

State of Alaska
Department of Community and Economic Development

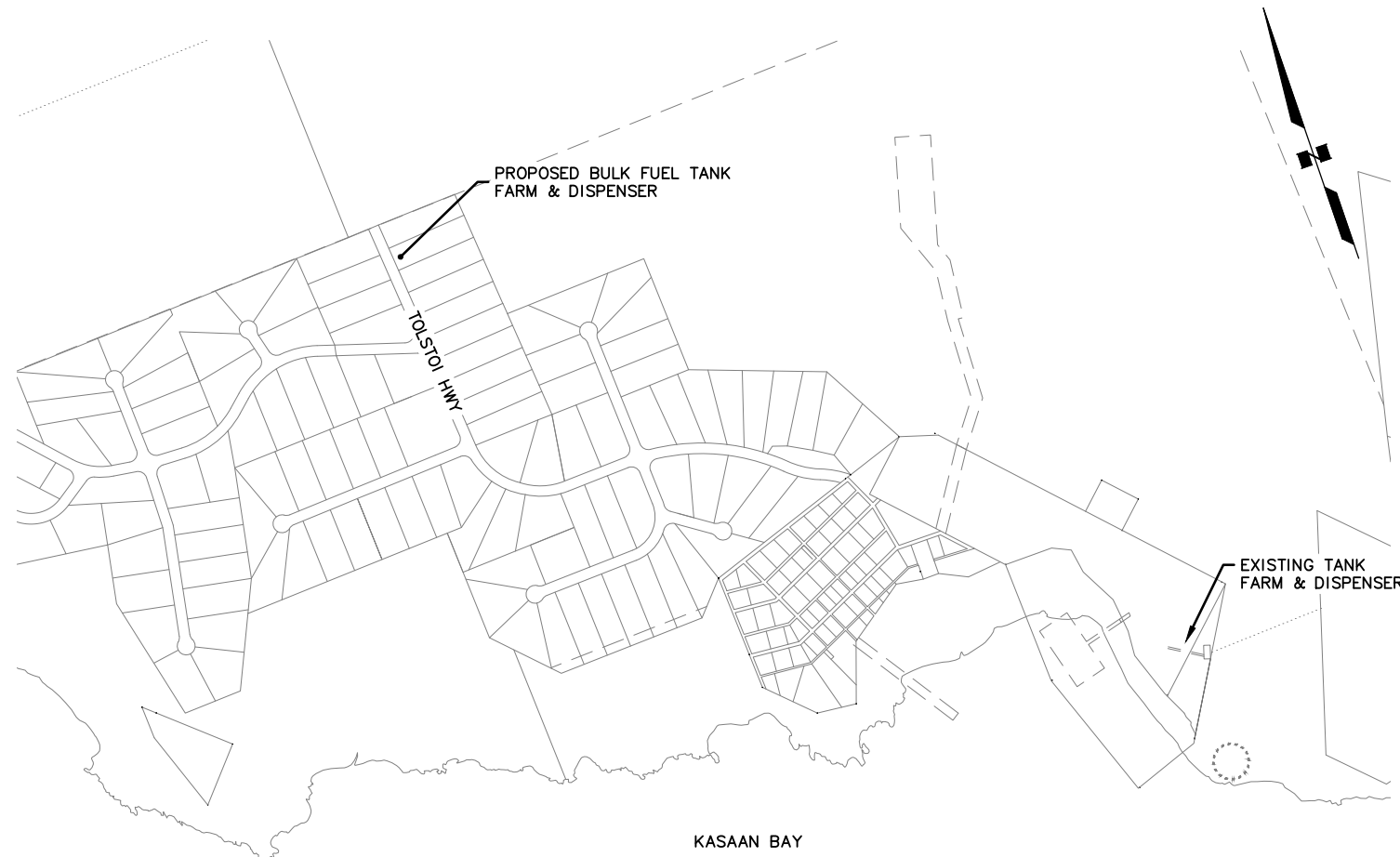


813 West Northern Lights Blvd.
Anchorage, Alaska 99503

KASAAN, ALASKA

BULK FUEL UPGRADE ISSUED FOR CONSTRUCTION MARCH, 2021

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Project Number (Consultant) 30410.00 (AEA) 340276

AEA Project Manager DAVID LOCKARD, P.E.

Contractor —

Final Design (Date) 3/22/2021

Fire Marshal Approval (Date) —

Construction Period (From) — (To) —

As-Builts (Date) —



3940 ARCTIC BLVD. SUITE 300
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#AECL882-AK



File: J:\JobsData\30410.00 Kasaan Final Design\00 CADD\01 Working Set\00 General\30410.00 Notes Abbrev Legend.dwg

PROJECT SCOPE

PROJECT SCOPE: THIS PROJECT INCLUDES FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, COORDINATION, AND TROUBLESHOOTING REQUIRED TO COMPLETE THE FOLLOWING FUEL SYSTEM RELATED IMPROVEMENTS IN THE CITY OF KASAAN, ALASKA:

- INSTALLATION OF TWO OWNER PROVIDED DISPENSING TANKS WITH INTEGRAL RETAIL /FLEET DISPENSERS INCLUDING ALL REQUIRED TRANSPORTATION, FOUNDATION PREPARATION, SECURITY FENCING, ELECTRICAL WIRING AND CONTROLS, LIGHTING AND COMMUNICATION, AND ALL OTHER FEATURES IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
- FURNISH AND INSTALL THE SPECIFIED POINT OF SALE (POS) SYSTEM INCLUDING ALL REQUIRED EQUIPMENT, ELECTRICAL WIRING AND CONTROLS, COMMUNICATIONS, INTERNET CONNECTIONS, TROUBLESHOOTING, ETC. TO PROVIDE A FULLY FUNCTIONAL, CREDIT CARD CAPABLE, POINT OF SALE SYSTEM IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

GENERAL NOTES

- THE CONTRACTOR SHALL PROTECT ALL ITEMS NOT SCHEDULED FOR DEMOLITION DURING CONSTRUCTION. DISTURBED AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION.
- ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL CONSULT WITH THE APPROPRIATE UTILITY ORGANIZATIONS TO VERIFY AND LOCATE UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONTACT INFORMATION ON THIS SHEET.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE APPROPRIATE TEMPORARY CUT SLOPES AND SHORING FOR EXCAVATIONS AND TRENCHES FOR SITE SOILS, GROUNDWATER AND RUNOFF CONDITIONS AND SURFACE LOADING CONDITIONS. THE CONTRACTOR MUST COMPLY WITH APPLICABLE FEDERAL AND STATE OSHA REGULATIONS. THE CONTRACTOR SHALL MAINTAIN ALL SIGNS, BARRICADES, WARNING LIGHTS AND OTHER PROTECTIVE DEVICES NECESSARY FOR SAFETY AND TRAFFIC CONTROL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH EXISTING FACILITY OPERATORS, OTHER CONTRACTORS, SUBCONTRACTORS, THE CITY AND STATE AND FEDERAL AUTHORITIES.
- THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL FEATURES OF THE REQUIRED WORK. PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS REQUIRED FOR A COMPLETE, AND CODE COMPLIANT SYSTEM. VERIFY EXISTING FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION. IMMEDIATELY CONTACT THE ENGINEER FOR CLARIFICATION OF QUESTIONABLE ITEMS OR APPARENT CONFLICTS.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT A SWPPP IF ONE IS REQUIRED.
- CONTRACTOR SHALL PROCURE AND ATTACH TANK NUMBERING LABELS.
- ALL ITEMS TO BE INSTALLED ARE NEW UNLESS SPECIFICALLY INDICATED AS EXISTING. INSTALL ALL MATERIALS AND EQUIPMENT IAW MANUFACTURERS RECOMMENDATIONS, INSTRUCTIONS, AND INSTALLATION DRAWINGS, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- THE SPECIFICATION OF A NAME BRAND PRODUCT FOLLOWED BY THE "OR EQUAL" PHRASE IS DONE MERELY TO ESTABLISH THE MINIMUM LEVEL OF QUALITY OF MATERIALS AND EQUIPMENT REQUIRED AND IS NOT A PRODUCT ENDORSEMENT. SUBMIT ANY PROPOSED SUBSTITUTIONS FOR REVIEW AND APPROVAL, UNLESS "NO SUBSTITUTIONS" IS SPECIFIED.
- FACILITY DESIGN IS IN ACCORDANCE WITH THE 2012 INTERNATIONAL FIRE CODE, STATE OF ALASKA FIRE AND SAFETY REGULATIONS ADMINISTRATIVE CODES 13 AAC 50, 13 AAC 55, AND THE MOST RECENT MEMORANDUM OF AGREEMENT BETWEEN THE AEA AND THE STATE OF ALASKA FIRE MARSHALL.
- CONTRACTOR TO PROVIDE SIGNAGE IAW THE SIGN SCHEDULE, AND AS IDENTIFIED ELSEWHERE IN THE DRAWINGS.
- PERFORM WORK WITH SKILLED CRAFTSMEN SPECIALIZED IN SAID WORK. INSTALL ALL MATERIALS IN A NEAT, ORDERLY, AND SECURE FASHION, AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND COMMONLY RECOGNIZED STANDARDS OF GOOD WORKMANSHIP.
- PIPE SUPPORTS SHALL BE SPACED A MAXIMUM OF 10' ON CENTER IAW THE UPC.
- CONTRACTOR SHALL MAINTAIN A "REDLINE" SET OF DRAWINGS TO REFLECT FIELD CHANGES THROUGHOUT CONSTRUCTION. RED LINE CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO ENGINEER AT COMPLETION OF THE PROJECT.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH U.S. ENVIRONMENTAL PROTECTION AGENCY, ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, AND STATE AND FEDERAL OCCUPATIONAL HEALTH AND SAFETY REGULATIONS.

CALL BEFORE YOU DIG	
WATER/SEWER	CITY OF KASAAN 907-542-2212
ELECTRIC	AP&T 907-755-4822

ABBREVIATIONS

ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION	LF	LINEAR FEET
ADOT	ALASKA DEPARTMENT OF TRANSPORTATION	LB	POUND
AEA	ALASKA ENERGY AUTHORITY	LPG	LIQUEFIED PETROLEUM GAS
ALCAP	ALUMINUM SURVEY CAP	M	METERS
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MAX	MAXIMUM
API	AMERICAN PETROLEUM INSTITUTE	MIL	0.001 INCH
APPROX	APPROXIMATE	MIN	MINIMUM
ASTM	AMERICAN SOCIETY FOR TESTING OF MATERIALS	MNPT	MALE NATIONAL PIPE THREAD
AST	ABOVEGROUND STORAGE TANK	MV	MOTORIZED BALL VALVE
ASV	ANTI-SIPHON VALVE	N	NORTH
AWS	AMERICAN WELDING SOCIETY	NC	NORMALLY CLOSED
AP&T	ALASKA POWER AND TELEPHONE	NFS	NON-FROST SUSCEPTIBLE SOIL
		NO	NORMALLY OPEN
BLDG	BUILDING	NPT	NATIONAL PIPE TAPERED THREAD
BV	BALL VALVE	NTS	NOT TO SCALE
		NWR	NATIONAL WILDLIFE REFUGE
CMP	CORRUGATED METAL PIPE	OAE	OR APPROVED EQUAL
CP	CONTROL PANEL	OD	OUTSIDE DIAMETER
CV	CHECK VALVE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
		OZ	OUNCE
DEMO	DEMOLISH	PCC	PORTLAND CEMENT CONCRETE
DFT	DRY FILM THICKNESS	PL	PLATE
DIA	DIAMETER	PT	PRESSURIZED TEST TAP
DWG	DRAWING	PRV	PRESSURE RELIEF VALVE
		PSF	POUNDS PER SQUARE FOOT
E	EAST	PSI	POUNDS PER SQUARE INCH
EA	EACH	R	RADIUS
EL	ELEVATION	RF	RAISED FACE
ELEC	ELECTRIC	S	SEWER
EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY	SCH	SCHEDULE
ENGINEER	CRW ENGINEERING GROUP, LLC	SHPO	STATE HISTORIC PRESERVATION OFFICE
E-VENT	EMERGENCY VENT	SIM	SIMILAR
		SPEC	SPECIFICATION
*F	FAHRENHEIT	SQ	SQUARE
FC	FLEX CONNECT	SS	STAINLESS STEEL
FF	FINISH FLOOR ELEV.	SSPC	STEEL STRUCTURES PAINTING COUNCIL
FG	FINISH GRADE	STA	STATION
FLV	FILL LIMITING VALVE	SY	SQUARE YARD
FOR	FUEL OIL RETURN	TBM	TEMPORARY BENCH MARK
FOS	FUEL OIL SUPPLY	TS	TUBE STEEL
FPT	FEMALE NATIONAL PIPE TAPERED THREAD	TYP	TYPICAL
FT	FOOT OR FEET	UG	UNDERGROUND
		UL	UNDERWRITERS LABORATORY
GA	GAUGE	UPC	UNIFORM PLUMBING CODE
GAL	GALLON	UST	UNDERGROUND STORAGE TANK
GALV	GALVANIZED	ULSD	ULTRA LOW SULFUR DIESEL
GPM	GALLONS PER MINUTE	w/	WITH
		W	WATER
HDPE	HIGH DENSITY POLYETHYLENE		
HP	HORSE POWER		
HR	HOUR		
IAW	IN ACCORDANCE WITH		
IBC	INTERNATIONAL BUILDING CODE		
ID	INSIDE DIAMETER		
IFC	INTERNATIONAL FIRE CODE		
IPC	INTERNATIONAL PLUMBING CODE		

TESTING, STARTUP AND COMMISSIONING PROCEDURES

- CONTRACTOR SHALL PERFORM SYSTEM TESTING, STARTUP AND COMMISSIONING IN ACCORDANCE WITH THE PROCEDURES LISTED HERE AND IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. LEAVE ALL WORK SITES IN AN ORDERLY CONDITION CONSISTENT WITH THAT FOUND UPON ARRIVAL.
- PRESSURE TEST ALL PIPING AND FILL OUT AEA-APPROVED PIPELINE PRESSURE TEST REPORTS. NOTIFY ENGINEER SEVEN DAYS PRIOR TO PLANNED PRESSURE TESTING. THE ENGINEER OR HIS APPROVED REPRESENTATIVE SHALL BE PRESENT DURING ALL PRESSURE TESTING UNLESS DIRECTED OTHERWISE IN WRITING. DELIVER ORIGINAL REPORTS TO AEA AND A COPY TO THE ENGINEER.
- TEST ALL PRESSURE RELIEF AND ANTI-SIPHON VALVES FOR PROPER OPERATION AT SPECIFIED PRESSURE.
- CONTRACTOR SHALL BE PRESENT DURING INITIAL FILLING OF TANKS. UPON FILLING OF TANKS VERIFY PRODUCT LEVEL WITH GAUGING STICK AND RECALIBRATE ALL TANK GAUGES. REMOVE AND CLEAN ALL STRAINERS AFTER INITIAL FILLING.
- CHECK ALL PUMPS FOR PROPER ROTATION.
- CHECK ALL CONTROL AND ALARM FUNCTIONS. MANIPULATE TANK FLOAT SWITCHES TO SIMULATE LOW AND HIGH LEVEL CONDITIONS. SET TIMING RELAYS FOR 30 SECONDS AND VERIFY TIME-OUT FUNCTION. RE-SET TIMERS TO SPECIFIED VALUES AFTER TESTING. VERIFY LATCHING AND RESET FUNCTIONS, EMERGENCY STOP FUNCTION, AND OPERATION OF ALL SIGNAL LAMPS AND HORNS. OBSERVE OPERATION OF MOTOR ACTUATED VALVES. VERIFY THAT ONSITE POWER GENERATION SYSTEM & AREA LIGHTING FUNCTION PROPERLY.
- TEST THE RETAIL DISPENSER, AND ALL RELATED COMPONENTS.
- VERIFY ALL SIGNS, PLACARDS, AND VALVE TAGS ARE PROPERLY LOCATED. VERIFY PROPER PRODUCT COLOR CODE AND LABELING FOR ALL TANKS AND PIPING.
- INSTALL PADLOCKS ON ALL VALVES AND FENCE GATES. KEY ALL LOCKS ALIKE. PROVIDE (2) SPARE LOCKS AND KEYS.
- INSTRUCT LOCAL OPERATORS IN THE OPERATION AND MAINTENANCE OF ALL SYSTEMS. PLACE SPARE PARTS AND SPILL RESPONSE SUPPLIES IN DESIGNATED LOCATION.

CIVIL LEGEND (GENERAL)

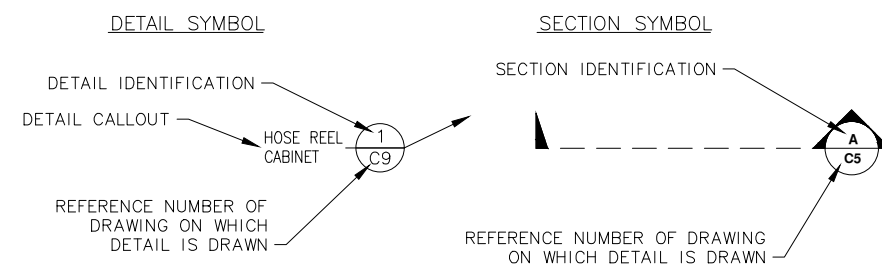
NOTE: SOME DETAILS UTILIZE SYMBOLS NOT IN THIS GENERAL LEGEND. WHERE THIS OCCURS, SYMBOLS ARE DEFINED ON THE SHEET IN WHICH THEY ARE USED.

	PROPERTY BOUNDARY		ANTI-SIPHON VALVE
	CULVERT		BALL VALVE
	EDGE OF WATER		MOTOR ACTUATED BALL VALVE
	DITCH LINE/DRAINAGE SWALE		CHECK VALVE
	DRAINAGE DIRECTION & SLOPE		GATE VALVE
	TRAVELED WAY		PRESSURE RELIEF VALVE w/ FLOW DIRECTION
	FILL SLOPE		PRESSURE TEST TAP
	CUT SLOPE		METER
	FENCE LINE		FILTER
	FIRE EXTINGUISHER		FLEXIBLE CONNECTOR
	GROUND ELEVATION CONTOURS		WYE STRAINER (MESH SIZE)
	BOLLARD		FILL LIMITER
	POWER POLE		QUICK COUPLING
	INFORMATION / WARNING SIGN		SUBMERSIBLE PUMP
	SHEET NOTE		VERTICAL PIPE TRANSITION
	SURVEY MONUMENT		REDUCER
	TEST PIT		LEVEL FLOAT SWITCH
	FINISH GRADE ELEVATION		HOSE REEL
	DIAMETER		

UTILITY LINE/PIPELINE DESIGNATIONS

	ABOVEGROUND PIPELINE: PROPOSED
	UNDERGROUND PIPELINE: PROPOSED
	OE OVERHEAD ELECTRIC
	UG UNDERGROUND ELECTRIC

DETAIL/SECTION REFERENCES



BULK FUEL UPGRADE
NOTES, ABBREVIATIONS, AND LEGEND
KASAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date	Designed	Drawn	Approved

NOTES:

1. INSTALL 5 PORTABLE FIRE EXTINGUISHERS (TYPE 4 - 40BC), INCLUDING TWO IN THE FENCED AREA, ONE AT THE DISPENSER AND TWO SPARES TO BE STORED WITH SPILL RESPONSE EQUIPMENT. EXTINGUISHERS MOUNTED OUTSIDE SHALL BE WITHIN APPROVED WEATHER PROOF ENCLOSURE WITH HINGED DOORS.
2. SEE ELECTRICAL SHEETS FOR LOCATIONS OF EMERGENCY STOPS AND INSTALL SIGNS AT THOSE LOCATIONS.

SETBACK/SEPARATION REQUIREMENTS:

THE PROPOSED TANK FARM WILL PERFORM TWO FUNCTIONS - BULK STORAGE, AND RETAIL/FLEET DISPENSING. ALL TANKS ARE INSTALLED ABOVE GROUND. TO COMPLY WITH THE REQUIREMENTS OF THE CURRENT INTERNATIONAL FIRE CODE, THE 2018 ALASKA ENERGY AUTHORITY/DIVISION OF FIRE PREVENTION MEMORANDUM OF AGREEMENT, AND STATE OF ALASKA REGULATIONS THE FOLLOWING MINIMUM CLEARANCES ARE REQUIRED:

- 10' FROM THE DISPENSER TO ALL BUILDINGS AND PROPERTY LINES.
- 20' FROM THE DISPENSER TO FIXED SOURCES OF IGNITION.
- 5' FROM PROTECTED DISPENSING TANKS (6000 GAL MAX) TO THE NEAREST IMPORTANT BUILDING OR NEAREST SIDE OF A PUBLIC WAY.

WARNING SIGNS & INFORMATION PLACARD SCHEDULE:

PROVIDE ALL SIGNS INDICATED IN THE SCHEDULE BELOW, QUANTITY & LOCATION AS INDICATED ON THE DRAWINGS. ALL SIGNS SHALL BE CONSTRUCTED FROM 0.08" ALUMINUM PLATE, AND SIZED IAW 2012 IFC. SIGN LETTERING IS SHOWN BELOW IN QUOTATIONS. PROVIDE 3/16" HOLES IN ALL FOUR CORNERS. PROVIDE NON-REFLECTIVE VINYL BACKGROUND, 3M 3650-10, WITH 3M SERIES 225 HIGH PERFORMANCE VINYL LETTERS, ONE SIDE ONLY, COLOR AS INDICATED. ATTACH TO FENCING WITH GALVANIZED HOG RINGS OR STAINLESS STEEL CABLE TIES. SIGNAGE PLACED DIRECTLY ON TANKS SHALL CONSIST OF HIGH QUALITY ADHESIVE BACK DECALS OR PAINTED STENCILS.

WARNING SIGNS - RED LETTERING ON WHITE BACKGROUND (3" HIGH X 1/2" STROKE LETTERS)

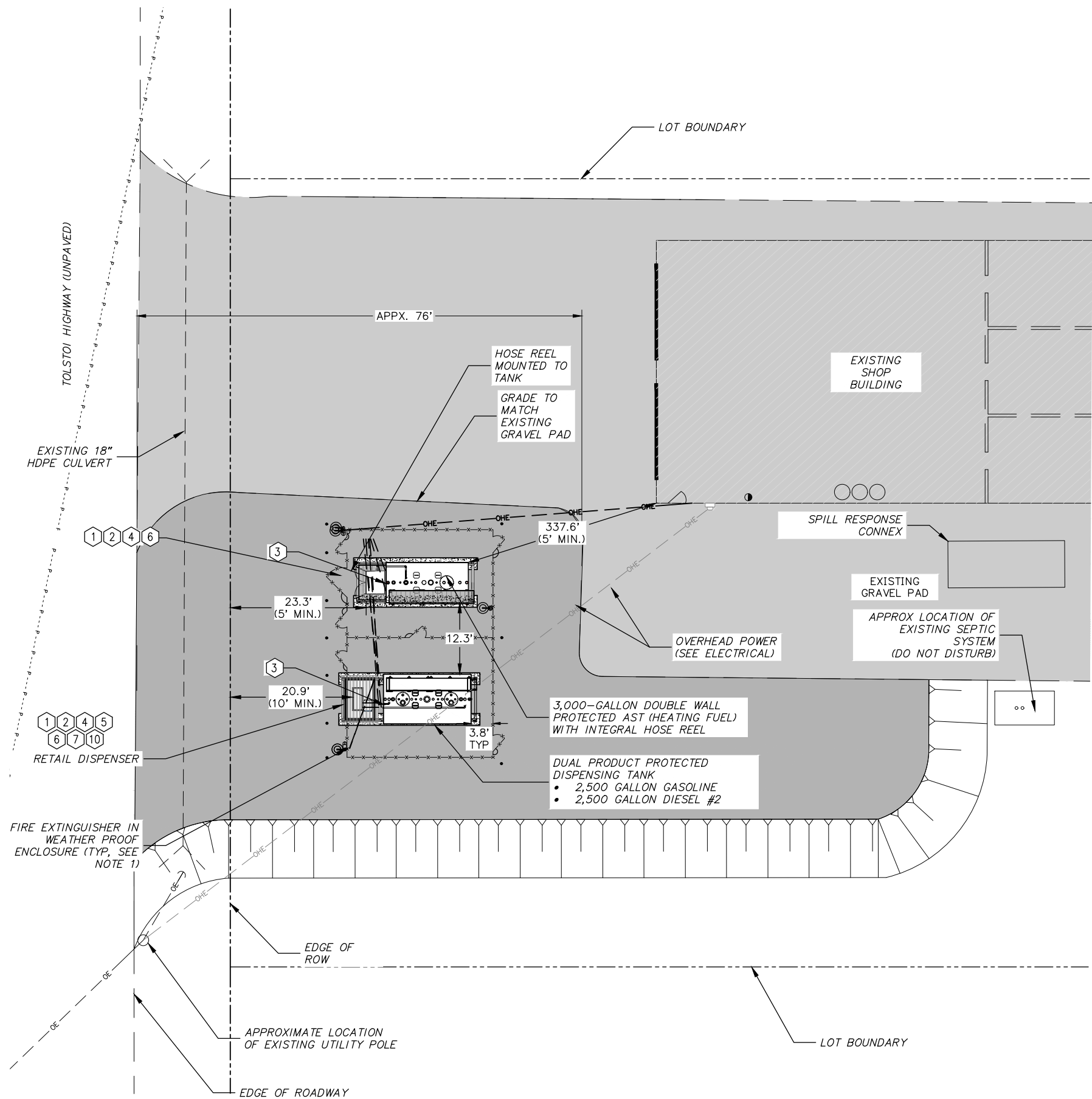
- 1 "DANGER FLAMMABLE LIQUIDS"
- 2 "NO SMOKING NO OPEN FLAMES"
- 3 "FLAMMABLE _____ GALLONS GASOLINE", "COMBUSTIBLE _____ GALLONS ULSD", OR "COMBUSTIBLE _____ GALLONS HEATING FUEL" INSERT VOLUME IN GALLONS AS APPROPRIATE.

INFORMATIONAL PLACARDS - BLACK LETTERING ON WHITE BACKGROUND (2" HIGH 1/2" STROKE LETTERS)

- 4 "IMPORTANT - PRIOR TO DISPENSING:
1. SHUT OFF MOTOR
2. DISCHARGE YOUR STATIC ELECTRICITY BEFORE FUELING BY TOUCHING A METAL SURFACE AWAY FROM THE NOZZLE
3. TO PREVENT STATIC CHARGE, DO NOT RE-ENTER YOUR VEHICLE WHILE GASOLINE IS PUMPING
4. IF A FIRE STARTS, DO NOT REMOVE NOZZLE - BACK AWAY IMMEDIATELY"
- 5 "IT IS UNLAWFUL AND DANGEROUS TO DISPENSE FUEL INTO UNAPPROVED CONTAINERS"
- 6 "ATTACH STATIC WIRE TO PORTABLE TANK PRIOR TO FILLING"
- 7 "IN CASE OF FIRE SPILL OR RELEASE."
1. USE EMERGENCY PUMP SHUTOFF
2. REPORT THE ACCIDENT!
CONTACT THE CITY OF KASAAN (907)-542-2212
KASAAN VOLUNTEER FIRE DEPARTMENT NO. (907)-617-8998
FACILITY ADDRESS:
CITY OF KASAAN SHOP
22 TOLSTOI HIGHWAY
KASAAN, AK 99950
REPORT ACCIDENT TO ADEC (907)-465-5340
- 8 "EMERGENCY SHUTOFF" - SEE ELECTRICAL FOR SIGN LOCATIONS
- 9 "USE OF HEATING FUEL IN HIGHWAY VEHICLES IS PROHIBITED BY LAW AND MAY CAUSE ENGINE DAMAGE"

INSTRUCTION PLACARDS - BLUE LETTERING ON WHITE BACKGROUND (1/2" HIGH X 3/8" STROKE LETTERS)

- 10 "RETAIL DISPENSING:
1. SHUT OFF VEHICLE AND CONNECT TO GROUNDING REEL
2. SELECT PAYMENT METHOD
3. SWIPE CREDIT CARD ON CARD READER
4. FOLLOW INSTRUCTIONS ON DISPLAY
5. REMOVE NOZZLE, SELECT FUEL TYPE AND BEGIN FUELING
6. REPLACE NOZZLE AFTER FUELING"

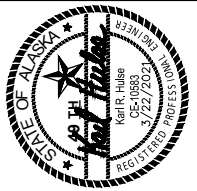


SET BACK AND SIGNAGE PLAN

SCALE: GRAPHIC



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BULK FUEL UPGRADE
SET BACK & SIGNAGE PLAN
KASAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date _____
Designed _____
Drawn _____
Approved _____

Sheet No. **G3**

EARTHWORK

GENERAL
CONTACT LOCAL UTILITIES AND REQUEST A LOCATE FOR ALL EXISTING UNDERGROUND UTILITIES IN THE VICINITY PRIOR TO EXCAVATION.

CAREFULLY LAY OUT WORK TO MINIMIZE DISRUPTION AND DAMAGE TO EXISTING SURFACES.

PERFORM ALL WORK IN ACCORDANCE WITH OSHA REQUIREMENTS. BARRICADE OPEN EXCAVATIONS TO PROHIBIT PUBLIC ENTRY. COORDINATE WORK WITH COMMUNITY'S MAINTENANCE/ENGINEERING STAFF AT EACH LOCATION.

NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN CONTRACTUAL REQUIREMENTS AND SITE CONDITIONS PRIOR TO START OF WORK.

WORK IN INCLEMENT WEATHER IS AT CONTRACTOR'S RISK. ANY MATERIALS WHICH BECOME UNSTABLE DUE TO IMPROPER SELECTION OF TECHNIQUES, EQUIPMENT, OR OPERATIONS DURING INCLEMENT WET WEATHER SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

EXCAVATIONS AND EMBANKMENT SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT DRAINAGE IS MAINTAINED AT ALL TIMES; ANY AREAS NOT SO DRAINED SHALL BE KEPT FREE OF STANDING WATER BY PUMPING IF NECESSARY.

THE CONTRACTOR SHALL PROVIDE FOR THE PROPER MAINTENANCE OF TRAFFIC FLOW AND ACCESSIBILITY AS MAY BE NECESSARY, AND SHALL ALSO MAKE ADEQUATE PROVISIONS FOR THE SAFETY OF PROPERTY AND PERSONS.

SUBMITTALS

CONTRACTOR SHALL MAKE THE FOLLOWING EARTHWORK RELATED SUBMITTALS:

- A. SUBMIT ONE GRADATION ANALYSIS AND MOISTURE-DENSITY (COMPACTION CURVE) TEST REPORT FOR EACH MATERIAL SOURCE. ALL TEST REPORTS SHALL BE FROM A CERTIFIED SOILS TESTING LABORATORY.
- B. IF THE CONTRACTOR CHANGES THE SOURCE AND/OR STOCKPILE FROM WHICH MATERIALS ARE OBTAINED, GRADATION ANALYSIS AND MOISTURE-DENSITY TEST REPORTS FOR THESE NEW SOURCES SHALL BE SUBMITTED TO THE ENGINEER.
- C. ADDITIONAL TESTING:
 - 1. DURING CONSTRUCTION, THE OWNER MAY ELECT TO HAVE FURTHER GRADATION AND COMPACTION TESTING COMPLETED ON THE MATERIALS BEING FURNISHED BY THE CONTRACTOR.
 - 2. THIS TESTING SHALL BE AT THE EXPENSE OF THE OWNER.
 - 3. THE CONTRACTOR SHALL PROVIDE MATERIAL SAMPLES AS MAY BE NECESSARY TO COMPLETE THIS TESTING AND THESE MATERIAL SAMPLES SHALL BE FURNISHED FROM MATERIAL AVAILABLE ON THE PROJECT SITE OR FROM THE CONTRACTOR'S SOURCE AND/OR SUPPLIER.

MATERIAL SOURCES/CLASSIFIED FILL

- A. FILL MATERIAL SHALL MEET THE REQUIREMENTS FOR CLASSIFIED FILL MATERIAL LISTED BELOW
- B. CLASSIFIED FILL:
 - 1. CLASSIFIED FILL MATERIAL SHALL CONSIST OF MINERAL SOIL, FREE FROM DIRT, MUCK, FROZEN CHUNKS, CLAY BALLS, ROOTS, ORGANIC MATERIAL, DEBRIS, OR DELETERIOUS MATERIAL. IT SHALL HAVE A LIQUID LIMIT NO GREATER THAN 25 AND A PLASTICITY INDEX NO GREATER THAN 6 AS DETERMINED BY AASHTO T-89 AND T-90
 - 2. TYPE I CLASSIFIED FILL MATERIAL:
 - TYPE I CLASSIFIED FILL MATERIAL SHALL CONSIST OF SCREENED PIT RUN GRAVEL CONFORMING TO THE FOLLOWING GRADATION AS DETERMINED BY AASHTO T-27:

U.S. STANDARD SIEVE SIZE	PERCENT PASSING, BY WEIGHT
4 INCH	100
2 INCH	85-100
NO. 4	20-60
NO. 200	3-12

- 3. TYPE II CLASSIFIED FILL MATERIAL SHALL BE CRUSHED GRAVEL CONSISTING OF SOUND, TOUGH, DURABLE ROCK FRAGMENTS OF UNIFORM QUALITY AND SHALL MEET THE FOLLOWING REQUIREMENTS

DEGRADATION VALUE (ATM T-13):	45 MIN
PERCENT FRACTURE (ATM T-4):	50 MIN (SINGLE FACE)

TYPE II CLASSIFIED FILL MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION AS DETERMINED BY AASHTO T-27:

U.S. STANDARD SIEVE SIZE	PERCENT PASSING, BY WEIGHT
1 INCH	100
NO. 4	35-65
NO. 10	25-45
NO. 200	4-10

EMBANKMENT CONSTRUCTION (CONTRACTOR PROVIDED)

PLACEMENT:

THE SPECIFIED MATERIAL SHALL BE PLACED AT THE LOCATIONS AND TO THE LINES AND GRADES INDICATED ON THE CONTRACT DRAWINGS. THE MATERIAL SHALL BE PLACED AND SPREAD UNIFORMLY IN SUCCESSIVE LAYERS NOT EXCEEDING TWELVE (12) INCHES IN LOOSE THICKNESS. THE ENGINEER MAY APPROVE LIFTS OF GREATER THICKNESS PROVIDED THE EQUIPMENT AND METHOD USED WILL CONSISTENTLY ACHIEVE THE SPECIFIED DENSITY. THE LAYERS SHALL BE CARRIED UP FULL WIDTH FROM THE BOTTOM OF THE FILL. EACH LAYER SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS.

