



Date: **October 21, 2024**

Project: **Term Contract for 2024 M&I Switchgear Upgrade Projects**

Solicitation No.: **RFP 25002**

Addendum No.: **1**

## **TO ALL PLAN HOLDERS:**

The following changes, additions, clarifications, and/or deletions are hereby made a part of the RFP Documents for the above noted project, fully and completely as if the same were fully contained therein. All other terms, conditions, and specifications of the original Request for Proposal, remain unchanged.

**This addendum must be acknowledged by email.**

The modifications directed by this Addendum One are described on this page and the following attachments:

### **CHANGES TO DOCUMENTS:**

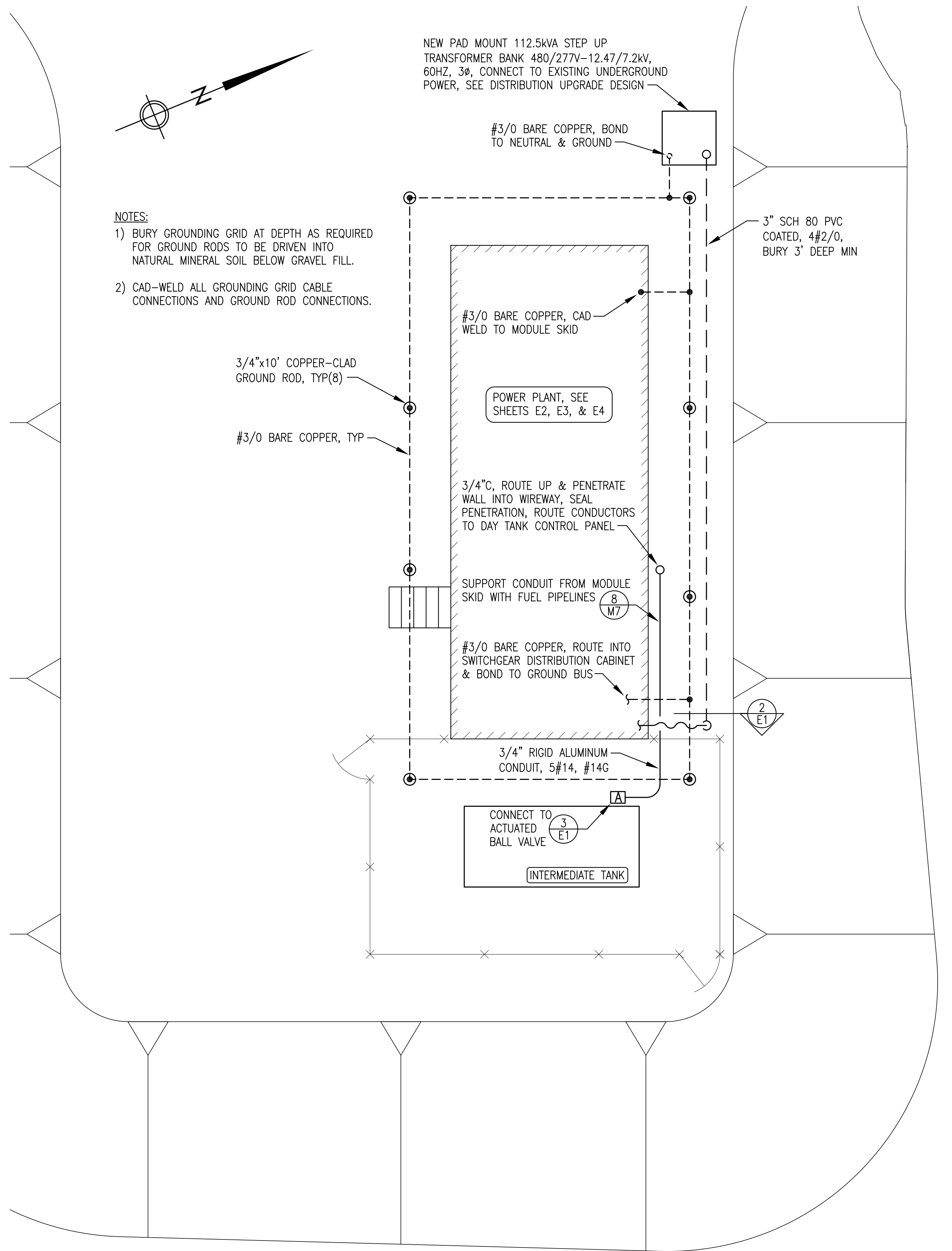
The RFP Package is hereby clarified or changed by the following:

#### **Clarification and Contract Documents:**

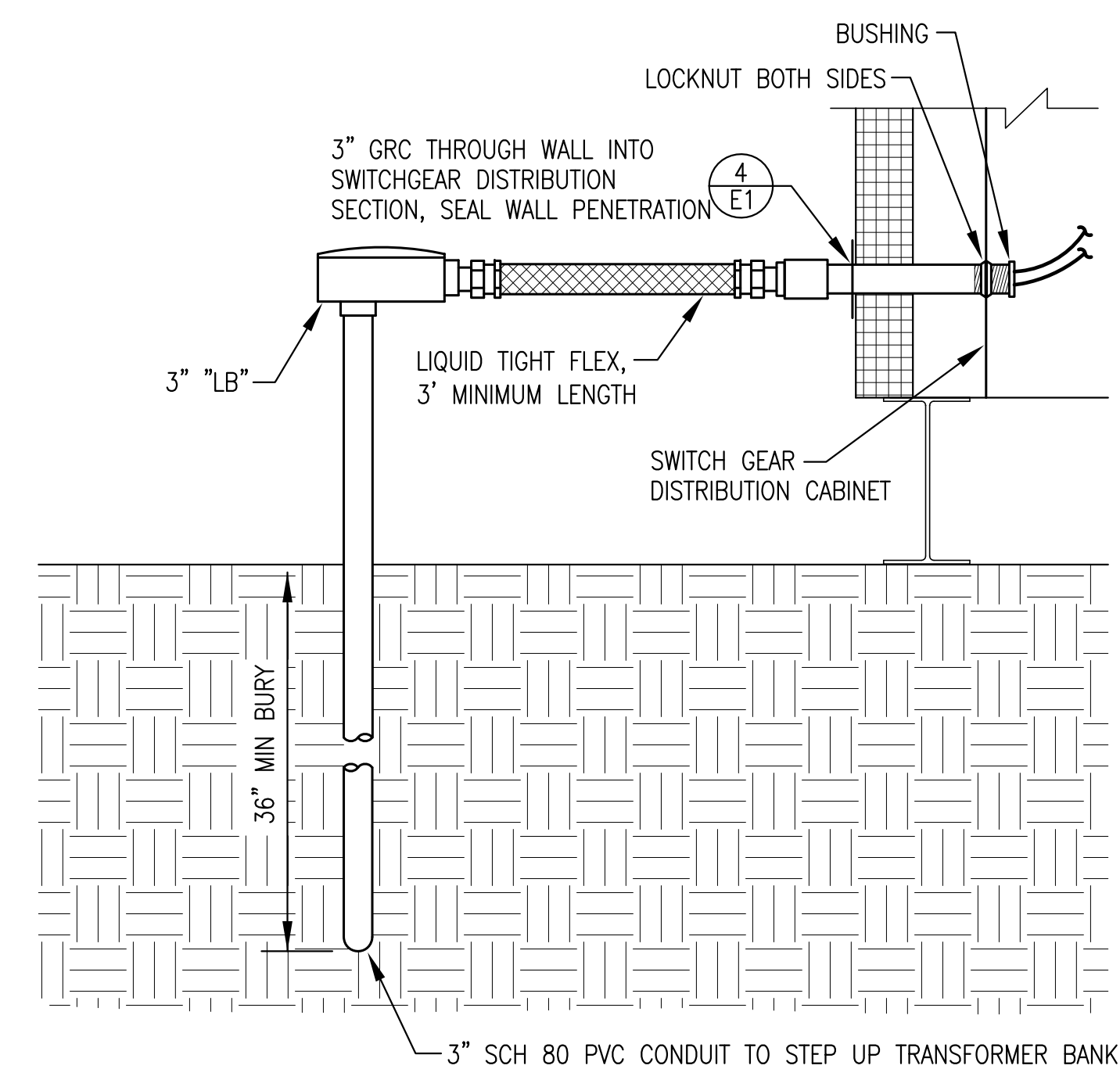
1. Question: "Are there plans that show the layout of the equipment available?"

Response: Site and floor plans for each community are attached to this Addendum.

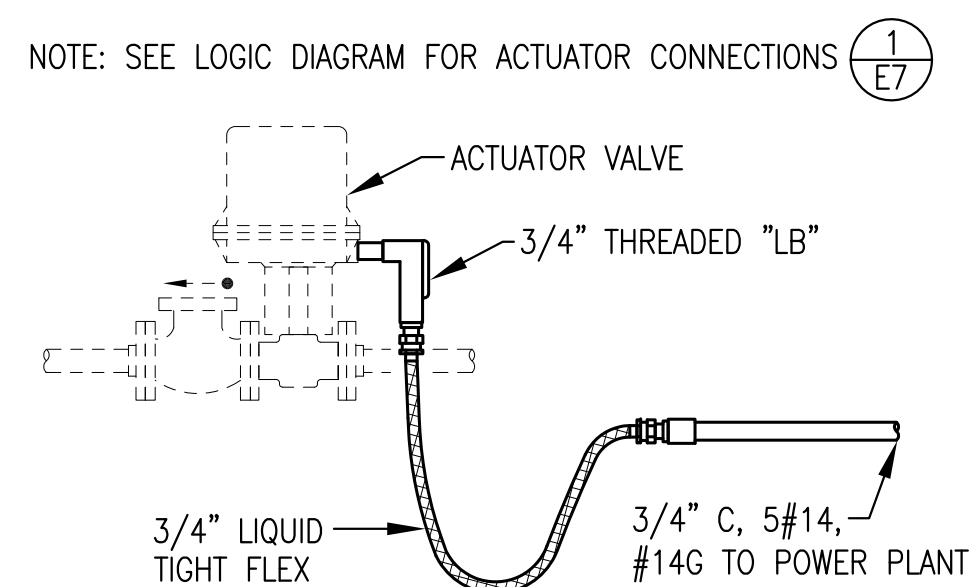
# **END OF ADDENDUM #1**



1 E1 SITE PLAN  
1"=5'

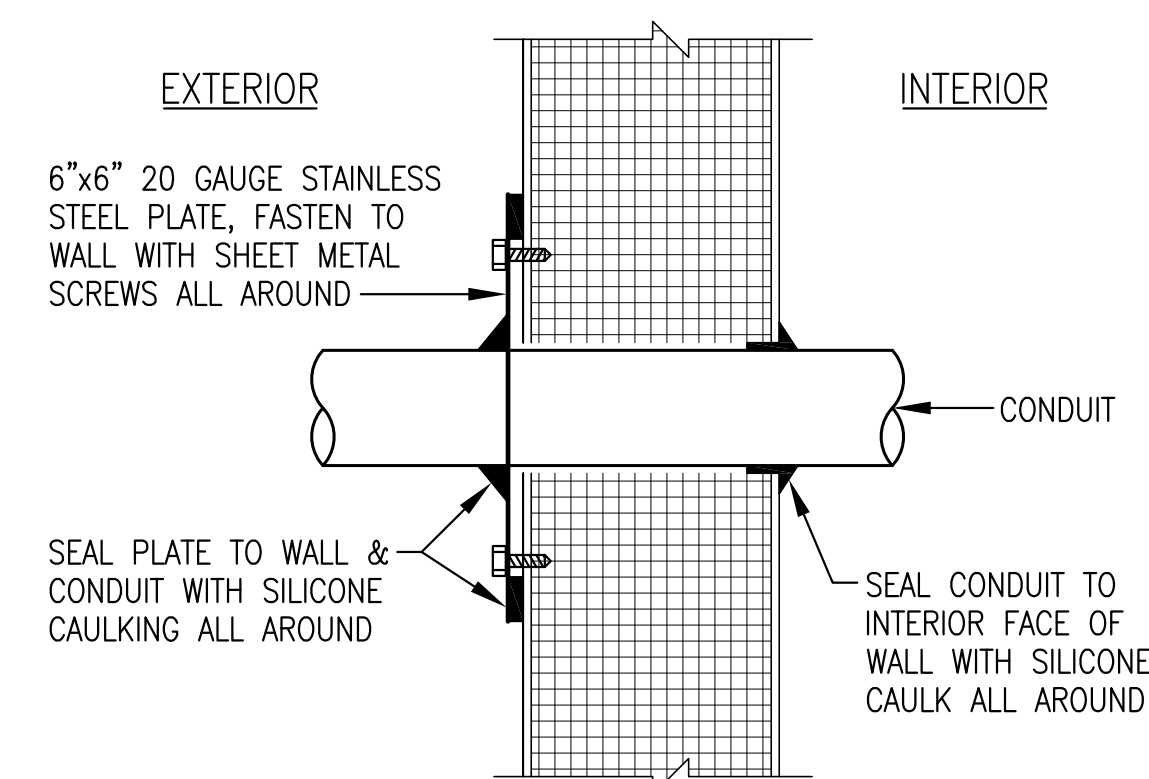


2 E1 MAIN FEEDER BUILDING ENTRANCE  
NO SCALE



3 E1 ACTUATOR VALVE CONNECTION  
NO SCALE

SCHEDULE OF DRAWINGS	
E1	SITE PLAN, DETAILS, & SCHEDULE OF DRAWINGS
E2	EQUIPMENT LAYOUT PLAN & SWITCHGEAR
E3	WIREWAY PLAN, ELEVATIONS, & SECTION
E4	BUILDING PLANS & STATION SERVICE PANEL
E5	CEILING PLAN & MISCELLANEOUS DETAILS
E6	SPECIFICATIONS & EQUIPMENT SCHEDULE
E7	DAY TANK CONTROL PANEL LOGIC DIAGRAM & SEQUENCE OF OPERATIONS
E8	DAY TANK CONTROL PANEL LAYOUT & INSTALLATION DETAILS
E9	RADIATOR VARIABLE FREQUENCY DRIVE PANEL
E10	USED OIL BLENDER CONTROL PANEL



4 E1 MODULE WALL CONDUIT PENETRATION  
NO SCALE

**RECORD DRAWING**

THESE DRAWINGS HAVE BEEN PREPARED FROM INFORMATION PROVIDED BY THE CONTRACTOR. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.

*[Signature]*

DATE: 8/02/07

State of Alaska  
 Department of Community and Economic Development  
 AIDEA/AEA  
 Rural Energy Group  
 813 West Northern Lights Blvd.  
 Anchorage, Alaska 99503

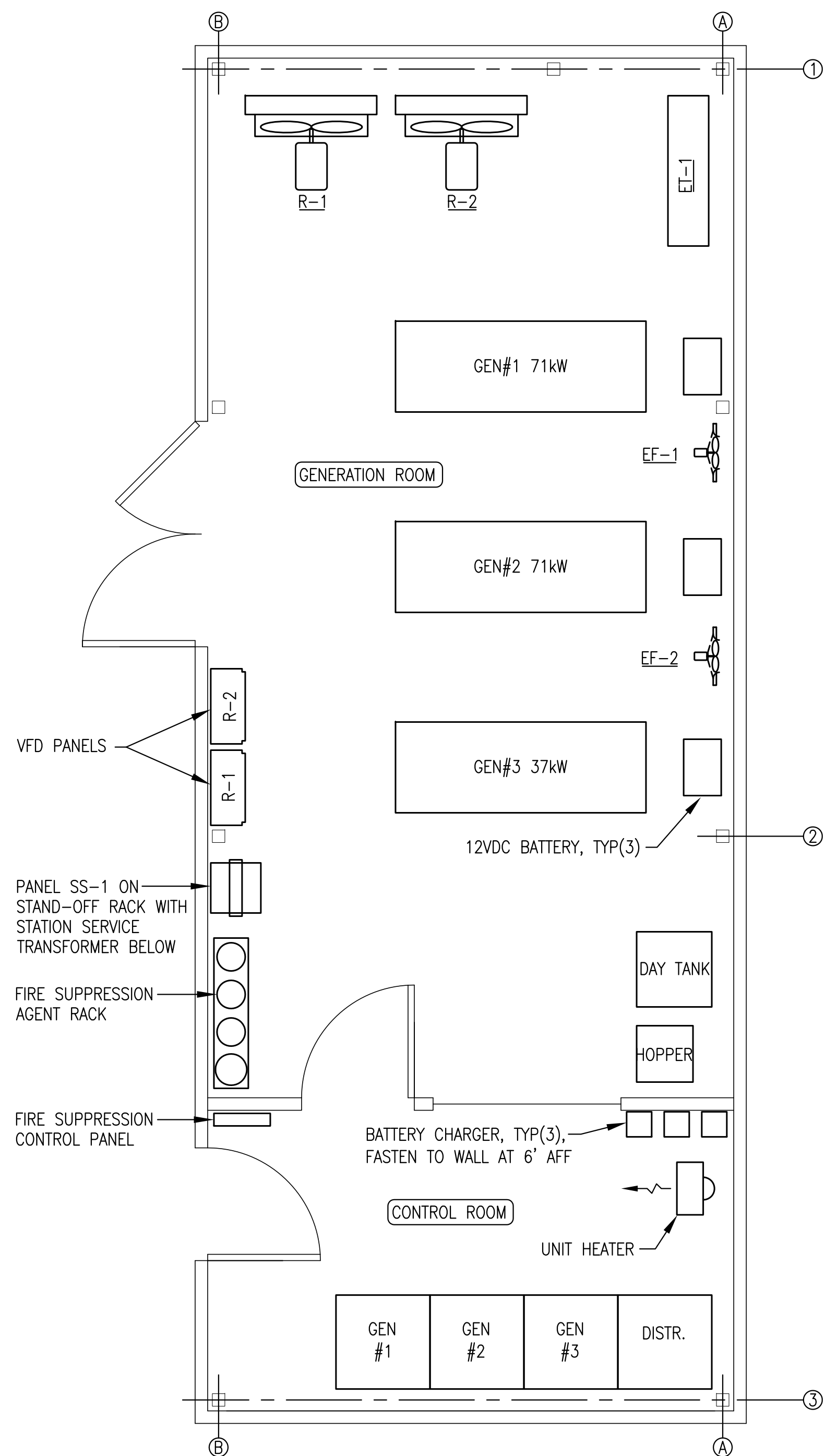
**ALASKA ENERGY AUTHORITY**

PROJECT: NIKOLSKI POWER SYSTEM UPGRADE

TITLE: SITE PLAN, DETAILS, & SCHEDULE OF DRAWINGS

ALASKA ENERGY AND ENGINEERING, INC  
 P.O. BOX 111405 ANCHORAGE, ALASKA 99511-1405 PHONE (907) 349-0100

DRAWN BY: BCG	SCALE: AS NOTED	FILE NAME: NSKIPP-E1	SHEET: E1
DESIGNED BY: BCG	DATE: 10/22/04	PROJECT NUMBER: 04-11-9638	OF 10



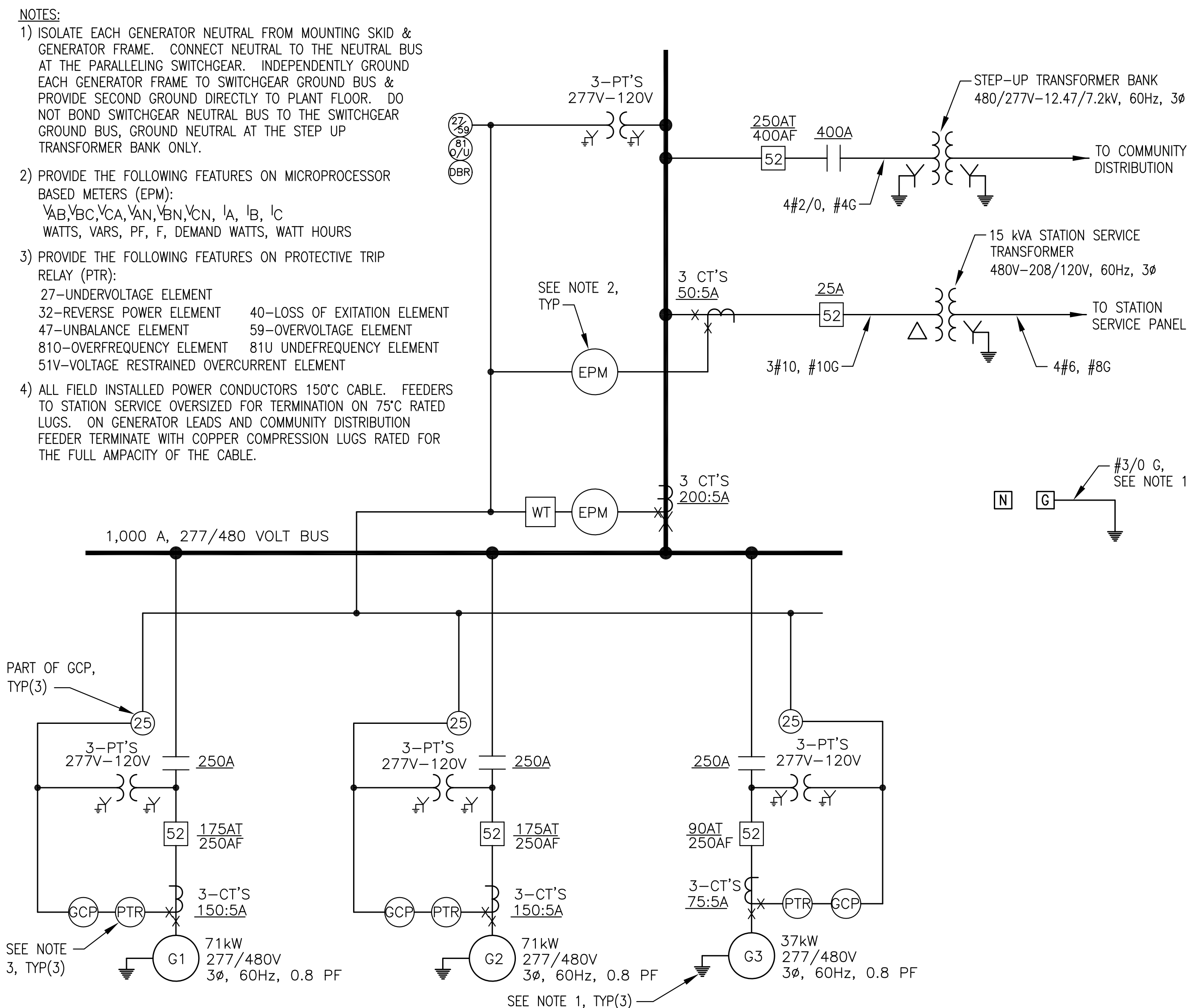
**1** EQUIPMENT LAYOUT PLAN  
E2 3/8"=1'-0"

SWITCHGEAR SYMBOL LEGEND	
(G) DIESEL GENERATOR	(WT) WATT TRANSDUCER
(52) 80AT 250AF CIRCUIT BREAKER AT=AMP TRIP RATING AF=AMP FRAME RATING	(25) SYNCHRONIZING EQUIPMENT
250A CONTACTOR WITH AMPERE RATING	(PTR) MICROPROCESSOR-BASED PROTECTIVE TRIP RELAY
(CT) CURRENT TRANSFORMER M.R. - INDICATES MULTIRATIO CT'S RATING FACTOR RF=2.0	(27/59) VOLTAGE RELAY OVER/UNDER
(PT) POTENTIAL TRANSFORMER	(81/6/U) FREQUENCY RELAY OVER/UNDER
(Y) WYE CONNECTION	(DBR) DEAD BUS RELAY
(Δ) DELTA CONNECTION	(GCP) GENSET CONTROL PACKAGE WOODWARD GCP-31
(EPM) MICROPROCESSOR-BASED METERING UNIT	

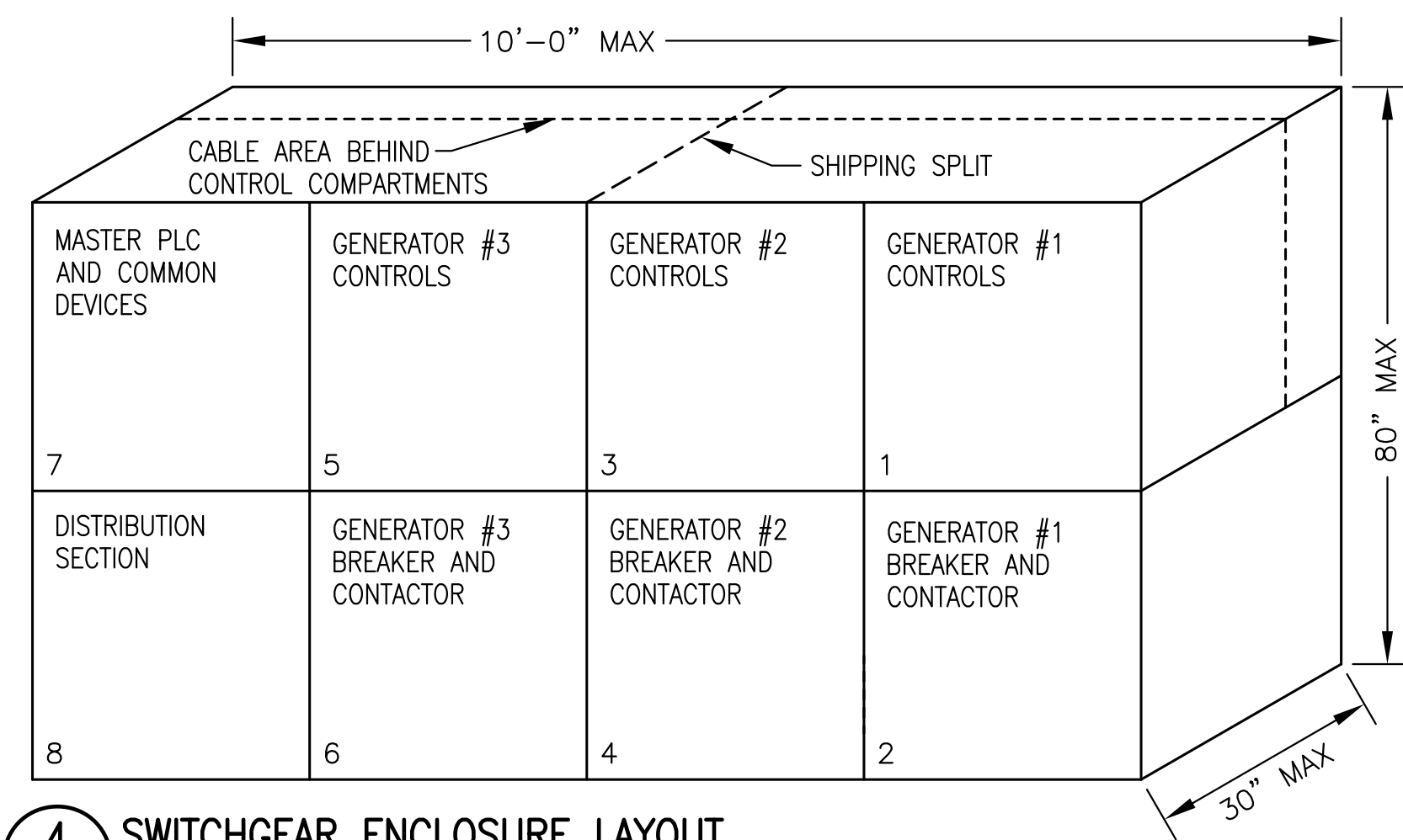
1	R	(+)	ENGINE BATTERIES (#10 AWG)
2	BK	(-)	
3	BL-BK	GOVERNOR ACTUATOR (#12 AWG)	
4	BL-WH		
5		SPARE	
6	Y-BK	FUEL VALVE SOLENOID, 12 VDC	
7	O	STARTER RELAY, 12 VDC	
8	Y-R	HIGH OIL TEMPERATURE SWITCH (24 VDC)	
9	O-R	HIGH OIL TEMPERATURE SWITCH (24 VDC)	
10	Y-WH	OIL LEVEL SWITCH (24 VDC)	
11	O-WH	OIL LEVEL SWITCH (24 VDC)	
12		MAGNETIC PICKUP (#18 AWG SHIELDED/TWISTED PAIR)	
13			
14		OIL PRESSURE SENSOR (#18 AWG SHIELDED/TWISTED PAIR)	
15			
16		JACKET WATER TEMPERATURE SENSOR (#18 AWG SHIELDED/TWISTED PAIR)	
17			
18		SEE NOTE #3, TYP	
19			
20		COOLANT RETURN TEMPERATURE RTD (#18 AWG SHIELDED/TWISTED TRIAD)	
21			
22		SPARE	
23			
24		A } VOLTAGE REGULATOR AUXILIARY BIAS INPUT B } (#18 AWG SHIELDED/TWISTED PAIR)	
25			
26		SPARE	
27			
28		SPARE	
29	GRY WH		
30		CLOGGED AIR FILTER SWITCH (#12AWG)	
TC-1		EXHAUST TEMPERATURE TYPE "K"	
TC-2		THERMOCOUPLE, SEE NOTE #2	
BC-1		#14 AWG TO BATTERY CHARGER ALARM, INSTALL AT SWITCHGEAR ONLY (NOT ON GENERATOR)	
BC-2			

- NOTES:**
- 1) PROVIDE IDENTICAL TERMINAL STRIPS IN EACH GENERATOR & EACH CORRESPONDING SECTION OF SWITCHGEAR (EXCEPT BATTERY CHARGER AS NOTED). LAY OUT & NUMBER TERMINALS EXACTLY AS SHOWN. USE WIRE GAUGES & COLOR CODE INDICATED FOR FIELD INTERCONNECTION.
  - 2) PROVIDE TYPE "K" THERMOCOUPLE TERMINAL BLOCKS & EXTENSION WIRE.
  - 3) IN ADDITION TO TERMINAL BLOCKS SHOWN PROVIDE 2 EACH 30A GROUNDING LUGS IN GENERATOR ENCLOSURE BONDED TO GENERATOR FRAME. TERMINATE DRAIN WIRES FOR ALL SHIELDS ON GROUND LUGS AT GENERATOR END ONLY.

