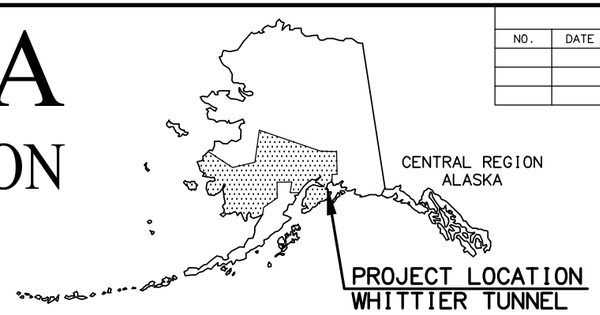
STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES



REVISIONS		
NO.	DATE	DESCRIPTION

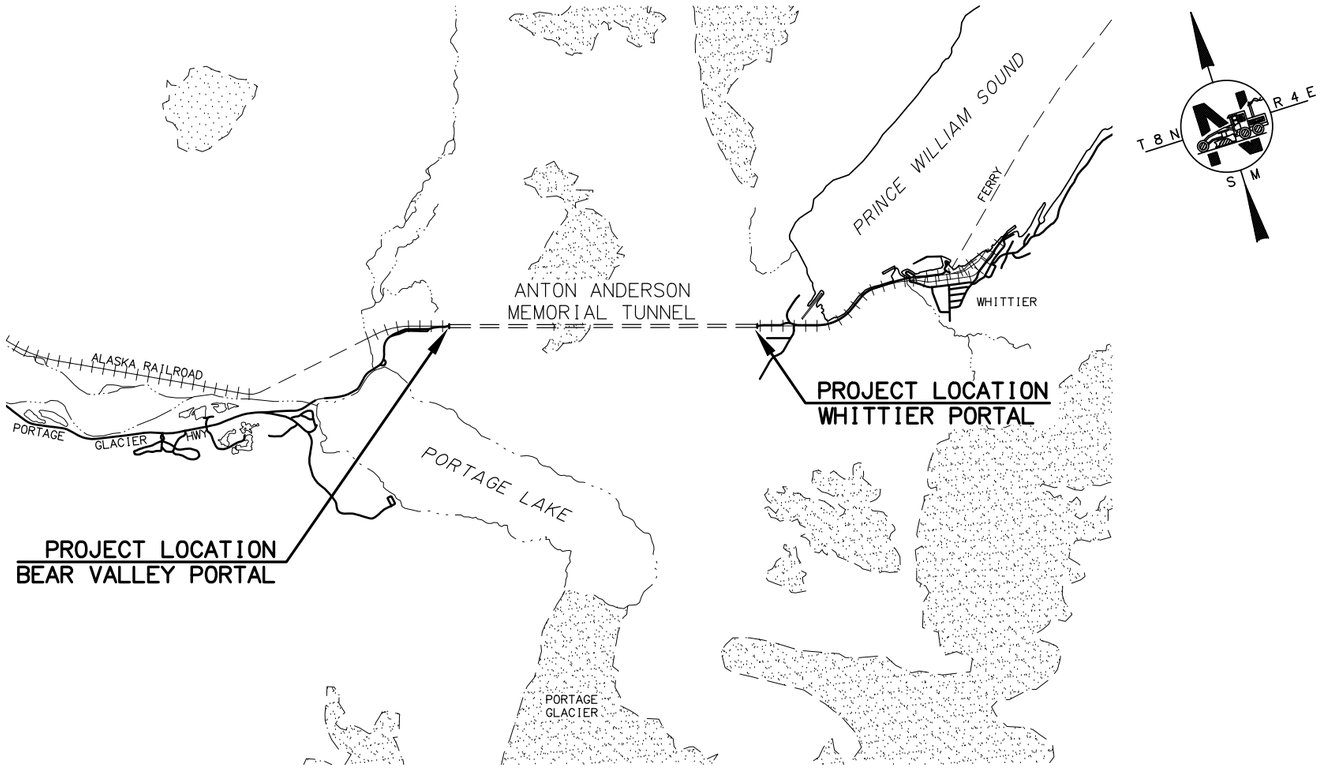
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(013)/58027	2025	A1	52
			PLAN SET TOTAL	52

CDS ROUTE: 132315	MILEPOINT: 1.70 & 4.25
LATITUDE: 60.783088	LONGITUDE: -148.768346

PROPOSED HIGHWAY PROJECT

WHITTIER TUNNEL STANDBY GENERATORS PROJECT NO. Z580270000

GRADING, DRAINAGE, & STANDBY GENERATORS



PLANS DEVELOPED BY: PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
4111 AVIATION AVENUE, ANCHORAGE, AK 99502
(907)269-0590

APPROVED:

REGIONAL PRECONSTRUCTION ENGINEER DATE

CONCUR:

REGIONAL CONSTRUCTION ENGINEER DATE

DESIGNED BY
CHECKED BY
DRAFTED BY

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
TITLE SHEET

DATE TIME
5/16/2025

DRAWING LOCATION
J:\2015\151030 Whittier Tunnel Drainage and Generators\6. Drawings\2024 Generator Reboot Drawings

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C1.02	52

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

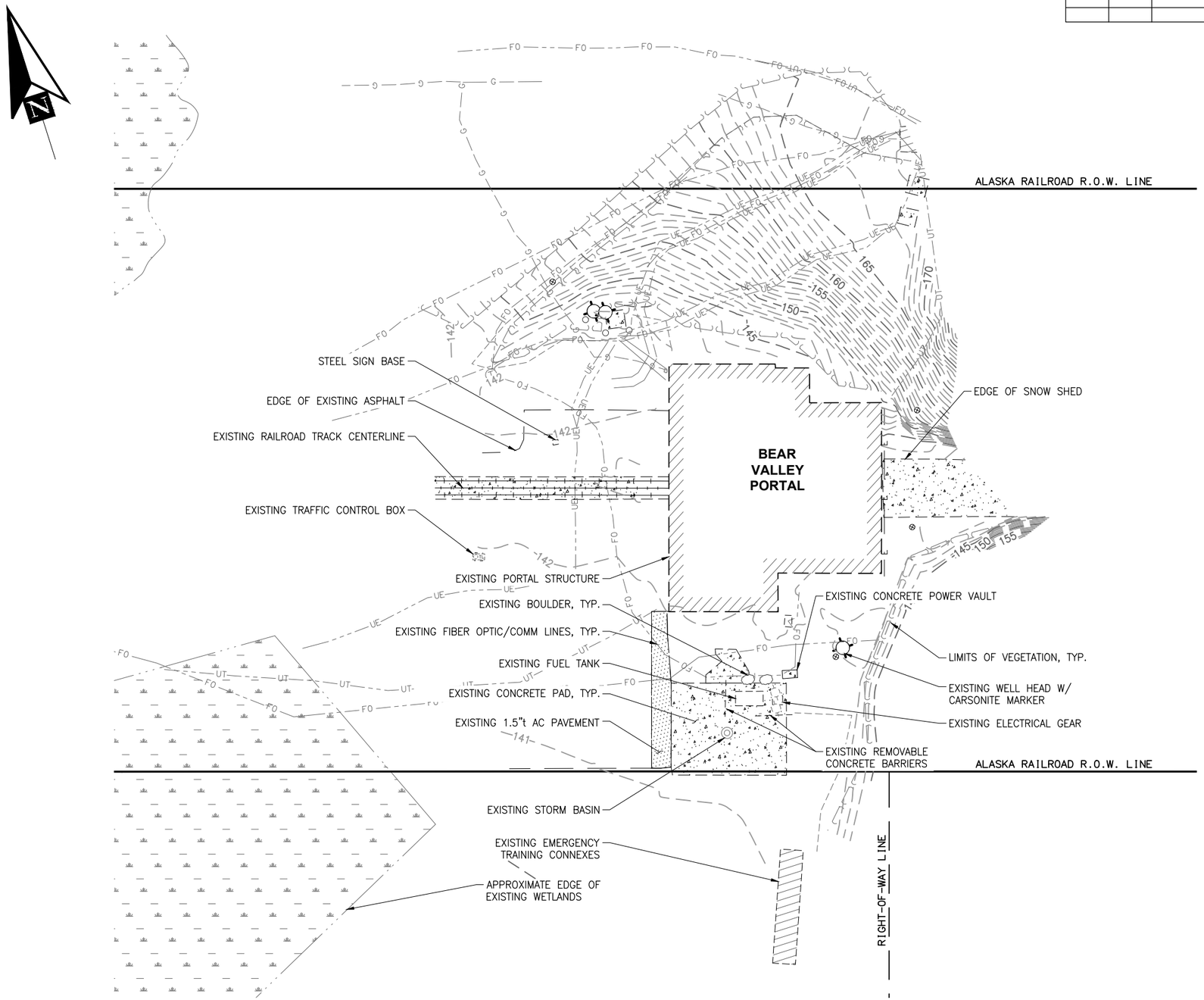
XREFS: N/A, N/A

SCALE: N/A

LAYOUT: C1.02

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings



BEAR VALLEY PORTAL EXISTING CONDITIONS

20 0 20 40 60 FT

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

BEAR VALLEY PORTAL EXISTING CONDITIONS

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C1.10	52

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

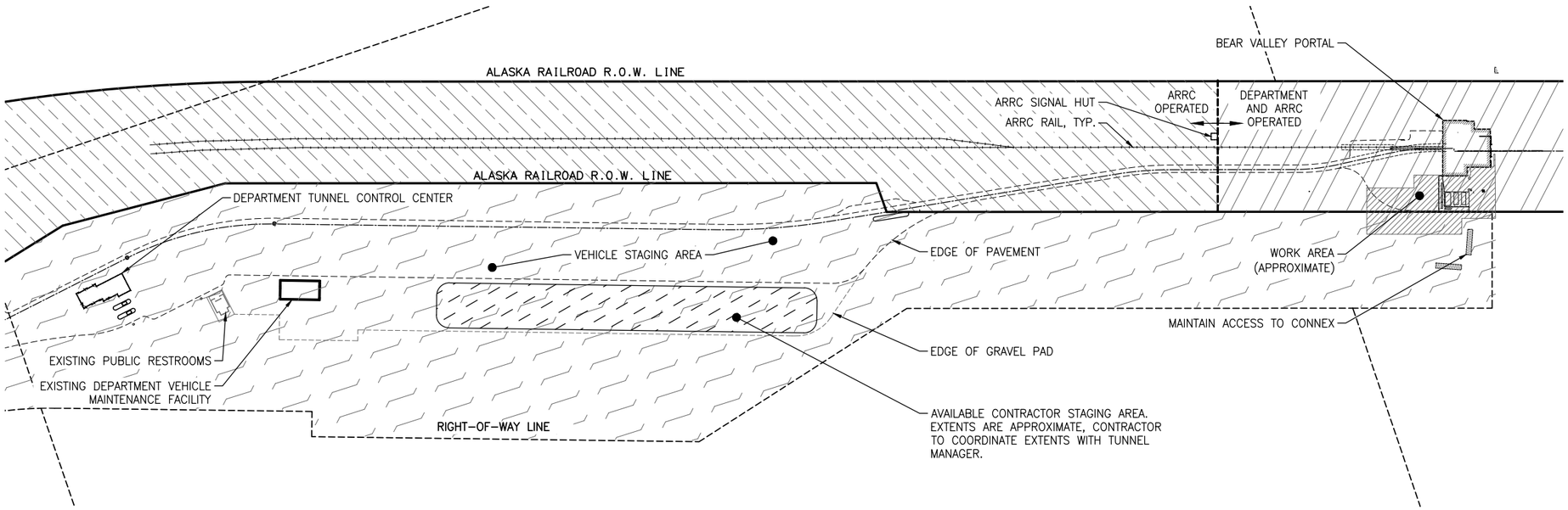
XREFS: N/A N/A

SCALE: N/A

LAYOUT: C1.10

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

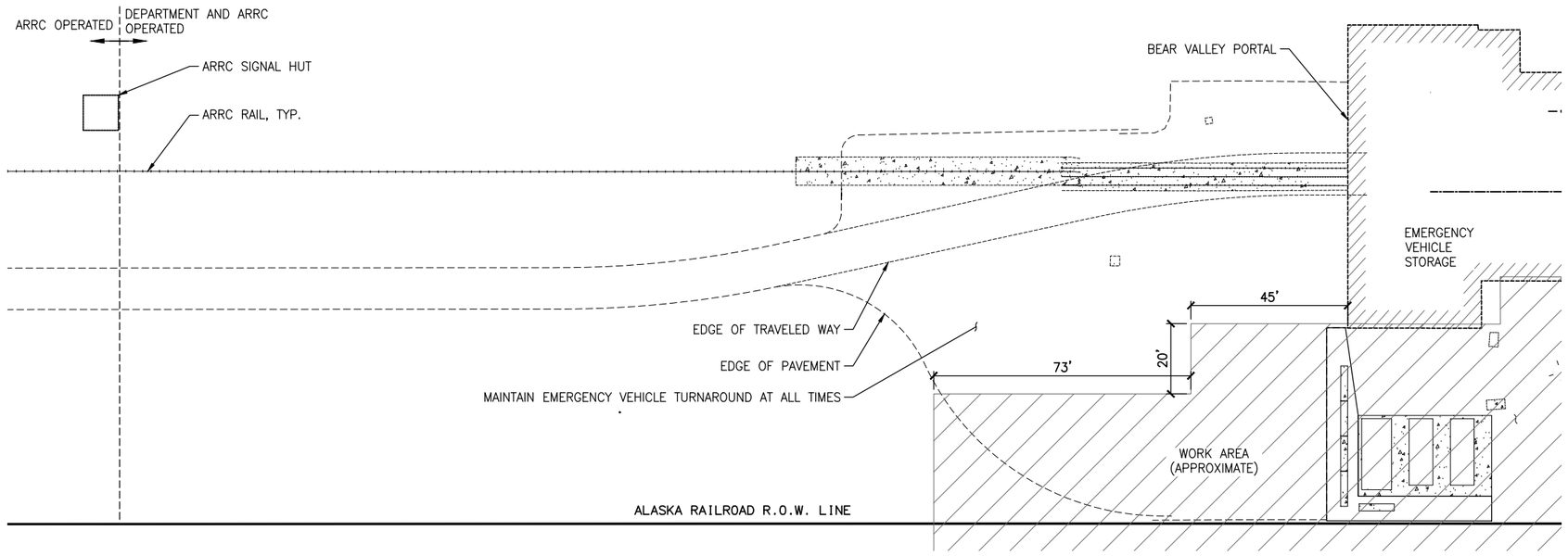


BEAR VALLEY SITE MAP

100 0 100 200 300 FT

NOTES:

1. THE PORTAL STRUCTURES CONTAIN EMERGENCY EQUIPMENT. THE CONTRACTOR SHALL NOT OCCUPY, STORE MATERIALS, OR ENGAGE IN WORK ACTIVITIES THAT OBSTRUCT THE ACCESSIBILITY OF EMERGENCY RESPONSE EQUIPMENT AND PERSONNEL.
2. THE CONTRACTOR SHALL COORDINATE WITH THE TUNNEL OPERATOR AT ALL TIMES AND COMPLY WITH ALL OPERATIONAL REQUIREMENTS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. THE TUNNEL OPERATIONAL AREA, DEFINED BY THE ARRC ROW LOCATED BETWEEN THE ARRC BEAR VALLEY AND WHITTIER ARRC SIGNAL HUTS, IS CO-OPERATED BY THE DEPARTMENT AND ARRC. THE DEPARTMENT MONITORS AND MAINTAINS CONTROL OF ACTIVITIES IN THIS AREA WHEN THE TUNNEL IS IN HIGHWAY MODE.
4. THE AREA WITHIN THE ARRC ROW BUT OUTSIDE THE AREA THAT IS CO-OPERATED BY THE DEPARTMENT AND ARRC IS MONITORED AND OPERATED BY THE ARRC AT ALL TIMES.
5. THE AREA WITHIN THE DEPARTMENT ROW LOCATED BETWEEN THE TUNNEL CONTROL CENTER AND THE ARRC SIGNAL HUT AT BEAR VALLEY IS MONITORED AND MAINTAINED BY THE DEPARTMENT TUNNEL CONTROL CENTER.



BEAR VALLEY ENLARGED AREA MAP

20 0 20 40 60 FT

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

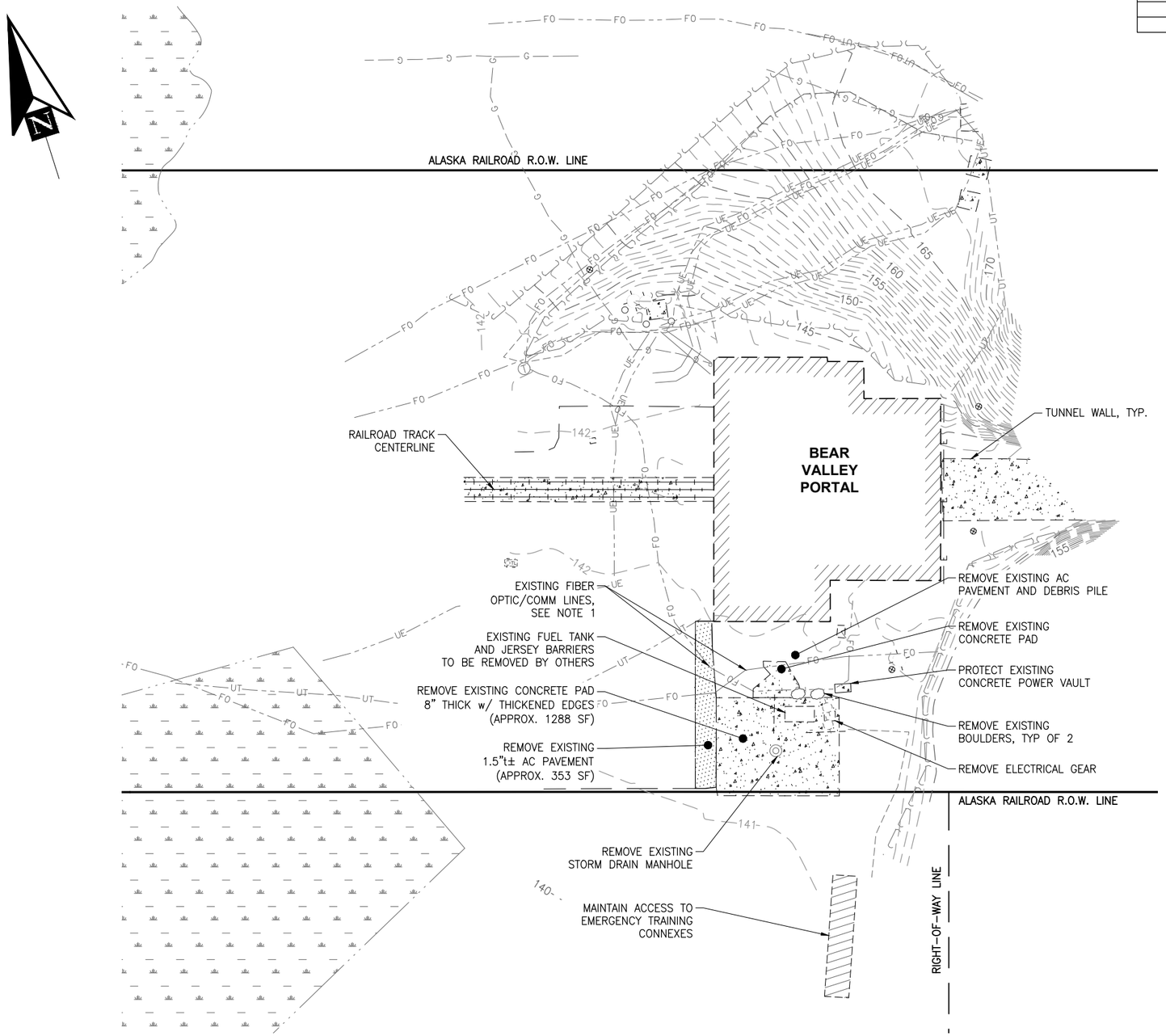
BEAR VALLEY AREA MAP

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C1.11	52

NOTES:

1. EXISTING FIBER OPTIC/COMM LINES TO REMAIN IN PLACE. DO NOT DISTURB.



BEAR VALLEY PORTAL DEMO PLAN

20 0 20 40 60 FT

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

BEAR VALLEY PORTAL
DEMO PLAN

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A, N/A

SCALE: N/A

LAYOUT: C1.11

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C1.21	52

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

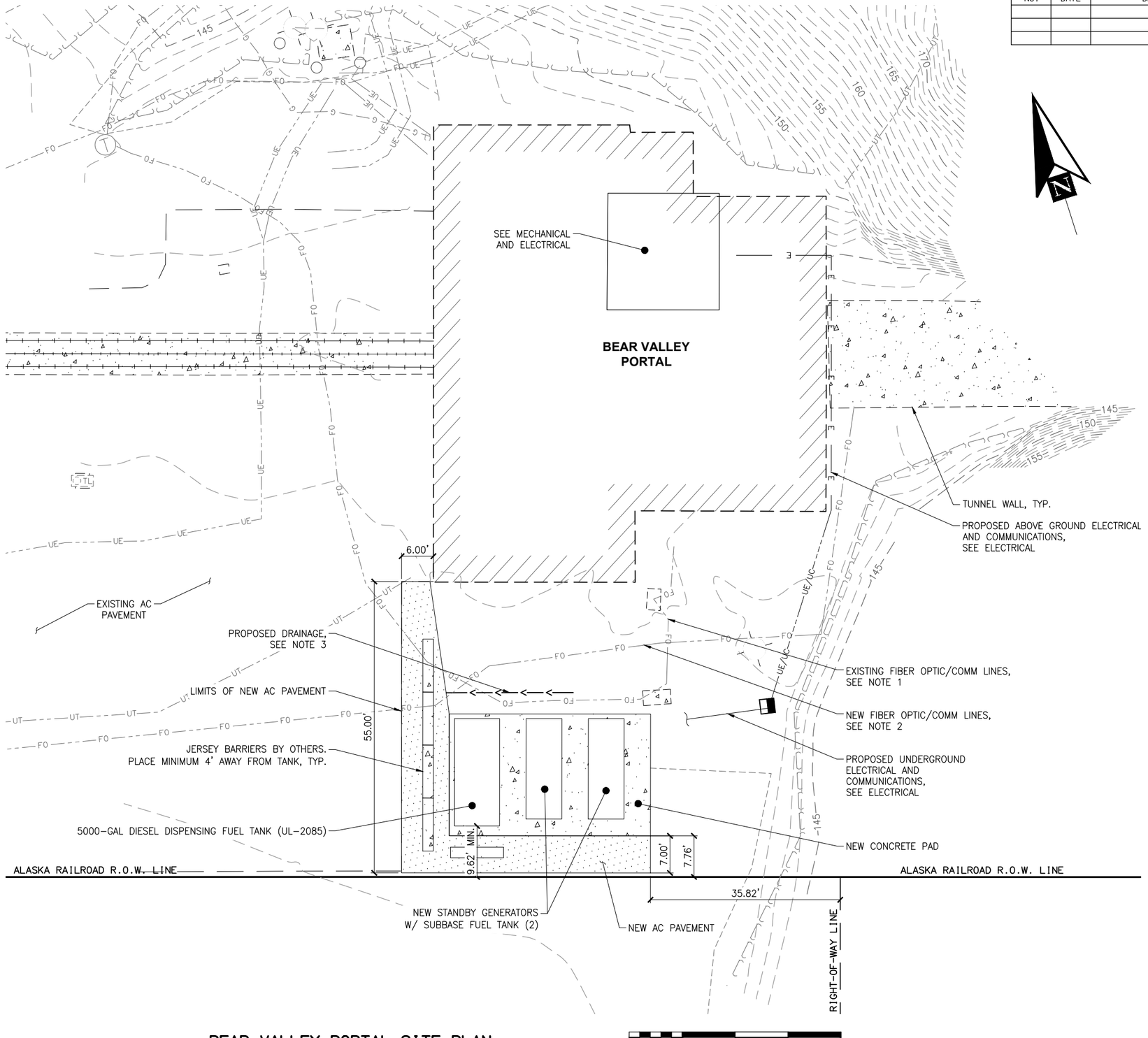
XREFS: N/A N/A

SCALE: N/A

LAYOUT: C1.21

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings



NOTES:

1. EXISTING FIBER OPTIC/COMM LINES TO REMAIN. DO NOT DISTURB. DEPTH UNKNOWN.
2. NEW FIBER OPTIC/COMM LINES INSTALLED 2024 BY ARRC. PROTECT LINE DURING CONSTRUCTION. CONTRACTOR TO COORDINATE WITH ARRC TO FIELD VERIFY LOCATIONS.
3. USE CLASSIFIED MATERIAL, TYPE A FOR PROPOSED DRAINAGE AND FILL VOID LEFT BY REMOVING CONCRETE PAD. GRADE PER GRADING PLAN ON SHEET C1.22.

BEAR VALLEY PORTAL SITE PLAN

PND ENGINEERS, INC.

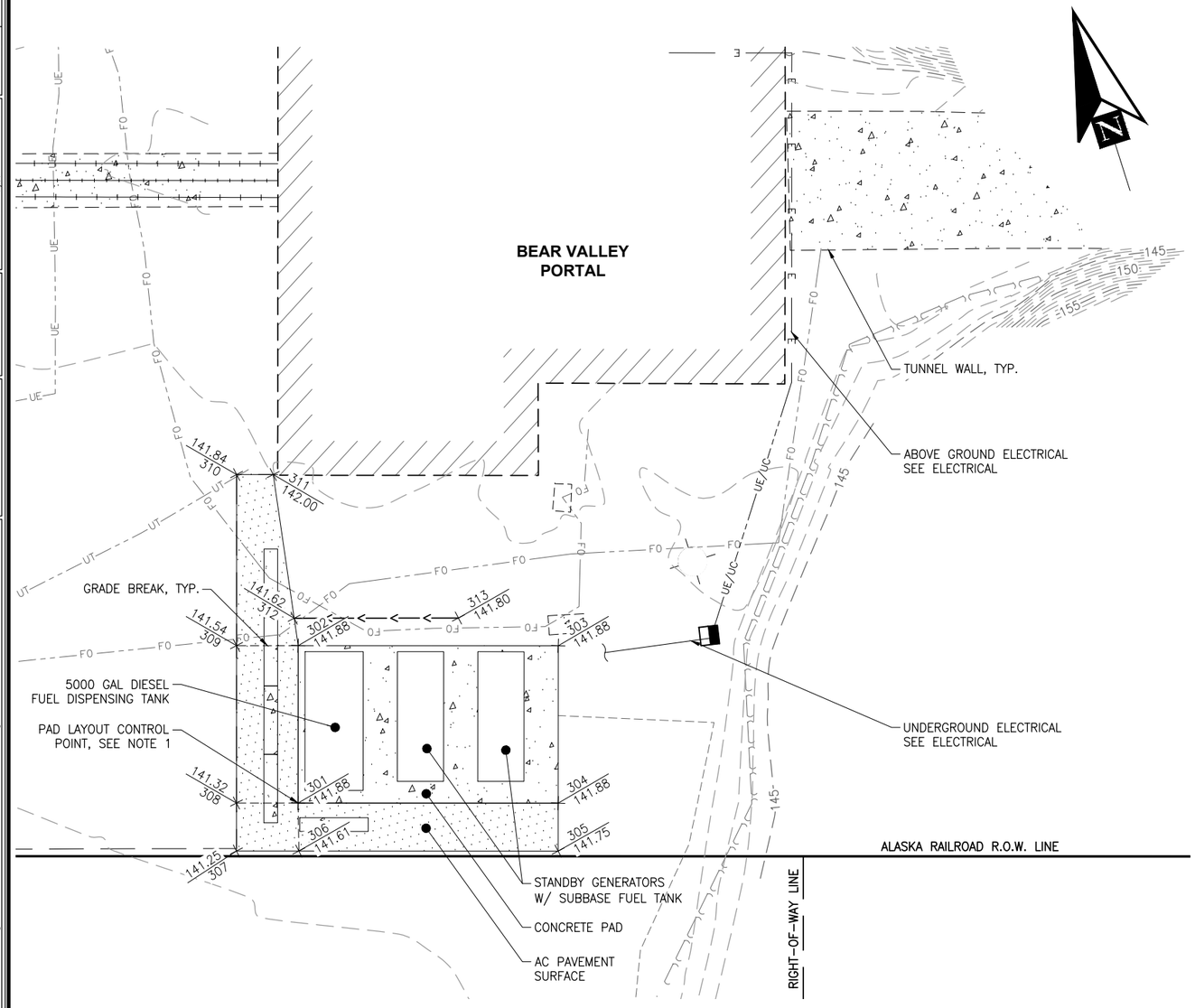
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

BEAR VALLEY PORTAL SITE PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C1.22	52



BEAR VALLEY PORTAL GRADING AND LAYOUT PLAN

LAYOUT POINT SCHEDULE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
301	2482113.4656	1854135.1825	141.88	TOP OF AC PAVEMENT, EDGE OF CONCRETE, GRADE BREAK
302	2482135.3891	1854142.1368	141.88	TOP OF AC PAVEMENT, EDGE OF CONCRETE, GRADE BREAK
303	2482123.8987	1854178.3600	141.88	TOP OF LEVELING COURSE, EDGE OF CONCRETE
304	2482101.9753	1854171.4056	141.88	TOP OF AC PAVEMENT, TOP OF LEVELING COURSE, EDGE OF CONCRETE
305	2482095.3008	1854169.2884	141.75	TOP OF AC PAVEMENT (MATCH EXISTING), TOP OF LEVELING COURSE
306	2482106.7501	1854133.1716	141.61	TOP OF AC PAVEMENT (MATCH EXISTING), TOP OF LEVELING COURSE, GRADE BREAK
307	2482109.5052	1854124.4805	141.25	TOP OF AC PAVEMENT (MATCH EXISTING)
308	2482116.1879	1854126.6005	141.32	TOP OF AC PAVEMENT (MATCH EXISTING)
309	2482138.1114	1854133.5547	141.54	TOP OF AC PAVEMENT (MATCH EXISTING), GRADE BREAK
310	2482161.9306	1854141.1105	141.84	TOP OF AC PAVEMENT (MATCH EXISTING)
311	2482160.3123	1854146.2121	142.00	TOP OF AC PAVEMENT (MATCH EXISTING), TOP OF LEVELING COURSE
312	2482139.3784	1854142.7891	141.62	TOP OF AC PAVEMENT, DRAINAGE
313	2482132.1627	1854165.6787	141.80	DRAINAGE

NOTES:

1. CONCRETE PAD DIMENSIONS MAY VARY FROM THOSE SHOWN ON THIS SHEET. PAD LAYOUT CONTROL POINT POSITION SHALL BE MAINTAINED WITH BEARING TO POINT #301. OTHER PAD LAYOUT POINTS MAY VARY WITH ACTUAL PAD DIMENSIONS.

