UTAH ARMY NATIONAL GUARD
WJRC NORTH HANGER
ELECTRICAL UPGRADE

SALT LAKE CITY, UTAH
CONSTRUCTION DOCUMENTS
DATE: 2008-09-02

STATE OF UTAH
DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
4110 State Office Building / Salt Lake City, Utah 84114 / 801.538.3018 / www.dfcm.state.ut.us

DFCM PROJECT NO. 08280480

ELECTRICAL ENGINEER

SPECTRUM ENGINEERS
175 South Main Street, Suite 300
Salt Lake City, Utah 84111
801-328-5151
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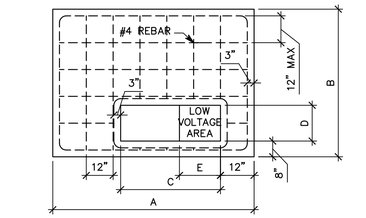
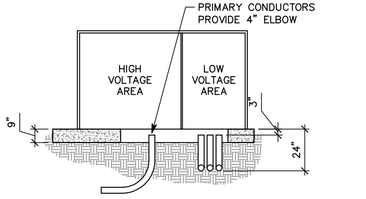
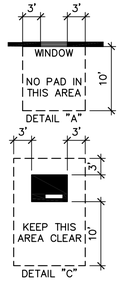
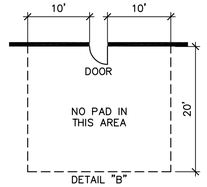
SHEET INDEX









TRANSFORMER PAD DIMENSION CHART						
TRANSFORMER RATING	DIMENSIONS					
	A	B	C	D	E	
75–500 KVA	96"	78"	48"	15"	20"	
750–2500 KVA	100"	105"	60"	16"	30"	

CONTRACTOR GENERAL NOTES:

1. SITE PREPARATION. ALL SOIL BENEATH THE PAD SITE MUST BE COMPACTED AND LEVEL PRIOR TO SETTING OR POURING THE PAD TO PREVENT SETTLING.
2. CONCRETE. STEEL REINFORCEMENT SHALL BE #4 BARS, PLACED ACCORDING TO THE DRAWING. THE PAD MUST BE POURED AT LEAST SEVEN FULL DAYS PRIOR TO SETTING THE TRANSFORMER. THE FINISHED SURFACE MUST BE COMPLETELY FLAT AND LEVEL. SEE STANDARD 73 036 FOR CONCRETE SPECIFICATIONS.
3. PREFABRICATION. THE PAD MAY EITHER BE CONSTRUCTED ON THE SITE OR PREFABRICATED ACCORDING TO SPECIFICATIONS.
4. CONDUIT WINDOW LAYOUT. LOW VOLTAGE CONDUITS SHALL BE FORMED AS TIGHTLY AS POSSIBLE AGAINST THE RIGHT SIDE OF THE OPENING AND SHALL IN NO CASE EXTEND FURTHER THAN 20" FROM THE RIGHT SIDE OF THE CONDUIT WINDOW ON THE SMALL PAD OR 30" ON THE LARGE PAD. NO MORE THAN 8 CONDUITS WILL BE USED ON THE LOW VOLTAGE SIDE (NOT INCLUDING THE METERING CONDUIT). DO NOT PUT ANY CONCRETE IN OR UNDER THE CONDUIT WINDOW. USE SOIL TO SEPARATE CONDUITS. BELL ENDS ARE REQUIRED FOR ALL METAL CONDUIT, BUT NOT FOR PLASTIC CONDUIT.
5. CLEARANCES. THE FRONT OF THE PAD SHOULD ALWAYS FACE AWAY FROM ADJACENT STRUCTURES AND BE FREE OF OBSTRUCTIONS. AT LEAST 3 FEET MUST SEPARATE THE EDGES OF THE PAD FROM ANY ADJACENT STRUCTURE. THE EDGES OF THE PAD MUST BE AT LEAST 10 FEET FROM ANY COMBUSTIBLE STRUCTURE. IF AN ADJACENT STRUCTURE HAS ANY OVERHANG OR EAVE WITHIN 27 VERTICAL FEET OF THE TOP OF THE PAD, CLEARANCES MUST BE MEASURED FROM THE OUTSIDE OF THE OVERHANG. THE PAD MUST NOT BE PLACED IN AN AREA 10 FEET IN LINE WITH OR 3 FEET TO EITHER SIDE OF ANY WINDOW IN AN ADJACENT STRUCTURE (SEE DETAIL "A"). CLEARANCE FOR A DOOR MUST BE 20 FEET IN LINE WITH IT AND 10 FEET ON THE SIDES (SEE DETAIL "B"). PADS MUST NOT BE PLACED WITHIN 15 FEET OF ANY VALVE OR WITHIN 20 FEET OF ANY PLUMBING OR STORAGE FACILITY CONTAINING FLAMMABLE MATERIAL. NO WALLS, FENCES, OR ANY OTHER OBSTRUCTIONS WILL BE PLACED WITHIN 3 FEET OF THE SIDES OR BACK OF THE PAD, OR WITHIN 10 FEET OF THE FRONT OF THE PAD (SEE DETAIL "C"). THE AREA IN FRONT OF THE PAD MUST HAVE 10 FEET OF CLEAR, LEVEL WORKING AREA FOR MAINTENANCE OF THE TRANSFORMER. THE PAD MAY NOT BE PLACED IN LINE WITH AN AIR INTAKE WITHIN 32 VERTICAL FEET OF THE SURFACE PAD. ALSO VERTICALLY, IT MUST NOT BE PLACED WITHIN 12 FEET OF A DOOR OR WINDOW.
6. BARRIERS. IF THE TRANSFORMER PAD IS TO BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, (PARKING LOTS, DRIVEWAYS, ETC) PROVIDE PROTECTIVE BARRIERS.
7. IF THE TRANSFORMER WILL NOT COVER THE CABLE OPENINGS ON THESE STANDARD PADS, SEAL THE SIDES OF THE CABLE OPENING TO FIT THE TRANSFORMER USING SAKRETE OR COMPARABLE.

