

ABBREVIATIONS

a	
A	AMPERE OR AMPER INDICATING LIGHT
AAL	ANALYSIS ALARM HIGH
AAL	ANALYSIS ALARM AUXILIARY RELAY
AC	ALTERNATING CURRENT
AE	ANALYSIS ELEMENT
AIC	ANALYSIS INDICATING CONTROLLER
AI	ANALYSIS INDICATING TRANSMITTER
AM	AMMETER
ARC	ANALYSIS RECORDING CONTROLLER
AS	AMMETER SWITCH
ASH	ANALYSIS SWITCH-HIGH
ASZ	
AT	ANALYSIS TRANSMITTER
b	
B	BLUE INDICATING LIGHT OR TELEPHONE BELL OUTLET
BS	
BTH	BRITISH THERMAL UNITS
c	
C	CONTACTOR OR CONDUIT
4-C	4 CONDUCTOR CABLE
CF	CENTRIFUGAL FAN
CPT	CONTROL POWER TRANSMITTER
CR	CONTROL RELAY
CS	CONTROL STATION
CP	CYCLE TIME CLUTCH
CTM	CYCLE TIMER MOTOR
3-C	3 CURRENT TRANSFORMERS
d	
D	DESK TELEPHONE OUTLET
DM	DAMPER MOTOR
DS	DISCONNECT SWITCH
e	
EHR	ELECTRICAL HAND HOLE
EHRP	EXPLOSION-PROOF
EHR	ELECTRICAL UNIT HEATER
f	
F	FAST OR FORWARD CONTACTOR
FL	FLOW ELEMENT
FI	FLOW INDICATING TRANSMITTER
FM	FREQUENCY METER
FI	FLOW INTEGRATOR
FR	FLOW RECORDER
FSL	LOW FLOW SWITCH
FU	FUSE UNIT
FI	
LV-2 SPEED	FULL VOLTAGE, 2 SPEED STARTER
FL	FLOW FLAY
g	
G	GROUND OR GREEN INDICATING LIGHT
GF	GROUND FAULT
GFI	GROUND FAULT INTERRUPTER
GFS	GROUND FAULT SWITCH
GR	GROUND
GRO	GROUND ROD
GHR	GAS UNIT HEATER
h	
H	HARNESS CLIP
HV	HIGH VOLTAGE
HZ	Hertz
i	
I	INSTANTANEOUS CLOSING
IO	INSTANTANEOUS OPENING
INT	INSTRUMENTATION
j	
J	JUNCTION BOX
k	
K	KILOVOLT
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KM	KILOMETER

l	
L	LEVEL
L2	LIGHTING PANEL NO. 2
LAL	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
LE	LEVEL SENSING ELEMENT
LI	LEVEL INDICATOR
LIC	LEVEL INDICATING CONTROLLER
LIT	LEVEL INDICATING TRANSMITTER
LOS	LOCK OUT STOP
LP	LOCAL CONTROL PANEL
LS	LEVEL SWITCH
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOCKOUT
LSW	LIMIT SWITCH
LT	LEVEL TRANSMITTER
LTG	LIGHTING
LV	LOW VOLTAGE
LY	LEVEL CONTROL
m	
M	MAGNETIC MOTOR STARTER OR MANUAL RESET
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MI	MAGNOLIA
MS	MANUAL MOTOR STARTER
MTR	MOTOR
MX	MOTOR STARTER AUXILIARY RELAY
n	
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
o	
OL	OVERLOAD
OLX	AUXILIARY RELAY
p	
2P	2 POLE
PE	PHOTOELECTRIC CELL
PF	PROPELLER FAN
PIT	PRESSURE INDICATING TRANSMITTER
PMT	PAT MOUNTED TRANSFORMER
POS	POSITIVE
PR	PAIR
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSMITTER
PY	PRESSURE CONTROL
Ø	PHASE
r	
R	RELAY OR RED INDICATING LIGHT
R2	RELAY
RAL	RED ALARM LIGHT
RTM	RUNNING TIME METER
RTU	REMOTE TERMINAL UNIT (PROGRAMMABLE CONTROLLER)
s	
S	SOLENOID VALVE
S3	SIZE 3 STARTER
SC	STEPPING SWITCH CONTRACT
SPP	SIERRA PACIFIC POWER CO.
SS	SELECTOR SWITCH
SS2	SELECTOR SWITCH NO. 2
ST	SHUNT TRIP
SWGR	SWITCHGEAR
t	
T	THERMOSTAT
TC	TIMED CLOSING
TDDE	TIME DELAY ON DEENERGIZATION
TDDE	TIME DELAY ON ENERGIZATION
TEL	TELEPHONE
TIT	TEMPERATURE INDICATING TRANSMITTER
TO	TIMED OPENING
TR	TIME DELAY RELAY
TSH	TEMPERATURE SWITCH HIGH
TU	CIRCUIT BREAKER TRIP UNIT
u	
UG	UNDERGROUND
UH-1	UNIT HEATER NO. 1
UI	MULTIVARIABLE INDICATOR
UY	MULTIVARIABLE RELAY

v	
V	VOLT
VM	VOLTMETER
VS	VARIABLE SPEED
VSH	VIBRATION SWITCH HIGH
w	
W	WHITE
WAH	TORQUE ALARM HIGH
WAL	TORQUE ALARM LOW
WHM	WATT-HOUR METER
WM	WATTMETER
WP	WEATHERPROOF
WS	TORQUE SWITCH
Z	
ZC	POSITION CONTROLLER
ZI	POSITION INDICATOR
ZS	POSITION SWITCH
ZSC	POSITION SWITCH CLOSED
ZSO	POSITION SWITCH OPEN