**2** TYPICAL GENERATOR CONNECTION DETAILS  
E2 NO SCALE



**3** SWITCHGEAR ONE-LINE DIAGRAM  
E2 NO SCALE

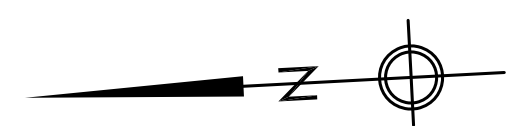


**4** SWITCHGEAR ENCLOSURE LAYOUT  
E2 NO SCALE

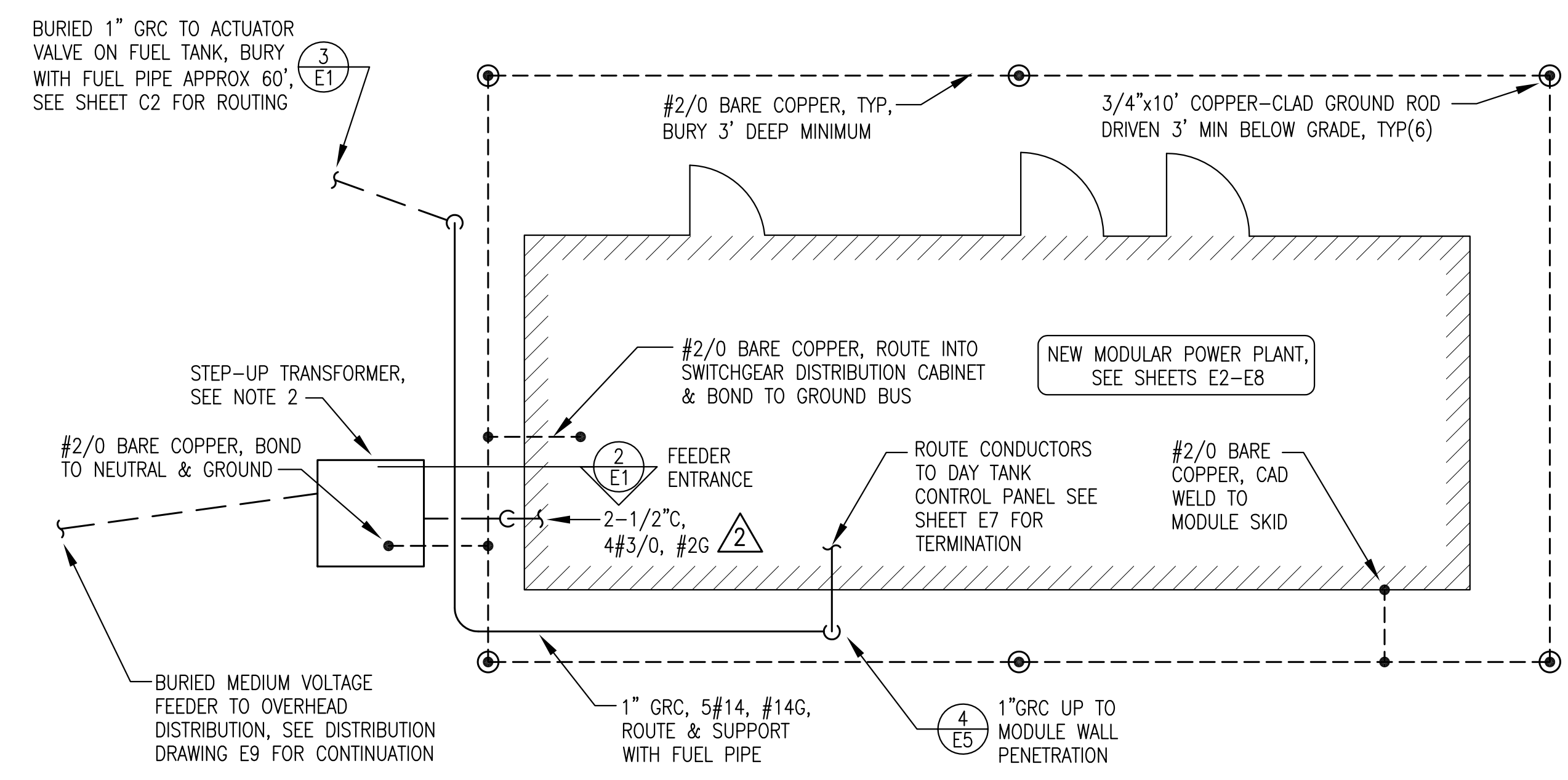
**RECORD DRAWING**  
THESE DRAWINGS HAVE BEEN PREPARED FROM INFORMATION PROVIDED BY THE CONTRACTOR. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.  
*[Signature]*  
DATE: 8/02/07

2	ADD CLOGGED AIR FILTER SWITCH TO TERMINAL STRIP	6/17/05	BCG
1	INCREASE GENERATOR BREAKER TRIP RATINGS	2/07/05	BCG
REV.	DESCRIPTION	DATE	BY
State of Alaska Department of Community and Economic Development <b>AIDEA/AEA</b> Rural Energy Group 813 West Northern Lights Blvd. Anchorage, Alaska 99503 <b>ALASKA ENERGY AUTHORITY</b>			
PROJECT: NIKOLSKI POWER SYSTEM UPGRADE			
TITLE: EQUIPMENT LAYOUT PLAN & SWITCHGEAR DETAILS			
<b>ALASKA ENERGY AND ENGINEERING, INC</b> P.O. BOX 111405 ANCHORAGE, ALASKA 99511-1405 PHONE (907) 349-0100			
DRAWN BY: BCG	SCALE: AS NOTED	FILE NAME: NSKIPP-E2	SHEET: OF
DESIGNED BY: CWV/BCG	DATE: 10/22/04	PROJECT NUMBER: 04-11-9638	<b>E2</b> 10

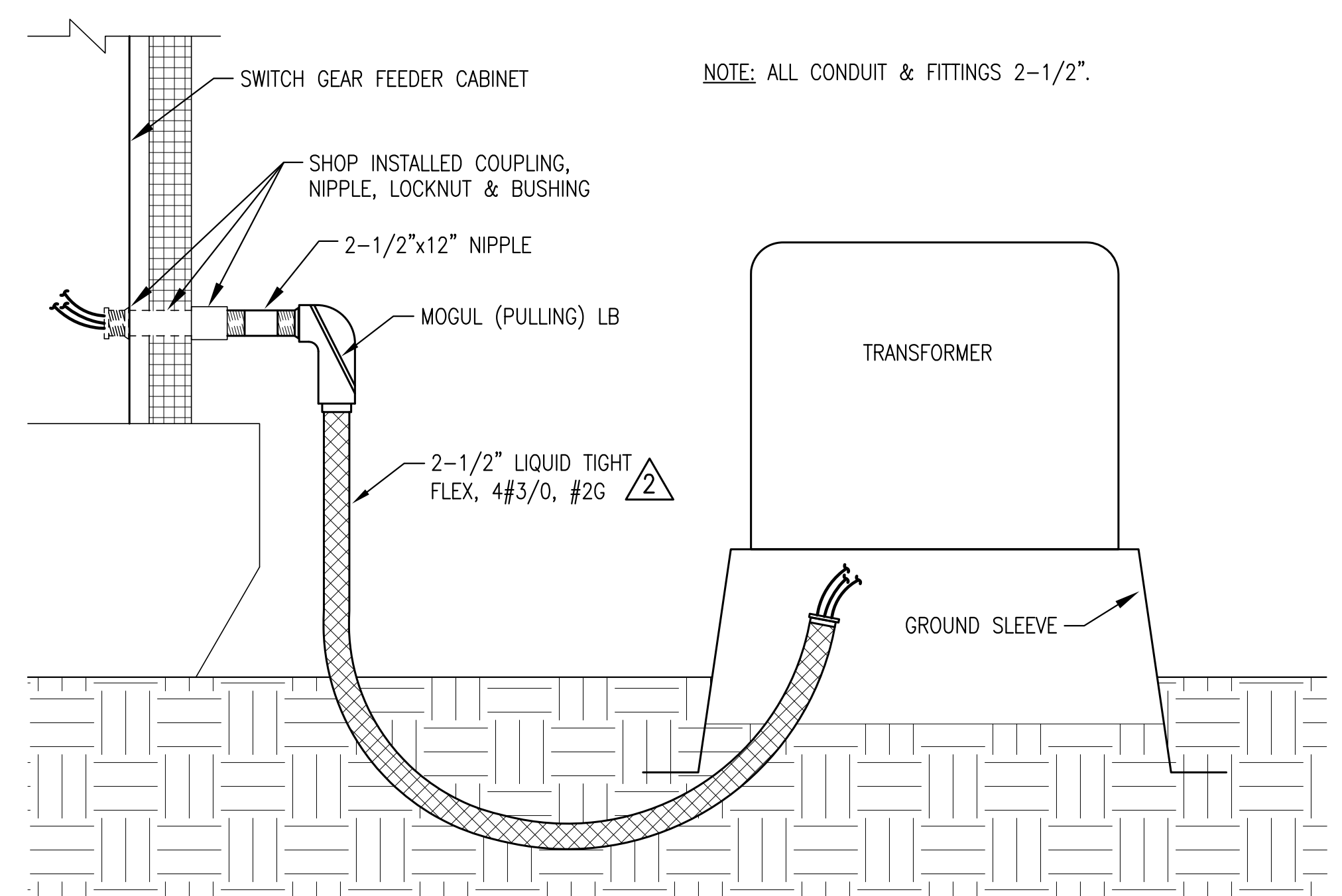
SCHEDULE OF DRAWINGS	
E1	SITE PLAN, DETAILS, & SCHEDULE OF DRAWINGS
E2	SPECIFICATIONS
E3	WIREWAY PLAN, ELEVATIONS, & SECTION
E4	BUILDING PLANS & STATION SERVICE PANEL
E5	DATA/COMMUNICATION PLAN & DETAILS
E6	SWITCHGEAR DETAILS
E7	DAY TANK CONTROL PANEL LOGIC DIAGRAM & SEQUENCE OF OPERATIONS
E8	DAY TANK CONTROL PANEL LAYOUT & DETAILS



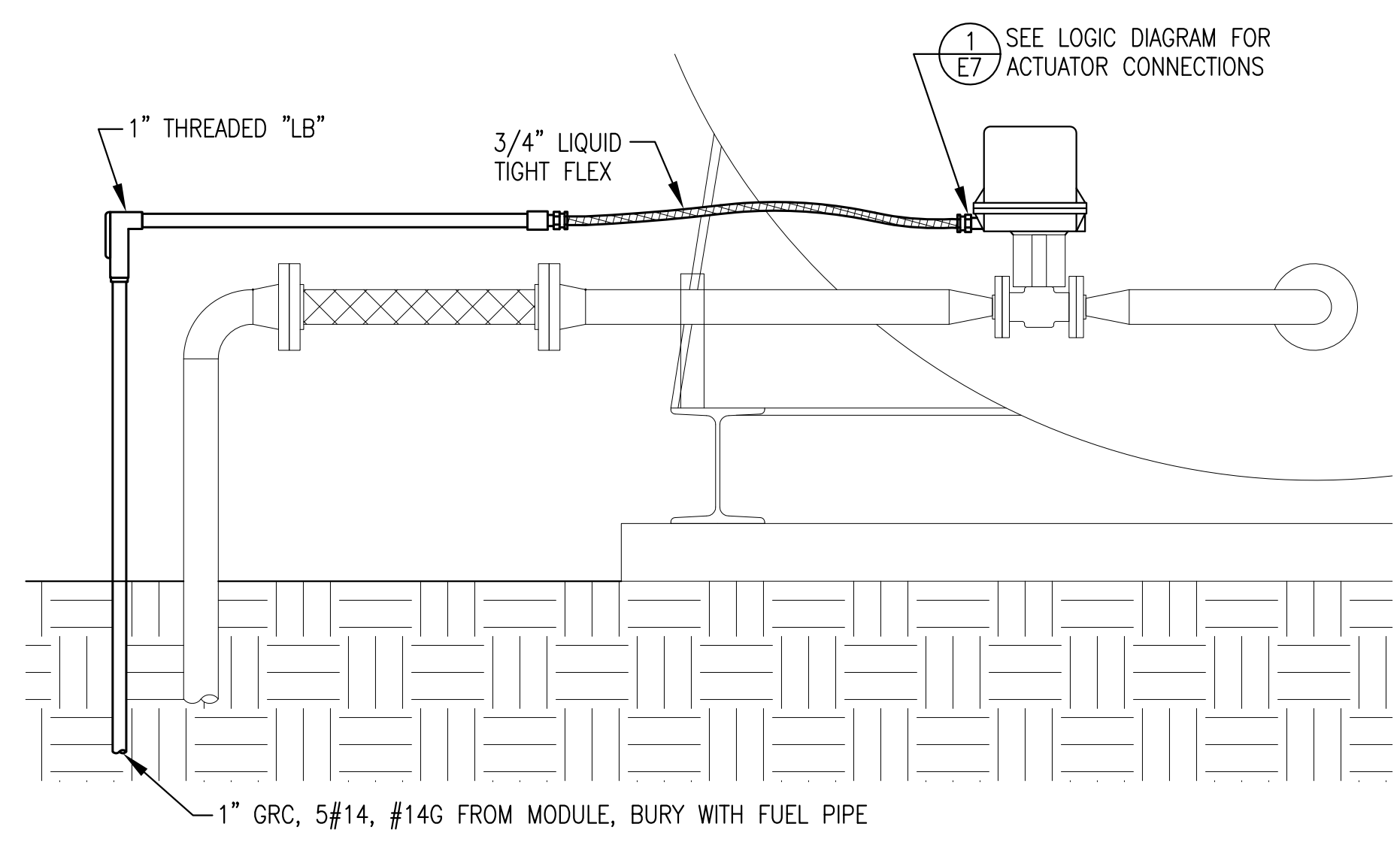
- NOTES:**
- 1) BURY GROUNDING GRID AT DEPTH AS REQUIRED FOR GROUND RODS TO BE DRIVEN INTO NATURAL MINERAL SOIL BELOW GRAVEL FILL. CAD-WELD ALL GROUNDING GRID CABLE AND GROUND ROD CONNECTIONS.
  - 2) NEW PAD MOUNT 150 KVA STEP-UP TRANSFORMER, 277/480V WYE TO 7200/12470 WYE. INSTALL ON FIBERGLASS GROUND SLEEVE. PROVIDE TRANSFORMER GROUNDING IN ACCORDANCE WITH RUS CONSTRUCTION UNIT UM48-2. SEE DISTRIBUTION DRAWING E9 FOR PRIMARY CONNECTIONS.



**1**  
**E1** POWER PLANT SITE PLAN  
1"=5'



**2**  
**E1** MAIN FEEDER BUILDING ENTRANCE  
NO SCALE



**3**  
**E1** ACTUATOR VALVE CONNECTION  
NO SCALE

**RECORD DRAWING**

THESE DRAWINGS HAVE BEEN PREPARED FROM OBSERVATIONS OF THE UNDERSIGNED AND INFORMATION PROVIDED BY OTHERS. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.

*[Signature]*

DATE: 3/26/12

2	UPGRADE FEEDER FROM 4#2/0 TO 4#3/0	3/2/12	BCG
1	ADD ACTUATOR DETAIL, REVISE XFMR DETAIL, CHANGE 1" GRC ROUTING	5/6/11	BCG
REV.	DESCRIPTION	DATE	BY
State of Alaska Department of Community and Economic Development <b>AIDEA/AEA</b> Rural Energy Group 813 West Northern Lights Blvd. Anchorage, Alaska 99503			
PROJECT:		<b>RUBY POWER SYSTEM UPGRADE</b>	
TITLE:		<b>SITE PLAN &amp; DETAILS</b>	
<b>ALASKA ENERGY AND ENGINEERING, INC</b> P.O. BOX 111405 ANCHORAGE, ALASKA 99511-1405 PHONE (907) 349-0100			
DRAWN BY: BCG	SCALE: NO SCALE	FILE NAME: RUBY E1	SHEET: OF
DESIGNED BY: CWV/BCG	DATE: 3/4/11	PROJECT NUMBER: 09-06-9768	<b>E1</b> OF 8

**DEMOLITION GENERAL NOTES:**

- THIS PLANT PROVIDES PRIME POWER TO THE COMMUNITY OF RUBY. KEEP OUTAGES TO A MINIMUM & COORDINATE ALL REQUIRED OUTAGES WITH THE UTILITY.
- ALL ITEMS TO REMAIN UNLESS SPECIFICALLY INDICATED FOR REMOVAL. AREAS CONTAINING EXISTING EQUIPMENT TO BE REMOVED INDICATED BY HATCHING.
- ENSURE ALL EQUIPMENT & CIRCUITS TO BE REMOVED ARE DE-ENERGIZED PRIOR TO BEGINNING DEMOLITION. LOCK & TAG OUT ALL AFFECTED CIRCUIT BREAKERS & DISCONNECTS.
- TAKE ALL PRECAUTIONS TO MINIMIZE DAMAGE TO ELECTRICAL EQUIPMENT AND CONDUCTORS BEING SALVAGED FOR REUSE. TURN ALL REMOVED MATERIALS AND EQUIPMENT OVER TO THE UTILITY FOR FINAL DISPOSITION IF NOT REUSED.

**DEMOLITION SPECIFIC NOTES:**

**BASE BID**

- REMOVE EXISTING GENSET IN ITS ENTIRETY. REMOVE EXISTING POWER CONDUCTORS, SEE SPECIFIC NOTE 8. EXISTING CONTROL CONDUCTORS TO REMAIN. TAPE ENDS OF EXISTING CONDUCTORS & COIL IN SECURE LOCATION TO PROTECT FROM DAMAGE DURING GENSET REPLACEMENT.
- SEE MECHANICAL.
- REMOVE EXISTING GENSET IN ITS ENTIRETY. ALL POWER & CONTROL CONDUCTORS TO REMAIN IN SERVICE. TAPE ENDS OF EXISTING CONDUCTORS & COIL IN SECURE LOCATION TO PROTECT FROM DAMAGE DURING GENSET REPLACEMENT.
- SEE MECHANICAL.
- SEE MECHANICAL.
- REMOVE BATTERY CHARGER GENSET #1. REMOVE BATTERIES AT GENSET #1 & #3.
- EXISTING ENGINE WIRING J-BOX TO REMAIN. SEE NEW WORK SPECIFIC NOTE 10.
- REMOVE 3 EACH #1 150C GEN#1 CONDUCTORS & SALVAGE 2 EACH #1 150C GEN#1 CONDUCTORS FOR RE-USE. SEE NEW WORK SPECIFIC NOTE 8.
- EXISTING GEN #1 BREAKER IS A 400A FRAME G. E. SGHA36AT0400. REMOVE EXISTING 250A TRIP PLUG. REMOVE 3 EACH 200:5 CT'S. SEE NEW WORK SPECIFIC NOTE 9.
- SEE NEW WORK SPECIFIC NOTE 10.

**ADDITIVE ALTERNATE #1**

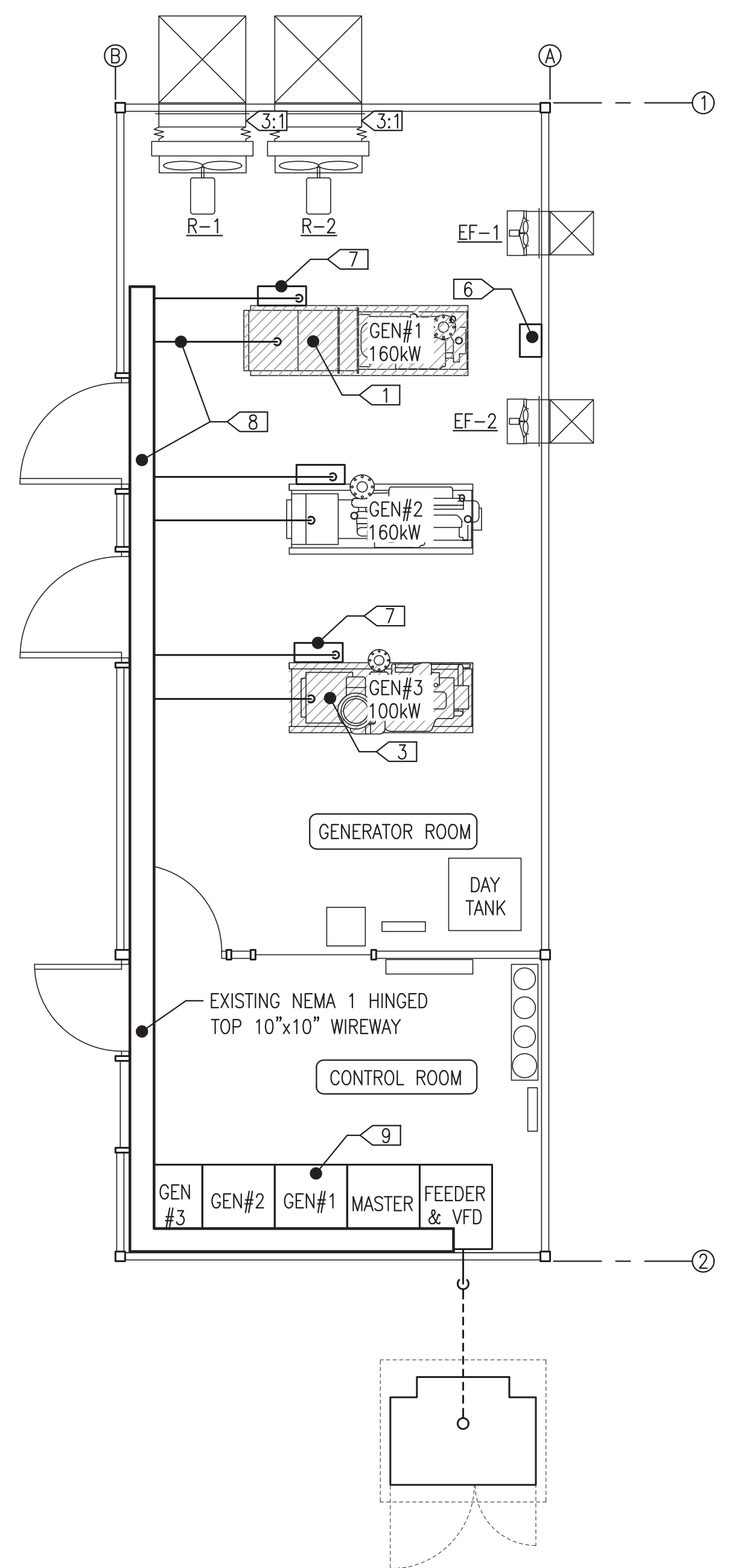
- SEE MECHANICAL.

**ADDITIVE ALTERNATE #2**

- SEE MECHANICAL.

**ADDITIVE ALTERNATE #3**

- DISCONNECT EXISTING CONDUIT & CONDUCTORS FROM RADIATOR DISCHARGE DAMPER ACTUATOR & SAVE FOR RECONNECTION.



**NEW WORK GENERAL NOTES:**

- EXISTING EQUIPMENT TO REMAIN IN SERVICE SHOWN WITH LIGHT DASHED LINES.
- NEW EQUIPMENT TO BE INSTALLED SHOWN WITH DARK SOLID LINES.
- RECONNECT EXISTING POWER & CONTROL CONDUCTORS & ASSOCIATED CONDUIT & FITTINGS TO NEW GENSETS AS INDICATED.

**NEW WORK SPECIFIC NOTES:**

**BASE BID**

- CONNECT EXISTING LT FLEX, EXISTING CONTROL CONDUCTORS, & NEW POWER CONDUCTORS TO NEW GENSET. SEE ELEVATION 1/E2 & SPECIFIC NOTES 7 & 8.
- SEE MECHANICAL.
- CONNECT EXISTING LT FLEX & POWER & CONTROL CONDUCTORS TO NEW GENSET. SEE ELEVATION 1/E2 & SPECIFIC NOTE 7.
- SEE MECHANICAL.
- SEE MECHANICAL.
- INSTALL NEW 24V BATTERY CHARGER, TWO NEW BATTERIES, & STARTER CABLES FOR NEW GENSET #1. SEE DETAIL 3/E2.
- CONNECT NEW ENGINE & GENERATOR CONTROL & MONITORING CONDUCTORS FROM GEN#1 & GEN#3 TO EXISTING ENGINE WIRING J-BOX. SEE DETAIL 2/E2. EXISTING CONTROL CONDUCTORS FROM J-BOX TO SWITCHGEAR TO REMAIN.
- INSTALL 3 EACH NEW #4/0 150C (PHASE) & 2 EACH SALVAGED #1 (NEUTRAL & GROUND) CONDUCTORS FROM GEN #1 TO BREAKER IN GEN #1 SECTION OF SWITCHGEAR & TERMINATE WITH COMPRESSION LUGS RATED FOR 150C.
- EXISTING GEN #1 BREAKER IS A 400A FRAME G. E. SGHA36AT0400. INSTALL NEW 300A TRIP PLUG, G. E. SRPG400A300. INSTALL 3 EACH NEW 300:5 RATIO RELAY CLASS 100 CT'S.
- REVISE 24 VDC CONTROL POWER IN GEN#1 SWITCHGEAR SECTION. SEE DETAIL 2/E3.