BLADING, ROLLING, AND TAMPING SHALL CONTINUE UNTIL THE SURFACE IS SMOOTH, FREE FROM WAVES AND IRREGULARITIES, AND CONFORMS TO ELEVATIONS SHOWN ON THE CONTRACT DRAWINGS. IF AT ANY TIME THE MATERIAL IS EXCESSIVELY WET, IT SHALL BE AERATED BY MEANS OF BLADE GRADERS, HARROWS, OR OTHER SUITABLE EQUIPMENT UNTIL THE MOISTURE CONTENT IS SATISFACTORY. THE SURFACE SHALL THEN BE COMPACTED

AND FINISHED AS SPECIFIED ABOVE.

OVERSIZED MATERIAL SHALL BE REMOVED. PORTIONS OF ANY LAYER IN WHICH THE EMBANKMENT MATERIAL BECOMES SEGREGATED SHALL BE REMOVED AND REPLACED WITH SATISFACTORY MATERIAL OR SHALL BE ADDED TO AND REMIXED TO SECURE PROPER GRADATION AS DIRECTED BY THE ENGINEER.

COMPACTION

- 1. EACH LIFT SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR MAX DRY DENSITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE PROPER SIZE AND TYPE OF COMPACTION EQUIPMENT AND FOR SELECTING THE PROPER METHOD OF OPERATING SAID EQUIPMENT TO ATTAIN THE REQUIRED COMPACTION DENSITY.
- 2. PORTIONS OF ANY LIFT IN WHICH THE MATERIALS BECOME SEGREGATED TO THE EXTENT THAT THE REQUIRED COMPACTION CANNOT BE ATTAINED SHALL BE REMOVED BY THE CONTRACTOR AND REPLACED WITH SATISFACTORY MATERIALS, OR BLENDED WITH ADDITIONAL MATERIAL UNTIL SEGREGATION IS ELIMINATED.
- 3. IF, IN THE OPINION OF THE ENGINEER, BASED ON INSPECTION, SUBGRADE AND LAYERS OF EMBANKMENT THAT HAVE BEEN PLACED ARE BELOW SPECIFIED DENSITY, THE CONTRACTOR SHALL PERFORM ADDITIONAL COMPACTION AND TESTING AT ELEVATIONS DIRECTED BY THE ENGINEER UNTIL SPECIFIED DENSITY IS OBTAINED, AT NO ADDITIONAL COST TO THE OWNER.

MAINTENANCE

- 1. AS NECESSARY, CONTRACTOR SHALL WATER THE SITE WHILE GRADING IS IN PROGRESS TO CONTROL DUST.
- 2. CONTRACTOR SHALL PROTECT NEWLY GRADED AREAS FROM TRAFFIC AND EROSION AND KEEP FREE OF TRASH AND DEBRIS.
- 3. CONTRACTOR SHALL REPAIR AND RE-ESTABLISH GRADES IN SETTLED, ERODED AND RUTTED AREAS AS DIRECTED BY THE ENGINEER.
- 4. WHERE COMPLETED COMPACTED AREAS ARE DISTURBED BY SUBSEQUENT CONSTRUCTION OPERATIONS OR ADVERSE WEATHER, SCARIFY SURFACE, RESHAPE, AND COMPACT TO REQUIRED DENSITY PRIOR TO FURTHER CONSTRUCTION.
- 5. ALL OPEN EXCAVATIONS SHALL BE ADEQUATELY SIGNED AND BARRICADED TO PROTECT THE PUBLIC.

TRENCHING AND BACKFILL (CONTRACTOR PROVIDED)

PROTECTION

- 1. PROTECT EQUIPMENT AND VEHICULAR TRAFFIC FROM TRENCHES AND EXCAVATIONS BY PROVIDING ADEQUATE BARRICADES AND SIGNAGE.
- 2. PROTECT ADJACENT STRUCTURES BY PROVIDING ADEQUATE BACK-SLOPES, SHORING, BRACING OR OTHER METHODS REQUIRED TO PREVENT SLOPE FAILURE.
- 3. PROTECT ABOVE AND BELOWGROUND UTILITIES.
- 4. NOTIFY THE ENGINEER OF UNEXPECTED SUB-SURFACE CONDITIONS IMMEDIATELY.
- 5. GRADE TOP PERIMETER OF THE EXCAVATION TO PREVENT SURFACE WATER RUNOFF FROM ENTERING THE EXCAVATION.
- 6. PROVIDE FOR DEWATERING OF THE TRENCH WHERE GROUND WATER IS ENCOUNTERED.

TANKS (OWNER PROVIDED)

ALL ASTs ARE OWNER PROVIDED FOB KASAAN. ALL ASTs ARE NEW UL142 OR 2085 LISTED AND LABELED HORIZONTAL TANKS. SEE APPROVED SHOP DRAWINGS FOR ADDITIONAL INFORMATION. NOTE: FIELD WELDING TO TANKS IS PROHIBITED.

TANK APPURTENANCES (COMPONENTS IN THIS SECTION ARE OWNER PROVIDED UNLESS OTHERWISE NOTED)

MANHOLES - 5/16" STEEL LID (SINGLE PUNCH), 1/4" MILD STEEL RING WITH 7" RISER HEIGHT. PROVIDE COMPLETE SET OF BOLTS AND BUNA-N GASKET FOR LID. 24" MANHOLE NOMINAL SIZE. CLAY & BAILEY MR820-0600 OR APPROVED EQUAL.

PRESSURE/VACUUM WHISTLE VENTS - ALUMINUM BODY AND HOOD, STAINLESS STEEL SCREENS AND FLOAT, BRASS INTERNALS, VITON SEALS. 3" FPT CONNECTION FOR 28,000 & 15,000 GALLON TANKS AND 2" FPT FOR 3,000 GALLON TANKS, 8 OZ/SQUARE INCH PRESSURE SETTING, 1 OZ/SQUARE INCH VACUUM SETTING. HIGH INTENSITY WHISTLE ALARM ON RISE OF FLOAT AT ADJUSTABLE LEVEL. MORRISON FIGURE 922 OR APPROVED EQUAL.

EMERGENCY VENTS - ALUMINUM BODY, CAST IRON COVER, 16 OZ/SQUARE INCH PRESSURE SETTING, FLANGED CONNECTION. SIZE AS INDICATED ON TANK DRAWINGS. MORRISON FIGURE 244-F OR APPROVED EQUAL.

VENT CAPS - ALUMINUM BODY, STAINLESS STEEL SCREEN, 2" FPT CONNECTION. MORRISON FIGURE 155 OR APPROVED EQUAL.

GAUGE HATCH - BRASS CAP AND CHAIN, BUNA-N GASKET, 2" FPT CONNECTION. MORRISON FIGURE 307 OR APPROVED EQUAL.

OVERFILL PREVENTION VALVE - 2-INCH NPT FLOAT-TYPE MECHANICAL SHUT-OFF VALVE. ANODIZED ALUMINUM BODY, CLOSED CELL BUNA-N FLOAT, BRASS PLUNGER, STAINLESS STEEL LINKAGE. PROVIDE ADAPTER FOR INSTALLATION ON A 4" NPT PIPE NOZZLE WITH 2" FPT INLET. PROVIDE WITH ALUMINUM DROP TUBE CUT TO LENGTH AT 45 DEGREES AS REQUIRED TO TERMINATE 6 INCHES ABOVE TANK BOTTOM. MORRISON FIGURE 9095-A OR APPROVED EQUAL.

SPILL CONTAINMENT MANHOLE - 7 GALLON CAPACITY 12 GAUGE STEEL SPILL CONTAINMENT MANHOLE WITH HINGED AND LOCKING COVER AND POWDER COATED FINISH. 1/2" STEEL BASE WITH 4" DOUBLE-TAPPED FNPT CONNECTION AND INTERNAL BRASS CONTAINMENT DRAIN VALVE. PROVIDE 2" HOSE COUPLING WITH CAP, FILL LIMITING VALVE AS SPECIFIED ABOVE AND 2" DROP TUBE. POMECO 311AST OR APPROVED EQUAL.

CLOCK-TYPE LIQUID LEVEL GAUGE - ALUMINUM BODY, 2" MPT CONNECTION, STAINLESS STEEL FLOAT SIZED TO PASS THROUGH 2" BUNG OPENING, CLOCK-STYLED GAUGE WITH READOUT IN FEET AND INCHES UP TO 12 FEET, ACCURATE WITHIN 1/4" OVER FULL SCALE. MORRISON FIGURE 818 OR APPROVED EQUAL.

FLOAT SWITCHES - CONTRACTOR PROVIDED 2 POSITION: FLOAT ACTIVATED MAGNETIC LEVEL SWITCH WITH ASME CLASS 150 RAISED FACE FLANGED TANK CONNECTION. ACTUATION SET POINTS SHALL BE AS INDICATED. UL LISTED FOR CLASS I, DIVISION 1 HAZARDOUS ENVIRONMENTS. KTECH MODEL F5301 ORE..

PAINTING

NEW TANKS

OWNER PROVIDED FACTORY COATING SYSTEM. CONTRACTOR RESPONSIBLE FOR FIELD TOUCH UP IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS ONLY.

PIPING - OWNER PROVIDED FACTORY COATING SYSTEM. CONTRACTOR RESPONSIBLE FOR FIELD TOUCH UP IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS ONLY.

PIPE AND FITTINGS (COMPONENTS IN THIS SECTION ARE OWNER PROVIDED UNLESS OTHERWISE NOTED)

DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF ALL PRESSURE PIPING SHALL BE IN ACCORDANCE WITH ASME B31.4-2009 "LIQUID TRANSPORTATION SYSTEMS FOR HYDROCARBONS AND OTHER LIQUIDS".

STEEL PIPING SHALL BE SEAMLESS, ASTM A106, GRADE B PIPE, SCHEDULE 160 FOR 1" AND SMALLER, SCHEDULE 80 FOR 2", AND SCHEDULE 40 FOR 3".

STEEL PIPE FITTINGS: ASTM A234 GRADE WPB BUTT WELD FITTINGS, SCHEDULE TO MATCH THE PIPING IN WHICH THE FITTING IS INSTALLED. ELBOWS SHALL BE LONG RADIUS. FITTINGS SMALLER THAN 2" MAY BE ASTM A105 FORGED STEEL SOCKET WELD FITTINGS, 3000 POUND MINIMUM (THREADED WHERE INDICATED).

FLANGES: ASME CLASS 150 RAISED FACE FLANGES, ASTM A105 FORGED STEEL. BORE SHALL MATCH THE PIPE IN WHICH THE FLANGE IS INSTALLED. FLANGE NUTS AND STUDS SHALL BE A320 GRADE L7, PLATED, CASE HARDENED, CORROSION RESISTANT.

GASKETS SHALL BE 1/8" THICK SPIRAL WOUND, STAINLESS STEEL, FILLED FUEL RESISTANT GASKETS RATED FOR -50° F SERVICE WITH A CARBON STEEL CENTERING RING. PROVIDE 1/8" THICK FULL FACED NON-ASBESTOS FIBER COMPOSITE GASKETS AND FLAT FACED FLANGES WHERE REQUIRED FOR CONNECTION TO EQUIPMENT.

ALL PIPE AND FITTINGS SHALL BE WELDED. THREADED FITTINGS ARE NOT ALLOWED EXCEPT WHERE SHOWN ON THE DRAWINGS, OR WHERE REQUIRED FOR CONNECTION TO EQUIPMENT. PERFORM ALL WELDING IN ACCORDANCE WITH ASME SECTION IX AND API 1104 FOR WELDING PROCEDURE AND PERFORMANCE QUALIFICATION. VISUALLY INSPECT WELD JOINTS IN ACCORDANCE WITH API 1104. PROVIDE FLANGED CONNECTIONS AS REQUIRED TO ALLOW REMOVAL OF INDIVIDUAL COMPONENTS.

PRESSURE TESTING (CONTRACTOR PROVIDED)

PRIOR TO PAINTING OR CONCEALING, CONTRACTOR SHALL PERFORM A ONE HOUR PNEUMATIC OR HYDROSTATIC TEST OF THE PIPING AT A MINIMUM OF 125 PSI. AIR TESTING IS HAZARDOUS IN NATURE AS AIR IS COMPRESSIBLE AND MAY BE RELEASED EXPLOSIVELY SHOULD THE PIPING SYSTEM RUPTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING LIFE AND PROPERTY DURING TESTING. SHOULD WATER BE USED FOR TESTING, ALL WATER MUST BE REMOVED AFTER THE TEST. PROTECT AND ISOLATE ITEMS THAT MAY BE DAMAGED BY THE TEST PRESSURE (SUCH AS PRESSURE RELEASE VALVES AND FILTERS). PROVIDE BLIND FLANGES, THREADED CAPS OR PLUGS AT EACH END OF THE TEST SECTION. SOAK EACH JOINT WITH A LEAK DETECTION SOLUTION AND VISUALLY INSPECT FOR LEAKS. REPAIR ANY DEFECT AND RETEST. ALL WELDS THAT FAIL INSPECTION SHALL BE CUT OUT, REWELDED AND RETESTED. REASSEMBLE SYSTEM AFTER TESTING AND INSTALL NEW GASKETS ON ANY FLANGED JOINTS THAT WERE TAKEN APART. AFTER FINAL SYSTEM ASSEMBLY PERFORM AN ADDITIONAL LEAK TEST USING FUEL AT 50 PSI. REPAIR ALL DEFECTS.

SUPPORTS AND FASTENERS (CONTRACTOR PROVIDED)

SUPPORT PIPING AND EQUIPMENT AS SHOWN ON DRAWINGS USING SPECIFIED SUPPORTS AND FASTENERS. IF NOT DETAILED ON DRAWINGS, SUPPORT FROM STRUCTURAL MEMBERS WITH PIPE HANGERS, CLAMPS, OR PIPE STRAPS SPECIFICALLY INTENDED FOR THE APPLICATION. DO NOT SUPPORT PIPING FROM CONNECTIONS TO EQUIPMENT.

STRUT - COLD FORMED MILD STEEL CHANNEL STRUT, HOT DIPPED GALVANIZED FINISH AND SLOTTED BACK UNLESS SPECIFICALLY INDICATED OTHERWISE. STANDARD STRUT - 12 GA, 1-5/8" x 1-5/8", UNISTRUT P-1000T (HG) OR EQUAL. DOUBLE STRUT - 12 GA, 1-5/8" x 3-1/4", UNISTRUT P-1001T (HG) OR EQUAL. SHALLOW STRUT - 14 GA, 1-5/8" x 13/16", UNISTRUT P-4100T (HG) OR EQUAL. WHERE STRUT IS WELDED TO TANKS OR STRUCTURES PROVIDE PLAIN (UN-FINISHED BLACK) SOLID BACK STRUT - 12 GAUGE, 1-5/8" x 1-5/8", UNISTRUT P-1000 (PL) OR APPROVED EQUAL. PAINT IN ACCORDANCE WITH SPECIFICATIONS.

FITTINGS AND ACCESSORIES - PROVIDE CARBON STEEL FITTINGS, BRACKETS, CHANNEL NUTS, AND ACCESSORIES DESIGNED SPECIFICALLY FOR USE WITH SPECIFIED CHANNEL STRUT. GALVANIZED OR ZINC-PLATED FINISH.

PIPE CLAMPS - GALVANIZED CARBON STEEL TWO-PIECE PIPE CLAMP DESIGNED TO SUPPORT PIPE TIGHT TO STRUT. UNISTRUT P-11## OR EQUAL.

PIPE STRAPS - CARBON STEEL TWO-HOLE PIPE STRAP. UNISTRUT P-2558 NO SUBSTITUTES.

FASTENERS - ALL BOLTS, NUTS, AND WASHERS GALVANIZED OR ZINC PLATED CARBON STEEL UNLESS SPECIFICALLY INDICATED AS STAINLESS STEEL. ALL LAGS HOT DIPPED GALVANIZED UNLESS SPECIFICALLY INDICATED AS STAINLESS STEEL. ALL STAINLESS STEEL FASTENERS TYPE 304. DO NOT USE STAINLESS STEEL IN CONTACT WITH GALVANIZED ITEMS.

SECURITY (CONTRACTOR PROVIDED)

CHAIN LINK FENCE: 6 FOOT HIGH FENCING SYSTEM WITH 3-STRAND BARBWIRE, MAN GATES AS SHOWN. FENCE MATERIALS AND INSTALLATION SHALL CONFORM WITH THE CHAIN LINK FENCE MANUFACTURER'S INSTITUTE STANDARD SPECIFICATIONS EXCEPT AS MODIFIED HERE IN. 6' HIGH, 2" MESH, 9 GAUGE GALVANIZED CHAIN LINK FABRIC WITH 3/16" x 3/4" STRETCHER BARS. MINIMUM 18' LONG 1-5/8" Ø FULL-WEIGHT PIPE TOP RAILS WITH 6" LONG COUPLINGS AND 7 GAUGE COIL SPRING CLASS III BOTTOM TENSION WIRE. 2-3/8" Ø x 10' LONG FULL-WEIGHT PIPE LINE POSTS. 2-7/8" Ø x 12' LONG FULL-WEIGHT PIPE TERMINAL POSTS (GATE, CORNER, PULL, AND END). MAX SPACING OF PULL POSTS IS 100'. PROVIDE 1-5/8" Ø FULL-WEIGHT PIPE POST BRACES AND 3/8" TRUSS RODS WITH TIGHTENERS FOR EACH TERMINAL POST. 1-7/8" Ø COMMERCIAL QUALITY (CQ-20) GATE FRAMES COMPLETE WITH LOCKING FROST-FREE LATCHES, STOPS, KEEPERS, AND HEAVY PATTERN POST AND GATE FRAME HINGES. PROVIDE 3 STRANDS OF 12-1/2 GAGE, 4 POINT CLASS III BARB WIRE OVER TOP OF ENTIRE FENCE INCLUDING GATES. PROVIDE HEAVY-PRESSED STEEL OR MALLEABLE FITTINGS FOR ALL ATTACHMENTS. ALL STEEL AND IRON PARTS SHALL BE ZINC

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BULK FUEL UPGRADE
PROJECT SPECIFICATIONS

KASAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date	Designed	Drawn	Approved

COATED AFTER FABRICATION.

VALVES AND MECHANICAL ACCESSORIES (COMPONENTS IN THIS SECTION ARE OWNER PROVIDED UNLESS OTHERWISE NOTED)

SWING CHECK VALVES – (2" AND LARGER) CARBON STEEL BODY, ANSI 150# RAISED FACE FLANGED ENDS, STEEL DISC AND TRIM, 150 PSIG MINIMUM WORKING PRESSURE. CRANE CLASS 150 NO. 147 OR APPROVED EQUAL. (1") BONNEY FORGE BOLTED BONNET FULL/REDUCED THREADED SWING CHECK VALVE

FLANGED BALL VALVES – REDUCED PORT CARBON STEEL UNI-BODY, ANSI 150# RAISED FACE FLANGED ENDS, STAINLESS STEEL BALL AND TRIM, GLASS FILLED TEFLON SEAT, GRAPHITE SEALS, LOCKABLE HANDLE, 150 PSIG MINIMUM WORKING PRESSURE, NACE MRO175 CONFORMANCE, FIRE SAFE PER API 607. PBV C5410-31-2236-FTNL, NO SUBSTITUTES. PROVIDE ALL-WEATHER PADLOCK FOR EACH VALVE, ALL PADLOCKS TO BE KEYED ALIKE.

THREADED BALL VALVES – CARBON STEEL BODY, THREADED ENDS, STAINLESS STEEL BALL AND TRIM, PTFE SEAT, GRAPHITE SEALS, LOCKABLE HANDLE, 150 PSIG MINIMUM WORKING PRESSURE, NACE MRO175 CONFORMANCE, FIRE SAFE PER API 607. PBV C5312-38-2236-FTNC, NO SUBSTITUTES. PROVIDE ALL-WEATHER PADLOCK FOR EACH VALVE, ALL PADLOCKS TO BE KEYED ALIKE.

FLANGED PRESSURE RELIEF VALVES – STEEL BODY, ANSI 150# RAISED FACE FLANGE INLET AND OUTLET, 1/2" SOFT SEAT ORIFICE, CLOSED CAP, SIZE AND PRESSURE SETTING AS INDICATED. HYDROSEAL 1FLARVOO OR APPROVED EQUAL.

ANTI-SIPHON VALVES – BRONZE BODY ANTI-SIPHON VALVE SET TO OPEN AT 20-FT HEAD PRESSURE WITH SPECIAL EXPANSION RELIEF SET AT 25 PSI. MORRISON BROS. CO. MODEL 910ER-7215 AP WITH EXPANSION RELIEF, OAE.

STRAINER – FLANGED ENDS, CARBON STEEL BODY, BOTTOM CLEAN-OUT Y-STRAINER WITH BLOW OFF TAPPING PLUG. PROVIDE #10 SCREEN. MUELLER STEAM SPECIALTIES FIG. 781, OR APPROVED EQUAL.

BULK TRANSFER EQUIPMENT: (COMPONENTS IN THIS SECTION ARE OWNER PROVIDED UNLESS OTHERWISE NOTED)

METER: POSITIVE DISPLACEMENT METER RATED FOR 100 GPM OF CONTINUOUS FLOW WITH A 150 PSI WORKING PRESSURE. ACCURACY SHALL BE +/- 0.22% OR BETTER FROM 6-60 GPM. PROVIDE 2 INCH INLET & OUTLET COMPANION FLANGES WITH O-RING SEALS, PRESET COUNTER WITH DIRECT MECHANICAL LINKAGE TO SHUT-OFF VALVE, RESETABLE REGISTER, NON-RESETABLE TOTALIZER, AIR ELIMINATOR AND STRAINER. ALL ELASTOMERIC SEALS SHALL BE LOW TEMPERATURE NITRILE RUBBER (BUNA-N). FACTORY CALIBRATE FOR NO. 1 DIESEL FUEL OR GASOLINE AS APPROPRIATE. LIQUID CONTROLS M-7-K-1, OR APPROVED EQUAL.

HOSE REEL: SPRING REWIND HOSE REEL CAPABLE OF HOLDING 40 FEET OF 1 1/2 INCH I.D. HOSE. REEL SHALL BE TOP REWIND. HANNAY 922-25-26A(TR) (TOP REWIND) WITH UTILITY HOSE ROLLERS AND BALL STOP FOR 1 1/2 ARCTIC HOSE, OR APPROVED EQUAL.

ARCTIC HOSE: 1 1/2 INCH DIAMETER WITH 1 1/2 INCH NPT CONNECTIONS AT EACH END. PROVIDE 30 FOOT LONG SECTION OF HOSE WITH EACH HOSE REEL ASSEMBLY. GOODYEAR ARCTIC ORTAC OR APPROVED EQUAL.

HOSE SWIVEL: UL LISTED HOSE SWIVEL. PT COUPLING MODEL FOB150MF OAE.

BREAKAWAY CONNECTION: UL LISTED 1 1/2-INCH BREAKAWAY FITTING. OPW MODEL NO. 66SP-5150 ALONG WITH HOSE SECTION OPW MODEL NO. 66H-1300 OR APPROVED EQUAL.

HOSE NOZZLE: UL LISTED AUTOMATIC SHUT OFF, HEAVY DUTY, HIGH FLOW FILL NOZZLE WITH HOLD OPEN LATCH. OPW 1290-0050 OR APPROVED EQUAL.

STATIC GROUNDING REEL: ENAMEL COATED STEEL FRAME AND REEL WITH PERMANENTLY SEALED SPRING RETURN. PROVIDE WITH 50 FEET OF 1/8 INCH GALVANIZED CARBON STEEL CABLE, MINIMUM 100 AMPERE GROUNDING CLIP, AND STOP BALL. HANNAY GR75 OAE.

CAM LOCK COUPLINGS: ALUMINUM BODY CAM AND GROOVE MALE FITTING WITH FNPT CONNECTION, 150 PSI MINIMUM WORKING PRESSURE. PROVIDE DUST CAP WITH BUNA-N SEAL FOR EACH FITTING PROVIDED. PT COUPLING OR EQUAL.

FILTER: SINGLE ELEMENT FILER HOUSING WITH DIFFERENTIAL PRESSURE GAUGE. CIM-TEK GENERAL 1 FILTER (#40165) OAR. PROVIDE SIX(6) 30 MICRON HYDROSORB II FILTER CARTRIDGES (#3003) AND TWO SPARE BUNA-N COVER GASKETS (#90137) FOR EACH FILTER.

SUBMERSIBLE PUMPS; – 3/4 HP, 208-230 VOLT, SINGLE PHASE, EXPLOSION PROOF SUBMERSIBLE TURBINE PUMP WITH INTAKE SCREEN, INTERNAL PRESSURE RELIEF AND CHECK VALVES. INSTALL PUMP IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS. RED JACKET MODEL # P7581-3/4 HP WITH TRAPPER INTAKE SCREEN, NO SUBSTITUTES

FLEX FITTINGS: STAINLESS STEEL CORRUGATED INNER CORE WITH STAINLESS STEEL BRAIDED OUTER COVER, ASME CLASS 150 FIXED FLANGE BY FLOATING FLANGE ENDS WITH 18" LIVE LENGTH UNLESS A DIFFERENT LENGTH IS INDICATED. 150 PSI MINIMUM WORKING, FACTORY TESTED TO 225 PSI MINIMUM. PROVIDE FACTORY TEST CERTIFICATION FOR EACH FLEX. METRAFLEX METRA-MINI OR APPROVED EQUAL.

RETAIL DISPENSER AND POINT OF SALE SYSTEM

ELECTRONIC DUAL PRODUCT RETAIL DISPENSER (OWNER PROVIDED)

DISPENSER IS OWNER PROVIDED AS PART OF INTEGRAL TANK/DISPENSER SYSTEM. SPECIFICATION PROVIDED FOR COORDINATION WITH POINT OF SALE SYSTEM ONLY. UL LISTED DUAL PRODUCT DISPENSER FOR USE WITH REMOTE SUBMERSIBLE PUMP. DISPENSER SHALL BE CERTIFIABLE FOR RETAIL SALES. WAYNE OVATION 2 SERIES TWO PRODUCT, SINGLE SIDED, TWO HOSE DISPENSER WITH 5.7 COLOR, IX PAY HYBRID CHIP CARD READER, EMV & SCR EUROPAY INSTALLED, SOFTWARE UPGRADE FOR FULL EMV/SCR. EPP. 40.5" FRAME AND STANDARD GRAPHICS. BEZEL DOOR STANDARD BLACK, LOWER DOOR PAINTED, DECALED WHITE, SIDE SHEATHING DURAMAX TUXEDO. DISPENSER ACTIVATION METHOD: LEVER. FUEL PRODUCT UNLEADED AND DIESEL. PASSPORT VERSION 10 SERVICE PACK P OR HIGHER. CAT 5 CABLE FOR EMV TRANSACTIONS. CRIND DISPLAY SOFTKEYS ACTIVATED. NO VAPOR RECOVERY. FULL CABINET HEATER INSTALLED.

POINT OF SALE SYSTEM (CONTRACTOR PROVIDED):

POINT OF SALE SYSTEM WITH INTEGRAL FUEL SITE CONTROLLER UNIT AND PCI/EMV COMPLIANT CREDIT CARD READER TO INTERFACE WITH ELECTRONIC DISPENSER AS SPECIFIED ABOVE, IX PAY CHIP CARD READER WITH EMV XML BASED TCP/IP CONNECTIVITY, NO SUBSTITUTES. PROVIDE COMPLETE WITH PASSPORT COMBO HARDWARE, UNINTERRUPTIBLE POWER SUPPLY (UPS), PIN PAD STAND, CASH DRAWER HARDWARE, VERIFONE MX915 PIN PAD, CARD READER, RECEIPT PRINTER, AND REPORT PRINTER. DISPENSER, CARD READER CONTROL SYSTEM, AND POS SYSTEM SHALL BE FULLY COMPATIBLE AND SUPPLIED WITH ALL REQUIRED APPURTENANCES, CORDS, HARDWARE, AND SOFTWARE REQUIRED TO BE FULLY

FUNCTIONAL. CONTRACTOR MUST COORDINATE WITH OWNER PRIOR TO PROCURING POS SYSTEM COMPONENTS TO ENSURE THAT INTERNET CONNECTION IS ADEQUATE FOR NORMAL POS SYSTEM OPERATION. IF INTERNET CONNECTION/HARDWARE REQUIRES UPGRADING CONTRACTOR SHALL PAY FOR ALL REQUIRED EQUIPMENT UPGRADES. CONTRACTORS MUST COORDINATE WITH OWNER TO ENSURE THAT DISPENSER AND POS SYSTEM ARE COMPATIBLE AND PROPERLY PROGRAMMED WITH THE OWNER'S CHOSEN BANKING/CREDIT PROCESSING ENTITY.

EQUIPMENT NAME PLATES & VALVE TAGS (CONTRACTOR PROVIDED)

MATERIAL: 3"X5" (OR LARGER IF REQUIRED)X0.08" ALUMINUM W/ 3/16" DIAMETER HOLES DRILLED IN EACH CORNER, BLACK GERBER THERMAL TRANSFER FILM PRINTED LETTERS ON GERBER 220 HIGH PERFORMANCE VINYL BACKGROUND, COLOR AS INDICATED, ONE SIDE ONLY, AS MANUFACTURED BY WARNING LIGHTS OF ALASKA OR APPROVED EQUAL.

COLOR:

1. NAMEPLATES: WHITE BACKGROUND WITH BLACK LETTERING
2. OPERATIONAL TAGS:
 - DIESEL COMPONENTS: APPLE GREEN BACKGROUND WITH BLACK LETTERING.
 - GASOLINE COMPONENTS: RED BACKGROUND WITH BLACK LETTERING.

INFORMATION:

1. NAMEPLATES: PROVIDE NAMEPLATES FOR ALL PUMPS, ELECTRICAL PANELS, AND OTHER COMPONENTS AS REQUIRED ON THE DRAWINGS. NAMEPLATES TO INCLUDE COMPONENT ID AS SHOWN ON THE DRAWINGS.
2. OPERATIONAL TAGS: PROVIDE OPERATIONAL TAGS FOR COMPONENTS AS SHOWN ON SHEET G2, G5, & G6 OF THE DRAWINGS.

OPERATIONAL TAGS TO INCLUDE COMPONENT ID (E.G. BV-1, MV-3, ETC), NORMAL OPERATING CONDITION (NORMALLY OPEN OR CLOSED), AND ANY ADDITIONAL INFORMATION REQUIRED FOR PROPER OPERATION.

CONCRETE (CONTRACTOR PROVIDED)

CONCRETE SHALL HAVE A 28 DAY STRENGTH (F_c) OF 3,000 PSI FOR TYPE I CEMENT. MINIMUM CEMENT CONTENT SHALL BE 6 SACKS PER CUBIC YARD. CONCRETE MIX DESIGN SHALL CONFORM TO ACI 318 FOR DURABILITY AND QUALITY.

REBAR REINFORCING SHALL BE ASTM A615 GRADE 60 INSTALLED IN ACCORDANCE WITH ACI 318.

CONCRETE ANCHOR ADHESIVE SHALL BE A TWO-COMPONENT HIGH-SOLIDS, EPOXY-BASED SYSTEM SUPPLIED IN MANUFACTURER'S STANDARD CARTRIDGE AND DISPENSED THROUGH A STATIC-MIXING NOZZLE SUPPLIED BY THE MANUFACTURER. THE ADHESIVE ANCHOR SHALL HAVE BEEN TESTED AND QUALIFIED FOR PERFORMANCE IN CRACKED AND UNCRACKED CONCRETE PER ICC-ES AC308. ADHESIVE SHALL BE SET-XP-> EPOXY-TIE-> ADHESIVE FROM SIMPSON STRONG-TIE, OR APPROVED EQUAL. ANCHORS SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.

PORTABLE FIRE EXTINGUISHERS (CONTRACTOR PROVIDED)

ALL FIRE EXTINGUISHERS WILL BE PORTABLE WITH A RATING OF 3A-40BC. THE LOCATION, INSTALLATION, AND CONTAINMENT OF ALL EXTINGUISHERS SHALL BE IN ACCORDANCE WITH NFPA 10 REQUIREMENTS.