C1 TRANSFORMER PAD DETAIL

NTS

MAIN DISTRIBUTION SWITCHBOARD "MDSB"

VOLTS/PHASE/WIRE:	MAIN SIZE & TYPE:	LOCATION:	NOTES:
277/480 V, 3 PH 4 WIRE	1200 AMPERE MAIN BKR	NO. SIDE OF BUILDING	65,000 AIC

ACCESSORIES: IDENTIFICATION, GROUNDING BAR, INSULATED GROUND BAR, SERVICE RATED, NEMA 3R, INTEGRAL DIGITAL METER

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) CO	LOAD (kVA) PWR	PANEL / EQUIPMENT	LCL kVA	PHASE LOAD A	PHASE LOAD B	PHASE LOAD C	LCL kVA	PANEL / EQUIPMENT	LOAD (kVA) LTG	LOAD (kVA) CO	LOAD (kVA) PWR	OCP AMP	OCP POLE	CKT NO
1	800	3				MDP (EXISTING)	0.0	0.0			0.0	TEQL (X–TEQL)				300	3	2
–	–	–				–	0.0		0.0		0.0	–				–	–	–
–	–	–				–	0.0			0.0	0.0	–				–	–	–
3	100	3				SPARE	0.0	0.0			0.0	SPARE				100	3	4
–	–	–				–	0.0		0.0		0.0	–				–	–	–
–	–	–				–	0.0			0.0	0.0	–				–	–	–
5	200	3				BLANK	0.0	0.0			0.0	BLANK				200	3	6
–	–	–				–	0.0		0.0		0.0	–				–	–	–
–	–	–				–	0.0			0.0	0.0	–				–	–	–
TOTALS:						CONNECTED kVA PER PHASE	0	0	0			CONNECTED TOTAL kVA				0		
						CONNECTED AMPS PER PHASE	0	0	0			CONNECTED AVERAGE AMPS PER PHASE				0		

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 0kVA @125% =	0 kVA	ALL OTHER LOADS @100% =	0 kVA	DIVERSIFIED TOTAL kVA =	0
RECEPTACLES 0kVA @100% =	0 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	0
REMAINDER 0kVA @ 50% =	0 kVA				

DISTRIBUTION PANEL "TEQL"

VOLTS/PHASE/WIRE:	MAIN SIZE & TYPE:	LOCATION:	NOTES:
120/208 V, 3 PH 4 WIRE	800 AMPERE MAIN BKR		42,000 AIC

ACCESSORIES: IDENTIFICATION, GROUNDING BAR, INSULATED GROUND BAR, NEMA 3R

CKT NO	OCP AMP	OCP POLE	LOAD (kVA) LTG	LOAD (kVA) CO	LOAD (kVA) PWR	PANEL / EQUIPMENT	LCL kVA	PHASE LOAD A	PHASE LOAD B	PHASE LOAD C	LCL kVA	PANEL / EQUIPMENT	LOAD (kVA) LTG	LOAD (kVA) CO	LOAD (kVA) PWR	OCP AMP	OCP POLE	CKT NO
1	150	3				FUTURE EQUIPMENT	0.0	0.0			0.0	FUTURE EQUIPMENT				400	3	2
3	–	–				–	0.0		0.0		0.0	–				–	–	4
5	–	–				–	0.0			0.0	0.0	–				–	–	6
7	20	3				FUTURE EQUIPMENT	0.0	0.0			0.0	FUTURE EQUIPMENT				100	3	8
9	–	–				–	0.0		0.0		0.0	–				–	–	10
11	–	–				–	0.0			0.0	0.0	–				–	–	12
13	125	3				SPARE	0.0	0.0			0.0	SPARE				20	1	14
15	–	–				–	0.0		0.0		0.0	SPARE				20	1	16
17	–	–				–	0.0			0.0	0.0	SPARE				20	1	18
19	200	3				SPARE	0.0	0.0			0.0	SPARE				200	3	20
21	–	–				–	0.0		0.0		0.0	–				–	–	22
23	–	–				–	0.0			0.0	0.0	–				–	–	24
25	–	1				BLANK	0.0	0.0			0.0	SPARE				100	3	26
27	–	1				BLANK	0.0		0.0		0.0	–				–	–	28
29	–	1				BLANK	0.0			0.0	0.0	–				–	–	30
31	–	1				BLANK	0.0	0.0			0.0	BLANK				–	1	32
33	–	1				BLANK	0.0		0.0		0.0	BLANK				–	1	34
35	–	1				BLANK	0.0			0.0	0.0	BLANK				–	1	36
37	–	1				BLANK	0.0	0.0			0.0	FUTURE STORAGE BLDG				100	3	38
39	–	1				BLANK	0.0		0.0		0.0	–				–	–	40
41	–	1				BLANK	0.0			0.0	0.0	–				–	–	42
TOTALS:						CONNECTED kVA PER PHASE	0	0	0			CONNECTED TOTAL kVA				0		
						CONNECTED AMPS PER PHASE	0	0	0			CONNECTED AVERAGE AMPS PER PHASE				0		