**ADDITIVE ALTERNATE #1**

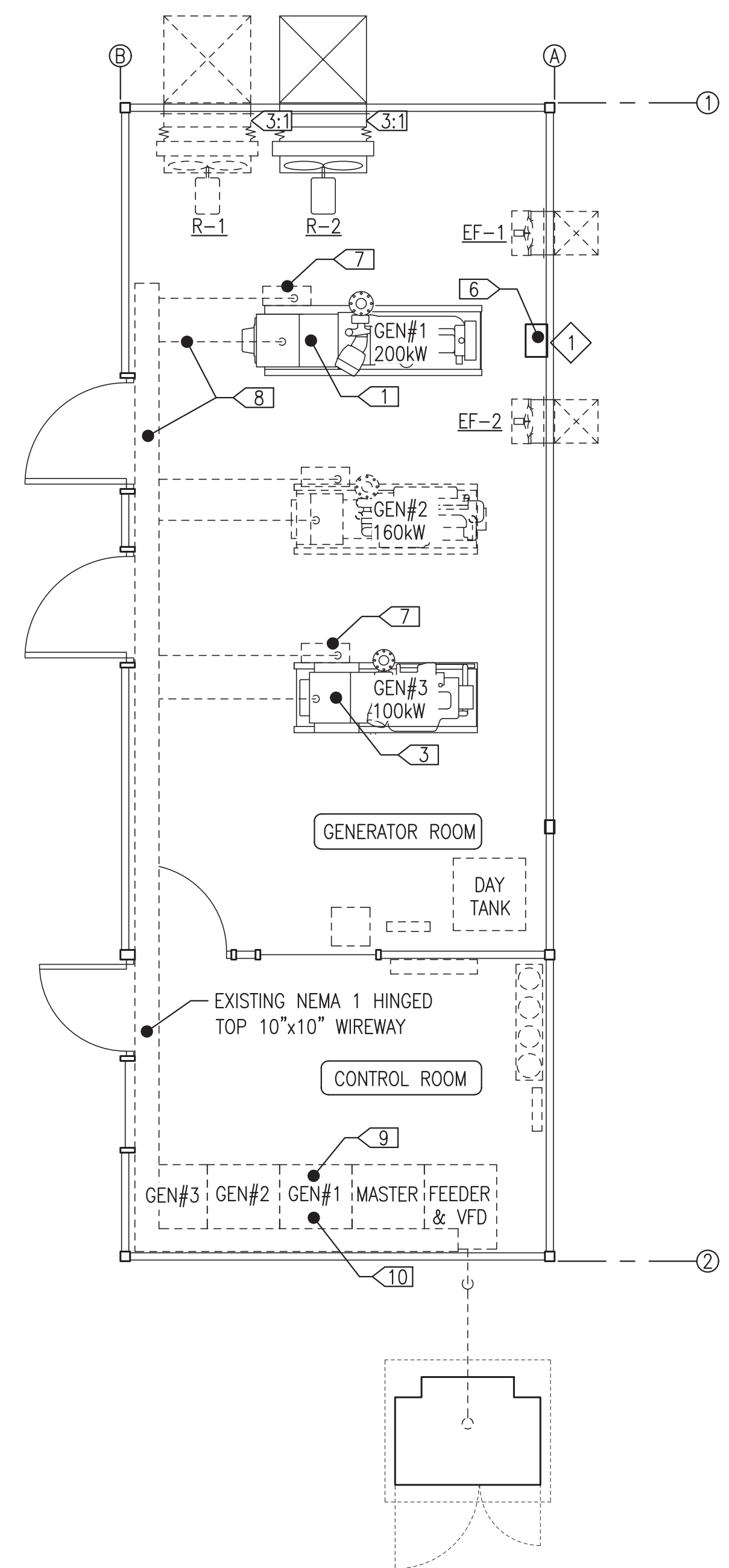
- SEE MECHANICAL.

**ADDITIVE ALTERNATE #2**

- SEE MECHANICAL.

**ADDITIVE ALTERNATE #3**

- RE-CONNECT EXISTING CONDUIT & CONDUCTORS TO NEW RADIATOR DISCHARGE DAMPER ACTUATOR.



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

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

SERVICE/FUNCTION	DESCRIPTION	MANUFACTURER/MODEL	NOTES:
GENERATOR 480V POWER 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.
GENERAL USE CONDUCTORS	CLASS B CONCENTRIC STRANDED, SOFT DRAWN COPPER. TYPE XHHW INSULATION, 600V AND 75C RATED.		

**COLOR CODING - UNLESS SPECIFICALLY INDICATED OTHERWISE COLOR CODE CONDUCTORS AS FOLLOWS:**

480-VOLT POWER CONDUCTORS  
 PHASE A - BROWN  
 PHASE B - ORANGE  
 PHASE C - YELLOW  
 NEUTRAL - WHITE W/YELLOW STRIPE

120/208-VOLT POWER CONDUCTORS  
 PHASE A - BLACK  
 PHASE B - RED  
 PHASE C - BLUE  
 NEUTRAL - WHITE

24 VOLT DC CONDUCTORS  
 +24VDC - RED  
 -24VDC - BLACK

CONTROL & INSTRUMENT CONDUCTORS  
 COLOR CODED PER MANUFACTURER'S STANDARD

**NOTES:**

- FOR NO. 6 AWG AND SMALLER CONDUCTORS COLOR CODING SHALL BE PROVIDED BY USING CONDUCTORS WITH CONTINUOUS COLOR EMBEDDED IN THE INSULATION. FOR ALL CONDUCTORS LARGER THAN NO. 6 SCOTCH 35 MARKING TAPE OR EQUIVALENT MAY BE USED TO COLOR CODE THE CABLE. WHERE MARKING TAPE IS USED IDENTIFY AT EVERY ACCESSIBLE LOCATION WITH A MINIMUM OF 2 INCHES OF TAPE AT EACH LOCATION.
- 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.

GENSET	DESCRIPTION
GEN #1 (NEW)	ENGINE - 319 HP, 238 EKW PRIME, JOHN DEERE 6090AFM85, TIER 3 MARINE. STARTING AND CONTROL VOLTAGE = 24 VDC. GENERATOR - 284KW CONTINUOUS AT 105°C RISE, NEWAGE S4LD-D41. *LOAD LIMITED IN SWITCHGEAR TO 200kW
GEN #2 (EXISTING)	ENGINE - 317 HP, 236 EKW PRIME, JOHN DEERE 6081HF070. STARTING AND CONTROL VOLTAGE = 12 VDC. GENERATOR - 180KW CONTINUOUS AT 105°C RISE, MARATHON 431PSL6258. *LOAD LIMITED IN SWITCHGEAR TO 160kW
GEN #3 (NEW)	ENGINE - 148 HP, 100 EKW PRIME, JOHN DEERE 4045AFM85, TIER 3 MARINE. 24 VDC STARTING & CONTROL. GENERATOR - MINIMUM 125 KW CONTINUOUS AT 105°C RISE, NEWAGE/STAMFORD UCI274E.

SYMBOL	DESCRIPTION	MANUFACTURER/MODEL
1	12/24-VOLT SOLID STATE 20-AMP AUTO-EQUALIZING BATTERY CHARGER, 120 VAC INPUT, WITH OPTIONAL REMOTE SUMMARY ALARM RELAYS FOR HIGH/LOW VOLT AND AC POWER FAILURE	SENS NRG22-20-RCLS OR APPROVED EQUAL.

**Gray Stassel Engineering, Inc.**

**RECORD DRAWING**

THESE DRAWINGS HAVE BEEN PREPARED FROM INFORMATION PROVIDED BY OTHERS. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.

*John Stassel*

DATE: 3/28/23

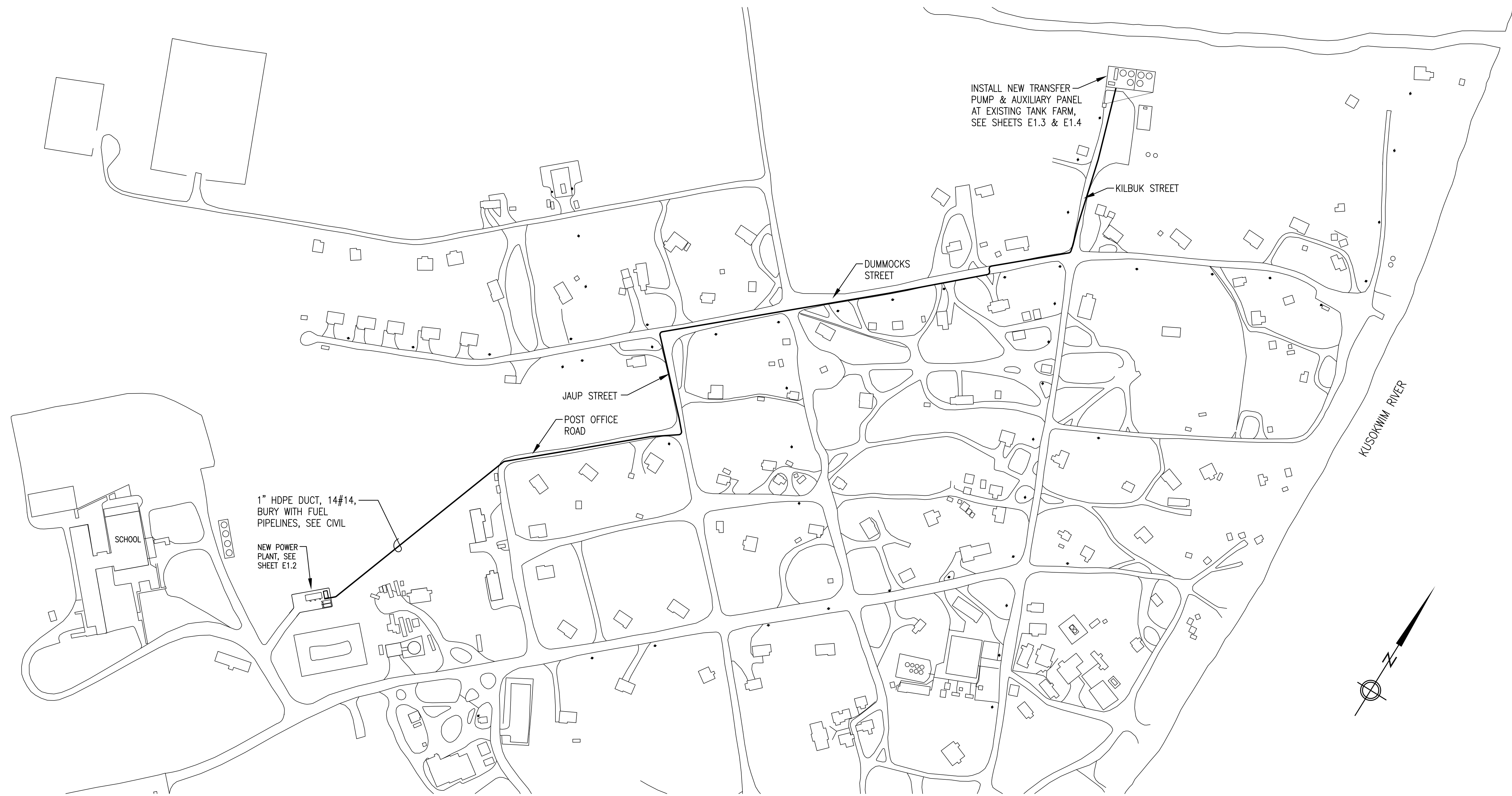
**ALASKA ENERGY AUTHORITY**

PROJECT: FFY20 DERA PROJECTS  
RUBY POWER PLANT UPGRADE

TITLE: ELECTRICAL DEMOLITION & NEW WORK PLANS

DESIGNED BY: BCG  
DRAWN BY: BCG  
FILE NAME: RUBYDERA E1-3A  
PROJECT NUMBER:

SCALE: AS NOTED  
DATE: 4/20/22  
SHEET: E1



SCHEDULE OF DRAWINGS	
E1.1	OVERALL PROJECT AREA PLAN & SCHEDULE OF DRAWINGS
E1.2	POWER PLANT SITE PLAN & DETAILS
E1.3	TANK FARM CLASSIFICATION AREA PLAN & DETAILS
E1.4	TANK FARM PLAN & DETAILS
E2	SPECIFICATIONS & EQUIPMENT SCHEDULE
E3	WIREWAY PLAN, ELEVATIONS, & SECTION
E4	BUILDING PLANS & STATION SERVICE PANEL
E5	DATA/COMMUNICATION PLAN & DETAILS
E6.1	SWITCHGEAR ENCLOSURE LAYOUT & TERMINAL STRIP
E6.2	SWITCHGEAR ONE-LINE & SCHEMATICS
E7	DAY TANK CONTROL PANEL LOGIC DIAGRAM & BILL OF MATERIALS
E8	DAY TANK CONTROL PANEL LAYOUT, SEQUENCE OF OPERATIONS, & TERMINAL STRIP
E9	INTERMEDIATE TANK CONTROL PANEL
E10	TANK FARM AUXILIARY CONTROL PANEL

**1** OVERALL PROJECT AREA PLAN  
**E1.1** 1"=150'

**Gray Stassel Engineering, Inc.**  
**RECORD DRAWING**  
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*John Daleson*  
 DATE: 7/29/13

State of Alaska  
 Department of Community and Economic Development  
**AIDEA/AEA**  
 Rural Energy Group  
 813 West Northern Lights Blvd.  
 Anchorage, Alaska 99503

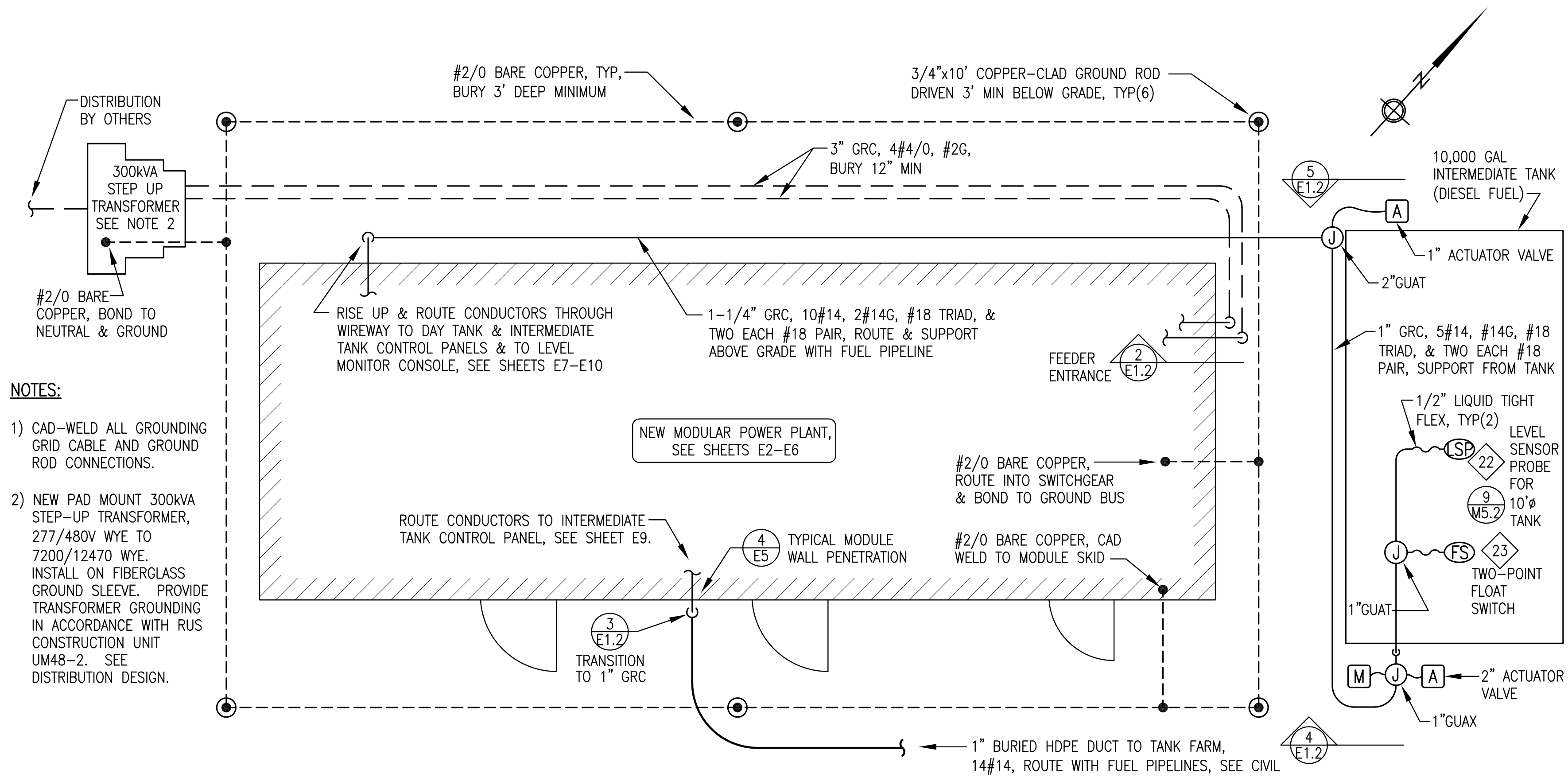
**ALASKA ENERGY AUTHORITY**

PROJECT: **AKIAK POWER SYSTEM UPGRADE**

TITLE: **OVERALL PROJECT AREA PLAN & SCHEDULE OF DRAWINGS**

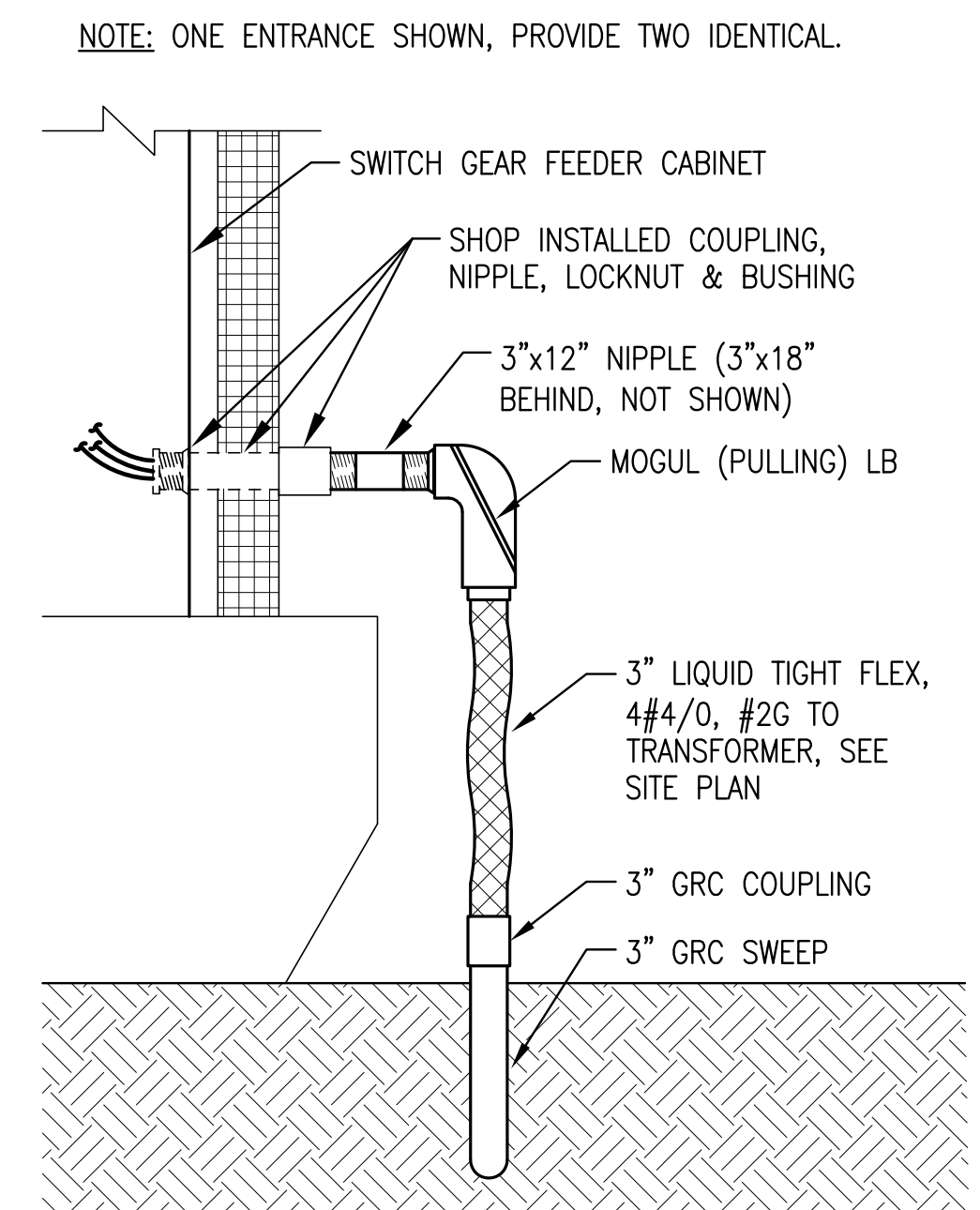
**ALASKA ENERGY AND ENGINEERING, INC**  
 P.O. BOX 111405 ANCHORAGE, ALASKA 99511-1405 PHONE (907) 349-0100

DRAWN BY: BCG	SCALE: AS NOTED	FILE NAME: AKAK E1A	SHEET: <b>E1.1</b> OF 10
DESIGNED BY: CWV/BCG	DATE: 3/16/12	PROJECT NUMBER: 11-04-9952	

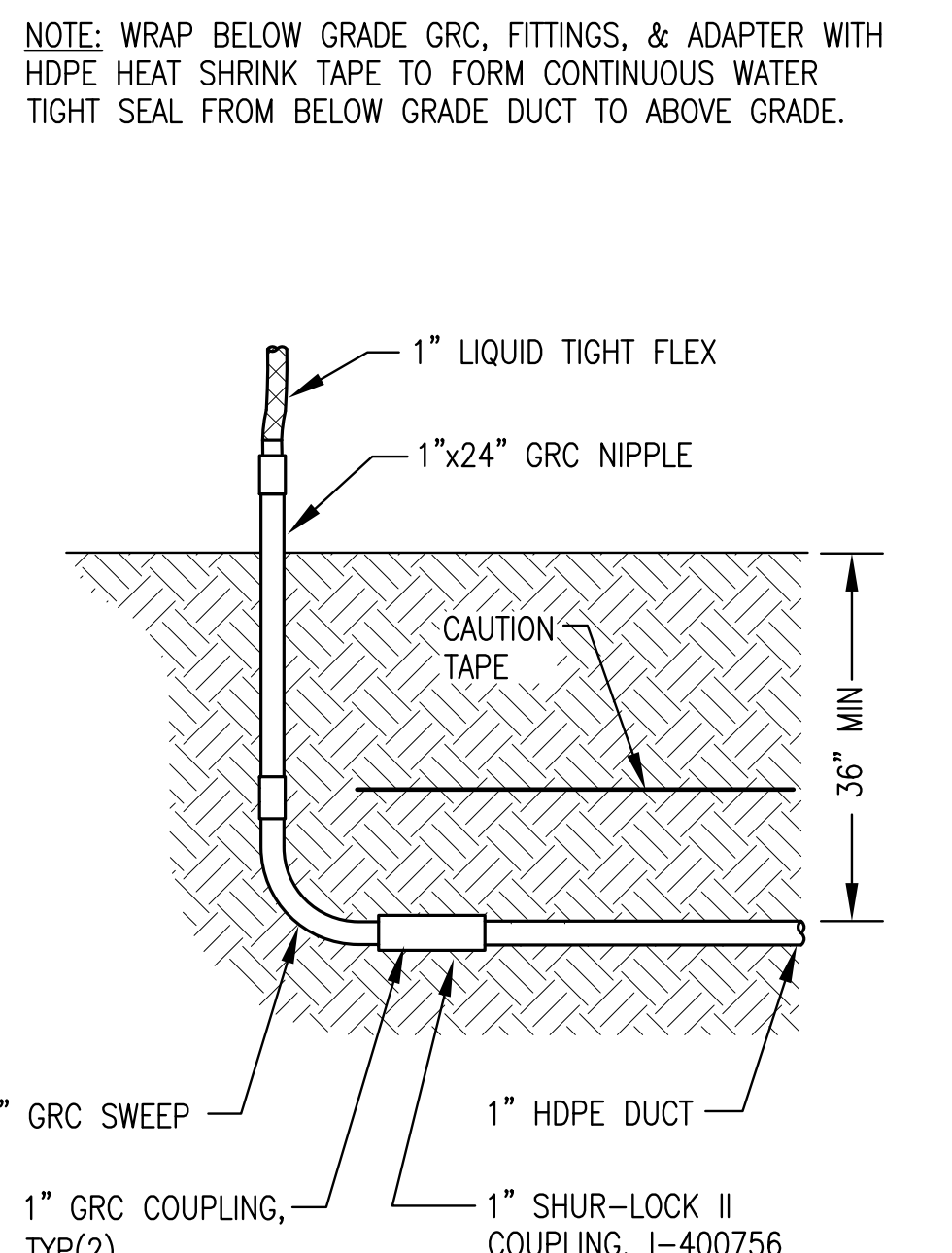


- NOTES:**
- CAD-WELD ALL GROUNDING GRID CABLE AND GROUND ROD CONNECTIONS.
  - NEW PAD MOUNT 300kVA STEP-UP TRANSFORMER, 277/480V WYE TO 7200/12470 WYE. INSTALL ON FIBERGLASS GROUND SLEEVE. PROVIDE TRANSFORMER GROUNDING IN ACCORDANCE WITH RUS CONSTRUCTION UNIT UM48-2. SEE DISTRIBUTION DESIGN.