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BULK FUEL UPGRADE
PROJECT SPECIFICATIONS
KASAAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date	
Designed	
Drawn	
Approved	

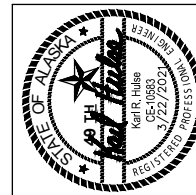
PUMP SCHEDULE						
PUMP NAMEPLATE ID	TYPE	PRODUCT	LOCATION	MOTOR (HP)	ELECTRICAL	REMARKS
P-1	SUBMERSIBLE	GASOLINE	TANK 1A	3/4	230 VAC,1-PH	SEE ELECTRICAL
P-2	SUBMERSIBLE	DIESEL	TANK 1B	3/4	230 VAC,1-PH	SEE ELECTRICAL
P-3	SUBMERSIBLE	GASOLINE	TANK 2	3/4	230 VAC,1-PH	SEE ELECTRICAL

MISCELLANEOUS COMPONENT SCHEDULE				
COMPONENT ID	SIZE	DESCRIPTION	LOCATION	END CONNECTION
STRAINERS (S)				
S-1	2"	P-1 DISCHARGE	TANK 1A	FLANGED
S-2	2"	P-2 DISCHARGE	TANK 1B	FLANGED
S-3	2"	P-3 DISCHARGE	TANK 2	FLANGED
PRESSURE TEST (PT)				
PT-1	3/4"	TANK 1A	TANK 1A	FLANGED
PT-2	3/4"	TANK 1B	TANK 1B	FLANGED
PT-3	3/4"	TANK 2	TANK 2	FLANGED
FLEX CONNECTS (FC)				
FC-1 & 2	2"		TANK 1A	FLANGED
FC-3 & 4	2"		TANK 1B	FLANGED
FC-5 & 6	2"		TANK 2	FLANGED
QUICK COUPLER (QC)				
QC-1	2"	FILL CONTAINMENT BUCKET	TANK 1A	FLANGED
QC-2	2"	FILL CONTAINMENT BUCKET	TANK 1B	FLANGED
QC-3	2"	FILL CONTAINMENT BUCKET	TANK 2	FLANGED

VALVE SCHEDULE			
VALVE ID	SIZE	LOCATION	END CONNECTION
BALL VALVES (BV)			
BV-1-4	2"	TANK 1A & 1B	FLANGED
BV-5-6	2"	TANK 2	FLANGED
PRESSURE RELIEF VALVES (PRV)			
PRV-1	2"	TANK 1A	FLANGED
PRV-2	2"	TANK 1B	FLANGED
PRV-3		TANK 2	FLANGED
ANTI-SIPHON VALVES (ASV)			
ASV-1	2"	TANK 1A	FLANGED
ASV-2	2"	TANK 1B	FLANGED
ASV-3	2"	TANK 2	FLANGED
FILL LIMITING VALVES (FLV)			
FLV-1	2"	TANK 1A	FLANGED
FLV-2	2"	TANK 1B	FLANGED
FLV-3	2"	TANK 2	FLANGED

NOTES

1. USE VALVE & MISCELLANEOUS COMPONENT SCHEDULES IN CONJUNCTION WITH OP SCHEMATIC ON SHEET C2.
2. ALL PUMPS, VALVES AND COMPONENTS LISTED ON THIS SHEET WILL BE PRE-INSTALLED ON OWNER PROVIDED TANKS. CONTRACTOR RESPONSIBLE FOR POWERING ALL PUMPS AND ELECTRICAL DEVICES AND CONFIRMING OPERATION OF ALL OWNER PROVIDED TANKS



BULK FUEL UPGRADE
 COMPONENT SCHEDULES
 KASAAAN, ALASKA

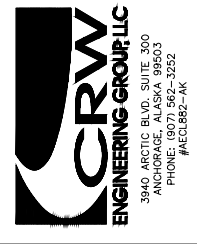
NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date _____
 Designed _____
 Drawn _____
 Approved _____

SPILL RESPONSE EQUIPMENT (CONTRACTOR PROVIDED)	
QUANTITY	ITEM/DESCRIPTION
ABSORBENT MATERIAL AND CONTAINERS	
3 EA	OVERPACK DRUMS, 95 GALLON POLY
1 EA	OPEM-TOP DRUM, 55 GALLON, METAL
2EA	ABSORBENT ROLL, MIN 30"x140', MIN ABSORB 50 GAL/BALE
2EA	ABSORBENT PADS, MIN 16"x20", 100 PIECES EA, MIN ABSORB 24 GAL/BALE
6EA	ABSORBENT BOOM, MIN 4" x40', MIN 100 GAL/40'
2EA	ABSORBENT SWEEP, 19"x100', MIN ABSORB 25 GAL/BALE
PERSONAL PROTECTIVE EQUIPMENT	
4 PARI	GLOVES, NITRILE AF18 CHEM-RESISTS, PAIRS
4 EA	TYVEK SUITS, XL POLETHYLENE COATED
4 EA	GOOGLES
4 EA	HARDHATS
RECOVERY EQUIPMENT	
2 EA	500 GALLON FOLD-A-TANK
1 EA	2-INCH PORTABLE CENTRIFUGAL PUMP, GAS-POWERED GARMAN RUPP #82D1-8-X RATED AT 160 GPM WITH 2" CAMLOCKS (PRE-APPROVED ALTERNATE OPTION #1: MARLOW 2AM32-P RATED AT 120 GPM WITH 2" CAMLOCKS) (PRE-APPROVED ALTERNATE OPTION #2: HOMELITE #320 RATED AT 140 GPM WITH 2" CAMLOCKS)
1 EA	DISHCHARGE HOSE WITH 2" CAMLOCKS. 100' TOTAL LENGTH
1 EA	SUCTION HOSE WITH 2" CAMLOCKS, 50' TOTAL LENGTH
2 EA	SHOVEL
2 EA	RAKE
2 ROLL	GARBAGE/DISPOSAL BAGS
MISCELLANEOUS	
1 EA	SMART ASH INCINERATOR
1 EA	CONNEX, 20 FOOT, LOCKABLE, (LIKE NEW CONDITION)
10 EA	PADLOCKS, KEYED-ALIKE

SPILL RESPONSE EQUIPMENT NOTES

1. ALL ABSORBENT MATERIAL SHALL REPEL WATER AND ABSORB HYDROCARBONS ONLY. MINIMUM HYDROCARBON ABSORPTION SHALL BE 0.23 GALLONS PER SQUARE FOOT.
2. PLACE ALL SPILL RESPONSE ITEMS IN OVERPACK DRUMS WITHIN THE CONNEX. PERMANENTLY LABEL ALL OVERPACK DRUMS "SPILL RESPONSE KIT" WITH MINIMUM 3" HIGH LETTERS.



BULK FUEL UPGRADE
SPILL RESPONSE
KASAAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

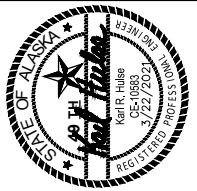
Plot Date _____
Designed _____
Drawn _____
Approved _____

File: J:\JobsData\30410.00 Kasaan Final Design\00 CADD\01 Working Set\01 Civil\30410.00 Vicinity Map.dwg



1

VICINITY MAP
SCALE: GRAPHIC

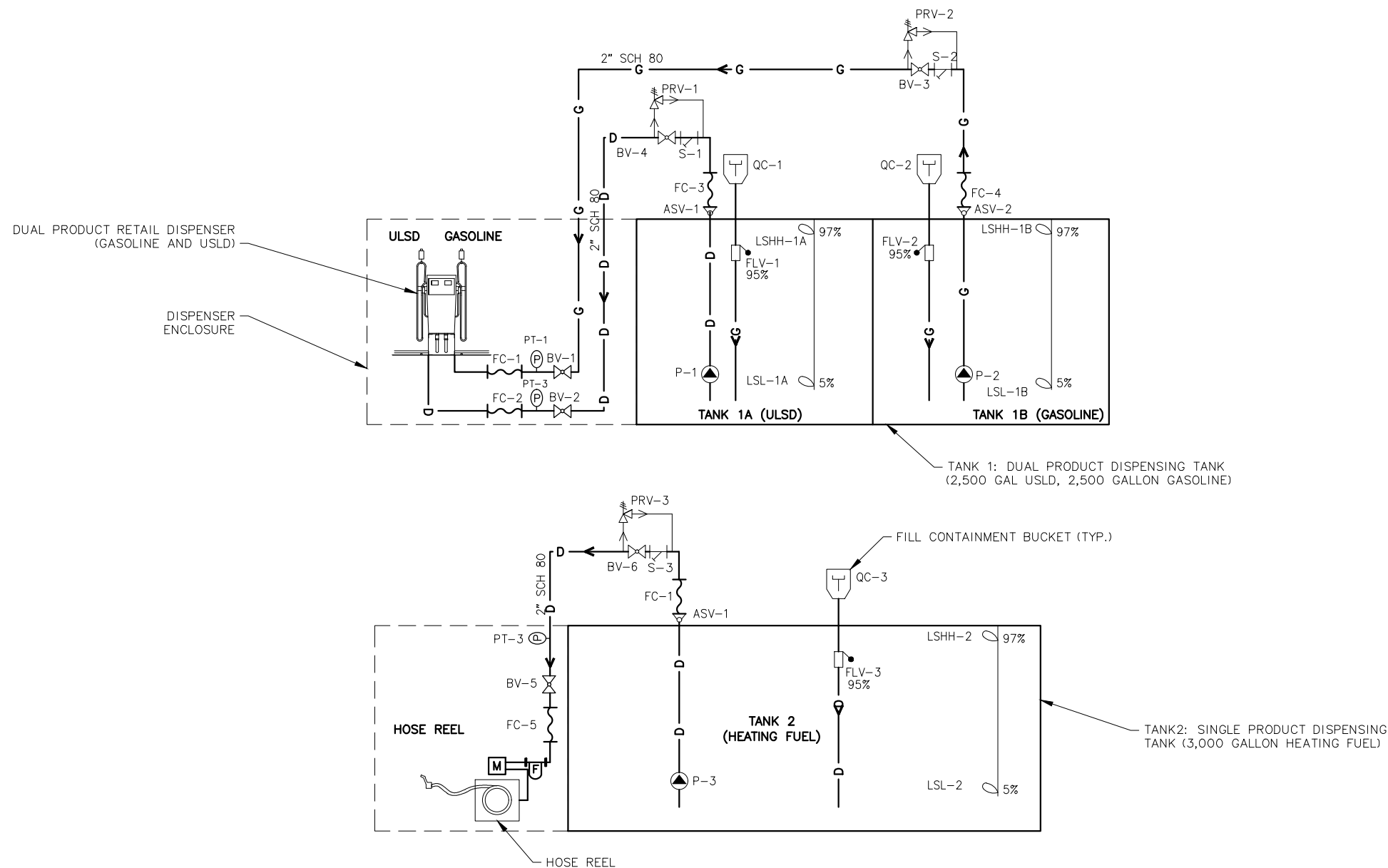


BULK FUEL UPGRADE
VICINITY MAP
KASAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date	Designed	Drawn	Approved

Sheet No. **C1**



NOTES

1. SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC. SEE SITE PLAN AND TANK DETAILS FOR MORE SPECIFIC INFORMATION ON COMPONENT LOCATIONS.
2. NOT ALL TANK APPURTENANCES (VENTS, ETC.) ARE SHOWN ON THIS SHEET. SEE TANK DETAIL SHEETS FOR INSTALLATION DETAILS.
3. SEE SHEET G2 FOR SYMBOL LEGEND.
4. SEE SHEET C3 FOR SITE PLAN.

TANK FARM OPERATIONAL NARRATIVE

FILLING TANK FARM FROM FUEL TRUCK

- PRIOR TO FILLING, TURN OFF ENGINE, CHOCK WHEELS AND CONNECT STATIC GROUNDING CABLE.
- THE NEW TANK FARM WILL BE FILLED VIA FILL POINTS LOCATED ON THE TOP OF THE TANKS.
- BULK TANKS SHOULD BE FILLED ONE AT A TIME BY CONNECTING THE TRUCK FILL HOSE DIRECTLY TO EACH TANK'S FILL POINT.
- LINE PRESSURE WILL BE SUPPLIED BY THE FUEL TRUCK PUMPING SYSTEM.
- THE TANK FARM OPERATOR WILL MONITOR THE FILLING PROCESS VIA CLOCK GAUGES AND A GAUGING ROD AT EACH TANK.
- AT THE CONCLUSION OF FILLING, CLOSE ISOLATION VALVES AND DISCONNECT FILL HOSE.
- IF TANK LEVEL REACHES 95% FULL THE OVER FLOW PREVENTION VALVE (FLV) WILL ACTIVE, STOPPING FLOW.
- IF TANK LEVEL REACHES 97% FULL THE HIGH LEVEL FLOAT WILL ACTIVATE AUDIBLE AND VISUAL ALARMS.

RETAIL SALES DISPENSER OPERATION:

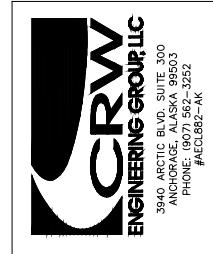
SELF SERVICE RETAIL SALES WILL BE AVAILABLE DURING SET BUSINESS HOURS.

- CUSTOMERS WILL INTERFACE WITH THE POINT OF SALE SYSTEM AT THE PUMP.
- SELF SERVICE SALES WILL BE LIMITED TO CREDIT CARD PURCHASES ONLY.
- CUSTOMERS WILL INSERT THEIR CREDIT CARDS AND FOLLOW PROMPTS ON THE DISPENSER SCREEN TO COMPLETE THE DISPENSING PROCESS.
- IF THE TANK LEVEL FALLS BELOW 5% FULL THE LOW LEVEL WILL LOCKOUT THE SUBMERSIBLE PUMP TO PREVENT PUMP DAMAGE.

HEATING OIL HOSE REEL OPERATION:

THE HOSE REEL IS INTENDED TO FACILITATE BULK TRANSFER TO THE CITY-OWNED HEATING FUEL DELIVERY VEHICLE.

- PRIOR TO FILLING, TURN OFF ENGINE, CHOCK WHEELS AND CONNECT STATIC GROUNDING CABLE.
- OPEN ISOLATION VALVE, INPUT DESIRED FUEL VOLUME INTP PRE-SET METER, SET SPRING-LOADED MECHANICAL VALVE AND DEPRESS PUMP START BUTTON TO PRESSURIZE HOSE.
- UNWIND HOSE, PLACE NOZZLE IN APPROVED FUEL CONTAINER AND DEPRESS TRIGGER TO INITIATE FLOW.
- PROVIDE CONTINUOUS MONITORING DURING FUELING PROCESS. FLOW WILL AUTOMATICALLY STOP AT PRE-SET VOLUME, BUT PUMP WILL CONTINUE TO RUN.
- WHEN FUELING IS COMPLETE, DEPRESS PUMP STOP BUTTON, WIND HOSE ONTO REEL, HANG UP NOZZLE, AND NOTE VOLUME OF FUEL DISPENSED.

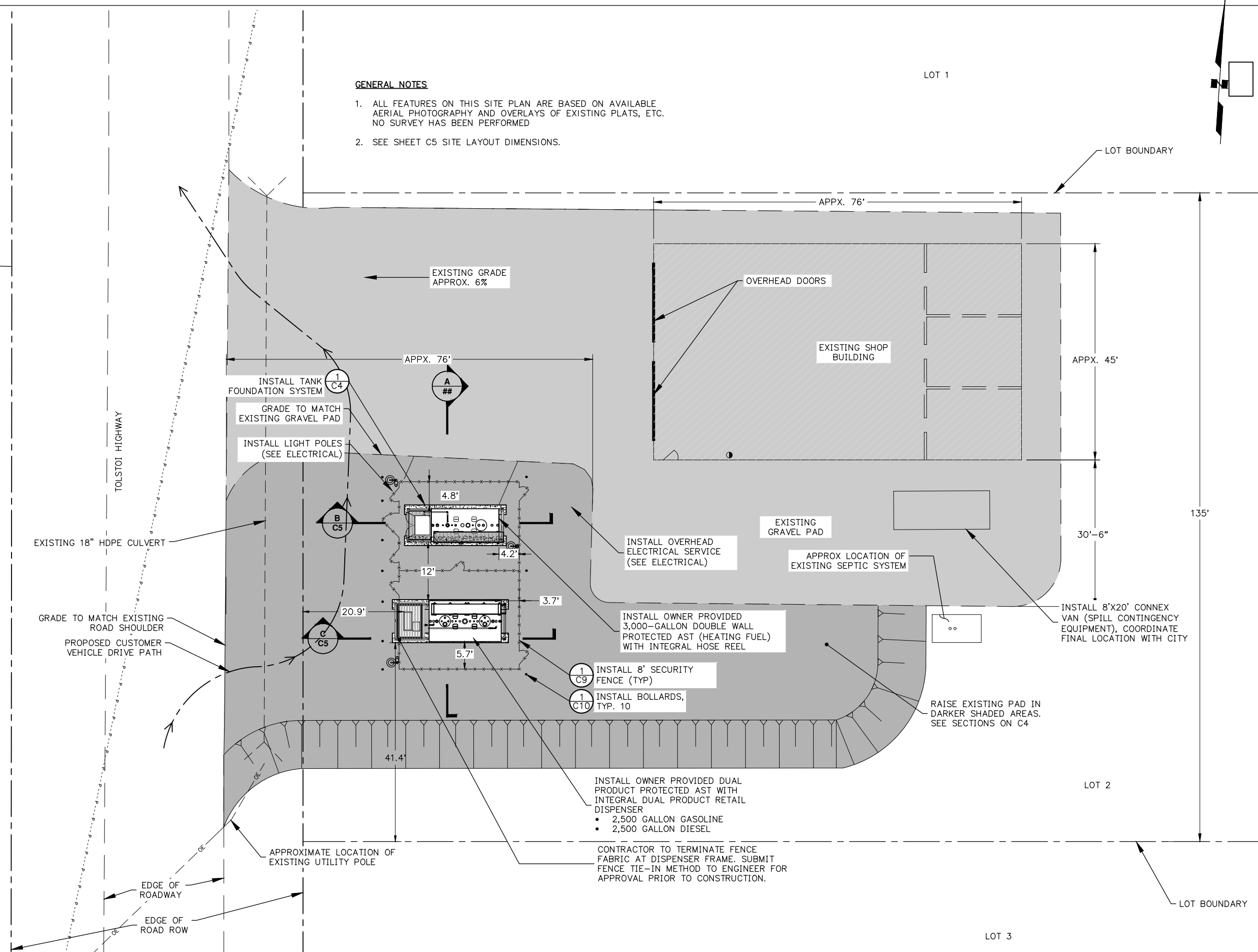


BULK FUEL UPGRADE
OPERATING SCHEMATIC
KASAAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date	Designed	Drawn	Approved

File: J:\JobsData\30410.00 Kasaaan Final Design\00 CADD\01 Working Set\01 Civil\30410.00 Site Plan.dwg



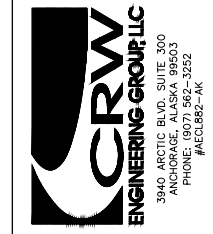
GENERAL NOTES

1. ALL FEATURES ON THIS SITE PLAN ARE BASED ON AVAILABLE AERIAL PHOTOGRAPHY AND OVERLAYS OF EXISTING PLATS, ETC. NO SURVEY HAS BEEN PERFORMED
2. SEE SHEET C5 SITE LAYOUT DIMENSIONS.

1

TANK FARM SITE PLAN

SCALE: GRAPHIC



**BULK FUEL UPGRADE
TANK FARM SITE PLAN**
KASAAAN, ALASKA

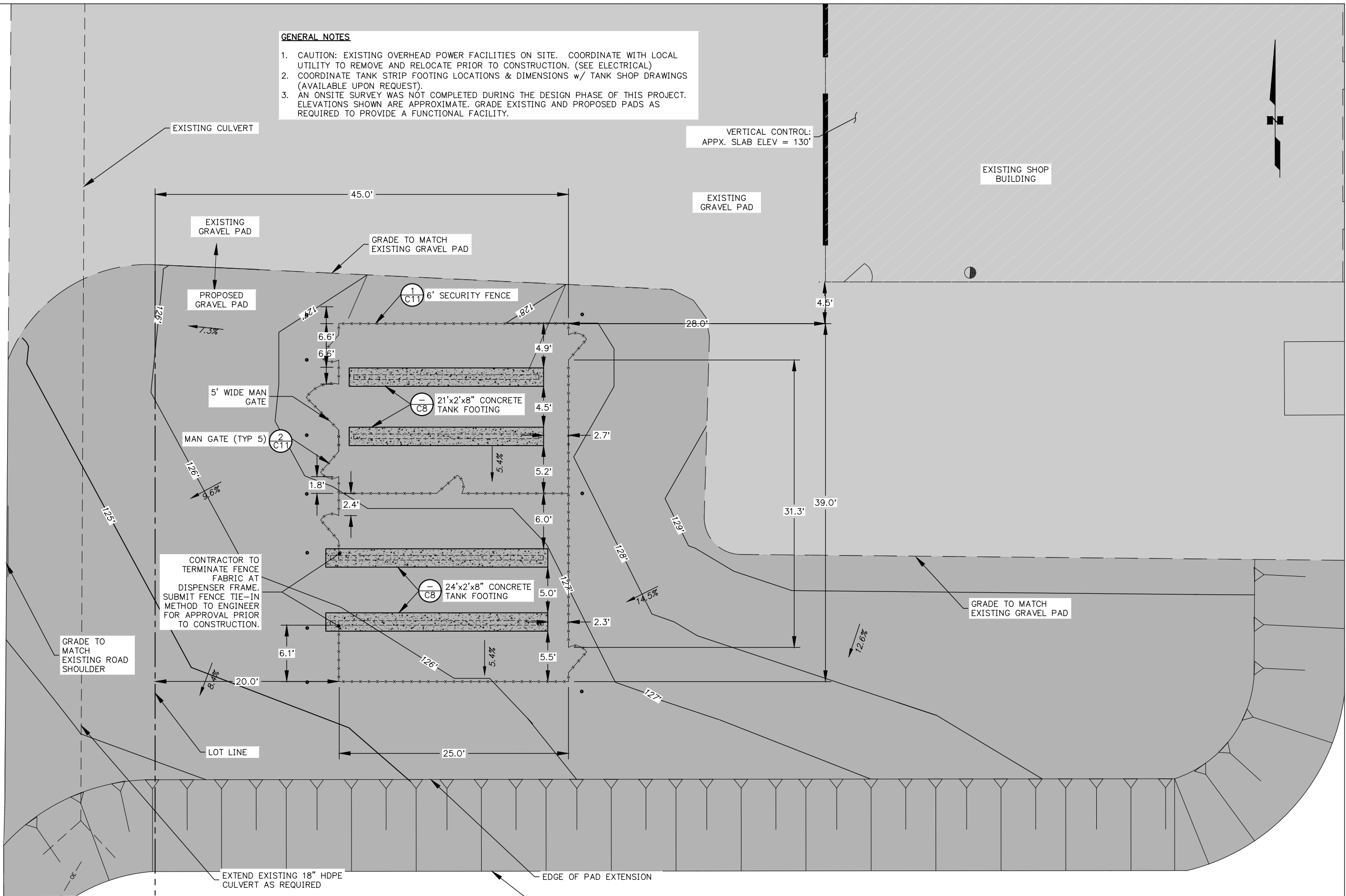
NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date _____
Designed _____
Drawn _____
Approved _____

Sheet No. **C3**

GENERAL NOTES

1. CAUTION: EXISTING OVERHEAD POWER FACILITIES ON SITE. COORDINATE WITH LOCAL UTILITY TO REMOVE AND RELOCATE PRIOR TO CONSTRUCTION. (SEE ELECTRICAL)
2. COORDINATE TANK STRIP FOOTING LOCATIONS & DIMENSIONS w/ TANK SHOP DRAWINGS (AVAILABLE UPON REQUEST).
3. AN ONSITE SURVEY WAS NOT COMPLETED DURING THE DESIGN PHASE OF THIS PROJECT. ELEVATIONS SHOWN ARE APPROXIMATE. GRADE EXISTING AND PROPOSED PADS AS REQUIRED TO PROVIDE A FUNCTIONAL FACILITY.



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1

TANK FARM GRADING AND FOUNDATION PLAN

SCALE: GRAPHIC

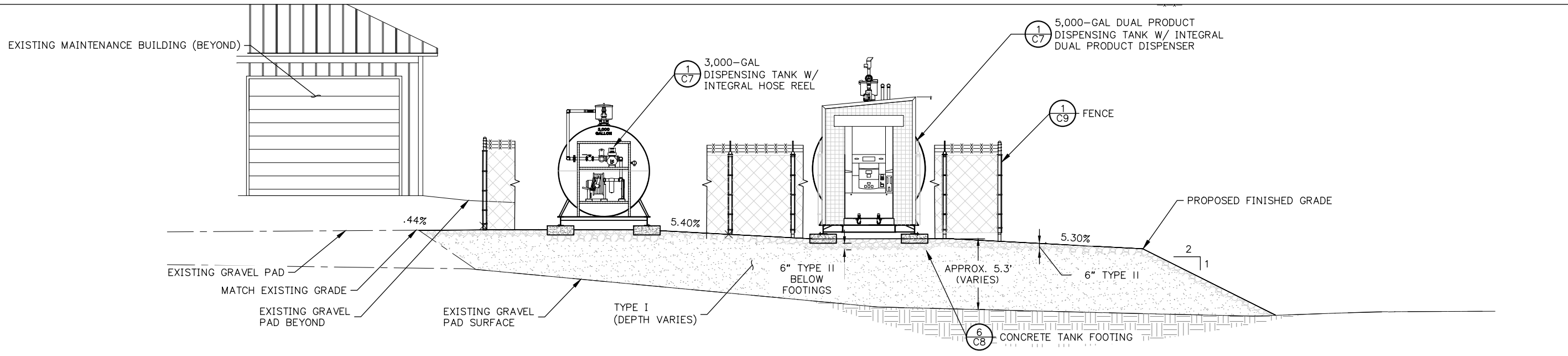


BULK FUEL UPGRADE
TANK FARM AND GRADING PLAN
 KASAAAN, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

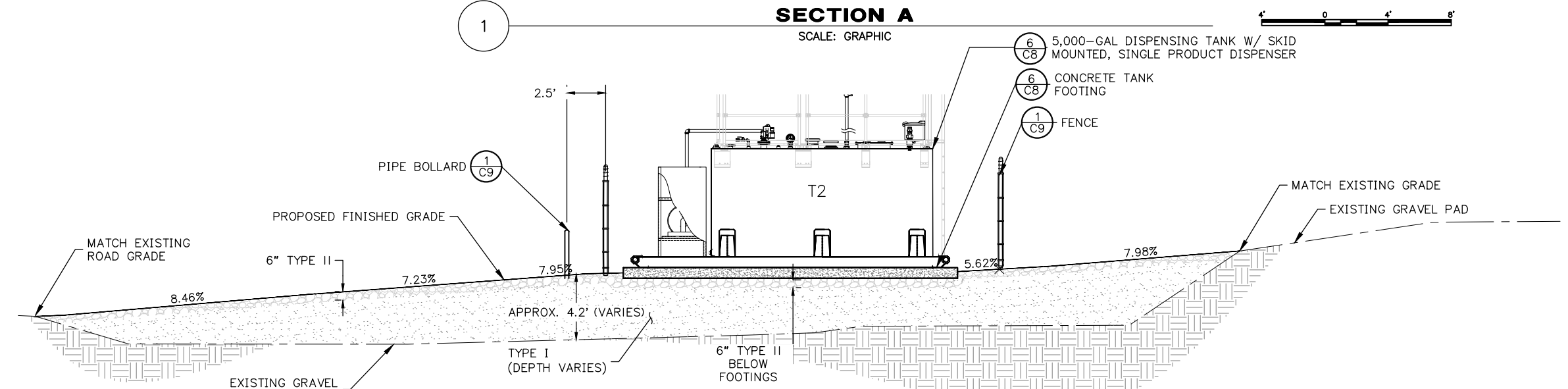
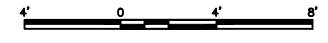
Plot Date _____
 Designed _____
 Drawn _____
 Approved _____

Sheet No. **C4**



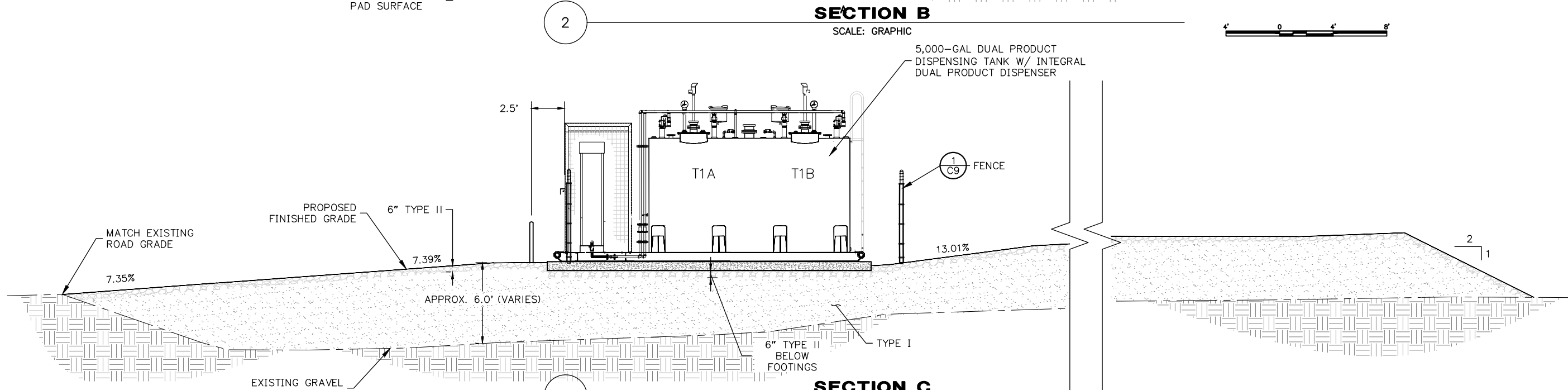
SECTION A

SCALE: GRAPHIC



SECTION B

SCALE: GRAPHIC



SECTION C

SCALE: GRAPHIC



BULK FUEL UPGRADE
TANK FARM SECTIONS
KASAAK, ALASKA

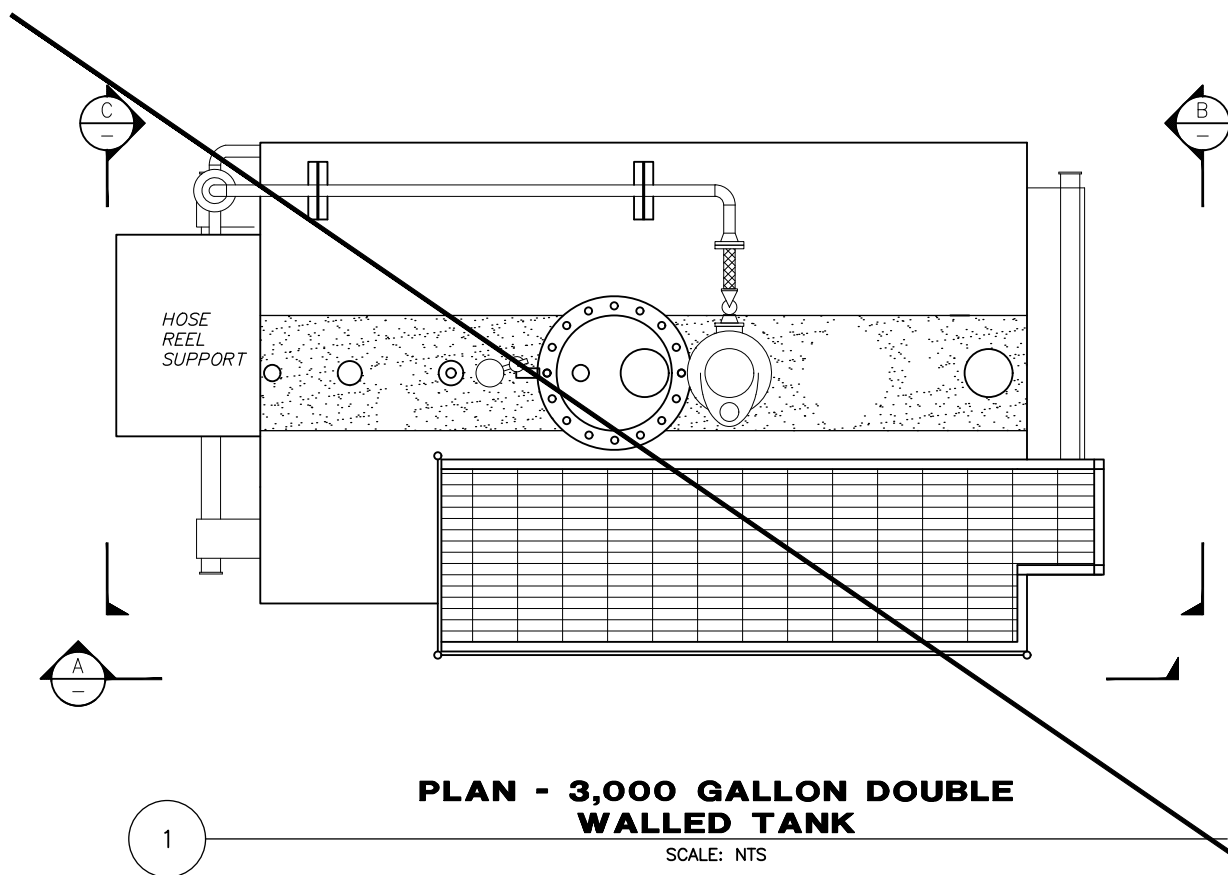
NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date	Designed	Drawn	Approved

Sheet No. **C5**

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File: J:\JobsData\30410.00 Kasaan Final Design\00 CADD\01 Working Set\01 Civil\30410.00 Details-Tanks.dwg



PLAN - 3,000 GALLON DOUBLE WALLED TANK

SCALE: NTS

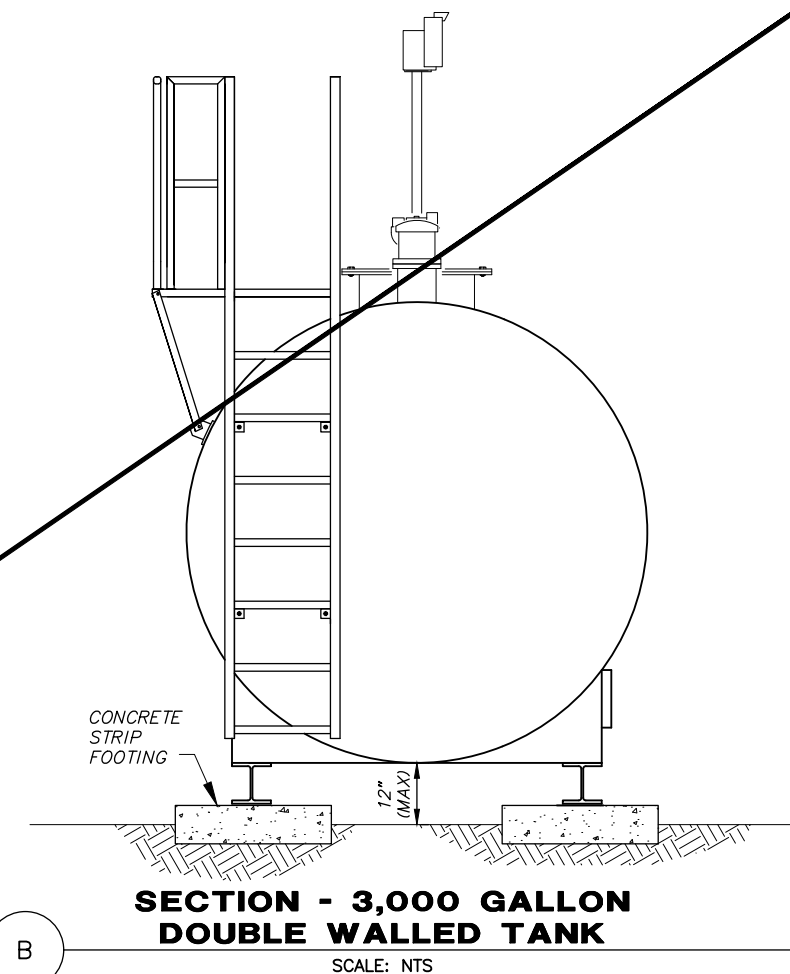
GENERAL NOTES:

1. THE TANK ASSEMBLY SHOWN ON THIS SHEET IS OWNER PROVIDED FOB KASAAN. SEE APPROVED SHOP DRAWINGS FOR ADDITIONAL INFORMATION.

