GENERAL NOTES:

1. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS–BUILT DRAWINGS AND A NON–DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE–IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.
2. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.
3. DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

SHEET NOTES:

1. CONDUCTORS SIZING BASED ON COPPER, TYPE XHHW INSULATION. AT CONTRACTOR'S OPTION ALUMINUM CONDUCTORS OF EQUAL OR HIGHER AMPACITY CAN BE SUBSTITUTED.
2. PROVIDE GROUNDING FOR STRUCTURES SUPPLIED BY A FEEDER OR BRANCH CIRCUIT PER NEC ARTICLE 250.32
3. NEW ALTERNATE SOURCE SHUNT TRIP DISCONNECT.
4. PROVIDE ADEQUATE SPACE TO ACCESS EXISTING CONDUITS.
5. DEMOLISH (6) EXISTING DISCONNECTS FROM BUILDING EXTERIOR. EXTEND EXISTING FEEDERS TO NEW MDP SEE PANEL SCHEDULES SHEET E3.
6. EXTEND FEEDER FROM EXISTING JUNCTION BOX TO NEW MDP.
7. PROVIDE PLACARD ON SERVICE EQUIPMENT THAT INIDCATES THE AVAILABLE FAULT CURRENT.
8. 6.PROVIDE NEW JUNCTION BOXES TO EXTEND FEEDERS TO NEW MDP SIZE PER NEC 314.28
9. ROUTE CONDUIT BEHIND PAD MOUNTED ATS.
10. PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PAD FOR ATS.

1

ELECTRICAL LOAD CALCULATION

PROJECT: **SCF Q-HOUSE GENERATOR**
ANCHORAGE, ALASKA
DATE : **3/7/2022**

EXISTING DEMAND LOAD (NEC 220.87)	
EXISTING DEMAND LOAD W:	54,000 W
PER NEC 220.87(2) (125%)	67,500 W
ASSUMED POWER FACTOR OF 0.85	79,412 VA
MINIMUM FEEDER/SERVICE SIZE FOR 120/240 V, SINGLE PHASE SERVICE:	
79,412 VA / 240 =	**331 A**
NEW ELECTRICAL SERVICE AMPACITY:	**400 A**

1

FEEDER SCHEDULE

1	(2) 2"C., 3# 3/0kcmil & 1 GND
2	1"C., 3# 6 & 10 GND

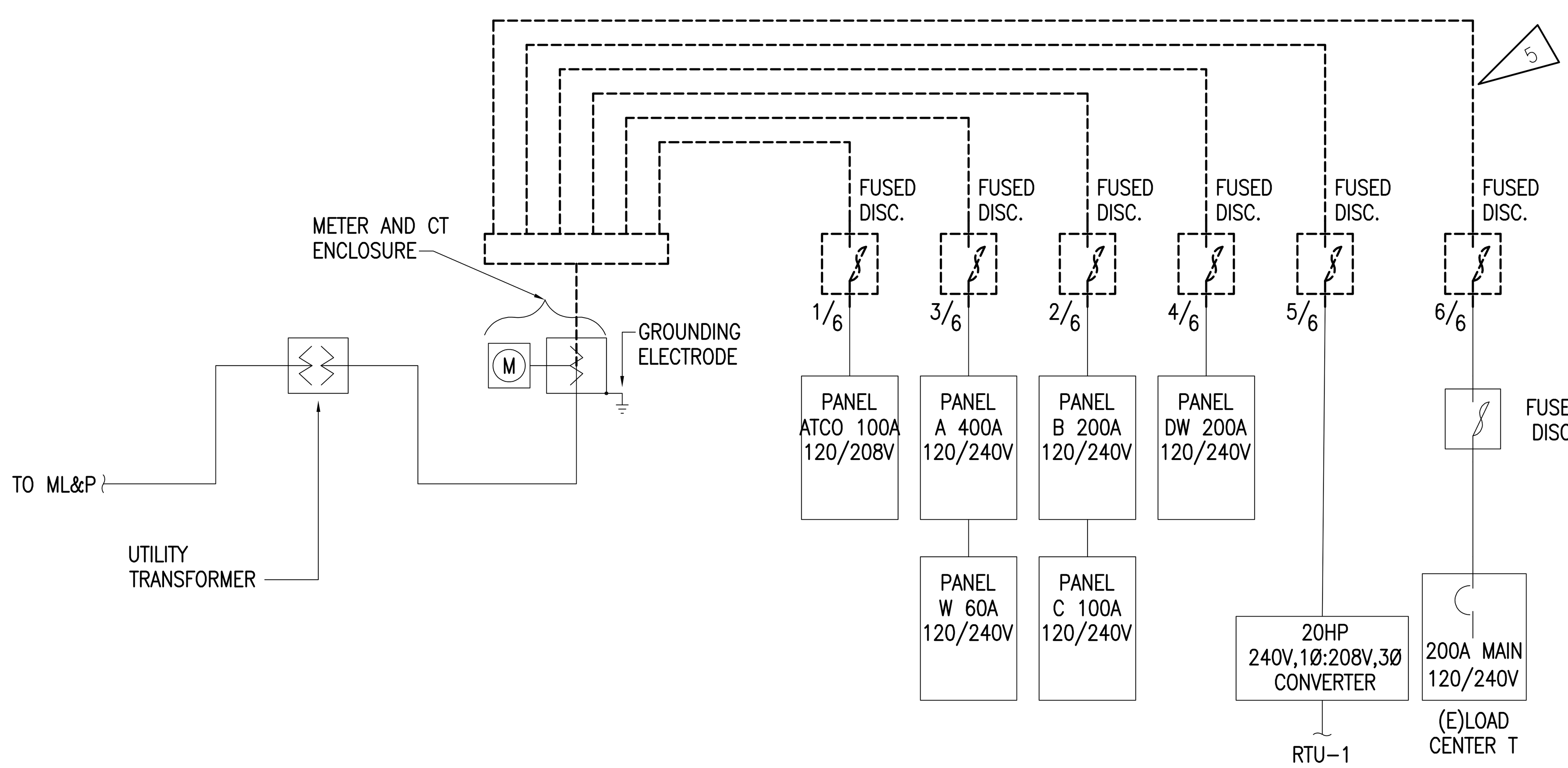
FAULT CURRENT ANALYSIS:

ALL FAULT CURRENT DATA IS BASED ON TRANSFORMER DATA TAKEN FROM AS–BUILT DRAWINGS. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE–IN. THE CONTRACTOR SHALL VERIFY THE ACTUAL TRANSFORMER SIZE AND IMPEDANCE PRIOR TO ORDERING EQUIPMENT AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

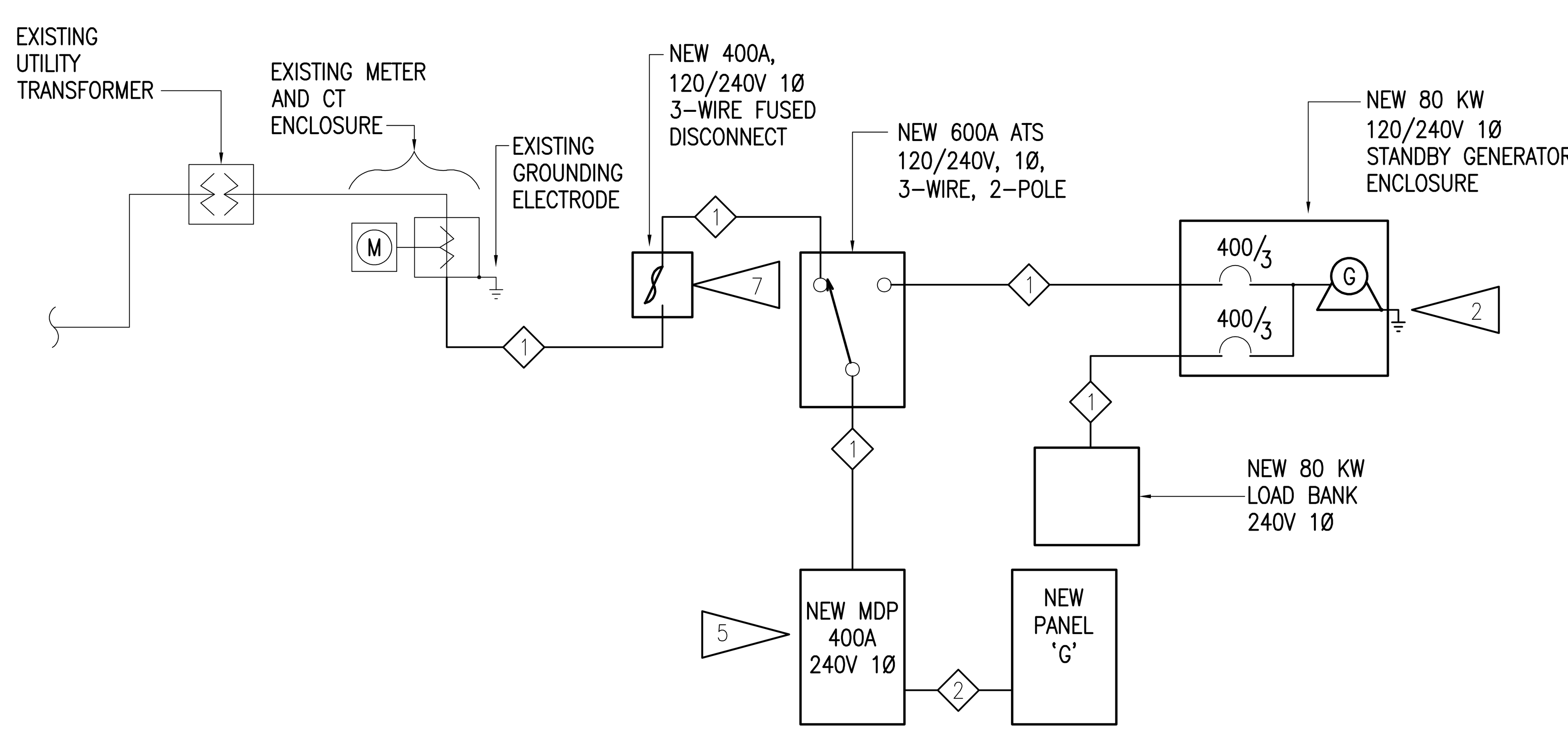
EXISTING TRANSFORMER SIZE:	75 kVA
ASSUMED EXISTING TRANSFORMER IMPEDANCE (%Z):	2.5 %
AVAILABLE FAULT CURRENT AT TRANSFORMER SECONDARY:	11,562 A
ESTIMATED LENGTH OF SERVICE CONDUCTORS:	20 FEET
ASSUMED SERVICE LATERAL SIZE AND QUANTITY:	2EA. 2"C, 4#3/0 CU
AVAILABLE FAULT CURRENT AT SERVICE DISCONNECT:	11,349 A
EST. CONDUCTOR LENGTH FROM DISCONNECT TO ATS:	10 FEET
FEEDER TO ATS:	2EA. 2"C, 4#3/0 CU
AVAILABLE FAULT CURRENT AT ATS:	10,946 A
FEEDER TO MDP:	5 FEET
AVAILABLE FAULT AT MDP:	10,571 A

