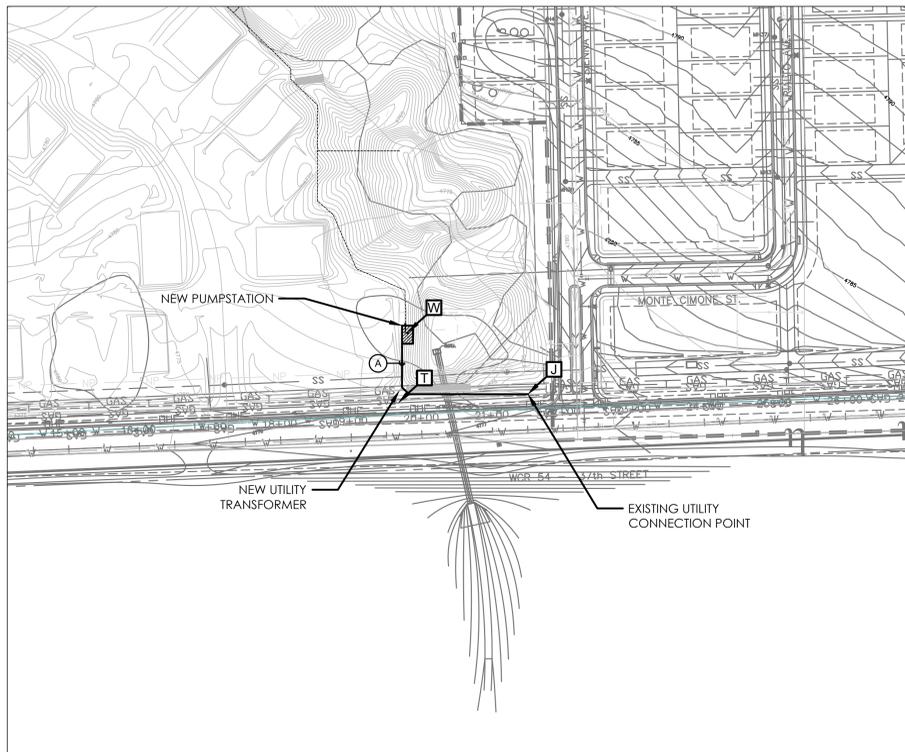




VICINITY MAP
NTS - IMAGE COURTESY OF GOOGLE EARTH



SITE MAP
1" = 100'

TUSCANY DEVELOPMENT IRRIGATION PUMP AND AERATION SYSTEM

ELECTRICAL DRAWING NUMBER DESCRIPTION

E-00	E - NOTES AND OVERVIEW
E-01	E - ONE LINES AND SCHEDULES
EG-01	E - GROUNDING DIAGRAMS AND ONE LINE
EP-01	E - POWER PLAN
ES-01	E - SITE POWER PLAN
ES-02	E - PHOTOMETRIC SITE PLAN
ES-03	E - COMCHECK AND CUTSHEETS

GENERAL NOTES

- COORDINATE EXACT EQUIPMENT LOCATIONS WITH OTHER TRADES PRIOR TO ROUGH-INS. REVIEW ENTIRE PROJECT PACKAGE INCLUDING OTHER TRADE DRAWING FOR COMPLETE UNDERSTANDING OF DESIGN.
- THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTORS SAFETY PRECAUTIONS OR TO MEANS, METHODS TECHNIQUES CONSTRUCTION SEQUENCES OR PROCEDURES REQUIRED TO PERFORM HIS WORK.
- THE INTENT OF THE DRAWINGS IS TO PROVIDE AND INSTALL NEW COMPONENTS IN THE AREA OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERABLE SYSTEM AFTER ALL CONNECTIONS TO NEW AND EXISTING EQUIPMENT ARE COMPLETED.
- DIMENSIONS - CONTRACTOR/CUSTOMER TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO ENGINEER IMMEDIATELY.
- ALL ELECTRICAL COMPONENTS TO BE UL LISTED FOR THEIR USE AND INSTALLED PER LOCAL ELECTRICAL CODE. ALL ELECTRICAL INSTALLATIONS LESS THAN 1000V SHALL BE IN ACCORDANCE WITH NFPA-70. ALL ELECTRICAL DEVICES ARE PER SCHEDULE AND DRAWINGS OR ENGINEER APPROVED EQUAL. COORDINATE WITH OWNER FOR EQUIPMENT COLORS.
- ALL GROUNDING INCLUDING GROUND RODS AND UFER GROUNDS TO MEET NFPA-70 REQUIREMENTS. BOND METAL STRUCTURES TO GROUND ELECTRODE SYSTEM.
- ALL ELECTRICAL WORK IS TO BE COMPLETED BY A LICENSED COLORADO ELECTRICIANS IN A WORKMAN LIKE MANNER PER LATEST NEC AND APPLICABLE STATE LAW AND MUNICIPAL CODES AND LAWS.
- DIAGONAL RUNS ARE NOT ACCEPTABLE. ALL CONDUIT RUNS TO BE PARALLEL OR PERPENDICULAR TO STRUCTURE MOUNTED TO.
- ALL RACEWAYS TO INCLUDE A GROUND CONDUCTOR AS SHOWN ON SCHEDULES. THE CONDUIT IS UNACCEPTABLE AS A GROUND CONDUCTOR. CONTRACTOR TO RUN DEDICATED NEUTRAL WITH ALL CIRCUITS REQUIRING NEUTRALS. SHARING NEUTRALS IS UNACCEPTABLE
- RESULTS SHOWN IN PANEL AND FEEDERS SCHEDULES ARE BASED UPON ESTIMATED LENGTHS AND LOADS. ALTERATIONS TO ROUTING, LOADS OR LENGTHS MAY RENDER THE RESULTS INVALID. PLEASE VERIFY CHANGES WITH ENGINEER PRIOR TO CONSTRUCTION.
- CONTRACTOR TO INSTALL WARNING LABELS PER NEC. EQUIPMENT SERVICE DISCONNECTS TO BE LABELED WITH PANEL, CIRCUIT NUMBER AND VOLTAGE "208/120V 3φ 4W".
- THE PUMP STATION INCLUDES MULTIPLE PUMPS FOR THE IRRIGATION SYSTEM. REFER TO THE DETAILS FOR SPECIFIED PUMPING SYSTEM FLOW AND PRESSURE PARAMETERS.
- CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS AND THE LOCATION OF EXISTING UTILITIES AND SITE IMPROVEMENTS PRIOR TO CONSTRUCTION. REPAIR OR REPLACE ANY DAMAGE TO EXISTING UTILITIES AND SITE IMPROVEMENTS CAUSED BY OR RESULTING FROM THIS CONSTRUCTION.
- CONTRACTOR TO COORDINATE UTILITY LOCATES "811 CALL BEFORE YOU DIG" OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
- CONTRACTOR TO READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS, APPLICABLE CODE, AND INSTALLATION DETAILS OF ALL TRADES FOR THIS AND ALL RELATED WORK PRIOR TO CONSTRUCTION.
- CONTRACTOR TO IMMEDIATELY DISCONTINUE CONSTRUCTION ACTIVITIES AND CONTACT THE APPLICABLE TRADE, IF OBSTRUCTIONS OR GRADE DIFFERENCES ARE DISCOVERED THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING, OR IF DISCREPANCIES IN THE CONSTRUCTION DETAILS, LEGENDS, NOTES, OR SPECIFICATIONS ARE IDENTIFIED.

GENERAL SCOPE

- THE PURPOSE OF THIS PROJECT IS TO INSTALL A NEW IRRIGATION PUMP STATION, PIPING FROM THE PUMP STATION, AND AN AERATION SYSTEM.
- THE PUMP STATION WILL BE INSTALLED WITHIN A NEW BUILDING. THE PUMP STATION WILL BE PLACED OVER AN EXISTING WET WELL.
- AN AERATION SYSTEM IS TO BE INSTALLED FOR POND WATER QUALITY PURPOSES. AERATION MECHANICAL EQUIPMENT WILL BE PLACED WITHIN THE PUMP BUILDING.
- SERVICE WILL BE 480V 3φ 4W TO FEED PRE-MANUFACTURED PUMP STATION.
- PRE-MANUFACTURED PUMP STATION TO BE PERMITTED, INSPECTED AND APPROVED PRIOR TO SHIPPING.
- SITE INSTALLATION TO BE PERMITTED, INSPECTED AND APPROVED BY AHJ INCLUDING ELECTRICAL UNDERGROUND AND SERVICE INSTALLATION. COORDINATE WITH CITY FOR REQUIREMENTS.

