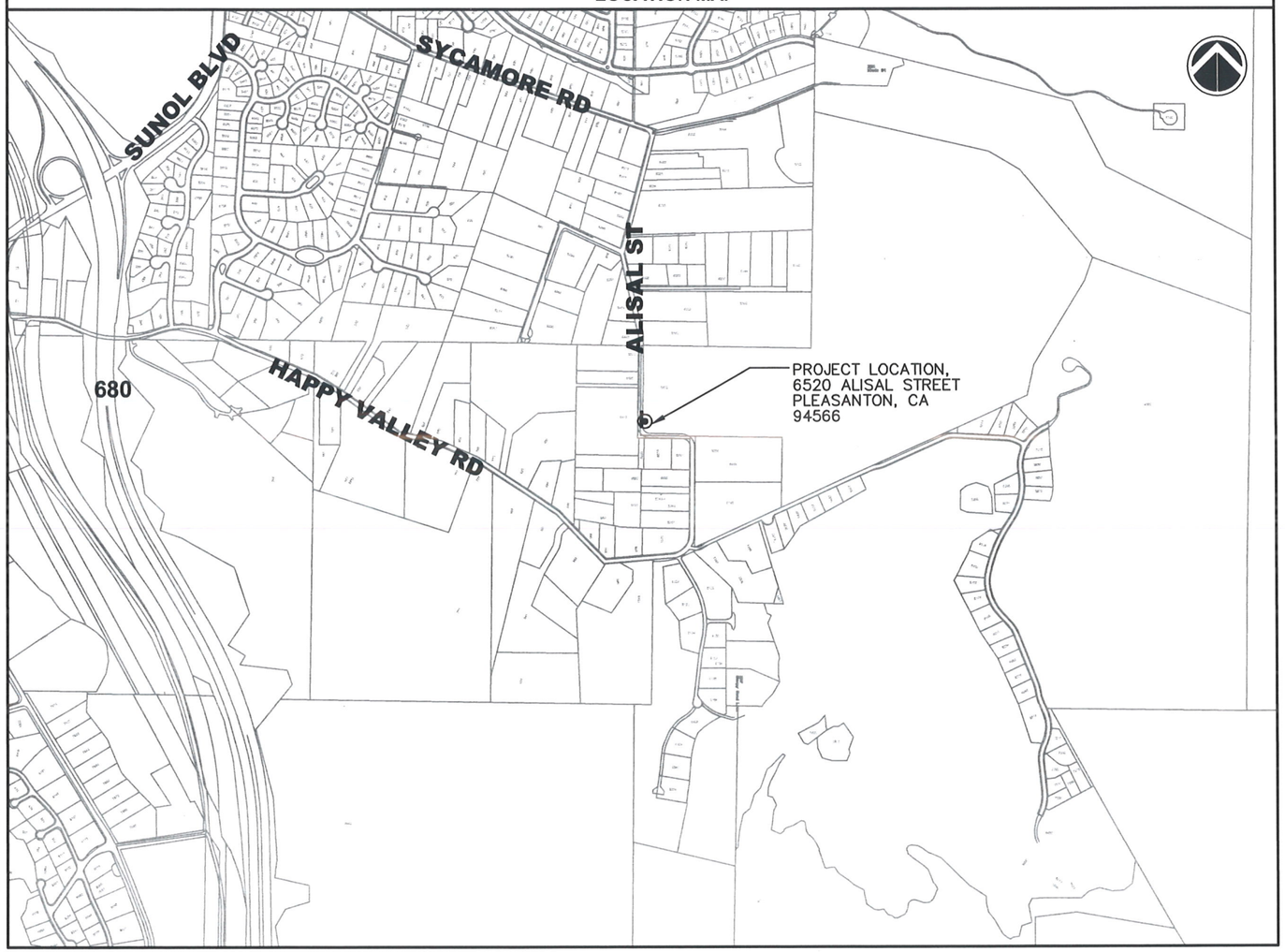
CITY OF PLEASANTON

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

SEWER LIFT STATION S-14 ELECTRICAL IMPROVEMENTS - CIP NO. 24265

DECEMBER 2024

LOCATION MAP



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ACCEPTANCE OF PLAN

1/10/25

CITY ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
ADAM MATTHEW NELKE
No. 78830
Exp. 9/30/2025
CIVIL
STATE OF CALIFORNIA

0 3000 6000
GRAPHIC SCALE (IN FEET)

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FILE: 2402B-E00.DWG
DATE: DEC 11, 2024 TIME: 5:42:23PM

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

JESUS P. FRISCH No. E15781 ELECTRICAL STATE OF CALIFORNIA

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
PROJECT
TITLE SHEET

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

DWG NO. G-1
1 OF 19

S:\FRISCH ENGINEERING\JOBS\2024 JOBS\2402B PLEASANTON S-14 SLS DES 200A ATS SSS\DRAWINGS\2402B-E00.DWG\12-11-24 05:42pm Administrator

COMPONENTS

SYMBOL	DESCRIPTION
RES	RESISTOR
SV	SOLENOID COIL
HTR	HEATER
	CAPACITOR
	DIODE
	DIODE, ZENER
MOV	METAL OXIDE VARISTOR
	AUDIBLE ALARM
1	MOTOR STARTER NEMA SIZE SHOWN
?	3 PHASE MOTOR ? = MOTOR HP
M	3 PHASE MOTOR
M	SINGLE PHASE MOTOR
	TRANSFORMER SIZE AND VOLTAGE AS SHOWN
M	UTILITY POWER METER
N G	NEUTRAL AND GROUND WITH DISCONNECT LINK
	UFER GROUND
	GROUND ROD OR SYSTEM
	CURRENT TRANSFORMER RATIO AS NOTED
	DISCONNECT SWITCH SIZED PER FEEDER
PDB	POWER DISTRIBUTION BLOCK

SWITCHES – OPERATOR

SYMBOL	DESCRIPTION
SW	TOGGLE OR DISCONNECT SWITCH
PB	PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION
PB	PUSHBUTTON – NORMALLY CLOSED, MOMENTARY UNLESS LOS (LOCK OUT STOP) WHERE MECHANICALLY HELD
PB	PUSHBUTTON, MECHANICALLY CONNECTED, DOUBLE CIRCUIT – NORMALLY CLOSED AND NORMALLY OPEN
HAND OFF AUTO	SELECTOR SWITCH, 3 POSITION – CONTACT STATUS SHOWN EXISTS I.E. AT POSITION OF HAND, OFF, OR AUTO
	SELECTOR SWITCH, 2 POSITION – MIDDLE POSITION IS DELETED
	ALTERNATE METHOD: X00 = HAND 0X0 = AUTO, 00X = OFF
	POTENTIOMETER

SWITCHES – PROCESS

SYMBOL	DESCRIPTION
FS	FLOW SWITCH – CLOSES UPON INCREASING FLOW
FS	FLOW SWITCH – OPENS UPON INCREASING FLOW
LS	LEVEL SWITCH – CLOSES UPON INCREASING LEVEL
LS	LEVEL SWITCH – OPENS UPON INCREASING LEVEL
PS	PRESSURE SWITCH – CLOSES UPON INCREASING PRESSURE (DECREASING VACUUM)
PS	PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (DECREASING VACUUM)
TS	TEMPERATURE SWITCH – CLOSES UPON INCREASING TEMPERATURE
TS	TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE
ZS	LIMIT SWITCH – CLOSES AT SET LIMIT
ZS	LIMIT SWITCH – OPENS AT SET LIMIT
WS	TORQUE SWITCH – CLOSES UPON INCREASING TORQUE
WS	TORQUE SWITCH – OPENS UPON INCREASING TORQUE

DEVICES – FRONT PANEL

SYMBOL	DESCRIPTION
X	INDICATING LIGHT, LETTER "X" INDICATES COLOR: R=RED G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
PTT X	INDICATING LIGHT, PUSH TO TEST

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
S	CT SHORTING TERMINAL BLOCK
PTS	FUSED POTENTIAL TRANSFORMER, 208 / 120 V SECONDARY OR AS SHOWN
PM	POWER MONITOR
SPD	SURGE PROTECTION DEVICE
VMR	VOLTAGE MONITORING RELAY
OL	THERMAL OVERLOAD CONTACT
	THERMAL OVERLOAD ELEMENT
	FUSE
2	CONTACTOR, (NEMA) SIZE SHOWN

DEVICES – RELAY

SYMBOL	DESCRIPTION
M1	CONTACTOR OR STARTER M1
CR 1	CONTROL RELAY CR1
TR 2	TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE & SETTING AS SHOWN
TDOE TDOD	TIME DELAY ON ENERGIZATION TIME DELAY ON DE–ENERGIZATION
107, 121	REFERENCED RELAY WITH N.O. CONTACT ON LINE 107 N.C. CONTACT ON LINE 121
CR1 (105)	NORMALLY OPEN, RELAY CONTACT – ACTUATED BY RELAY CR1 COIL LOCATED ON LINE 105
CR1	NORMALLY CLOSED, RELAY CONTACT – ACTUATED BY RELAY CR1
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS ENERGIZED
TR2	NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE–ENERGIZED
TR2	NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSES AFTER TR2 IS DE–ENERGIZED
TR2	CONTACT OPENS AND CLOSES IN A TIMED REPEAT CYCLE

DEVICES – PROTECTIVE

SYMBOL	DESCRIPTION
Y xA xP xT	LOW VOLTAGE MOLDED CASE, INSULATED CASE OR POWER CIRCUIT BREAKER. RATINGS AS SHOWN IN DRAWINGS AND AS DEFINED BELOW: xA: CIRCUIT BREAKER AMERAGE xAT: AMPERAGE TRIP xAF: AMPERAGE FRAME xP: NUMBER OF POLES xT: TRIP PROTECTION MCP: MOTOR CIRCUIT PROTECTION TM: THERMAL MAGNETIC L: LONG TIME DELAY S: SHORT TIME DELAY I: INSTANTANEOUS TRIP G: GROUND FAULT A: ARC FLASH PROTECTION 100% DUTY RATED PER SPECIFICATIONS
100% NO MARKINGS	y: BREAKER FEATURES / OPTIONS – SHUNT TRIP
S	– KIRK–KEY INTERLOCK
K	– MANUALLY CHARGED PUSHBUTTON OPERATION
M	– ELECTRICALLY CHARGED PUSHBUTTON OPERATION
E	
52	MEDIUM VOLTAGE CIRCUIT BREAKER TRIP FUNCTIONS PER DRAWINGS AND SPECIFICATIONS
MFR	MULTIFUNCTION RELAY PER SPECIFICATIONS

WIRING – CONNECTIONS

SYMBOL	DESCRIPTION
	PANEL OR EQUIPMENT WIRING
	FIELD WIRING
	CONDUCTORS – NOT CONNECTED
	CONDUCTORS – CONNECTED
	GROUND CONNECTION
	PLUG AND RECEPTACLE
	INCOMING LINE
123 123	TERMINAL BLOCKS WITH TERMINAL NUMBER AS SHOWN OR AS DETERMINED BY SUBMITTAL
123	DISCONNECTING TERMINAL BLOCK
	FUSE
SHIELD CONDUCTOR	SHIELDED CABLE

PLAN – SYMBOLS

SYMBOL	DESCRIPTION
	CONDUIT, EXPOSED
	CONDUIT, IN SLAB OR BELOW GRADE
	CONDUIT, CONCEALED IN WALL OR CEILING
	CONDUIT STUBBED OUT & CAPPED
	CONDUIT BENDS TOWARD OBSERVER
	CONDUIT BENDS AWAY FROM OBSERVER
	CONDUIT ENDS
J	FLEXIBLE CONDUIT CONNECTION FROM J–BOX TO EQUIPMENT
	CONDUIT CHANGE IN ELEVATION
G	BARE COPPER GROUND WIRE
G	GROUND CONNECTION BOLTED TYPE
G	GROUND CONNECTION EXOTHERMIC WELD TYPE
	DISCONNECT SWITCH
	FIELD MOUNTED DEVICE
	TELEPHONE/DATA RECEPTACLE 2 PORT TA568A, 2 CAT 6 CABLES
#	CONDUIT REFERENCE TO SCHEDULE
T	THERMOSTAT
E	EYS SEAL
J	JUNCTION BOX
B	CONDUIT SEALING BUSHING
	PULL BOX OF SIZE SHOWN (CHRISTY BOX SIZE MINIMUM)
A a/#	LIGHTING FIXTURE # – CIRCUIT BREAKER NUMBER A – FIXTURE SCHEDULE REF. a – CONTROL SWITCH REFERENCE
WP #7 GFI	DUPLEX RECEPTACLE # – CIRCUIT BREAKER NUMBER WP – WEATHERPROOF (IF SHOWN) GFI – GROUND FAULT TYPE
aM	TOGGLE SWITCH a – FIXTURES CONTROLLED 3 – 3 WAY M = MOTION DETECTOR T = TIMER SWITCH
	SPECIAL RECEPTACLE AS REQUIRED FOR EQUIPMENT TO BE CONNECTED

MISCELLANEOUS ABBREVIATIONS

&	AND	N	NEUTRAL
@	AT	NC	NORMALLY CLOSED
A	AMBER, AMPERES	NDL	NEUTRAL DISCONNECT LINK
AC	ALTERNATING CURRENT	NHC	NORMALLY HELD CLOSED
ACK	ACKNOWLEDGE	NHO	NORMALLY HELD OPEN
AFF	ABOVE FINISHED FLOOR	NIC	NOT IN CONTRACT
AH	AMP HOUR	NL	NIGHT LIGHT
AI	ANALOG INPUT	NO	NORMALLY OPEN
AIC	AMP INTERRUPTING CAPACITY SYMMETRICAL	NTS	NOT TO SCALE
AM	AMP METER	(N)	NEW
AO	ANALOG OUTPUT	OC	ON CENTER
AWG	AMERICAN WIRE GUAGE	OI, OIT	OPERATOR INTERFACE
ATS	AUTOMATIC TRANSFER SWITCH	OL	OVERLOAD
BATT	BATTERY	ORP	OXIDATION REDUCTION POTENTIAL
BFC	BELOW FINISHED CEILING	P	POLE
BOD	BIOCHEMICAL OXYGEN DEMAND	PB	PUSHBUTTON
BPF	BAND PASS FILTER	PBX	PULL BOX
BYP	BYPASS	PDB	POWER DISTRIBUTION BLOCK
C	CONDUIT	PE	POLYETHYLENE
CAP	CAPACITOR	PF	POWER FACTOR
CB	CIRCUIT BREAKER	PFR	POWER FAIL RELAY
CKT	CIRCUIT	PH	HYDROGEN ION CONCENTRATION
COAX	COAXIAL CABLE	PLC	PROGRAMMABLE LOGIC CONTROLLER
COMM	COMMUNICATION	PM	POWER MONITOR
CR	CONTROL RELAY	PNL	PANEL
CT	CURRENT TRANSFORMER	POT	POTENTIOMETER
CS	CONSTANT SPEED	PR	PAIR, TWISTED AND SHIELDED
CU	COPPER	PRI	PRIMARY
DC	DIRECT CURRENT	PROVIDE	FURNISH, INSTALL, AND CONNECT
DET	DETAIL	PS	PRESSURE SWITCH
DI	DIGITAL INPUT	PT	POTENTIAL TRANSFORMER
DISC	DISCONNECT	PTT	PUSH TO TEST
DO	DIGITAL OUTPUT	PVC	POLYVINYLCHLORIDE
DPDT	DOUBLE POLE DOUBLE THROW	PWR	POWER
DWG	DRAWING	REF	REFERENCE
E–DTL	ELECTRICAL DRAWING DETAIL	RFI	RADIO FREQUENCY INTERFERENCE
ELEV	ELEVATION	RMS	ROOT MEAN SQUARE
ENET	ETHERNET	RTD	RESISTANCE TEMPERATURE DETECTOR
ETM	ELAPSED TIME METER	RST	RESET
ESW	ETHERNET SWITCH	RVAT	REDUCE VOLTAGE AUTO TRANSFORMER
(E)	EXISTING	RTU	REMOTE TERMINAL UNIT
FCS	FIELD CONTROL STATION	(R)	REWIRE, RELOCATE, REVISE, REUSE
FLA	FULL LOAD AMPS	SCH	SCHEDULE
FLEX	FLEXIBLE LIQUID TIGHT CONDUIT	SEC	SECONDARY, SECOND
FS	FULL SPEED, FLOW SWITCH	SECS	SECONDS
FVNR	FULL VOLTAGE NON–REVERSING	SEL	SELECTOR
FVR	FULL VOLTAGE REVERSING	SFA	SERVICE FACTOR AMPS
FWD	FORWARD	SPEC	SPECIFICATION
(F)	FUTURE	SPD	SURGE PROTECTIVE DEVICE
GALV	GALVANIZED	SS	STAINLESS STEEL
GFI	GROUND FAULT INTERRUPTER	SSRC	STAINLESS STEEL RIGID CONDUIT
GND	GROUND	SSS	SOLID STATE STARTER
GRS	GALVANIZED RIGID STEEL CONDUIT	STT	START
GRS–PVC	PVC COATED GRS CONDUIT	STP	STOP
HI	HIGH	SV	SOLENOID VALVE
HIM	HUMAN INTERFACE MODULE	SW	SWITCH
HOA	HAND OFF AUTO	SWBD	SWITCHBOARD
HP	HORSE POWER	SYM	SYMMETRICAL
HPS	HIGH PRESSURE SODIUM	TB	TERMINAL BLOCK
HS	HAND SWITCH	TC	TIME CLOCK
HTR	HEATER	TDOD	TIME DELAY ON DE–ENERGIZATION
HZ	HERTZ	TDOE	TIME DELAY ON ENERGIZATION
HZD	HAZARD	TELCO	TELEPHONE COMPANY
I	INTERLOCK	TM	THERMAL MAGNETIC
I/O	INPUT/OUTPUT	TEMP	TEMPERATURE
INST	INSTANTANEOUS	TR	TIME DELAY RELAY
ISR	INTRINSICALLY SAFE RELAY	TRIAD	TWISTED AND SHIELDED 3 CONDUCTOR
IS	INTRINSICALLY SAFE	TS	TEMPERATURE SWITCH
J	JUNCTION BOX	TSPR	TWISTED AND SHIELDED PAIR
K	KILO, PREFIX	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
LA	LIGHTNING ARRESTOR	TYP	TYPICAL
LC	LIGHTING CONTACTOR	UG	UNDERGROUND
LEL	LOWER EXPLOSION LIMIT	ULH	ULTRA LOW HARMONIC
LOS	LOCK OUT STOP	UON	UNLESS OTHERWISE NOTED
LP	LIGHTING PANELBOARD	UPS	UNINTERRUPTIBLE POWER SUPPLY
LS	LIMIT SWITCH	V	VOLTAGE
M	MOTOR CONTACTOR	VA	VOLT AMPS
MAG	MAGNETIC FLOWMETER	VAR	VOLT AMPS REACTIVE
MAX	MAXIMUM	VFD	VARIABLE FREQUENCY DRIVE
MCC	MOTOR CONTROL CENTER	VLV	VALVE
MCM	THOUSAND CIRCULAR MILS	VM	VOLTMETER
MCP	MOTOR CIRCUIT PROTECTOR	VMR	VOLTAGE MONITOR RELAY
MCS	MOLDED CASE SWITCH	VR	VOLTAGE RELAY
MH	MANHOLE	W	WATTS
MIN	MINIMUM, MINUTE	WP	WEATHER PROOF, NEMA 3R
MODEM	MODEM	WTP	WATER TREATMENT PLANT
MOV	MOTOR OPERATED VALVE	WWTP	WASTE WATER TREATMENT PLANT
MTR	MOTOR	XFMR	TRANSFORMER
MUX	MULTIPLEXER	Z	IMPEDANCE
MV	MERCURY VAPOR, MEDIUM VOLTAGE	ZS	LIMIT SWITCH

