

## MECHANICAL SPECIFICATIONS

### GENERAL PROVISIONS (DIVISION 21, 22, 23)

#### SCOPE OF WORK

THIS PROJECT IS GENERALLY DESCRIBED AS MODIFYING THE GAS PIPING SYSTEMS TO THE ST. PAUL BULK FUEL STORAGE FACILITY. IT INCLUDES THE ADDITION OF EQUIPMENT AND SYSTEMS TO SERVE THE GAS PIPING FUNCTIONS IN THE FACILITY.

#### INTENT OF DRAWINGS AND SPECIFICATIONS

THE INTENT OF THE CONTRACT DOCUMENTS IS FOR THE CONTRACTOR TO INCLUDE ALL WORK NECESSARY FOR COMPLETE MECHANICAL SYSTEMS, TESTED AND READY FOR OPERATION. BY SUBMITTING A PROPOSAL, THE CONTRACTOR REPRESENTS THEY HAVE MADE A THOROUGH EXAMINATION OF THE SITE, OF THE WORK AND ALL EXISTING CONDITIONS AND LIMITATIONS, AND THEY HAVE DETERMINED THE DOCUMENTS ARE ADEQUATE AND SATISFACTORY FOR THE COMPLETION OF THE WORK.

MECHANICAL DRAWINGS DO NOT ATTEMPT TO SHOW ALL ASPECTS OF CONSTRUCTION, WHICH WILL AFFECT THE INSTALLATION OF MECHANICAL SYSTEMS. THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW ALL FEATURES OF THE REQUIRED WORK.

#### CODES AND STANDARDS

PROVIDE ALL WORK IN COMPLIANCE WITH THE REQUIREMENTS OF THE ALASKA ENERGY AUTHORITY / DIVISION OF FIRE PROTECTION MEMORANDUM OF AGREEMENT, STATE REGULATIONS, AND ALL APPLICABLE LOCAL CODES AND STANDARDS. APPLICABLE CODES AND STANDARDS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- 2012 UNIFORM PLUMBING CODE
- 2012 INTERNATIONAL MECHANICAL CODE
- 2012 INTERNATIONAL FIRE CODE
- REQUIREMENTS OF OSHA AND EPA
- NATIONAL FIRE PROTECTION ASSOCIATION CODES, LATEST EDITIONS
- ASME CODES FOR BOILER AND PRESSURE VESSELS, LATEST EDITIONS
- ALL LOCAL AND STATE AMENDMENTS
- REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTIONAL AUTHORITY OVER INSTALLATION

#### COORDINATION AND SCHEDULING

PROVIDE ALL ADMINISTRATIVE AND SUPERVISORY REQUIREMENTS FOR THE COORDINATION AND SCHEDULING OF THE WORK. THE MECHANICAL CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE WORK OF OTHER CONTRACTORS, SUBCONTRACTORS, SUPPLIERS AND THE OWNER.

REVIEW ALL PROJECT DRAWINGS INCLUDING, BUT NOT LIMITED TO, CIVIL, STRUCTURAL AND ELECTRICAL DRAWINGS.

PLAN AND EXECUTE WORK IN COOPERATION WITH ALL OTHER TRADES. EVERY REASONABLE EFFORT SHALL BE MADE TO PROVIDE ALL CONCERNED WITH TIMELY NOTICE OF WORK AFFECTING OTHER TRADES TO PREVENT CONFLICTS OR INTERFERENCE AS TO SPACE REQUIREMENTS, DIMENSIONS, OPENINGS, BLOCK-OUTS, SLEEVEING OR OTHER MATTERS WHICH WILL CAUSE DELAYS OR NECESSITATE WORK-AROUND METHODS.

#### CONTRACTOR RESPONSIBILITY

THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN COMPLETE CONTROL OF THE CONSTRUCTED PROJECT, SUCH THAT THE COMPLETE PROJECT SHALL BE FREE OF DEFECTS AND IN CONFORMANCE WITH THE PROJECT DOCUMENTS.

THE CONTRACTOR SHALL UTILIZE PROCEDURES THAT ASSURE QUALITY CONSTRUCTION THROUGHOUT, WITH USE OF THE BEST INDUSTRY STANDARDS FOR THE SPECIFIC PROCESS USED. REMOVE AND REPLACE ANY WORK FOUND DEFECTIVE OR NOT COMPLYING WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.

#### WORKMANSHIP

ALL WORK TO BE DONE BY WORKMEN SKILLED IN AND REGULARLY EMPLOYED AT THAT TRADE.

PROVIDE ALL MATERIALS, PRODUCTS AND EQUIPMENT IN STRICT ACCORDANCE WITH ALL GOVERNING CODES AND ORDINANCES. THEY MUST BE OF FIRST QUALITY AND IN LINE WITH THE BEST CURRENT PRACTICES.

CUTTING AND PATCHING SHALL BE KEPT TO A MINIMUM. ALL PATCHING TO MATCH EXISTING FINISH WORK. DO NOT CUT STRUCTURAL MEMBERS.

CONTRACTOR SHALL FIELD VERIFY PRIOR TO BIDDING. VERIFY SPACE AVAILABILITY PRIOR TO FABRICATION AND INSTALLATION OF ANY WORK. VERIFY EXACT DISTANCES BETWEEN POINTS SHOWN ON DRAWINGS BY ACTUAL MEASUREMENT AT SITE.

REMOVE ALL WASTE MATERIALS AND RUBBISH FROM THE SITE, THOROUGHLY CLEAN ALL SURFACES OF WORK, AND LEAVE READY FOR OCCUPANCY BY THE OWNER. THE OWNER WILL VERIFY THE COMPLETION AND/OR CORRECTION OF THE ITEMS ABOVE.

