UTAH STATE HOSPITAL FORENSICS LAB
GENERATOR UPGRADE
CONSTRUCTION DOCUMENT SET
OCTOBER 3, 2007

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DESIGN TEAM

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LIST OF DRAWINGS

CODE ANALYSIS

APPLICABLE CODES

	Year		Year
International Building Code	2006	National Electrical Code	2005
International Mechanical Code	NA	Uniform Code for	
International Plumbing Code	NA	Building Conservation	2005
International Fire Code	NA	ADA Accessibility	
International Energy		Guildelines	2005
Conservation Code	NA		

FOOTNOTES:

A) SEISMIC DESIGN CATEGORY: D

1) In case of conflict with the U.S. Department of Justice Federal Registers Parts through **Σ -** ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.

2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:
   a) High Rise Requirements.
   b) Atriums.
   c) Performance Based Criteria.
   d) Means or Egress Analysis.
   e) Fire Assembly Locator Sheet.
   f) Exterior and Interior Accessibility Route.
   g) Fire Stopping, Including Tested Design Number.

BRANCH CIRCUITING SYMBOLS

SYMBOL	DESCRIPTION	REMARKS
	1 CIRCUIT, 2 WIRE BRANCH CIRCUIT HOME RUN TO PANEL	ARROWS: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS REQUIRED. SHORT CROSS LINES: NUMBER OF SHORT CROSS LINES INDICATES NUMBER OF PHASE, TRAVELER, AND/OR SWITCHED CONDUCTORS REQUIRED IF GREATER THAN 1 (ONE). LONG CROSS LINES: NUMBER OF LONG CROSS LINES INDICATES NUMBER OF NEUTRAL CONDUCTORS REQUIRED FOR MULTI-WIRE HOME RUNS. EQUIPMENT GROUND AND ISOLATED GROUND CONDUCTORS: EQUIPMENT GROUND AND ISOLATED GROUND CONDUCTORS ARE NOT SHOWN, BUT ARE REQUIRED AS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
	2 CIRCUIT, 3 WIRE BRANCH CIRCUIT HOME RUN TO PANEL	
	3 CIRCUIT, 4 WIRE BRANCH CIRCUIT HOME RUN TO PANEL	
	MULTIPLE WIRE BRANCH CIRCUITING BETWEEN FIXTURES, SWITCHES, DEVICES, ETC.	
	BRANCH CIRCUITING (U.N.O.) TURNED UP OR TOWARDS OBSERVER.	
	BRANCH CIRCUITING (U.N.O.) TURNED DOWN OR AWAY FROM OBSERVER.	
	BRANCH CIRCUITING (U.N.O.) CONTINUATION	
	CONDUIT STUB-IN	CAP AND MARK
	INCOMING SERVICE	
J	JUNCTION BOX	MOUNT AS NOTED. SUBSCRIPT 'F' INDICATES TO PROVIDE A FLOOR BOX WITH BLANK COVERPLATE

GEAR AND CONTROL SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING	REMARKS
$_T	MANUAL STARTER WITH THERMAL OVERLOAD(S)	AT EQUIPMENT	
	ELECTRIC MOTOR		
F	NON-FUSED DISCONNECT SWITCH	+60"	
F	FUSED DISCONNECT SWITCH	+60"	
	CIRCUIT BREAKER AND ENCLOSURE	+60"	
	MAGNETIC STARTER	+60"	
F	COMBINATION MAGNETIC STARTER / NON-FUSED DISCONNECT	+60"	
F	COMBINATION MAGNETIC STARTER / FUSED DISCONNECT	+60"	
F	COMB. MAGNETIC STARTER / MOTOR CIRCUIT PROTECTOR (MCP)	+60"	
VFD	COMB. VARIABLE FREQUENCY DRIVE / MOTOR CIRCUIT PROTECTOR (MCP)	FLOOR OR WALL AS SPECIFIED	TOP AT +72" IF WALL MOUNTED
RVS	REDUCED VOLTAGE STARTER	FLOOR OR WALL AS SPECIFIED	TOP AT +72" IF WALL MOUNTED
	LOAD CENTER (SURFACE-MOUNTED)	TOP AT +72"	14"W X 3"D
	LOAD CENTER (FLUSH-MOUNTED)	TOP AT +72"	14"W X 3"D
	LIGHTING AND APPLIANCE PANELBOARD (SURFACE-MOUNTED)	TOP AT +72"	20"W X 6"D
	LIGHTING AND APPLIANCE PANELBOARD (FLUSH-MOUNTED)	TOP AT +72"	20"W X 6"D
	POWER DISTRIBUTION PANELBOARD	WALL	THESE SYMBOLS ARE GENERAL IN NATURE AND MAY VARY IN SIZE AND SHAPE TO SUIT APPLICATION. CROSS HATCHING INDICATES "MAIN PANELBOARD OR SWITCHBOARD". NAME IS INDICATED IN SEMI-QUOTES (I.E. "L2A", "MDP")
	SWITCHBOARD	FLOOR	
	METER BASE	TOP AT +72"	
	OPEN - STOP - CLOSE SWITCH	+60"	FURNISH SWITCH UNLESS FURNISHED BY ANOTHER DIVISION. INSTALL AND CONNECT COMPLETE. REFER TO RELATED SPECIFICATION SECTIONS.
T	HVAC THERMOSTAT	+60"	PROVIDED BY DIVISION 15000 U.N.O.
H	HAND - OFF - AUTO SWITCH	+60"	
GF	GROUND FAULT PROTECTION		

GENERAL SYMBOLS

SYMBOL	DESCRIPTION	REMARKS
XX	KEYED NOTE	
1 / E-1	DETAIL REFERENCE	TOP NUMBER INDICATES DETAIL NUMBER; BOTTOM LETTER-NUMBER INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN. WHERE NOT SPECIFICALLY REFERENCED, DETAIL IS GENERAL IN NATURE AND SHALL APPLY WHERE APPLICABLE.
2 / E-2	ELEVATION REFERENCE	TOP NUMBER INDICATES ELEVATION NUMBER; BOTTOM LETTER-NUMBER INDICATES WHERE ELEVATION IS SHOWN.
3 / E-3	SECTION REFERENCE	TOP NUMBER INDICATES SECTION NUMBER; BOTTOM LETTER NUMBER INDICATES WHERE SECTION IS SHOWN.
100	ARCHITECTURAL ROOM NUMBER	
AHU / 1	EQUIPMENT NAME / NUMBER	TOP NUMBER ABBREVIATES EQUIPMENT NAME OR TYPE; BOTTOM NUMBER INDICATES EQUIPMENT NUMBER. REFER TO EQUIPMENT SCHEDULE.
1	REVISION NUMBER	USED TO DENOTE CHANGES EITHER ISSUED BY ADDENDUM OR DURING CONSTRUCTION AND TO DENOTE RECORD DRAWING CHANGES.
	BREAKLINE	USED TO BREAK DRAWINGS.