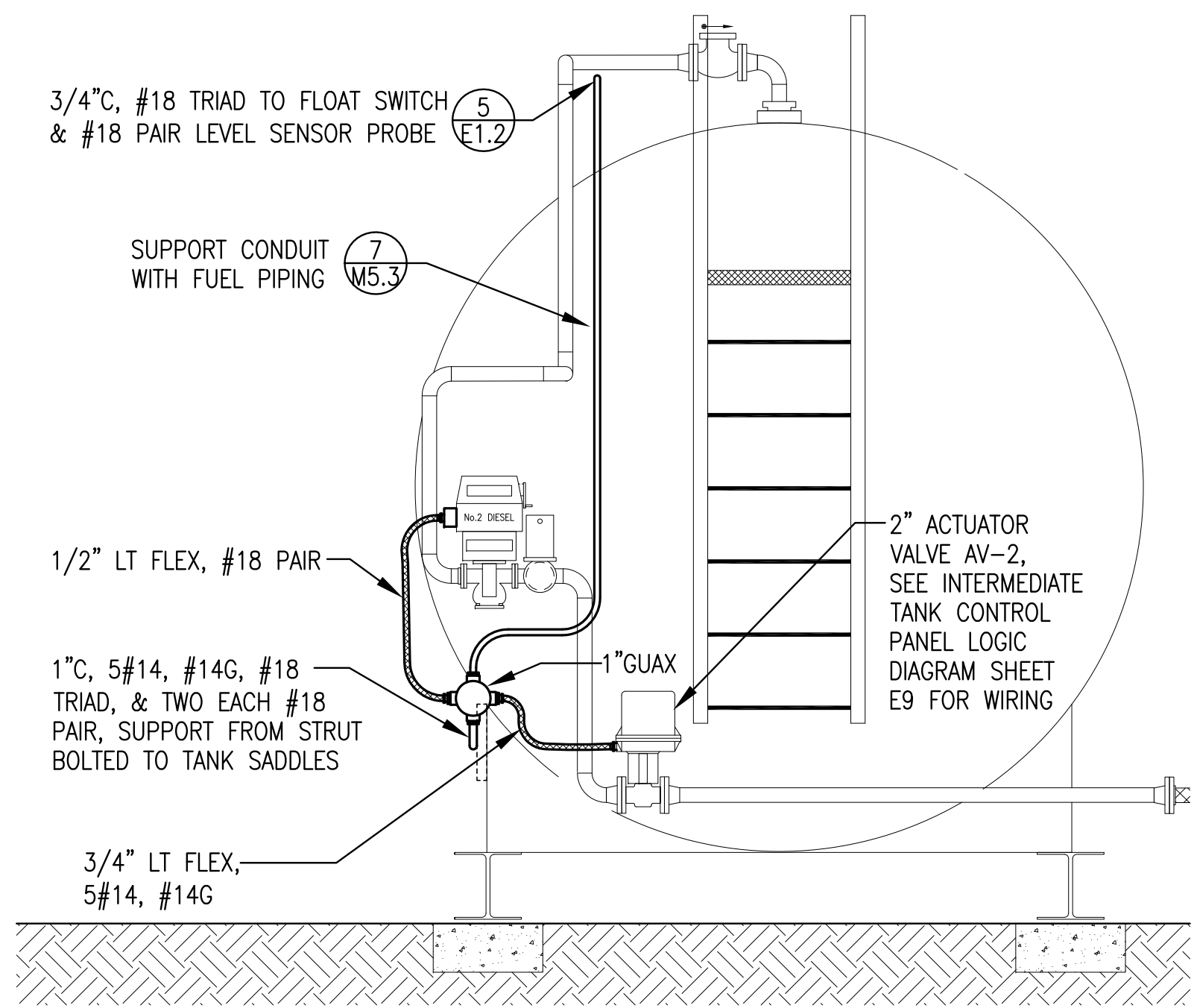
**1** POWER PLANT SITE PLAN  
E1.1 1"=4'



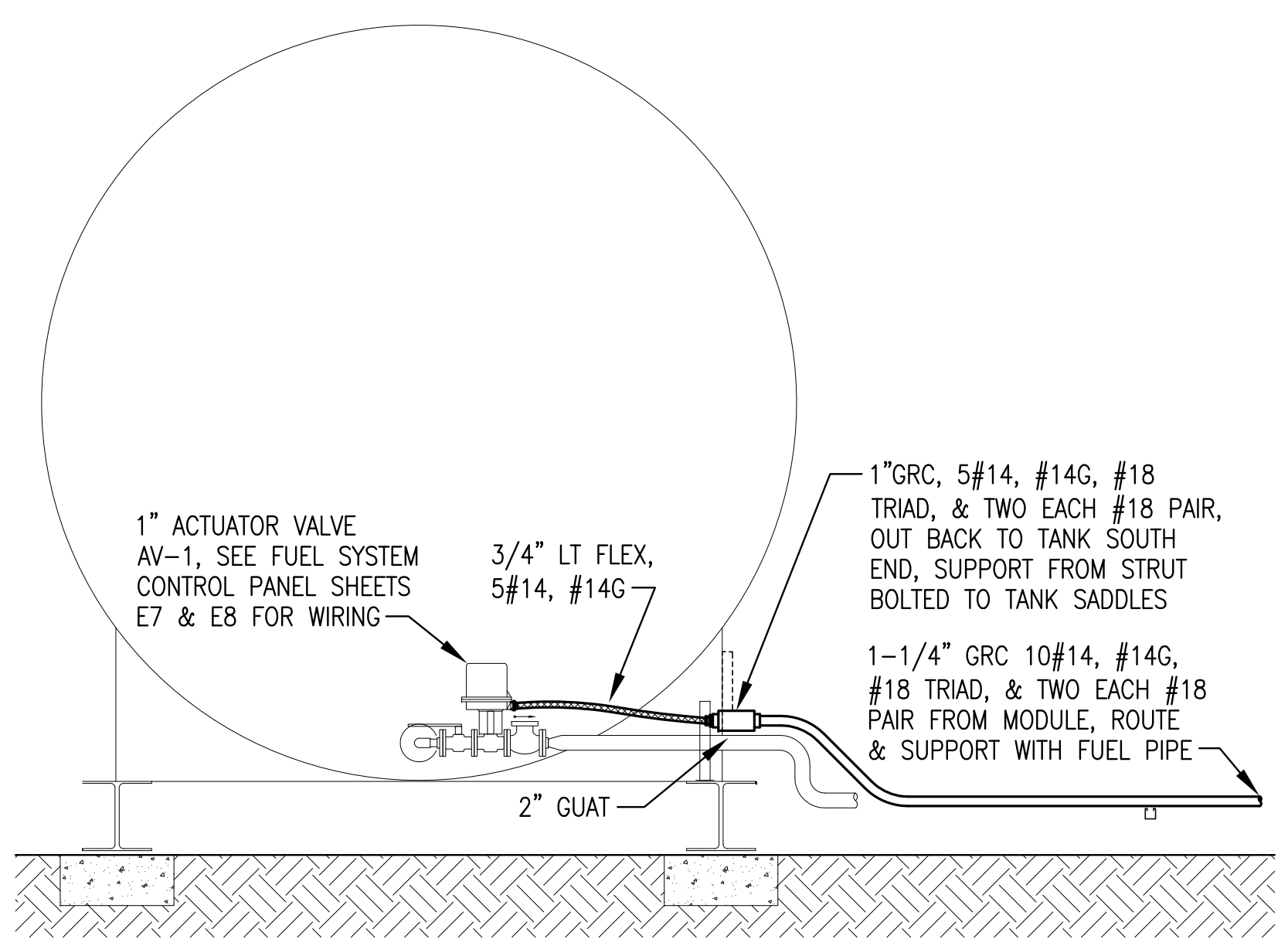
**2** MAIN FEEDER BUILDING ENTRANCE  
E1.2 NO SCALE



**3** BURIED HDPE DUCT TRANSITION  
E1.2 NO SCALE



**4** INTERMEDIATE TANK SOUTH END VIEW  
E1.2 NO SCALE



**5** INTERMEDIATE TANK NORTH END VIEW  
E1.2 NO SCALE

**Gray Stassel Engineering, Inc.**  
**RECORD DRAWING**  
 THESE DRAWINGS HAVE BEEN PREPARED FROM INFORMATION PROVIDED BY OTHERS & OBSERVATIONS OF THE UNDERSIGNED. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.  
 DATE: 7/29/13

State of Alaska  
 Department of Community and Economic Development  
 AIDEA/AEA  
 Rural Energy Group  
 813 West Northern Lights Blvd.  
 Anchorage, Alaska 99503

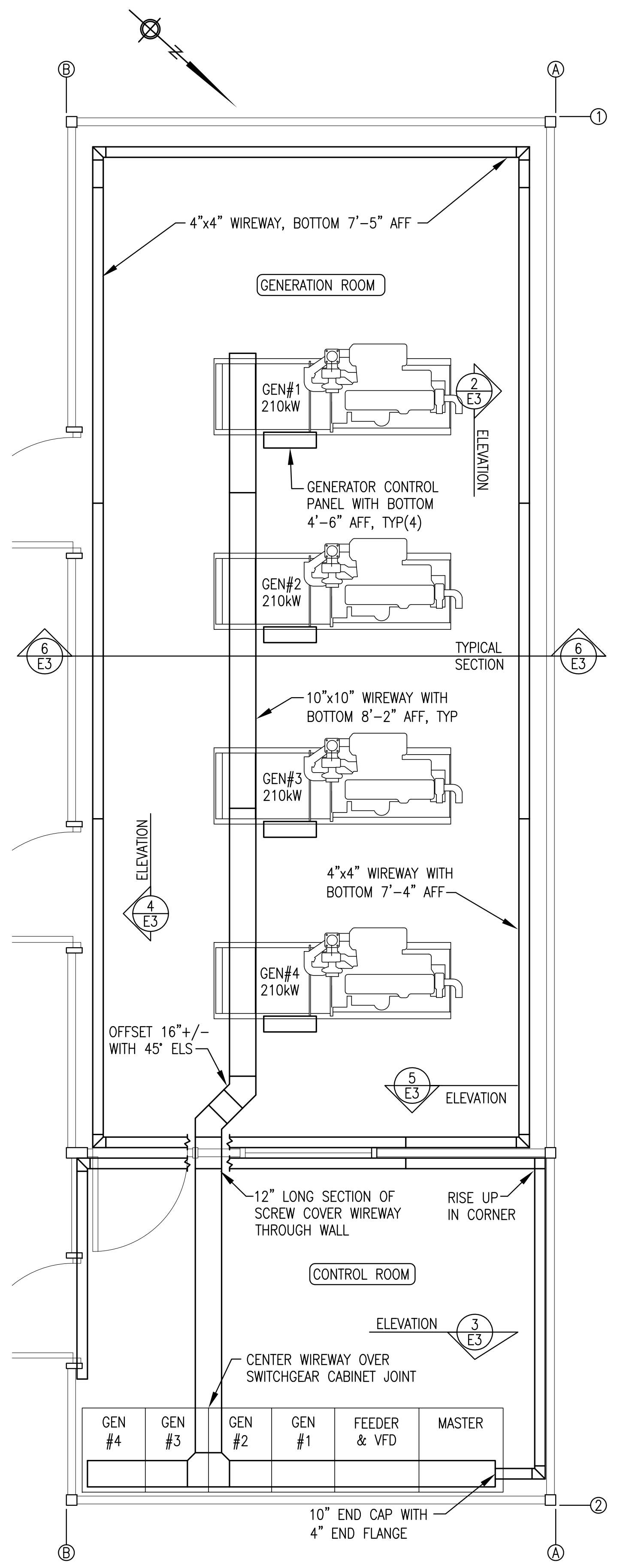
**ALASKA ENERGY AUTHORITY**

PROJECT: AKIAK POWER SYSTEM UPGRADE

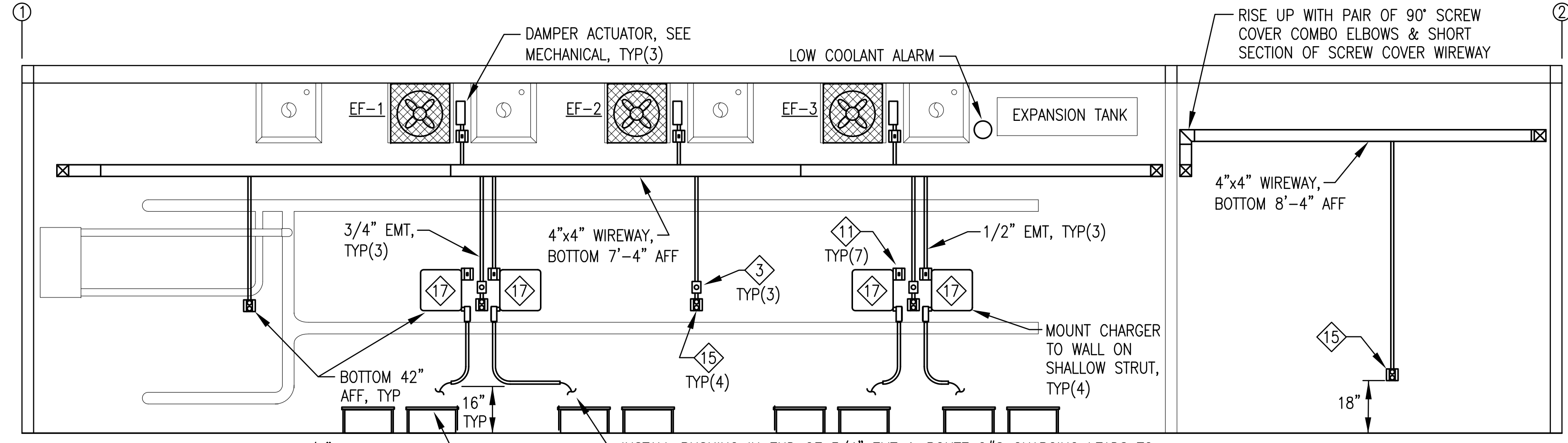
TITLE: POWER PLANT SITE PLAN & DETAILS

**ALASKA ENERGY AND ENGINEERING, INC**  
 P.O. BOX 111405 ANCHORAGE, ALASKA 99511-1405 PHONE (907) 349-0100

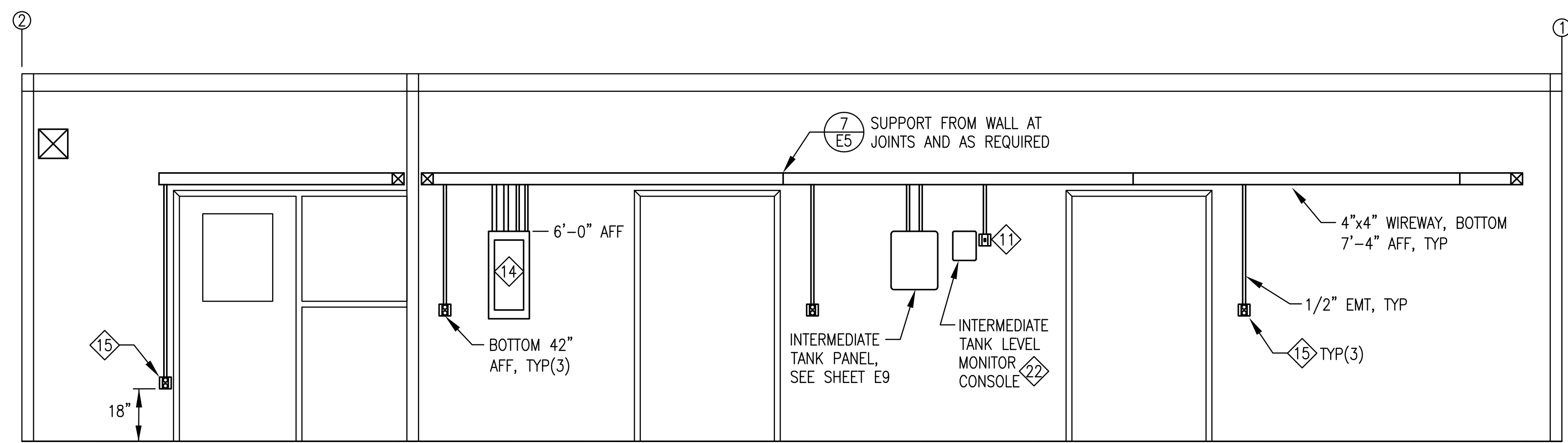
DRAWN BY: BCG	SCALE: AS NOTED	FILE NAME: AKAK E1A	SHEET: E1.2
DESIGNED BY: CWV/BCG	DATE: 3/16/12	PROJECT NUMBER: 11-04-9952	OF 10



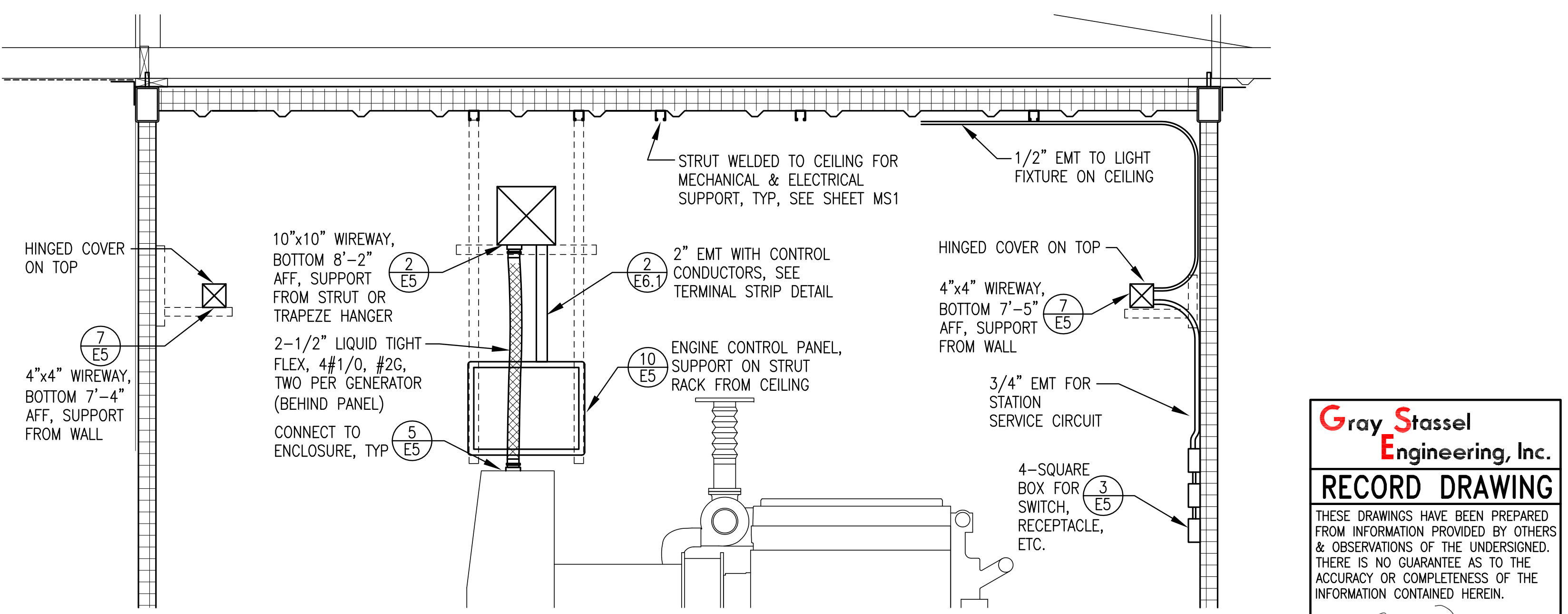
**1 WIREWAY PLAN**  
E3 3/8"=1'-0"



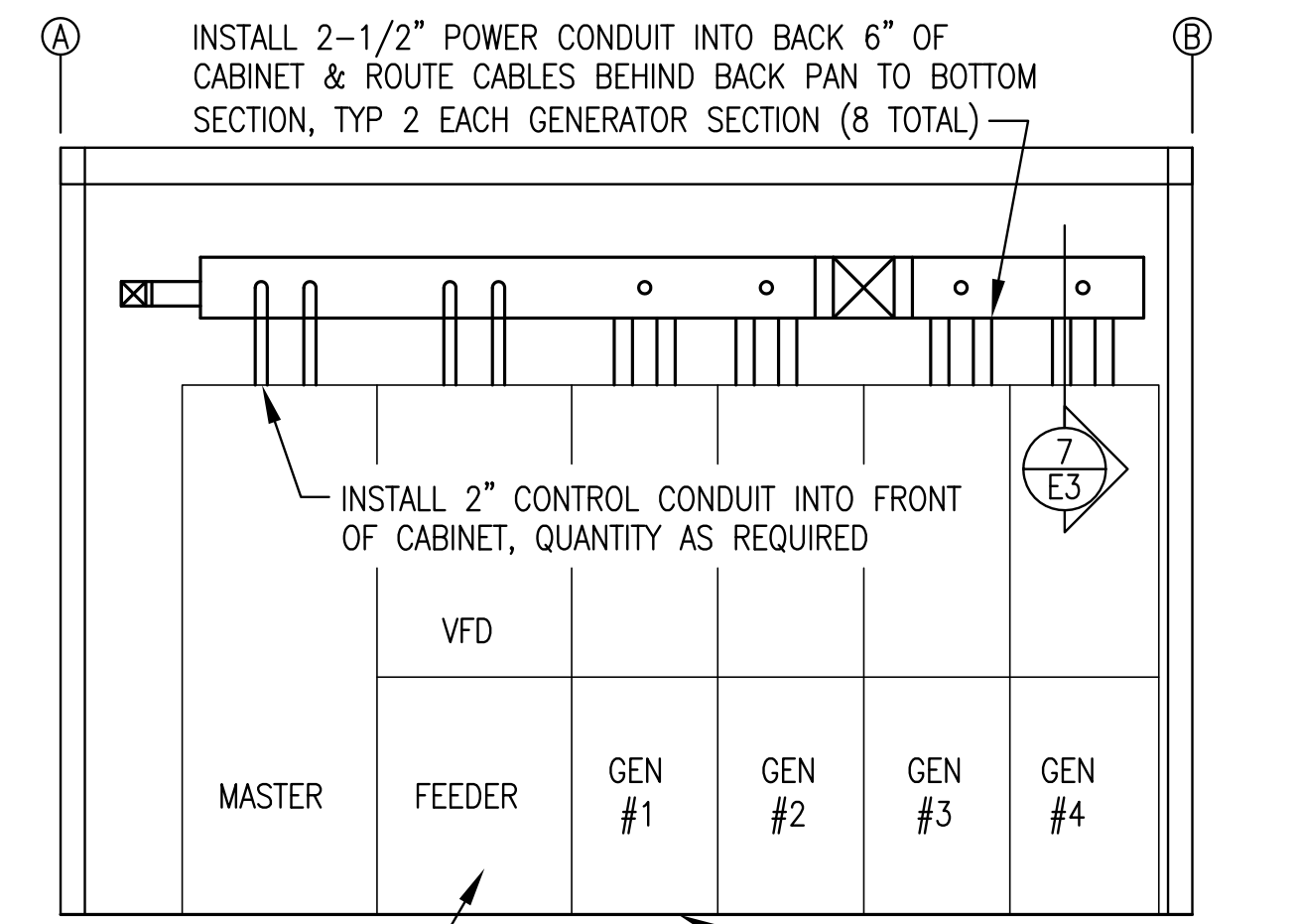
**2 WALL ELEVATION AT GRID A**  
E3 3/8"=1'-0"



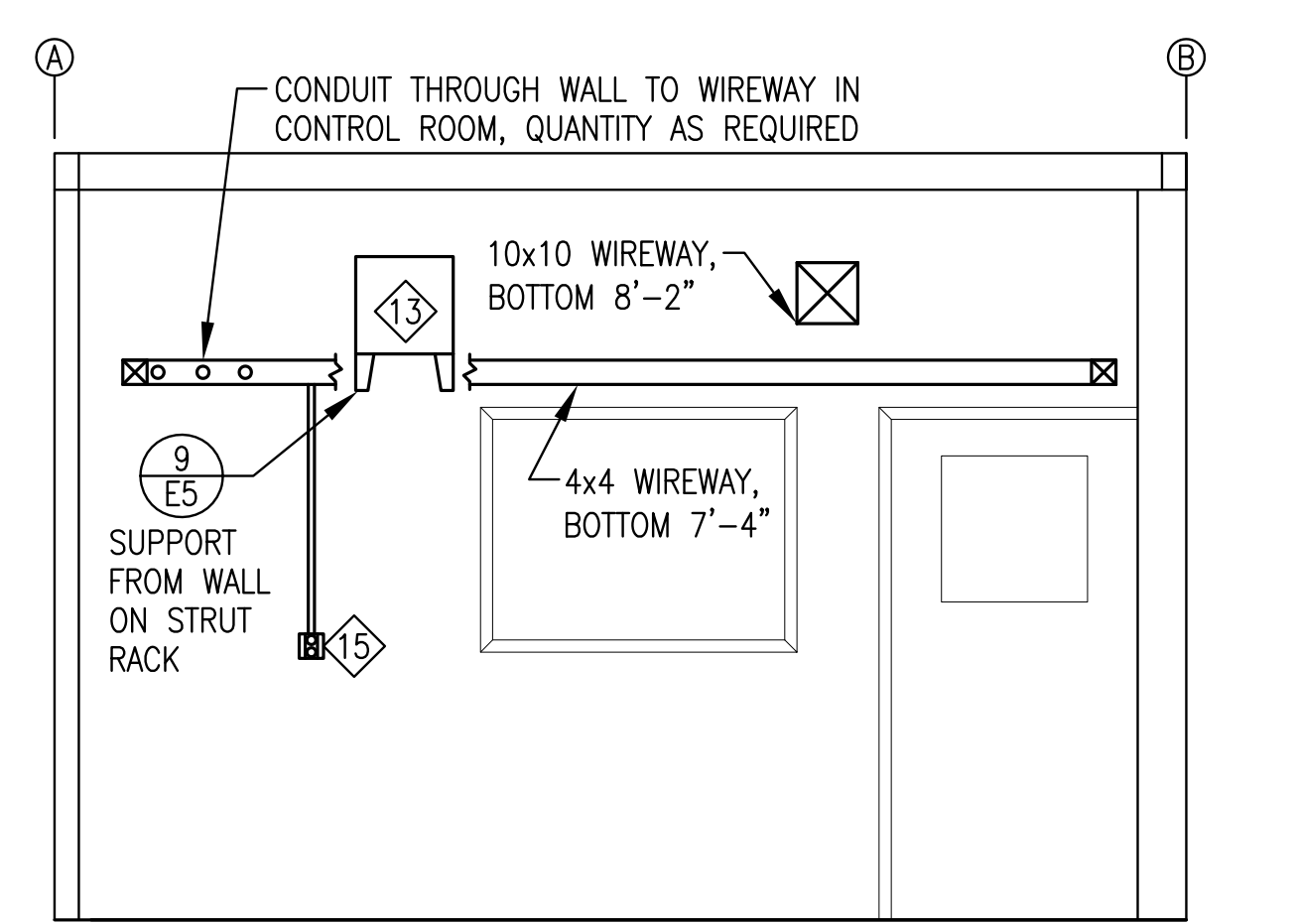
**3 WALL ELEVATION AT GRID 2**  
E3 3/8"=1'-0"



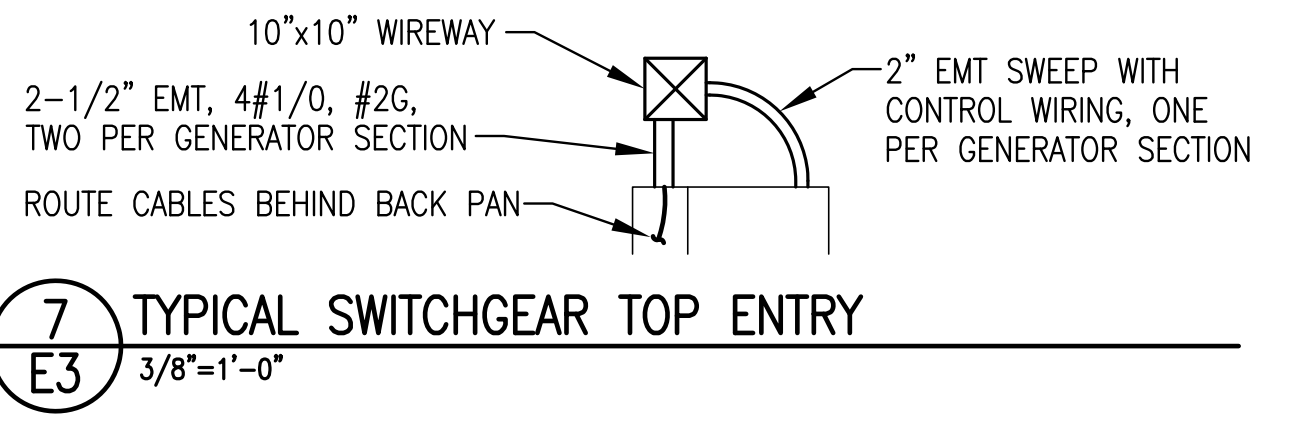
**4 WALL ELEVATION AT GRID B**  
E3 3/8"=1'-0"