#### SUBMITTALS

SUBMIT TECHNICAL DATA AND REQUIRED INFORMATION ON EQUIPMENT AND MATERIALS AS FOLLOWS:

- PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA FOR THE ITEMS LISTED IN THE INDIVIDUAL SPECIFICATION SECTIONS. PRODUCT DATA SHALL DEMONSTRATE COMPLIANCE WITH ALL SPECIFIED FEATURES AND REQUIREMENTS.
- SHOP DRAWINGS: SUBMIT CONTRACTOR PREPARED DRAWINGS OF CONTRACTOR FABRICATED MECHANICAL AND FUEL SYSTEMS. DRAWINGS SHALL BE PREPARED AT 1/4" SCALE USING COMPUTER AIDED SOFTWARE UNLESS INDICATED OTHERWISE. DRAWINGS SHALL SHOW EXACT LOCATION OF EQUIPMENT, PIPING AND DUCTWORK, EACH SECTION OF SHOP FABRICATED DUCT OR PIPE AND LOCATION OF FIELD JOINTS, SUPPORTS AND BUILDING ATTACHMENTS.
- REPORTS AND CERTIFICATES: INDICATE AND INTERPRET TEST RESULTS FOR COMPLIANCE WITH PERFORMANCE REQUIREMENTS. PROVIDE PERFORMANCE CERTIFICATES.
- EQUIPMENT AND MATERIALS SEISMIC RESTRAINT: CONTRACTOR TO PROVIDE STRUCTURAL AND SEISMIC CALCULATIONS PLUS FASTENING DETAILS FOR ALL APPLICABLE EQUIPMENT AND MATERIALS TO INCLUDE ENGINEER'S STAMP AND SIGNATURE, FOR STRUCTURAL REVIEW ON A DEFERRED SUBMITTAL BASIS.

#### PERMITS, INSPECTIONS AND FEES

CONTRACTOR SHALL ARRANGE AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS REQUIRED IN CONNECTION WITH THIS INSTALLATION. THE CONTRACTOR SHALL PRESENT THE OWNER WITH PROPERLY SIGNED CERTIFICATES OF FINAL INSPECTION BEFORE THE WORK WILL BE ACCEPTED.

CONTRACTOR SHALL CALL FOR ALL INSPECTIONS BY LOCAL BUILDING OFFICIALS WHEN THEY BECOME DUE AND SHALL NOT COVER ANY WORK UNTIL APPROVED BY THESE GOVERNING AUTHORITIES.

## MECHANICAL SPECIFICATIONS CONT'D

CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR WATER, STEAM, GAS AND DRAINAGE SERVICES, ETC., ASSOCIATED WITH THE WORK AND INCLUDE REQUIRED PAYMENTS FOR METERS, PIPING, SERVICES, CONNECTION CHARGES AND MATERIALS FURNISHED AND INSTALLED BY UTILITY COMPANIES. WORK AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH RULES OF RESPECTIVE AUTHORITIES.

#### FINAL CHECKOUT AND PROJECT CLOSEOUT

THE OWNER HAS FULL AUTHORITY TO SEE THAT THE WORK IS PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

THE OWNER WILL REQUIRE A COMPLETE FINAL INSPECTION OF ALL PARTS OF THE WORK. WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: PLUMBING, PIPING, EQUIPMENT, DUCTWORK, WIRING, AND FINISH WORK.

THE OWNER WILL REQUIRE A WRITTEN GUARANTY THAT ALL MATERIALS AND WORKMANSHIP THAT PROVE DEFECTIVE WITHIN ONE YEAR AFTER DATE OF ACCEPTANCE WILL BE REPLACED.

#### OPERATION AND MAINTENANCE MANUAL

INCLUDE WARRANTY CERTIFICATES FOR ALL EQUIPMENT WHERE EXTENDED WARRANTIES ARE EITHER OFFERED OR REQUIRED; PROVIDE SUPPLIER CONTACT INFORMATION.

#### 23 11 00 FUEL PIPING

##### PIPING AND FITTING MATERIALS

PIPING SYSTEMS AND COMPONENTS FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS SHALL BE DESIGNED, FABRICATED, INSPECTED, AND TESTED IN ACCORDANCE WITH ASME B31.4.

- PIPING: ALL PIPING SHALL BE SEAMLESS, ASTM A106, GRADE B PIPE.
  - 3" AND LARGER
    - PIPING WITHIN DIKES AND PROTECTED AREAS SHALL BE SCHEDULE 40.
    - PIPING BELOW GRADE OR EXPOSED TO TRAFFIC IN CROSS-COUNTRY RUNS SHALL BE SCHEDULE 80.
  - 2" AND SMALLER
    - PIPING SHALL BE SCHEDULE 80, EXCEPT
    - PIPING 1" AND SMALLER OUTSIDE OF BUILDINGS SHALL BE SCHEDULE 160.
- FITTINGS: ASTM A234 GRADE WPB BUTT WELD FITTINGS. SCHEDULE TO MATCH THE PIPING IN WHICH THE FITTING IS INSTALLED. ELBOWS SHALL BE LONG RADIUS.
- 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: 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.
- ISOLATION FLANGE GASKETS: WHERE INDICATED PROVIDE NON-CONDUCTIVE FUEL RATED FULL FACE DIELECTRIC GASKETS WITH NYLON BUSHINGS AND WASHERS BETWEEN ABOVE AND BELOW GRADE SECTIONS OF PIPE, CALPICQ EQDW OR EQUAL. GROUND ALL ABOVE GRADE PIPE SECTIONS.

ALL PIPE AND FITTINGS SHALL BE WELDED. THREADED FITTINGS ARE NOT ALLOWED EXCEPT WHERE SHOWN ON DRAWINGS OR WHERE REQUIRED FOR CONNECTION TO EQUIPMENT. PERFORM ALL WELDING IN ACCORDANCE WITH ASME SECTION IX AND API 1104. VISUALLY INSPECT WELD JOINTS IN ACCORDANCE WITH API 1104.

PROVIDE FLANGED CONNECTIONS OR UNIONS TO ALLOW REMOVAL OF INDIVIDUAL COMPONENTS.

PERFORM A ONE HOUR HYDROSTATIC TEST AT A MINIMUM OF 125 PSI PRIOR TO INSTALLING HEAT SLEEVES, PAINTING, OR CONCEALING PIPING. PROTECT AND ISOLATE ITEMS THAT MAY BE DAMAGED BY THE TEST PRESSURE. 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 WITH NEW GASKETS INSTALLED ON ANY FLANGED JOINTS THAT ARE TAKEN APART. AFTER FINAL ASSEMBLY PERFORM AN OPERATIONAL LEAK TEST AT 75 PSI. REPAIR ALL DEFECTS.