SPECIAL PROJECTS NOTES:

1. THE CONTRACTOR SHALL SUB-CONTRACT WILL OTHER CONTRACTORS AS NECESSARY TO COMPLETE ALL WORK.
2. THE CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION THE INTERIOR OF THE SERVICE YARD AS IT WAS PRIOR TO THE START OF CONSTRUCTION. THE CURRENT YARD HAS A 6" LAYER OF GRAVEL AND THEN COMPACTED EARTH BELOW.
3. ANYWHERE THE CONTRACTOR EXCAVATES, THE CONTRACTOR SHALL REPLACE WITH ROAD BASE AND COMPACT TO A 95% COMPACTION RATING. THE CONTRACTOR SHALL USE FLOWABLE FILL AS REQUIRED IN AREAS THAT CANNOT BE COMPACTED WITH A COMPACTOR (EXISTING SERVICE CONDUITS, ETC.).
4. THE CONTRACTOR SHALL REPAIR ALL SPINKLER LINES IF THEY ARE AFFECTED BY CONSTRUCTION.
5. THE CONTRACTOR SHALL FIRE CAULK ALL WALL AND CEILING PENETRATIONS. ALL EXTERIOR PENETRATIONS SHALL BE CAULKED AND SEALED TO A WATER PROOF CONDITION.
6. THE CONTRACTOR SHALL PROVIDE TRAINING TO THE OWNER FOR THE NEW 800 kW GENERATOR.
7. ALL REQUIRED PERMITS WILL BE PAID BY THE OWNER (DFCM).

ELECTRICAL SHEET INDEX

ABBREVIATION SCHEDULE

NOTE: NOT ALL ABBREVIATIONS MAY BE USED.

A	ABOVE COUNTER	ISO	ISOLATED
A	AMP OR AMPS	KVA	KILO VOLT AMPERES
ADJ	ADJACENT	KW	KILOWATTS
AFF	ABOVE FINISHED FLOOR	LFMC	LIQUID-TIGHT METAL CONDUIT
AHJ	AUTHORITY HAVING JURISDICTION	LFNC	LIQUID-TIGHT NONMETAL CONDUIT
AL	ALUMINUM	MCA	MINIMUM CIRCUIT AMPS
C	CONDUIT	MLO	MAIN LUGS ONLY
CB	CIRCUIT BREAKER	N.C.	NORMALLY CLOSED
CKT	CIRCUIT	N.I.C.	NOT IN CONTRACT
C.O.'S	CONVENIENCE OUTLETS	NL.	NIGHT LIGHT
CU	COPPER	NO.	NORMALLY OPEN
EA	EACH	O.C.	ON CENTER(S)
ELEC	ELECTRICAL	OCP	OVER CURRENT PROTECTION
EM	EMERGENCY	QTY	QUANTITY
EMT	ELECTRIC METALLIC TUBING	R	REMOVE
ENT	ELECTRIC NONMETALLIC TUBING	REQ.	REQUIREMENTS
EQUIP	EQUIPMENT	RMC	RIGID METAL CONDUIT
EWC	ELECTRIC WATER COOLER	RNC	RIGID NONMETALLIC CONDUIT
E, EX	EXISTING	RR	REMOVE AND RELOCATE
EXP	EXPLOSION PROOF	SS	SURGE SUPPRESSION
FA	FIRE ALARM	SCP	SECURITY CONTROL PANEL
FACP	FIRE ALARM CONTROL PANEL	TR	TAMPER RESISTANT
FLA	FULL LOAD AMPS	TYP	TYPICAL
FMC	FLEXIBLE METAL CONDUIT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
FOB	FREIGHT ON BOARD	UF	UNDER FLOOR
GND	GROUND CONDUCTOR	UG	UNDERGROUND
HOA	HAND-OFF-AUTO	U.N.O.	UNLESS NOTED OTHERWISE
HP	HORSE POWER	W/	WITH
IG	ISOLATED GROUND	WP	WEATHER PROOF
IMC	INTERMEDIATE METAL CONDUIT	XFMR	TRANSFORMER
INS	INSULATED		

PROPOSED CONSTRUCTION PHASING:

1. THE CONTRACTOR SHALL LAYOUT LOCATIONS OF ALL NEW EQUIPMENT INCLUDING THE GENERATOR AND THE NEW BUILDING DISCONNECT 'MS'. 'MS' SHOULD BE LOCATED SO THAT THE CONDUITS CAN EXTEND OUT THE BACK OF THE NEW BUILDING DISCONNECT AND RUN INTO THE SIDE OF THE EXISTING MAIN DISTRIBUTION PANEL 'MSA'.
2. THE CONTRACTOR SHALL CORE DRILL THROUGH THE EXISTING BLOCK WALL TO ALLOW FOR NEW CONDUITS TO BE RAN FROM THE NEW BUILDING DISCONECT 'MS' TO THE EXISTING MAIN DISTRIBUTION PANEL 'MSA'.
3. THE CONTRACTOR SHALL EXCAVATE THE SURROUNDING YARD TO EXPOSE THE EXISTING CONDUITS RUNNING FROM THE TRANSFORMER TO THE EXISTING MAIN DISTRIBUTION PANEL 'MSA' AND THE MAIN SERVICE CONDUITS AS THEY EXTEND OUT FROM UNDERNEATH THE TRANSFORMER PAD.
4. THE CONTRACTOR SHALL INSTALL THE NEW CONDUITS FROM FROM THE NEW MAIN BUILDING DISCONNECT TO THE NEW 800 kW GENERATOR AND THE CONDUITS FOR THE NEW SEVICE FEEDERS FROM THE TRANSFORMER. IT IS THE INTEN OF THE DESIGN THAT THE EXISTING CONDUITS FROM THE TRANSFORMER WILL BE INTERCEPTED AND TIED INTO THE NEW CONDUITS FROM 'MS' AND THIS WILL BE ONE OF THE LAST STEPS AS NOTED BELOW IN NOTE NO. 8.
5. THE CONTRACTOR SHALL INSTALL THE CONDUITS FROM THE NEW BUILDING DISCONNECT 'MS' TO THE EXISTING MAIN DISTRIBUTION PANEL 'MSA'. AN OUTAGE WILL BE REQUIRED TO PERFORM THIS WORK. WE WOULD ALSO RECOMMEND THAT THE CONTRACTOR GET A FACTORY REPRESENTATIVE INVOLVED TO DETERMINE WHAT WILL BE REQUIRED TO MODIFY THE BUSSING OF THE EXISTING 'MSA' TO MODIFY IT TO A MAIN LUGS ONLY PANEL.
6. THE CONTRACTOR SHALL INSTALL THE CONCRETE GENERATOR PAD AND INSTALL ALL OF THE MISCELLANEOUS CONDUITS REQUIRED FOR THE BLOCK HEATER, BATTERY CHARGER, BRANCH FEEDER FOR 'ATS-LS' (NOTE: THE CONDUIT WILL ONLY BE STUBBED OUT AT THIS TIME FOR 'ATS-LS' SINCE THE INTENT OF THE DESIGN IS TO INTERCEPT THE CONDUIT EXTENDING INTO THE BUILDNG FROM THE OLD GENERATOR)
7. THE CONTRACTOR SHALL INSTALL THE 800 kW GENERATOR AND ALL CONDUCTORS TO THE NEW BUILDING DISCONNECT 'MS'.
8. AT THIS POINT, THE MAIN SERVICE MUST BE SWITCHED OVER TO THE NEW MAIN BUILDING DISCONNECT. THIS MAY REQUIRE AN EXTEND OUTAGE. DURING THIS STEP, THE NEW SERVICE CONDUCTORS FROM THE TRANSFORMER TO 'MS' MUST BE INSTALLED. FEEDER CONDUCTORS MUST BE INSTALLED FROM 'MS' TO EXISTING 'MSA'. THE BUS MODIFICATIONS MUST BE MADE TO EXISTING 'MSA'.
9. ONCE THE NEW SERVICE IS INSTALLED AND CONNECTED, THEN THE EXISTING LIFE SAFETY SYSTEM CAN BE MODIFIED AND CHANGED OVER AND CONNECTED TO THE NEW SERVICE. POWER OUTAGES MAY BE REQUIRED.
10. THE EXISTING TRANSFER SWITCH 'ATS-EQ' SHOULD BE REMOVED AND NEW CONDUCTORS PULLED TO CONNECT IT DIRECTLY TO 'MSA'. NOTE: IF THIS WORK CAN BE DONE DURING THE MAIN SERVICE SWITCH OVER, THEN INCLUDE IT IN THAT STAGE.
11. REMOVE EXISTING 300 kW GENERATOR AND RETURN TO THE OWNER. REMOVE ASSOCIATED CONCRETE PAD.