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FILE: 24028-E01.DWG
DATE: Dec 11, 2024 TIME: 5:42:38PM

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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

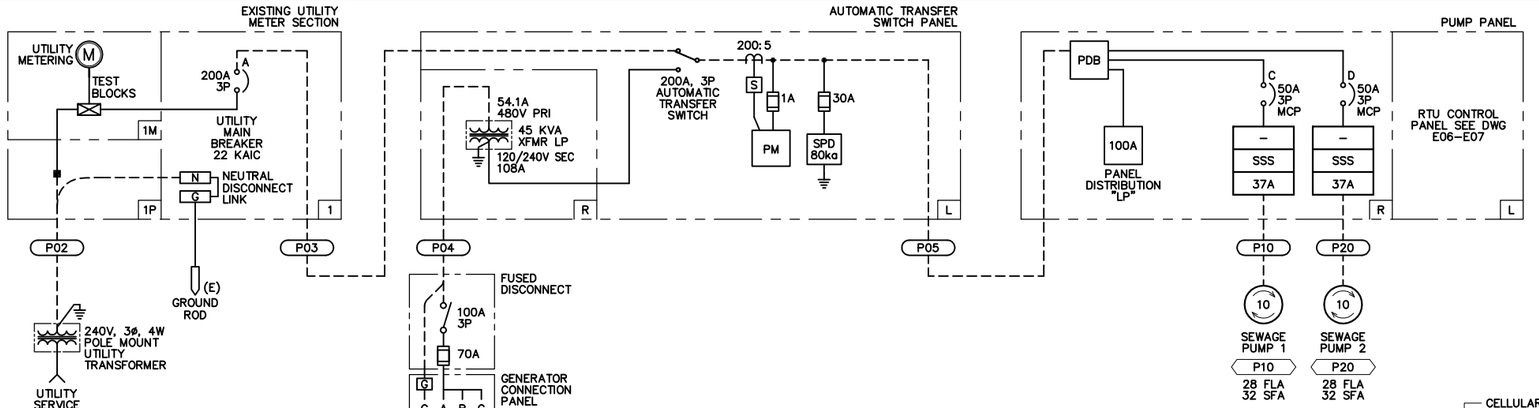
THOMAS F. FRISCH No. E15781 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA ELECTRICAL

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
ELECTRICAL
SYMBOLS AND ABBREVIATIONS

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

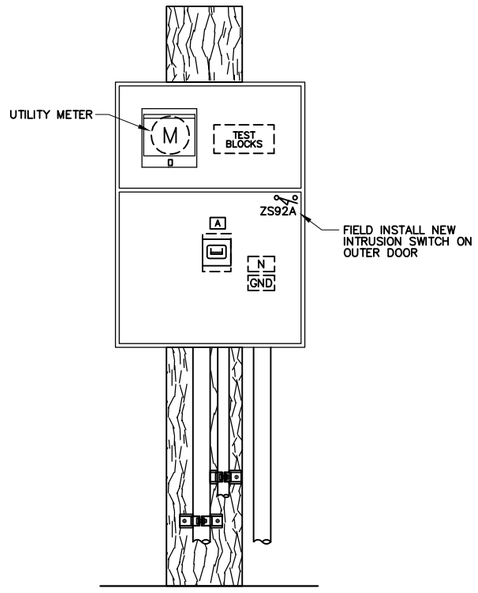
DWG NO. **E-1**
2 OF 19



ONE-LINE DIAGRAM

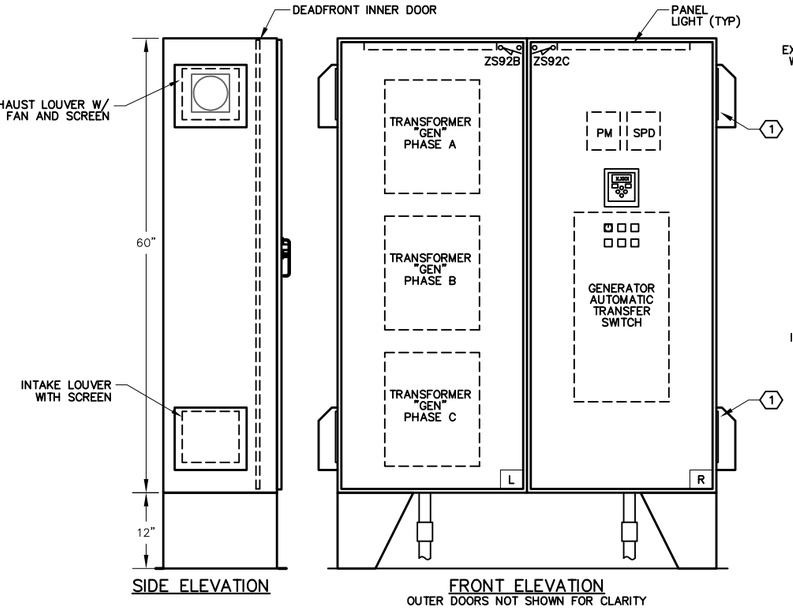
GENERAL NOTES:

1. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
2. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFRENCE ONE-LINE DIAGRAM FOR LABEL.
3. ITEMS DRAWN IN DASHED LINES ARE TO BE LOCATED BEHIND DEADFRONT DOORS OUTER DOORS ARE NOT SHOWN ON FRONT VIEWS FOR ELEVATION CLARITY.
4. FURNISH UL AND CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.



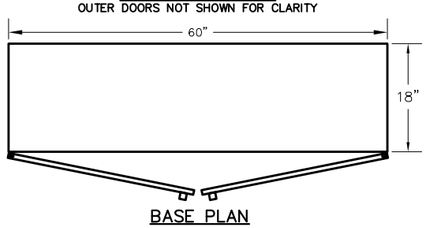
EXISTING UTILITY METER

OUTDOOR, NEMA 3R
OUTER DOORS NOT SHOWN FOR CLARITY



SIDE ELEVATION

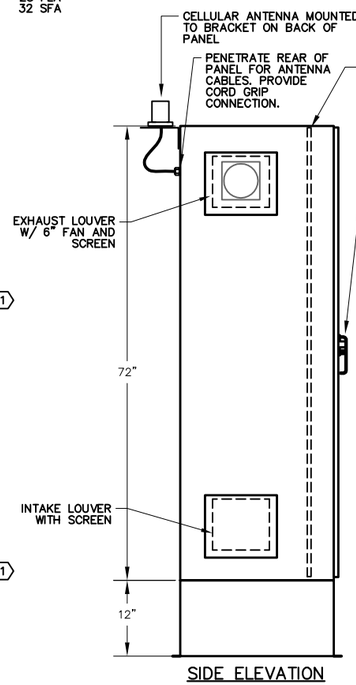
FRONT ELEVATION
OUTER DOORS NOT SHOWN FOR CLARITY



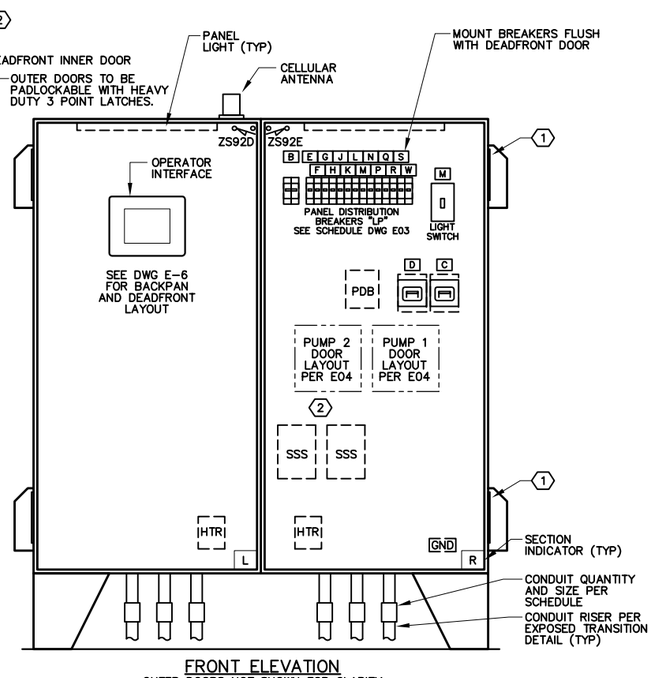
BASE PLAN

ATS PANEL

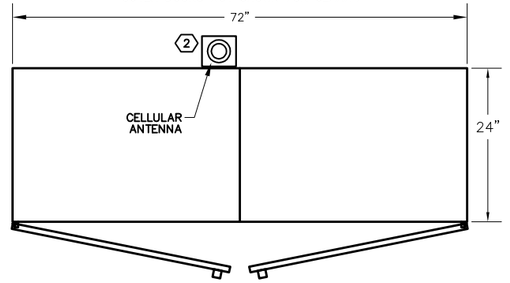
OUTDOOR, NEMA 3R



SIDE ELEVATION



FRONT ELEVATION
OUTER DOORS NOT SHOWN FOR CLARITY



BASE PLAN

PUMP CONTROL PANEL

OUTDOOR, NEMA 3R

PUMP PANEL REFERENCED NOTES:

1. EXHAUST FAN AND INTAKE LOUVER TYPICAL OF BOTH SIDES OF PANEL.
2. CUSTOM 1/8" ALUMUNUM BRACKET FOR ANTENNA MOUNTING.

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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
ELECTRICAL ONE-LINE
AND PEDESTAL ELEVATION

DESIGN:	T. FRISCH	
DRAWN:	N. CONANT	
CHECKED:	T. FRISCH	
ENGINEER:	T. FRISCH	

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

DWG NO. **E-2**
3 OF 19

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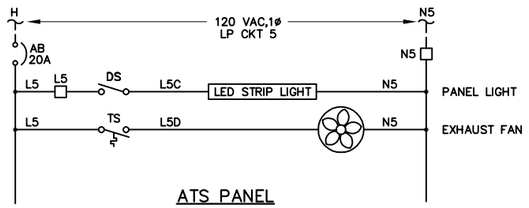
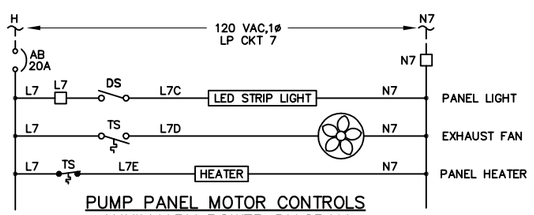
LOAD CALCULATIONS

LOAD DESCRIPTION	CONNECTED LOAD LOAD	QTY	TOTAL	DEMAND LOAD LOAD	QTY	TOTAL
10HP SEWAGE PUMP	28.00 A	2	23278.8 VA	28.00 A	2	23278.8 VA
PEDESTAL DIST. BREAKERS 120/240	9.91 A	1	4120.0 VA	7.93 A	1	3296.0 VA
TOTAL LOAD =	65.91 A	<	27398.8 VA	63.93 A	<	26574.8 VA
LOAD CORRECTION FACTORS						
LARGEST MOTOR LOAD x 25%:						
10HP HP => 0.25 x 11639.4 VA =	7.00 A		2909.8 VA	7.00 A		2909.8 VA
80% BREAKER DERATING = TOTAL x 0.25 =	18.23 A		7577.2 VA	17.73 A		7371.2 VA
FOR CONTINUOUS LOADS NEC 210-20						
SERVICE SIZE (MIN) =	91.14 AMP		37885.8VA	88.66 A		36855.8VA
UTILITY SERVICE =	200 AMP					
240V, 3 PHASE, 4 WIRE						



ATS PANEL
AUXILLIARY POWER DIAGRAM



PUMP PANEL MOTOR CONTROLS
AUXILLIARY POWER DIAGRAM

PANEL DISTRIBUTION BREAKERS

LOCATION: PANEL DIST. 120 / 240 VOLTS, 1 PHASE, 3 WIRE
AIC RATING: 10 KAIC

NAMEPLATE REFERENCE	NAMEPLATE LABEL	LOAD VA	LINE AMPS A	LINE AMPS B	AMPS/ POLE	BKR NO.
B	DISTRIBUTION MAIN BREAKER	0	0.0		40/2	1
		0		0.0		2
E	RTU SECTION	800	6.7		20/1	3
F	RTU SECTION AUXILIARY	300		2.5	20/1	4
G	ATS PANEL AUXILIARY	300	2.5		20/1	5
H	SPARE	0		0.0	20/1	6
J	PUMP PANEL MOTOR CONTROL AUX.	300	2.5		20/1	7
K	PUMP 1 MOTOR CONTROL POWER	200		1.7	20/1	8
L	PUMP 2 MOTOR CONTROL POWER	200	1.7		20/1	9
M	AREA LIGHTS	120		1.0	20/1	10
N	GENERATOR BATTERY CHARGER	600	5.0		20/1	11
P	GENERATOR HEATER	1000		8.3	20/1	12
Q	AREA RECEPTACLES	300	2.5		20/1	13
R	VAULT RECEPTACLES	300		2.5	20/1	14
S	SPARE	0	0.0		20/1	15
W	SPACE	0		0.0	20/1	16

PHASE	A	B
TOTAL PHASE AMPS	20.83	16.00
TOTAL PHASE KVA	2.50	1.92
% OF AVERAGE	113	87
TOTAL KVA	4.42	
TOTAL AMPS @ 240V, 1P	18.42	
DIVERSITY FACTOR	0.80	
LOAD KVA	3.54	

NEUTRAL

GROUND

NOTES:
1 MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210 (4)
2 NAMEPLATES SHALL BE ENGRAVED WHITE LETTERING ON BLACK PLASTIC FOR BREAKERS AS NOTED. TEXT HEIGHT SHALL BE 3/16 INCH MINIMUM.