PROVIDE PIPING SUPPORTS AS REQUIRED TO ADEQUATELY SUPPORT PIPING. PROVIDE P1000 AND P5000 UNISTRUT, P11XX PIPE CLAMPS, AND GRINNELL FIGURE 262 PIPE STRAPS, OR APPROVED EQUAL. ALL PIPE SUPPORT COMPONENTS SHALL BE HOT DIPPED GALVANIZED.

BURIED PIPING SHALL BE COATED WITH THERMOPLASTIC RESIN EXTRUDED OVER AN ADHESIVE UNDERCOAT WITH A MINIMUM COATING THICKNESS OF 32 MILS. BURIED PIPE COATING SHALL BE IN ACCORDANCE WITH NACE STANDARD RP0185 FOR POLYETHYLENE COATING SYSTEMS. PROVIDE MASTIC LINED HEAT SHRINK SLEEVE OR TAPE FOR ALL PIPE JOINTS AND FITTINGS OF THE SAME THICKNESS AS THE PIPE COATING. RAYCHEM WPC 100 M FOR PIPE JOINTS AND FLEXCLAD FOR FITTINGS, OR APPROVED EQUAL. EXTEND SLEEVES AND WRAP A MINIMUM OF 2 INCHES OVER PIPE COATINGS. TEST COATING WITH AN ELECTRONIC HOLIDAY DETECTOR PRIOR TO BACKFILLING. REPAIR ALL DEFECTS AND RETEST.

BURIED PIPE SHALL BE CATHODICALLY PROTECTED WITH A PAIR OF SACRIFICIAL MAGNESIUM ANODES INSTALLED AT A MAXIMUM OF 700 FEET PER PAIR. ANODES SHALL BE MAG-BAG 17# ANODES WITH TWO 12 GAUGE WIRE LEADS.

ABOVE GRADE PIPE COATING SHALL BE THE SAME AS TANK COATING.

LABEL ALL PIPING AS TO CONTENTS AND MARK DIRECTION OF FLOW IN ACCORDANCE WITH ASME A13.1

#### TANKS AND APPURTENANCES

ABOVE GROUND STORAGE TANKS: ABOVE GROUND FUEL STORAGE TANKS SHALL BE HORIZONTAL, CYLINDRICAL, DOUBLE WALL FIREGUARD TANKS MANUFACTURED, LISTED, AND LABELED IN ACCORDANCE WITH UL 2085, UL 142, AND STI-F941. TANK SKIDS SHALL BE W8X35 MINIMUM UNLESS OTHERWISE INDICATED, AND SUITABLE FOR SKIDDING EMPTY TANK WITHOUT DAMAGE. THE TANK MANUFACTURER SHALL LIMIT THE HEIGHT OF THE TANK BOTTOM ABOVE THE BOTTOM OF THE SKID TO 10 INCHES. PROVIDE TANK SADDLES LOCATED NEAR EACH END OF THE TANK IN ACCORDANCE WITH UL142, PLUS AN ADDITIONAL SADDLE AT THE CENTER OF THE TANK UNLESS OTHERWISE INDICATED. TANKS SHALL HAVE UL LISTING DATA RECORDED ON A BRASS TAG ATTACHED TO THE TANK. TANKS SHALL BE CONSTRUCTED OF ASTM A36 PLATE AND STRUCTURAL STEEL. SUBMIT SHOP DRAWINGS FOR ALL NEW TANKS.

TANK COATINGS: TANK EXTERIOR, INCLUDING SADDLES, SKIDS, PIPE SUPPORTS, AND PIPING SHALL BE SAND BLASTED TO SSPC SP-10 (NEAR WHITE BLAST). PRIMED WITH DEVOE CATHA-COAT 302H INORGANIC ZINC PRIMER (3 MILS MINIMUM DFT), INTERMEDIATE COAT SHALL BE DEVOE BAR-RUST 236 (5-6 MILS MINIMUM DFT), AND TOP COAT WITH DEVOE DEVTHANE 389 (2-3 MILS DFT). ALL COATINGS SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL COATS SHALL BE CONTRASTING COLORS. TOP COAT SHALL BE WHITE.

TANKS SHALL BE LABELED IN ACCORDANCE WITH IFC CHAPTERS 22 AND 34 AND AS TO PRODUCT STORED AND CAPACITY. PROVIDE ADDITIONAL SIGNAGE WHICH IDENTIFIES TANK FILLING PROCEDURES, TANK DEPTH-TO-VOLUME CHART, NFPA 704 PLACARDING, TANK PENETRATION LABELS, STI LABELS, AND LABEL PROHIBITING SIMULTANEOUS TANK FILLING AND DISPENSING FOR DISPENSING TANKS.

## MECHANICAL SPECIFICATIONS CONT'D

#### FUEL DISPENSING EQUIPMENT

TRUCK RACK HEADER / GASOLINE TRANSFER PUMP: THE TRUCK RACK HEADER AND GASOLINE TRANSFER PUMP SHALL BE UL LISTED AND FURNISHED AS A PACKAGED SYSTEM WITH ALL APPURTENANCES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM. PROVIDE WITH INTEGRAL CONTROL BOX.

TRUCK RACK HEADER / GASOLINE TRANSFER PUMP ENCLOSURE: PROVIDE A WEATHER-SEALED ENCLOSURE FOR THE TRUCK RACK HEADER AND GASOLINE TRANSFER PUMP COMPLETE WITH LIGHTING AND LOCKABLE DOOR HARDWARE WITH OVERSIZED HANDLES FOR COLD WEATHER OPERATION. ENCLOSURE SHALL BE FROM A36 STEEL. THE INTERIOR AND EXTERIOR OF THE ENCLOSURE AND THE ENCLOSURE BASE SHALL BE SAND BLASTED TO SSPC SP-6 (COMMERCIAL BLAST). PRIMED WITH DEVOE CATHA-COAT 302H (3-4 MILS DFT, INTERMEDIATE COATED WITH DEVOE BAR RUST 233H (4-6 MILS DFT), AND TOP COATED WITH DEVOE DEVTHANE 389 (2-3 MILS DFT). FINISH COLOR SHALL BE WHITE. PROVIDE ONE GALLON OF TOUCH-UP PAINT.