LEGEND

DEFINITIONS:

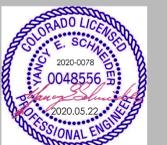
SPD	- SURGE PROTECTION DEVICE
VFD	- VARIABLE FREQUENCY DRIVE
XFMR	- TRANSFORMER
GFCI	- GROUND FAULT CIRCUIT INTERRUPTER
GEC	- GROUNDING ELECTRODE CONDUCTOR
□	- UTILITY TRANSFORMER
□	- EXISTING UTILITY CONNECTION CABINET
□	- EXISTING WET WELL
⊗	- MOTOR STARTER

GENERAL NOTES CONTINUED

- THE DRAWINGS ARE DIAGRAMMATIC, SYSTEM COMPONENTS MAY BE SHOWN OUTSIDE PLANTING AREAS FOR GRAPHIC CLARITY, AVOID CONFLICTS BETWEEN THE SYSTEM, PLANTING MATERIALS, AND ARCHITECTURAL FEATURES, INSTALL SYSTEM COMPONENTS IN LANDSCAPED AREAS WHEREVER POSSIBLE.
- CONTRACTOR TO PROVIDE BUILDING OPERATIONS AND MAINTENANCE MANUAL TO OWNER AT SUBSTANTIAL COMPLETION COVERING MANUFACTURER'S INFORMATION, SPECIFICATIONS, PROGRAMMING NECESSARY TO DEMONSTRATE HOW BUILDING, SYSTEMS, AND COMPONENTS ARE TO BE INSTALLED, MAINTAINED AND OPERATED.
- DRY TYPE TRANSFORMERS TO MEET MINIMUM EFFICIENCY OF IECC TABLE C405.6.
- MOTORS SHALL MEET MINIMUM EFFICIENCY REQUIREMENTS OF IECC TABLES C405.7(1) AND C405.7(4) WITH MANUFACTURER PROVIDED CERTIFICATION.
- CONDUCTOR SIZING TO MEET VOLTAGE DROP REQUIREMENTS PER NEC AND IECC. CONTRACTOR FULLY RESPONSIBLE TO REPLACE ANY CABLE, INCLUDING ALL CONDUIT, CABLE AND ALL ALTERATIONS REQUIRED IF THE VOLTAGE DROP DOES NOT MEET CODE REQUIREMENTS IF THEY DEVIATE ANY WAY FROM THE SIZING OF THE CONDUCTORS ON THE DRAWINGS.
- MINIMUM BRANCH CIRCUIT SIZING #10AWG COPPER THHN/THWN IN 3/4" CONDUIT.
- ALL CONDUIT TO BE METAL (EMT OR GRC PER SPECS) UNLESS UNDERGROUND (PVC ONLY).
- CEILING MOUNTED INTERIOR LIGHTING TO BE ON OCCUPANCY SENSORS MOUNTED IN EACH FIXTURE. FIXTURES TO DIM TO 50% AT 15 MINUTES OF NO OCCUPANCY FOR A MINIMUM OF 30 SECONDS PRIOR TO TURNING OFF.
- CABINET MOUNTED LIGHTING SHALL BE ON DOOR SWITCHES TO TURN OFF WHEN DOOR IS CLOSED. CONTROL CABINETS TO CONTAIN CABINET LIGHTING.
- CONTRACTOR TO PROVIDE MARKUPS TO ENGINEER FOR ASBUILT CAD DRAWINGS FOR DELIVERY TO OWNER AT SUBSTANTIAL COMPLETION.
- LIGHTING TO BE TESTED TO CONFIRM PROPER CALIBRATION, ADJUSTMENT AND OPERATION PRIOR TO SUBSTANTIAL COMPLETION BY CONTRACTOR AND WITNESSED BY OWNER OR ENGINEER WITH SIGNED APPROVAL.
- EXTERIOR LIGHTING TO BE PHOTOMETRIC/OCCUPANCY SENSOR ON AND OFF.
- CONTRACTOR IS TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH ALL APPLICABLE CODES. IF THE DESIGN APPEARS TO HAVE ANY NON CODE COMPLIANT OR POSSIBLY NON COMPLIANT DESIGN COMPONENTS, CONTRACTOR TO IMMEDIATELY PAUSE WORK AND CONTACT THE ENGINEER.
- AVAILABLE SHORT CIRCUIT CURRENTS AND INCIDENT ENERGY VALUES ARE CONSERVATIVE AND MAY BE REDUCED AFTER CONTRACTOR SUBMITTALS ARE SUBMITTED
- ELECTRICAL SERVICE INCLUDING TRANSFORMER PAD, METER BASE, AND SERVICE EQUIPMENT TO MEET EXCEL ENERGY COMPANY REQUIREMENTS.
- IN ARCFLASH AND INCIDENT ENERGY CALCULATIONS UTILITY TRANSFORMER ASSUMED 500KVA TO BE SIZED BY EXCEL ENERGY.
- BUILDING TO CONTAIN FIRE AND HEAT SENSING THAT PROVIDES INDICATION, MONITORING, LOGGING AND ALARMING IN PLC. SYSTEM TO BE DESIGNED BY NICET VI CERTIFIED FIRE ALARM DESIGNER. SHOP DRAWINGS AND PRODUCT DATA TO BE INFORMATIONAL SUBMITTALS.



