COMPRESSOR	MLO	MAIN LUGS ONLY		
CP	CONTROL PANEL	MOV	MOTOR OPERATED VALVE		
CPT	CONTROL POWER TRANSFORMER	MR	MULTI-RATIO	UC	UNDERGROUND
CR	CONTROL RELAY	MS	MOTOR STARTER	UH	UNIT HEATER
CT	CURRENT TRANSFORMER	MMS	MANUAL MOTOR STARTER	UON	UNLESS OTHERWISE NOTED
CU	COPPER	MTD	MOUNTED	US	UNIT SUBSTATION
		MTR	MOTOR		
		MTS	MANUAL TRANSFER SWITCH	V	VOLTAGE, VOLTS
DC	DIRECT CURRENT	MUX	MULTIPLEXING PANEL	VAR	VARIABLE
DH	DATA HIGHWAY			VFD	VARIABLE FREQUENCY DRIVE
DISC	DISCONNECT	N	NEUTRAL	VP	VAPDR PRODF
DISTR	DISTRIBUTION	NA	NON-AUTOMATIC	VS	VOLTMETER SWITCH, VARIABLE SPEED
DPDT	DOUBLE POLE DOUBLE THROW	NC	NORMALLY CLOSED		
DWG	DRAWING	ND	NORMALLY OPEN		
		NO	NUMBER		
		NOS	NUMBERS	W	WATTS, WIRE
E	EMPTY	NP	NAMEPLATE	WHD	WATTHOUR DEMAND METER
EF	EXHAUST FAN	NPC	NEVADA POWER COMPANY	WHM	WATTHOUR METER
ELEV	ELEVATION	NIC	NOT IN CONTRACT	WP	WEATHERPROOF
EMERG	EMERGENCY	NTS	NOT TO SCALE		
EMT	ELECTRICAL METALLIC TUBING				
ENCL	ENCLOSURE	O	OPEN	XD	TRANSDUCER
EP	EXPLOSION PROOF	OC	ON CENTER	XFMR	TRANSFORMER
EDPT	EQUIPMENT	CC	CENTER TO CENTER	XFER	TRANSFER
ER	CONDUCTANCE RELAY	OL	OVERLOAD RELAY	XMT	TRANSDUCER
ETM	ELAPSED TIME METER	OSC	OSCILLATION	XPDR	TRANSPONDER
FHU	FILTRIC HEATING UNIT				
EXH	EXHAUST				
EXIST	EXISTING				
		P	POLE		
		PB	PUSH BUTTON		
FDR	FEEDER	PCM	PROCESS CONTROL MODULE		
FLEX	FLEXIBLE	PCP	PROCESS CONTROL PANEL		
FLUOR	FLUORESCENT	PF	POWER FACTOR		
FUT	FUTURE	PH, $\phi$	PHASE		
FVR	FULL VOLTAGE REVERSING	PNL	PANEL		
FVNR	FULL VOLTAGE NON-REVERSING	PNLBD	PANELBOARD		
FWD	FORWARD	POS	POSITION		
		PQM	POWER QUALITY MONITOR		
GALV	GALVANIZED	POT	POTENTIOMETER		
GEN	GENERATOR	PR	PRIMARY		
GND	GROUND	PS	PRESSURE SWITCH		
		PT	POTENTIAL TRANSFORMER		
		PVC	POLYVINYL CHLORIDE		
		PW	PART WINDING		
		PWR	POWER FACTOR		
HH	HAND HOLE	REC	RECEPTACLE		
HID	HIGH INTENSITY DISCHARGE	RECPIS	RECEPTACLES		
HG	MERCURY	REQ'D	REQUIRED		
HOA	HAND-OFF-AUTOMATIC	REV	REVERSE		
HP	HORSEPOWER	RGS	RIGID GALVANIZED STEEL		
HPS	HIGH PRESSURE SODIUM	RTU	REMOTE TERMINAL UNIT		
HTR	HEATER	RVAT	REDUCED VOLTAGE AUTOTRANSFORMER		
HT TR	HEAT TRACED	RVNR	REDUCED VOLTAGE NON-REVERSING		
HVAC	HEATING, VENTILATING, A/C	RVSS	REDUCED VOLTAGE SOLID STATE		
HZ	HERTZ - CYCLES PER SECOND				
IMC	INTERMEDIATE METAL CONDUIT				
INCAND	INCANDESCENT	SCH	SCHEDULE		
IND	INDICATION, INDICATING	SEC	SECONDARY, SECONDS		
I/O	INPUT/OUTPUT	SECT	SECTION		
INST	INSTANTANEOUS	SEL SW	SELECTOR SWITCH		
INSTR	INSTRUMENT	SEQ	SEQUENCE		
Isc	SHORT CIRCUIT CURRENT	SH	SHIELD		
INVT	INVERT	SHLD	SHIELDED		