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FILE: 24028-E03.DWG
DATE: Dec 11, 2024 TIME: 5:42:49PM

REV.	DATE	DESCRIPTION

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

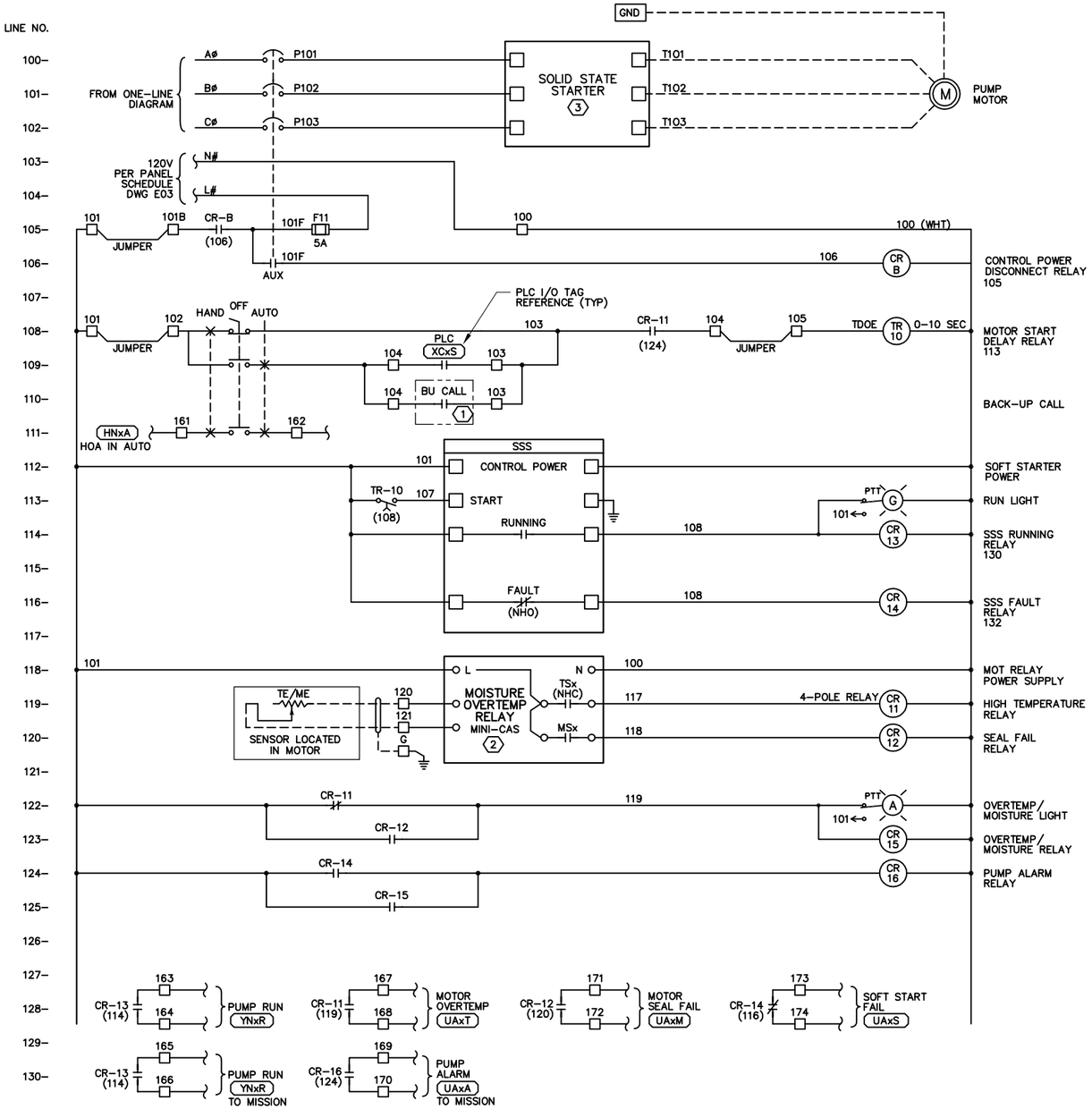
IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
LOAD CALCULATION
AND PANELBOARD SCHEDULE

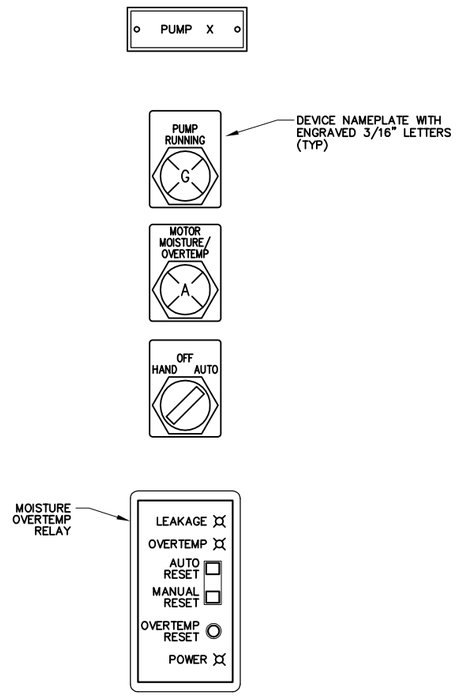
DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

DWG NO. **E-3**
4 OF 19

S:\FRISCH ENGINEERING\JOBS\2024 JOBS\24028 PLEASANTON S-14 SLS DES 200A ATS SSS\DRAWINGS\24028-E03.DWG\12-11-24 05:42pm Administrator





DOOR LAYOUT (PARTIAL)

NOTES REFERENCED IN DRAWING:

1. FROM BACKUP CONTROL ELEMENTARY, SEE DWG E-5
2. RELAY TO BE REUSED FROM EXISTING CONTROL PANEL. FURNISH NEW 11 PIN REVERSE BASE, OMRON MODEL P3GA-11. INSTALL AND WIRE PER FLYGT MINI-CAS 120 MANUFACTURER'S DRAWINGS PRIOR TO FACTORY TESTING AND DELIVERY TO JOB SITE.
3. SOLID STATE STARTER SHALL PROVIDE THE FOLLOWING USER CONFIGURABLE MOTOR PROTECTION PARAMETERS:

VOLTAGE	CURRENT	MOTOR PARAMETERS
UNDERVOLTAGE	OVERLOAD	OVERLOAD CLASS
OVERVOLTAGE	UNBALANCE	FULL LOAD CURRENT
PHASE REVERSAL		

GENERAL NOTES:

1. SIMILAR DIAGRAM FOR PUMP 2 USE 2, 20 & 200 SERIES NUMBERING FOR PUMP 2 DEVICES
2. REPLACE "x" WITH PUMP NUMBER
3. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTION: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.

PUMP ELEMENTARY DIAGRAM (P10) (P20)

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REV.	DATE	DESCRIPTION

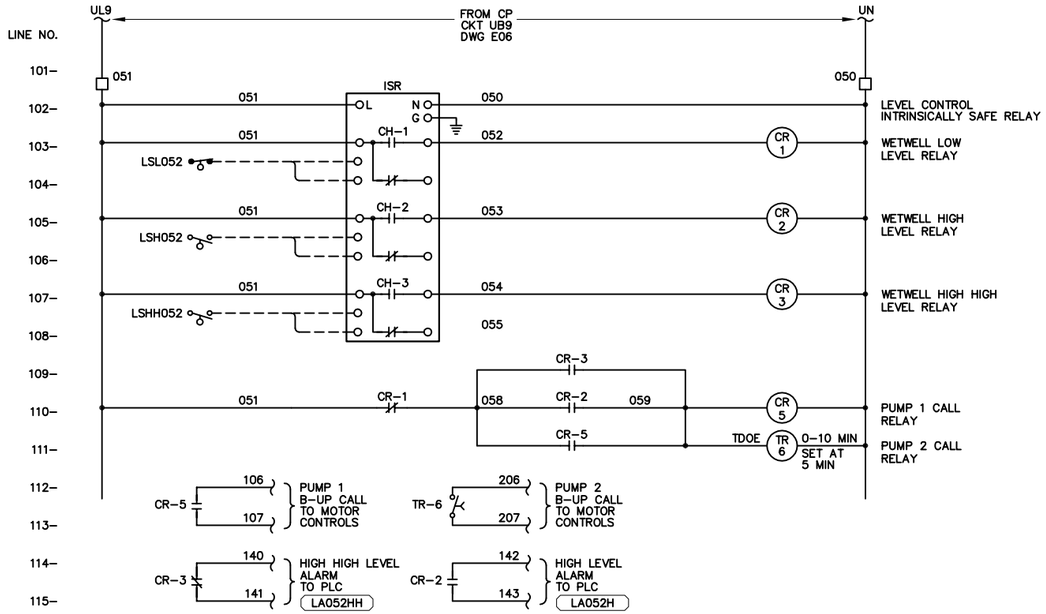
THE CITY OF PLEASANTON
CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
PUMP ELEMENTARY DIAGRAM

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

DWG NO. **E-4**
5 OF 19



PUMP BACK-UP CONTROLS

VALVE VAULT PHOTO ⟨1⟩

FLOWMETER VAULT PHOTO ⟨1⟩

DRAWING REFERENCED NOTES:

⟨1⟩ CLEAN ALL CONDUIT AND BOXES TO BE REUSED.

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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

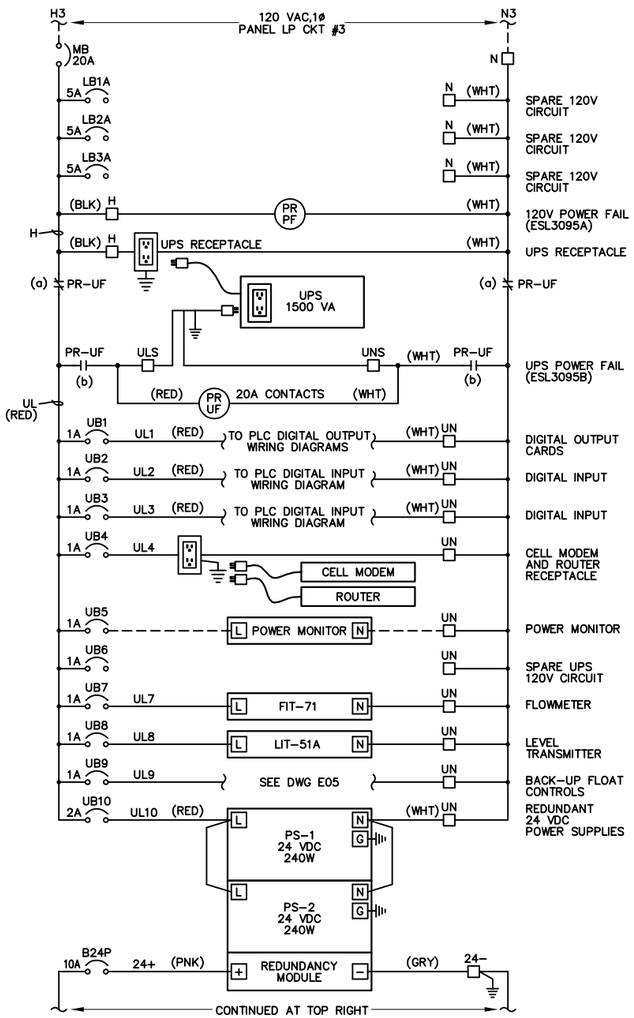
JAMES P. FRISCH No. E15781 ELECTRICAL STATE OF CALIFORNIA

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
BACKUP CONTROLS
AND VAULT PHOTOS

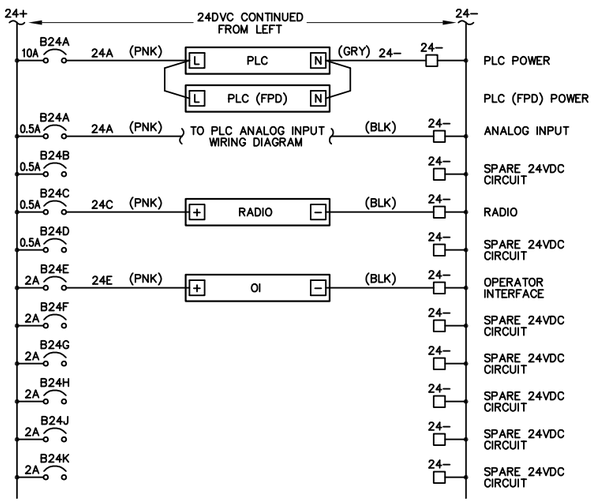
DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

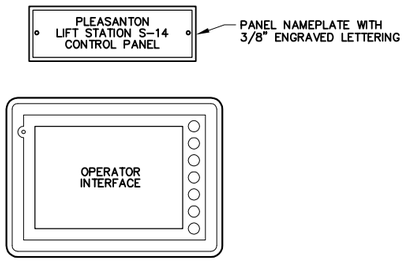
DWG NO.
E-5
6 OF 19

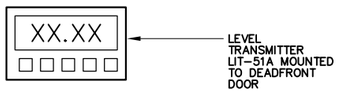


POWER DISTRIBUTION DIAGRAM

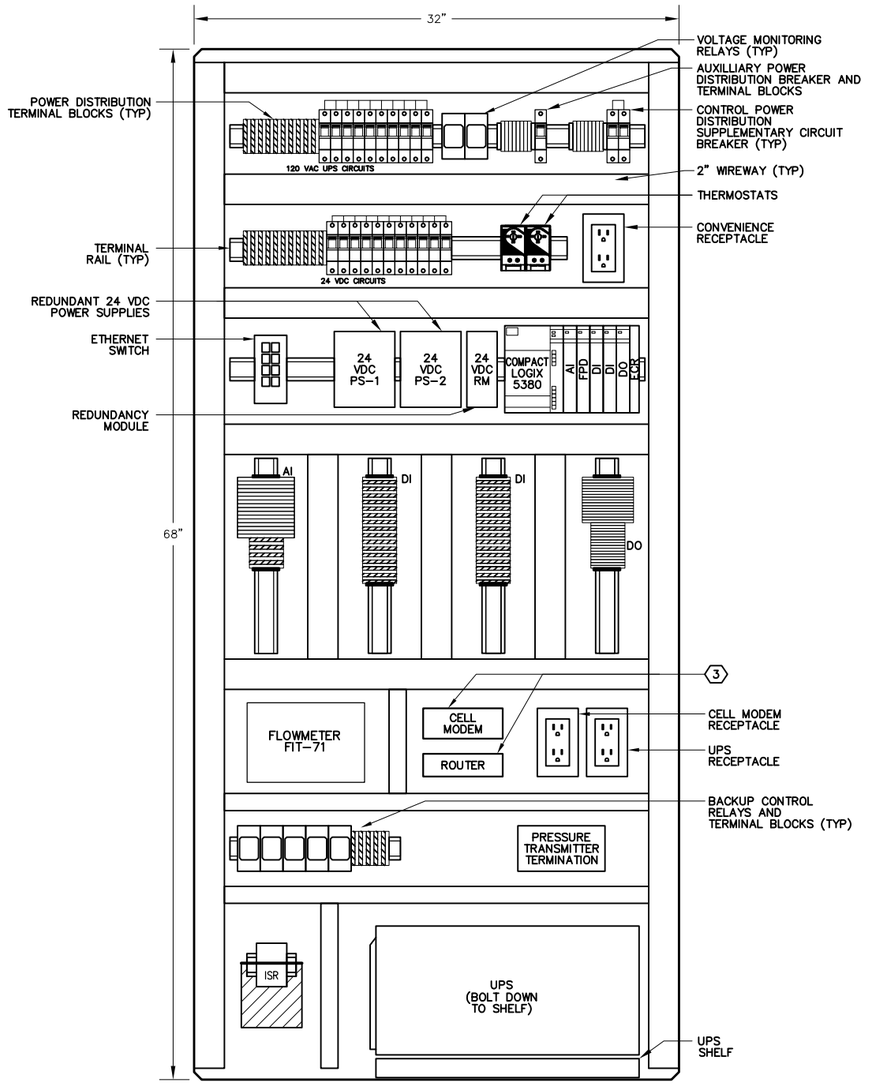


POWER DISTRIBUTION DIAGRAM – CONTINUED



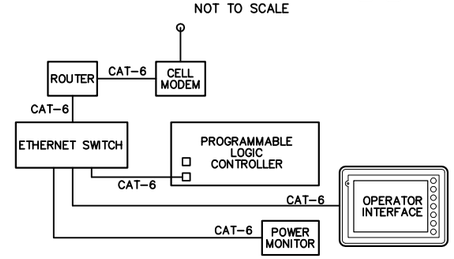


DEADFRONT LAYOUT

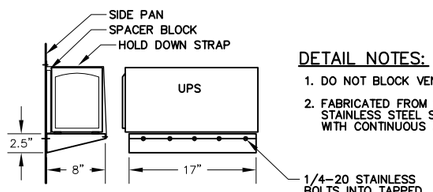


BACKPAN LAYOUT ① ②

NOT TO SCALE



COMMUNICATION BLOCK DIAGRAM

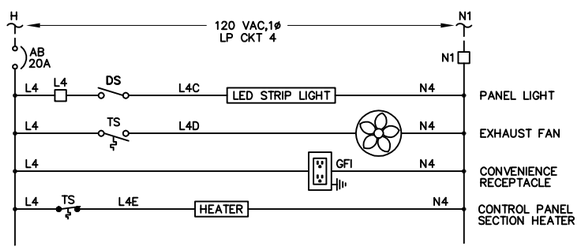


UPS SHELF DETAIL

SCALE: 1" = 10"

DETAIL NOTES:

1. DO NOT BLOCK VENTS WITH SPACER BLOCK. USE TWO.
2. FABRICATED FROM 14 GA (MIN) PAINTED GALVANEAL OR STAINLESS STEEL SOLID SIDES, TOP, BACK AND FRONT WITH CONTINUOUS WELDED SEAMS.



CONTROL PANEL AUXILLIARY POWER DIAGRAM

REFERENCED NOTES:

① WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.

② FURNISH STAINLESS STEEL "L" SHELF FOR RADIO.