TRANSFER PUMP (TP-1): GREY IRON SELF-PRIMING CENTRIFUGAL PUMP FOR PETROLEUM SERVICE WITH BRONZE IMPELLER AND SELF-LUBRICATING MECHANICAL SEAL, CLOSE COUPLED TO 3,450 RPM, 1 HP EXPLOSION PROOF 240V / 1PH / 60 HZ MOTOR.

METER: ELECTRONIC METER RATED FOR 100 GPM OF CONTINUOUS FLOW WITH A 150 PSI WORKING PRESSURE. ACCURACY SHALL BE +/- 0.75% OR BETTER FROM 6-60 GPM. PROVIDE 2" INLET AND 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 APPROPRIATE FUEL. METER SHALL BE COMPATIBLE WITH THE PROPOSED FACILITY MANAGEMENT SYSTEM.

#### ADDITIONAL METHODS

FUELING SYSTEM VENDOR TO PROVIDE ENGINEERED DESIGN AND CONSTRUCTION FOR THE FUEL TRANSFER AND DISPENSING SYSTEMS IN CONFORMANCE WITH THE SPECIFICATIONS AND DRAWINGS, INCLUDING, BUT NOT LIMITED TO, TANKS, PUMPS, METERS, MATERIALS, AND ALL APPURTENANCES AND ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM. VENDOR SHALL WORK WITH AND COORDINATE WITH THE ENGINEER OF RECORD ON THE COMPONENTS, SEQUENCES, AND SYSTEM CAPABILITIES.

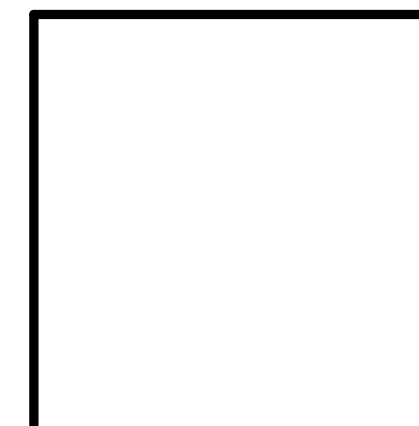
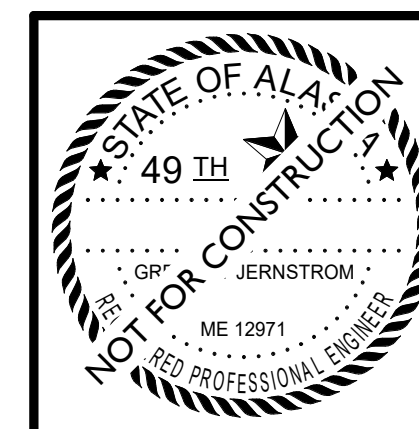
SUBMIT SHOP DRAWINGS, PROJECT DATA, WARRANTIES, AND O&M DATA FOR REVIEW.

ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. INSTALL ONLY PRODUCTS SPECIFICALLY DESIGNED AND APPROVED FOR THE TYPE OF OPERATION OR SERVICE. ALL PRODUCTS SHALL BE SUITABLE FOR USE IN AMBIENT TEMPERATURES DOWN TO -20°F.

COORDINATE ALL NEW WORK WITH OTHER TRADES.

#### BID ADDITIVE ALTERNATE #1:

REMOVE AND REPLACE THE EXISTING DIESEL TRUCK RACK METER WITH AN ELECTRONIC METER (SEE SPECIFICATION ABOVE) THAT SEAMLESSLY INTEGRATES WITH THE PROPOSED FACILITY MANAGEMENT SYSTEM. THIS INCLUDES THE INSTALLATION, CALIBRATION, AND TESTING OF THE NEW METER TO ENSURE ACCURATE AND RELIABLE MEASUREMENT OF FUEL DISPENSED. ADDITIONALLY, ALL NECESSARY ADJUSTMENTS TO THE EXISTING INFRASTRUCTURE AND INTERFACES WILL BE MADE TO ENSURE SEAMLESS COMMUNICATION BETWEEN THE METER AND THE FACILITY MANAGEMENT SYSTEM, TO PROVIDE A STREAMLINED AND EFFICIENT MONITORING SOLUTION FOR FUEL CONSUMPTION.



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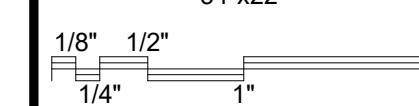
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CITY OF SAINT PAUL  
BULK FUEL FACILITY UPGRADES  
ST. PAUL, ALASKA