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING 0kVA @125% =	0 kVA	ALL OTHER LOADS @100% =	0 kVA	DIVERSIFIED TOTAL kVA =	0
RECEPTACLES 0kVA @100% =	0 kVA	25% OF LARGEST MOTOR =	0 kVA	AVERAGE AMPS PER PHASE =	0
REMAINDER 0kVA @ 50% =	0 kVA				

SYMBOL LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 / E–501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E–501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
100	ROOM OR SPACE NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
CU–1	EQUIPMENT INDICATOR.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING.
	BREAK, ROUND.
	NEW LINE: MEDIUM LINE.
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE.
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE.
WIRING METHODS	
	WIRING.
— X —	WIRING AND/OR RACEWAY: THIN LINE. WHERE "X" = : CATV = CABLE TELEVISION; CCTV = CLOSED CIRCUIT TELEVISION; FA = FIRE ALARM; FO = FIBER OPTICS; I = INTERCOM; NC = NURSE CALL; P = POWER; RC = RIGID CONDUIT; S = SOUND; T = TELEPHONE; TV = TELEVISION. OTHERS AS NOTED IN OTHER SCHEDULES. RACEWAYS AND WIRING SHALL BE SIZED AS SHOWN AND/OR SPECIFIED.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE–LINE DIAGRAM.
	EARTH GROUND (ONE–LINE DIAGRAM).
ELECTRICAL POWER AND DISTRIBUTION	
	DISCONNECT, FUSED (ONE–LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE–LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE–LINE DIAGRAM).
GFP	CIRCUIT BREAKER, SOLID STATE WITH GROUND FAULT PROTECTION (ONE–LINE DIAGRAM).
	TRANSFORMER (ONE–LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE–LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE–LINE DIAGRAM).
225/3 "1H" 60/3	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE–LINE DIAGRAM).
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE–LINE DIAGRAM).
DMM	DIGITAL MULTIMETER (ONE–LINE DIAGRAM).
	SERVICE ENTRANCE SURGE PROTECTION (ONE–LINE DIAGRAM).
M	METER.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
DP#__	DISTRIBUTION PANEL OR SWITCHBOARD.
75	TRANSFORMER: NUMBER INDICATES kVA.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE	KV	KILOVOLT
1PH	SINGLE–PHASE	KVA	KILOVOLT AMPERE
1WAY	ONE–WAY	kVAR	KILOVOLT AMPERE REACTIVE
2/C	TWO–CONDUCTOR		
2WAY	TWO–WAY	kW	KILOWATT
3/C	THREE–CONDUCTOR	kWh	KILOWATT HOUR
3PH	THREE–PHASE	LED	LIGHT EMITTING DIODE
3WAY	THREE–WAY	LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
4OUT	QUADRUPLE RECEPTACLE OUTLET	LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
4PDT	FOUR–POLE DOUBLE THROW	LPS	LOW PRESSURE SODIUM
4PST	FOUR–POLE SINGLE THROW	LRA	LOCKED ROTOR AMPS
		LTG	LIGHTING
4W	FOUR–WIRE	LV	LOW VOLTAGE
4WAY	FOUR–WAY	MATV	MASTER ANTENNA TELEVISION SYSTEM
A	ABOVE COUNTER		
AC	ARMORED CABLE	MAX	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MC	METAL CLAD
		MCA	MINIMUM CIRCUIT AMPS
ADJ	ADJACENT	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISHED FLOOR	MCC	MOTOR CONTROL CENTER
AFG	ABOVE FINISHED GRADE	MCP	MOTOR CIRCUIT PROTECTION
AIC	AMPERE INTERRUPTING CAPACITY	MDP	MAIN DISTRIBUTION PANEL
ALUM	ALUMINUM		
AMP	AMPERE	MG	MOTOR GENERATOR
ANN	ANNUNCIATOR	MH	MANHOLE
AP	ACCESS POINT (WIRELESS DATA)	MIN	MINIMUM
		MLO	MAIN LUGS ONLY
AR	AS REQUIRED	MOCP	MAXIMUM OVERCURRENT PROTECTION
ASC	AMPS SHORT CIRCUIT		
ATS	AUTOMATIC TRANSFER SWITCH	NA	NOT APPLICABLE
		NC	NORMALLY CLOSED
AV	AUDIO VISUAL	NEC	NATIONAL ELECTRICAL CODE
AWG	AMERICAN WIRE GAGE		