③ MOUNT CELL MODEM AND ROUTER TO 90 DEGREE L BRACKETS TO ALLOW INDICATOR LIGHTS TO BE VISIBLE.

GENERAL NOTES:

1. REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
2. QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM

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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

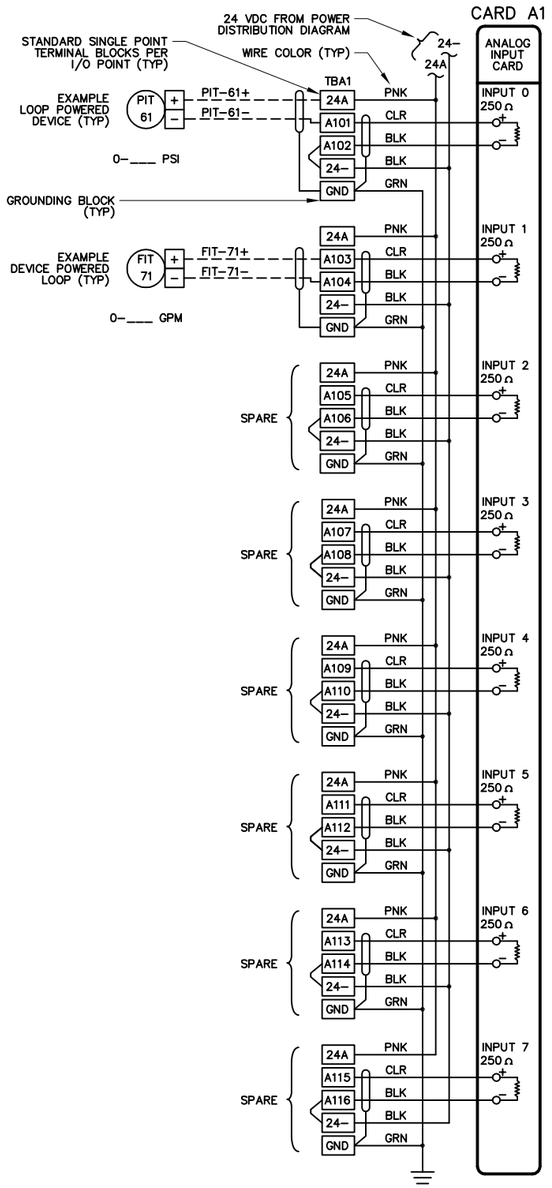
CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
PLC POWER DISTRIBUTION
AND BACKPAN ELEVATION

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

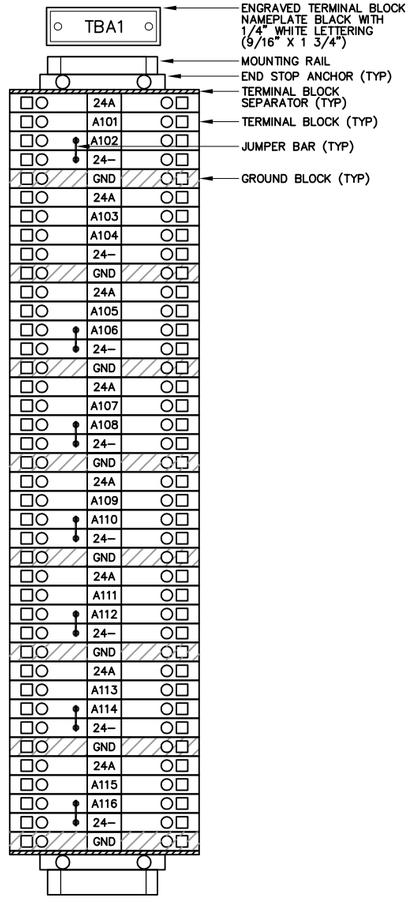
SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

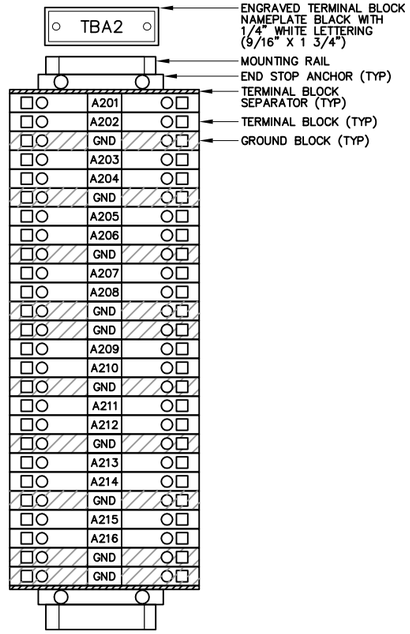
DWG NO. **E-6**
7 OF 19

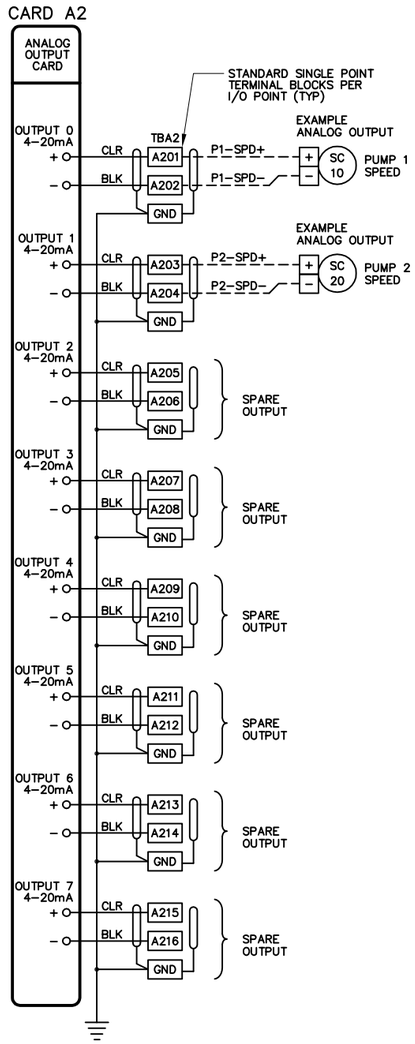


AI CARD

NOTES: 1. TWO CARDS PER DRAWING MAXIMUM.
2. USE MANUFACTURED TERMINAL BLOCK JUMPERS WHERE POSSIBLE





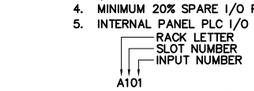


AO CARD

NOTES: 1. TWO CARDS PER DRAWING MAXIMUM.

EXAMPLE PLC WIRING DIAGRAMS – ANALOG I/O

NOTES:
1. WIRE SPARE PLC I/O POINTS TO TERMINAL BLOCKS.
2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
5. INTERNAL PANEL PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW.



6. FIELD WIRES SHALL BE LABELED WITH ACRONYM OF CONTROL PANEL ID (NOT SHOWN) AND DEVICE: SEE EXAMPLES.

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REV.	DATE	DESCRIPTION

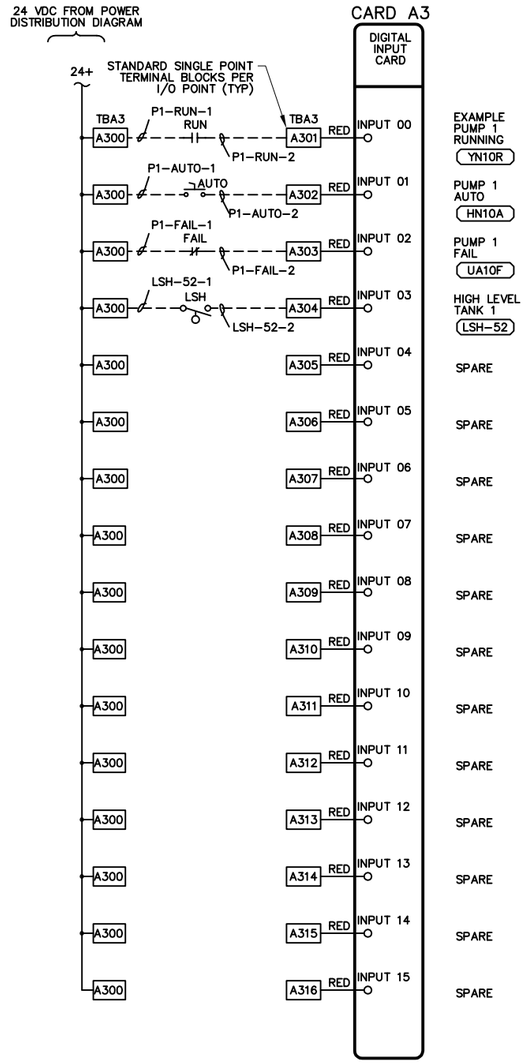
THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
EXAMPLE
PLC WIRING DIAGRAMS - ANALOG I/O

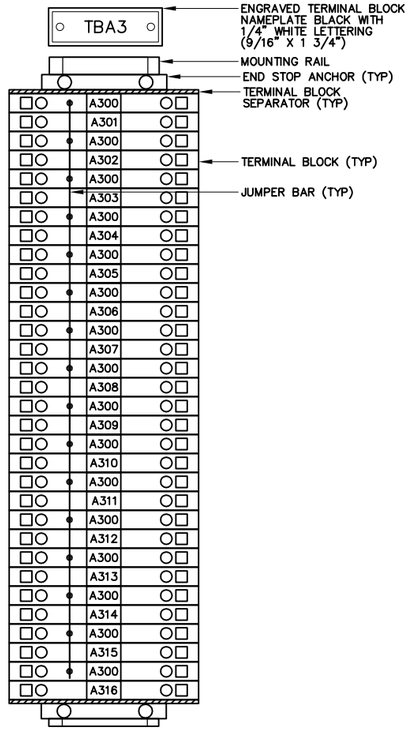
DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

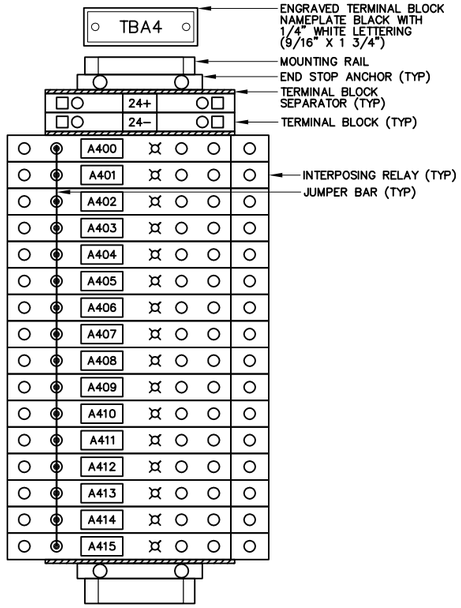
SCALE: AS SHOWN	DWG NO. E-7
PROJECT NO.:	
DATE:12/11/24	8 OF 19



DI CARD

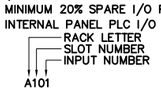
NOTES: 1. TWO CARDS PER DRAWING MAXIMUM.



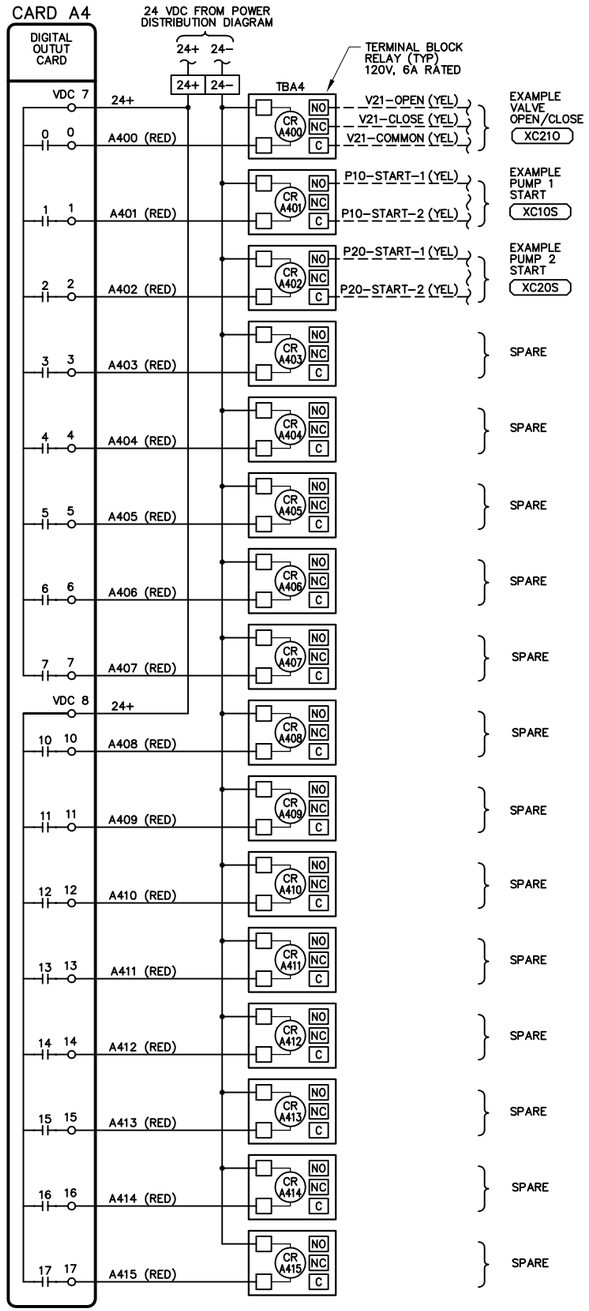


EXAMPLE PLC WIRING DIAGRAMS – DIGITAL I/O

NOTES:
1. WIRE SPARE PLC I/O POINTS TO TERMINAL BLOCKS.
2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
5. INTERNAL PANEL PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW.



6. FIELD WIRES SHALL BE LABELED WITH ACRONYM OF CONTROL PANEL ID (NOT SHOWN) AND DEVICE: SEE EXAMPLES.



DO CARD

1. TWO CARDS PER DRAWING MAXIMUM.

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CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
EXAMPLE
PLC WIRING DIAGRAMS - DIGITAL I/O

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

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TRANSITION TO TEMPORARY SYSTEM NOTES:

1. CORD CONNECT EXISTING EQUIPMENT SHOWN TO MAKE ROOM FOR NEW EQUIPMENT.
2. RELOCATE EQUIPMENT, RECONNECT, AND RE-START EXISTING PUMP CONTROL PANEL WITHIN ONE 8 HOUR WORK DAY.
3. TEMPORALLY RELOCATE PANELS. CONTRACTOR SHALL PROVIDE TEMPORARY WOOD SUPPORTS FOR PANELS. CONNECT TO UTILITY MAIN BREAK VIA CORD CONNECTION.

DEMOLITION NOTES:

1. REMOVE AND WASTE 5 SECTION MOTOR CONTROL CENTER, 45KVA TRANSFORMER, AND ALL OTHER ELECTRICAL EQUIPMENT AND CONDUIT FROM VAULT.
2. REMOVE AND WASTE SUMP PUMP, CONTROLS, AND PIPING.
3. REMOVE AND WASTE VENTILATION EQUIPMENT.
4. REMOVE AND WASTE VAULT LID AND CUT DOWN WALLS MINIMUM 24" BELOW GRADE.
5. SEE STRUCTURAL DRAWINGS FOR FURTHER INFORMATION.

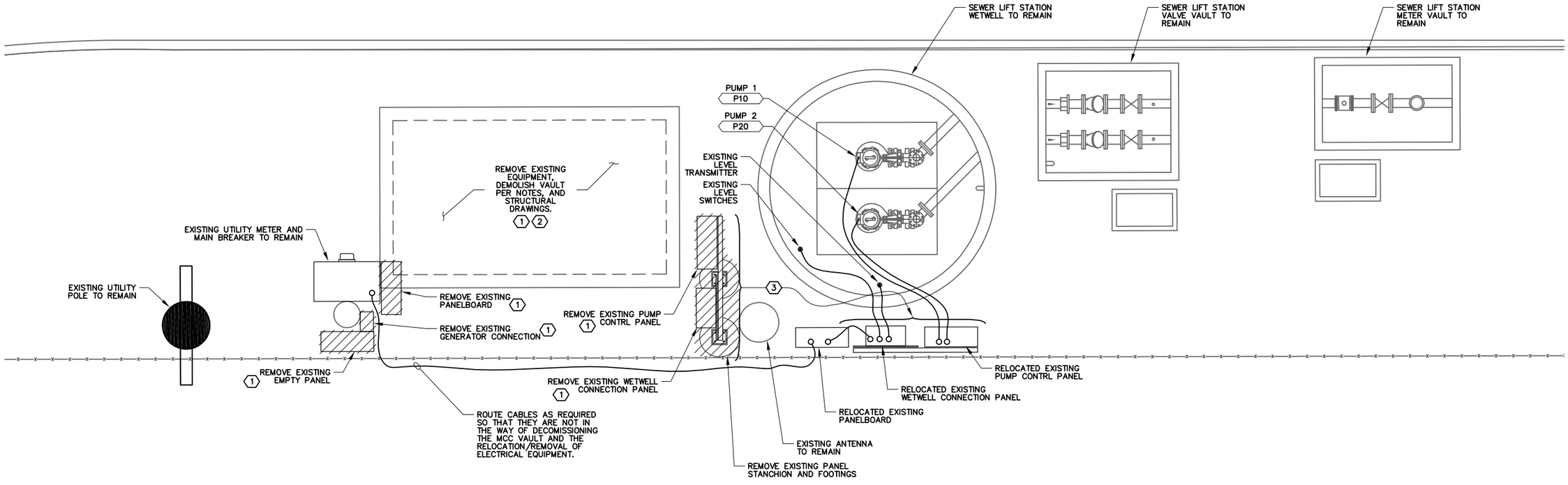
DRAWING REFERENCED NOTES:

(1) CITY TO HAVE FIRST RIGHT OF REFUSAL FOR DEMOLISHED EQUIPMENT, WASTE REMAINING.