GAS STATION SPECIFICATIONS & NOTES

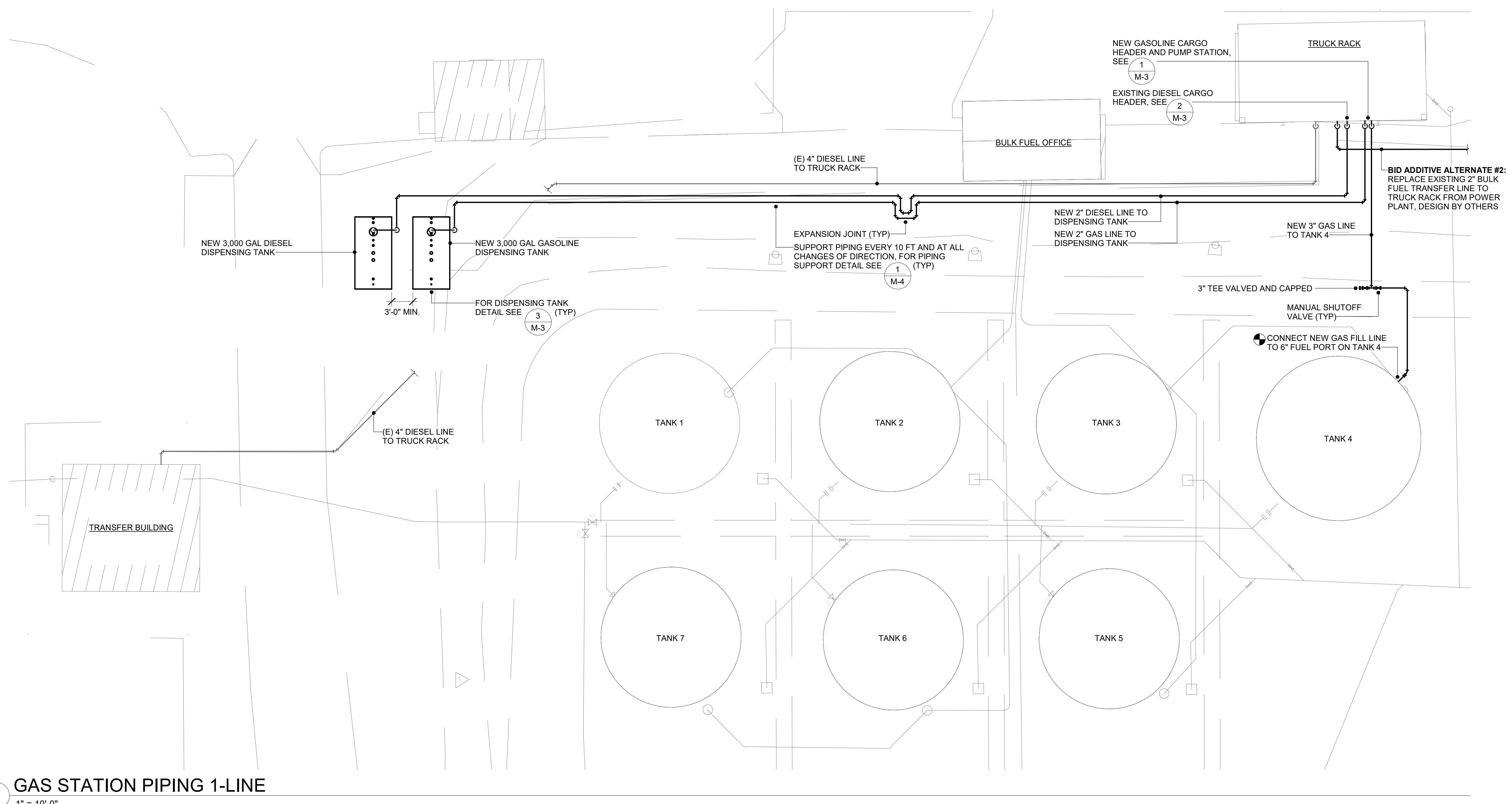
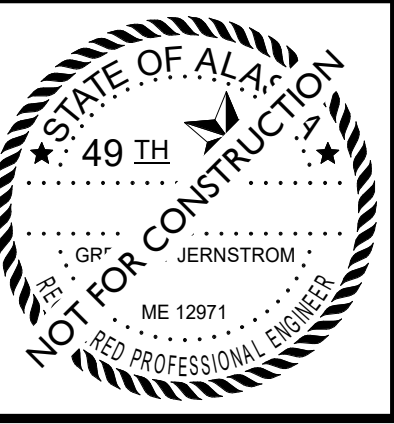
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PROJECT	2019-27	

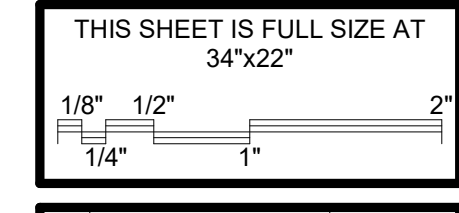
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**M-1**



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**CITY OF SAINT PAUL**  
**BULK FUEL FACILITY UPGRADES**  
**ST. PAUL, ALASKA**  
**GAS STATION PIPING 1-LINE**



#	DESCRIPTION	DATE

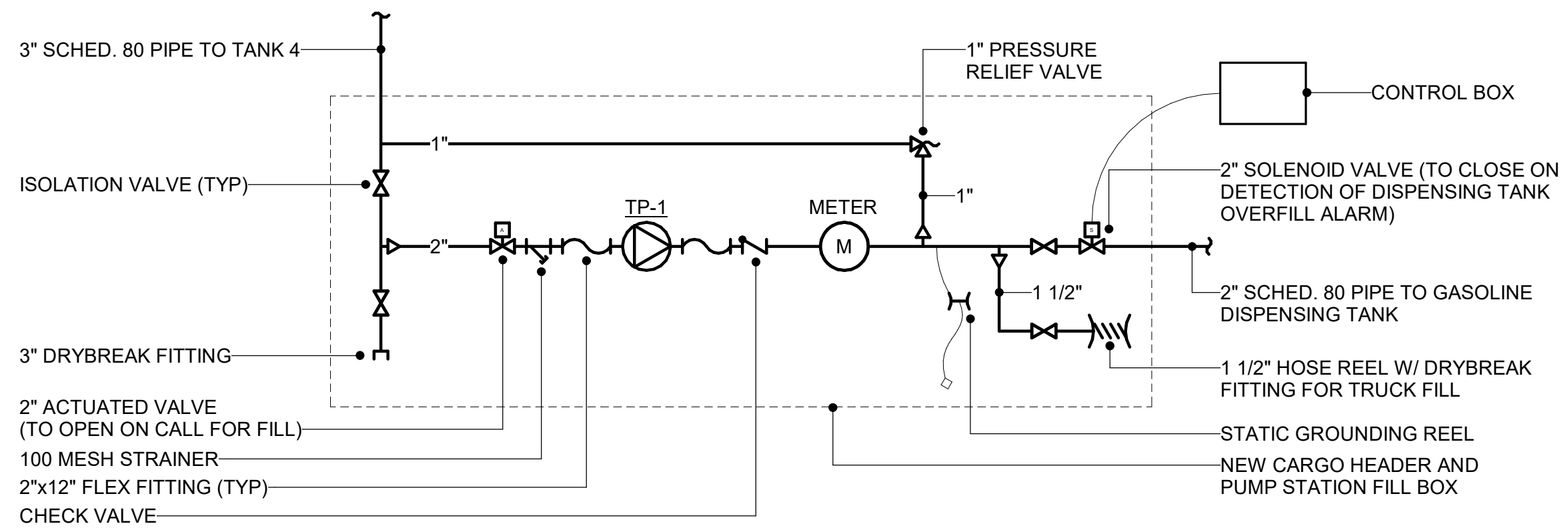
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PROJECT	2019-27

