

**1** MECHANICAL DEMOLITION PLAN  
M1 1/4"=1'-0"

**MECHANICAL DEMOLITION PLAN GENERAL NOTES:**

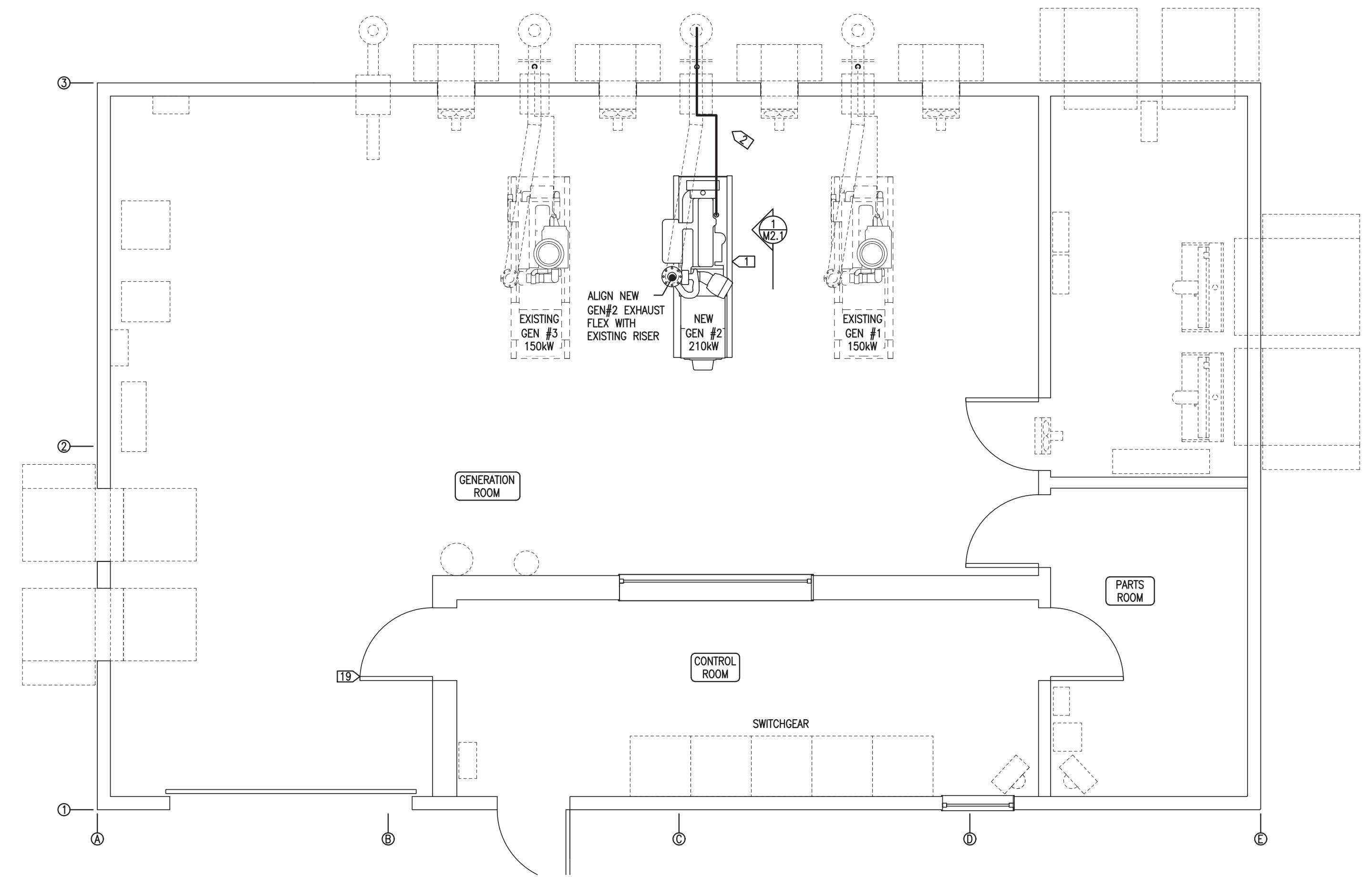
1. ALL ITEMS TO REMAIN UNLESS SPECIFICALLY INDICATED FOR DEMOLITION OR TEMPORARY REMOVAL. EXISTING EQUIPMENT AND DEVICES TO BE REMOVED INDICATED BY HATCHING.
2. TAKE ALL PRECAUTIONS TO MINIMIZE DAMAGE TO GENERATION EQUIPMENT BEING REMOVED DURING DEMOLITION. TARP GENERATORS AND SEAL ALL EXPOSED CONNECTIONS PRIOR TO REMOVING FROM PLANT. TURN ALL REMOVED EQUIPMENT OVER TO THE UTILITY FOR FINAL DISPOSITION.
3. DRAIN ALL PIPING PRIOR TO DEMOLITION. DRAIN ENGINE BLOCK PRIOR TO REMOVAL. TURN USED OIL AND GLYCOL OVER TO THE UTILITY FOR FINAL DISPOSITION.

**MECHANICAL DEMOLITION PLAN SPECIFIC NOTES:**

- 1 DEMOLISH GEN#2 INCLUDING ENGINE, GENERATOR, SKID, SUPPORT PEDESTALS, 2" COOLANT HOSES, AND 2" ENGINE HOSE CONNECTION FITTINGS. EXISTING EXHAUST PIPING, WALL THIMBLE, EXTERIOR MUFFLER, AND 3" COOLANT CONNECTION BUTTERFLY VALVES TO REMAIN. SEE SHEET M2.1 FOR DEMOLITION DETAIL.
- 2 SEE NEW WORK.

**SCHEDULE OF DRAWINGS:**

M1	DEMOLITION & NEW WORK PLANS
M2.1	DEMOLITION & NEW WORK SECTIONS
M2.2	INSTALLATION DETAILS
M3	GENSET FABRICATION DETAILS
E1	DEMOLITION & NEW WORK PLANS
E2	INSTALLATION DETAILS & EQUIPMENT SCHEDULE



**2** MECHANICAL NEW WORK PLAN  
M1 1/4"=1'-0"

**POWER PLANT MECHANICAL NEW WORK GENERAL NOTES:**

1. EXISTING EQUIPMENT AND PIPING TO REMAIN IN SERVICE SHOWN WITH LIGHT DASHED LINES.
2. NEW EQUIPMENT AND PIPING TO BE INSTALLED/RELOCATED SHOWN WITH DARK SOLID LINES.
3. NOT ALL EXISTING EQUIPMENT AND PIPING SHOWN. SEE ATTACHED RECORD DRAWINGS FOR ADDITIONAL DETAIL ON SYSTEMS NOT BEING MODIFIED.

**POWER PLANT MECHANICAL NEW WORK PLAN SPECIFIC NOTES:**

- 1 INSTALL NEW GEN#2 INCLUDING SUPPORT PEDESTALS, EXHAUST RISER, AND CRANK VENT PIPING. SEE SECTIONS AND DETAILS SHEETS M2.1 AND M2.2.
- 2 INSTALL NEW FLANGED DISCHARGE AND SUCTION CONNECTIONS AT GEN#2. SEE SECTIONS AND DETAILS SHEETS M2.1 AND M2.2.

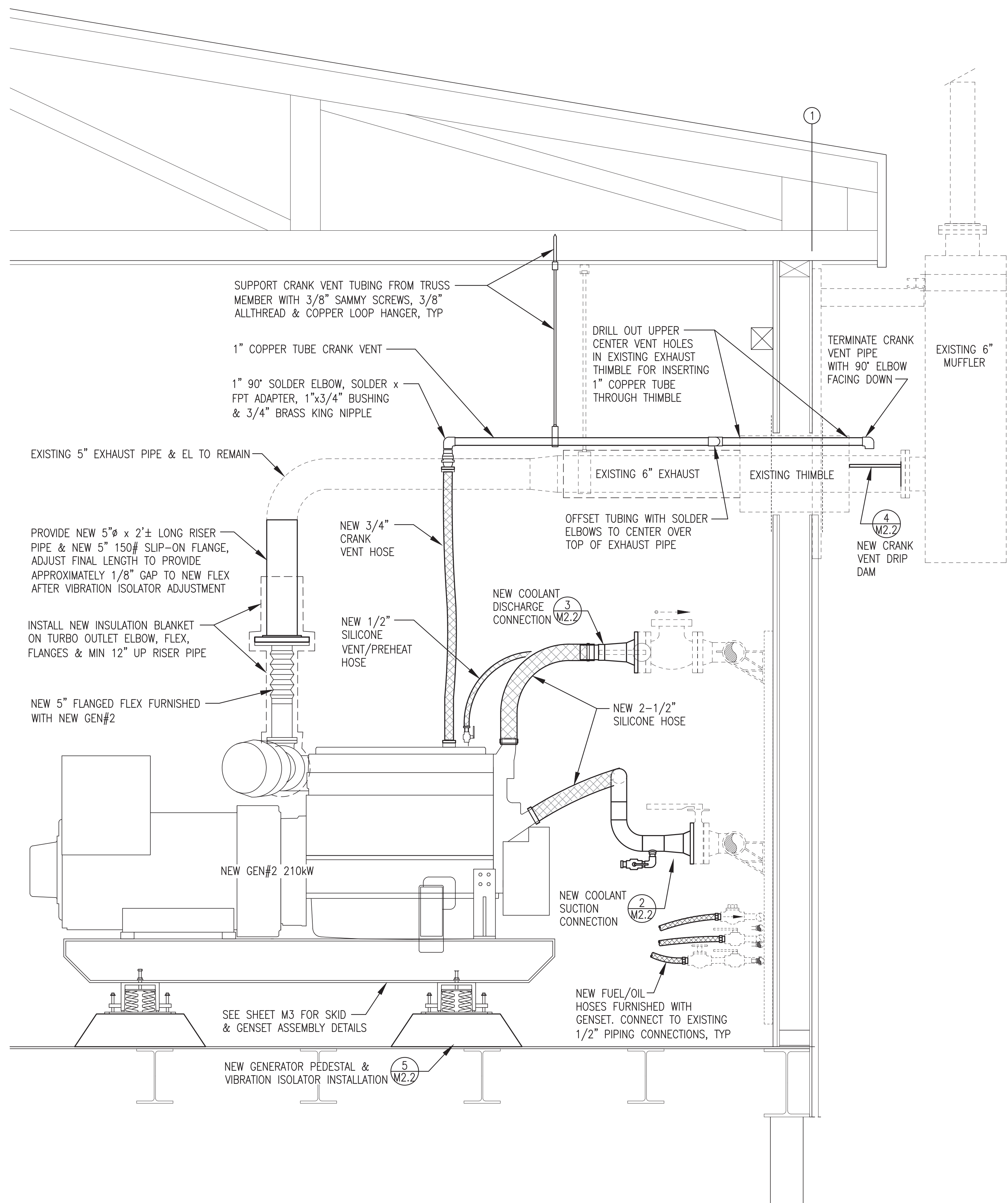
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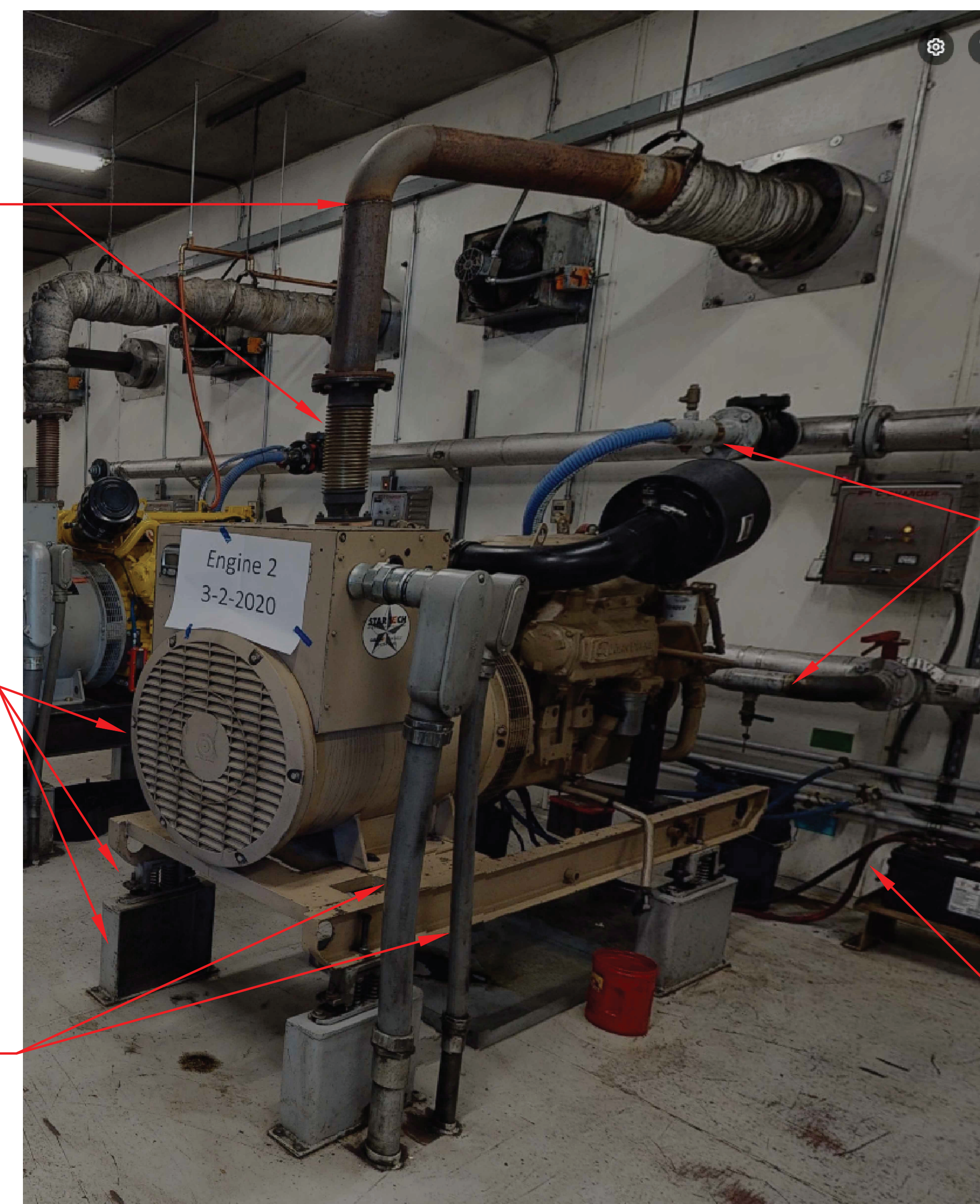
PROJECT: TULUKSAK POWER PLANT  
2024 GENERATOR #2 REPLACEMENT

TITLE: DEMOLITION & NEW WORK PLANS

 P.O. 111405, Anchorage, AK 99511 (907)349-0100	DRAWN BY: JTD	SCALE: AS NOTED
	DESIGNED BY: BCG	DATE: 5/30/24
	FILE NAME:	SHEET:
	PROJECT NUMBER:	<b>M1</b>



1 NEW WORK SECTION AT GEN#2  
M2.1 1"=1'-0"



REMOVE EXISTING 5" EXHAUST PIPE BELOW 90° ELBOW

REMOVE EXISTING GENSET IN ITS ENTIRETY INCLUDING SKID, VIBRATION ISOLATORS & SUPPORT PEDESTALS


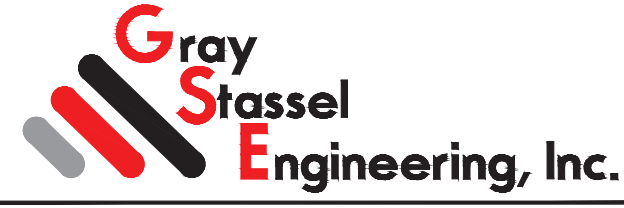
SEE ELECTRICAL FOR SCOPE OF CONDUIT & CONDUCTOR MODIFICATIONS

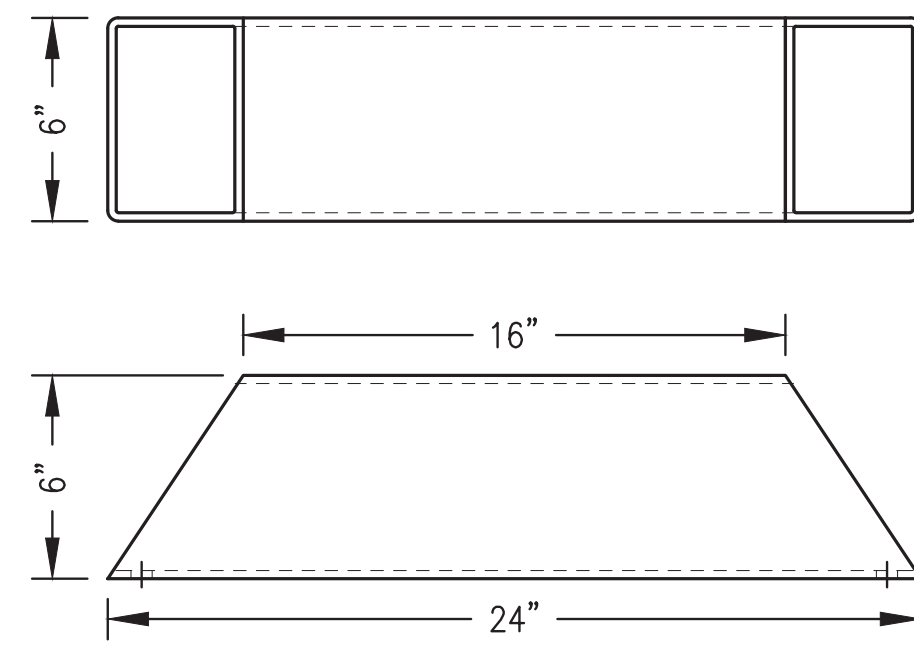
MODIFY COOLANT CONNECTIONS, SEE NEW WORK