(2) EXISTING EQUIPMENT CONSISTS OF: 5 SECTION MCC, 45KVA TRANSFORMER, CONTROL PANEL, LIGHTS, PLUGS CONDUIT, VENTILATION, AND SUMP PUMP.

(3) DISCONNECT PUMP CONTROL PANEL AND WETWELL CONNECTION PANEL FROM CONDUIT AND FOOTINGS, MOVE PUMP CONTROL PANEL AND WETWELL CONNECTION PANEL AS A UNIT TO NEW TEMPORARY LOCATION. REMOVE PUMP CABLES AND LEVEL CABLES FROM CONDUIT. ROUTE CABLES THROUGH WETWELL HATCH AND RECONNECT TO PANELS IN NEW TEMPORARY LOCATION.

EXISTING LIFT STATION PHOTO



EXISTING LIFT STATION DEMOLITION PLAN

SCALE: 1/2" = 1'

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
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FILE: 24028-E09.DWG
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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
EXISTING LIFT STATION DEMOLITION PLAN

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE:	AS SHOWN
PROJECT NO.:	
DATE:	12/11/24

DWG NO. **E-9**

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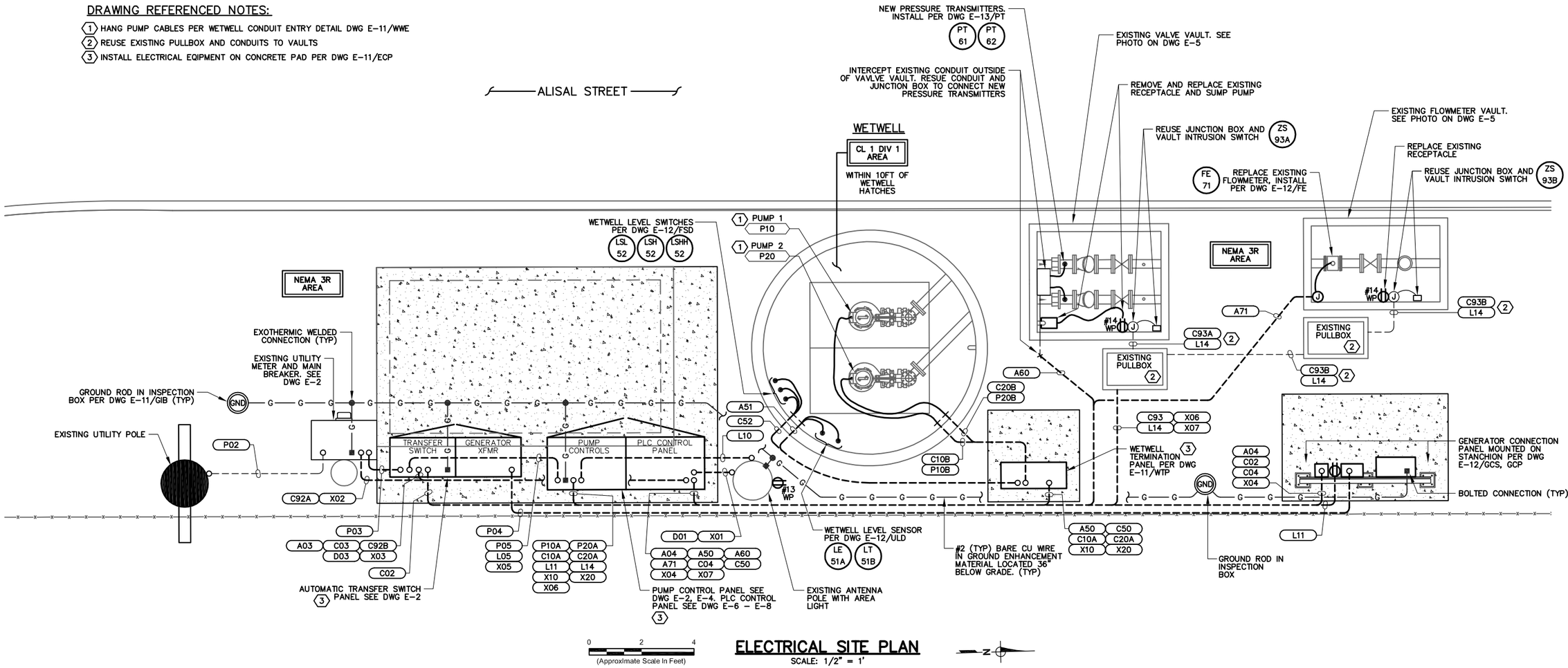
ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.
14. REGRADE AROUND EXISTING COBLE AND V-DITCH AS REQUIRED FOR THE INSTALLATION OF NEW PAD AND EQUIPMENT.

DRAWING REFERENCED NOTES:

(1) HANG PUMP CABLES PER WETWELL CONDUIT ENTRY DETAIL DWG E-11/WWE
(2) REUSE EXISTING PULLBOX AND CONDUITS TO VAULTS
(3) INSTALL ELECTRICAL EQIPMENT ON CONCRETE PAD PER DWG E-11/ECP



ELECTRICAL SITE PLAN

SCALE: 1/2" = 1'

FRISCH ENGINEERING, INC.
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FILE: 24028-E10.DWG
DATE: Dec 11, 2024 TIME: 5:44:59PM

S:\FRISCH ENGINEERING\JOBS\2024 JOBS\2024 PLEASANTON S-14 SLS DES 200A ATS SSS\DRAWINGS\24028-E10.DWG\12-11-24 05:44pm Administrator

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

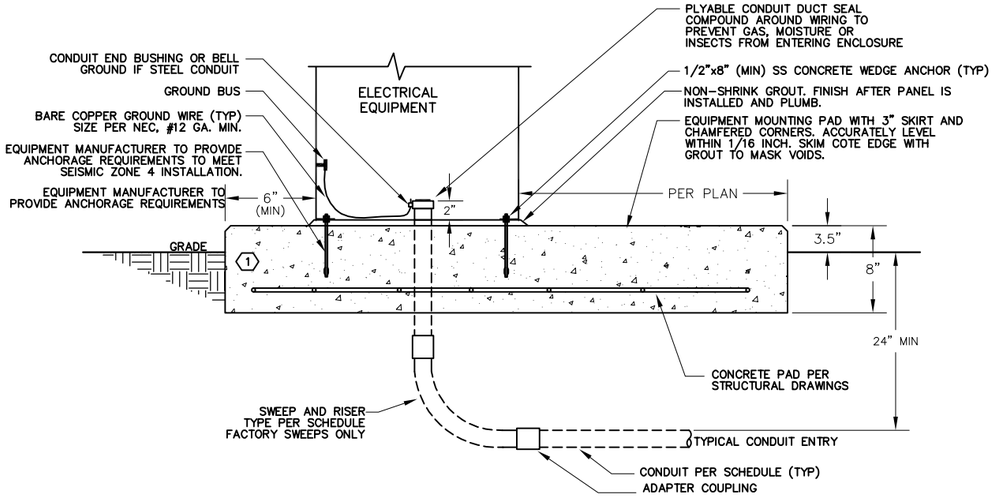
CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
ELECTRICAL SITE PLAN

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

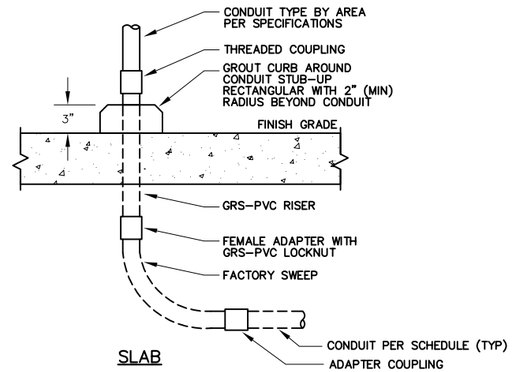
DWG NO. **E-10**
11 OF 19



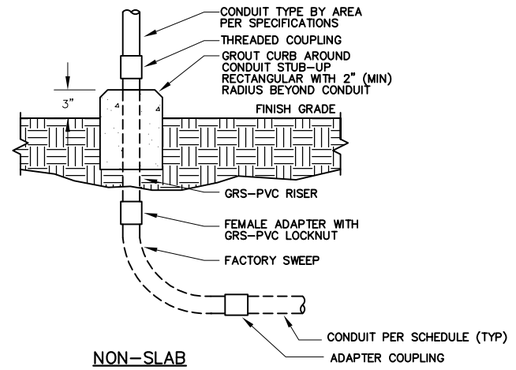
ECP — **EQUIPMENT CONCRETE PAD DETAIL**

NOT TO SCALE

NOTES: (1) MCC PAD SIZE PER SITE PLANS



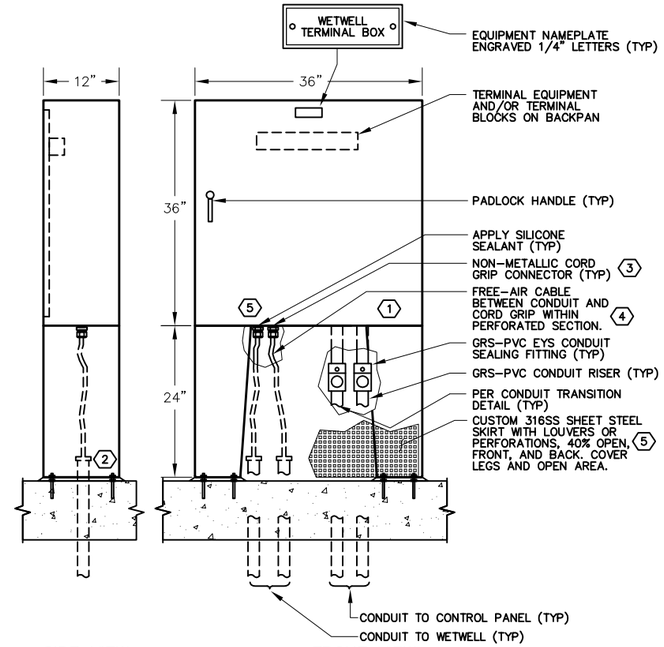
SLAB



NON-SLAB

ECT — **EXPOSED CONDUIT TRANSITION DETAIL**

NOT TO SCALE

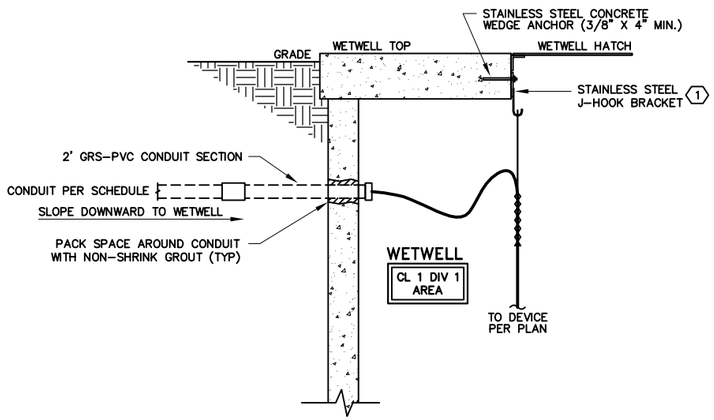


SIDE VIEW FRONT VIEW

NOTES:
(1) USE ALL STAINLESS STEEL HARDWARE. SEAL BOX PENETRATIONS WITH SILICONE GLUE.
(2) MOUNT PANEL ON 3/8" SS EPOXY ANCHORS WITH DOUBLE NUT LEVELING. GROUT SPACE BELOW PANEL LEGS.
(3) WIRE ENTRY IS ONLY THROUGH BOTTOM OF PANEL. NO ADDITIONAL PANEL PENETRATIONS.
(4) CONDUIT ENTRY TO PANEL SKIRT AREA ONLY. FREE AIR WIRE TO PANEL.
(5) NO PENETRATIONS OF PANEL OR SKIRT, ALL CONDUITS SHALL BE UNDERGROUND ENTRY, UNLESS SPECIFICALLY SHOWN ON PLAN.

WTP — **WETWELL TERMINATION PANEL**

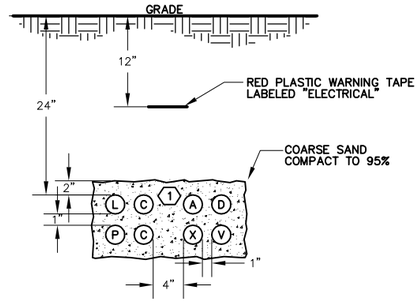
NEMA 4X, 316SS, NOT TO SCALE



WWE — **WETWELL ENTRY DETAIL**

NOT TO SCALE

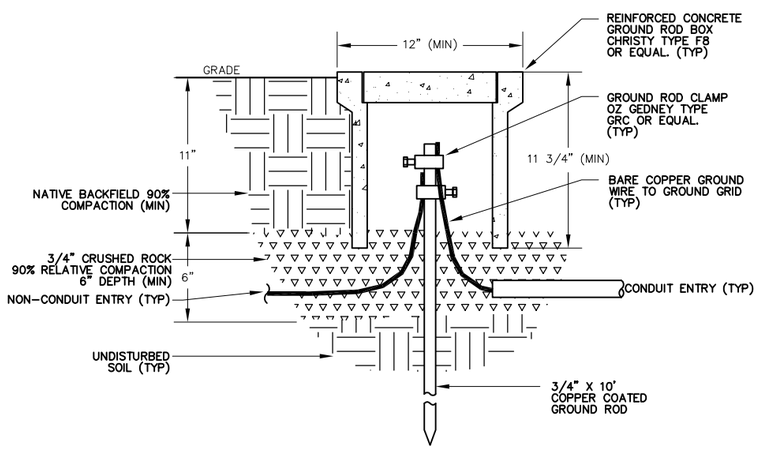
NOTES: (1) CUSTOM MANUFACTURERED J-HOOK ASSEMBLY CONSISTING OF STAINLESS STEEL PLATE WITH STAINLESS STEEL J-HOOKS WELDED TO PLATE. PROVIDE ONE HOOK PER WETWELL CABLE.



LVC — **LOW VOLTAGE NON-DUCT BANK SECTION**

NOT TO SCALE

NOTES:
(1) NUMBER OF CONDUITS PER PLANS AND SCHEDULE. MAXIMUM DEPTH OF TRENCH SHALL BE 42". DESIGN TRENCH DESIGN AND INSTALL TRENCH TO MAINTAIN 6" VERTICAL CLEARANCE AND 12" HORIZONTAL CLEARANCE FROM PIPES.
(2) P, L, OR C DESIGNATION FOR POWER OR CONTROL CONDUITS.
(3) A, D, V, OR X DESIGNATION FOR COMMUNICATION (TELEPHONE, DATA, VIDEO, OR INSTRUMENTATION) CONDUITS.
(4) USE CONDUIT SPACERS TO SUPPORT CONDUITS AND MAINTAIN SPACING (3' INTERVALS)



GIB — **GROUND INSPECTION BOX DETAIL**

NOT TO SCALE

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
13405 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: 24028-E11.DWG
DATE: Dec 11, 2024 TIME: 5:45:11 PM

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REV.	DATE	DESCRIPTION

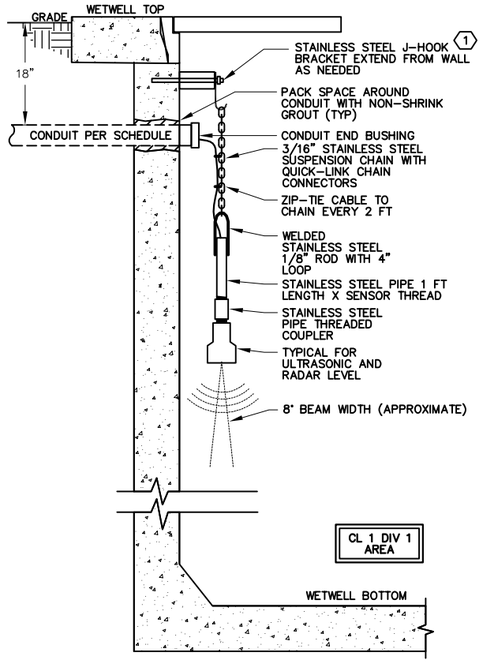
THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
ELECTRICAL DETAILS 1

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

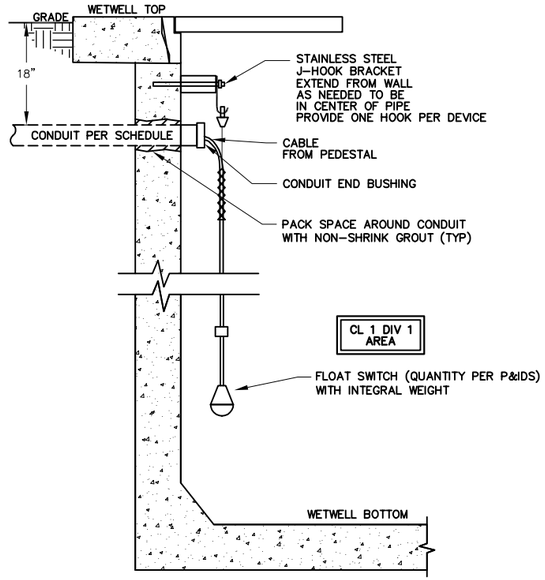
SCALE: AS SHOWN	DWG NO. E-11
PROJECT NO.:	
DATE:12/11/24	12 OF 19



SECTION VIEW

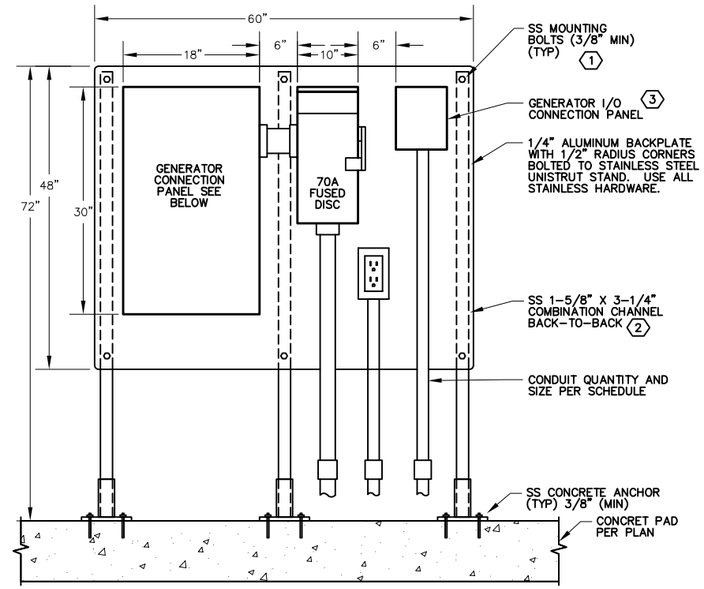
ULD LEVEL ELEMENT DETAIL
NOT TO SCALE

NOTES: 1 LENGTH OF BRACKET EXTENSION AS REQUIRED PER MANUFACTURER INSTALLATION INSTRUCTIONS BASED ON MEASURED DEPTH.