SYMBOLS

	OPERATING COIL AS NOTED OF STARTER, RELAY, SOLENOID VALVE, ETC.
	CONTACTS, NORMALLY OPEN & NORMALLY CLOSED
	PUSH BUTTONS, NORMALLY OPEN & NORMALLY CLOSED
	3-POSITION SELECTOR SWITCH
	OVERLOAD RELAY HEATER
	FUSE
	INDICATING LIGHT R-RUN, G-STOP
	SIZE 2 CIRCUIT BREAKER COMBINATION FVNR STARTER
	3 POLE, 20 AMP CIRCUIT BREAKER
	MOTOR, WITH ASSUMED HORSEPOWER, ACTUAL HORSEPOWER MAY DIFFER
	NONMOTOR LOAD WITH ASSUMED KW. ACTUAL KW MAY DIFFER
	AUXILIARY OR CONTROL DEVICE (CONTROL STATION SHOWN). SOME AUXILIARY DEVICES MAY NOT BE SHOWN
	SPECIAL CONNECTION, USE SHOWN
	400 V, 30 RECEPTACLES, RATING SHOWN
	TRANSFORMER WITH PRIMARY VOLTAGE, SECONDARY VOLTAGE AND KVA RATING SHOWN
	1 PAIR INSTRUMENT CABLE
	HOME RUN TO PANEL
	CONDUIT AND WIRING RUN, CONDUIT SIZE AND CONDUCTORS SHOWN. IF NOTHING IS SHOWN IT IS 3/4" C-3 #10. SLASH MARKS SHOW IF MORE THAN 3 #10 IN A 3/4" CONDUIT. ALL CIRCUITS TO INCLUDE A GROUND WIRE.
	S LIGHT SWITCH
	S3 3-WAY LIGHT SWITCH
	S4 4-WAY LIGHT SWITCH
	SD DIMMER SWITCH, 600 W.
	SWP WEATHERPROOF LIGHT SWITCH
	SE EXPLOSION PROOF LIGHT SWITCH
	DUPLEX 120 V, 20 A RECEPTACLE
	SIMPLEX 240 V, 20 A RECEPTACLE
	T THERMOSTAT
	TELEPHONE OUTLET
	WEATHERPROOF OUTLET
	GROUND FAULT OUTLET
	CLOCK OUTLET, 7'-0" UP
	DM DAMPER MOTOR
	SM TOGGLE SWITCH TYPE MANUAL MOTOR STARTER
	CS PEDestal MOUNTED DEVICE
	DS DISCONNECT SWITCH
	M MAGNETIC MOTOR STARTER
	MS MANUAL MOTOR STARTER
	EL EMERGENCY LIGHTING UNIT

- GENERAL NOTES:
- IN GENERAL, CONDUIT ROUTINGS ARE NOT SHOWN ON FLOOR PLANS. ROUTE CONDUIT AS REQUIRED BY EQUIPMENT FURNISHED AND THE FOLLOWING:
 - FINISHED AREAS OF NEW BUILDINGS: CONCEALED
 - ITEMS NOT ADJACENT TO WALLS IN NEW BUILDINGS: CONCEALED IN FLOOR
 - ALL OTHER AREAS: EXPOSED ALONG WALLS, CEILINGS, EQUIPMENT AND PIPING
 - CIRCUIT SIZES ARE MINIMUM AND SHALL BE INCREASED AS REQUIRED FOR EQUIPMENT FURNISHED
 - WHERE NEW AND EXISTING WORK APPEARS ON THE SAME PLAN, LIGHT LINE WEIGHT DENOTES EXISTING ITEMS, CIRCUITS AND WORK; HEAVY LINE WEIGHT DENOTES NEW ITEMS, CIRCUITS AND WORK UNLESS WORK IS SPECIFICALLY IDENTIFIED. ALL OTHER WORK TO BE ASSUMED TO BE NEW UNLESS NOTED OTHERWISE
 - CONTRACTOR SHOULD REFER TO FOLLOWING AS-BUILT DRAWINGS OF PREVIOUS CONSTRUCTION
 - CONTRACT 2, CWC, MAY 16, 1980
 - CONTRACT 5, CWC, JULY 28, 1980
 - 1965 IMPROVEMENTS, CAROLLO, 1965
 - 1956 IMPROVEMENTS, HFC, 1956
 - ALL WORK SHOWN IS TO BE PROVIDED UNDER CONTRACT 1 UNLESS SPECIFICALLY INDICATED TO BE PROVIDED BY OTHERS OR UNDER ANOTHER CONTRACT.
 - INSTRUMENT AND DATA HIGHWAY CABLE WILL BE INSTALLED IN SEPARATE CONDUITS THAN POWER CONDUCTORS.

CULP-WESNER-CULP
CONSULTING ENGINEERS
CAMERON PARK, CA SANTA ANA, CA
DENVER, CO

CWC

H D R
California Professional Engineer
No. 12547

Job No. 74-C-11
Designed BAD
Drawn BAD
Checked DJK
Approved DAP
Date 7/21/88

No.	By	Date	Revision Description

City of Las Vegas
WASTEWATER TREATMENT PLANT
Main Plant Expansion
Contract No. 1

ELECTRICAL LEGENDS

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