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C1.22

DATE T1ME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

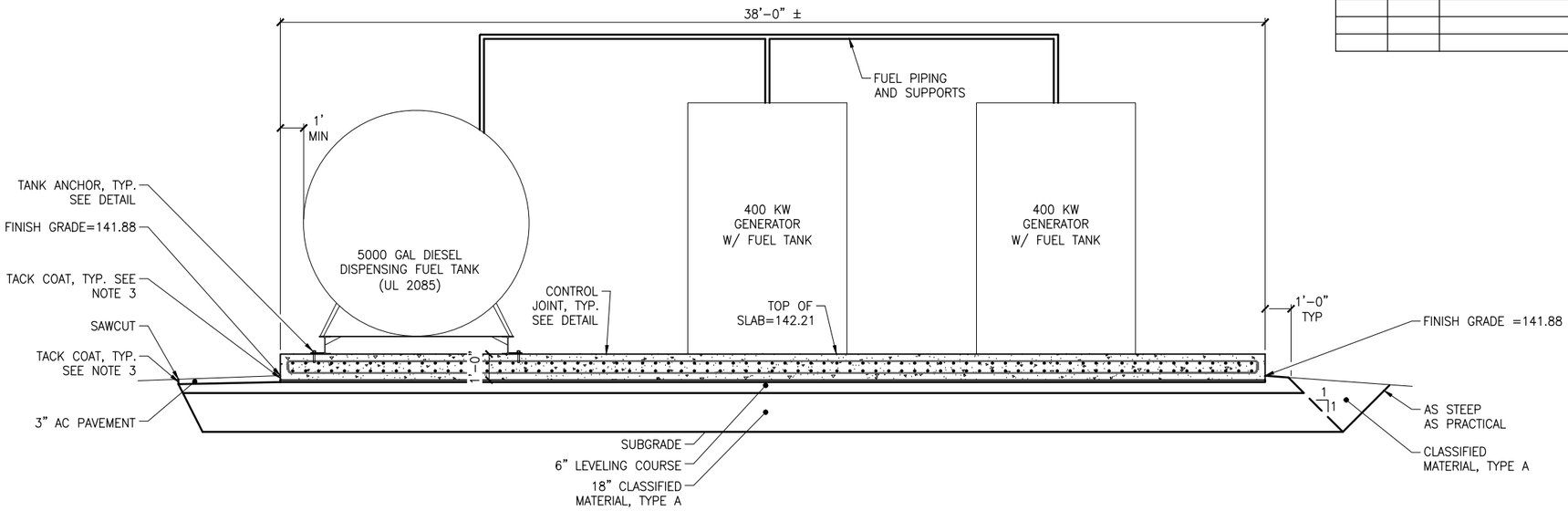
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

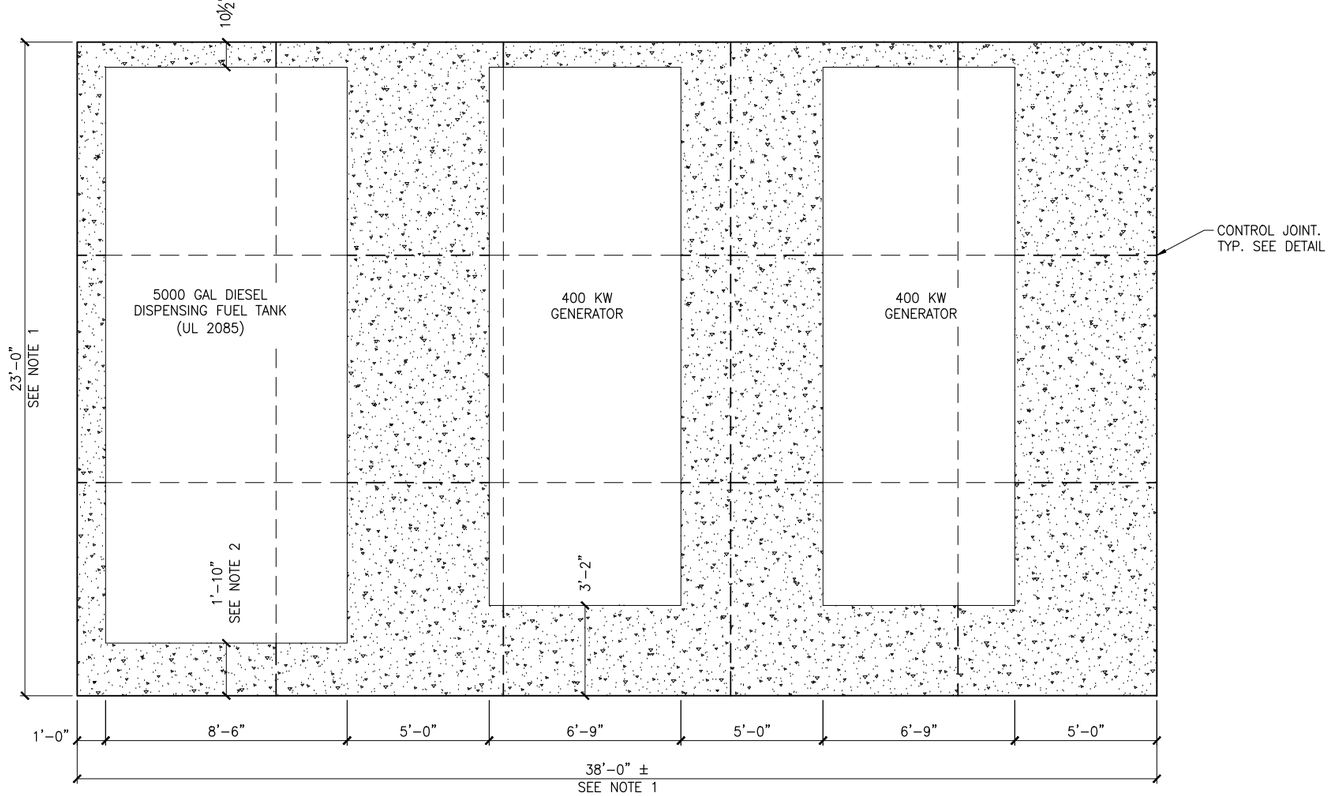
BEAR VALLEY PORTAL GRADING PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

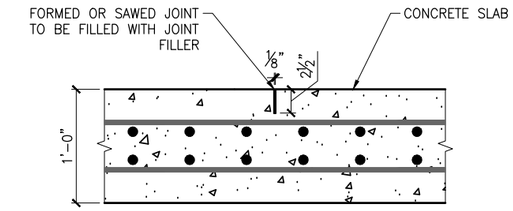
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C1.31	52



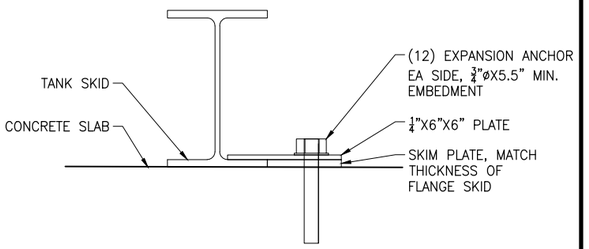
BEAR VALLEY PORTAL - GENERATORS AND FUEL TANK LAYOUT SECTION



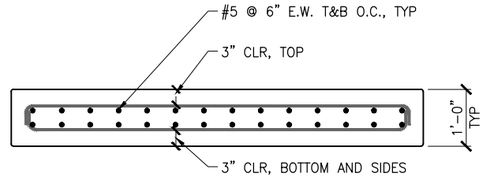
BEAR VALLEY PORTAL - GENERATORS AND FUEL TANK LAYOUT PLAN



CONTROL JOINT DETAIL



TANK ANCHOR DETAIL



SLAB DETAIL

NOTES:

1. WIDTH MAY VARY. ACTUAL WIDTH OF PAD MUST PROVIDE MINIMUM SIDE AND END CLEARANCES SHOWN FOR TANK AND GENERATORS PROVIDED BY CONTRACTOR.
2. MAINTAIN A MINIMUM 9.5' CLEAR DISTANCE BETWEEN EDGE OF DISPENSING FUEL TANK AND ROW.
3. APPLY TACK COAT AT ALL LOCATIONS WHERE NEW ASPHALT IS PLACED AGAINST ASPHALT AND CONCRETE SURFACES.
4. ANCHOR GENERATOR THROUGH MANUFACTURER PROVIDED HOLES. INSTALL A MINIMUM OF 7 ANCHORS ON EACH SIDE OF THE GENERATOR. USE ¾"ø EXPANSION ANCHOR WITH MINIMUM 5.5" EMBEDMENT.
5. CUT CONTROL JOINTS EACH WAY AT 8' APART.
6. BROOM FINISH HOUSEKEEPING PADS.

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

BEAR VALLEY PORTAL DETAILS

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---
XREFS: N/A N/A
SCALE: N/A
LAYOUT: C1.31
DATE TIME: 5/16/2025
DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.01	52

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

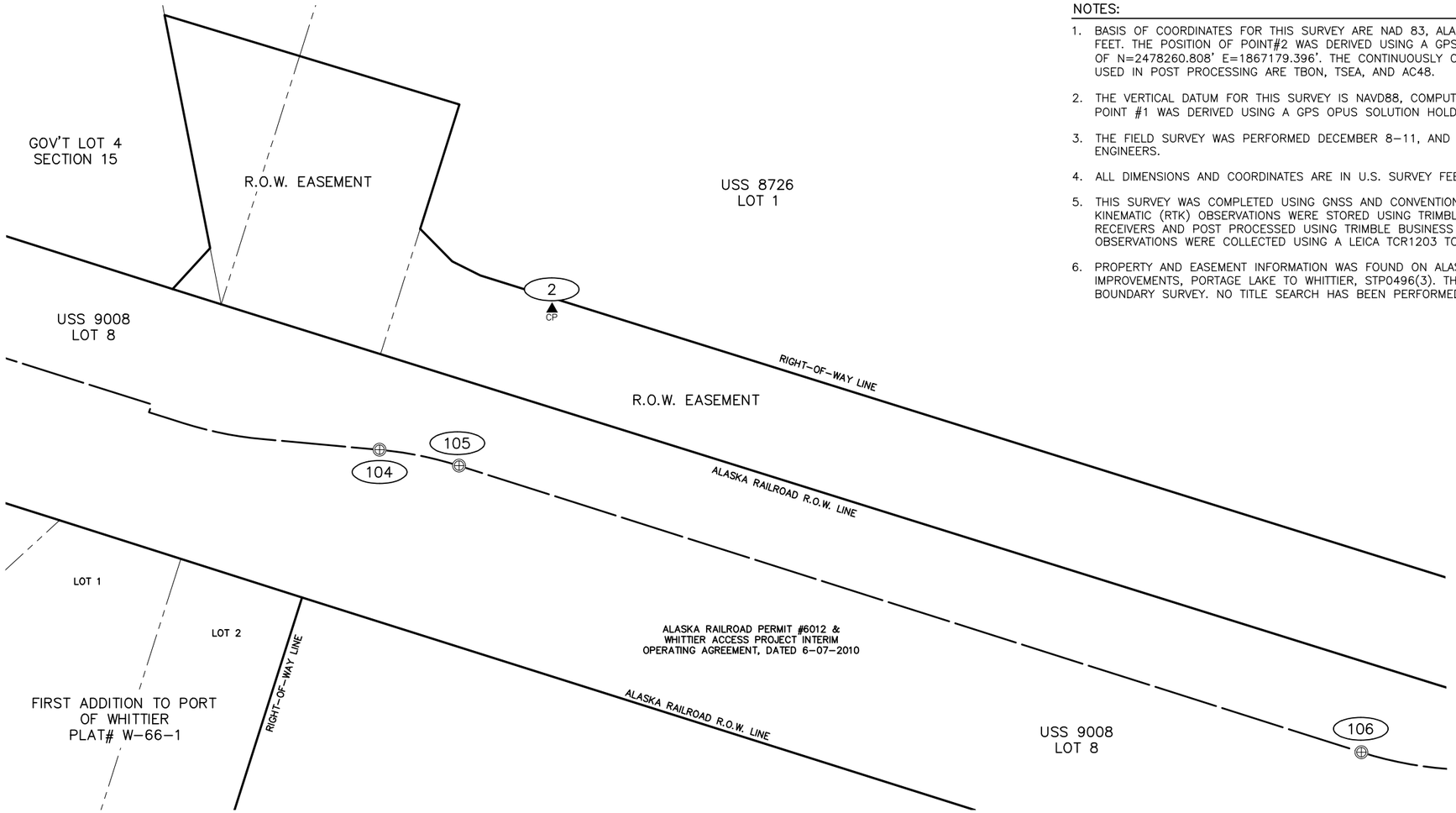
XREFS: N/A N/A

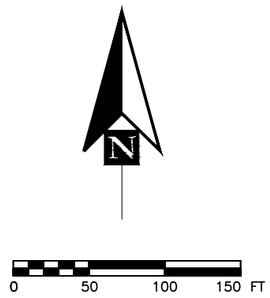
SCALE: N/A

LAYOUT: C2.01

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings





NOTES:

1. BASIS OF COORDINATES FOR THIS SURVEY ARE NAD 83, ALASKA STATE PLANE ZONE 4, IN U.S. SURVEY FEET. THE POSITION OF POINT#2 WAS DERIVED USING A GPS OPUS SOLUTION HOLDING COORDINATES OF N=2478260.808' E=1867179.396'. THE CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) USED IN POST PROCESSING ARE TBON, TSEA, AND AC48.
2. THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88, COMPUTED USING "GEOID12A AK." THE POSITION OF POINT #1 WAS DERIVED USING A GPS OPUS SOLUTION HOLDING AN ELEVATION OF 63.32'.
3. THE FIELD SURVEY WAS PERFORMED DECEMBER 8–11, AND 31, 2014, AND APRIL 15, 2015 BY PND ENGINEERS.
4. ALL DIMENSIONS AND COORDINATES ARE IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
5. THIS SURVEY WAS COMPLETED USING GNSS AND CONVENTIONAL SURVEY TECHNIQUES. REAL TIME KINEMATIC (RTK) OBSERVATIONS WERE STORED USING TRIMBLE R8 MODEL 2, 3, AND 4, GNSS RECEIVERS AND POST PROCESSED USING TRIMBLE BUSINESS CENTER v3.30 SOFTWARE. CONVENTIONAL OBSERVATIONS WERE COLLECTED USING A LEICA TCR1203 TOTAL STATION.
6. PROPERTY AND EASEMENT INFORMATION WAS FOUND ON ALASKA DOT&PF WHITTIER ACCESS IMPROVEMENTS, PORTAGE LAKE TO WHITTIER, STP0496(3). THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY. NO TITLE SEARCH HAS BEEN PERFORMED.

SURVEY CONTROL LEGEND

- ### — POINT IDENTIFIER
- ▲ CP — SET 5/8" X 36" REBAR WITH YPC
- ⊕ — FOUND CENTERLINE MONUMENT IN MON CASE
- RIGHT-OF-WAY LINE
- RECORD PROPERTY LINE
- PROJECT CENTERLINE

SET PROJECT CONTROL				
Point #	Northing	Easting	Elevation	Description
2	2478260.808	1867179.396	63.32	SET REBAR WITH YPC

RECOVERED MONUMENTS				
Point #	Northing	Easting	Elevation	Description
104	2478150.310	1867043.882	65.63	FD AC/Bx[DOT]: PC 8+152.397
105	2478137.777	1867106.342	65.03	FD AC/Bx[DOT]: PT 8+171.852
106	2477912.615	1867815.503	58.79	FD AC/Bx[DOT]: PC 8+398.658

Surveyor's Certificate

I hereby certify that I am properly Registered and Licensed to practice Land Surveying in the State of Alaska, and that this drawing represents a survey made by me or under my direct supervision, and that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct to the best of my knowledge.

Maynard L. Taylor III LS-7626 Date

STATE OF ALASKA 49 TH
Maynard L. Taylor III
LS-7624
REGISTERED PROFESSIONAL LAND SURVEYOR

PND ENGINEERS, INC.

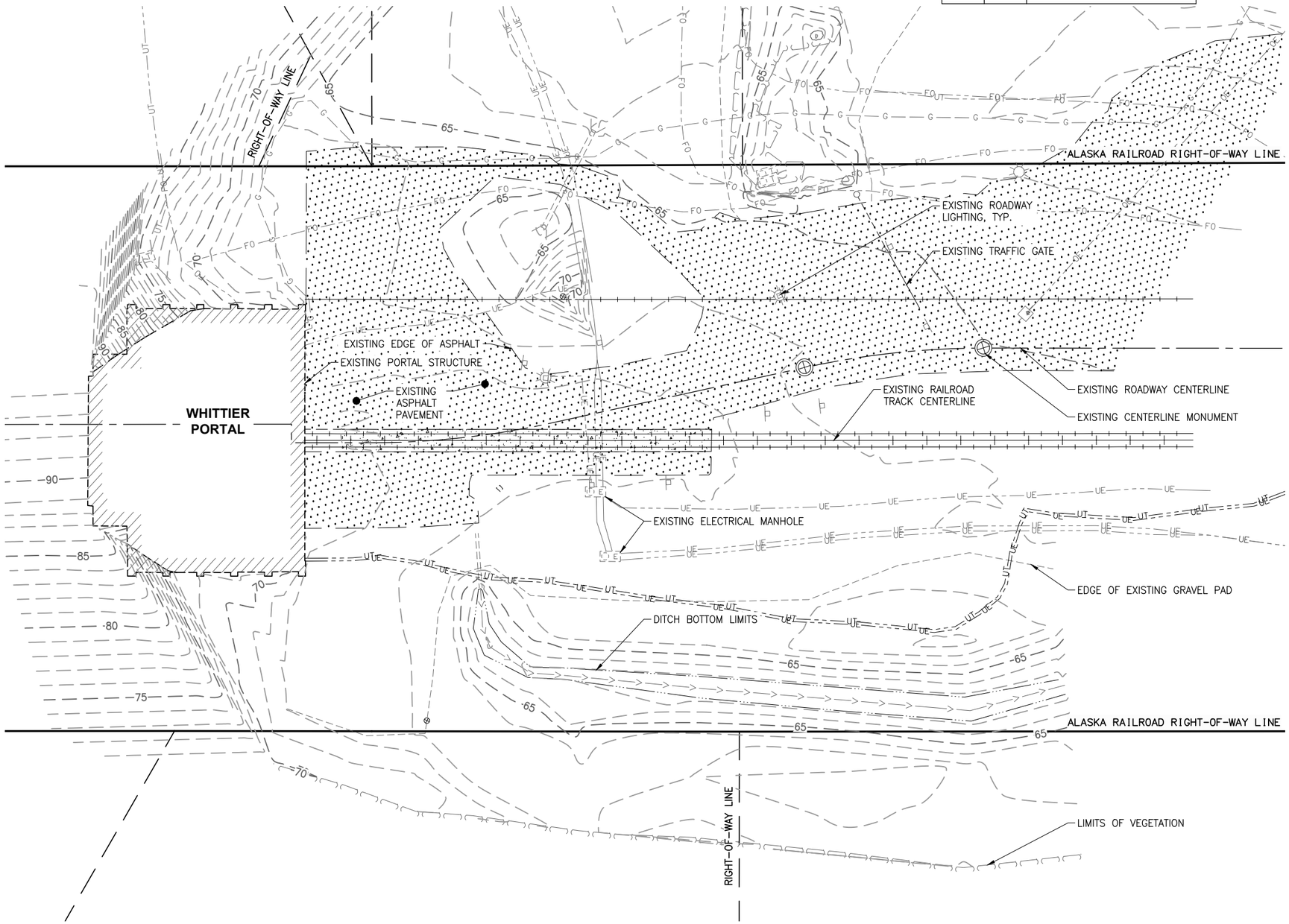
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL SURVEY CONTROL SHEET

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.02	52



WHITTIER PORTAL EXISTING CONDITIONS

20 0 20 40 60 FT

DESIGNED BY: --
CHECKED BY: --
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.02

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL EXISTING CONDITIONS

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.10	52

DESIGNED BY: --
CHECKED BY: --
DRAFTED BY: ---

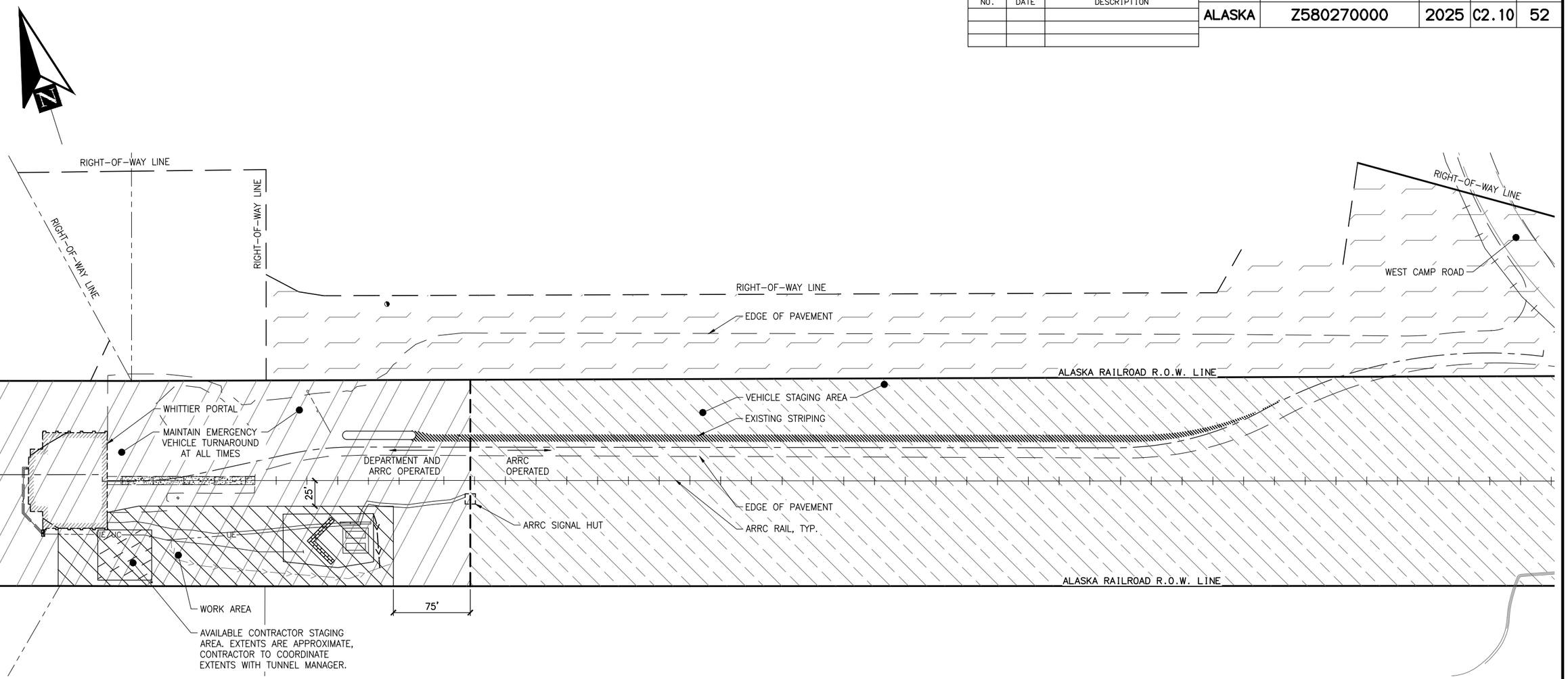
XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.10

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings



WHITTIER PORTAL AREA MAP

50 0 50 100 150 FT

DEPARTMENT ROW

ARRC ROW

DEPARTMENT AND ARRC OPERATED ROW (TUNNEL OPERATIONAL AREA)

NOTES:

1. THE PORTAL STRUCTURES CONTAIN EMERGENCY EQUIPMENT. THE CONTRACTOR SHALL NOT OCCUPY, STORE MATERIALS, OR ENGAGE IN WORK ACTIVITIES THAT OBSTRUCT THE ACCESSIBILITY OF EMERGENCY RESPONSE EQUIPMENT AND PERSONNEL.
2. THE CONTRACTOR SHALL COORDINATE WITH THE TUNNEL OPERATOR AT ALL TIMES AND COMPLY WITH ALL OPERATIONAL REQUIREMENTS. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. THE TUNNEL OPERATIONAL AREA, DEFINED BY THE ARRC ROW LOCATED BETWEEN THE ARRC BEAR VALLEY AND WHITTIER ARRC SIGNAL HUTS, IS CO-OPERATED BY THE DEPARTMENT AND ARRC. THE DEPARTMENT MONITORS AND MAINTAINS CONTROL OF ACTIVITIES IN THIS AREA WHEN THE TUNNEL IS IN HIGHWAY MODE.
4. THE AREA WITHIN THE ARRC ROW BUT OUTSIDE THE AREA THAT IS CO-OPERATED BY THE DEPARTMENT AND ARRC IS MONITORED AND OPERATED BY THE ARRC AT ALL TIMES.
5. THE AREA WITHIN THE DEPARTMENT ROW LOCATED BETWEEN THE TUNNEL CONTROL CENTER AND THE ARRC SIGNAL HUT AT BEAR VALLEY IS MONITORED AND MAINTAINED BY THE DEPARTMENT TUNNEL CONTROL CENTER.

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

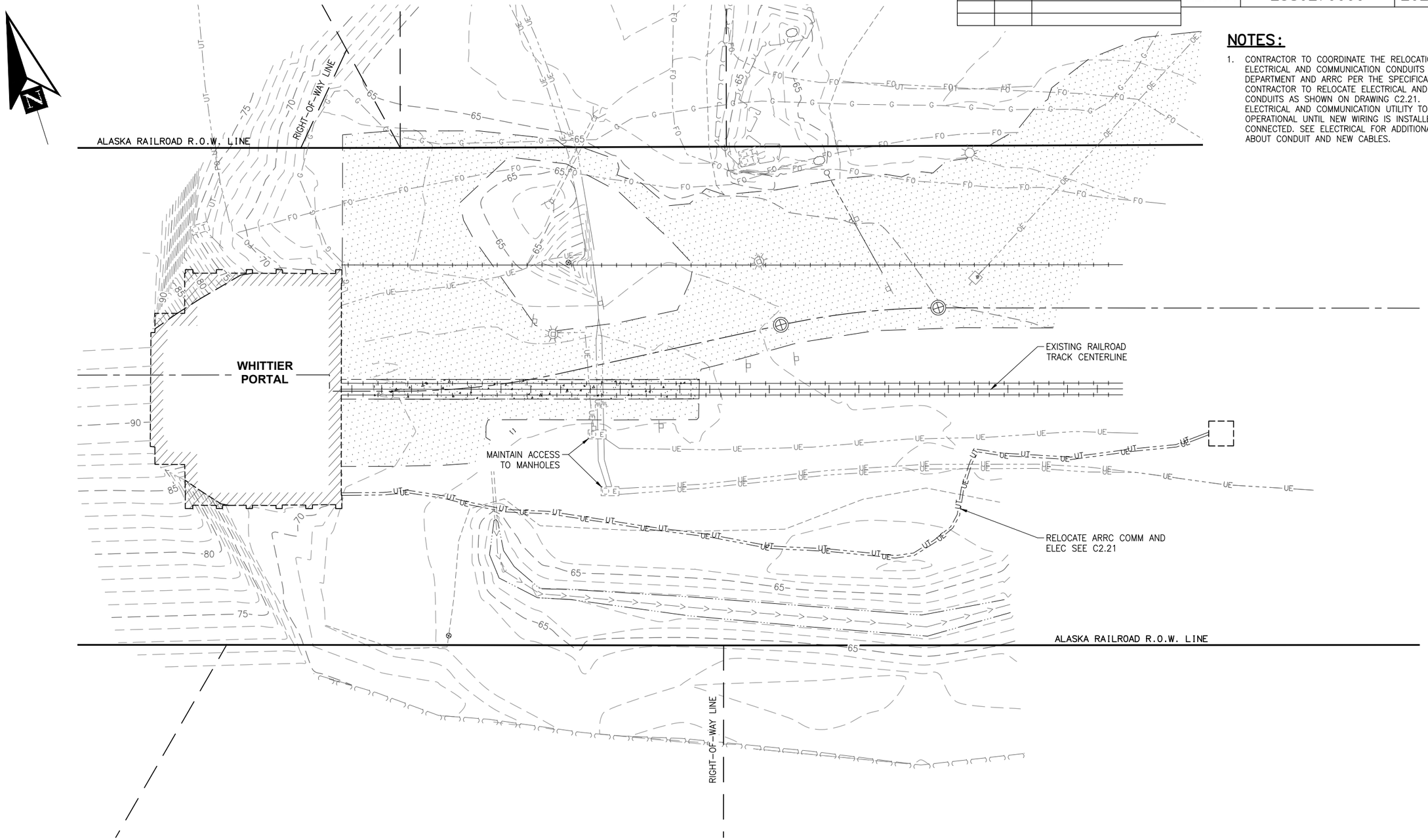
WHITTIER PORTAL AREA MAP

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.11	52

NOTES:

1. CONTRACTOR TO COORDINATE THE RELOCATION OF THE ELECTRICAL AND COMMUNICATION CONDUITS WITH THE DEPARTMENT AND ARRC PER THE SPECIFICATIONS. CONTRACTOR TO RELOCATE ELECTRICAL AND COMMUNICATION CONDUITS AS SHOWN ON DRAWING C2.21. EXISTING ARRC ELECTRICAL AND COMMUNICATION UTILITY TO REMAIN OPERATIONAL UNTIL NEW WIRING IS INSTALLED AND CONNECTED. SEE ELECTRICAL FOR ADDITIONAL INFORMATION ABOUT CONDUIT AND NEW CABLES.