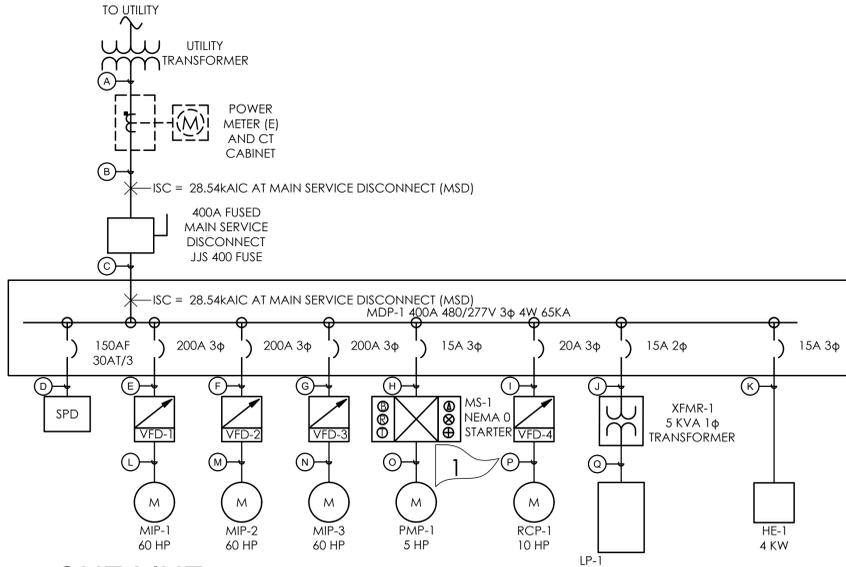
TUSCANY DEVELOPMENT
IRRIGATION PUMP AND AERATION SYSTEM
EVANS, COLORADO



DATE	5/22/2020
DESIGNED BY	YES
DRAWN BY	ALS
CHECKED BY	YES

REVISIONS

SHEET NO.
E-00



1 ONE LINE
NTS

POWER FEEDER SCHEDULE (X) FEEDER IDENTIFIER

CONDUIT	PARALLEL RUNS	SIZE	TYPE	FROM	TO	MAX LENGTH	CABLE(S)	FEEDER NOTES
A	2	3-1/2"	PVC	UTILITY TRANSFORMER	CT CABINET	90	4-#3/0AWG CU THWN-2	1
B	2	3-1/2"	GRC	CT CABINET	MAIN SERVICE DISCONNECT	10	4-#3/0AWG CU THWN-2	1
C	2	3-1/2"	GRC	MAIN SERVICE DISCONNECT	MDP	10	4-#3/0AWG CU THWN-2 WITH #1 GND	1
D	1	3/4"	EMT	MDP	SPD	50	4-#10AWG CU THWN-2 WITH #10 CU GND	1
E	1	1-1/2"	EMT	MDP	VFD-1	50	3-#2AWG CU THWN-2 WITH #6 CU GND	1
F	1	1-1/2"	EMT	MDP	VFD-2	50	3-#2AWG CU THWN-2 WITH #6 CU GND	1
G	1	1-1/2"	EMT	MDP	VFD-3	50	3-#2AWG CU THWN-2 WITH #6 CU GND	1
H	1	3/4"	EMT	MDP	MS-1	50	3-#10AWG CU THWN-2 WITH #10 CU GND	1
I	1	3/4"	EMT	MDP	VFD-4	50	3-#10AWG CU THWN-2 WITH #10 CU GND	1
J	1	3/4"	EMT	MDP	XFMR-1	50	2-#10AWG CU THWN-2 WITH #10 CU GND	1
K	1	3/4"	EMT	MDP	HE-1	50	3-#10AWG CU THWN-2 WITH #10 CU GND	1
L	1	1-1/2"	EMT	VFD-1	MIP-1	50	3-#2AWG CU THWN-2 WITH #6 CU GND	1
M	1	1-1/2"	EMT	VFD-2	MIP-2	50	3-#2AWG CU THWN-2 WITH #6 CU GND	1
N	1	1-1/2"	EMT	VFD-3	MIP-3	50	3-#2AWG CU THWN-2 WITH #6 CU GND	1
O	1	3/4"	EMT	MS-1	PMP-1	50	3-#10AWG CU THWN-2 WITH #10 CU GND	1
P	1	3/4"	EMT	VFD-4	RCP-1	50	3-#10AWG CU THWN-2 WITH #10 CU GND	1
Q	1	3/4"	EMT	XFMR-1	LP-1	50	3-#10AWG CU THWN-2 WITH #10 CU GND	1

FEEDER NOTES
1 CABLE SIZE VARIES WITH LENGTH DUE TO VOLTAGE DROP. SELECT THE NEXT HIGHEST LENGTH FROM TABLE BASED UPON LENGTH OF RUN BETWEEN TRANSFORMER AND SERVICE ENTRANCE GEAR BASED UPON FINAL CONDUIT ROUTING.

4 FEEDER SCHEDULE
NTS

MECHANICAL SCHEDULE

NAME	TAG	HP/KW/VA	VOLTS	PHASE	AMPS	VA	NOTES
MAIN IRRIGATION PUMP 1	MIP-1	60 480 3	480	3	128	61347	1
MAIN IRRIGATION PUMP 2	MIP-2	60 480 3	480	3	128	61347	1
MAIN IRRIGATION PUMP 3	MIP-3	60 480 3	480	3	128	61347	1
PRESSURE MAINTAINANCE PUMP 1	PMP-1	5 480 3	480	3	13	6055	1
RE-CIRCULATION PUMP 1	RCP-1	10 480 3	480	3	23	11154	1
HEATER 1	HE-1	4 480 3	480	3	-	-	1
EXHAUST FAN 1	EF-1	0.3 - -	-	-	-	-	1

NOTES
1 MOTOR INFORMATION BASED UPON INFORMATION PROVIDED BY IRRIGATION DESIGNER.

2 MECHANICAL SCHEDULE
NTS

TUSCANY DEVELOPMENT IRRIGATION PUMP AND AERATION SYSTEM

PROJECT: LP-1
PANEL: LP-1
LOCATION: OUTSIDE PUMP STATION
VOLTAGE: 240/120V 1PH 3W
VD @ PNL MAX: 0.70%

NEMA 3R
BUS: 125 AMPS
MAIN: 30 AMPS
BRACING: 22KA
COLOR CODE: A-BROWN, B-ORANGE, C-YELLOW

DESCRIPTION	CONDUCTORS	Vd	VA	LT	BKR	PHASE	BKR	LT	VA	Vd	CONDUCTORS	DESCRIPTION		
RECEPTACLE	2-#12 AWG CU w/ #12 AWG GND	1.53%	960	R	15/1	1	A	2	15/1	G	300	0.96%	2-#12 AWG CU w/ #12 AWG GND	CONTROL CABINET
INTERIOR LIGHTING	2-#12 AWG CU w/ #12 AWG GND	0.84%	160	L	15/1	3	B	4	15/1	L	30	0.73%	2-#12 AWG CU w/ #12 AWG GND	EXTERIOR LIGHTING
EF-1	2-#12 AWG CU w/ #12 AWG GND	1.13%	500	B	15/1	7	B	8	15/1	G	100	0.79%	2-#12 AWG CU w/ #12 AWG GND	SENSORS
AERATION MECHANICAL EQUIP.	2-#12 AWG CU w/ #12 AWG GND	0.70%	0	M	15/1	9	A	10						

PANEL SCHEDULE NOTES
1 VD BASED UPON PERPENDICULAR OVERHEAD CONDUIT RUNS AND POSITIONS OF EQUIPMENT. ALTERATIONS IN THIS CONFIGURATION WILL IMPACT VOLTAGE DROPS AT DEVICES.
2 SEE FEEDER SCHEDULE AND ONE LINE FOR CONDUCTOR AND CONDUIT SIZING.
3
4
5

5 LP-1 PANEL SCHEDULE
NTS

MDP-1 LOAD SUMMARY

PHASE	VA	% LOAD	H	HEAT	125%	VA
A	68418	0%	M	MOTOR	100%	139905
B	68418	0%	B	LARGEST M	125%	76684
C	68418	0%	R	RECEPTACLE	100%	0
VOLTAGE	480 V		L	LIGHTING	125%	0
PHASE	3		K	KITCHEN	125%	0
BUSS RATING	400 AMPS		D	DEDICATED	125%	0
MAIN RATING	400 AMPS		C	COOLING	125%	0
LARGEST MOTOR	60 HP		G	GENERAL	100%	0
TOTAL MOTOR	195 HP		E	EXISTING	100%	0
TOTAL HEAT	5 KW					221592
TOTAL LIGHTING	1 KVA					267
						67%

3 MDP-1 LOAD SUMMARY
NTS

LP-1 LOAD SUMMARY

PHASE	VA	% LOAD	H	HEAT	125%	VA
A	1260	-49%	M	MOTOR	100%	0
B	790	-33%	B	LARGEST M	125%	625
			R	RECEPTACLE	100%	960
VOLTAGE	240 V		L	LIGHTING	125%	238
PHASE	1		K	KITCHEN	125%	0
BUSS RATING	125 AMPS		D	DEDICATED	125%	0
MAIN RATING	30 AMPS		C	COOLING	125%	0
LARGEST MOTOR	0 HP		G	GENERAL	100%	400
TOTAL MOTOR	0.6032172 HP		E	EXISTING	100%	0
TOTAL HEAT	0 KW					2223
TOTAL LIGHTING	0.19 KVA					10
						33%

6 LP-1 LOAD SUMMARY
NTS

FLAG NOTES

- CONTRACTOR TO PROVIDE NEMA 0 FVNR COMBINATION STARTER. CONTRACTOR TO ALSO PROVIDE RUNTIME METER, MOTOR SAVER, HOA, START PUSH BUTTON, STOP PUSH BUTTON, AND RUNNING AND STOPPED PUSH TO TEST LIGHTS.
- TOP ARCLASH LABEL IS FOR THE MDP BUS
- BOTTOM ARCLASH LABEL IS FOR THE MAIN SERVICE DISCONNECT

GENERAL NOTES

- CT TO BE PROVIDED BY UTILITY AND CONTRACTOR TO PROVIDE CABINET FOR CT.
- ALL EQUIPMENT DOWN LINE OF THE UTILITY TRANSFORMER IS TO BE PROVIDED BY PUMP STATION MANUFACTURER.
- MINIMUM WIRE SIZE IS #10 AWG

MOTOR STARTER LEGEND

- Ⓐ - HOA
- ⓧ - STOP
- Ⓢ - START
- Ⓟ - STOPPED
- Ⓡ - RUNNING AND RUNTIMETER COMBINATION
- Ⓣ - MOTOR STARTER

WARNING

Arc Flash and Shock Risk
Appropriate PPE Required
6 inches Arc Flash Boundary
0.20 cal/cm^2 Incident Energy at 18 inches
PPE No Arc-rated PPE Required
480 VAC Shock Risk when cover is removed
00 Glove Class
42 inches Limited Approach
12 inches Restricted Approach