**5 INTERIOR WALL ELEVATION**  
E3 3/8"=1'-0"



**6 TYPICAL SWITCHGEAR TOP ENTRY**  
E3 3/8"=1'-0"



**7 TYPICAL SWITCHGEAR TOP ENTRY**  
E3 3/8"=1'-0"

**Gray Stassel Engineering, Inc.**  
**RECORD DRAWING**  
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*John Daleson*  
DATE: 7/29/13

State of Alaska  
Department of Community and Economic Development  
**AIDEA/AEA**  
Rural Energy Group  
813 West Northern Lights Blvd.  
Anchorage, Alaska 99503

**ALASKA ENERGY AUTHORITY**

PROJECT: **AKIAK POWER SYSTEM UPGRADE**

TITLE: **WIREWAY PLAN, ELEVATIONS, & SECTION**

**ALASKA ENERGY AND ENGINEERING, INC**  
P.O. BOX 111405 ANCHORAGE, ALASKA 99511-1405 PHONE (907) 349-0100

DRAWN BY: BCG	SCALE: NO SCALE	FILE NAME: AKAK E2-E5	SHEET: E3
DESIGNED BY: CWV/BCG	DATE: 3/16/12	PROJECT NUMBER: 11-04-9952	OF 10

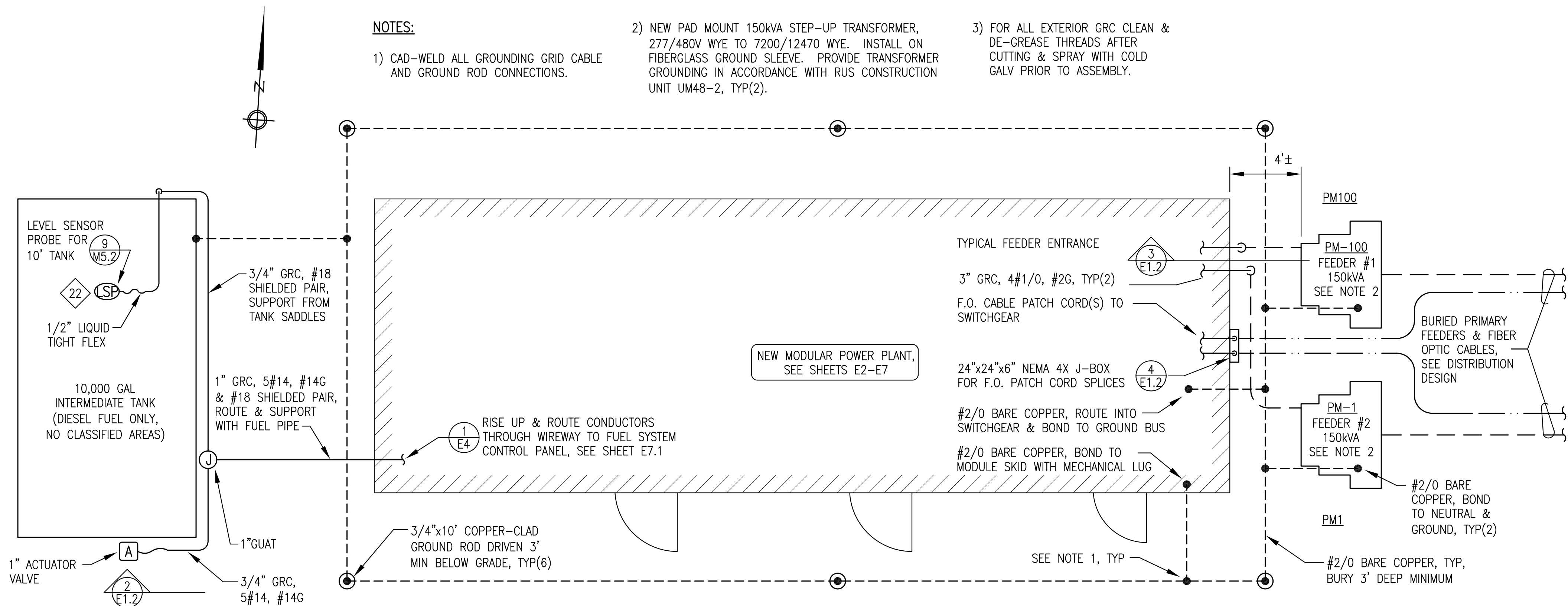


**NOTES:**

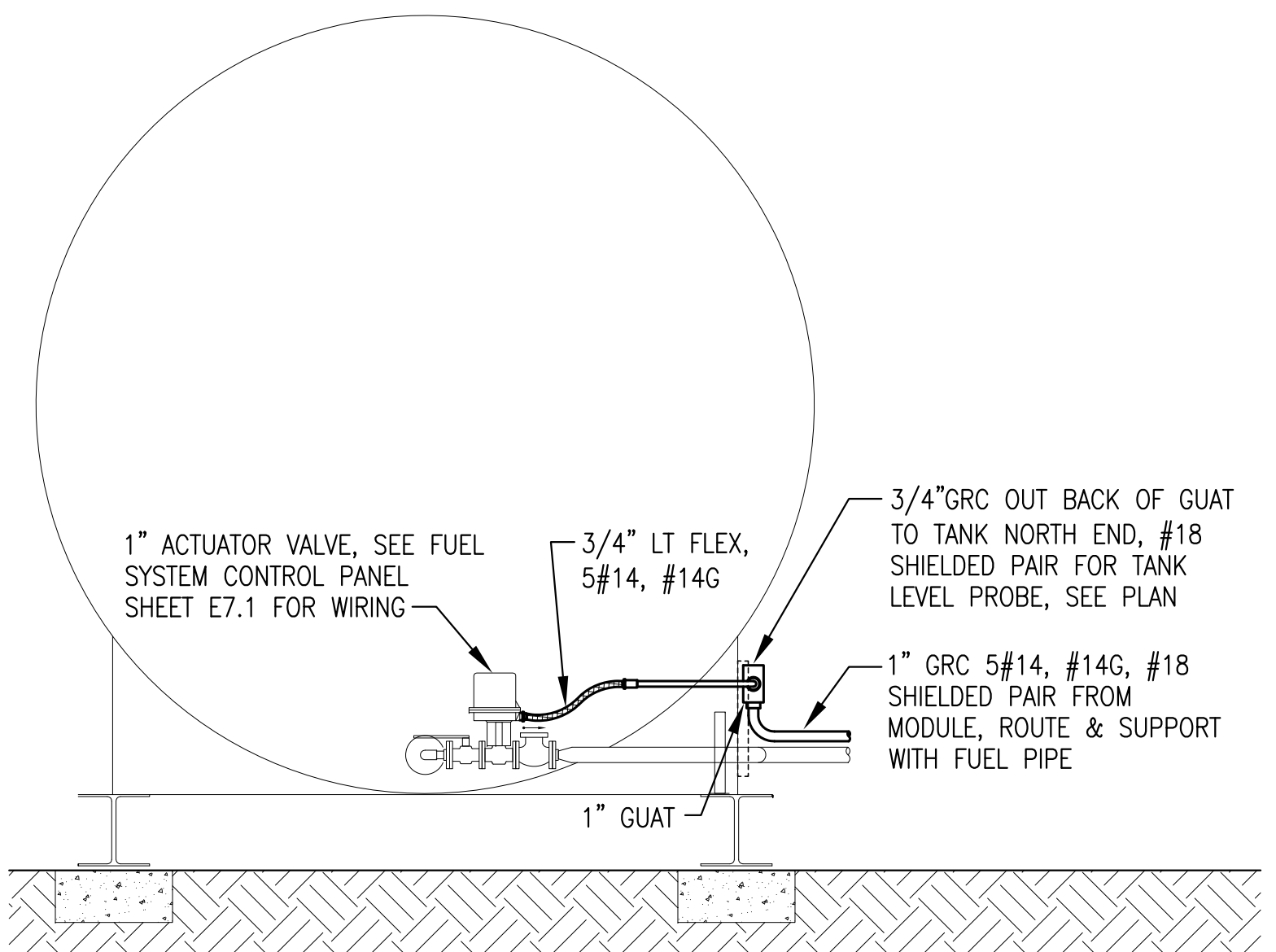
1) CAD-WELD ALL GROUNDING GRID CABLE AND GROUND ROD CONNECTIONS.

2) NEW PAD MOUNT 150KVA STEP-UP TRANSFORMER, 277/480V WYE TO 7200/12470 WYE. INSTALL ON FIBERGLASS GROUND SLEEVE. PROVIDE TRANSFORMER GROUNDING IN ACCORDANCE WITH RUS CONSTRUCTION UNIT UM48-2, TYP(2).

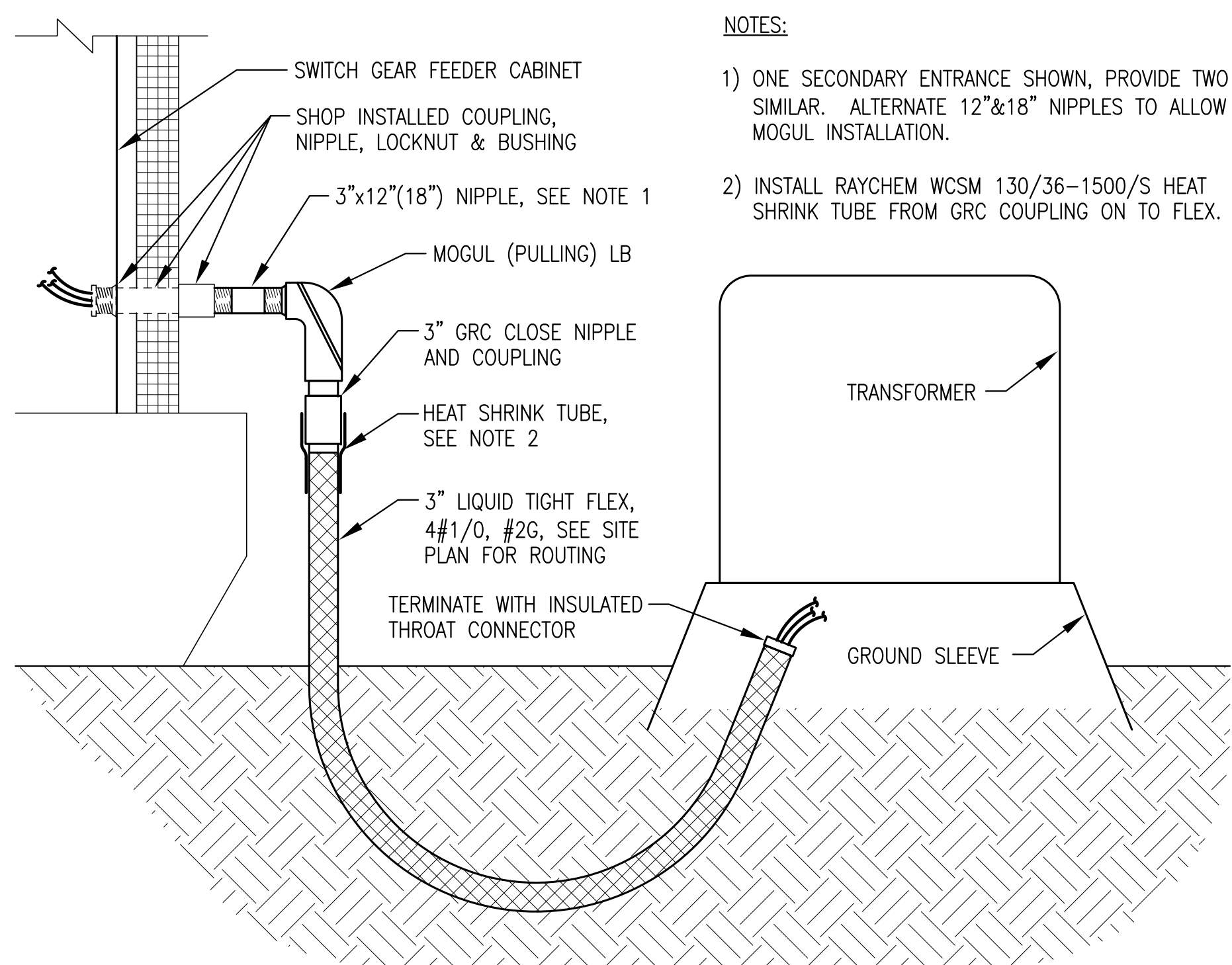
3) FOR ALL EXTERIOR GRC CLEAN & DE-GREASE THREADS AFTER CUTTING & SPRAY WITH COLD GALV PRIOR TO ASSEMBLY.



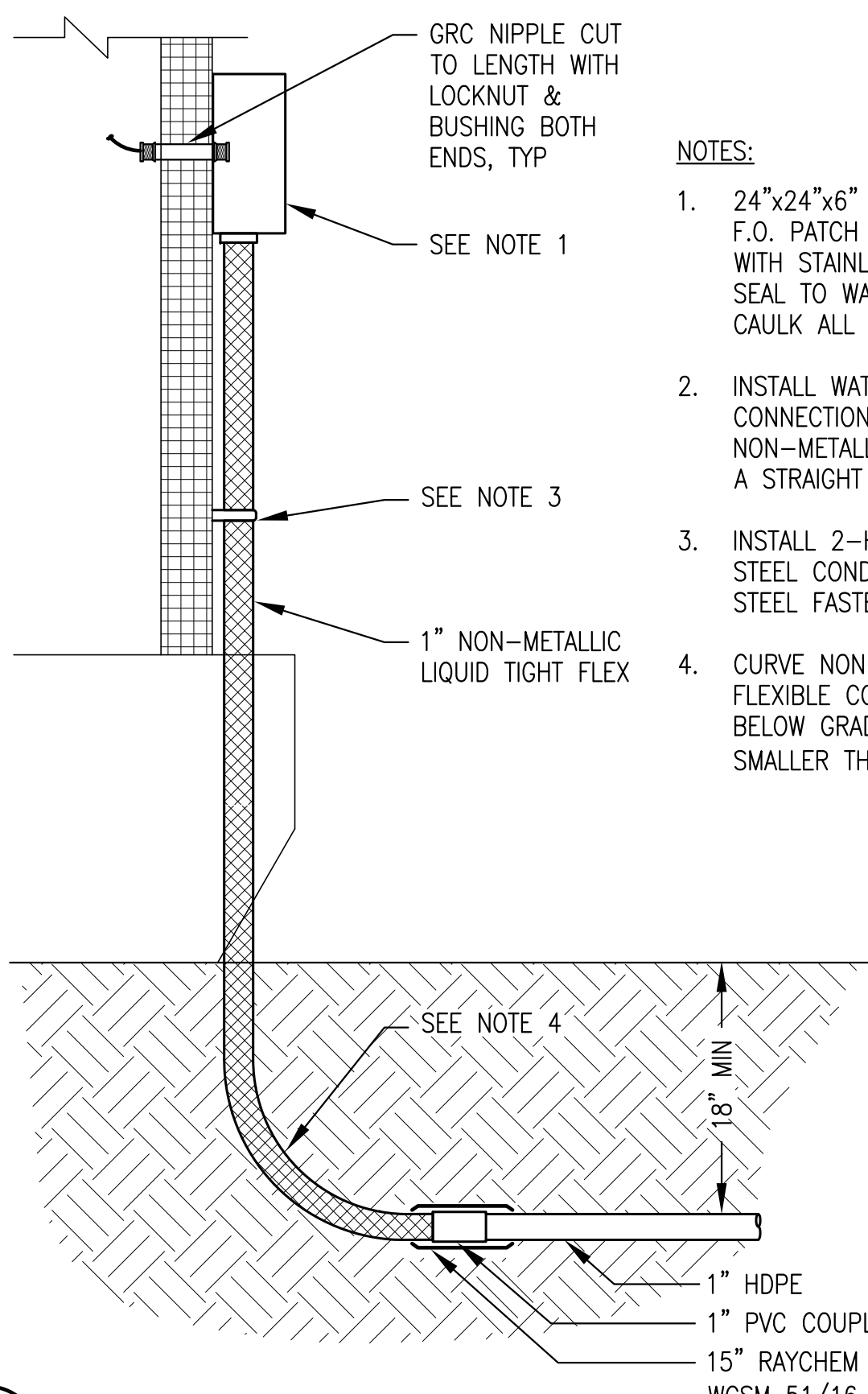
**1** POWER PLANT SITE PLAN  
E1.2 1"=4'



**2** INTERMEDIATE TANK NORTH END VIEW  
E1.2 NO SCALE



**3** MAIN FEEDER BUILDING ENTRANCE  
E1.2 NO SCALE



**4** FIBER OPTIC CABLE ENTRANCE  
E1.2 NO SCALE

**NOTES:**

1. 24"x24"x6" NEMA 4X SPLICE BOX FOR F.O. PATCH CORD SPLICES. INSTALL WITH STAINLESS STEEL FASTENERS AND SEAL TO WALL WITH POLYURETHANE CAULK ALL AROUND.
2. INSTALL WATER TIGHT HUB ON ALL CONNECTIONS. TERMINATE LIQUID TIGHT NON-METALLIC FLEXIBLE CONDUIT WITH A STRAIGHT FLEX CONNECTOR.
3. INSTALL 2-HOLE PVC OR STAINLESS STEEL CONDUIT STRAP WITH STAINLESS STEEL FASTENERS.
4. CURVE NON-METALLIC LIQUID TIGHT FLEXIBLE CONDUIT UP. KEEP RADIUS BELOW GRADE. DO NOT BEND CONDUIT SMALLER THAN A 12" RADIUS.

**RECORD DRAWING**

THESE DRAWINGS HAVE BEEN PREPARED FROM A FIELD OBSERVATION BY THE UNDERSIGNED ENGINEER. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.

*John Daleson*

DATE: OCTOBER 27, 2015

State of Alaska  
Department of Community and Economic Development  
AIDEA/AEA  
Rural Energy Group  
813 West Northern Lights Blvd.  
Anchorage, Alaska 99503

**ALASKA ENERGY AUTHORITY**

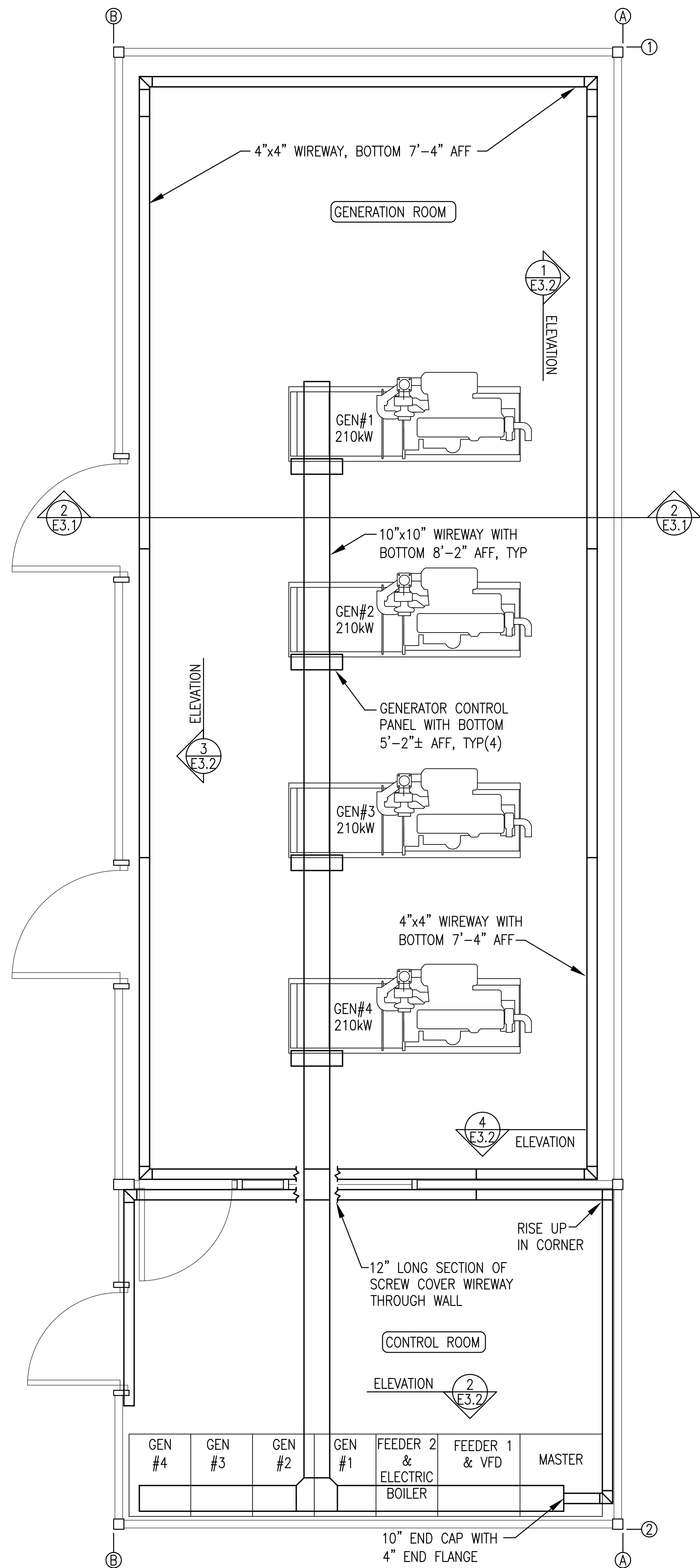
PROJECT: ST. GEORGE POWER SYSTEM UPGRADE

TITLE: POWER PLANT SITE PLAN & DETAILS

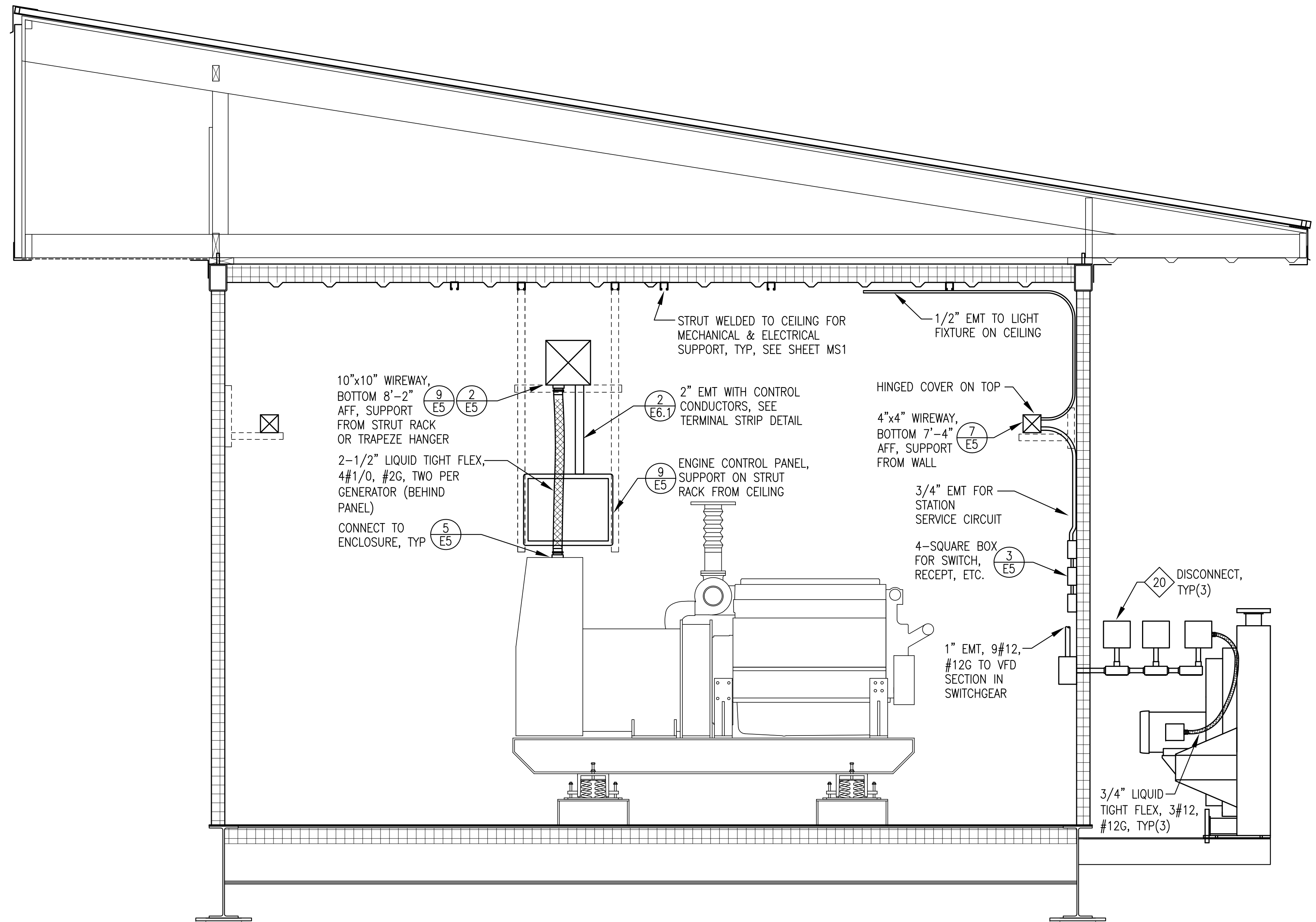
Gray Stassel Engineering, Inc.  
P.O. 111405, Anchorage, AK 99511 (907)349-0100

DRAWN BY: BCG/JTD  
DESIGNED BY: CWV/BCG  
FILE NAME: STGE E1A  
PROJECT NUMBER: 12-3-9591

SCALE: AS NOTED  
DATE: 6/14/13  
SHEET: E1.2 OF 9



**1** WIREWAY PLAN  
E3.1 3/8"=1'-0"



**2** TYPICAL MODULE SECTION  
E3.1 3/4"=1'-0"

**RECORD DRAWING**

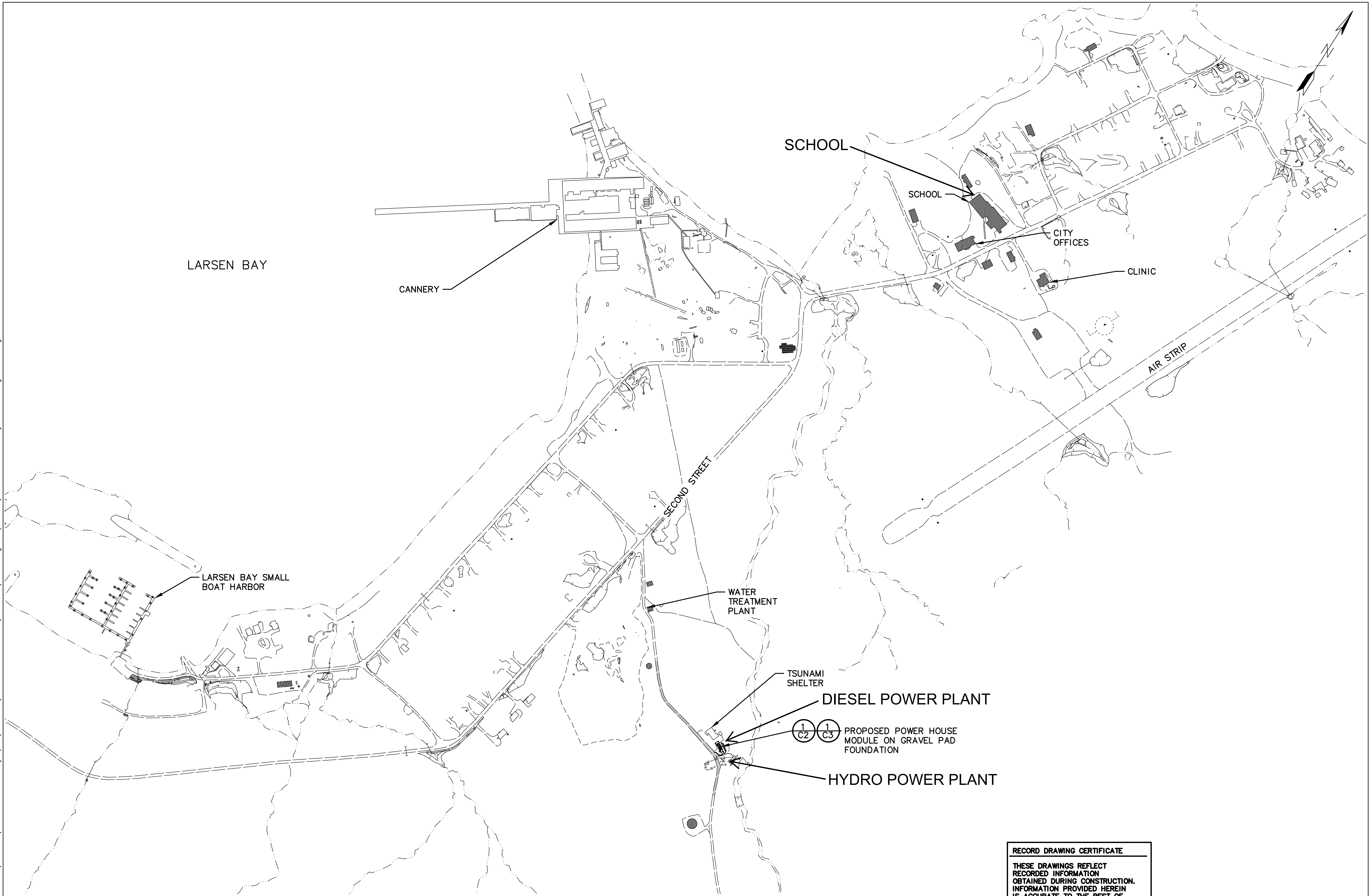
THESE DRAWINGS HAVE BEEN PREPARED FROM A FIELD OBSERVATION BY THE UNDERSIGNED ENGINEER. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.