WHITTIER PORTAL DEMO PLAN

20 0 20 40 60 FT

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.11

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

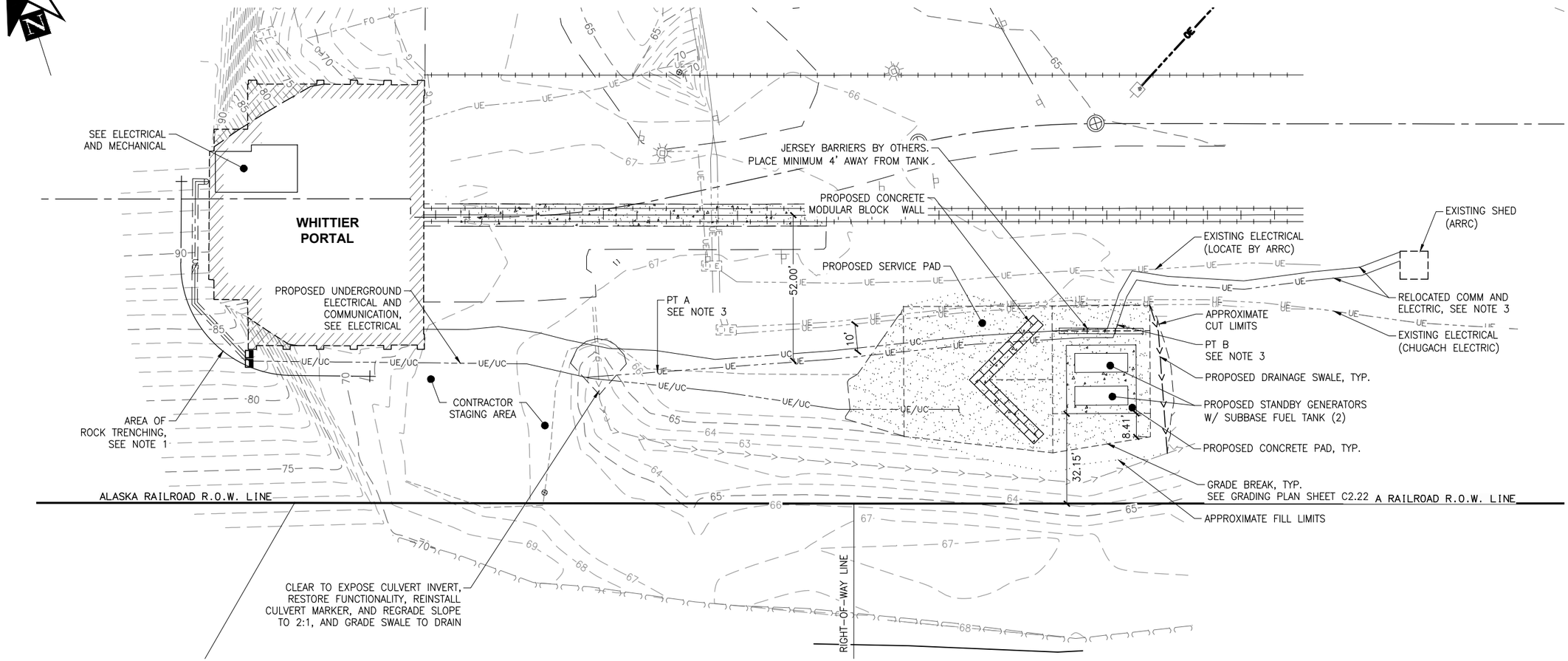
WHITTIER PORTAL
DEMO PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.21	52

NOTES:

1. INSTALLATION OF ELECTRICAL UTILITIES MAY REQUIRE CONSTRUCTING TRENCHES THROUGH BEDROCK. ALL WORK ASSOCIATED WITH TRENCHING THROUGH BEDROCK SHALL BE INCLUDED IN CONTRACTOR'S BID.
2. CONTRACTOR TO COORDINATE THE RELOCATION OF THE ELECTRICAL AND COMMUNICATION CONDUITS WITH THE DEPARTMENT AND ARRC PER THE SPECIFICATIONS. CONTRACTOR TO RELOCATE ELECTRICAL AND COMMUNICATION CONDUITS AS SHOWN ON DRAWING C2.21. EXISTING ARRC ELECTRICAL AND COMMUNICATION UTILITY TO REMAIN OPERATIONAL UNTIL NEW WIRING IS INSTALLED AND CONNECTED. SEE ELECTRICAL FOR ADDITIONAL INFORMATION REGARDING CONDUIT AND NEW CABLES.
3. BETWEEN THE PORTAL AND PT A, LOCATE ELECTRICAL AND COMMUNICATION LINES (ARRC) NEXT TO THE EXISTING ELECTRICAL AND COMMUNICATION LINES (ARRC). BETWEEN PT A AND PT B, LOCATE THE ELECTRICAL AND COMMUNICATION LINES (ARRC) A MINIMUM OF 10 FEET FROM CHUGACH ELECTRIC'S ELECTRICAL LINE. BETWEEN PT B AND THE SIGNAL SHED, LOCATE ELECTRICAL AND COMMUNICATION LINES (ARRC) NEXT TO THE EXISTING ELECTRICAL AND COMMUNICATION LINES (ARRC). DO NOT PLACE NEW CONDUIT UNDER THE CONCRETE PADS.
4. ADDITIONAL ELECTRICAL/COMMUNICATION LINES (ARRC) EXIST BETWEEN THE SIGNAL HUT AND PORTAL THAT WILL REQUIRE LOCATES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY EXISTING ELECTRICAL/COMMUNICATION LINES WITH ARRC AND CEA PRIOR TO PERFORMING GROUND DISTURBING ACTIVITIES.



WHITTIER PORTAL SITE PLAN

20 0 20 40 60 FT

DESIGNED BY ---
CHECKED BY ---
DRAFTED BY ---

XREFS N/A N/A

SCALE N/A

LAYOUT C2.21

DATE TIME 5/16/2025

DRAWING LOCATION J:\2015\151030 Whittier Tunnel Drainage and Generators\6. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL SITE PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.22	52

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.22

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

EDGE OF SERVICE DRIVE/PAD

APPROXIMATE CUT LIMITS

RELOCATED COMM AND ELECTRIC (ARRC)

SERVICE PAD

GRADE BREAK, TYP.

CONCRETE MODULAR BLOCK WALL

PROPOSED ELECTRICAL, SEE ELECTRICAL

STANDBY GENERATOR W/ SUBBASE FUEL TANK, TYP.

APPROXIMATE FILL LIMITS

ALASKA RAILROAD R.O.W. LINE

EW C2.24

NS C2.24

500 66.39 | 501 66.31 | 502 66.24 | 503 66.09 | 504 66.00 | 505 65.94 | 506 65.89 | 507 66.35 | 508 66.35 | 509 65.85 | 510 65.90 | 511 65.96 | 512 65.00 | 513 65.27 | 514 65.64 | 515 66.01 | 516 66.75 | 517 66.75 | 518 66.75 | 519 66.75 | 520 66.75 | 521 66.75 | 522 66.35 | 523 66.50 | 524 66.38 | 525 66.75 | 526 66.75 | 527 66.75 | 528 66.75 | 529 65.79 | 530 64.63 | 531 62.43

-5.0%± | -2.9%± | -5.1%± | -4.0%± | -4.8%± | -2.7%± | -5.7%± | -5.8%± | -5.7%± | -2.9%± | -2.0%± | -4.8%± | -50.4%± | -49.2%± | -7.7%± | -6.3%± | -50.1%± | -50.0%± | -50.0%±

8.41' | 32.15'

66 | 65 | 64 | 63

WHITTIER PORTAL GRADING AND LAYOUT PLAN

5 0 5 10 15 FT

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL GRADING PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.23	52

LAYOUT POINT SCHEDULE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
500	2478096.0827	1867021.0442	66.39	TOP OF GRAVEL
501	2478092.1384	1867033.7344	66.31	TOP OF GRAVEL
502	2478088.1940	1867046.4247	66.24	TOP OF GRAVEL
503	2478080.3054	1867071.8052	66.09	TOP OF GRAVEL
504	2478075.3531	1867087.7383	66.00	TOP OF GRAVEL
505	2478072.3379	1867097.4391	65.94	TOP OF GRAVEL
506	2478069.9348	1867105.1707	65.89	TOP OF GRAVEL
507	2478061.2852	1867102.4831	66.35	TOP OF GRAVEL
508	2478033.0177	1867093.7000	66.35	TOP OF GRAVEL
509	2478025.0609	1867091.2277	65.85	TOP OF GRAVEL
510	2478027.3740	1867075.3714	65.90	TOP OF GRAVEL
511	2478030.1668	1867056.2264	65.96	TOP OF GRAVEL
512	2478051.7806	1867007.2744	65.00	TOP OF GRAVEL
513	2478060.2726	1867009.9138	65.27	TOP OF GRAVEL
514	2478072.2093	1867013.6239	65.64	TOP OF GRAVEL
515	2478084.1460	1867017.3341	66.01	TOP OF GRAVEL
516	2478079.1336	1867064.3541	66.75	TOP OF GRAVEL, EDGE OF MODULAR BLOCK
517	2478074.7082	1867066.6814	66.75	TOP OF GRAVEL, EDGE OF MODULAR BLOCK
518	2478061.9084	1867042.3418	66.75	TOP OF GRAVEL, EDGE OF MODULAR BLOCK
519	2478037.5688	1867055.1416	66.75	TOP OF GRAVEL, EDGE OF MODULAR BLOCK
520	2478035.2415	1867050.7163	66.75	TOP OF GRAVEL, EDGE OF MODULAR BLOCK
521	2478064.0064	1867035.5892	66.75	TOP OF GRAVEL, EDGE OF MODULAR BLOCK
522	2478071.6526	1867069.1166	66.35	TOP OF GRAVEL
523	2478055.2361	1867064.0158	66.50	TOP OF GRAVEL
524	2478043.4811	1867060.3634	66.38	TOP OF GRAVEL
525	2478065.3941	1867072.4079	66.75	TOP OF CONCRETE, 2" ABOVE ADJACENT GRAVEL
526	2478057.9939	1867096.2247	66.75	TOP OF CONCRETE, 2" ABOVE ADJACENT GRAVEL
527	2478034.5973	1867088.9550	66.75	TOP OF CONCRETE, 2" ABOVE ADJACENT GRAVEL
528	2478041.9975	1867065.1382	66.75	TOP OF CONCRETE, 2" ABOVE ADJACENT GRAVEL
529	2478060.0630	1867105.2448	65.79	BOTTOM OF DITCH
530	2478042.5889	1867101.1061	64.63	BOTTOM OF DITCH
531	2478017.6800	1867095.2065	62.43	BOTTOM OF DITCH, MATCH EXISTING

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.23

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

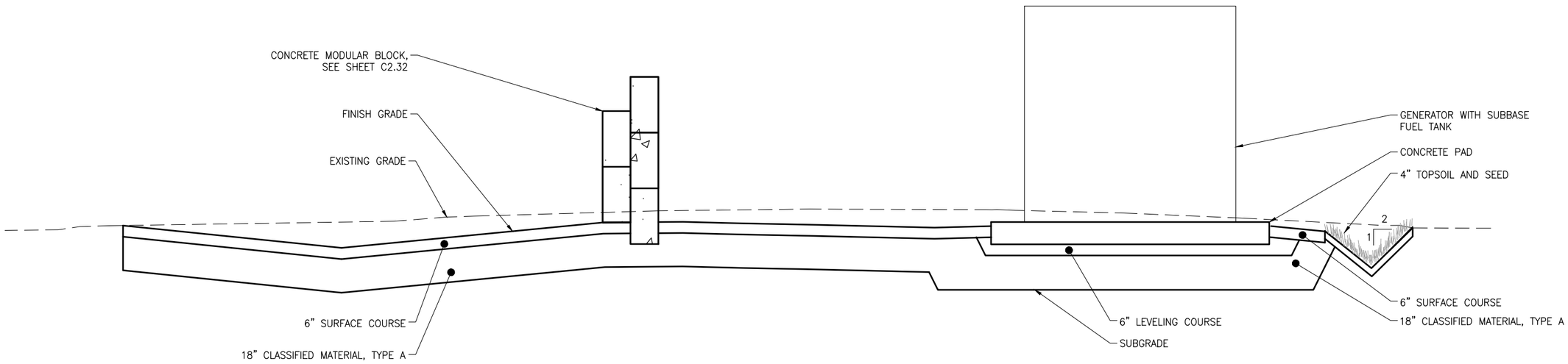
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

WHITTIER PORTAL
GRADING LAYOUT TABLES

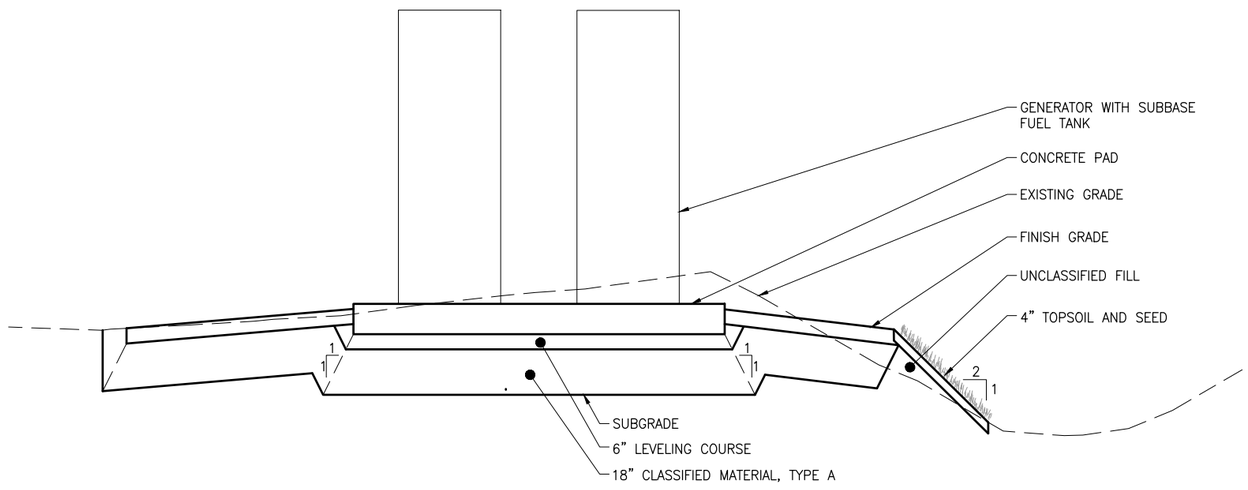
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.24	52



WHITTIER PORTAL SITE SECTION E-W

5 0 5 10 15 FT
(1H:2V)



WHITTIER PORTAL SITE SECTION N-S

5 0 5 10 15 FT
(1H:2V)

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.24

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

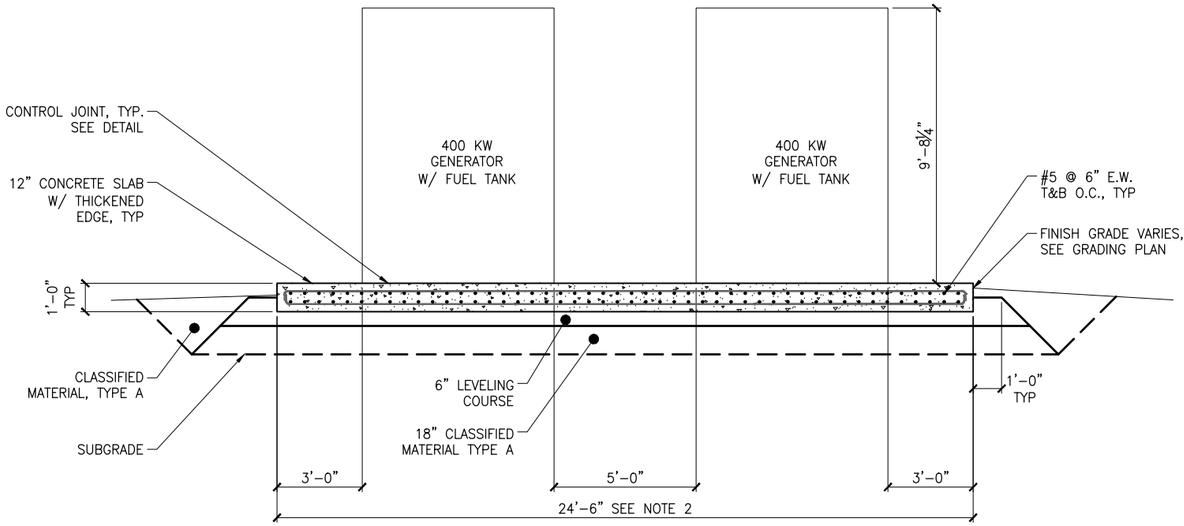
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

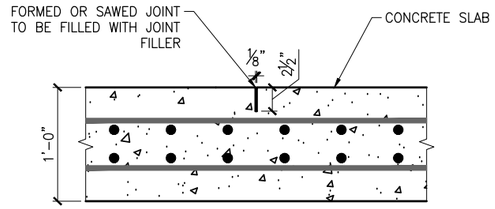
WHITTIER PORTAL SITE SECTIONS

REVISIONS		
NO.	DATE	DESCRIPTION

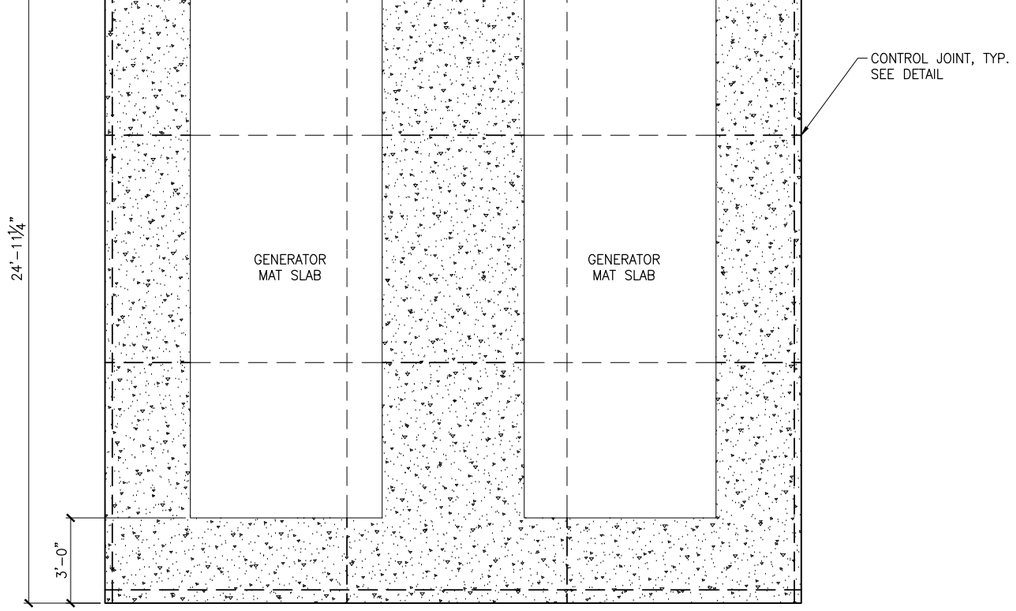
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.31	52



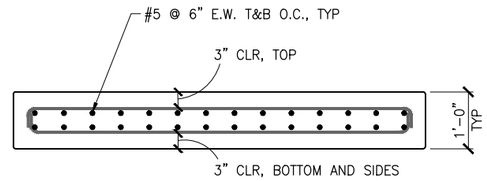
WHITTIER PORTAL - GENERATOR W/ TANK LAYOUT SECTION (TYP OF 2)



CONTROL JOINT DETAIL



WHITTIER PORTAL - GENERATOR W/ TANK LAYOUT PLAN (TYP OF 2)



SLAB DETAIL

NOTES:

1. WIDTH MAY VARY. ACTUAL WIDTH OF PAD MUST PROVIDE MINIMUM SIDE AND END CLEARANCES SHOWN FOR TANK AND GENERATORS PROVIDED BY CONTRACTOR.
2. ANCHOR GENERATOR THROUGH MANUFACTURER PROVIDED HOLES. INSTALL A MINIMUM OF 7 ANCHORS ON EACH SIDE OF THE GENERATOR. USE ¾"ø EXPANSION ANCHOR WITH MINIMUM 5.5" EMBEDMENT.
3. CUT CONTROL JOINTS EACH WAY AT 8' APART.
4. BROOM FINISH HOUSEKEEPING PADS.

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL DETAILS

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.31

DATE TIME: 5/16/2025

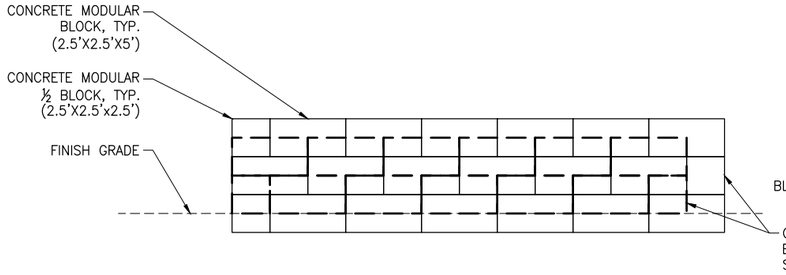
DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

REVISIONS		
NO.	DATE	DESCRIPTION

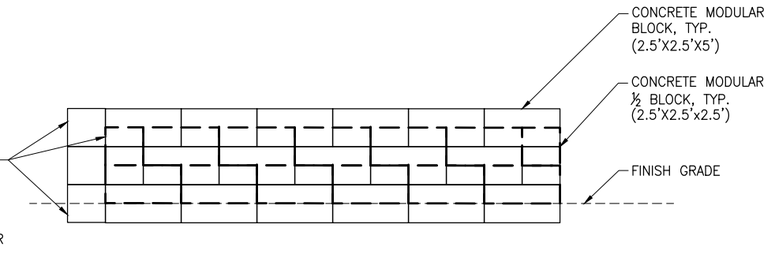
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	Z580270000	2025	C2.32	52

NOTES:

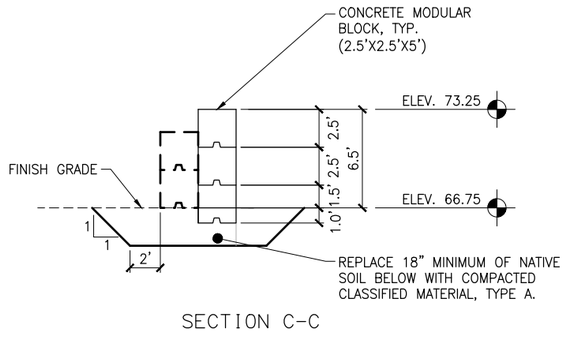
1. SEE SHEETS C2.22 & C2.23 FOR ADDITIONAL LAYOUT INFORMATION.



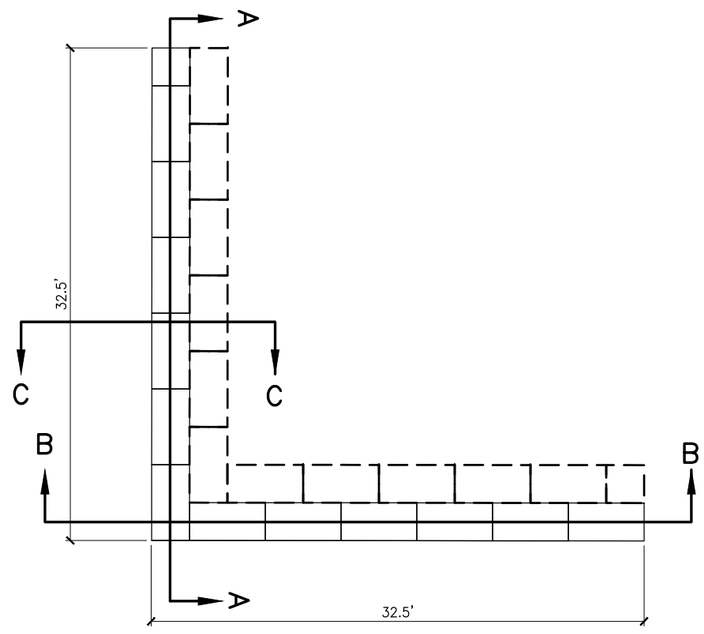
ELEVATION A-A



ELEVATION B-B



SECTION C-C



PLAN

CONCRETE MODULAR BLOCK WALL

NTS

DESIGNED BY: ---
CHECKED BY: ---
DRAFTED BY: ---

XREFS: N/A N/A

SCALE: N/A

LAYOUT: C2.33

DATE TIME: 5/16/2025

DRAWING LOCATION: J:\2015\151030 Whittier Tunnel Drainage and Generators\G. Drawings\2024 Generator Reboot Drawings

PND ENGINEERS, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

WHITTIER PORTAL
DETAILS

DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E0.1

DATE TIME
5/15/2025 1:51 PM

DRAWING LOCATION
G:\2024\W4136\W4136_E0SERIES.dwg

LEGEND/ABBREVIATIONS

	CONDUIT, CONCEALED
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A-2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
	PANEL
	MOTOR (SIZED AS NOTED)
$_{1}$	FRACTIONAL HORSEPOWER MOTOR STARTER
	DISCONNECT SWITCH
	DISCONNECT SWITCH (FUSED)
	COMBINATION DISCONNECT/MAGNETIC MOTOR STARTER
	PADMOUNT TRANSFORMER
	IN GRADE EXTERIOR JUNCTION BOX
1	NOTE TAG (No. INDICATES NOTE)
— E/C —	ABOVE GROUND ELECTRIC AND COMMUNICATION (NEW)
— UE/UC —	UNDERGROUND ELECTRIC AND COMMUNICATION (NEW)
— UE —	UNDERGROUND ELECTRIC
— UT —	UNDERGROUND COMMUNICATION
	CONDUIT DOWN
	CONDUIT UP
A	AMPERE (AMP)
AER	ARC ENERGY REDUCTION (PER NEC 240.87)
AF/AT	AMP FRAME/AMP TRIP
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CEA	CHUGACH ELECTRIC ASSOCIATION
E, (E)	DENOTES EXISTING ITEM
ETR	EXISTING TO REMAIN
FMC	FLEXIBLE METAL CONDUIT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION (OF EQUIPMENT)
GRSC	GALVANIZED RIGID STEEL CONDUIT
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MLO	MAIN LUGS ONLY
MPZ	MINI POWER ZONE (COMBINATION XFMR/PANELBOARD)
NEC	NATIONAL ELECTRICAL CODE
P	POLE
PLC	PROGRAMMABLE LOGIC CONTROLER
R, (R)	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
SDG	STANDBY DIESEL GENERATOR (OPTIONAL PER NEC 702)
SS	STAINLESS STEEL
SWBD	SWITCHBOARD
TSP	TWISTED SHIELDED PAIR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER

BEAR VALLEY ELECTRICAL SERVICE CALCULATION

PROJECT: WHITTIER TUNNEL, STANDBY GENERATORS
DATE: 2/7/2025

EXISTING SERVICE EQUIPMENT: 1600A, 277/480V, 3PH, 4W SERVICE

EXISTING PEAK DEMAND LOAD PER CEA MARCH 2024:	283,740	W
125% PER NEC 220.87(2):	354,675	W
ASSUMED POWER FACTOR OF 0.85:	417,265	VA
AMPERAGE @ 480V, 3PH:	502	VA

LOAD REMOVED

RECEPTACLE	180	VA
WELL PUMP	2,400	VA
CONNEX CONNECTION	3,000	VA
TOTAL LOAD REMOVED:	**5,580**	**VA**

LOAD ADDED

CONTINUOUS LOADS

GENERATOR PANEL SDG1BV PANEL	7,840	VA
GENERATOR PANEL SDG2BV PANEL	7,840	VA
SUBTOTAL CONTINUOUS LOAD:	15,680	VA
SUBTOTAL CONTINUOUS LOAD AT 125%:	19,600	VA

NON-CONTINUOUS LOADS

FOP-1 FUEL PUMP	4,160	VA
(2) FUEL PUMP PACKAGES	3,456	VA
RECEPTACLE	180	VA
WELL PUMP	2,400	VA
CONNEX CONNECTION	3,000	VA
SUBTOTAL NON-CONTINUOUS LOAD:	13,196	VA
TOTAL LOAD ADDED:	**32,796**	**VA**

NET ADDED LOAD:	27,216	VA
NEW CALCULATED SERVICE DEMAND LOAD:	**444,481**	**VA**
AMPERAGE @ 480V, 3PH:	**535**	**A**

EXISTING AND NEW 1600A SERVICE HAS SUFFICIENT CAPACITY FOR THIS PROJECT

WHITTIER ELECTRICAL SERVICE CALCULATION

PROJECT: WHITTIER TUNNEL, STANDBY GENERATORS
DATE: 2/7/2025

EXISTING SERVICE EQUIPMENT: 1600A, 277/480V, 3PH, 4W SERVICE

EXISTING PEAK DEMAND LOAD PER CEA JANUARY 2024:	283,260	W
125% PER NEC 220.87(2):	354,075	W
ASSUMED POWER FACTOR OF 0.85:	416,559	VA
AMPERAGE @ 480V, 3PH:	501	VA

LOAD ADDED

CONTINUOUS LOADS

GENERATOR PANEL SDG1BV PANEL	7,840	VA
GENERATOR PANEL SDG2BV PANEL	7,840	VA
SUBTOTAL CONTINUOUS LOAD:	15,680	VA
SUBTOTAL CONTINUOUS LOAD AT 125%:	19,600	VA

NON-CONTINUOUS LOADS

RECEPTACLE	180	VA
SUBTOTAL NON-CONTINUOUS LOAD:	180	VA
TOTAL LOAD ADDED:	**19,780**	**VA**

NET ADDED LOAD:	19,780	VA
NEW CALCULATED SERVICE DEMAND LOAD:	**436,339**	**VA**
AMPERAGE @ 480V, 3PH:	**525**	**A**

EXISTING AND NEW 1600A SERVICE HAS SUFFICIENT CAPACITY FOR THIS PROJECT

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E0.1	XX

GENERAL NOTES:

(APPLICABLE TO ALL SHEETS)

A. THE INFORMATION SHOWN WITHIN THESE DRAWINGS 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.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. REFER TO CIVIL FOR LOCATION CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED UNLESS NOTED OTHERWISE. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

D. REFERENCE BEAR VALLEY AND WHITTIER DEMOLITION AND REMODEL ONE-LINE DIAGRAMS FOR CONDUIT AND WIRE SIZE AND ADDITIONAL ELECTRICAL EQUIPMENT INFORMATION.

E. REFERENCE CIVIL PLANS FOR CONCRETE PAD DETAILS.

F. REFERENCE CIVIL AND STRUCTURAL PLANS FOR WHITTIER GENERATOR PLATFORM DETAILS.

G. REFERENCE MECHANICAL PLANS FOR PLC, PORTAL FAN AND DIESEL FUEL TANK DISPENSER CONNECTION REQUIREMENTS.

H. ALL WORK ASSOCIATED WITH THE SERVICE EQUIPMENT SHALL BE COORDINATED WITH CHUGACH ELECTRIC ASSOCIATION (CEA) PRIOR TO START OF WORK.

I. ALL POWER OUTAGES SHALL BE SCHEDULED IN ADVANCE AND COORDINATED WITH ALASKA DEPARTMENT OF TRANSPORTATION (ADOT), WHITTIER TUNNEL OPERATORS, AND ALASKA RAILROAD (ARRC). OUTAGES SHALL BE LIMITED PER GENERAL CONDITIONS AND DIVISION I SPECIFICATIONS, AND TEMPORARY POWER SHALL BE PROVIDED TO MAINTAIN POWER TO THE PORTAL.

J. ALL WORK ASSOCIATED WITH COMMUNICATIONS SERVICE SHALL BE COORDINATED WITH ALASKA COMMUNICATIONS (ACS) PRIOR TO THE START OF WORK.