LEGEND

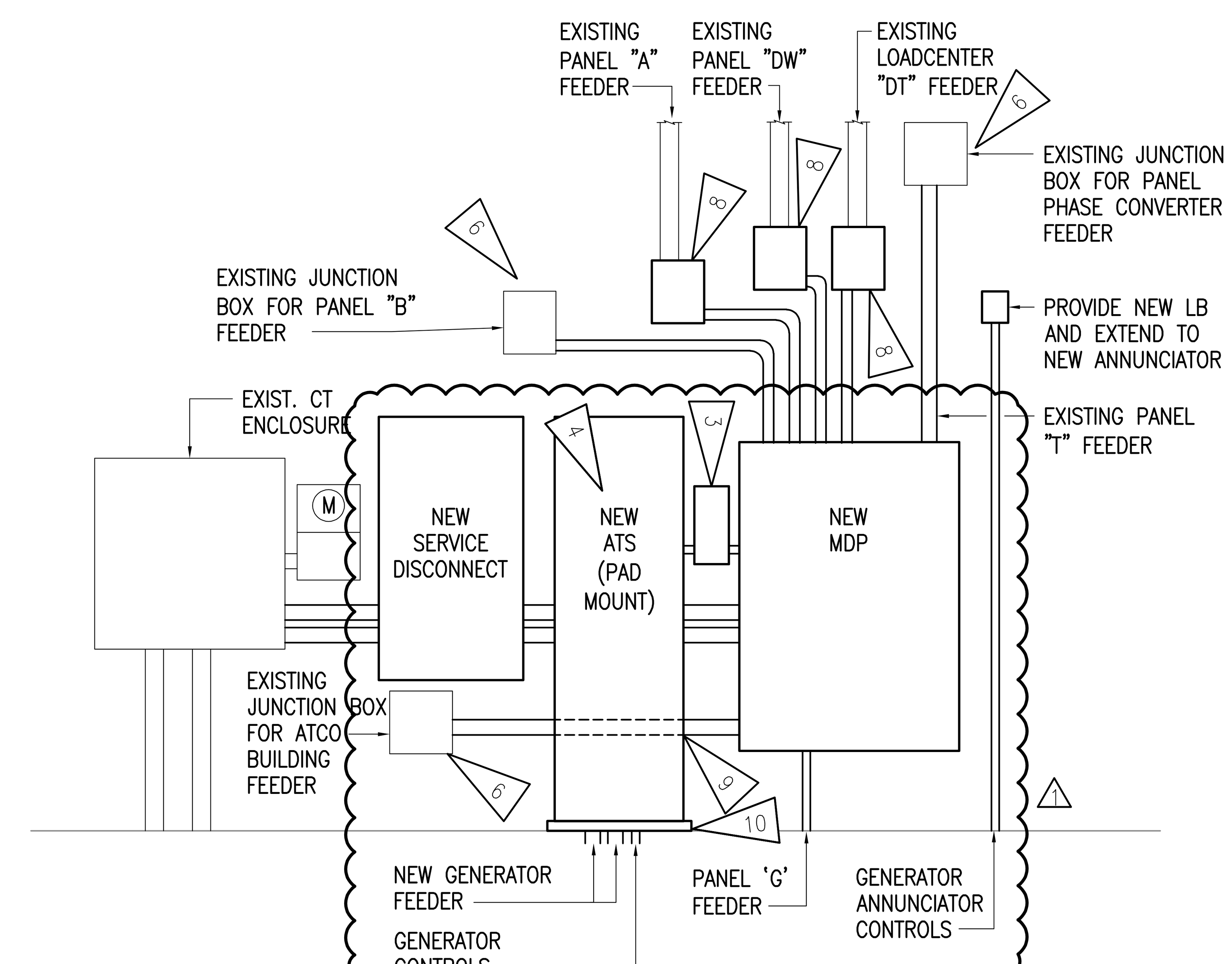
(symbol)	CONDUIT, CONCEALED OR EXPOSED
(symbol)	PANEL
(symbol)	JUNCTION BOX
(symbol)	DISCONNECT SWITCH
(symbol)	DISCONNECT SWITCH (FUSED)
1	NOTE TAG (No. INDICATES NOTE)
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
(E)	DENOTES EXISTING ITEM
GND	GROUND
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
N	NEUTRAL
MDP	MAIN DISTRIBUTION PANEL
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED



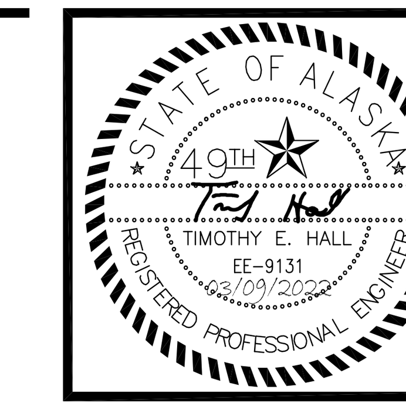
1 ONE-LINE DIAGRAM DEMOLITION



2 ONE-LINE DIAGRAM REMODEL



3 ELECTRICAL SERVICE EQUIPMENT ELEVATION



RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

SCF Q-HOUSE NEW GENERATOR
SOUTHCENTRAL FOUNDATION
225 EAGLE ST.,
ANCHORAGE, ALASKA

REVISIONS:
1 REV1–11–2–22

DRAWN BY:	NVF
CHECKED BY:	TEH,DB
DATE:	03/09/2022
JOB NUMBER:	M1168
DWG FILE:	M1168-ESERIES

DRAWING TITLE:
ELECTRICAL ONE-LINE & SERVICE ELEVATION

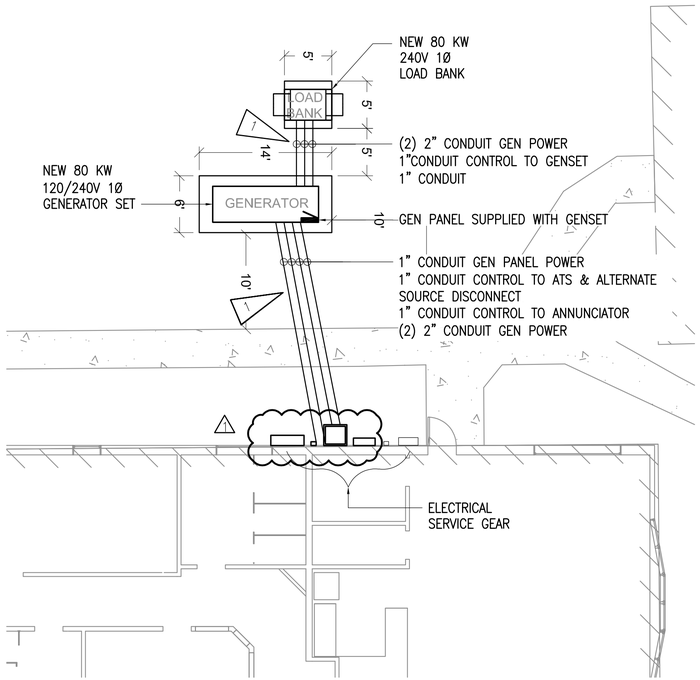
SHEET:
E1

GENERATOR WIRING SCHEDULE

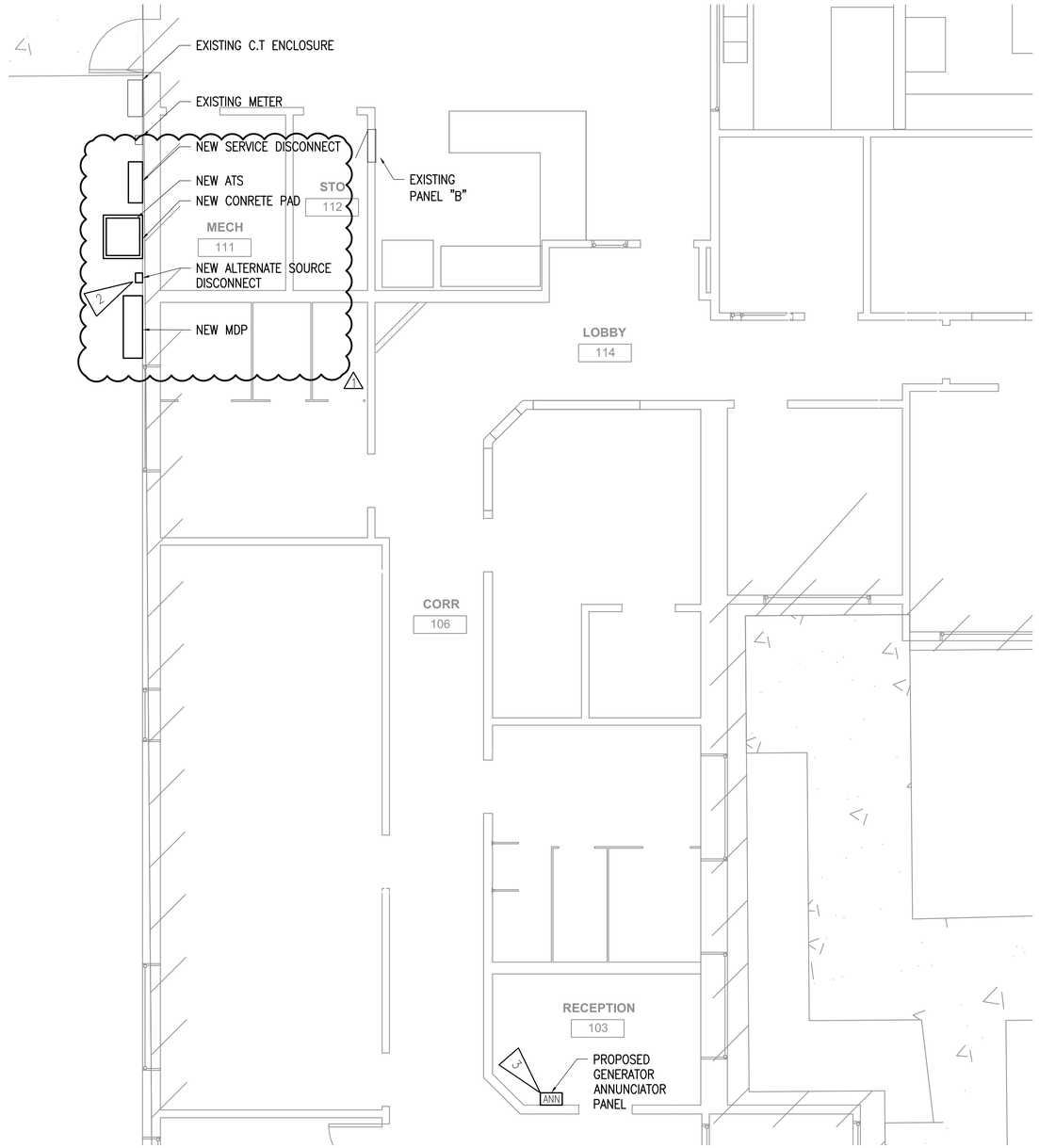
FUNCTION	FROM	TO	CONDUIT	WIRE/CABLE
GENERATOR POWER	GENERATOR BREAKER	ATS LOAD TERMINALS	SEE ONE-LINE	SEE ONE-LINE
