YUMA COUNTY FLOOD CONTROL DISTRICT

STORM WATER RETENTION/DETENTION BASINS

A. SAN LUIS RETENTION BASIN PUMP STATION
B. SOMERTON STORM WATER RETENTION BASIN GATE BOX MODIFICATIONS
C. NORTH CENTRAL BASIN STORM WATER LIFT STATION

(C.I.P. # 3.1803)

FEBRUARY 2021

YCO-43

YUMA COUNTY FLOOD CONTROL DISTRICT

A. SAN LUIS RETENTION BASIN PUMP STATION
(C.I.P. # 3.1803)

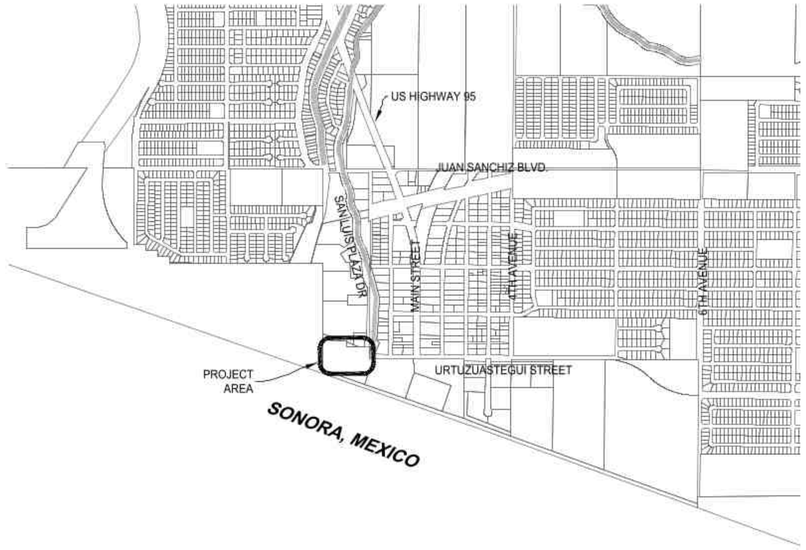
FEBRUARY 2021

BOARD OF DIRECTORS	
CHAIRMAN	Marco A. (Tony) Reyes
VICE-CHAIRMAN	Martin Porchas
MEMBER	Darren Simmons
MEMBER	Jonathan Lines
MEMBER	Lynne Pancrazi

YUMA COUNTY	
COUNTY ADMINISTRATOR	Susan K. Thorpe
DIRECTOR / FLOOD CONTROL MANAGER	Chris Young, P.E.
PROJECT MANAGER	Jason Giard, P.E.

YCO-43

LOCATION MAP
NTS



PROJECT VICINITY MAP

SHEET INDEX

PROJECT DESCRIPTION:
YUMA COUNTY FLOOD CONTROL DISTRICT CAPITAL IMPROVEMENT STORM DRAINAGE PROJECT. NEW STORM WATER PUMP STATION AND STORMWATER FORCE MAIN.

GENERAL NOTES:
1. THE PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE TO AND IN COMPLIANCE WITH THE FOLLOWING DOCUMENTS AS APPLICABLE TO THE VARIOUS TYPES OF WORK REQUIRED:
   - PROJECT PLANS.
   - PROJECT MANUAL.
   - PUBLIC WORKS STANDARD FOR YUMA COUNTY VOLUMES I AND II
2. NOT ALL STANDARD DRAWINGS ARE INCLUDED HEREIN,STANDARD DRAWINGS LISTED BUT NOT SHOWN ARE INCLUDED BY REFERENCE.
3. UTILITY LOCATIONS ARE UNKNOWN OR APPROXIMATE ONLY. CONTRACTOR SHALL POTHOLE ALL POTENTIALLY CONFLICTING UTILITIES AT LEAST 7 DAYS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY UTILITIES THAT CONFLICT WITH THE DESIGN PLANS. THE POTHOLING SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE PROJECT AND NO DIRECT PAYMENT WILL BE MADE FOR THIS WORK.
4. ALL CROSSING AND PARALLEL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE SHOWN. CONTRACTOR SHALL COORDINATE WITH EACH UTILITY FOR PROPER PROTECTION, TEMPORARY RELOCATION, AND/OR REPLACEMENT. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT AS NEEDED FOR EXISTING UTILITIES. IF OVERHEAD LINE POLES NEED BRACING AND THE OWNING UTILITY ELECTS TO BRACE THE POLE, THE CONTRACTOR SHALL PAY THE UTILITY FOR THE COST OF BRACING.
5. THE CONTRACTOR SHALL COORDINATE THE WORK WITH AFFECTED UTILITIES. THE UTILITY COMPANY CONTACTS ARE AS FOLLOWS.
   SOUTHWEST GAS (GAS): JIM LARSON 928-341-2604 AND 928-210-0477
   CENTURY LINK COMMUNICATIONS (TEL): ED ALUPAY 928-285-8512
   SPECTRUM (CATV): PLACIDO LOPEZ 928-783-4441, 760-250-2469
   APS (ELECTRIC): DANIEL ORTEGA 928-336-9809
   CITY OF SAN LUIS (WATER, SEWER, STORM DRAIN): EULOGIO VERA 928-941-6505

BENCHMARKS:

BM#1
FD BC LS 16810 RW PC
AT THE NORTH WEST CORNER OF SAN LUIS PLAZA DRIVE AND URTUZUASTEGUI STREET
NORTHING = 542550.267
EASTING = 380949.641
ELEVATION = 100.45

BM#2
FD USDOI BC WITH SURVEY FLAGGING
AT LEVEE ROAD ABOUT 375' SOUTH OF JUAN SANCHEZ BLVD. CENTERLINE ALIGNMENT
NORTHING = 544714.490
EASTING = 377497.450
ELEVATION = 99.01

BM#3
FD PK NAIL WITH WASHER LS 16810
AT JUAN SANCHEZ BLVD. AND MAIN DRAIN
NORTHING = 545079.663
EASTING = 380378.147
ELEVATION = 90.26

Call at least two full working days before YOU begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County (602) 263-1100

YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
DATE: FEBRUARY 11, 2021			
DESIGN: TS			
DRAWN: RC			
CHECKED: JVD			
-			

Registered Professional Engineer Certificate No. 28902 JAMES V. DAVEY State of ARIZONA, U.S.A.

YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

PROJECT LOCATION, VICINITY MAP, AND GENERAL NOTES

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS	PROJ. NO.	G-1A
DWG. NO.		

ABBREVIATIONS

@	AT
AB	AGGREGATE BASE
ABC	AGGREGATE BASE COURSE
ABDN	ABANDONED
ABUTMT	ABUTMENT
AC	ASPHALTIC CONCRETE, ALUMINUM CAP, ASBESTOS CEMENT
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ASBESTOS CEMENT PIPE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUSTABLE
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
AFF	AT FINISH FLOOR
AG	AGRICULTURAL
AGGR	AGGREGATE
AISC	AMERICAN INSTITUE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
ANG	ANGLE
APPRX.	APPROXIMATE, APPROXIMATELY
APS	ARIZONA PUBLIC SERVICE
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
ASSY.	ASSEMBLY
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BRASS CAP/BACK CURB
BEG	BEGIN, BEGINNING
BF	BLIND FLANGE, BOTTOM FACE
BK	BACK
BLDG	BUILDING
BM	BENCHMARK
BOTT	BOTTOM
BRG	BEARING
BTWN	BETWEEN
BV	BALL VALVE, BUTTERFLY VALVE
BVC	BEGINNING OF VERTICAL CURVE
BW	BARBED WIRE
C/L	CHAINLINK
C, CONC	CONCRETE, CENTER
CAP	CAPACITY
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CD	CROSS-DRAINAGE STRUCTURE
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CJ	CONSTRUCTION JOINT
	CENTERLINE
CLR	CLEAR, CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNITS
C.O.	CLEANOUT
CO.	COUNTY
CONN	CONNECTION, CONNECT
CONST	CONSTRUCTION, CONSTRUCT
CONT	CONTINUOUS
COORD	COORDINATE
COY	CITY OF YUMA
CP	CONTROL POINTS
CPLG	COUPLING
CC,	CENTER TO CENTER
CTR	CENTER
CTRD	CENTERED
CU	CUBIC
CULV	CULVERT
CV	CHECK VALVE
CWS	CALCULATED WATER SURFACE
DW	DRIVEWAY
D	DEPTH
DBL	DOUBLE
DC	DEPRESSED CURB
DEG	DEGREE
DEMO	DEMOLITION
DG	DOWN GUY
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DOI	U.S. DEPARTMENT OF THE INTERIOR
DN	DOWN
DR	DRIVE
DW	DRIVEWAY
DWG	DRAWING
DWS	DESIGN WATER SURFACE
E	EAST, ELECTRIC
EA	EACH
EASE	EASEMENT
EB	EASTBOUND
ECC	ECCENTRIC
EF	EACH FACE
EG, EX, GR	EXISTING GRADE
EL, ELEC	ELECTRIC, ELECTRICAL
ELB	ELBOW
ELEV	ELEVATION
ENGR	ENGINEER
EP	EDGE OF PAVEMENT
EQPMT	EQUIPMENT
EVC	END OF VERTICAL CURVE
E/W	EACH WAY
EX., EXIST.	EXISTING
EXP	EXPOSED
EXP JT	EXPANSION JOINT
FAB	FABRICATION
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FD	FOUND
F.D.C.	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
F.F.	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FIG.	FIGURE
FL	FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
F.O.	FIBER OPTIC
FOW	FACE OF WALL
FT	FOOT, FEET
FTG	FOOTING, FILLING
FWD	FORWARD
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
G. I.	GALVANIZED IRON
G.S.	GALVANIZED STEEL
GB	GRADE BREAK
GC	GROOVED COUPLING
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GSRBM	GILA & SALT RIVER BASE & MERIDIAN
GT, GTR	GUTTER
GV	GATE VALVE, GAS VALVE
HC	HANDICAPPED
HB	HOSE BIB
HDPE	HIGH DENSITY POLYETHYLENE
HDWR	HARDWARE
HDWL	HEADWALL
HGL	HYDRAULIC GRADE LINE
HGT	HEIGHT
HH	HAND HOLE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HWS	HIGH WATER SURFACE
HWY	HIGHWAY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IN.	INCH
INSTM	INSTRUMENTATION
INSUL	INSULATE
INT	INTERIOR
INV.	INVERT
IRR	IRRIGATION
JT	JOINT
L	LENGTH
LAT	LATERAL
LB	POUND
LF	LINEAR FEET
LH	LEFT HAND
LN	LANE
LR	LONG RADIUS
LS	LAND SURVEYOR
LT	LIGHT, LEFT
L/G	LIP OF GUTTER
M	MEASURED
MAINT	MAINTENANCE, MAINTAIN
MATL	MATERIAL
MAX	MAXIMUM
MB	MAIL BOX
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
M&I	MUNICIPAL AND INDUSTRIAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MO	MONTH
MON	MONUMENT
MTD	WALL MOUNTED
MTG	MOUNTING
MTL	METAL
MW	MONITORING WELL
MWS	MAXIMUM WATER SURFACE
N/A	NOT APPLICABLE
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NB	NORTHBOUND
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NORM	NORMAL
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
NW	NORTHWEST
NWS	NORMAL WATER SURFACE
O/H	OVERHEAD
O&M	OPERATION & MAINTENANCE
OC	ON CENTER
OD	OUTSIDE DIAMTER
OF	OUTSIDE FACE, OVERFLOW
OPNG	OPENING
OPP	OPPOSITE
O TO O	OUT TO OUT
OVFL	OVERFLOW
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONC, POINT OF COMMAND CURVATURE
PE	POLYETHYLENE
PERM	PERMANENT
PI	POINT OF INTERSECTION
PJF	PREMOLDED JOINT FILLER
PL	PROPERTY LINE
POB	POINT OF BEGINNING
POC	POINT OF CURVATURE
POE	POINT OF ENDING
POT	POINT OF TANGENT
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PREFAB	PREFABRICATED
PRESS.	PRESSURE
PRI	PRIMARY
PROP	PROPERTY
PS	PUMP STATION, PRESSURE SWITCH
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
PT	POINT, POINT OF TANGENCY
PV	PLUG VALVE, PRESSURE VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
Q	FLOW RATE (CFS)
QUAD	QUADRANT
QTY	QUANTITY
ROW	RIGHT OF WAY
R	RECORD, RIGHT, RANGE
RAD	RADIUS
RB	REBAR
RC	REINFORCED CONCRETE
R.C.&G.	ROLL CURB AND GUTTER
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RED	REDUCER
REF	REFER, REFERENCE
REHAB	REHABILITATED, REHABILITATION
REINF	REINFORCE, REINFORCED, REINFORCING
REQD	REQUIRED
RESIL	RESILIENT
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE
RM	ROOM
RR	RAILROAD
RTN	RETURN
S	SEWER, SOUTH
SB	SOIL BORING, SOUTHBOUND
SCHED	SCHEDULE
SD	STORM DRAIN
SDP	USBR SLUDGE DISPOSAL PIPELINE
SE	SOUTHEAST
SEC	SECTION
SF	SQUARE FEET
SH	SHEET
SIM§	SIMILAR
SL,	SECTION LINE, SURVEY LINE, STREET LIGHT
SMH	SEWER MANHOLE
SP	SPACE, SPACES
SPEC	SPECIFICATIONS
SPEC'D	SPECIFIED
SPLY	SUPPLY
SQ	SQUARE
SS	SANITARY SEWER
SST, SS	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STRL	STRUCTURAL
STRUCT	STRUCTURE
SUSP	SUSPEND
SW	SOUTHWEST
SYMM	SYMMETRICAL
T	TANGENT, TOWNSHIP, TELEPHONE
T&B	TOP AND BOTTOM
TB	THRUST BLOCK
TBM	TEMPORARY BENCH MARK
TC	TOP OF CONCRETE, TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPORARY
TF	TOP FACE
THD	THREAD
THK	THICK
THRD	THREADED
TMH	TELEPHONE MANHOLE
T.O.	TOP OF, TURNOUT
TOB	TOP OF BANK
TOL	TOP OF LINING
TOP	TOP OF PIPE
TORL	TOP OF RAISED LINING
TP	TELEPHONE POLE, TEST PIT, TURNING POINT
TPI	TURNOUT POINT OF INTERSECTION
TRANS	TRANSITION
TRS	TRAFFIC SIGNAL
TS	TRAFFIC SIGN, TOP OF SLOPE
TW	TOP OF WALL
TYP.	TYPICAL
U/G	UNDERGROUND
UBC	UNIFORM BUILDING CODE
UNK	UNKNOWN
UNO	UNLESS NOTED OTHERWISE
USBR	UNITED STATES BUREAU OF RECLAMATION
VC	VERTICAL CURVE
V.C.&G.	VERTICAL CURVE AND GUTTER
VG	VALLEY GUTTER
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
VTR	VENT THRU ROOF
W/	WITH
W	WATER, WEST
WB	WESTBOUND
WI	WROUGHT IRON
WM	WATER METER
WMIDD	WELLTON MOHAWK IRRIGATION AND DRAINAGE DISTRICT
WS	WATER STOP, WATER SURFACE
WSEL	WATER SURFACE ELEVATION
WSP	WELDED STEEL PIPE
WWF	WELDED WIRE FABRIC
WV	WATER VALVE
XFMR	ELECTRICAL TRANSFORMER
YC	YUMA COUNTY
YCWUA	YUMA COUNTY WATER USERS' ASSOCIATION
YD	YARD
YID	YUMA IRRIGATION DISTRICT
YMC	YUMA MESA CONDUIT
YMIDD	YUMA MESA IRRIGATION AND DRAINAGE DISTRICT
YR	YEAR

NOTES:

1) THIS IS A STANDARD ABBREVIATION AND LEGEND SHEET; THEREFORE, SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT ON THE DRAWINGS.