2. THESE DETAILS ARE SCHEMATIC AND MAY NOT MATCH OWNER PROVIDED TANK. SEE APPROVED TANK MANUFACTURER SHOP DRAWINGS FOR ADDITIONAL INFORMATION.

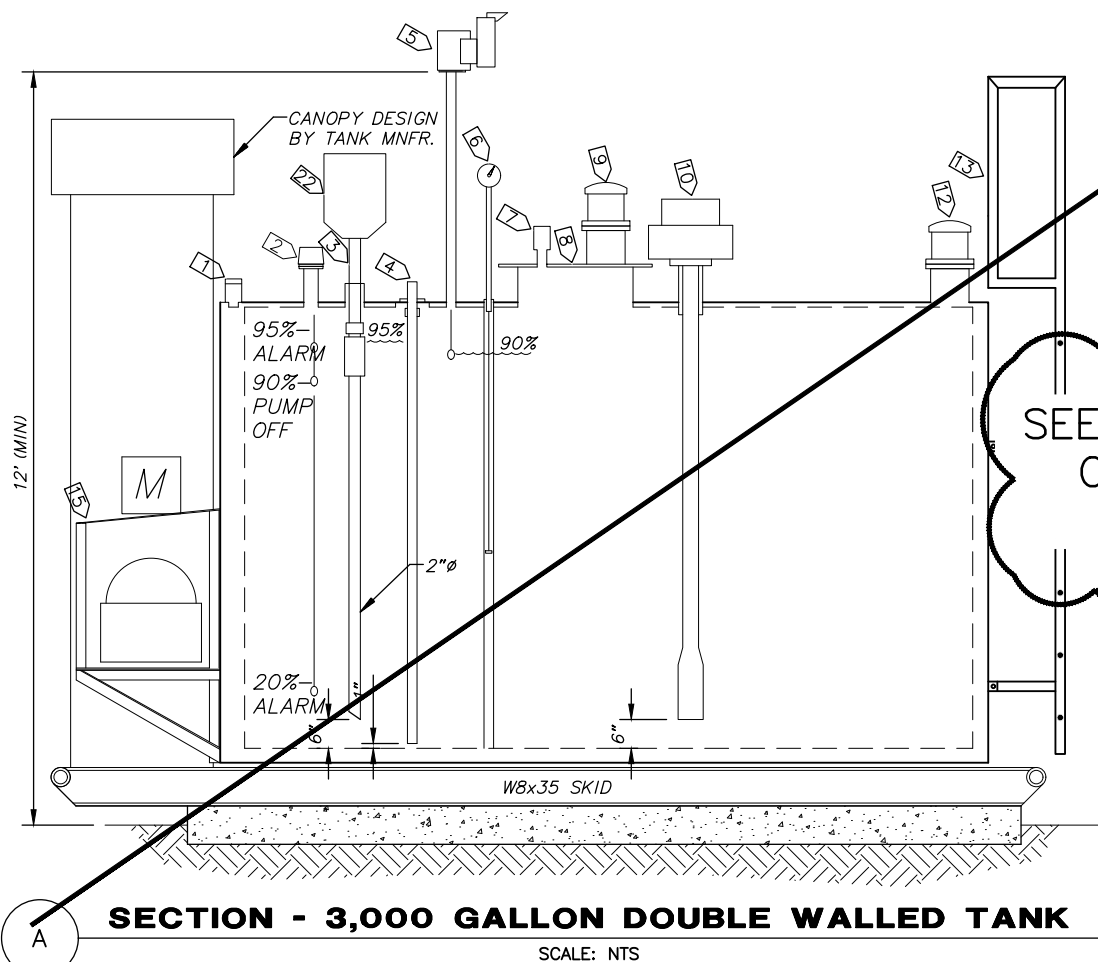
SPECIFIC NOTES:

- 1 GAUGE HATCH INSTALLED ON 2"x4" NIPPLE (SECONDARY TANK MONITOR)
- 2 FLOATS
- 3 2" FILL LIMITER
- 4 WATER DRAW (SEE DETAIL 5 SHEET C8)
- 5 2" PRESSURE VACUUM VENT WITH WHISTLE ALARM
- 6 CLOCK GAUGE WITH STILLING WELL (SEE DETAIL 2 SHEET C8)
- 7 GAUGE HATCH INSTALLED ON 2"x4" NIPPLE
- 8 24" MANHOLE
- 9 8" FLANGED E-VENT
- 10 SUBMERSIBLE PUMP
- 11 2" RETURN
- 12 8" FLANGED SECONDARY E-VENT
- 13 SHOP FABRICATED BOLT ON LADDER AND CATWALK ASSEMBLY
- 14 2" BALL VALVE
- 15 HOSE REEL SUPPORT
- 16 2" STRAINER
- 17 2" CHECK VALVE
- 18 STATIC GROUNDING REEL (BOND TO GROUND SYSTEM)
- 19 NOT USED
- 20 2"Øx8" LONG SCH 80 PIPE WITH CAP
- 21 HOSE REEL
- 22 TANK FILL SPILL BUCKET



SECTION - 3,000 GALLON DOUBLE WALLED TANK

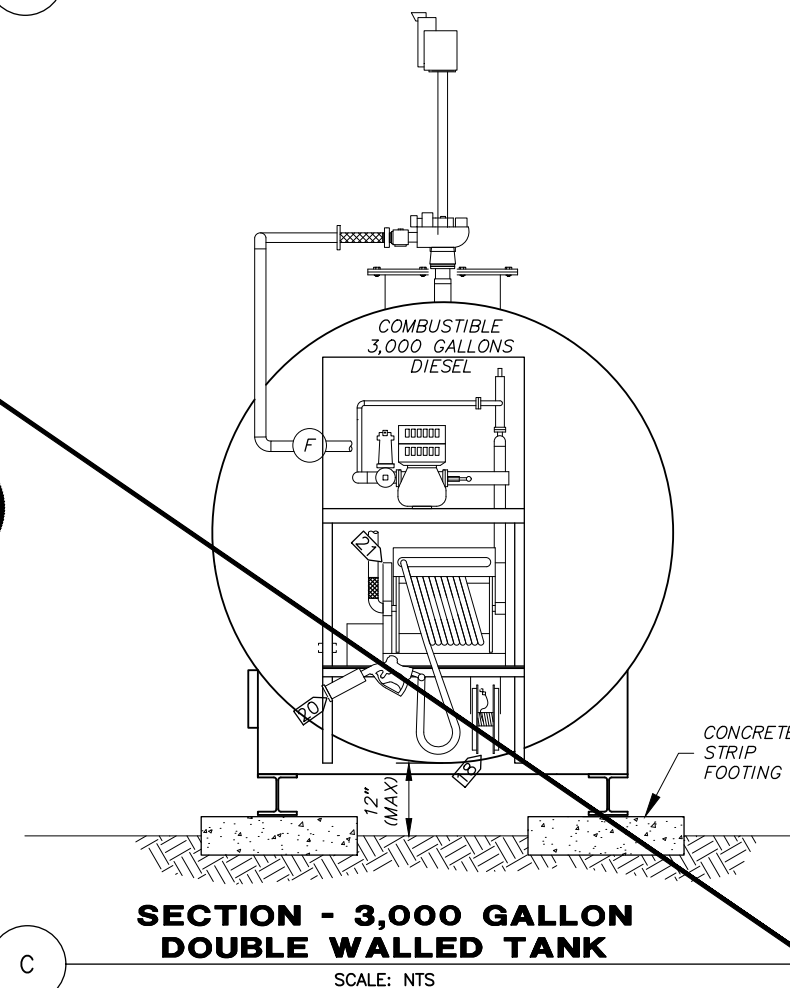
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SECTION - 3,000 GALLON DOUBLE WALLED TANK

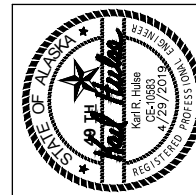
SCALE: NTS

SEE ATTACHED SHOP DRAWINGS FOR 3K OWNER PROVIDED PROTECTED TANK DETAILS



SECTION - 3,000 GALLON DOUBLE WALLED TANK

SCALE: NTS



BULK FUEL UPGRADE
3,000 GALLON PROTECTED DISPENSING TANK (OWNER PROVIDED)

KASAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	Designed	Drawn	Approved

Sheet No. **C6**

NOMINAL TANK SIZE 5,000

DIMENSIONS	
DIAMETER INNER	96"
DIAMETER OUTER	102"
LENGTH INNER TANK	168"
LENGTH OUTER TANK	180"
LENGTH OVERALL	278"
SADDLE SPACING	4@55"
CAPACITIES	
INNER TANKS (GALLONS)	5,264
COMP. A (GALLONS)	2,632
COMP. B (GALLONS)	2,632
OUTER TANK (GALLONS)	6,367
% CONTAINMENT	120
MATERIALS	
INNER TANK	1/4"
OUTER TANK	1/4"
OUTER TANK HEAD	5/16"
SKID BEAMS	W8X35#
SADDLES	1/4" X 12"
TOWBAR	4" SCH 80
HEAD BRACE	NA
OTHER DATA	
VENT SIZE	3"
E. VENT COMP. A & B	6"
E. VENT OUTER TANK	8"
SHIPPING WEIGHT	15,380#

ANCHORAGE TANK & WELDING, INC.
2700 PORCUPINE DRIVE, ANCHORAGE, ALASKA 99501
(907) 272-3543

STEEL TANK INSTITUTE FIREGUARD®
U.S. PATENT NO. 5,695,099

THIS TANK REQUIRES EMERGENCY RELIEF VENTING CAPACITY NOT LESS THAN THE FOLLOWING:
PRIMARY TANK / COMPARTMENT A 2,632 GALLONS 140,600 CUBIC FT/HR
PRIMARY TANK / COMPARTMENT B 2,632 GALLONS 140,600 CUBIC FT/HR
ANNULAR SPACE CAPACITY 6,367 GALLONS 300,480 CUBIC FT/HR
DATE OF MANUFACTURE: MONTH / YEAR



PROTECTED SECONDARY CONTAINMENT ABOVEGROUND TANK FOR FLAMMABLE LIQUIDS
UL SERIAL NUMBER XXXXXXXXX
FIREGUARD®
UL 2265, 971-194 (1985)

LISTED

- FOLLOW INSTALLATION INSTRUCTIONS
- TANK IS INTENDED FOR STATIONARY INSTALLATION ONLY
- PRESSURE PRIMARY TANK WHEN PRESSURE TESTING ANNULAR SPACE
- VEHICLE IMPACT RESISTANT
- 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 30B, NFPA 31, OR THE UNIFORM FIRE CODE STANDARD A-4-F-1.
- INSULATED ABOVEGROUND TANK, PROTECTED TYPE
- TANK LISTED AS A FIRE RESISTANT SECONDARY CONTAINMENT TANK
- PROJECTILE RESISTANT (IF PUNCHED). STEEL THICKNESS MEETS REQUIREMENTS

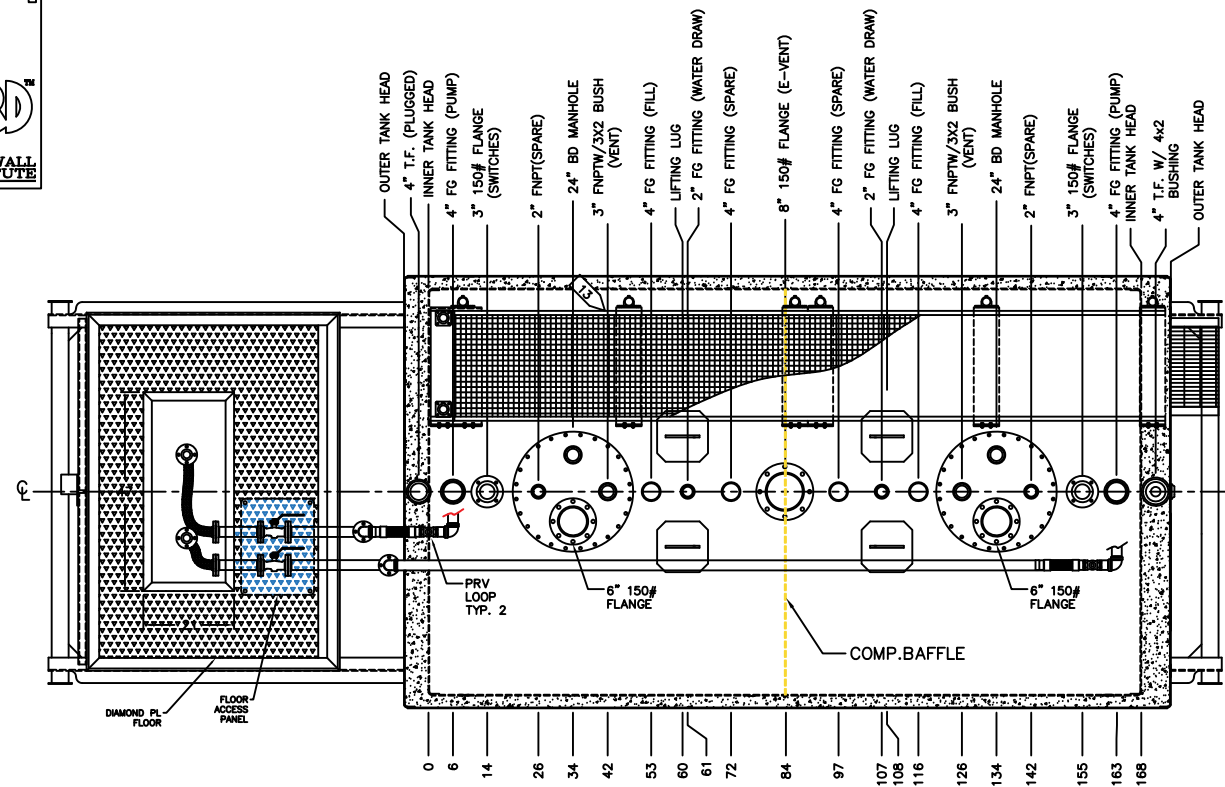
NOTES

SANDBLAST AND COAT ALL EXTERIOR SURFACES W/ DEVCOE 3 STEP SYSTEM:
302 ZINC 3-4 MILS
236 EPOXY 3-4 MILS
389 POLYURETHANE 2-3 MILS

PROVIDE STRIKER PLATES UNDER EACH TANK OPENING.

PROVIDE GROUNDING LUG ON SKID.

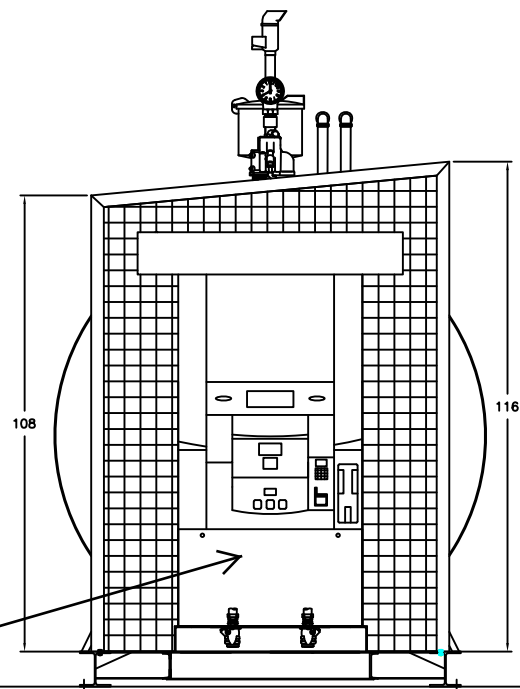
PROVIDE GAUGE STICK IN INCHES.



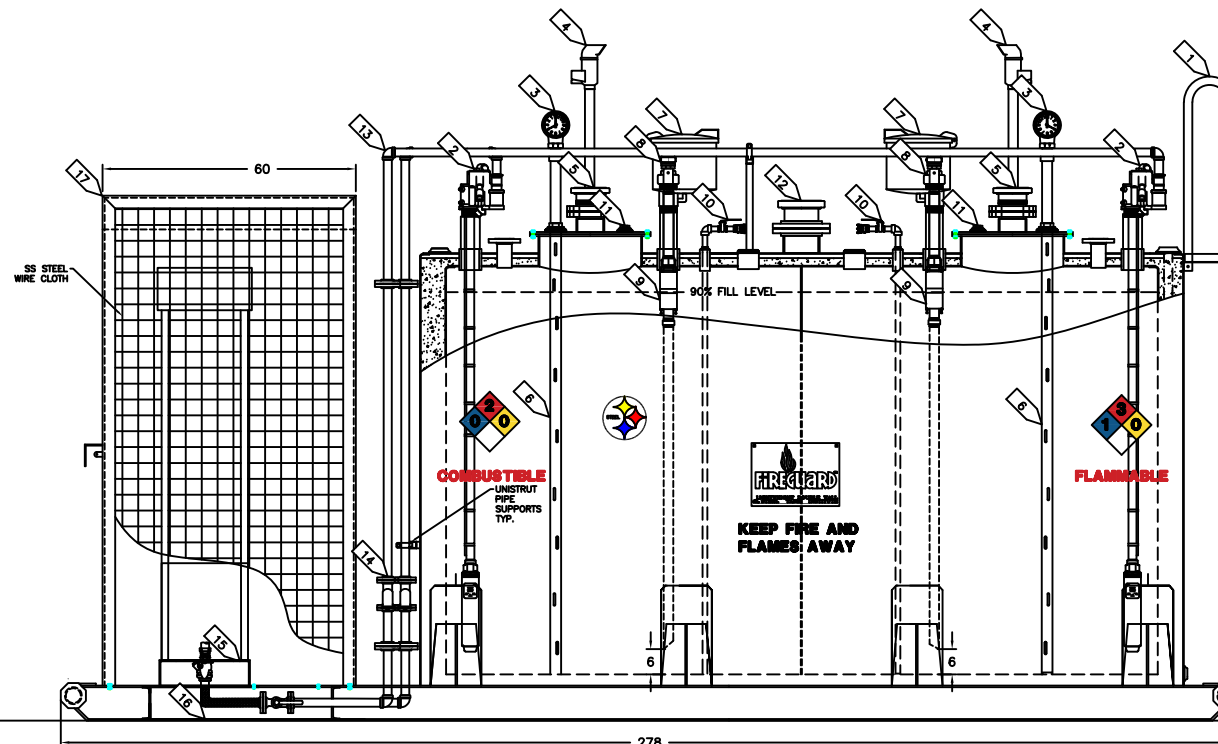
TOP VIEW / FITTING LAYOUT

REFERENCE NOTES

- UNLISTED LADDER.
- SUBMERSIBLE PUMP.
- MORRISON 818 CLOCK GAUGE.
- MORRISON 922 PRESSURE/VAC VENT 8 OZ.
- MORRISON 244 6" EMERGENCY VENT 16 OZ.
- 2" SCH 40 PIPE STILL WELL.
- MORRISON 518 OVERSPILL CONTAINMENT.
- MORRISON 927 DRY BREAK ADAPTOR.
- MORRISON 9095 FILL LIMITER W/ 419 DROP TUBE SET TO ACTIVATE AT 95% TANK CAPACITY.
- 1" WATER DRAW W/BALL VALVE & CAMLOCK.
- 2" STICKING PORT
- MORRISON 244 8" EMERGENCY VENT 16 OZ.
- 1-1/2" PIPING, SCH 80. (CONCEPTUAL LAYOUT)
- 1-1/2" WYE STRAINER
- DISPENSER STAND.
- CONTAINMENT SUMP.
- DISPENSER ENCLOSURE. (CONCEPTUAL LAYOUT).
- HANDRAILS & CATWALK (SEE SHEET 2)

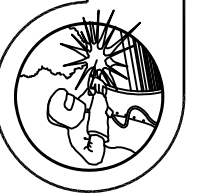


FRONT VIEW
(SKID SHOWN AS SECTION)



SIDE VIEW
CATWALK AND HANRAILS REMOVED FOR TANK CLARITY

ANCHORAGE TANK
2723 RAMPART DRIVE
ANCHORAGE, ALASKA
(907) 272-3543



**5,000 GALLON FIREGUARD
2 HOUR FIRE RATED TANK**

**Pinnacle
Construction, Inc.**
Kasaan BFTF

DRAWN: SAM
DATE: 07/20/20
REVISED: 08/28/20
FILE NAME: PMIKAS5MF
JOB NO: 2020-059
SCALE: NTS
SHEET No. 1 OF 3

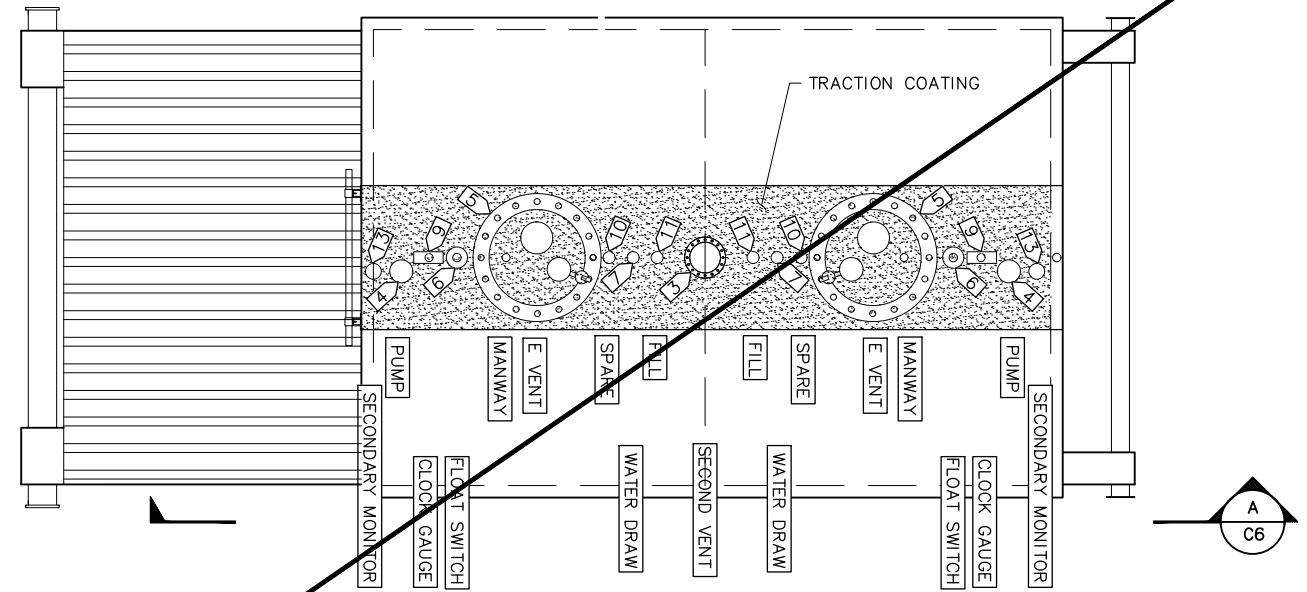
File: J:\JobsData\30410.00 Kasaaan Final Design\00 CADD\01 Working Set\01 Civil\30410.00 Details-Tanks.dwg

SPECIFIC NOTES

- 1 3" FNPT CAST STEEL TANK FLANGE - VENT
- 2 6" FLANGED EMERGENCY VENT ADAPTER - E - VENT
- 3 8" FLANGED EMERGENCY VENT ADAPTER - E - VENT
- 4 4" FNPT COUPLING - PUMP
- 5 24" BOLTED MANWAY WITH GASKET/LID/NUTS AND BOLTS
- 6 3" 150# RAISED FACE FLANGE - FLOAT SWITCH
- 7 2" FNPT FIREGUARD COUPLING - WATER DRAW
- 8 2" FNPT CAST STEEL TANK FLANGE - GAUGE PATCH
- 9 2" FNPT COUPLING - CLOCK GAUGE
- 10 4" FNPT COUPLING - SPARE
- 11 4" FNPT COUPLING - FILL
- 12 2" FNPT CAST STEEL TANK FLANGE FOR INSULATION FILL
- 13 2" FNPT COUPLING WITH PIPE - SECONDARY MONITOR
- 14 INTEGRAL DUAL PRODUCT DISPENSER WITHIN LOCKABLE ENCLOSURE

GENERAL NOTES:

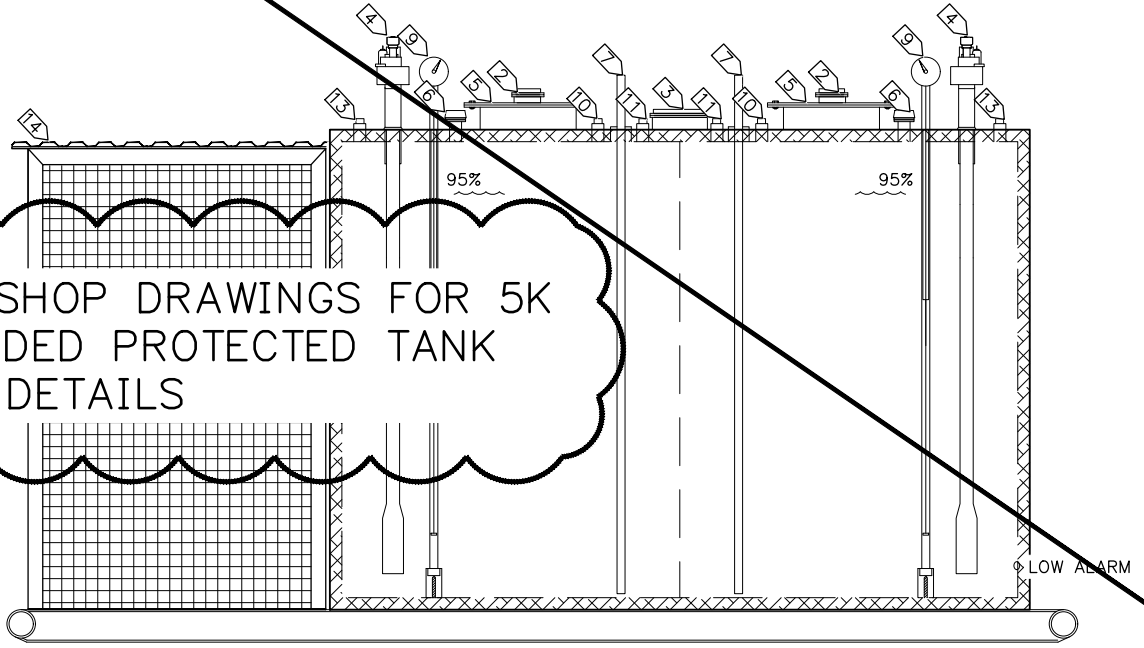
- 1. THE TANK AND INTEGRAL DISPENSER ASSEMBLY SHOWN ON THIS SHEET ARE OWNER PROVIDED, FOB KASAAN. SEE APPROVED SHOP DRAWINGS FOR ADDITIONAL INFORMATION.
- 2. THESE DETAILS ARE SCHEMATIC AND MAY NOT MATCH OWNER PROVIDED TANK. SEE APPROVED TANK MANUFACTURER SHOP DRAWINGS FOR ADDITIONAL INFORMATION.



5,000 GALLON TANK

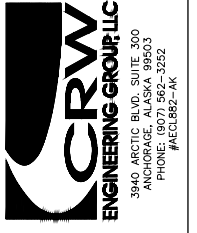
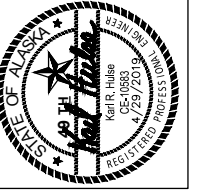
SCALE: NTS

SEE ATTACHED SHOP DRAWINGS FOR 5K OWNER PROVIDED PROTECTED TANK DETAILS



SECTION VIEW

SCALE: NTS



BULK FUEL UPGRADE
5,000 GALLON PROTECTED DISPENSING TANK (OWNER PROVIDED)
 KASAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	Designed	Drawn	Approved

NOMINAL TANK SIZE 3,000

DIMENSIONS	
DIAMETER INNER	76"
DIAMETER OUTER	82"
LENGTH INNER TANK	156"
LENGTH OUTER TANK	168"
LENGTH OVERALL	240"
SADDLE SPACING	3@72"
CAPACITIES	
INNER TANKS (GALLONS)	3,062
OUTER TANK (GALLONS)	3,838
% CONTAINMENT	120
MATERIALS	
INNER TANK	1/4"
OUTER TANK	1/4"
OUTER TANK HEAD	5/16"
SKID BEAMS	W8X35#
SADDLES	1/4" X 12"
TOWBAR	4" SCH 80
HEAD BRACE	NA
OTHER DATA	
VENT SIZE	2"
E. VENT INNER TANK	8"
E. VENT OUTER TANK	8"
SHIPPING WEIGHT	15,380#

ANCHORAGE TANK & WELDING, INC.
2700 PORCUPINE DRIVE, ANCHORAGE, ALASKA 99501
(907) 272-3543

STEEL TANK INSTITUTE FIREGUARD®
U.S. PATENT NO. 5,695,059

THIS TANK REQUIRES EMERGENCY RELIEF VENTING CAPACITY NOT LESS THAN THE FOLLOWING:
PRIMARY TANK / COMPARTMENT A 3,062 GALLONS 234.520 CUBIC FT/HR
PRIMARY TANK / COMPARTMENT B 3,838 GALLONS 252.982 CUBIC FT/HR
ANNULAR SPACE CAPACITY 3,838 GALLONS 252.982 CUBIC FT/HR
DATE OF MANUFACTURE: MONTH / YEAR



UL LISTED

PROTECTED SECONDARY CONTAINMENT ABOVEGROUND TANK FOR FLAMMABLE LIQUIDS
UL SERIAL NUMBER XXXXXXXX
FIREGUARD®
UL 2285, 911, 11843

LISTED

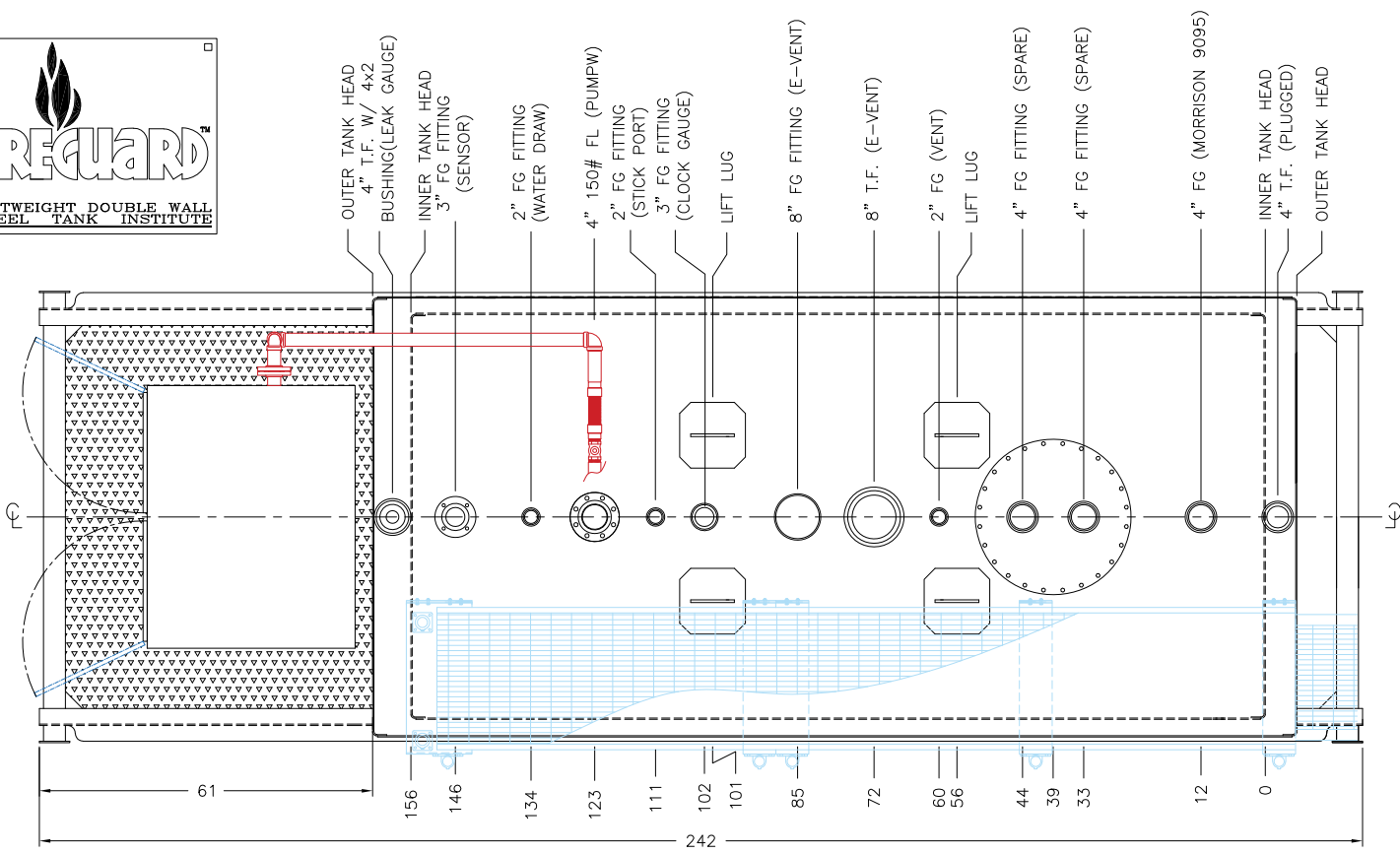
- FOLLOW INSTALLATION INSTRUCTIONS
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- VEHICLE IMPACT RESISTANT
- TANK SHALL BE INVESTIGATED TO DETERMINE ACCEPTABILITY OF USE AFTER FIRE EXPOSURE DAMAGE, OTHER PHYSICAL DAMAGE, OR MISUSE.
- IF A LEAK IS DETECTED (WATER OR FUEL) THIS TANK IS TO BE REMOVED FROM SERVICE. THE LOCAL CODE AUTHORITY AND TANK MANUFACTURER SHOULD BE CONTACTED TO DETERMINE IF THE INSULATION CAN BE REPLACED OR REPAIRED.
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- INSULATED ABOVEGROUND TANK, PROTECTED TYPE
- TANK LISTED AS A FIRE RESISTANT SECONDARY CONTAINMENT TANK
- PROJECTILE RESISTANT (IF PUNCHED, STEEL THICKNESS MEETS REQUIREMENTS)

NOTES

SANDBLAST AND COAT ALL EXTERIOR SURFACES W/ DEVOE 3 STEP SYSTEM:
302 ZINC 3-4 MILS
236 EPOXY 3-4 MILS
389 POLYURETHANE 2-3 MILS

PROVIDE STRIKER PLATES UNDER EACH TANK OPENING.