Bus: MDP-1 Prot: MSD-FUSE

WARNING

Arc Flash and Shock Risk
Appropriate PPE Required
281 inches Arc Flash Boundary
97.1 cal/cm^2 Incident Energy at 18 inches
PPE Arc-rated shirt & pants or arc-rated coverall or arc-rated arc flash suit
480 VAC Shock Risk when cover is removed
00 Glove Class
42 inches Limited Approach
12 inches Restricted Approach

Bus: MDP-1 Prot: MaxTripTime @2.0s

ARCFLASH LABELS

7 NTS



TUSCANY DEVELOPMENT IRRIGATION PUMP AND AERATION SYSTEM
EVANS, COLORADO



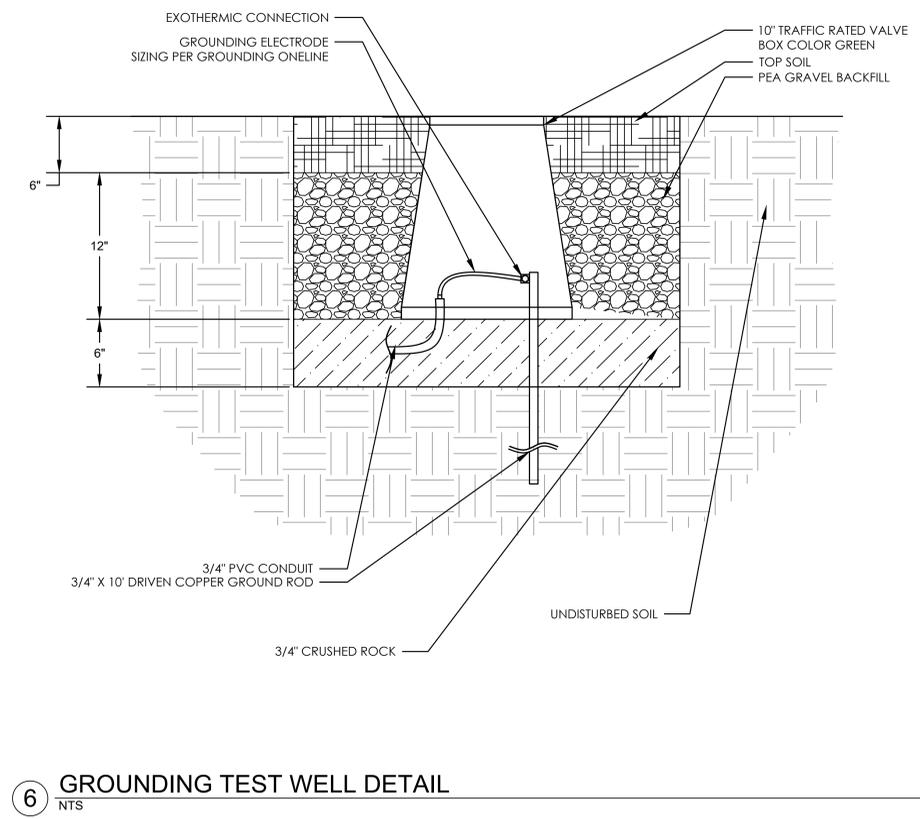
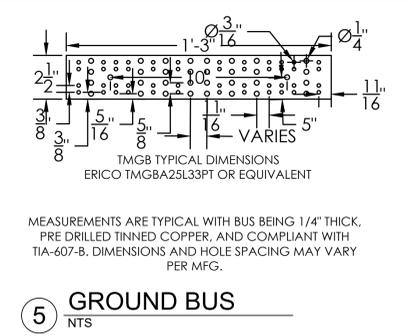
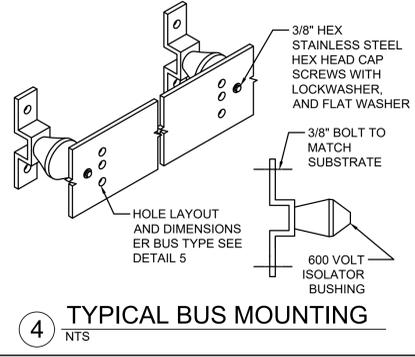
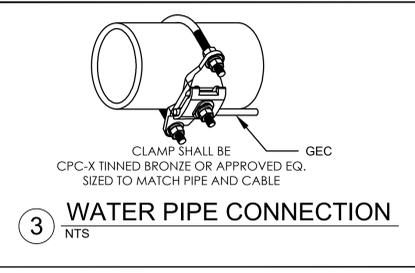
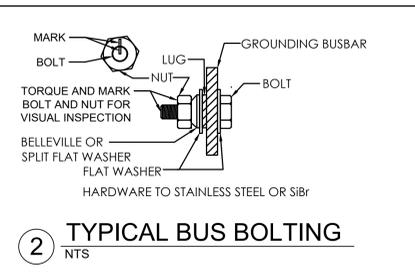
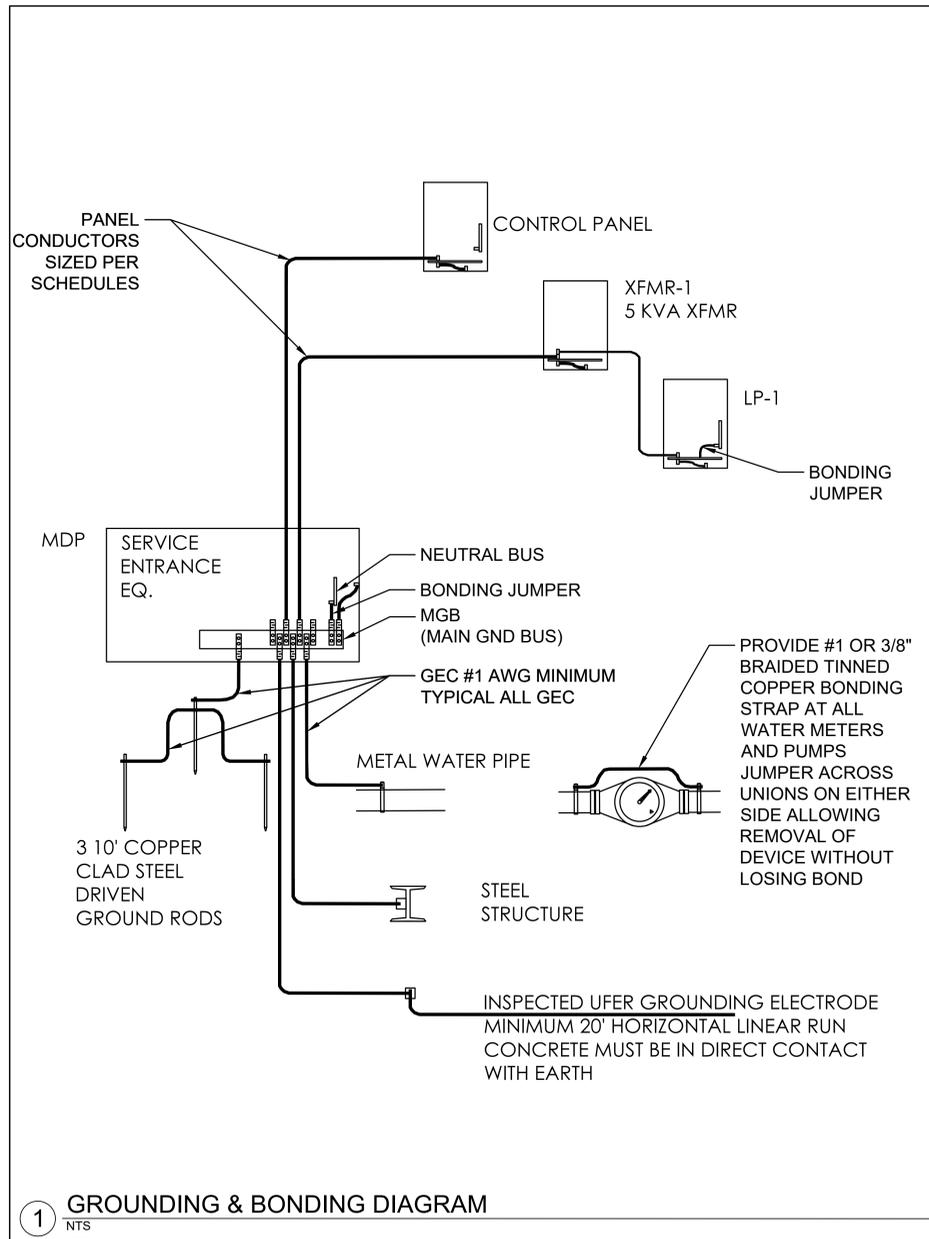
DATE	5/22/2020
DESIGNED BY	YES
DRAWN BY	ALS
CHECKED BY	YES

