

Re-Bid Addendum No. 2

Date: February 26, 2024

Project : **DNR- 230014.03**

FY23-24 Buck Creek State Park – New Nature Center

To All Bidders: This Addendum updates the Drawings and Project Manual designated “**RE-BID SET**” dated: **February 6, 2024**. Content within this Addendum shall become part of the Contract Documents.

See the end of this document for listing of revised Specifications or Drawings issued as part of this Addendum. Revised Drawings and Specifications shall include designation within the typical REVISION BLOCK within the typical drawing title block / specification header notating Addendum # and associated issuance date.

This Addendum contains **02** total pages, including this cover sheet and exclusive of any attachments noted herein.

A) General:

- 1) The Pre-ReBid Meeting occurred on the project site on February 15,2024 at 10am. The Pre Re-Bid Meeting Minutes and Pre-Bid Attendance sign-in sheet were issued as part of Bid Addendum #1, dated 02/22/24. NOTE: Contractors, at their discretion, may arrange site visits and access to interior of the existing facility through the Buck Creek State Park Manager, William Wigg at (937) 322-5284.
- 2) The *gray-scale text* within the Re-Bid ADD 2 replies typically indicate RFIs received from plan holders / bidders.

B) Substitutions:

- 1) There are no Substitution requests.

C) Questions / clarifications to the Bid Documents are answered below:

Re-Bid ADD2.1: CLARIFICATION to Specification Section 06 20 13 – EXTERIOR FINISH CARPENTRY:

REVISE Subparagraph 1.2.A.1 from 5/4 inch thick x 5 ½ inch vertical Thermally Modified White Ash boards to ¾ inch x 5 ½”. REVISE Subparagraph 2.3.A from 5/4 inch thick x 5 ½ inch to ¾ inch x 5 ½ inch. Exterior Overlay Corners shall be mitered to conceal rainscreen air gap. ADD Subparagraph 3.4.E as follows: “E. Install 1x4 nominal running trim at typical transition from vertical wall boards to typical exposed roof deck at eaves and rakes. Hold top of 1x4 trim and vertical siding 1 inch away from underside of roof deck boards to allow clear access to the rainscreen air gap. Install continuous, concealed bug screen at air gap to prevent insects from entering the rainscreen air gap.”

Re-Bid ADD2.2: CLARIFICATION to typical wall sections on Drawing A-7.1 through A-7.5:

ADD 1x4 nominal exterior trim typically to top of wall to eave / rake connection as described in Re-Bid ADD2.1.

Re-Bid Addendum No. 2

Re-Bid ADD2.3: 1) Per note 4 on page E-2.0. Is the 24V HVAC Control Power Transformer and HVAC Control Relay supplied by the HVAC Contractor?

REVISE Drawing H-3.0 – HVAC SCHEDULES as follows:

1), Added note to the AHU/HP Split DX Sequence of Operation Notes. The HVAC Contractor is responsible for providing and installing the equipment as noted.

Re-Bid ADD2.4: REVISE Drawing E-1-0 -- GENERAL ELECTRICAL DEMOLITION PLAN as follows:

1) Revised sheet leader describing installation of temporary power panel and NEMA 3R junction box for fuel pump controls.

2) Added electrical cable routing path between existing service entrance and fuel storage area for temporary power and fuel pump controls.

3) added boxed note describing scope of work on relocation of meter and maintaining power to remote restroom via existing to remain feeder.

Re-Bid ADD2.5: CLARIFICATION to Drawing E-2-0 -- ELECTRICAL POWER PLAN:

1) Removed 24v HVAC control transformers and related motor contactor from electrical power plan.

2) Removed coded note 2 referencing 24V transformer.

Re-Bid ADD2.6: CLARIFICATION to Drawing E-4-0 -- ELECTRICAL SCHEDULES & RISER DIAGRAM:

1) Removed 24V control power transformer circuit from new panel MDP.

2) Revise power riser coded note 2 to clarify scope for temporary power, and to include addition of new meter base.

End of Addendum #1

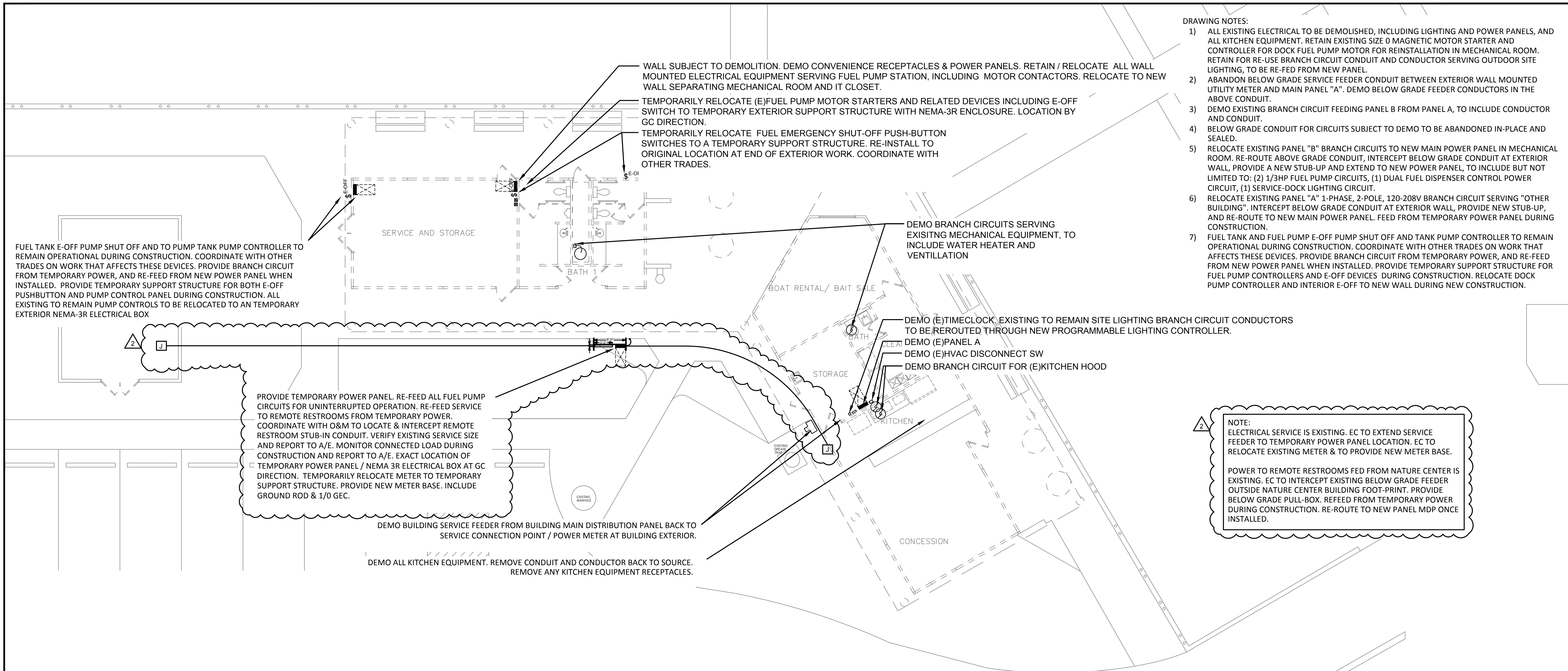
D) ATTACHMENTS:

DRAWING H-3-0 – HVAC SCHEDULES

DRAWING E-1-0 – GENERAL ELECTRICAL DEMOLITION PLAN

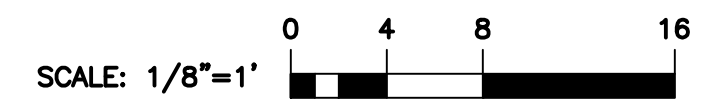
DRAWING E-2-0 – ELECTRICAL POWER PLAN

DRAWING E-4-0 – ELECTRICAL SCHEDULES & RISER DIAGRAM



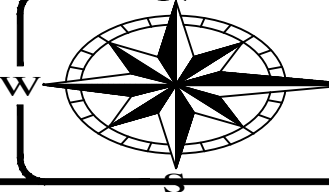
- DRAWING NOTES:
- 1) ALL EXISTING ELECTRICAL TO BE DEMOLISHED, INCLUDING LIGHTING AND POWER PANELS, AND ALL KITCHEN EQUIPMENT. RETAIN EXISTING SIZE 0 MAGNETIC MOTOR STARTER AND CONTROLLER FOR DOCK FUEL PUMP MOTOR FOR REINSTALLATION IN MECHANICAL ROOM. RETAIN FOR RE-USE BRANCH CIRCUIT CONDUIT AND CONDUCTOR SERVING OUTDOOR SITE LIGHTING, TO BE RE-FED FROM NEW PANEL.
 - 2) ABANDON BELOW GRADE SERVICE FEEDER CONDUIT BETWEEN EXTERIOR WALL MOUNTED UTILITY METER AND MAIN PANEL "A". DEMO BELOW GRADE FEEDER CONDUCTORS IN THE ABOVE CONDUIT.
 - 3) DEMO EXISTING BRANCH CIRCUIT FEEDING PANEL B FROM PANEL A, TO INCLUDE CONDUCTOR AND CONDUIT.
 - 4) BELOW GRADE CONDUIT FOR CIRCUITS SUBJECT TO DEMO TO BE ABANDONED IN-PLACE AND SEALED.
 - 5) RELOCATE EXISTING PANEL "B" BRANCH CIRCUITS TO NEW MAIN POWER PANEL IN MECHANICAL ROOM. RE-ROUTE ABOVE GRADE CONDUIT, INTERCEPT BELOW GRADE CONDUIT AT EXTERIOR WALL, PROVIDE A NEW STUB-UP AND EXTEND TO NEW POWER PANEL, TO INCLUDE BUT NOT LIMITED TO: (2) 1/3HP FUEL PUMP CIRCUITS, (1) DUAL FUEL DISPENSER CONTROL POWER CIRCUIT, (1) SERVICE-DOCK LIGHTING CIRCUIT.
 - 6) RELOCATE EXISTING PANEL "A" 1-PHASE, 2-POLE, 120-208V BRANCH CIRCUIT SERVING "OTHER BUILDING". INTERCEPT BELOW GRADE CONDUIT AT EXTERIOR WALL, PROVIDE NEW STUB-UP, AND RE-ROUTE TO NEW MAIN POWER PANEL. FEED FROM TEMPORARY POWER PANEL DURING CONSTRUCTION.
 - 7) FUEL TANK AND FUEL PUMP E-OFF PUMP SHUT OFF AND TANK PUMP CONTROLLER TO REMAIN OPERATIONAL DURING CONSTRUCTION. COORDINATE WITH OTHER TRADES ON WORK THAT AFFECTS THESE DEVICES. PROVIDE BRANCH CIRCUIT FROM TEMPORARY POWER, AND RE-FEED FROM NEW POWER PANEL WHEN INSTALLED. PROVIDE TEMPORARY SUPPORT STRUCTURE FOR FUEL PUMP CONTROLLERS AND E-OFF DEVICES DURING CONSTRUCTION. RELOCATE DOCK PUMP CONTROLLER AND INTERIOR E-OFF TO NEW WALL DURING NEW CONSTRUCTION.

1 GENERAL ELECTRICAL DEMOLITION PLAN
E-1-0 1/8" = 1'-0"



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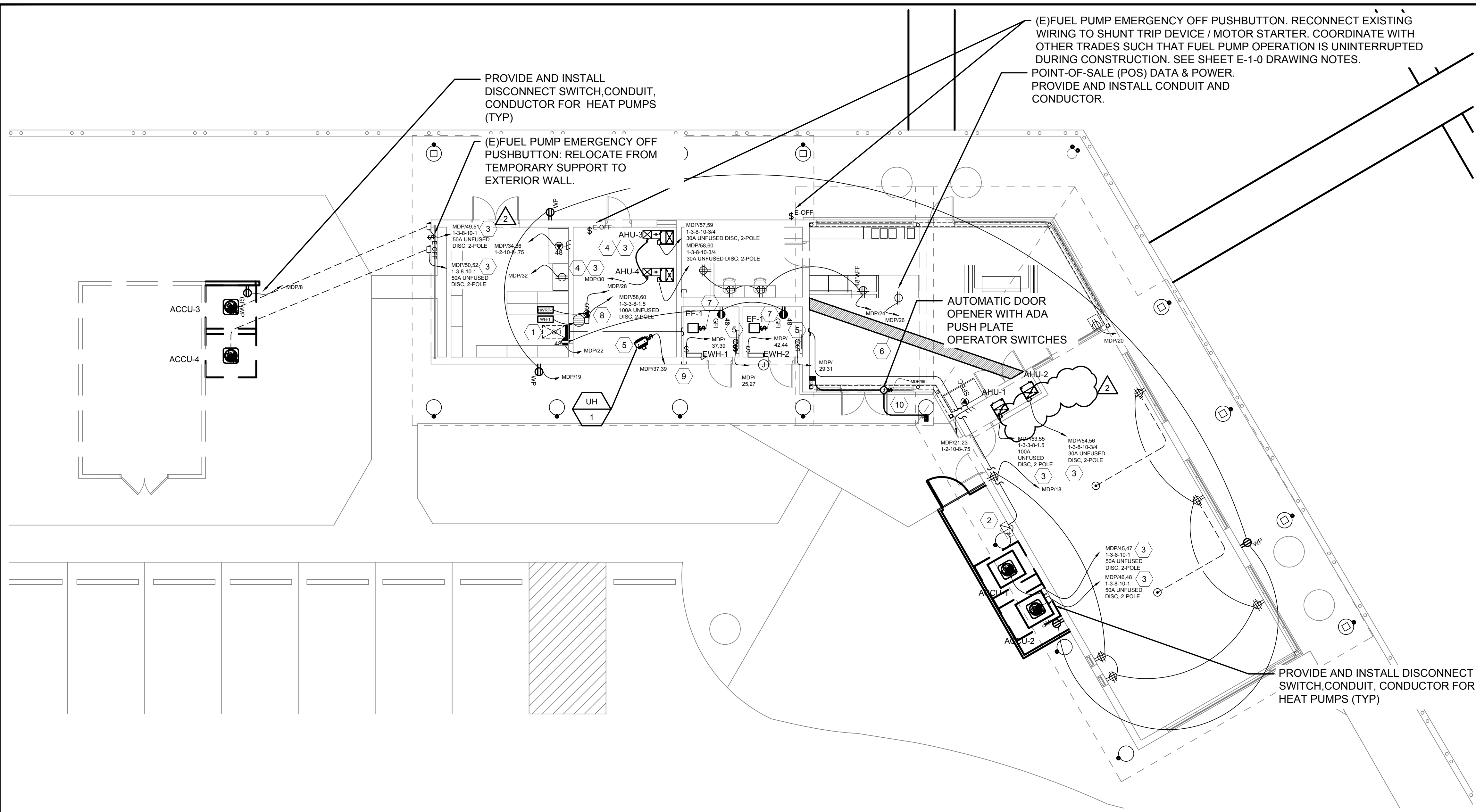
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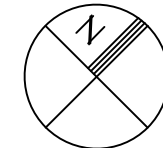
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NEW CAMP STORE & NATURE CENTER
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GENERAL ELECTRICAL DEMOLITION PLAN **E-1-0**



1 ELECTRICAL POWER PLAN
E-2-0 1/8" = 1'-0"

SCALE: 1/8" = 1'



(E)FUEL PUMP EMERGENCY OFF PUSHBUTTON. RECONNECT EXISTING WIRING TO SHUNT TRIP DEVICE / MOTOR STARTER. COORDINATE WITH OTHER TRADES SUCH THAT FUEL PUMP OPERATION IS UNINTERRUPTED DURING CONSTRUCTION. SEE SHEET E-1-0 DRAWING NOTES. POINT-OF-SALE (POS) DATA & POWER. PROVIDE AND INSTALL CONDUIT AND CONDUCTOR.