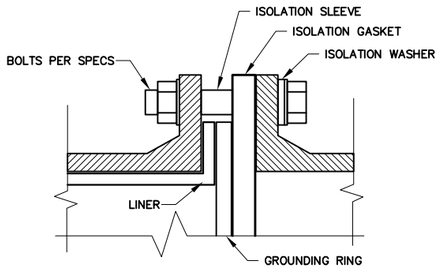
SECTION VIEW

FSD FLOAT SWITCH DETAIL
NOT TO SCALE

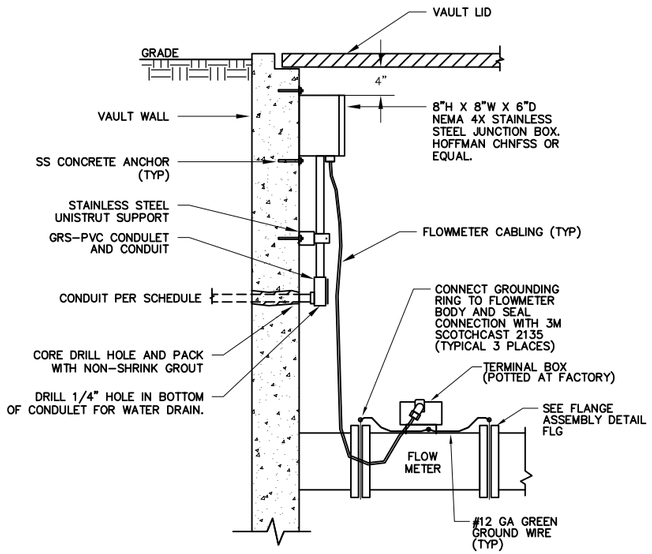


GCS GENERATOR CONNECTION STANCHION DETAIL
NOT TO SCALE

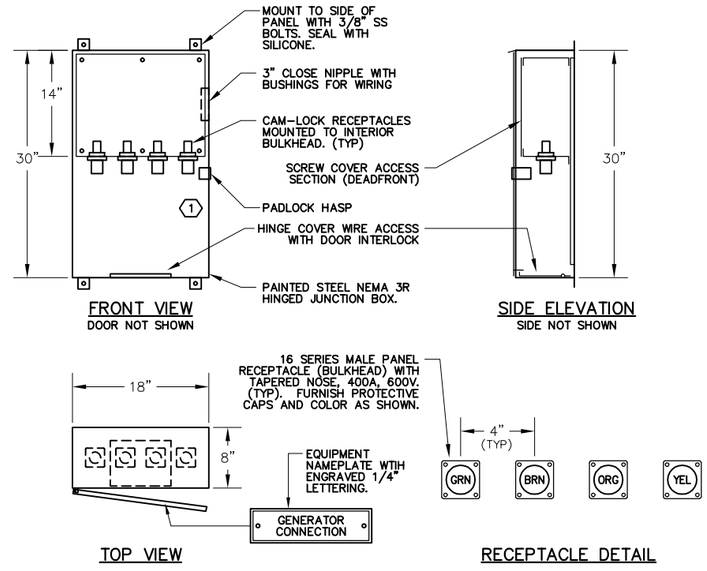
NOTES:
1. MOUNT ALL DEVICES TO BACKPAN USING ALL STAINLESS STEEL HARDWARE.
2. NUMBER OF VERTICAL UNISTRUT SUPPORTS TO BE DETERMINED BY CONTRACTOR.
3. I/O CONNECTION PANELL SHALL BE HOFFMAN A10086CHNF OR EQUAL. LOCATE FEMALE CONTROL CORD END INSIDE



FLG FLOWMETER FLANGE ASSEMBLY
NOT TO SCALE



FE FLOWMETER VAULT DETAIL
NOT TO SCALE



GCP GENERATOR CONNECTION PANEL DETAIL
NOT TO SCALE, OUTDOOR, NEMA 3R

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
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WWW.FRISCHENGINEERING.COM
FILE: 24028-E12.DWG
DATE: Dec 11, 2024 TIME: 5:45:18PM

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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

JAMES P. FRISCH No. E15781 REGISTERED ELECTRICAL ENGINEER STATE OF CALIFORNIA

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
ELECTRICAL DETAILS 2

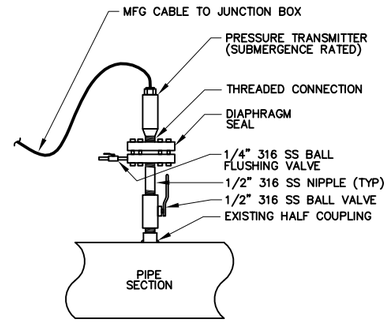
DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN
PROJECT NO.:
DATE:12/11/24

DWG NO. **E-12**
13 OF 19

CONDUIT & WIRE ROUTING SCHEDULE

REV	CONDUIT DETAILS TAG NO.	FROM	TO	QTY	SIZE	TYPE	POWER WIRE QTY	POWER WIRE SIZE	CONTROL WIRE QTY	CONTROL WIRE SIZE	GROUND SIZE	NOTES
	A03	PLC CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	–	–	–	
	A04	PLC CONTROL PANEL	GENERATOR CONNECTION PANEL	1	3/4"	SPEC	–	–	1	#18 TSPR	#12	FUEL TANK LEVEL
	A50	PLC CONTROL PANEL	WETWELL TERMINATION PANEL	1	3/4"	SPEC	–	–	2	#18 TSPR	#12	
	A51	WETWELL TERMINATION PANEL	LEVEL TRANSMITTERS	1	2"	SPEC	–	–	2	MFG CABLE	–	LE–51A, LT–51B
	A60	PLC CONTROL PANEL	PRESSURE TRANSMITTERS	1	1"	SPEC	–	–	2	MFG CABLE	–	PT–61, PT–62
	A71	PLC CONTROL PANEL	FLOWMETER	1	3/4"	SPEC	–	–	1	#18 TSPR	#12	FE–71
	C02	AUTOMATIC TRANSFER SWITCH	GENERATOR CONNECTION PANEL	1	3/4"	SPEC	–	–	2	#14	#14	START
	C03	PLC CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	8	#14	#14	
	C04	PLC CONTROL PANEL	GENERATOR CONNECTION PANEL	1	3/4"	SPEC	–	–	4	#14	#14	ALARM, RUN
	C10A	PUMP CONTROL PANEL	WETWELL TERMINATION PANEL	1	3/4"	SPEC	–	–	4	#14	#14	
	C10B	PUMP CONTROL PANEL	WETWELL	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	C20A	PUMP CONTROL PANEL	WETWELL TERMINATION PANEL	1	3/4"	SPEC	–	–	4	#14	#14	
	C20B	PUMP CONTROL PANEL	WETWELL	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	C50	PLC CONTROL PANEL	WETWELL TERMINATION PANEL	1	3/4"	SPEC	–	–	6	#14	#14	
	C52	WETWELL TERMINATION PANEL	LEVEL SWITCHES	1	2"	SPEC	–	–	3	MFG CABLE	–	LSL–52, LSH–52, LSHH–52
	C92A	PLC CONTROL PANEL	UTILITY METER PANEL	1	3/4"	SPEC	–	–	2	#14	#14	INTRUSION SWITCH
	C92B	PLC CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	4	#14	#14	PANEL INTRUSION SWITCHES
	C93	PLC CONTROL PANEL	(E) PULLBOX	1	3/4"	SPEC	–	–	4	#14	#14	VAULT INTRUSION SWITCHES
	C93A	(E) PULLBOX	VALVE VAULT INTRUSION SWITCH	1	3/4"	SPEC	–	–	2	#14	#14	ZS–93A
	C93B	(E) PULLBOX	FLOWMETER VAULT INTRUSION SWITCH	1	3/4"	SPEC	–	–	2	#14	#14	ZS–93B
	D01	PLC CONTROL PANEL	(E) ANTENNA POLE	1	2"	SPEC	–	–	1	ANT CABLE	–	
	D03	PLC CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	1	CAT 5E	–	BELDEN 7919A, POWER MONITOR
	L05	PUMP CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	2	#12	–	–	#12	CKT, 5
	L10	PUMP CONTROL PANEL	EXISTING ANTENNA	1	3/4"	SPEC	4	#12	–	–	#12	CKT 10, 13
	L11	PUMP CONTROL PANEL	GENERATOR CONNECTION PANEL	1	3/4"	SPEC	4	#12	–	–	#12	CKT 11, 12
	L14	PUMP CONTROL PANEL	VUALT RECEPTACLES	1	3/4"	SPEC	2	#12	–	–	#12	CKT, 14 VIA (E) PULLBOX
	P02	UTILITY POLE	UTILITY METER PANEL	1	3"	(E)	–	–	–	–	–	PER UTILITY REQUIREMENTS
	P03	UTILITY METER PANEL	AUTOMATIC TRANSFER SWITCH	1	3"	SPEC	3	#3/0	–	–	#6	
	P04	GENERATOR CONNECTION PANEL	GENERATOR TRANSFORMER	1	1–1/2"	SPEC	3	#4	–	–	#10	
	P05	AUTOMATIC TRANSFER SWITCH	PUMP CONTROL PANEL	1	3"	SPEC	3	#3/0	–	–	#6	
	P10A	PUMP CONTROL PANEL	WETWELL TERMINATION PANEL	1	1"	SPEC	3	#8	–	–	#10	
	P10B	WETWELL TERMINATION PANEL	PUMP 1	1	3"	SPEC	1	MFG CABLE	–	–	–	
	P20A	PUMP CONTROL PANEL	WETWELL TERMINATION PANEL	1	1"	SPEC	3	#8	–	–	#10	
	P20B	WETWELL TERMINATION PANEL	PUMP 2	1	3"	SPEC	1	MFG CABLE	–	–	–	
	X01	PLC CONTROL PANEL	(E) ANTENNA POLE	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X03	PLC CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X04	PLC CONTROL PANEL	GENERATOR CONNECTION PANEL	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X05	PUMP CONTROL PANEL	AUTOMATIC TRANSFER SWITCH	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X06	PUMP CONTROL PANEL	(E) PULLBOX	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X07	PLC CONTROL PANEL	(E) PULLBOX	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X10	PUMP CONTROL PANEL	WETWELL TERMINATION PANEL	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE
	X20	PUMP CONTROL PANEL	WETWELL TERMINATION PANEL	1	3/4"	SPEC	–	–	–	–	–	PULL ROPE



PT / – **PRESSURE TRANSMITTER DETAIL**
NOT TO SCALE

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION [CONDUIT AND BOXES] FOR NON–EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
3. CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS [CONDUIT AND BOXES.]
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

FRISCH ENGINEERING, INC.
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FILE: 2402B-E13.DWG
DATE: Dec 11, 2024 TIME: 5:45:27PM

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

JAMES P. FRISCH No. E15781 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA ELECTRICAL

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
ELECTRICAL CONDUIT SCHEDULE
AND DETAILS 3

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE:	AS SHOWN
PROJECT NO.:	
DATE:	12/11/24

DWG NO. **E-13**
14 OF 19

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P&ID ABBREVIATIONS

INSTRUMENTATION SYBMOLS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROLLER	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW	RATIO			
G	GENERAL		GLASS VIEWING DEVICE		
H	HAND				HIGH, OPENED
I	CURRENT		INDICATING, INDICATOR		
J	POWER	SCAN			
K	TIME, TIME SCHEDULED	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW, CLOSED
M	MOISTURE	MOMENTARY			MIDDLE
N	STATUS		STATUS	USER'S CHOICE	USER'S CHOICE
O	OPERTOR		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RESET		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMITTER	TEST
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VAVE, DAMPER, LOUVER	
W	WEIGHT		WELL		
X	SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OF PRESENCE	Y AXIS		RELAY, COMPUTER, CONVERTER	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

P&ID ABBREVIATIONS

SWITCH IDENTIFIER

F/R	FORWARD/REVERSE	OPN	OPEN
HOA	HAND-OFF-AUTO	CLS	CLOSE
HOR	HAND-OFF-REMOTE	SEL	SELECTOR
LOS	LOCK OUT STOP	S/S	START / STOP
L/R	LOCAL / REMOTE	%	PERCENT ADJUSTMENT
MOA	MANUAL-OFF-AUTO		
OCA	OPEN-CLOSE-AUTO		
O/C	OPEN / CLOSE		
O/O	ON / OFF		

P&ID SYMBOLS

ISA SYMBOLS

- XXX / XXX — FIELD MOUNTED INSTRUMENT
- XXX / XXX — INSTRUMENT MOUNTED ON DOOR OF LOCAL PANEL, OPERATOR ACCESSIBLE
- XXX / XXX — INSTRUMENT MOUNTED ON DOOR OF FIELD PANEL, OPERATOR ACCESSIBLE
- XXX / XXX — INSTRUMENT MOUNTED WITHIN PANEL, OPERATOR INACCESSIBLE
- XXX / XXX — INSTRUMENT MOUNTED WITHIN FIELD PANEL, OPERATOR INACESSIBLE
- I — OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES
- MCE-XX — ASSOCIATED MOTOR CONTROL ELEMENTARY IF APPLICABLE
- UNIT XXX / XXX — VISUAL DISPLAY OF PLC ANALOG REGISTER SCALE TO UNITS AS SHOWN
- XXX / XXX — VISUAL DISPLAY OF PLC ANALOG ALARM REGISTER
- XXX / XXX — VISUAL DISPLAY OF PLC DIGITAL REGISTER
- XXX / XXX — VISUAL DISPLAY OF PLC DIGITAL ALARM REGISTER
- X / X — TAG DESCRIPTION
- XXXX — PLC I/O TAG
- PLC DIGITAL INPUT
- PLC DIGITAL OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT
- AUDIBLE ALARM (BUZZER OR HORN)
- X — LAMP INDICATION COLOR DENOTED BY "X" RED, BLU, GRN, WHT, AMBER
- a XXXX / XXXX a — CONTINUATION TAG FROM ONE AREA TO ANOTHER AREA OF DIFFERENT DRAWINGS "a" TAG IDENTIFIER TO POINT ON DRAWING NUMBER XXXX.
- I-X / I-X — CONTINUED ON DWG I-X

LINE TYPES

- PRIMARY PROCESS LINE
- SECONDARY PROCESS LINE
- ELECTRICAL SIGNAL LINE (DIGITAL OR ANALOG)
- SOFTWARE OR DATA LINK
- BOUNDARY OF EQUIPMENT PACKAGE SYSTEM
- COMMUNICATION CONNECTION