REVISIONS	

SHEET NO. E-01

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TUSCANY DEVELOPMENT
IRRIGATION PUMP AND AERATION SYSTEM
EVANS, COLORADO



DATE	5/22/2020
DESIGNED BY	YES
DRAWN BY	ALS
CHECKED BY	YES

REVISIONS

SHEET NO.
EG-01

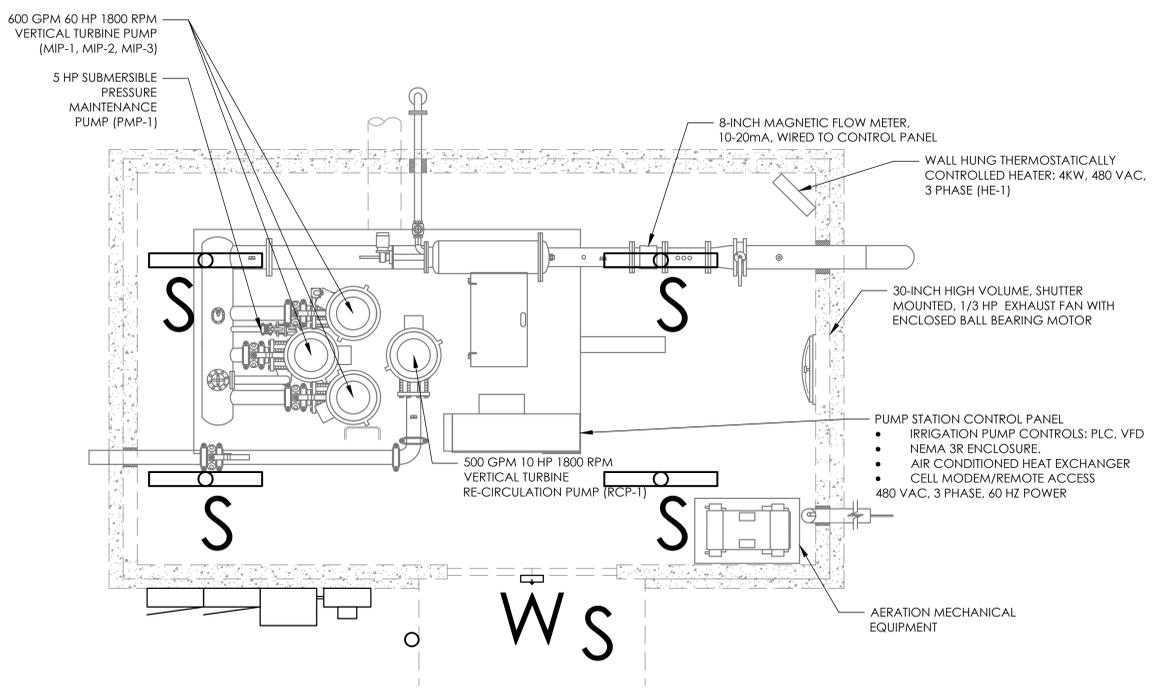


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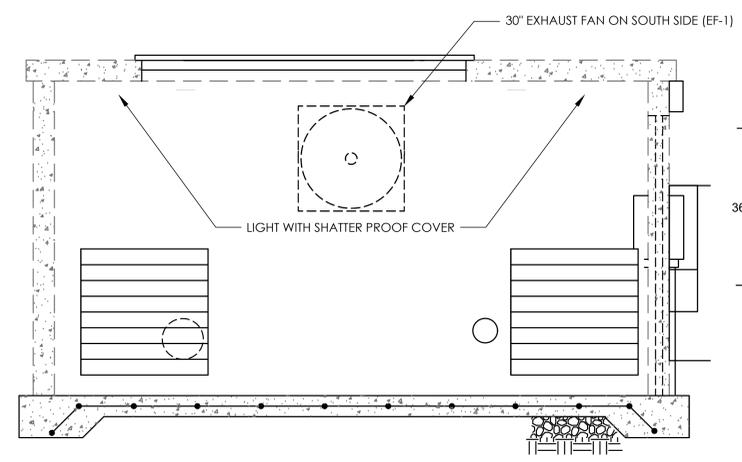


Aqua Engineering Inc.
Innovative Water Solutions

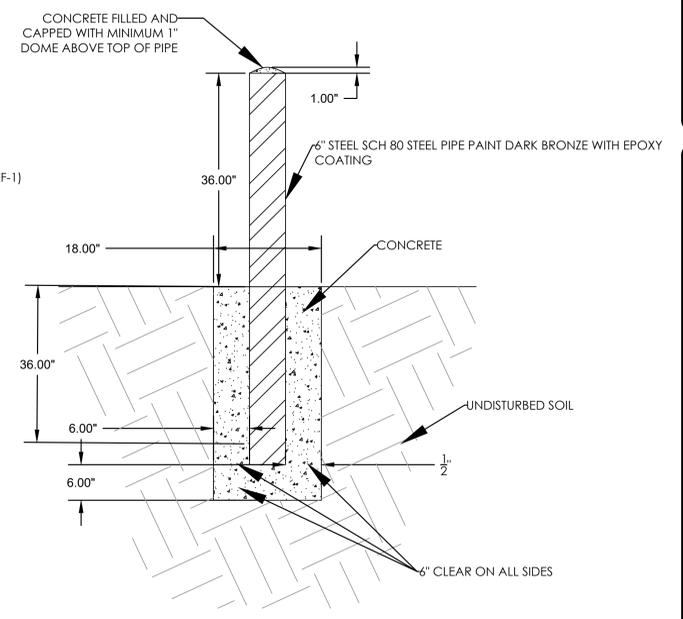
**TUSCANY DEVELOPMENT
IRRIGATION PUMP AND AERATION SYSTEM**
EVANS, COLORADO



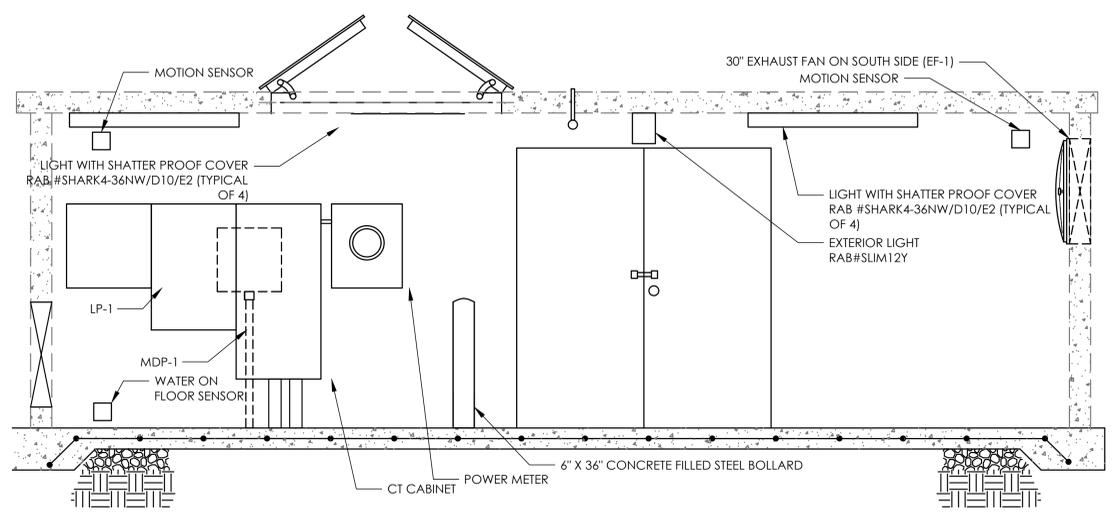
1 TOP VIEW POWER PLAN
SCALE 1/4" = 1'