PROVIDE AND INSTALL DISCONNECT SWITCH, CONDUIT, CONDUCTOR FOR HEAT PUMPS (TYP)

(E)FUEL PUMP EMERGENCY OFF PUSHBUTTON: RELOCATE FROM TEMPORARY SUPPORT TO EXTERIOR WALL.

AUTOMATIC DOOR OPENER WITH ADA PUSH PLATE OPERATOR SWITCHES

PROVIDE AND INSTALL DISCONNECT SWITCH, CONDUIT, CONDUCTOR FOR HEAT PUMPS (TYP)

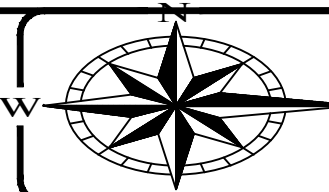
FEEDER KEY	
NO. OF SETS OF CONDUCTORS IN FEEDER	1 -3 -600 +2 -5"
NO. OF POWER CONDUCTORS	
	MINIMUM CONDUIT SIZE FOR EACH SET*
	GROUND CONDUCTOR SIZE FOR EACH SET (*X USED IF GROUND CONDUCTOR NOT USED)
	SIZE OF CONDUCTORS (AWG OR KCMIL)
ALL CONDUCTOR SIZES BASED UPON 75 DEGREES C THWN/THHN FOR WET LOCATIONS USING COPPER CONDUCTORS UNLESS INDICATED OTHERWISE.	
* REFER TO PLANS AND DETAILS FOR COMBINING CONDUCTORS FROM SEPARATE FEEDERS WITHIN SAME RACEWAY. MINIMUM SIZE CONDUIT SHOWN IS FOR SINGLE FEEDERS ONLY. NO SHARED NEUTRALS.	
NOTE: THIS FEEDER KEY IS AN EXAMPLE. CONDUCTOR AND CONDUIT SIZES AND QUANTITIES IN THIS KEY ARE NOT INTENDED TO BE USED FOR PROJECT DESIGN.	

CODED NOTES	
1	PROVIDE NEW POWER PANEL: MDP. PANEL TO BE SERVICE RATED AND INCLUDES MAIN 300A CIRCUIT BREAKER. REFERENCE 1-LINE ON SHEET E-5-0 FOR CONDUIT AND CONDUCTOR SIZES. RELOCATE EXISTING TO REMAIN CIRCUITS FROM EXISTING PANELS "A" & "B" TO NEW PANEL MDP.
2	PROVIDE NEW 300A FUSED UTILITY DISCONNECT SWITCH BETWEEN EXISTING ELECTRIC METER AND NEW PANEL MDP.
3	PROVIDE NEW DISCONNECT SWITCH, CONDUIT AND CONDUCTOR FOR NEW AIR HANDLER & ACCUMULATOR (BY HVAC). PROVIDE BRANCH CIRCUIT. COORDINATE WITH HVAC CONTRACTOR ON CONDUIT AND WIRING BETWEEN AIR HANDLER AND OUTDOOR ACCUMULATOR UNIT.
4	NOT USED
5	ELECTRIC WALL HEATER: & UNIT HEATER: PROVIDE LOCAL DISCONNECT SWITCH, SIZE WIRING AS SHOWN.
6	NEW CONCRETE FLOOR TO BE BY OTHERS. PROVIDE BELOW GRADE TRENCH FOR ELECTRICAL CONDUITS SERVING NATURE CENTER AND STORE AREA EQUIPMENT. TRENCH DEPTH TO BE 12" FOR PVC CONDUIT WITH 2" CONCRETE SLAB. SURVEY FLOOR FOR ANY EXISTING BURIED PLUMBING OR ELECTRICAL BEFORE WORK.
7	EXHAUST FAN TO BE TIED TO LOCAL OCCUPANCY CONTROLLED LIGHTING SUCH THAT EXHAUST OPERATES WHILE RESTROOM IS OCCUPIED. PROVIDE LOCAL HEAVY DUTY RATED TOGGLE SWITCH TYPE DISCONNECT SWITCH AT EXHAUST UNIT.
8	PROVIDE CIRCUIT AND DISCONNECT, SIZED AS SHOWN FOR NEW WATER HEATER AND RECIRCULATION PUMP.
9	PROVIDE 4" EMPTY PVC CONDUIT. FOR FUTURE TELCO USE. INCLUDE PULL STRING ACCESSIBLE FROM EITHER END, CAP AND LABEL.
10	PROVIDE BRANCH CIRCUIT AND FIELD WIRING FOR DOOR OPENER AND CORRESPONDING ADA TYPE PUSH-PLATE SWITCHES. DOOR HARDWARE AND SWITCHES PROVIDED BY GC. INTERIOR PUSH-PLATE TO BE MULLION OR JAMB MOUNTED. ROUTE WIRING THROUGH BACKSIDE OF JAMB TO DOOR OPERATOR. EXTERIOR PUSH-PLATE TO BE PEDESTAL MOUNTED. PROVE BELOW GRADE TRENCH & CONDUIT FROM PEDESTAL TO BUILDING. REFERENCE ARCHITECTURAL PLANS AND DETAILS FOR SPECIFIC LOCATIONS. VERIFY MANUFACTURER ELECTRICAL REQUIREMENTS PRIOR TO WORK.

TEMPORARY POWER NOTES:
PRIOR TO ANY WORK:
1. CONTRACTOR PROVIDE TEMPORARY POWER / NEMA3R LOAD CENTER AT EXISTING SERVICE ENTRANCE PRIOR TO DEMO WORK.
2. RELOCATE COMBINATION MOTOR STARTER AND E-OFF TO "SERVICE AND STORAGE" EXTERIOR NW WALL,
3. INTERCEPT BRANCH CIRCUITS GOING OUT TO FUEL PIER AT EXTERIOR WALL / FLOOR PENETRATION, AND EXTEND TO RELOCATED MOTOR STARTER, E-OFF AT NEW LOCATION.
4. PROVIDE NEW CONDUIT/CONDUCTOR BETWEEN MOTOR STARTER AND DISPENSER CIRCUITS TO TEMPORARY POWER PANEL.
5. UPON COMPLETION OF INSTALL OF NEW MAIN PANEL, RE-FEED FUEL DISPENSER CIRCUITS FROM NEW MAIN PANEL.