PROVIDE GROUNDING LUG ON SKID.

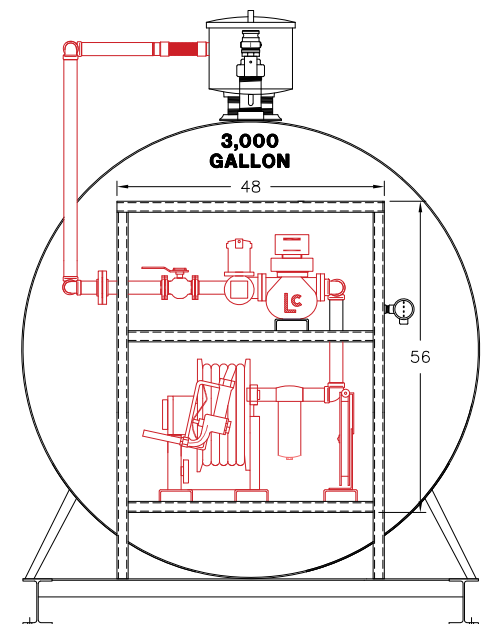


SIDE VIEW

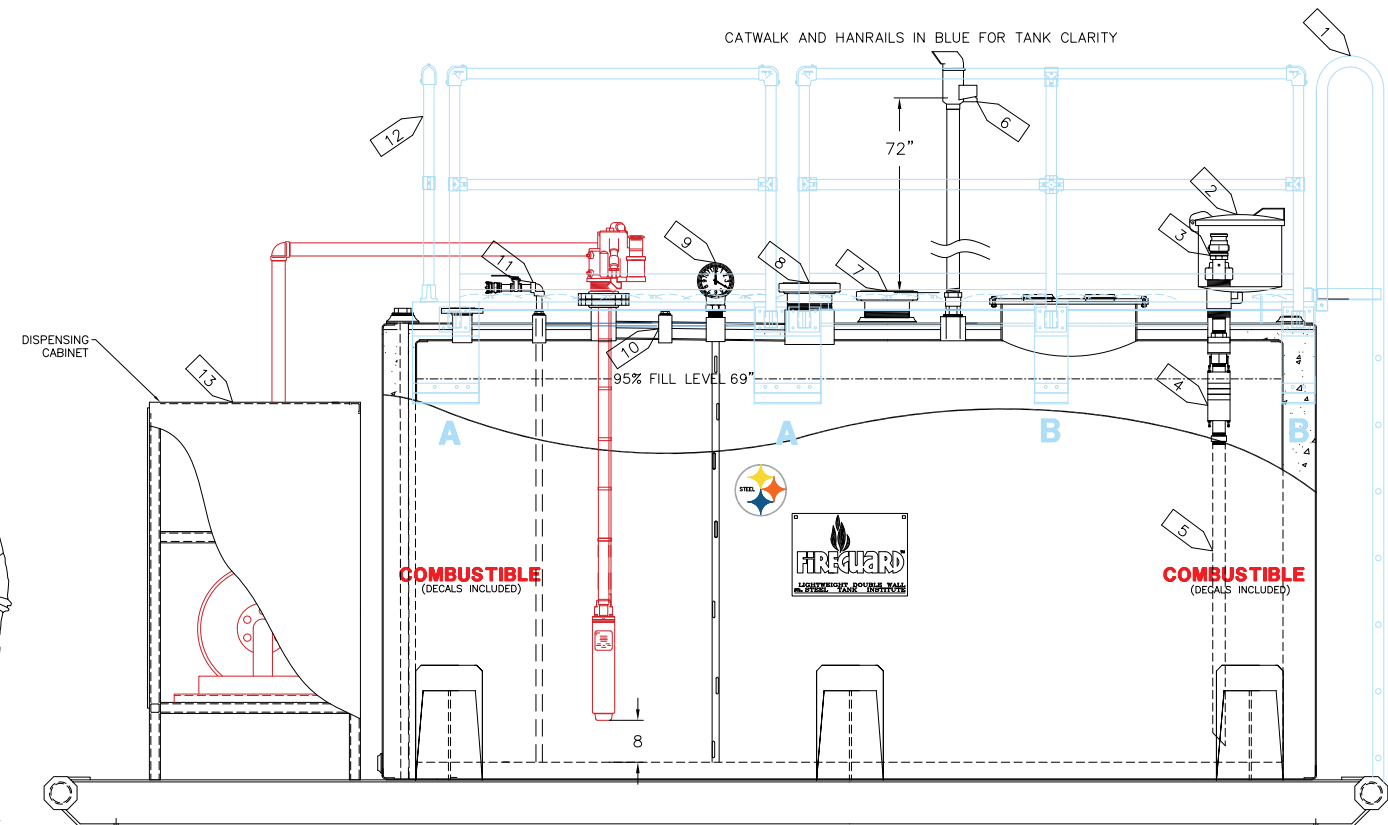
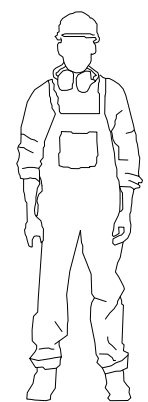
REFERENCE NOTES

- 1 UNLISTED LADDER
- 2 MORRISON 518 OVERSPILL CONTAINMENT
- 3 MORRISON 927 DRY BREAK ADAPTOR
- 4 MORRISON 9095 FILL LIMITER SET TO ACTIVATE AT 95% TANK CAPACITY.
- 5 MORRISON 419 2" ALUMINUM DROP TUBE
- 6 MORRISON 922 PRESSURE/VAC VENT 8 OZ
- 7 MORRISON 244 8" EMERGENCY VENT 16 OZ
- 8 MORRISON 244 8" EMERGENCY VENT 16 OZ
- 9 MORRISON 818 CLOCK GAUGE W/ STILL WELL
- 10 MORRISON 307 2" STICK PORT
- 11 1" WATER DRAW W/BALL VALVE & CAMLOCK
- 12 HANDRAILS & CATWALK (SEE SHEET 2)
- 13 DISPENSING CABINET

ALL APPURTENANCES IN RED BY CONTRACTOR/OTHERS



LEFT VIEW



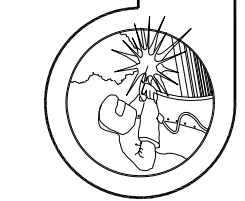
SIDE VIEW

3,000 GALLON FIREGUARD
2 HOUR FIRE RATED TANK

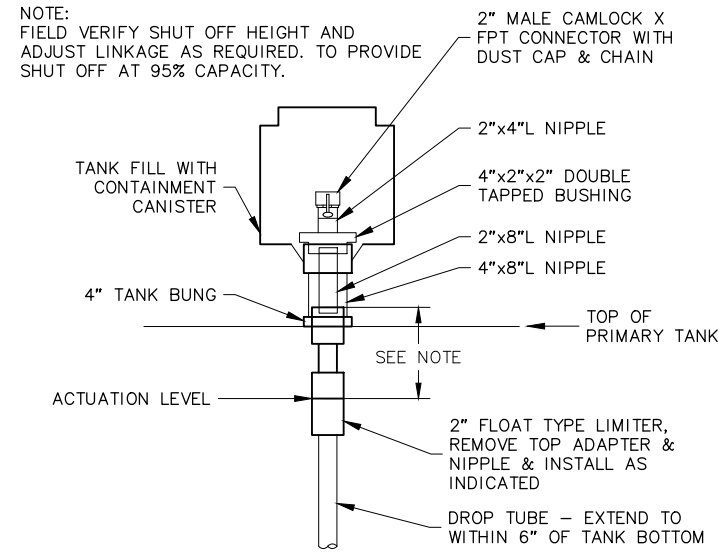
Pinnacle Construction, Inc.
Kasaan BFTF

ANCHORAGE TANK

2723 RAMPART DRIVE
ANCHORAGE, ALASKA
(907) 272-3543

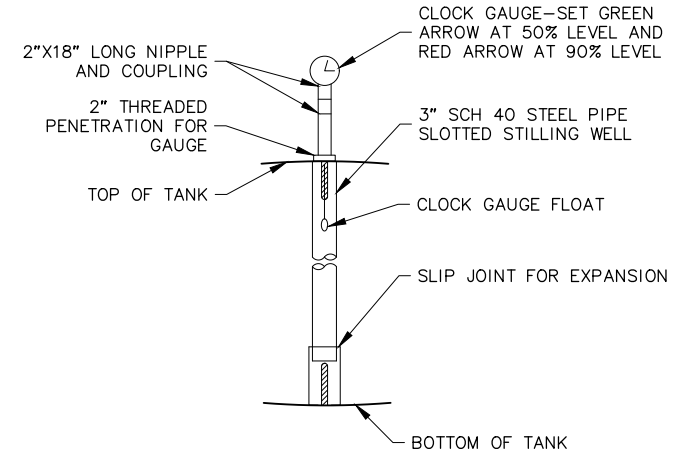


DRAWN:	SAM
DATE:	07/20/20
REVISED:	07/22/20
FILE NAME:	PMIKAS3MF
JOB NO:	2020-053
SCALE:	NTS
SHEET No.	1
OF	2



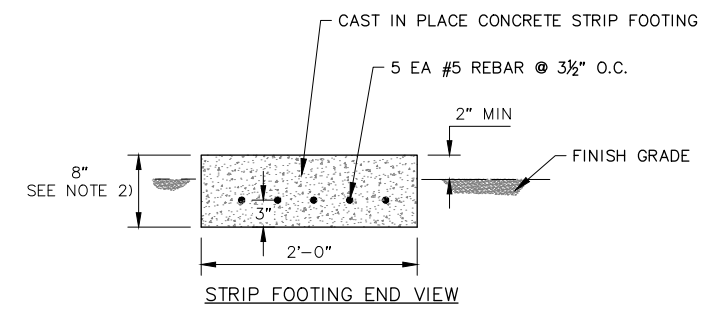
1 TANK FILL LIMITER ASSEMBLY
SCALE: NTS

NOTE:
FILL LIMITER SPILL BUCK ASSEMBLY IS OWNER PROVIDED AS INSTALLED ON TANKS. CONTRACTOR SHALL REMOVE 2" CAMLOCK (AND REPLACE WITH OWNER PROVIDED SCULLY TIGHT-FILL ADAPTOR (TYP ALL TANKS)



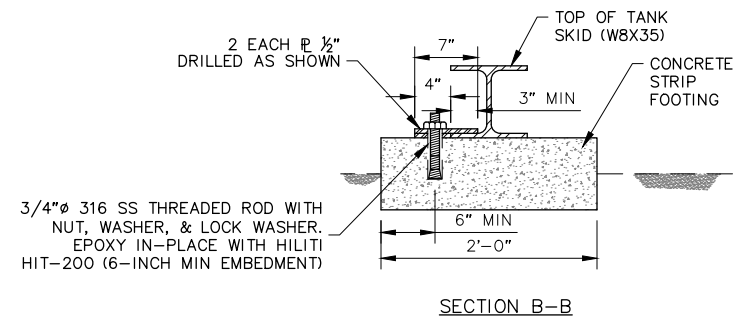
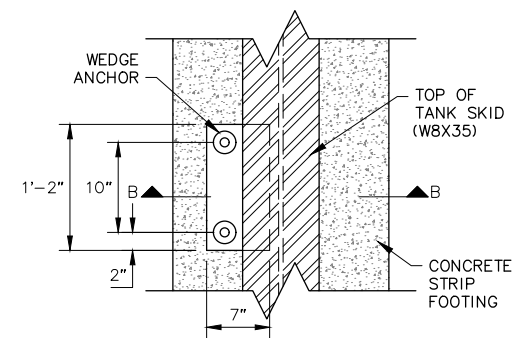
2 GAUGE FLOAT INSTALLATION DETAIL
SCALE: NTS

NOTE:
CLOCK GAGE ASSEMBLY IS OWNER PROVIDED AS FINISHED ON TANKS. CONTRACTOR SHALL CALIBRATE CLOCK GAGE PER MANUFACTURER REQUIREMENTS.

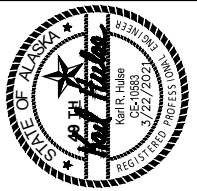


3 STRIP FOOTING
SCALE: NTS

NOTES
1. INSTALL THREE RESTRAINT ASSEMBLIES ON OUTSIDE FLANGE OF EACH TANK SKID. SPACE EVENLY ALONG SKID LENGTH.
2. FOOTING THICKNESS MAY BE INCREASED FROM 8 INCHES (MINIMUM) TO 18 INCHES (MAXIMUM) AS REQUIRED BY GRADE CHANGES, AND TOP OF FOOTING MAY BE 2 INCHES (MINIMUM) TO 4 INCHES (MAXIMUM) ABOVE GRADE. ADJUSTMENTS TO FOOTING THICKNESS MUST BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.



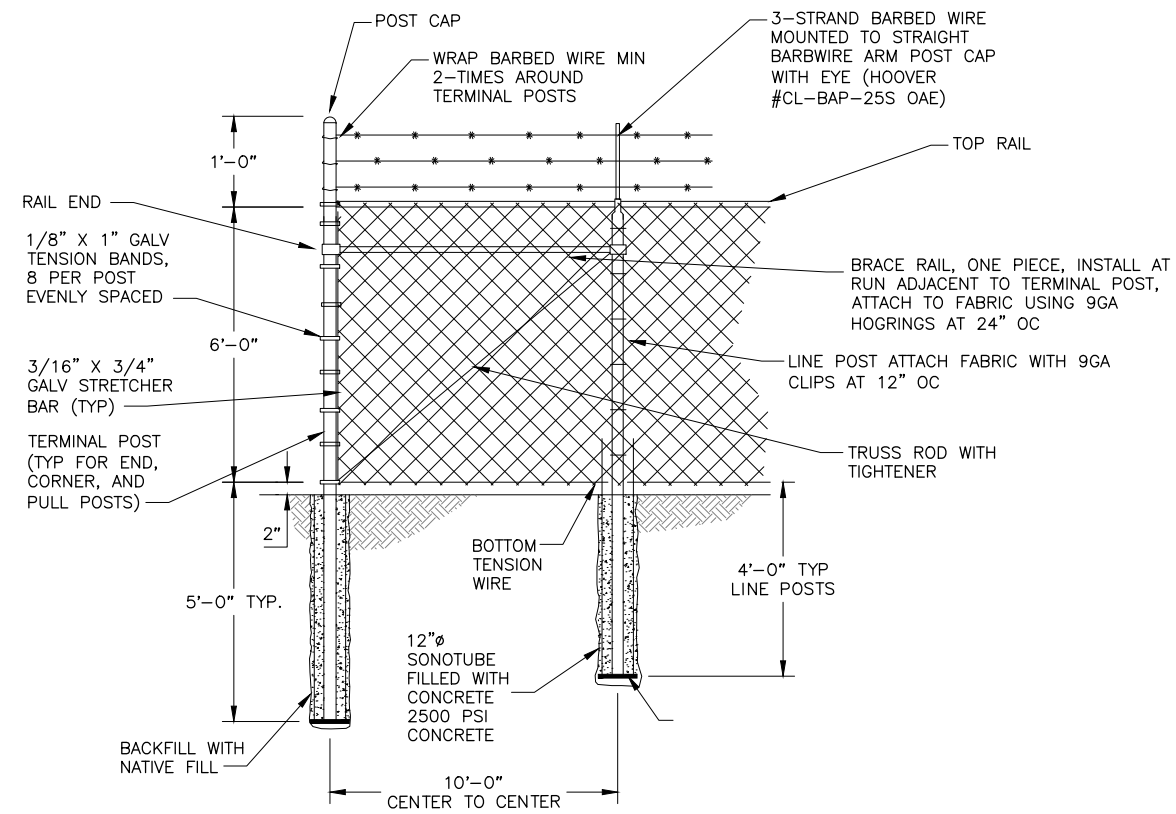
4 TANK SKID RESTRAINT
SCALE: NTS



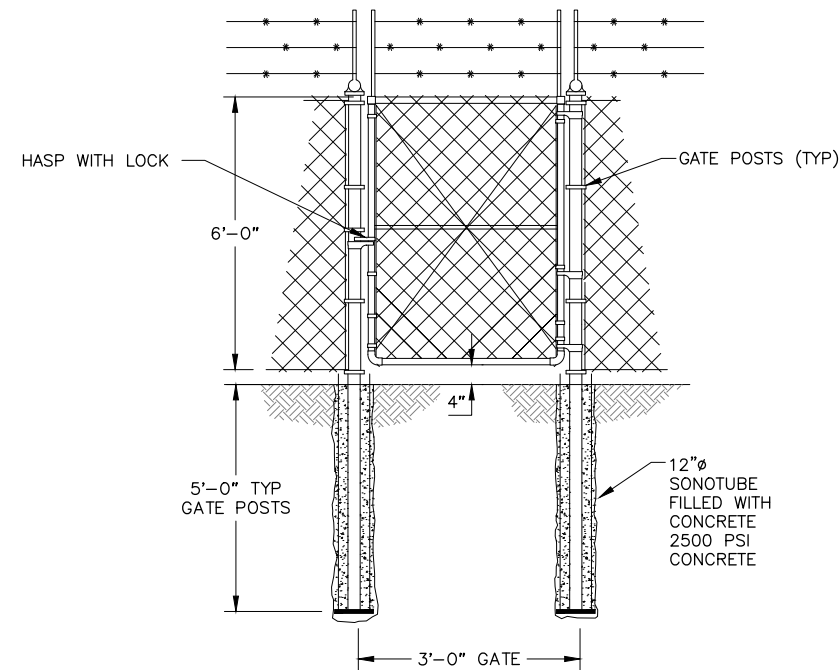
BULK FUEL UPGRADE
TANK DETAILS
KASAAK, ALASKA

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

Plot Date
Designed
Drawn
Approved



1 **FENCE DETAIL**
SCALE: NTS

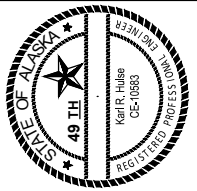


2 **GATE DETAIL**
SCALE: NTS

GENERAL FENCE NOTES:

1. MAXIMUM PULL POST SPACING 75 FEET. EACH PULL POST SHALL BE SUPPORTED WITH A DIAGONAL BRACE RAIL TO THE ADJACENT LINE POSTS.
2. BRACE RAILS AND TRUSS RODS SHALL BE SECURELY FASTENED TO POSTS WITH BRACE BANDS AND THREADED TAKE-UP ADAPTER FOR TRUSS RODS.
3. SEE ELECTRICAL FOR GROUNDING DETAILS.

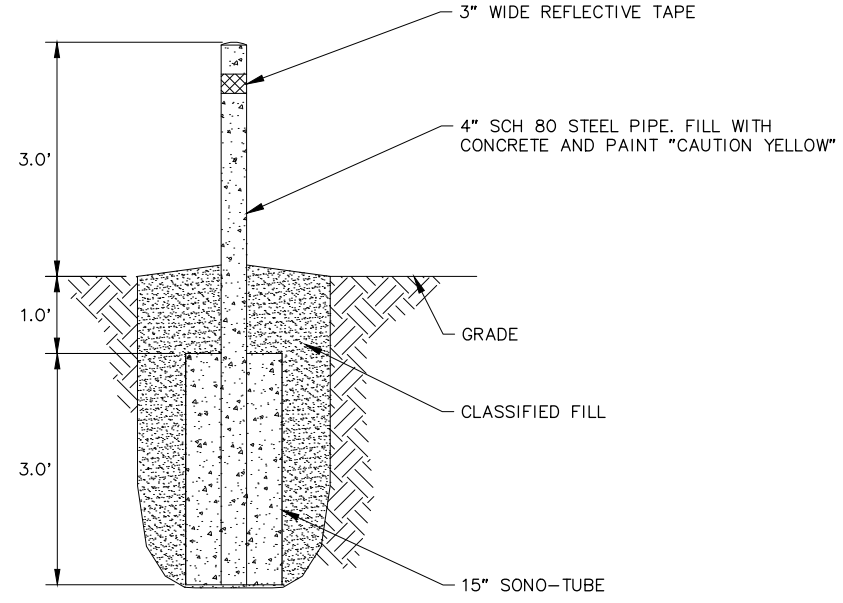
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BULK FUEL UPGRADE
FENCE DETAILS
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date 9/2020
Designed -
Drawn -
Approved -



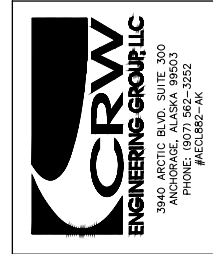
1 **DETAIL - BOLLARD**
SCALE: NTS

Plot Date	Designed	Drawn	Approved

Sheet No. **C10**

NO.	REVISION	BY	DATE
1	ISSUED FOR CONSTRUCTION	KRH	3/22/21

BULK FUEL UPGRADE
MISCELLANEOUS DETAILS
KASAAAN, ALASKA



LEGEND

- BUS
- EXPOSED CONDUIT
- CONDUIT/CABLE RUN UNDERGROUND OR IN CONCRETE
- HOMERUN TO PANEL "X", CIRCUITS NO. Y AND Z
CONDUIT RUNS NOT DEFINED ARE 1/2" C with 3#12.
- GROUND
- CONDUIT RUN - CHANGE IN ELEVATION
- GROUND ROD
- LIQUID-TIGHT FLEXIBLE CONDUIT
- MOTOR, HP AS SHOWN, SINGLE PHASE, "F" = FRACTIONAL
- SHEET NOTE "X"
- ELECTRICAL EQUIPMENT TAG "X"
- PANELBOARD
- DISCONNECT SWITCH
- TRANSFORMER
- KILOWATT-HOUR METER
- 125V DUPLEX GROUND FAULT INTERRUPT WEATHER PROOF RECEPTACLE, NEMA CONFIGURATION 5 - 20R

- MOTOR OVERLOAD
- FIELD MOUNTED INSTRUMENT
XX = FUNCTION; YY = TAG NO.
- INSTRUMENT DEVICE LOCATION (SEE TAG)
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- PILOT LIGHT
R=RED, B=BLUE, A=AMBER, G=GREEN
- RELAY COIL
- TIME DELAY RELAY CONTACTS NORMALLY CLOSED TIMED OPEN
XXX= DESCRIPTION
YYY=RELATED COIL & CONTACT #
ZZZ=COIL RUNG
- TIME DELAY RELAY CONTACTS NORMALLY OPEN TIMED CLOSED
XXX= DESCRIPTION
YYY=RELATED COIL & CONTACT #
ZZZ=COIL RUNG
- TIME DELAY RELAY CONTACTS NORMALLY OPEN TIMED OPEN
XXX= DESCRIPTION
YYY=RELATED COIL & CONTACT #
ZZZ=COIL RUNG
- FLOAT OPERATED SWITCH, NORMALLY CLOSED
- FLOAT OPERATED SWITCH, NORMALLY OPEN
- PUSHBUTTON NORMALLY CLOSED, MOMENTARY CONTACT
- PUSHBUTTON NORMALLY OPEN, MOMENTARY CONTACT
- MOTORIZED VALVE

- JUNCTION BOX OR FITTING
- CONDUIT TEE
- FUSE, X=SIZE IN AMPS
- MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES THERMAL/MAGNETIC UON
- CONTROL PANEL
- SINGLE POLE SWITCH 120/277V 20A
- SEAL-OFF FITTING
- PHOTO ELECTRIC CONTROL
- INSTRUMENT DEVICE LOCATION (SEE TAG)
- MUSHROOM HEAD, EMERGENCY PUSHBUTTON
- REMOTE OPERATOR FOR CONTROL PANEL
- PUSH TO TEST PILOT LIGHT
X= LENS TINT
- TERMINAL - X = CONTRACTOR DERIVED NUMBERING
- STROBE ALARM
- HAND-OFF-AUTO SWITCH

ABBREVIATIONS

- A AMPERE
- AEA ALASKA ENERGY AUTHORITY
- AFF ABOVE FINISH FLOOR
- AIC AMPERES INTERRUPTING CAPACITY
- bCU BARE COPPER
- C CONDUCTOR
- C CONDUIT
- C1D1 CLASS 1, DIVISION 1
- C1D2 CLASS 1, DIVISION 2
- CP CONTROL PANEL
- CT CURRENT TRANSFORMER
- DWG DRAWING
- EA EACH
- ESD EMERGENCY SHUTDOWN
- EXP EXPLOSION PROOF
- FVNR FULL VOLTAGE NON-REVERSING, THERMAL MAGNETIC OCP
- G GROUND CONDUCTOR
- GFI GROUND FAULT INTERRUPTING
- H HOT CONDUCTOR
- HOA HAND OFF AUTO
- HP HORSEPOWER
- KVA KILO-VOLT-AMPERES
- KW KILOWATT
- LFMC LIQUID-TIGHT FLEXIBLE METAL CONDUIT
- LTG LIGHTING
- MAX MAXIMUM
- MCM THOUSAND CIRCULAR MILLS
- MIN MINIMUM
- MV MOTORIZED VALVE
- N NEUTRAL CONDUCTOR
- NEMA NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
- NTS NOT TO SCALE
- OCPP OVERCURRENT PROTECTION
- P POLE
- RCP RECEPTACLE
- RMC RIGID METAL CONDUIT, GALVANIZED
- SIG SIGNAL CONDUCTOR
- SL SWITCH LEG
- SS STAINLESS STEEL
- TWSH TWISTED/SHIELDED CONDUCTOR
- TYP TYPICAL
- U/G UNDERGROUND
- UON UNLESS OTHERWISE NOTED
- V VOLTS
- VA VOLT-AMPERES
- WP WEATHER PROOF
- XFMR TRANSFORMER

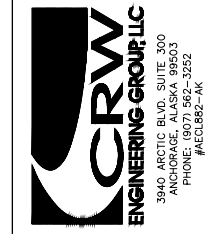
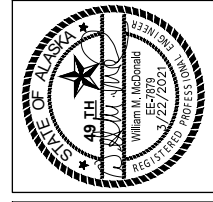
FIXTURE SCHEDULE

SYMBOL	LAMP SIZE	MOUNTING	DESCRIPTION	MANUFACTURER
	50W LED	35' CLASS 5 POLE	TANK FARM POLE MOUNTED LIGHT, 50W LED WITH 6' MOUNTING ARM, -40F RATED	POWER SECURE ENERGYLITE: SECURELITE GEN 2 #AL503W35724NAS WITH LITHONIA SMAWT20US6 ARM
	25W LED	SURFACE MOUNT	VAPORTITE L.E.D AREA LIGHT SURFACE MOUNT. CLASS 1, DIV. 2.	CROUSE HINDS: V2LCA3/UNV1 WITH J-BOX VXFT20

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER
1	EMERGENCY SHUTOFF SWITCH. NEMA 4 DIE-CAST ALUMINUM ENCLOSURE, 2-1/4" DIA. RED MUSHROOM HEAD MAINTAINED CONTACT PUSH BUTTON WITH 1 EA. NC CONTACT, 10A RATED.	ALLEN BRADLEY 800T-FX6D4 WITH 800T-1TZ ENCLOSURE & 800T-N247R HEAD
2	LIGHT SWITCH AND RECEPTACLE. COMPLETE WITH 20A, 125V DUPLEX GFCI RECEPTACLE, 20A SINGLE POLE SWITCH. INSTALL IN CAST MULTI-GANG FD BOX WITH WEATHERPROOF COVER.	P&S 2095TRWRI RECEPTACLE P&S PS20AC1-1 SWITCH RED DOT 2CCTG COVER RED DOT 2IH4-2 BOX
3	LOCKABLE SWITCH. NEMA 4, 7, 9 EXPLOSION PROOF CONSTRUCTION WITH 3/4" FEED THRU HUB, 4PST, 250V, 20A.	KILLARK
4	TWO POSITION FLOAT ACTIVATED LEVEL SWITCH, 316 SS STEM, 2" 316 SS FLOAT, 2" NPT BUSHING, 1/2" NPT CONDUIT ENTRY, EXPLOSION PROOF CONSTRUCTION, LISTED FOR CLASS 1, DIVISION 1, GROUP D, 120VAC, 100W MAX SWITCHING POWER. PROVIDE FLOAT ACTIVATED SWITCHES AT DIMENSIONS BASED ON APPROVED SHOP DRAWINGS. CONTRACTOR SHALL VERIFY ACTUAL TANK DIMENSIONS AND SUBMIT SWITCH DIMENSIONS TO CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING.	CUSTOM SWITCHES, INC. MODEL LS-1900 TYPE 7 OR APPROVED EQUAL. CONTRACTOR TO VERIFY CUSTOM PROBE LENGTHS PRIOR TO ORDERING. SEE DESCRIPTION.

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BULK FUEL UPGRADE
NOTES, LEGEND, & ABBREVIATIONS
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 9/2020
Designed: DJ
Drawn: DJ
Approved: WM

ELECTRICAL SPECIFICATION

SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT AS REQUIRED FOR FINAL DESIGN, FABRICATION AND INSTALLATION OF THE FUEL SYSTEM POWER, LIGHTING, AND CONTROLS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS ON ALL OF THE DRAWINGS.

STANDARDS, CODES AND REGULATIONS: CONTRACTOR SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), INTERNATIONAL BUILDING CODE (IBC), AND INTERNATIONAL FIRE CODE (IFC) INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES.

DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC., UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS, SPECIFICATIONS, GOVERNING CODES AND/OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ENGINEER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK THAT WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN BUILDINGS AND STRUCTURES. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN. PROVIDE AS-BUILT SHOP DRAWINGS OF EACH OF THE FUEL SYSTEM CONTROL PANELS. PROVIDE FULL SIZE HARD COPY AND DRAWING FILES IN AUTOCAD V2013 ON CD.

WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM TO APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES (U/L) STANDARDS.

SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE BOUND IN HARD COVER, LOOSE-LEAF BINDERS SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS.

SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE ALLOWED, SUBSTITUTIONS WILL BE REVIEWED USING THE CRITERIA/MANUFACTURERS DATA OF THE SPECIFIED COMPONENT.

OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER'S PERSONNEL. DESCRIBE IN THE MANUALS THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START-UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER'S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR-PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC. PROVIDE A NON-PASSWORD PROTECTED PDF FILE OF EACH MANUAL IN ITS ENTIRETY ON A CD IN ADDITION TO THE REQUIRED HARD COPIES.

WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST DURING THE WARRANTY PERIOD.

PERMITS: SECURE AND PAY FOR ALL CONSTRUCTION RELATED FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES AND ALL LOCAL UTILITY COMPANIES.

REFERENCE SYMBOLS: THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

IDENTIFICATION: PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH BLACK LETTERS ON A WHITE BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT, LOADS SERVED AND AS NOTED ON THE DRAWINGS. LETTER HEIGHTS SHALL BE 1/8 INCH FOR INDIVIDUAL SWITCHES, MOTOR STARTERS AND LOADS SERVED AND 1/4 INCH ON PANELBOARDS. SECURE NAMEPLATES TO EQUIPMENT FRONTS USING SCREWS, RIVETS OR ADHESIVES.

CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS/CONTROL PANELS WITH AN INDELIBLE BLACK MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE.

JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. MARK ALL OTHER SPECIAL SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS.

CONDUIT: ALL EXTERIOR WIRING SHALL BE INSTALLED IN GALVANIZED RIGID STEEL OR INTERMEDIATE METAL RACEWAY UNLESS OTHERWISE NOTED. ALL INTERIOR, DRY LOCATION, WIRING SHALL BE INSTALLED IN ELECTRICAL METAL CONDUIT. ALL FITTINGS, CONNECTORS, BOXES, ETC., SHALL BE APPROVED FOR USE AS A GROUNDING MEANS. UTILIZE SHORT EXTENSIONS (36 INCHES MAXIMUM) OF FLEXIBLE LOW TEMPERATURE, LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR CONNECTION OF ALL MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION AND WHERE CONDUITS TRANSITION BETWEEN STRUCTURES OR ON RISERS FROM BELOW GRADE TO IN NON-HAZARDOUS AND CLASS I, DIVISION 2 AREAS. USE EXPLOSION-PROOF FLEXIBLE COUPLINGS FOR CONNECTIONS IN CLASS I, DIVISION 1 HAZARDOUS LOCATIONS. PAINT ALL EXPOSED RACEWAYS TO MATCH THE SURFACE TO WHICH IT IS ATTACHED OR CROSSES. OTHERWISE PAINT INDUSTRIAL GRAY. COMPLETELY AND THOROUGHLY SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS. ALL UNDERGROUND CONDUIT SHALL BE BURIED A MINIMUM OF 18" BELOW FINISHED GRADE.

CONDUCTORS: CONDUCTORS SHALL BE COPPER, SOLID OR STRANDED, WITH TYPE XHHW-2 INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #14 AWG. PULL ALL CONDUCTORS INTO THE RACEWAY AT THE SAME TIME. USE UL LISTED WIRE-PULLING LUBRICANT FOR PULLING #4 AWG AND LARGER WIRES. COLOR CODE CONDUCTORS AS FOLLOWS: 480V SYSTEMS: BROWN (L1), YELLOW (L2), 120/240 VOLT SYSTEMS: BLACK (L1), RED (L2), WHITE (N) AND GREEN OR BARE (G). USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600-VOLT RATED HEAT SHRINK TUBING.

CIRCUIT BREAKERS: MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON THERMAL MAGNETIC TRIP TYPE WITH COMMON TRIP HANDLE FOR ALL POLES.

LIGHTING EQUIPMENT: PROVIDE ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC.

EQUIPMENT CONNECTIONS: PROVIDE WIRING AND CONNECTION TO EQUIPMENT REQUIRING ELECTRICAL POWER BUT SPECIFIED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. EQUIPMENT SHALL INCLUDE BUT IS NOT LIMITED TO MOTORS, PUMPS, DISPENSING EQUIPMENT, ETC. REVIEW EQUIPMENT SUBMITTAL FROM THE OTHER TRADES PRIOR TO INSTALLATION AND ELECTRICAL ROUGH-IN. VERIFY LOCATION, SIZE, TYPE OF CONNECTIONS, AND THAT EQUIPMENT IS READY FOR ELECTRICAL CONNECTION. MAKE WIRING CONNECTIONS IN CONTROL PANEL OR IN WIRING COMPARTMENT OF PRE-WIRED EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE INTERCONNECTING WIRING AND DISCONNECTS WHERE REQUIRED.