REPLACE FUEL & OIL HOSES, SEE NEW WORK

2 DEMOLITION SECTION AT GEN#2  
M2.1 1"=1'-0"

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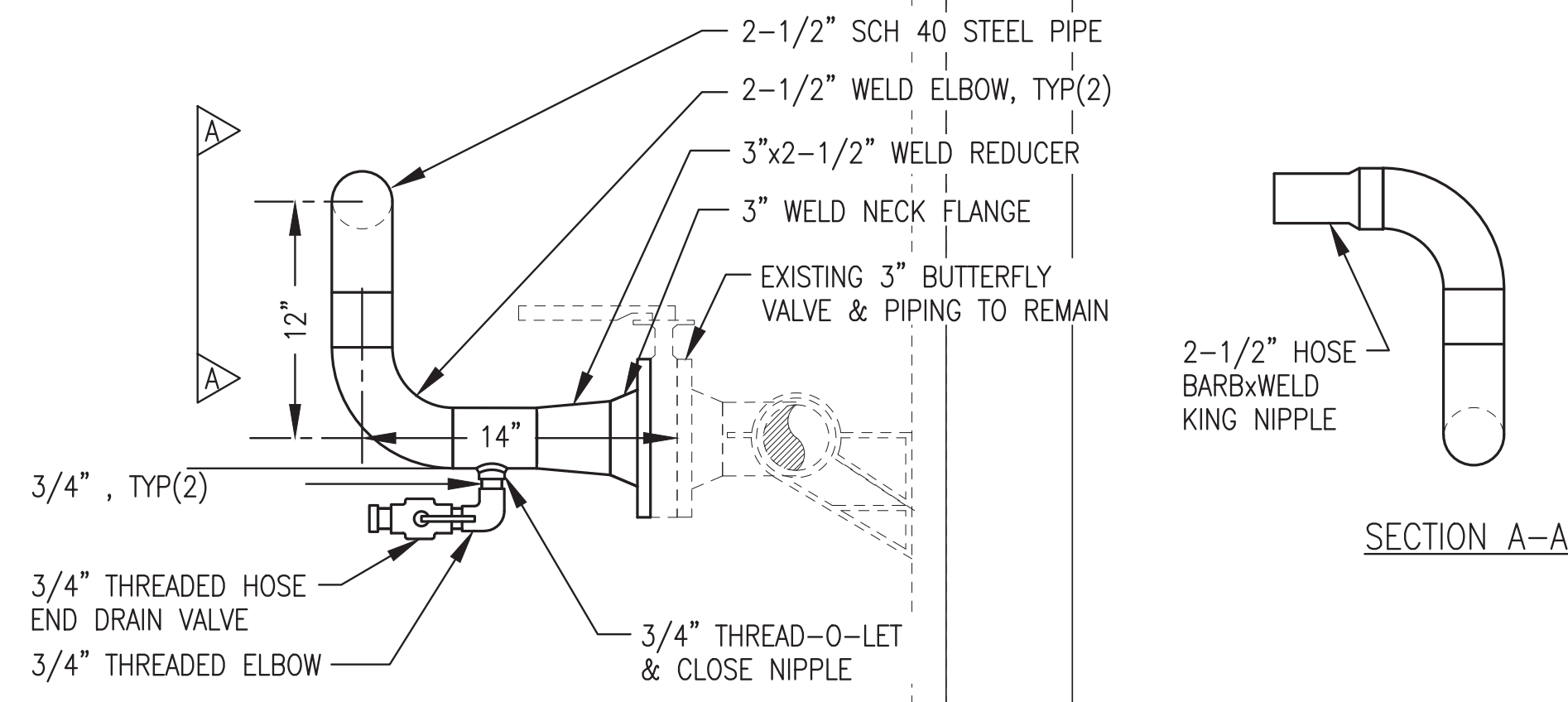
 ALASKA ENERGY AUTHORITY		
PROJECT: TULUKSAK POWER PLANT 2024 GENERATOR #2 REPLACEMENT		
TITLE: DEMOLITION & NEW WORK SECTIONS		
 Gray Stassel Engineering, Inc. P.O. 111405, Anchorage, AK 99511 (907)349-0100	DRAWN BY: JTD DESIGNED BY: BCG FILE NAME: PROJECT NUMBER:	SCALE: AS NOTED DATE: 5/30/24 SHEET: <b>M2.1</b>



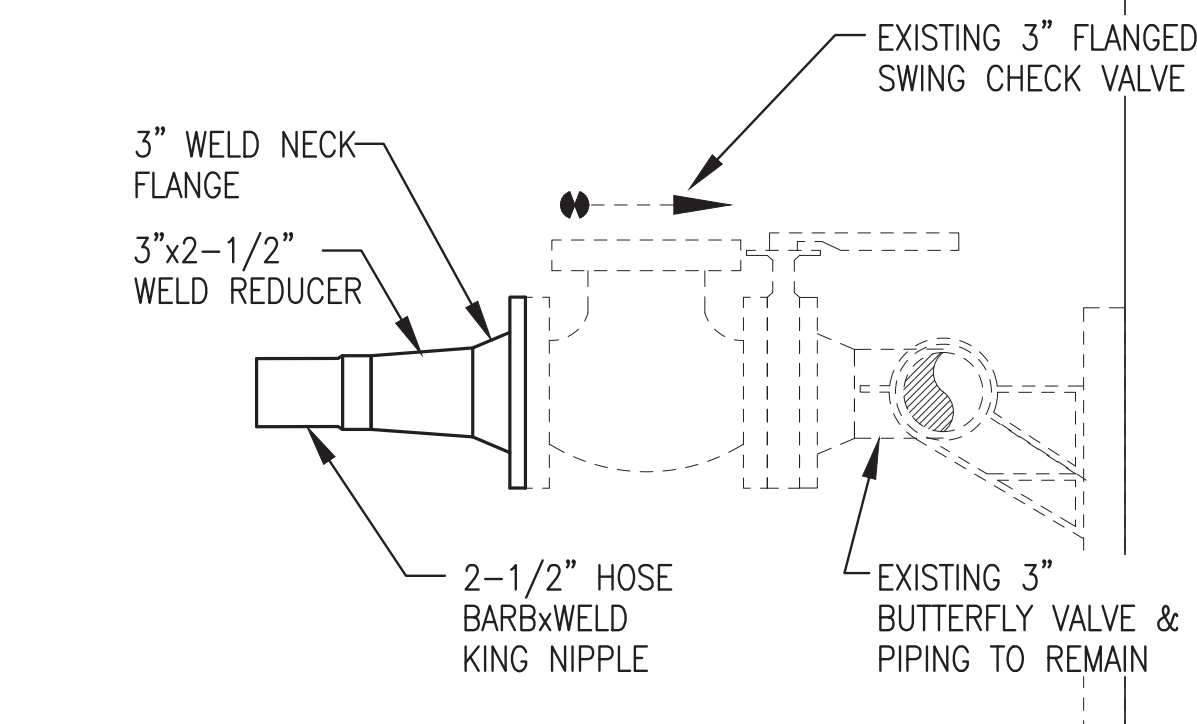
**GENERATOR SUPPORT PEDESTAL FABRICATION NOTES:**

- 1) SHOP FABRICATE 4 EACH GENERATOR SUPPORT PEDESTALS FROM ASTM-500 TS 6x6x1/4.
- 2) ROUND CORNERS AND GRIND EDGES SMOOTH, WIRE BRUSH OR SANDBLAST, AND FINISH WITH TWO COATS OF EPOXY, SHERWIN WILLIAMS MACROPOXY 646 OR EQUAL, COLOR STRUCTURAL GRAY 4031.
- 3) FIELD DRILL TOP OF PEDESTAL TO MATCH VIBRATION ISOLATOR BASE.

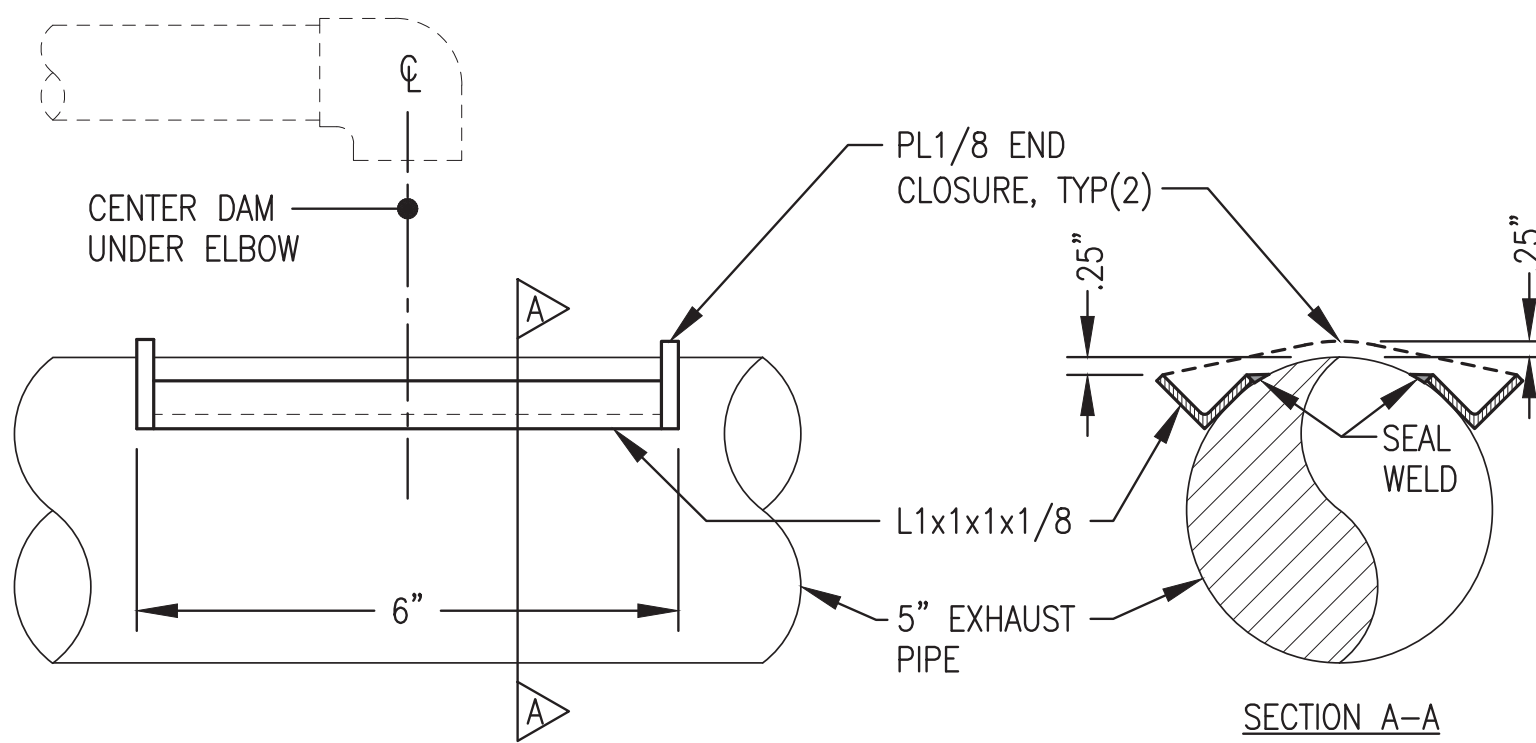
**1** GENERATOR SUPPORT PEDESTAL FABRICATION  
M2.2 NO SCALE



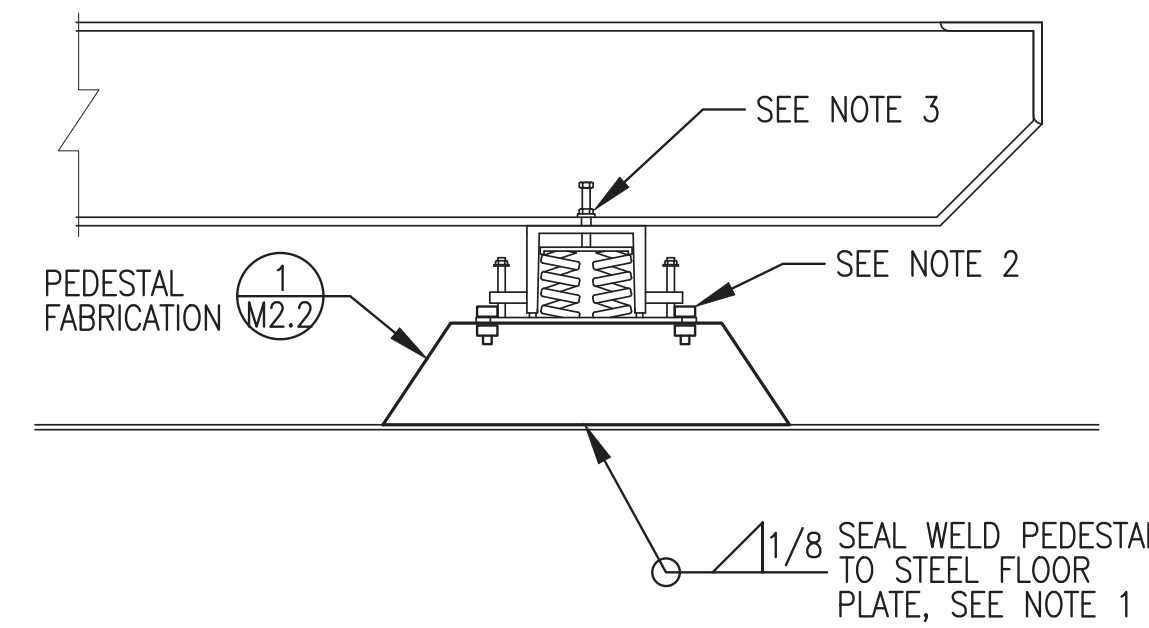
**2** GEN #4 MODIFIED COOLANT SUCTION CONNECTION  
M2.2 NO SCALE



**3** GEN#2 MODIFIED COOLANT DISCHARGE CONNECTION  
M2.2 NO SCALE



**4** CRANK VENT DRIP CATCH FABRICATION DETAIL  
M2.2 NO SCALE


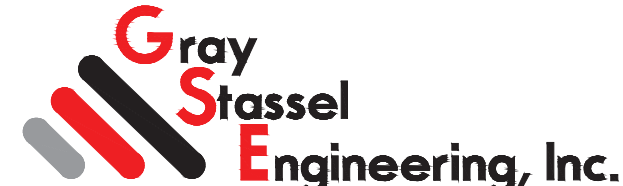


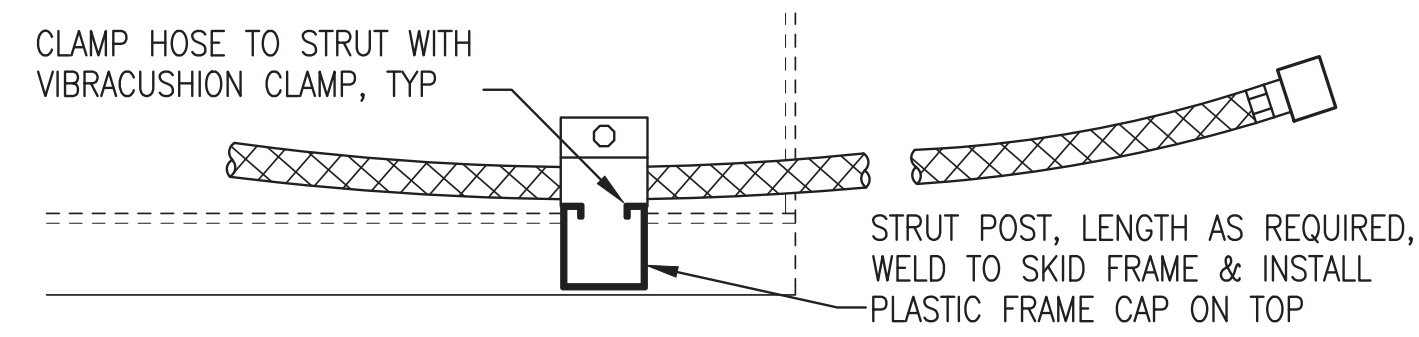
**INSTALLATION NOTES:**

- 1) LOCATE GENERATOR TO ALIGN WITH EXISTING EXHAUST RISER PRIOR TO WELDING PEDESTALS TO FLOOR PLATE.
- 2) FIELD DRILL TOP TO MATCH VIBRATION ISOLATOR BASE & FASTEN WITH 2 EA. 1/2" BOLTS WITH LOCK WASHERS.
- 3) ADJUST SPRING VIBRATION ISOLATOR LEVELING BOLTS TO ACHIEVE A UNIFORM INSTALLATION HEIGHT OF APPROXIMATELY 5-3/4" THEN TIGHTEN LOCKING NUTS. ADJUST NUTS ON STABILIZER BOLTS TO ACHIEVE A UNIFORM CLEARANCE OF APPROXIMATELY 1/8" THEN TIGHTEN LOCKING NUTS. VERIFY UNIT MOVES FREELY ON ISOLATORS.

