



# INVITATION TO BID

Procurement per 15 AAC 150.300-490

Section

1

**Project Title:** Geneva Woods and Mt. View UST to AST Replacement

**ITB Number:** 26T05-002

**Project Site:** Juneau, Alaska

**Project Description:** Alaska Housing Finance Corporation (AHFC) is soliciting bids for the removal of Underground Storage Tanks (USTs) that currently supply heating oil to residential units at two locations as described herein.

**Procurement Officer:** Marlon Dimatulac

**Contact Info: Phone:** (907) 330 - 8161

**Fax:** (907) 330-8217

**Email:** [Submittals@ahfc.us](mailto:Submittals@ahfc.us)

**Anticipated Period of Performance – Begin thru End:** Project must be completed no later than June 1, 2027 with final billing by June 15, 2027.

**Funding Source:** ☒ Corporate ☐ Federal

**Type of Work:** ☐ Services ☐ Maintenance ☒ Construction

**Estimated Amount of Proposed Contract:**

☐ Less than \$100,000 ☐ \$100,000 to \$500,000 ☒ \$500,000 or greater

## Question Deadline and Submittal location:

**DATE:** January 8, 2026 **PREVAILING TIME:** 4:00 PM **EMAIL:** [submittals@ahfc.us](mailto:submittals@ahfc.us)

## Submittal Location and Deadline

*(Offerors are responsible to assure delivery prior to deadline. Only proposals received prior to the following date and time will be opened.)*

**DATE:** January 14, 2026 **PREVAILING TIME:** 4:00 PM

DELIVER BIDS VIA ONE OF THE FOLLOWING METHODS (and person, if named):

### HAND DELIVER OR MAIL

Alaska Housing Finance Corporation

4300 Boniface Parkway

Anchorage, Alaska 99504

Attention: Andrew Morton, Administrative Manager, Procurement

**EMAIL:**

[Submittals@ahfc.us](mailto:Submittals@ahfc.us)

**IMPORTANT NOTICE:** If you downloaded this solicitation from the Corporation's Website, you must register with the planholders list and to receive subsequent addenda. Failure to register may adversely affect your proposal. It is the Offeror's responsibility to ensure that he has received all addenda affecting this ITB. To be registered email [submittals@ahfc.us](mailto:submittals@ahfc.us) or fax 907-330-8217 and provide the project name & number, company name & contact person, address, phone number & fax number. An electronic version of the ITB may be obtained at AHFC's website <https://www.ahfc.us/about-us/notices/invitations-bid>

**Minority, women-owned, and Section 3 businesses are encouraged to submit bids.**

*This ITB issued on behalf of the Alaska Housing Finance Corporation by:*

DocuSigned by:

A83310923CE428  
Gregory Rochon

Chief Procurement Officer



## Table of Contents

### Section 1. General Information & Notices

### Section 2. Summary of Work

### Section 3. Attachments *(If Box is checked below, attachments are included in this ITB)*

- ☒ General Terms Conditions for Construction (Corporate Funds)
- ☒ Bid Form **(required)**
- ☒ Affidavit of Disclosure of Interest **(required)**
- ☒ Affidavit of Non-Collusion **(required)**
- ☒ Bid Bond **(required)**
- ☒ Performance Bond **(sample provided)**
- ☒ Labor and Materials Bond **(sample provided)**
- ☐ OTHER: Attachments:

## Notices

1. The Alaska Housing Finance Corporation is an equal opportunity employer.
2. AHFC encourages all contractors to inspect each site location identified in the attached Summary of Work before submitting the bid. Site visits may be scheduled between the hours of 8:00 a.m. to 5:00 p.m. To request a visit, please contact the Procurement Officer identified above.
3. No bid shall be withdrawn without the consent of AHFC for a period of thirty (30) days subsequent to the opening of the bids.
4. Construction must conform to all applicable Federal, State and local laws, ordinances and codes. Wages and salaries must be paid so as to conform to the minimum requirements as set out in Title 36 Wage Rates found at AHFC's website, under Links of Interest. <https://www.ahfc.us/about-us/notices/links-interest>. The Contractor must ensure that qualified employees and applicants for employment are not discriminated against because of their race, color, religion, sex, disability or national origin.
5. Offerors are specifically advised that a contract shall not be in effect until a written agreement is executed by an authorized agent of the Corporation. The Corporation shall not be liable for any cost incurred by an Offeror in response to this solicitation, including any work done, even in good faith, prior to execution of a contract and issuance of a Notice to Proceed.

6. AHFC will not be subject to payment for costs incurred for proposal preparation or Contract preparation as a result of valid and legal termination of this ITB or termination of any contract resulting from the award of the ITB.
7. If it is discovered that a selected Offeror is in arrears on taxes due the State of Alaska, a contract may not be awarded until the Alaska Department of Revenue approves the payment provisions for the contract.
8. Offerors and proposed subcontractors shall be in compliance with the statutory requirements for Alaska business licensing and professional registrations.
9. **Professional Liability Insurance for the proposed contract:** ☐ is required
10. **Pre-bid Conference (On-Site walk through):** ☒ None ☐ As follows:
11. **Special Notices:**
- 11.1 An Alaska Business License is required of Contractors who do business in Alaska at time of award. Information regarding applying for an Alaska Business License can be found on-line at <http://commerce.alaska.gov/dnn/cbpl/Home.aspx> or by calling 1-907-465-2550. The business license must be in the name of the company under which the proposal is submitted.
- 11.2 **Contractor's Pollution Liability (or equivalent) Insurance:** Contractor will provide and maintain Contractor's Pollution Legal Liability Insurance covering all errors, omissions, or negligent acts of the Contractor, its sub-contractors, or anyone directly or indirectly employed by them, made in the performance of this Contract. Limits required are not less than \$ 1,000,000 per occurrence. (See Article 8.2.3 of the General Terms and Conditions for Construction)
12. **Local Hire:** Contractor shall comply with all applicable and valid laws and regulations regarding the hiring of Alaska residents now in effect or that might subsequently take effect during the term of this Contract. In order to ensure that the Contractor's subcontractors will comply with all applicable laws and regulations regarding the hiring of Alaska residents now in effect or that might subsequently take effect, the Contractor shall include in its contracts with subcontractors under this Contract, language that is substantially the same as the first sentence of this provision. Bidder is advised to contact the Department of Labor at (907)269-4900 (Anchorage) with any questions requiring applicable local hire laws and regulations.
13. **Ineligibility:** AHFC is prohibited from making award to, or approving as subcontractors, any individuals or firms which are on the list of contractors ineligible to receive awards from the United States as furnished from time to time by the Department of Housing and Urban Development (HUD), or as provided by State of Alaska Department of Labor (AKDOL). Contractors who have been debarred or suspended by a governmental entity remain ineligible for Contract award by AHFC for the duration of that debarment/suspension.
14. **Criteria for Selection:** The Contract will be awarded to the responsive and responsible bidder submitting the lowest bid complying with the conditions set forth herein, provided its bid is reasonable and it is in the best interest of AHFC to accept it.