2) CONTACT THE ENGINEER FOR ABBREVIATIONS NOT LISTED OR REFER TO 'ABBREVIATIONS FOR USE ON DRAWINGS AND TEXT' PUBLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).

LEGEND

- NEW DRIVEWAY ENTRANCE WITH DEPRESSED CURB (D.C.) (20' D.C.)
- EXIST. DRIVEWAY ENTRANCE/ HANDICAP RAMP
- EXIST./NEW STRUCTURE
- EXIST. ASPHALT PAVEMENT
- NEW ASPHALT PVMT. AS NOTED
- EXIST. CONST. TO BE REMOVED
- NEW CONCRETE SIDEWALK OR SLAB (HATCH OPTIONAL)
- EXIST. CONCRETE SIDEWALK OR SLAB (HATCH OPTIONAL)
- NEW VERTICAL CURB & GUTTER (VC&G)
- EXIST. VERTICAL CURB & GUTTER (VC&G)
- NEW ROLL CURB & GUTTER (RC&G)
- EXIST. ROLL CURB & GUTTER (RC&G)
- NEW CONCRETE VALLEY GUTTER
- EXIST. CONCRETE VALLEY GUTTER
- GUTTER CATCH BASIN
- FLUSH CATCH BASIN
- EXIST./NEW PROPERTY LINE – P
- EXIST./NEW CENTER LINE – ℄
- EXIST./NEW RIGHT-OF-WAY LINE – R/W
- EXIST./NEW WOOD FENCE
- EXIST./NEW WIRE FENCE
- EXIST./NEW MASONRY FENCE
- EXIST./NEW CHAIN LINK FENCE
- EXIST./NEW WROUGHT IRON FENCE
- NEW DITCH AS NOTED
- EXIST. DITCH AS NOTED
- NEW IRRIGATION OR STORM DRAIN PIPE (IRR)
- EXIST. IRRIGATION OR STORM DRAIN PIPE (IRR)
- EXIST. STAND PIPE
- NEW STAND PIPE
- EXIST. IRRIGATION OR DRAINAGE JUNCTION BOX
- NEW IRRIGATION OR DRAINAGE JUNCTION BOX
- EXIST./NEW IRRIGATION/SPRINKLER VALVE
- EXIST. SANITARY SEWER PIPE (S)
- NEW SANITARY SEWER PIPE (S)
- EXIST. SANITARY CLEAN OUT (CO)
- NEW SANITARY CLEAN OUT (CO)
- EXIST. MANHOLE AS NOTED
- EXIST. MANHOLE TO BE BROUGHT TO GRADE
- NEW MANHOLE
- DRAINAGE DIVIDE
- EXIST. SLOPES
- NEW SLOPES
- EXIST. ELEVATION (100.00)
- NEW ELEVATION (100.00)
- EXIST. GAS LINE (G)
- NEW GAS LINE (G)
- EXIST./NEW DOWN GUY

- EXIST. POWER POLE
- NEW POWER POLE
- EXIST. TELEPHONE POLE
- NEW TELEPHONE POLE
- EXIST. TRAFFIC SIGNAL (T.S.)
- NEW TRAFFIC SIGNAL
- EXIST. LIGHT POLE (L.P.)
- NEW LIGHT POLE
- EXIST. WATER LINE (W)
- NEW WATER LINE (W)
- EXIST. END CAP W/ BLOW-OFF
- NEW END CAP W/ BLOW-OFF
- EXIST. FIRE HYDRANT (F.H.)
- NEW FIRE HYDRANT
- EXIST. FIRE DEPARTMENT CONNECTION (F.D.C.)
- NEW FIRE DEPARTMENT CONNECTION
- EXIST. VALVE
- EXIST. VALVE TO BE BROUGHT TO GRADE
- NEW VALVE & VALVE BOX
- EXIST. THRUST BLOCK
- NEW THRUST BLOCK
- NEW WATER METER BOX (WM)
- EXIST. WATER METER BOX (W.M.)
- EXIST. W.M. BOX TO BE RELOCATED (WM)
- EXIST. TRAFFIC SIGN
- NEW TRAFFIC SIGN
- EXIST. STREET SIGN
- NEW STREET SIGN
- EXIST. STREET LIGHT
- NEW STREET LIGHT
- EXIST./NEW BARRICADE
- ROCK RIPRAP (AS NOTED)
- EXIST. TREE, PALM OR SHRUB
- EXIST. TREE, PALM OR SHRUB TO BE REMOVED
- EXIST. HEDGE (AS NOTED)
- EXIST. STORM DRAIN PIPE (SD)
- NEW STORM DRAIN PIPE (SD)
- EXIST. MAIL BOX
- EXIST. MAIL BOX TO BE RE-SET
- EXIST. SURVEY MONUMENT & COVER
- NEW SURVEY MONUMENT & COVER NO. 4-040 OR 4-050
- EXIST. SURVEY MONUMENT COVER TO BE BROUGHT TO GRADE
- NEW SURVEY MONUMENT, AS NOTED
- NEW SURVEY MONUMENT No. 4-080
- FOUND SURVEY MONUMENT
- SURVEY CONTROL POINT (CP10)
- PROJECT BENCH MARK/TEMPORARY BENCHMARK
- NEW CONSTRUCTION NOTE (20)
- REMOVAL NOTE (15)

SECTION AND DETAIL STANDARDS:

DETAIL (NUMERAL) DESIGNATION ON DRAWING WHERE DETAIL IS TAKEN — 1 / C-6

SECTION (LETTER) DESIGNATION ON DRAWING WHERE SECTION IS TAKEN. ARROW INDICATES DIRECTION OF SECTION — A / -

DRAWING NUMBER (OR LINE IF TAKEN AND SHOWN ON SAME DRAWING) ON DRAWING WHERE SECTION OR DETAIL IS SHOWN

SCREENING:

SCREENED ELEMENTS ON AREA MAPPING REPRESENT EXISTING FACILITIES OR ELEVATIONS.

SCREENED BACKGROUNDS ON OTHER DRAWINGS CAN REPRESENT EXISTING FACILITIES OR FACILITIES TO BE CONSTRUCTED UNDER THIS CONTRACT, WHICH, IF DRAWN IN SOLID LINES, WOULD OBSCURE THE PARTICULAR DETAILS BEING SHOWN. CONSULT THE ENGINEER IF SCREENING OF ANY ELEMENTS IS NOT SELF-EXPLANATORY.

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County (602) 263-1100

STANDARD DETAILS:

STANDARD DETAIL CALLOUTS ARE SHOWN TO INDICATE DETAIL REQUIRED AT SPECIFIC LOCATIONS. AT ALL LOCATIONS WHERE A STANDARD DETAIL CALLOUT IS NOT SHOWN, THE CONTRACTOR SHALL USE THE STANDARD DETAIL MOST APPLICABLE AND CONSISTENT WITH OTHER WORK UNDER THIS CONTRACT.

YCO-43

REVISION	DATE	DESCRIPTION	APPROVED

DATE: FEBRUARY 11, 2021
DESIGN: TS
DRAWN: RC
CHECKED: JVD

Registered Professional Engineer (Civil) CERTIFICATE NO. 28902 JAMES V. DAVEY Date Signed 2/11/21 ARIZONA, U.S.A.

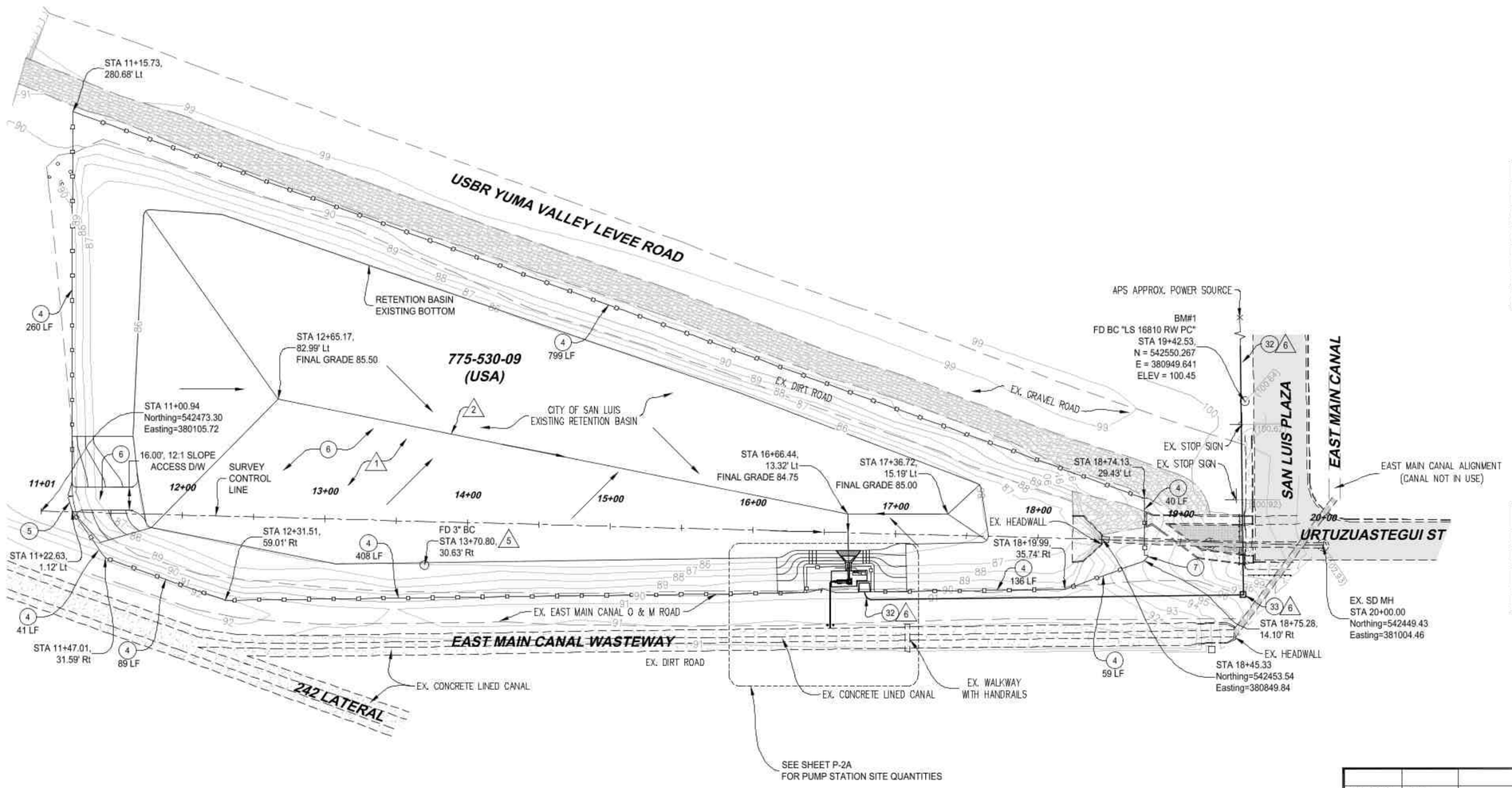
YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

LEGEND AND ABBREVIATIONS

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS	PROJ. NO.	G-2A
DWG. NO.		