GENERATOR START SIGNAL GENERATOR SHUNT TRIP	GENERATOR TERMINAL TB3-3,4 GENERATOR BREAKER	ATS TERMINALS J5-13,14 ALTERNATE SOURCE DISCONNECT	1"C	2#18 3#12
GENERATOR MODULE SITE POWER	GENERATOR LOAD CENTER	MDP	1"C	3#6, 1#10 GND, CU, XHHW FEEDER
GENERATOR REMOTE ANNUNCIATOR	GENERATOR CONTROL PANEL	REMOTE ANNUNCIATOR	1"C	BELDEN #9841 1-PAIR, 24 AWG, SHIELDED RS-485 2#14 BATTERY CABLE
LOAD BANK POWER	GENERATOR BREAKER	LOAD BANK TERMINALS	SEE ONE-LINE	SEE ONE-LINE
LOAD BANK CONTROL LOAD BANK CT WIRING	LOAD BANK TERMINALS TB-COM-4,5,6 LOAD BANK TERMINALS TB-DC-1,2 LOAD BANK TERMINALS TB-xx	LOAD BANK CTRL TERMINALS TB-H-1,2,3 LOAD BANK CTRL TERMINALS TB-H-5,6 LOAD BANK CTRL TERMINALS TB-xx	1"C	BELDEN #9841 1-PAIR, 24 AWG, SHIELDED RS-485 2#14 EXACT CABLE TBD BY GENERATOR SUPPLIER
LOAD BANK HEATER	GENERATOR LOAD CENTER	LOAD BANK HEATER	1"C	3#12