GENERAL PROJECT NOTES:

1. DIVISION 16000 CONTRACTOR IS RESPONSIBLE FOR READING AND APPLYING WHAT IS IN THE SPECIFICATIONS TO THIS PROJECT. ANYTHING THAT IS NOT INCLUDED ON THE PROJECT THAT IS CALLED OUT IN THE SPECIFICATION SHALL BE LISTED ON THE SUBSTANTIAL COMPLETION PUNCHLIST. THE CONTRACTOR WILL BE REQUIRED TO REMEDY THESE DEFICIENCIES. THERE WILL BE NO EXCEPTIONS.
2. THE CONTRACTOR MAY SCHEDULE A PRE-CONSTRUCTION MEETING , AT THEIR DISCRETION WITH THE ELECTRICAL ENGINEER AND REVIEW THE DRAWINGS AND SPECIFICATIONS. THE MEETING SHALL BE A MAXIMUM OF ONE HOUR AND SHALL TAKE PLACE AT THE ENGINEER'S OFFICE.
3. THE FOLLOWING ITEMS ARE SOME OF THE REQUIREMENTS THAT ARE LISTED IN THE SPECIFICATIONS, THESE ITEMS DO NOT REPRESENT ALL ITEMS AND THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL REQUIREMENTS OF THE SPECIFICATIONS:
   A. INSULATED THROAT CONNECTORS OR PLASTIC BUSHINGS SHALL BE UTILIZED FOR ALL CONDUIT SIZES USED ON THIS PROJECT.
   B. THE CONTRACTOR IS RESPONSIBLE FOR UPSIZING CONDUCTORS FOR VOLTAGE DROP PER THE NEC REGARDLESS OF WHETHER IT IS SHOWN ON THE PLANS OR NOT.
   C. THE CONTRACTOR SHALL LABEL ALL ELECTRICAL EQUIPMENT AS IT IS CALLED OUT IN THE SPECIFICATIONS.
   D. THE CONTRACTOR SHALL PROVIDE SEISMIC SUPPORT AND BRACING FOR ALL ELECTRICAL EQUIPMENT AS REQUIRED BY LOCAL AND NATIONAL CODE.
4. THE CONTRACTOR SHALL FOLLOW THE PANELBOARD SCHEDULES AS INDICATED IN THE DRAWINGS. EACH CIRCUIT BREAKER HAS BEEN ASSIGNED A SPECIFIC AREA OF THE BUILDING. NO DEVIATION WILL BE ALLOWED WITHOUT THE APPROVAL FROM THE ELECTRICAL ENGINEER.
5. THE CONTRACTOR SHALL INSTALL PROPER WIRE SIZE AS CALLED OUT ON THE PANELBOARD SCHEDULES. HOWEVER, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE WIRE IS LARGE ENOUGH FOR VOLTAGE DROP.
6. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING THE BID, AND SHALL EXAMINE ALL PHYSICAL CONDITIONS WHICH MAY BE MATERIAL TO THE PERFORMANCE OF HIS WORK. NO EXTRA PAYMENTS WILL BE ALLOWED TO THE CONTRACTOR AS A RESULT OF EXTRA WORK MADE NECESSARY BY HIS FAILURE TO DO SO. ANY CASE OF DISCREPANCY OR LACK OF CLARITY SHALL BE PROMPTLY IDENTIFIED TO THE OWNER'S REPRESENTATIVE AND THE ENGINEER FOR CLARIFICATION.
7. THE CONTRACTOR SHALL MAKE SURE THAT ALL BRANCH CIRCUITS THAT ARE AFFECTED BY THIS PROJECT ARE NOT OVERLOADED. PROVIDE ADDITIONAL BRANCH CIRCUITS FROM ELECTRICAL PANELS AS NECESSARY TO COMPLY WITH THE BRANCH CIRCUIT LOADING REQUIREMENTS. PROVIDE ALL MATERIAL AND LABOR AS NECESSARY FOR A COMPETE AND OPERATING SYSTEM.
8. PROVIDE UPDATED, TYPED PANELBOARD SCHEDULE(S) TO REFLECT ALL THE CHANGES MADE INCLUDING EXISTING LOADS. THE EXISTING LOADS SHALL BE NAMED THE SAME AS LISTED ON THE EXISTING PANELBOARD SCHEDULE.