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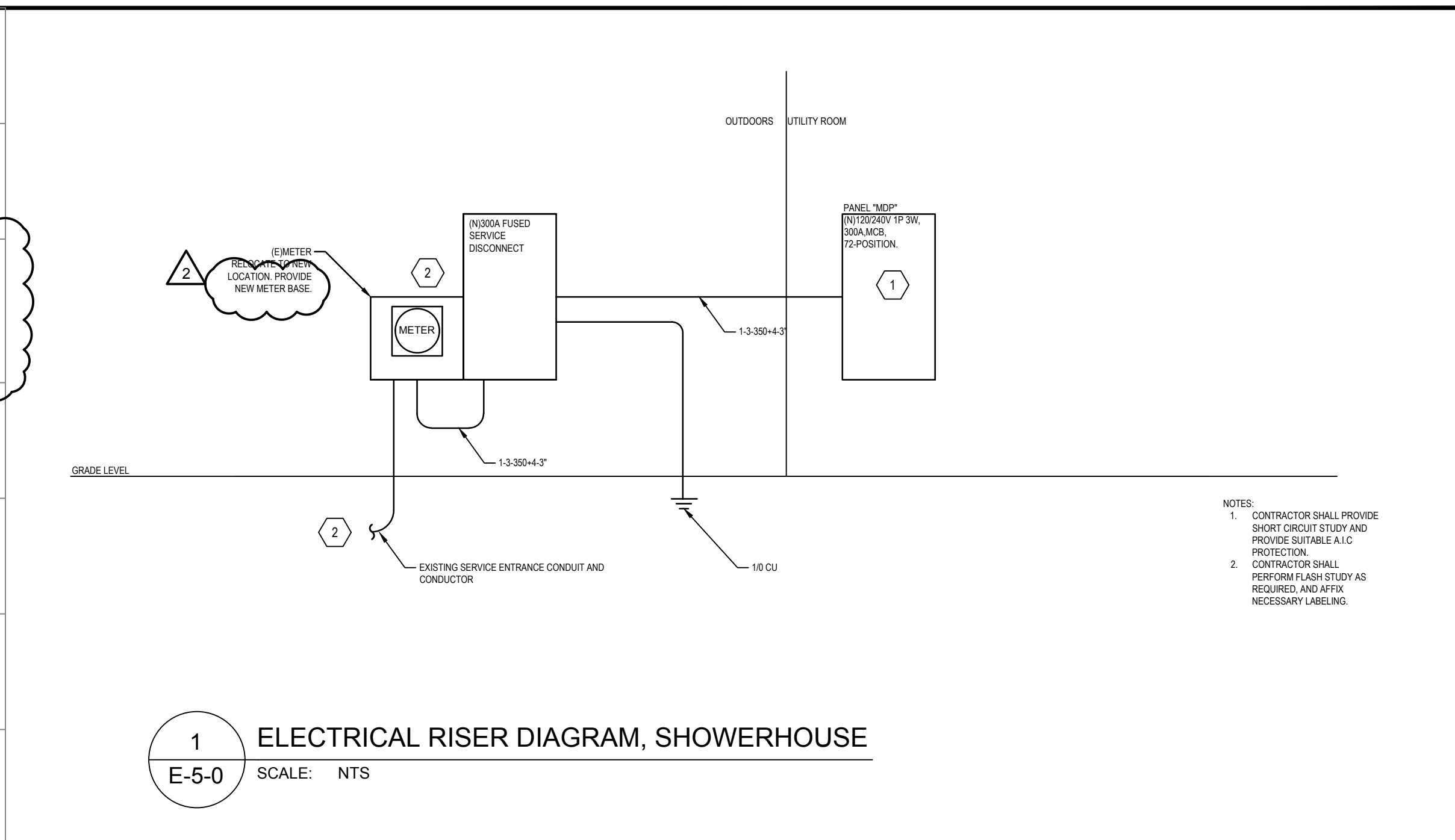
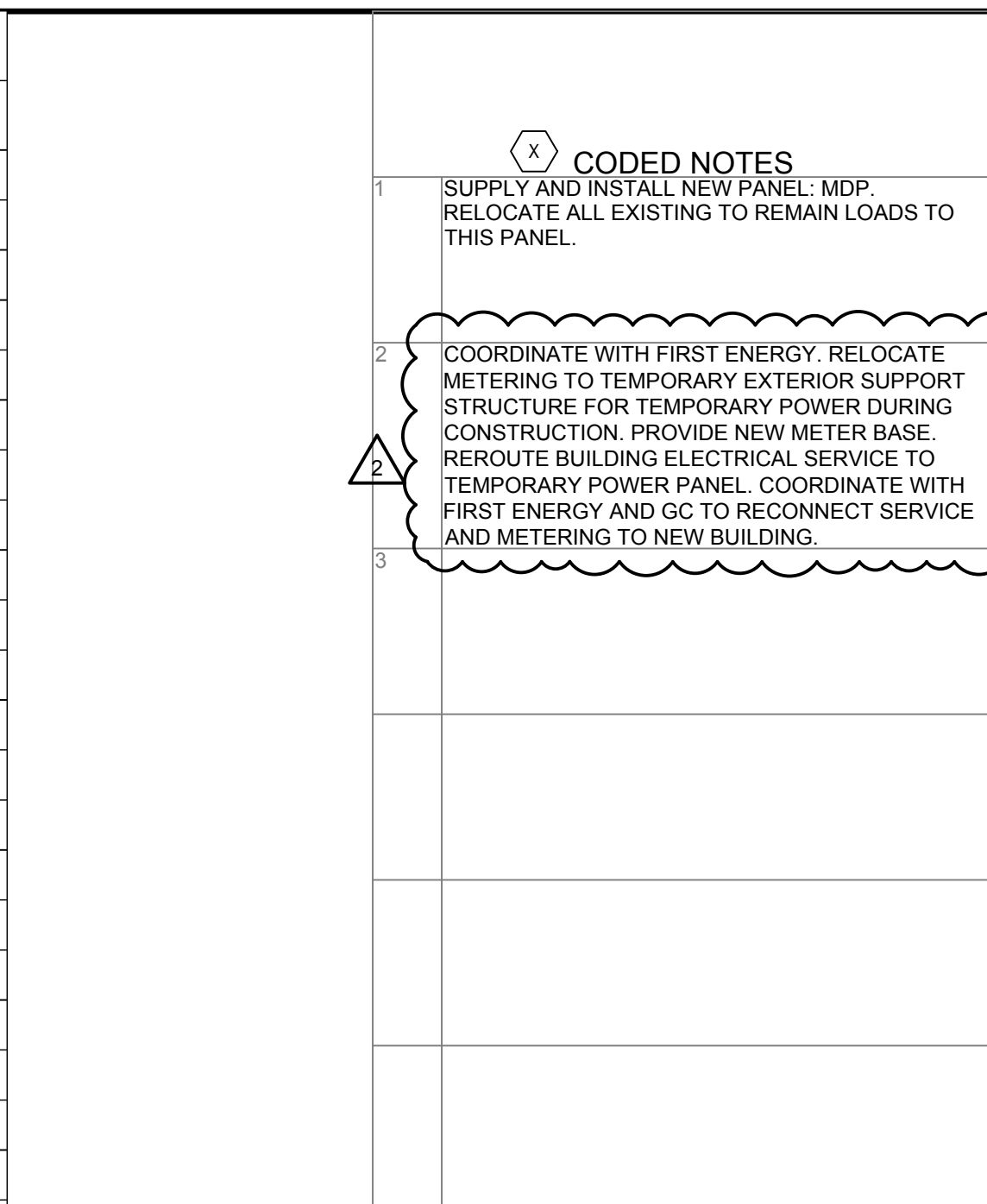
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ELECTRICAL POWER PLAN