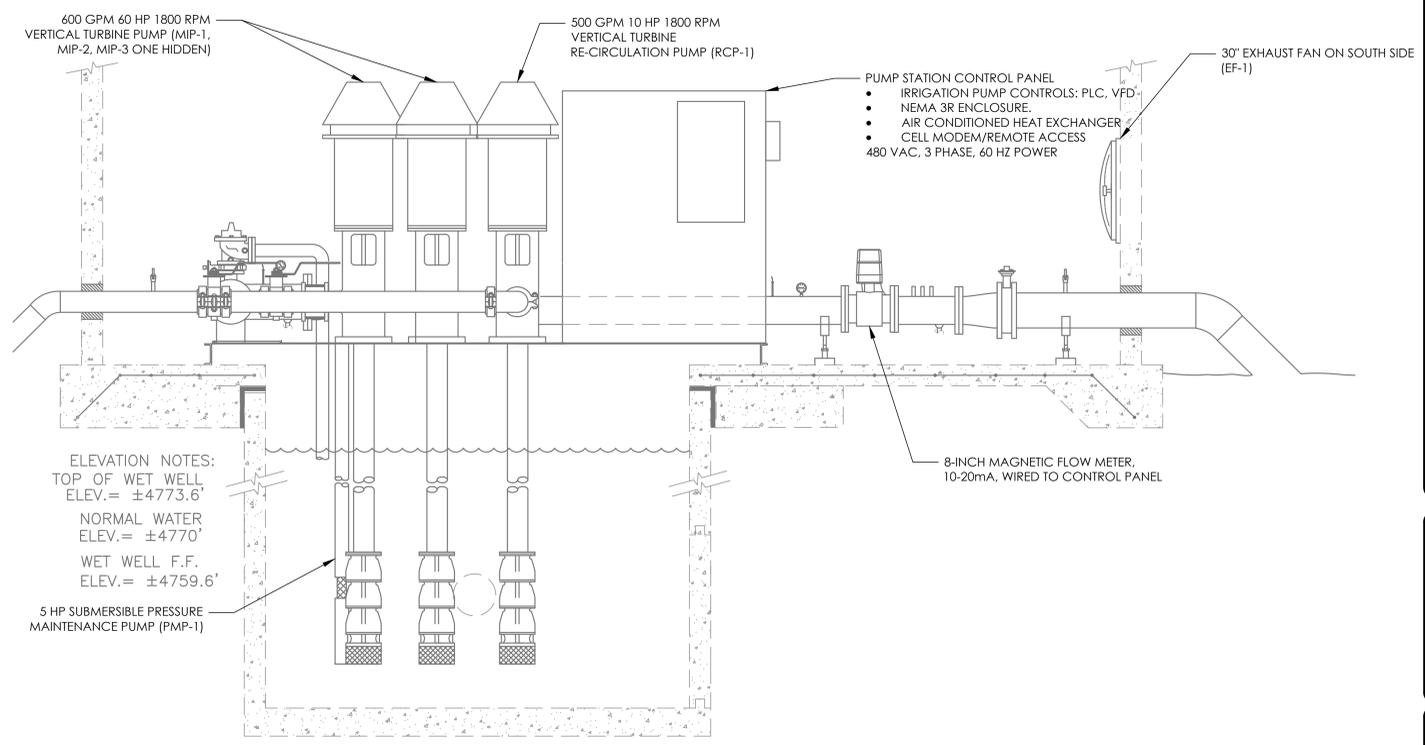
3 FROM NORTH VIEW POWER PLAN
SCALE 1/4" = 1'



5 BOLLARD DETAIL
NTS



2 EASTERLY SIDE VIEW POWER PLAN
SCALE 1:20



4 SECTION VIEW POWER PLAN
SCALE 1:20

FLAG NOTES

- CONTRACTOR TO INSTALL WATER ON FLOOR SENSOR, WALL MOUNTED, PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO INSTALL MULTIPLE MOTION SENSORS FOR SECURITY PURPOSES THROUGHOUT THE PUMP BUILDING. MOTION SENSORS TO PROVIDE MAXIMUM AND MOST EFFICIENT COVERAGE THAT IS REASONABLY ACHIEVABLE. CONTRACTOR TO ALSO INSTALL ENTRY ALARMS AT ALL BUILDING ENTRANCES.



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. DRAWING INTENDED FOR 24x36



DATE	5/22/2020
DESIGNED BY	YES
DRAWN BY	ALS
CHECKED BY	YES

REVISIONS

SHEET NO.
EP-01

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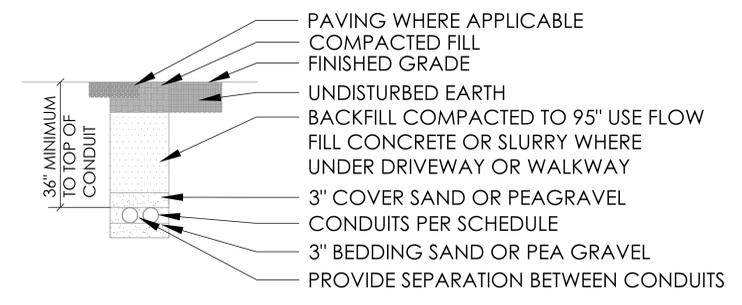
**TUSCANY DEVELOPMENT
IRRIGATION PUMP AND AERATION SYSTEM**
EVANS, COLORADO



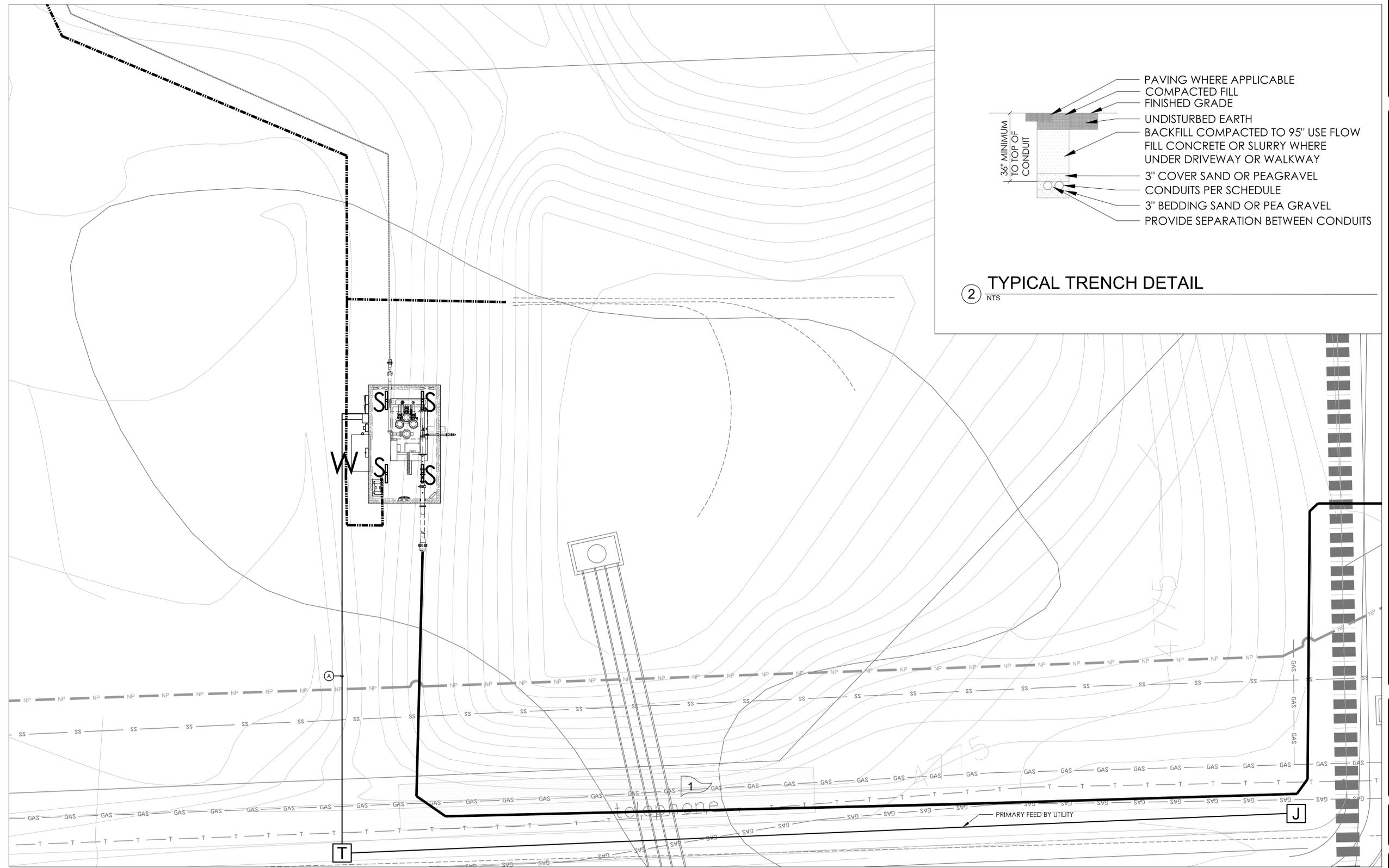
DATE	5/22/2020
DESIGNED BY	YES
DRAWN BY	ALS
CHECKED BY	YES

REVISIONS	

SHEET NO.	ES-01
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2 TYPICAL TRENCH DETAIL
NTS



1 SITE MAP
1/4" = 100'

FLAG NOTES

1. TRANSFORMER, PRIMARY EXTENSION AND SERVICE ALIGNMENT ARE DIAGRAMATIC SUBJECT TO CHANGE. COORDINATE WITH UTILITY AND CITY FOR CONDUIT ROUTING ESPECIALLY AT OVER FLOW CULVERT CROSSING.