AHFC reserves the right to reject the bid of any bidder who has failed to comply with the Invitation for Bid requirements; who has failed to perform any previous contracts with AHFC; who has previously failed to complete a contract of a similar nature on time.

15. **Subcontracts:** In compliance with AS 36.30.115, the following procedures apply:

Within five (5) working days after issuance of the Notice to Proceed, the low bidder shall submit a list of the subcontractors the bidder proposes to use in the performance of the Contract. The list must include the name and location of the place of business for each subcontractor and evidence of the subcontractor's valid Alaska business license. A bidder for a construction contract shall also submit evidence of each subcontractor's registration under AS 08.18. If a subcontractor on the list does not have a valid Alaska business license and a valid certification of registration under AS 08.18 at the time the bid was opened, the bidder may not use the subcontractor in the performance of the Contract, and shall replace the subcontractor with a subcontractor who had a valid Alaska business license and a valid Certification of Registration under AS 08.18 at the time the bid was opened.

16. **Insurance:** The successful bidder will be required to secure and maintain the insurance required by the Contract documents. See Article 8.2 of the General Terms and Conditions for Construction.

17. **Bid Form / Fee Proposal and Certifications (REQUIRED):** Bidder must submit a completed Bid Form for the firm(s) submitting the bid. At a minimum, the information required by the Bid Form and the attachments thereto must be submitted; other data may be submitted as deemed relevant. Information required by the Bid Form includes the following:

- A. Affidavit of Disclosure of Interest, signed and notarized.
- B. Affidavit of Noncollusion, signed and notarized.
- C. The bidder has attached a listing of projects to which bidder is currently obligated or anticipates being obligated to in the near future.
- D. The bidder has attached a statement of similar work performed by the bidder or bidder's key team members during the three (3) years prior to the date of this bid and the name and telephone numbers of persons who may be contacted as references for these projects.
- E. The bidder affirmatively states that s/he is in compliance with State and Federal Civil Rights Act and other Equal Employment Opportunity provisions.

18. **Submission of Bids:**

- A. Bids must be submitted to the Reception Desk at AHFC, 4300 Boniface Parkway, Anchorage, Alaska 99504. It is the responsibility of the bidder to ensure that their bid is in the proper office of AHFC prior to the closing time established for receiving bids. Bids received prior to the time of opening will be kept unopened in a secure place. Bids received after the scheduled closing time may be deemed as late bids. AHFC will hold a public reading of all bids after submittal due date via tele conference. Call-in information will be provided via an addendum.



- B. Bids must include any federal or State tax which is applicable to the material of this bid.
- C. No alternative bids will be considered unless alternative bids are specifically requested.
- D. The bidder understands and agrees that an error in the bid, whether due to faulty judgment, mistake, clerical error, or otherwise, does not relieve the bidder of the duty to perform hereunder. In submitting a bid, the bidder understands and agrees that AHFC intends to conform to the requirements of law and that AHFC will not be liable for the errors of its agents and employees in evaluating bids.
- E. AHFC reserves the right to waive any and all informalities as may serve its best interests.
- F. AHFC reserves the right to accept or reject any or all bids and may require clarification supplemented through additional written submissions. AHFC will not be subject to payment for costs incurred for bid preparation or contract preparation as a result of valid and legal termination of this ITB or termination of any contract resulting from the award of the ITB.
- G. Neither a Notice of Intent to Award nor a Final Award will be made at the time of the bid opening.

19. **Department of Labor Reporting Requirements:** Within 20 days after awarding a contract or grant covered by AS 36.10.180, The Corporation shall file with the department a notice containing

- the name and address of the state agency or political subdivision awarding the contract or grant;
- the name of the head of the state agency or political subdivision awarding the contract or grant;
- the date of the contract or grant award;
- the total amount of the contract or grant;
- the location of the project; and
- the name and address of each contractor and subcontractor performing work on the project.

The Corporation will report to the department any changes or additions regarding the notice required in this section which involve either

- (1) a change in the identity of a contractor or subcontractor performing work on the project; or
- (2) a change in the total amount of the contract if the change exceeds \$10,000.

20. **Bonding:** A bid bond will be required in the amount of five percent (5%) of the bid price. The successful bidder will be required to provide a Performance Bond and a Labor and Material Payment Bond each in the amount equal to one hundred percent (100%) of the Contract price.

**ALASKA HOUSING FINANCE CORPORATION**

**SECTION 01010  
SUMMARY OF WORK**

**PART 1 GENERAL**

**1.1 GENERAL DESCRIPTION**

AHFC is soliciting bids for the removal of Underground Storage Tanks (USTs) that currently supply heating oil to residential units at two locations: six (6) units at the Geneva Woods property located at 1617 Douglass Highway, Juneau, Ak which will be the Base Bid 1, and one (1) unit at the Mt. View property located at 895 West 12th Avenue located in Juneau, Ak which will be Additive Alternate 1 Following removal, contractors shall install new Above ground Storage Tanks (ASTs) as detailed in this solicitation. All USTs at both Geneva Woods and Mt. View will be replaced with new AST systems.

**BASE BID 1:** Removal of Underground Storage Tanks (USTs) and ancillary equipment that currently supply heating oil to residential units and replacement of: six (6) units at the Geneva Woods property located at 1617 Douglass Highway located in Juneau, Ak.

This project is funded by State of Alaska funds and is subject to all applicable State prevailing wage requirements, including certified payroll reporting. Weekly certified payrolls and weekly progress reports are required for the duration of the project, including weeks with no on-site activity.

Investigative site assessments have been completed for each location. Refer to the attached reports for tank-specific findings and any additional details.