K. WET LOCATION: INSIDE THE TUNNEL, EXTERIOR WORK. DAMP LOCATION: GARAGE, 2ND FLOOR PORTAL LOCATIONS. DRY LOCATION: COMM ROOMS, ELECTRICAL ROOMS.

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

ELECTRICAL LEGEND AND CALCULATIONS

DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E0.2

DATE	TIME
5/15/2025	1:51 PM

DRAWING LOCATION
C:\2024\W4136\W4136_E0SERIES.dwg

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E0.2	XX

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

SHEET NOTES:

1. GENERATOR PANELS ARE TYPICAL FOR EACH GENERATOR. PANELS SHALL BE PRE-WIRED AT FACTORY AND PROVIDED WITH GENERATOR MODULE FOR SINGLE POINT OF CONNECTION. PANEL SCHEDULE MAY BE MODIFIED PER FACTORY REQUIREMENTS FOR ANCILLARY LOADS. SUBMIT FINAL PANEL SCHEDULES FOR REVIEW WITH SHOP DRAWINGS.

PANEL 'L3BV'

MFR/MODEL: SQUARE 'D' MINI POWER ZONE | VOLTS: 120/208V,3PH,4W | ENCLOSURE: NEMA 3R SS | 100 A

						VOLT-AMPS						MTG: SURFACE					
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		C		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	2	*	SDG1BV PANEL	FEDR	3720	3720					FEDR	SDG2BV PANEL	*	2	2	a
a	3	2	*	^^	FEDR			4120	4120			FEDR	^^	*	2	4	a
	5	1	30	FUEL PUMP PACKAGE #1	MOTR					1728	1200	MOTR	WELL PUMP	20	2	6	
	7	2	35	FOP-1 FUEL PUMP	MOTR	2080	1200					MOTR	^^	20	2	8	
	9	2	35	^^	MOTR			2080	180			RECP	RECEPTACLE	20	1	10	
	11	1	30	FUEL PUMP PACKAGE #2	MOTR					1728	1000	MISC	CONNEX CORD POWER	50	3	12	b
	13	1	20	SPARE			1000					MISC	^^^	50	3	14	b
	15	1	-	SPACE					1000			MISC	^^^	50	3	16	b
	17	1	-	SPACE									SPACE	-	1	18	
	19	1	-	SPACE									SPACE	-	1	20	
	21	1	-	SPACE									SPACE	-	1	22	
	23	1	-	SPACE									SPACE	-	1	24	
				TOTAL V-A		11720		11500		5656			28,876 VA				
				TOTAL AMPS		98		96		47			80 A				
				A.I.C. RATING: 10,000													

	LTG	RECP	MOTR	LG.MT	MISC	KIT	HEAT	SPEC	TOTAL	AMPS
CONNECTED LOAD IN KVA (THIS PANEL):	0.00	0.18	10.02	1.04	3.00	0.00	0.00	0.00	13.2 KVA	37 A
CONNECTED LOAD IN KVA (BRANCH PANELS):	0.00	0.00	0.00	0.00	2.88	12.80	0.00	0.00	15.7 KVA	44 A
TOTAL CONNECTED LOAD IN KVA:	0.00	0.18	10.02	1.04	5.88	12.80	0.00	0.00	28.9 KVA	80 A
DEMAND LOAD IN KVA:	0.00	0.18	10.02	1.04	5.88	12.80	0.00	0.00	29.9 KVA	83 A

PANEL NOTES:
a REFER TO ONE-LINE FOR BREAKER SIZE.
b CONSERVATIVE LOAD ESTIMATE BASED UPON BREAKER RATING.

PANEL OPTIONS:
MAIN CIRCUIT BREAKER (SEE ONE-LINE FOR SIZE)

PANEL 'L3WH'

MFR/MODEL: SQUARE 'D' MINI POWER ZONE | VOLTS: 120/208V,3PH,4W | ENCLOSURE: NEMA 3R SS | 100 A

						VOLT-AMPS						MTG: SURFACE					
NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		C		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
a	1	2	*	SDG1WH PANEL	FEDR	3720	3720					FEDR	SDG2WH PANEL	*	2	2	a
a	3	2	*	^^	FEDR			4120	4120			FEDR	^^	*	2	4	a
	5	1	20	SPARE							180	RECP	RECEPTACLE	20	2	6	
	7	1	20	SPARE									SPARE	20	1	8	
	9	1	20	SPARE									SPARE	20	1	10	
	11	1	20	SPARE									SPARE	20	1	12	
	13	1	20	SPARE									SPARE	20	1	14	
	15	1	-	SPACE									SPACE	-	1	16	
	17	1	-	SPACE									SPACE	-	1	18	
	19	1	-	SPACE									SPACE	-	1	20	
	21	1	-	SPACE									SPACE	-	1	22	
	23	1	-	SPACE									SPACE	-	1	24	
				TOTAL V-A		7440		8240		180			15,860 VA				
				TOTAL AMPS		62		69		2			44 A				
				A.I.C. RATING: 10,000													

	LTG	RECP	MOTR	LG.MT	MISC	KIT	HEAT	SPEC	TOTAL (KVA)	AMPS
CONNECTED LOAD IN KVA (THIS PANEL):	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.2 KVA	0 A
CONNECTED LOAD IN KVA (BRANCH PANELS):	0.00	0.00	0.00	0.00	2.88	12.80	0.00	0.00	15.7 KVA	44 A
TOTAL CONNECTED LOAD IN KVA:	0.00	0.18	0.00	0.00	2.88	12.80	0.00	0.00	15.9 KVA	44 A
DEMAND LOAD IN KVA:	0.00	0.18	0.00	0.00	2.88	12.80	0.00	0.00	15.9 KVA	44 A

PANEL NOTES:
a REFER TO ONE-LINE FOR BREAKER SIZE.

PANEL OPTIONS:
MAIN CIRCUIT BREAKER (SEE ONE-LINE FOR SIZE)

GENERATOR PANEL (BEAR VALLEY SIDE)

1

MFR/MODEL: SQUARE 'D' TYPE NQ | VOLTS: 120/208V,1PH,3W | ENCLOSURE: NEMA 3R | 100 A

TYPE: PANELBOARD | VOLT-AMPS | MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
	1	2	20	GEN ANTI-CONDENS HTR	HEAT	720	1,560			HEAT	JACKET WATER HEATER	20	2	2	
	3	2	20	^^	HEAT			720	1,560	HEAT	^^	20	2	4	
	5	2	20	BATTERY CHARGER	MISC	720	720			HEAT	BATT HTR & LUBE OIL HTR	20	2	6	
	7	2	20	^^	MISC			720	720	HEAT	^^	20	2	8	
	9	2	30	SPARE							SPARE	20	1	10	
	11	2		^^					400	HEAT	ENCLOSURE HEATER CKT	15	1	12	
	13	2	20	SPARE							SPARE	20	1	14	
	15	2		^^							SPARE	20	1	16	
	17	1	20	SPARE							SPARE	20	1	18	
				TOTAL V-A		3,720		4,120			7,840 VA				
				TOTAL AMPS		31		34			38 A				
				A.I.C. RATING: 10,000											

	LTG	RECP	MOTR	LG.MT	MISC	HEAT	TOTAL	AMPS
CONNECTED LOAD IN KVA (THIS PANEL):	0.00	0.00	0.00	0.00	1.44	6.40	7.8 KVA	38 A
CONNECTED LOAD IN KVA (BRANCH PANELS):							0.0 KVA	0 A
TOTAL CONNECTED LOAD IN KVA:	0.00	0.00	0.00	0.00	1.44	6.40	7.8 KVA	38 A
DEMAND LOAD IN KVA:	0.00	0.00	0.00	0.00	1.44	8.00	9.4 KVA	45 A

PANEL NOTES:

PANEL OPTIONS:
100A MAIN CIRCUIT BREAKER

GENERATOR PANEL (WHITTIER SIDE)

1

MFR/MODEL: SQUARE 'D' TYPE NQ | VOLTS: 120/208V,1PH,3W | ENCLOSURE: NEMA 3R | 100 A

TYPE: PANELBOARD | VOLT-AMPS | MTG: SURFACE

NOTE	CIRC	POLE	AMPS	SERVICE	TYPE	A		B		TYPE	SERVICE	AMPS	POLE	CIRC	NOTE
	1	2	20	GEN ANTI-CONDENS HTR	HEAT	720	1,560			HEAT	JACKET WATER HEATER	20	2	2	
	3	2	20	^^	HEAT			720	1,560	HEAT	^^	20	2	4	
	5	2	20	BATTERY CHARGER	MISC	720	720			HEAT	BATT HTR & LUBE OIL HTR	20	2	6	
	7	2	20	^^	MISC			720	720	HEAT	^^	20	2	8	
	9	2	30	SPARE							SPARE	20	1	10	
	11	2		^^					400	HEAT	ENCLOSURE HEATER CKT	15	1	12	
	13	2	20	SPARE							SPARE	20	1	14	
	15	2		^^							SPARE	20	1	16	
	17	1	20	SPARE							SPARE	20	1	18	
				TOTAL V-A		3,720		4,120			7,840 VA				
				TOTAL AMPS		31		34			38 A				
				A.I.C. RATING: 10,000											

	LTG	RECP	MOTR	LG.MT	MISC	HEAT	TOTAL	AMPS
CONNECTED LOAD IN KVA (THIS PANEL):	0.00	0.00	0.00	0.00	1.44	6.40	7.8 KVA	38 A
CONNECTED LOAD IN KVA (BRANCH PANELS):							0.0 KVA	0 A
TOTAL CONNECTED LOAD IN KVA:	0.00	0.00	0.00	0.00	1.44	6.40	7.8 KVA	38 A
DEMAND LOAD IN KVA:	0.00	0.00	0.00	0.00	1.44	8.00	9.4 KVA	45 A

PANEL NOTES:

PANEL OPTIONS:
100A MAIN CIRCUIT BREAKER

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

ELECTRICAL PANEL SCHEDULES

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E0.3	XX

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

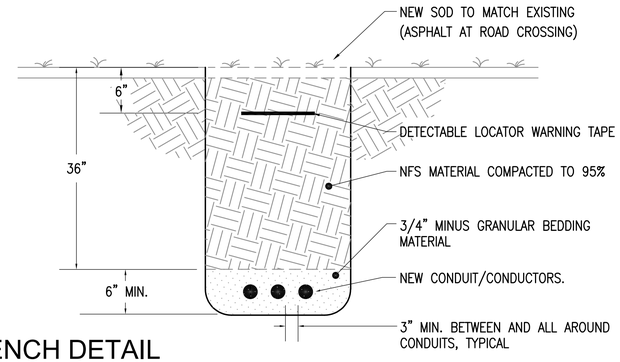
B. PROVIDE SEPARATE PULL BOXES FOR POWER AND COMMUNICATIONS CONDUITS.

SHEET NOTES:

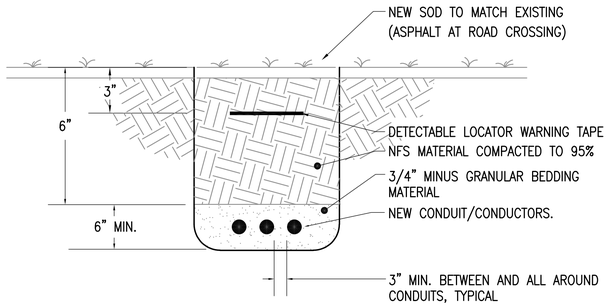
1. WHERE EXISTING GROUNDING ELECTRODE CONDUCTORS ARE NOT AVAILABLE FOR RECONNECTION TO THE NEW GROUND BUS, PROVIDE NEW GROUNDING ELECTRODE CONDUCTORS AND CONNECTIONS AS SHOWN.

2. PROVIDE POLYMER CONCRETE IN-GRADE JUNCTION/PULL BOX WHERE SHOWN ON PLANS AND AS REQUIRED BY CODE. BOX DIMENSIONS SHOWN ARE THE MINIMUM REQUIRED FOR INTERCEPTING THE MAIN FEEDER CONDUITS (OLD SERVICE LATERALS). SIZE ALL BOXES AS REQUIRED BY NEC 314.28.

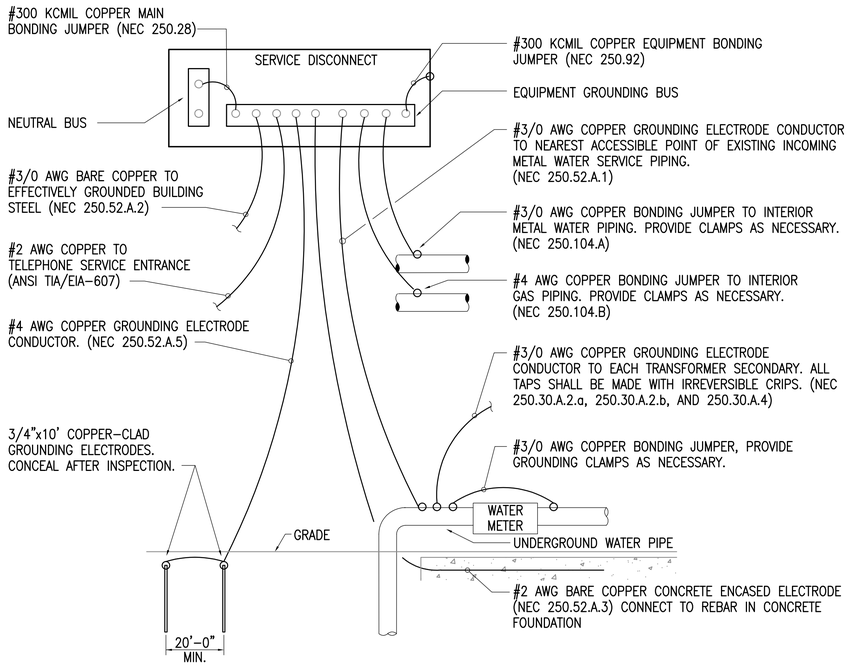
3. SHALLOW TRENCH DETAIL PROVIDED FOR AREAS WHERE BEDROCK IS EXPECTED TO BE ENCOUNTERED DURING EXCAVATION. RIGID CONDUIT IS REQUIRED FOR ALL SHALLOW BURIED APPLICATIONS PER NEC 300.5.



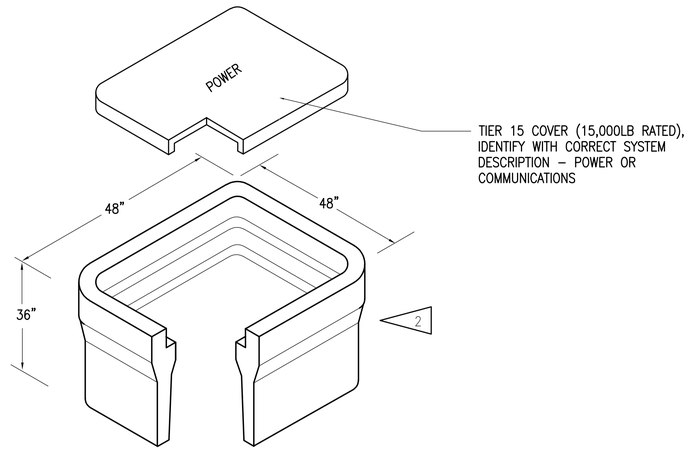
1 TRENCH DETAIL
NO SCALE



4 SHALLOW TRENCH DETAIL (GRSC ONLY) 3
NO SCALE



2 GROUNDING DETAILS 1
NO SCALE



3 IN-GRADE PULLBOX DETAIL
NO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

ELECTRICAL DETAILS

DESIGNED BY FWS
CHECKED BY DB
DRAFTED BY FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E0.3

DATE TIME
5/15/2025 1:51 PM

DRAWING LOCATION
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DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
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N/A

SCALE
N/A

LAYOUT
E1.01

DATE	TIME
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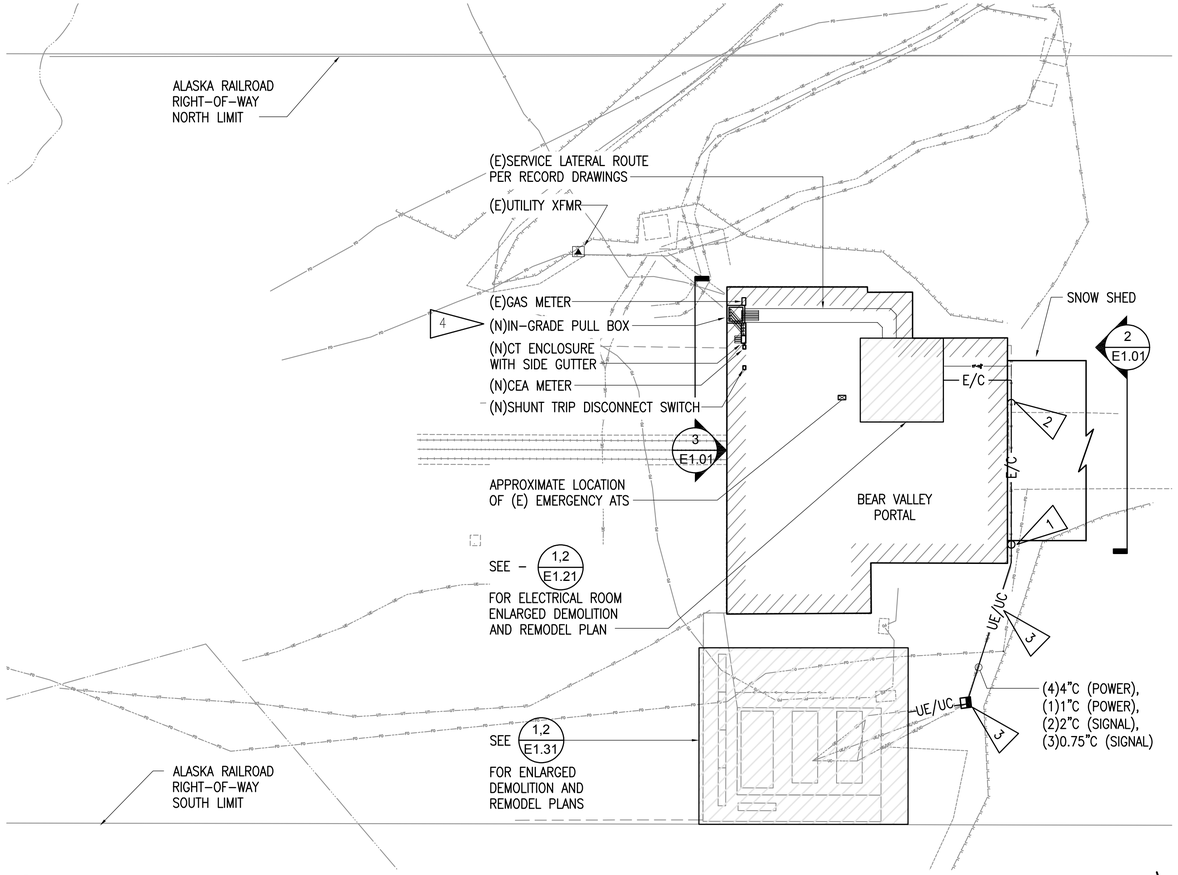
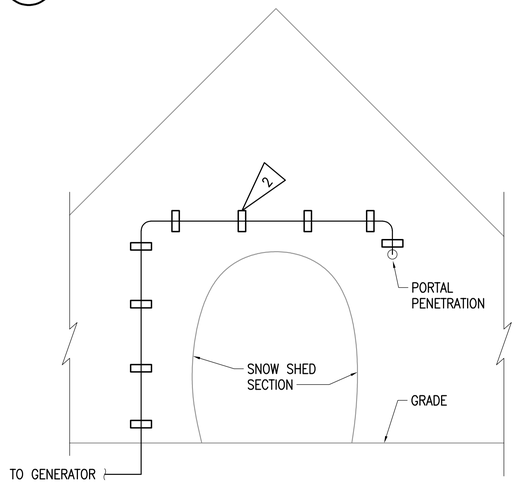
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E1.01	XX



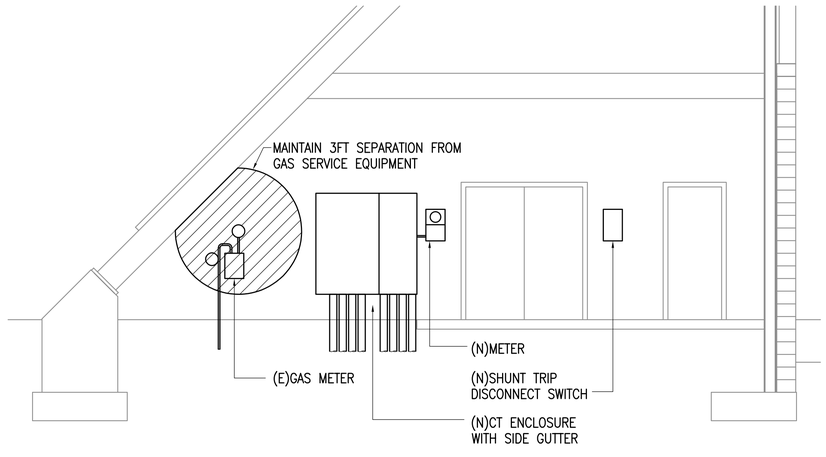
1 BEAR VALLEY SITE PLAN

1" = 20'-0"



2 BEAR VALLEY WALL ELEVATION

NO SCALE



3 BEAR VALLEY CEA CT & METER ELEVATION

1/4" = 1'-0"

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. SEE 1/E0.3 FOR TRENCH DETAIL.

C. SEE 1/E1.12 FOR POWER CONDUCTOR INFORMATION.

D. SEE 1/E1.13 FOR GENERATOR/FOT-1 CONTROL/SIGNAL CONDUCTOR INFORMATION.

E. ROUTING SHOWN FOR NEW ELECTRICAL IS PROPOSED ONLY. SEE CIVIL FOR LOCATIONS OF EXISTING UNDERGROUND UTILITIES. PROVIDE MINOR MODIFICATIONS IN THE FIELD AS REQUIRED TO ACCOMMODATE EXISTING UTILITIES.

SHEET NOTES:

1. STUB CONDUITS UP FROM BELOW GRADE AND TRANSITION TO GRSC. ROUTE GRSC THE REAR PORTAL WALL.

2. PROVIDE NEW MOUNTING BRACKETS TO SUPPORT THE CONDUIT ON THE PORTAL WALL. ROUTE CONDUIT AROUND AND OVER THE SNOW SHED BEHIND THE PORTAL. PENETRATE INTO THE PORTAL ON THE NORTH SIDE OF THE SNOW SHED AT APPROXIMATE LOCATION AS SHOWN. SURFACE-MOUNTED CONDUIT ON PORTAL WALL SHALL BE SUPPORTED ON 3-FOOT CENTERS, MINIMUM. DETAIL IS FOR ROUTING AND SUPPORTING REFERENCE ONLY AND DOES NOT SHOW ALL CONDUITS REQUIRED. SEE 1/E1.01 FOR QUANTITY AND SIZE OF CONDUITS.

3. PROVIDE IN-GRADE PULL BOXES AS SHOWN AND AS REQUIRED FOR INSTALLATION. PROVIDE SEPARATE POWER AND COMMUNICATION IN-GRADE JUNCTION BOXES. SEE E0.3 FOR DETAILS.

4. PROVIDE NEW IN-GRADE PULL BOX TO INTERCEPT EXISTING SERVICE LATERAL CONDUITS AND REROUTE TO NEW CT ENCLOSURE. COORDINATE WITH CEA FOR ALL SERVICE WORK. REFERENCE 3/E0.3

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

BEAR VALLEY PORTAL ELECTRICAL SITE PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

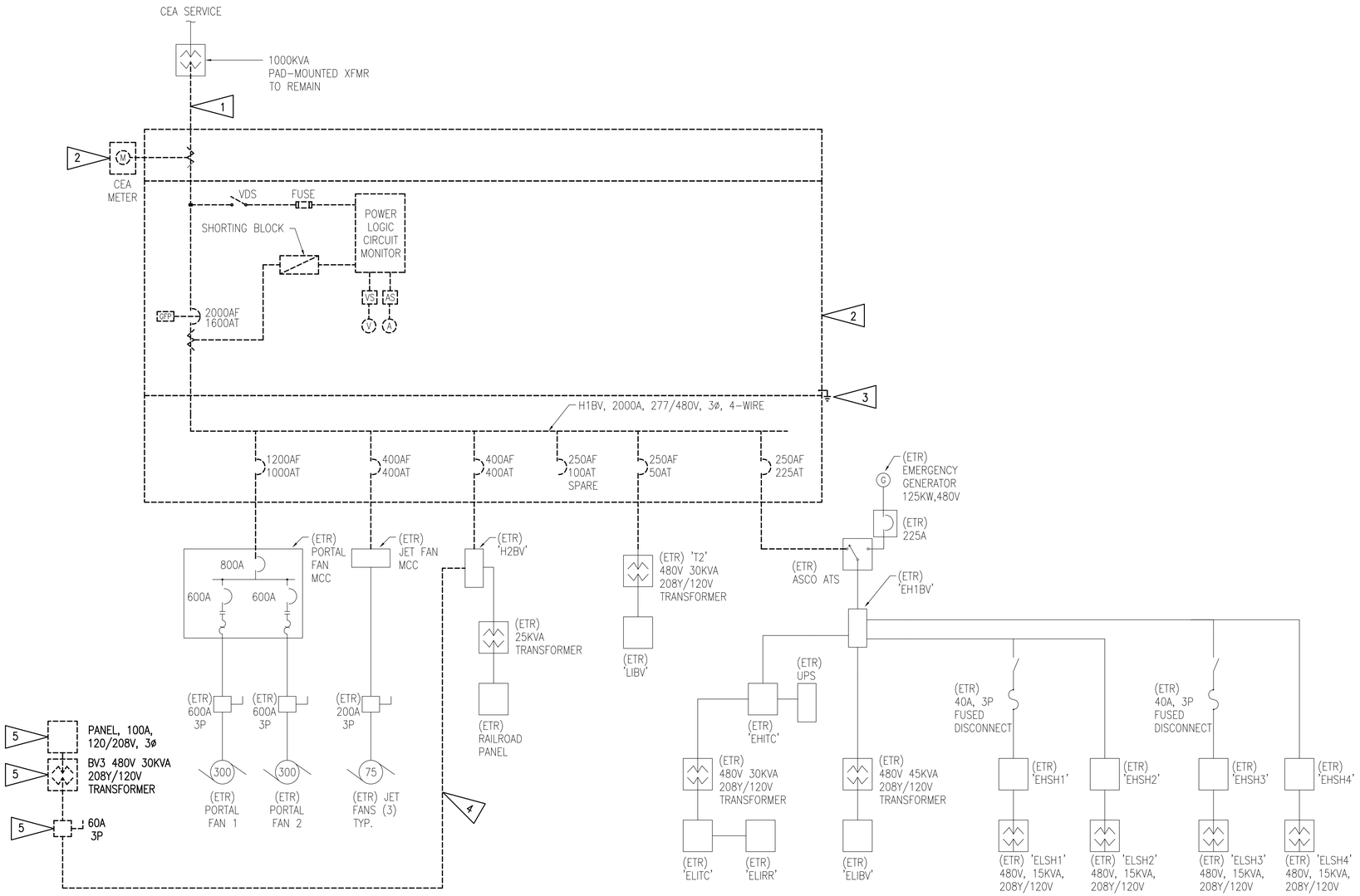
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E1.11	XX

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

SHEET NOTES:

1. SERVICE LATERAL CONDUCTORS SHALL BE REMOVED BY CEA. SALVAGE UNDERGROUND CONDUIT TO THE EXTENT POSSIBLE FOR REUSE. CONCRETE-EMBEDDED CONDUIT SHALL BE REMOVED TO THE EXTENT AS REQUIRED TO FEED NEW SERVICE SWITCHBOARD. SEE E1.21 FOR DEMOLITION AND REMODEL LAYOUTS WITHIN ELECTRICAL ROOM.
2. DEMOLISH 3-SECTION SWITCHBOARD CONSISTING OF SERVICE EQUIPMENT, MAIN BREAKER, AND DISTRIBUTION SWITCHBOARD. SUBFEED CONDUITS AND CONDUCTORS TO (ETR) DISTRIBUTION EQUIPMENT MAY BE REUSED TO THE EXTENT POSSIBLE AND RECONNECTED TO THE NEW SERVICE/DISTRIBUTION GEAR. FOR BID PURPOSES, PROPOSE ALL NEW SUBFEED CONDUITS AND CONDUCTORS TO (ETR) DISTRIBUTION EQUIPMENT.
3. DISCONNECT CONNECTIONS TO GROUNDING ELECTRODE CONDUCTORS AND RETAIN FOR RECONNECTION. SEE E1.21 FOR ORIGINAL AND NEW SERVICE EQUIPMENT LOCATION.
4. DEMOLISH CONDUCTORS FEEDING EXTERIOR DISCONNECT AT FUEL DISPENSER PAD. DEMOLISH UNDERGROUND CONDUIT TO THE EXTENT NECESSARY TO REMOVE CONDUIT FROM NEW SLAB FOOTPRINT. REMAINING UNDERGROUND CONDUIT MAY BE CAPPED AND ABANDONED IN PLACE. SEE E1.31.
5. DEMOLISH UNISTRUT RACK, FEEDER DISCONNECT, TRANSFORMER, AND BRANCH DISTRIBUTION PANEL LOCATED AT FUEL DISPENSER PAD. SALVAGE AND RETAIN ACTIVE BRANCH CIRCUITS ON THE PANEL FOR RECONNECTION.