DISCONNECT SWITCHES: PROVIDE 250V HEAVY DUTY NON-FUSIBLE QUICK-MAKE, QUICK BREAK, LOAD INTERRUPTER, ENCLOSED KNIFE SWITCHES WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION, HANDLE LOCKABLE IN OFF POSITION.

PENETRATIONS OF HAZARDOUS LOCATIONS: ALL ELECTRICAL PENETRATIONS OF HAZARDOUS LOCATION BOUNDARIES SHALL BE PROVIDED WITH SEAL-OFF FITTINGS AS REQUIRED BY NEC ARTICLES 500 & 501.

MOTOR STARTERS: PROVIDE FULL VOLTAGE STARTING, NON-REVERSING, MAGNETIC TYPE MOTOR STARTERS, IEC RATED, AC GENERAL-PURPOSE, CLASS A, WITH MAGNETIC CONTROLLER FOR INDUCTION MOTORS RATED IN HORSEPOWER. OVERLOAD RELAY SHALL BE NON-AMBIENT SENSITIVE. PROVIDE TWO FIELD CONVERTIBLE CONTACTS IN ADDITION TO SEAL-IN CONTACT. INSTALL MOTOR CONTROL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SELECT AND INSTALL HEATER ELEMENTS OR SET ADJUSTABLE OVERLOADS IN MOTOR STARTERS TO MATCH INSTALLED MOTOR CHARACTERISTICS.

MOTOR DATA: PROVIDE NEATLY TYPED LABEL INSIDE EACH MOTOR STARTER OR CONTROL PANEL ENCLOSURE DOOR IDENTIFYING MOTOR(S) SERVED, NAMEPLATE HORSEPOWER, FULL LOAD AMPERES, CODE LETTER, SERVICE FACTOR, AND VOLTAGE/PHASE RATING.

EQUIPMENT MOUNTING: PROVIDE ALL BRACING AS REQUIRED TO SECURELY MOUNT ENCLOSURES, FIXTURES AND DEVICES. UNLESS OTHERWISE NOTED USE GALVANIZED HARDWARE AND GALVANIZED FORMED STEEL COMPONENTS SUCH AS UNISTRUT OR EQUAL. WHEN BOLTING TO STRUCTURE, VERIFY THAT THE ORIGINAL STRUCTURAL AND PERFORMANCE (I.E. WATER TIGHT) CHARACTERISTICS ARE MAINTAINED.

ENCLOSURE RATING: UNLESS NOTED OTHERWISE, ENCLOSURES, JUNCTION BOXES AND OTHER EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE -

EXTERIOR, NON HAZARDOUS - NEMA 4X NONMETALLIC
 EXTERIOR, HAZARDOUS - NEMA 7 (CLASS 1, GROUP D) AND NEMA 4 OR 4X
 INTERIOR - NEMA 12



BULK FUEL UPGRADE
 ELECTRICAL SPECIFICATIONS
 KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 9/2020
 Designed: DJ
 Drawn: DJ
 Approved: WM

Sheet No. E2

CONTROL SPECIFICATION

CONTROLS

FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT AS REQUIRED FOR FINAL DESIGN, FABRICATION AND INSTALLATION OF THE CONTROLS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS ON ALL OF THE DRAWINGS.

STANDARDS, CODES AND REGULATIONS: CONTRACTOR SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AND NFPA 79 AND UL 508A.

SUBMITTALS

PRODUCT DATA: INCLUDE MANUFACTURER'S TECHNICAL LITERATURE FOR EACH CONTROL DEVICE. INDICATE DIMENSIONS, CAPACITIES, PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, FINISHES FOR MATERIALS, AND INSTALLATION AND STARTUP INSTRUCTIONS FOR EACH TYPE OF PRODUCT INDICATED.
EACH CONTROL DEVICE LABELED WITH SETTING OR ADJUSTABLE RANGE OF CONTROL.

SHOP DRAWINGS: SUBMITTAL DRAWINGS SHALL BE PREPARED AND SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION. SUBMITTAL FORMAT SHALL BE BASED ON A 22X34 SIZE SHEET WITH EITHER VENDOR'S OR PROJECT BORDER. HARD COPY SUBMITTALS SHALL BE 1/2 SIZE (11X17) ON BOND PAPER AND A SINGLE COPY OF A ".PDF" FILE AND A .DWG FILE IN AUTOCAD 2010 WITH CTB FILE FOR PRINTING. ELECTRONIC MEDIA SHALL BE SUBMITTED ON CD FORMATTED FOR READING ON INTEL-BASED PC'S (NOT MAC). DATA TO BE INCLUDED ON THE SUBMITTAL DRAWINGS INCLUDE:

DIMENSIONED OPERATOR DOOR AND BACK PANEL LAYOUT SHOWING ALL COMPONENTS.

BILL OF MATERIALS WITH MANUFACTURER AND RELEVANT PART NUMBERS.

SCHEMATIC DIAGRAM. POWER, SIGNAL, AND CONTROL WIRING.

DIFFERENTIATE BETWEEN MANUFACTURER-INSTALLED AND FIELD-INSTALLED WIRING.

DETAILS OF CONTROL PANEL FACES, INCLUDING CONTROLS, INSTRUMENTS, AND LABELING.

TERMINAL ASSIGNMENTS WITH ALL EXTERNAL COMPONENT TERMINATIONS SHOWN.

DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.

WRITTEN DESCRIPTION OF SEQUENCE OF OPERATION.

MAINTENANCE DATA INCLUDE THE FOLLOWING:

MAINTENANCE INSTRUCTIONS AND LISTS OF SPARE PARTS FOR EACH TYPE OF CONTROL DEVICE. INTERCONNECTION WIRING DIAGRAMS WITH IDENTIFIED AND NUMBERED SYSTEM COMPONENTS AND DEVICES.

STEP-BY-STEP PROCEDURES INDEXED FOR EACH OPERATOR FUNCTION. INSPECTION PERIOD, CLEANING METHODS, CLEANING MATERIALS RECOMMENDED, AND CALIBRATION TOLERANCES. CALIBRATION RECORDS AND LIST OF SET POINTS.

PROJECT RECORD DOCUMENTS: SUBMIT ALL CUT-SHEETS, O&M INFORMATION AND INSTRUCTIONS IN EITHER MS WORD (.DOC) OR ADOBE (.PDF) FORMAT ON CD FORMATTED FOR USE ON INTEL-BASED PC'S.

QUALITY ASSURANCE: ALL CONTROL/ALARM PANELS PROVIDED FOR THIS PROJECT SHALL BE LISTED OR LABELED AS AN ELECTRICAL ASSEMBLY BY AN AGENCY ACCEPTABLE TO THE STATE OF ALASKA DEPARTMENT OF LABOR - MECHANICAL INSPECTIONS DIVISION. CONSTRUCTION SHALL PROCEED ONLY AFTER THE OWNER APPROVES THE REQUIRED SUBMITTALS.

AS-BUILT DRAWINGS: UPON RECEIPT OF APPROVED SUBMITTALS AND AFTER CONSTRUCTION OF THE PANEL(S), PREPARE AS-BUILT DRAWINGS USING THE APPROVED SUBMITTAL FILES. SUBMIT 3 SETS OF FULL SIZE DRAWINGS ENCLOSED WITHIN EACH PANEL AND A CD WITH A COPY OF AUTOCAD FILES (22X34 DRAWING SIZE) OF THE SUBMITTAL DRAWINGS EDITED TO AS-BUILT STATUS. PROVIDE ONE CD FOR EACH PANEL.

O&M MATERIAL: PROVIDE AS-BUILT VERSIONS OF PROJECT RECORD DOCUMENTS, CURRENT PRICE AND SOURCE FOR ALL REPLACEABLE COMPONENTS (I.E. PLUG-IN RELAYS, PILOT LIGHT LAMPS, ETC). IF A COMMON COMPONENT IS USED IN SEVERAL PANELS, A SINGLE CUT SHEET/DESCRIPTOR IS ACCEPTABLE IF ALL APPLICABLE PANELS ARE ANNOTATED ON THE SUBMITTAL. ALL PREPARED O&M MATERIAL SHALL BE TYPED IN MS WORD OR SCANNED AND CONVERTED TO .PDF FORMAT. O&M DATA CAN BE FURNISHED ON THE SAME CD WITH AS-BUILT DWGS.

PRODUCTS

CONTROL PANEL: ENCLOSURES SHALL BE NEMA 4X NON-METALLIC. CONTROL PANEL ENCLOSURE INTERIOR SHALL BE PROVIDED WITH A STEEL BACK PANEL FOR MOUNTING OF CONTROL AND POWER DISTRIBUTION COMPONENTS. HOFFMAN OR EQUAL.

WIRE MARKERS: SHALL CONSIST OF WHITE OR YELLOW, SLIP-ON ELASTIC SLEEVES SIZED TO TIGHTLY GRIP THE WIRE INSULATION AND MARKED IN BLOCK PRINTING WITH THE LETTERS OR NUMBERS TO IDENTIFY THE CIRCUIT.

TERMINAL BLOCKS: SHALL BE ALLEN BRADLEY 1492 SERIES OR EQUAL. POWER TERMINATIONS FOR SUPPLY AND MOTOR LOADS A MINIMUM RATING OF 600 VOLTS AC AND 35 AMPS. CONTROL AND SENSOR TERMINALS SHALL BE DETERMINED BY THE MANUFACTURER AND BASED ON UPSTREAM OVER CURRENT PROTECTION, FAULT DUTY ETC. WHEN INDIVIDUAL DEVICES OR COMPONENT TERMINAL BLOCKS ARE ENCOUNTERED WITH SCREW TERMINALS, TERMINATION SHALL BE BY SLIP ON SPADE TONGUE INSULATED COMPRESSION TERMINATORS.

NAMEPLATES: SHALL BE INSTALLED PLUMB AND PARALLEL TO THE LINES OF DOORS OR STRUCTURE TO WHICH THEY ARE ATTACHED. A NAMEPLATE SHALL BE PROVIDED FOR EACH PANEL. IT SHALL BE 2"X6" MINIMUM SIZE WITH 1/2 INCH MINIMUM ENGRAVED LETTERS. THE ENGRAVING SHALL BE AS SHOWN ON THE DRAWINGS FOR THE IDENTIFICATION OF EACH PANEL.

PANEL COMPONENTS SHALL BE AS LISTED UNDER THE COMPONENT SCHEDULE.

INSTALLATION

CONTROL PANELS: SHALL BE FACTORY OR SHOP FABRICATED UNITS COMPLETELY ASSEMBLED, WIRED AND TESTED IN THE PRESENCE OF AN OWNER REPRESENTATIVE BEFORE SHIPMENT TO THE JOB SITE. PANEL CONSTRUCTION SHALL, IN GENERAL, MEET APPLICABLE NEMA AND IEEE STANDARDS. THE PANELS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS OF AND BEAR THE LABEL OF AN ACCREDITED NATIONALLY RECOGNIZED TESTING LABORATORY.

THE ASSEMBLED PANEL SHALL BE MEGGERED AND TESTED TO BE FREE FROM GROUNDS AND SHORTS. ALL CONTROLLERS, CIRCUITS AND INTERLOCKS SHALL BE RUNG OUT AND TESTED TO ASSURE THAT THEY FUNCTION CORRECTLY BEFORE THE PANEL IS SHIPPED. REVISE ALL DRAWINGS UPON COMPLETION OF THE WORK TO SHOW "AS SHIPPED" CONDITION OF THE PANEL. AFTER COMPLETION OF SHOP ASSEMBLY AND TESTING, PANELS SHALL BE ENCLOSED IN HEAVY-DUTY POLYETHYLENE ENVELOPES OR SECURED SHEETING TO PROVIDE COMPLETE PROTECTION FROM DUST AND MOISTURE. DEHUMIDIFIERS SHALL BE PLACED INSIDE THE POLYETHYLENE COVERING. THE EQUIPMENT SHALL THEN BE SKID-MOUNTED FOR FINAL TRANSPORT. SHIPPING WEIGHT SHALL BE SHOWN ON SHIPPING TAGS, TOGETHER WITH INSTRUCTIONS FOR UNLOADING, TRANSPORTING, STORING, AND HANDLING ON JOB SITE.

WIRING DUCT: SHALL BE PROVIDED FOR WIRING WITHIN THE PANEL ENCLOSURE INCLUDING ALL FIELD WIRING. WIRING WITHIN THE PANEL SHALL BE LABELED WITH WIRE NUMBERS AND RUN IN WIRING DUCT NEATLY TIED AND BUNDLED WITH TIE WRAPS OR SIMILAR MATERIALS. LINE VOLTAGE (120 VOLT OR HIGHER) WIRING IN PANELS SHALL BE CLASS C STRANDED COPPER CONDUCTOR #14AWG, WITH TYPE MTW OR SIS INSULATION. COLOR CODING OF INSULATION SHALL BE:

BLACK: UNGROUNDED LINE, LOAD, AND CONTROL CONDUCTORS AT LINE VOLTAGE.

RED: UNGROUNDED AC CONTROL CONDUCTORS, AT LESS THAN LINE VOLTAGE.

BLUE: UNGROUNDED DC CONTROL CONDUCTORS.

YELLOW: UNGROUNDED CONTROL CIRCUIT CONDUCTORS THAT MAY REMAIN ENERGIZED WHEN THE MAIN DISCONNECTING MEANS IS IN THE OFF POSITION. THESE CONDUCTORS SHALL BE YELLOW THROUGHOUT THE ENTIRE CIRCUIT, INCLUDING WIRING IN THE CONTROL PANEL AND THE EXTERNAL FIELD WIRING.

WHITE OR NATURAL GRAY: GROUNDED CIRCUIT CONDUCTOR.

WHITE WITH BLUE STRIPE: GROUNDED (CURRENT-CARRYING) DC CIRCUIT CONDUCTORS.

WIRING WHICH IS AN INTERNAL PART OF A DEVICE AND IS NOT CONNECTED TO EXTERNAL TERMINAL BLOCKS MAY BE WIRED USING THE MANUFACTURER'S STANDARD WIRE DESIGNATIONS. WIRE WHICH CONNECTS TO EXTERNAL CIRCUITS, TO TERMINAL BLOCKS, OR THE NUMBERS SHOWN ON THE ELEMENTARY WIRING DIAGRAMS SHALL IDENTIFY OTHER DEVICES THAT ARE CONNECTED TO EXTERNAL CIRCUITS. EVERY WIRE TERMINATION, INCLUDING ALL JUMPERS, SHALL BE IDENTIFIED WITH WIRE MARKERS. WIRE MARKERS SHALL BE INSTALLED OVER WIRE TERMINATORS OR DIRECTLY ADJACENT TO THEM. MARKERS SHALL BE ARRANGED TO PERMIT READING OF IDENTIFICATION.

TERMINAL BLOCKS SHALL BE PROVIDED FOR THE TERMINATION OF POWER AND CONTROL WIRING. WHERE MULTIPLE TERMINAL BLOCKS ARE SHOWN FOR A GIVEN WIRE NUMBER, ADDITIONAL BLOCKS SHALL BE PROVIDED AND JUMPERED AS NECESSARY TO PROVIDE TERMINAL SPACES FOR EACH INDIVIDUAL OUTGOING WIRE. TERMINAL STRIPS SHALL BE MOUNTED ON A FLAT STEEL CHANNEL OR STRUT WHICH RAISES THEM TO THE LEVEL OF THE ADJACENT WIRE GUTTERS (2 INCH TO 3 INCH ABOVE BACKPLATE). PROVIDE SPACE FOR A MINIMUM OF 10 PERCENT ADDITIONAL CONTROL WIRING TERMINAL BLOCKS ON EACH SIDE.

NAMEPLATES SHALL BE PROVIDED FOR ALL RELAYS, TIMERS, TRANSFORMERS, FUSES, TERMINAL BLOCK, SWITCHES MOUNTED INTERNALLY, AND OTHER COMPONENTS THAT ARE MOUNTED TO THE INTERNAL MOUNTING PANEL. THESE NAMEPLATES SHALL BE SIZED TO THE SCALE OF THE DEVICE TO WHICH THEY REFER. THE ENGRAVING SHALL BE AS SHOWN FOR THE DEVICE ON THE ELEMENTARY WIRING DIAGRAMS.

OPERATION: AFTER THE PANEL INSTALLATION HAS BEEN INSPECTED AND APPROVED, VENDOR SHALL VERIFY AND DEMONSTRATE TO THE PROJECT MANAGER, OR HIS DESIGNATED REPRESENTATIVE, PROPER OPERATION OF EACH FUNCTION AS DESCRIBED IN THESE SPECIFICATIONS.

EACH FUNCTION WILL BE TESTED - SIMULATED INPUTS AND OR FAILURES WILL BE USED WHERE THE ACTUAL CONDITIONS ARE NOT POSSIBLE (I.E. OVERLOAD TRIP). ANY DISCREPANCY NOTED SHALL BE CORRECTED AND PROPER FUNCTION DEMONSTRATED TO PROJECT MANAGER OR DESIGNATED REPRESENTATIVE.



BULK FUEL UPGRADE
CONTROL SPECIFICATIONS
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	9/2020
Designed	DJ
Drawn	DJ
Approved	WM

File: J:\JobsData\30410.00 Kasaaan Final Design\00 CADD\01 Working Set\03 Electrical\30410.00 Legend.dwg

LOAD CALCULATIONS:

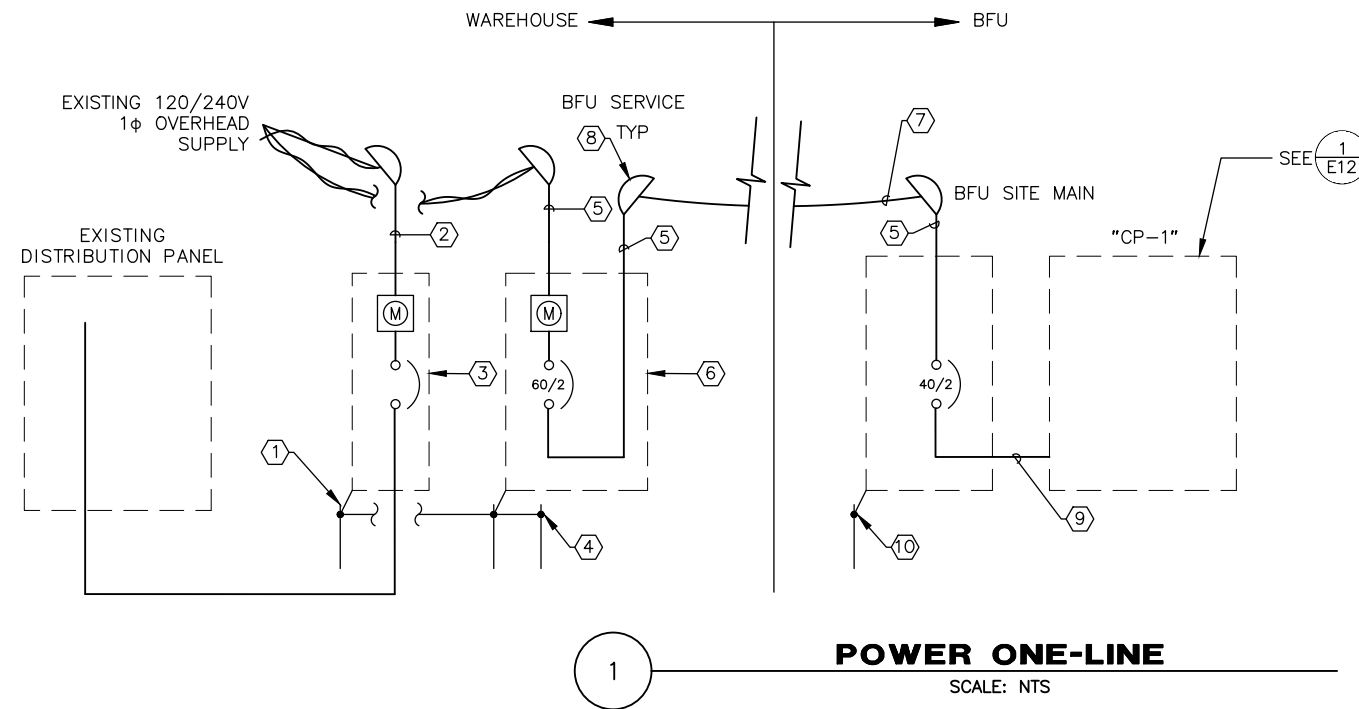
TOTAL LOAD = 6.1KVA
@240Y = 25.4A

SHORT CIRCUIT CURRENT CALCULATIONS:

MAX ALLOWABLE SHORT CIRCUIT CURRENT: 2982A @ METER/MAIN (6)
: 2196A @ DISCONNECT (11)

ASSUMED %Z = 1.7%
25KVA TRANSFORMER

PROVIDE PLACARDS AT METER/MAIN, AND DISCONNECT WITH RELEVANT INFORMATION



NOTES

- (1) EXISTING GROUND
- (2) EXISTING SERVICE RISER. TAP AND EXTEND TO NEW BFU SERVICE
- (3) EXISTING METER MAIN, 120/240V, SINGLE-PHASE, NEMA 4X
- (4) PROVIDE (2) 5/8"X10' RODS AT LEAST 6' APART AND CONNECTED TO NEW SERVICE WITH #4 COPPER. INCORPORATE EXISTING GROUND SYSTEM AS WELL WITH #4. BOND NEUTRAL.
- (5) NEW SERVICE RISER CONSISTING OF 1"C, (3)#6 (2H, G)
- (6) NEW METER MAIN, 120/240V, SINGLE-PHASE, NEMA 3R
- (7) #6 QUADRUPLIX. MAINTAIN A MINIMUM OF 18' CLEARANCE ABOVE GRADE.
- (8) WEATHERHEAD (TYP.)
- (9) 1"C, (4)#8 (2H, N, G)
- (10) PROVIDE 5/8"X10' GROUND ROD. BOND NEUTRAL. SEE E6
- (11) 40A, 240V, 2 POLE NEMA 3R DISCONNECT

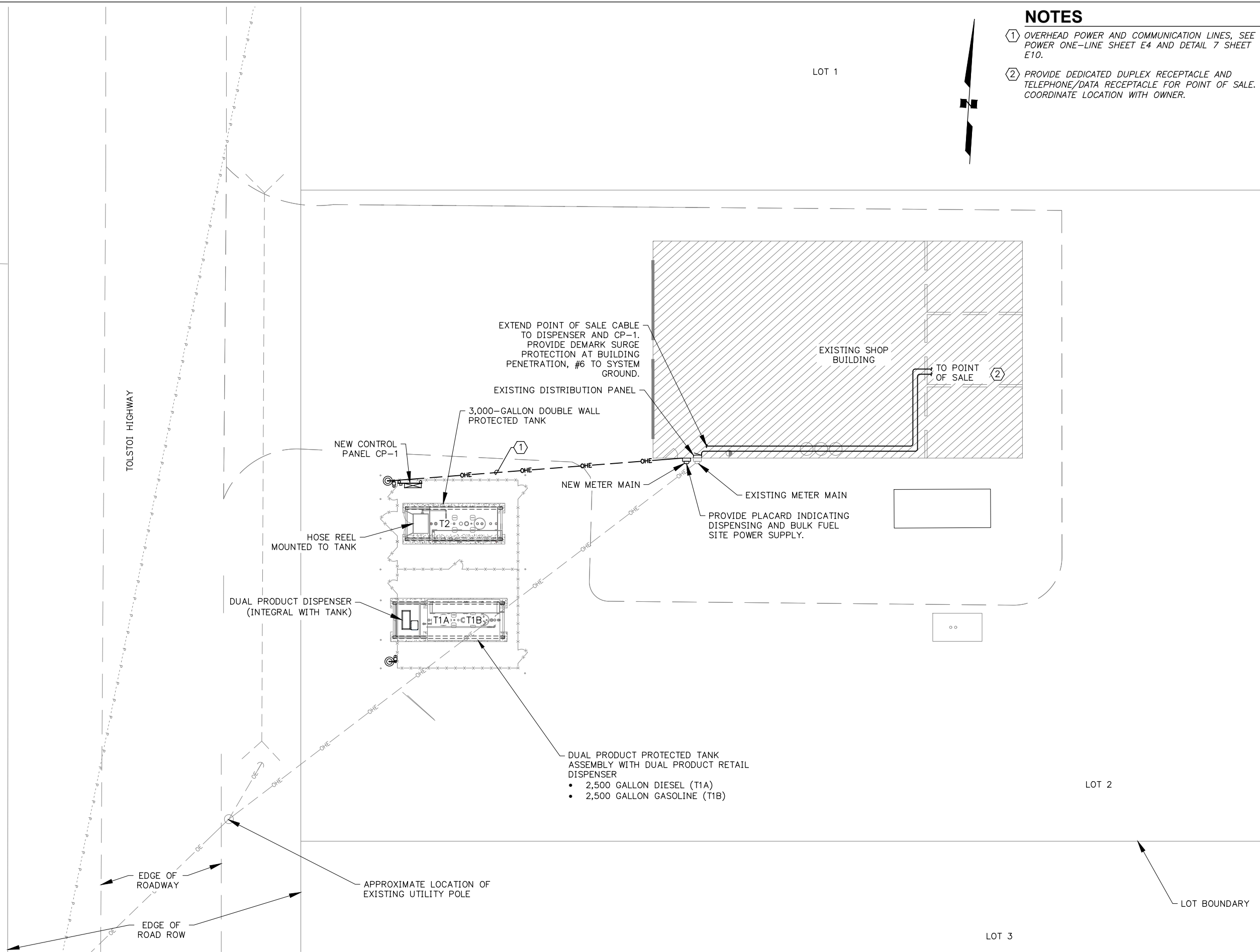


BULK FUEL UPGRADE
POWER ONE-LINE
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	9/2020
Designed	DJ
Drawn	DJ
Approved	WM

File: J:\JobsData\30410.00 Kasaaan Final Design\00 CADD\01 Working Set\03 Electrical\30410.00 Electrical Site Plan.dwg



NOTES

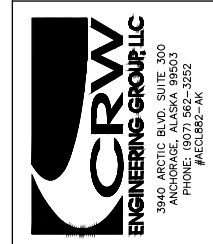
- ① OVERHEAD POWER AND COMMUNICATION LINES, SEE POWER ONE-LINE SHEET E4 AND DETAIL 7 SHEET E10.
- ② PROVIDE DEDICATED DUPLEX RECEPTACLE AND TELEPHONE/DATA RECEPTACLE FOR POINT OF SALE. COORDINATE LOCATION WITH OWNER.



1

ELECTRICAL SITE PLAN

SCALE: GRAPHIC

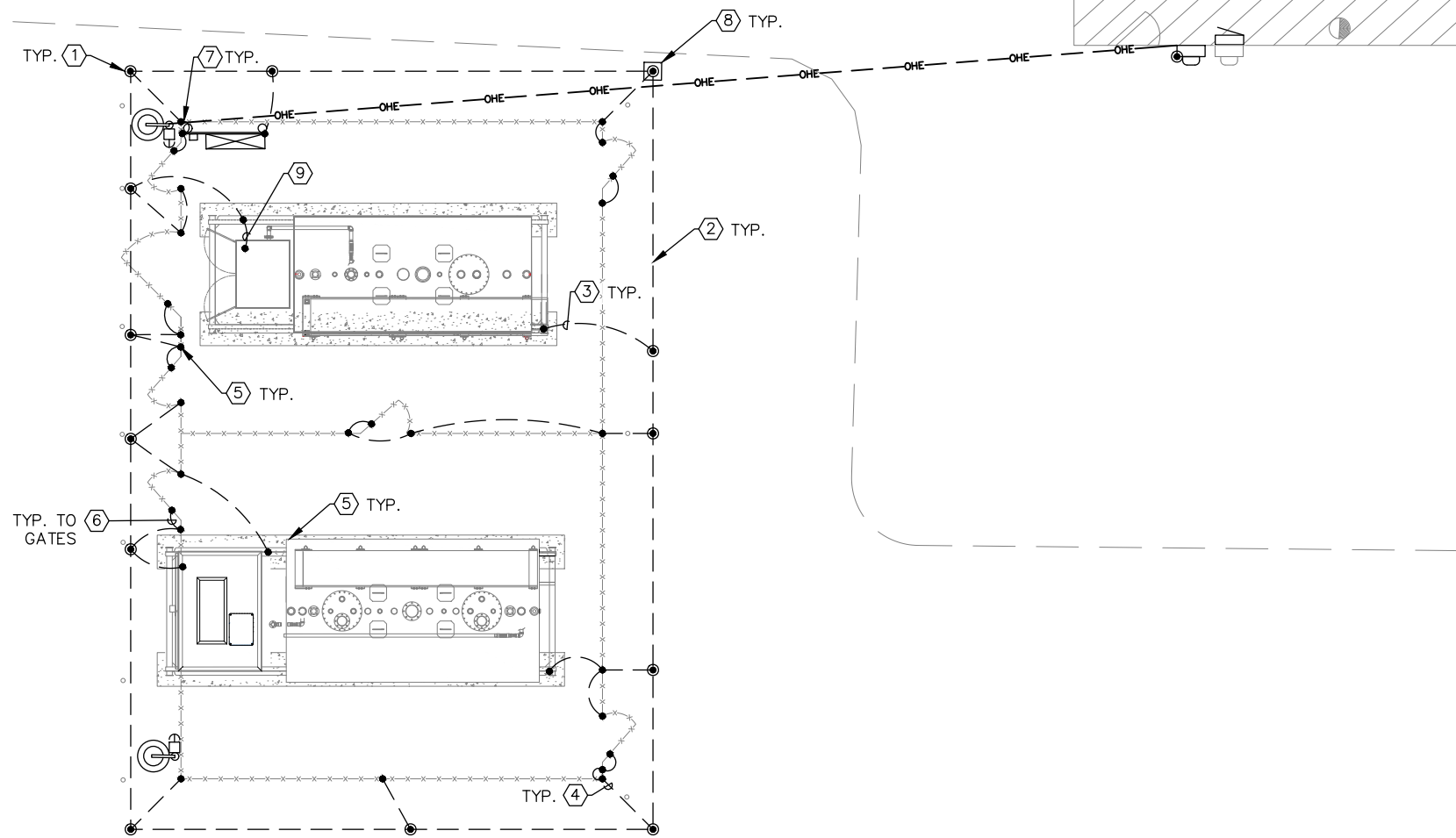


BULK FUEL UPGRADE
ELECTRICAL SITE PLAN
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	9/2020
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Drawn	DJ
Approved	WM

Sheet No. **E5**



NOTES

- ① 3/4"X10' COPPER CLAD GROUND ROD.
- ② #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.
- ③ #4 bCU GROUND TO TANKS.
- ④ #6 bCU JUMPER TO FENCE.
- ⑤ BELOW GRADE BOND: EXOTHERMIC WELDMENT
 ABOVE GRADE BOND: FENCEPOST/STAIRS, SPLIT BOLT
 ABOVE GRADE BOND: DISPENSER/PANELS, SPLIT BOLT
 TANK SKID: EXOTHERMIC WELDMENT, DO NOT WELD
 TO TANK, TOUCH UP AND PAINT/GALVANIZE
 AREA AFFECTED WHEN WELD IS COMPLETE.
 PIPELINE: APPROVED PIPE GROUNDING CLAMP
- ⑥ #6 BRAID TO GATE AND MANDOORS.
- ⑦ EXTEND #6 GROUND TO BARBED WIRE AND BOND AT ALL CORNERS AND WHERE SHOWN.
- ⑧ GROUND TEST POINT, SEE 1/E10 FOR DETAILS.
- ⑨ #4 bCU GROUND TO GROUND REEL.



BULK FUEL UPGRADE
 TANK FARM GROUNDING PLAN

KASAAN, ALASKA

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Plot Date	9/2020
Designed	DJ
Drawn	DJ
Approved	WM

Sheet No.