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CHK'D BY: DPW

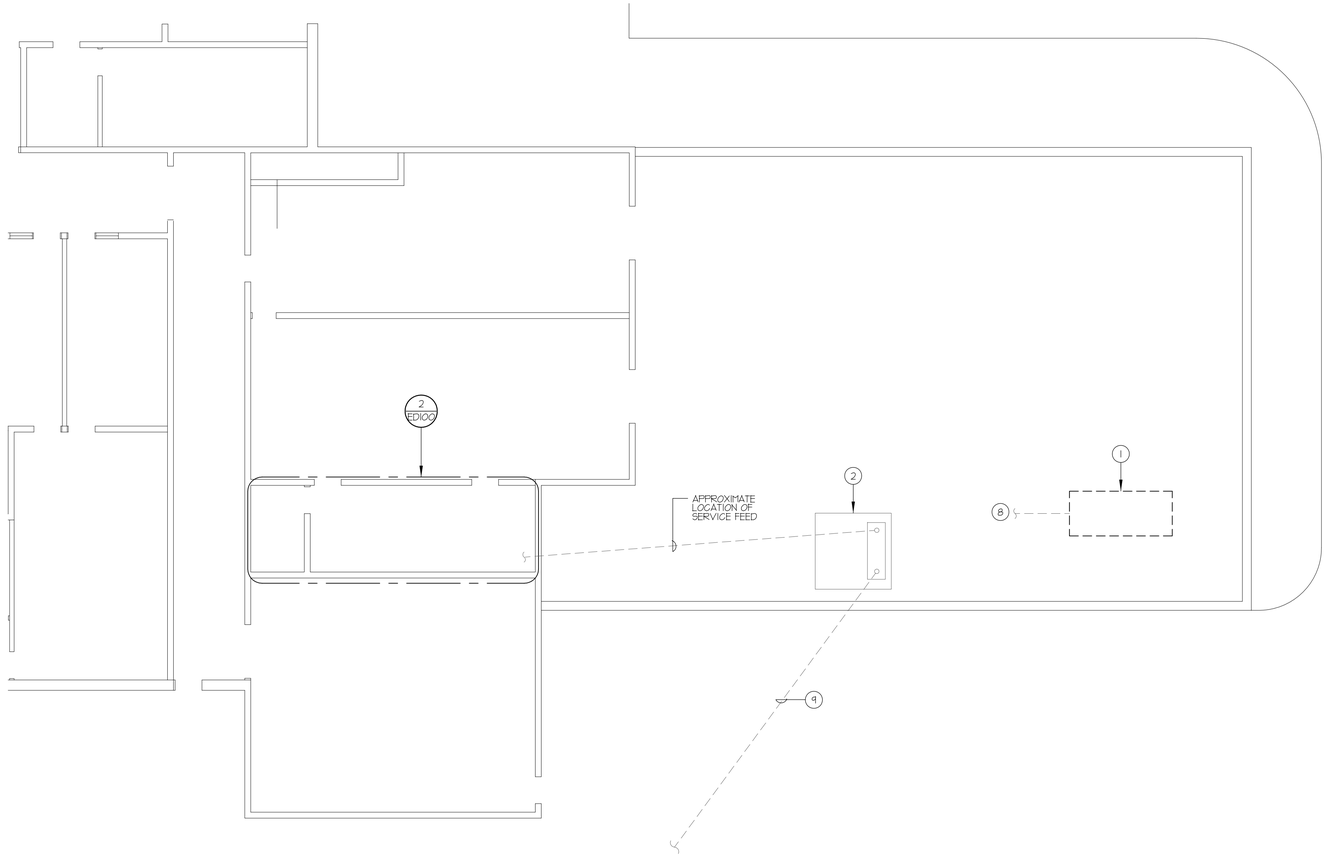
SHEET TITLE

SYMBOLS

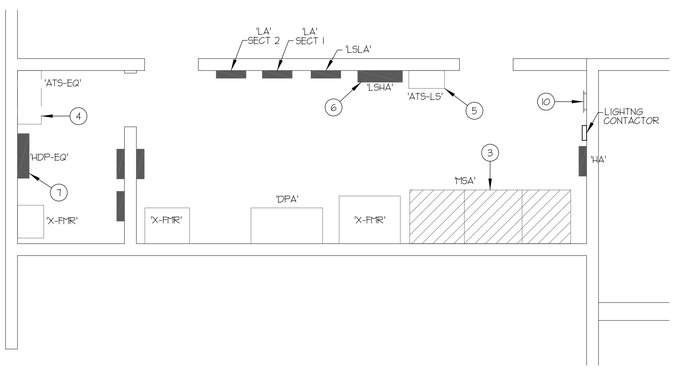
SHEET NUMBER

EG001

SHEET 2 OF 7



1 ELECTRICAL DEMOLITION SITE PLAN
SCALE: 1/8"-1'-0"



2 ENLARGED DEMOLITION PLAN
SCALE: 1/4"-1'-0"

KEYED NOTES:

1. EXISTING 300 KW GENERATOR TO BE DISCONNECTED, REMOVED AND RETURNED TO THE FACILITY OWNER. REMOVE ALL EXISTING ELECTRICAL BRANCH FEEDERS BACK TO THE AUTOMITIC TRANSFER SWITCHES 'ATS-EQ' AND 'ATS-LS'. REMOVE ASSOCIATED BRANCH CIRCUITS (WIRE ONLY) THAT FEED THE BLOCK HEATER AND BATTERY CHARGER BACK TO PANEL 'LSLA'. THE EXISTING CONDUITS SHALL BE INTERCEPTED AND REUSED.
2. EXISTING 12470-277/480 VOLT TRANSFORMER TO REMAIN. PROTECT FROM DAMAGE DURING CONSTRUCTION.
3. EXISTING SIEMENS SWITCHGEAR 'MSA' TO REMAIN. PROTECT FROM DAMAGE DURING CONSTRUCTION. REFER TO SHEET ED101 FOR ADDITIONAL INFORMATION AND MODIFICATIONS THAT NEED TO BE MADE TO THIS SWITCHBOARD.
4. EXISTING AUTOMATIC TRANSFER SWITCH 'ATS-EQ' TO BE REMOVED AND RETURNED TO THE FACILITIES OWNER. REMOVE ALL EXISTING CONDUCTORS ASSOCIATED WITH THIS TRANSFER SWITCH INCLUDING THE NORMAL POWER LEG AND THE EMERGENCY POWER LEG. THE INTENT OF THIS DESIGN IS TO HAVE NEW CONTINUOUS CONDUCTORS WITH NO SPLICES FROM THE MAIN DISTRIBUTION PANEL 'MSA' TO PANEL 'EQ'. THE FEED FROM 'MSA' TO PANEL 'EQ' APPEARS TO RUN BELOW THE EXISTING FLOOR SLAB.
5. EXISTING TRANSFER SWITCH 'ATS-LS' TO REMAIN. PROTECT FROM DAMAGE DURING CONSTRUCTION. EXISTING CONDUIT THAT EXTENDS TO THE EXISTING GENERATOR WILL BE INTERCEPTED AND REROUTED TO THE NEW GENERATOR. REMOVE CONDUIT AND FEEDERS FROM 'ATS-LS' BACK TO 'MSA'. THE CONDUIT AND FEEDERS FROM 'ATS-LS' TO EXISTING PANEL 'LSHA' SHALL REMAIN IN PLACE.
6. EXISTING BRANCH PANEL 'LSHA' SHOWN FOR REFERENCE. PANEL SHALL REMAIN IN PLACE.
7. EXISTING BRANCH PANEL 'HDP-EQ' SHOWN FOR REFERENCE. PANEL SHALL REMAIN IN PLACE.
8. EXISTING CONDUITS FROM EXISTING GENERATOR TO 'ATS-EQ' TO BE ABONDNADED. EXISTING CONDUIT FEEDING 'ATS-LS' TO BE REUSED, PROTECT DURING DEMOLITION. REFER TO SHEET EP101 FOR ADDITIONAL INFORMATION.
9. EXISTING MEDIUM VOLTAGE FEED TO EXISTING TRANSFORMER. PROTECT FROM DAMAGE DURING CONSTRUCTION. REFER TO SHEET ES100 FOR CONTINUATION.
10. EXISTING BUILDING GROUND BUS TO REMAIN IN PLACE. A NEW GROUND WIRE WILL BE REQUIRED TO BE EXTENDED FROM THIS LOCATION TO THE LOCATION OF THE NEW BUILDING MAIN DISCONNECT. REFER TO SHEET EP100 FOR ADDITIONAL INFORMATION.

GENERAL DEMOLITION NOTES:

1. UNLESS SPECIFICALLY NOTED OTHERWISE, REMOVE ALL ELECTRICAL ITEMS SHOWN IN DARK & DASHED LINES. LIGHT & SOLID ITEMS ARE TO REMAIN. DEMOLITION ITEMS ARE SHOWN TO GIVE A BASIC DESCRIPTION OF THE EXTENT OF DEMOLITION WORK, BUT MAY NOT BE INCLUSIVE. PROVIDE DEMOLITION WORK IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

A. DISCONNECT AND REMOVE ANY/ALL FIXTURES, DEVICES, EQUIPMENT, ETC. REQUIRED FOR PROPER COMPLETION OF THE WORK WHETHER SHOWN OR NOT.

B. RELOCATE, REWIRE, AND/OR RECONNECT ANY/ALL FIXTURES, DEVICES, EQUIPMENT, ETC. THAT FOR ANY REASON OBSTRUCTS CONSTRUCTION.

