MECHANICAL SPECIFICATIONS

SECTION	
23 00 00 BASIC MECHANICAL REQUIREMENTS	1. ALL WORK TO BE DONE AND MATERIALS FURNISHED COMPLYING WITH THE LATEST ENFORCEABLE LOCAL AND STATE CODES, ORDINANCES , LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE MICHIGAN MECHANICAL CODE (M.M.C.), ASHRAE 90.1 "ENERGY STANDARDS FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS", ASHRAE 62.1 "VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY", MICHIGAN PLUMBING CODE (M.P.C.), MICHIGAN BUILDING CODE (M.B.C.), INTERNATIONAL FUEL GAS CODE (I.F.G.C.), THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), ADA GUIDELINES, AND LOCAL, STATE, AND FEDERAL FIRE SAFETY CODES (NFPA). 2. ALL MATERIALS USED SHALL BE NEW AND UNDAMAGED. 3. ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH CURRENT CONSTRUCTION INDUSTRY STANDARDS AND WORKMANSHIP. 4. LABEL PIPING AND EQUIPMENT USING PROFESSIONAL MARKERS PER THE LATEST VERSION OF ASME A13.1: 4.1. PROVIDE PROFESSIONAL PIPE STICKERS ON ALL NEW PIPING 1" AND GREATER IDENTIFYING TYPE AND DIRECTION OF FLOW. 4.2. PROVIDE PROFESSIONAL ENGRAVED PLASTIC EQUIPMENT NAMEPLATES FOR ALL HVAC EQUIPMENT IDENTIFYING EQUIPMENT TAG AND NUMBER. SEE PLANS FOR EQUIPMENT TAG NUMBERS (FOR EXAMPLE, B-1, P-1, AHU-1, ... ETC.) 5. ALL MANUFACTURED EQUIPMENT, ACCESSORIES AND MATERIALS SHALL BE USED AS INTENDED BY THE MANUFACTURER, IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS,
23 05 93 TESTING, ADJUSTING, AND BALANCING	1. THE MECHANICAL CONTRACTOR SHALL SUBCONTRACT A TEST AND BALANCE CONTRACTOR TO BALANCE THE SYSTEMS DESCRIBED BELOW. 2. PER COMPLIANCE WITH THE LATEST VERSION OF ASHRAE 90.1, THE BALANCER SHALL SUBMIT AN AIR BALANCE REPORT TO THE ENGINEER AND STATE OR COUNTY INSPECTOR. 3. THE BALANCE REPORT SHALL SHOW PROOF THAT THE SYSTEM HAS BEEN BALANCED TO +/- 10% OF THE DESIGNED FLOW RATE. IT IS THE MECHANICAL CONTRACTOR AND TEST AND BALANCER'S DUTY TO PROVIDE ACCURATE DATA, SO AREAS OF INCORRECT FLOW MAY BE DISCLOSED TO THE ENGINEER, INSPECTOR, AND OWNER. 4. ALL AIRSIDE SYSTEMS, COMPONENTS, ETC, INCLUDING SUPPLY, RETURN, OUTDOOR, AND EXHAUST AIR SYSTEMS SHALL BE BALANCED, THE BALANCER SHALL PROVIDE SHEAVES AND BELTS AS NEEDED TO PROPERLY BALANCE EQUIPMENT TO +/- 10% OF THE DESIGNED AIRFLOWS, ALL DIFFUSERS, REGISTERS, GRILLES, AND LOUVERS SHALL BE INDIVIDUALLY BALANCED AND LISTED IN THE BALANCE REPORT, ALL AIRSIDE EQUIPMENT, SUPPLY, RETURN, AND OUTDOOR AIR FLOW RATES SHALL BE LISTED IN THE BALANCE REPORT. 5. ALL WATERSIDE SYSTEM PUMPS AND VALVES SHALL BE BALANCED, INCLUDING HOT WATER HEATING, CHILLED WATER COOLING, AND HEAT PUMP SYSTEMS. 6. ALL PUMP AND/OR VALVE WATER FLOW RATES, EQUIPMENT COIL FLOW RATES, AND HEATING COMPONENT (FIN-TUBE, RADIANT PANELS, ETC.) FLOW RATES SHALL BE INDIVIDUALLY MEASURED, BALANCED, AND LISTED IN THE BALANCE REPORT. 7. ALL HVAC MOTOR DATA INCLUDING FREQUENCY (RPM), AMP DRAW, HORSEPOWER, EXTERNAL STATIC PRESSURE, HEAD PRESSURE, ETC., SHALL BE INCLUDED IN THE BALANCE REPORT.