SHEET NOTES

1. SEE GENERATOR WIRING SCHEDULE ON THIS SHEET FOR FEEDER SIZE.
2. PROVIDE NEW 30A "ALTERNATE SOURCE DISCONNECT".
3. COORDINATE WITH OWNER FOR EXACT LOCATION OF GENERATOR REMOTE ANNUNCIATOR PANEL PRIOR TO ROUGH-IN.



1 GENERATOR SITE PLAN
1/8" = 1'-0"



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

STATE OF ALASKA
TIMOTHY E. HALL
EE-9131
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
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DWG FILE: M1168-ESERIES

DRAWING TITLE:
ELECTRICAL SITE PLAN

SHEET:
E2

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR AN EXTENSION TO THE EXISTING ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE CODE AND THE NATIONAL ELECTRICAL SAFETY CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.
C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE OWNER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.
D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.
E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.
F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
G. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.
H. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.
I. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES. COSTS FOR THE LINE EXTENSION TO THE METER ARE PAID FOR BY THE OWNER.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.
B. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
C. AND EXTENSION WORK. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

26 05 19 – WIRE AND CABLE

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
B. MATERIALS:
  1. ALL CONDUCTORS SHALL BE COPPER OR ALUMINUM AA-8000 SERIES ALLOY WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG. MINIMUM ALUMINUM CONDUCTOR SIZE SHALL BE #2 AWG.
  2. CONTROL CIRCUITS SHALL BE COPPER, STRANDED CONDUCTOR, 600V INSULATION, THHN/THWN, MINIMUM SIZE #18 AWG.
C. INSTALLATION:
  1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/240V CONDUCTORS BLACK, RED, AND WHITE.
  2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
  3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.
  4. INSTALLATION SCHEDULE: BUILDING WIRE IN RACEWAYS AT ALL LOCATIONS UNLESS OTHERWISE NOTED. PROVIDE XHHW-2 FOR FEEDERS AND IN EXTERIOR LOCATIONS.

26 05 26 – GROUNDING AND BONDING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR GROUND RODS.
B. MATERIAL: SOLID GROUND RODS: COPPER-ENCASED STEEL, 3/4 INCH DIAMETER, MINIMUM LENGTH 10 FEET.
C. INSTALLATION:
  1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS AND FEEDERS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
  2. MECHANICAL CONNECTORS: NON-REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. FOR TELECOMMUNICATION SYSTEMS USE COPPER, COPPER ALLOY, OR TIN-PLATED COPPER, NON-REVERSIBLE LONG BARREL CRIMP TYPE BOLT LUGS WITH TWO BOLT TONGUES FOR #6 AWG OR LARGER CONDUCTORS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN #6 AWG.
  3. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUND CONNECTORS, AND PLUMBING AND FUEL SYSTEMS.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION. PROVIDE STRUCTURALLY ENGINEERED SHOP DRAWINGS (STAMPED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF ALASKA) FOR SEISMIC RESTRAINT OF ELECTRICAL EQUIPMENT REQUIRED BY THE INTERNATIONAL BUILDING CODE (IBC), CHAPTERS 16, 17. STRUCTURAL DESIGN SHALL BE BASED ON THE SEISMIC USE CATEGORY AND SEISMIC DESIGN CATEGORY AS DESIGNATED IN THESE CHAPTERS.
B. MATERIAL: SUPPORT CHANNEL SHALL BE GALVANIZED OR PAINTED STEEL. HARDWARE SHALL BE CORROSION RESISTANT.
C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO THE BUILDING STRUCTURE TO RESIST LATERAL EARTHQUAKE FORCES. PROVIDE SAFETY CHAINS FOR LIGHT FIXTURES, SUPPORTED FROM T-BAR OR OTHER CEILING SUSPENSION SYSTEM, CAPABLE OF SUPPORTING A MINIMUM OF 200 POUNDS. ATTACH SAFETY CHAINS AT EACH CORNER OF FIXTURE CONNECTED SUCH THAT FIXTURE WILL NOT DROP BELOW A HEIGHT OF 7'-6" IN THE EVENT OF A CEILING SUSPENSION SYSTEM FAILURE. INSTALLATION OF EQUIPMENT SHALL BE IN ACCORDANCE WITH THE SEISMIC STRUCTURAL ENGINEER'S DRAWINGS AND DETAILED IN ACCORDANCE WITH SEISMIC GUIDELINES.