*John Daleson*

DATE: OCTOBER 27, 2015

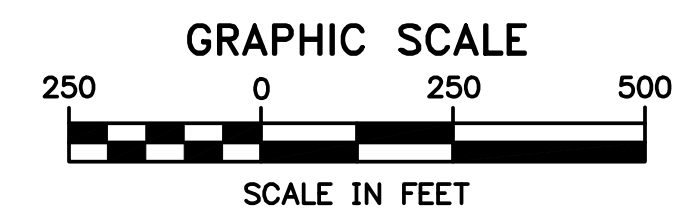
State of Alaska Department of Community and Economic Development <b>AIDEA/AEA</b> Rural Energy Group 813 West Northern Lights Blvd. Anchorage, Alaska 99503		<b>ALASKA ENERGY AUTHORITY</b>
PROJECT: ST. GEORGE POWER SYSTEM UPGRADE		
TITLE: WIREWAY PLAN & MODULE SECTION		
<b>Gray Stassel Engineering, Inc.</b> P.O. 111405, Anchorage, AK 99511 (907)349-0100	DRAWN BY: BCG/JTD DESIGNED BY: CWV/BCG FILE NAME: STGE E2-E5A PROJECT NUMBER: 12-3-9591	SCALE: NO SCALE DATE: 6/14/13 SHEET: E3.1 OF 9

File: \\fas2040\jobstuff\jobsdata\30403.23 Larsen Bay Rpsu\00 CADD\03 Submittal Archives\cs-buils\01 Working Set\01 Civil\30403.23 Larsen Bay Module Design Alt 4.dwg

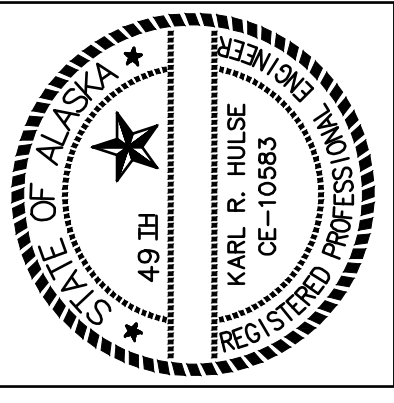


**1**  
**C1** **VICINITY MAP**  
SCALE: GRAPHIC

**RECORD DRAWING CERTIFICATE**  
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.  
*Andy Hordowsky* 02/24/2015  
NAME DATE



State of Alaska  
Department of Community  
and Economic Development  
**AIDEA/AEA**  
Rural Energy Group  
813 West Northern Lights Blvd.  
Anchorage, Alaska 99503



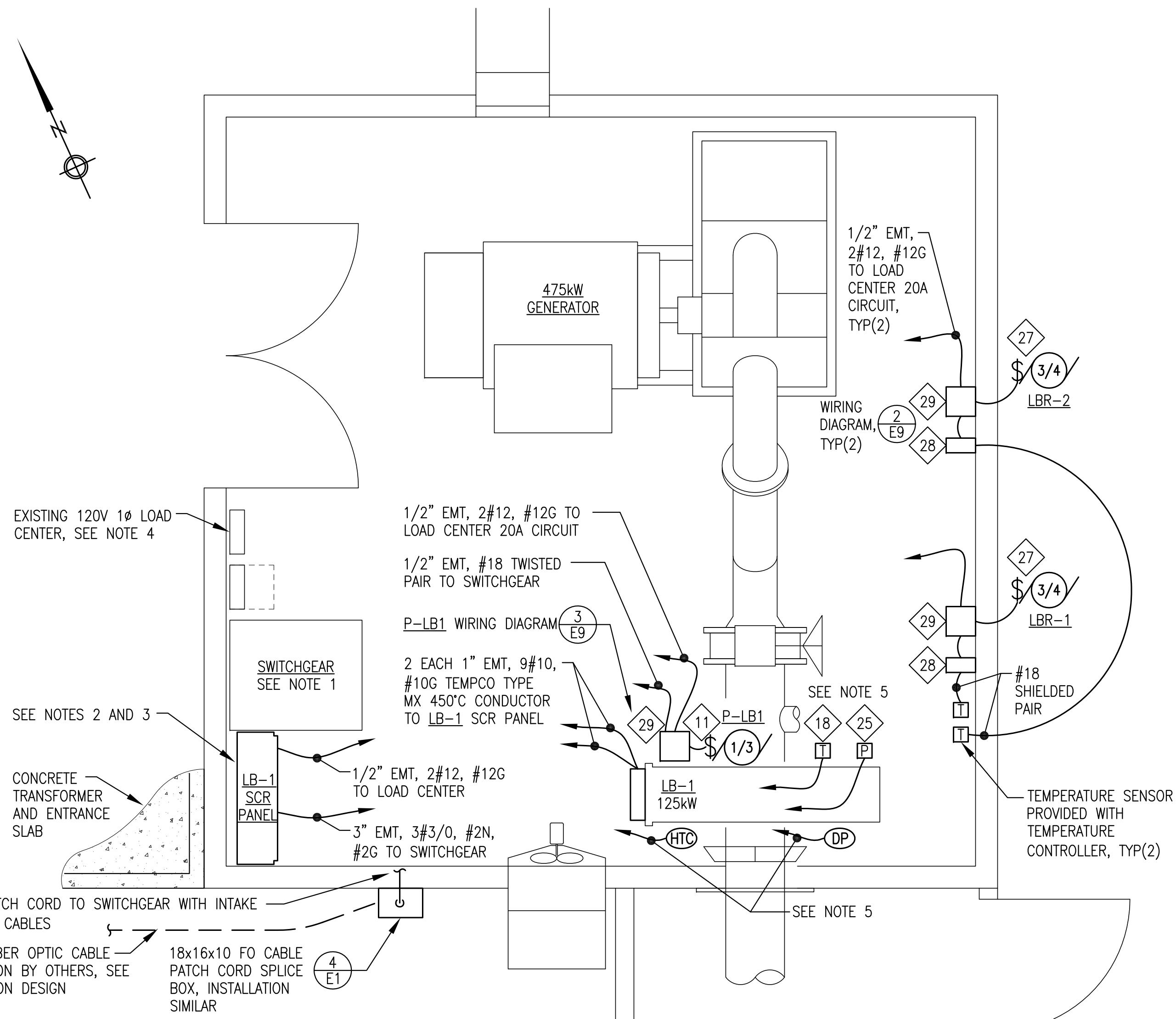
**CRW**  
**ENGINEERING GROUP LLC**  
3940 ARCTIC BLVD., SUITE 300  
ANCHORAGE, ALASKA 99503  
PHONE: (907) 562-2352  
FAX: (907) 561-2275

**LARSEN BAY, ALASKA**  
**RURAL POWER SYSTEM UPGRADE**  
VICINITY MAP

NO.	REVISION	BY	DATE
0	ISSUED FOR CONSTRUCTION	KRH	2/2014
1	RECORD DRAWINGS	WDM	02/2015

Plot Date: 2/25/15  
Designed: AMH  
Drawn: NCP  
Approved: KRH

Sheet No. **C1**  
SHEET OF



- ### LB-1 INSTALLATION NOTES
- SEE CONTROLLED POWER REVISED SWITCHGEAR DRAWINGS FOR NEW LB-1 BREAKER INSTALLATION AND OTHER MISC. SWITCHGEAR REVISIONS.
  - SEE CONTROLLED POWER LB-1 SCR PANEL DESIGN DRAWINGS FOR ALL CONTROL AND POWER CONDUCTOR CONNECTIONS.
  - SUPPORT LB-1 SCR PANEL FROM BACK WALL WITH STRUT RACK AS REQUIRED TO ACCOMMODATE EXISTING CONDUIT, TYP.
  - INSTALL 3 EACH NEW 20A SINGLE POLE BREAKERS IN EXISTING CUTLER-HAMMER STATION SERVICE LOAD CENTER.
  - INSTALL PRESSURE SENSOR, TEMPERATURE SENSOR, DIFFERENTIAL PRESSURE SWITCH AND HIGH TEMPERATURE CUT-OUT FOR ELECTRIC BOILER CONTROL. SEE LB-1 PIPING DIAGRAM, SHEET M9.2 FOR DEVICE LOCATIONS. ROUTE #18 SHIELDED PAIRS TO SWITCHGEAR.

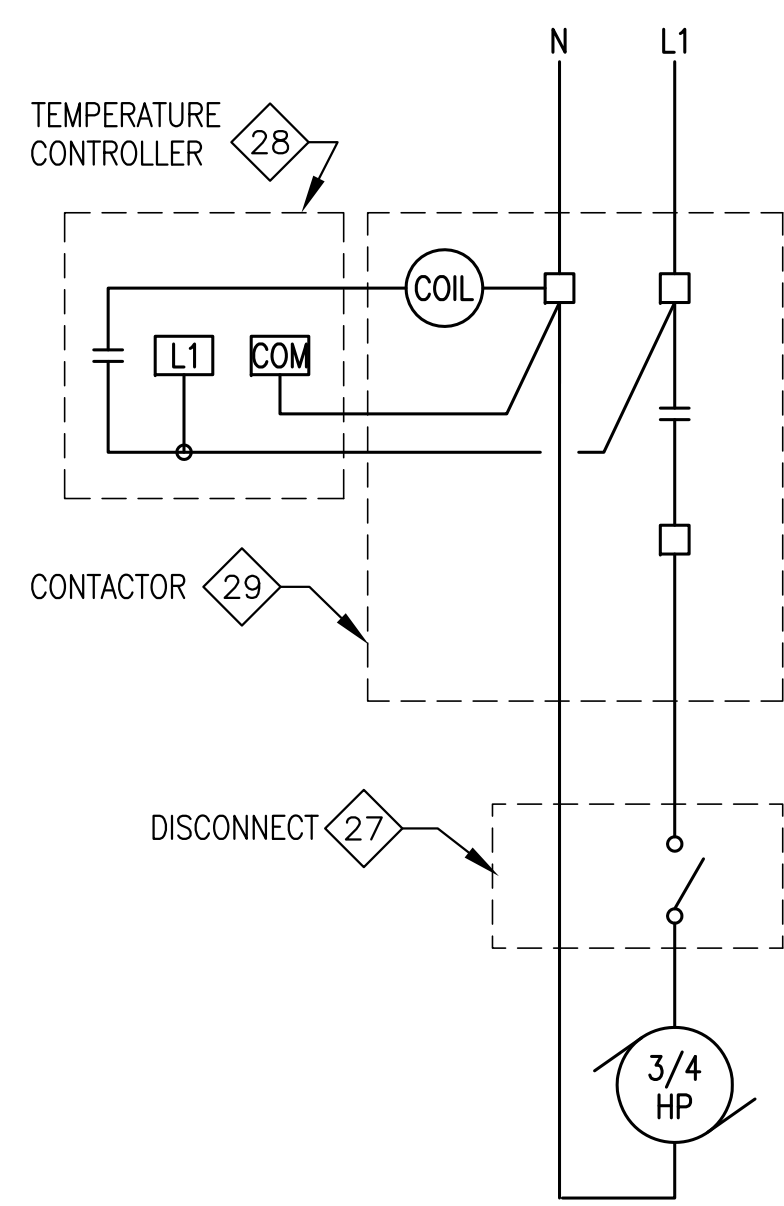
### SYMBOL LEGEND

SYMBOL	DESCRIPTION
SS-##	HOME RUN TO PANEL & BREAKER(S) INDICATED. SHORT DASH INDICATES HOT CONDUCTOR, LONG DASH INDICATES NEUTRAL CONDUCTOR, CURVED DASH INDICATES GROUND CONDUCTOR. IF NOT SPECIFICALLY INDICATED, PROVIDE 2#12 AWG & 1#12 AWG GROUND.
#	ELECTRICAL ITEM SEE EQUIPMENT SCHEDULE
(1/4)	MOTOR (HORESPOWER INDICATED)
(T)	LINE VOLTAGE THERMOSTAT
\$	SNAP SWITCH/ SMALL MOTOR DISCONNECT
⏚	GROUND

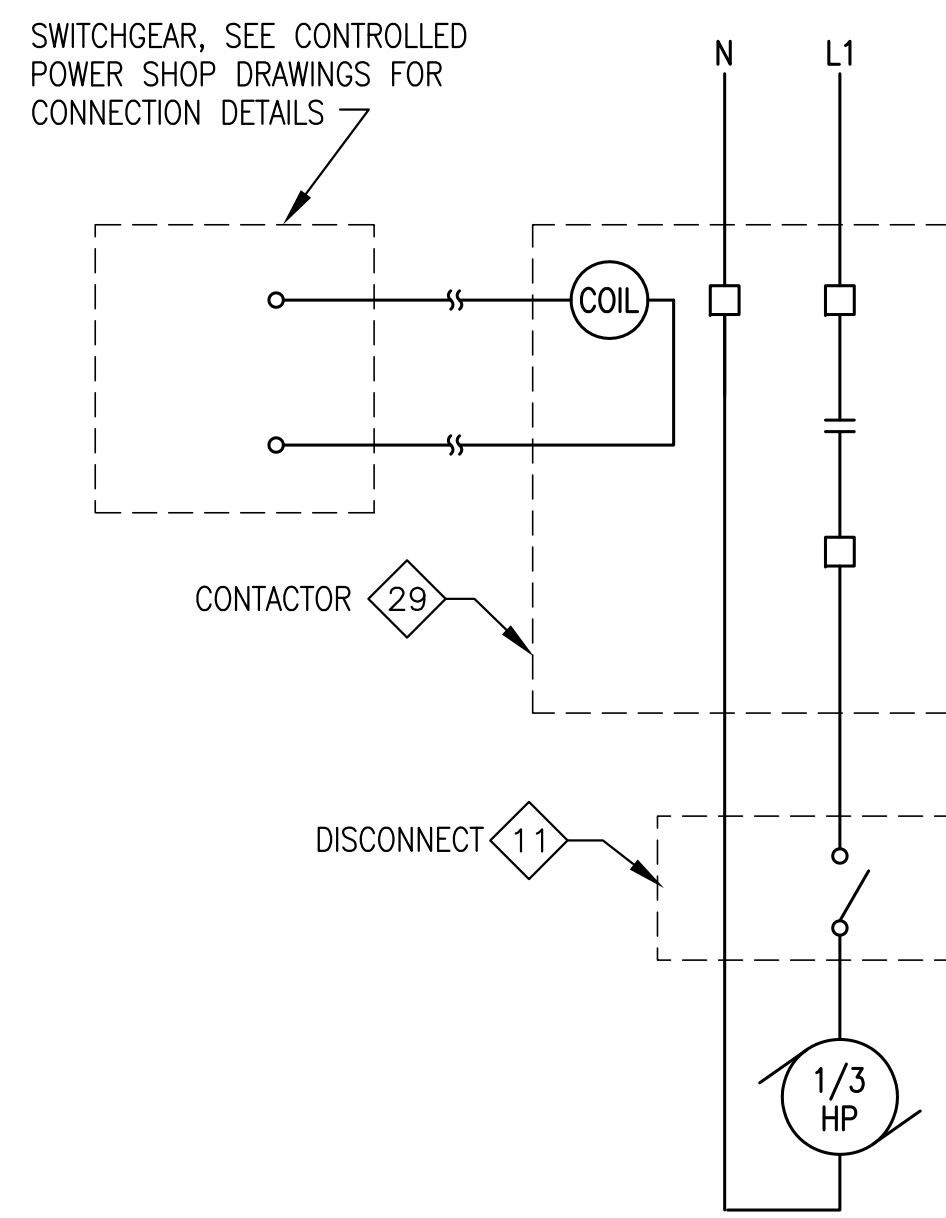
### HYDRO POWERHOUSE ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER
11	SINGLE POLE SNAP SWITCH WITH RED PILOT LIGHT, 120V, 20A, 1-1/2HP. INSTALL IN 4"x4" STEEL BOX WITH INDUSTRIAL RAISED FACE STEEL COVER.	HUBBELL 1221-PL
18	TEMPERATURE TRANSMITTER, RTD, 20-240°F RANGE, 4-20mA OUTPUT, 1/2" NPT PIPING CONNECTION, 6mm DIAMETER BY 2.5" LONG STEM, HIRSCHMANN ELECTRICAL CONNECTION	NOSHOK 800-20/240-1-1-8-8-025-6
25	PRESSURE TRANSMITTER, 0-60 PSIG RANGE, 4-20mA OUTPUT, 1/4" NPT PIPING CONNECTION, HIRSCHMANN ELECTRICAL CONNECTION	NOSHOK 100-60-1-1-2-7
27	LOCKABLE SWITCH. FACTORY SEALED NEMA 3, 7, & 9 EXPLOSION PROOF CONSTRUCTION WITH 3/4" FEED-THROUGH HUBS, 2PST, 250V, 30A, 2HP RATED	KILLARK FXSX-52 ASSEMBLY
28	TEMPERATURE CONTROLLER, -30°F TO 212°F, 120VAC WITH PTC TEMPERATURE SENSOR, -40°F TO 250°F, PVC JACKETED CABLE, IMMERSION WELL, 3" LONG PROBE, 1/2" NPT PROCESS CONNECTION	JOHNSON CONTROLS A419ABC-1C & WEL11A-601R
29	FAN CONTACTOR, IEC STYLE, 16A, 120V, MIN 1HP RATED, 120V COIL, NEMA 1 ENCLOSURE, HAND/OFF/AUTO CONTROL	ALLEN BRADLEY 100C16D10, 198EBA966 & 198MT1

**1** HYDRO POWERHOUSE PLAN  
E9 1/2"=1'-0"



**2** LBR-1 & LBR-2 WIRING DIAGRAM  
E9 NO SCALE



**3** P-LB1 WIRING DIAGRAM  
E9 NO SCALE

**RECORD DRAWING**

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*John Dalson*

DATE: 1/12/15

State of Alaska  
Department of Community and Economic Development  
AIDEA/AEA  
Rural Energy Group  
813 West Northern Lights Blvd.  
Anchorage, Alaska 99503

**ALASKA ENERGY AUTHORITY**

PROJECT: **LARSEN BAY POWER SYSTEM UPGRADE**

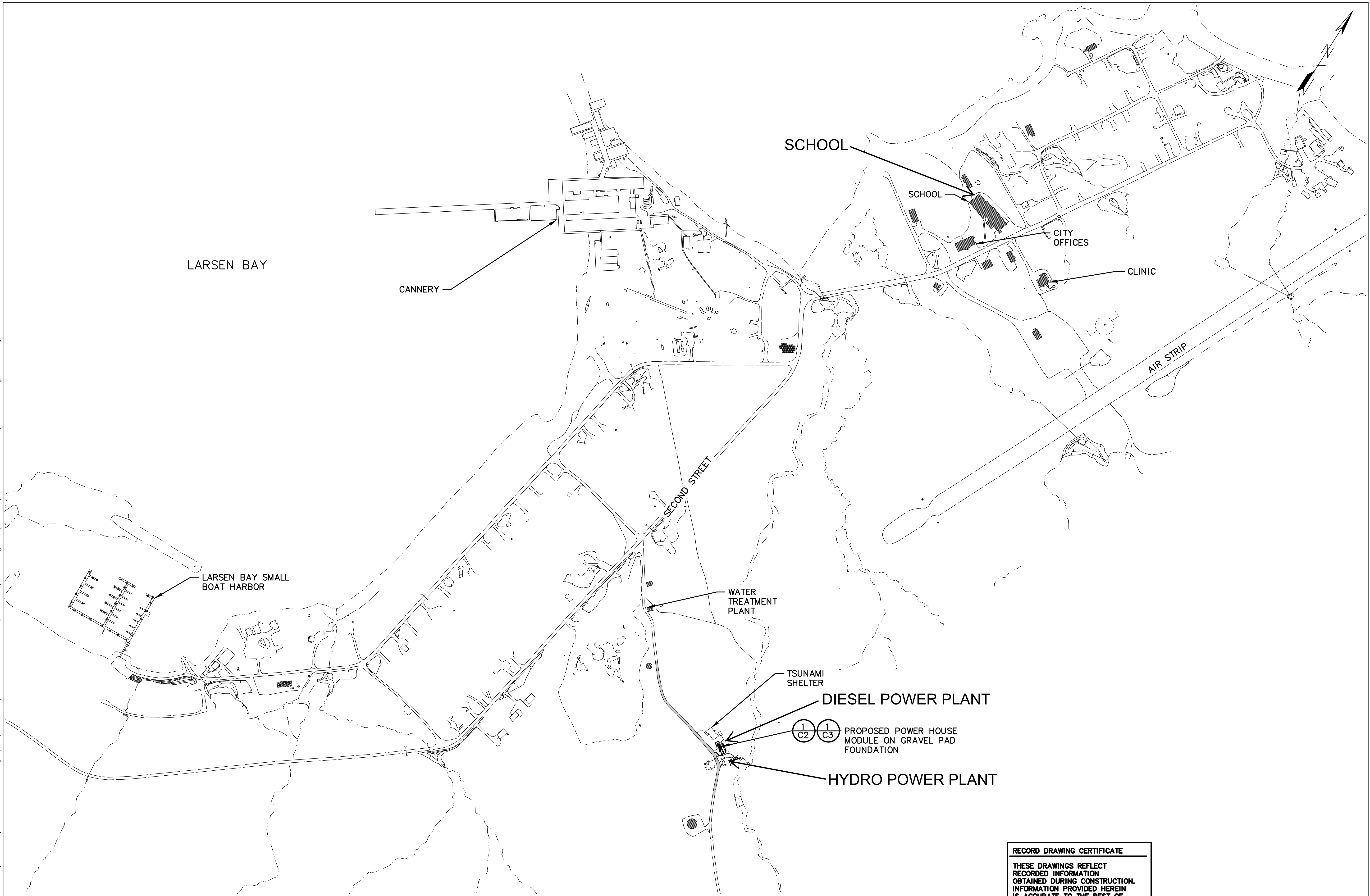
TITLE: **HYDRO POWERHOUSE LOAD BANK INSTALLATION PLAN, SCHEDULES & DETAILS**

DRAWN BY: JTD  
DESIGNED BY: CWV/BCG  
FILE NAME: LBAY E8-E9A  
PROJECT NUMBER:

SCALE: NO SCALE  
DATE: JUNE 2014  
SHEET: **E9** OF 9

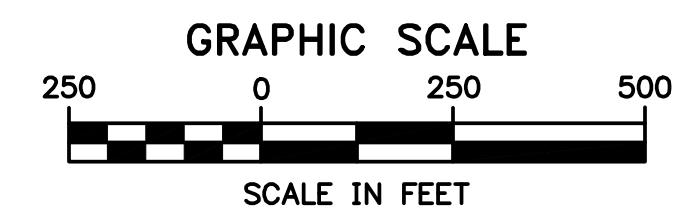
**Gray Stassel Engineering, Inc.**  
P.O. 111405, Anchorage, AK 99511 (907)349-0100

File: \\fas2040\jobstuff\jobsdata\30403.23 Larsen Bay Rpsu\00 CADD\03 Submittal Archives\cs-buils\01 Working Set\01 Civil\30403.23 Larsen Bay Module Design Alt 4.dwg

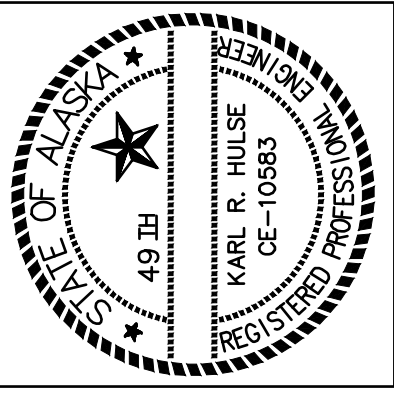


1  
C1 VICINITY MAP  
SCALE: GRAPHIC

**RECORD DRAWING CERTIFICATE**  
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*Andy Hordowsky* 02/24/2015  
 NAME DATE



State of Alaska  
 Department of Community and Economic Development  
 AIDEA/AEA  
 Rural Energy Group  
 813 West Northern Lights Blvd  
 Anchorage, Alaska 99503



**CRW**  
 ENGINEERING GROUP LLC  
 3940 ARCTIC BLVD, SUITE 300  
 ANCHORAGE, ALASKA 99503  
 PHONE: (907) 562-2352  
 FAX: (907) 561-2275