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. DRAWING INTENDED FOR 24x36



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TUSCANY DEVELOPMENT IRRIGATION PUMP AND AERATION SYSTEM EVANS, COLORADO



1 SITE PHOTOMETRIC PLAN
1/4" = 100'

GENERAL NOTES

- 1. PHOTOMETRIC PLAN SHOWN IS MINIMAL AS THERE IS ONLY A SINGLE FIXTURE EXTERIOR TO THE BUILDING AND WILL NOT IMPACT FURTHER THAN WHAT IS SHOWN HEREIN.



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.
DRAWING INTENDED FOR 24x36



DATE	5/22/2020
DESIGNED BY	YES
DRAWN BY	ALS
CHECKED BY	YES

REVISIONS	

SHEET NO.
ES-02

SHARK4-36NW/D10 INTERIOR FIXTURE RAB



Project: _____ **Type:** _____
Prepared By: _____ **Date:** _____

Driver Info **LED Info**

Type	Constant Current	Watts	36W
120V	0.31A	Color Temp	4000K (Warm)
208V	0.16A	Color Accuracy	74 CRI
240V	0.16A	L70 lifespan	100,000
277V	0.14A	Lumens	4,134
Input Watts	36.70W	Efficacy	112.6 LPW

Technical Specifications

UL Listed: Suitable for wet locations

NSF: NSF Certified for Public Health and Safety

NEMA Rating: IC, protected against corrosion

IESNA LM-79 & LM-80 Testing: RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

ULC Label: The product is on the Design Lights Consortium (DLC) Qualified Product List and is eligible for rebates from DLC Member Utilities. DLC Product Code: PFS0525

Construction: EVA silicone foam

IP Rating: Ingress Protection rating of IP66 for dust and water

Reflector/Trey: Aluminum

Housing: EVA impact resistant polycarbonate. 12" covered for shock and tamper resistant entry. Polycarbonate is affected by cleaning agents or other fluids containing certain solvents such as mineral spirits, acetone, and alcohol. Use only manufacturer recommended cleaning agents.

Finish: Formulated for high durability and long lasting color.

LED Characteristics: Long-life, high-efficiency, surface-mount LEDs

LifeSpan: 100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

Color Stability: LED color temperature is warranted to shift no more than 20K in color temperature over a 5-year period

Color Uniformity: 84K range of Correlated Color Temperature follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C137-071

Beam Angle: Diffuse polycarbonate lens for low glare and maximum protection

Maximum Ambient Temperature: Suitable for use in 40°C (104°F)

Cold Weather Start: Electrical

Driver: Class 2 Constant Current, 100-277VAC, 95.0%
 Mercury and UV free. RoHS-compliant components

SHARK4-36NW/D10 INTERIOR FIXTURE RAB

Technical Specifications (continued)

Electrical: 89.4% at 120V, 95.3% at 277V

Power Factor: 7.7% at 120V, 13.3% at 277V

Buy American Act Compliance: RAB values USA manufacturing! Upon request, RAB may be able to manufacture the product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Warranty: RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and failure from RAB. Warranty is subject to all terms and conditions found at www.rablighting.com/warranty.

Dimensions: 5.1" x 1.8" x 1.8"

Features: Impact resistant linear waikobon. Ideal for tunnels and stairwells. Mounting options: Chain, suction box, angled surface mount or vandal-resistant surface mount. IP66 Rating protects against dust & water ingress. 5-Year, No-Compromise Warranty. 100,000-Hour LED lifespan.

Ordering Matrix:

Family	Length	UL Listing	Wattage	Color Temp	Finish	Driver Options	Options
SHARK	4	UL Standard	36W	4000K	Black	Class 2 Constant Current	None
	4	M-Maximum Limited	36W	4000K	Black	Class 2 Constant Current	None
	4	UL Standard	36W	4000K	Black	Class 2 Constant Current	None
	4	UL Standard	36W	4000K	Black	Class 2 Constant Current	None

SLIM12Y TYPE W RAB

Project: _____ **Type:** _____
Prepared By: _____ **Date:** _____

Driver Info **LED Info**

Type	Constant Current	Watts	12W
120V	0.13A	Color Temp	3000K (Warm)
208V	0.08A	Color Accuracy	71 CRI
240V	0.07A	L70 lifespan	100,000
277V	0.06A	Lumens	1,922
Input Watts	15.90W	Efficacy	120.0 LPW

Technical Specifications

UL Listed: Suitable for wet locations. Suitable for mounting where UL (UL) is required.

ADA Compliant: SLIM™ is ADA Compliant

IESNA LM-79 & LM-80 Testing: RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

ULC Label: The product is on the Design Lights Consortium (DLC) Qualified Product List and is eligible for rebates from DLC Member Utilities. DLC Product Code: PFD00171

IP Rating: Ingress Protection rating of IP66 for dust and water

Cold Weather Start: Electrical

Maximum Ambient Temperature: Suitable for use in 40°C (104°F)

Housing: Precision die-cast aluminum housing

Mounting: Heavy-duty mounting bracket with tapered housing for easy installation

Recommended Mounting Height: 10' to 8'

Reflector: Tempered glass lens

Specular Photometric Gauntlet: Formulated for high durability and long-lasting color

Green Technology: Mercury and UV free. RoHS-compliant components.

LED Characteristics: Multi-chip, long-life LED

LifeSpan: 100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

Color Consistency: Selects MacAdam Elipses binning to achieve consistent beam-to-beam color

Color Stability: LED color temperature is warranted to shift no more than 20K in color temperature over a 5-year period

Color Uniformity: High range of Correlated Color Temperature follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C137-071

Ordering Matrix:

Family	Wattage	Color Temp	Finish	Driver	Options
SLIM	12	Y	By Owner	By Submittal	By Submittal
	12	W	Black	Black	Black
	12	W	Black	Black	Black
	12	W	Black	Black	Black

SLIM12Y TYPE W RAB

Technical Specifications (continued)

Other: The design of the SLIM™ is protected by patents in U.S. and pending patents in Canada, China, Taiwan and Mexico.

Buy American Act Compliance: RAB values USA manufacturing! Upon request, RAB may be able to manufacture the product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Warranty: RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and failure from RAB. Warranty is subject to all terms and conditions found at www.rablighting.com/warranty.

Dimensions: 1.8" x 1.8" x 5.1"

Features: Full cast, fully enclosed LED and cast. Can be used as a downlight or uplight. Corrosive friendly features for easy installation. 5-Year, No-Compromise Warranty.

Need help? Tech help line: (888) 722-1000 Email: custserv@rablighting.com Website: www.rablighting.com
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COMCHECK Interior Lighting Compliance Certificate

COMcheck Software Version 4.1.2.2

Project Information: 2018 IECC, TUSCANY AERATION, New Construction, Exterior Lighting Zone

Designer/Contractor: YANCY SCHNEIDER, COR ENGINEERING, LLC, FORT COLLINS, CO 80527

Additional Efficiency Package(s): None

Allowed Interior Lighting Power: 237 Watts

Proposed Interior Lighting Power: 144 Watts

Interior Lighting PASSES: Design 39% better than code

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck version 4.1.2.2 and to comply with any applicable mandatory requirements listed in the inspection checklist.