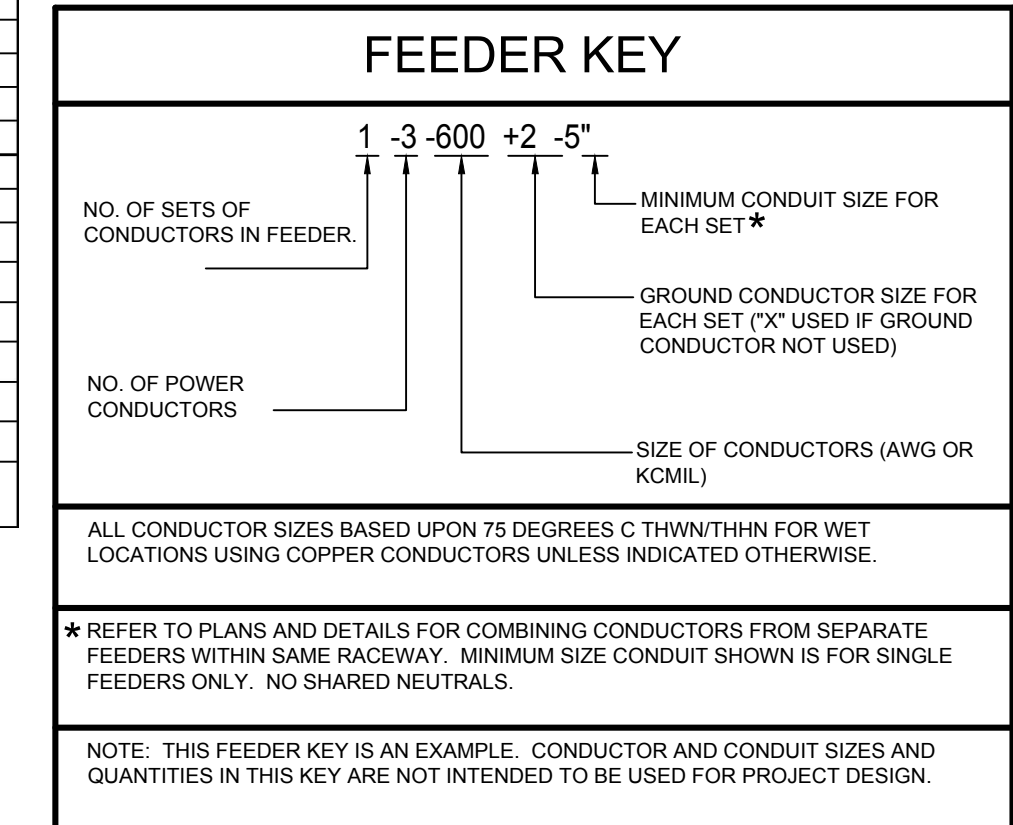
E-2-0

TAG	DESCRIPTION	W	MANUFACTURER	MODEL#
C1 C1/EM	4'-0" LED UTILITY WRAP, DAMP LOCATION LISTED. 4000K. SUSPENDED OR PENDANT /EM WITH 10W EMERGENCY BATTERY (MECHANICAL ROOM)	30	LITETRONICS	SFS4/AB10/EBAM/SFAM02
		31.1	DAY BRIGHT	FSSEZ-4-40L-840-UNV-DIM/EMLED
		30	METALUX	4SNX-SL3-LW-UNV-CC83-CD1-U/AYC-CHAIN/SET-U / EL1XW
C3	2X2 LED ACT GRID LAY-IN PANEL (BACK OF HOUSE-FOOD PREP)	25	LITETRONICS	PT2
		25	DAY-BRITE	2SBP3550L8CS-4-UNV-DIM
		25	METALUX	2ZCGTS-L3C3
P1	PENDANT TYPE, 8'-10", AIRCRAFT CABLE SUSPENDED, LED (LOBBY & CAMP STORE)	30	CONTECH	CGL84030K12AFC-P
		30	BARNLIGHT	BLE-D-BRN10-X-X-X-NA-LED16-3500K-FL
		30	TBD	TBD
S1 S1/EM	4'-0" LED WRAP SURFACE MOUNTED. WET LOCATION LISTED. 4000K. SURFACE /EM WITH 10W EMERGENCY BATTERY (GYP CEILING, E. HALLWAY)	30	LITETRONICS	VT30US440P WITH EB10/EBCM
		30	DAY-BRIGHT	D-W-A-E-XX-840-4-UNV-EMLED
		30	METALUX	4VT2-LD5-4-DR-UNV-L840-CD1-U / EL1XW
T1	TRACK LIGHTING, MOUNT 6' FROM OUTSIDE WALLS. PROVIDE A-TYPE HEADS AS SHOWN (STORE)	(3)30	CONTECH	CTL XX XX 4C D XX
		(3)30	LIGHTOLIER	LC-X-X-940-X-TE-LLAV11-X/60-XXN-XX
		(3)30	HALO	L809
T2	TRACK LIGHTING, PROVIDE A-TYPE HEADS MOUNTED TO 6X9" OR SIMILAR, SQUARE TRACK SYSTEM, VERIFY TRACK-HEAD QUANTITY AND ORIENTATION WITH PROJECT MANAGER. (STORE)	(18)30	CONTECH	CTL XX XX 4C D XX W/LT TRACK COMPONENTS
		(18)30	LIGHTOLIER	LC-X-X-940-X-TE-LLAV11-X/60-XXN-XX CORNERS
			TBD	TBD
W1	WALL MOUNTED, LINEAR DIRECT INDIRECT, ASSYMETRICAL TOP SHIELD / DEFLECTOR, (NATURE CENTER)	30	WILLIAMS	MX2WUD 4'00 L8840U/L8840D FA R DIM UNV
		30	LEDALITE	29-2-5/6-L-940-XX-WW-XX-U-E-XX
		30	NULITE	RW2-4-B-09-L40-UNV-D-1C-FRF-XX-X'
W3	WALL MOUNTED SCENCE / DOWNLIGHT, WEATHER PROOF, EXTERIOR, SQUARE, BLACK (COLUMN MOUNTED AT ENTRANCE SUPPORT COLUMNS)	30	CONTECH	SQL6X 40K MVD W X MCLR B
		30	ALUMILITE	YSW-XX/LED-UV/XX
		30	FC LIGHTING	FCCSQ600-
W4	WALL MOUNTED 2' LINEAR, DAMP RATED, (RESTROOM SINK VANITY)	5	LITETRONICS	SFS2
		5	DAY-BRITE	SDS-2-1224L-8CST-UNV-DIM
		5	METALUX	2SNX-SL3-LW-UNV-CC83-CD1
X/EM	LED SINGLE FACE, UNIVERSAL MOUNT DIE CAST EXIT/EMERGENCY COMBO WITH 90 MINUTE BATTERY BACKUP. DAMP LOCATION LISTED.	5	EMERGITLITE	LW SBX14 R 2 10 LA
		5	CHLORIDE	VLTR3R-3.6-R-W-W
		5	EVENLITE	TDCOM-R-1-
SL1	OUTDOOR LINEAR LED SIGN LIGHT. SURFACE MOUNT WITH ADJUSTABLE CLIPS, WET LOCATION LISTED, IP66, POWDER COATED ALUMINUM. 3000K.	5	PURE EDGE	MSLO-24V-48W48-60-30K-BK: PROVIDE (4) FIXTURES (4X48"), WIRE 2 FIXTURES MAX FROM EACH 24V PS OUTPUT, 96W. PROVIDE POWER SUPPLY PSB2X96 UNI-24VDC
		5	MOFAT MW	MW-HE-30-16'- FSD-1-0-BL
		5	ALUZ A1 SERIES	A1-ZIBI-STN-45D-BK-30K-6- -SF-WET-UNV-16", INCLUDE MOUNTING BRACKETS