BB XFMR	BUCK–BOOST TRANSFORMER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
C	CEILING MOUNTED		
CATV	COMMUNITY ANTENNA TELEVISION	NFC	NATIONAL FIRE CODE
		NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CB	CIRCUIT BREAKER		
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT	NIC	NOT IN CONTRACT
		NL	NIGHT LIGHT
CCTV	CLOSED CIRCUIT TELEVISION	NO	NORMALLY OPEN
		NTS	NOT TO SCALE
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT	OC	ON CENTER
		OCP	OVER CURRENT PROTECTION
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED	OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED	OF/OI	OWNER FURNISHED/ OWNER INSTALLED
CKT	CIRCUIT	OFP	OBTAIN FROM PLANS
CM	CONSTRUCTION MANAGER	OH DR	OVERHEAD (COILING) DOOR
CND	CONDUIT	OL	OVERLOAD
CO	CONVENIENCE OUTLET	PB	PUSHBUTTON
COR	CONTRACTING OFFICER'S REPRESENTATIVE	PF	POWER FACTOR
		PH	PHASE
CP	CONTROL PANEL	PNL	PANEL
CT	CURRENT TRANSFORMER	PT	POTENTIAL TRANSFORMER
CTV	CABLE TELEVISION	PTZ	PAN/TILT/ZOOM
CU	COPPER	QTY	QUANTITY
dBA	UNIT OF SOUND LEVEL	R	REMOVE
DPDT	DOUBLE POLE DOUBLE THROW	RCP	REFLECTED CEILING PLAN
		RMC	RIGID METAL CONDUIT
DS	DISCONNECT SWITCH	RMP	ROCKY MOUNTAIN POWER
EA	EACH	RNC	RIGID NONMETALLIC CONDUIT
EM	EMERGENCY		
EMT	ELECTRICAL METALLIC TUBING	RPM	REVOLUTIONS PER MINUTE
		RR	REMOVE AND RELOCATE
ENT	ELECTRICAL NONMETALLIC TUBING	SCA	SHORT CIRCUIT AMPS
		SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
EPO	EMERGENCY POWER OFF		
EQUIP	EQUIPMENT	SF	SQUARE FOOT (FEET)
EXIST	EXISTING	SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
F	FURNITURE MOUNTED		
FA	FIRE ALARM	SPDT	SINGLE POLE, DOUBLE THROW
FCP	FIRE ALARM CONTROL PANEL		
		SPEC	SPECIFICATION
FLA	FULL LOAD AMPS	SPST	SINGLE POLE, SINGLE THROW
FMC	FLEXIBLE METALCONDUIT		
FOB	FREIGHT ON BOARD	S/S	START/STOP
FVNR	FULL VOLTAGE NON–REVERSING	SW	SINGLE THROW
		SWBD	SWITCHBOARD
FVR	FULL VOLTAGE REVERSING	SWGR	SWITCHGEAR
G	GROUND	TL	TWIST LOCK
GEN	GENERATOR	TP	TELEPHONE POLE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TP	TWISTED PAIR
		TTB	TELEPHONE TERMINAL BOARD
GFP	GROUND FAULT PROTECTION		
HD	HEAVY DUTY	TV	TELEVISION
HID	HIGH INTENSITY DISCHARGE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
HOA	HAND–OFF–AUTOMATIC		
HP	HORSE POWER	TYP	TYPICAL
HPF	HIGH POWER FACTOR	UF	UNDERFLOOR
HPS	HIGH PRESSURE SODIUM	UGND	UNDERGROUND
HV	HIGH VOLTAGE	UPS	UNINTERRUPTIBLE POWER SUPPLY
HZ	HERTZ		
IG	ISOLATED GROUND	V	VOLTS
IMC	INTERMEDIATE METAL CONDUIT	VA	VOLT AMPERE
		VFC	VARIABLE FREQUENCY CONTROLLER
IN/IS	INSULATED/ISOLATED		
I/O	INPUT/OUTPUT	W/	WITH
IR	INFRARED	W/O	WITHOUT
J–BOX	JUNCTION BOX	WP	WEATHERPROOF
		XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.
2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE. THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
4. SUBMITTALS: PROVIDE SUBMITTALS IN THREE RING BINDERS WITH JOB NAME, SUBCONTRACTOR, AND VOLUME ON THE BINDING. PREPARE TABS FOR EACH SPECIFICATION SECTION REQUIRING SUBMITTALS. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB–SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

ELECTRICAL SHEET INDEX

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CONSULTANTS

STATE PROPERTY NO:

WJRC NORTH HANGER ELECTRICAL UPGRADE

MARK	DATE	DESCRIPTION
5		
4		
3		
2		
1		

ISSUE:	
DATE:	2008-09-02
DFCM PROJECT NO:	08280480
PROJECT NO:	20080511
DRAWN BY:	PSS
CHECKED BY:	DLA
DESIGNED BY:	DLA
RECORD DRAWING DATE:	
SIGNATURE:	