C. LEAVE ALL EXITING FIXTURES, DEVICES, EQUIPMENT, ETC. IN PORTIONS OF THE BUILDING NOT BEING REMODELED, IN WORKING CONDITION. RESTORE ALL INTERRUPTED BRANCH CIRCUITS, FEEDERS, ETC.

D. REMOVE AND DISPOSE OF ALL RACEWAYS, CONDUCTORS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE NOT TO BE REUSED. TERMINATE AT ACCESSABLE JUNCTION BOX BY PROVIDING PROPER KNOCK-OUT CLOSURE, TAPE CONDUCTORS, LABEL AS "SPARE" WITH CIRCUIT NO., ZONE NO, OR OTHER CHARACTERISTIC IDENTIFYING SOURCE.

E. EXISTING RACEWAYS MAY BE REUSED, IF IN PLACE, WHERE POSSIBLE, AND WHERE IN COMPLIANCE WITH THE SPECIFICATIONS AND THE INTENT OF THE CONTRACT DOCUMENTS. UPGRADE AND OR PROVIDE NEW CONDUIT SUPPORTS WHERE NECESSARY FOR ALL RACEWAYS BEING REUSED. INSURE INTEGRITY OF EXISTING RACEWAYS BEFORE REUSE.

F. CONCEAL ALL RACEWAY AND WIRING IN EXISTING WALLS, CEILINGS, FLOORS, ETC. THE USE OF WIREMOLD IS PERMITTED ONLY WHERE SPECIFICALLY NOTED ON DRAWING.

G. DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOFS, ETC.

H. COORDINATE WITH OWNER WHAT EQUIPMENT SHOULD BE DISPOSED OF AND WHAT EQUIPMENT IS TO BE RETURNED TO OWNER.

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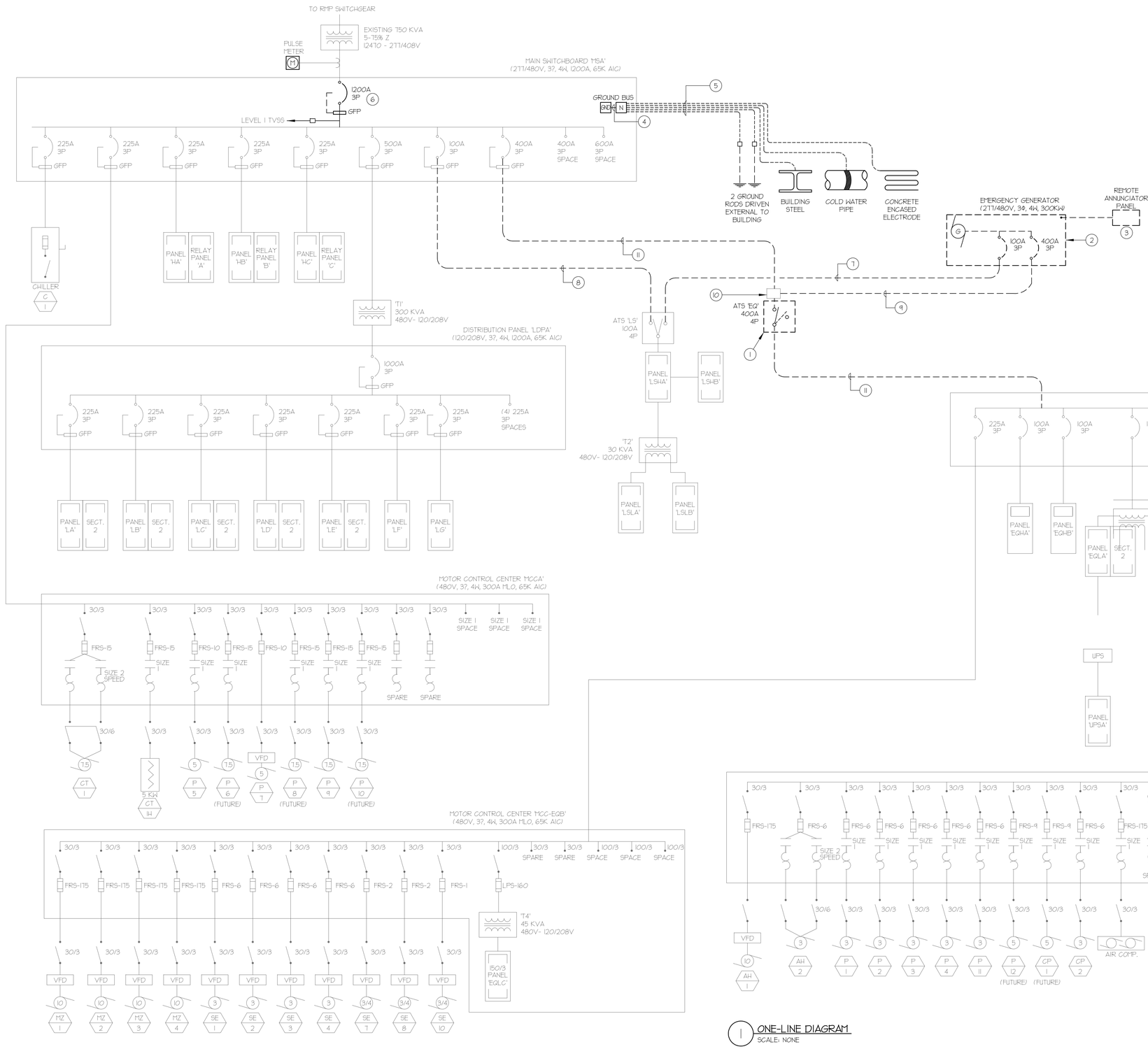
ELECTRICAL DEMOLITION PLAN

SHEET NUMBER

ED100

SHEET 3 OF 7



KEYED NOTES:

1. REMOVE EXISTING TRANSFER SWITCH 'ATS-EQ'. REMOVE FEEDERS FROM 'ATS-EQ' BACK TO 'MSA'. REMOVE FEEDERS FROM 'ATS-EQ' TO 'HDP-EQ'. PROTECT EXISTING 4" CONDUIT FOR REUSE.
2. REMOVE AND RETURN TO OWNER EXISTING 300 KW GENERATOR. REMOVE THE FEEDERS FROM THE GENERATOR TO THE AUTOMATIC TRANSFER SWITCH 'ATS-EQ' AND 'ATS-LS'. REMOVE THE CONDUCTORS ASSOCIATED WITH THE EXISTING BLOCK HEATER AND BATTERY CHARGER. THE CONDUITS SHALL REMAIN FOR REUSE.
3. REMOVE EXISTING REMOTE ANUNCIATOR PANEL.
4. REMOVE THE EXISTING BONDING JUMPER BETWEEN THE EXISTING GROUND AND NEUTRAL BUS IN THE MAIN DISTRIBUTION PANEL 'MSA'.
5. DISCONNECT THE EXISTING GROUNDING STRUCTURE CONDUCTORS. PROTECT GROUNDING CONDUCTORS DURING DEMOLITION FOR REATTACHMENT TO NEW SERVICE ENTRANCE SWITCHGEAR GROUND BUS.
6. REMOVE EXISTING 1200A, 3 POLE, MAIN DISCONNECT FROM MAIN SWITCHGEAR 'MSA'. MODIFY THE EXISTING BUSSING AS NECESSARY TO MAKE THE SWITCHBOARD A MAIN LUGS ONLY STYLE SWITCHBOARD. THE EXISTING DIGITAL METER SHALL REMAIN IN PLACE. COORDINATE WORK WITH MANUFACTURER.
7. REMOVE THE EXISTING CONDUCTORS FROM 'ATS-LS' BACK TO THE 300KW GENERATOR. PROTECT THE EXISTING CONDUIT DURING DEMOLITION FOR REUSE.
8. REMOVE THE EXISTING CONDUCTORS AND CONDUIT FROM 'ATS-LS' BACK TO 'MSA'.
9. REMOVE THE EXISTING CONDUCTORS AND CONDUIT FROM 'ATS-EQ' BACK TO THE EXISTING 300 KW GENERATOR. ABANDON THE ASSOCIATED CONDUIT BELOW GRADE.
10. THE EXISTING JUNCTION BOX FEEDING 'ATS-EQ' TO REMAIN. PROTECT DURING DEMOLITION FOR REUSE. SEE SHEET EP101 FOR ADDITIONAL INFORMATION.
11. REMOVE THE EXISTING CONDUCTORS FROM 'MSA' TO 'ATS-EQ' AND PANEL 'HDP-EQ' TO 'ATS-EQ'.