NOTES	MOUNT:	SURFACE	120/240	1-PHASE, 3W	PANEL	A	CAPACITY: 300A	DEMAND LOAD: 299A	NOTES							
LOCATION: UTILITY RM	CTK	LTG	REC	MOT	MSC	FH	DESCRIPTION	AMP POLE	MCB	DESCRIPTION	LTG	REC	MOT	MSC	FH	CTK
	1	0.84					LTG, TRACK, NC	20 1 A	20 1	LTG,EXT. N	0.45					2
	3	0.84					LTG, TRACK, NC	20 1 B	20 1	LTG,EXT. S	0.45					4
	5	0.84					LTG, TRACK, NC	20 1 A	20 1	LIGHTING CONTROLLER			0.25			6
	7	0.45					LTG, STRIP, NC	20 1 B	20 1	RECEPT, MAINTENANCE		0.18				8
	9	0.45					LTG, LOBBY, PENDANT	20 1 A	20 1	SPARE						10
	11	0.1					TE IDOCK LIGHT	20 1 B	20 1	SPARE						12
	13	0.55					LTG, STORE, PENDANT	20 1 A	20 1	SPARE						14
	15	0.45					LTG, STORE, TRACK	20 1 A	20 1	SPARE						16
	17	0.5					LTG, SW BLDG	20 1 A	20 1	RCPT, COM, NATURE CTR		1.5				18
	19		0.72				RECEPT, EXTERIOR	20 1 B	20 1	BAIT FIDGE		0.25				20
	21			0.5			ICE FREEZER	30 1 A	20 1	COVENIENCE RECEPT		1.4				22
	23			0.5				1 B	20 1	POS & OFFICE		0.5				24
	25			1			HAND DRYER RR	20 1 A	20 1	ICE CREAM STATION			0.5			26
	27			1				20 1 B	20 1	SPARE						28
	29			1			HAND DRYER RR	20 1 A	20 1	SPARE						30
	31			1				20 1 B	20 1	BAIT FREEZER		0.25				32
	33				4.5	WH1		40 2 A	30 2	FREEZER		0.25				34
	35				4.5			B				0.25				36
	37				1.7	LH1		20 2 A	20 2	SPARE						38
	39				1.7			B								40
	41				1	EMH1		20 2 A	20 2	EMH2				1		42
	43				1			B						1		44
	45				4.5	ACCU1		50 2 A	25 2	ACCU2				1.5		46
	47				4.5			B						1.5		48
	49				1.5	ACCU3		30 2 A	25 2	ACCU4				1.5		50
	51				1.5			B						1.5		52
	53				4.5	AHU1		90 2 A	30 2	AHU2				1.5		54
	55				4.5			B						1.5		56
	57				1.5	AHU3		30 2 A	30 2	AHU4				1.5		58
	59				1.5			B						1.5		60
	61				0.3	(E)SEWAGE EJECT PUMP		20 1 A	20 1	(E)FUEL DISPENSER			0.3			62
	63				0.1	(E) RED MARINE LT		20 1 B	20 1				0.3			64
	65				0.2	AUTO DOOR OPERATOR		20 1 A	20 1	(E)FUEL PUMP			0.3			66
	67							20 1 B	20 1				0.3			68
	69							20 1 A	20 1	SPARE						70
	71							20 1 B	20 1	SPARE						72
PHASE BALANCE	LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	CONNECTED	DEMAND									
	LIGHTING	5.9 KVA	5.9 KVA	100% LOAD	71.9 KVA	71.9 KVA	71.9 KVA									
A	RECEPTACLE	4.6 KVA	4.6 KVA	10KVA + 50% REMAINDER NEC 220.44	299.4A	299.4A	299.4A									
B	MOTOR	0.0 KVA	0.0 KVA	LOAD X 100% + 125% LARGEST												
	MSC	9.0 KVA	9.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.												
	FH	52.4 KVA	52.4 KVA	FIXED HEATING 100% LOAD												

NOTES: SEE POWER RISER DIAGRAM E-3 FOR ADDITIONAL PANEL INFORMATION



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ELECTRICAL SCHEDULES & RISER DIAGRAM E-4-0

AHU/ HP Equipment Schedule

Mark	AHRI Reference	Unit Type	Tons	Heat Pump Model	Coil Model	Orientation	SEER	SEER2	EER	EER2	HSPF	HSPF2	SUPPLY FAN				COOLING								HEATING					ELECTRICAL										
													Supply Air Flow (cfm)	Supply Static Pressure (in.WC)	Total Static Pressure (in.WC)	Nominal Power (hp)	Required Power (hp)	Ambient (°F)	Condenser Ambient (°F)	Entering Air DB (°F)	Entering Air WB (°F)	Total (MBH)	Sens (MBH)	Leaving Air DB (°F)	Leaving Air WB (°F)	HP Design (°F)	HP Output (MBH)	Output at 47 deg F (MBH)	Output at 17 deg F (MBH)	Electric Heat Size (kW)	Leaving Air DB (°F)	Heat Rise (°F)	Condenser Voltage	Condenser MCA (amp)	Condenser MOC (amp)	Air Handler Voltage	Air Handler MCA1 (amp)	Air Handler MOC1 (amp)	Electric Heat Voltage	Options
AHU-1 & HP-1	210041262	HP / Air Handler	5.0	ML17XP1-060-230	CBA27UHE-060	Upflow/Horizontal	15.0	14.4	12.5	11.7	9.6	8.0	2,070 cfm	0.50	0.75	1.00	1.00	90	101	79.3	65.9	56.7	47.7	56.4	55.3	17.0	35.8	54.0	35.8	15.0	39.7	23.7	240 Volt 1 Phase	32.6	50	240 Volt 1 Phase	36	40	240 Volt 1 Phase	1, 2, 4, 6
AHU-2 & HP-2	210046917	HP / Air Handler	2.5	ML17XP1-030-230	CBA27UHE-030	Upflow/Horizontal	17.1	15.8	14.0	13.0	10.6	8.5	1,026 cfm	0.50	0.75	0.50	0.50	88.1	101	76.0	63.8	28.4	23.1	53.4	53.4	17.0	18.6	27.8	18.6	5.0	32.6	15.8	240 Volt 1 Phase	15.6	25	240 Volt 1 Phase	31	35	240 Volt 1 Phase	3, 5, 6
AHU-3 & HP-3	210048679	HP / Air Handler	3.0	ML17XP1-036-230	CBA27UHE-036	Upflow/Horizontal	16.7	16.0	13.5	13.0	10.0	8.5	1,268 cfm	0.50	0.75	0.50	0.50	88.1	101	76.0	63.8	34.1	27.9	53.3	53.3	17.0	23.2	35.0	23.2	5.0	30.1	13.2	240 Volt 1 Phase	17.8	30	240 Volt 1 Phase	31	35	240 Volt 1 Phase	1, 3, 4, 6
AHU-4 & HP-4	210040010	HP / Air Handler	2.0	ML17XP1-024-230	CBA27UHE-024	Upflow/Horizontal	17.4	16.2	14.0	13.5	10.0	8.1	884 cfm	0.50	0.75	0.50	0.50	88.1	101	80.0	67.0	23.8	19.6	55.8	55.8	17.0	13.6	21.4	13.6	5.0	34.0	19.8	240 Volt 1 Phase	15.1	25	240 Volt 1 Phase	31	35	208 Volt 1 Phase	3, 5, 6

- Included System Options**
- 1 - High Performance Economizer Field Installed
 - 2 - 15 KW Electric Heat 208/230 1Ph with CB Field Installed
 - 3 - 5 KW Electric Heat 208/230 1Ph with CB Field Installed
 - 4 - Single Enthalpy Control (High Performance Economizer) Field Installed
 - 5 - Low Ambient Control (30 Deg) Fan Cycling Field Installed
 - 6 - iComfort M30 Smart Thermostat Field Installed

Notes
Cooling performance based on specified design altitude.
Heating performance based on sea level.