SECTION	
23 34 23 HVAC POWER VENTILATORS	1. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL VENTILATOR(S) AND/OR EXHAUST FAN(S) AS SHOWN AND SCHEDULED. THE UNIT(S) SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, AND SHALL PERFORM AT THE CONDITIONS SCHEDULED. 2. INSTALL VENTILATOR(S) AND/OR EXHAUST FAN(S) WITH CLEARANCES FOR SERVICE AND MAINTENANCE. 3. THE MECHANICAL CONTRACTOR SHALL PROVIDE ONE (1) BACKDRAFT DAMPER FOR EACH VENTILATOR AND/OR EXHAUST FAN, OR SHALL VERIFY A BACKDRAFT DAMPER HAS BEEN FACTORY INSTALLED. 4. THE MECHANICAL CONTRACTOR SHALL ADJUST DAMPER LINKAGES FOR PROPER OPERATION. IF THE VENTILATOR(S) AND/OR EXHAUST FAN(S) ARE BELT DRIVEN, THE MECHANICAL CONTRACTOR SHALL ADJUST BELT TENSION AT START-UP 4.1. FAN UNIT: V-BELT OR DIRECT DRIVEN, AS INDICATED, WITH SPUN ALUMINUM HOUSING; RESILIENT MOUNTED MOTOR; 1/2 INCH MESH, 0.62 INCH THICK ALUMINUM WIRE BIRDSCREEN; SQUARE BASE TO SUIT ROOF CURB WITH CONTINUOUS CURB GASKETS. 4.2. DISCONNECT SWITCH: FACTORY WIRED, NON-FUSIBLE, IN HOUSING FOR THERMAL OVERLOAD PROTECTED MOTOR. 4.3. BACKDRAFT DAMPER: GRAVITY ACTUATED, ALUMINUM MULTIPLE BLADE CONSTRUCTION, FLANGED STYLE FOR FLUSH MOUNTING, NYLON BEARINGS, STAINLESS STEEL BEARING PINS, BLADES LINKED, FULL OPENING BLADES. 4.4. SHEAVES: CAST IRON OR STEEL, DYNAMICALLY BALANCED, BORED TO FIT SHAFTS AND KEYED; VARIABLE AND ADJUSTABLE PITCH MOTOR SHEAVE SELECTED SO REQUIRED RPM IS OBTAINED WITH SHEAVES SET AT MID-POSITION; FAN SHAFT WITH SELF-ALIGNING PRE-LUBRICATED BALL BEARINGS,. 4.5. MANUFACTURERS: LOREN COOK, ACME, GREENHECK
23 82 39 ELECTRIC HEATING UNITS	1. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ELECTRIC HEATING UNITS INCLUDING: ELECTRIC WALL HEATERS, ELECTRIC CEILIING HEATERS, ELECTRIC RADIANT PANELS, AND ELECTRIC BASEBOARD . THE UNIT(S) SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, AND SHALL PERFORM AT THE CONDITIONS SCHEDULED, ALL UNITS SHALL BE UL RATED. 2. THE ELECTRIC HEATING UNITS SHALL INCLUDE ONE OR MORE OF THE FOLLOWING SAFETY DEVICES AS LISTED IN THE ELECTRIC HEATING SCHEDULE: THERMAL SAFETY CUT-OUT CONTROL WITH AUTO RESET FUNCTION; THERMAL SAFETY CUT-OUT WITH MANUAL RESET FUNCTION; AIR-PROOF SWITCH, EACH TYPE OF THERMAL SAFETY DEVICE SHALL SHUT DOWN THE ELECTRIC HEATING SYSTEM WHEN THE UNIT'S TEMPERATURE EXCEEDS THE FACTORY SET HIGH LIMIT. 3. THE ELECTRIC HEATING UNIT SHALL BE OF THE WATTAGE AND VOLTAGE AS SCHEDULED.

LOUVER SCHEDULE

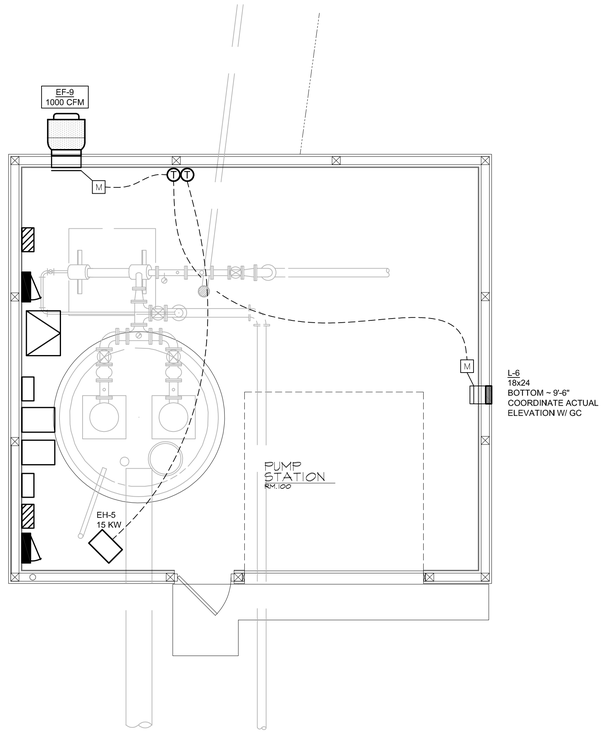
TAG	DESCRIPTION				MANUFACTURER AND MODEL	MATERIAL	COLOR & FINISH	AIRFLOW (CFM)	VELOCITY (FPM)	APD (IN WG)	REMARKS
	TYPE/SERVICE	FLANGED	THICKNESS (IN)	SIZE (IN)							
L-6	STATIONARY EXTRUDED LOUVER WITH DRAINABLE BLADES & 3/4" BIRD SCREEN	YES 1-1/2"	4"	18x24 (NOMINAL)	GREENHECK ESD-403	ALUMINUM	HI-PRO POLY COATING (COLOR BY ARCH)	1000	781	0.1"	FURNISH WITH LOW-LEAKAGE MOTORIZED BACK DRAFT DAMPER

ELECTRIC HEATER SCHEDULE

TAG	LOCATION	MANUFACTURER AND MODEL	AIRFLOW (CFM)	DIMENSIONS (INCHES)			ELECTRICAL DATA			CONTROL DATA	REMARKS
				W	H	D	VOLTAGE/PHASE	WATTS	F.L.A.		
EH-5	IRRIGATION BUILDING	BERKO HUH1548	750	18	18	17.5	480 / 60 / 1	15 KW	33	WALL MOUNT THERMOSTAT	UNIT MOUNTED DISCONNECT FACTORY WIRED FOR 3 PHASE - FIELD CONVERT TO 1 PHASE

EXHAUST FAN SCHEDULE

TAG	LOCATION AND SERVICE	MANUFACTURER AND MODEL	AIRFLOW (CFM)	E.S.P. (IN. W.G.)	NOISE DATA (SONES)	ELECTRICAL DATA				CONTROL DATA	REMARKS
						VOLTAGE	HP	RPM	F.L.A.		
EF-9	LAB BUILDING: TERTIARY FILTER ROOM 106 EXHAUST	GREENHECK CUE-120-VG	1000	0.35"	7.4	120 / 60 / 1	1/4	1072	---	REVERSE ACTING LINE-VOLTAGE THERMOSTAT	PROVIDE WITH VARI-GREEN EC MOTOR; GRAVITY BDD; DISCONNECT; SPRING ISOLATORS