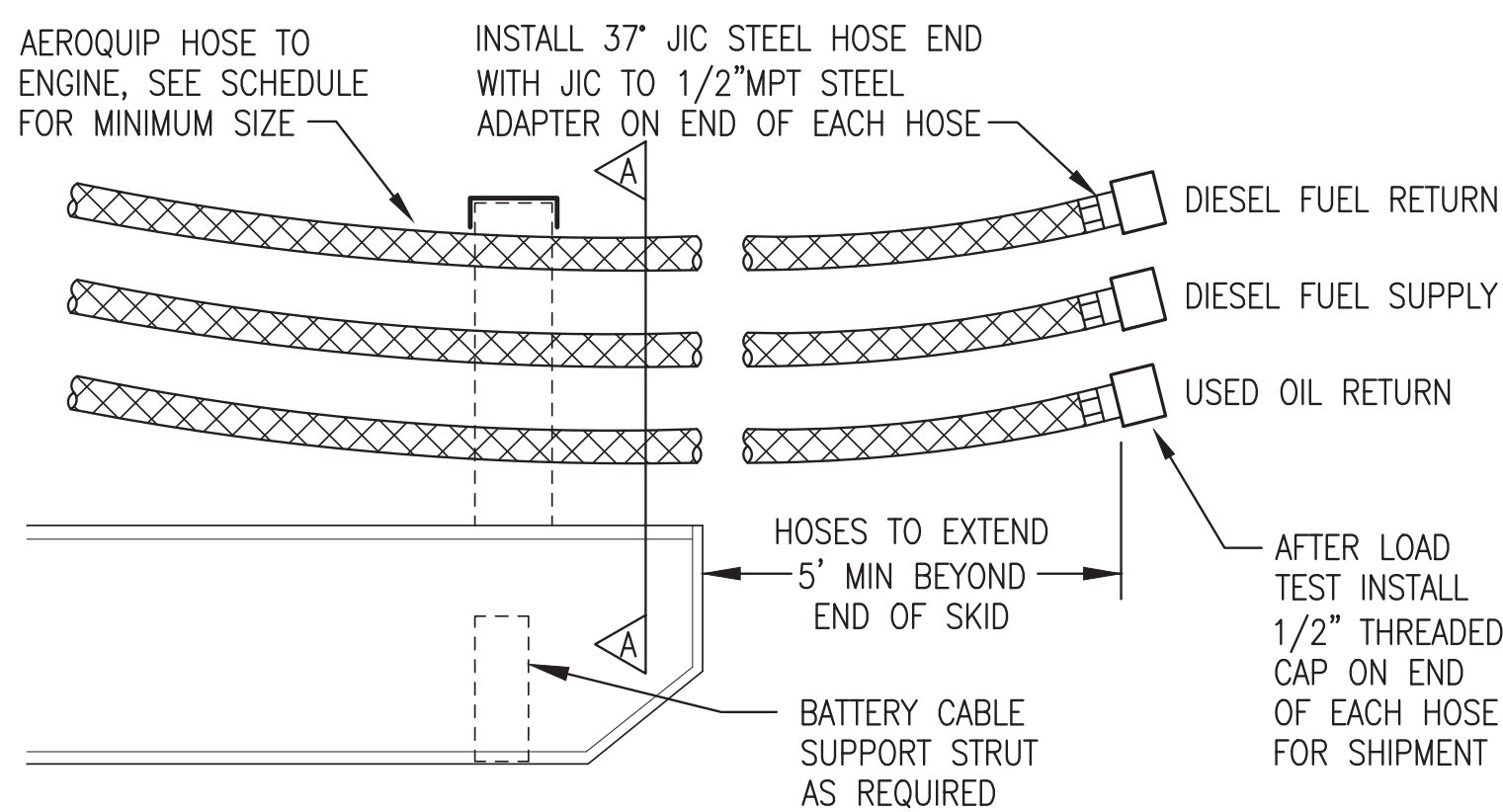
**5** GENSET SUPPORT PEDESTAL & ISOLATOR INSTALLATION  
M2.2 NO SCALE

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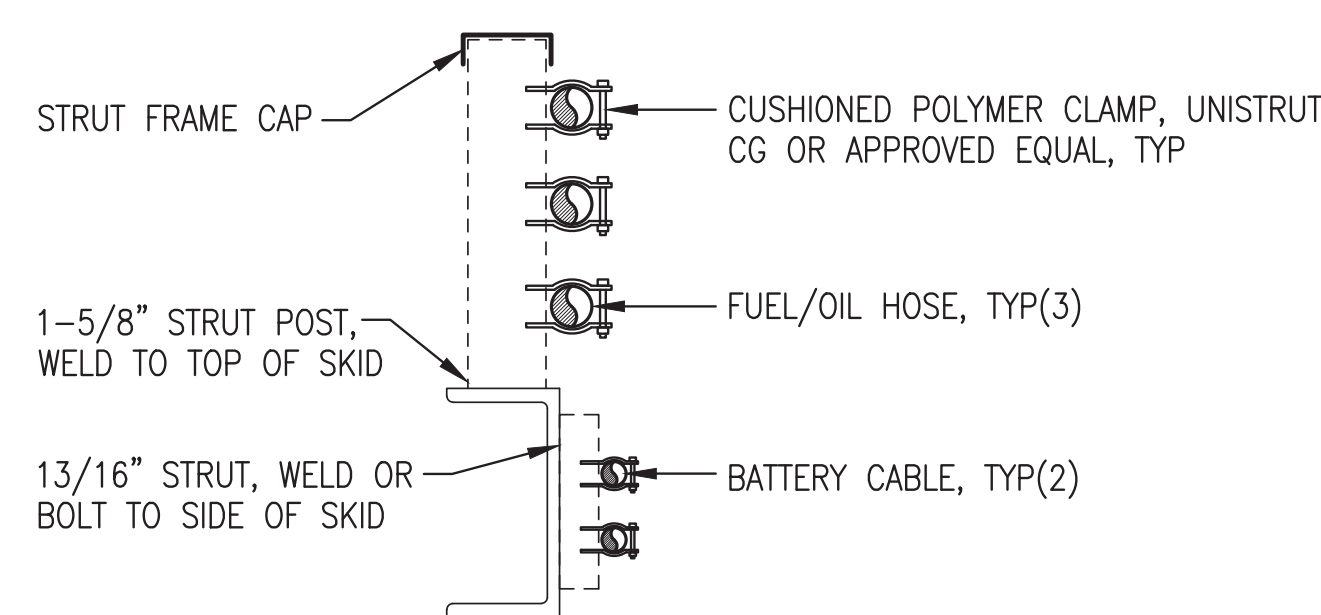
 ALASKA ENERGY AUTHORITY		
PROJECT: TULUSAK POWER PLANT 2024 GENERATOR #2 REPLACEMENT		
TITLE: INSTALLATION DETAILS		
 Gray Stassel Engineering, Inc.	DRAWN BY: JTD	SCALE: AS NOTED
	DESIGNED BY: BCG	DATE: 5/30/24
	FILE NAME:	SHEET:
P.O. 111405, Anchorage, AK 99511 (907)349-0100	PROJECT NUMBER:	<b>M2.2</b>



GENSET FRONT RIGHT SKID PLAN VIEW

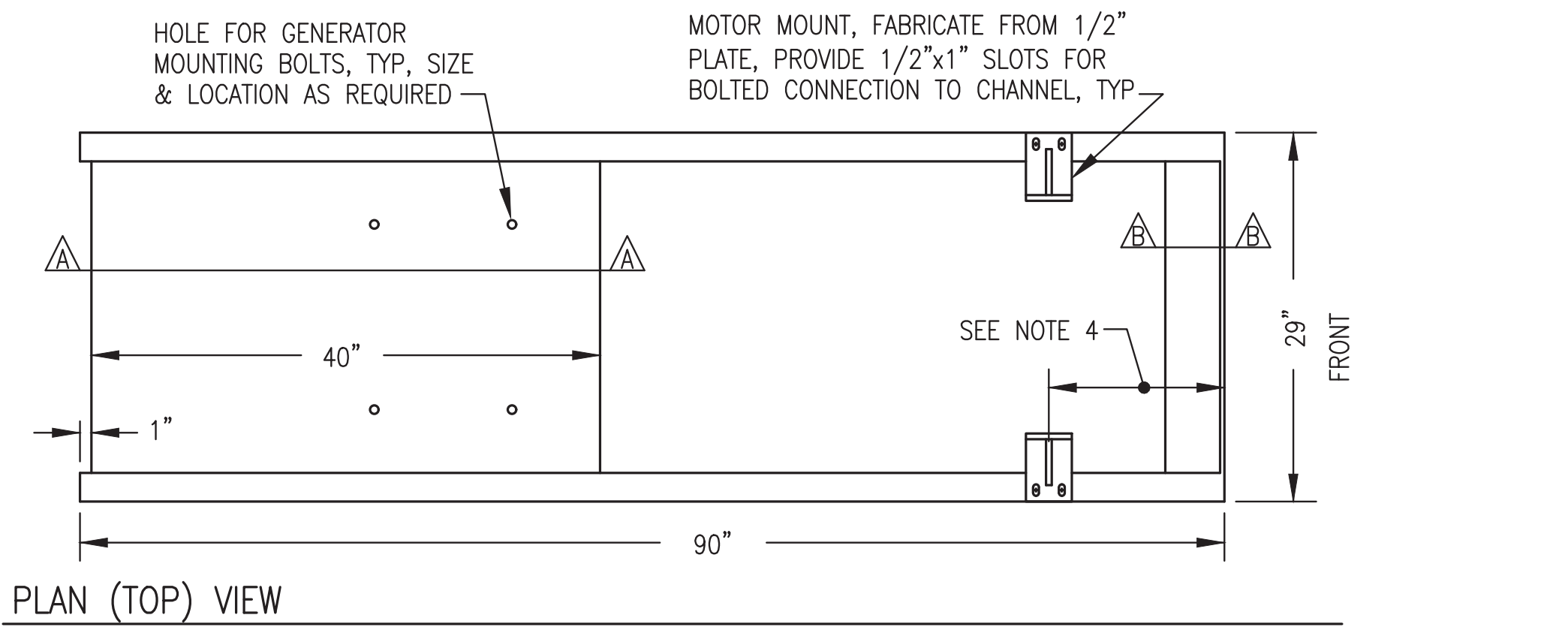


GENSET FRONT RIGHT SKID ELEVATION

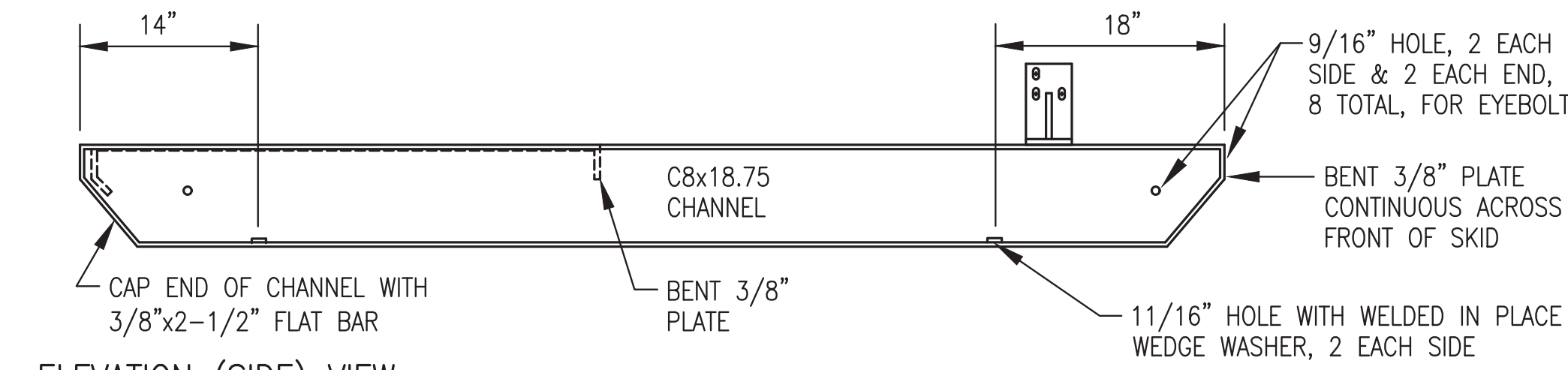


SKID SECTION A-A

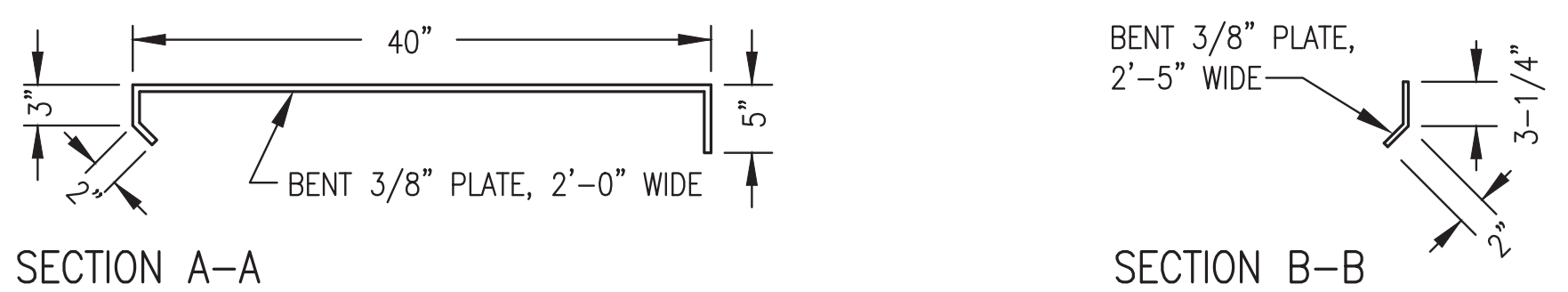
1 FUEL & OIL HOSE TERMINATIONS  
M3 NO SCALE