SHEET TITLE

SYMBOL LEGEND, SHEET INDEX & ABBREVIATIONS

EE001

SHEET 1 OF 4

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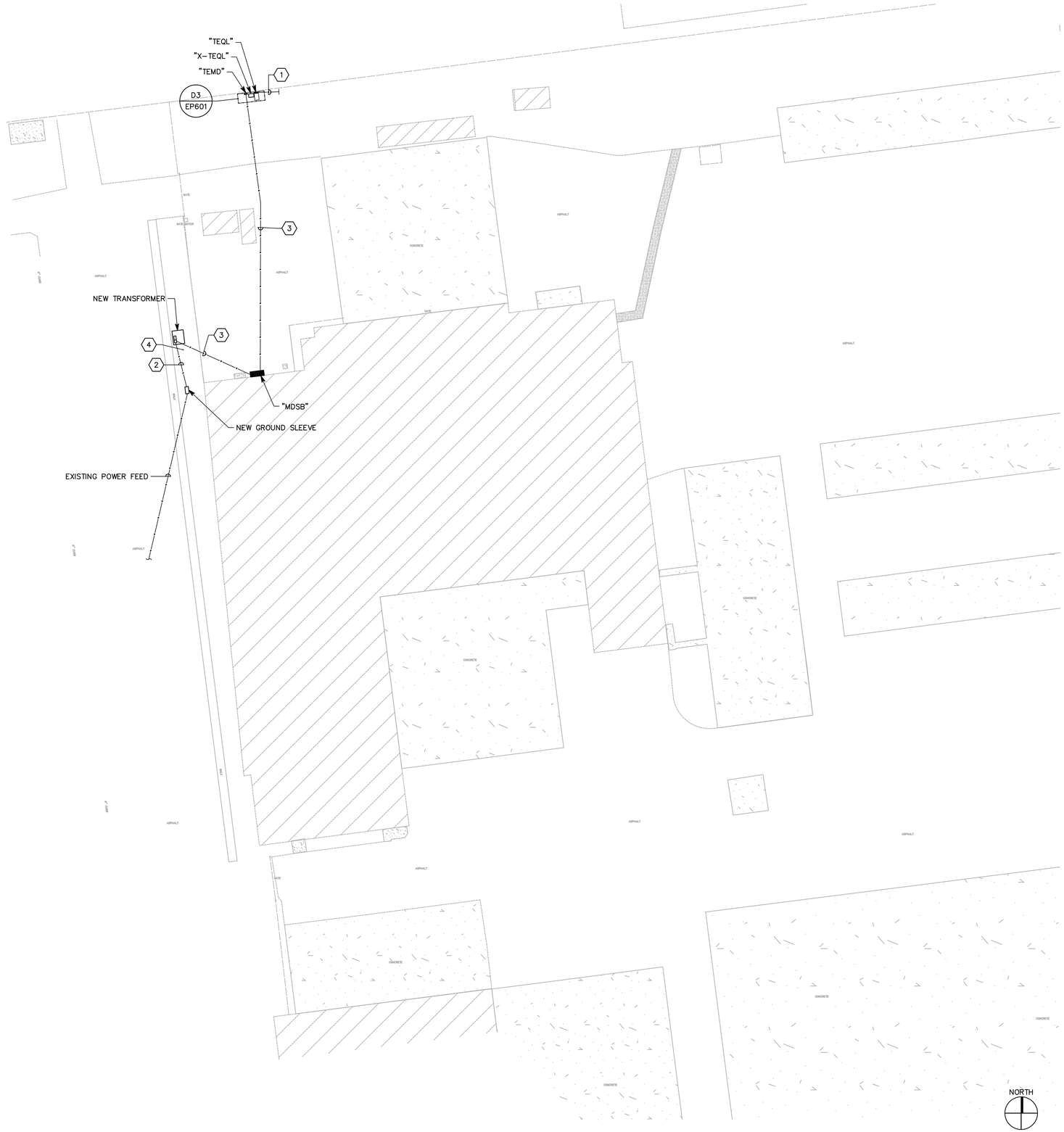

A1 ELECTRICAL SITE PLAN
1" = 30'-0"

SHEET KEYNOTES

1. FEEDER CONDUIT STUB FOR FUTURE STORAGE BUILDING. COORDINATE REQUIREMENTS WITH UTAH NATIONAL GUARD.
2. TRENCH THROUGH LANDSCAPE AS REQUIRED FOR NEW FEED TO NEW TRANSFORMER. REPLACE VEGETATION AS REQUIRED.
3. SAW CUT ASPHALT AND TRENCH TO ACCOMMODATE NEW POWER FEEDER. PATCH AND REPAIR ASPHALT.
4. MODIFY/ADJUST SPRINKLERS IN THIS AREA AS REQUIRED TO RESTORE SPRINKLER SYSTEM.