- 13. UST - 895 West 12th Ave, Juneau AK
- 14. UST - 1617 Douglas, Juneau AK (Office)
- 15. UST - 1617 Douglas, Juneau AK (A North)
- 16. UST - 1617 Douglas, Juneau AK (A South)
- 17. UST - 1617 Douglas, Juneau AK (B)
- 18. UST - 1617 Douglas, Juneau AK (C)
- 19. UST - 1617 Douglas, Juneau AK (D)

Investigations indicate no leaks or soil contamination. If contamination is encountered during construction, the Contractor shall immediately notify AHFC. The scope of work will be modified to include (but not be limited to) contaminated soil removal, reporting, remediation, and coordination with the Alaska DEC. Any such changes will be incorporated into the contract through the Request for Proposal/Bid/Change Order process.

Contractors must also review the construction documents prepared by Design Alaska, titled:

- 1. a Geneva Woods UST Final Construction Manual Specifications,
- 1. b Geneva Woods UST Final Const. 22x34 Drawings,

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In addition to the construction documents, all black iron pipe will be coated with an industrial-grade epoxy paint to prevent rust. The pipe will be cleaned, primed, and painted with a high-performance epoxy coating that protects the steel and extends the life of the system.

Fuel oil delivery to the boilers has been standardized to supply piping only with fuel deaerators. Existing flexible fuel supply piping is currently buried within a 4-inch secondary containment access pipe, which allows removal of the piping without excavation. This fuel supply piping will be abandoned in place in accordance with Alaska DEC requirements.

Following completion of AST installation and UST removal, the Contractor shall restore all disturbed areas, including proper backfilling, compaction to required densities, and final surface restoration to match existing site conditions. Restoration shall include soil, grass seed, gravel, concrete/pavement, landscaping, and any other surfaces affected by the Work.

The Contractor's bid shall include all labor, materials, equipment, transportation, disposal, permitting, inspections, temporary utilities, safety measures, signage, mobilization, demobilization, and all related work required for complete removal of USTs and installation of AST systems.

Successful bidder shall be responsible for providing temporary fuel service during completion of the contract.

**ADDITIVE ALTERNATE 1:** Removal of Underground Storage Tanks (USTs) and ancillary equipment that currently supply heating oil to residential units and replacement of one (1) unit at the Mt. View property located at 895 West 12th Avenue located in Juneau, Ak.

Contractors must also review the construction documents prepared by Design Alaska, titled:

1. a Mt. View Final Construction Manual Specifications,
1. b Mt. View Heating Fuel Tank Replacement Final Drawings.

In addition to the construction documents, all black iron pipe will be coated with an industrial-grade epoxy paint to prevent rust. The pipe will be cleaned, primed, and painted with a high-performance epoxy coating that protects the steel and extends the life of the system.

Fuel oil delivery to the boilers has been standardized to supply piping only with fuel deaerators. Existing flexible fuel supply piping is currently buried within a 4-inch secondary containment access pipe, which allows removal of the piping without excavation. This fuel supply piping will be abandoned in place in accordance with Alaska DEC requirements.

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Following completion of AST installation and UST removal, the Contractor shall restore all disturbed areas, including proper backfilling, compaction to required densities, and final surface restoration to match existing site conditions. Restoration shall include soil, grass seed, gravel, concrete/pavement, landscaping, and any other surfaces affected by the Work.

The Contractor's bid shall include all labor, materials, equipment, transportation, disposal, permitting, inspections, temporary utilities, safety measures, signage, mobilization, demobilization, and all related work required for complete removal of USTs and installation of AST systems.

Successful bidder shall be responsible for providing temporary fuel service during completion of the contract.

**Applicable specification sections include:**

01090 Ref Standards  
01120 Admin Provisions  
01300 Submittals  
01350 Schedule  
01400 Quality Control  
01500 Const Facilities Temp Controls  
01600 Products  
01700 Project Closeout NEW  
02050 Selective Demo  
02071 UST CLOSURE  
15484 NEW ABOVEGROUND STORAGE TANKS (AST)

**1.2 QUALITY ASSURANCE**

- A. All work to be done in a workmanlike manner resulting in a complete, finished, and functional installation.
- B. Demolition – Tank Closure  
The tank closure procedure is specified and will be executed by the contractor.
- C. An independent Environmental Quality Assurance (QA) service provider hired by the contractor will execute the tank closure requirements specified.
  - 1. The specification requires the QA to provide a Tank Closure Plan and execute the plan during constructing, including observations and record logging during demolition and disposal.
  - 2. A tank closure report will be provided for each tank for a record of a code compliant tank closure – successful bidder will be responsible to interface and compliance with DEC, and other applicable Authorities Having Jurisdiction (AHJ), as is required and as dictated by standard

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industry practice.

- D. Successful bidder is responsible for all costs and actions as required by applicable jurisdiction of authority, including but not limited to plan review, permitting, environmental review, inspection and occupancy certification.
  - 1. Part – 58 Environmental review is complete, contractor not responsible to conduct review pursuant to 24 CFR 58.
  - 2. Where applicable and required by the AHJ, successful bidder shall assist AHFC with the implementation and certification of a Tier I Qualified Facility SPCC Plan, per 40 CFR Part 112, Appendix G.
- E. Successful bidder is responsible to ensure installation is satisfactory to current fuel supplier as to allow continued service.

**1.3 SCHEDULING AND SEQUENCING**

- A. Unit Entry: If required, arranged by AHFC in continuous and contiguous manner to accommodate engineering and installation. Contractor shall notify the owner, in writing, five working days in advance of entering the site. No work shall be performed prior to tenant notification. Contractor shall provide a schedule of entry, updated weekly. The entry schedule shall include length of time Contractor shall be in each unit.
- B. Work in or near Units: Perform work during normal working hours (8:00 a.m. - 5:00 p.m., M - F, unless specifically approved otherwise by the Contract Administrator) until completed at least inconvenience to residents.
  - 1. Complete each installation, including demolition, installation, and finishes, as quickly as possible and follow approved sequence and schedule.
  - 2. Work in Occupied Units: Complete work on same day in which it is commenced if possible.

**PART 2 PRODUCTS - Not Used.**

**PART 3 EXECUTION**

**3.1 EXAMINATION OF SITE**

- A. Failure to Visit Site: Will not relieve Contractor from necessity of furnishing materials or performing work that may be required to complete work in accordance with Drawings and Specifications without additional cost to AHFC.