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SHEET TITLE

DEMOLITION ONE-LINE DIAGRAM

SHEET NUMBER

ED701

SHEET 4 OF 7

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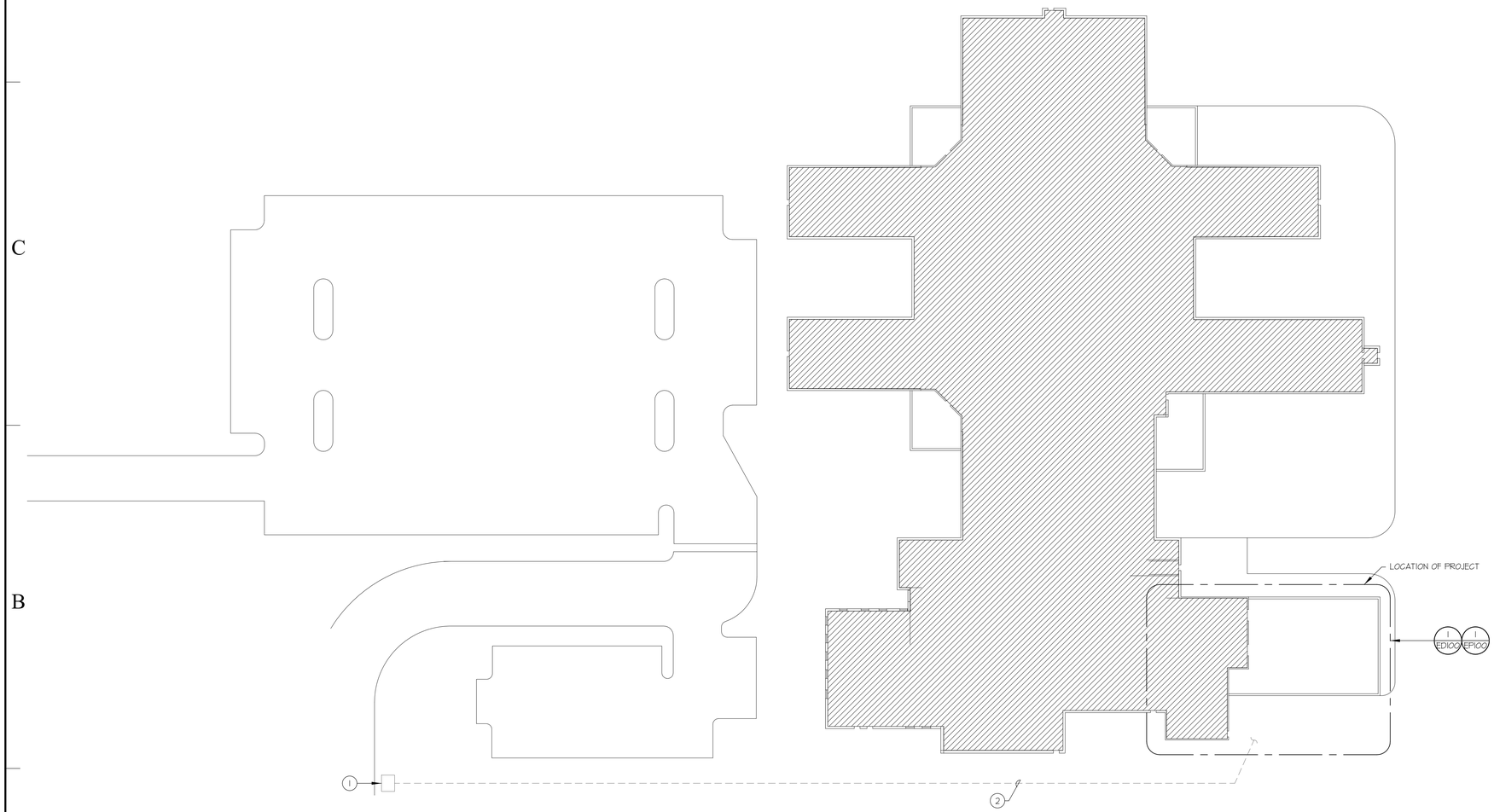
No. 264397
STATE OF UTAH



KEY PLAN
SCALE: 1/32"-1'-0"

NORTH

KEYED NOTES:

1. EXISTING MEDIUM VLOTAGE SWITCHGEAR SHOWN FOR REFERENCE ONLY. THIS SWITCHGEAR FEEDS THE TRANSFORMER THAT IS FEEDING THE FORENSICS LAB. SEVERAL POWER OUTAGES WILL BE REQUIRED FOR THIS PROJECT.
2. EXISTING MEDIUM VOLTAGE FEEDER FEEDING THE FORENSIC LAB BUILDING TRANSFORMER. CARE SHOULD BE TAKEN TO ENSURE THAT THIS LINE IS NOT DAMAGE DURING CONSTRUCTION.

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CREATED BY: ENVISION

ENVISION ENGINEERING
Direction. Then Velocity.
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BUILDING NAME:

PROJECT 07121420
UTAH STATE HOSPITAL
FORENSICS LAB
1300 EAST CENTER
PROVO, UTAH

PROJECT TITLE:

UTAH STATE HOSPITAL
FORENSICS LAB
GENERATOR UPGRADE

MARK	DATE	DESCRIPTION

ISSUE TYPE: BID SET

ISSUE DATE: OCTOBER 3, 2007

DFCM PROJECT NO: 07121420
CAD PROJECT NO:
CAD DWG FILE: 2007-070.00
DRAWN BY: ALH
CHK'D BY: DPW

SHEET TITLE

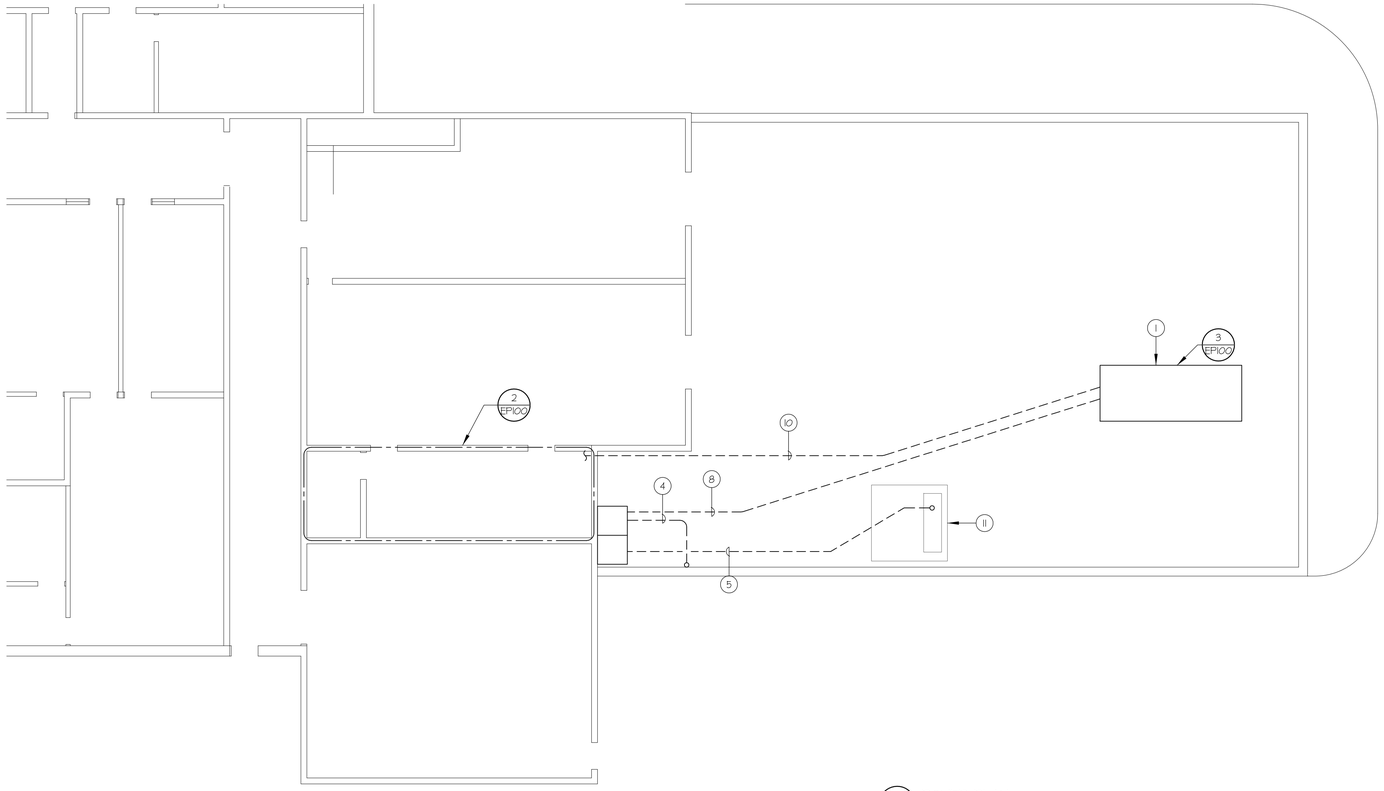
SITE PLAN

REGISTERED PROFESSIONAL ENGINEER
DAVID P. WHITTON
No. 264397
STATE OF UTAH

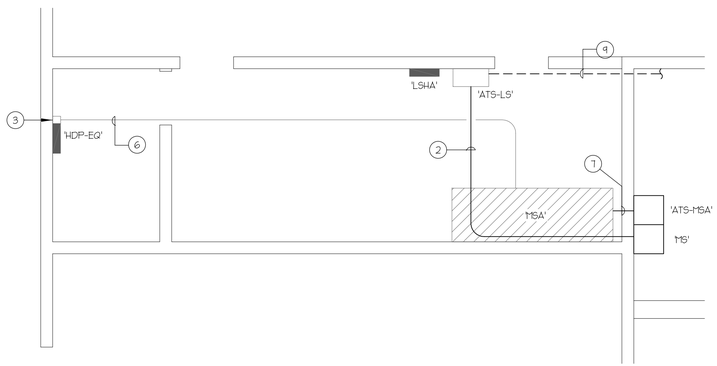
SHEET NUMBER

ES101

SHEET 5 OF 7



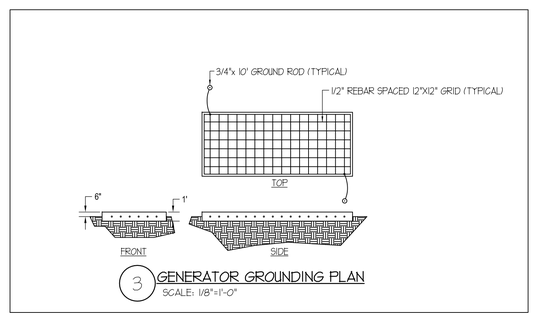
1 POWER PLAN
SCALE: 1/8"=1'-0"



2 ENLARGED POWER PLAN
SCALE: 1/4"=1'-0"

KEYED NOTES:

1. NEW 800KW GENERATOR LOCATION.
2. PROVIDE CONDUIT AND FEEDERS FROM EXISTING 'ATS-LS' TO THE 100A, 3P BREAKER IN NEW MAIN SWITCH GEAR 'MS'. REFER TO THE ONE LINE ON SHEET EP101 FOR ADDITIONAL INFORMATION.
3. EXISTING JUNCTION BOX. ROUTE NEW BRANCH FEEDERS FOR 'HDP-EG' THROUGH JUNCTION BOX.
4. PROVIDE CONDUITS FOR FUTURE USE BY OWNER. REFER TO THE ONE-LINE ON SHEET EP101 FOR ADDITIONAL INFORMATION. STUB CONDUITS TO THE WEST WALL AND MARK LOCATION.
5. INTERCEPT THE EXISTING SECONDARY CONDUCTORS AND CONDUIT FROM THE EXISTING SITE TRANSFORMER. REMOVE CONDUCTORS AND EXTEND AND MODIFY EXISTING CONDUITS AS REQUIRED TO EXTEND THEM TO THE NEW MAIN BUILDING DISCONNECT 'MS'. PROVIED NEW SERVICE CONDUCTORS. REFER TO THE ONE-LINE DIAGRAM ON SHEET EP101 FOR ADDITIONAL INFORMATION. COORDINATE WITH OWNER WHEN POWER CAN BE SWITCHED OVER FROM THE EXISTING SERVICE TO THE NEW SERVICE.
6. PROVIDE NEW FEEDERS FROM EXISTING PANEL 'HDP-EG' TO EXISTING MAIN DISTRIBUTION PANEL 'MSA'. RUN CONDUCTORS USING EXISTING CONDUIT. REFER TO THE ONE-LINE DIAGRAM ON SHEET EP101 FOR ADDITIONAL INFORMATION.
7. PROVIDE NEW FEEDEERS AND CONDUIT FROM AUTOMATIC TRANSFER SWITCH 'ATS-MS' TO EXISTING MAIN DISTRIBUTION PANEL 'MSA'. REFER TO THE ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
8. PROVIDE NEW SERVICE FEEDERS FROM NEW TRANSFER SWITCH 'ATS-MS' TO THE NEW GENERATOR. REFER TO THE ONE LINE DIAGRAM ON SHEET EP101 FOR ADDITIONAL INFORMATION.
9. INTERCEPT EXISTING CONDUIT AND EXTEND TO NEW GENERATOR LOCATION. FIELD VERIFY EXACT LOCATION. REFER TO THE ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
10. THE DESIGN INTENT IS FOR THE ELECTRICAL CONTRACTOR TO INTERCEPT EXISTING CONDUITS FEEDING 'ATS-LS' AND EXTENT TO NEW GENERATOR LOCATION. REFER TO SHEET EP101 FOR ADDITIONAL INFORMATION.
11. EXSTING MEDIUM VOLTAGE TRANSFORMER. TUNNEL UNDER EXISTING CONCRETE PAD AS NECESSARY TO INSTALL NEW SERVICE FEEDERS TO THE NEW MAIN BUILDING DISCONNECT 'MS'. THE INTENT OF THE DESIGN IS TO USE THE EXISTING FOUR(4) 4" CONDUITS THAT ARE ALREADY IN PLACE. HOWEVER, IF THOSE CANNOT BE USED, NEW SERVICE FEEDERS WILL BE INSTALLED.