1 DEMOLITION ONE-LINE DIAGRAM - BEAR VALLEY PORTAL

NO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

BEAR VALLEY PORTAL
DEMOLITION ONE-LINE DIAGRAM

DESIGNED BY FWS
CHECKED BY DB
DRAFTED BY FWS

XREFS N/A N/A

SCALE N/A

LAYOUT E1.11

DATE TIME 5/16/2025 7:04 AM

DRAWING LOCATION G:\2024\W4136\W4136_ETSERIES.dwg

DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E1.12

DATE	TIME
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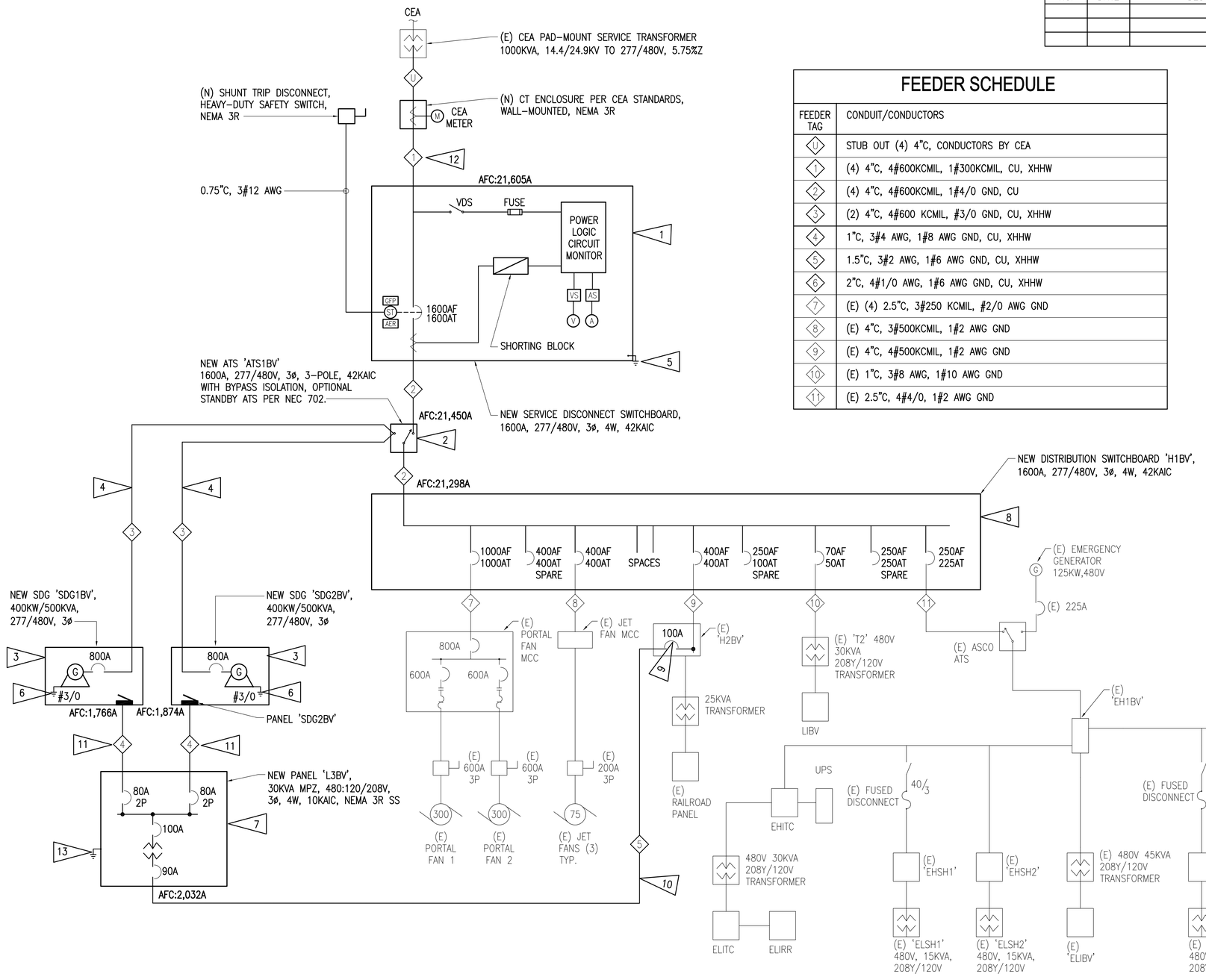
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E1.12	XX



FEEDER SCHEDULE

FEEDER TAG	CONDUIT/CONDUCTORS
U	STUB OUT (4) 4"C, CONDUCTORS BY CEA
1	(4) 4"C, 4#600KCMIL, 1#300KCMIL, CU, XHHW
2	(4) 4"C, 4#600KCMIL, 1#4/0 GND, CU
3	(2) 4"C, 4#600 KCMIL, #3/0 GND, CU, XHHW
4	1"C, 3#4 AWG, 1#8 AWG GND, CU, XHHW
5	1.5"C, 3#2 AWG, 1#6 AWG GND, CU, XHHW
6	2"C, 4#1/0 AWG, 1#6 AWG GND, CU, XHHW
7	(E) (4) 2.5"C, 3#250 KCMIL, #2/0 AWG GND
8	(E) 4"C, 3#500KCMIL, 1#2 AWG GND
9	(E) 4"C, 4#500KCMIL, 1#2 AWG GND
10	(E) 1"C, 3#8 AWG, 1#10 AWG GND
11	(E) 2.5"C, 4#4/0, 1#2 AWG GND

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. ALL BREAKERS ARE 3ø, 3P, UNLESS OTHERWISE NOTED.

SHEET NOTES:

1. PROVIDE SERVICE DISCONNECT SWITCHBOARD WITH A SERVICE-ENTRANCE RATED MAIN BREAKER AND GROUND FAULT PROTECTION. SWITCHBOARD SHALL HAVE METERING INTEGRAL TO MAIN BREAKER SECTION. PROVIDE WITH SHUNT TRIP MEANS, GROUND FAULT PROTECTION AND ARC ENERGY REDUCTION SWITCH IN ACCORDANCE WITH NEC REQUIREMENTS.
2. PROVIDE NEW STANDBY ATS IN ACCORDANCE WITH SPECIFICATION SECTION 26 36 00. SEE E1.21 FOR LOCATION OF ATS IN ELECTRICAL ROOM.
3. PROVIDE NEW PACKAGED STANDBY DIESEL GENERATORS. SEE E1.01 AND E1.31 FOR LOCATION. REFERENCE SPECIFICATION SECTION 26 32 13 FOR ADDITIONAL REQUIREMENTS.
4. PROVIDE NEW FEEDERS BETWEEN INDOOR 'ATS1BV' AND EXTERIOR GENERATORS. SEE E1.01 AND E1.31 FOR SUGGESTED ROUTING. SEE GENERATOR CONTROL SCHEMATIC ON E1.13 FOR ADDITIONAL SIGNAL/CONTROL CONDUIT AND WIRING REQUIREMENTS.
5. SEE 2/E0.3 FOR GROUNDING DETAILS.
6. BOND ALL METALLIC PIPING, STRUCTURAL STEEL, AND REBAR IN CONCRETE PAD WITH A #3/0 BARE COPPER CONDUCTOR.
7. PROVIDE NEW MPZ PANEL AT GENERATOR PAD, SEE E1.31 FOR LOCATION. SEE E0.2 FOR PANEL SCHEDULE.
8. PROVIDE NEW DISTRIBUTION SWITCHBOARD. INTERCEPT EXISTING FEEDERS TO EXISTING DISTRIBUTION EQUIPMENT AND CONNECT TO NEW DISTRIBUTION SWITCHBOARD.
9. PROVIDE NEW BREAKER IN PANEL 'H2BV' AS SHOWN. THE NEW CIRCUIT BREAKER SHALL BE COMPATIBLE WITH AND LISTED FOR USE IN THE EXISTING SQUARE-D, NF PANEL BOARD AND SHALL HAVE A MINIMUM SHORT CIRCUIT AIC RATING TO MATCH THE LOWEST RATED EXISTING DEVICE IN THE PANEL.
10. PROVIDE NEW FEEDER TO NEW PANEL FROM EXISTING PANEL. SEE 1/E1.01 FOR SUGGESTED FEEDER ROUTE.
11. PROVIDE NEW FEEDER BETWEEN NEW PANEL AND GENERATOR PANELS. SIZE FEEDER AS INDICATED IN FEEDER SCHEDULE. SEE E1.31 FOR SUGGESTED ROUTING.
12. REUSE EXISTING UNDERGROUND CONDUIT TO THE FURTHEST EXTENT POSSIBLE, AND EXTEND WITH NEW CONDUIT TO NEW SERVICE DISCONNECT SWITCHBOARD AND CT ENCLOSURE EQUIPMENT LOCATIONS.
13. PROVIDE #8 AWG COPPER GROUNDING ELECTRODE CONDUCTOR AND BOND TO REBAR IN CONCRETE PAD. PROTECT CONDUCTOR IN SCHEDULE 80 PVC CONDUIT WHERE EXPOSED.

1 REMODEL ONE-LINE DIAGRAM - BEAR VALLEY PORTAL

NO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

BEAR VALLEY PORTAL
REMODEL ONE-LINE DIAGRAM

DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E1.13

DATE	TIME
5/16/2025	7:04 AM

DRAWING LOCATION
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REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E1.13	XX

GENERATOR STARTUP SCENARIOS

SCENARIO 1 – UTILITY POWER MODE.
- UTILITY POWER – ON
- STANDBY GENERATOR 1 – NOT RUNNING
- STANDBY GENERATOR 2 – NOT RUNNING
- EMERGENCY GENERATOR – NOT RUNNING

COMMENTS: UTILITY IS PROVIDING CONTINUOUS POWER TO THE FACILITY. NO GENERATORS ARE ONLINE.

SCENARIO 2 – WITHIN 10 SECONDS OF UTILITY POWER FAILURE.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ATS STILL IN UTILITY MODE POSITION
- STANDBY GENERATOR 2 – RUNNING. ATS STILL IN UTILITY MODE POSITION
- EMERGENCY GENERATOR – RUNNING. ENERGIZES EMERGENCY BUS

COMMENTS: EMERGENCY GENERATOR IS REQUIRED TO START UP WITHIN 10 SECONDS OF POWER OUTAGE. TO AVOID HAVING THE STANDBY GENERATORS FEED THE DISTRIBUTION SYSTEM BEFORE THE EMERGENCY GENERATOR, A 30-SECOND TIME DELAY SHALL BE PROGRAMMED TO THE STANDBY POWER ATS TO ALLOW THE EMERGENCY GENERATOR TO FEED THE EMERGENCY BUS PER CODE.

SCENARIO 3 – 30 SECONDS AFTER UTILITY POWER FAILURE.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS, EXCEPT EMERGENCY BUS
- STANDBY GENERATOR 2 – RUNNING. ENERGIZES ENTIRE BUS, EXCEPT EMERGENCY BUS
- EMERGENCY GENERATOR – RUNNING. AND ENERGIZES EMERGENCY BUS

COMMENTS: EMERGENCY GENERATOR CONTINUES TO ENERGIZE THE EMERGENCY BUS AND THE STANDBY GENERATORS ENERGIZE THE REST OF THE DISTRIBUTION.

SCENARIO 4A – FIFTEEN MINUTES AFTER UTILITY POWER FAILURE. BOTH GENERATORS ARE RUNNING.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS.
- STANDBY GENERATOR 2 – RUNNING. ENERGIZES ENTIRE BUS.
- EMERGENCY GENERATOR – NOT RUNNING.

COMMENTS: EMERGENCY ATS SHALL RE-TRANSFER POWER TO 'NORMAL' POWER. BOTH PORTAL FANS ARE ON, AND THE SECOND GENERATOR STAYS ON.

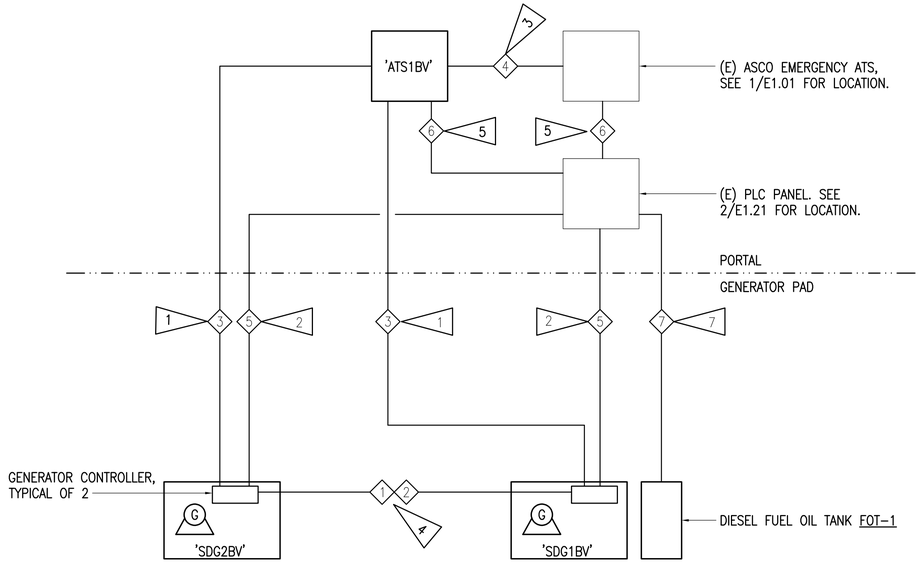
SCENARIO 4B – FIFTEEN MINUTES AFTER UTILITY POWER FAILURE. ONE GENERATOR IS RUNNING.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS.
- STANDBY GENERATOR 2 – NOT RUNNING.
- EMERGENCY GENERATOR – NOT RUNNING.

COMMENTS: EMERGENCY ATS SHALL RE-TRANSFER POWER TO 'NORMAL' POWER. ONLY ONE GENERATOR IS REQUIRED SO SECOND GENERATOR DROPS OFF.

SCENARIO 5 – ONE GENERATOR RUNNING AND SECOND PORTAL FAN IS NEEDED.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS.
- STANDBY GENERATOR 2 – STARTS UP AND PARALLELS TO BUS UPON OPERATOR SIGNAL TO START.
- EMERGENCY GENERATOR – OFF

COMMENTS: OPERATOR IS UNABLE TO START A SECOND PORTAL FAN WHILE ONLY ONE GENERATOR IS RUNNING. OPERATOR STARTS THE SECOND GENERATOR REMOTELY. ONCE THE SECOND GENERATOR IS PARALLELED TO THE BUS, THEN THE OPERATOR CAN START THE SECOND PORTAL FAN.

MISCELLANEOUS
- EMERGENCY ATS RE-TRANSFER TIME SHALL BE PROGRAMMED TO 15 MINUTES (AS PERMITTED BY NEC 700.12(B)(1)).
- STANDBY ATS RE-TRANSFER TIME SHALL BE PROGRAMMED TO 15 MINUTES.
- WHEN TWO GENERATORS ARE RUNNING AND LOADED AT 40% OR LESS, ONE GENERATOR SHALL DROP OFF AND THE SECOND GENERATOR SHALL PICK UP THE FULL LOAD.
- WHEN ONE GENERATOR IS RUNNING AND LOAD IS 30% OR LESS, AN ALARM SHALL BE SENT TO PLC TO ALERT OPERATOR OF LOW LOAD.



1 CONTROL SCHEMATIC - BEAR VALLEY PORTAL
NO SCALE

CONTROL WIRING SCHEDULE

FEEDER TAG	TYPE	CONDUIT	CONDUCTORS/CABLING
1	AC CTRL	0.75"C	2#12AWG, 1#12GND
2	DC CTRL/ SIGNAL	2"C	9#16AWG (1) #16AWG SHIELDED TWISTED TRIAD WITH DRAIN (1 SPARE) #16AWG SHIELDED TWISTED TRIAD WITH DRAIN (1) CAT6 UTP CABLE (1 SPARE) CAT6 UTP CABLE
3	" "	2"C	40#16AWG (1) #16AWG TWISTED SHIELDED PAIR WITH DRAIN (2 SPARE) #16AWG TWISTED SHIELDED PAIR WITH DRAIN (1) CAT6 UTP CABLE (1 SPARE) CAT6 UTP CABLE
4	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN
5	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN
6	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN
7	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. CATERPILLAR IS BASIS OF DESIGN FOR THIS COMMUNICATION RISER DIAGRAM AND WIRING SCHEDULE. SHOULD ANOTHER MANUFACTURER BE PROPOSED AND ACCEPTED, CONTRACTOR IS RESPONSIBLE TO PROVIDE CORRECT RACEWAY/WIRING TO PROVIDE A COMPLETE SYSTEM.

SHEET NOTES:

1. PROVIDE COMMUNICATION LINK AS REQUIRED BY MANUFACTURER BETWEEN STANDBY DIESEL GENERATOR CONTROLLERS AND ATS.
2. PROVIDE COMMUNICATION LINK FROM STANDBY DIESEL GENERATOR CONTROLLERS TO NEW PLC EXPANSION PANEL FOR REMOTE GENERATOR CONTROL, GENERATOR ANNUNCIATION, AND FUEL LEVELS VIA MODBUS TCP COMMUNICATION.
3. PROVIDE COMMUNICATION LINK FROM NEW 'ATS1BV' TO EXISTING ASCO EMERGENCY ATS TO PROHIBIT RETRANSFER TO UTILITY OF EMERGENCY ATS PRIOR TO 'ATS1BV'. COORDINATE WITH ASCO FOR EXISTING EMERGENCY ATS AND NEW TRANSFER SWITCH MANUFACTURER.
4. PROVIDE COMMUNICATION LINK BETWEEN GENERATOR CONTROLLER FOR SYNCHRONIZATION/PARALLELING/LOAD SHARING CONTROL.
5. PROVIDE COMMUNICATION LINK TO ALLOW OPERATOR TO MONITOR TRANSFER SWITCH POSITIONS.
6. CONTRACTOR SHALL CONFIRM WIRING REQUIREMENTS WITH MANUFACTURERS TO PROVIDE THE WIRING NECESSARY TO PROVIDE A COMPLETE SYSTEM PRIOR TO MATERIAL PROCUREMENT. CONDUITS MAY BE COMBINED AS PERMITTED BY NEC.
7. PROVIDE COMMUNICATION LINK BETWEEN PLC SYSTEM AND 'FOT1BV' TO MONITOR FUEL OIL LEVEL SENSOR AT DIESEL FUEL OIL TANK.

RSA ENGINEERING, INC.

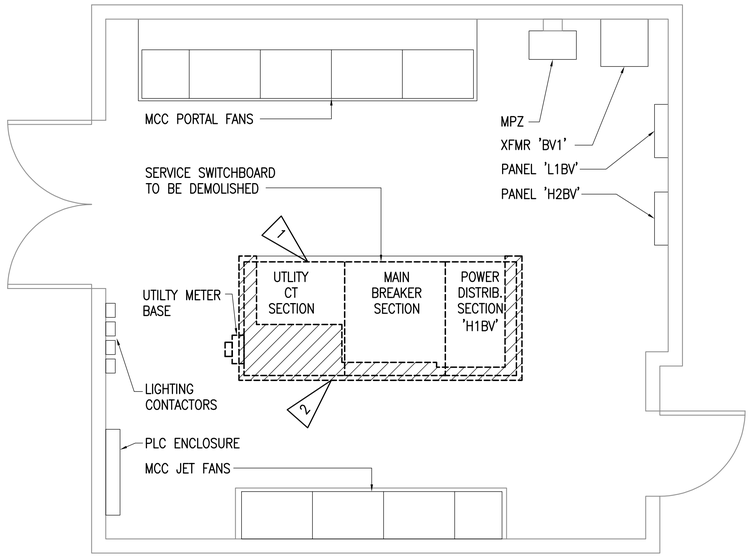
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

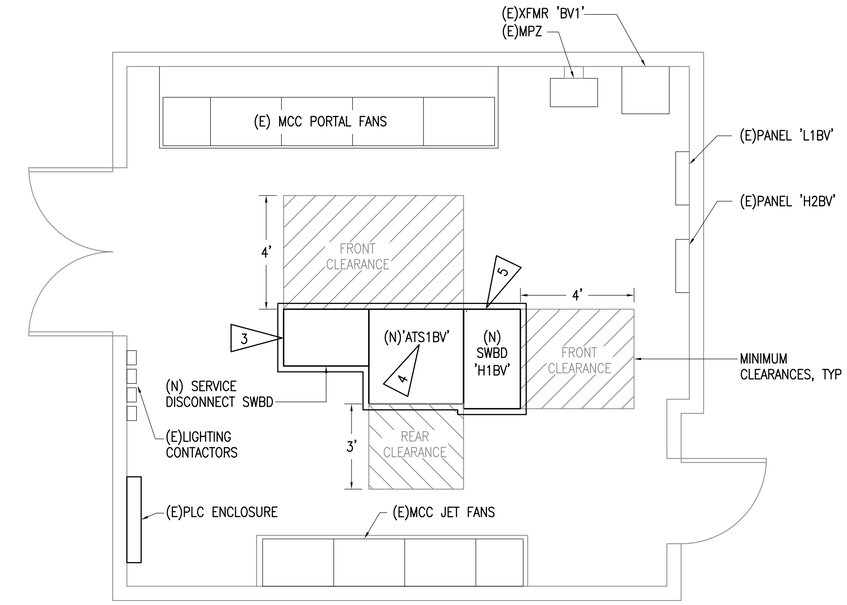
BEAR VALLEY PORTAL
CONTROL SCHEMATIC

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E1.21	XX



1 DEMOLITION PLAN - ELECTRICAL ROOM
3/8" = 1'-0"



2 REMODEL PLAN - ELECTRICAL ROOM
3/8" = 1'-0"

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. CONTRACTOR SHALL PROVIDE EQUIPMENT LAYOUT DRAWING SHOWING ACTUAL EQUIPMENT DIMENSIONS AND DEMONSTRATING ALL NEC CLEARANCES ARE MAINTAINED PRIOR TO BEGINNING WORK. ALL NEW FLOOR-MOUNTED EQUIPMENT IN THE ELECTRICAL ROOM SHALL BE PROVIDED WITH A 3" TALL HOUSEKEEPING PAD WITH BEVELED EDGES.

C. SERVICE DISCONNECT WORK SHALL BE COORDINATED WITH CEA PRIOR TO BEGINNING WORK.

D. PATCH REMOVED CONCRETE WITH NEW WHERE CONCRETE WAS REMOVED.

SHEET NOTES:

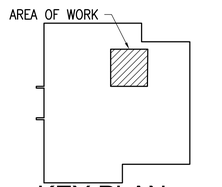
1. DEMOLISH SERVICE SWITCHBOARD, POWER DISTRIBUTION PANEL 'H1BV', AND METER BASE. SALVAGE METER FOR UTILITY. REMOVE CONCRETE HOUSEKEEPING PAD AS REQUIRED TO INTERCEPT THE EMBEDDED CONDUITS TO EXTEND WITH NEW TO NEW SERVICE DISCONNECT LOCATION. TRACE EMBEDDED CONDUITS PRIOR TO CUTTING INTO THE CONCRETE AND BE CAREFUL NOT TO DAMAGE EMBEDDED CONDUITS DURING DEMOLITION. NO RECORD DRAWINGS ARE AVAILABLE THAT IDENTIFY THE EXACT DEPTH, SIZE, NOR ROUTING OF THE SECONDARY SERVICE FEEDERS. RETAIN BRANCH FEEDERS FROM SWITCHBOARD 'H1BV' FOR RECONNECTION TO NEW DISTRIBUTION SWITCHBOARD.

2. DEMOLISH HOUSEKEEPING PAD AS REQUIRED FOR NEW EQUIPMENT FOOTPRINT. PATCH AND REPAIR ALL EDGES CUT.

3. PROVIDE NEW SERVICE DISCONNECT SWITCHBOARD. PROVIDE EXTENSION OF EMBEDDED CONDUIT TO NEW EQUIPMENT AS REQUIRED. EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4' CLEARANCE IN FRONT OF THE ENCLOSURE AS SHOWN. PATCH CONCRETE AND FINISH TO MATCH EXISTING.

4. PROVIDE NEW STANDBY ATS. ATS SHALL BE PROVIDED WITH A MINIMUM 4' CLEARANCE IN FRONT OF THE ENCLOSURE AS SHOWN.

5. PROVIDE NEW DISTRIBUTION SWITCHBOARD 'H1BV'. 'H1BV' SHALL BE PROVIDED WITH A MINIMUM 4' CLEARANCE IN FRONT OF THE ENCLOSURE AS SHOWN. INTERCEPT EXISTING UNDERFLOOR CONDUITS AND CONDUCTORS FEEDING EXISTING DISTRIBUTION EQUIPMENT AND CONNECT TO NEW DISTRIBUTION SWITCHBOARD.



KEY PLAN
NOT TO SCALE

DESIGNED BY FWS
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XREFS N/A N/A

SCALE N/A

LAYOUT E1.21

DATE 5/16/2025
TIME 7:04 AM

DRAWING LOCATION
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RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

BEAR VALLEY PORTAL
ELECTRICAL ROOM
DEMOLITION AND REMODEL PLANS

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XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E1.31

DATE	TIME
5/16/2025	7:04 AM

DRAWING LOCATION
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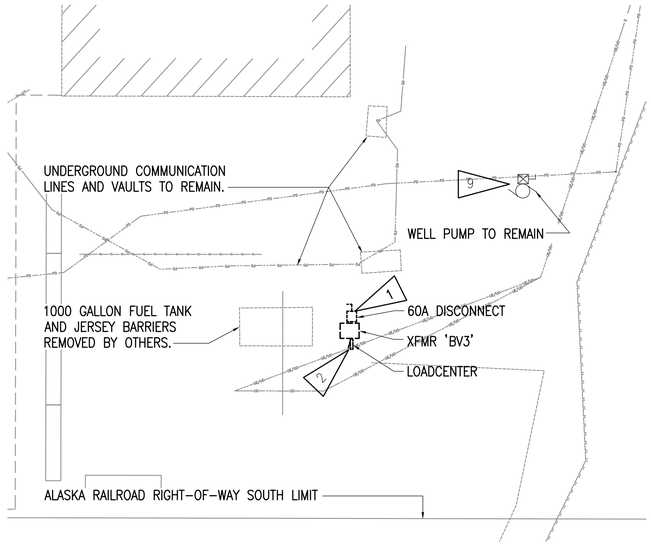
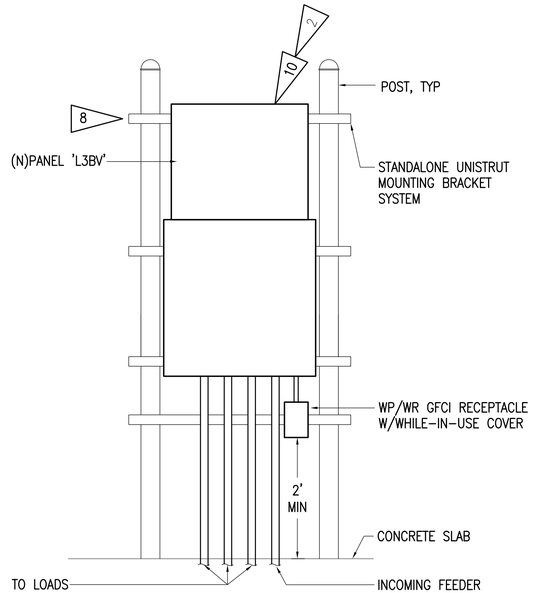
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E1.31	XX



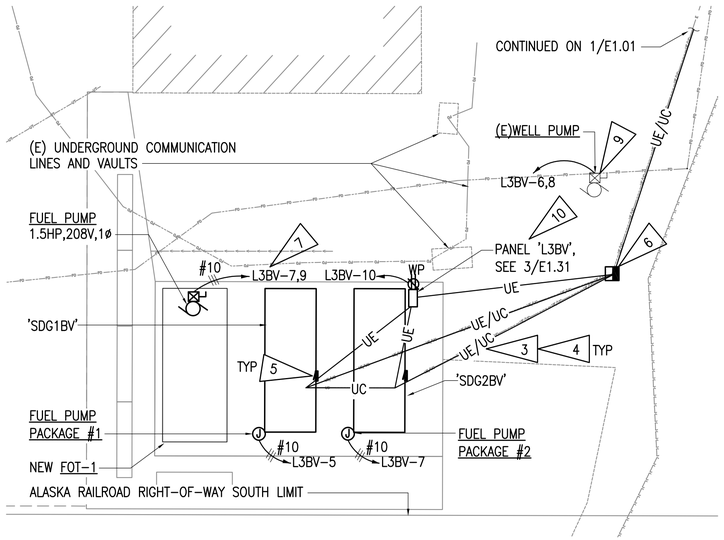
1 ENLARGED DEMOLITION PLAN

1" = 10'-0"



3 PANEL 'L3BV' ELEVATION VIEW

NO SCALE



2 ENLARGED REMODEL PLAN - SDG PAD

1" = 10'-0"

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. SEE 1/E0.3 FOR TRENCH DETAIL.

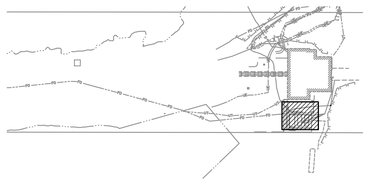
C. COORDINATE WITH GENERATOR MANUFCTURER FOR EXACT CONDUIT STUB UP LOCATIONS PRIOR TO ROUGH-IN.

SHEET NOTES:

1. DEMOLISH EQUIPMENT AND EQUIPMENT RACK. DEMOLISH ALL ABOVE GROUND CONDUIT AND CONDUCTORS. DEMOLISH UNDERGROUND CONDUCTORS FEEDING DISCONNECT BACK TO SOURCE. DEMOLISH UNDERGROUND CONDUIT TO THE EXTENT NECESSARY TO REMOVE CONDUIT FROM NEW SLAB AREA AND CAPP/ABANDON IN PLACE. SEE 1/E1.11. DEMOLISH ALL BRANCH CIRCUITS AND ASSOCIATED CONDUIT AND WIRING UNLESS NOTED OTHERWISE.
2. DISCONNECT EXISTING 250V, 3ø, 4W CORD/PLUG FROM LOAD CENTER AND RECONNECT TO NEW PANEL.
3. SEE 1/E1.12 FOR POWER CONDUIT/WIRING REQUIREMENTS.
4. SEE 1/E1.13 FOR COMMUNICATION CONDUIT/WIRING REQUIREMENTS.
5. PROVIDE FEEDER FROM PANEL 'L3BV' TO GENERATOR ENCLOSURE PANEL. SEE 1/E1.12 FOR CONDUIT/WIRING REQUIREMENTS. SEE E0.2 FOR PANEL SCHEDULES.
6. PROVIDE IN-GRADE JUNCTION BOX(ES) AS REQUIRED. MINIMUM QUANTITY SHOWN. PROVIDE SEPARATE POWER AND COMMUNICATION IN-GRADE JUNCTION BOXES. SEE E0.3 FOR TYPICAL TRENCHING AND IN-GRADE PULLBOX DETAILS.
7. ROUTE FUEL PUMP CONDUIT OVERHEAD TO PANEL 'L3BV' TO MAINTAIN ACCESS BETWEEN EQUIPMENT.
8. PROVIDE TUBE STEEL AND STEEL CHANNEL RACK FOR SUPPORT OF EQUIPMENT. REFERENCE SPECIFICATIONS 26 05 29 AND 26 05 48 FOR ADDITIONAL REQUIREMENTS.
9. EXISTING WELL PUMP AND DISCONNECT TO REMAIN. REUSE EXISTING CONDUIT AND WIRING TO THE EXTENT POSSIBLE, AND PROVIDE NEW CONDUIT AND WIRING TO RECONNECT TO NEW PANEL. SEE 2/E1.31 FOR NEW CIRCUIT.
10. PROVIDE NEW PANEL TO FEED GENERATOR PANELS, FUEL DISPENSING EQUIPMENT, AND RE-FEED EXISTING LOADS THAT WERE CONNECTED TO ORIGINAL LOAD CENTER WITH NEW CONDUIT AND WIRING.

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.