E6

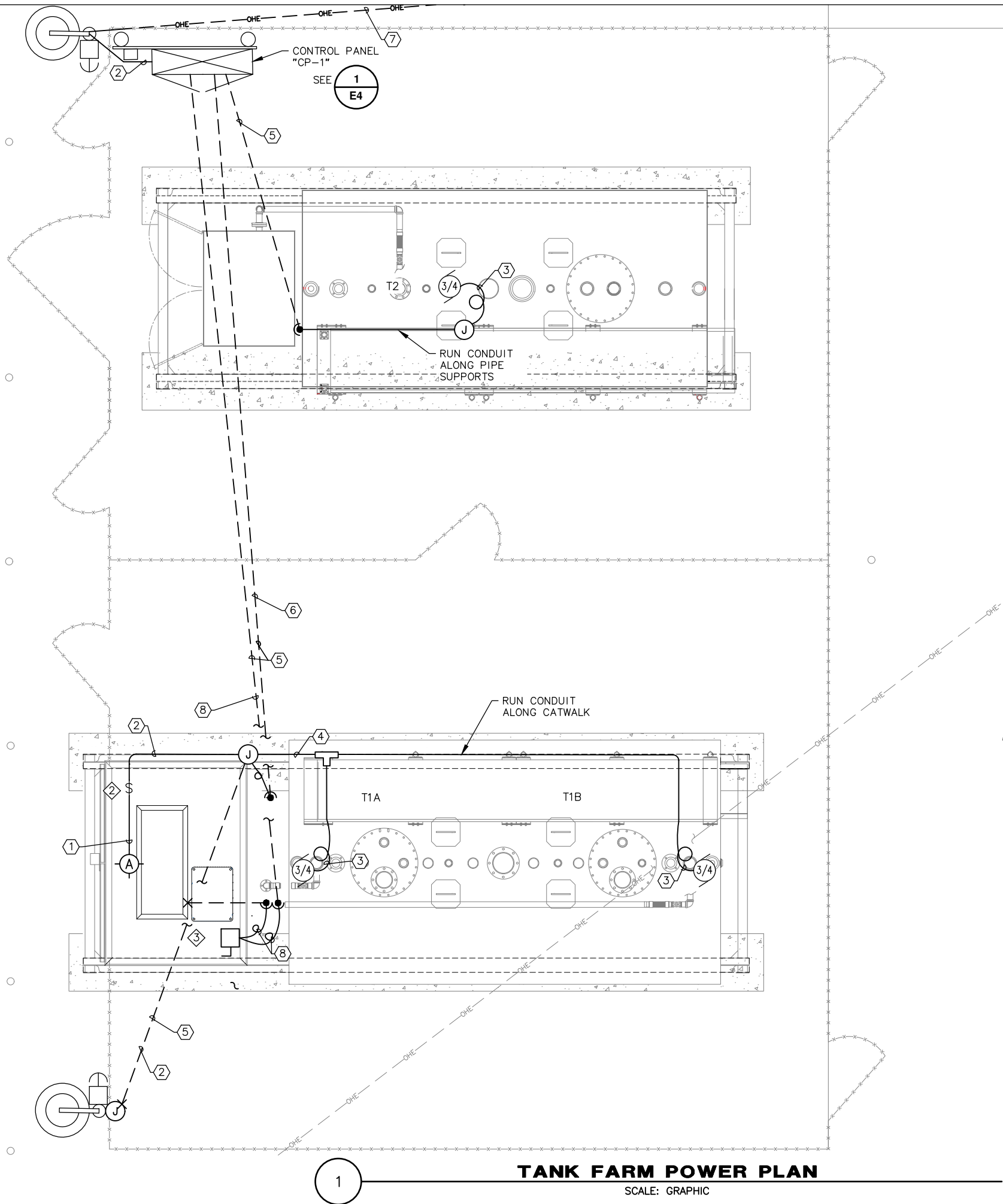
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TANK FARM GROUNDING PLAN

SCALE: GRAPHIC

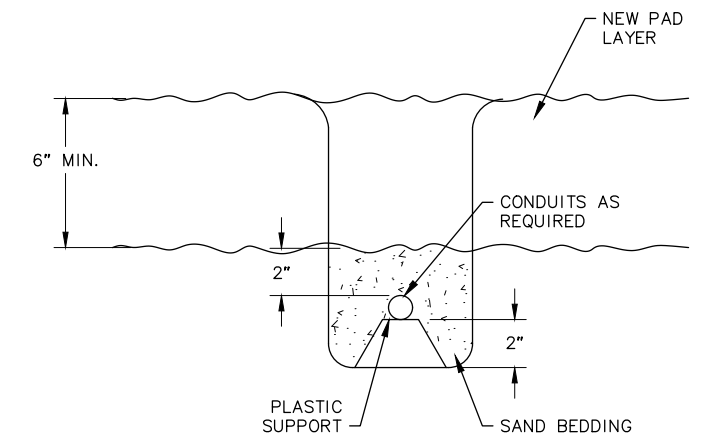


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NOTES

- ① 1/2" C, (3)#10 (N, SWITCHLEG, G)
 - ② 1/2" C, (3)#10 (H, N, G)
 - ③ 1/2" C, (3)#10 (2PUMP, G)
 - ④ 3/4" C, (5)#10 (4PUMP, G)
 - ⑤ PLASTIC COATED RMC. SEE DETAIL 2 THIS SHEET.
 - ⑥ 3/4" C, (9)#10 (4 PUMP, 2H, 2N, G)
 - ⑦ OVERHEAD POWER AND COMMUNICATIONS LINE, SEE POWER ONE-LINE SHEET E4 AND DETAIL 7 SHEET E10.
 - ⑧ 3/4" C, (7)#12, (H, N, G) DISPENSER POWER, (2SIGNAL, 2N) DISPENSER PUMP CONTROL
- NOTE: TANK AND INTEGRAL DISPENSER/HOSE REEL ASSEMBLIES ARE OWNER PROVIDED. CONTRACTOR RESPONSIBLE FOR WIRING AND POWER TO OWNER PROVIDED EQUIPMENT AS SHOWN.



2 BURIED CONDUIT DETAIL
NOT TO SCALE

TANK FARM POWER PLAN
SCALE: GRAPHIC

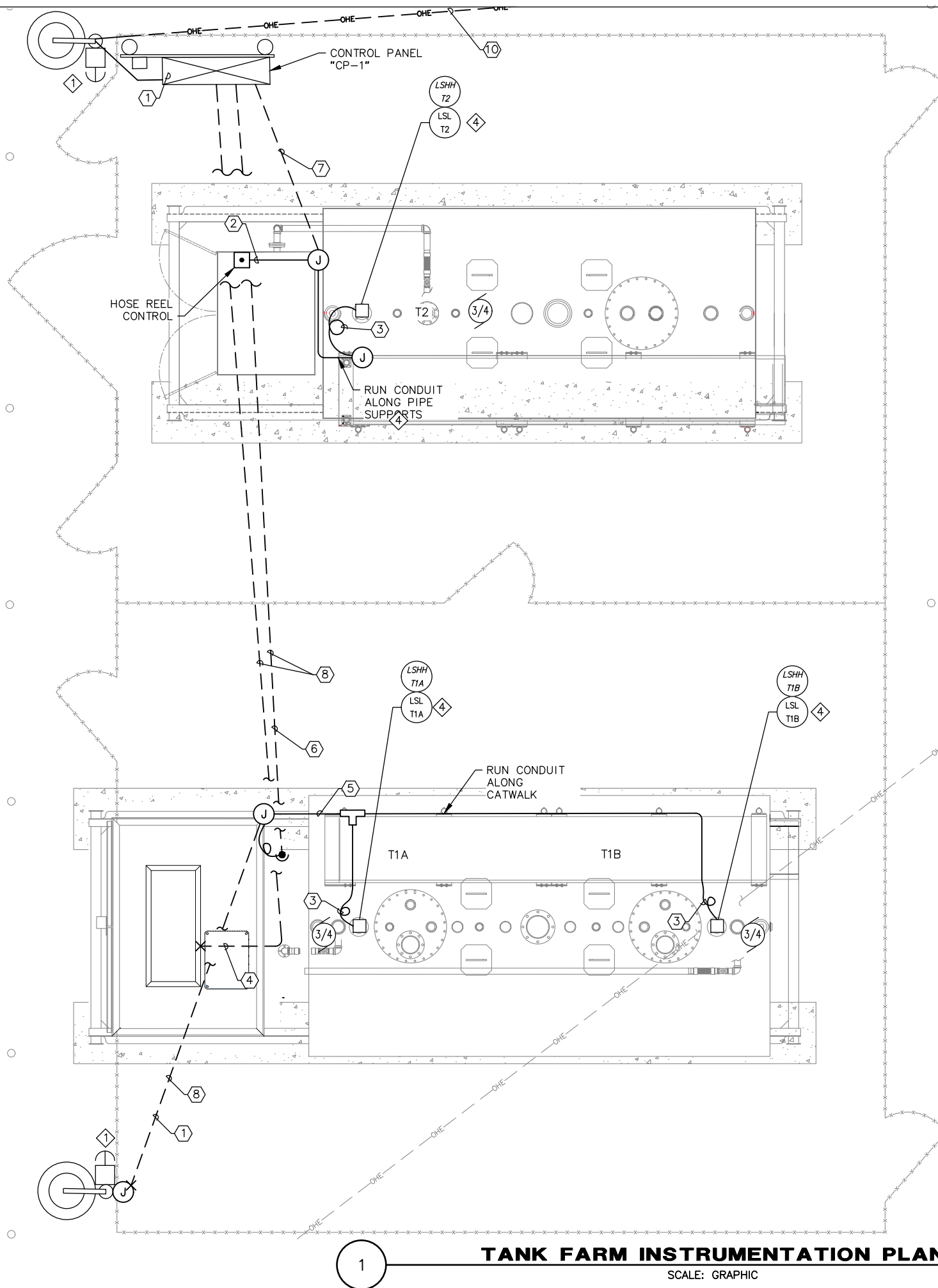


BULK FUEL UPGRADE
TANK FARM POWER PLAN
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	9/2020
Designed	DJ
Drawn	DJ
Approved	WM

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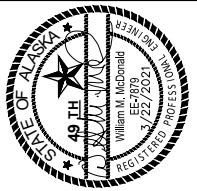
NOTES

- ① 1/2"C, (2)#12 (2ESD)
- ② 3/4"C, (4)#12 (3SIGNAL, G)
- ③ 3/4"C, (4)#12 (H, 2FLOAT, G)
- ④ 1"C, COMMUNICATIONS CABLES FOR CARD READER TO POS
- ⑤ 1"C, (7)#12 (2H, 4FLOAT, G)
- ⑥ 1"C, (9)#12 (2H, 2ESD, 4FLOAT, G)
- ⑦ 1"C, (7)#12 (H, 3SIGNAL, 2FLOAT, G)
- ⑧ PLASTIC COATED RMC. SEE DETAIL 2 SHEET E7.
- ⑨ SEE SHEET E7 FOR PUMP CONTROL CIRCUITS.
- ⑩ OVERHEAD LINE, SEE POWER ONE-LINE SHEET E4 AND DETAIL 7 SHEET E10.

NOTE: TANK AND INTEGRAL DISPENSER/HOSE REEL ASSEMBLIES ARE OWNER PROVIDED. CONTRACTOR RESPONSIBLE FOR WIRING AND POWER TO OWNER PROVIDED EQUIPMENT AS SHOWN.



1 TANK FARM INSTRUMENTATION PLAN
SCALE: GRAPHIC

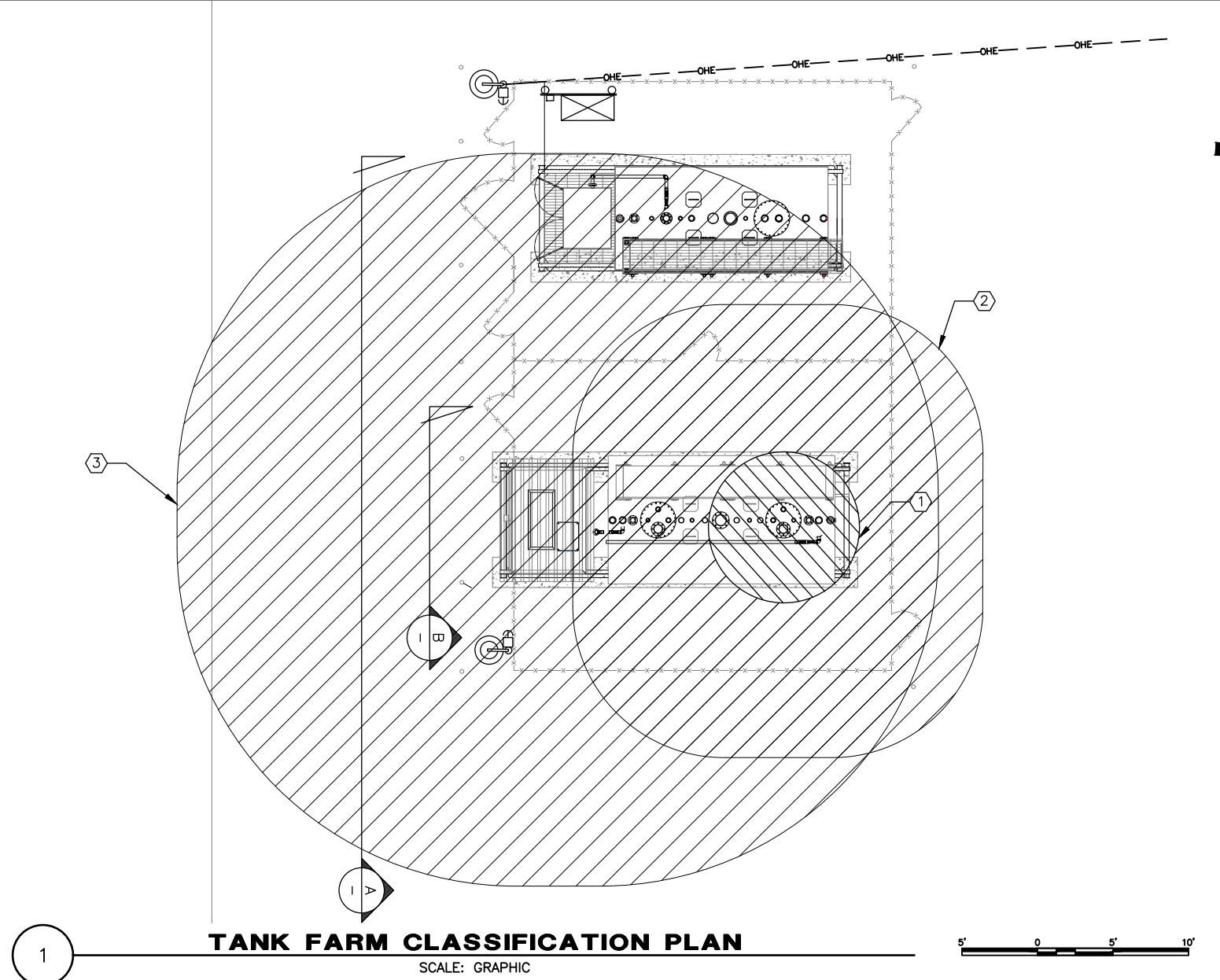


BULK FUEL UPGRADE
TANK FARM INSTRUMENTATION PLAN
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

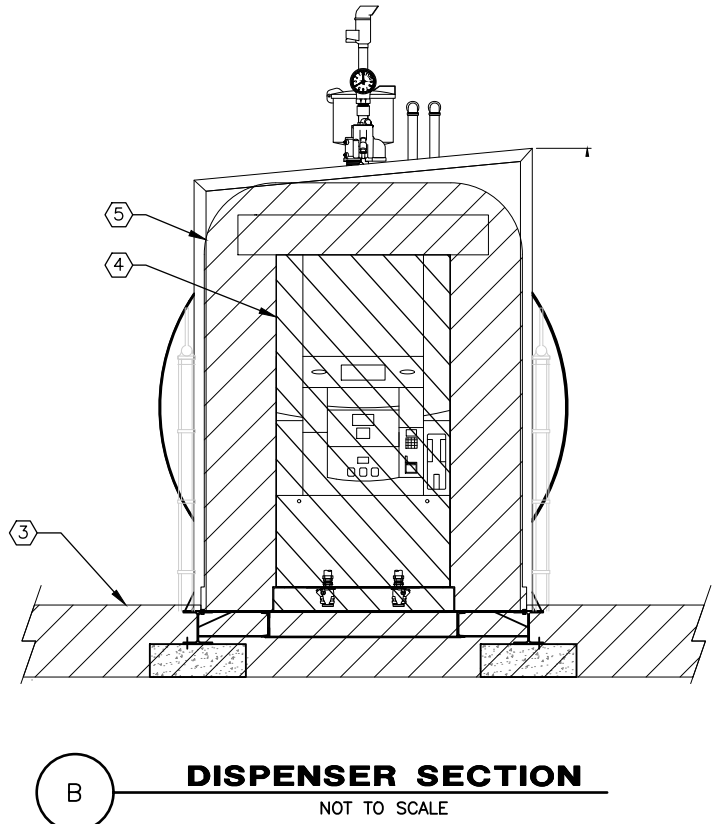
Plot Date	9/2020
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Drawn	DJ
Approved	WM

File: J:\JobsData\30410.00 Kasaaan Final Design\00 CADD\01 Working Set\03 Electrical\30410.00 Hazardous Area Plan.dwg



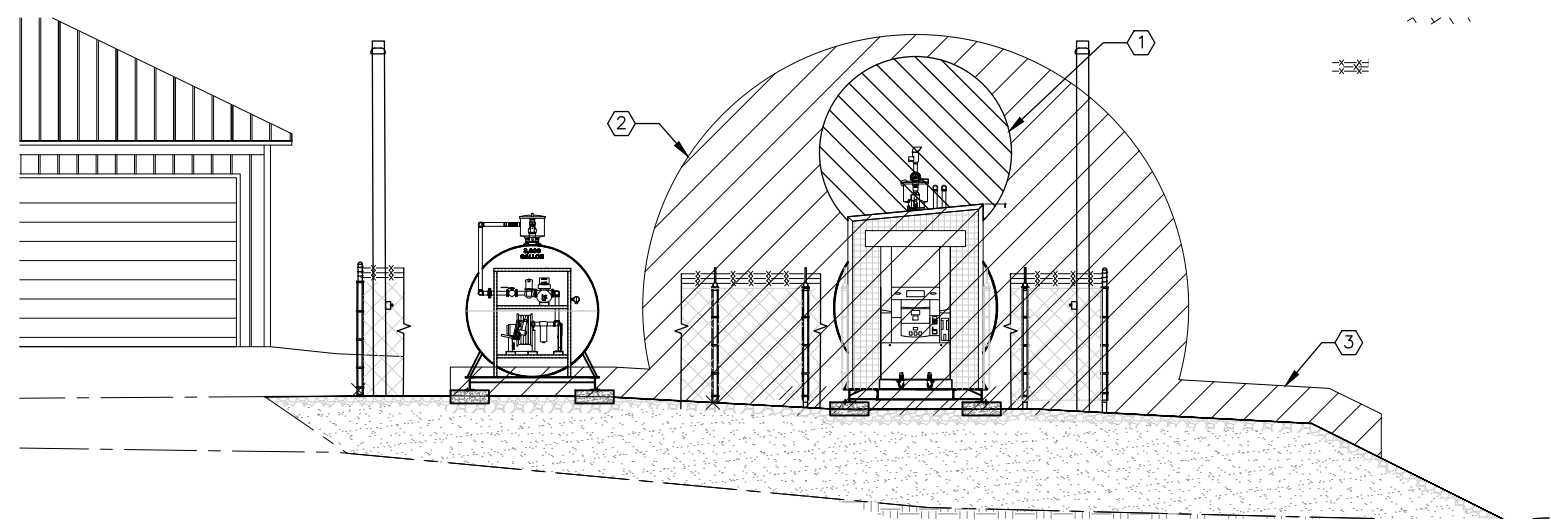
TANK FARM CLASSIFICATION PLAN

SCALE: GRAPHIC



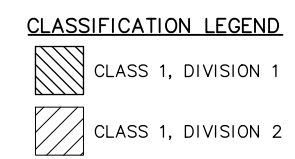
DISPENSER SECTION

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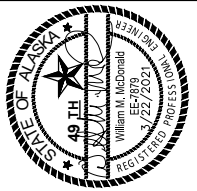
TANK FARM CLASSIFICATION ELEVATION

SCALE: GRAPHIC



NOTES

- ① CLASS 1, DIVISION 1 RATING EXTENDS 5' IN ALL DIRECTIONS AROUND GASOLINE TANK VENTS.
- ② CLASS 1, DIVISION 2 RATING EXTENDS 10' IN ALL DIRECTIONS OF GASOLINE TANKS.
- ③ THE AREA 18" ABOVE GRADE WITHIN 20' OF DUAL DISPENSER IS CLASS 1, DIVISION 2 RATED.
- ④ THE AREA INSIDE THE DUAL PRODUCT DISPENSER AND INSIDE AND BELOW THE PAN BASIN IS CLASS 1, DIVISION 1 RATED.
- ⑤ THE AREA WITHIN 18" OF THE DUAL PRODUCT DISPENSER IS CLASS 1, DIVISION 2 RATED.



BULK FUEL UPGRADE
TANK FARM AREA CLASSIFICATION
KASAAAN, ALASKA

NO.	REVISION	BY	DATE

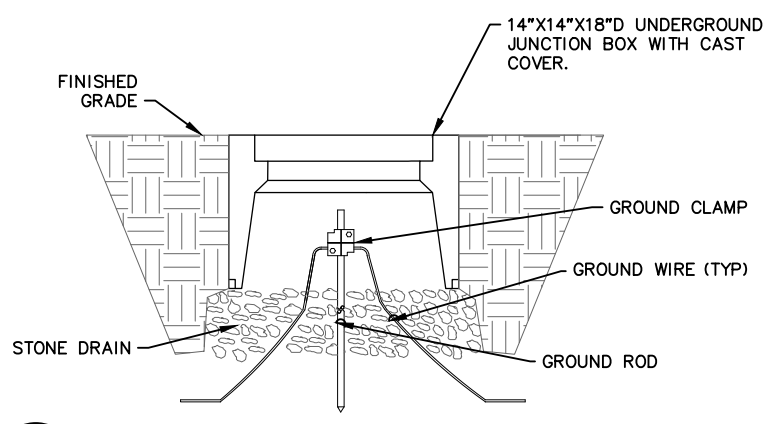
Plot Date	9/2020
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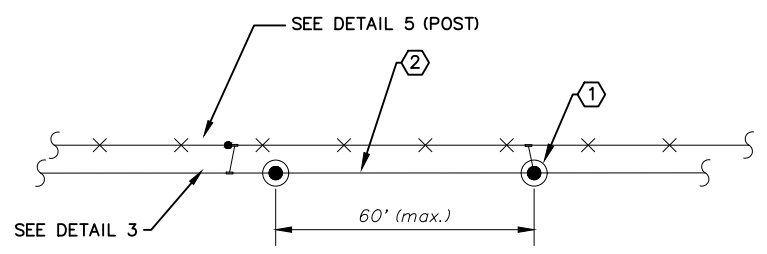
Plot Date	9/2020	Designed	DJ	Drawn	DJ	Approved	WM
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NOTES

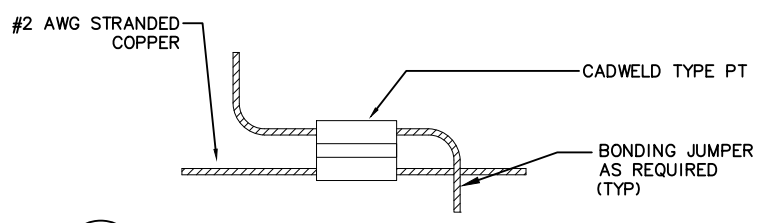
- ① 3/4"X10' COPPER CLAD GROUND ROD.
- ② #2 bCU GROUND RING BURIED MIN 30" BELOW GRADE.
- ③ PROVIDE COMMUNICATIONS CABLE SYSTEM. AERIAL RATED CABLE BETWEEN STRUCTURES, INTERIOR CABLE TO BE RUN IN METALLIC CONDUIT SIZED AS REQUIRED
- ④ SEE SHEET E4, DETAIL 1, NOTE 7.



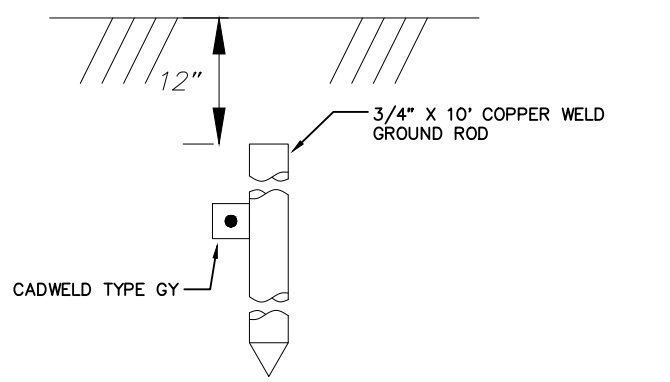
1 GROUND TEST POINT ELEVATION
SCALE: NTS



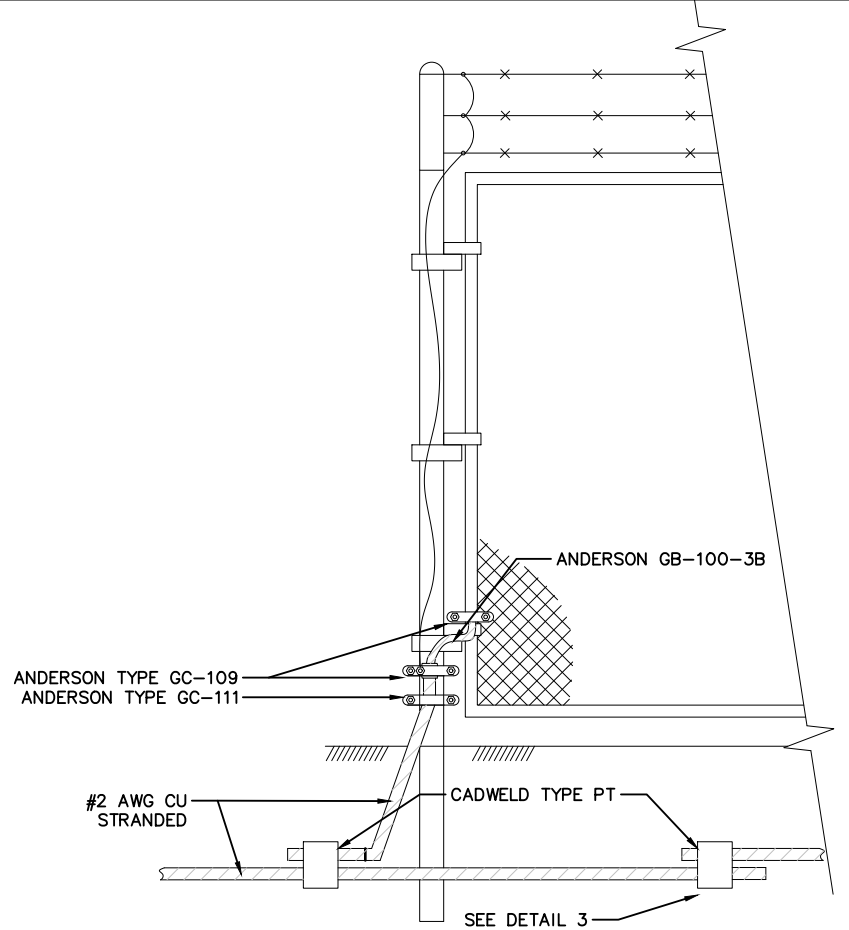
2 FENCE GROUNDING
SCALE: NTS



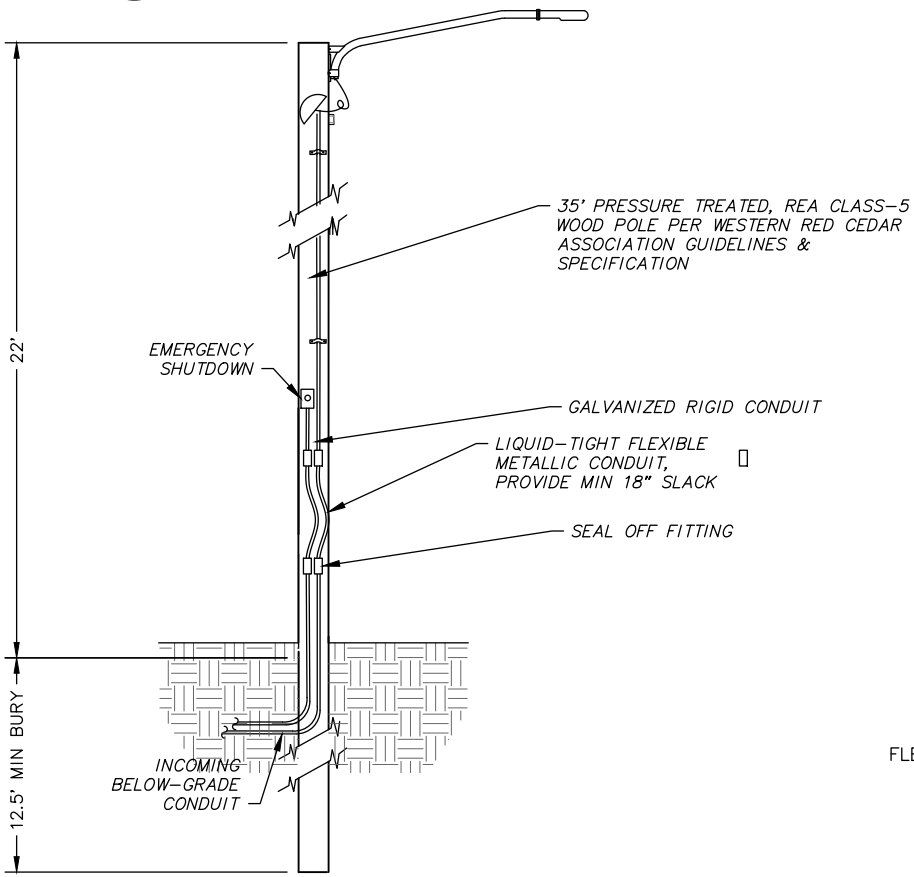
3 GROUND RING CONNECTION
SCALE: NTS



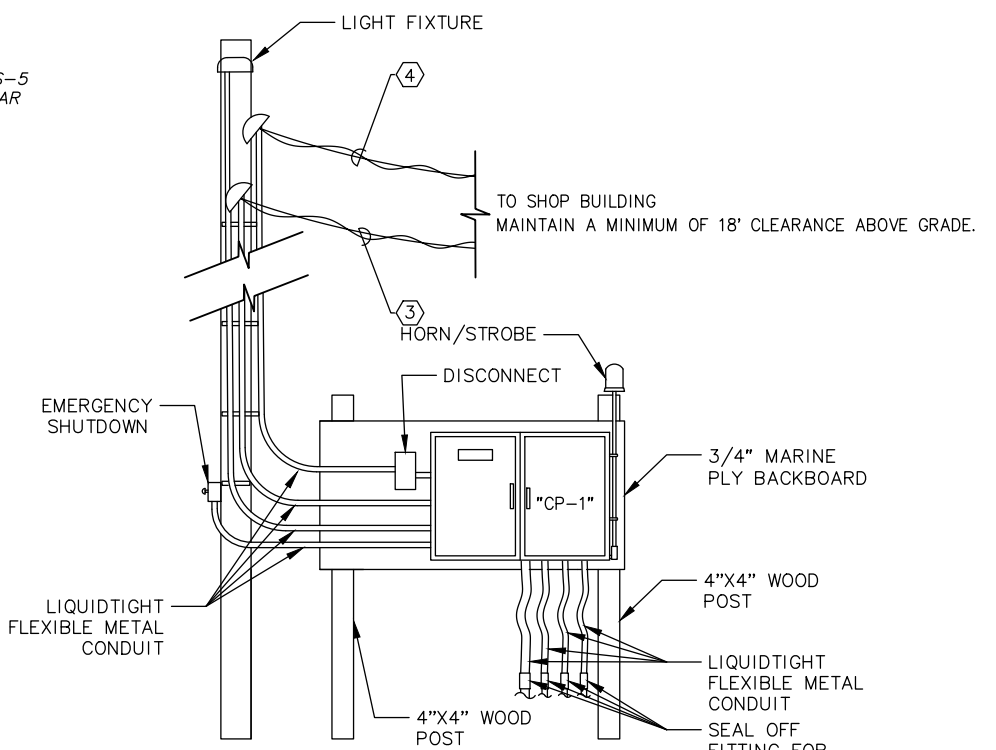
4 GROUND ROD CONNECTION
SCALE: NTS



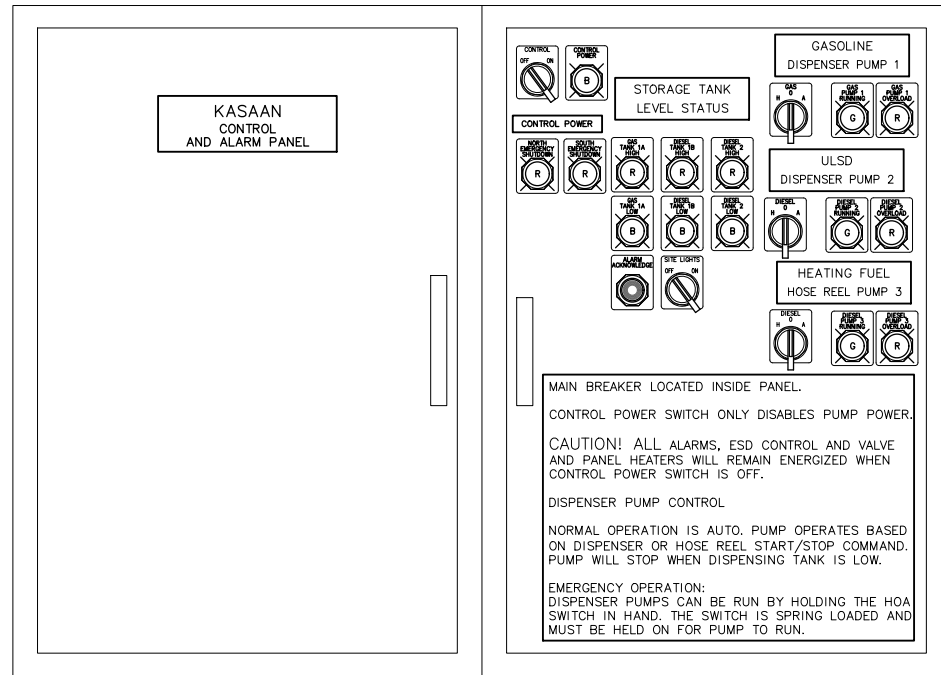
5 POST/GATE/DOOR GROUNDING (TYP.)
SCALE: NTS



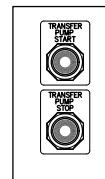
6 LIGHT POLE
SCALE: NTS



7 PANEL RISER DETAIL
SCALE: NTS



1 **FUEL CONTROL PANEL CP-1 LAYOUT**
 NOT TO SCALE



2 **HOSE REEL CONTROL LAYOUT**
 NOT TO SCALE

ALARM AND PUMP CONTROL NARRATIVE

The control panel monitors and activates the tank level alarms, and powers the submersible pumps in each tank. The panel also provides for acknowledgement of alarm conditions, monitors emergency shutdown switch status and powers site lighting.

ALARMS

Each dispensing tank is equipped with a CRITICAL HIGH (LSHH – XX) Level Float switch that, when fuel reaches its level, opens a circuit (fails safe) and causes an alarm horn/strobe to signal a CRITICAL HIGH Level has been reached. The CRITICAL HIGH Level condition is indicated on the front of the panel as well, identifying the tank(s) with high level(s).

The dispensing tanks are equipped with Low Level Floats (LSL). If tank fuel level drops below the float sensing level, the associated pump will stop until transfer is completed. A pilot light on the front panel indicating TANK LOW will be illuminated.

The operator can acknowledge the alarm by pressing the ALARM ACKNOWLEDGE button on the control panel. This extinguishes the strobe and silences the horn, but the front panel light will remain illuminated until sufficient fuel is drained from the tank to drop its fuel level below the CRITICAL HIGH float's sensing point. At that time the front panel light will extinguish.

The control logic for alarm is set up so that each new alarm condition will cause the audible and visual alarms to annunciate, regardless of any existing (acknowledged) alarm conditions.

EMERGENCY SHUTDOWN

The Emergency shutdown system, when engaged, will cause the alarm horn/strobe to be energized. There are two emergency shutdown stations; both by the front gates, north and south. The alarm is enabled by pushing the ESD button and is extinguished by pulling the Emergency Shutdown Switch (ESD) "out", clearing the signal. When an ESD button is pushed, all powered conductors to the dispensers are disconnected and all pumps are shut down. Lighting and alarms are NOT de-energized and will remain active.

FUEL TRANSFER

The above ground storage tanks are filled by fuel tanker trucks via the truck pumping system.

DISPENSING PUMPS

The dispensing system can be either manual or automatic. The following applies to both the Gas and Diesel systems.

Normal operation is for the system to operate in AUTO mode.