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- B. Contact Information for AHFC staff will be for:  
Kyle Schmitz at [kschmitz@ahfc.us](mailto:kschmitz@ahfc.us) (907) 586-3742  
Lisa Corcoran at [lcorcoran@ahfc.us](mailto:lcorcoran@ahfc.us) (907) 586-3755  
Michael Carlson at [mcarlson@ahfc.us](mailto:mcarlson@ahfc.us) (907) 330-8120

3.2 CONTRACTOR USE OF PREMISES

- A. Operations of Contractor: Limited to areas where work is indicated.
- B. The Contractor shall employ appropriately licensed, trained, and qualified personnel for UST closure, fuel handling, and hazardous materials management.
- C. Access: Restrict access to extent required allowing for ongoing activities at buildings and site.
- D. AHFC Occupancy: AHFC tenants will occupy portions of premises during entire construction period for conduct of their normal operations.
1. Cooperate with AHFC in scheduling construction operations to minimize conflict and to facilitate AHFC tenant usage.
  2. Resident safety is of primary importance. Contractor to use barricades, temporary fencing, walks, shelters, enclosures, etc. as required to protect residents and their property.
- E. Emergency Exits: Maintain all required fire exits from existing buildings at all times; existing buildings are occupied during construction process.
1. Exit Doors, Stairways, and Discharge Areas: Acceptable to local code authority.
- F. Construction Operations: Limited to areas where work is indicated.
1. Take precautions to allow for continued operations including tenant and public access and other outside activities.
  2. Disruptive Operations: Noisy and disruptive operations (such as use of jackhammers and other noisy equipment) shall be minimized in close proximity to existing apartments and buildings.
    - a. Schedule and coordinate such operations with AHFC.
    - b. Upon notification from AHFC, cease operations that are, in opinion of

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AHFC, disruptive to normal operations. Schedule such operations as described above.

3. Power/Utility Outages: Coordinate and schedule any required electrical or other utility outages with AHFC. Outages shall be allowed only at previously agreed times. Schedule work to minimize the time for outages. Permanent power and utilities are to be restored at the end of each workday in occupied units. With prior Owner approval, the Contractor may provide temporary power and utilities until permanent services can be restored.
- G. Contractor's Performance of Work:
1. Conduct work efficiently at least inconvenience to residents in occupied dwelling units. Take precautions to protect residents and public from injury from construction operations.
  2. Keep premises free of debris and construction materials resulting from installation work on a daily basis. Minimize the production of dust. Dispose of debris in an off-site approved site.
  3. Contractor: Exclusively responsible for damage to grounds, plantings, buildings, and any other facilities or property. Pay for repair or replacement in full.
- H. Moving of Furniture and other Miscellaneous Work (if required): "Not Applicable to this project."
1. AHFC will request that tenants do following:
    - a. Remove drapes, curtains, and any other encumbrances within work area; remove rugs from floors; and remove furniture away from work areas.
    - b. Pack items, i.e., books, toys, object art, fish bowls, etc.
  2. Contractor: Move furniture and appliances in occupied dwelling units at least inconvenience to residents and without damage to furniture or finished floor. Replace all items when work is complete. Be responsible for unauthorized removal of or damaged furniture and appliances in units.
- I. Storage Space may be assigned to Contractor as a convenience.

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1. Contractor: Use such spaces at own risk.
2. AHFC: Not responsible for adequacy of space or spaces assigned, or safekeeping of material stored.

**END OF SECTION**



## **PART 1 GENERAL**

### **1.1 QUALITY ASSURANCE**

- A. Regulatory Requirements: Comply with current applicable laws, ordinances, codes, and regulations.
  - 1. Accessibility: Comply with following:
    - a. Architectural Barriers Act of 1968 as amended (42 USC 4152-4157), HUD implementing regulations (24 CFR Part 40), and Uniform Federal Accessibility Standards (UFAS).
    - b. Section 504 of the Rehabilitation Act of 1973 as amended (29 USC 794) and HUD implementing regulations 24 CFR Part 8.
    - c. Fair Housing Accessibility Guidelines (24 CFR Chapter 1).
    - d. Americans with Disabilities Act of 1990 (ADA) (28 CFR Part 35).
  - 2. Recoverable Materials: Comply with Resource Conservation and Recovery Act (RCRA), Section 6002 and EPA Guidelines.
- B. Reference Standards: For products or workmanship specified by reference to association, trade, or Federal Standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
  - 1. No provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change duties and responsibilities of PHA/IHA or Contractor or any of their consultants, agents or employees from those set forth in Contract Documents, nor shall it be effective to assign to Contracting Officer any duty or authority to supervise or direct furnishing or performance of Work or any duty or authority to undertake responsibilities contrary to provisions of General Conditions.
    - a. Where wording of referenced standard is permissive, or where requirements of more than one reference standard apply, provide under more restrictive requirement.
    - b. Comply with recommendations of referenced standards even

though they are not mandatory in standard.

2. Detailed Requirements: Be familiar with and verify detailed requirements of referenced standards to verify that items and their installation provided under Work of this Contract meet or exceed standard's requirements.
  - a. Notify Contracting Officer of any conflicts between referenced standards and requirements specified in Specifications or indicated on Drawings before proceeding with work.
  - 1) Tolerances: Tolerances may vary from standards of different sections. Make adjustments necessary to assure proper fitting of different elements. Tolerances may be plus or minus as indicated but in sum shall be compensating, not cumulative.
3. Effective Date: Date of referenced standard is that in effect as of documents date except when specific date is specified or when standard is part of applicable code which includes edition date.
4. Copies: When required by individual sections, obtain copy of referenced standard. Maintain copy at job site during work.
- C. Certificates: When required by Contract Documents, or when requested in writing by Contracting Officer, submit Certificate of Compliance or Manufacturer's Certificate that materials or workmanship, or both comply with requirements of referenced standard.
- D. Labels: Where labels indicating certification are specified, deliver and install products with labels intact. Do not remove labels.