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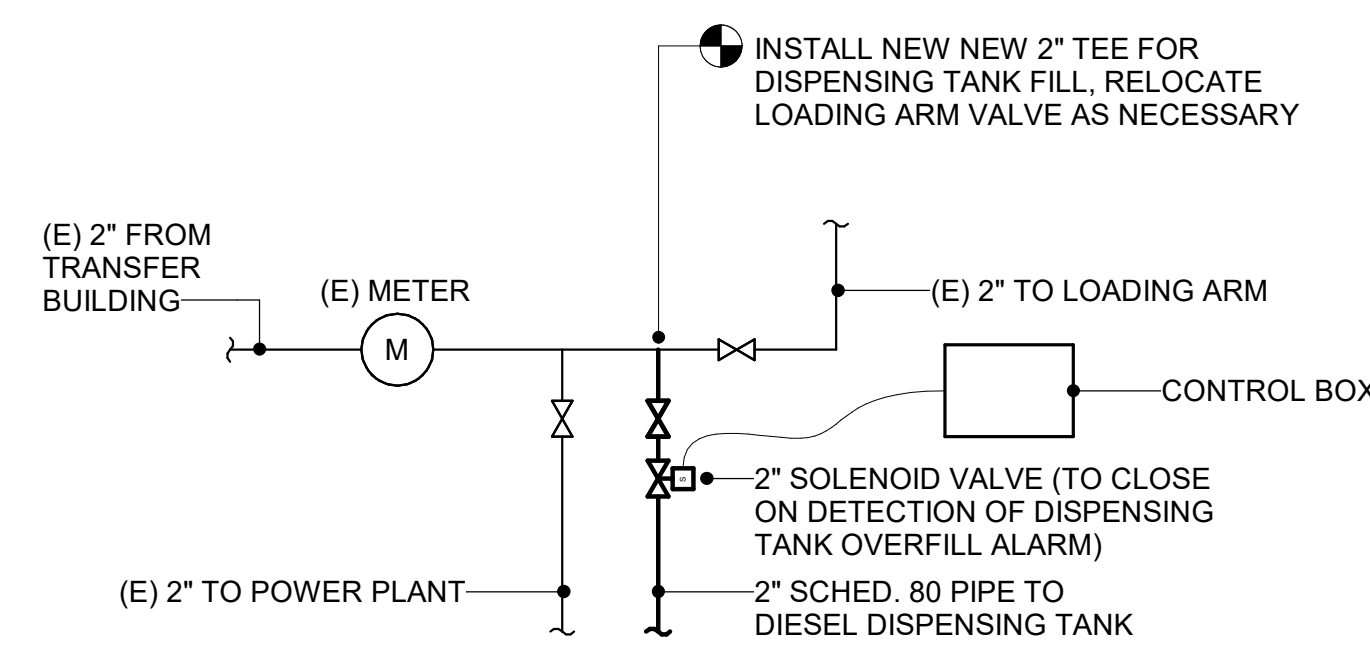
**1 GAS STATION PIPING 1-LINE**  
1" = 10'-0"

65% DESIGN DEVELOPMENT

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DATE: 9/28/2023 2:52:55 PM



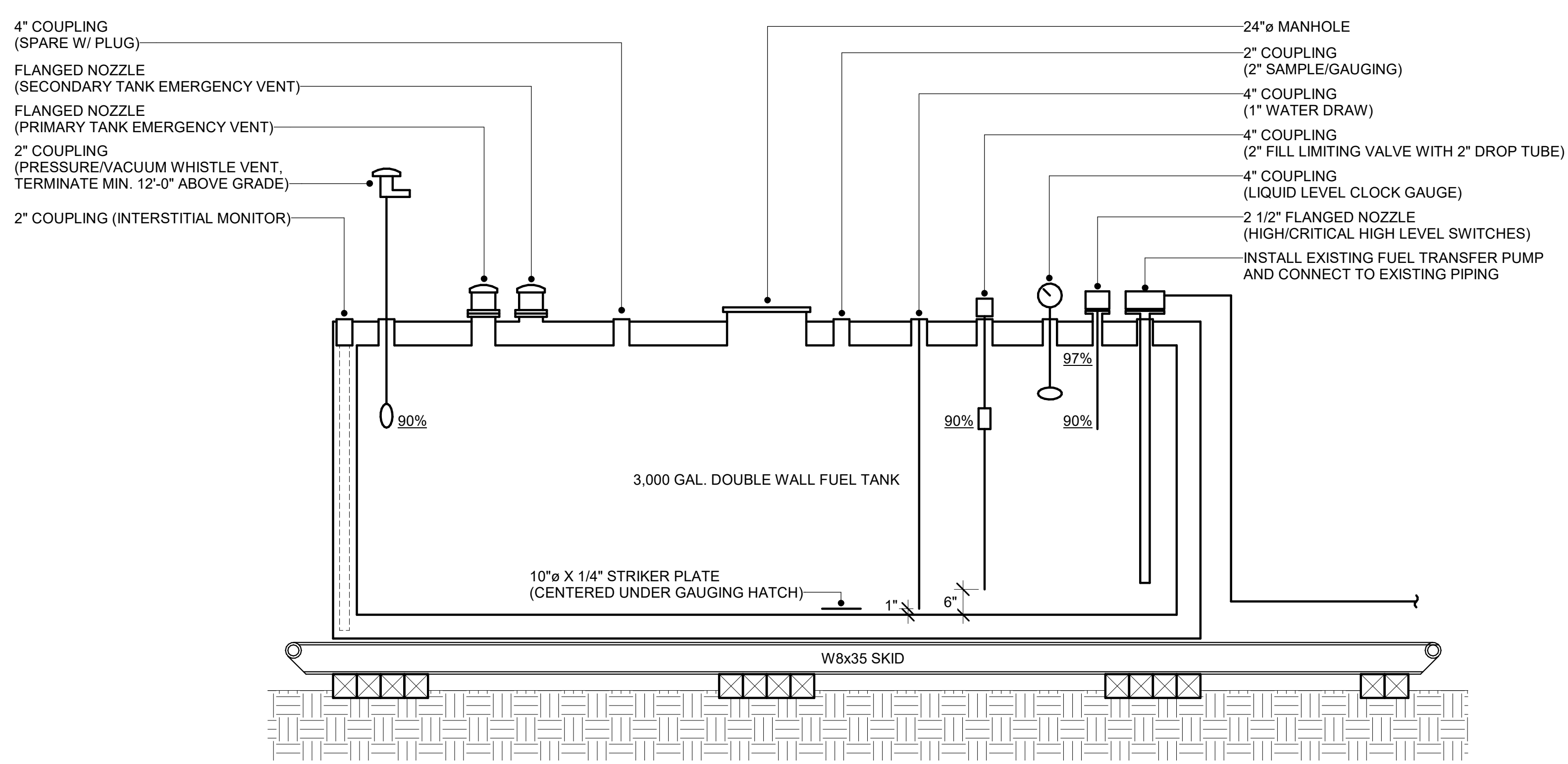
**1 TRUCK RACK HEADER / GASOLINE TRANSFER PUMP STATION**  
NTS