NORTH

MECHANICAL IRRIGATION BUILDING

SCALE: 1/4" = 1'-0"

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MECHANICAL - ELECTRICITY - PLUMBING

PROJECT TITLE:
Village of Beulah
BEULAH IRRIGATION
7228 Commercial Ave
Beulah, MI 49617

SHEET TITLE:
MECHANICAL FLOOR PLAN

ENGR. PROJ.# 24008

DRAWN BY: WDH
CHECKED BY: WDH

DATE: 08.14.2025 CONSTRUCTION

SHEET NUMBER
M1

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	NOTES
S	SINGLE POLE SWITCH, (LEVITON #CSBI-20-W)	MOUNT @ 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
S_3	THREE-WAY SWITCH, (LEVITON #CSB3-20-W)	MOUNT @ 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
S_4	FOUR-WAY SWITCH (LEVITON #CSB4-20-W)	MOUNT @ 44" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
X	WALL MOUNTED FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
X	ROUND FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
X	2'x4' FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
X	1'x4' FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
X	WALL MOUNTED FIXTURE, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
X	EXIT SIGN, TYPE X	SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
PC	PHOTOCELL	INTERMATIC #K4321
WP	DUPLEX OUTLET - 20 AMP (LEVITON #BR20-W)	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	DUPLEX OUTLET - WEATHER PROOF "IN-USE" COVER	MOUNT @ 24" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	DUPLEX OUTLET - GROUND FAULT (LEVITON #8899-W)	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	DUPLEX OUTLET - DEDICATED CIRCUIT	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	208V, 4 WIRE OUTLET, AS SPECIFIED	MOUNT @ 16" A.F.F. TO BOTTOM OF BOX, UNLESS OTHERWISE NOTED
	SINGLE-PHASE SPECIAL PURPOSE OUTLET, AS NOTED	REFER TO SHOP DRAWINGS FOR CONNECTION REQUIREMENTS
	THREE-PHASE SPECIAL PURPOSE OUTLET, AS NOTED	REFER TO SHOP DRAWINGS FOR CONNECTION REQUIREMENTS
	WIREMOLD OR PLUG-IN STRIP, AS SPECIFIED	REFER TO SPECIFICATIONS AND DRAWINGS
J	JUNCTION BOX WITH BLANK COVER, AS SPECIFIED	
	SINGLE-PHASE MOTOR, AS SPECIFIED	
	THREE-PHASE MOTOR, AS SPECIFIED	
	SINGLE-PHASE FUSED OR NON-FUSED DISCONNECT	
	SINGLE-PHASE MANUAL STARTER OR COMB. DISC./STARTER	
	THREE-PHASE FUSED OR NON-FUSED DISCONNECT	
	THREE-PHASE MANUAL STARTER OR COMB. DISC./STARTER	
S_M	MOTOR TOGGLE SWITCH WITH THERMAL OVERLOAD AND LOCKOUT	SQUARE D #CLASS 2510 FGJ5P (SINGLE POLE)
	DISTRIBUTION POWER PANELS	REFER TO SPECIFICATIONS AND ONE-LINE DIAGRAM.
	LIGHTING/BRANCH CIRCUIT PANELS	REFER TO SPECIFICATIONS AND ONE-LINE DIAGRAM.
W D P	DATA OUTLET (DESK IS THE DEFAULT LOCATION)	W DENOTES WALL OUTLET. MOUNT @ 44" A.F.F. TO BOTTOM OF BOX. D DENOTES DESK OUTLET. MOUNT @ 16" A.F.F. TO BOTTOM OF BOX. P DENOTES PAY OUTLET. MOUNT @ 36" A.F.F. TO BOTTOM OF BOX. E.C. TO PROVIDE AND INSTALL 4" SQ. x 2-1/8" DEEP BOX WITH 2" DEEP PLASTER RING AND 1" CONDUIT STUBBED ABOVE CEILING.
W D P	TELEPHONE OUTLET (DESK IS THE DEFAULT LOCATION)	W DENOTES WALL OUTLET. MOUNT @ 44" A.F.F. TO BOTTOM OF BOX. D DENOTES DESK OUTLET. MOUNT @ 16" A.F.F. TO BOTTOM OF BOX. P DENOTES PAY OUTLET. MOUNT @ 36" A.F.F. TO BOTTOM OF BOX. E.C. TO PROVIDE AND INSTALL 4" SQ. x 2-1/8" DEEP BOX WITH 2" DEEP PLASTER RING AND 1" CONDUIT STUBBED ABOVE CEILING.
T	THERMOSTAT	
FA	FIRE ALARM AUDIBLE/VISIBLE	MOUNT @ MIN. 80", MAX. 96" A.F.F. BASED ON EDWARDS
EG	GENERATOR EMERGENCY POWER OFF BUTTON	INCLUDE LEXAN GUARD COVER
RA G	GENERATOR REMOTE ANNUNCIATOR	INCLUDE LEXAN GUARD COVER