**PART 2 PRODUCTS - Not Used.**

**PART 3 EXECUTION**

**3.1 REFERENCE STANDARD SOURCES**

- A. Reference Standards: For copies of specifications and standards referenced in specifications, contact respective organization listed below:

AAMA  
American Architectural Manufacturers Association  
1540 E. Dundee Road, Suite 310

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REFERENCE STANDARDS AND DEFINITIONS

Palatine, IL 60067  
708/202 13-50 Fax 708/202-1480

AHAM (on NIBS CCB)\*  
Association of Home Appliance Manufacturers  
20 North Wacker Drive  
Chicago, IL 60606  
312/984-5800

ANSI  
American National Standards Institute Inc.  
11 West 42nd Street  
New York, NY 10036  
212/642-4900 Fax 212/302-1286

APA (on NIBS CCB)\*  
American Plywood Association  
PO Box 11700  
Tacoma, WA 98411-0700  
206/565-6600 Fax 206/565-7265

ARMA (on NIBS CCB)\*  
Asphalt Roofing Manufacturers Association  
6288 Montrose Road  
Rockville, MD, 20852  
301/231-9050 Fax 301/881-6572

ASHRAE  
American Society of Heating, Refrigerating and Air-Conditioning  
Engineers  
1791 Tullie Circle, NE  
Atlanta, GA 30329  
404/636-8400 Fax 404/321-5478

ASME  
American Society of Mechanical Engineers  
345 East 47th Street  
New York, NY 10017  
212/705-7722 Fax 212/705-7674

ASSE  
American Society of Sanitary Engineering  
PO Box 40362

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SECTION 01090  
REFERENCE STANDARDS AND DEFINITIONS

Bay Village, OH 44140  
216/835-3040

ASTM  
American Society for Testing and Materials  
1916 Race Street  
Philadelphia, PA 19103-1187  
215/299-5585 Fax 215/977-9679

AWS (on NIBS CCB)\*  
American Welding Society  
PO Box 351040  
Miami, FL 33135  
800/334-9353 Fax 305/443-7559

AWI  
Architectural Woodwork Institute  
1952 Isaac Newton Square W  
Reston, VA 20190 703/733-0600

BEES  
Alaska Housing Finance Corporation  
Research Information Center  
4300 Boniface Parkway  
Anchorage, AK 99504  
907/338-6100

BHMA  
Builder's Hardware Manufacturer's Association  
355 Lexington Avenue, 17th Floor  
New York, NY 10017  
212/661-4261

CPSC  
Consumer Products Safety Commission  
5401 Westbard Avenue  
Bethesda, MD 20816  
800/638-2772

CS  
Commercial Standards  
U.S. Department of Commerce  
Government Printing Office

ALASKA HOUSING FINANCE CORPORATION

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REFERENCE STANDARDS AND DEFINITIONS

Washington, DC 20402  
202/377-2000

GA (on NIBS CCB)\*  
Gypsum Association  
810 First Street, NE, Suite 510  
Washington, DC 20002  
202/289-5440 Fax 202/289-3707

FS (on NIBS CCB)\*  
General Services Administration Federal Specifications  
Specifications Unit (WFSIS)  
7th and D Streets, SW  
Washington, DC 20407  
202/708-9205 Fax 202/205-3720

HUD  
Material Releases are part of HUD Technical  
Suitability of Building Products Program.  
Contact: Department of Housing and urban Development  
Manufactured Housing and Construction Standards  
451 7th Street, SW  
Washington, DC 20410-8000 202/708-1929

HUD USER  
PO Box 6091  
Rockville, MD 20850  
1/800/245-2691 or 301/251-5254

ISDSI (on NIBS CCB)\*  
Insulated Steel Door Systems Institute  
30200 Detroit Avenue  
Cleveland, OH 44145-1967  
216/899-0010 Fax 216/892-1404

NEMA  
National Electrical Manufacturers Association  
2101 L Street, NW  
Washington, DC, 20037  
202/457-8400

NFPA (on NIBS CCB)\*  
National Fire Protection Association

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Batterymarch Park  
Quincy, MA 02169-9101  
800/344-3555 Fax 617/984-7057

NFPA  
National Forest Products Association  
1240 Connecticut Avenue, NW, Suite 200  
Washington, DC 20036

NFRC  
National Fenestration Rating Council Incorporated  
1300 spring Street, Suite 120  
Silver Spring, Maryland 20910  
301/589-6372 Fax 301/588-0854

NORTHERN COMFORT  
Alaska Housing Finance Corporation  
Research Information Center  
4300 Boniface Parkway  
Anchorage, AK 99504  
907/338-6100

NRCA  
National Roofing Contractors Association  
6250 River Road  
Rosemont, IL, 60018  
708/299-1183 Fax 708/299-1183

PDCA  
Painting and Decorating Contractors of America  
27606 Pacific Highway South  
Kent, WA 98032  
206/941-8823

PEI  
Porcelain Enamel Institute  
1101 Connecticut Avenue, NW, Suite 700  
Washington, DC 20036  
202/857-1134

PS  
Product Standards  
U.S. Department of Commerce

ALASKA HOUSING FINANCE CORPORATION

SECTION 01090  
REFERENCE STANDARDS AND DEFINITIONS

Government Printing Office  
Washington, DC 20402  
202/783-3238

RFCI  
Resilient Floor Covering Institute  
966 Hungerford Drive, Suite 12-B  
Rockville, MD 20850  
301/340-8580 Fax 301/340-7283

SDI (on NIBS CCB)\*  
Steel Door Institute  
30200 Detroit Avenue  
Cleveland, OH 44145-1967  
216/899-0010 Fax 216/892-1404

SIGMA  
Sealed Insulating Glass Manufacturers Association  
401 North Michigan  
Chicago, IL 60611-4206  
312/664-6610

SMA (on NIBS CCB)\*  
Screen Manufacturers Association  
655 Irving Park, Suite 201  
Chicago, IL 60613-3198 312/525-2644 Fax 312/248-9659

SMACNA (on NIBS CCB)\*  
Sheet Metal and Air Conditioning Contractors National Association  
PO Box 221230  
Chantilly, VA, 22022-1230  
703/803-2989 Fax 703/803-3732

TCA (on NIBS CCB)\*  
Tile Council of America Inc.  
PO Box 326  
Princeton, NJ 08542-0326  
609/921-7050 Fax 609/452-7255

UL  
Underwriters Laboratories, Inc.  
333 Pfingsten Road  
Northbrook, IL 60062

312/272-8800

VWD  
Vinyl Window and Door Institute  
355 Lexington Avenue  
New York, NY 10017  
212/351-5400

### 3.1 DEFINITIONS

A. Basic Contract definitions are included in the General Conditions.

1. 'Indicated' refers to graphic representations, notes, or schedules on Drawings; Paragraphs or Schedules in Specifications; and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference.
2. 'Directed': Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Architect," "directed by the Contract Administrator," "requested by the Owner," "requested by the Architect," and similar phrases.
3. 'Approve', used in conjunction with action on submittals, applications, and requests, is limited to the Contract Administrator's or Architect's duties and responsibilities stated in General and Supplementary Conditions.
4. 'Regulation' includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
5. 'Furnish' means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations."
6. 'Install' describes operations at the site including "unloading, unpacking, assembly, erection, anchoring, applying, working to dimension, protecting, cleaning, and similar operations."
7. 'Provide' means "furnish and install, complete and ready for use."