VALVES

- GATE VALVE
- CHECK VALVE
- PLUG VALVE
- BALL VALVE
- BALL CHECK VALVE
- BUTTERFLY VALVE
- ANGLE VALVE
- NEEDLE VALVE
- RELIEF VALVE
- DIAPHRAGM VALVE
- 3-WAY VALVE
- FLOW CONTROL VALVE
- PINCH VALVE
- CONE VALVE
- ANTISIPHON/BACKPRESSURE VALVE
- S — SOLENOID VALVE (2-WAY) (S→M FOR MOTORIZED VALVE)
- S — SOLENOID VALVE (3-WAY) (S→M FOR MOTORIZED VALVE)
- S — SOLENOID VALVE (4-WAY) (S→M FOR MOTORIZED VALVE)
- PNEUMATIC DIAPHRAGM CONTROL VALVE
- PRESSURE SUSTAINING VALVE
- PRESSURE REGULATING VALVE
- MULTIFUNCTION VALVE
- SLUICE GATE (SG) OR SLIDE GATE (SLG)
- AIR RELIEF VALVE (ARV)
- FLOAT VALVE
- STRAINER
- BACKFLOW PREVENTER
- CV — CALIBRATION VALVE
- CALIBRATION COLUMN
- ROTAMETER
- UNION

ACTUATORS

- M — MOTORIZED
- S — SOLENOID
- S / A — PNEUMATIC OPERATOR S= SOLENOID - OPEN/CLOSE A= POSITIONER - MODULATING

PUMPS

- CENTRIFUGAL PUMP OR BLOWER
- SUBMERSIBLE SEWAGE PUMP
- VERTICAL TURBINE PUMP OR WELL PUMP
- SUBMERSIBLE WELL PUMP
- GEAR PUMP
- POSITIVE DISPLACEMENT PUMP OR BLOWER
- DIAPHRAGM PUMP
- PERISTALTIC PUMP
- M M — MOTOR

SENSORS

- ORIFICE PLATE
- LIT XXX — ULTRASONIC LEVEL TRANSMITTER (FLOW IF OVER FLUME OR WEIR)
- LE XXX — CONDUCTANCE TYPE LEVEL ELEMENTS
- LIT XXX — RADAR TYPE LEVEL TRANSMITTER
- GUIDED OPTION
- LIT XXX — CAPACITANCE TYPE LEVEL TRANSMITTER

SENSORS

- MAG — MAGNETIC FLOWMETER
- % — DENSITY METER
- ~ — ULTRASONIC FLOWMETER
- TURBINE OR PROPELLER METER
- VENTURI TUBE
- THERMAL DISPERSION FLOWMETER OR SWITCH
- PADDLE WHEEL FLOWMETER
- C — CORIOLIS FLOWMETER

MISCELLANEOUS MECHANICAL ITEMS

- PIPE REDUCER
- RUPTURE DISC
- PRESSURE OR VACUUM RELIEF VALVE
- DIAPHRAGM SEAL
- ANNUALAR SEAL
- DRAIN TO WASTE
- MIXER
- F OR F — FILTER
- VENT W/CAP OR SCREEN
- FLEXIBLE HOSE OR TUBING
- SPRAY NOZZLE SYSTEM
- EXPANSION JOINT
- STATIC MIXER
- EJECTOR / EDUCTOR
- HOSE COUPLING
- PULSATION DAMPENER
- OMNI ANTENNA NON-DIRECTIONAL
- YAGI ANTENNA DIRECTIONAL

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
13485 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: 24028-I01.DWG
DATE: Dec 11, 2024 TIME: 5:45:34PM

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

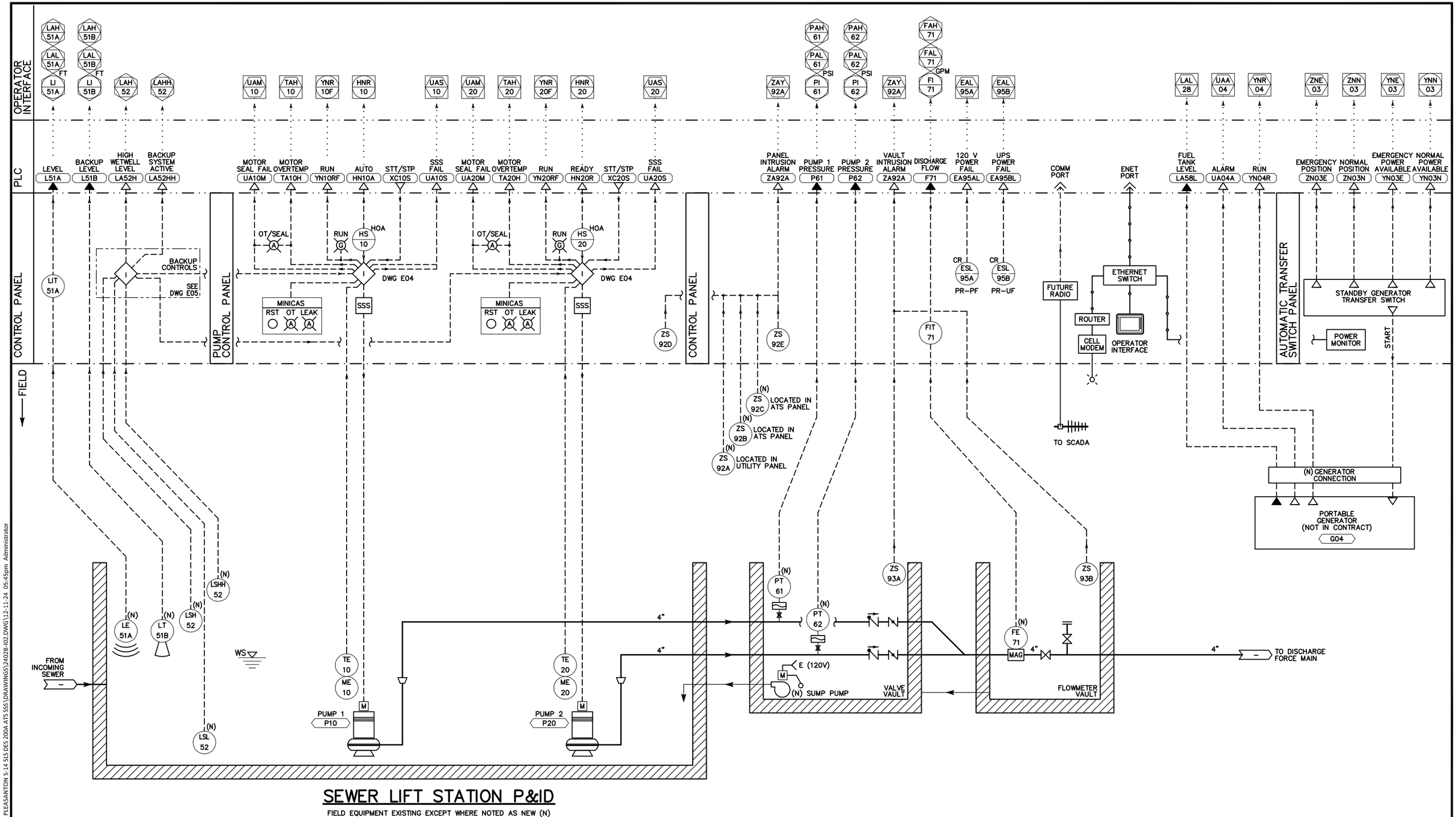
Thomas F. Frisch No. E15781 Professional Engineer Registered Electrical Engineer State of California

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
INSTRUMENTATION
SYMBOLS AND ABBREVIATIONS

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE: AS SHOWN	DWG NO. I-1
PROJECT NO.:	
DATE:12/11/24	15 OF 19

S:\FRISCH ENGINEERING\01OBS\2024 JOBS\24028 PLEASANTON S-14 SLS DES 200A ATS SSS\DRAWINGS\24028-I01.DWG\12-11-24 05:45pm Administrator



SEWER LIFT STATION P&ID

FIELD EQUIPMENT EXISTING EXCEPT WHERE NOTED AS NEW (N)

FRISCH ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
13405 FOLSOM BLVD, UNIT 600
FOLSOM, CA 95630
PH 916 353 1025
WWW.FRISCHENGINEERING.COM

FILE: 24028-I02.DWG
DATE: Dec 11, 2024 TIME: 5:45:42PM

S:\FRISCH ENGINEERING\JOBS\2024 JOBS\24028 PLEASANTON S-14 SLS DES 200A ATS SSS\DRAWINGS\24028-I02.DWG\12-11-24 05:45pm Administrator

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
LIFT STATION P&ID

DESIGN:	T. FRISCH
DRAWN:	N. CONANT
CHECKED:	T. FRISCH
ENGINEER:	T. FRISCH

SCALE:	AS SHOWN
PROJECT NO.:	
DATE:	12/11/24

DWG NO. **I-2**

GENERAL:

1. INTERPRETATION OF DRAWINGS & SPECIFICATIONS
   - 1.1 WHERE APPLICABLE, SPECIFICATIONS HAVE BEEN PREPARED FOR THIS PROJECT AND ARE ARRANGED IN SEVERAL SECTIONS, BUT SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED BY ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND SUBCONTRACTORS.
   - 1.2 IN GENERAL, THE WORKING DETAILS WILL INDICATE DIMENSIONS, POSITIONS AND KIND OF CONSTRUCTION, AND THE SPECIFICATIONS WILL INDICATE QUALITIES AND METHODS. ANY WORK INDICATED ON THE WORKING DETAILS MENTIONED BUT NOT IN THE SPECIFICATIONS, OR VICE VERSA, SHALL BE FURNISHED AS THOUGH FULLY SET FORTH IN BOTH. WORK NOT PARTICULARLY DETAILED, MARKED OR SPECIFIED, SHALL BE THE SAME AS SIMILAR PARTS THAT ARE DETAILED, MARKED OR SPECIFIED. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS WILL PREVAIL.
   - 1.3 SHOULD AN ERROR APPEAR IN THE WORKING DETAILS OR SPECIFICATIONS OR IN WORK DONE BY OTHERS AFFECTING THIS WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT ONCE AND IN WRITING. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT HAVING GIVEN SUCH WRITTEN NOTICE AND WITHOUT RECEIVING THE NECESSARY APPROVAL, DECISION OR INSTRUCTION IN WRITING FROM THE OWNER, THEN THEY SHALL HAVE NO VALID CLAIM AGAINST THE OWNER, FOR THE COST OF SO PROCEEDING AND SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECT. NO VERBAL APPROVAL, DECISION, OR INSTRUCTION SHALL BE VALID OR BE THE BASIS FOR ANY CLAIM AGAINST THE OWNER, ITS OFFICERS, EMPLOYEES, OR AGENTS. THE FOREGOING INCLUDES TYPICAL ERRORS IN THE SPECIFICATIONS OR NOTATIONAL ERRORS IN THE WORKING DETAILS WHERE THE INTERPRETATION IS DOUBTFUL OR WHERE THE ERROR IS SUFFICIENTLY APPARENT AS TO PLACE A REASONABLY PRUDENT CONTRACTOR ON NOTICE THAT, SHOULD THEY ELECT TO PROCEED, THEY ARE DOING SO AT THEIR OWN RISK.
2. CONSTRUCTION SHALL CONFORM TO THE 2022 CBC AND ALL APPLICABLE CODES AND REGULATIONS.
3. SHOP DRAWING NOTE:
   - 3.1 SHOP DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY IN PDF FORMAT AT FULL SCALE.
   - 3.2 THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE STRUCTURAL ENGINEER THAT THEY UNDERSTAND THE DESIGN CONCEPT BY INDICATING WHICH MATERIALS THEY INTEND TO FURNISH AND INSTALL, AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THEY INTEND TO USE.
   - 3.3 PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE STRUCTURAL ENGINEER. SHOP DRAWING SUBMITTALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO CONCRETE MIX DESIGNS, STRUCTURAL STEEL, REINFORCING STEEL, MASONRY UNITS, GROUT MIX DESIGNS, GLUED LAMINATED BEAMS, AND PRE-FABRICATED WOOD ROOF FRAMING ITEMS SUCH AS I-JOISTS AND TRUSSES WHERE THESE ELEMENTS ARE INDICATED ON THE DRAWINGS.
   - 3.4 PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE"
   - 3.5 SHOP DRAWING SUBMITTALS PROCESSED BY THE STRUCTURAL ENGINEER ARE NOT CHANGE ORDERS.
   - 3.6 ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL CLEARLY BE MARKED WITH THE NOTE "THIS IS A CHANGE".
   - 3.7 SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE RESUBMITTAL FOR RE-REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. RE-REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
4. SAFETY NOTE:
   - 4.1 IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS, AS THEY APPLY TO THIS PROJECT, OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS.
   - 4.2 THE OWNER AND THE STRUCTURAL ENGINEER DO NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
   - 4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED.
5. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHERE A CONFLICT OR A DISCREPANCY OCCURS BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER PORTION OF THE CONTRACT DOCUMENTS OR EXISTING FIELD CONDITIONS. SUCH NOTIFICATION SHALL BE GIVEN IN DUE TIME SO AS NOT TO AFFECT THE CONSTRUCTION SCHEDULE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH STRUCTURAL DRAWINGS PRIOR TO COMMENCING ANY WORK.
6. WHERE NO SPECIFIC DETAIL IS SHOWN, THE CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION ON THIS PROJECT. SHOULD THERE BE ANY QUESTION, CONTACT THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING.
7. WHEN CONSTRUCTION ATTACHES TO AN EXISTING BUILDING, A COMPLETE SET OF DRAWINGS OF THE EXISTING BUILDING SHALL BE KEPT ON THE JOB SITE. CONTRACTOR TO OBTAIN THESE DRAWINGS FROM THE OWNER.
8. ANY SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, OR DETAILS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER. SUCH REVIEW WILL BE BILLED ON A TIME AND MATERIALS BASIS TO THE GENERAL CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
9. DO NOT SCALE DRAWINGS. CONTACT THE STRUCTURAL ENGINEER FOR ANY DIMENSIONS NOT SHOWN.
10. THESE DRAWINGS ARE NOT COMPLETE UNTIL REVIEWED AND ACCEPTED BY THE LOCAL BUILDING OFFICIAL AND SIGNED BY THE OWNER AND THE STRUCTURAL ENGINEER.
11. ALL DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTES THE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
12. THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE STABILITY OF THIS STRUCTURE DEPENDS ON THE DIAPHRAGMS AND THE BRACING MEMBERS SHOWN. THE CONTRACTOR IS TO PROVIDE FOR THE DESIGN AND CONSTRUCTION OF SHORING FOR ALL EARTH, FORMS, CONCRETE, STEEL, WOOD, AND MASONRY TO RESIST GRAVITY, EARTH, WIND, SEISMIC, AND CONSTRUCTION LOADS. SHORING SHALL REMAIN IN PLACE UNTIL ALL DIAPHRAGMS AND LATERAL RESISTING ELEMENTS ARE IN PLACE IN THEIR ENTIRETY.

CONCRETE AND REINFORCING STEEL:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-19 & ACI 350.
2. THE MINIMUM 28 DAY STRENGTH AND TYPE OF CONCRETE SHALL BE AS FOLLOWS:

CONCRETE	145	PCF
f'c=	3,000	PSI (MINIMUM 5.5 SACKS CEMENT PER CU. YD.).