LARSEN BAY, ALASKA  
 RURAL POWER SYSTEM UPGRADE  
 VICINITY MAP

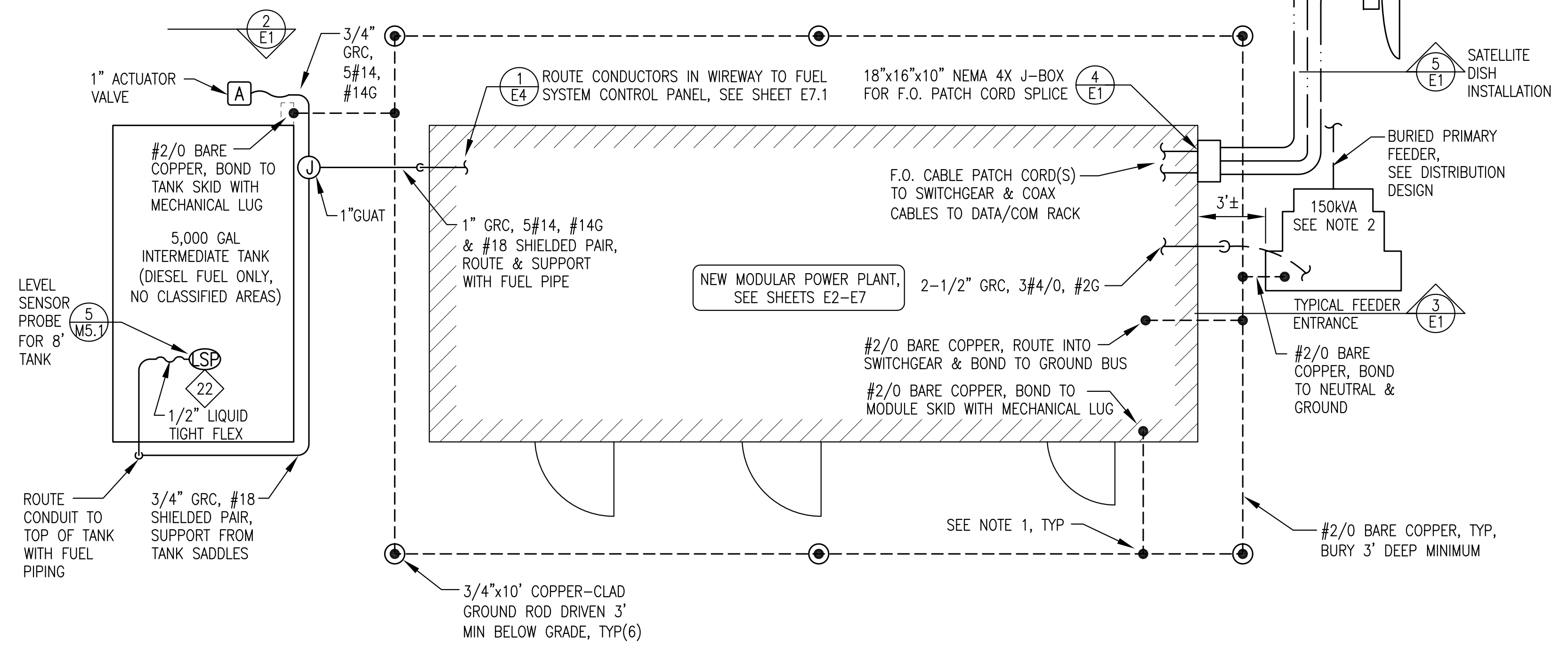
NO.	REVISION	BY	DATE
0	ISSUED FOR CONSTRUCTION	KRH	2/2014
1	RECORD DRAWINGS	WDM	02/2015

Plot Date: 2/25/15  
 Designed: AMH  
 Drawn: NCP  
 Approved: KRH

Sheet No. C1  
 SHEET OF

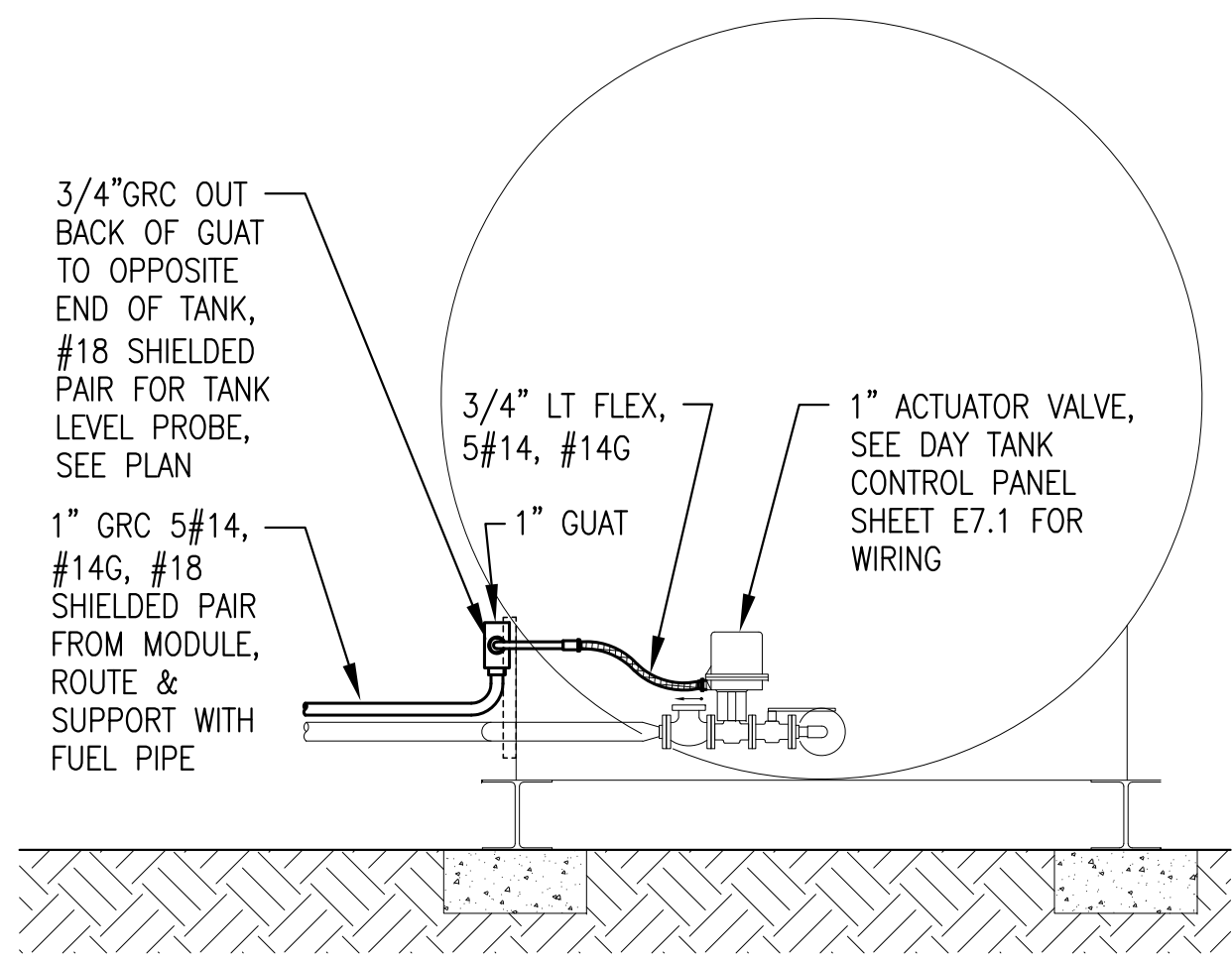
**NOTES:**

- CAD-WELD ALL GROUNDING GRID CABLE AND GROUND ROD CONNECTIONS.
- NEW PAD MOUNT 150kVA STEP-UP TRANSFORMER, 480V DELTA TO 7200/12470 WYE. INSTALL ON FIBERGLASS GROUND SLEEVE. PROVIDE TRANSFORMER GROUNDING IN ACCORDANCE WITH RUS CONSTRUCTION UNIT UM48-2, TYP(2).
- FOR ALL EXTERIOR GRC CLEAN & DE-GREASE THREADS AFTER CUTTING & SPRAY WITH COLD GALV PRIOR TO ASSEMBLY.

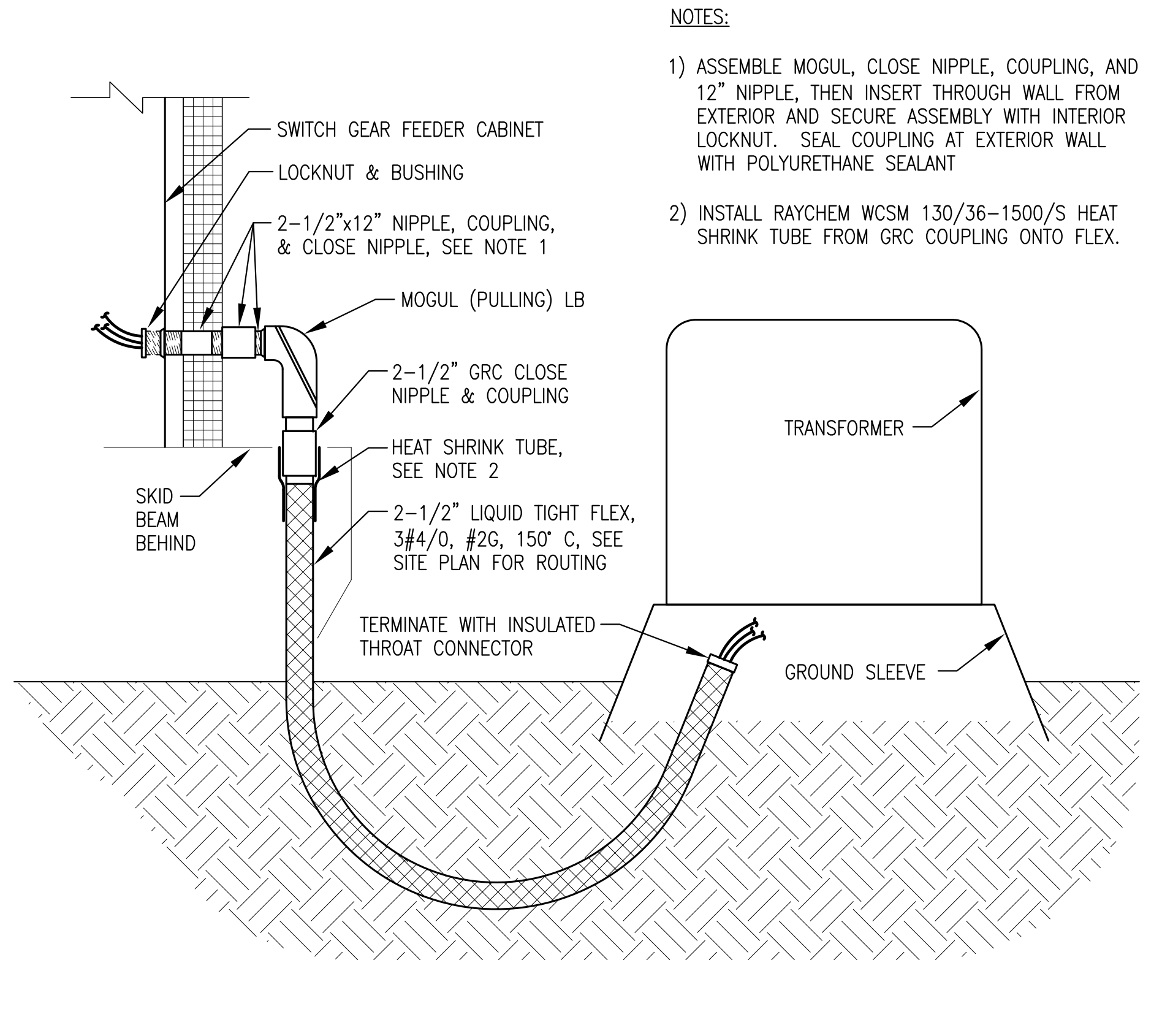


**1** POWER PLANT SITE PLAN  
E1 1"=4'

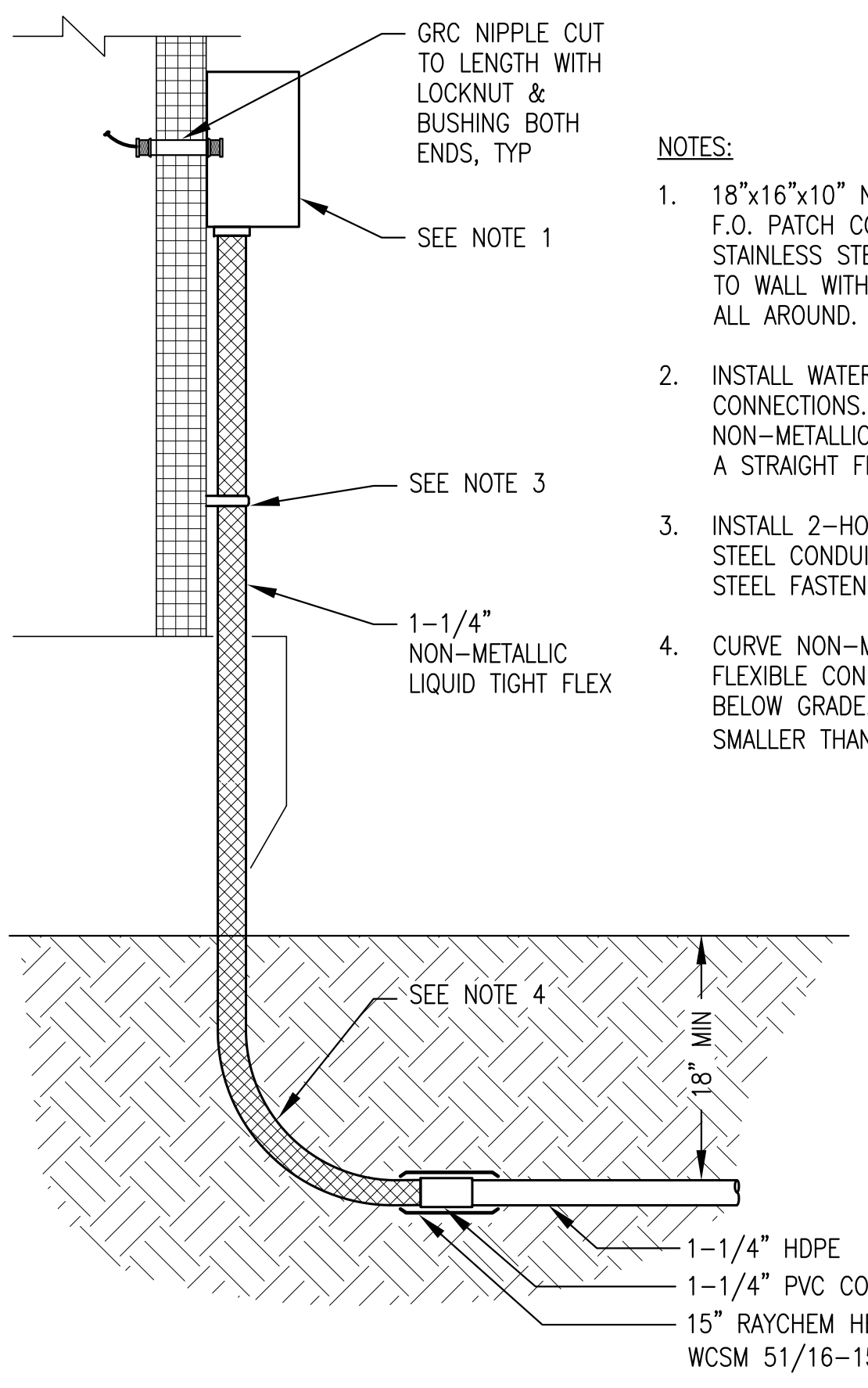
**2** INTERMEDIATE TANK NORTH END VIEW  
E1 NO SCALE



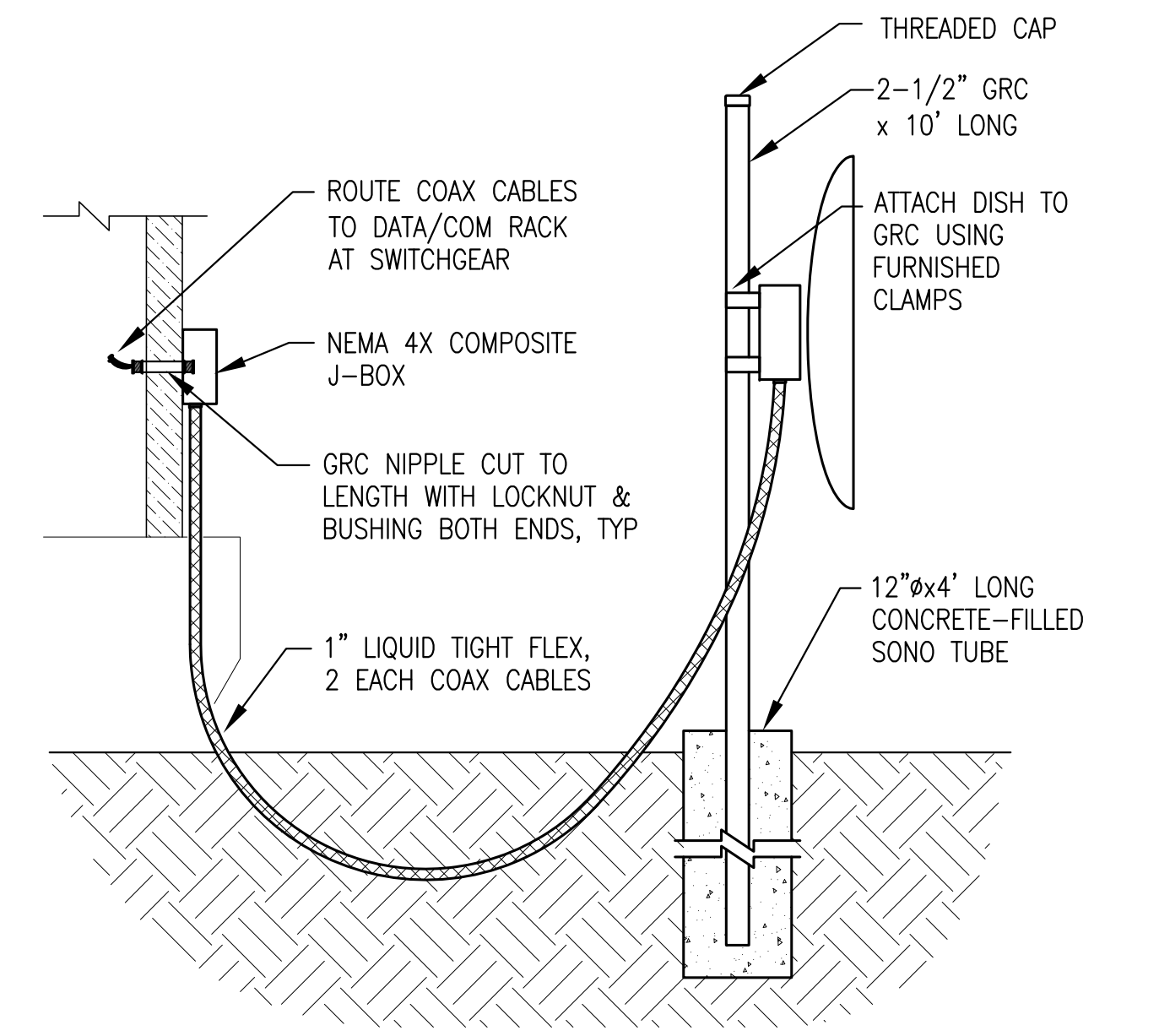
SCHEDULE OF DRAWINGS	
E1	POWER PLANT SITE PLAN & SCHEDULE OF DRAWINGS
E2	SPECIFICATIONS & EQUIPMENT SCHEDULE
E3.1	WIREWAY PLAN & MODULE SECTIONS
E3.2	ELEVATIONS & DETAILS
E4	BUILDING PLANS & STATION SERVICE PANEL
E5	DATA/COMMUNICATION PLAN & DETAILS
E6.1	SWITCHGEAR ENCLOSURE LAYOUT & TERMINAL STRIP
E6.2	SWITCHGEAR ONE-LINE & SCHEMATICS
E6.3	ENGINE CONTROL WIRING JUNCTION BOX 24VDC GENERATOR #1
E6.4	ENGINE CONTROL WIRING JUNCTION BOX 12VDC GENERATOR #2 & #3
E6.5	100 kW SCHOOL ELECTRIC BOILER EB-1 SCR PANEL THREE-LINE & SCHEMATICS
E6.6	125 kW HYDRO PLANT LOAD BANK LB-1 SCR PANEL THREE-LINE & SCHEMATICS
E7.1	DAY TANK CONTROL PANEL LOGIC DIAGRAM & BILL OF MATERIALS
E7.2	DAY TANK CONTROL PANEL LAYOUT, INSTALLATION & TERMINAL STRIP
E7.3	DAY TANK CONTROL PANEL NOTES, SEQUENCE OF OPERATIONS & INTERCONNECT DETAILS
E8	SCHOOL ELECTRIC BOILER INSTALLATION PLAN, SCHEDULES & DETAILS
E9	HYDRO POWERHOUSE LOAD BANK INSTALLATION PLAN, SCHEDULES & DETAILS



**3** MAIN FEEDER BUILDING ENTRANCE  
E1 NO SCALE



**4** FIBER OPTIC CABLE ENTRANCE  
E1 NO SCALE



**5** SATELLITE DISH INSTALLATION  
E1 NO SCALE

**NOTES:**

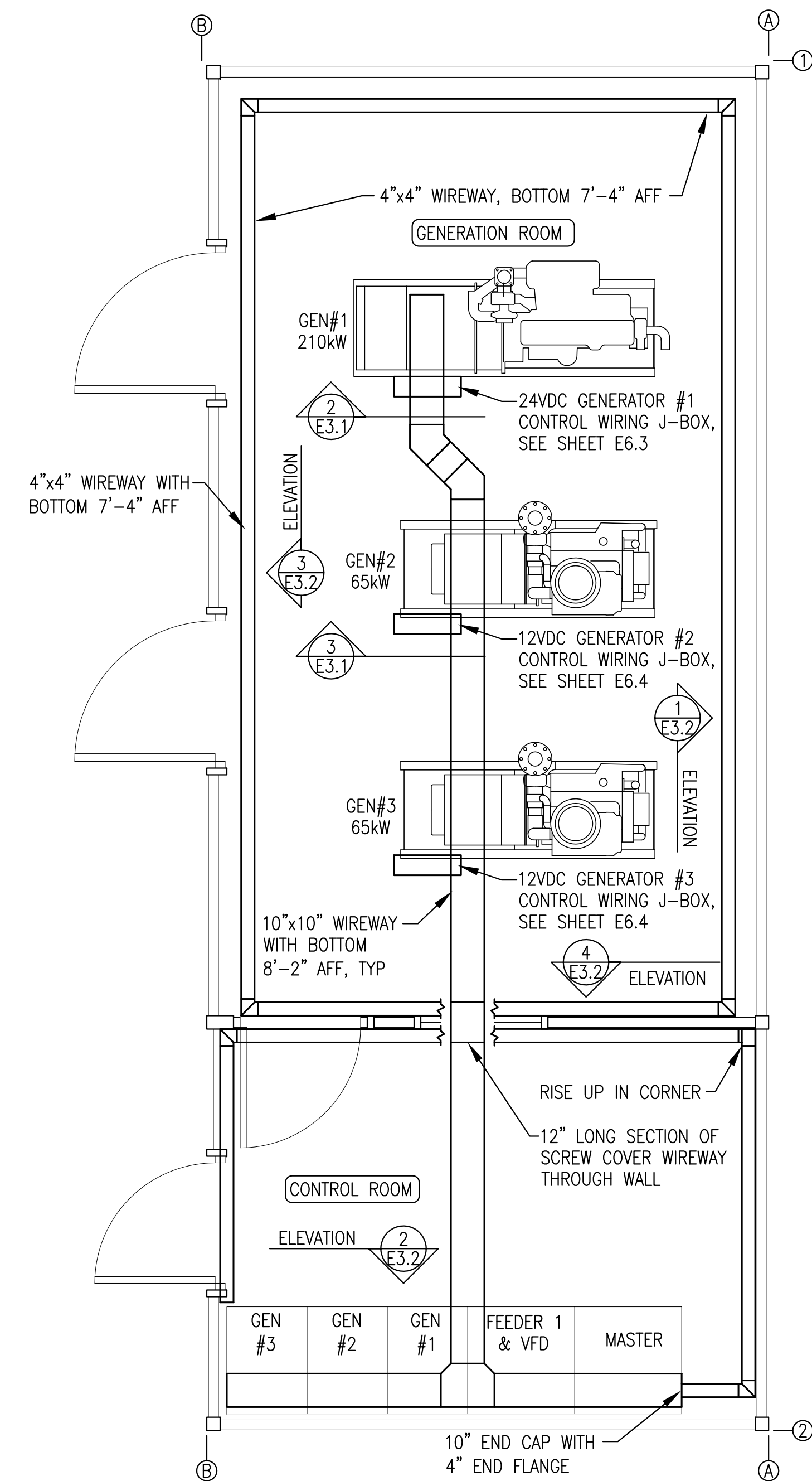
- ASSEMBLE MOGUL, CLOSE NIPPLE, COUPLING, AND 12" NIPPLE, THEN INSERT THROUGH WALL FROM EXTERIOR AND SECURE ASSEMBLY WITH INTERIOR LOCKNUT. SEAL COUPLING AT EXTERIOR WALL WITH POLYURETHANE SEALANT
- INSTALL RAYCHEM WCSM 130/36-1500/S HEAT SHRINK TUBE FROM GRC COUPLING ONTO FLEX.