8. 'Installer': Installer is the Contractor or an entity engaged by the Contractor as employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
    - a. The term "experienced" when used with "Installer" means having a minimum of 5 previous Projects similar in size to this Project and being familiar with the precautions required and with requirements of the authority having jurisdiction.
  9. 'Project Site' is the space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.
  10. 'Testing Laboratories': A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.
- B. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTERFORMAT numbering system.
- C. Language used in the Specifications is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the context so indicates.
1. Imperative language is used generally. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.
- D. Abbreviations and Names: Where acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authority having jurisdiction, or other entity applicable. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

- E. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents; correspondence and records established in conjunction with compliance with standards; and regulations bearing upon performance of the Work.

**END OF SECTION**

**PART 1 GENERAL**

**1.1 REQUIREMENTS INCLUDED**

- A. Procedural requirements
- B. Rehabilitation and renovation of existing spaces and materials

**1.2 RELATED REQUIREMENTS**

- A. General Conditions and Special Conditions
- B. Section 01010 - Summary of Work
- C. Section 01500 - Construction Facilities and Temporary Controls

**PART 2 PRODUCTS**

**2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK**

- A. New materials: As specified in individual specification sections.
- B. Match existing products and work for patching and extending work.
- C. Determine type and quality of existing products by inspection and any necessary testing and workmanship by use of existing as a standard. Presence of a product, finish or type of work requires that patching, extending or matching shall be performed as necessary to make work complete and consistent with existing quality and contract documents.

**PART 3 EXECUTION**

**3.1 GENERAL**

- A. Remove existing materials and items as indicated, as required by job site conditions, as scheduled, and as specified herein, to accomplish new work and alteration in the existing building.
- B. Remove existing materials carefully and only to the extent required for the final work. Minimize damage to adjacent materials.
- C. Conduct all operations with a minimum of noise and dust.
- D. Take reasonable and adequate precautions to protect the Owner's property from damage during demolition work, moving of debris and damage by the

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ADMINISTRATIVE ALTERATIONS

elements. Restore any damage to Owner property due to the aforesaid work or replace in a manner satisfactory to the Contract Administrator.

- E. Provide and maintain suitable barricades, shelter, and lights, and danger signals during the progress of the work. They shall meet the requirements of the applicable building codes. Assume the responsibility of barriers to completion of contract and remove same.
- F. Contractor to assume responsibility for utility locates and coordinating with utility agencies.

**3.2 INSPECTION**

- A. Verify that demolition is complete and areas are ready for installation of new work.
- B. Beginning of restoration work means acceptance of existing conditions.

**3.3 PREPARATION**

- A. Plan work in advance, informing Contract Administrator of procedure and schedule.
- B. Verify existing conditions affecting work including existing sizes and materials indicated prior to beginning work or ordering materials that are affected by existing conditions. Notify Contract Administrator of conflicts in writing.
- C. Where openings are to be cut in existing structures cut such openings with care. Where materials, equipment, frames, etc. are to be removed, remove such items with care to minimize damage to adjacent surfaces and materials.
- D. Cut, move, or remove items as necessary for access to alterations and renovations work; replace and restore at completion.
- E. Cut pockets, openings, chases, depressions, etc., to install or allow for installation of materials or equipment.
- F. Remove from site unsuitable material not marked for salvage, such as rotted wood and rusted metals; replace materials as specified for finished Work.
- G. Remove from site, including concealed spaces, debris and abandoned items resulting from demolition operations from the site, daily. No accumulation of debris will be permitted.

- H. Prepare surfaces and remove surface finishes to provide for proper installation of new Work.
- I. Close openings in exterior surfaces to protect existing and salvage items from weather and extremes of temperature and humidity. Insulate and seal ductwork and piping to prevent condensation in exposed areas.

### **3.4 REPLACEMENT OF ROTTED MATERIALS**

- A. If rotted material is encountered that has not been described within the original scope of work, notify the AHFC Contract Administrator prior to removing or encapsulating the affected material. Upon direction by the Contract Administrator, rotted material shall be completely removed and replaced with same dimension and quality material or better. If dampness is present, all areas shall be completely dried (including adjacent areas) by the Contractor prior to enclosure.

### **3.5 INSTALLATION**

- A. Coordinate work of alterations and renovations to expedite completion and to accommodate Owner occupancy.
- B. Remove, cut, and patch work in a manner to minimize damage and to provide means of restoring products and finishes to original condition.
- C. Patched work shall match existing adjacent work in texture and appearance.
- D. Install products as specified in individual specification sections.

### **3.6 TRANSITIONS**

- A. Where new work abuts or aligns with existing, make a smooth and even transition. Patched work shall match existing adjacent work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new work is not possible terminate existing surface along a straight line at a natural line of division and make recommendation to Contract Administrator.
- C. Where removal of materials results in adjacent spaces becoming one, rework to a smooth plane without breaks. Where a change of plane occurs, submit recommendation for providing a smooth transition for review.

### **3.7 REPAIR OF DAMAGED SURFACES**

- A. Patch or replace portions of existing surfaces which are disturbed, damaged or otherwise made defective in appearance or function by the execution of work under this contract.
- B. Repair substrate prior to patching finish.

### **3.8 FINISHES**

- A. Finish surfaces as specified in individual sections.
- B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

### **3.9 CLEANING**

- A. After the demolition work in any area is completed, clean the area before any new construction is started.