0 40' 80'

SCALE: 1" = 40'

	CONSTRUCTION NOTES	U/M	QTY
4	6' CHAINLINK FENCE (YUMA COUNTY STD NO. 3-320)	LF	1832
5	20' CHAINLINK FENCE DOUBLE GATE (YUMA COUNTY STD NO. 3-320)	EA	1
6	RETENTION BASIN GRADING	LS	1
7	6' X 4' CHAINLINK FENCE PEDESTRIAN GATE (YUMA COUNTY STD. No. 3-320)	EA	1
32	ELECTRIC CONDUIT (2 1/2" SCHEDULE 40 PVC WITH PULL CORD), WIRE BY APS	LF	550
33	APS LIGHT DUTY PULL BOX - PROVIDED BY APS AND INSTALLED BY CONTRACTOR	EA	1

GENERAL NOTES
1 GRADE RETENTION BASIN MATCHING EXISTING RETENTION BASIN SLOPES (TYP.)
2 REGRADE RETENTION BASIN TO DRAIN TO NEW INLET HEADWALL (TYP.)
5 PROTECT-IN-PLACE EXISTING SURVEY MONUMENT
6 APPROXIMATE LOCATION OF ELECTRICAL SERVICE CONDUIT WITH PULL CORD (SEE APS PLANS)

Call at least two full working days before you begin excavation.
ARIZONA 811
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In Maricopa County: (602) 263-1100

YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
DATE: FEBRUARY 11, 2021			
DESIGN: TS			
DRAWN: RC			
CHECKED: JVD			
-			

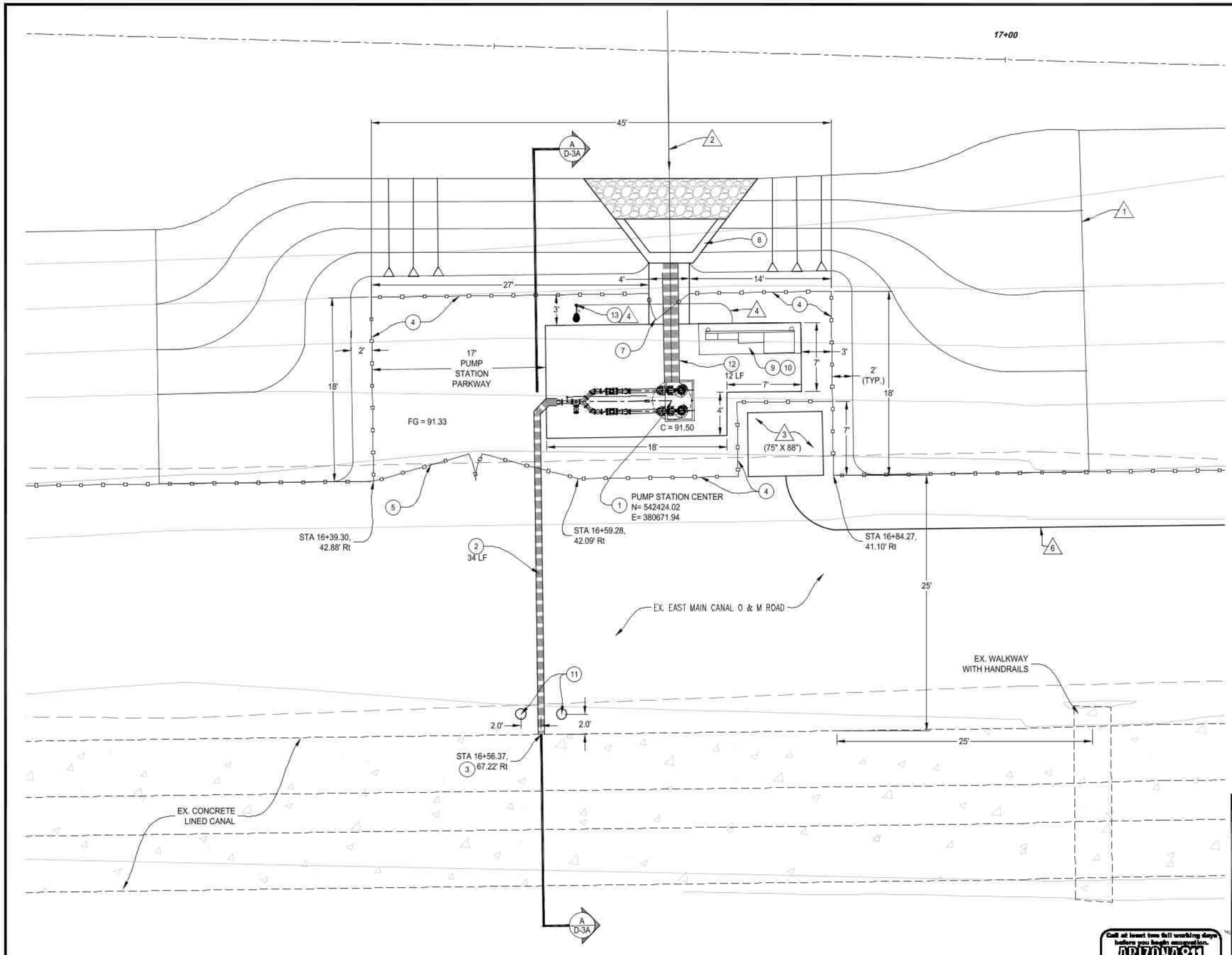
YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

TOPOGRAPHIC SURVEY AND RETENTION BASIN SITE PLAN

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS	PROJ. NO.	P-1A
DWG. NO.		



SCALE: 1" = 5'

	CONSTRUCTION NOTES	U/M	QTY
1	PUMP STATION (1 / D-1A)	LS	1
2	8" Ø C-900 PVC STORMWATER FORCEMAIN	LF	34
3	CONNECT TO EX. EAST MAIN CANAL WASTEWAY (CONC. LINED CANAL) (1 / D-3A)	LS	1
4	6' CHAINLINK FENCE (YUMA COUNTY STD NO. 3-320)	LF	109
5	20' CHAINLINK FENCE DOUBLE GATE (YUMA COUNTY STD NO. 3-320)	EA	1
7	6' X 4' CHAINLINK FENCE PEDESTRIAN GATE (YUMA COUNTY STD. No. 3-320)	EA	1
8	INLET HEADWALL WITH 18" WATERMAN C-10 CANAL GATE (1 / D-2A)	EA	1
9	ELECTRICAL EQUIPMENT MOTOR AND CONTROL CABINET	LS	1
10	ELECTRICAL EQUIPMENT SHADE STRUCTURE (2 / D-3A)	LS	1
11	6" Ø PIPE BOLLARDS (H=3')	EA	2
12	18" Ø CL-III, D-1350, RGRCP STORM DRAIN	LF	12
13	AREA LIGHT POLE WITH LUMINAIRE (COMPLETE ASSEMBLY)	LS	1

	GENERAL NOTES
1	GRADE RETENTION BASIN MATCHING EXISTING RETENTION BASIN SLOPES (TYP.)
2	REGRADE RETENTION BASIN TO DRAIN TO NEW INLET HEADWALL (TYP.)
3	75"X88" CONC. PAD FOR APS TRANSFORMER. MAINTAIN 12" CLR. FROM C/L FENCE TO CONC. PAD
4	APPROXIMATE LOCATION OF LIGHT POLE (COMPLETE ASSEMBLY), INCLUDING AREA LIGHT/LUMINAIRE, POLE, CONDUIT, AND WIRE. SEE ELECTRICAL PLANS.
6	APPROXIMATE LOCATION OF ELECTRICAL SERVICE CONDUIT WITH PULL CORD (SEE APS PLANS)

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YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
DATE: FEBRUARY 11, 2021			
DESIGN: TS			
DRAWN: RC			
CHECKED: JVD			
-			

Professional Engineers in Private Practice
CERTIFICATE NO.
28002
JAMES V.
DAVEY
ARIZONA, U.S.A.

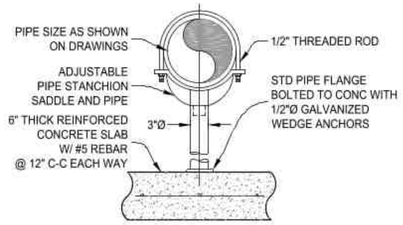
YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

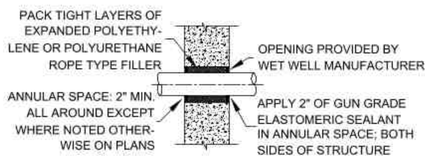
PUMP STATION SITE PLAN

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

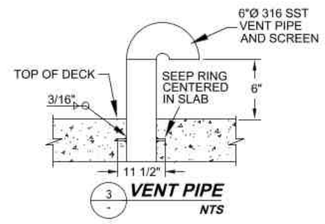
SCALE: NTS	PROJ. NO.	P-2A
DWG. NO.		



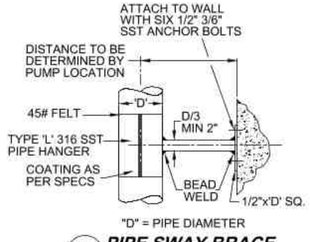
1 - **ADJUSTABLE PIPE SADDLE SUPPORT**
NTS



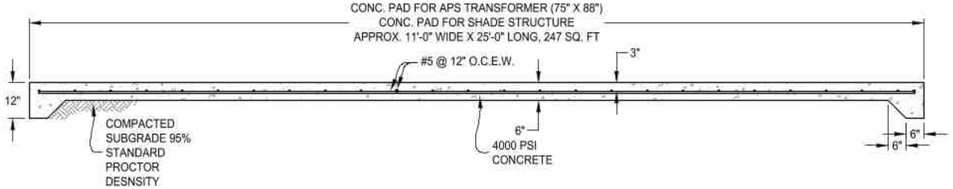
2 - **WALL PENETRATION**
NTS



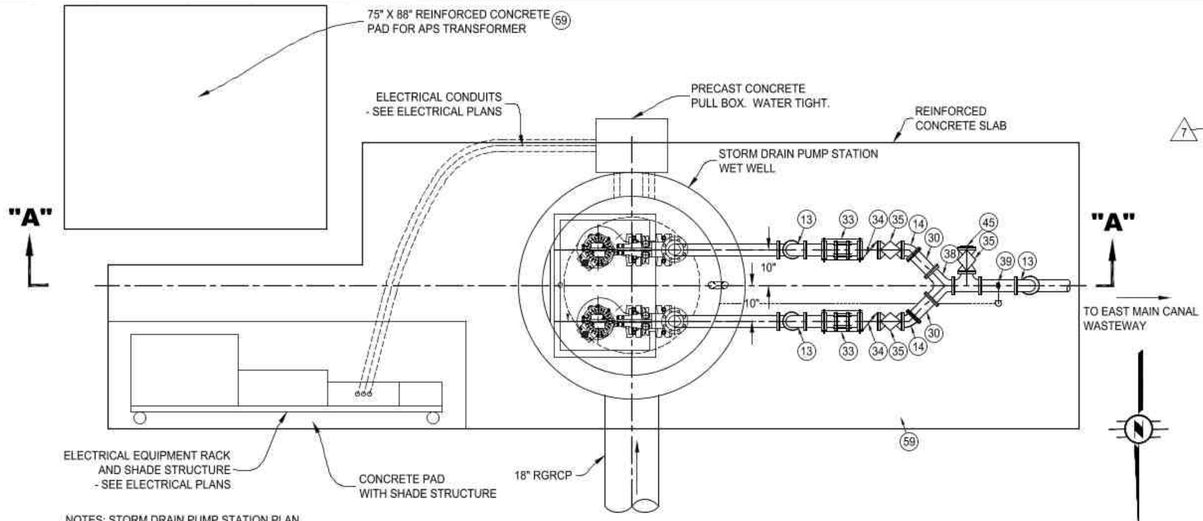
3 - **VENT PIPE**
NTS



4 - **PIPE SWAY BRACE**
NTS

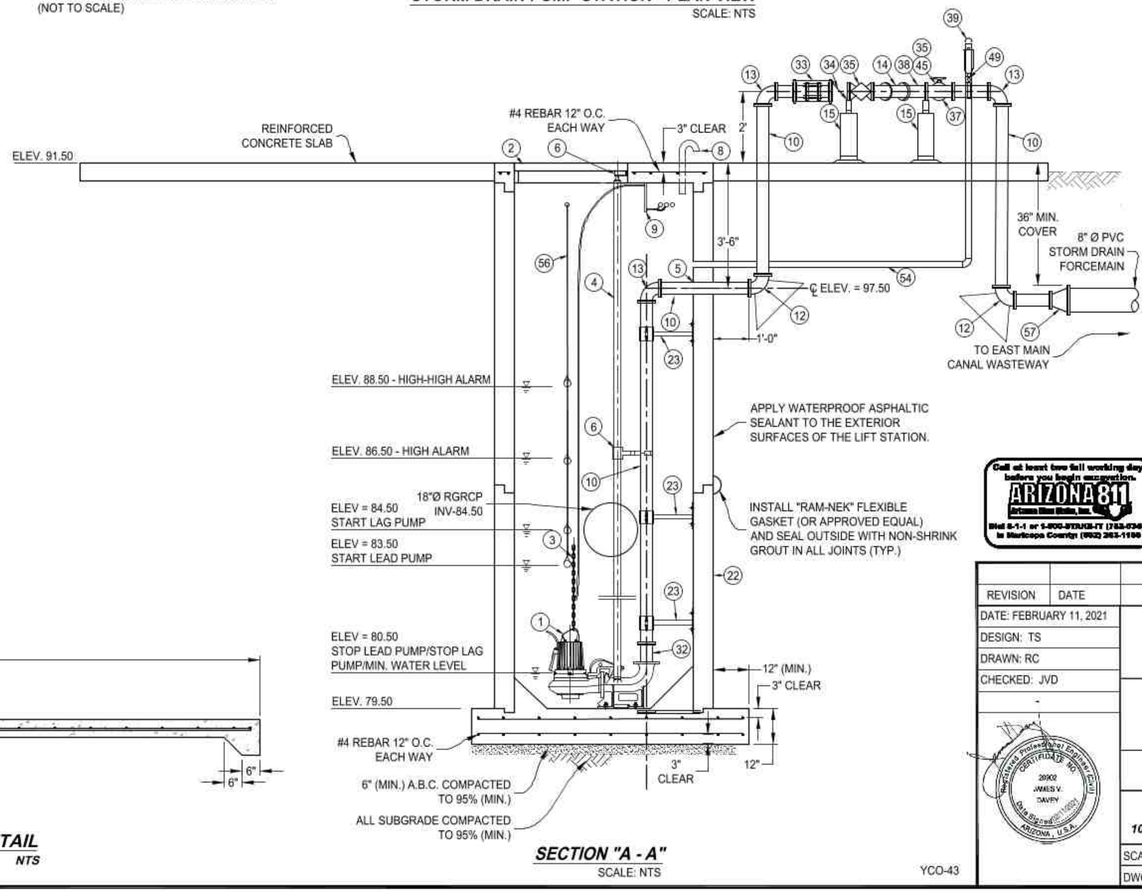


5 - **REINFORCED CONCRETE PAD DETAIL**
NTS



NOTES: STORM DRAIN PUMP STATION PLAN AND PROFILE VIEW DRAWN SCHEMATICALLY (NOT TO SCALE)

STORM DRAIN PUMP STATION - PLAN VIEW
SCALE: NTS



SECTION "A - A"
SCALE: NTS

7

PUMP STATION CONSTRUCTION NOTES	
1	SUBMERSIBLE PUMP, 10 HP MOTOR, 460 V FLYGHT NP - 3127 X 426
2	ALUMINUM HATCH COVER 3'0"X4'-0" CLEAR OPENING EMBEDDED IN CONCRETE COVER. FLYGT MODEL FDRND-12AOSH SAFE-HATCH OR EQUAL
3	LIFTING CABLE ATTACHMENT PER PUMP MANUFACTURER. (316 SST)
4	INTERMEDIATE GUIDE BAR PER PUMP MANUFACTURER. (316 SST)
5	WALL PENETRATION, (TYPICAL) (2/-)
6	GUIDE RAIL BRACKETS PER PUMP MANUFACTURER. (316 SST)
8	6" (316 SST) VENT PIPE WITH STAINLESS STEEL INSECT SCREEN (3/-)
9	U-SHAPED CABLE HANGER MADE FROM 1/2" 316 SST PIPE (INCL. STRAPS).
10	6" FLANGED SPOOL (DIP)
12	6" FLANGED 90° BEND (DIP) WITH THRUST BLOCK
13	6" FLANGED 90° BEND (DIP)
14	6" FLANGED 45° BEND (DIP)
15	ADJUSTABLE PIPE SADDLE SUPPORT (1/-)
22	72-INCH (INSIDE DIAMETER) CLASS III RGRCP OR EQUIVALENT MANHOLE STRUCTURE WITH BASE AND COVER (OR APPROVED EQUAL).
23	PIPE SWAY BRACE (4/-)
26	1" SCH. 40 PVC PIPE FOR ULTRASONIC LEVEL SENSOR (BORE WALL)
32	DIP REDUCER-VARIFY SIZE AND NEED WITH PUMP SUPPLIER.
33	6" DRESSER COUPLING WITH HARNESS PER AWWA M-11. EXTEND 2 BOLTS TO FLANGES. FLXPE PIPE SECTIONS
34	6" FLANGED CHECK VALVE WITH INDICATOR ARM.
35	6" FLANGED GATE VALVE WITH O. S. & Y.
37	6" X 6" X 6" TEE (DIP)
38	6" X 6" X 6" FLANGED WYE (DIP)
39	2" AIR RELEASE VALVE (APCO MODEL 402, OR APPROVED EQUAL)
45	6" BLIND FLANGE
49	2" BRONZE BALL VALVE WITH BRONZE NIPPLE
54	1"Ø GALV. IRON PIPE (ABOVE GROUND)/SCH. 40 PVC PIPE (BELOW GROUND) FROM ARV TO WET WELL
56	FLOAT SWITCH (EMERGENCY HIGH WATER ALARM) MERCURY FLOAT SWITCHES (TYP. OF 4)
57	6" TO 8" REDUCER DIP WITH THRUST BLOCK
59	REINFORCED CONCRETE PAD FOR APS TRANSFORMER AND SHADE STRUCTURE

GENERAL NOTES	
7	ALL ITEMS LISTED IN THE CONSTRUCTION NOTES ON THIS SHEET ARE INCLUDED IN BID ITEM SAN LUIS STORM DRAIN PUMP STATION (SHEET D-1A).