LENNOX COMPRESSOR LOCK OUT PROCEDURE

1. WHEN IN HEAT MODE AND THE OUTDOOR TEMPERATURE IS BELOW THE PROGRAMMED LOW BALANCE POINT, THEN THE HEAT PUMP HEATING COMPRESSOR WILL NOT OPERATE.
2. WHEN IN HEAT MODE AND THE OUTDOOR TEMPERATURE IS ABOVE THE PROGRAMMED HIGH BALANCE POINT, THEN THE HEAT PUMP HEATING COMPRESSOR WILL NOT OPERATE.
3. WHEN IN HEAT MODE AND THE OUTDOOR TEMPERATURE IS BETWEEN THE PROGRAMMED LOW AND HIGH BALANCE POINTS, THEN THE HEAT PUMP HEATING COMPRESSOR WILL OPERATE.
4. THE OPTIONS TO SET LOW AND HIGH BALANCE POINT CAN BE ENABLE OR DISABLED. THE DEFAULT SETTING IS THAT THIS OPTION IS DISABLED. THE CONTRACTOR WILL NEED TO ENABLE THIS OPTION AND SET THE FOLLOWING:
 - 4.1. LOW BALANCE POINT DEFAULT IS 25 DEGREES FAHRENHEIT FOR HEATING. THE CONTRACTOR SHALL PROGRAM THIS SETTING TO BE 34 DEGREES FAHRENHEIT.
 - 4.2. HIGH BALANCE POINT DEFAULT IS 50 DEGREES FAHRENHEIT FOR HEATING. THE CONTRACTOR SHALL PROGRAM THIS SETTING TO 55 DEGREES FAHRENHEIT.

AIR DEVICE SCHEDULE

TAG	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	TYPE	FACE SIZE	NECK SIZE	CFM	MATERIAL	MOUNTING	DAMPER	REMARKS
SR-1	TITUS	S300FS	SPIRAL PIPE REGISTER	12" X 8"	10"X6"	SEE PLAN	ALUMINUM	DUCT	YES	1,3
SR-2	TITUS	272RS	WALL SUPPLY REGISTER	14" X 8"	12" X 6"	SEE PLAN	ALUMINUM	SIDE WALL	YES	1,2
SD-1	TITUS	272RS	SUPPLY DIFFUSER	12" X 8"	10" X 6"	SEE PLAN	ALUMINUM	DUCT	YES	1,2
SD-2	TITUS	272RS	SUPPLY DIFFUSER	12" X 8"	10" X 6"	SEE PLAN	ALUMINUM	SIDE WALL	YES	1,2
SD-3	TITUS	TMSA-AA	SUPPLY DIFFUSER	24" X 24"	8Ø	SEE PLAN	ALUMINUM	LAY-IN	YES	1,2
RG-1	TITUS	23FL	RETURN GRILLE	24" X 24"	22" X 22"	SEE PLAN	ALUMINUM	SIDE WALL	NO	1
RG-2	TITUS	23FL	RETURN GRILLE	12" X 12"	10" X 10"	SEE PLAN	ALUMINUM	SIDE WALL	YES	1,2
RG-3	TITUS	23FL	RETURN GRILLE	24" X 12"	22" X 10"	SEE PLAN	ALUMINUM	LAY-IN	YES	1,2

- REMARKS**
1. WHITE FINISH. GENERAL CONTRACTOR TO PAINT IF REQUIRED BY ARCHITECT.
 2. OPPOSED BLADE DAMPER
 3. ADS AIR SCOOP

AHU/HP SPLIT DX SEQUENCE OF OPERATION - ECONOMIZER

AHU-1/HP-1; AHU-3/HP-3

MECHANICAL CONTRACTOR SHALL PROVIDE AND FURNISH ALL CONTROLS AND ACCESSORIES TO HAVE A COMPLETE AND FUNCTIONAL SPLIT DX UNIT AS DESCRIBED IN THE FOLLOWING SEQUENCE OF OPERATION BELOW:

FAN CONTROL:
THE SUPPLY FAN IS TO RUN CONTINUOUSLY DURING THE OCCUPIED MODE AND WILL CYCLE ON AND OFF DURING THE UNOCCUPIED MODE BASED ON A CALL FOR HEATING OR COOLING. THE UNOCCUPIED SET POINT FOR COOLING WILL BE 80 DEGREES FAHRENHEIT AND 60 DEGREES FAHRENHEIT FOR HEATING.

THERMOSTAT:
THE ADJUSTABLE ROOM THERMOSTAT WITH AUTOMATIC HEATING/COOLING CHANGEOVER SHALL CONTROL THE SPACE TEMPERATURE BASED ON SET POINT. THE CONTROL OF THE OCCUPIED/ UNOCCUPIED SETBACK MODE SHALL BE THROUGH A SEVEN DAY 24 HOUR PROGRAMMABLE ELECTRONIC TIME CLOCK. THE OCCUPIED SET POINT FOR COOLING WILL BE 75 DEGREES FAHRENHEIT AND 70 DEGREES FAHRENHEIT FOR HEATING.

SAFETIES:
SMOKE DETECTION, THE UNIT SHALL BE TOTALLY DISABLED WHEN THE DUCT MOUNTED SMOKE DETECTOR IS ACTIVATED. PROVIDE REMOTE TEST STATION/ALARM WHEN REQUIRED BY CODE.

A FLOAT SWITCH MOUNTED IN THE AUXILIARY DRAIN PAN SHALL SHUT DOWN THE FANS UPON SENSING WATER IN THE PAN. THE SAFETY SHALL REQUIRE A MANUAL RESET.

COOLING CONTROL:
UPON A CALL FOR COOLING, THE ECONOMIZER OPERATION WILL BE ENABLED. IF OUTSIDE AIR IS NOT SUITABLE FOR COOLING THEN THE FIRST STAGE OF DX COOLING SHALL BE ENABLED AND WILL OPERATE UNTIL THE SPACE TEMPERATURE IS SATISFIED. IF THE SPACE TEMPERATURE CONTINUES TO INCREASE THAN THE SECOND STAGE OF DX COOLING SHALL BE ENABLED (IF APPLICABLE).

HEATING CONTROL:
UPON A CALL FOR HEATING, THE FIRST STAGE OF HEATING WILL BE ENABLED AND WILL OPERATE UNTIL THE SPACE TEMPERATURE IS SATISFIED. IF THE SPACE TEMPERATURE CONTINUES TO INCREASE THAN THE SECOND STAGE OF HEATING WILL BE ENABLED (IF APPLICABLE). THE UNIT IS A HEAT PUMP UNIT. THE HEATING SHALL BE WIRED SUCH THAT THE CONDENSING UNIT COMPRESSOR IS LOCKED OUT OF OPERATION WHEN THE ELECTRIC HEATING COIL IS OPERATING. THE ELECTRIC HEATING COIL WILL BE USED FOR HEATING WHEN AN ADJUSTABLE OUTDOOR THERMOSTAT BELOW 34 DEGREES FAHRENHEIT.

VENTILATION/ECONOMIZER CONTROL:
THE OUTSIDE AIR DAMPER SHALL BE OPEN TO A MINIMUM SET POINT DURING THE OCCUPIED HEATING AND COOLING MODES FOR CODE REQUIRED MINIMUM OUTSIDE AIR VENTILATION. THE OUTSIDE AND RELIEF AIR DAMPERS SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE OPEN DURING THE UNOCCUPIED MODE.

THE ECONOMIZER MODE IS ENTHALPY CONTROLLED AND WILL BE OPERATIONAL WHENEVER COOLING IS REQUIRED AND THE OUTSIDE AIR ENTHALPY IS AT OR BELOW THE RETURN AIR ENTHALPY. THE OUTSIDE AND RETURN AIR DAMPERS SHALL BE POSITIONED BY THE SENSOR AND SHALL MODULATE OPPOSED TO EACH OTHER TO MAINTAIN A CONSTANT SUPPLY AIR FLOW. A DISCHARGE AIR SENSOR SHALL LIMIT THE DRY BULB DISCHARGE AIR TEMPERATURE TO A MINIMUM SETTING OF 55 DEGREES FAHRENHEIT (ADJUSTABLE). THE RELIEF AIR DAMPER SHALL MODULATE TO TRACK THE OUTSIDE AIR DAMPER POSITION.