**END OF SECTION**

## **PART 1      GENERAL**

### **1.1      REQUIREMENTS INCLUDED**

- A.      Procedures
- B.      Submittal Register
- C.      Schedule of Values
- D.      Shop Drawings and Product Data
- E.      Product Data
- F.      Samples
- G.      Safety Plan
- H.      Manufacturer's Instructions
- I.      Meetings
- J.      Daily construction Reports

### **1.2      RELATED REQUIREMENTS**

- A.      Section 01010 - Summary of Work
- B.      Section 01350 – Construction Progress Schedules
- C.      Section 01600 - Material and Equipment
- D.      Section 01700 - Contract Closeout

### **1.3      PROCEDURES**

- A.      The contents of submittals shall be such that all information is available for completely checking each drawing, data or sample when submitted. These shall be submitted for review not less than thirty calendar days prior to the start of any construction or fabrication of the work to which the drawings, data or samples apply. Within twenty-one calendar days after receipt of such drawings, data or samples, the engineer will return one

copy of the submittal marked with one of the following (or similar) notations:

1. No exceptions taken
  2. Revise and resubmit
  3. Accepted as noted
- B. Returned copies of drawings marked with either notation "1" or "3" authorize the Contractor to proceed with the fabrication and/or installation or construction covered by such returned submittals, provided that such fabrication and/or installation or construction shall be subject to the comments, if any, shown on the returned copies.
- C. Returned copies marked with notation "2" shall be corrected as necessary and submitted in the same manner as before (see procedures below).
- D. Work for which the Contractor's submittals are required shall not be started until the submittals have been reviewed and approved in writing by the Project Architect/Engineer (or Contract Administrator, as directed). Any revision by Contractor of a previously approved submittal must be approved in writing before implementation.
- E. The following procedures apply:
1. Deliver a minimum of 1 copy of submittals to Project Architect/Engineer (or Contract Administrator, if so directed) as directed under accepted form. Resubmittal requires the same number of copies as submittals. One copy of rejected submittals will be retained for record.
  2. Transmit submittals in accordance with approved progress schedule and in such sequence to avoid delay in the work or work of other contracts.
  3. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of contract documents.
  4. Coordinate submittals with requirements of work and of contract documents.
  5. Contractor shall sign or initial each sheet of shop drawings and product data and each sample label to certify Contractor review and compliance with requirements of contract documents. Notify Contract Administrator



and A/E in writing, at time of submittal, of any deviations from requirements of contract documents.

- 6. Do not fabricate products or begin work which requires submittals until return of submittal with AHFC's stamp of acceptance.**
7. Apply Contractor's stamp, signed or initialed, certifying to review, verification of products, field dimensions and field construction criteria and coordination of information with requirements of work and contract documents.
8. Attach to each copy of each submittal shop drawings, product data, and manufacturer's instruction submittals a submittal summary sheet identifying project, contractor, subcontractor, major supplier, pertinent drawing sheet and detail number, and pertinent specification section number. Identify deviations from contract documents. Provide space for Contractor review stamps.
9. Coordinate submittals into logical groupings:
  - a. Submittals involving selection of colors, textures, or patterns shall not be reviewed until all submittals requiring such selection have been submitted.
  - b. Associated items that require correlation for efficient function or for installation shall be grouped together.
10. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
11. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal. Note that at least one copy of submittals, which require resubmission, will be kept by the Contract Administrator for record. Number of copies of resubmittals shall be as required for initial submittals. Record copies of submittals, which require resubmission, will not be updated with resubmitted data.

#### **1.4 SUBMITTAL REGISTER**

- A. Submit a register of submittals, on Contract Administrator provided or approved form, of all required submittals listing applicable specification paragraph number, type of submittal, description of material, action dates, status and remarks. Contractor's updated submittal register shall accompany each submittal transmittal.

**1.5 SCHEDULE OF VALUES**

A Schedule of Values. The Contractor shall submit a Schedule of Values, the sum of which is equal to the total Contract Price. The Schedule of Values shall serve as a basis for calculating progress payments during construction and shall be presented in such detail to allow the Contract Administrator to accurately verify the amount and value of work completed as defined in the Contractor's Progress Payment Request. The Schedule of Values shall correspond to activities on the Construction Schedule as defined in Section 01350 Construction Progress Schedules.

1. The Schedule of Values, to the extent approved shall be submitted in tabular and computer format as part of the construction schedule submittals following CSI format.
2. The Schedule of Values must be reviewed and accepted by the Contract Administrator as the basis of calculating progress payments. If, in the opinion of the Contract Administrator, the Schedule of Values is deemed incorrect, the Contractor shall present documentation substantiating the proposed values. If, in the opinion of the Contract Administrator, the Schedule of Values lacks sufficient detail to calculate progress payments, the Contractor shall submit additional detail. Progress payment subsequent to the required submission date for the Construction Schedule shall be withheld until the Contract Administrator has accepted the Construction Schedule.
3. Home-office overhead expenses and profit shall be assigned to activities in direct proportion to the cost allocated to that activity.
4. Job site overhead expenses shall be assigned (e.g., prorate supervision expenses, temporary utilities, small tools, etc.) to the activities whose start and finish dates are consistent with the actual disbursement of the expenses or over the total period of the job. Cost of bonds, insurance, and schedule, shall be listed and paid as separate line items.
5. Each activity listed in the schedule of values must be detailed by cost category using the following format:

Activity category	Labor	Equipment	Materials	Sub-Contractor	Overhead Profit	Total Cost

6. The value to be allocated to the mobilization activity(ies) shall not exceed a total of two (2) percent of total contract price. Payment for this item will be made provided the Contract Administrator is satisfied the Contractor is making a reasonable effort to mobilize for construction in a timely manner. Untimely delays in mobilization, as determined in the sole judgement of the Contract Administrator, will be cause for postponement of payment for the mobilization item. In the event of default of the Contract, as adjudged by the criteria set forth in the Contract, no further payments will be made to the Contractor for the mobilization item.
7. Monthly schedule updates: Monthly schedule updates are to be included as a pay item in the schedule of values, with a dollar value attached as specified in Section 1350, Schedules

## **1.6 SHOP DRAWINGS AND PRODUCT DATA**

### **A. General**

1. Submittals are required for all materials of construction and equipment specified and indicated on the drawings.
2. Unless otherwise indicated, submit shop drawings and product data for all materials and equipment specified within a single division of the specifications in a single indexed, tabbed, and bound volume.
3. Simultaneous submittal of all volumes is not required.
4. Provide an index, alphabetized by item name, listing the specification section and item number under which each item is submitted.
5. Organize submittals by specification section. Separate each section by a heavy stock divider sheet with plastic index tab. Type specification section numbers on both sides of paper inserts.
6. Identify each item of the submittal with an item number. Number the first item within a specification section "#1", the second item within a specification section "#2", and so forth. Restart numbering sequence with each specification section.
7. Precede each item with a copy of the item data sheet.
8. Include materials and equipment indicated on the drawings but not listed in the specifications in the submittal volume of the most closely

related division. Rules for item numbering and item data sheets apply.