KEY PLAN

NOT TO SCALE

RSA ENGINEERING, INC.

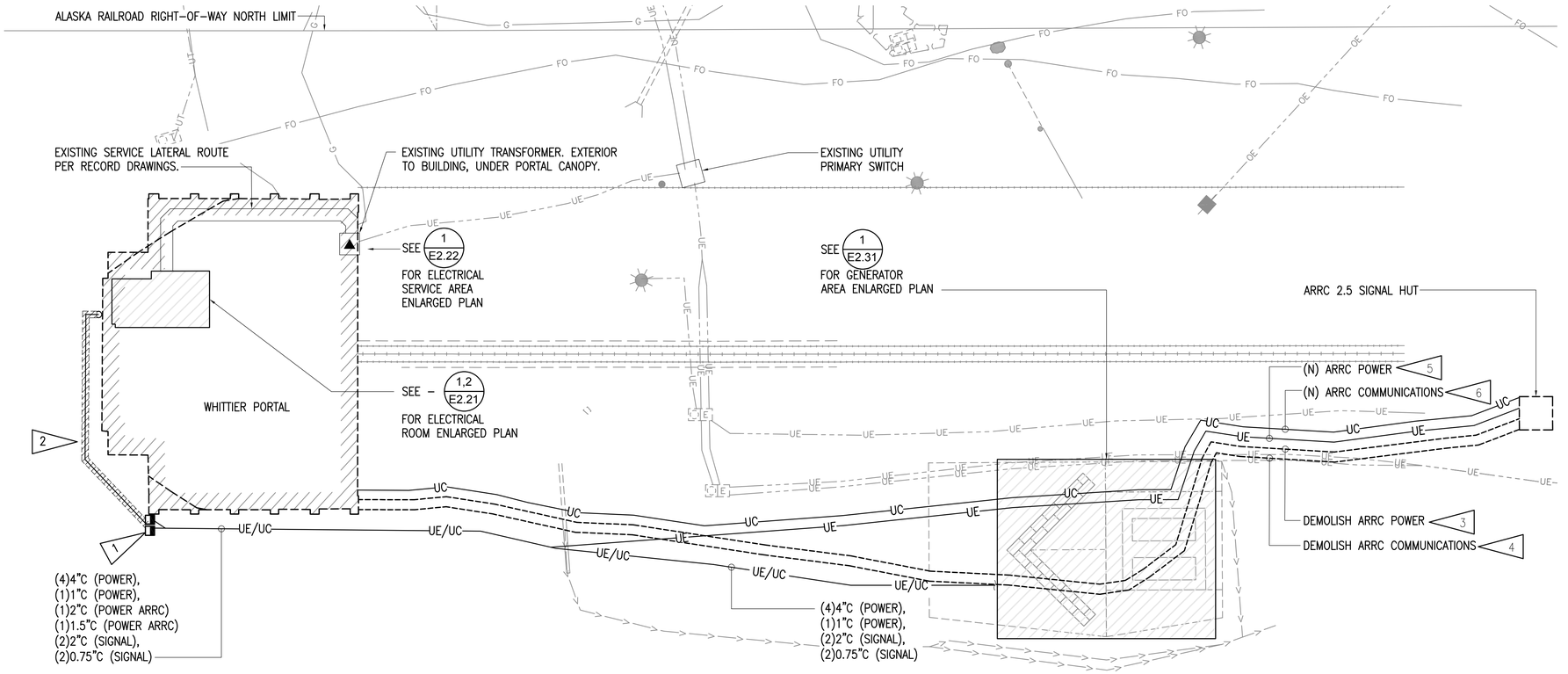
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

BEAR VALLEY PORTAL ENLARGED SITE PLANS

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.01	XX



1 WHITTIER SITE PLAN

1" = 20'-0"

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. SEE 1/E0.3 FOR TRENCH DETAIL.

C. SEE 1/E2.12 FOR POWER CONDUCTOR INFORMATION.

D. SEE 1/E2.13 AND 1/E2.22 FOR GENERATOR CONTROL/SIGNAL CONDUCTOR INFORMATION.

E. ROUTING SHOWN FOR NEW ELECTRICAL IS PROPOSED ONLY. SEE CIVIL FOR LOCATIONS OF EXISTING UNDERGROUND UTILITIES. PROVIDE MINOR MODIFICATIONS IN THE FIELD AS REQUIRED TO ACCOMMODATE EXISTING UTILITIES.

F. COORDINATE WITH ARRC PRIOR TO BEGINNING WORK ON THEIR SYSTEM/EQUIPMENT. ARRC REPRESENTATIVE SHALL BE PRESENT FOR ALL DISCONNECTING AND RECONNECTING WORK.

G. ARRC TRAFFIC CONTROL STATION'S EXISTING UNDERGROUND ELECTRICAL POWER AND COMMUNICATION TO BE DEMOLISHED AFTER INSTALLATION OF NEW POWER AND COMMUNICATION CONDUIT, CONDUCTORS, AND CABLING HAS BEEN COMPLETED.

SHEET NOTES:

1. PROVIDE IN-GRADE PULL BOX TO TRANSITION TO SHALLOW BURIED GALVANIZED RIGID STEEL CONDUIT. PROVIDE SEPARATE IN-GRADE BOXES FOR POWER AND SIGNAL/COMM CONDUITS.
2. ASSUMED AREA OF SHALLOW BEDROCK REQUIRING SHALLOW BURIED GALVANIZED RIGID STEEL CONDUIT. SEE DETAIL 4/E0.3 FOR TRENCH DETAIL.
3. DEMOLISH UNDERGROUND POWER CONDUIT AND CONDUCTORS FROM ARRC 2.5 SIGNAL HUT BACK TO EQUIPMENT WITHIN WHITTIER PORTAL ELECTRICAL ROOM, SEE 1/E2.21 FOR LOCATION. EXISTING CONDUIT AND CABLING SIZE IS UNKNOWN, FIELD VERIFY PRIOR TO BEGINNING WORK. ASSUME THE FOLLOWING FOR BID PURPOSES: (1) 2"C, 3#4/0 AWG, #8 AWG GND AND (1) 1.5"C, 3#1/0 AWG, #4 AWG GND.
4. DEMOLISH UNDERGROUND COMMUNICATION CONDUIT AND CONDUCTORS FROM ARRC 2.5 SIGNAL HUT BACK TO ARRC COMM ROOM WITHIN THE WHITTIER PORTAL, SEE 1/E2.22 FOR LOCATION. EXISTING CONDUIT AND CABLING SIZE IS UNKNOWN, FIELD VERIFY PRIOR TO BEGINNING WORK. ASSUME THE FOLLOWING FOR BID PURPOSES: (1) 4"C WITH 7#14 AWG AND (1) 24-PAIR FIBER OPTIC CABLE WITHIN INNERDUCT.
5. PROVIDE NEW UNDERGROUND POWER CONDUITS AND CONDUCTORS FROM ARRC 2.5 SIGNAL HUT BACK TO EQUIPMENT WITHIN WHITTIER PORTAL ELECTRICAL ROOM, SEE 2/E2.21 FOR LOCATION. MATCH EXISTING CONDUIT AND CONDUCTOR SIZE, REFERENCE NOTE 3 ABOVE.
6. PROVIDE NEW UNDERGROUND COMMUNICATION CONDUIT, CONDUCTORS, AND CABLING FROM ARRC 2.5 SIGNAL HUT BACK TO ARRC COMM ROOM WITHIN THE WHITTIER PORTAL, SEE 1/E2.22 FOR LOCATION. MATCH EXISTING (TO BE DEMOLISHED) CONDUIT, CONDUCTOR AND CABLING SIZE, REFERENCE NOTE 4 ABOVE.

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
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WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL ELECTRICAL SITE PLAN

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XREFS N/A N/A

SCALE N/A

LAYOUT E2.01

DATE TIME 5/15/2025 1:51 PM

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XREFS
N/A
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SCALE
N/A

LAYOUT
E2.11

DATE	TIME
5/15/2025	1:51 PM

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REVISIONS		
NO.	DATE	DESCRIPTION

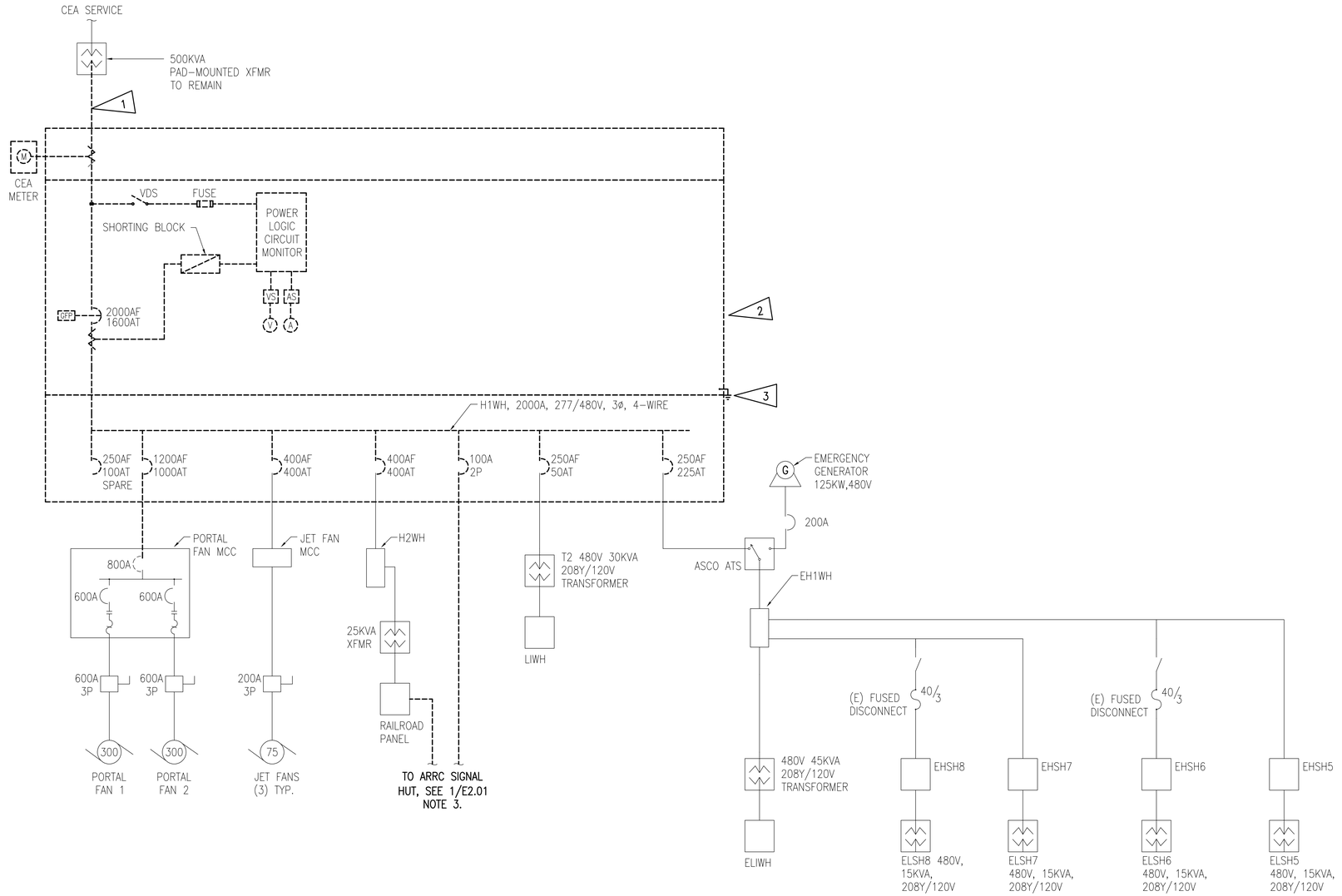
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.11	XX

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

SHEET NOTES:

1. SERVICE LATERAL CONDUCTORS SHALL BE REMOVED BY CEA. SALVAGE UNDERGROUND CONDUIT TO THE EXTENT POSSIBLE FOR REUSE. CONCRETE EMBEDDED CONDUIT SHALL BE REMOVED AS REQUIRED TO FEED NEW CT ENCLOSURE. SEE E2.21 FOR DEMOLITION AND REMODEL LAYOUTS.
2. DEMOLISH 3-SECTION SWITCHBOARD CONSISTING OF SERVICE EQUIPMENT, MAIN BREAKER, AND DISTRIBUTION SWITCHBOARD. SALVAGE AND RETAIN SUBFEEDERS TO DISTRIBUTION EQUIPMENT THAT ARE EXISTING TO REMAIN (ETR) FOR RECONNECTION.
3. DISCONNECT CONNECTIONS TO GROUNDING ELECTRODE CONDUCTORS AND RETAIN FOR RECONNECTION. SEE E2.21 FOR ORIGINAL AND NEW SERVICE EQUIPMENT LOCATION.



1 DEMOLITION ONE-LINE DIAGRAM - WHITTIER PORTAL

NO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

WHITTIER PORTAL
DEMOLITION ONE-LINE DIAGRAM

DESIGNED BY	FWS
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XREFS: N/A, N/A

SCALE: N/A

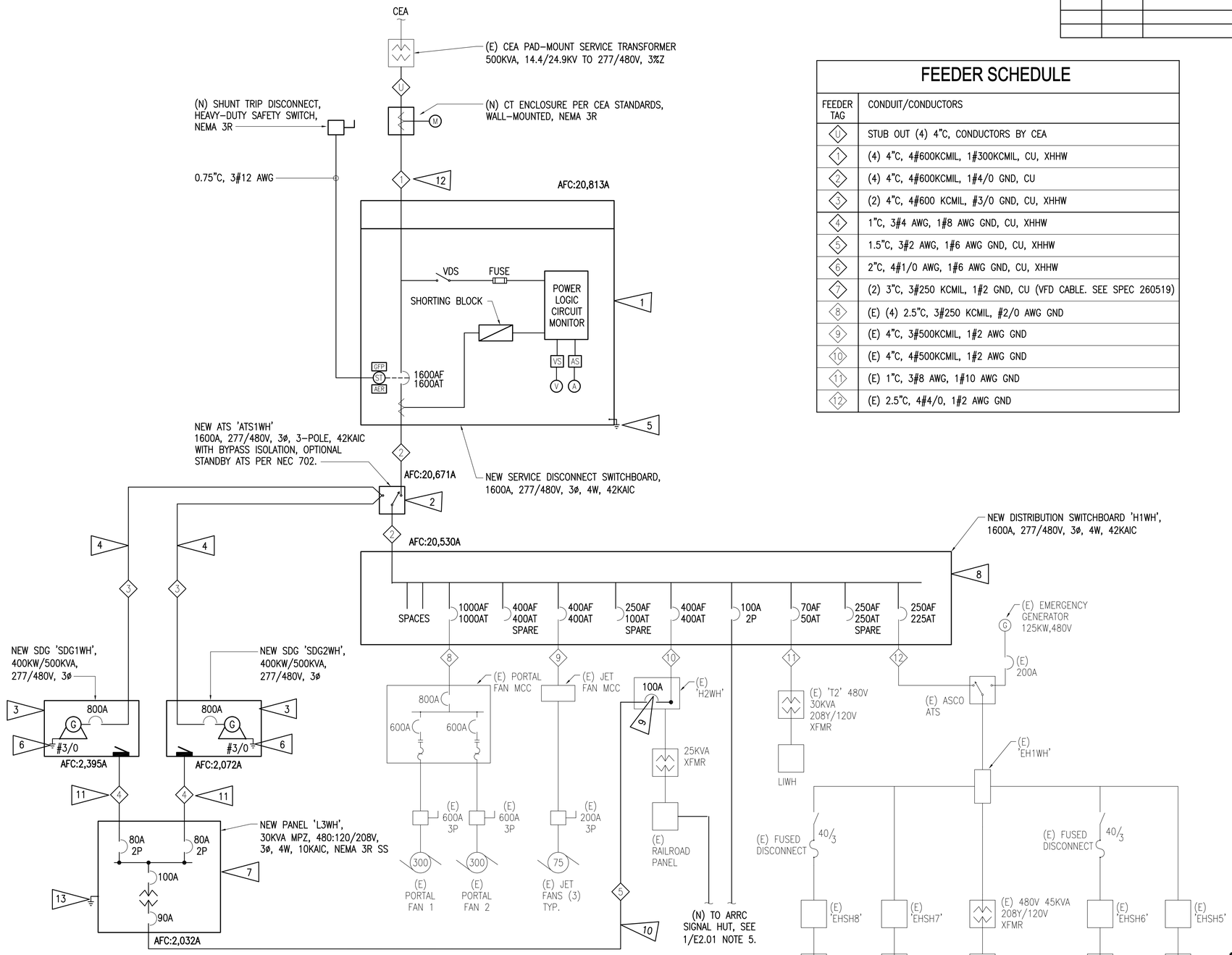
LAYOUT: E2.12

DATE TIME: 5/15/2025 1:51 PM

DRAWING LOCATION: G:\2024\M4136\M4136_E2SERIES.dwg

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.12	XX



1 REMODEL ONE-LINE DIAGRAM - WHITTIER PORTAL

NO SCALE

FEEDER SCHEDULE

FEEDER TAG	CONDUIT/CONDUCTORS
U	STUB OUT (4) 4"C, CONDUCTORS BY CEA
1	(4) 4"C, 4#600KCMIL, 1#300KCMIL, CU, XHHW
2	(4) 4"C, 4#600KCMIL, 1#4/0 GND, CU
3	(2) 4"C, 4#600 KCMIL, #3/0 GND, CU, XHHW
4	1"C, 3#4 AWG, 1#8 AWG GND, CU, XHHW
5	1.5"C, 3#2 AWG, 1#6 AWG GND, CU, XHHW
6	2"C, 4#1/0 AWG, 1#6 AWG GND, CU, XHHW
7	(2) 3"C, 3#250 KCMIL, 1#2 GND, CU (VFD CABLE. SEE SPEC 260519)
8	(E) (4) 2.5"C, 3#250 KCMIL, #2/0 AWG GND
9	(E) 4"C, 3#500KCMIL, 1#2 AWG GND
10	(E) 4"C, 4#500KCMIL, 1#2 AWG GND
11	(E) 1"C, 3#8 AWG, 1#10 AWG GND
12	(E) 2.5"C, 4#4/0, 1#2 AWG GND

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. ALL BREAKERS ARE 3ø, 3P, UNLESS OTHERWISE NOTED.

SHEET NOTES:

1. PROVIDE NEW SERVICE SWITCHBOARD WITH A SERVICE-ENTRANCE RATED MAIN BREAKER AND GROUND FAULT PROTECTION..
2. PROVIDE NEW STANDBY ATS IN ACCORDANCE WITH SPECIFICATION SECTION 26 36 00. SEE E2.21 FOR LOCATION OF ATS IN ELECTRICAL ROOM.
3. PROVIDE NEW PACKAGED STANDBY DIESEL GENERATORS. SEE E2.01 AND E2.31 FOR LOCATION. REFERENCE SPECIFICATION SECTION 26 32 13 FOR ADDITIONAL REQUIREMENTS.
4. PROVIDE NEW FEEDERS BETWEEN INDOOR 'ATS1WH' AND EXTERIOR GENERATORS. SEE E2.01 AND E2.31 FOR SUGGESTED ROUTING OF UNDERGROUND FEEDERS. SEE GENERATOR CONTROL SCHEMATIC ON E2.13 FOR ADDITIONAL SIGNAL/CONTROL CONDUIT AND WIRING REQUIREMENTS.
5. SEE 2/E0.3 FOR GROUNDING DETAILS.
6. BOND ALL METALLIC PIPING, STRUCTURAL STEEL, AND REBAR IN CONCRETE PAD WITH A #3/0 BARE COPPER BONDING CONDUCTOR.
7. PROVIDE NEW MPZ PANEL AT GENERATOR PAD, SEE E2.31 FOR LOCATION. SEE E0.2 FOR PANEL SCHEDULE.
8. PROVIDE NEW DISTRIBUTION SWITCHBOARD. INTERCEPT EXISTING FEEDERS TO EXISTING DISTRIBUTION EQUIPMENT AND CONNECT TO NEW DISTRIBUTION SWITCHBOARD.
9. PROVIDE NEW BREAKER IN PANEL 'H2WH' AS SHOWN. THE NEW CIRCUIT BREAKER SHALL BE COMPATIBLE WITH AND LISTED FOR USE IN THE EXISTING PANEL BOARD AND SHALL HAVE A MINIMUM SHORT CIRCUIT AIC RATING TO MATCH THE LOWEST RATED EXISTING DEVICE IN THE PANEL.
10. PROVIDE NEW FEEDER TO NEW PANEL FROM EXISTING PANEL. SEE 1/E2.01 FOR SUGGESTED FEEDER ROUTE.
11. PROVIDE NEW FEEDER BETWEEN NEW PANEL AND GENERATOR PANELS. SIZE FEEDER AS INDICATED IN FEEDER SCHEDULE. SEE E2.31 FOR SUGGESTED ROUTING.
12. REUSE EXISTING UNDERGROUND SERVICE LATERAL CONDUIT TO THE EXTENT POSSIBLE, AND EXTEND WITH NEW CONDUIT TO NEW SERVICE EQUIPMENT LOCATION. PATCH REMOVED CONCRETE WITH NEW WHERE CONCRETE WAS REMOVED.
13. PROVIDE #8 AWG COPPER GROUNDING ELECTRODE CONDUCTOR AND BOND TO REBAR IN CONCRETE PAD. PROTECT CONDUCTOR IN SCHEDULE 80 PVC CONDUIT WHERE EXPOSED.

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL REMODEL ONE-LINE DIAGRAM

DESIGNED BY	FWS
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XREFS
N/A
N/A

SCALE
N/A

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E2.13

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5/15/2025 1:51 PM

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REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.13	XX

GENERATOR STARTUP SCENARIOS

SCENARIO 1 – UTILITY POWER MODE.
- UTILITY POWER – ON
- STANDBY GENERATOR 1 – NOT RUNNING
- STANDBY GENERATOR 2 – NOT RUNNING
- EMERGENCY GENERATOR – NOT RUNNING

COMMENTS: UTILITY IS PROVIDING CONTINUOUS POWER TO THE FACILITY. NO GENERATORS ARE ONLINE.

SCENARIO 2 – WITHIN 10 SECONDS OF UTILITY POWER FAILURE.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ATS STILL IN UTILITY MODE POSITION
- STANDBY GENERATOR 2 – RUNNING. ATS STILL IN UTILITY MODE POSITION
- EMERGENCY GENERATOR – RUNNING. ENERGIZES EMERGENCY BUS

COMMENTS: EMERGENCY GENERATOR IS REQUIRED TO START UP WITHIN 10 SECONDS OF POWER OUTAGE. TO AVOID HAVING THE STANDBY GENERATORS FEED THE DISTRIBUTION SYSTEM BEFORE THE EMERGENCY GENERATOR, A 30-SECOND TIME DELAY SHALL BE PROGRAMMED TO THE STANDBY POWER ATS TO ALLOW THE EMERGENCY GENERATOR TO FEED THE EMERGENCY BUS PER CODE.

SCENARIO 3 – 30 SECONDS AFTER UTILITY POWER FAILURE.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS, EXCEPT EMERGENCY BUS
- STANDBY GENERATOR 2 – RUNNING. ENERGIZES ENTIRE BUS, EXCEPT EMERGENCY BUS
- EMERGENCY GENERATOR – RUNNING. AND ENERGIZES EMERGENCY BUS

COMMENTS: EMERGENCY GENERATOR CONTINUES TO ENERGIZE THE EMERGENCY BUS AND THE STANDBY GENERATORS ENERGIZE THE REST OF THE DISTRIBUTION.

SCENARIO 4A – FIFTEEN MINUTES AFTER UTILITY POWER FAILURE. BOTH GENERATORS ARE RUNNING.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS.
- STANDBY GENERATOR 2 – RUNNING. ENERGIZES ENTIRE BUS.
- EMERGENCY GENERATOR – NOT RUNNING.

COMMENTS: EMERGENCY ATS SHALL RE-TRANSFER POWER TO 'NORMAL' POWER. BOTH PORTAL FANS ARE ON, AND THE SECOND GENERATOR STAYS ON.

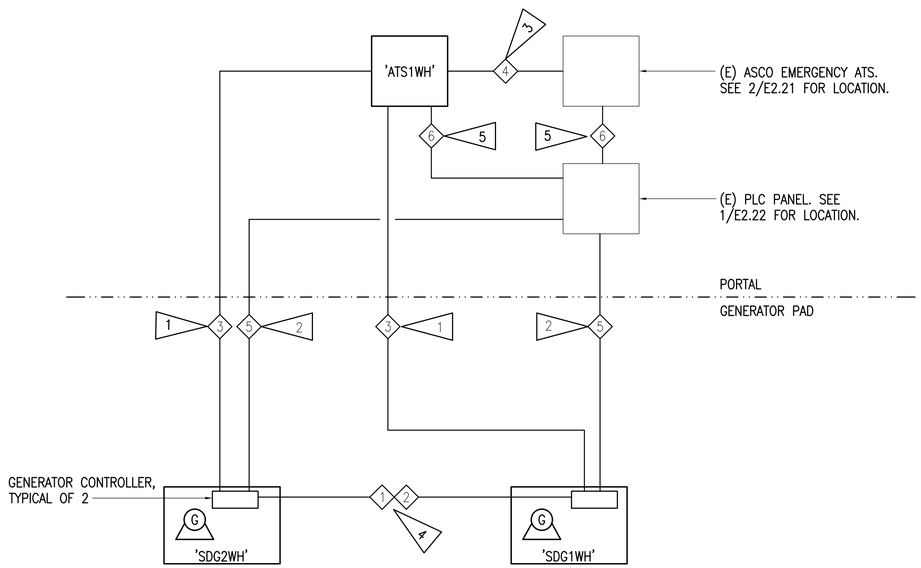
SCENARIO 4B – FIFTEEN MINUTES AFTER UTILITY POWER FAILURE. ONE GENERATOR IS RUNNING.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS.
- STANDBY GENERATOR 2 – NOT RUNNING.
- EMERGENCY GENERATOR – NOT RUNNING.

COMMENTS: EMERGENCY ATS SHALL RE-TRANSFER POWER TO 'NORMAL' POWER. ONLY ONE GENERATOR IS REQUIRED SO SECOND GENERATOR DROPS OFF.

SCENARIO 5 – ONE GENERATOR RUNNING AND SECOND PORTAL FAN IS NEEDED.
- UTILITY POWER – OFF
- STANDBY GENERATOR 1 – RUNNING. ENERGIZES ENTIRE BUS.
- STANDBY GENERATOR 2 – STARTS UP AND PARALLELS TO BUS UPON OPERATOR SIGNAL TO START.
- EMERGENCY GENERATOR – OFF

COMMENTS: OPERATOR IS UNABLE TO START A SECOND PORTAL FAN WHILE ONLY ONE GENERATOR IS RUNNING. OPERATOR STARTS THE SECOND GENERATOR REMOTELY. ONCE THE SECOND GENERATOR IS PARALLELED TO THE BUS, THEN THE OPERATOR CAN START THE SECOND PORTAL FAN.

MISCELLANEOUS
- EMERGENCY ATS RE-TRANSFER TIME SHALL BE PROGRAMMED TO 15 MINUTES (AS PERMITTED BY NEC 700.12(B)(1)).
- STANDBY ATS RE-TRANSFER TIME SHALL BE PROGRAMMED TO 15 MINUTES.
- WHEN TWO GENERATORS ARE RUNNING AND LOADED AT 40% OR LESS, ONE GENERATOR SHALL DROP OFF AND THE SECOND GENERATOR SHALL PICK UP THE FULL LOAD.
- WHEN ONE GENERATOR IS RUNNING AND LOAD IS 30% OR LESS, AN ALARM SHALL BE SENT TO PLC TO ALERT OPERATOR OF LOW LOAD.



1 CONTROL SCHEMATIC - WHITTIER PORTAL
NO SCALE

CONTROL WIRING SCHEDULE

6

FEEDER TAG	TYPE	CONDUIT	CONDUCTORS/CABLING
1	AC CTRL	0.75"C	2#12AWG, 1#12GND
2	DC CTRL/ SIGNAL	2"C	9#16AWG (1) #16AWG SHIELDED TWISTED TRIAD WITH DRAIN (1 SPARE) #16AWG SHIELDED TWISTED TRIAD WITH DRAIN (1) CAT6 UTP CABLE (1 SPARE) CAT6 UTP CABLE
3	" "	2"C	40#16AWG (1) #16AWG TWISTED SHIELDED PAIR WITH DRAIN (2 SPARE) #16AWG TWISTED SHIELDED PAIR WITH DRAIN (1) CAT6 UTP CABLE (1 SPARE) CAT6 UTP CABLE
4	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN
5	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN
6	" "	0.75"C	(2) #16AWG TWISTED SHIELDED PAIR WITH DRAIN

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. CATERPILLAR IS BASIS OF DESIGN FOR THIS COMMUNICATION RISER DIAGRAM AND WIRING SCHEDULE. SHOULD ANOTHER MANUFACTURER BE PROPOSED AND ACCEPTED, CONTRACTOR IS RESPONSIBLE TO PROVIDE CORRECT RACEWAY/WIRING TO PROVIDE A COMPLETE SYSTEM.

SHEET NOTES:

1. PROVIDE COMMUNICATION LINK AS REQUIRED BY MANUFACTURER BETWEEN STANDBY DIESEL GENERATOR CONTROLLERS AND ATS.
2. PROVIDE COMMUNICATION LINK FROM STANDBY DIESEL GENERATOR CONTROLLERS TO NEW PLC EXPANSION PANEL FOR REMOTE GENERATOR CONTROL, GENERATOR ANNUNCIATION, AND FUEL LEVELS VIA MODBUS TCP COMMUNICATION.
3. PROVIDE COMMUNICATION LINK FROM NEW 'ATS1WH' TO EXISTING ASCO EMERGENCY ATS TO PROHIBIT RETRANSFER TO UTILITY OF EMERGENCY ATS PRIOR TO 'ATS1WH'. COORDINATE WITH ASCO FOR EXISTING EMERGENCY ATS AND NEW TRANSFER SWITCH MANUFACTURER.
4. PROVIDE COMMUNICATION LINK BETWEEN GENERATOR CONTROLLER FOR SYNCHRONIZATION/PARALLELING/LOAD SHARING CONTROL.
5. PROVIDE COMMUNICATION LINK TO ALLOW OPERATOR TO MONITOR TRANSFER SWITCH POSITIONS.
6. CONTRACTOR SHALL CONFIRM WIRING REQUIREMENTS WITH MANUFACTURERS TO PROVIDE THE WIRING NECESSARY TO PROVIDE A COMPLETE SYSTEM PRIOR TO MATERIAL PROCUREMENT. CONDUITS MAY BE COMBINED AS PERMITTED BY NEC.