### GENERAL NOTES

- PRIOR TO BEGINNING EXCAVATION, VERIFY LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING, ETC. PROVIDE EXCAVATION, BACKFILL, SUPPORT, SAWCUTTING, PATCHING, PAVING, ETC. AS REQUIRED. BACKFILL EXCAVATIONS TO 90 PERCENT COMPACTION AND PATCH TO MATCH EXISTING CONDITIONS.
- ALL DIRT AND DEBRIS SHALL BE REMOVED FROM ALL MANHOLES AND PULLBOXES. DISPOSE OF AS DIRECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.
- DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO BEGINNING WORK.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL INCLUDE IN HIS BID COSTS, THE REQUIREMENTS TO MAKE HIS WORK MEET THE EXISTING CONDITIONS.
- THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT ON THE PLANS.

### ELECTRICAL LEGEND

SYMBOL	DESCRIPTIONS	SYMBOL	DESCRIPTIONS
	A = REFERENCE TO LIGHTING FIXTURE SCHEDULE		DISTRIBUTION PANEL
	3 = LIGHTING PANEL CIRCUIT NUMBER		LIGHTING AND BRANCH CIRCUIT PANEL
	e = SWITCH ASSOCIATED WITH FIXTURE CONTROL		TERMINAL CABINET, TYPE AS SPECIFIED
	1' x 4' FLUORESCENT FIXTURE, SURFACE MOUNTED		MOTOR, NUMBER INDICATES HORSEPOWER
	FLOOR. FIXTURE, NIGHT LIGHT		MOTOR, FRACTIONAL HORSEPOWER
	FLOOR. FIXTURE, EMERGENCY LIGHT		FIRE/SECURITY ALARM CONTROL PANEL
	LUMINAIRE, CEILING MOUNTED (SURFACE)		THERMOSTAT
	LUMINAIRE, EXTERIOR WALL MOUNTED (SURFACE)		JUNCTION BOX
	LUMINAIRE, CEILING MOUNTED, (RECESSED)		INTRUSION DETECTOR, INSTRUMENT, DEVICE AS NOTED
	FLOODLIGHT, MOUNTING AND WATTAGE AS SPECIFIED		SHUNT TRIP
	LUMINAIRE, PENDANT MOUNTED, LAMP AS SPECIFIED		HEAT DETECTOR
	EMERGENCY LIGHTING		FIRE ALARM PULL STATION
	POWERED EMERGENCY EXIT SIGN		LIGHTING CONTACTOR
	SMOKE DETECTOR		MOTION SWITCH, ADJUSTABLE "ON" TIMER
	TEL. RECEPTACLE, 3/4" HOME RUN U.O.N.		CONDUIT RUN INTERRUPTED
	SPECIAL SINGLE GANG DEVICE BOX		CONDUIT, TURNED UP, TOWARD VIEWER
	DUPLEX RECEPTACLE, MT. HEIGHT SHOWN		CONDUIT, TURNED DOWN, AWAY FROM VIEWER
	GFCI DUPLEX RECEPTACLE, MT. HEIGHT SHOWN		CROSSHATCHING INDICATES COUNTS OF No. 12 CONDUCTORS IF MORE THAN 3. NO CROSSHATCHING INDICATES 2 No. 12 AND 1 No. 12 GROUND. LONG HATCH IS A NEUTRAL AND "/>

### ELECTRICAL SCHEMATIC LEGEND

	LEVEL SWITCH, LSHH, LSH, LSL N.O. OR N.C. AS INDICATED
	FLOW SWITCH, N.C. OR N.O. AS INDICATED
	PRESSURE SWITCH, PSL, PSH, N.O. OR N.C. AS INDICATED
	TEMPERATURE SWITCH, TSH, TSL, N.O. OR N.C. AS INDICATED
	LIMIT SWITCH, N.C. OR N.O. AS INDICATED
	RELAY/CONTROL CONTACT, N.C. OR N.O. AS INDICATED
	TIME DELAY CONTACT, TIME DELAY ON/OFF, N.C./N.O. AS INDICATED
	RELAY COIL, FUNCTION, NUMBER AND CONTACTS ( ) AS SHOWN
	INDICATING LIGHT, LENS COLORS (R) RED, (G) GREEN, (W) WHITE
	PUSHBUTTON, MOMENTARY, N.O. OR N.C., L.O. = LOCKOUT
	PUSHBUTTON, MAINTAINED UNIVERSAL CONTACT
	ON-OFF SELECTOR SWITCH, MAINTAINED, FUNCTION AS SHOWN
	SELECTOR SWITCH, MAINTAINED L-O-R = LOCAL-OFF-REMOTE, OR OTHER FUNCTION AS DESIGNATED
	FUSE, SIZE AS NOTED
	CONTROL POWER TRANSFORMER RATINGS AS INDICATED
	TERMINAL IN RELAY PANEL
	TERMINAL IN RTU
	TERMINAL IN PLC
	TERMINAL IN MOTOR STARTER
	TERMINAL AT FIELD DEVICE
	TERMINAL - EQUIPMENT OR DEVICE
	GROUND CONNECTION
	CIRCUIT BREAKER
	OVERLOAD ELEMENT
	AUTOTRANSFORMER WITH MULTIPLE TAPS SHOWN
	PREWIRED - BY OEM / INTEGRATOR
	FIELD WIRING
	PLC INPUT & ADDRESS
	PLC OUTPUT & ADDRESS