PLAN (TOP) VIEW



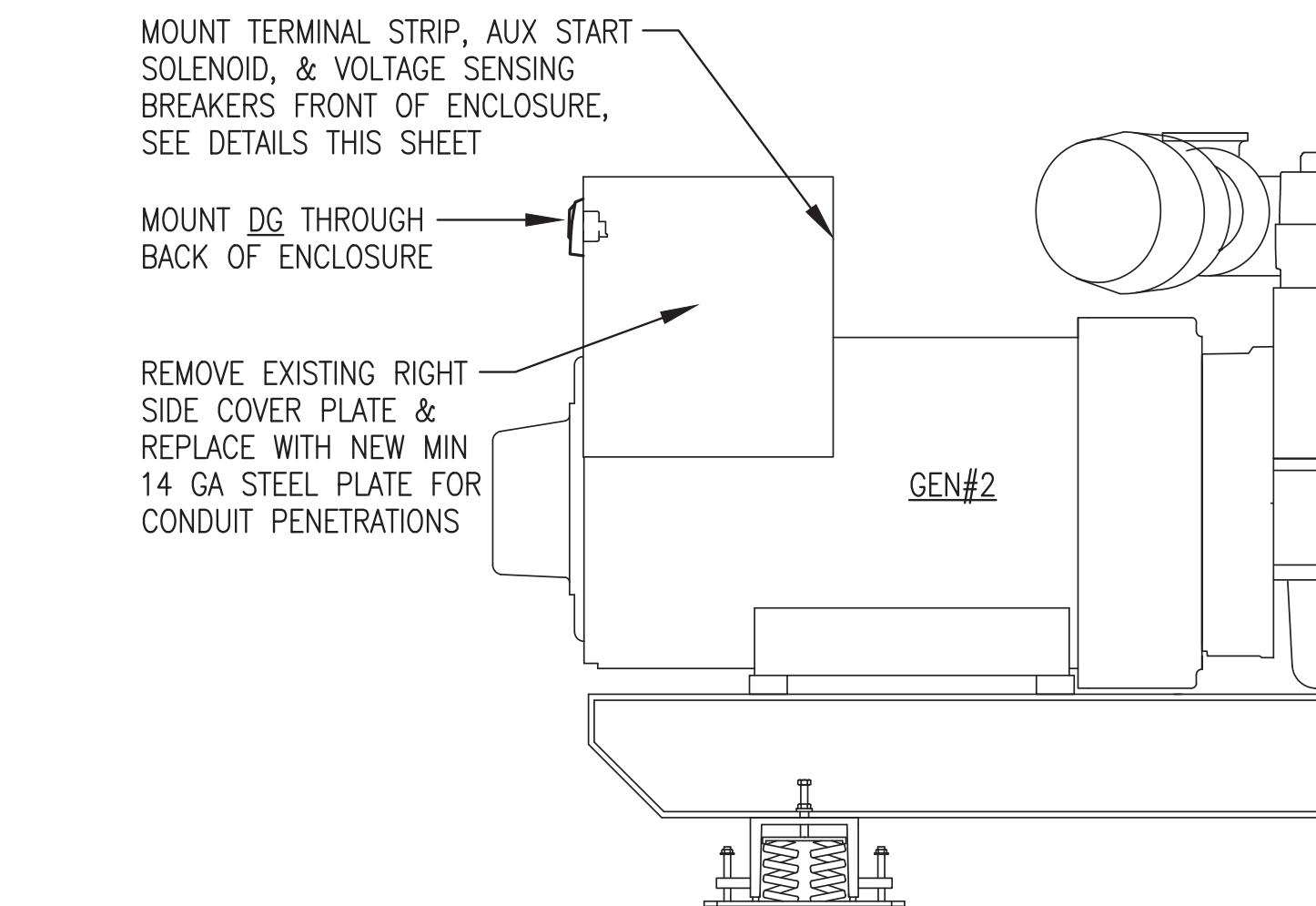
ELEVATION (SIDE) VIEW



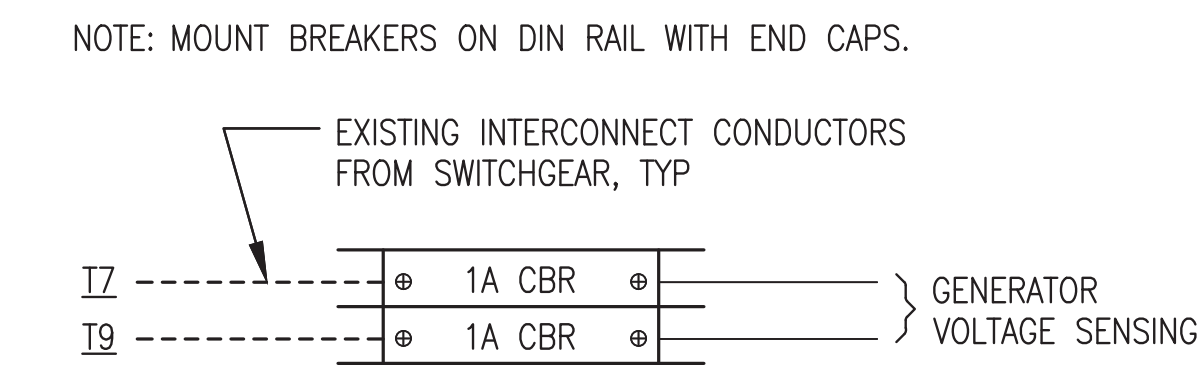
NOTES:

- 1) FABRICATE SKID FROM ASTM A-36 STEEL. BEND PLATES & CUT ENDS OF CHANNELS AT 90° & 45° AS SHOWN.
- 2) EXCEPT WHERE INDICATED AS BOLTED, MAKE ALL CONNECTIONS WITH CONTINUOUS WELDS (FILLET OR FULL-PENETRATION GROOVE AS REQUIRED) IN ACCORDANCE WITH CURRENT AWS STANDARD CODE.
- 3) ROUND ALL CORNERS & GRIND WELDS SMOOTH AFTER FABRICATION. PAINT TO MATCH ENGINE-GENERATOR.
- 4) PLACE UNIT ON SKID SO THAT THE CENTERLINE OF THE EXHAUST RISER IS 50" FROM THE FRONT OF THE SKID.

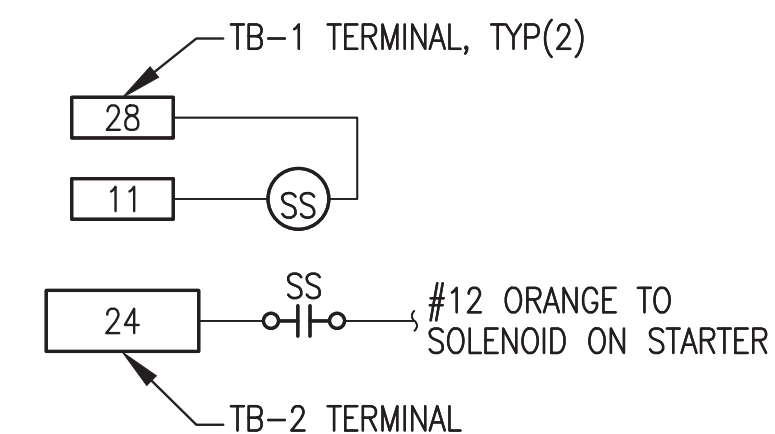
2 GEN#2 (JOHN DEERE 6090) SKID DESIGN  
M3 1"=1'-0"



5 INTERCONNECT TERMINAL STRIP & DEVICES ELEVATION  
M3 NO SCALE

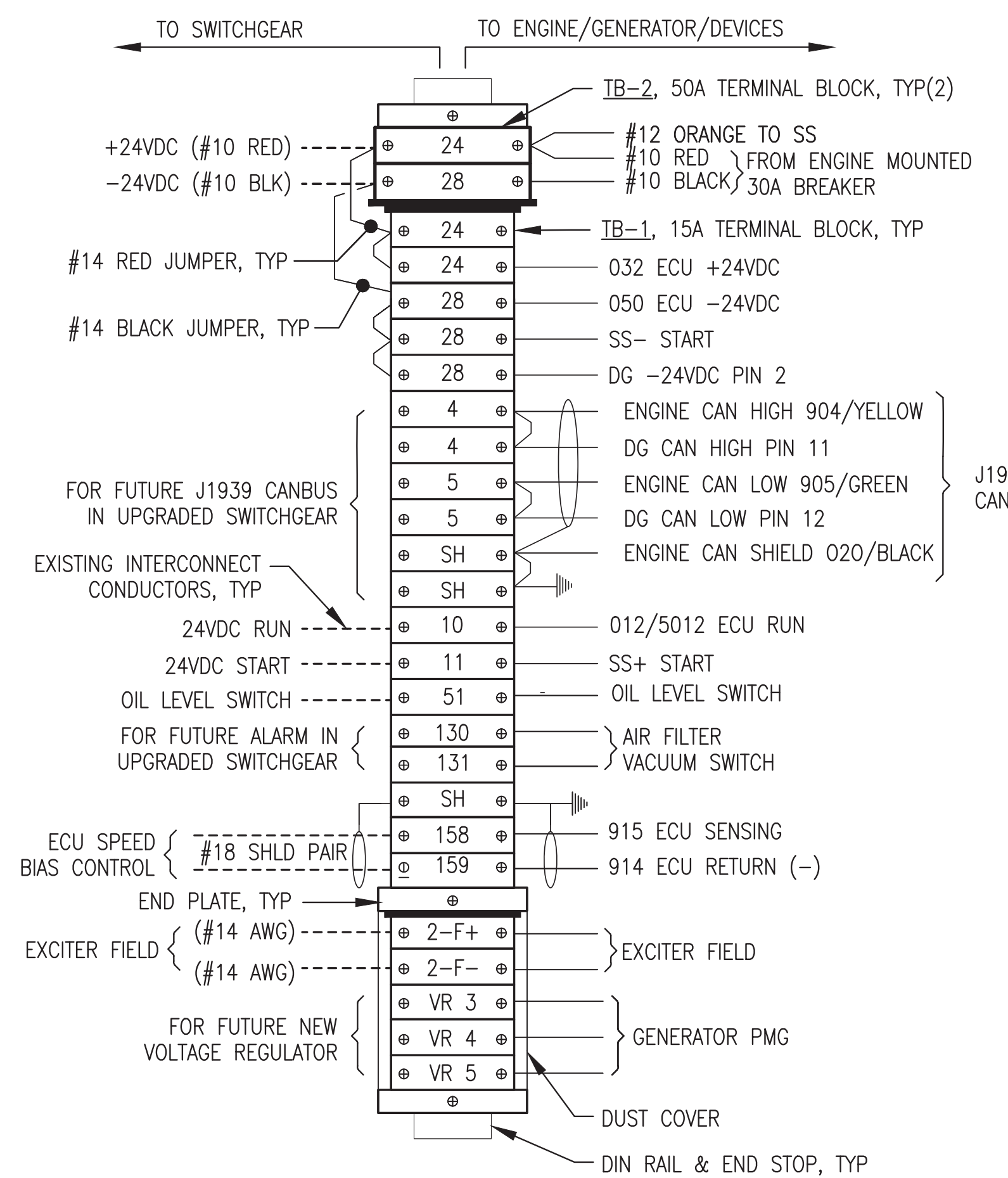


6 VOLTAGE SENSING CIRCUIT BREAKER CONNECTIONS  
M3 NO SCALE



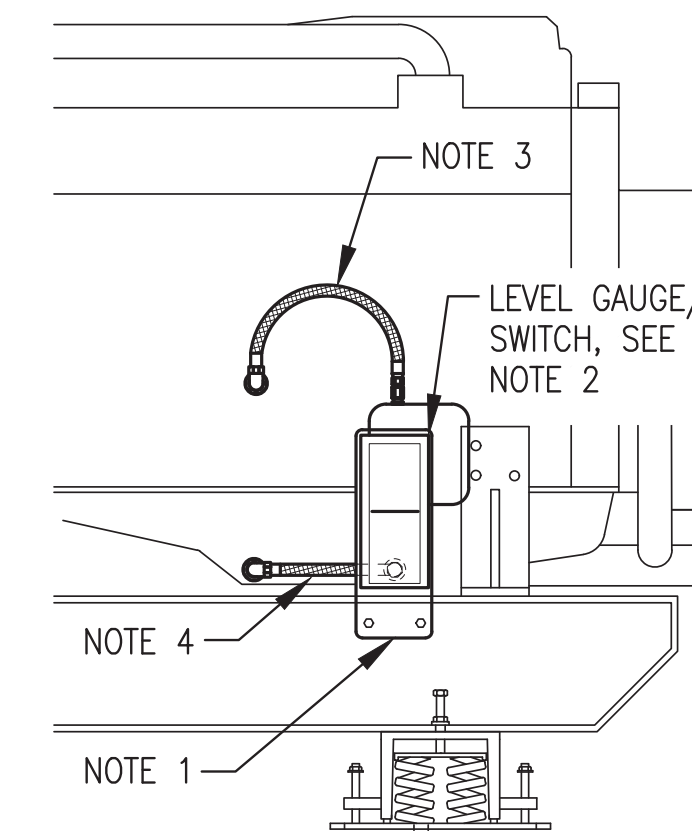
7 STARTER SOLENOID SS WIRING  
M3 NO SCALE

GENERATOR ENCLOSURE ELECTRICAL DEVICES BILL OF MATERIALS			
TAG	MANUFACTURER	MODEL	DESCRIPTION
CBR	ALLEN-BRADLEY	1489-M1-C010	RAIL MOUNT CIRCUIT BREAKER, 1P, 1A
DG	JOHN DEERE	DG-14	DIAGNOSTIC GAUGE WITH HARNESS PROGRAMMED FOR MARINE TIER 3 WITH UNIQUE JOHN DEERE FAULT CODE
SS	JOHN DEERE	AT145341	STARTER AUXILIARY SOLENOID, 24V
TB-1	IDEC	BNH15LW	15A DIN RAIL-MOUNT TERMINAL BLOCK
TB-2	IDEC	BNH50W	50A DIN RAIL-MOUNT TERMINAL BLOCK



NOTES:

- 1) NEW TERMINAL STRIP NUMBERS MATCH INTERCONNECT TERMINALS IN GEN#2 SWITCHGEAR SECTION. SEE ATTACHED SWITCHGEAR REVISION DRAWINGS FOR MODIFICATIONS TO EXISTING SWITCHGEAR.
- 2) ADDITIONAL TERMINALS ARE BEING PROVIDED FOR FUTURE REVISIONS AS NOTED THAT ARE NOT BEING USED NOW.



NOTES:

- 1) 1/4" STEEL SUPPORT PLATE PRE-DRILLED TO MATCH GAUGE/SWITCH MOUNTS AND BOTTOM HOSE ENTRANCE. BOLT TO INSIDE (BACK) OF CHANNEL SKID AT HEIGHT AS REQUIRED TO CENTER GAUGE AT NORMAL FULL OIL LEVEL.
- 2) MOUNT OIL LEVEL GAUGE/SWITCH TO STEEL SUPPORT PLATE WITH RUBBER SHOCK MOUNTS. ADJUST SWITCH CONTACTS TO 1/2" ABOVE AND BELOW NORMAL FULL LEVEL. PAINT MARK A RED LINE AT BOTH SWITCH LEVELS.
- 3) CONNECT TOP (VENT) PORT TO ENGINE CRANK CASE WITH #8 HOSE WITH 1/2" OR 3/8" NPT JIC SWIVEL ENDS. ROUTE UPPER HOSE WITH HIGH POINT 4" MIN ABOVE TOP OF GAUGE.
- 4) CONNECT BOTTOM PORT TO ENGINE OIL PAN WITH #8 HOSE WITH 1/2" OR 3/8" NPT JIC SWIVEL ENDS. DO NOT TEE INTO OIL DRAIN LINE. ROUTE LOWER HOSE BACK THROUGH PRE-DRILLED HOLE IN STEEL PLATE.