AHU/HP SPLIT DX SEQUENCE OF OPERATION - NO ECONOMIZER

AHU-2/HP-2; AHU-4/HP-4

MECHANICAL CONTRACTOR SHALL PROVIDE AND FURNISH ALL CONTROLS AND ACCESSORIES TO HAVE A COMPLETE AND FUNCTIONAL SPLIT DX UNIT AS DESCRIBED IN THE FOLLOWING SEQUENCE OF OPERATION BELOW:

FAN CONTROL:
THE SUPPLY FAN IS TO RUN CONTINUOUSLY DURING THE OCCUPIED MODE AND WILL CYCLE ON AND OFF DURING THE UNOCCUPIED MODE BASED ON A CALL FOR HEATING OR COOLING. THE UNOCCUPIED SET POINT FOR COOLING WILL BE 80 DEGREES FAHRENHEIT AND 60 DEGREES FAHRENHEIT FOR HEATING.

THERMOSTAT:
THE ADJUSTABLE ROOM THERMOSTAT WITH AUTOMATIC HEATING/COOLING CHANGEOVER SHALL CONTROL THE SPACE TEMPERATURE BASED ON SET POINT. THE CONTROL OF THE OCCUPIED/ UNOCCUPIED SETBACK MODE SHALL BE THROUGH A SEVEN DAY 24 HOUR PROGRAMMABLE ELECTRONIC TIME CLOCK. THE OCCUPIED SET POINT FOR COOLING WILL BE 75 DEGREES FAHRENHEIT AND 70 DEGREES FAHRENHEIT FOR HEATING.

SAFETIES:
SMOKE DETECTION, THE UNIT SHALL BE TOTALLY DISABLED WHEN THE DUCT MOUNTED SMOKE DETECTOR IS ACTIVATED. PROVIDE REMOTE TEST STATION/ALARM WHEN REQUIRED BY CODE.

A FLOAT SWITCH MOUNTED IN THE AUXILIARY DRAIN PAN SHALL SHUT DOWN THE FANS UPON SENSING WATER IN THE PAN. THE SAFETY SHALL REQUIRE A MANUAL RESET.

COOLING CONTROL:
UPON A CALL FOR COOLING, THE FIRST STAGE OF DX COOLING SHALL BE ENABLED AND WILL OPERATE UNTIL THE SPACE TEMPERATURE IS SATISFIED. IF THE SPACE TEMPERATURE CONTINUES TO INCREASE THAN THE SECOND STAGE OF DX COOLING SHALL BE ENABLED (IF APPLICABLE).

HEATING CONTROL:
UPON A CALL FOR HEATING, THE FIRST STAGE OF HEATING WILL BE ENABLED AND WILL OPERATE UNTIL THE SPACE TEMPERATURE IS SATISFIED. IF THE SPACE TEMPERATURE CONTINUES TO INCREASE THAN THE SECOND STAGE OF HEATING WILL BE ENABLED (IF APPLICABLE). THE UNIT IS A HEAT PUMP UNIT. THE HEATING SHALL BE WIRED SUCH THAT THE CONDENSING UNIT COMPRESSOR IS LOCKED OUT OF OPERATION WHEN THE ELECTRIC HEATING COIL IS OPERATING. THE ELECTRIC HEATING COIL WILL BE USED FOR HEATING WHEN AN ADJUSTABLE OUTDOOR THERMOSTAT BELOW 34 DEGREES FAHRENHEIT.

VENTILATION CONTROL:
THE OUTSIDE AIR DAMPER SHALL BE OPEN TO A MINIMUM SET POINT DURING THE OCCUPIED HEATING AND COOLING MODES FOR CODE REQUIRED MINIMUM OUTSIDE AIR VENTILATION. THE OUTSIDE AND RELIEF AIR DAMPERS SHALL BE CLOSED AND THE RETURN AIR DAMPER SHALL BE OPEN DURING THE UNOCCUPIED MODE.

ELECTRIC WALL HEATER SCHEDULE

TAG	MOUNTING	SUPPLY CFM	KW	V/PH/Hz	BASIS OF DESIGN MANUFACTURER / MODEL	REMARKS
EW-1	SURFACE	135	2	240/1/60	TRANE UHWA 021B2AT	INTEGRAL THERMOSTAT
EW-2	SURFACE	135	2	240/1/60	TRANE UHWA 021B2AT	INTEGRAL THERMOSTAT

ELECTRIC UNIT HEATER SCHEDULE

TAG	MOUNTING	TYPE	SUPPLY CFM	KW	V/PH/Hz	BASIS OF DESIGN MFGR / MODEL	ALTERNATE MFGRS	REMARKS
UH-1	WALL	HOSE-DOWN	400	3.3	240/1/60	TRANE UHRA 031GAAT	CHROMALOX, QMARK	INTEGRAL THERMOSTAT

LOUVER SCHEDULE

LABEL	SERVICE	TYPE	MAXIMUM CFM	DIMENSIONS			BASIS OF DESIGN MANUFACTURER	MODEL	ALTERNATE MFGRS	REMARKS
				W (IN)	H (IN)	D (IN)				
SL-1	SUPPLY	FIXED	1500	30	24	6	RUSKIN	ELF6375DX	GREENHECK, AIROLITE	1, 3
SL-2	SUPPLY	FIXED	2200	30	30	6	RUSKIN	ELF6375DX	GREENHECK, AIROLITE	1, 3
RL-1	RELIEF	FIXED	1300	30	24	6	RUSKIN	ELF6375DX	GREENHECK, AIROLITE	1, 3
RL-2	RELIEF	FIXED	2000	30	30	6	RUSKIN	ELF6375DX	GREENHECK, AIROLITE	1, 3

- REMARKS**
1. ALUMINUM INSECT SCREEN
 2. MOTORIZED DAMPERS, 24V, 2 POSITION ACTUATOR, POWER OPEN-SPRING CLOSED, WITH END SWITCH CONTACTS.
 3. BLADE AND JAMB SEALS

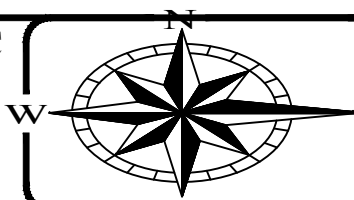
FAN SCHEDULE

TAG	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ARRANGEMENT	FUNCTION	CFM	ESP (IN W.G.)	HP/WATTS	DRIVE	V/PH/Hz	REMARKS
EF-1	COOK	GC-168	CEILING	EXHAUST	150	0.3	52 WATTS	DIRECT	115/1/60	1, 3, 4, 5, 6, 7, 8

- REMARKS**
1. GRAVITY BACKDRAFT DAMPER
 2. GRAY EPOXY PAINT FINISH
 3. PRE-WIRED FAN SPEED CONTROLLER
 4. RUBBER IN SHEER VIBRATION ISOLATORS
 5. WHITE ALUMINUM INTAKE GRILLE
 6. REMOVABLE POWER PLUG DISCONNECT
 7. BACKDRAFT DAMPER WITH COUNTER BALANCE.
 8. EXHAUST FAN IS TO BE CONTROLLED BY THE ROOM OCCUPANCY SENSOR.

FMS # 22009 / MCDE# 22056

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ENGINEERING
Ohio Department of Natural Resources

DESIGNED BY:	JA/ MM	2/26/2024	RE-BID DOCUMENTS
DRAWN BY:	JA/ MM	2/26/2024	RE-BID ADDENDUM
CHECKED BY:	WB		
APPROVED BY:	MC		

AS NOTED SCALE
2/26/2024 DATE

BUCK CREEK STATE PARK
NEW CAMP STORE & NATURE CENTER
DNR-230014.03

HVAC SCHEDULES

H-3-0