Automatic operation

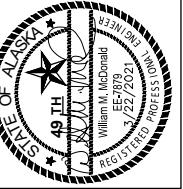
AUTO mode is the intended continuous mode for these controls. In AUTO, the operation of the gasoline and diesel dispensing pumps is controlled by the dispenser. Other operating parameters are identical to the manual mode.

The hose reel STOP START remote operates the hose reel pump.

When the hose reel pump is running a timer is activated and when the preset time has elapsed the pump is shut down. Should the timer shut the pump down before the required amount of fuel is provided, pushing the START button would cause the timer to reset allowing the pump to resume operation.

Manual operation

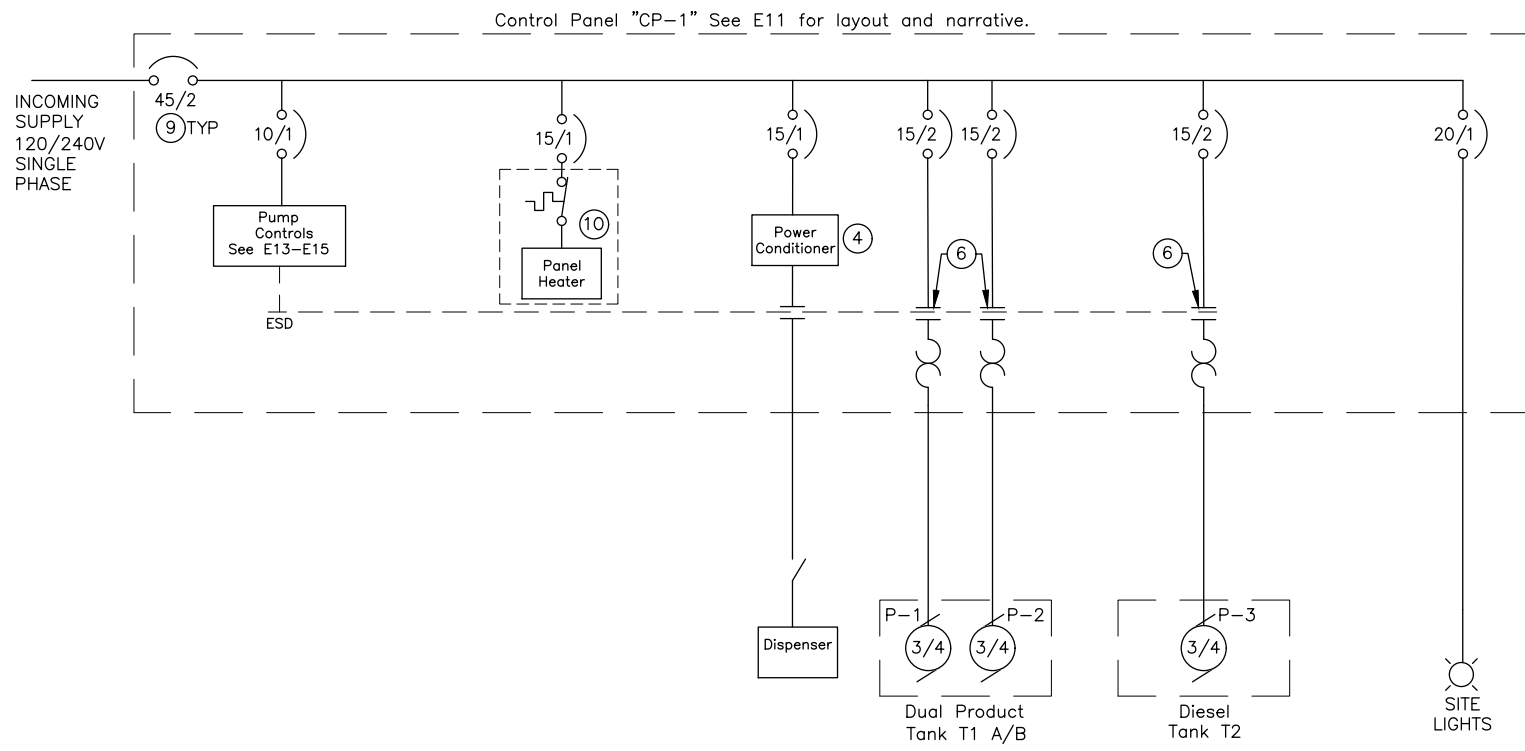
By placing (and holding) the HOA switch in the HAND position, the dispenser pump will start and run. Its RUN light will turn on and the pump will continue running until the low float is exposed, the pump experiences an overload condition where either the panel mounted motor starter control is opened internally, or an internal temperature sensor in the motor detects an overheat condition or the operator releases the HOA switch. If a panel-based overload causes the shutdown, a pilot light on the panel front will be energized (no other indication will be given, other than the pump stopping). A RESET pushbutton on the pump motor starter located inside the panel must be pressed to clear the overload relay in order to allow the pump to restart. The HOA switch is spring loaded so that upon release it will return to OFF from the HAND position. The HAND or manual mode is provided for maintenance and testing however it could be used to operate the Dispensing system in the event of control failure.



BULK FUEL UPGRADE
 TANK FARM PANEL CP-1 LAYOUT
 KASAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	9/2020
Designed	AJ
Drawn	AJ
Approved	WM

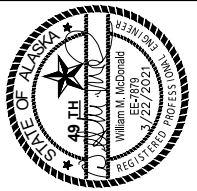


1 CP-1 AND FIELD EQUIPMENT POWER ONE-LINE
SCALE: NTS

#	ITEM
1	PILOT LIGHT, 120V, LED, NEMA 4X, LENS TINT AS SHOWN, ALLEN BRADLEY 800H SERIES
2	120V TERMINAL BLOCK RELAY, SPDT, ALLEN BRADLEY 700HLF
3	PILOT LIGHT, PUSH TO TEST, 120V, LED, NEMA 4X, LENS TINT AS SHOWN ALLEN BRADLEY 800H SERIES
4	1KVA, 120V VOLTAGE REGULATOR. SOLA OR EQUAL
5	3-POSITION SELECTOR SWITCH, 120V, NEMA 4X, HAND-OFF-AUTO, WITH SPRING RETURN FROM HAND TO OFF POSITION, ALLEN BRADLEY 800H SERIES
6	2-POLE, SINGLE PHASE, 600V, COMBINATION MOTOR CONTROLLER WITH NEMA SIZE 00 FVNR CONTACTOR SUITABLE FOR GROUP MOTOR PROTECTION. PROVIDE WITH O/L AND AUX CONTACT SETS AS REQUIRED. CUTLER-HAMMER N307UNSAX3N OR EQUAL W C320TR11 TRIP AND C3320SA20 AUX
7	MULTI-POLE CONTACTOR, 120V COIL, 20A RATED CONTACTS. # OF CONTACTS AS REQUIRED.
8	ALARM STROBE, 120V, FEDERAL ELECTRA FLASH #141 W/ RED LEXAN DOME.
9	INTEGRAL POWER DISTRIBUTION.
10	120V, PANEL HEATER W/ INTEGRAL THERMOSTAT WATTAGE AS REQUIRED, HOFFMAN SERIES #D-AH.
11	NORMALLY OPEN PUSHBUTTON, 120V, 10A, NEMA 4X, ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
12	NORMALLY CLOSED PUSHBUTTON, 120V, 10A, NEMA 4X, ALLEN BRADLEY 800H SERIES - CONTACT BLOCKS AS REQUIRED.
13	2-POSITION SELECTOR SWITCH, 120V, NEMA 4X, ON-OFF, 10A RATED CONTACTS, ALLEN BRADLEY 800H SERIES.
14	NEMA 4 RATED 2-DOOR DEAD FRONT ENCLOSURE 20HX40WX10D. PROVIDE WINDOW FOR PILOT LIGHTS ON LOCKABLE PRIMARY EXTERIOR DOOR SIDE.
15	TERMINAL BLOCK RELAY, 2PDT, 120V COIL 10A RATED ALLEN BRADLEY 700 HLT.
16	ADJUSTABLE TIME DELAY RELAY, MODULE FOR ITEM 3 ABOVE, ALLEN BRADLEY 700-AT3A1.

SEE E1 FOR FIELD MOUNTED ELECTRICAL EQUIPMENT SCHEDULE.

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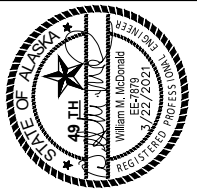
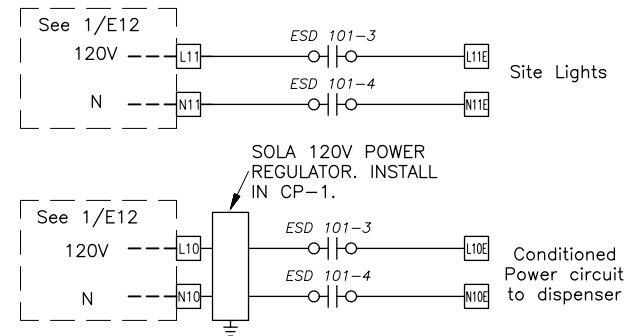
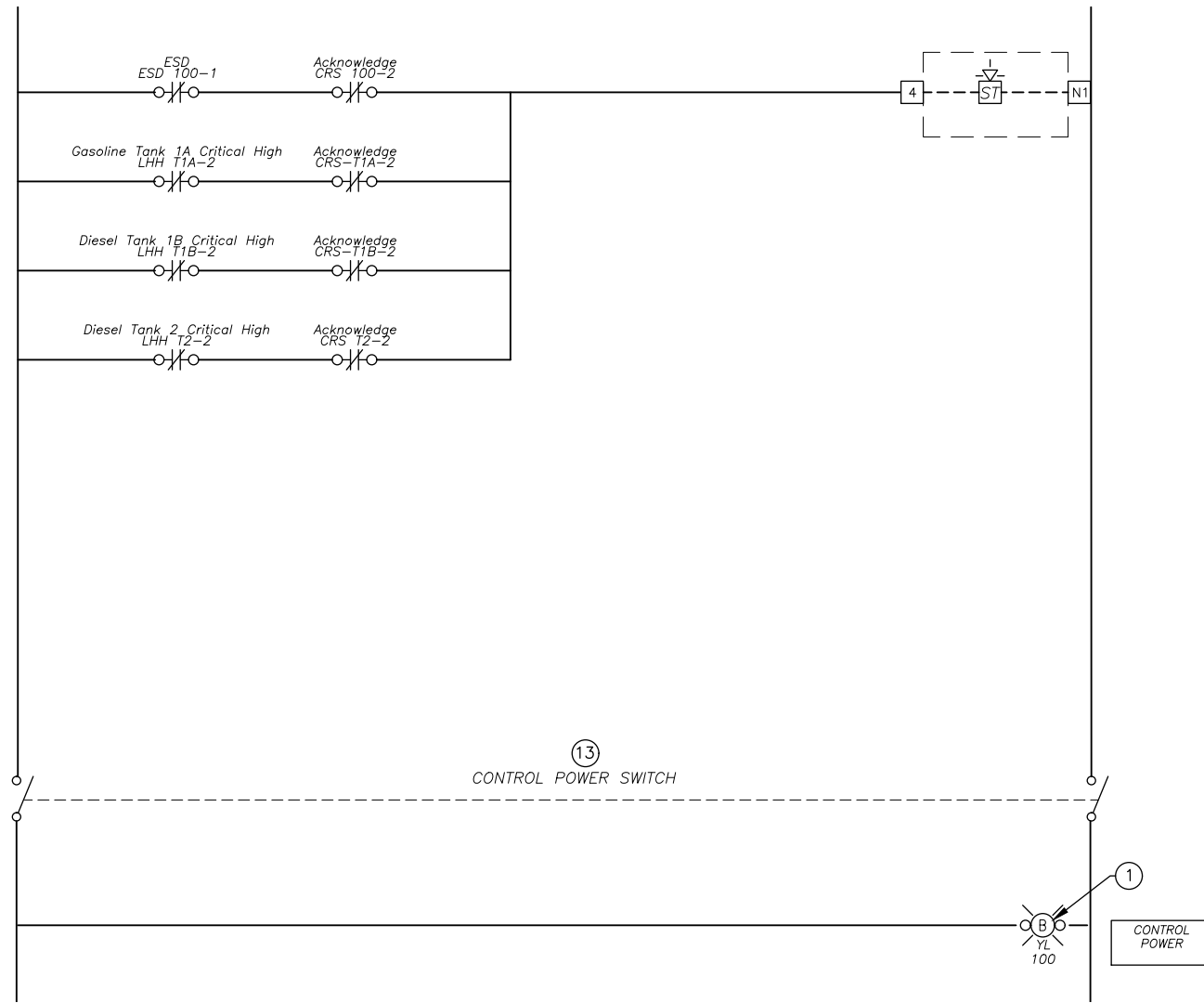
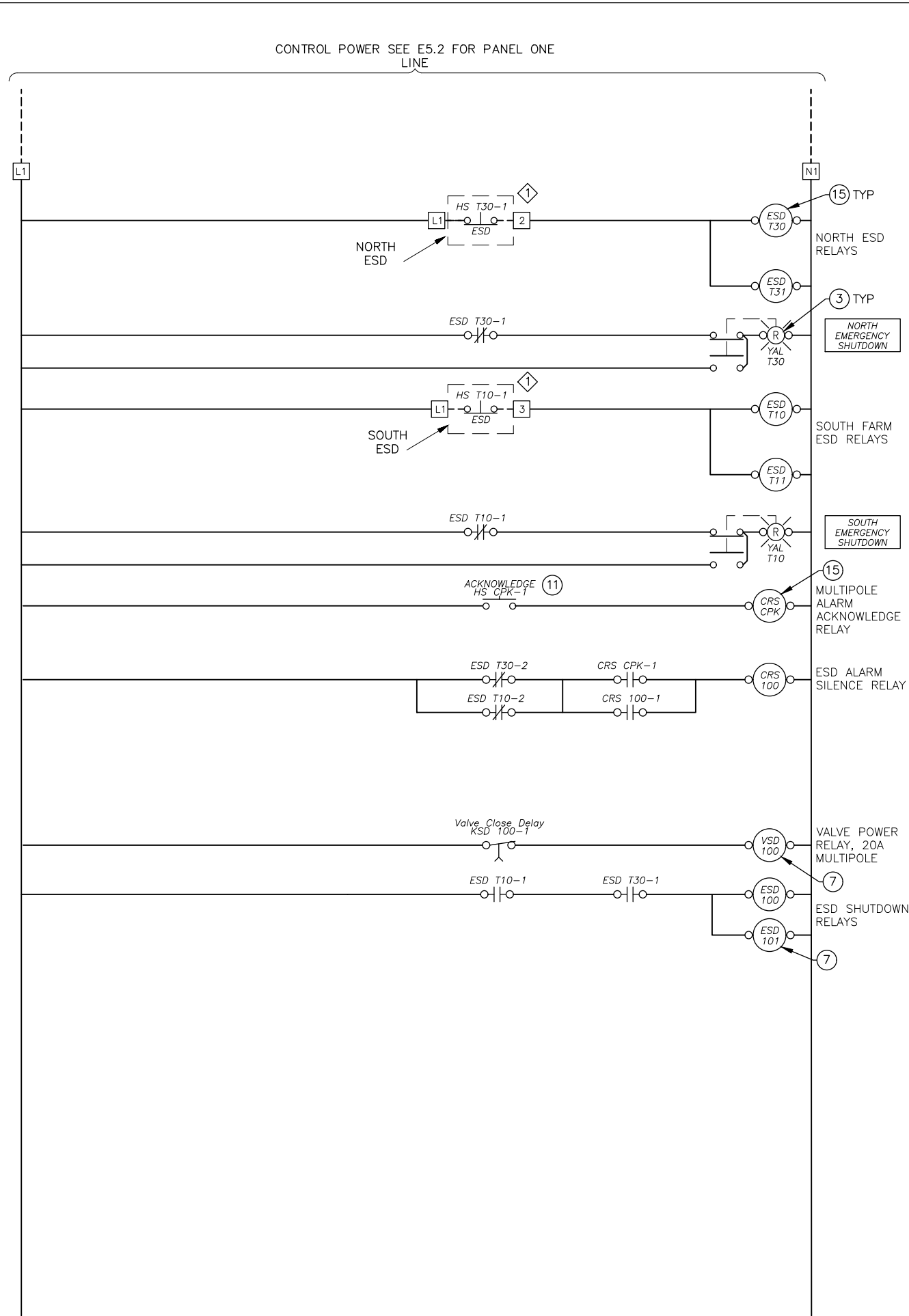


BULK FUEL UPGRADE
CP-1 ONE-LINE
KASAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date: 9/2020
Designed: AJ
Drawn: AJ
Approved: WM

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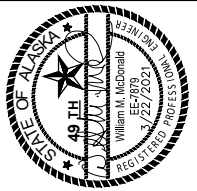
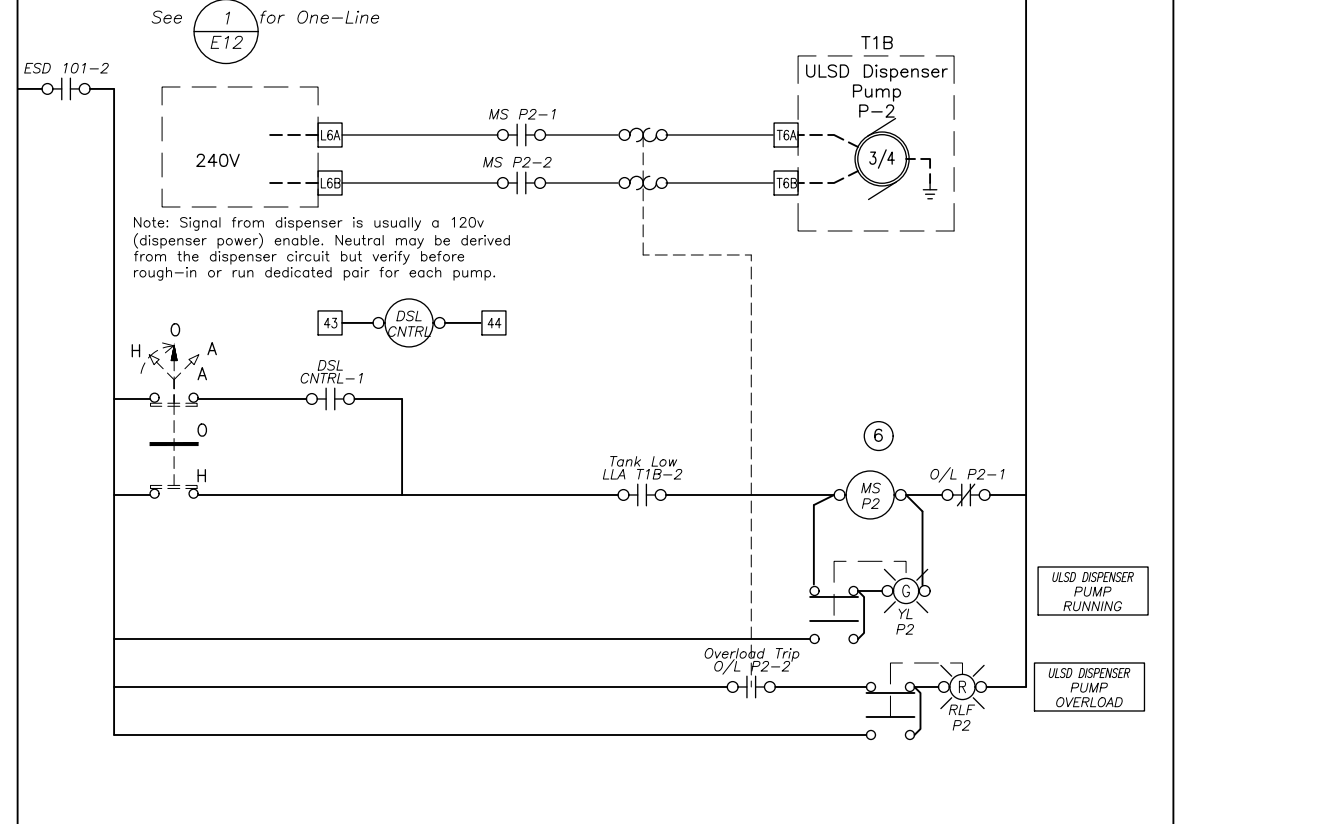
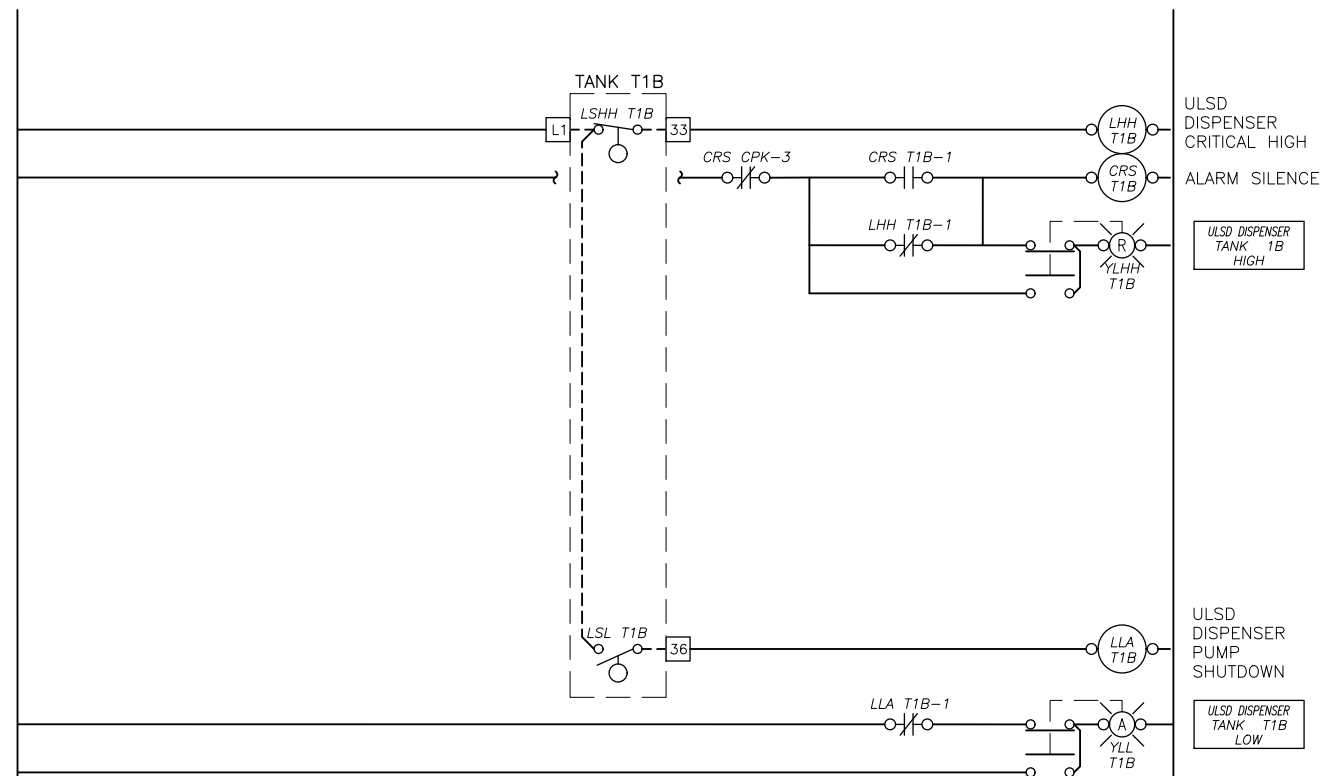
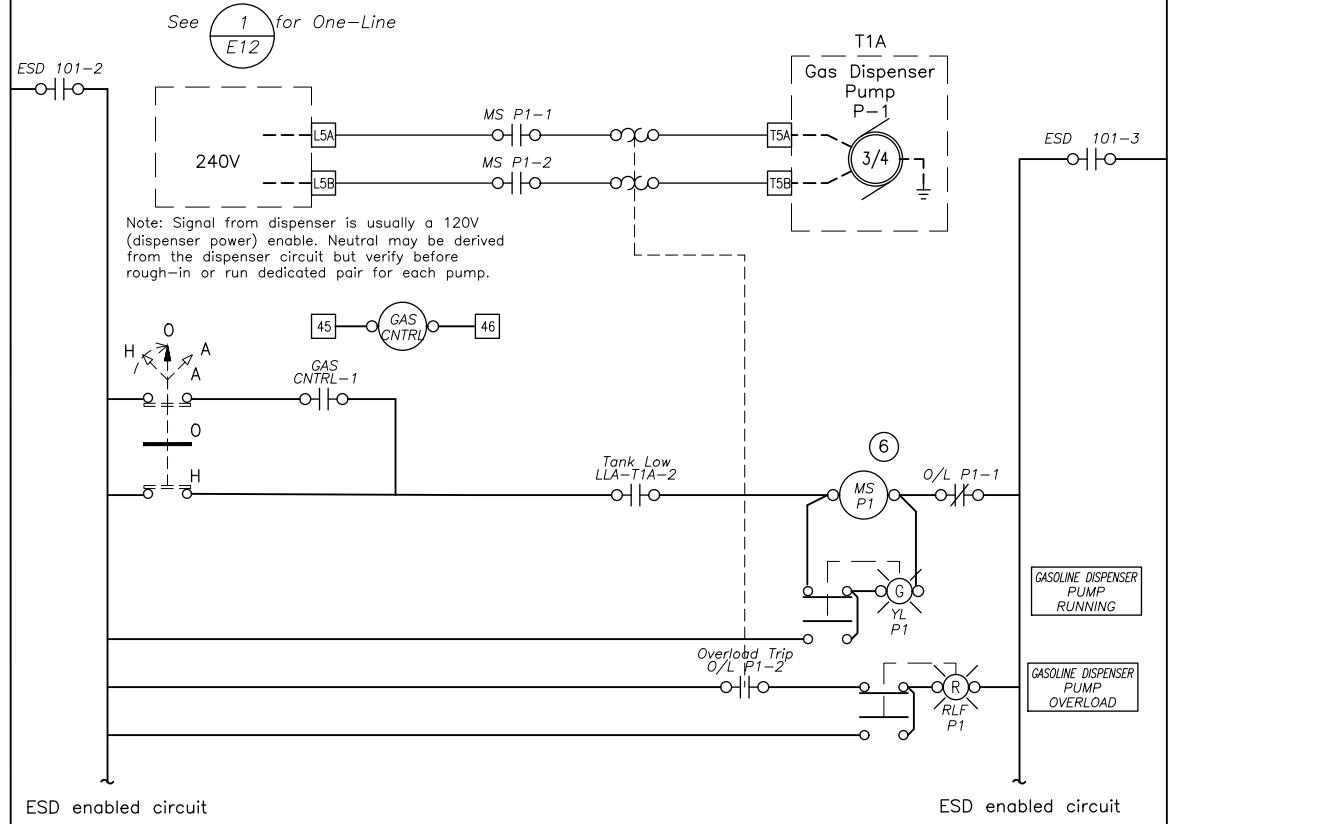
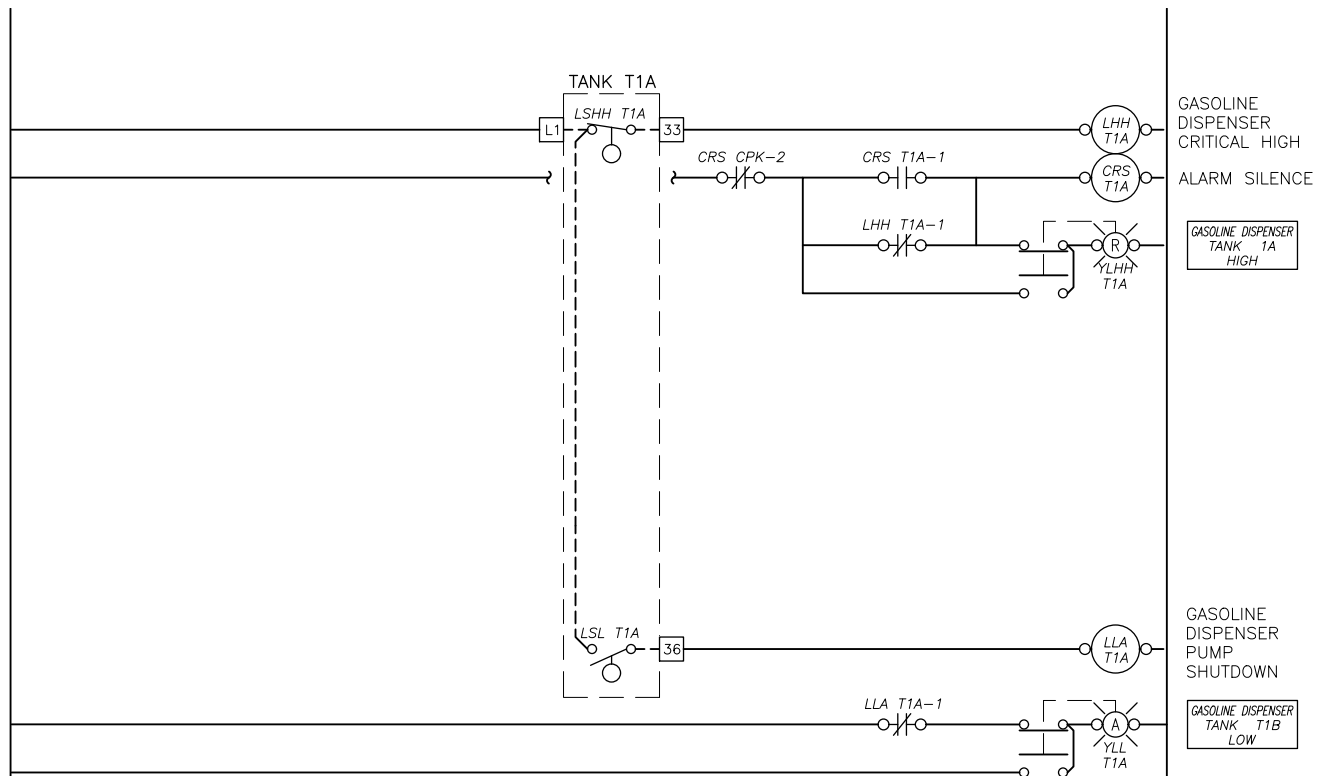


BULK FUEL UPGRADE
 CP-1 LADDER (1 OF 3)
 KASAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date 9/2020
 Designed AJ
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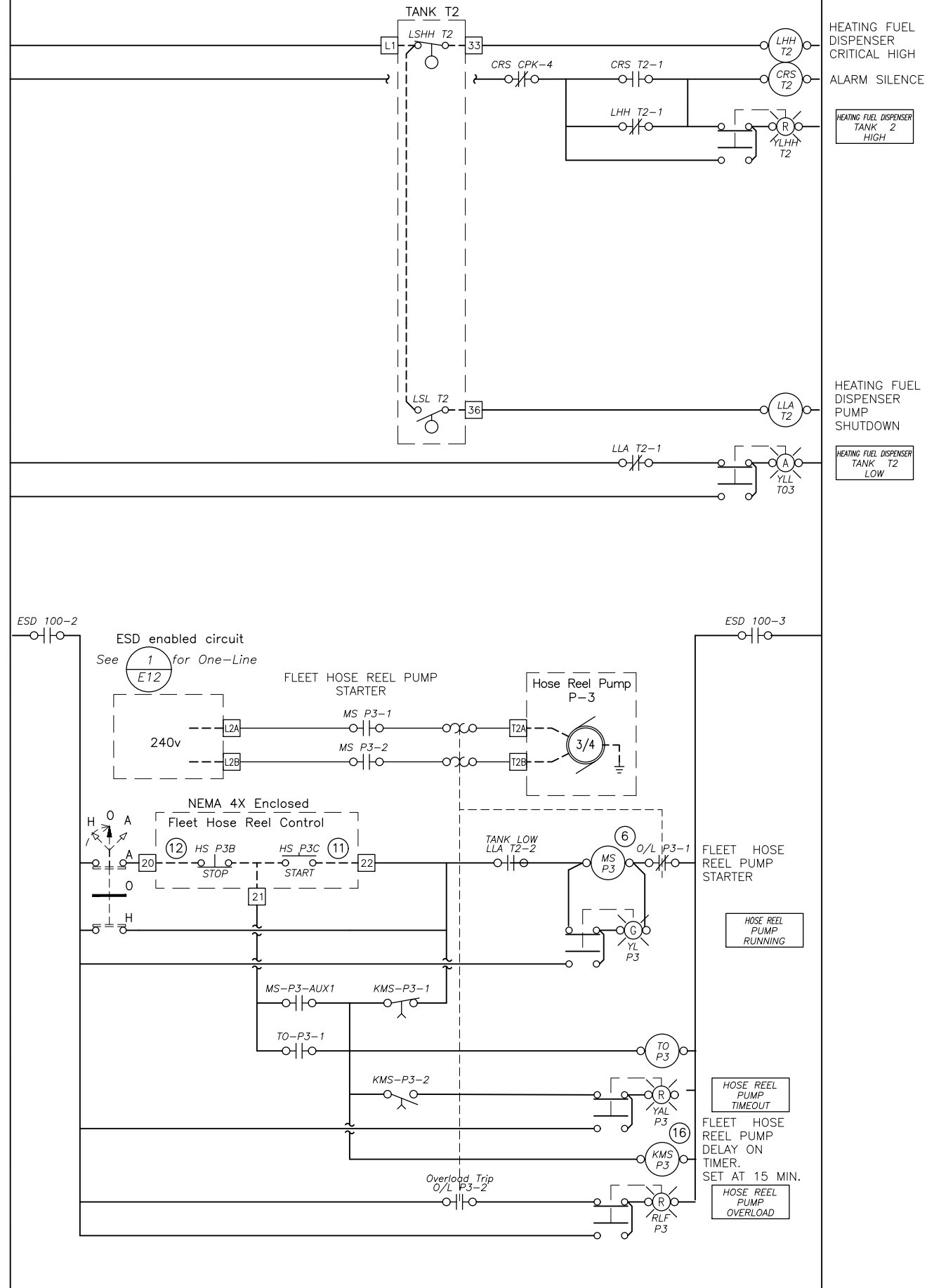


BULK FUEL UPGRADE
CP-1 LADDER (2 OF 3)
KASAAAN, ALASKA

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BULK FUEL UPGRADE
CP-1 LADDER (3 OF 3)

KASAAAN, ALASKA

NO.	REVISION	BY	DATE

Plot Date	9/2020
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Drawn	AJ
Approved	WM

Sheet No. **E15**