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In Maricopa County (602) 263-1100

REVISION	DATE	DESCRIPTION	APPROVED
DATE: FEBRUARY 11, 2021			
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CHECKED: JVD			
-			

Registered Professional Engineer Certificate No. 28902 JAMES V. DAVEY State of Arizona U.S.A.

YUMA COUNTY
FLOOD CONTROL DISTRICT

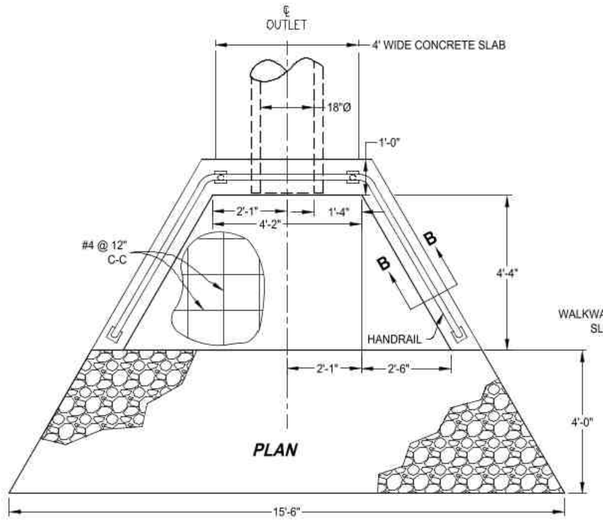
SAN LUIS RETENTION BASIN PUMP STATION

PUMP STATION DETAIL

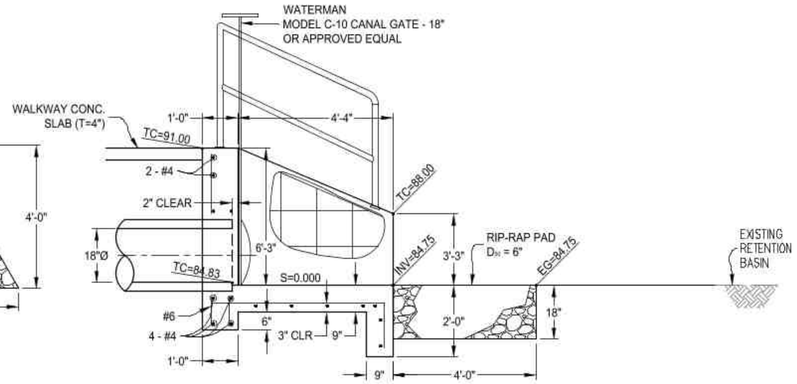
JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS	PROJ. NO.	D-1A
DWG. NO.		

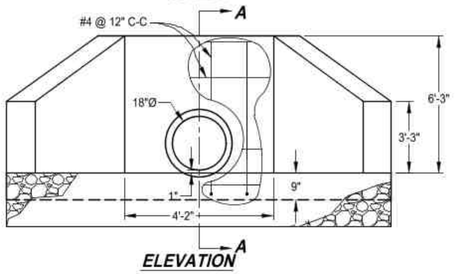
YCO-43



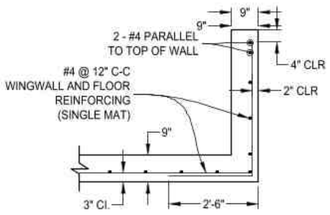
PLAN



SECTION A-A

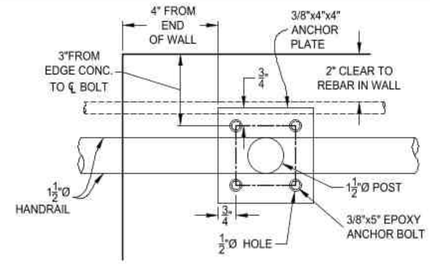


ELEVATION

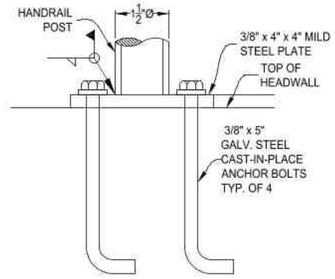


SECTION B-B

1 - INLET HEADWALL WITH GATE VALVE
SCALE = N.T.S



2 - HANDRAIL ANCHOR PLATE DETAIL
SCALE - NTS

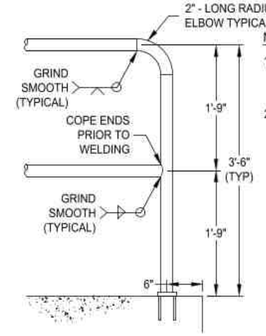


NOTES:

1. ALL HANDRAIL & ANCHOR PLATES SHALL BE FABRICATED AND THEN BLAST CLEANED TO NEAR WHITE AND COATED WITH A MINIMUM OF 12 MILS OF INDUSTRON RUST RESISTANT ENAMEL PAINT. COLOR SHALL BE SAFETY YELLOW.

   ANCHOR PLATES SHALL BE COATED TOP, SIDES, AND BOTTOM.

3 - TYPICAL HANDRAIL ANCHOR CONNECTION
SCALE - 1/2"=1"



NOTES:

1. 1-1/2" ROUND TUBE STEEL (ASTM A 53) COATED AFTER FABRICATION.
2. CONTRACTOR SHALL VERIFY ALL CONCRETE DIMENSIONS PRIOR TO FABRICATING HANDRAILS AND GRATING.

4 - HANDRAIL DETAILS
SCALE - 1/2"=1"

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YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
DATE: FEBRUARY 11, 2021			
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DRAWN: RC			
CHECKED: JVD			
-			

Registered Professional Engineer (Civil) CERTIFICATE NO. 28902 JAMES V. DAVEY Date Signed 12/31/20 ARIZONA, U.S.A.

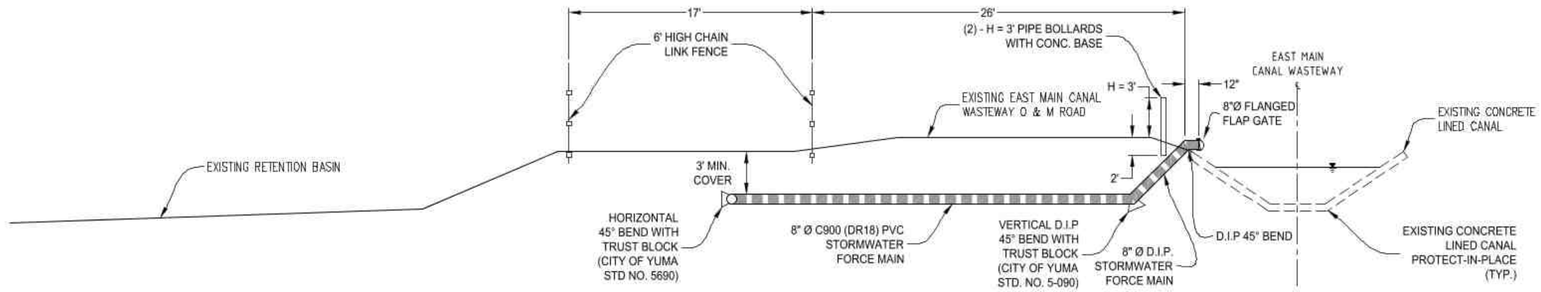
YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

DETAILS

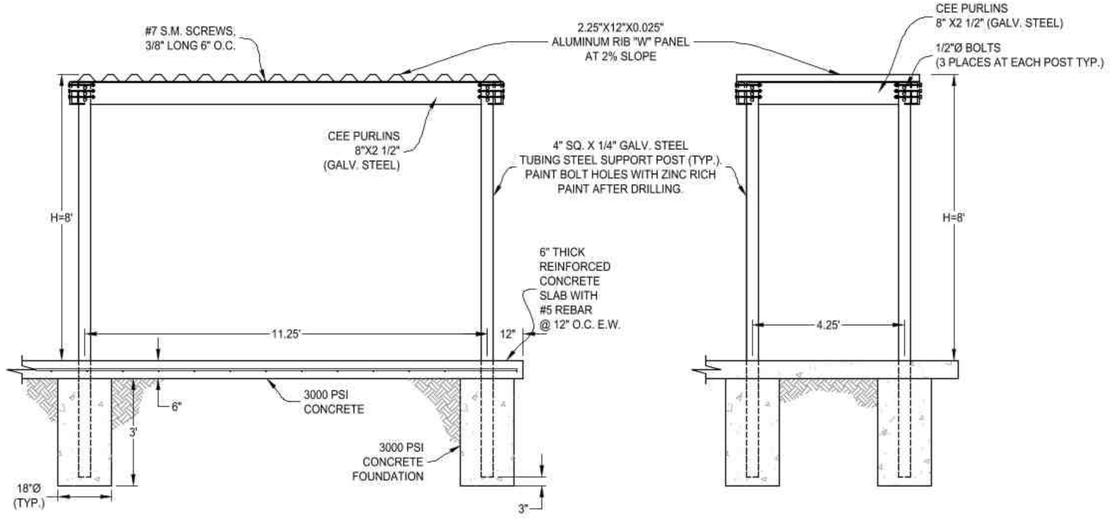
JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS	PROJ. NO.	D-2A
DWG. NO.		



SECTION A-A (1) ***CONNECT TO EX. EAST MAIN WASTEWAY (CONCRETE CANAL)***

SCALE: 1" = 5'



(2) ***ELECTRICAL EQUIPMENT SHADE STRUCTURE***

SCALE: 1" = 2'

YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
DATE: FEBRUARY 11, 2021			
DESIGN: TS			
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YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

DETAILS

JAMES DAVEY AND ASSOCIATES
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SCALE: NTS	PROJ. NO.	D-3A
DWG. NO.		

ELECTRICAL GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP TO BE NEW AND OF FIRST RATE QUALITY. MATERIALS TO BE UL LISTED AND APPROVED. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE AND ANY OTHER STATE AND LOCAL APPLICABLE CODES.

2. ALL CEILING, FLOOR, AND WALL PENETRATIONS SHALL BE CAULKED/SEALED TO PRESERVE FIRE RATINGS AND WATER PROOF INTEGRITY. FIRESTOPPING OF PENETRATIONS THROUGH FIRE RATED FLOORS, CEILINGS & WALLS SHALL BE IN ACCORDANCE WITH IBC & UL AND AS REQUIRED BY THE FIRESTOPPING MANUFACTURER FOR THE CONSTRUCTION TYPE & FIRE RATING SPECIFIED. THE FIRESTOPPING SYSTEM SHALL BE LISTED AND TESTED TO UL-1479 & ASTM E-814. INSTALL IN STRICT COMPLIANCE WITH THE MANUFACTURER INSTRUCTIONS.

3. ALL ELECTRICAL CONDUCTORS SHALL BE COPPER, 90 DEGREE C TEMPERATURE RATING, MINIMUM SIZE IS NO. 12 AWG. ALL WIRING SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED ON THE DRAWINGS. UNDERGROUND CONDUCTORS MUST BE RATED FOR 90 DEGREE C AS DEFINED FOR "WET LOCATION" BY THE NEC UNLESS NOTED OTHERWISE.

4.a. ALL CONDUIT SHALL BE METALLIC ELECTRICAL CONDUIT UNLESS NOTED OTHERWISE ON THE DRAWINGS. MINIMUM SIZE CONDUIT IS 1/2".

b. UNDERGROUND CONDUIT SHALL BE MINIMUM OF SCHEDULE 40 PVC, 90 DEGREE C. RATED WITH MINIMUM OF TRENCH COVER PER NEC TABLE 300-5. ALL UNDERGROUND JUNCTION/PULL BOXES SHALL BE RATED THE SAME AS THE ASSOCIATED CONDUIT, MINIMUM SIZE UNDERGROUND CONDUIT IS 3/4".

5. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF CONDUIT, WIRING, ELECTRICAL EQUIPMENT AND ASSOCIATED HARDWARE WITH THE INSTALLATION OF THE MECHANICAL EQUIPMENT AND OTHER TRADES. SEE THE CIVIL PLANS FOR EXACT LOCATIONS.

6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND INSTALLATION OF SERVING ELECTRICAL TELEPHONE/TV COMPANY CONDUIT SYSTEMS AND SERVICE EQUIPMENT. UNDERGROUND TRENCH LOCATIONS SHOWN ARE APPROXIMATE AND MUST BE VERIFIED BY THE SERVING UTILITY. CONTACT WITH THE SERVING UTILITIES IS REQUIRED PRIOR TO INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR EXISTING FIELD CONDITIONS AND PROVIDING A FULL FUNCTIONING ELECTRICAL SYSTEM.