ABBREVIATIONS

1-21	PANEL 1, CIRCUIT 21	EMT	ELECTRICAL METALLIC TUBING	MC	MECHANICAL CONTRACTOR	RGS	RIGID GALVANIZED STEEL
A	AMPERES	ERV	ENERGY RECOVERY VENTILATOR	MCB	MAIN CIRCUIT BREAKER	TR	TAMPER RESISTANT
AC	ABOVE COUNTER	E-R	EXISTING TO BE RELOCATED	MDP	MAIN DISTRIBUTION PANEL	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
AFF	ABOVE FINISH FLOOR	ETR	EXISTING TO REMAIN	MLO	MAIN LUG ONLY	UGRD	UNDERGROUND
AFG	ABOVE FINISH GRADE	EWC	ELECTRIC WATER COOLER	NL	NIGHT LIGHT	UON	UNLESS OTHERWISE NOTED
BC	BELOW COUNTER	EWH	ELECTRIC WATER HEATER	NTS	NOT TO SCALE	V	VOLT
C	CONDUIT	EXP	EXPLOSION PROOF	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED	VFD	VARIABLE FREQUENCY DRIVE
C/B, CB	CIRCUIT BREAKER	G	GROUND	P	PUMP	VIF	VERIFY IN FIELD
DWG	DRAWING	GEC	GROUNDING ELECTRODE CONDUCTOR	PNL	PANEL	W	WIRE
E	EXISTING TO REMAIN	GFI	GROUND FAULT CIRCUIT INTERRUPTER	PS	PRIMARY SWITCH	WG	WIREGUARD
EC	ELECTRICAL CONTRACTOR	KCMIL	THOUSAND CIRCULAR MILS	PT	PRIMARY TRANSFORMER	WP	WEATHERPROOF
EF	EXHAUST FAN	KVA	KILOVOLT-AMPERES	PVC	POLYVINYL CHLORIDE	XFMR	TRANSFORMER
EGC	EQUIPMENT GROUNDING CONDUCTOR	KW	KILOWATTS	Q	QUADRIPLEX (DOUBLE DUPLEX) RECEPTACLE		

LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	VOLTS	LAMPS	CATALOG NO.	REMARKS
A	NOT USED	--	--	--	--
B	NOT USED	--	--	--	--
C	4' LED SURFACE MT. WET LOCATION	120	LED, 30W, 4000 LUMENS, 4000K 80+ CRI	FAIL-SAFE #4VRVT2-LD5-4-DR100-UNV-L840-CD1-WL-SSL OR PRE-APPROVED EQUAL	--
D	LED WALL PACK WET LOCATION	120	LED, 26W, 2710 LUMENS, 4000K 70+ CRI	LUMARK #XTOR3B-W-PC1 OR PRE-APPROVED EQUAL	--

NOTES (TYPICAL OF ALL SHEETS)

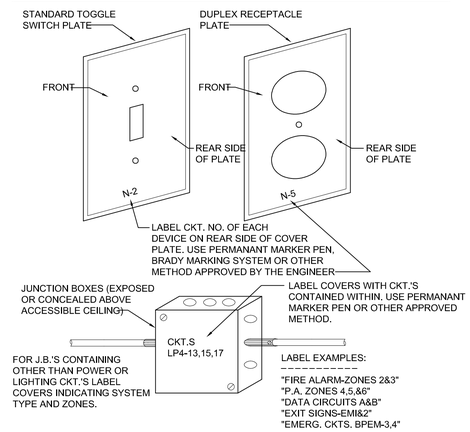
1. ALL ELECTRICAL EQUIPMENT AND WIRING METHODS SHALL MEET 2023 N.E.C. CLASS I, DIVISION 2, GROUP C & D, HAZARDOUS LOCATIONS IN SCREENING ROOM #100.
2. ALL ELECTRICAL PIPING IN CLASS I, DIVISION 2, GROUP C & D SHALL BE PVC COATED RIGID CONDUIT, SURFACE MOUNTED. ALL OTHER CONDUIT SHALL BE (GRS) UNLESS NOTED OTHERWISE ON DRAWINGS. USE PVC CONDUIT STRAPS.
3. NOT USED
4. 1" PVC COATED RIGID CONDUIT WITH :
   1-3 WIRE #18 AWG TWISTED / 100% SHIELDED CABLE BELDON #8770
   1-2 WIRE #18 AWG TWISTED / 100% SHIELDED CABLE BELDON #9368
   1-2 WIRE #18 AWG TWISTED / 100% SHIELDED CABLE BELDON #9368
5. NOT USED.
6. STROBE WARNING LIGHT (1) SUPPLIED BY CONTROL PANEL MANUFACTURER (CP-1). INSTALLED & WIRED BY E.C.
7. T.C.C. SHALL INTERLOCK MAU-1 AND EF-1 TOGETHER THROUGH R1. JUNCTION BOX SHALL BE NEMA #3R ENCLOSURES. BOTH MAU-1 AND EF-1 SHALL RUN TOGETHER. A THERMOSTAT THERMOSTAT SHALL CONTROL THE HEAT CYCLE ON MAU-1.
8. NOT USED.
9. GROUNDING ELECTRODE CONDUCTOR (G.E.C.) AND/OR EQUIPMENT GROUNDING CONDUCTORS (E.G.C.) SHALL BE REQUIRED IN ALL CONDUIT, SIZED PER TABLES 250-66 & 250-122 RESPECTIVELY.
10. REFER TO P&ID SHEETS (G-8 THROUGH G-13) AND SPECIFIED FUNCTIONAL INTENT FOR ADDITIONAL INSTRUMENTATION INFORMATION. REQUIRED TO BE INSTALLED BY E.C.

WIRE SIZE REQUIREMENTS

NOTE:
BASED ON A MAXIMUM OF 3.6-VOLT DROP (3%) ON 120V CIRCUITS.
WIRES FOR RUNS OVER 100'-0" SHALL BE DETERMINED ON THIS
A MAXIMUM OF A 3% DROP ALLOWED.