4 OIL LEVEL GAUGE/SWITCH  
M3 NO SCALE

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CONSTRUCTION

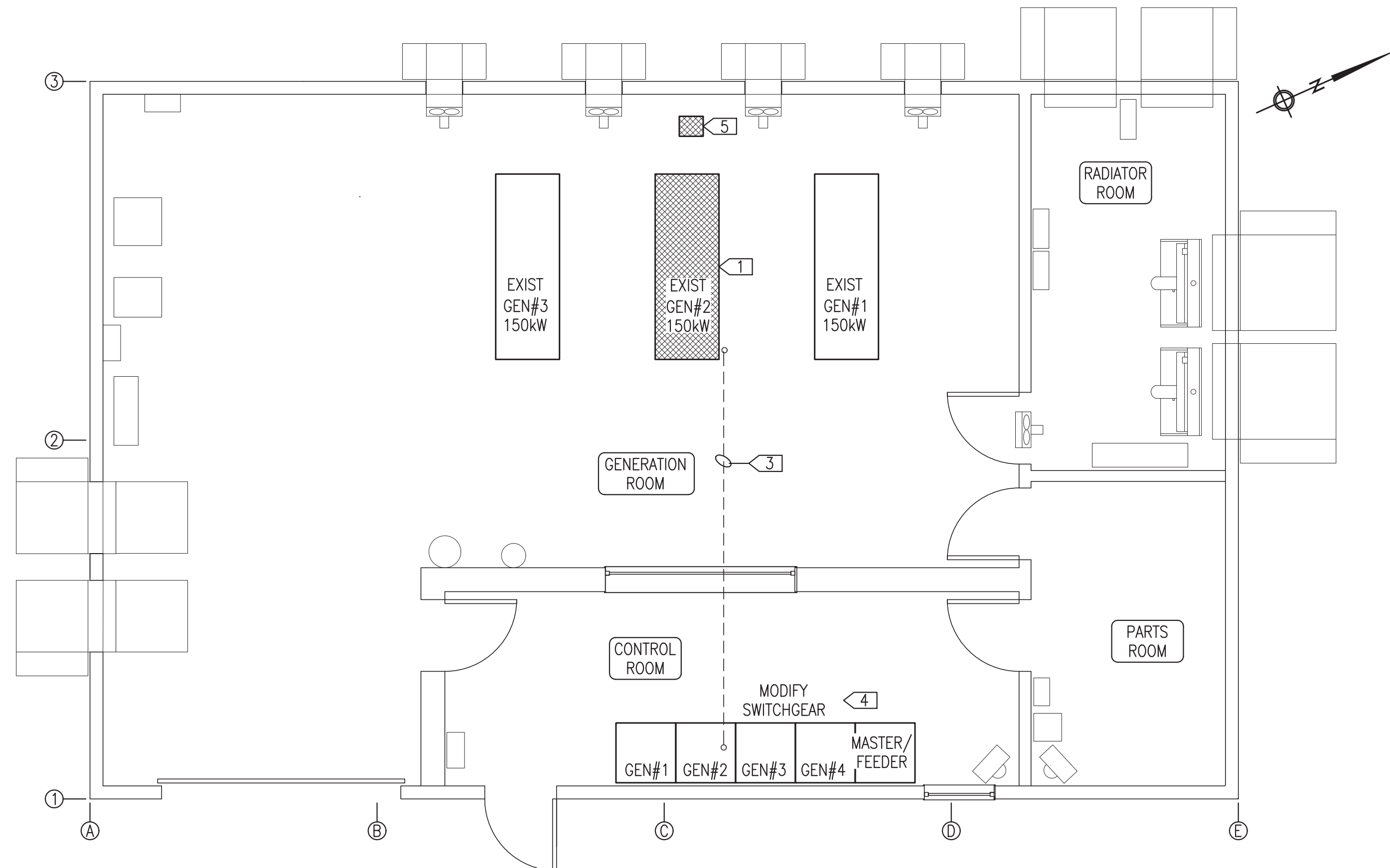


PROJECT: TULUKSAK POWER PLANT  
2024 GENERATOR #2 REPLACEMENT

TITLE: GENSET FABRICATION DETAILS

DRAWN BY: JTD	SCALE: AS NOTED
DESIGNED BY: BCG	DATE: 5/30/24
FILE NAME:	SHEET:
PROJECT NUMBER:	M3

Gray Stassel Engineering, Inc.  
P.O. 111405, Anchorage, AK 99511 (907)349-0100



**1** ELECTRICAL DEMOLITION PLAN  
E1 1/4"=1'-0"

**ELECTRICAL DEMOLITION GENERAL NOTES:**

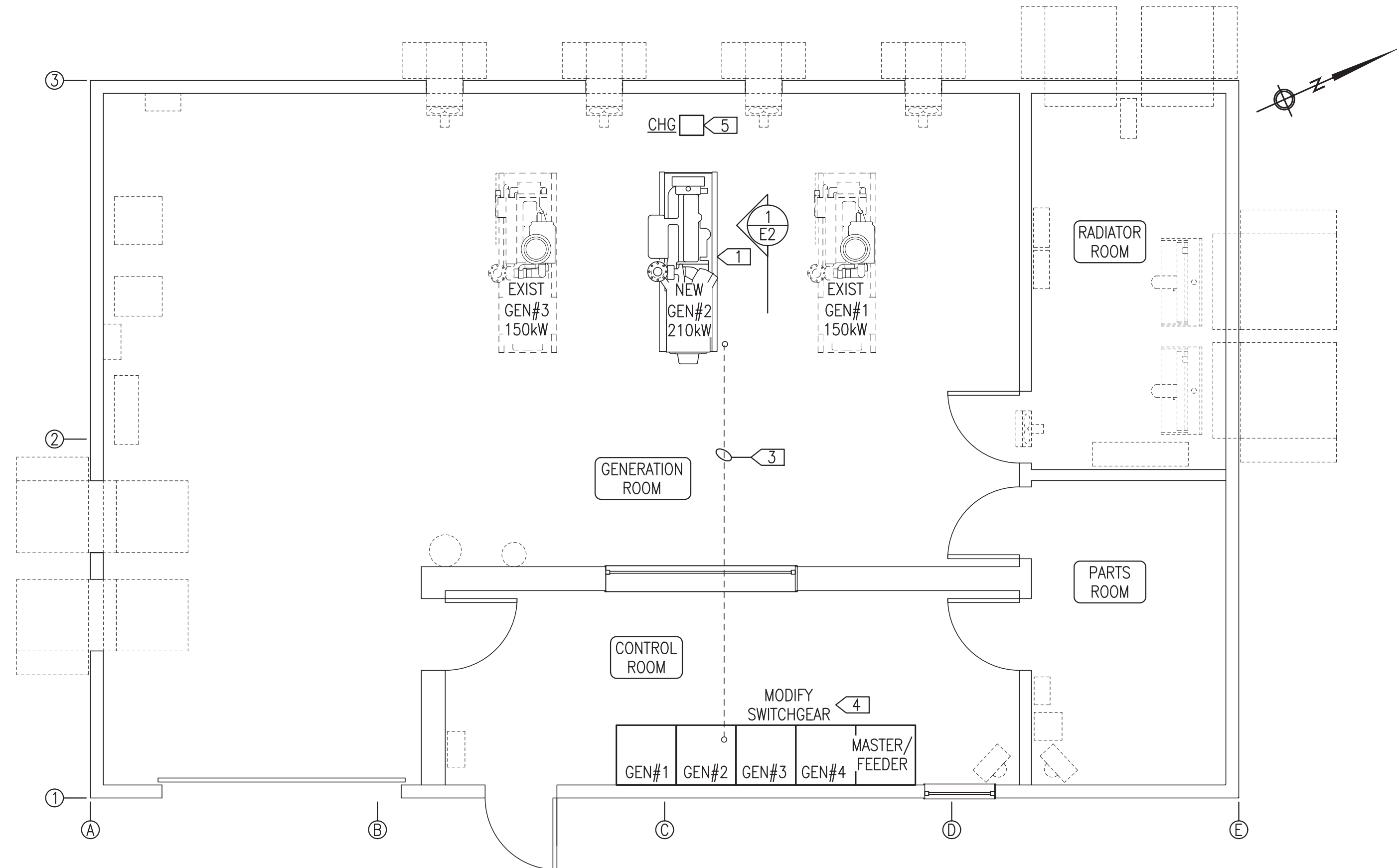
- ALL ITEMS TO REMAIN UNLESS SPECIFICALLY INDICATED FOR DEMOLITION OR TEMPORARY REMOVAL. EXISTING EQUIPMENT AND DEVICES TO BE REMOVED INDICATED BY HATCHING.
- TAKE ALL PRECAUTIONS TO MINIMIZE DAMAGE TO GENERATION EQUIPMENT BEING REMOVED DURING DEMOLITION. TARP GENERATORS AND SEAL ALL EXPOSED CONNECTIONS PRIOR TO REMOVING FROM PLANT. TURN ALL REMOVED EQUIPMENT OVER TO THE UTILITY FOR FINAL DISPOSITION.

**ELECTRICAL DEMOLITION SPECIFIC NOTES:**

- EXISTING GEN#2 TO BE REMOVED IN ITS ENTIRETY. POWER AND SWITCHGEAR INTERCONNECT RISER CONDUIT AND FLOOR PENETRATION FITTINGS TO REMAIN. SEE MECHANICAL FOR ADDITIONAL DEMOLITION NOTES.
- SEE MECHANICAL
- 1 EACH EXISTING UNDERFLOOR 3" GRC. PULL OUT EXISTING 4#1/0, #2G POWER CONDUCTORS AND TURN OVER TO UTILITY.
- REMOVE SWITCHGEAR COMPONENTS AS REQUIRED FOR UPGRADE. SEE SHEET E3 AND SWITCHGEAR SHOP DRAWING REDLINES.
- REMOVE EXISTING GEN#2 BATTERY CHARGER, BATTERY LEADS, AND BATTERY. EXISTING 120V STATION SERVICE CIRCUIT TO REMAIN.

ELECTRICAL EQUIPMENT SCHEDULE			
SYMBOL	SERVICE/FUNCTION	DESCRIPTION	MANUFACTURER/MODEL
CHG	OWNER FURNISHED 12/24-VOLT BATTERY CHARGER	SOLID STATE 20-AMP AUTO-EQUALIZING CHARGER FOR 120 VAC INPUT, WITH OPTIONAL HIGH/LOW VOLTAGE, AC POWER FAILURE, & REMOTE SUMMARY ALARM RELAYS	SENS NRG22-20-RCLS (INCLUDED WITH OWNER FURNISHED ENGINE-GENERATOR)
CONT	GEN #2 CONTACTOR	400A, 600V, 3 POLE CONTACTOR, 277VAC COIL, WITH INTEGRAL N.O./N.C. AUXILIARY CONTACT, PLUS OUTSIDE MOUNT N.O./N.C. AUXILIARY CONTACT	ALLEN BRADLEY MODEL 100-E400EN11 100-S4-11
BRKR	GEN #2 BREAKER	400AF, 350AT MOLDED CASE BREAKER, 2 EA. N.O./N.C. AUXILIARY CONTACTS, BELL ALARM, AND 400A LUG KITS	ABB Tmax XT WITH SOLID STATE TRIP UNIT FULL CONFIG #: XT5NU340AENN9J0XXX (1SDX305470R1) LS/1 BASE BREAKER FRAME: XT5NU340AEFF000XXX (1SDA102449R1) 3 EA. LINE LUGS: KXT5CUAL2X500K-3PC (1SDA113066R1) 3 EA. LOAD LUGS: KXT5CUAL2X500K-3PC (1SDA113066R1) AUX CONTACTS: KXTDAXCD3QSYFP (1SDA066448R1) BELL ALARM CONTACT: KXTCAXDS51FP (1SDA067116R1)
CT	CURRENT TRANSFORMER	400:5 FIXED RATIO CURRENT TRANSFORMER, RELAY CLASS: C20, 4" WINDOW	GE-ITI CATALOG NUMBER 110-401

ELECTRICAL CONDUCTOR SCHEDULE			
SERVICE/FUNCTION	DESCRIPTION	MANUFACTURER/MODEL	NOTES:
GENERATOR LEADS (ENGINE STARTER CABLES SIMILAR)	HIGH TEMPERATURE, EXTRA FLEXIBLE CABLE, TIN COATED COPPER CONDUCTOR. THERMOSET EPDM INSULATION, UL 3340/3374, MINIMUM 600V, LISTED 150°C FOR NON-FLEXING	COBRA CABLE, BELDEN, OR OMNI	TERMINATE WITH COPPER COMPRESSION LUGS RATED FOR THE FULL AMPACITY OF THE CABLE AT 150°C.
UNLESS INDICATED OTHERWISE ALL CONDUCTORS SHALL USE THE FOLLOWING COLOR CODE: 480-VOLT POWER (PHASE) CONDUCTORS PHASE A: BROWN PHASE B: ORANGE PHASE C: YELLOW 120/208-VOLT POWER (PHASE) CONDUCTORS PHASE A: BLACK PHASE B: RED PHASE C: BLUE NEUTRAL: WHITE, NO EXCEPTIONS GROUND: GREEN OR BARE, NO EXCEPTIONS		<b>NOTES:</b> 1) COLOR CODING FOR NO. 6 AWG AND SMALLER CONDUCTORS SHALL BE BY USING CONDUCTORS WITH CONTINUOUS COLOR EMBEDDED IN THE INSULATION. 2) COLOR CODING FOR CONDUCTORS LARGER THAN NO. 6, SHALL BE BY: A) CONTINUOUS COLOR EMBEDDED IN THE INSULATION, OR B) BLACK CABLE WITH SCOTCH 35 OR APPROVED EQUAL MARKING (PHASE) TAPE. AT EVERY ACCESSIBLE LOCATION A MINIMUM 3" LONG SECTION OF CONDUCTOR SHALL BE SPIRAL WRAPPED. PHASE TAPE MAY NOT BE USED ON COLORED CABLE, BLACK ONLY. 3) GROUNDING - PROVIDE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH RACEWAY. DO NOT USE THE CONDUIT AS AN EQUIPMENT GROUNDING CONDUCTOR. EQUIPMENT GROUNDING CONDUCTORS SHALL BE OF THE SAME TYPE AS THE PHASE CONDUCTORS AND SHALL BE SIZED AS INDICATED ON THE DRAWINGS. CONDUCTORS NOT INDICATED SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.	



**2** ELECTRICAL NEW WORK PLAN  
E1 1/4"=1'-0"

**ELECTRICAL NEW WORK GENERAL NOTES:**

- EXISTING EQUIPMENT AND RACEWAYS TO REMAIN IN SERVICE SHOWN WITH LIGHT DASHED LINES.
- NEW EQUIPMENT AND RACEWAYS SHOWN WITH DARK SOLID LINES.
- NOT ALL EXISTING EQUIPMENT AND RACEWAYS SHOWN. SEE ATTACHED RECORD DRAWINGS FOR ADDITIONAL DETAIL ON SYSTEMS NOT BEING MODIFIED.

**ELECTRICAL NEW WORK SPECIFIC NOTES:**

- INSTALL NEW GEN#2. SEE ELEVATION 1/E2 AND COORDINATE WITH MECHANICAL.
- SEE MECHANICAL.
- 1 EACH EXISTING 3" UNDERFLOOR GRC, PULL IN NEW 4#4/0, #2G 150°C POWER CONDUCTORS FOR NEW GEN#2.
- PERFORM SWITCHGEAR UPGRADES AS REQUIRED FOR NEW GEN#2 INTEGRATION. SEE SHEET E3 AND SWITCHGEAR SHOP DRAWING REDLINES.
- INSTALL NEW GEN#2 24V BATTERY CHARGER AND BATTERIES. SEE DETAIL 3/E2.