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

WHITTIER PORTAL
CONTROL SCHEMATIC

DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E2.21

DATE	TIME
5/15/2025	1:51 PM

DRAWING LOCATION
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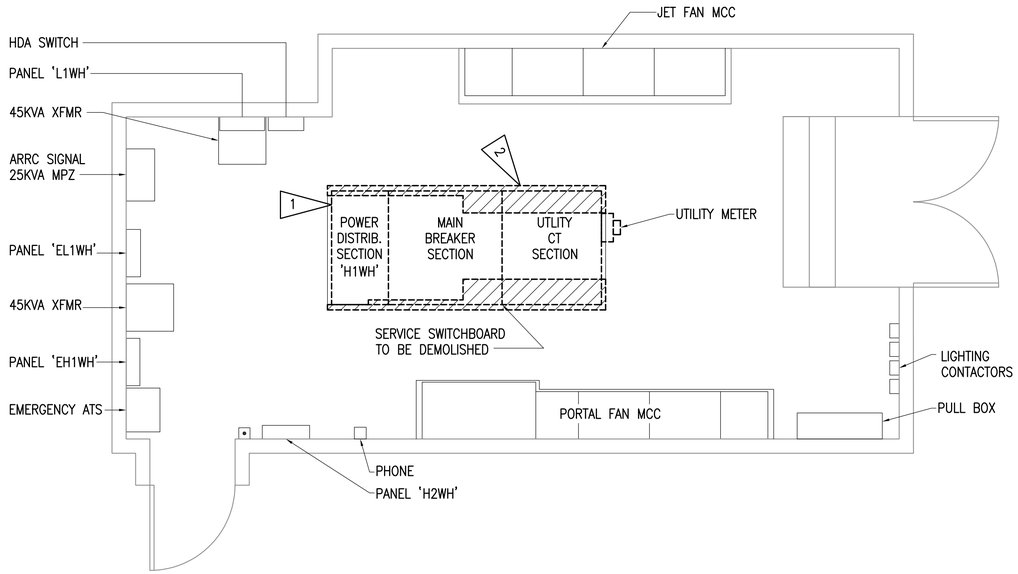
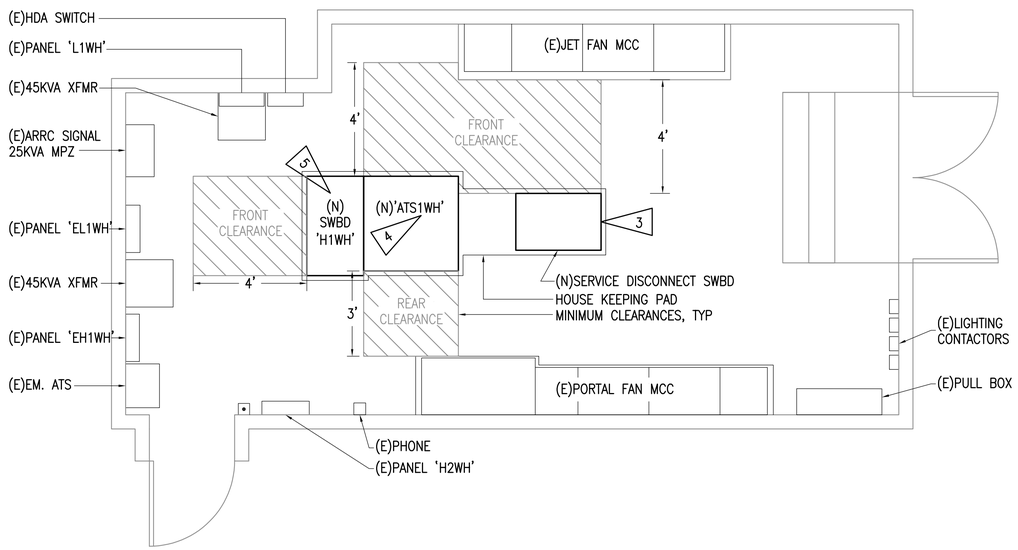
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.21	XX



1 DEMOLITION PLAN - ELECTRICAL ROOM
3/8" = 1'-0"



2 REMODEL PLAN - ELECTRICAL ROOM
3/8" = 1'-0"

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

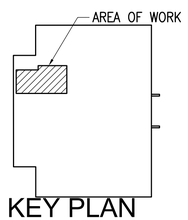
B. CONTRACTOR SHALL PROVIDE EQUIPMENT LAYOUT DRAWING SHOWING ACTUAL EQUIPMENT DIMENSIONS AND DEMONSTRATING ALL NEC CLEARANCES ARE MAINTAINED PRIOR TO WORK. ALL NEW FLOOR–MOUNTED EQUIPMENT IN THE ELECTRICAL ROOM SHALL BE PROVIDED WITH A 3" TALL HOUSEKEEPING PAD WITH BEVELED EDGES.

C. SERVICE WORK SHALL BE COORDINATED WITH CEA PRIOR TO BEGINNING WORK.

D. PATCH REMOVED CONCRETE WITH NEW WHERE CONCRETE WAS REMOVED.

SHEET NOTES:

1. DEMOLISH SERVICE SWITCHBOARD, POWER DISTRIBUTION PANEL 'H1WH', AND METER BASE. SALVAGE METER FOR UTILITY. REMOVE CONCRETE HOUSEKEEPING PAD AS REQUIRED TO INTERCEPT THE EMBEDDED CONDUITS TO EXTEND WITH NEW TO NEW EQUIPMENT LOCATION. TRACE EMBEDDED CONDUITS PRIOR TO CUTTING INTO THE CONCRETE AND BE CAREFUL NOT TO DAMAGE EMBEDDED CONDUITS DURING DEMOLITION. NO RECORD DRAWINGS ARE AVAILABLE THAT IDENTIFY THE EXACT DEPTH, SIZE, NOR ROUTING OF THE SECONDARY SERVICE FEEDERS. RETAIN BRANCH FEEDERS FROM SWITCHBOARD 'H1WH' FOR RECONNECTION TO NEW DISTRIBUTION SWITCHBOARD.
2. DEMOLISH HOUSEKEEPING PAD AS REQUIRED FOR NEW EQUIPMENT FOOTPRINT. PATCH AND REPAIR ALL EDGES CUT.
3. PROVIDE NEW SERVICE DISCONNECT SWITCHBOARD. PROVIDE EXTENSION OF EMBEDDED CONDUIT TO NEW EQUIPMENT AS REQUIRED. EQUIPMENT SHALL BE PROVIDED WITH A MINIMUM 4' CLEARANCE IN FRONT OF THE ENCLOSURE AS SHOWN. PATCH CONCRETE AND FINISH TO MATCH EXISTING.
4. PROVIDE NEW STANDBY AUTOMATIC TRANSFER SWITCH (ATS). ATS SHALL BE PROVIDED WITH A MINIMUM 4' CLEARANCE IN FRONT OF THE ENCLOSURE AS SHOWN. PROVIDE RUBBER MATTING BEHIND THE ATS TO REDUCE THE NEC CLEARANCE IN FRONT OF THE LOAD REACTOR (BEHIND ATS, PART OF THE PORTAL FAN MCC).
5. PROVIDE NEW DISTRIBUTION SWITCHBOARD 'H1WH'. 'H1WH' SHALL BE PROVIDED WITH A MINIMUM 4' CLEARANCE IN FRONT OF THE ENCLOSURE AS SHOWN. INTERCEPT EXISTING UNDERFLOOR CONDUITS AND CONDUCTORS FEEDING EXISTING DISTRIBUTION EQUIPMENT AND CONNECT TO NEW DISTRIBUTION PANEL.
6. PROVIDE NEW 3#3/0, 1#6G FROM SIGNAL HUT TO EXISTING ARRC MINI POWER ZONE PANEL IN ELECTRICAL ROOM. EXISTING CONDUIT MAY BE REUSED FROM MINI POWER ZONE PANEL AND NEW IN–GRADE JBOX.



KEY PLAN
NOT TO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

WHITTIER PORTAL
ELECTRICAL ROOM
DEMOLITION AND REMODEL PLANS

DESIGNED BY	FWS
CHECKED BY	DB
DRAFTED BY	FWS

XREFS
N/A
N/A

SCALE
N/A

LAYOUT
E2.22

DATE	TIME
5/15/2025	1:51 PM

DRAWING LOCATION
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REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.22	XX

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

B. NEW GENERATOR ASSOCIATED CONDUIT AND WIRING AND THE REPLACEMENT ARRC POWER CONDUIT AND WIRING NOT SHOWN ON THIS SHEET. REFER TO E2.01 AND E2.31 FOR ADDITIONAL INFORMATION.

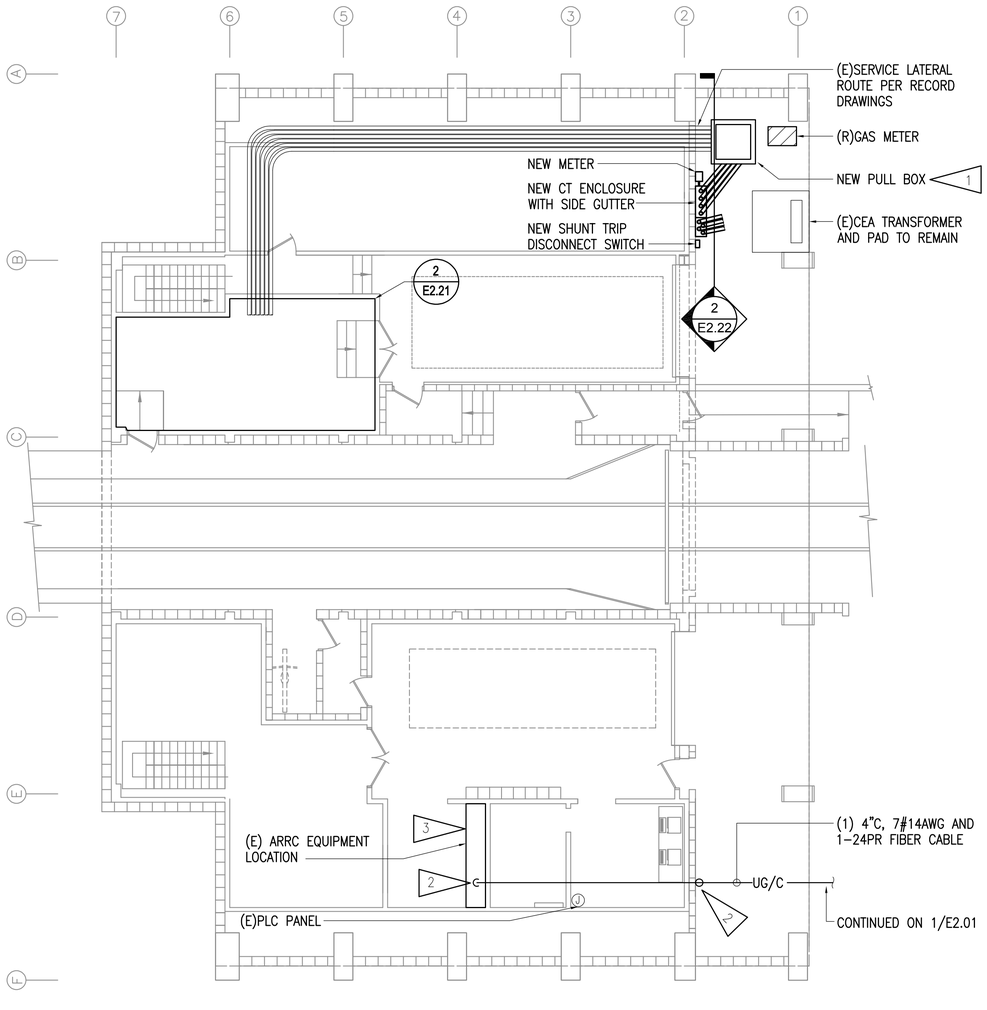
C. COORDINATE WITH ARRC PRIOR TO BEGINNING WORK ON THEIR SYSTEM/EQUIPMENT. ARRC REPRESENTATIVE SHALL BE PRESENT FOR ALL DISCONNECTING AND RECONNECTING WORK.

SHEET NOTES:

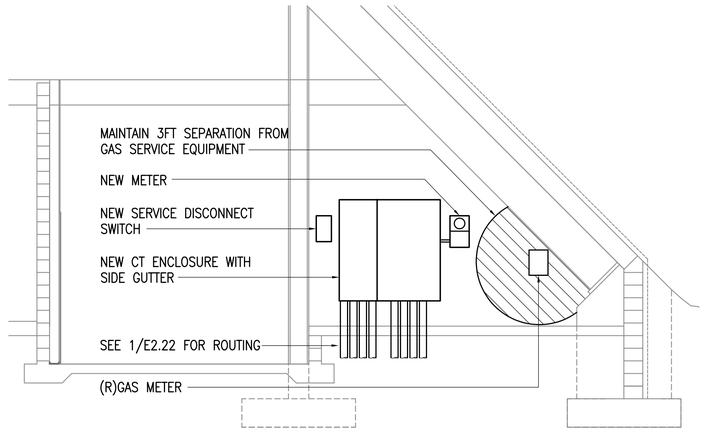
1. PROVIDE NEW IN-GRADE PULL BOX TO INTERCEPT EXISTING SERVICE LATERAL CONDUITS AND REROUTE TO NEW CT ENCLOSURE. COORDINATE WITH CEA FOR ALL SERVICE WORK. REFERENCE 3/E0.3.

2. TRANSITION FROM UNDERGROUND CONDUIT TO ABOVE GROUND AT/NEAR PORTAL WALL. FIELD ROUTE OVERHEAD THROUGH PORTAL BUILDING AND DROP DOWN AT (E) ARRC EQUIPMENT. PROVIDE ADDITIONAL 30FT OF SLACK WITHIN CABLES TO ACCOMMODATE FINAL CONNECTIONS. COORDINATE WITH ARRC FOR TERMINATION POINTS.

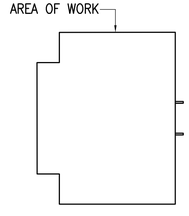
3. PROVIDE NEW FIBER OPTIC CABLE AND FIBER TERMINATION EQUIPMENT AT (E) ARRC EQUIPMENT. TERMINATE FIBER TO FIBER HOUSING PANEL USING LC TYPE CONNECTORS. PROVIDE ONE 24-STRAND, SINGLE-MODE (OS2), FIBER OPTIC CABLE FROM SIGNAL HUT TO NEW ARRC EQUIPMENT. FIBER OPTIC CABLE SHALL BE INSTALLED IN 1.25"C HDPE INNERDUCT WITHIN 4" COMMUNICATION CONDUIT AND SHALL BE CONTINUOUS END-TO-END WITHOUT SPLICES.



1 REMODEL PLAN - 1ST FLOOR
1/8" = 1-0"



2 WHITTIER NEW CT & METER ELEVATION
1/4" = 1'-0"



1ST FLR KEY PLAN
NOT TO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL 1ST FLOOR REMODEL PLANS

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	E2.31	XX

GENERAL NOTES:

A. SEE E0.1 FOR GENERAL NOTES.

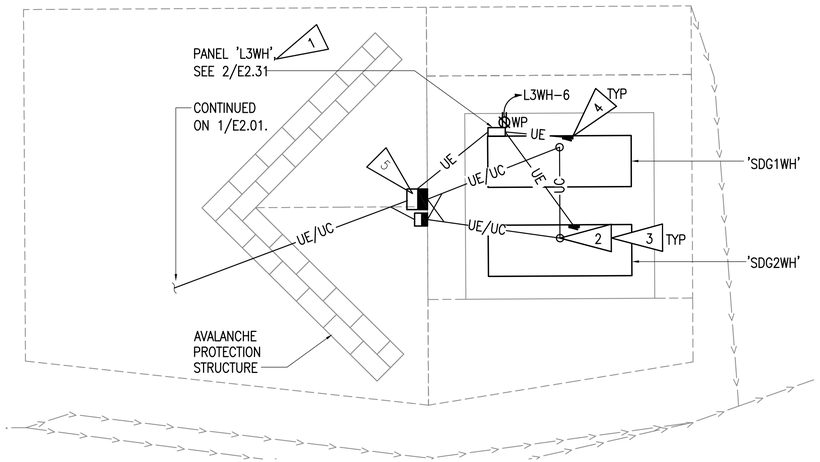
B. SEE 1/E0.3 FOR TRENCH DETAIL.

C. COORDINATE WITH GENERATOR MANUFCTURER FOR EXACT CONDUIT STUB UP LOCATIONS PRIOR TO ROUGH-IN.

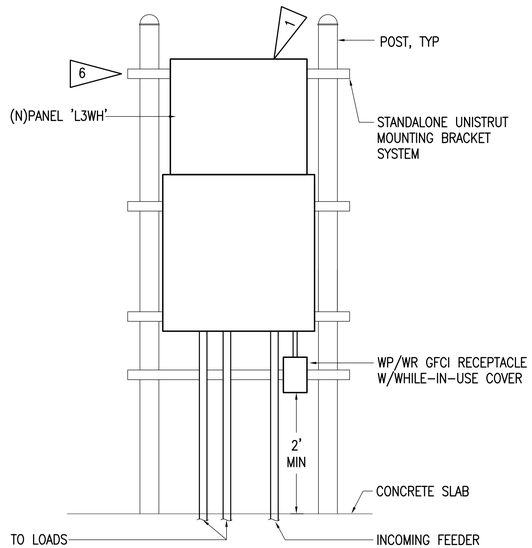
D. ARRC SIGNAL HUT ASSOCIATED CONDUIT AND WIRING NOT SHOWN ON THIS SHEET. REFER TO E2.01 AND E2.22 FOR ADDITIONAL INFORMATION

SHEET NOTES:

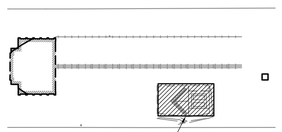
1. PROVIDE NEW PANEL TO FEED GENERATOR PANELS.
2. SEE 1/E2.12 FOR POWER CONDUIT/WIRING REQUIREMENTS.
3. SEE 1/E2.13 FOR COMMUNICATION CONDUIT/WIRING REQUIREMENTS.
4. PROVIDE FEEDER FROM PANEL 'L3WH' TO GENERATOR ENCLOSURE PANEL. SEE 1/E2.12 FOR CONDUIT/WIRING REQUIREMENTS. SEE E0.2 FOR PANEL SCHEDULES.
5. PROVIDE IN-GRADE JUNCTION BOXES AS SHOWN AND AS REQUIRED FOR PROPER INSTALLATION, MINIMUM ONE PER SYSTEM IN APPROXIMATE LOCATION. PROVIDE SEPARATE IN-GRADE BOXES FOR POWER AND SIGNAL/COMM CONDUITS. SEE E0.3 FOR TYPICAL TRENCHING AND PULLBOX DETAILS.
6. PROVIDE TUBE STEEL AND STEEL CHANNEL RACK FOR SUPPORT OF EQUIPMENT. REFERENCE SPECIFICATIONS 26 05 29 AND 26 05 48 FOR ADDITIONAL REQUIREMENTS.



1 ENLARGED PLAN - GENERATOR PAD
1" = 10'-0"



2 PANEL 'L3WH' ELEVATION VIEW
NO SCALE



KEY PLAN
NOT TO SCALE

BEFORE YOU DIG
CALL FOR FREE
UNDERGROUND
LOCATION

Locate Call Center of Alaska
Anchorage Area.....278-3121
Statewide.....800-478-3121
who will notify subscribed utilities only.
Other utilities need to be contacted individually.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL ENLARGED SITE PLANS

RSA ENGINEERING, INC.

DESIGNED BY FWS
CHECKED BY DB
DRAFTED BY FWS

XREFS N/A N/A

SCALE N/A

LAYOUT E2.31

DATE TIME 5/15/2025 1:51 PM

DRAWING LOCATION
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REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M0.01	XX

PIPING LEGEND

- XXX — SEE ABBREVIATIONS FOR MEDIA
- PIPE UP
- PIPE DOWN
- TEE UP
- TEE DOWN
- CAP
- UNION
- DIRECTION OF FLOW
- BALL/BUTTERFLY VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- CHECK VALVE
- BALANCE
- FUSIBLE LINK VALVE
- PRESSURE/TEMPERATURE RELIEF VALVE
- PUMP
- CLEANOUT
- METER
- THERMOMETER
- PRESSURE GAUGE W/ ISOLATION COCK
- STRAINER W/ BLOWDOWN
- FLOOR CLEANOUT
- FLOOR DRAIN
- $ — SWITCH
- PANEL

DUCTWORK LEGEND

- T — THERMOSTAT OR SENSOR
- SUPPLY AIR UP & DOWN
- RETURN AIR UP & DOWN
- EXHAUST AIR UP & DOWN
- ROUND DUCT UP & DOWN
- VOLUME DAMPER
- MOTORIZED CONTROL DAMPER
- SOUND LINED DUCTWORK
- 12/24 — DUCT SIZE (FIRST FIGURE – SIDE SHOWN) (SECOND FIGURE – SIDE NOT SHOWN)
- INSULATED DUCTWORK
- ACCOUSTICAL TURNING VANES
- FLEXIBLE DUCT CONNECTION

LOGIC

- POINT OF CONNECTION
- 5 / M2 — DETAIL NUMBER / SHEET LOCATED ON
- DIRECTION OF VIEW
- 5 / M2 — SECTION NUMBER / SHEET LOCATED ON
- 1 — SHEET NOTES

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT		
ABV	ABOVE	HD	HEAD
ADA	AMERICAN WITH DISABILITIES ACT GUIDELINES	HGR	HEATING GLYCOL RETURN
AD	ACCESS DOOR	HGS	HEATING GLYCOL SUPPLY
AFF	ABOVE FINISHED FLOOR	HOA	HAND-OFF-AUTO
AFG	ABOVE FINISHED GRADE	HP	HORSEPOWER
AHAP	AS HIGH AS POSSIBLE	HR	HOUR
AI	ANALOG INPUT	IN	INCHES
AL	ALUMINUM	IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
AMPS	AMPERES		
AO	ANALOG OUTPUT	IBC	INTERNATIONAL BUILDING CODE
APD	AIR PRESSURE DROP	IMC	INTERNATIONAL MECHANICAL CODE
ARCH	ARCHITECTURAL	LBS	POUNDS
BI	BINARY INPUT	LF	LINEAL FEET
BLDG	BUILDING	MAX	MAXIMUM
BO	BINARY OUTPUT	MCA	MINIMUM CIRCUIT AMPACITY
BOD	BOTTOM OF DUCT	MBH	THOUSAND BTUH
BTUH	BRITISH THERMAL UNIT/HOUR	MFGR	MANUFACTURER
CAP	CAPACITY	MIN	MINIMUM
C/A	COMBUSTION AIR	MTD	MOUNTED
CFM	CUBIC FEET PER MINUTE	N.C.	NORMALLY CLOSED
CIRC	CIRCULATING	NEC	NATIONAL ELECTRICAL CODE
CLG	CEILING	NO.	NUMBER
CONT	CONTINUED	N.O.	NORMALLY OPEN
CONN	CONNECTION	NOM	NOMINAL
CU	COPPER	NTS	NOT TO SCALE
dB	DECIBLES	OC	ON CENTER
DEG	DEGREE	OD	OUTSIDE DAMPER
DIA	DIAMETER	PD	PRESSURE DROP
DIM	DIMENSION	PLC	PROGRAMMABLE LOGIC CONTROL
DN	DOWN	PH	PHASE
DWG	DRAWING	PSI	POUND PER SQUARE INCH
EAT	ENTERING AIR TEMPERATURE	PVC	POLYVINYL CHLORIDE
EFF	EFFICIENCY	RPM	REVOLUTIONS PER MINUTE
EGT	ENTERING GLYCOL TEMPERATURE	SCADA	SUPERVISORY CONTROL AND DATA AQUISITION
ENT	ENTERING	SCFM	STANDARD CUBIC FEET PER MINUTE
ESP	EXTERNAL STATIC PRESSURE	SP	STATIC PRESSURE
EXIST	EXISTING	SQ	SQUARE
EXH	EXHAUST	TEMP	TEMPERATURE
F	FAHRENHEIT	TOD	TOP OF DUCT
FC	FORWARD CURVE	TSP	TOTAL STATIC PRESSURE
FCO	FLOOR CLEAN OUT	TTL	TOTAL
FIN	FINISHED	TYP	TYPICAL
FLR	FLOOR	UPC	UNIFORM PLUMBING CODE
FPM	FEET PER MINUTE	VAC	VOLT-AC
FT	FEET	VDC	VOLT-DC
FOS	FUEL OIL SUPPLY	VFD	VARIABLE FREQUENCY DRIVE
FOR	FUEL OIL RETURN	W/	WITH
G	GAS	W/O	WITHOUT
GA	GAUGE	WC	WATER COLUMN
GAL	GALLONS	WG	WATER GAUGE
GALV	GALVANIZED	WPD	WATER PRESSURE DROP
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		

TANK SCHEDULE

SYMBOL	BASIS OF DESIGN MANUFACTURER	MODEL	FUNCTION	MEDIUM	MATERIAL	TANK CAPACITY (GAL)	DIMENSIONS	LABEL	REMARKS
FOT-1	ANCHORAGE TANK	5000 GALLON UL-2085	BEAR VALLEY GENSETS AND FLEET FUELING	DIESEL	1/4" STEEL TANK 5/16 STEEL HEAD	5261 INNER 6364 OUTER	102"ø x 180"L TANK 240" LENGTH OVERALL	UL-2085	COMPLETE WITH TANK MOUNTED DISPENSING PACKAGE (208V/1PH, 1-1/2 HP), PROVIDE WITH FITTINGS AND ACCESSORIES AS SHOWN ON PLANS.

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

MECHANICAL LEGEND AND SCHEDULES

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

XREFS N/A N/A

SCALE N/A

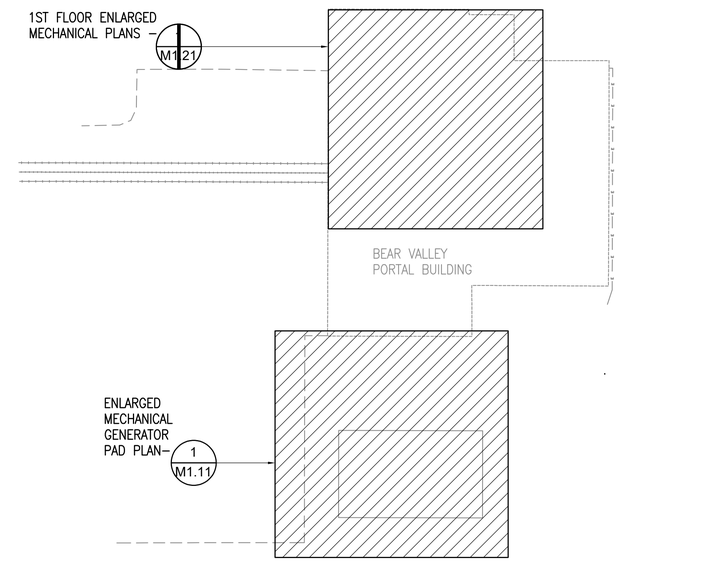
LAYOUT M0.01

DATE TIME 5/15/2025 5:46 PM

DRAWING LOCATION G:\2024\W4136\W4136_MSERIES.dwg

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M1.01	XX



1 BEAR VALLEY SITE PLAN
1" = 20'-0"

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

XREFS
N/A
N/A

SCALE
1"=20'-0"

LAYOUT
M1.01

DATE TIME
5/15/2025 5:46 PM

DRAWING LOCATION
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RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

BEAR VALLEY
MECHANICAL SITE PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M1.11	XX

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

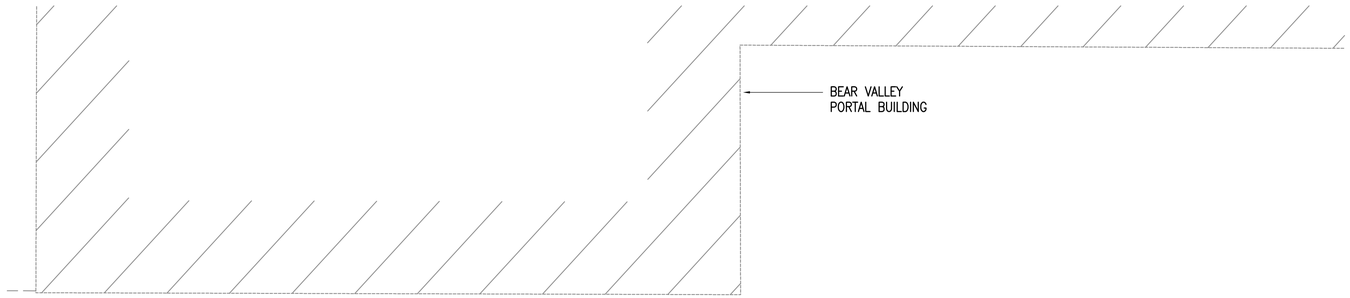
XREFS
N/A
N/A

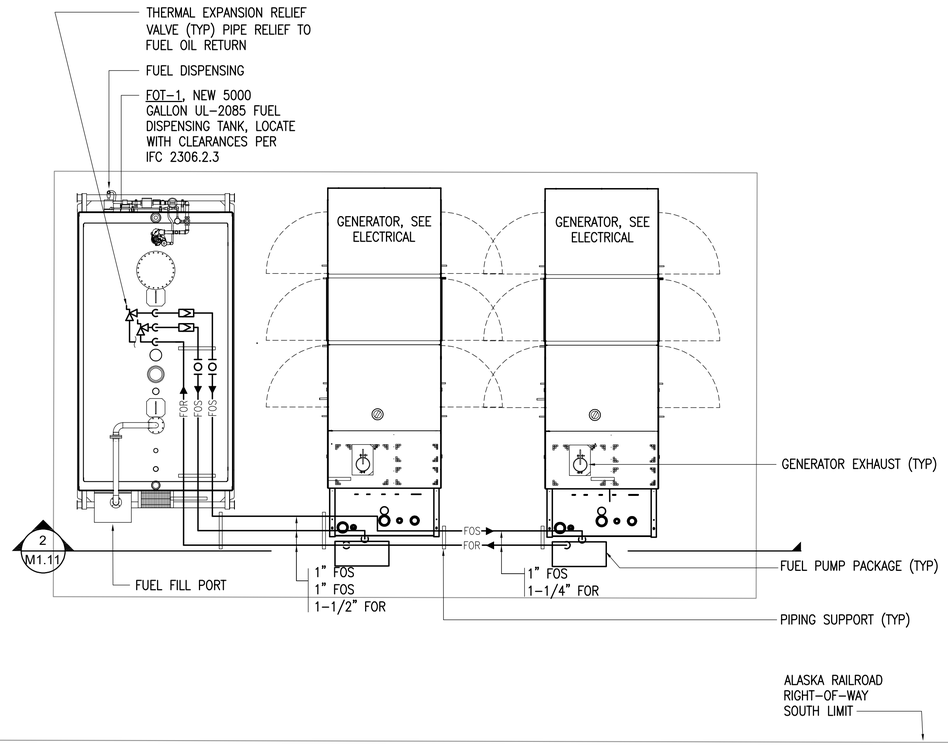
SCALE
1/4"=1'-0"

LAYOUT
M1.11

DATE TIME
5/15/2025 5:46 PM

DRAWING LOCATION
G:\2024\M4136\M4136_MSERIES.dwg





1 ENLARGED PLAN - GENERATOR PAD
1/4" = 1'-0"

GENERAL NOTES:

A. SEE CIVIL PLANS FOR CONCRETE PAD DETAILS.

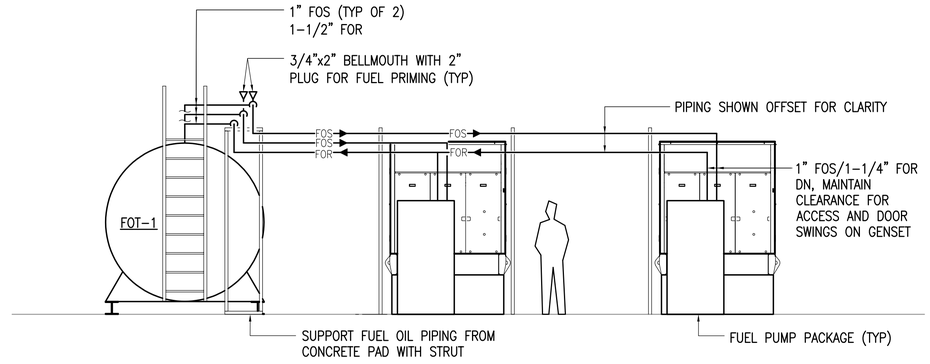
B. PROVIDE AND INSTALL FOT-1, 5,000 SINGLE COMPARTMENT (DIESEL), 2 HOUR FIRE RATED SKID MOUNTED DISPENSING TANK FURNISHED WITH ALL PUMPS DISPENSERS AND ASSOCIATED APPURTENANCES. SEE DETAIL– 1 / M3.01

C. PROVIDE CONDUIT AND CONTROL CABLING FROM DIESEL TANK LIQUID LEVEL SENSOR TO PLC PANEL IN ELECTRICAL ROOM, FOR PANEL LOCATION SEE– 1 / M1.21

D. CONTRACTOR TO PROVIDE SEISMIC/WIND RESTRAINTS FOR ALL EQUIPMENT OVER 400 LBS IN ACCORDANCE WITH IBC AND ASCE 7, REFER TO CIVIL & STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR CONCRETE PAD DETAILS, AND ANCHORING DETAILS.