BRANCH CIRCUIT AMPS	LENGTH OF RUN - FROM PANEL TO FIRST CONNECTION - FEET								
AMPS	50'	60'	70'	80'	90'	100'	110'	120'	130'
15	#12	#12	#12	#10	#10	#10	#10	#10	#8
20	#12	#10	#10	#10	#10	#8	#8	#8	#8
30	#10	#10	#8	#8	#8	#6	#6	#6	#6

ELECTRICAL IDENTIFICATION



811
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Village of Beulah
BEULAH IRRIGATION
7228 Commercial Ave
Beulah, MI 49617

PROJECT TITLE:

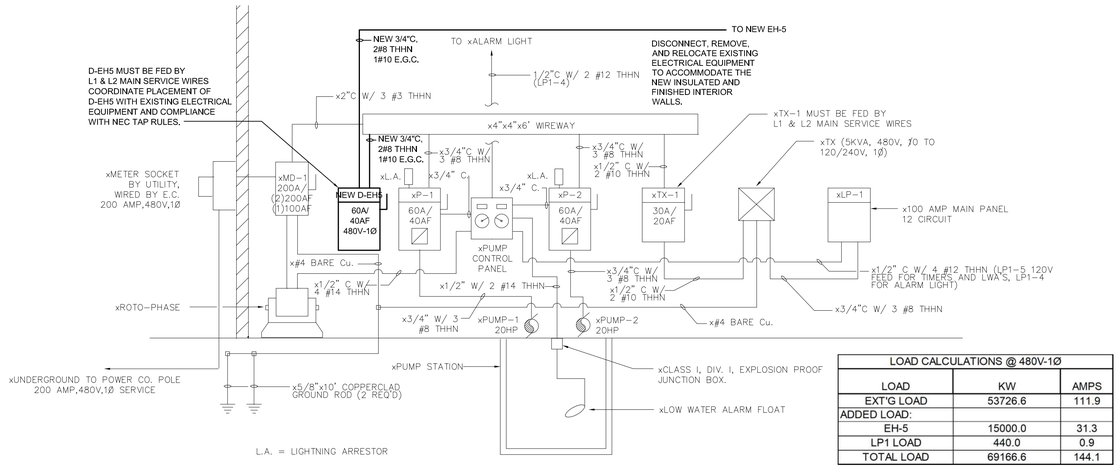
SHEET TITLE:
ELECTRICAL
SCHEDULES & DETAILS

ENGR. PROJ.# 24008

DRAWN BY: JAV
CHECKED BY: JAV

DATE:
08.14.2025
CONSTRUCTION

SHEET NUMBER
E0



LOAD CALCULATIONS @ 480V-1Ø		
LOAD	KW	AMPS
EXT'G LOAD	53726.6	111.9
ADDED LOAD:		
EH-5	15000.0	31.3
LP1 LOAD	440.0	0.9
TOTAL LOAD	69166.6	144.1

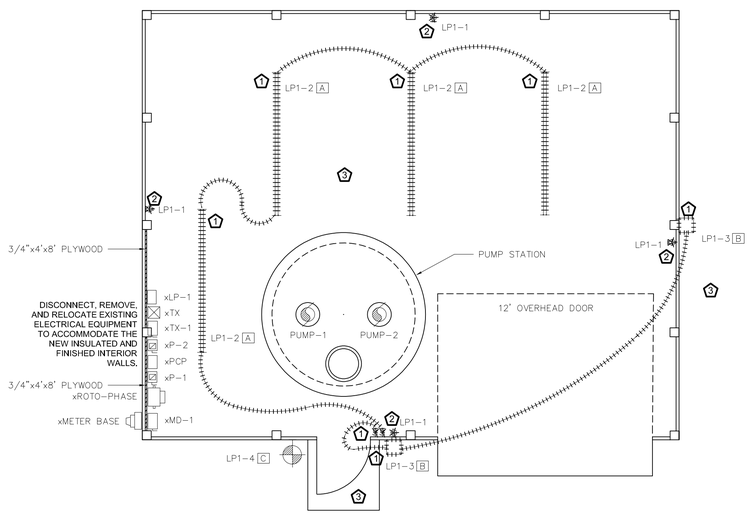
ELECTRICAL RISER DIAGRAM IRRIGATION BUILDING

SCALE: NONE

EXT'G PANEL #LP1

VOLTAGE: 120/240V-1PH-3W **MOUNTIN** SURFACE
AMPERAGE: 100A MCB **ACCESSOR** ---
FED FROM: TX-1 & 5 kVA TX **TYPE:** SQUARE D qo

KEY	CIR	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR	KEY
	1	20/1	INTERIOR RECEPTACLES	720	A	800	INTERIOR LIGHTS	20/1	2	
	3	20/1	OUTSIDE SECURITY LIGHTS	200	B	400	LOW LEVEL FLOAT CONTROL	20/2	4	
	5	20/1	PUMP CONTROL PANEL	1000	A	100	FLOW METER	20/1	6	
	7	--	SPACE		B		SPACE	--	8	
	9	--	SPACE		A		SPACE	--	10	
	11	--	SPACE		B		SPACE	--	12	



NORTH

ELECTRICAL DEMOLITION IRRIGATION BUILDING

SCALE: 1/4" = 1'-0"

ELECTRICAL DEMOLITION NOTES

FOR THE ELECTRICAL EQUIPMENT TO BE DISCONNECTED AND REMOVED, THE OWNER SHALL BE GIVEN THE OPPORTUNITY OF HAVING ANY OF IT TURNED OVER TO THEM.

1. DISCONNECT AND REMOVE ALL EXISTING LIGHTS AND SWITCHES IN THIS AREA, AS INDICATED. REMOVE EXISTING CIRCUITRY (WIRING) AND CONDUIT BACK TO PANEL AND DISCARD, UNLESS IT IS SHOWN TO BE REPURPOSED. INSTALL NEW LIGHTS AND CONTROLS AS SHOWN ON THIS SHEET. REUSE EXISTING CIRCUIT, IF SHOWN, OR CIRCUIT TO PANEL WITH NEW CIRCUIT AS SHOWN ON THIS SHEET. PROVIDE BLANK COVER PLATES FOR EMPTY GANG BOXES.
2. DISCONNECT AND REMOVE ALL EXISTING RECEPTACLES AND POWER DEVICES IN THIS AREA, AS INDICATED. REMOVE EXISTING CIRCUITRY (WIRING) AND CONDUIT BACK TO SOURCE AND DISCARD, UNLESS IT IS SHOWN TO BE REPURPOSED. INSTALL NEW RECEPTACLES AND POWER DEVICES AS SHOWN ON THIS SHEET. REUSE EXISTING CIRCUIT, IF SHOWN, OR CIRCUIT TO PANEL WITH NEW CIRCUIT AS SHOWN ON THIS SHEET. PROVIDE BLANK COVER PLATES FOR EMPTY GANG BOXES.
3. DISCONNECT AND REMOVE ELECTRICAL DEVICE(S) WHICH WILL INTERFERE WITH THE DEMOLITION AND REMOVAL OF WALLS, FLOORING, AND/OR CEILING AS DESCRIBED IN THE ARCHITECTURAL DEMOLITION PLANS. REMOVE EXISTING CIRCUITRY (WIRING) AND CONDUIT BACK TO PANEL AND DISCARD.