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JULY 2024



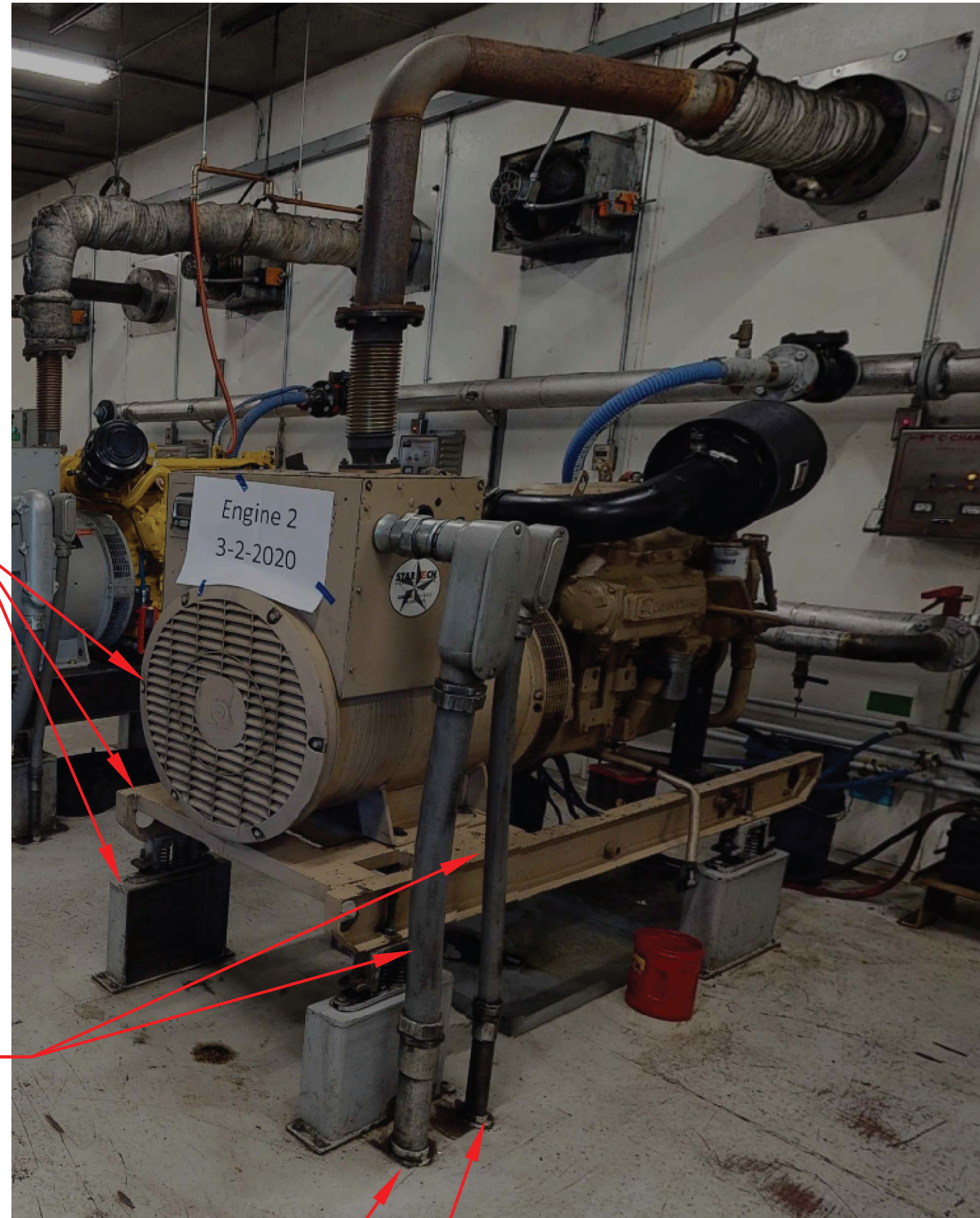
**ALASKA ENERGY AUTHORITY**

PROJECT: **TULUKSAK POWER PLANT  
2024 GENERATOR #2 REPLACEMENT**

TITLE: **DEMOLITION & NEW WORK PLANS,  
EQUIPMENT & CONDUCTOR SCHEDULES**

	DRAWN BY: JTD	SCALE: AS NOTED
	DESIGNED BY: CWV/BCG	DATE: 7/29/24
	FILE NAME:	SHEET:
	PROJECT NUMBER:	<b>E1</b>

P.O. 111405, Anchorage, AK 99511 (907)349-0100



REMOVE EXISTING GENSET IN ITS ENTIRETY INCLUDING SKID, VIBRATION ISOLATORS & SUPPORT PEDESTALS, SEE MECHANICAL

ALL EXISTING UNDERFLOOR CONDUIT, FLEX RISERS, CONDUIT BODIES, AND GENERATOR CONNECTION FITTINGS TO REMAIN FOR REUSE WITH NEW GENERATOR.

PULL ALL EXISTING POWER CONDUCTORS OUT OF EXISTING 3" CONDUIT  
ALL EXISTING CONTROL CONDUCTORS TO REMAIN IN EXISTING 1-1/2" CONDUIT

EXISTING GEN#2 PRIOR TO DEMOLITION

TERMINATE EXISTING CONTROL CONDUCTORS ON NEW TERMINAL STRIP & DEVICES LOCATED INSIDE GENERATOR ENCLOSURE & PROVIDED WITH GENERATOR. SEE GENSET FABRICATION SHEET M3 FOR TERMINATIONS

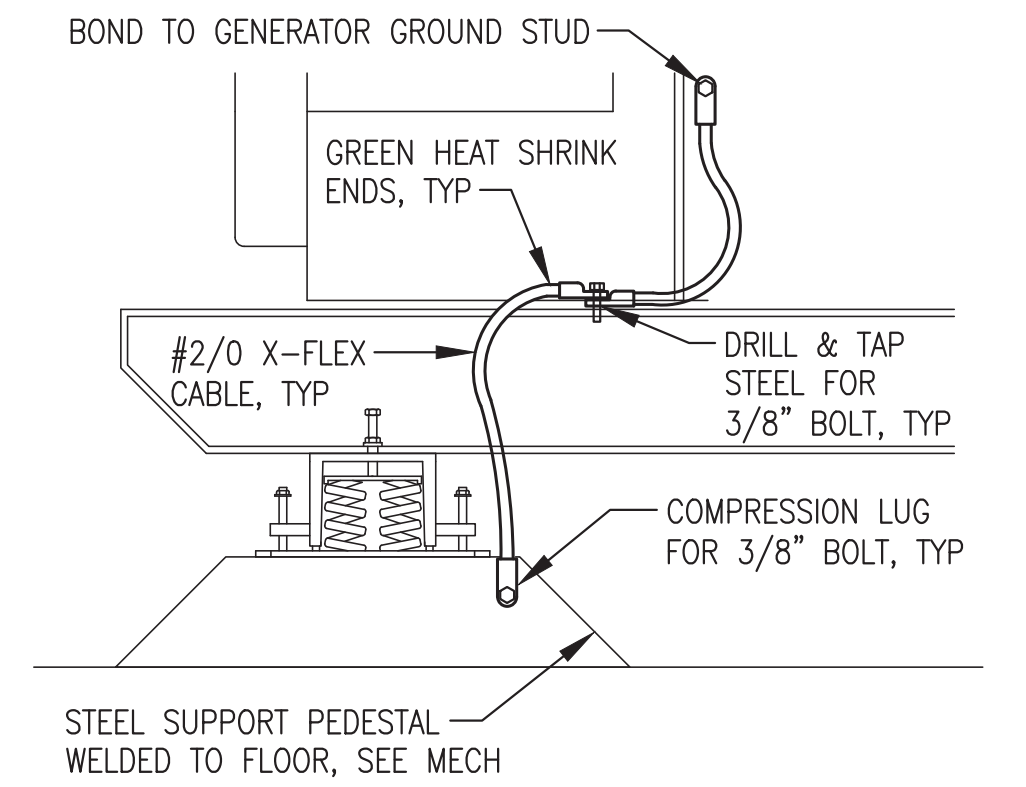
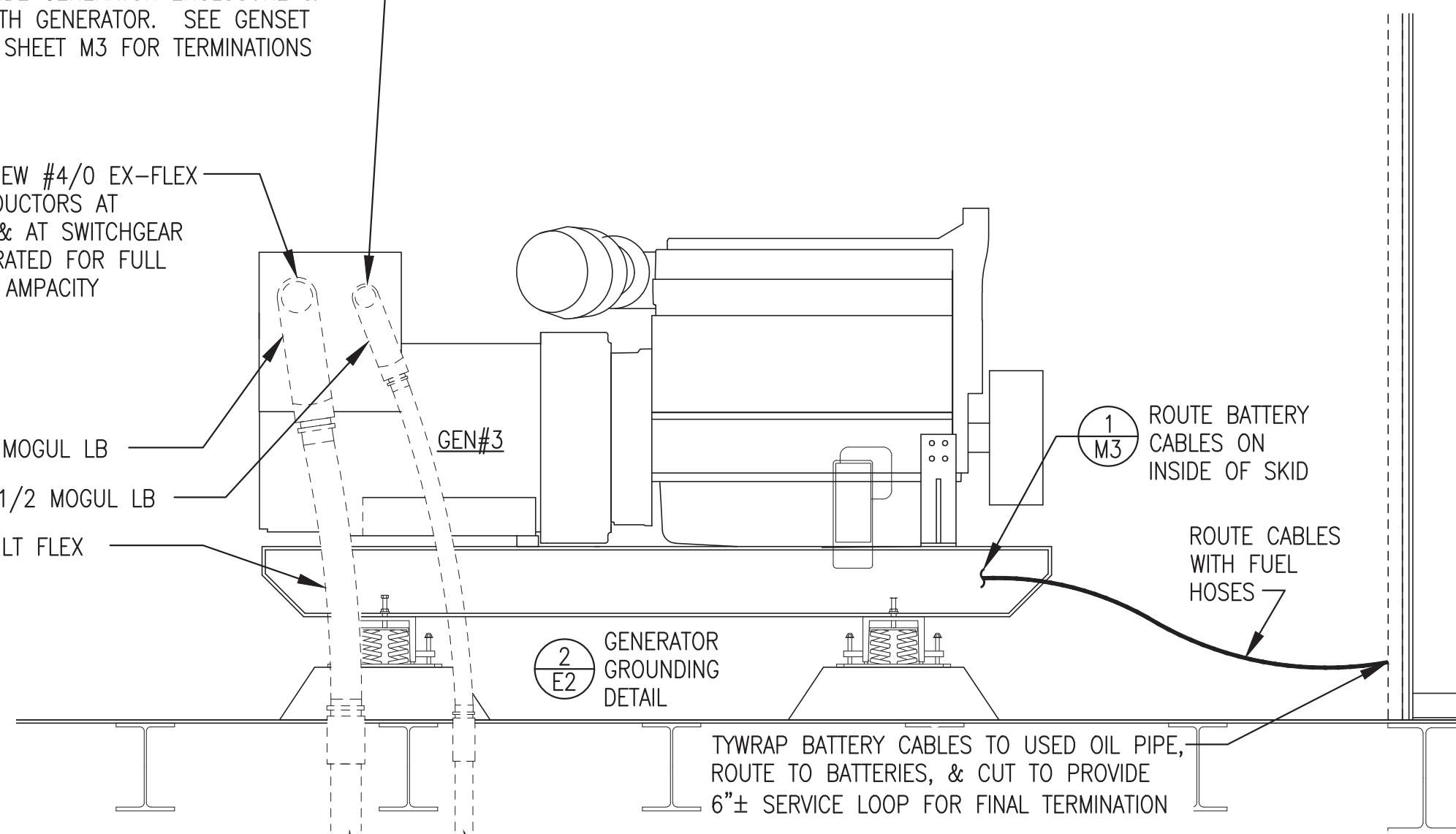
TERMINATE NEW #4/0 EX-FLEX POWER CONDUCTORS AT GENERATOR & AT SWITCHGEAR WITH LUGS RATED FOR FULL 150C CABLE AMPACITY

EXISTING 3" MOGUL LB  
EXISTING 1-1/2" MOGUL LB  
EXISTING 3" LT FLEX

EXISTING 3" UNDERFLOOR GRC, PULL NEW 4#4/0, #2G 150°C EX-FLEX CABLE INTO

EXISTING 1-1/2" UNDERFLOOR GRC WITH EXISTING CONTROL CONDUCTORS

NEW GEN#2 CONDUIT ENTRANCE ELEVATION



2 GENERATOR GROUNDING DETAIL  
NO SCALE

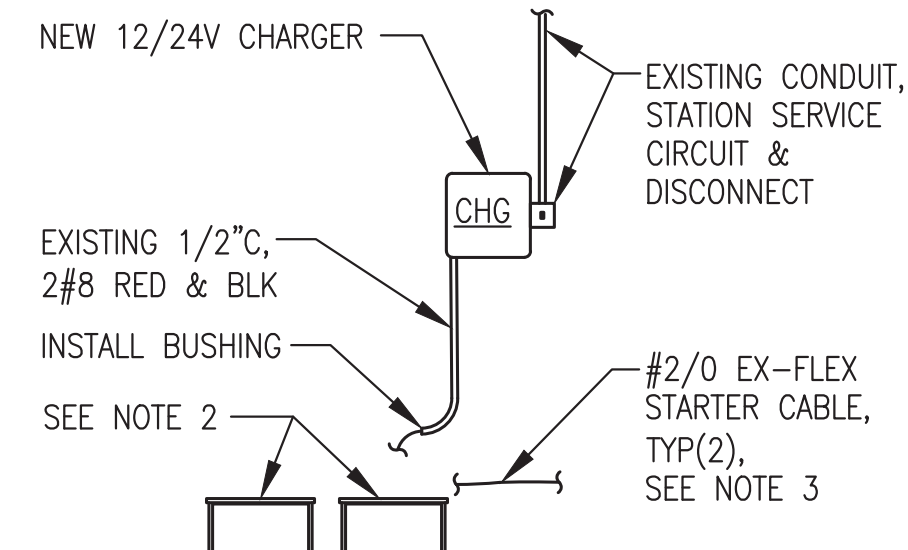
1 GEN#2 POWER & CONTROL CONDUIT ENTRANCES  
E2 3/4"=1'

NEW CHARGER SETTINGS:

- AC LINE VOLTAGE SWITCH TO "115V".
- AUTO BOOST JUMPER TO "NORM".
- FLOAT VOLTAGE JUMPER TO "13.50/27.00" (GEL CELL).
- BATTERY RANGE JUMPER TO "24V".

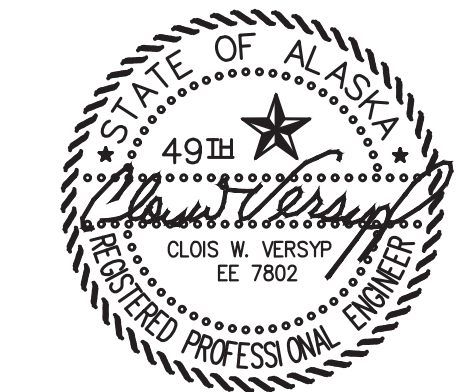
NOTES:



1. NEW BATTERY CHARGER FURNISHED WITH OWNER FURNISHED GEN #2. INSTALL AS INDICATED.
2. TWO EACH NEW BATTERIES FURNISHED WITH OWNER FURNISHED GEN #2. INSTALL IN EXISTING RACK.
3. #2/0 BATTERY CABLES FURNISHED WITH OWNER FURNISHED GEN #2. ROUTE FROM FRONT OF SKID DIRECTLY UNDER FUEL HOSES TO WALL AND TYWRAP TO USED OIL PIPE ALONG WALL. CUT TO PROVIDE 6"± SERVICE LOOP FOR FINAL TERMINATION ON BATTERIES. CONNECT TO BATTERIES WITH OWNER FURNISHED COMPRESSION FITTINGS AND TOP MOUNT TERMINAL COVERS.

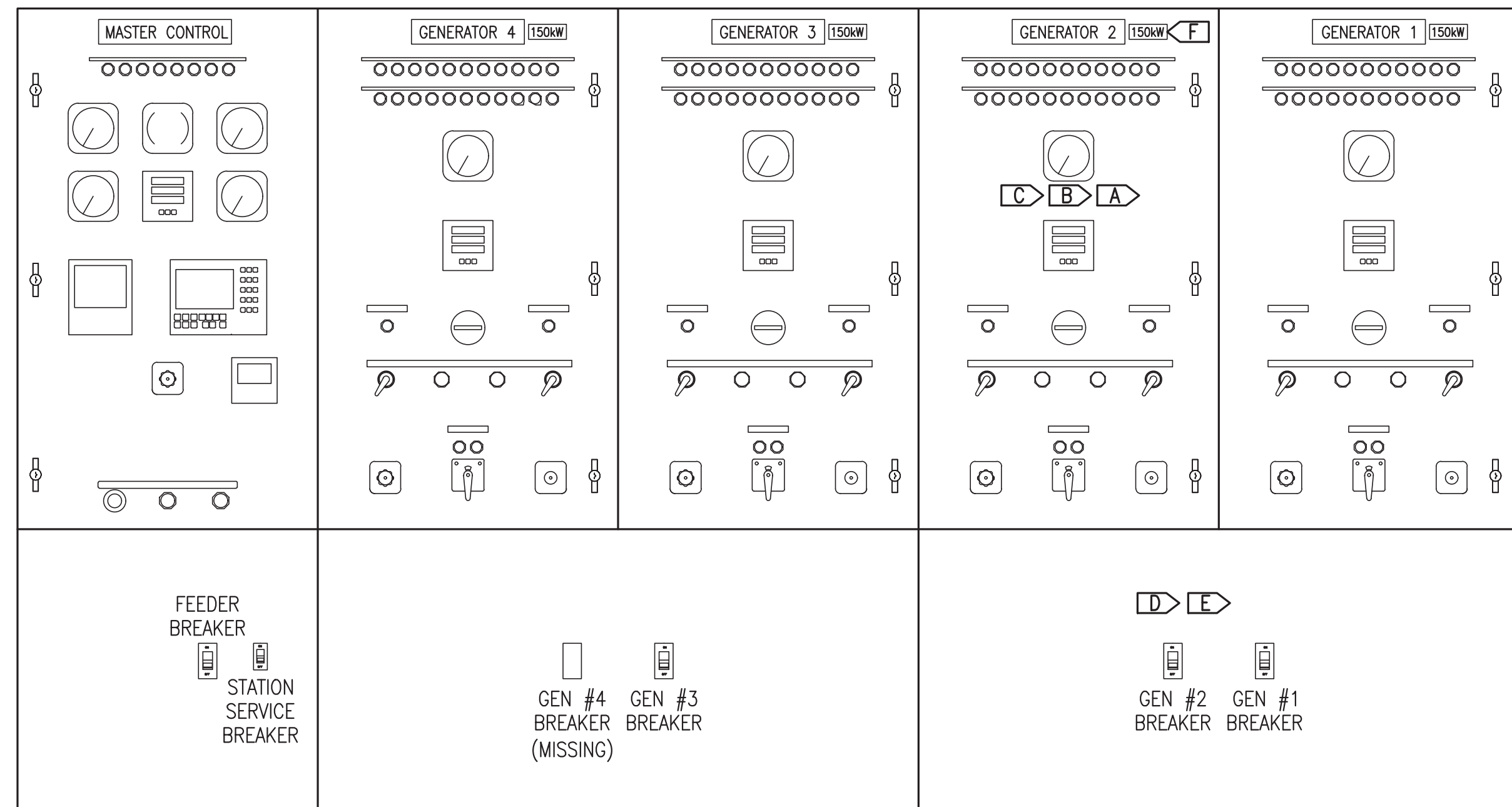


3 GEN#2 NEW BATTERIES & CHARGER INSTALLATION  
E2 NO SCALE

ISSUED FOR CONSTRUCTION  
JULY 2024



 ALASKA ENERGY AUTHORITY		
PROJECT:	TULUKSAK POWER PLANT 2024 GENERATOR #2 REPLACEMENT	
TITLE:	INSTALLATION DETAILS	
 Gray Stassel Engineering, Inc. P.O. 111405, Anchorage, AK 99511 (907)349-0100	DRAWN BY: JTD	SCALE: AS NOTED
	DESIGNED BY: CWV/BCG	DATE: 7/29/24
	FILE NAME:	SHEET:
PROJECT NUMBER:	E2	