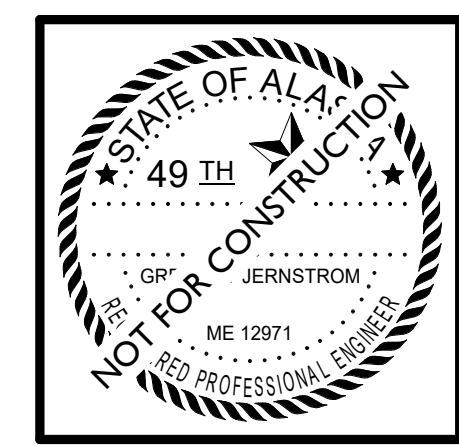
**BID ADDITIVE ALTERNATE #1:**  
REPLACE EXISTING DIESEL TRUCK RACK METER WITH NEW ELECTRONIC METER AND INTERFACE WITH THE FACILITY ENTERPRISE SOFTWARE SYSTEM

**BID ADDITIVE ALTERNATE #2:**  
REPLACE EXISTING 2" BULK FUEL TRANSFER LINE TO TRUCK RACK FROM POWER PLANT, DESIGN BY OTHERS

**2 DIESEL CARGO HEADER**  
NTS



**3 DISPENSING TANK**  
NTS



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BULK FUEL FACILITY UPGRADES  
ST. PAUL, ALASKA  
DETAILS AND SCHEMATICS

THIS SHEET IS FULL SIZE AT 34"x22"  
1/8" 1/2" 2"  
1/4" 1"

#	DESCRIPTION	DATE

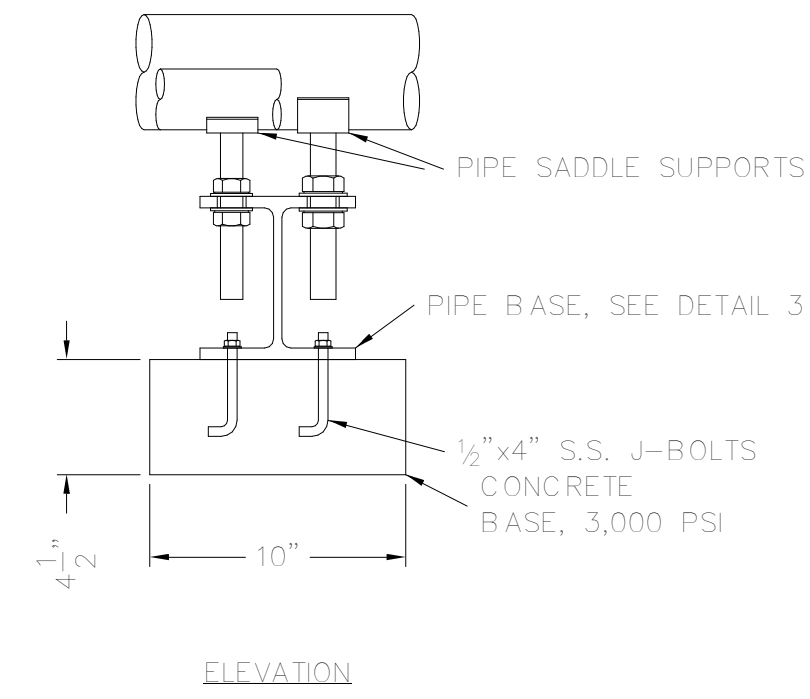
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PROJECT 2019-27