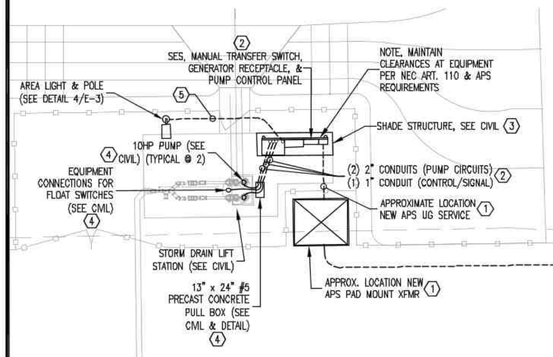
7. ALL LIGHT FIXTURES, RECEPTACLE AND JUNCTION BOXES, PANEL BOARDS AND ALL OTHER METALLIC ELECTRICAL APPLIANCES AND DEVICES MUST BE GROUNDED AS REQUIRED BY SECTION 250 OF THE NATIONAL ELECTRICAL CODE.

8. LIGHT FIXTURE SUBSTITUTIONS MUST BE OF EQUAL APPLICATION, SIZE, WEIGHT, AND APPEARANCE.

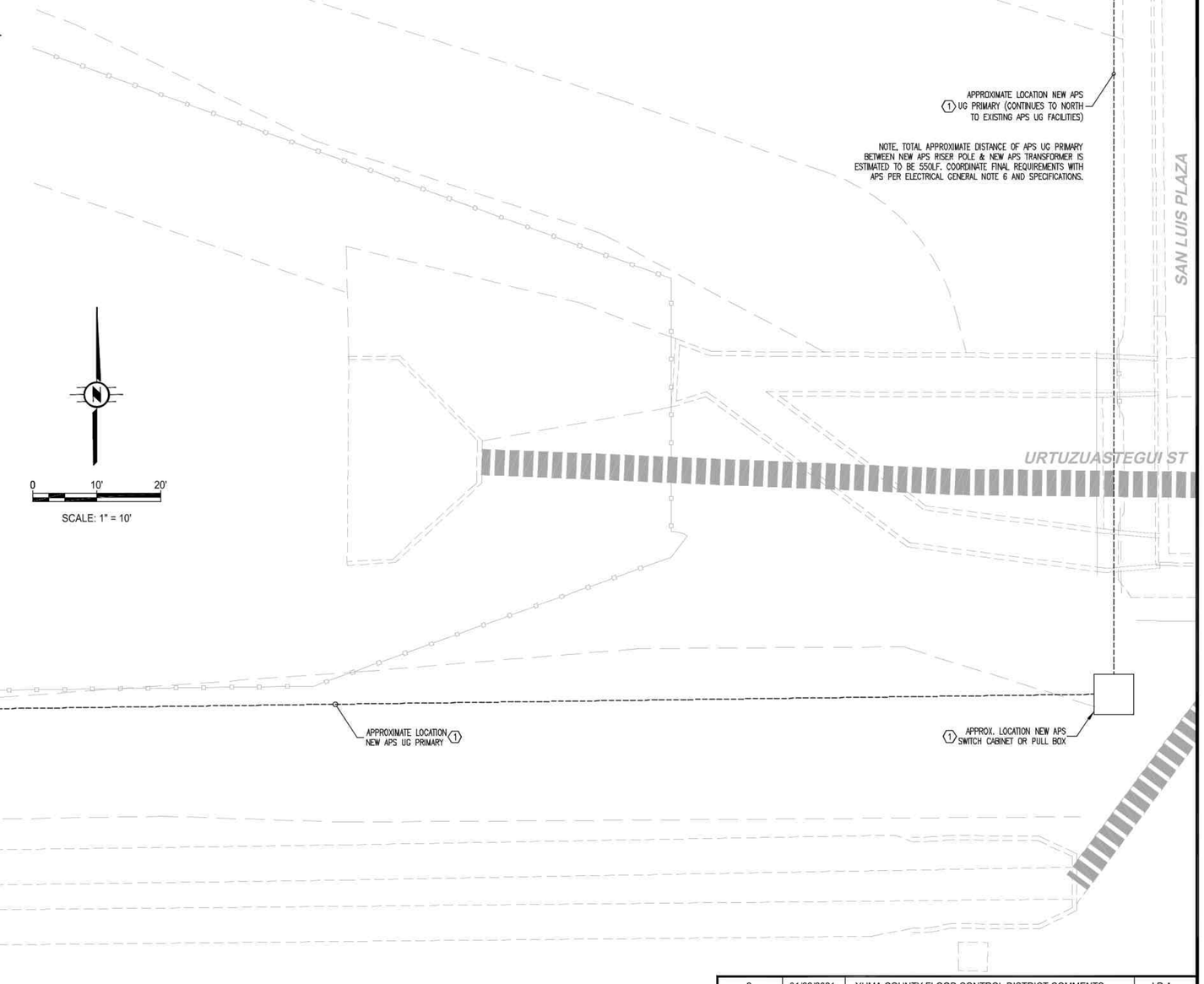
9. MATERIALS & INSTALLATION SHALL COMPLY WITH REQUIREMENTS FOR INSTALLATION IN SEISMIC ZONE 4/DESIGN CATEGORY D.

ELECTRICAL SYMBOLS & ABBREVIATIONS:

- ⊖ DUPLEX RECEPTACLE, 120V/20A, MOUNT 15" A.F.F. UNLESS NOTED OTHERWISE.
- NUMBER OF WIRES IN CONDUIT, LONG SLASH DENOTES GROUND WIRE, SHORT SLASH DENOTES NUMBER OF CURRENT CARRYING CONDUCTORS, HALF SLASH DENOTES SWITCHED LEG.
- $ LIGHT CIRCUIT SWITCH, 120V/20A, MOUNT 48" A.F.F. UNLESS NOTED OTHERWISE.
- UNDERGROUND CONDUIT.
- ABOVE GROUND CONCEALED CONDUIT.
- (P.C.) PHOTO CELL, 120V/20A, MOUNT AS SHOWN, NEMA 3R.
- (J) JUNCTION BOX, MOUNT AS SHOWN.
- APS ARIZONA PUBLIC SERVICE.
- CWP COLD WATER PIPE.
- GENSET GENERATOR SET.
- GFI GROUND FAULT CIRCUIT INTERRUPTER.
- MTS MANUAL TRANSFER SWITCH.
- SES SERVICE ENTRANCE SECTION, SIZED AS SHOWN.
- WP OUTDOOR WEATHERPROOF ENCLOSURE.
- UG UNDERGROUND.
- XFMR TRANSFORMER.



SCALE: 1" = 10'



NOTES:

1. ALL ELECTRICAL WORK SHOWN IS NEW UNLESS NOTED OTHERWISE.
2. SEAL ALL CONDUITS FROM LIFT STATION TO JUNCTION BOX TO PREVENT MIGRATION OF GAS.
3. THE ELECTRICAL CONTRACTOR SHALL COORDINATE, BID, AND PROVIDE ALL INCIDENTAL ELECTRICAL DEMOLITION WORK, TEMPORARY ELECTRICAL REMOVAL & REINSTALLATION WORK, & RESTORATION OF EXISTING ELECTRICAL WORK TO EXISTING CONDITION OR BETTER AT ANY CIVIL OR MECHANICAL DEMOLITION OR RENOVATIONS IDENTIFIED ON THE CIVIL OR MECHANICAL PLANS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE CIVIL OR MECHANICAL PLANS & COORDINATING WORK RESPONSIBILITY WITH THE GENERAL CONTRACTOR & INCLUDING ALL SUCH WORK IN THE CONTRACT BID.

KEY NOTES:

(1) APS EQUIPMENT. CONTRACTOR FURNISHED & INSTALLED XFMR PAD, UG TRENCH, BACKFILL, & CONDUIT PER APS DRAWINGS & SPECS (SEE ELECTRICAL GENERAL NOTE 6).

(2) SEE ELECTRICAL ONE-LINE DIAGRAM.

(3) SEE ELECTRICAL ONE-LINE DIAGRAM FOR LIGHTING AT SHADE STRUCTURE.

(4) LIFT STATION EQUIPMENT CONNECTION, SEE ELECTRICAL ONE-LINE DIAGRAM.

(5) (2) #12 CU THWN-2, (1) #12 CU GRD, 3/4" CONDUIT, TO PANEL AT SES/CONTROL PANEL.

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

YCO-43

JOL ENTERPRISES, INC.
720 E. 39th Place, Suite 6
Yuma Arizona, 85365
office: (928) 783-0922
fax: (928) 783-3954
www.jolenterprises.com

JOB. No.: 19-020

REVISION	DATE	DESCRIPTION	APPROVED
2	01/22/2021	YUMA COUNTY FLOOD CONTROL DISTRICT COMMENTS	J.R.A.

DATE: FEBRUARY 20, 2019
DESIGN: JRA
DRAWN: STAFF
CHECKED: JRA

Registered Professional Engineer (General) CERTIFICATE NO. 27839 JAMES R. ADLER Date Signed 1/14/21 EXPIRES 03/31/21

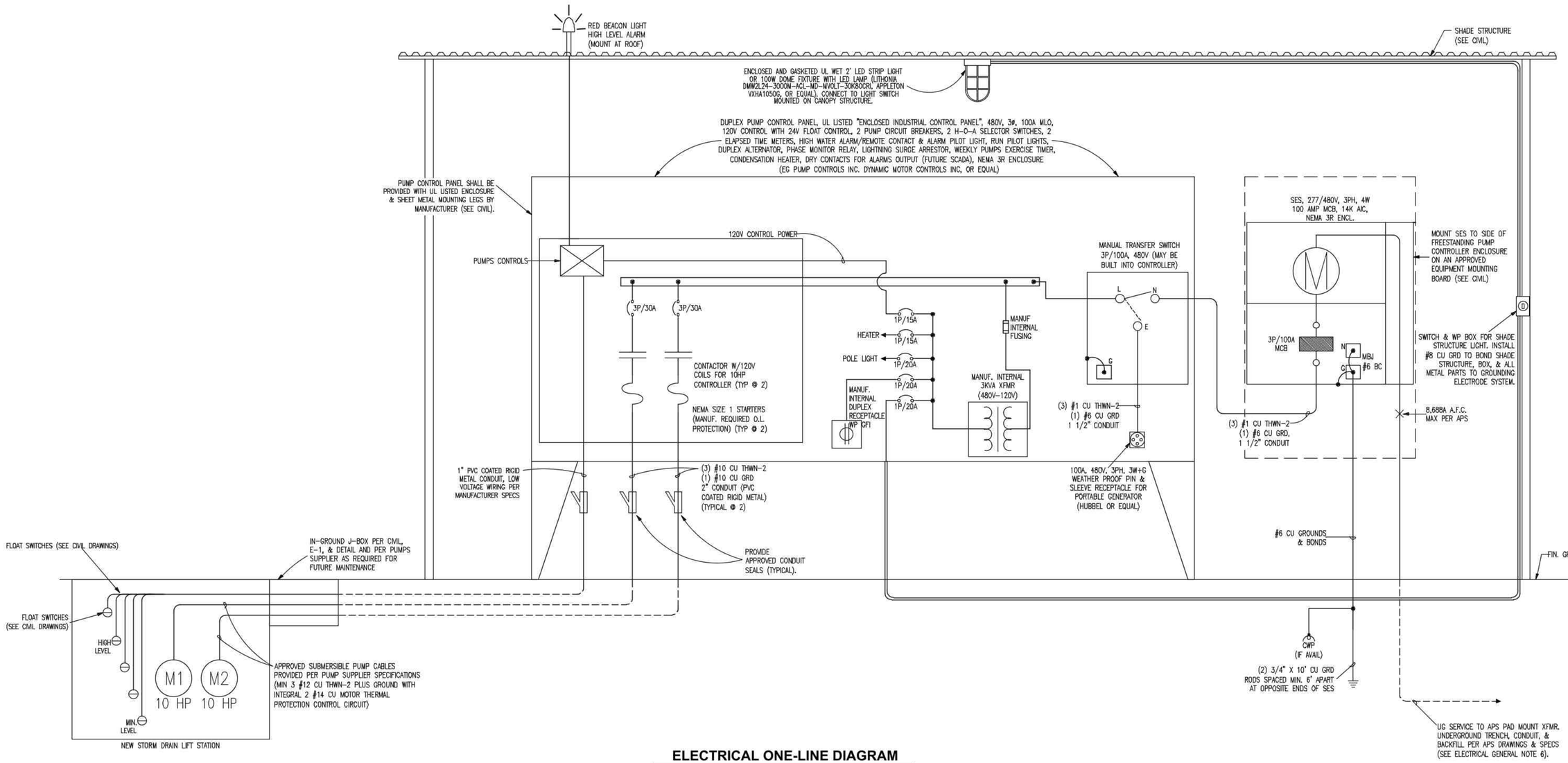
YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

PUMP STATION ELECTRICAL SITE PLAN

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: 1' = 10' | PROJ. NO. |
DWG. NO. | | E-1A



ELECTRICAL ONE-LINE DIAGRAM

NTS

LOAD SUMMARY (AMPS @ 277/480V 3PH):		
LIFT STATION:		
SUBMERSIBLE PUMPS (2 x 10HP) (25% LARGEST)	26,188 VA	
SHADE STRUCTURE LIGHT	125 VA	
POLE LIGHT	145 VA	
RECEPTACLE	180 VA	
CONDENSATION HEATER	500 VA	
PUMP CONTROLS	480 VA	
TOTAL	27,618 VA	33.2 AMPS @ 277/480V, 3PH

NOTES (ONE-LINE DIAGRAM):

1. LIFT STATION ELECTRICAL SHALL CONFORM TO CITY OF YUMA CONSTRUCTION STANDARD DRAWING 11-130 EXCEPT FOR SHEET 3 NOTES 5, 7, & 15, THE SEWAGE LIFT STATION RTU COMPONENTS, AND THE AUTOMATIC TRANSFER SWITCH.
2. PROVIDE RATED EQUIPMENT & DEVICES BY MANUFACTURER CAPABLE OF SAFELY INTERRUPTING THE AVAILABLE FAULT CURRENT.
3. PROVIDE WARNING LABELS & MARKING BY MANUFACTURER AT ALL SWITCHBOARDS, PANELBOARDS, & INDUSTRIAL CONTROL PANELS/MCC'S LIKELY TO CREATE ARC FLASH CONDITIONS AS REQUIRED BY NEC ART. 110.16.
4. LABEL & MARK MAIN SERVICE DISCONNECT(S) PER NEC. MAXIMUM OF 6 DISCONNECTS PERMITTED PER NEC.
5. PROGRAM PUMP CONTROL PANEL WEEKLY EXCERCISE TIMER TO OPERATE & ROTATE (BUMP) BOTH PUMPS FOR 5 SECONDS WHILE SET IN THE "OFF" MODE.