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DFCM PROJECT NO:	08280480
PROJECT NO:	20080511
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WJRC NORTH HANGER ELECTRICAL UPGRADE

SHEET TITLE
ELECTRICAL SITE PLAN

ES101
SHEET 2 OF 4

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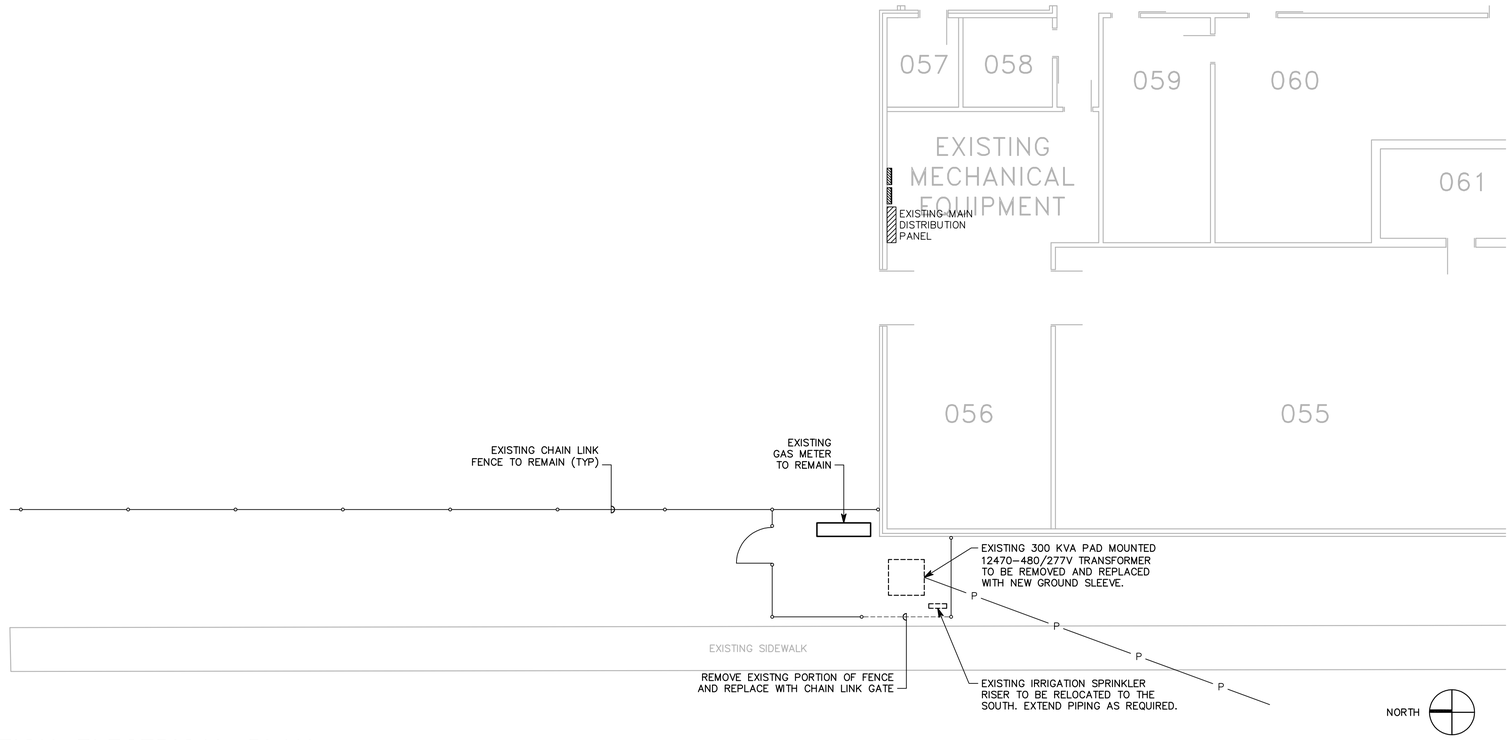
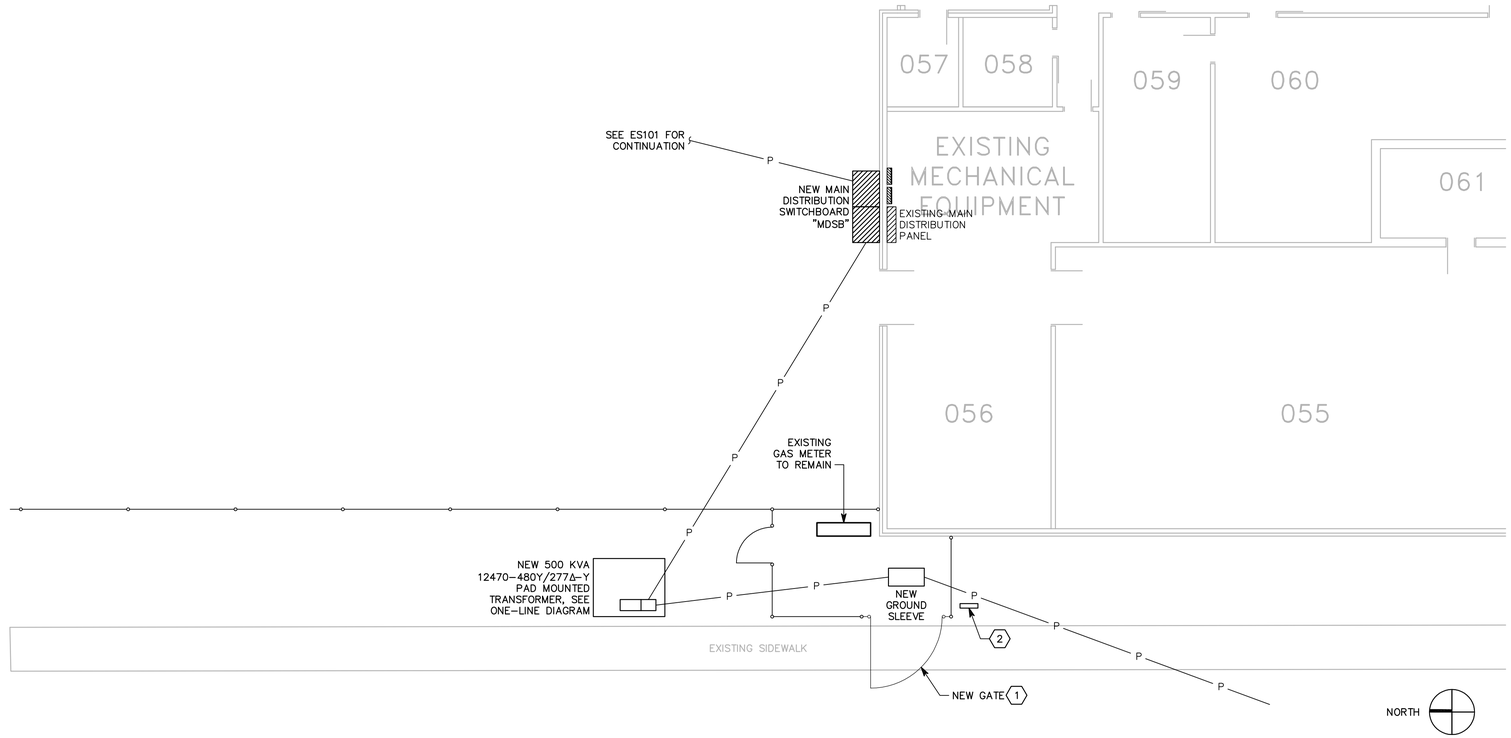