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**M-3**

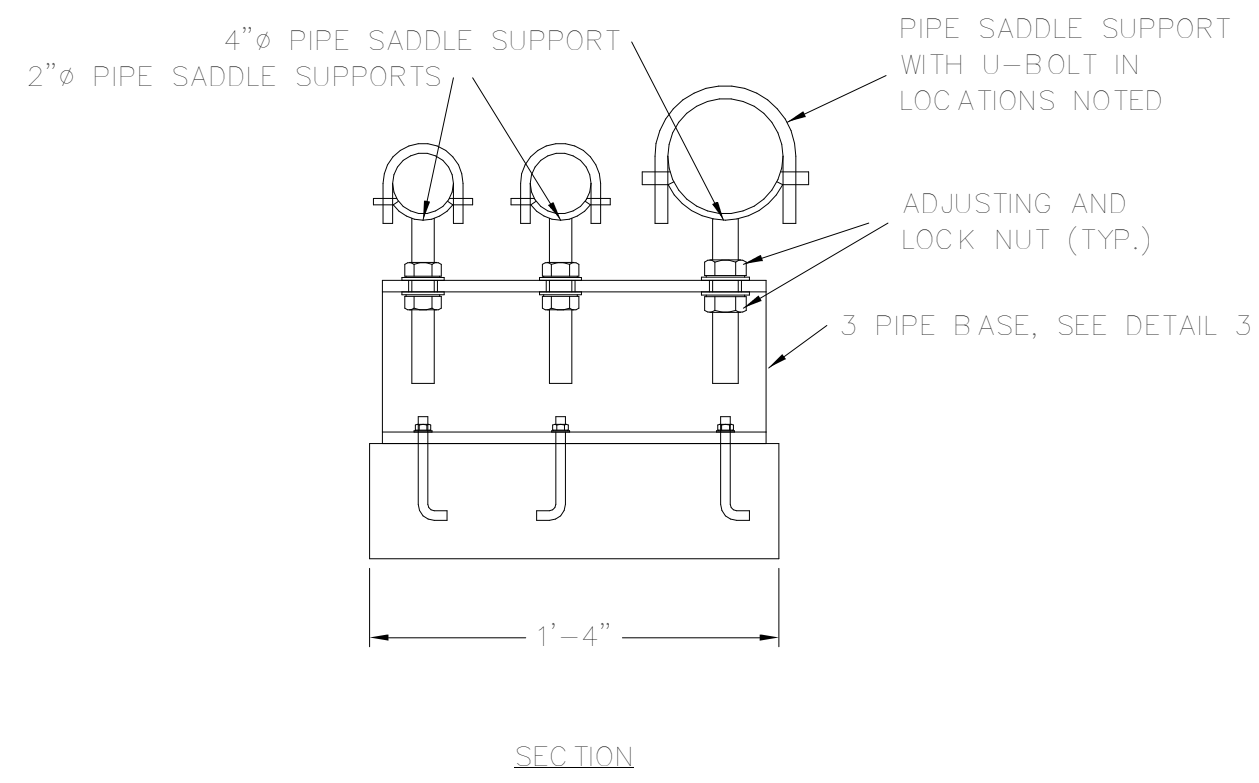
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65% DESIGN DEVELOPMENT

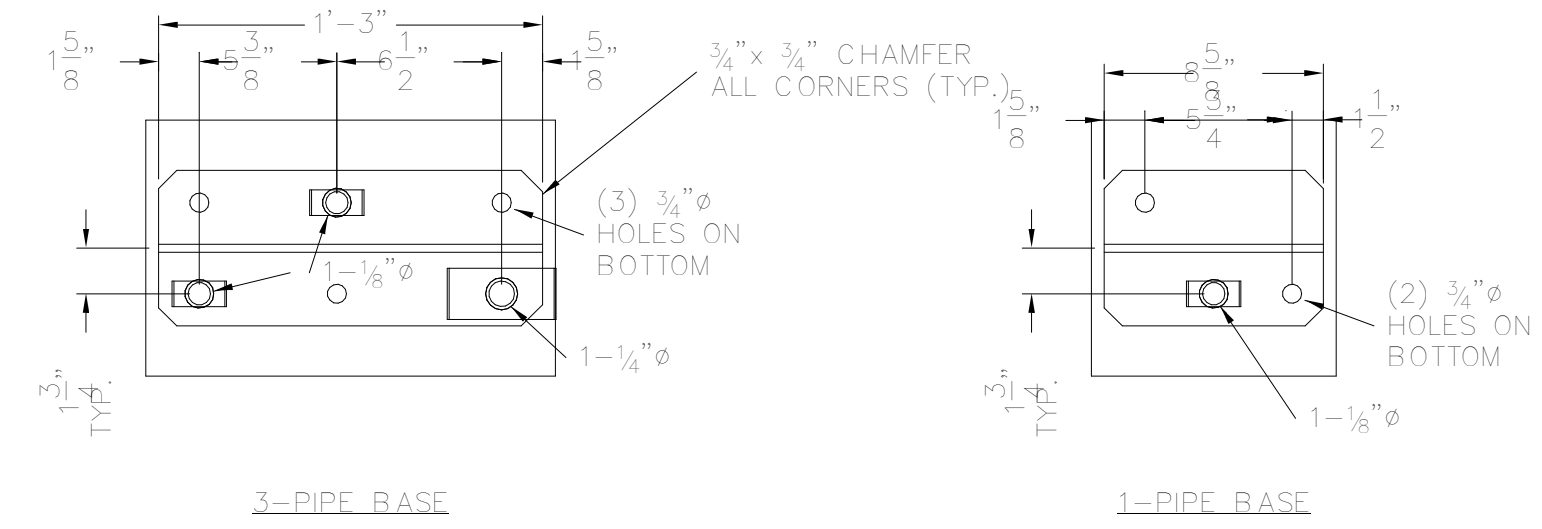
PIPE SADDLE SUPPORTS TO BE HOT DIPPED GALVANIZED "PHD FIGURE 874" OR "COOPER B3096" PIPE SADDLE SUPPORTS WITH STUD, OR EQUAL.



WHERE CALLED FOR "U-BOLT SADDLE SUPPORTS" TO BE HOT DIPPED GALVANIZED "COOPER B3098" PIPE SADDLE SUPPORTS WITH STUD, OR EQUAL.

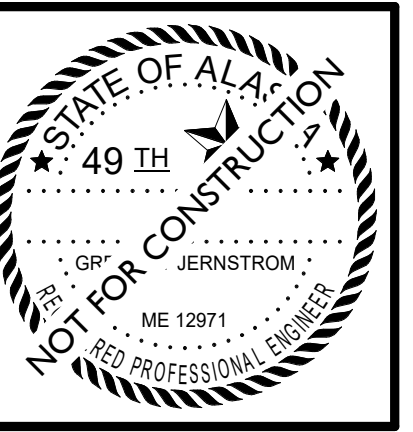


W6x15 WIDE FLANGE BASES W/ CHAMFERED CORNERS. PROVIDE DRILLED HOLES ON TOP AS SHOWN, AND 3/4" HOLES ON BOTTOM. GRIND OFF ALL SHARP EDGES. HOT DIP GALVANIZE AFTER FABRICATION.



**1** TYPICAL PIPE SUPPORT DETAIL  
NTS

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**M-4**