JOL ENTERPRISES, INC.
720 E. 39th Place, Suite B
Yuma Arizona, 85365
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fax : (928) 783-3994
www.jolenterprises.com

JOB. No.: 19-020

YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
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DATE: FEBRUARY 20, 2019
DESIGN: JRA
DRAWN: STAFF
CHECKED: JRA

Registered Professional Engineer (Electrical) CERTIFICATE NO. 27839 JAMES R. ADLER Date Signed 12/16/21 EXPIRES 03/31/21

YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

STORM DRAIN PUMP STATION
ELECTRICAL ONE LINE DIAGRAM

JAMES DAVEY AND ASSOCIATES
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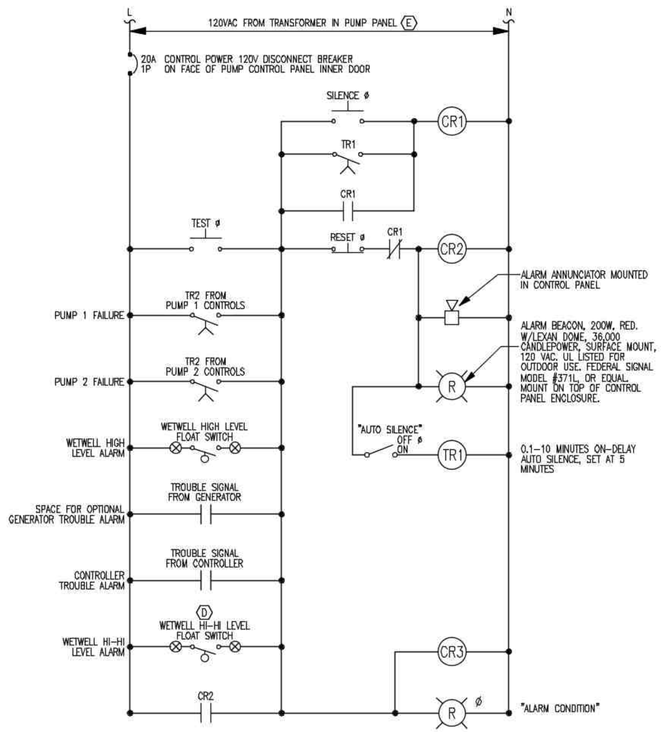
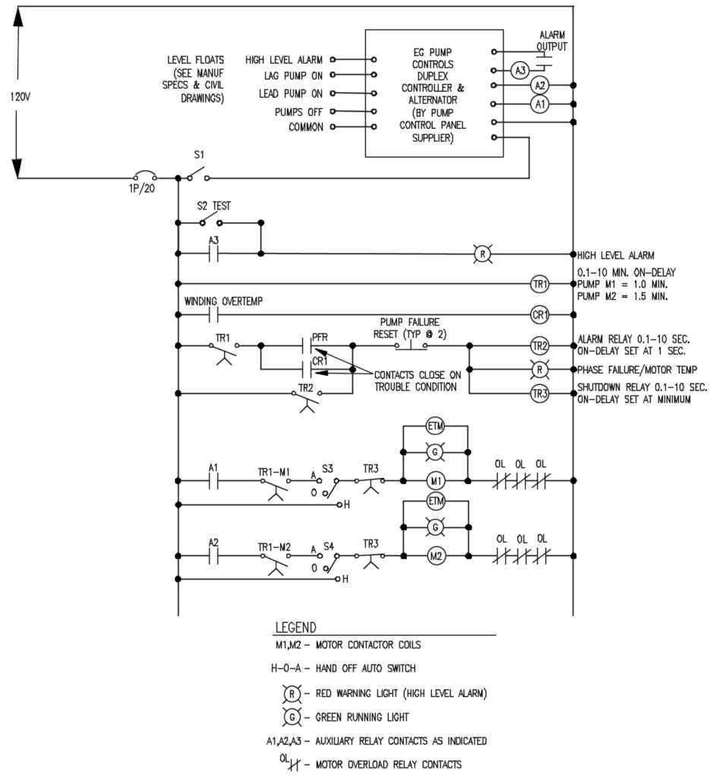
SCALE: NTS	PROJ. NO.	E-2A
DWG. NO.		





LEGEND

M1,M2 – MOTOR CONTACTOR COILS

H-O-A – HAND OFF AUTO SWITCH

(R) – RED WARNING LIGHT (HIGH LEVEL ALARM)

(G) – GREEN RUNNING LIGHT

A1,A2,A3 – AUXILIARY RELAY CONTACTS AS INDICATED

OL – MOTOR OVERLOAD RELAY CONTACTS

KEY NOTES:

(A) THE PUMP CONTROLLER & WETWELL LEVEL FLOAT SWITCHES SHALL INITIATE STORM WATER PUMPS IN A LEAD-LAG SEQUENCE. WHEN THE LEAD PUMP IS SIGNALED TO RUN IT SHALL START AND RUN UNTIL A PUMP OFF LOW LEVEL IS REACHED. IF THE LEVEL RISES TO A SET POINT ABOVE THE LEAD PUMP ON LEVEL, THE LAG PUMP SHALL START, AND SHALL RUN UNTIL THE COMMON LOW OFF LEVEL IS REACHED. THE LEAD-LAG SEQUENCE OF THE PUMPS SHALL BE ALTERNATED AUTOMATICALLY EACH TIME THE PUMP OFF LEVEL IS REACHED. THE ALTERNATION FUNCTION SHALL BE PROVIDED WITH AN OVERRIDE FEATURE TO ALLOW EITHER OF THE PUMPS TO BE SELECTED AS THE LEAD PUMP, WITHOUT ALTERNATION, TO ALLOW FOR MAINTENANCE ON THE OTHER PUMP. A HIGH LEVEL ALARM SHALL BE INITIATED AT A SET LEVEL ABOVE THE PUMP START LEVELS. SEE CIVIL DRAWINGS FOR LEVEL SETTINGS.

(B) INITIATION OF ANY OF THE ALARM CONDITIONS WILL START THE ALARM BEACON. THE BEACON SHALL STAY FLASHING UNTIL THE SILENCE PUSHBUTTON IS PRESSED, OR UNTIL TR1 TIMES OUT WHEN THE "AUTO SILENCE" FEATURE IS TURNED ON. WHEN THE "AUTO SILENCE" FEATURE IS ON, THE ALARM SYSTEM SHALL AUTOMATICALLY RESET WHEN ALL ALARMS HAVE CLEARED. A PILOT LIGHT ON THE PANEL FACE WILL INDICATE THE PRESENCE OF AN ALARM CONDITION WHETHER OR NOT THE AUTO SILENCE FEATURE IS ACTIVE. ANY ALARM SHALL ACTIVATE THE PROVISION FOR FUTURE SCADA/TELEMETRY UNIT WHICH SHALL NOTIFY THE EXISTING CENTRAL STATION AS COORDINATED WITH THE OWNER. LOSS OF POWER SHALL BE REPORTED AS A SEPARATE ALARM MESSAGE.

(C) NOT USED.

(D) EACH WETWELL LEVEL FLOAT SWITCH SHALL CONSIST OF A MERCURY SWITCH IN A PEAR SHAPED POLYMER FLOAT SUSPENDED ON A FLEXIBLE CORD IN THE WETWELL. SEE CIVIL.

(E) THE STORM WATER LIFT PUMPS SHALL BE PROVIDED WITH SEPARATE PACKAGED CONTROL PANEL BY THE PUMP SUPPLIER. THE CONTROL PANEL SHALL CONTAIN ALL CONTROLS FOR THE TWO PUMPS AND ALARMING SYSTEM, AS SHOWN OR OTHERWISE REQUIRED. CONTROL PANEL SHALL BE SINGLE, UL LABELED, PAINTED STEEL, NEMA 3R ENCLOSURE WITH ALL CONTROL SWITCHES, INDICATOR LIGHTS AND READOUTS MOUNTED ON A DEAD FRONT INNER COVER DOOR BEHIND THE WEATHERPROOF OUTER ENCLOSURE DOOR. CONTROL PANEL SHALL BE AS MANUFACTURED BY EG PUMP CONTROLS, INC., OR EQUAL.

LEVEL CONTROL OF THE PUMPS SHALL BE PROVIDED BY THE LEVEL CONTROL FLOATS & CONTROL PANEL WITH CONTROL FUNCTIONS AS DESCRIBED IN KEYNOTE "A" ABOVE. FURNISH/PROGRAM AN ALARM OUTPUT ON FAILURE OF THE CONTROLLER. A BACKUP HIGH HIGH WETWELL LEVEL ALARM FLOAT SWITCH SHALL BE PROVIDED PER KEYNOTE "A" ABOVE.

CONTROLS SHALL BE ARRANGED AS SHOWN IN THE CONTROL DIAGRAMS ON THE DRAWINGS. THE CONTROLLER SHALL START THE LEAD PUMP ON A PRESET HIGH LEVEL IN THE WETWELL, AND START THE LAG PUMP ON A PRESET HIGHER LEVEL. BOTH PUMPS SHALL STOP AT A FALLING LOW WATER LEVEL. THE PUMP LEAD-LAG STARTING SEQUENCE SHALL BE ALTERNATED AFTER EVERY STOP CYCLE. THE CONTROLLER SHALL INITIATE A HIGH LEVEL ALARM UPON HIGH LEVEL ALARM SIGNAL.

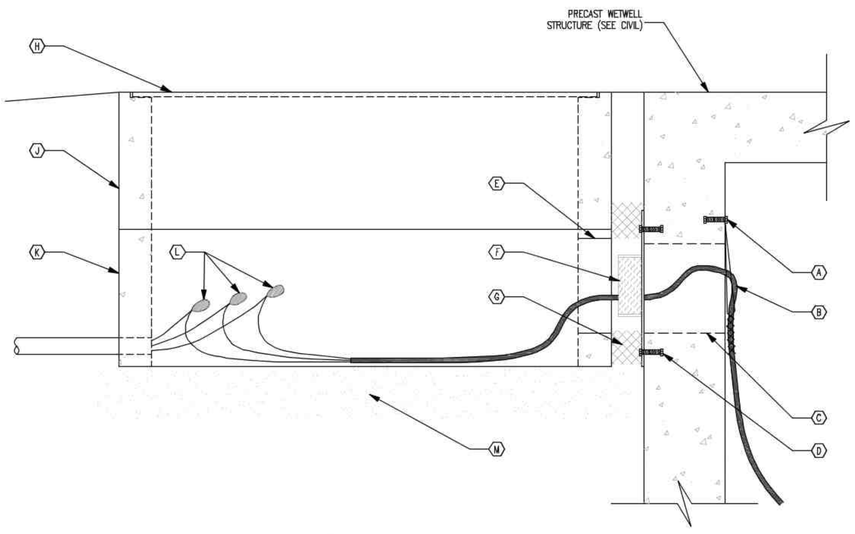
EACH PUMP CONTROL CIRCUIT SHALL CONTAIN A 3 POLE MAIN POWER CIRCUIT BREAKER WITH DISCONNECT SWITCH ON THE INTERIOR PANEL DOOR, HAND-OFF-AUTO SWITCH, RUN PILOT LIGHT, ELAPSED TIME HOUR METER, NEMA RATED STARTER. PROVISIONS FOR A NORMALLY CLOSED MOTOR OVER TEMPERATURE CONTACT THAT WILL TURN THE MOTOR OFF AND ENERGIZE A PILOT LIGHT WHEN THE CONTACTS OPEN AND REQUIRE A RESET PUSHBUTTON BE PRESSED TO MANUALLY RESET, AND A TIME DELAY FEATURE TO PREVENT THE PUMPS FROM STARTING SIMULTANEOUSLY OR IMMEDIATELY ON RESUMPTION OF POWER AFTER A POWER FAILURE, AS SHOWN IN THE CONTROL DIAGRAMS ON THIS SHEET. THE PUMP CONTROL PANEL SHALL INCLUDE CONTROLS FOR THE ALARM BEACON, AS SHOWN ON THIS SHEET.

THE PUMP CONTROL PANEL SHALL OBTAIN 120 VOLT POWER FOR PUMP CONTROL CIRCUITS AND THE ALARMING SYSTEM FROM A 480-120 VOLT TRANSFORMER WITH A PRIMARY POWER DISCONNECT SWITCH MOUNTED ON THE INTERIOR PANEL DOOR, PROVIDED WITH THE PANEL.

IN ADDITION TO THE LOCAL ALARM BEACON, PROVISION FOR CONNECTION TO A FUTURE AUTODIALER OR SCADA/TELEMETRY UNIT AT THE PANEL TO AUTOMATICALLY NOTIFY THE CENTRAL STATION. INCLUDE A PROVISION FOR A SECOND AUTODIALER OR SCADA CONTACT FOR ALARM ON LOSS OF NORMAL POWER.

2 E-3 **ALARM BEACON CONTROL SCHEMATIC** (B)(E)
NOT TO SCALE

1 E-3 **DUPLEX PUMP CONTROL DIAGRAM** (A)(E)
NOT TO SCALE



3 E-3 **WETWELL PULLBOX**
NOT TO SCALE

WETWELL PULLBOX KEY NOTES:

(A) 3/8" 316SS CONCRETE ANCHOR BOLT SUPPORTING STAINLESS STEEL CORD GRIPS FOR EACH CABLE ENTERING THE WETWELL. A STAINLESS STEEL RACK MOUNTED INSIDE THE WETWELL WITH A HOOK FOR EACH CORD GRIP MAY BE SUBSTITUTED FOR THE ANCHOR BOLTS(S).

(B) CABLE TO EQUIPMENT IN THE WETWELL (TYPICAL).

(C) CORE DRILL AN 8" DIA. HOLE IN WETWELL WALL PER CIVIL & SUPPLIER. PATCH EXPOSED CONCRETE TO THE CABLE SEALING DEVICE (KEY NOTE F) ON EXTERIOR WALL OF WETWELL PER WETWELL SUPPLIER'S RECOMMENDATIONS. MATCH WETWELL COATING SYSTEM.

(D) 3/8" 316SS CONCRETE ANCHOR BOLT EXTENDING 4" INTO WETWELL WALL, TYPICAL OF 4, 1 AT EACH CORNER OF THE CABLE SEALING DEVICE FLANGE PLATE (KEY NOTE F).

(E) KNOCKOUT AREA IN PRECAST PULLBOX WALL, APPROXIMATELY 6"H X 7"W.