**SWITCHGEAR MODIFICATION GENERAL NOTES:**

- MINOR SWITCHGEAR REPAIRS & MODIFICATIONS ONLY THIS PROJECT. SWITCHGEAR ENCLOSURE, BUSWORK, POWER WIRING, AND MAJOR EQUIPMENT TO REMAIN UNLESS SPECIFICALLY INDICATED FOR REMOVAL OR REPLACEMENT.
- SEE SPECIFIC NOTES AND ELECTRICAL EQUIPMENT SCHEDULE SHEET E2 FOR NEW DEVICES AND EQUIPMENT DATA. SEE SPECIFICATIONS FOR ADDITIONAL DETAIL.
- SEE ATTACHED ORIGINAL SWITCHGEAR DRAWINGS WITH REDLINES FOR WIRING MODIFICATIONS. SEE TERMINAL STRIP DETAIL 2/E3 FOR ENGINE-GENERATOR INTERCONNECTION.
- ENSURE ALL EQUIPMENT AND CIRCUITS TO BE REMOVED ARE DE-ENERGIZED PRIOR TO BEGINNING DEMOLITION. LOCK AND TAG OUT ALL AFFECTED CIRCUIT BREAKERS AND DISCONNECTS.

**SWITCHGEAR MODIFICATION SPECIFIC NOTES:**

A) CONFIRM EXISTING GENERATOR INTERCONNECT WIRING TERMINATIONS AS INDICATED ON NEW GENERATOR TERMINAL STRIP LAYOUT DETAIL 2/E3.

B) REMOVE EXISTING 12VDC-24VDC CONVERTER AND INSTALL JUMPER AS INDICATED ON ATTACHED ORIGINAL SWITCHGEAR DRAWING REDLINES.

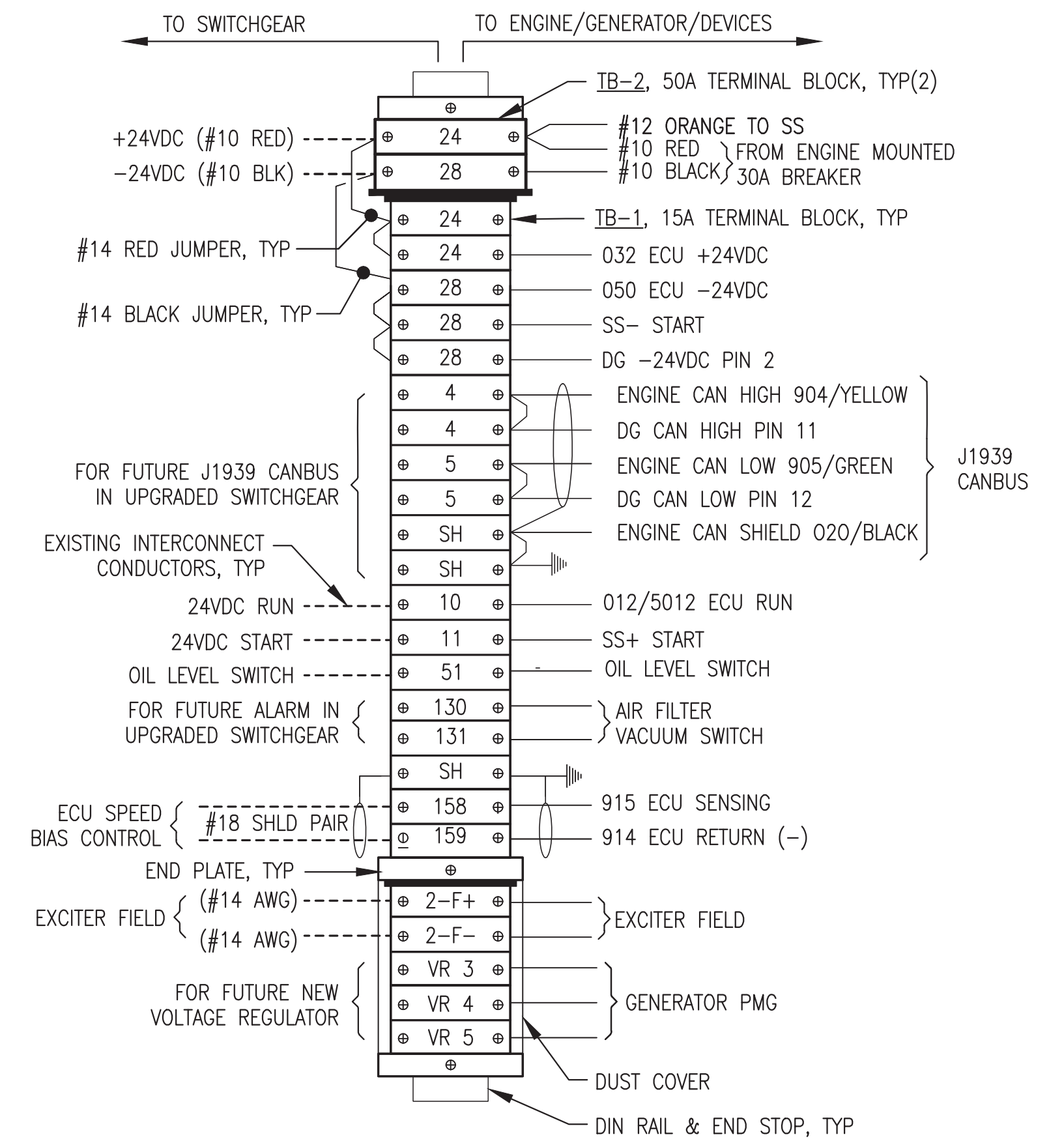
C) REPROGRAM EXISTING DOOR MOUNTED ELECTRONIC POWER METER AND BACK-PAN MOUNTED LOAD SHARE MODULE IN UPPER SECTION FOR NEW CT RATIO.

D) INSTALL NEW GEN#2 BREAKER, CONTACTOR, AND CT'S IN LOWER SECTION AS INDICATED ON ATTACHED ORIGINAL SWITCHGEAR DRAWING REDLINES..

E) ROUTE NEW 4#4/0, #2G 150°C EX-FLEX GENERATOR CONDUCTORS FROM GEN#2 TO GEN#2 CONTACTOR. TERMINATE WITH LONG BARREL COPPER COMPRESSION LUGS SPECIFICALLY DESIGNED FOR EXTRA-FLEXIBLE CABLE AND RATED FOR THE FULL AMPACITY OF THE CABLE AT 150°C.

F) REMOVE EXISTING "150kW" NAMEPLATE AND INSTALL NEW 3"x1" ENGRAVED NAMEPLATE "210kW".

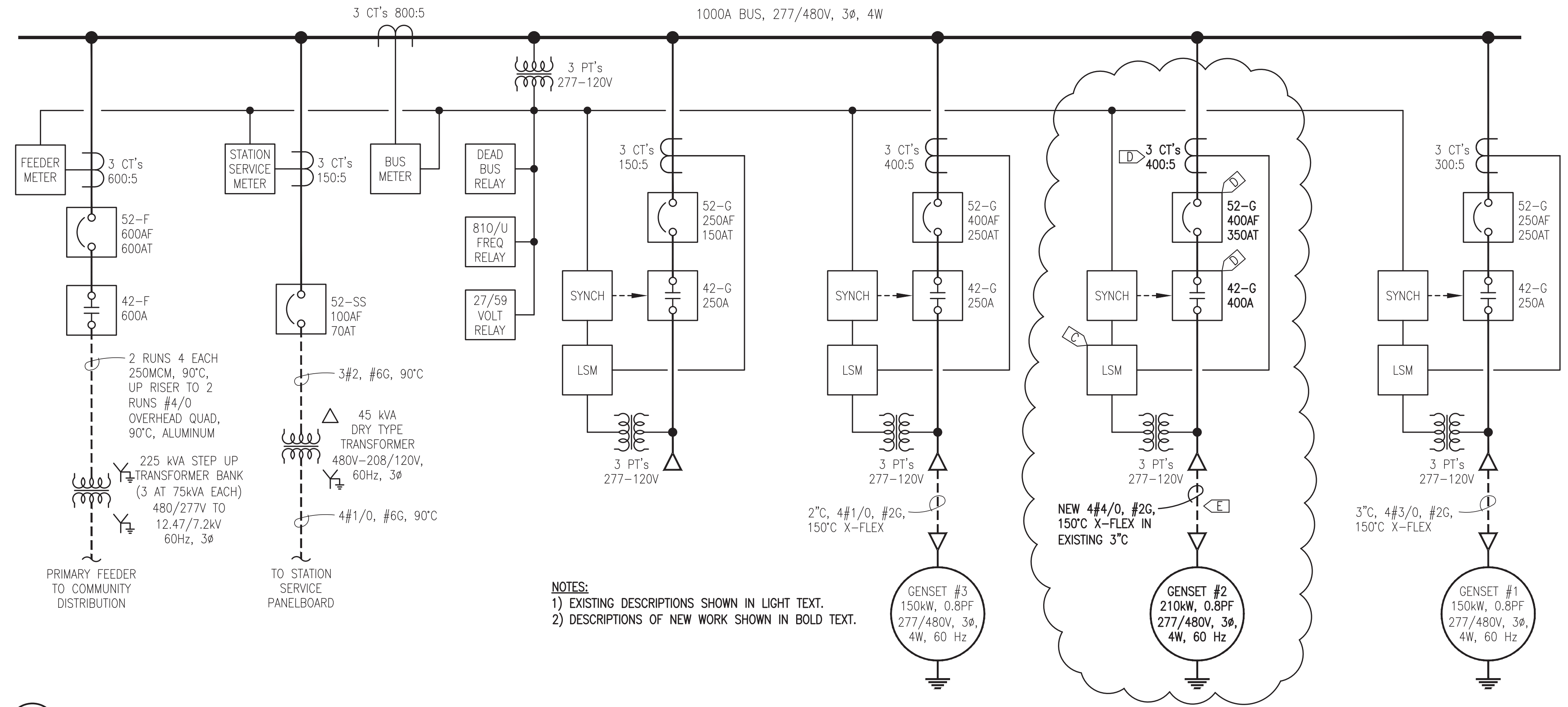
**1 SWITCHGEAR ELEVATION**  
E3 1"=1'-0"



**NOTES:**

- NEW TERMINAL STRIP NUMBERS MATCH INTERCONNECT TERMINALS IN GEN#2 SWITCHGEAR SECTION. SEE ATTACHED SWITCHGEAR REVISION DRAWINGS FOR MODIFICATIONS TO EXISTING SWITCHGEAR.
- ADDITIONAL TERMINALS ARE BEING PROVIDED FOR FUTURE REVISIONS AS NOTED THAT ARE NOT BEING USED NOW.

**2 NEW GENERATOR TERMINAL STRIP CONNECTIONS**  
E3 NO SCALE



**NOTES:**

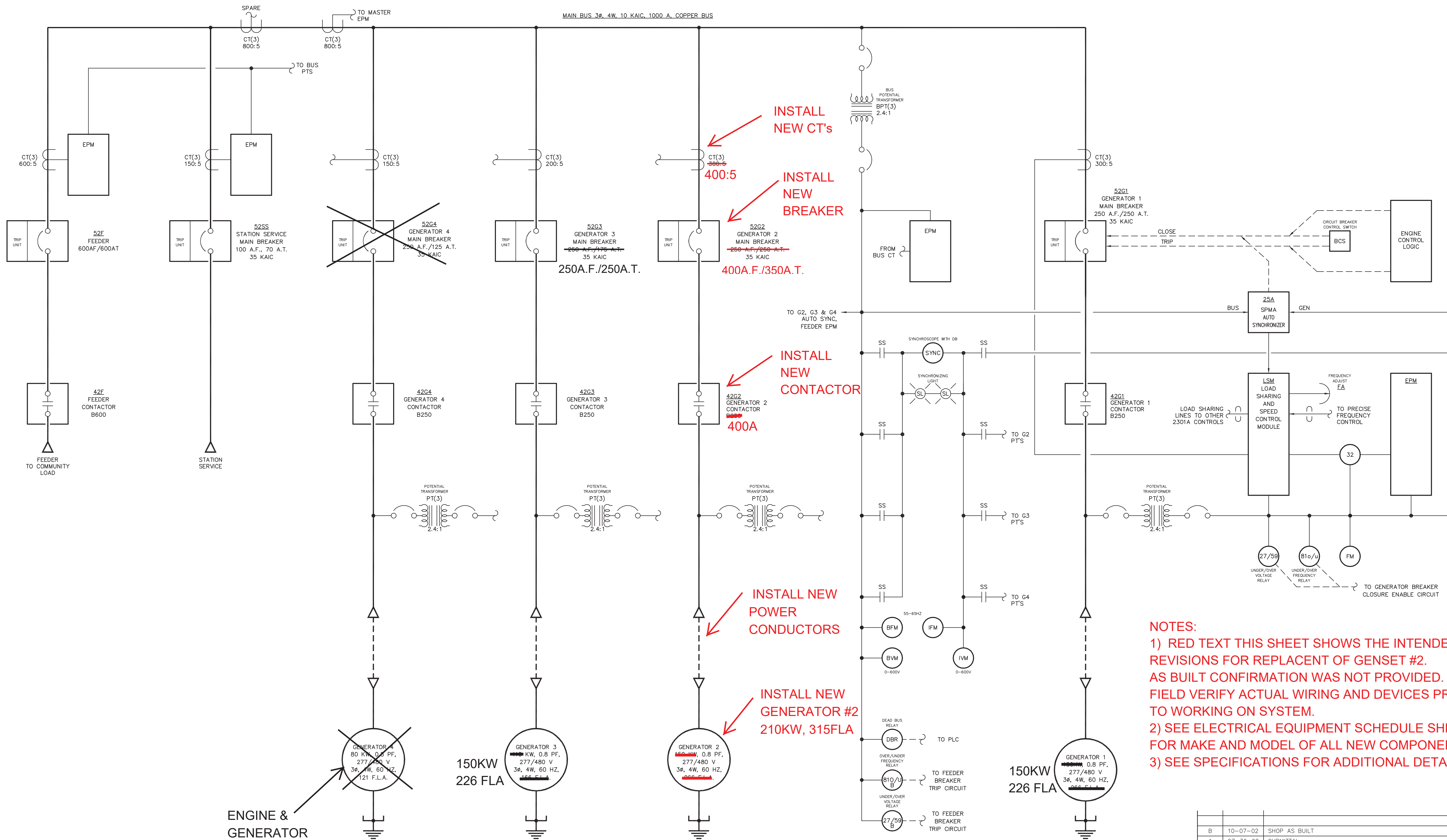
- EXISTING DESCRIPTIONS SHOWN IN LIGHT TEXT.
- DESCRIPTIONS OF NEW WORK SHOWN IN BOLD TEXT.