Yancy Schneider - Principal Engineer, 2020.05.21

COMCHECK Exterior Lighting Compliance Certificate

COMcheck Software Version 4.1.2.2

Project Information: 2018 IECC, TUSCANY AERATION, New Construction, Exterior Lighting Zone

Designer/Contractor: YANCY SCHNEIDER, COR ENGINEERING, LLC, FORT COLLINS, CO 80527

Additional Efficiency Package(s): None

Allowed Exterior Lighting Power: 86 Watts

Proposed Exterior Lighting Power: 16 Watts

Exterior Lighting PASSES: Design 87% better than code

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck version 4.1.2.2 and to comply with any applicable mandatory requirements listed in the inspection checklist.

Yancy Schneider - Principal Engineer, 2020.05.21

COMCHECK Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section & Req ID	Plan Review	Complies?	Comments/Assumptions
C405.2.1 (E121)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment to the standard as outlined. Information provided should include accurate lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	Complies	Requirement will be met.
C405.2.1 (E119)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment to the standard as outlined. Information provided should include accurate lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	Complies	Requirement will be met.
C406 (P100)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

COMCHECK Rough-In Electrical Inspection

Section # & Req ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3 (E122)	Switches required to have light reduction controls that have a manual control that allows the occupant to reduce the connected lighting load to a non-energized lighting pattern >= 50 percent.	Complies	Requirement will be met.
C405.2.1 (E118)	Occupancy sensors installed in classrooms, lecture halls, conference rooms, copy/print rooms, language laboratories, enclosed office, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces >= 200 sq ft. Occupancy sensors shall be controlled by non-energizing single-pole switches. Reference section language C405.2.1.2 for control function. Warehouse and section C405.2.1.3 for open plan office spaces.	Complies	Requirement does not apply.
C405.2.1 (E119)	Occupancy sensors control function in open plan office areas. Occupancy sensors control office spaces >= 200 sq ft. Occupancy sensors shall be configured to shut general lighting on in all control zones within 30 minutes after all occupants have left the space. Occupancy sensors shall be configured to activate space general lighting only when occupancy for the same area is detected.	Complies	Requirement does not apply.
C405.2.1 (E120)	Occupancy sensors control function in open plan office areas. Occupancy sensors control office spaces >= 200 sq ft. Occupancy sensors shall be configured to shut general lighting on in all control zones within 30 minutes after all occupants have left the space. Occupancy sensors shall be configured to activate space general lighting only when occupancy for the same area is detected.	Complies	Requirement does not apply.
C405.2.2 (E121)	Each area not served by occupancy sensors shall have time switch controls and functions installed in sections C405.2.2.1 and C405.2.2.2.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

COMCHECK Rough-In Electrical Inspection

Section # & Req ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3 (E122)	Switches required to have light reduction controls that have a manual control that allows the occupant to reduce the connected lighting load to a non-energized lighting pattern >= 50 percent.	Complies	Requirement will be met.
C405.2.1 (E118)	Occupancy sensors installed in classrooms, lecture halls, conference rooms, copy/print rooms, language laboratories, enclosed office, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces >= 200 sq ft. Occupancy sensors shall be controlled by non-energizing single-pole switches. Reference section language C405.2.1.2 for control function. Warehouse and section C405.2.1.3 for open plan office spaces.	Complies	Requirement does not apply.
C405.2.1 (E119)	Occupancy sensors control function in open plan office areas. Occupancy sensors control office spaces >= 200 sq ft. Occupancy sensors shall be configured to shut general lighting on in all control zones within 30 minutes after all occupants have left the space. Occupancy sensors shall be configured to activate space general lighting only when occupancy for the same area is detected.	Complies	Requirement does not apply.
C405.2.1 (E120)	Occupancy sensors control function in open plan office areas. Occupancy sensors control office spaces >= 200 sq ft. Occupancy sensors shall be configured to shut general lighting on in all control zones within 30 minutes after all occupants have left the space. Occupancy sensors shall be configured to activate space general lighting only when occupancy for the same area is detected.	Complies	Requirement does not apply.
C405.2.2 (E121)	Each area not served by occupancy sensors shall have time switch controls and functions installed in sections C405.2.2.1 and C405.2.2.2.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

COMCHECK Final Inspection

Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.5 (F117)	Furnished O&M instructions for systems and equipment to the building operator or designated representative.	Complies	Requirement will be met.
C405.4.1 (F118)	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C405.5.1 (F119)	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C408.1.1 (F120)	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturer's information, specifications, programming, procedures and means of illustrating to owner how building equipment systems are intended to be installed, maintained, and operated.	Complies	Requirement will be met.
C408.2.5 (F121)	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	Complies	Requirement will be met.
C408.3 (F122)	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

COMCHECK Final Inspection

Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.5 (F117)	Furnished O&M instructions for systems and equipment to the building operator or designated representative.	Complies	Requirement will be met.
C405.4.1 (F118)	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C405.5.1 (F119)	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C408.1.1 (F120)	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturer's information, specifications, programming, procedures and means of illustrating to owner how building equipment systems are intended to be installed, maintained, and operated.	Complies	Requirement will be met.
C408.2.5 (F121)	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	Complies	Requirement will be met.
C408.3 (F122)	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

COMCHECK Final Inspection

Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.5 (F117)	Furnished O&M instructions for systems and equipment to the building operator or designated representative.	Complies	Requirement will be met.
C405.4.1 (F118)	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C405.5.1 (F119)	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C408.1.1 (F120)	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturer's information, specifications, programming, procedures and means of illustrating to owner how building equipment systems are intended to be installed, maintained, and operated.	Complies	Requirement will be met.
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C408.3 (F122)	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

COMCHECK Final Inspection

Section # & Req ID	Final Inspection	Complies?	Comments/Assumptions
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C405.4.1 (F118)	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C405.5.1 (F119)	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	Complies	See the Exterior Lighting fixture schedule for values.
C408.1.1 (F120)	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturer's information, specifications, programming, procedures and means of illustrating to owner how building equipment systems are intended to be installed, maintained, and operated.	Complies	Requirement will be met.
C408.2.5 (F121)	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	Complies	Requirement will be met.
C408.3 (F122)	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	Complies	Requirement will be met.

Additional Comments/Assumptions: None

INTERIOR FIXTURE SCHEDULE

SYMBOL	TAG	DESCRIPTION	PART NUMBER	QTY.	NOTES
S	4'	STRIP LED, 36W, 4000K, 74 CRI, 4.134 LUMENS, NEMA 4X, NSF, IP66 FOR DUST AND WATER	RAB LIGHTING #SHARK4-36NW/D10/E2	4	

Site Luminaire Schedule

Symbol	Tag	Qty	Label	Arrangement	LF	Description	Watts	Total	Manufacturer	Cutoff Class	BUG Rating
W	1	1	Door - RAB SLIM 12Y rab04264	SINGLE	1	SLIM12Y-3K, 12W, 71 CRI, 1.922lm, 15.9	15.9	15.9	RAB LIGHTING INC, RC LIGHTING	N.A.	B1-UL-G0

Site Luminaire Location Summary

LumNo	Label	MH	Orient	Tilt	Tag (Qty)	Tag	Qty
1	Door - RAB SLIM 12Y rab04264	7.5	180	0	W (1)	W	1

Site Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Site Overall	illuminanc	Fc	0.01	6.3	0	N.A.	N.A.
East Line	illuminanc	Fc	0	0	0	N.A.	N.A.
North Line	illuminanc	Fc	0	0	0	N.A.	N.A.
South Line	illuminanc	Fc	0	0	0	N.A.	N.A.
West Line	illuminanc	Fc	0	0	0	N.A.	N.A.



TUSCANY DEVELOPMENT IRRIGATION PUMP AND AERATION SYSTEM

EVANS, COLORADO

DATE: 5/22/2020
 DESIGNED BY: YES
 DRAWN BY: ALS
 CHECKED BY: YES

REVISIONS

SHEET NO. ES-03

File: C:\Users\Somsona\OneDrive\Projects\2020-0078 - Aqua - Tuscany Aeration\3 - CAD\2D-78-ES.dwg, printed by Someone on 5/22/2020 5:24:39 PM, using AutoCAD Version: 2.1.1s (LMS Tech)



Plot Date: 5/22/2020 5:24:39 PM