### SINGLE LINE LEGEND

	CONTROL DEVICE, LOCATION AS INDICATED ON THE DIAGRAM, STOP-START.		VACUUM CONTACTOR, 5kV, 3-POLE, RATINGS AND OPERATING MECHANISM AS DESCRIBED IN SPECIFICATIONS
	CONTROL DEVICE, LOCATION AS INDICATED ON THE DIAGRAM, HAND-OFF-AUTO.		VACUUM CONTACTOR, MECHANICAL LATCH, 5kV, 3-POLE, RATINGS AND OPERATING MECHANISM AS DESCRIBED IN SPECIFICATIONS
	CONTROL DEVICE, LOCATION AND TYPE AS INDICATED ON THE PLANS OR DIAGRAM.		GANG OPERATED LOAD BREAK SWITCH, 3-POLE, WITH REPLACEABLE ARC SUPPRESSION
	LOCAL INDICATING PILOT LIGHT, COLOR AND TYPE AS SPECIFIED OR INDICATED ON THE DIAGRAM.		GANG OPERATED SWITCH, 3-POLE, NON-LOAD BREAK
	INDICATING PILOT LIGHT, COLOR AND TYPE AS SPECIFIED ON THE DIAGRAM.		INSTRUMENT CLASS CURRENT TRANSFORMER, RATINGS AND BURDEN TO MATCH SYSTEM AND MONITORING DEVICES ONE PER PHASE PROVIDE WITH GROUND SHORTING TERMINAL STRIP
	OUTLINE OF FUTURE ELECTRICAL AND MECHANICAL EQUIPMENT		GROUND SENSING CURRENT TRANSFORMER, INSTRUMENT CLASS, RATINGS TO MATCH INSTRUMENT BURDEN
	SPACE HEATER, VOLTAGE AND RATING AS INDICATED ON THE DIAGRAM.		BUSHING CURRENT TRANSFORMER (BCT), METERING CLASS, RATINGS AS INDICATED. FOR DIFFERENTIAL SERVICE ACROSS DELTA-WYE TRANSFORMER, PROVIDE MIRROR DELTA-WYE CONNECTIONS, ALL CT'S TO BE TERMINATED ON GROUND SHORTING TERMINAL STRIPS
	WINDING TEMPERATURE SENSOR, TYPE AS SUPPLIED BY MOTOR MANUFACTURER.		VOLTAGE TRANSFORMER, INSTRUMENT CLASS, FUSED PRIMARY AND SECONDARY, OPEN DELTA CONFIGURATION
	FIELD INSTRUMENT, PRESSURE, TEMPERATURE, FLOW, LEVEL SWITCH OR TRANSMITTER AS INDICATED ON THE DIAGRAM OR PLANS.		REDUCED VOLTAGE, NON-REVERSING AUTOTRANSFORMER TYPE STARTER WITH VACUUM CONTACTOR, OPEN-TRANSITION CONFIGURATION, AND FACTORY PREWIRED TAP SELECTION AT 65% FURNISH HEAVY DUTY STARTER WITH HIGH WINDING TEMPERATURE THERMISTOR AND ALARM RELAY
	DENOTES BREAKER SHALL BE SOLID STATE TRIP		EQUIPMENT OUTLINE
	DENOTES BREAKER SHALL BE EQUIPPED WITH GROUND FAULT MONITORING AND TRIP		VENDOR PACKAGED EQUIPMENT
	DENOTES BREAKER SHALL BE EQUIPPED WITH SHUNT TRIP - INCLUDING CONTROL POWER TRANSFORMER AND FIELD WIRING TERMINALS FOR REMOTE PUSHBUTTON.		SURGE ARRESTER
	MOTOR, TYPE AS REQUIRED BY THE APPLICATION, RATINGS AS SPECIFIED OR REQUIRED BY THE APPLICATION. "F" DENOTES FUSED.		TRANSFER SWITCH, AMPERE RATING AS NOTED: MTS: MANUAL, ATS: AUTOMATIC
	GENERATOR, KW AS SHOWN ON THE DIAGRAM.		
	PROTECTIVE RELAY, TYPE AS NOTED BY ##: 50 - INSTANTANEOUS OVERCURRENT 51 - TIME OVERCURRENT 49 - TEMPERATURE 63 - SUDDEN PRESSURE 63X - SUDDEN PRESSURE AUX RELAY 71 - LIQUID LEVEL		

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FOR REFERENCE ONLY