3. ALL CONCRETE SHALL BE READY-MIX IN ACCORDANCE WITH ASTM-C94.
4. CONCRETE MIX DESIGN SHALL BE REVIEWED BY THE OWNER'S TESTING LABORATORY AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE PER 2019 CBC SECTION 1903.
5. CEMENT SHALL CONFORM TO ASTM C-150 TYPE V.
6. CONCRETE AGGREGATES: NATURAL SAND AND ROCK AGGREGATES CONFORMING TO ASTM C-33.
7. REINFORCING SHALL CONFORM TO ASTM A706 GRADE 60.
8. WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS D1.4 USING PROPER LOW HYDROGEN ELECTRODES. TACK WELDING TO REBAR IS STRICTLY PROHIBITED. SEE "REBAR WELDING".
9. REINFORCING STEEL SHALL BE DETAILED, FABRICATED, AND INSTALLED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION" BY CRSI.
10. WIRE FABRIC SHALL CONFORM TO ASTM A-1064.
11. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF MAIN BARS AND DENOTE CLEAR COVERAGE. UNLESS OTHERWISE NOTED, CONCRETE COVERAGE SHALL BE AS FOLLOWS:

CONCRETE DEPOSITED DIRECTLY AGAINST GROUND (EXCEPT SLABS)	3"
FORMED CONCRETE EXPOSED TO WEATHER OR GROUND OR LIQUID	
#6 AND LARGER	2"
#5 AND SMALLER	2"
BEAMS (TOP BARS)	1½"
BEAMS (ALL OTHER MAIN REINFORCING)	2"
COLUMN MAIN REINFORCING	2"
WALLS AND SLABS (INTERIOR DRY FACES)	¾"
SLABS ON GROUND WITH ONE LAYER OF REINFORCEMENT	POSITION IN CENTER OF SLAB

12. REINFORCING STEEL PLACEMENT:
    - 12.1 ALL BARS SHOWN WITH LAPS OR SPLICES SHALL HAVE MIN LAP LENGTH UNLESS OTHERWISE NOTED.
    - 12.2 DOWEL ALL VERTICAL REBAR IN WALLS AND COLUMNS FROM FOUNDATION WITH SAME SIZE AND SPACING AS VERTICAL BARS.
    - 12.3 SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'-0" APART.
    - 12.4 SPLICE CONTINUOUS BARS IN SOIL-BEARING GRADE BEAMS AS FOLLOWS: BOTTOM BARS AT MID-SPAN, TOP BARS AT CENTERLINE OF SUPPORT, UNLESS NOTED OTHERWISE.
    - 12.5 SPLICE CONTINUOUS BARS IN BEAMS, SPANDRELS, WALL BEAMS ETC. AS FOLLOWS: BOTTOM BARS AT CENTERLINE OF SUPPORT, TOP BARS AT MIDSPAN, UNLESS NOTED OTHERWISE.
    - 12.6 REINFORCING BARS SHALL BE RUN IN A MANNER THAT FORMS A CONTINUOUS SYSTEM OF BARS TYING ALL PARTS OF THE STRUCTURE TOGETHER. EXTEND ALL REINFORCING BARS AS FAR AS POSSIBLE IN EACH CONCRETE MEMBER AND TERMINATE BAR TO PROVIDE 2" OF CONCRETE COVER END OF BAR OR FACE OR BEND.
    - 12.7 BEAM STIRRUPS AND COLUMN TIES SHALL HOOK 135 DEGREES AROUND A CORNER BAR UNLESS NOTED OTHERWISE.
13. GENERAL:
    - 13.1 NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE SLABS, BEAMS, WALLS OR GRADE BEAMS UNLESS SPECIFICALLY DETAILED.
    - 13.2 REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ALL OPENINGS, FLANGES, MOULDS, GROOVES, CLIPS AND GROUNDS TO BE CAST IN CONCRETE.
14. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SANDBLASTING, OR HOSING THE SURFACE 4 TO 6 HOURS AFTER THE POUR WITH A FINE SPRAY.
15. REMOVE ALL DEBRIS FROM THE FORMS BEFORE PLACING ANY CONCRETE.
16. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
17. MAXIMUM FREE FALL OF CONCRETE SHALL BE 3'-0".
18. WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 2'-0" MAX DEPTH.
19. CONCRETE IN WALLS, PIERS, OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IF IT SUPPORTS BEAMS, SPANDRELS, OR SLABS.
20. REINFORCE ALL SLABS ON GRADE AS SHOWN ON DRAWINGS.
21. HORIZONTAL WALL BARS IN DOUBLE LAYER WALLS SHALL BE STAGGERED. USE #2 SPREADERS APPROXIMATELY EVERY THIRD INTERSECTION EACH DIRECTION FOR ALL DOUBLE LAYER WALLS. PLACE SPREADERS IN VERTICAL LINES WITH FORM TIES.
22. NO WOOD SPREADERS ARE ALLOWED. NO WOOD STAKES ARE ALLOWED IN AREAS TO BE CONCRETED.
23. MINIMUM WALL REINFORCING FOR TEMPERATURE AND SHRINKAGE CONTROL ARE:

WALL THICKNESS	SINGLE LAYER	DOUBLE LAYER
7" OR LESS	#4 @ 12" CC EW	
8"	#4 @ 10" CC EW	
9" AND 10"		#4 @ 16" CC EW
11" AND 12"		#4 @ 12" CC EW
18"		#5 @ 12" CC EW
24"		#6 @ 12" CC EW

24. NOTIFY THE ENGINEER 48 HOURS PRIOR TO PLACING CONCRETE.
25. REINFORCEMENT LAP SPLICE LENGTHS ARE:

	3,000 PSI	3,500 PSI	4,000 PSI
#6 AND SMALLER	$57d_b$	$53d_b$	$49d_b$
#7 AND LARGER	$72d_b$	$66d_b$	$62d_b$

    - 25.1 SPLICE LENGTHS SHOWN APPLY TO LAP CLASS B NORMAL WEIGHT CONCRETE FOR THE STRENGTHS SHOWN. THE REINFORCING IS UNCOATED GRADE 60 REINFORCING.
    - 25.2 INCREASE LAP SPLICE LENGTHS BY 30% FOR TOP REINFORCING. TOP REINFORCING IS HORIZONTAL REINFORCING WITH MORE THAN 12" OF CONCRETE BELOW THE SPLICE.
    - 25.3 INCREASE LAP LENGTHS BY 30% IF LIGHTWEIGHT CONCRETE IS USED.
    - 25.4 WHERE CLEAR SPACING OF BARS IS LESS THAN 2 db OR WHERE CLEAR COVER IS LESS THAN 1 db INCREASE LAP LENGTHS BY 50%, UNO.
26. MAXIMUM SPACING OF WALL CONST. JOINTS IS 30ft.

DESIGN CRITERIA:

1. CODE: 2022 CALIFORNIA BUILDING CODE (CBC)
2. DESIGN LIVE LOADS:

AREA	LIVE LOAD	REMARKS
FLOOR	L= 100 PSF	REDUCIBLE PER CODE

3. WIND DESIGN PARAMETERS:

BASIC WIND SPEED (3-SEC GUST)	V= 103 MPH
RISK CATEGORY	IV
EXPOSURE CATEGORY	C

4. EARTHQUAKE DESIGN PARAMETERS:

SEISMIC IMPORTANCE FACTOR, I_E,	1.5
COMPONENT IMPORTANCE FACTOR, I_P	1.5
RISK CATEGORY	IV
SITE CLASS	D
SEISMIC DESIGN CATEGORY	D
DESIGN SPECTRAL RESPONSE PARAMETERS:	
S_{DS}	1.54

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT		X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 B. INSPECT SINGLE-PASS FILLET WELDS, 5/16" MAX C. INSPECT ALL OTHER WELDS			AWS D1.4 ACI 318: 26.6.4	
3. INSPECT ANCHORS CAST IN CONCRETE		X	ACI 318: 17.8.2	
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED 4.a	X	X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX		X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X		ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X		ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR: A. APPLICATION OF PRESTRESSING FORCES; AND B. GROUTING OF BONDED PRESTRESSING TENDONS			ACI 318: 26.10	
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS			ACI 318: CH. 26.8	
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS			ACI 318: 26.11.2	
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X	ACI 318: 26.11.1.2(b)	

A. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.
B. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

VE SOLUTIONS
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E-mail: bradf@vesolutions.net

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON
CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

REGISTERED PROFESSIONAL ENGINEER BRAD ALAN FRIEDERICHS 24780 Date Signed: Apr 29, '24 STRUCTURAL STATE OF CALIFORNIA

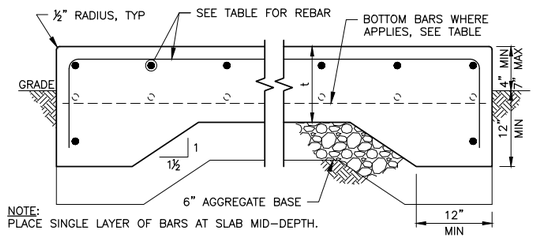
IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
GENERAL STRUCTURAL NOTES

DESIGN:	B. FRIEDERICHS
DRAWN:	D. GARROTT
CHECKED:	B. FRIEDERICHS
ENGINEER:	B. FRIEDERICHS

SCALE: AS SHOWN
PROJECT NO.:
DATE: 4/30/24

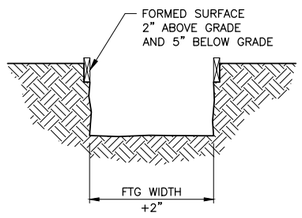
DWG NO. **S-1**
17 OF 18

t	REBAR
4"	#4 @ 18" CC EW
6"	#5 @ 18" CC EW
8"	#5 @ 12" CC EW
12"	#5 @ 12" CC EW T&B
18"	#6 @ 12" CC EW T&B

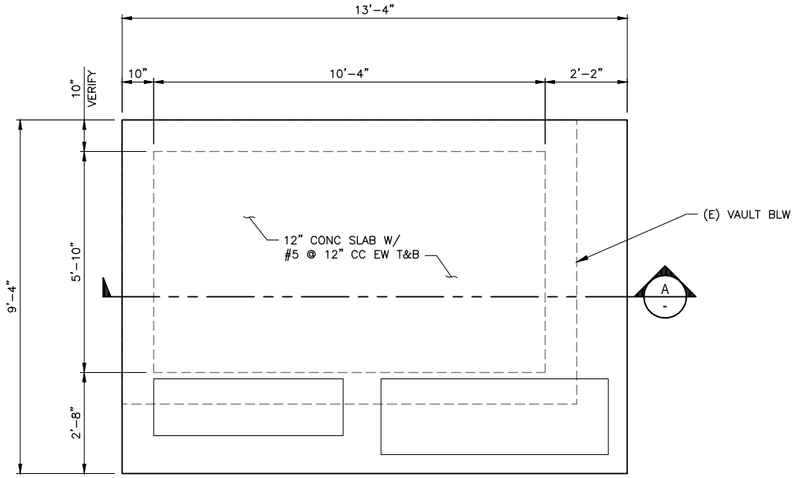


NOTE:
PLACE SINGLE LAYER OF BARS AT SLAB MID-DEPTH.

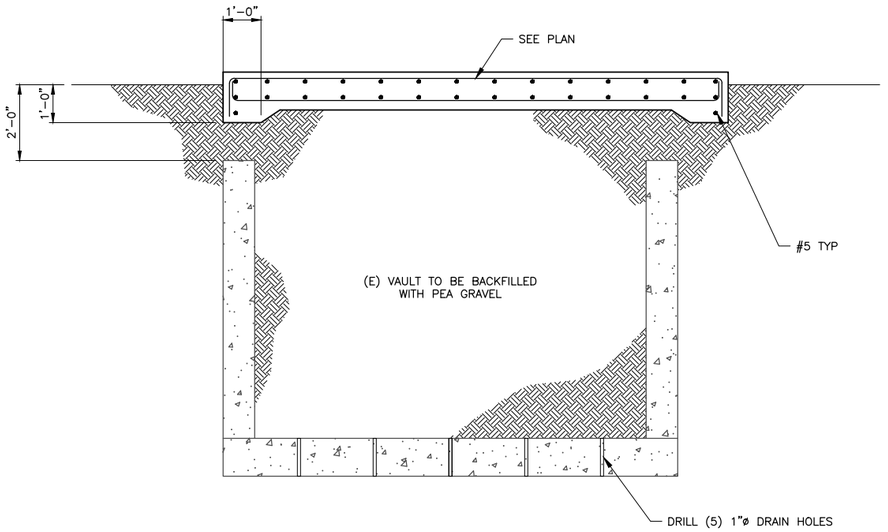
CONCRETE SLAB ON GRADE (S245 TYP)
SCALE: NTS



FOOTING POUR OPTION (S246 TYP)
SCALE: NTS



TOP PLAN
SCALE: ½"=1'-0"



SECTION (A -)
SCALE: ½"=1'-0"

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REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

REGISTERED PROFESSIONAL ENGINEER — BRADLEY A. FRIEDERICHS — 52780 — Date Signed: Oct 24, '24 — STATE OF CALIFORNIA — STRUCTURAL

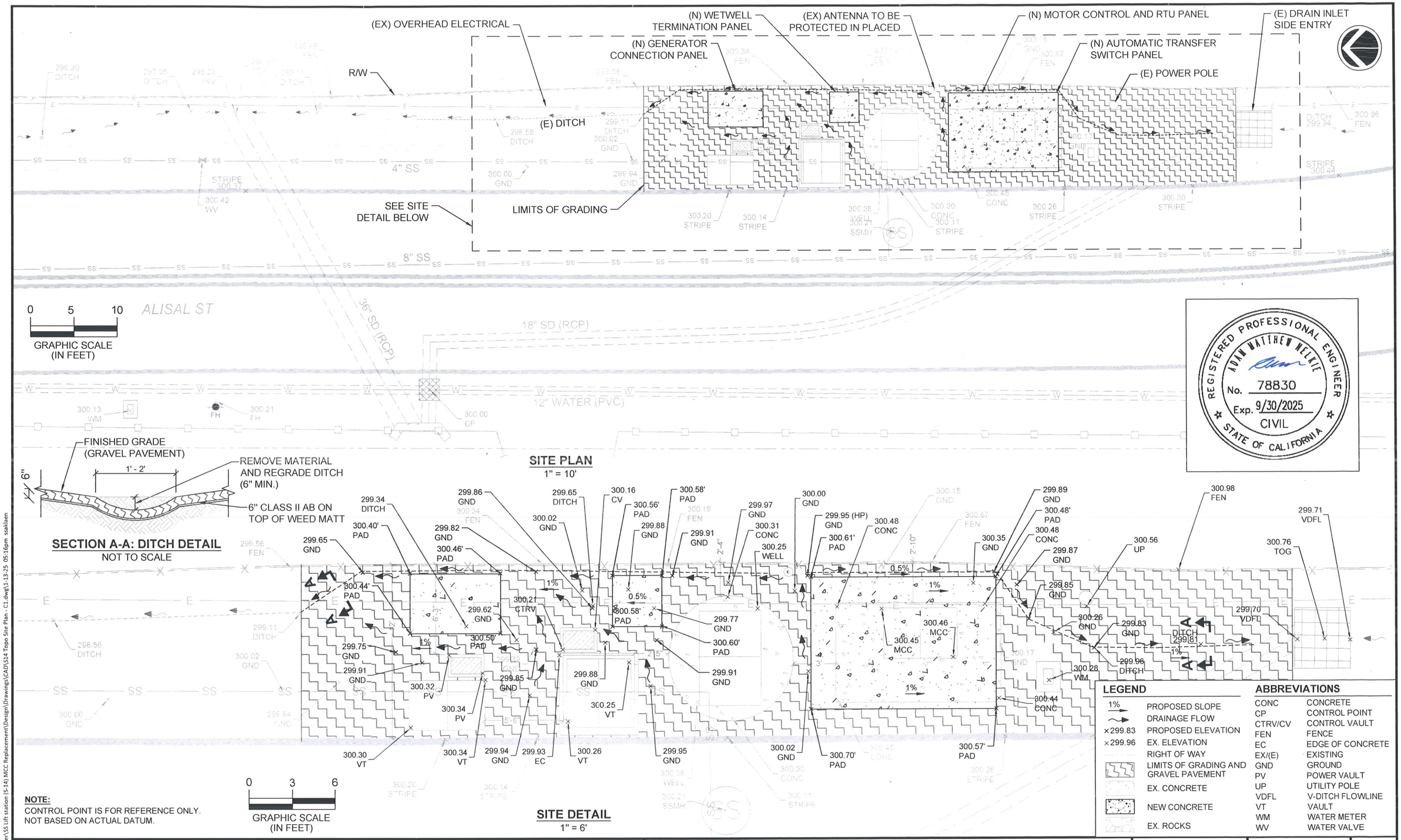
IMPROVEMENT PLANS FOR
SEWER LIFT STATION S-14
ELECTRICAL IMPROVEMENTS, CIP NO. 24265
STRUCTURAL
PLAN AND SECTION

DESIGN:	B. FRIEDERICHS
DRAWN:	D. GARROTT
CHECKED:	B. FRIEDERICHS
ENGINEER:	B. FRIEDERICHS

SCALE: AS SHOWN
PROJECT NO.:
DATE: 4/30/24

DWG NO. **S-2**
18 OF 18

V:\Engineering\24000 jobs\24000\24006 Pleasanton S14 LS Rehab\CAD\24006 02 Plan Section.dwg\10-24-24 01:35pm Daniel.Garrott



REGISTERED PROFESSIONAL ENGINEER
ADAM MATTHEW NELKIE
No. 78830
Exp. 9/30/2025
CIVIL
STATE OF CALIFORNIA

NOTE:
CONTROL POINT IS FOR REFERENCE ONLY.
NOT BASED ON ACTUAL DATUM.

LEGEND

1%	PROPOSED SLOPE
	DRAINAGE FLOW
×299.83	PROPOSED ELEVATION
×299.96	EX. ELEVATION
	RIGHT OF WAY
	LIMITS OF GRADING AND GRAVEL PAVEMENT
	EX. CONCRETE
	NEW CONCRETE
	EX. ROCKS

ABBREVIATIONS

CONC	CONCRETE
CP	CONTROL POINT
CTRV/CV	CONTROL VAULT
FEN	FENCE
EC	EDGE OF CONCRETE
EX/(E)	EXISTING
GND	GROUND
PV	POWER VAULT
UP	UTILITY POLE
VDFL	V-DITCH FLOWLINE
VT	VAULT
WM	WATER METER
WV	WATER VALVE

REV.	DATE	DESCRIPTION

THE CITY OF PLEASANTON

CITY OF PLEASANTON
PUBLIC WORKS DEPARTMENT

ADAM M. NELKIE
CITY ENGINEER
NO. 78830
EXP. 9/30/25

SEWER LIFT STATION S14 ELECTRICAL IMPROVEMENTS

SITE GRADING PLAN

DESIGN:	SS
DRAWN:	SN
CHECKED:	GP
TRAFFIC ENGINEER:	MT

SCALE:	AS SHOWN
PROJECT NO.:	CIP-24265
DATE:	DEC 11, 2024

DWG NO. C-1
19 OF 19

X:\Engineering\Sewer\SS Lift station (S-14) MCC Replacement\Design\Drawings\CAD\S14 Topo Site Plan - C1.dwg|1-13-25 05:16pm ssaklaen