(F) CABLE SEALING DEVICE, ALL STAINLESS STEEL CONSTRUCTION WITH ELASTOMERIC CABLE SEALING MODULES SIZED FOR EACH CABLE ENTERING THE WETWELL. DEVICE SHALL PROVIDE A NOMINAL 5.5" X 7" OPENING INTO THE WETWELL, HAVE A CUSTOM FLANGE EXTENDING 4" MINIMUM ON ALL SIDES TO ADEQUATELY COVER AND SEAL THE 8" HOLE IN THE WETWELL WALL, AND ALLOW CABLES TO BE REMOVED WITHOUT DAMAGE WITH ACCESS FROM THE PULLBOX SIDE ONLY. UNIT SHALL BE NELSON RGMSS-4X1, OR EQUAL. MOUNT WITH COMPRESSION SCREW AXIS HORIZONTAL. WHERE MOUNTED ON THE EXTERIOR OF CYLINDRICAL WETWELL WALLS, FILL VOID WITH EXPANSIVE GROUT.

(G) SEAL ALL AROUND PULLBOX KNOCKOUT OPENING, BETWEEN PULLBOX AND WETWELL WALL, WITH MASTIC SEALER OR RTV SILICON CAULKING TO PREVENT ENTRY OF BACKFILL MATERIAL INTO PULLBOX. CABLE SEALING DEVICE (KEY NOTE F) SHALL BE ACCESSIBLE THROUGH THIS OPENING.

(H) GALVANIZED STEEL, H-20 TRAFFIC RATED, TWO-PIECE CHECKERPLATE COVER WITH HOLD DOWN BOLTS.

(J) MINIMUM 13" X 24" X 12"H (INSIDE DIMENSIONS) #5 PRECAST CONCRETE PULLBOX WITH H-20 TRAFFIC RATING. LONG DIMENSION PERPENDICULAR TO WETWELL WALL. INSTALL SO SURFACE DRAINAGE IS AWAY FROM BOX TOP.

(K) MINIMUM 13" X 24" X 12"H PULLBOX EXTENSION RING, H-20 TRAFFIC RATING, QUANTITY AS REQUIRED.

(L) WATERPROOF, HEAT-SHRINKABLE CABLE CONNECTION KIT, RAYCHEM TYPE MCK OF APPROPRIATE SIZE FOR CABLES. TYPICAL FOR ALL CABLES REQUIRING SPLICING IN THE PULLBOX.

(M) 3/4" AGGREGATE, 6" DEEP UNDER PULLBOX.

4 E-3 **AREA LIGHT & POLE DETAIL**
NTS

YCO-43

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www.jolenterprises.com
JOB. No.: 19-020

2	01/22/2021	YUMA COUNTY FLOOD CONTROL DISTRICT COMMENTS	J.R.A.
REVISION	DATE	DESCRIPTION	APPROVED

DATE: FEBRUARY 20, 2019
DESIGN: JRA
DRAWN: STAFF
CHECKED: JRA

Registered Professional Engineer (General) CERTIFICATE NO. 27839 JAMES R. ADLER Date Signed 12/16/21 EXPIRES 03/31/21

YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

STORM DRAIN PUMP STATION ELECTRICAL CONTROL DIAGRAMS

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS	PROJ. NO.	E-3A
DWG. NO.		

ELECTRICAL SPECIFICATIONS:

GENERAL PROVISIONS FOR ELECTRICAL WORK

1. PART ONE -- GENERAL

1.1. WORK SPECIFIED HEREIN

A. Provide all labor, materials, equipment, services and transportation necessary to receive, install, adjust and put into operation complete electrical systems as indicated or specified. Provide products not mentioned but obviously necessary and incidental to the completion of this work.

1.2. EQUIPMENT FURNISHED BY OTHERS & INSTALLED BY ELECTRICIAN

A. Mount and install unmounted motor starters and equipment not in motor control centers, related to:
   1. Lift Station Pumps.

B. Provide power, control, and interlock electrical wiring for mechanical equipment and systems.

1.3. POWERED EQUIPMENT ELECTRICAL EQUIPMENT CONNECTIONS

A. Make final connections to electrical equipment, furnished and set in place under other sections as shown or specified. Provide disconnect switches, conduits, wire, outlet boxes, and other required appurtenances.

B. Rough-in and connections work shall be done in strict accordance with shop drawing and details furnished by the equipment supplier. Connections shall be made as directed, and shall be checked and approved by the party furnishing the equipment. Suppliers shall furnish shop drawings indicating exact locations, power requirements, and details, which shall govern in the installation of rough-in requirements. Verify requirements before installing work. Coordinate completely with affected trades.

C. Include descriptive data showing complete arrangements, construction, electrical, optical, physical, and quality characteristics for materials and equipment. Submit shop drawings of electrical closets, shafts, major conductor routing, and mechanical/electrical rooms.

1.4. CODES, LAWS, AND ORDINANCES

A. Work shall be performed in accordance with the current rules and regulations of:
   1. National Electrical Code (NEC).
   2. Underwriter's Laboratories, Inc. (UL).
   3. Insulated Power Cable Engineers Association (IPCEA).
   4. National Electrical Manufacturers Association (NEMA).
   5. National Fire Protection Association (NFPA).
   6. Occupational Safety and Health Administration (OSHA).
   7. National Electrical Safety Code.
   8. Applicable Local Codes, Laws and Ordinances.

2. PART TWO -- BASIC MATERIALS AND IDENTIFICATION

2.1. MATERIALS

A. Materials and products included in this work shall be listed, labeled or certified by Underwriters Laboratories, Inc.

2.2. HANGERS AND SUPPORTS

A. Suspend and support horizontal and vertical conduit from approved hangers and structural steel supports, spaced as scheduled. Provide necessary accessories, nuts, lock nuts, bolts, rods and devices to allow installation to freely expand and contract. Hangers shall be formed steel with adjustable attachment to hanger rod.

2.3. EQUIPMENT FOUNDATIONS

A. Floor mounted electrical equipment shall be mounted on concrete housekeeping pads at least 4" higher than final grade, poured integral with the floor slab wherever practicable.

B. Where required, pads shall extend a minimum of 36" in front of equipment where necessary to afford operating surface no more than 78" beneath the center of the highest operating handle in it's highest position. Slope to drain away from equipment.

C. Coordinate pad sizes and locations for pad mounted transformer with serving utility company.

2.4. IDENTIFICATION

A. Products shall be identified as specified in "General Requirements for Electrical Work" and equipped with identification as follows:
   1. Manufacturer's attached circuit number identification at each panelboard and branch circuit overcurrent device.
   2. A typed circuit directory identifying use of each panelboard branch circuit overcurrent device.

B. Provide permanently attached engraved laminated plastic nameplate to indicate:
   1. Identity of each transformer, switchboard, switchgear assembly, motor control center, distribution panel, panelboard, and individually enclosed overcurrent device, using the identification shown on the contract drawings.
   2. Circuit number and equipment supplied, at each switchboard, switchgear, motor control center, and distribution panel overcurrent device.
   3. Use of equipment disconnecting devices by identifying the equipment disconnected.
   4. The identity of signal, alarm, and communications cabinet, racks, and other enclosures using the identification shown on the drawings.

C. Identity underground conduits using one detectable underground warning tape per trench at 3 inches below grade. Tape shall be 4 inch wide plastic tape with suitable color and warning legend describing buried electrical/communications lines.

3. PART THREE -- SERVICE, GENERAL WIRING AND GROUNDING

3.1. UTILITY COORDINATION AND CHARGES

A. Coordinate, verify, and include all construction and support work required by utilities in the bid. Immediately upon award of contract, coordinate with utilities to finalize the utility company construction requirements. Coordinate between utilities and owner to quantify and finalize total utility company service charges and the owner's direct payment of service charges to the utilities for serving electrical, telephone, and/or cable television utilities. Include in bid and provide all construction work, materials, etc., required by the utilities such as trenching, backfill, conduit, transformer pads, grounding, etc. required to provide complete electrical and telephone service to this project.

3.2. ELECTRICAL SERVICE

A. Contact local power company and obtain written verification of service capacity and fault current available at secondary bushings of service transformer. A copy of each report shall be forwarded to the Architect prior to submission of switchgear for approval.

B. Power company serving project: Arizona Public Service.

C. WORK EXCLUDED:
   1. Primary service cables and service connections to the extent supplied by utility.
   2. Service transformer.
   3. Service metering equipment to the extent supplied by utility.

D. WORK INCLUDED:
   1. Cooperate with serving utility. Make all connections, metering arrangements, and layout compatible with the equipment provided by the utility.
   2. Electrical contractor will provide service transformer concrete pads, trenching, and conduit in accordance with utility company requirements; coordinate.
   3. Provide service transformer grounding in accordance with utility company requirements.

3.3. GENERAL WIRING REQUIREMENTS

A. Enclose interior wiring in metal raceways, boxes, outlets, cabinets, wireways, gutters, or other metal enclosures. Use non-metallic products to enclose wiring only where so specified. Use open wiring only where so specified.

3.4. GROUNDING

A. Provide wiring, connections and devices necessary to comply with the grounding requirements of the local authorities and the National Electrical Code. Exposed non-current carrying metallic parts of the electrical equipment, raceway systems, grounding conductors and neutral conductor of the wiring system shall be grounded.

3.5. CALIBRATION AND TESTING OF EQUIPMENT AND WIRING SYSTEMS

A. Equipment: Shall be tested and adjusted to insure correct functional performance. Inspect, lubricate, test and adjust equipment and correct defects or damages before connecting the equipment and correct defects or damages before connecting the equipment to the system.

3.6. WIRING

A. Test power, lighting and control wiring for continuity, short circuits and improper grounding.

B. Test feeder and power circuits No. 8 AWG or larger with a "megger" from each conductor to ground and between conductors. Record each reading. At the completion of work, deliver a copy of these "megger" readings to the Architect/owner.

3.7. SITE WORK

A. Contractor shall employ independent locating service to locate and verify all existing services, whether specifically shown on the drawing or not. Location of services shall be recorded on record documents. No trenching or excavation shall commence until locations are verified. The Owner shall be notified in writing prior to any trenching requiring a utility shutdown. Any services interrupted by trenching or excavating shall be repaired by the contractor with no additional cost to the Owner. Existing services not specifically indicated on the drawings to be relocated, which interfere with building components, shall be brought to the Engineer's immediate attention. Prepare drawings showing proposed re-routing, area(s) affected, and length of interruption(s).

3.8. ELECTRIC WIRING FOR MECHANICAL EQUIPMENT

A. Provide wiring in connection with motor driven mechanical equipment required for "hand" operation of each motor or appliance, with cover mounted "hand-off-auto" selector switch on motor starter in "hand" position.

4. PART FOUR -- WIRE, CONDUIT, DEVICES, LIGHTING

4.1. EQUIPMENT WITHSTAND RATINGS

A. Electrical equipment, circuit protective devices, bussing, and switches shall be rated to interrupt or withstand short circuit faults greater than the available fault current.

4.2. WIRE AND CABLE

A. Wire and cable for feeder and branch circuits shall conform to the requirements of the current edition of the National Electric Code, and shall meet applicable ASTM specifications. Conductors shall be soft drawn, annealed 98% conductivity copper. Wire and cable shall be new, shall have size, type of insulation, voltage rating and manufacturer's name permanently marked on the outer covering at regular intervals. Conductors No. 6 AWG and smaller shall be color coded. Colors for each phase and neutral shall be consistent throughout the system.

B. Provide conductors with insulation rated for 600 volts unless specified or indicated otherwise.
   1. NEC type TEW, THW, XHWN, THWN, or THHN solid or stranded for number 10 AWG or smaller, except TW not allowed for motor.
   2. NEC type THW, XHHN, THWN or THHN stranded for number 8 and larger.
   3. NEC type TEW, THW, NMTW, AVA or AVL for branch circuit wiring through light fixtures not approved for TW wiring.

4.3. CONDUIT AND RACEWAYS

A. Provide electrical metallic tubing (EMT) within structure except where prohibited by NEC, where specified otherwise, or as prohibited for the following:
   1. Outside structure or on roof.
   2. At or below grade (concealed).
   3. In or beneath slabs of grade.
   4. Where exposed to physical damage (interior grade to 5'-0").
   5. Where subject to excess moisture and deterioration.

B. Rigid steel conduit (GRC) shall be used in the following locations:
   1. In locations where electrical metallic tubing is not permitted and other raceway is not required.
   2. At drop connections to motors.
   3. Intermediate metal conduit (IMC) may be substituted for GRC if approved by code authority.
   4. Rigid aluminum conduit (ARC) may be used in sizes 2-1/2" and larger in lieu of rigid steel conduit except in contact with concrete or embedded in concrete.
   5. Provide flexible conduit for transformer connections and at equipment requiring adjustments or removal for service not subject to moisture.
   6. Provide liquid-tight flexible conduit for each motor and rotating device for power and control, and for other equipment requiring adjustments or removal for service in mechanical rooms or where subject to moisture or weather.
   7. Provide non-metallic conduit (and grounding conductor) with rigid steel riser stub-ups for burial in the earth.
   8. Non-metallic conduit (and ground conductor) with rigid steel riser stub-ups used for slabs on grade.
   9. Acceptable manufacturers. All manufacturers providing NEMA and UL listed materials.

C. PVC conduit shall be NEMA TC2 Schedule 40 or 80 PVC. Use PVC conduit at exterior underground locations and under slab, per NEC.

4.4. WIREWAYS, PULL AND JUNCTION BOXES

A. Provide wireways, junction and pull boxes indicated and at locations required to facilitate the pulling of wire fabricated in accordance with NEMA and National Electrical Code requirements with respect to material, gauges, dimensions and methods of fastening. Wireways, junction and pull boxes shall bear UL label. Units shall be finished in standard gray enamel, sides and backs spot welded in position, and removable screw cover.

4.5. OUTLET BOXES

A. Interior Boxes: Standard minimum 4" square box with single or multiple gang stamped extension of plaster ring, of the proper depth to accommodate the device and function for which intended. Boxes for mounting of surface lighting fixtures shall be 4" octagon boxes, with 3/8" no-bolt fixture studs. Provide proper covers or device plates.

B. Exterior Boxes: Hot-dipped galvanized complete with weatherproof covers and rubber or neoprene gaskets.

C. Concrete Boxes: Outlet boxes in concrete slabs shall be two-piece concrete boxes not less than 4" nominal size with a minimum depth of 2-1/2". If used for lighting fixtures, outlet boxes shall be equipped with fixture stud.