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
B. MATERIALS:
  1. RIGID STEEL CONDUIT: ANSI C80.1. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT.
  2. INTERMEDIATE METAL CONDUIT (IMC): GALVANIZED STEEL. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; USE FITTINGS AND CONDUIT BODIES SPECIFIED ABOVE FOR RIGID STEEL CONDUIT.
  3. ELECTRICAL METALLIC TUBING CONDUIT (EMT): ANSI C80.3. GALVANIZED TUBING. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON, COMPRESSION TYPE OR SET SCREW FITTINGS WITH INSULATED THROAT BUSHINGS. DIE-CAST FITTINGS ARE NOT ACCEPTABLE. MAXIMUM SIZE SHALL BE 2". PROVIDE FACTORY ELBOWS ON SIZES 1-1/2" AND LARGER.
  4. FLEXIBLE METAL CONDUIT: FS WW-C-566; STEEL, FULL WALL OR REDUCED WALL THICKNESS. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
  5. LIQUIDTIGHT FLEXIBLE CONDUIT: FLEXIBLE METAL CONDUIT WITH PVC JACKET. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
  6. RIGID NONMETALLIC CONDUIT: NEMA TC 2; SCHEDULE 40 PVC, RATED FOR 90° C CABLE.
  7. PROVIDE CAST ALUMINUM OR FERALLOY TYPE BOXES WITH GASKETED COVER, THREADED HUBS AND NEMA 3R RATING FOR USE IN EXTERIOR OR WET LOCATIONS.
C. INSTALLATION:
  1. INSTALL CONDUIT FOR ALL SYSTEMS UNLESS OTHERWISE NOTED, 1/2 INCH MINIMUM SIZE, EXCEPT CONDUIT FOR SPECIAL SYSTEMS SHALL BE 3/4" MINIMUM. IN SLAB ABOVE GRADE, EXPOSED OUTDOOR LOCATIONS, WET INTERIOR LOCATIONS, AND FEEDERS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT OR SCHEDULE 40 PVC CONDUIT.
  2. EXPOSED DRY INTERIOR LOCATIONS SHALL BE ELECTRICAL METALLIC TUBING, RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT.
  3. MOTOR AND EQUIPMENT CONNECTIONS SHALL BE SHORT EXTENSIONS OF FLEXIBLE METAL CONDUIT TO ALLOW FOR VIBRATION. LIQUIDTIGHT FLEXIBLE CONDUIT AND FITTINGS SHALL BE USED FOR THESE CONNECTIONS IN DAMP OR WET LOCATIONS.
  4. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.
  5. INSTALL FITTINGS AND FLEXIBLE METAL CONDUIT TO ACCOMMODATE 3-AXIS MOVEMENTS WHERE RACEWAY CROSSES SEISMIC JOINTS. INSTALL FITTINGS DESIGNED AND LISTED TO ACCOMMODATE EXPANSION AND CONTRACTION WHERE RACEWAY CROSSES CONTROL AND EXPANSION JOINTS.
  6. SUPPORT BOXES INDEPENDENTLY OF CONDUIT.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
B. MATERIALS:
  1. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
  2. TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINO SERIES OR EQUAL LABEL PRINTER.
  3. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.
C. INSTALLATION:
  1. GEAR: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW-VOLTAGE SYSTEM PANELS.
  2. CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS WITH INDELIBLE BLACK MAGIC MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE. LABEL FEEDER CONDUITS AND SPARE CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
  3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER. MARK ALL FIRE ALARM SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS WITH "FA." MARK WITH INDELIBLE RED MARKER. MARK ALL OTHER SPECIAL SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS.
  4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.
  5. DEVICE PLATES: LABEL EACH RECEPTACLE DEVICE PLATE OR POINT OF CONNECTION DENOTING THE PANELBOARD NAME AND CIRCUIT NUMBER. INSTALL LABEL ON THE TOP OF EACH PLATE.