E. GENERATORS TO BE PROVIDED WITH SUBASE FUEL TANKS, FUEL PUMP PACKAGE AND ALL APPURTENANCES FOR A COMPLETE AND OPERABLE SYSTEM, REFERENCE SPECIFICATION SECTION 26 32 13. PROVIDE FUEL PIPING CONNECTIONS AS REQUIRED, COORDINATE WITH ELECTRICAL.

F. ALL FUEL PIPING TO BE COATED TO PROTECT FROM CORROSION PER SPECIFICATION SECTION 09 96 00.



2 GENERATOR PAD ELEVATION
1/4" = 1'-0"

KEY PLAN
NOT TO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL STANDBY GENERATORS

BEAR VALLEY PORTAL GENERATOR PAD PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M1.21	XX

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

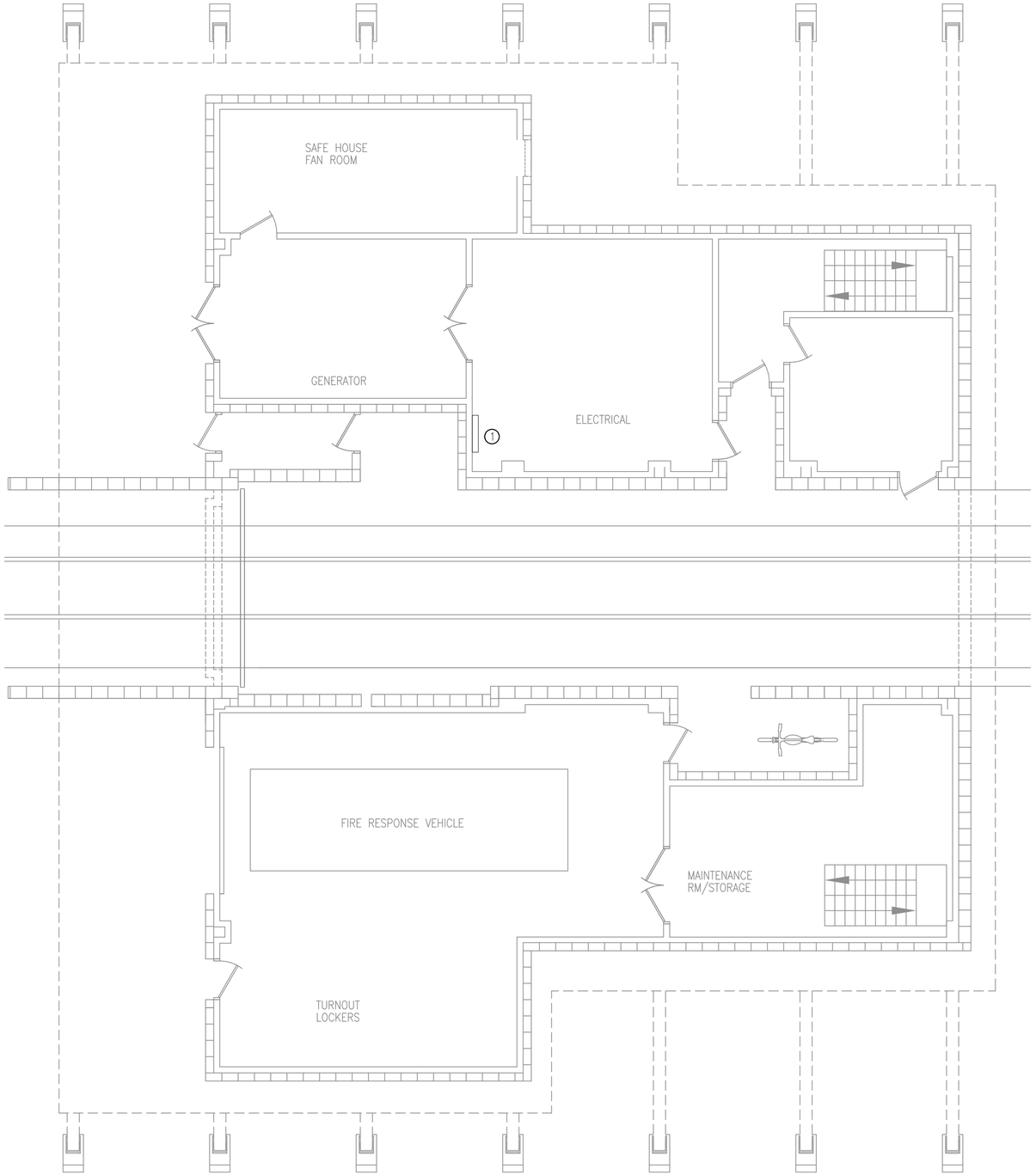
XREFS
N/A
N/A

SCALE
1/8"=1'-0"

LAYOUT
M1.21

DATE TIME
5/15/2025 5:46 PM

DRAWING LOCATION
G:\2024\M4136\M4136_MSERIES.dwg



1 ENLARGED 1ST FLOOR MECHANICAL PLAN
3/16" = 1'-0"

NOTES:

A. PROVIDE HARDWARE TO EXISTING PLC AS REQUIRED FOR OPERATION PER THE PLC SEQUENCES OF OPERATION. INSTALL ON EXISTING CHASSIS AND CONNECT TO EXISTING PLC PROCESSOR. GRAPHICS AND PROGRAMMING AT OPERATOR'S STATION TO BE PROVIDED BY OWNER. CONTRACTOR SHALL COORDINATE WITH AND SUPPORT OWNER'S SYSTEMS INTEGRATOR FOR MODIFICATION OF EXISTING SCADA GRAPHICS.

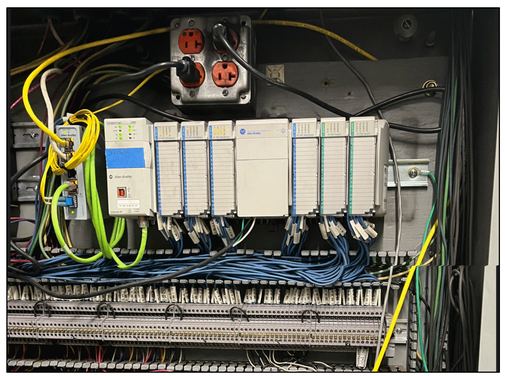
(1) EXISTING BEAR VALLEY PORTAL PLC PANEL
SEE – 2,3 / M1.21

EXISTING BEAR VALLEY PLC PANEL HARDWARE

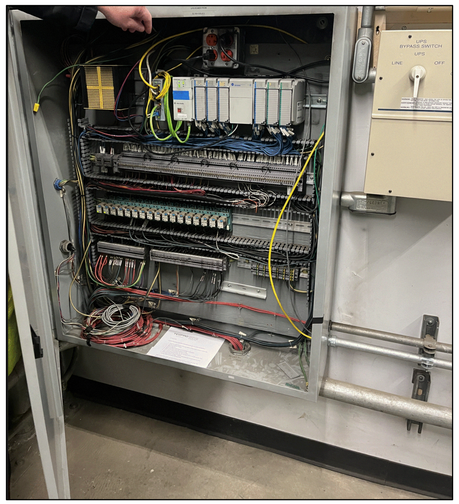
BEAR VALLEY PORTAL PLC CONTROL PANEL
1. (1) POWER SUPPLY AB 1769-PA4.
2. (1) AB L30ER PROCESSOR.
3. (4) DC SOURCE/SINK INPUT MODULES
4. (2) DC SOURCE OUTPUT MODULES
5. (1) AB 1783 STRATIX 2000 ETHERNET SWITCH
6. (1) OPEN SLOTS

NEW BEAR VALLEY PLC PANEL HARDWARE

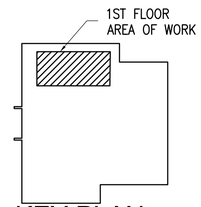
BEAR VALLEY PORTAL PLC CONTROL PANEL
1. (1) AB STRATIX 2000 ETHERNET SWITCH, NUMBER OF ETHERNET PORTS AS REQUIRED.
2. (1) PROSOFT PLX30.



2 BV PORTAL PLC IMAGE 1
NONE



3 BV PORTAL PLC IMAGE 2
NONE



KEY PLAN
NOT TO SCALE

RSA ENGINEERING, INC.

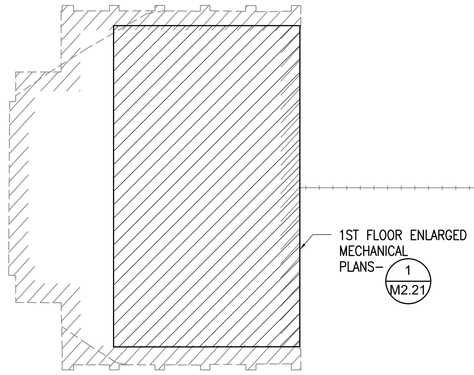
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

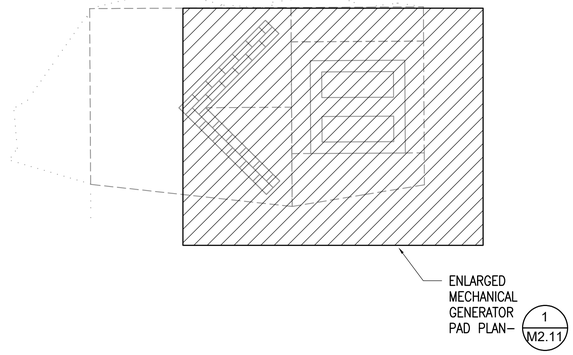
WHITTIER TUNNEL
STANDBY GENERATORS

BEAR VALLEY PORTAL
ENLARGED MECHANICAL PLANS

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M2.01	XX





1 WHITTIER SITE PLAN
1" = 20'-0"

RSA ENGINEERING, INC.	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES WHITTIER TUNNEL STANDBY GENERATORS WHITTIER MECHANICAL SITE PLAN

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

XREFS
N/A
N/A

SCALE
1"=20'-0"

LAYOUT
M2.01

DATE TIME
5/15/2025 5:46 PM

DRAWING LOCATION
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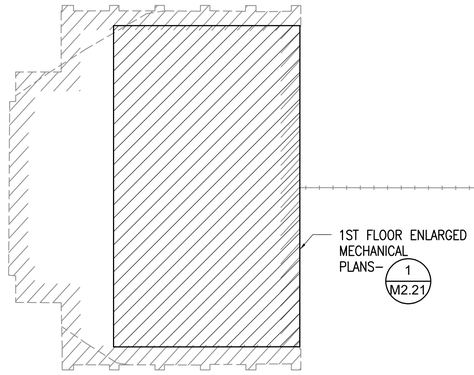
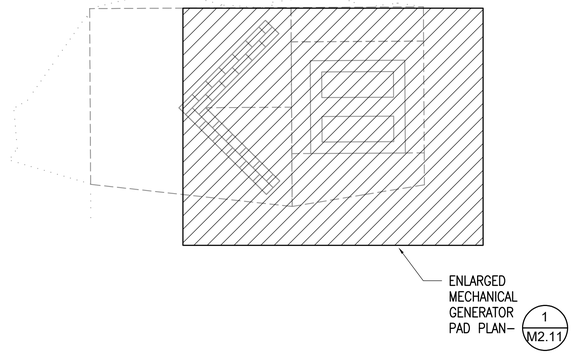
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M2.01	XX





1 WHITTIER SITE PLAN
1" = 20'-0"

RSA ENGINEERING, INC.	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES WHITTIER TUNNEL STANDBY GENERATORS WHITTIER MECHANICAL SITE PLAN

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

XREFS
N/A
N/A

SCALE
1"=20'-0"

LAYOUT
M2.01

DATE TIME
5/15/2025 5:46 PM

DRAWING LOCATION
G:\2024\M4136\M4136_MSERIES.dwg

DESIGNED BY	CJT
CHECKED BY	BPP
DRAFTED BY	CJT

XREFS
N/A
N/A

SCALE
1/8"=1'-0"

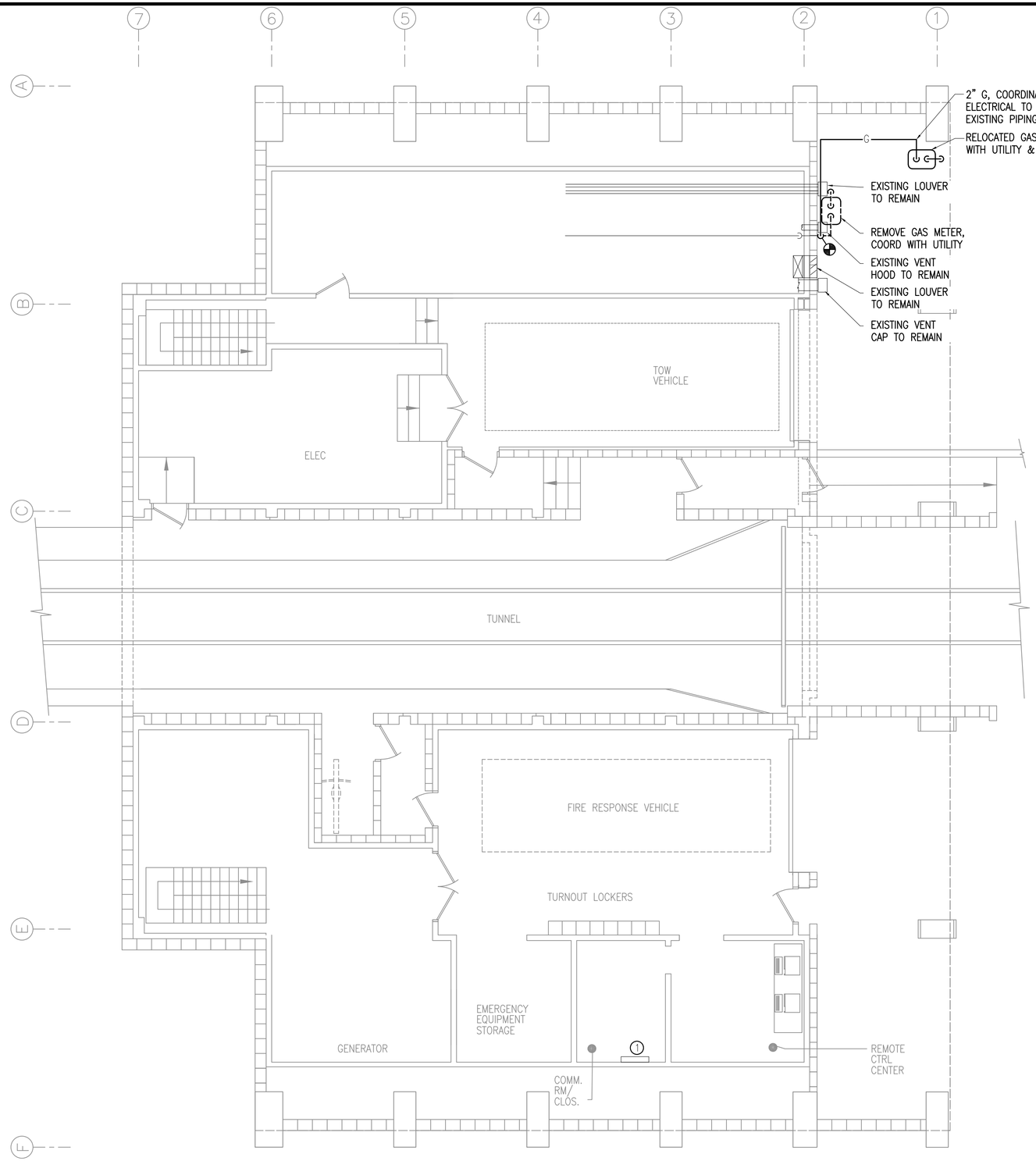
LAYOUT
M2.21

DATE	TIME
5/15/2025	5:46 PM

DRAWING LOCATION
G:\2024\M4136\M4136_MSERIES.dwg

REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M2.21	XX



1 ENLARGED 1ST FLOOR MECHANICAL PLAN
3/16" = 1'-0"

NOTES:

A. PROVIDE HARDWARE TO EXISTING PLC AS REQUIRED FOR OPERATION PER THE PLC SEQUENCES OF OPERATION. INSTALL ON EXISTING CHASSIS AND CONNECT TO EXISTING PLC PROCESSOR. GRAPHICS AND PROGRAMMING AT OPERATOR'S STATION TO BE PROVIDED BY OWNER. CONTRACTOR SHALL COORDINATE WITH AND SUPPORT OWNER'S SYSTEMS INTEGRATOR FOR MODIFICATION OF EXISTING SCADA GRAPHICS.

(1) EXISTING WHITTIER PORTAL PLC PANEL SEE – (2,3 / M1.21)

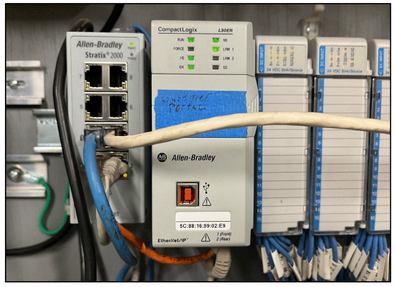
B. ALL NATURAL GAS PIPING TO BE COATED TO PROTECT FROM CORROSION PER SPECIFICATION SECTION 09 96 00.

EXISTING WHITTIER PLC PANEL HARDWARE

WHITTIER PORTAL PLC CONTROL PANEL
1. (1) POWER SUPPLY AB 1769-PA4.
2. (1) AB L30ER PROCESSOR.
3. (4) DC SOURCE/SINK INPUT MODULES
4. (2) DC SOURCE OUTPUT MODULES
5. (1) AB 1783 STRATIX 2000 ETHERNET SWITCH
6. (1) OPEN SLOTS

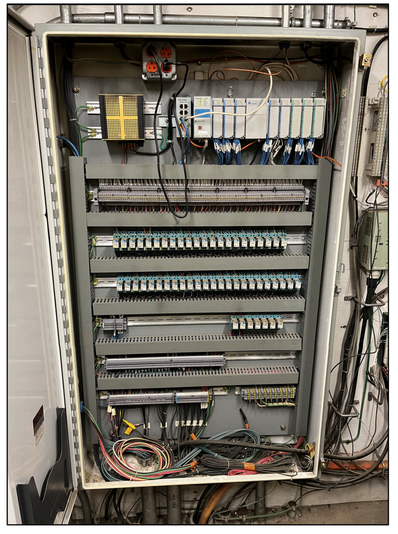
NEW WHITTIER PLC PANEL HARDWARE

WHITTIER PORTAL PLC CONTROL PANEL
1. (1) AB STRATIX 2000 ETHERNET SWITCH, NUMBER OF ETHERNET PORTS AS REQUIRED.
2. (1) PROSOFT PLX30.

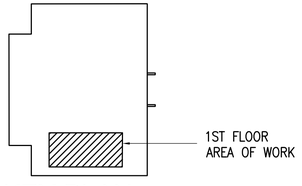


2 W PORTAL PLC IMAGE 1
NONE

3 W PORTAL PLC IMAGE 2
NONE



4 W PORTAL PLC IMAGE 3
NONE



KEY PLAN
NOT TO SCALE

RSA ENGINEERING, INC.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

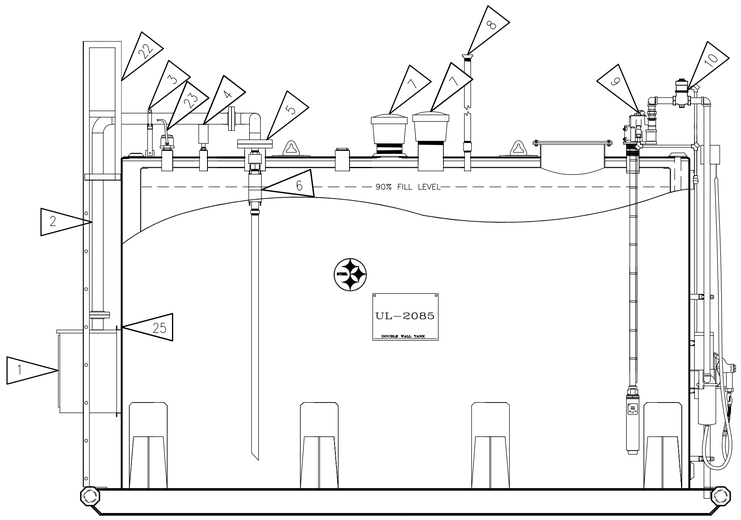
WHITTIER TUNNEL STANDBY GENERATORS

WHITTIER PORTAL ENLARGED MECHANICAL PLANS

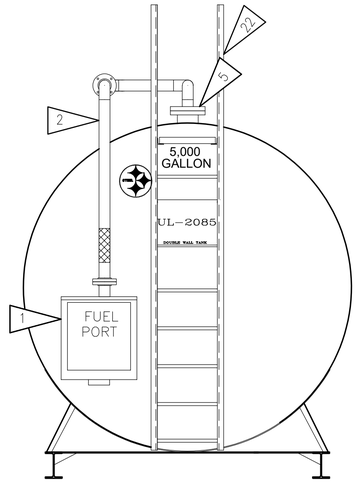
REVISIONS		
NO.	DATE	DESCRIPTION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0496(13)/58027	2025	M3.01	XX

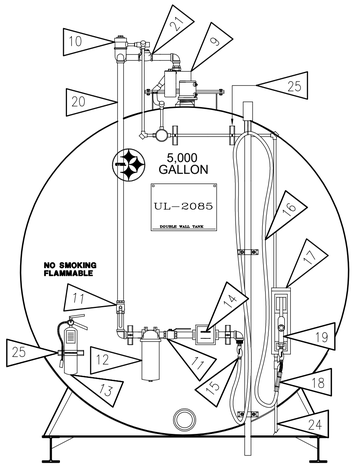
SANDBLAST & COAT ALL EXTERIOR SURFACES W/ WHITE POLYURETHANE PER MANUFACTURER'S SPECIFICATIONS.



SIDE VIEW



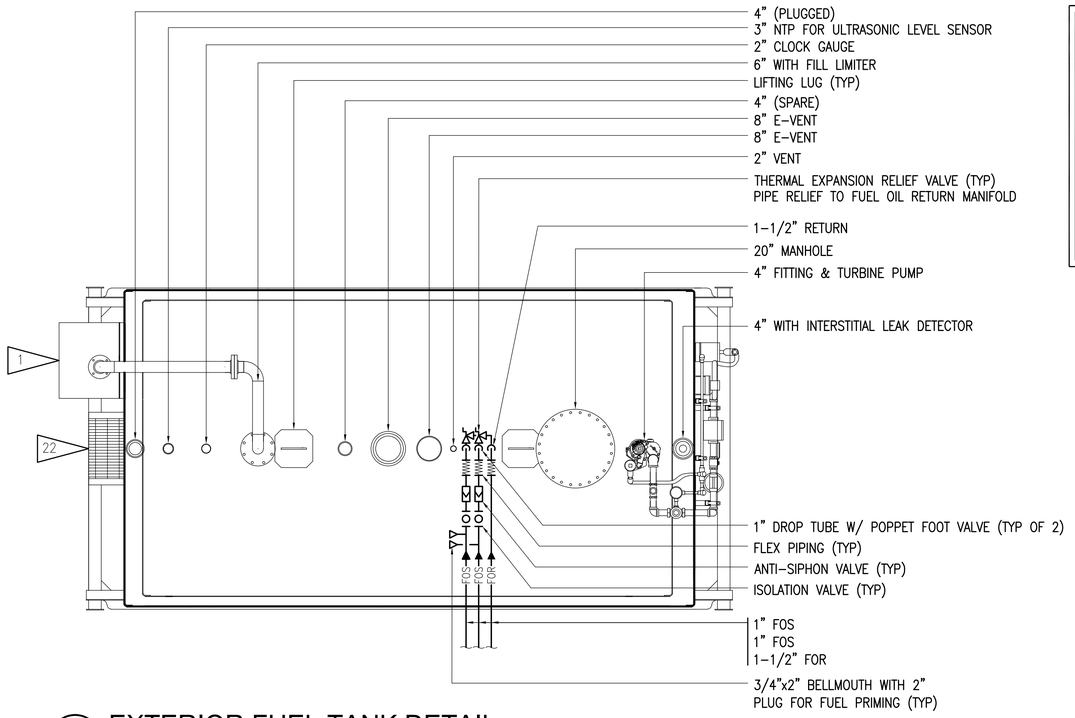
LEFT END VIEW



RIGHT END VIEW

REFERENCE NOTES:

1. SPILL CONTAINMENT BOX WITH 2" DRY DISCONNECT FILL CONNECTION OR SIMILAR, COORDINATE WITH TUNNEL OPERATORS FOR REQUIRED FILL CONNECTION.
2. 3" SCHED 40 FILL PIPING W/ FLEXIBLE PIPE AT SPILL CONTAINMENT BOX.
3. STEEL CHANNEL "UNISTRUT" PIPE SUPPORT BOLTED TO TABS WELDED TO TANK
4. CLOCK GAUGE
5. 6" 150# BLIND FLANGE W/ 3" THREADED BUNG
6. OVERFILL LIMITER VALVE SET TO ACTIVATE AT 90% CAPACITY
7. EMERGENCY VENT 8" CAP
8. MUSHROOM VENT 2" CAP
9. SUBMERGED TURBINE PUMP, 208V/1PH, 1-1/2" HP
10. SOLENOID VALVE
11. BALL VALVE
12. FUEL FILTER
13. FIRE EXTINGUISHER
14. FUEL METER
15. 1" HOSE SWIVEL
16. 1" FUEL HOSE 20'
17. NOZZLE BOOT
18. 1" HOSE BREAKAWAY FITTING
19. DIESEL DISPENSING NOZZLE
20. 1-1/2" SCHEDULE 40 DISPENSING PIPING
21. FIRE SAFETY VALVE
22. OSHA LADDER W/ GRIPSTRUT LANDING
23. 3" PORT FOR ULTRASONIC LEVEL SENSOR (PROVIDED BY INSTRUMENTATION CONTRACTOR, INSTALLED BY MECHANICAL)
24. ELECTRICAL CONDUIT, REFERENCE ELECTRICAL
25. SUPPORTS WELDED TO TANK AS REQUIRED FOR EQUIPMENT AND PIPE MOUNTING.



PROTECTED SECONDARY CONTAINMENT ABOVEGROUND TANK
FOR FLAMMABLE LIQUIDS UL SERIAL NUMBER XXXXXXXXX

LISTED

UL 2085, STI MH 17883

- FOLLOW INSTALLATION INSTRUCTIONS • TANK IS INTENDED FOR STATIONARY INSTALLATION ONLY
- PRESSURIZE PRIMARY TANK WHEN PRESSURE TESTING ANNULAR SPACE • VEHICLE IMPACT RESISTANT
- THIS TANK SHALL BE INVESTIGATED TO DETERMINE ACCEPTABILITY OF USE AFTER FIRE EXPOSURE DAMAGE, OTHER PHYSICAL DAMAGE, OR MISUSE.
- IF A LEAK IS DETECTED (WATER OR FUEL) THIS TANK IS TO BE REMOVED FROM SERVICE, THE LOCAL CODE AUTHORITY AND TANK MANUFACTURER SHOULD BE CONTACTED TO DETERMINE IF THE INSULATION CAN BE REPLACED OR REPAIRED.
- THIS TANK IS INTENDED FOR INSTALLATION IN ACCORDANCE WITH NFPA 30, NFPA 30A, NFPA 31, OR THE UNIFORM FIRE CODE STANDARD A-II-F-I
- INSULATED ABOVEGROUND TANK, PROTECTED TYPE • TANK LISTED AS A FIRE RESISTANT SECONDARY CONTAINMENT TANK
- ☐ PROJECTILE RESISTANT (IF PUNCHED, STEEL THICKNESS MEETS REQUIREMENTS)

1 EXTERIOR FUEL TANK DETAIL

NTS

DESIGNED BY CJT
CHECKED BY BPP
DRAFTED BY CJT

XREFS N/A N/A

SCALE N/A

LAYOUT M3.01

DATE TIME 5/15/2025 5:46 PM

DRAWING LOCATION G:\2024\M4136\M4136_MSERIES.dwg

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

WHITTIER TUNNEL
STANDBY GENERATORS

RSA ENGINEERING, INC.

MECHANICAL DETAILS