D. Waterproof Boxes: With threaded hubs and gasketed.

4.6. TERMINAL CABINETS

A. Cabinet Bodies shall be constructed in accordance with the NEMA PB1 specification for panelboard cabinets. Provide steel doors with key locks and keys as specified for panelboards.

4.7. WIRING DEVICES

A. Install on each and every outlet box, a wiring device and coverplate, as indicated by symbol on the drawings. Manufacturers model numbers are not intended to indicate color of devices. All device plates shall be smooth plastic; ivory colored on light walls and brown colored on dark walls. (U.N.O.)

B. Toggle Switches shall be quiet, rocker type, commercial grade, listed by Underwriters Laboratories, Inc. Back or side screw terminal shall accommodate up up to 10 AWG solid or stranded conductors. Contacts shall be rated at 20 amperes, 120/277 volts AC only, single pole, 3-way, 4-way or key operated as indicated.

C. General purpose single and duplex receptacles: Shall be commercial grade rated 20 ampere, 125 volts, two-pole, three-wire, NEMA reference 5-20R, grounding type with polarized parallel slots, style S series, in accordance with NEMA standard publication WD-1, paragraph 3.02. Receptacle shall be side-or-back wired with two screws per terminal. The third grounding pole shall be connected to the metal mounting yoke.

D. Grounding fault circuit interrupter receptacles: Shall comply with UL 943, Class A, and NEMA WD-1-1.10. GFCI shall trip within .025 seconds whenever 5 milliamperes or more current leakage to ground exists at the outlet (or downstream from the GFCI receptacle on fed-thru applications) and shall have test or reset buttons on the face of the receptacles.

E. Device Plates: Provide one-piece coverplates with rounded edges for outlets and fittings to suit the devices installed. Plates shall be installed with all four edges in continuous contact with finished wall surfaces without the use of mats or similar devices. Plaster fillings will not be permitted. Plates shall be installed with an alignment (plumb) tolerance of 1/16". All device plates shall be smooth plastic; ivory colored on light walls and brown colored on dark walls. (U.N.O.)

4.8. CONTACTORS AND RELAYS

A. Contactors and relays shall be UL listed under UL 508, fully rated and marked for use with tungsten lamp and ballast (fluorescent) lamp loads with electrical characteristics as required. Contactors shall be of the single coil, electrically operated, mechanically held type, in NEMA 1 enclosures, or cabinets, or pull boxes with hinged covers, or integrally mounted in panelboards, or as otherwise scheduled. Control voltage shall be 120 volts and where line voltage to unit is greater than 120 volts, phase to neutral shall contain a control power transformer with fused primary.

4.9. PHOTOELECTRIC CONTROL

A. Photo sensitive lighting controls shall have weatherproof enclosure, shall energize artificial lighting when natural lighting when natural lighting level falls to a preset adjustable value, and de-energize when natural lighting level rises above a preset value. The operation shall be fail-safe in that in the event of failure of any components of the control, the artificial lighting shall be continuously energized.

4.10. EMERGENCY LIGHTING

A. Provide AC inverters for emergency lights as specified with a battery power supply pack to afford emergency power designated fixtures for a 90 minute time period in the event of normal power failure. The unit shall consist of a high temperature sealed, Nickel-Cadium or lead acid battery, battery charger, inverter, solid state switch, derangement indicator lamp and test switch.

4.11. LIGHTING FIXTURES

A. Furnish, install, and wire lighting fixtures scheduled or indicated by type designation on the drawings. If type designated is omitted, fixtures shall be of the same type as shown for rooms of similar usage. Verify before purchase and installation.

B. Lamps on the project shall be new, delivered to the job site in original packing cases and sleeves, and shall be of the same manufacturer. Incandescent lamps not scheduled otherwise shall be inside frosted, high duty service, 130 vol. Fluorescent lamps not scheduled otherwise shall be rapid start, standard type and deluxe warm white color. High intensity discharge (H.I.D.) lamps shall be of the type and color scheduled.

C. Ballast's for fluorescent lamps, unless otherwise scheduled, shall be energy saving "High Efficiency," high power factor Class P, two-lamp, manufactured in accordance with CBM standards, ETL certified, and UL listed. Each ballast shall be protected by a built-in, auto-resetting thermal protector in the core and coil assembly and rated to operate at available service voltage.

D. LED light fixtures shall meet the testing requirements of IESNA LM-79 and LM-80 and shall have a lumen maintenance factor (LMF) of minimum 80% at 50,000 hours. LED light fixtures and drivers installed outdoors shall be rated for minimum 40°C (104°F) operation with no significant lumens depreciation or reduced life span. LED light fixtures shall have a manufacturer standard warranty of minimum 5 years.

4.12. EQUIPMENT CONNECTIONS

A. Provide wiring for the connection of motors and control equipment and control wiring as indicated on the electrical drawings.

B. Equipment installed under other sections of the specifications: Wiring shall be extended to the equipment, and proper connections made thereto.

C. Flexible connections of short lengths: Shall be provided for equipment subject to vibration or movement for motors. Liquid-tight conduit shall be used in wet locations. A separate ground conductor shall be provided across flexible connections.

4.13. CONDUIT INSTALLATION

A. Coordinate installation of raceways with building structure and other mechanical trades complete with bends, fittings, junction and pull boxes to meet codes and make complete operating systems. Raceways 1" and larger shall not be run in concrete slabs without approval of the Architect.

B. In general, conduits shall be concealed in finished areas, and may be exposed in unfinished areas, run square to the building construction, and continuous from outlet to outlet, connected mechanically and electrically to assure grounding. Conduits shall be cut square, reamed to full size, shouldered without butting into couplings or fittings. The threads shall be of standard length and diameter required for the size of the conduit used, and graphite bearing thread lubricant shall be used in making up the threads. Running threads will not be acceptable. Conduit shall have a smooth interior surface free of obstructions, shall be capped with conduit seals during the construction period, shall be thoroughly cleaned and dry before pulling and wire. Conduit installation shall clear hot pipes not less than 6".

4.14. FASTENINGS

A. Fastenings for raceways and boxes shall be made by means of toggle or expansion bolts no smaller than 3/16" diameter, or wood screws no smaller than number 9x1 inch long.

B. Fastenings to masonry or concrete shall be made by means of machine screws no smaller than number 10-32x1-1/4" long, screwed into lead expansion shields no smaller than 3/8" diameter x 5/8" long.

4.15. CONDUCTOR INSTALLATION

A. Wire and cable No. 6 and smaller shall be factory color coded. Where factory color is not available, or where on short runs factory color coding is not practical, mark conductors on each end and in all junction or pull boxes with 1" band of colored pressure sensitive plastic tape. Colors for each phase and the neutral shall be consistent throughout the system.

B. Color coding shall be:

277/480 volt	120/208 volt	Use
Brown	Black	Phase A
Orange	Red	Phase B
Yellow	Blue	Phase C
Gray	White	Neutral
Green	Green	Ground

C. Minimum wire size for branch circuits shall be No. 12 except that home runs longer than 100' on 120/208 system and 200' on 277/480 volt systems in actual wire length from panel to the electrical load center of the circuit, shall be no smaller than No. 10 AWG.

D. Cable terminals, taps and splices No. 6 and larger shall be made secure with UL approved solder less indenter compression barrel type connectors wherever practicable. UL approved set screw lugs may be used on circuit breakers, motor starters, and switches not available with indenter connectors. Joints in conductors No. 8 and smaller shall be made by applying a UL approved insulated, cadmium plated, five steel spring type connector in sizes up to the catalog capacity of the connector.

5. PART FIVE -- POWER DISTRIBUTION

5.1. CIRCUIT SWITCHING AND PROTECTIVE DEVICES

A. Shall be complete from incoming line terminals to outgoing load terminals, number of poles and rated for current characteristics indicated, with interrupting ratings at least equal to the available short-circuit current available at the line terminals.

B. Molded case circuit breakers:
   1. Shall conform to NEMA standard AB-1, UL 489, and FS-W-C-375B.
   2. Shall have an integral rugged housing of molded polyester glass insulating compound, with silver alloy contacts, arc quenchers, and phase barriers for each pole, and stored energy operating mechanism. Shall be electrically and mechanically trip free, with a trip element for each pole, and a common trip bar connected to a single handle of insulating material (handle ties are unacceptable), indicating "on," "tripped," and "off" positions. Provide inverse time element thermal trip for overload protection and magnetic instantaneous trip for short circuit protection unless otherwise indicated.
   3. Standard convention breakers (breaker drawing symbol without modification) shall be quick-make, quick-break, wiping contact, thermal, magnetic, common trip, trip indicating, ambient compensated, with arc chutes, single trip-free handle mechanisms, and thermal long time trip and magnetic instantaneous trip.
   4. Ground fault interrupting -- provide UL class A (5 milliampere sensitivity) single-phase ground fault circuit protection.

C. Manual Switch (smaller than 800):
   1. Shall conform to NEMA Standard KSI, UL 98, and FS-WS-865C.
   2. Shall not be used in excess of 600 amps rating.
   3. Shall be dead front, load break, heavy duty, horsepower rated, quick-make, quick-break, switches with arc quenchers, padlock provisions, and defeatable front accessible door interlock to prevent opening door with switch "on" or switching on with door open.

5.2. ENCLOSURES

A. Circuit switching/protective devices shall be housed in an enclosure suitable for the environment in which they are located. Normal indoor location use NEMA 1 general purpose. Normal outdoor location use NEMA 3R rain-tight.

5.3. TRANSFORMERS, DRY TYPE

A. Two winding of the size and electrical characteristics scheduled, in conformance with ANSI-C89.2 and NEMA ST20 standards and Underwriters Laboratories listing UL 506.

B. Guaranteed sound ratings shall not exceed ANSI standard decibel levels. Transformers shall be rated at full load in a 40 degree C ambient with 30 degree C ultimate not spot temperature rise allowance, with Class F insulation having a UL 185 degree C rating limiting system temperature to 115 degrees C on 25 KVA and smaller units and Class H insulation.

C. The maximum temperature rise of the top of the enclosure shall not exceed 35 degrees C rise over a 40 degree C ambient.

D. Transformers 25 KVA and under shall have four primary voltage taps rated (2) 2-1/2% below normal and (2) 2-1/2 taps above normal.

5.4. SWITCHBOARDS AND PANELBOARDS

A. Provide arrangement and electrical characteristics as indicated or scheduled.

B. Classification and rating: Complete unit shall be given a single integrated equipment rating certifying that all components are capable of withstanding the stresses of a fault of the magnitude indicated by the RMS symmetrical current available and that no device will be applied beyond its interrupting or switchboard shall carry a certification label indicating suitability for service entrance.

C. Switchboard Structure: Dead front, floor mounted, comprised of vertical sections bolted together to form one rigid assembly, completely metal-enclosed, self-supporting of the universal frame type, ventilated and constructed UL-891 enclosure standards using standardized components of steel. The sides, top and rear shall be covered with removable screw-on plates. Front plates shall be sectionized and removable. Height shall be nominal 90" with depth as necessary but in no case less than 20". All steel shall be phosphatized, primed, and finished in gray enamel.

D. Bussing: Copper bus bars shall be uniformly arranged to provide A-B-C sequence, left to right, front to rear, or top to bottom from front of board. Provide copper ground lugs and a full length copper ground bus bolted to each vertical section. All hardware used on bussing shall be zinc or cadmium plated. Each bolt shall have a Belleville washer to maintain clamping force under thermal cycling.

E. Switching and Protective Devices: Fused switches, equipped with ARC quenchers, and quick-make, quick-break operating mechanism, shall each be mounted in an individual sheet steel enclosure with an external operating handle which may be padlocked in either the ON or OFF position. Doors shall be interlocked to prevent opening when switch is in ON position, with provisions to void cover interlock to allow authorized inspection. Switches 600 amp and smaller shall be 5" minimum height with high pressure spring load rejection type fuse holders.

5.5. INDIVIDUALLY MOUNTED SAFETY SWITCHES

A. Safety switches shall be heavy-duty UL listed, horsepower rated manual disconnect switches in conformance with NEMA specifications KSI-1968. Unit shall be fused with fuse clips having rejection feature, or unfused as indicated with ampere ratings as required. Enclosures shall be NEMA 1, unless otherwise noted. Each switch shall have insulated neutral and ground terminal or proper size where required, for grounded conductors. Lugs shall be UL listed for copper cables.

B. Motors 1/2 horsepower and less, toggle type, quick-make, quick-break, two (2) horsepower rated manual motors starters, with the number of poles required, with flush mounting wall plate or surface mounted NEMA enclosure, as indicated. Provide overload heaters as required.

C. Motors 3/4 horsepower and larger, type HD, fused or unfused, 3-pole 480 volt AC in NEMA general purpose or weatherproof enclosure.

D. Safety switches shall be of same manufacturer as switchboard and panels.

5.6. FUSES

A. Furnish time-current characteristic and coordination curves for each fuse on service entrance equipment and coordinate with utility to assure service entrance fuse opening prior to actuation of the utility circuit protective devices in the event of a fault.

B. Fuses 600 amperes and less serving non-inductive loads (circuit breakers, circuit breaker panelboards), shall be in accordance with UL standard 198.2, Class J, current limiting, quick acting, with 200,000 RMS symmetrical amperes interrupting capacity.

C. Fuses 600 amperes and less serving inductive loads (transformer or motor), shall be in accordance with UL standard 198.4, Class RK1, dual element, with minimum time delay of 10 seconds at 500% rating, current limiting, with interrupting capacity of 200,000 amperes RMS symmetrical.

6. PART SIX -- EXECUTION

6.1. Contractor is required to install equipment in strict accordance with manufacturer's recommendations and requirements of other sections.

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JOB. No.: 19-020

YCO-43

REVISION	DATE	DESCRIPTION	APPROVED
1	01/22/2021	YUMA COUNTY FLOOD CONTROL DISTRICT COMMENTS	J.R.A.

DATE: FEBRUARY 20, 2019
DESIGN: JRA
DRAWN: STAFF
CHECKED: JRA

Registered Professional Engineer (Electrical) CERTIFICATE NO. 27839 JAMES R. ADLER Date Signed 12/16/21 EXPIRES 03/31/21

YUMA COUNTY
FLOOD CONTROL DISTRICT

SAN LUIS RETENTION BASIN PUMP STATION

PUMP STATION ELECTRICAL SPECIFICATIONS

JAMES DAVEY AND ASSOCIATES
1025 W. 24TH ST, SUITE 2 - YUMA, AZ 85364 - (928) 782-7926

SCALE: NTS | PROJ. NO. | DWG. NO. | E-4A