NOTES (TYPICAL OF ALL SHEETS)

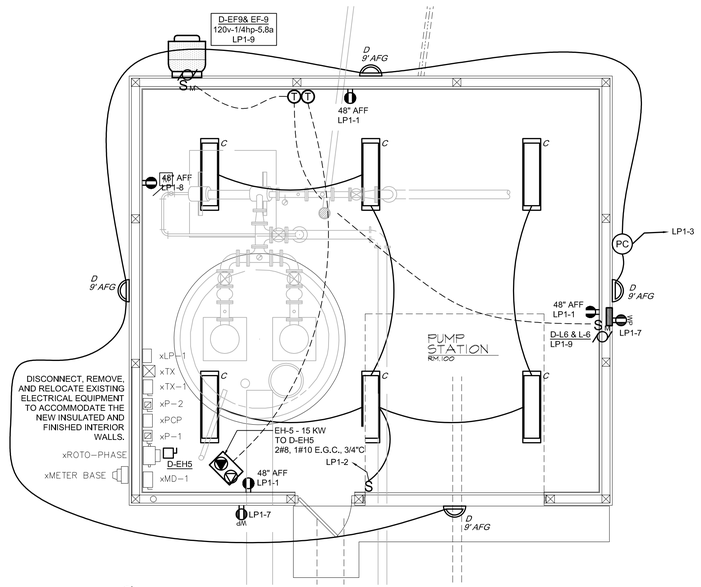
1. ALL ELECTRICAL EQUIPMENT AND WIRING METHODS SHALL MEET 2023 N.E.C. CLASS I, DIVISION 2, GROUP C & D, HAZARDOUS LOCATIONS IN SCREENING ROOM #100.
2. ALL ELECTRICAL PIPING IN CLASS I, DIVISION 2, GROUP C & D SHALL BE PVC COATED RIGID CONDUIT, SURFACE MOUNTED. ALL OTHER CONDUIT SHALL BE (GRS) UNLESS NOTED OTHERWISE ON DRAWINGS. USE PVC CONDUIT STRAPS.
3. NOT USED
4. NOT USED.
5. NOT USED.
6. NOT USED.
7. NOT USED.
8. NOT USED.
9. GROUNDING ELECTRODE CONDUCTOR (G.E.C.) AND/OR EQUIPMENT GROUNDING CONDUCTORS (E.G.C.) SHALL BE REQUIRED IN ALL CONDUIT, SIZED PER TABLES 250-66 & 250-122 RESPECTIVELY.
10. NOT USED.

REVISED PANEL #LP1

VOLTAGE: 120/240V-1PH-3W **MOUNTIN** SURFACE
AMPERAGE: 100A MCB **ACCESSOR** ---
FED FROM: TX-1 & 5 kVA TX **TYPE:** SQUARE D qo

KEY	CIR	CB/P	DESCRIPTION	LOAD	P	LOAD	DESCRIPTION	CB/P	CIR	KEY
	1	20/1	INTERIOR RECEPTACLES	540	A	180	INTERIOR LIGHTS	20/1	2	
	3	20/1	OUTSIDE SECURITY LIGHTS	104	B	400	LOW LEVEL FLOAT CONTROL	20/2	4	
	5	20/1	PUMP CONTROL PANEL	1000	A	100	FLOW METER	20/1	6	
N	7	20/1	EXTERIOR RECEPTACLES	360	B	180	INTERIOR RECEPTACLE	20/1	8	N
N	9	20/1	EF-9 & L-6	796	A		SPACE	--	10	
	11	--	SPACE		B		SPACE	--	12	

N DENOTES TO PROVIDE AND INSTALL A NEW CIRCUIT BREAKER, SIZED AS NOTED IN EXISTING PANEL SPACE



NORTH

ELECTRICAL IRRIGATION BUILDING

SCALE: 1/4" = 1'-0"

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MECHANICAL - ELECTRICAL - PLUMBING

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BEULAH IRRIGATION
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Beulah, MI 49617

PROJECT TITLE:

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ENGR. PROJ.# 24008

DRAWN BY: JAV
CHECKED BY: JAV

DATE: 08.14.2025 CONSTRUCTION

SHEET NUMBER
E1

ELECTRICAL SPECIFICATIONS

SECTION

260000

BASIC ELECTRICAL REQUIREMENTS

1. PRIOR TO SUBMITTING A PROPOSAL, BIDDER SHALL HAVE VISITED THE CONSTRUCTION SITE. HE SHALL BE FAMILIAR WITH THE EXISTING CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.
2. ELECTRICAL WORK SHALL COMPLY WITH THE LATEST ENFORCEABLE EDITION OF THE N.E.C., LOCAL AND STATE CODES, ORDINANCES, REGULATIONS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), AND ADA GUIDELINES WITH THE LOCAL CODE AUTHORITIES HAVING JURISDICTION.
3. ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS, PAY ALL FEES, AND ARRANGE FOR ALL INSPECTION FOR HIS WORK. AT THE COMPLETION OF ELECTRICAL WORK, THE ELECTRICAL CONTRACTOR SHALL FURNISH THE OWNER WITH ALL CERTIFICATES OF FINAL INSPECTION AND APPROVALS. UTILITY COSTS ASSOCIATED WITH BRINGING POWER TO THE SITE SHALL BE PAID FOR BY THE OWNER.
4. THE CONTRACTOR SHALL EMPLOY QUALIFIED AND EXPERIENCED WORKMEN FOR THIS WORK.
5. DRAWINGS ARE DIAGRAMMATIC ONLY!!! THEY SHOW OBSERVATIONS FROM CASUAL FIELD INVESTIGATIONS AND EXISTING DRAWINGS. FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND MOUNTING LOCATIONS. NOTIFY THE ARCHITECT/ENGINEER IF ANY DISCREPANCIES ARE FOUND THAT AFFECT THE WORK TO BE PERFORMED, PRIOR TO PROCEEDING.
6. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND SHALL WORK WITH EXISTING SYSTEMS IN AN "AS FOUND" CONDITION.
7. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT ELECTRIC UTILITY COMPANIES SERVICE POINTS AND PRIMARY SERVICE CONDUIT, ROUTING, AND SIZE WITH UTILITY COMPANY SERVICE PLANNERS/ENGINEERS PRIOR TO BEGINNING WORK. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL NEW ELECTRICAL UNDERGROUND WORK WITH EXISTING AND NEW UTILITIES PRIOR TO INSTALLATION. CONTACT MISS-DIG AT '811'.
8. ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH LOCAL UTILITY COMPANY. FAULT CURRENT WAS NOT AVAILABLE AT THE TIME OF DESIGN. FOR PURPOSES OF BIDDING, ASSUME ALL CIRCUITBREAKERS TO BE 10,000 A.I.C. RATED.
9. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK INSTALLED UNDER HIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE ACCEPTANCE OF THE BUILDING BY THE OWNER. SHOULD DEFECTS OCCUR WITHIN THIS PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AT NO EXPENSE TO THE OWNER.
10. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR THE PROPER RESTORATION OF ALL EXISTING SURFACES REQUIRING PATCHING, PLASTERING, PAINTING AND/OR OTHER REPAIR DUE TO THE INSTALLATION OF ELECTRICAL WORK UNDER THE TERMS OF THIS SPECIFICATION. CLOSE ALL OPENINGS, REPAIR ALL SURFACES, ETC. AS REQUIRED.
11. CUTTING AND/OR PATCHING THAT MAY BE REQUIRED FOR THE INSTALLATION OF THE ELECTRICAL SYSTEM(S) SHALL BE DONE AND/OR REPAIRED BY THE ELECTRICAL CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE DONE WITHOUT THE WRITTEN CONSENT OF THE OWNER/ENGINEER.
12. CERTAIN REMODELING OF ELECTRICAL FACILITIES WILL BE REQUIRED IN THE EXISTING BUILDING. EXISTING CONDUIT RUNS ARE GENERALLY NOT SHOWN ALTHOUGH AN ATTEMPT HAS BEEN MADE TO SHOW SOME EXISTING CONDITIONS FOR WHICH THE INFORMATION HAS BEEN TAKEN FROM FIELD OBSERVATIONS OF THIS PROJECT. THE DRAWINGS SHOWING LOCATIONS OF EXISTING EQUIPMENT, OUTLETS, FIXTURES, ETC., IN EXISTING AREAS ARE APPROXIMATE ONLY (FIELD VERIFY). VERIFY ALL EXISTING LOADS AND WIRING - NOTIFY THE ARCHITECT/ENGINEER IF EXISTING CONDITIONS ARE FOUND THAT VIOLATE INSTALLATION OR SAFETY CODES.
13. BRANCH CIRCUITS SHALL BE REUSED WHERE PRACTICAL AND SHALL, IN ADDITION, BE REMODELED AS REQUIRED.
14. EXISTING ELECTRICAL WIRING WHICH WILL NOT BE MADE OBSOLETE AND WHICH WILL BE DISTURBED DUE TO CONSTRUCTION CHANGES REQUIRED BY THIS CONTRACT SHALL BE RESTORED TO OPERATING CONDITION AS REQUIRED AND/OR DIRECTED. WHERE REQUIRED, SHOWN AND/OR DIRECTED, OUTLETS AND CONDUIT RUNS SHALL BE RELOCATED. IN SOME CASES IT MAY BE NECESSARY TO EXTEND CONDUITS AND PULL IN NEW WIRING, INSTALL JUNCTION BOXES AND SPLICE IN NEW WIRING, OR REPLACE OLD WIRING WITH NEW.
15. OUTLETS FROM WHICH FIXTURES, SWITCHES, RECEPTACLES, AND/OR OTHER ELECTRICAL DEVICES ARE MOVED AND WHICH ARE NOT REPLACED OR REUSED SHALL BE REMOVED OR, IF IT IS NOT POSSIBLE TO REMOVE, HAVE A BLANK COVER PLACED ON THE OUTLET BOX. WHERE OUTLETS, BOXES, ETC. ARE COMPLETELY REMOVED, THE CONTRACTOR SHALL CUT OFF AND CAP CONDUITS AND REMOVE WIRING.
16. THE ELECTRICAL CONTRACTOR SHALL PERIODICALLY REMOVE FROM THE SITE ALL DEBRIS AND RUBBISH ACCUMULATING AS A RESULT OF THE ELECTRICAL INSTALLATION. UPON COMPLETION OF THE PROJECT, HE SHALL DISPOSE OF ALL DEBRIS AND RUBBISH AND SHALL LEAVE ALL AREAS CLEAN. THE INTERIORS OF ALL CABINETS, PULL BOXES, AND EQUIPMENT ENCLOSURES SHALL BE FREE OF ANY DEBRIS.
17. ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATIONS OF HIS EQUIPMENT AND WORK WITH OTHER BUILDING TRADES, EXISTING AND NEW UTILITIES, AND OTHER UNDERGROUND WORK TO AVOID ANY INTERFERENCES BETWEEN HIS WORK AND THE WORK OF OTHER TRADES. IF ANY DISCREPANCIES OCCUR, CONSULT WITH THE ARCHITECT AND/OR OWNER BEFORE CONTINUING. CONTACT MISSDIG AT '811' AT LEAST 72 HOURS BEFORE ANY EXCAVATING FOR ANY ELECTRICAL WORK OCCURS.
18. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A MINIMUM OF (2) HOURS OF TRAINING AS NECESSARY TO THE OWNER ON THE ELECT. EQUIP. AND/OR DEVICES.
19. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OPERATING AND MAINTENANCE INSTRUCTION MANUALS, CERTIFICATES OF INSPECTION, TEST REPORTS, SPARE PARTS, AND RECORD DRAWINGS (AS-BUILTS) TO THE OWNER PRIOR TO CLOSEOUT. FINAL PAYMENT WILL ONLY BE MADE AFTER THE FINAL PUNCHLIST COMPLETION AND RECEIPT OF THE ABOVE CLOSEOUT DOCUMENTATION.
20. ALL NEW UNDERGROUND ELECTRICAL WIRES ARE TO BE TRACEABLE ACCURATELY DOCUMENTED ON THE RECORD (AS-BUILT) DRAWINGS.
21. WITHIN THIRTY (30) DAYS AFTER THE ELECTRICAL CONTRACTOR HAS BEEN NOTIFIED TO PROCEED WITH THE WORK, HE SHALL SUBMIT TO THE ARCHITECT/ENGINEER SIX (6) PRINTED HARD COPIES -OR- ONE (1) ELECTRONIC COPY IN PDF FORMAT OF EACH OF THE FOLLOWING DRAWINGS AND DATA SHEETS FOR APPROVAL. ALL EQUIPMENT FOR WHICH SHOP DRAWINGS ARE BEING SUBMITTED SHALL NOT BE ORDERED UNTIL APPROVED DRAWINGS HAVE BEEN RETURNED. SUCH SUBMITTALS SHALL INCLUDE:
    * LIGHT FIXTURES
    * WIRING DEVICES, INCLUDING SWITCHES, RECEPTACLES, AND HEAVY-DUTY IN-USE WEATHERPROOF COVERS
    * CIRCUIT BREAKERS
    * MANUAL TOGGLE SWITCHES WITH THERMAL OVERLOAD AND LOCKOUT
    * HEAVY-DUTY FUSED DISCONNECT SWITCHES
22. ELECTRICAL JOINTS WILL BE PERMITTED ONLY IN JUNCTION AND OUTLET BOXES. ALL JOINTS SHALL BE FIRMLY BONDED TOGETHER AND TAPED OR SHALL BE MADE WITH MECHANICAL CONNECTORS. NO SPLICES SHALL BE PERFORMED ON LOW VOLTAGE WIRING OR MANUFACTURER SUPPLIED CABLING.
23. ELECTRICAL MATERIALS SHALL BE NEW, AND BEAR THE "UL" LABEL OR LISTING.
24. BRANCH CIRCUIT WIRE SHALL BE COPPER, RATED 75°C, MINIMUM SIZE #12 AWG, AND BE:
    (A) TYPE "THHN", "THWN OR "THWN-2" AND INSTALLED IN CONDUIT (EMT, FOR INDOOR USE AND GRS FOR OUTDOOR USE), MINIMUM SIZE 3/4".
    ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE DELIVERED TO PROJECT IN UNBROKEN AND UNDAMAGED CARTONS AND/OR REELS.
    ALL NEW BRANCH WIRING SHALL BE COLOR CODED BY THE FOLLOWING VOLTAGE SYSTEMS AND LABELED AT THEIR SOURCE PER 2017 NEC SECTION #210.5:

120/240V-1Ø-4W SYSTEM:	480V-3Ø-3W SYSTEM:
ØA - BLACK	ØA - BROWN
ØB - RED	ØB - ORANGE
ØC - N/A	ØC - YELLOW
NEUTRAL - WHITE	NEUTRAL - GREY
E.G.C. - GREEN	E.G.C. - GREEN

25. ALL CONDUIT BELOW GRADE SHALL BE GALVANIZED RIGID CONDUIT. ALL OTHER CONDUIT SHALL BE EMT OR SCH. 40 PVC AS NOTED ON THE PLANS, MINIMUM SIZE 3/4". GALVANIZED RIGID CONDUIT SHALL BE USED IN ALL CLASS 1, DIV. 1& 2 LOCATIONS PER NEC ARTICLES 500, 501, & 502.
26. ALL WORK WITHIN CLASS 1, DIVISION 1 & 2 SHALL COMPLY WITH ARTICLES 500, 501, 502, 511, 514, & 515 OF THE NEC.
27. ALL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE N.E.C. AND ALL LOCAL CODES. INDIVIDUAL EQUIPMENT GROUNDING CONDUCTORS SHALL BE PROVIDED IN ALL CONDUIT.
28. FUSES SHALL BE "UL" LISTED, DUAL-ELEMENT AS MANUFACTURED BY BUSSMAN CO., OR APPROVED EQUAL (200,000 AIC).
29. ALL DISCONNECT SWITCHES SHALL BE 250V, OR 600V HEAVY-DUTY TYPE, NEMA 1, FOR INDOOR USE, AND NEMA 3R FOR OUTDOOR USE BY ABB/GE, EATON/CUTLER-HAMMER OR SQUARE D.
30. ALL NEW EQUIPMENT (DISCONNECTS, VARIABLE FREQUENCY DRIVES (VFDs), ETC.) SHALL BE APPROPRIATELY IDENTIFIED.

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MECHANICAL - ELECTRICAL - PLUMBING

PROJECT TITLE:
Village of Beulah
BEULAH IRRIGATION
7228 Commercial Ave
Beulah, MI 49617

SHEET TITLE:
ELECTRICAL SPECIFICATIONS

ENGR. PROJ.# 24008

DRAWN BY: JAV
CHECKED BY: JAV

DATE:
08.14.2025
CONSTRUCTION

SHEET NUMBER
E2