**3 SWITCHGEAR MODIFICATIONS ONE-LINE DIAGRAM**  
E3 NO SCALE

ISSUED FOR CONSTRUCTION  
JULY 2024



ALASKA ENERGY AUTHORITY	
PROJECT:	<b>TULUKSAK POWER PLANT 2024 GENERATOR #2 REPLACEMENT</b>
TITLE:	<b>EXISTING SWITCHGEAR MODIFICATIONS &amp; NEW GENERATOR TERMINAL STRIP</b>
DRAWN BY: JTD	SCALE: AS NOTED
DESIGNED BY: CWV/BCG	DATE: 7/29/24
FILE NAME:	SHEET:
PROJECT NUMBER:	<b>E3</b>
P.O. 111405, Anchorage, AK 99511 (907)349-0100	



ENGINE & GENERATOR PREVIOUSLY REMOVED

**NOTES:**  
 1) RED TEXT THIS SHEET SHOWS THE INTENDED REVISIONS FOR REPLACEMENT OF GENSET #2. AS BUILT CONFIRMATION WAS NOT PROVIDED. FIELD VERIFY ACTUAL WIRING AND DEVICES PRIOR TO WORKING ON SYSTEM.  
 2) SEE ELECTRICAL EQUIPMENT SCHEDULE SHEET E1 FOR MAKE AND MODEL OF ALL NEW COMPONENTS.  
 3) SEE SPECIFICATIONS FOR ADDITIONAL DETAIL.

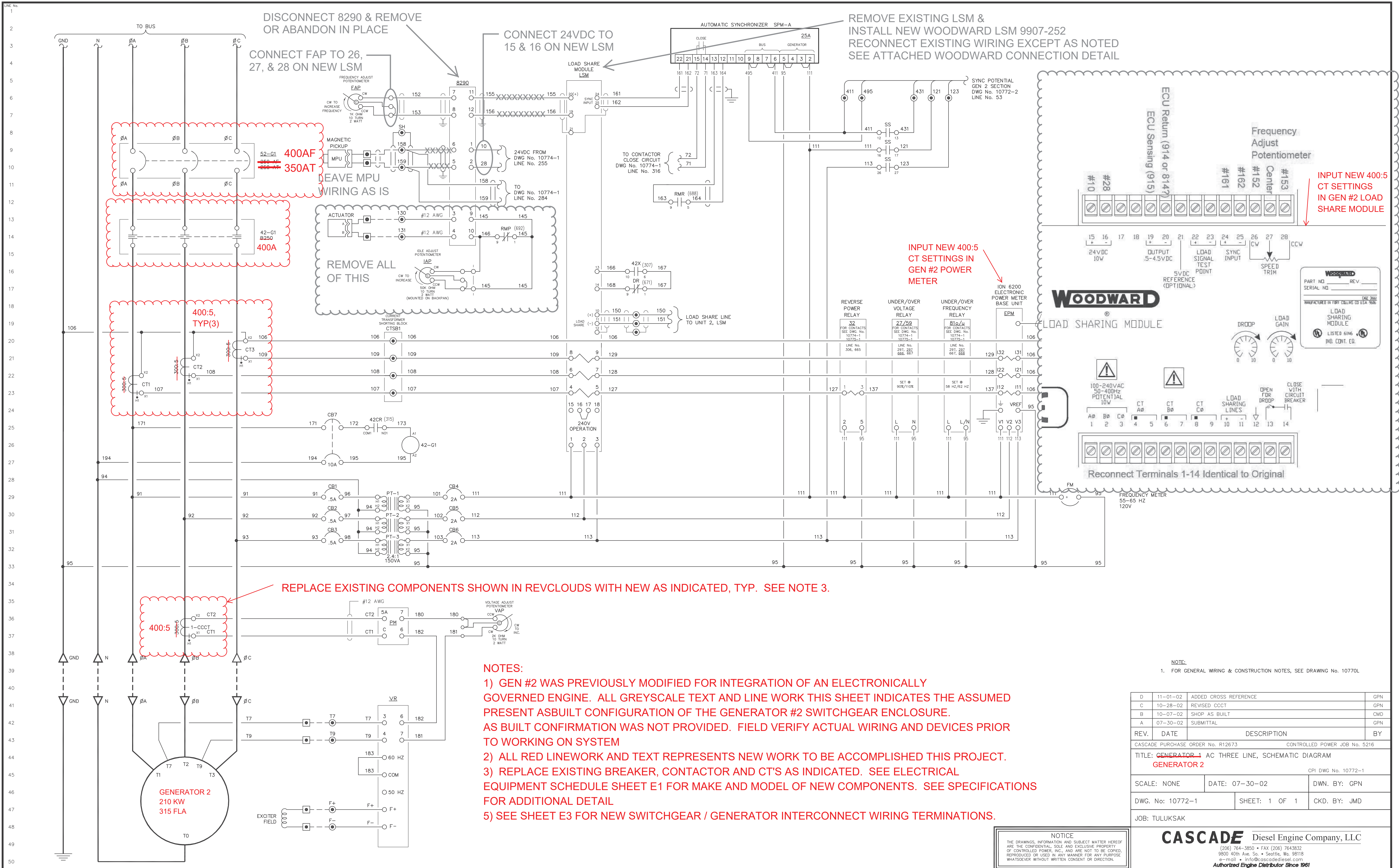
- NOTES:**
- ALL BREAKERS ARE MANUALLY OPERATED NON-DRAWOUT TYPE
  - ALL BREAKERS ARE G.E. SPECTRA TYPE, LOW VOLTAGE MOLDED CASE CIRCUIT BREAKERS.
  - GENERATORS 2, 3 & 4 SIMILAR TO GENERATOR 1

**NOTICE**  
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B	10-07-02	SHOP AS BUILT	CMD
A	07-30-02	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY
CASCADE PURCHASE ORDER No. R12673		CONTROLLED POWER JOB No. 5216	
TITLE: SINGLE LINE, SCHEMATIC DIAGRAM			
CPI DWG No. 10771			
SCALE: NONE	DATE: 07-30-02	DWN. BY: GPN	
DWG. No: 10771	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: TULUKSAK			

**CASCADE** Diesel Engine Company, LLC  
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 9800 40th Ave. So. • Seattle, Wa. 98118  
 e-mail • info@cascade-diesel.com  
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- NOTES:**
- 1) GEN #2 WAS PREVIOUSLY MODIFIED FOR INTEGRATION OF AN ELECTRONICALLY GOVERNED ENGINE. ALL GREYSCALE TEXT AND LINE WORK THIS SHEET INDICATES THE ASSUMED PRESENT ASBUILT CONFIGURATION OF THE GENERATOR #2 SWITCHGEAR ENCLOSURE. AS BUILT CONFIRMATION WAS NOT PROVIDED. FIELD VERIFY ACTUAL WIRING AND DEVICES PRIOR TO WORKING ON SYSTEM
  - 2) ALL RED LINEWORK AND TEXT REPRESENTS NEW WORK TO BE ACCOMPLISHED THIS PROJECT.
  - 3) REPLACE EXISTING BREAKER, CONTACTOR AND CT'S AS INDICATED. SEE ELECTRICAL EQUIPMENT SCHEDULE SHEET E1 FOR MAKE AND MODEL OF NEW COMPONENTS. SEE SPECIFICATIONS FOR ADDITIONAL DETAIL
  - 5) SEE SHEET E3 FOR NEW SWITCHGEAR / GENERATOR INTERCONNECT WIRING TERMINATIONS.

**NOTE:**  
1. FOR GENERAL WRING & CONSTRUCTION NOTES, SEE DRAWING No. 10770L

REV.	DATE	DESCRIPTION	BY
D	11-01-02	ADDED CROSS REFERENCE	GPN
C	10-28-02	REVISED CCCT	GPN
B	10-07-02	SHOP AS BUILT	CMD
A	07-30-02	SUBMITTAL	GPN

CASCADE PURCHASE ORDER No. R12673 CONTROLLED POWER JOB No. 5216

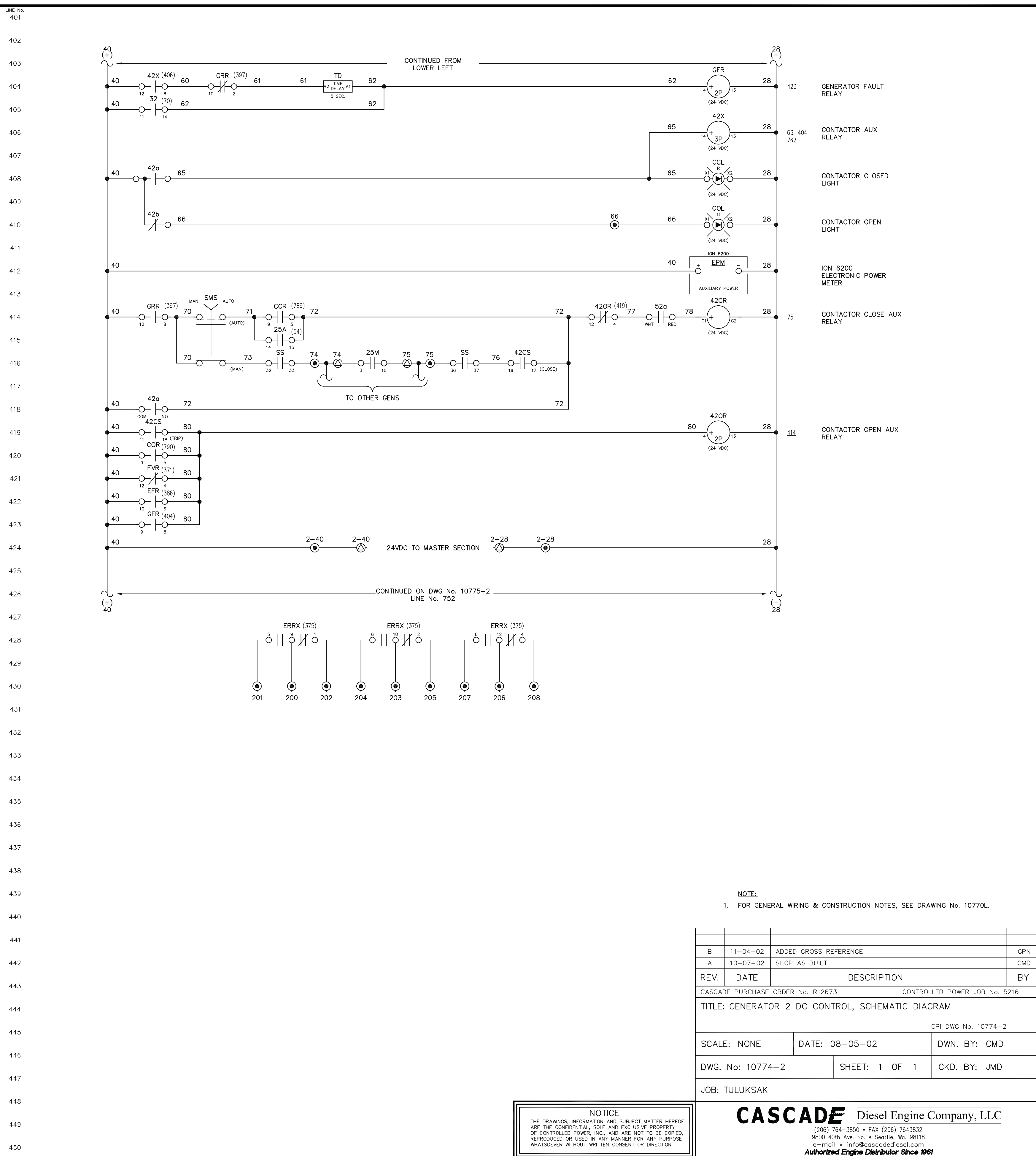
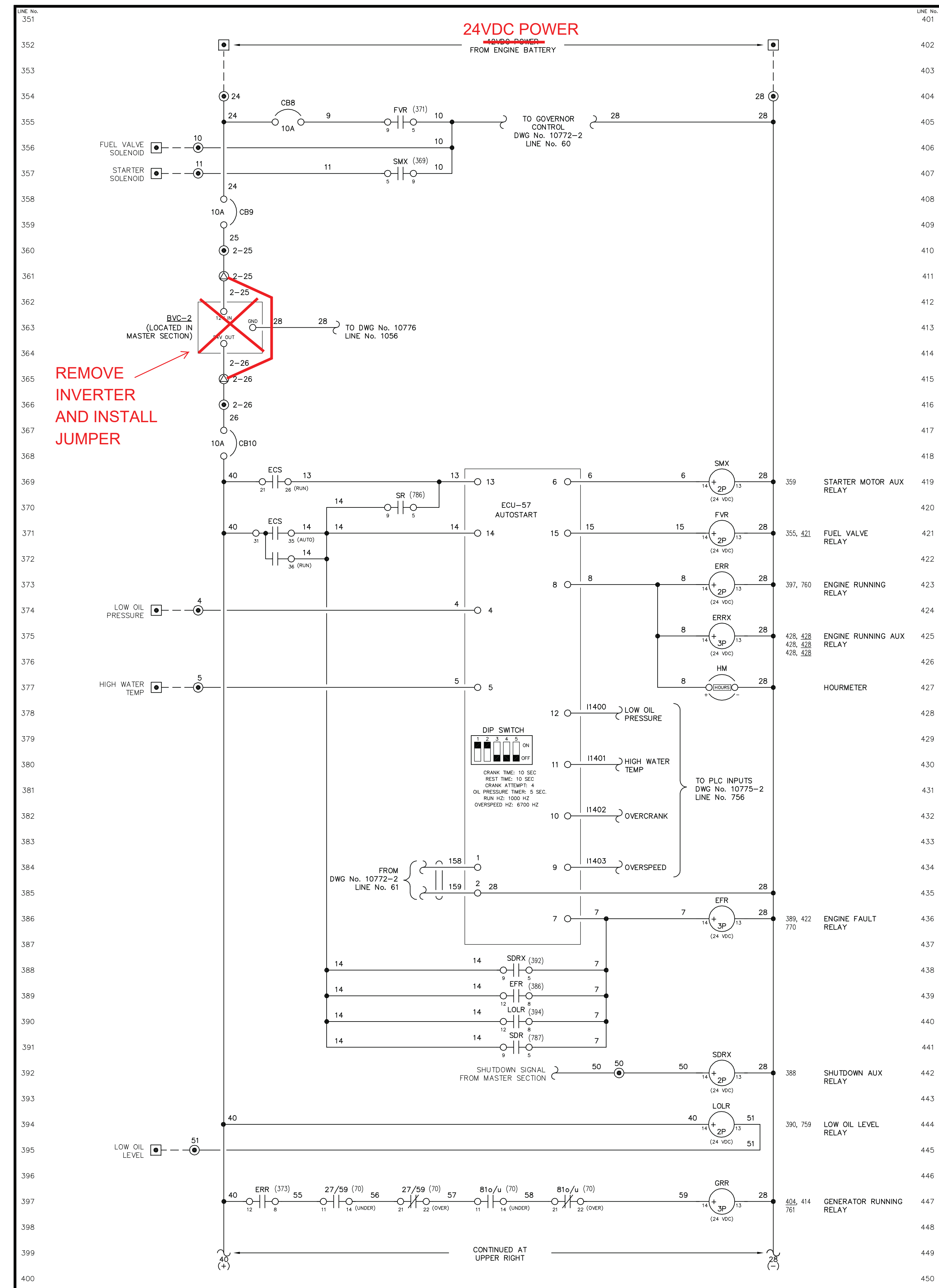
TITLE: **GENERATOR 1** AC THREE LINE, SCHEMATIC DIAGRAM  
**GENERATOR 2** CPI DWG No. 10772-1

SCALE: NONE DATE: 07-30-02 DWN. BY: GPN

DWG. No: 10772-1 SHEET: 1 OF 1 CKD. BY: JMD

JOB: TULUKSAK

**CASCADE Diesel Engine Company, LLC**  
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**NOTE:**  
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 10770L.

B	11-04-02	ADDED CROSS REFERENCE	GFN
A	10-07-02	SHOP AS BUILT	CMD
REV.	DATE	DESCRIPTION	BY
CASCADE PURCHASE ORDER No. R12673 CONTROLLED POWER JOB No. 5216			
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM			
CPI DWG No. 10774-2			
SCALE: NONE	DATE: 08-05-02	DWN. BY: CMD	
DWG. No: 10774-2		SHEET: 1 OF 1	CKD. BY: JMD
JOB: TULUKSAK			

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