C1 DEMOLITION ELECTRICAL PLAN
1/8" = 1'-0"



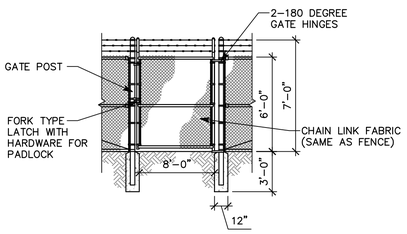
A1 NEW ELECTRICAL PLAN
1/8" = 1'-0"

GENERAL SHEET NOTES

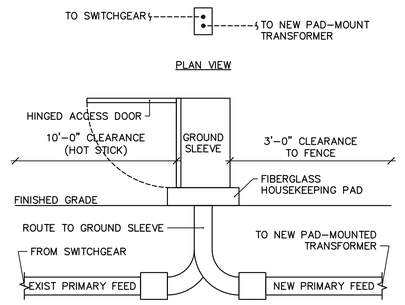
1. CONTRACTOR SHALL HAVE ALL NEW EQUIPMENT IN PLACE PRIOR TO DEMOLITION OF EXISTING SERVICE TRANSFORMER. CONTRACTOR SHALL COORDINATE WITH ROCKY MOUNTAIN POWER FOR SHUTDOWN OF PRIMARY SERVICE TO EXISTING TRANSFORMER AND SHALL ALSO COORDINATE REQUIRED OUTAGE DURATION WITH UTAH NATIONAL GUARD. PERFORM CHANGE OVER TO NEW SERVICE ON A WEEKEND.

SHEET KEYNOTES

1. PROVIDE NEW CHAIN LINK SWING GATE. MATCH EXISTING GATE MATERIAL AND HEIGHT. FIELD VERIFY REQUIREMENTS.
2. NEW SPRINKLER HEADER LOCATION. COORDINATE REQUIREMENTS.



B5 SINGLE SWING GATE DETAIL
NTS



A5 GROUND SLEEVE DETAIL
NTS

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WJRC NORTH HANGER ELECTRICAL UPGRADE