3 GENERATOR GROUNDING PLAN
SCALE: 1/8"=1'-0"

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DRAWN BY: ALH
CHK'D BY: DPW

SHEET TITLE

POWER PLAN

SHEET NUMBER

EP100

REGISTERED PROFESSIONAL ENGINEER
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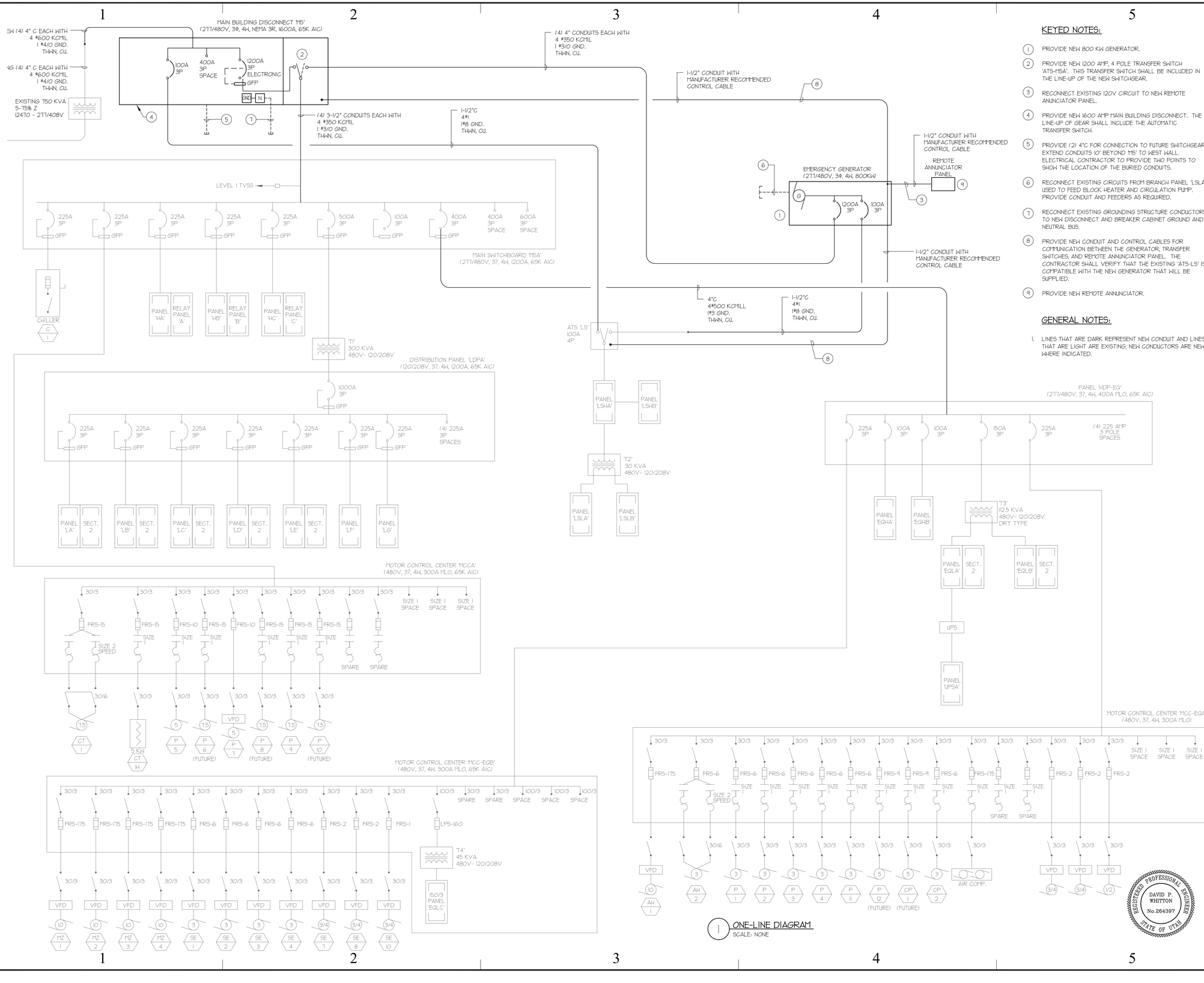
SHEET 6 OF 7



1 ONE-LINE DIAGRAM
SCALE: NONE

KEYED NOTES:

1. PROVIDE NEW 800 KW GENERATOR.
2. PROVIDE NEW 1200 AMP, 4 POLE TRANSFER SWITCH 'ATS-MSA'. THIS TRANSFER SWITCH SHALL BE INCLUDED IN THE LINE-UP OF THE NEW SWITCHGEAR.
3. RECONNECT EXISTING 120V CIRCUIT TO NEW REMOTE ANUNCIATOR PANEL.
4. PROVIDE NEW 1600 AMP MAIN BUILDING DISCONNECT. THE LINE-UP OF GEAR SHALL INCLUDE THE AUTOMATIC TRANSFER SWITCH.
5. PROVIDE (2) 4"C FOR CONNECTION TO FUTURE SWITCHGEAR. EXTEND CONDUITS 10' BEYOND 'MS' TO WEST WALL. ELECTRICAL CONTRACTOR TO PROVIDE TWO POINTS TO SHOW THE LOCATION OF THE BURIED CONDUITS.
6. RECONNECT EXISTING CIRCUITS FROM BRANCH PANEL 'LSLA' USED TO FEED BLOCK HEATER AND CIRCULATION PUMP. PROVIDE CONDUIT AND FEEDERS AS REQUIRED.
7. RECONNECT EXISTING GROUNDING STRUCTURE CONDUCTORS TO NEW DISCONNECT AND BREAKER CABINET GROUND AND NEUTRAL BUS.
8. PROVIDE NEW CONDUIT AND CONTROL CABLES FOR COMMUNICATION BETWEEN THE GENERATOR, TRANSFER SWITCHES, AND REMOTE ANNUNCIATOR PANEL. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING 'ATS-LS' IS COMPATIBLE WITH THE NEW GENERATOR THAT WILL BE SUPPLIED.
9. PROVIDE NEW REMOTE ANNUNCIATOR.

GENERAL NOTES:

1. LINES THAT ARE DARK REPRESENT NEW CONDUIT AND LINES THAT ARE LIGHT ARE EXISTING. NEW CONDUCTORS ARE NEW WHERE INDICATED.

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SHEET TITLE

ONE-LINE DIAGRAM

SHEET NUMBER

EP701

SHEET 7 OF 7