26 24 16 – PANELBOARDS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
B. MATERIAL:
  1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL.
  2. PROVIDE DEAD-FRONT CIRCUIT BREAKER PANELBOARDS WITH BUS SIZE, SHORT CIRCUIT RATING, NUMBER AND SIZE OF BRANCH CIRCUITS AS SHOWN ON THE DRAWINGS. CABINETS SHALL BE 6 INCHES DEEP BY 20 INCHES WIDE MINIMUM. PROVIDE WITH FLUSH OR SURFACE FRONTS, AS NOTED ON THE DRAWINGS, WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE AND FLUSHLOCK. FINISH IN MANUFACTURER'S STANDARD GRAY ENAMEL. MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON MAGNETIC TRIP TYPE WITH COMMON TRIP HANDLE FOR ALL POLES.
C. INSTALLATION:
  1. INSTALL PANELBOARDS PLUMB WITH TOP OF CABINET 6'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON THE DRAWINGS.
  2. PROVIDE TYPED CIRCUIT DIRECTORIES FOR EACH PANELBOARD.
  3. ALL PANELBOARDS SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE 3-LINE SIGNAGE SHALL STATE THE FOLLOWING:

     WARNING – ARC FLASH AND SHOCK HAZARD – APPROPRIATE PPE REQUIRED.

26 28 19 – ENCLOSED SWITCHES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
B. MATERIALS:
  1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL
  2. FUSIBLE SWITCH ASSEMBLIES: NEMA KS 1; TYPE HD; QUICK-MAKE, QUICK-BREAK, HEAVY-DUTY LOAD INTERRUPTER ENCLOSED KNIFE SWITCH WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION. HANDLE LOCKABLE IN OFF POSITION. ENCLOSURE SHALL BE NEMA KS 1; TYPE 1, 3R OR 4 AS INDICATED ON DRAWINGS. FUSES SHALL BE CLASS RK1; RK5; DUAL ELEMENT, CURRENT LIMITING, TIME DELAY, ONE-TIME FUSES, 600V, WITH AN INTERRUPTING RATING OF 200,000 RMS AMPERES.
C. INSTALLATION:
  1. INSTALL DISCONNECT SWITCHES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FIELD LOCATE FINAL LOCATION OF DISCONNECTS TO ALLOW READY ACCESS AND NEC 110.26 WORKING CLEARANCES WHERE APPLICABLE.
  2. ALL FUSED DISCONNECTS SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE 3-LINE SIGNAGE SHALL STATE THE FOLLOWING:

     WARNING – ARC FLASH AND SHOCK HAZARD – APPROPRIATE PPE REQUIRED

26 32 00– PACKAGED ENGINE GENERATOR ASSEMBLIES

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION. GENERATOR AND LOAD BANK ALREADY ORDERED BY CONTRACTOR.

26 36 23– AUTOMATIC TRANSFER SWITCHES

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION. TRANSFER SWITCH ALREADY ORDERED BY CONTRACTOR.

MAIN DISTRIBUTION PANEL 'MDP'

MFR/MODEL: SQUARE 'D' TYPE I-LINE | VOLTS: 120/240V,1PH,3W | ENCLOSURE: NEMA 3R | 400 A

MTG SPACE: AS REQUIRED | MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	VOLT-AMPS A	VOLT-AMPS B	TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
	1	2	100	ATCO PANEL	FEDR			FEDR	RTU-1	150	2	2	
	3	2	100	^^	FEDR			FEDR	^^	150	2	4	
	5	2	400	PANEL A	FEDR			FEDR	PANEL T	200	2	6	
	7	2	400	^^	FEDR			FEDR	^^	200	2	8	
	9	2	200	PANEL B	FEDR			FEDR	GEN PANEL	60	2	10	
	11	2	200	^^	FEDR			FEDR	^^	60	2	12	
	13	2	200	PANEL DW	FEDR							14	
	15	2	200	^^	FEDR							16	
	17											18	
	19											20	
	21											22	
	23											24	
				TOTAL V-A		0	0			0 VA			
				TOTAL AMPS		0	0			0 A			

A.I.C. RATING: 18,000

PANEL NOTES:
a
b
c
d
e

PANEL OPTIONS:
MAIN LUGS ONLY

STATE OF ALASKA 49TH TIMOTHY E. HALL EE-9131 03/09/2022 REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

SCF Q-HOUSE NEW GENERATOR
SOUTHCENTRAL FOUNDATION
225 EAGLE ST.,
ANCHORAGE, ALASKA

REVISIONS:

DRAWN BY: NVF
CHECKED BY: TEH, DB
DATE: 03/09/2022
JOB NUMBER: M1168
DWG FILE: M1168-ESERIES

DRAWING TITLE: ELECTRICAL SPECIFICATIONS

SHEET: E3