**NOTES:**

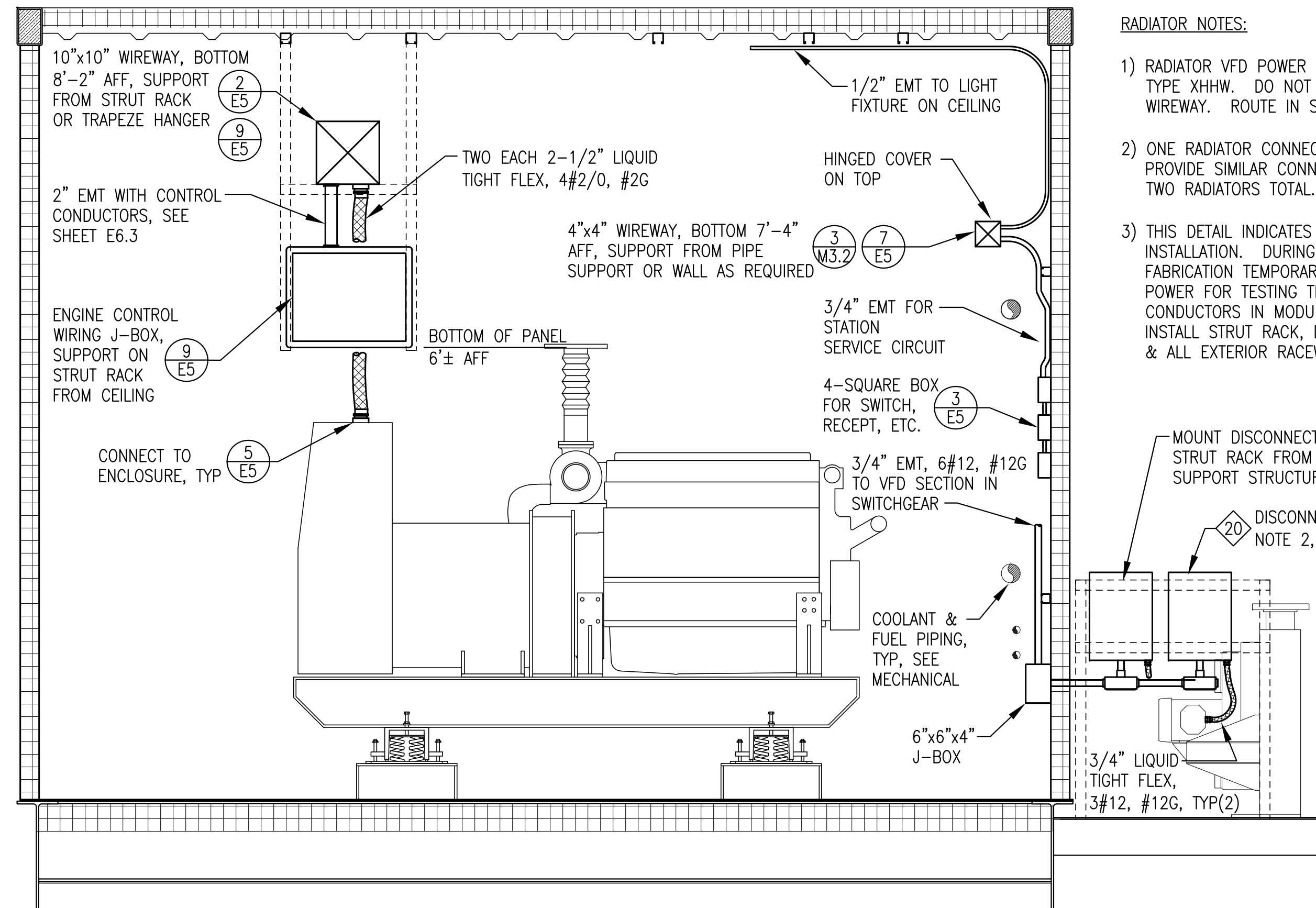
- 18"x16"x10" NEMA 4X SPLICE BOX FOR F.O. PATCH CORD SPLICE. INSTALL WITH STAINLESS STEEL FASTENERS AND SEAL TO WALL WITH POLYURETHANE CAULK ALL AROUND.
- INSTALL WATER TIGHT HUB ON ALL CONNECTIONS. TERMINATE LIQUID TIGHT NON-METALLIC FLEXIBLE CONDUIT WITH A STRAIGHT FLEX CONNECTOR.
- INSTALL 2-HOLE PVC OR STAINLESS STEEL CONDUIT STRAP WITH STAINLESS STEEL FASTENERS.
- CURVE NON-METALLIC LIQUID TIGHT FLEXIBLE CONDUIT UP. KEEP RADIUS BELOW GRADE. DO NOT BEND CONDUIT SMALLER THAN A 12" RADIUS.

**RECORD DRAWING**  
THESE DRAWINGS HAVE BEEN PREPARED FROM A FIELD OBSERVATION BY THE UNDERSIGNED ENGINEER. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.  
*John Dalson*  
DATE: 1/12/15

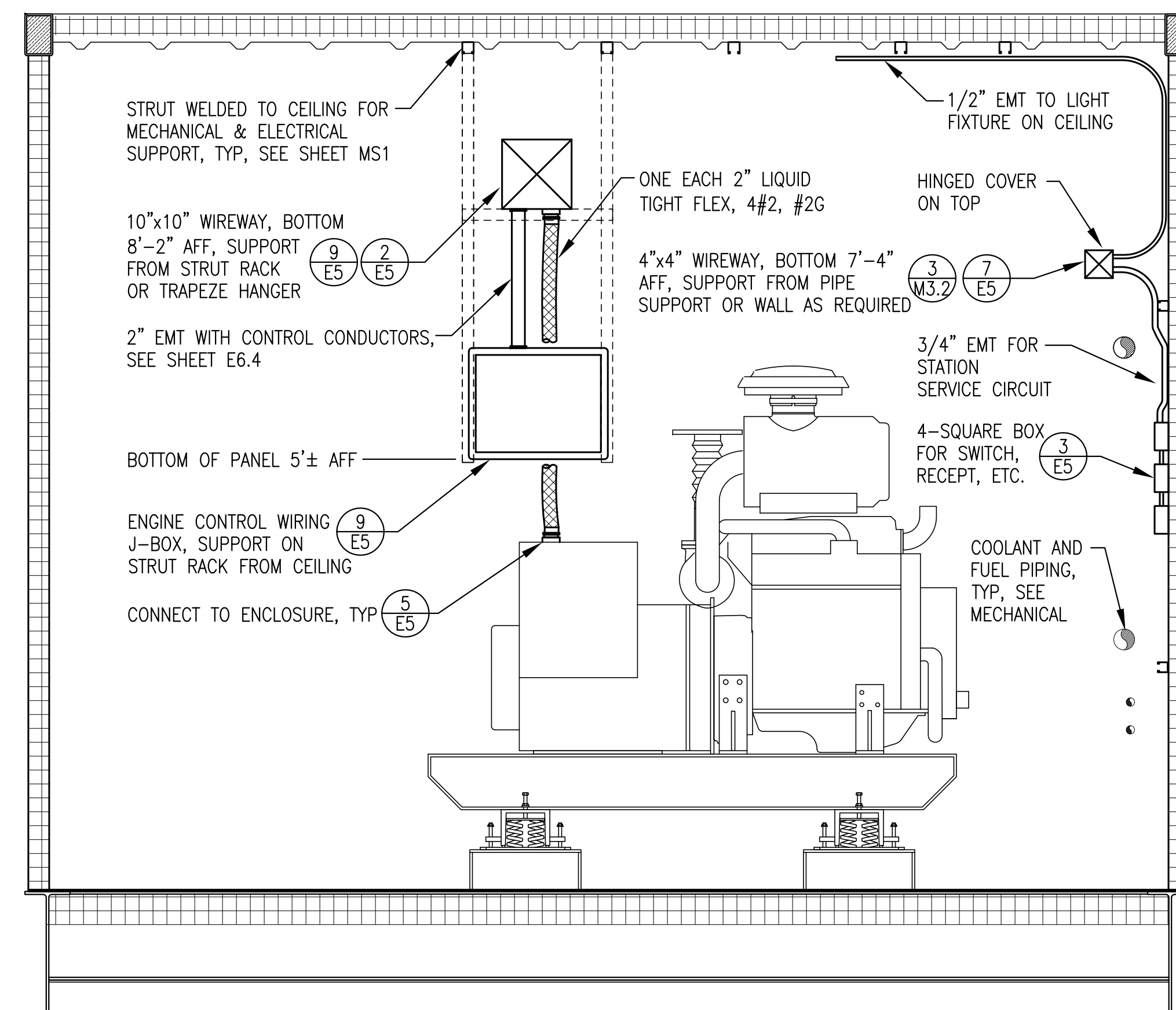
1	ADDED SHEETS E8 & E9 TO DRAWING SCHEDULE, CHANGED FEEDER CONDUIT TO 2-1/2"	JUNE 2014	BCG
REV.	DESCRIPTION	DATE	BY
State of Alaska Department of Community and Economic Development <b>AIDEA/AEA</b> Rural Energy Group 813 West Northern Lights Blvd. Anchorage, Alaska 99503 <b>ALASKA ENERGY AUTHORITY</b>			
PROJECT: <b>LARSEN BAY POWER SYSTEM UPGRADE</b>			
TITLE: <b>POWER PLANT SITE PLAN &amp; DETAILS</b>			
DRAWN BY: BCG		SCALE: NO SCALE	
DESIGNED BY: CWB/BCG		DATE: JAN 2014	
FILE NAME: LBAY E1A		SHEET: <b>E1</b> OF 7	
PROJECT NUMBER:			
P.O. 111405, Anchorage, AK 99511 (907)349-0100			



**1** WIREWAY PLAN  
E3.1 3/8"=1'-0"



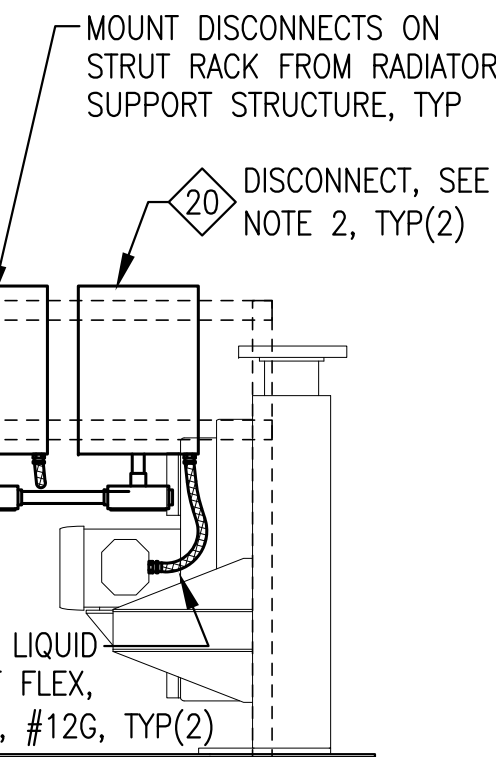
**2** MODULE SECTION THROUGH GENERATOR #1  
E3.1 3/4"=1'-0"



**3** MODULE SECTION THROUGH GENERATOR #2 (GENERATOR #3 SECTION SIMILAR)  
E3.1 3/4"=1'-0"

**RADIATOR NOTES:**

- 1) RADIATOR VFD POWER CONDUCTORS TYPE XHHW. DO NOT ROUTE IN WIREWAY. ROUTE IN SEPARATE EMT.
- 2) ONE RADIATOR CONNECTION SHOWN. PROVIDE SIMILAR CONNECTIONS TO TWO RADIATORS TOTAL.
- 3) THIS DETAIL INDICATES FIELD INSTALLATION. DURING SHOP FABRICATION TEMPORARILY RUN POWER FOR TESTING THEN COIL CONDUCTORS IN MODULE. IN FIELD INSTALL STRUT RACK, DISCONNECTS, & ALL EXTERIOR RACEWAYS.



**RECORD DRAWING**

THESE DRAWINGS HAVE BEEN PREPARED FROM A FIELD OBSERVATION BY THE UNDERSIGNED ENGINEER. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN.

*John Dalen*  
DATE: 1/12/15

State of Alaska  
Department of Community and Economic Development  
AIDEA/AEA  
Rural Energy Group  
813 West Northern Lights Blvd.  
Anchorage, Alaska 99503

PROJECT: LARSEN BAY POWER SYSTEM UPGRADE

TITLE: WIREWAY PLAN & MODULE SECTIONS

 P.O. 111405, Anchorage, AK 99511 (907)349-0100	DRAWN BY: BCG DESIGNED BY: CWV/BCG FILE NAME: LBAY E2-E5A PROJECT NUMBER:	SCALE: NO SCALE DATE: JAN 2014 SHEET: <b>E3.1</b> OF 7
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**DEMOLITION GENERAL NOTES:**

1. PRIOR TO BEGINNING DEMOLITION WORK COMPLETE PRELIMINARY WORK SO THAT GEN#2 IS CONNECTED TO THE TEMPORARY STAND ALONE RADIATOR AND IS POWERING THE COMMUNITY.
2. THIS PLANT PROVIDES PRIME POWER TO THE COMMUNITY OF DEERING. KEEP OUTAGES TO A MINIMUM AND COORDINATE ALL REQUIRED OUTAGES WITH THE UTILITY. NOTE THAT A MINIMUM OF TWO GENERATORS ARE REQUIRED TO BLACK START THE COMMUNITY SO ONLY TAKE ONE GENERATOR OFF LINE AT A TIME.
3. ALL ITEMS TO REMAIN UNLESS SPECIFICALLY INDICATED FOR REMOVAL. AREAS CONTAINING EXISTING EQUIPMENT TO BE REMOVED INDICATED BY HATCHING.
4. ENSURE ALL EQUIPMENT & CIRCUITS TO BE REMOVED ARE DE-ENERGIZED PRIOR TO BEGINNING DEMOLITION. LOCK & TAG OUT ALL AFFECTED CIRCUIT BREAKERS & DISCONNECTS.
5. TAKE ALL PRECAUTIONS TO MINIMIZE DAMAGE TO ELECTRICAL EQUIPMENT AND CONDUCTORS BEING SALVAGED FOR REUSE. TURN ALL REMOVED MATERIALS AND EQUIPMENT OVER TO THE UTILITY FOR FINAL DISPOSITION IF NOT REUSED.

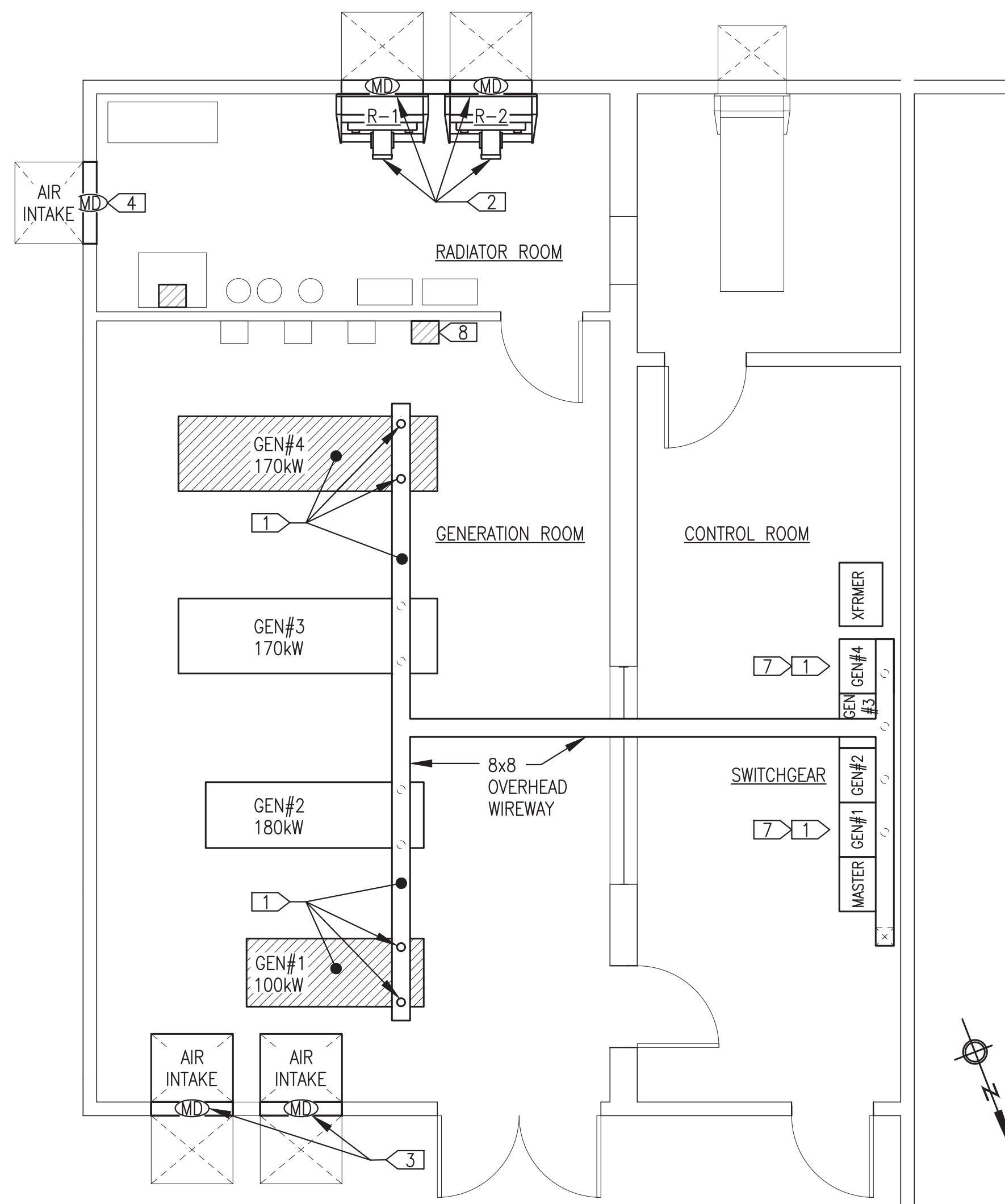
**DEMOLITION SPECIFIC NOTES:**

**BASE BID**

- 1 GENSSET TO BE REMOVED IN ITS ENTIRETY INCLUDING ALL EXISTING POWER CABLES AND CONTROL INTERCONNECT CONDUCTORS BACK TO SWITCHGEAR. DEMOLISH CONDUIT RISERS AND CONDUIT BODIES BETWEEN GENERATOR ENCLOSURE AND OVERHEAD WIREWAY.
- 2 DISCONNECT RADIATOR FAN POWER, VFD CONTROL, AND DAMPER ACTUATOR CONDUCTORS; COIL IN SAFE LOCATION, AND LOCKOUT SWITCHGEAR RADIATOR FEEDER BREAKER IN PREPARATION FOR RADIATOR TANK/CORE REPLACEMENT.
- 3 GENERATION ROOM AIR INTAKE MOTORIZED DAMPER TO BE PERMANENTLY TAKEN OUT OF SERVICE. DISCONNECT AND REMOVE CONDUCTORS BETWEEN DISCONNECT AND ELECTRIC ACTUATOR
- 4 RADIATOR ROOM AIR INTAKE MOTORIZED DAMPER TO BE DEMOLISHED. REMOVE ENTIRE ELECTRIC ACTUATOR CIRCUIT BACK TO STATION SERVICE PANEL, INCLUDING CONDUCTORS, CONDUIT, AND DISCONNECT.
- 5 SEE MECHANICAL.
- 6 SEE MECHANICAL.
- 7 REMOVE EXISTING SWITCHGEAR COMPONENTS AND WIRING AS REQUIRED FOR REPAIRS/UPGRADES. SEE SHEET E2.1.
- 8 REMOVE EXISTING GEN#1 BATTERY CHARGER. EXISTING BATTERIES, CHARGING LEADS, AND 120V POWER CIRCUIT TO REMAIN.
- 9 SEE NEW WORK.
- 10 SEE MECHANICAL.

**ADDITIVE ALTERNATES**

- A1 SEE NEW WORK.
- A2 SEE MECHANICAL.
- A3 SEE NEW WORK.



**NEW WORK GENERAL NOTES:**

1. EXISTING EQUIPMENT TO REMAIN IN SERVICE SHOWN WITH LIGHT DASHED LINES.
2. NEW EQUIPMENT TO BE INSTALLED SHOWN WITH DARK SOLID LINES.
3. OUTLINE OF MAJOR NEW WORK TASKS SHOWN ONLY THIS SHEET. SEE NEW WORK PLANS, ELEVATIONS, AND DETAILS SHEETS E2-E4 FOR ADDITIONAL DETAILS.
4. INSTALL DECALS, SEE SHEET M3.1.

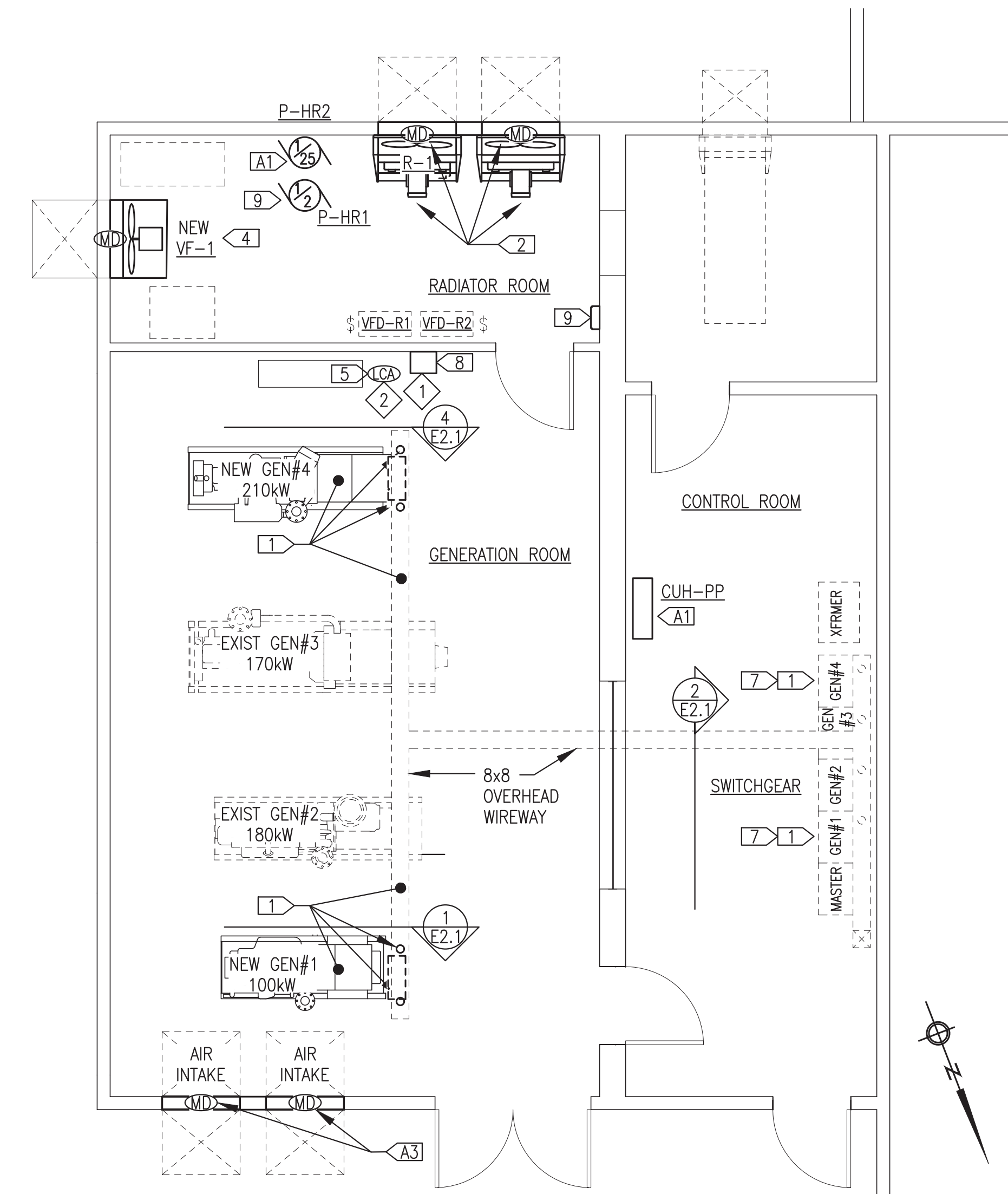
**NEW WORK SPECIFIC NOTES:**

**BASE BID**

- 1 INSTALL COMPLETE NEW GENSET, CONDUIT, POWER CONDUCTORS, CONTROL CONDUCTORS, ETC, AND CONNECT TO SWITCHGEAR. SEE SHEET E2.1.
- 2 RECONNECT EXISTING WIRING TO RADIATOR FAN MOTOR AND ELECTRIC DAMPER ACTUATOR AFTER REBUILDING AND REINSTALLING RADIATOR ASSEMBLIES (IDENTICAL TO ORIGINAL). COORDINATE WITH MECHANICAL.
- 3 SEE DEMOLITION.
- 4 INSTALL WIRING FOR NEW RADIATOR BOOST VENTILATION FAN VF-1 AND ASSOCIATED MOTORIZED DAMPER.
- 5 NEW LOW COOLANT LEVEL ALARM SWITCH INSTALLED WITH NEW EXPANSION TANK ET-1, SEE MECHANICAL. ROUTE NEW 2#14 TO GEN#1 SWITCHGEAR SECTION IN EXISTING STATION SERVICE WIREWAY AND CONNECT TO EXISTING SWITCHGEAR LOW COOLANT LEVEL ALARM CIRCUIT.
- 6 SEE MECHANICAL.
- 7 INSTALL NEW DEVICES, TERMINALS AND WIRING IN SWITCHGEAR AS REQUIRED FOR MINOR UPGRADES/REPAIRS AND FOR INTEGRATION OF NEW ELECTRONICALLY CONTROLLED GENSETS. REPROGRAM EXISTING EASYGENS FOR NEW ELECTRONICALLY CONTROLLED GEN#1 AND GEN#4 ENGINES INCLUDING ALL CANBUS MONITORING. SEE ECU PAYLOAD CONFIGURATIONS IN SPECIFICATIONS.
- 8 INSTALL NEW 24V BATTERY CHARGER FOR GEN#1 IN ORIGINAL LOCATION, RECONNECT TO EXISTING 120V POWER CIRCUIT AND 2#10 24V CHARGING LEADS.
- 9 INSTALL NEW HEAT RECOVERY CONTROL PANEL AND ASSOCIATED WIRING FOR PUMP P-HR1.
- 10 SEE MECHANICAL.

**ADDITIVE ALTERNATES**

- A1 INSTALL WIRING FOR NEW UNIT HEATER CUH-PP IN CONTROL ROOM.
- A2 SEE MECHANICAL
- A3 INSTALL NEW WIRING FOR NEW GENERATION ROOM AIR INTAKE MOTORIZED DAMPER ELECTRIC ACTUATORS.



**1 DEMOLITION PLAN & NOTES**

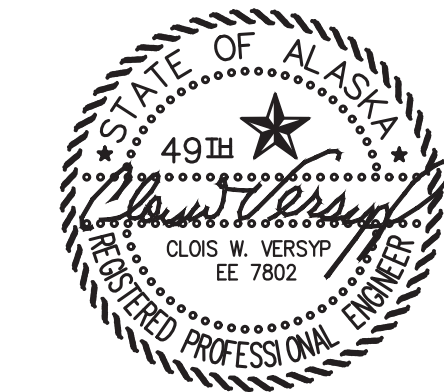
E1.2 1/4"=1'-0"

**2 NEW WORK PLAN & NOTES**

E1.2 1/4"=1'-0"

ENGINE GENERATOR SCHEDULE	
GENSET	DESCRIPTION
GEN #1 (NEW)	ENGINE - 148 HP, 100 EKW PRIME, JOHN DEERE 4045AFM85, TIER 3 MARINE. 24 VDC STARTING & CONTROL. GENERATOR - 1800 RPM, MINIMUM 125 KW CONTINUOUS AT 105°C RISE, NEWAGE/STAMFORD UC1274E.
GEN #2 (EXIST)	ENGINE - 261 HP, 180 EKW PRIME, JOHN DEERE 6081AFM75, TIER 2 MARINE. 24 VDC STARTING & CONTROL. GENERATOR - 1800 RPM, MINIMUM 180 KW CONTINUOUS AT 105°C RISE, MARATHON 431PSL6256.
GEN #3 (EXIST)	ENGINE - 250 HP, 170 EKW PRIME, CUMMINS LTA10G3, NON-TIER, 24 VDC STARTING & CONTROL. GENERATOR - 1200 RPM, MINIMUM 170 KW CONTINUOUS AT 105°C RISE, MARATHON HC66G311.
GEN #4 (NEW)	ENGINE - 298 HP, 210 EKW PRIME, JOHN DEERE 6090AFM85, MARINE TIER 3, 24 VDC STARTING & CONTROL. GENERATOR - 1800 RPM, MINIMUM 270 KW CONTINUOUS AT 105°C RISE, NEWAGE/STAMFORD S4L1D-D41.

ISSUED FOR CONSTRUCTION  
MAY 2024



PROJECT: DEERING POWER PLANT 2024 DERA UPGRADE PROJECT	
TITLE: ELECTRICAL DEMOLITION & NEW WORK PLANS	
DRAWN BY: JTD	SCALE: AS NOTED
DESIGNED BY: CWV/BCG	DATE: 5/30/24
FILE NAME: DRPP E1-E4	SHEET: E1.2
PROJECT NUMBER:	

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