SHEET TITLE
DEMOLITION & NEW ELECTRICAL PLANS

EP101

SHEET 3 OF 4

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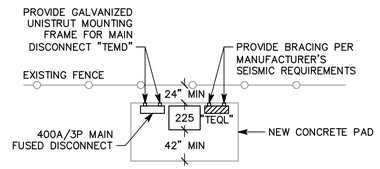
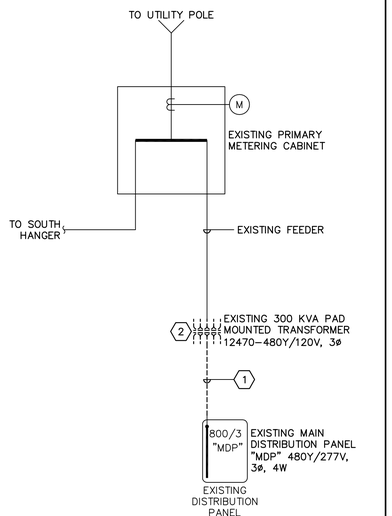
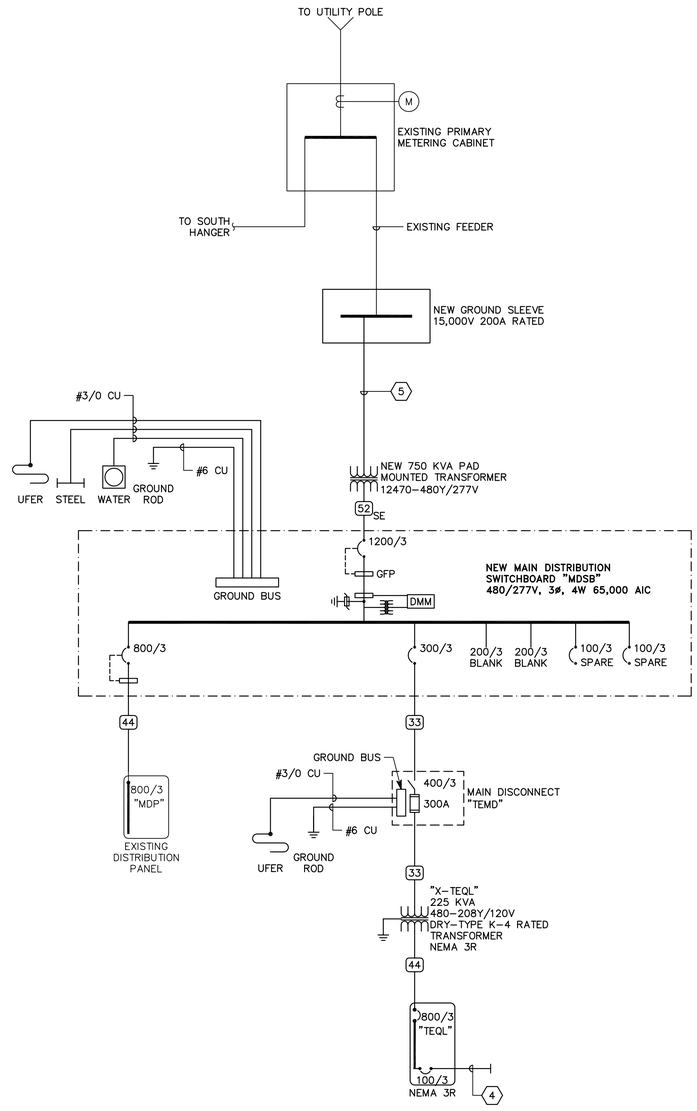


D3 PAD DETAIL
NO SCALE



A1 PARTIAL DEMOLITION ONE–LINE DIAGRAM
NO SCALE



A2 PARTIAL NEW ONE–LINE DIAGRAM
NO SCALE

CONDUCTOR AND CONDUIT SCHEDULE

(**) SCHEDULE NUMBER
SUBSCRIPT (NOTE 5) (E.G.) (5)$_{IG}$

SYM	AMP	CONDUIT SIZE	CONDUCTOR(NOTE 1) QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2,3
3	20	.75	4	12	12	12	8	2,3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	95	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	250	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	4	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	760	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	760	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 3.50	4	400	4/0	4/0	4/0	4
54	2010	6 EA 3.50	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59		5						6
60		10 EA 4						6

CONDUCTOR AND CONDUIT SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250–122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. WHEN SYMBOL SUBSCRIPT INDICATES "IG", INCLUDE "IG" OR INSULATED GROUND CONDUCTOR SCHEDULED ALONG WITH GROUND OR EQUIPMENT GROUND CONDUCTOR. WHEN SYMBOL SUBSCRIPT INDICATES "SE", SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEMS.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

FAULT CURRENT TABLE

BUS	FAULT CURRENT
MDSB	34,837 SCA
TEQL	18,994 SCA

PROVIDE FULLY RATED CIRCUIT BREAKERS IN PANELBOARDS FOR THE FAULT CURRENT SHOWN. SERIES RATINGS WITH NEXT LEVEL UPSTREAM OVERCURRENT PROTECTIVE DEVICES ARE PERMITTED SUBJECT TO FACTORY UL DOCUMENTATION OF SERIES RATING SUBMITTED TO ENGINEER. IF DEVICE OR EQUIPMENT FAULT CURRENT RATING IS NOT SHOWN, ASSUME 100,000 AIC.

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.

⬡SHEET KEYNOTES

1. REMOVE EXISTING SECONDARY FEEDERS TO MAIN DISTRIBUTION PANEL.
2. REMOVE EXISTING TRANSFORMER AND REPLACE WITH NEW 200A RATED GROUND SLEEVE. SPLICE PRIMARY CONDUCTORS AS REQUIRED TO EXTEND INTO GROUND SLEEVE.
3. REMOVE BOND BETWEEN NEUTRAL AND GROUND BUS IN PANELBOARD.
4. PROVIDE 2–INCH CONDUIT STUB TO THE NORTH OF THE BUILDING FOR FUTURE STORAGE BUILDING ELECTRICAL FEED. SEE SITE PLAN.
5. 1–EACH 5–INCH CONDUIT WITH 3–EACH #2 CU, 1/3 CONCENTRIC NEUTRAL, 133% INSULATION TYPE MV–105 CABLES.

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WJRC NORTH HANGER ELECTRICAL UPGRADE

SHEET TITLE
PARTIAL DEMOLITION & NEW ONE-LINE DIAGRAMS

EP601
SHEET 4 OF 4

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