9. Material submitted shall indicate the specific item(s) proposed for this project. Delete or cross out all other items.
10. Each submittal or resubmittal of each volume shall be complete and shall contain all previously submitted material except that being replaced by new or revised material that shall be removed. Partial or improperly indexed or tabbed submittals or resubmittals shall be rejected without review or comment.
11. With each resubmittal include a complete summary of all changes and additions made to the equipment review submittal since the previous submittal. Only those items included in the summary will be reviewed with the resubmitted package.
12. Resubmittal shall be made in the same number of copies as the original submittal. Do not submit "updates" for previous submittal packages with resubmittals. Previous submittals will be kept in original condition for a record and will not be updated.
13. A list of minimum submittals required is provided in each section. These lists are not necessarily complete or all-inclusive and the Contractor is responsible for complete submittal.
14. Bind submittals in 3-ring, D-ring style binders with page lifters and vinyl covers. Expandable catalog type 2-hole binders with soft board covers and metal prong fasteners will not be accepted. Submittals for the entire project shall be one color.
15. Provide multiple binders as required to limit single binder thickness to three inches. Divide binders at logical points.
16. Label the front cover and end panel. Label to include division number, project title, project number, date and facility name.
17. Submit a minimum of three, plus the number required by the Contractor, identical copies of the review submittal or resubmittal for review and acceptance by the Architect. The Contract Administrator will retain two copies of each submittal or resubmittal.

18. Materials submitted shall be reviewed and accepted by the Architect and Contract Administrator before Contractor releases material for fabrication or shipment.
  19. Submittals not conforming to the above requirements will be returned unreviewed for correction.
- B. Shop drawings
1. Present in a clear and thorough manner. Label each drawing with Owner project name and project number. Identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents. Minimum Sheet Size: 11"x17".
  2. Identify field dimensions; show relation to adjacent or critical features or work or products.
- C. Product Data
1. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
  2. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
- D. Samples
1. Submit full range of manufacturers' standard colors, textures and patterns for selection by Contract Administrator.
  2. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
  3. Include identification on each sample, giving full information.

**1.7 SAFETY PLAN**

- A. Contractor submission of project safety plan: CONTRACTOR shall, prior to commencement of the work, submit to Owner, for Owner's information, a Project Safety Plan for the work in accordance with the following:
1. An emergency management plan for a prompt and controlled response to any emergency with human injury, physical damage potential or fire risk. this plan must clearly state the actions that must be taken and the responsible parties.
  2. Emergency organizations to be contacted, telephone numbers, and the types of information they will need.
  3. Procedures to cover life threatening situations, first aid services, and fire.
  4. Access of emergency vehicles to the site.
  5. Provision for an on-site emergency control center.
  6. Provisions for an emergency management team.
  7. A responsibility matrix that describes and names the responsibilities for implementation of the safety plan and emergency plan.
  8. A hazardous material abatement plan which provides for identification of hazardous materials, including the submission of Material Safety Data Sheet (MSDS), as required by contract and by law.
  9. Provision for storage of hazardous materials.
  10. A plan for disposal of hazardous wastes in accordance with all applicable federal, state, and local requirements.
  11. A plan for hazard identification and mitigation, personal protection, hazard assessments, and regulatory compliance.
- B. The Contractor shall hold weekly safety meetings with all subcontractors and shall send 2 copies of the safety meeting minutes to the Contract Administrator on a weekly basis.

**1.8 MANUFACTURER'S INSTRUCTIONS**

- A. When required in individual specification section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

**1.9 PROGRESS MEETINGS**

- A. Contractor shall be responsible for calling and/or attending all meetings related to the work, coordination of the work with other work on the project and related matters. Generally project progress meetings and other meetings shall be conducted on site in a contractor supplied temporary conference room on a twice-monthly basis. Contractors to coordinate meeting dates with the Owner's representative and require attendance of any subcontractor currently performing work on the project. Contractor responsible for writing the agendas and distributing to the Owner one day prior to each meeting and for taking meeting notes and then having them typed and distributed to all attendees five days prior to the next scheduled meeting. Contractor Superintendent to have daily meetings with Owner's full time site representative.

**1.10 DAILY CONSTRUCTION REPORTS**

- A. Contractor shall be responsible for preparing a daily construction report, recording information concerning events at the site. Submit duplicate copies to the Owner's representative at weekly intervals. Include the following information:
  - 1. List of subcontractors at the site.
  - 2. High and low temperatures, general weather conditions.
  - 3. Accidents, stoppages, delays, shortages, losses.
  - 4. Emergency procedures.
  - 5. Change orders received, implemented.
  - 6. Directives received, implemented.
  - 7. Work not in compliance notices received, corrected.
  - 8. Work underway and percent complete from project schedule's WBS.

9. Substantial Completions authorized.
10. Number and type of equipment on site, active or inactive.
11. Number and classification of workers on site.

**PART 2 PRODUCTS - Not Used**

**PART 3 EXECUTION - Not Used**

**END OF SECTION**



ALASKA HOUSING FINANCE CORPORATION

SECTION 01350  
CONSTRUCTION PROGRESS SCHEDULES

**PART 1 GENERAL**

**1.1 REQUIREMENTS INCLUDED**

**1.2 RELATED REQUIREMENTS**

- A. Section 01010 – Summary of Work
- B. Section 01300 – Submittals
- C. Section 01700 – Contract Closeout

**1.3 CONSTRUCTION PROGRESS SCHEDULES**

**A. GENERAL**

The Contractor will be responsible for planning, scheduling, managing and reporting the progress of the work in accordance with the following requirements.

Schedules shall be prepared on CPM network scheduling software by members of Contractor's staff skilled and experienced in the techniques of CPM scheduling. In the event the Contractor does not possess in-house staff with the required scheduling experience, the Contractor shall at its own expense, contract with a consultant for the preparation and updating of required CPM schedules.

Contractor shall prepare and submit the following plans and schedules to AHFC to be used by the Contractor to effectively plan, track and control the progress of the work. The subject schedules will be used by AHFC and architect/engineer to evaluate progress and status of the work throughout the project, as well as allocate funds, determine the impact of any changes to the Contract and establish the basis for progress payments. The contents of the schedules shall be organized according to a Work Breakdown Structure (WBS) established by AHFC (Attachment 'A').

The sequence and process for the preparation and submission of schedules by the Contractor are the following:

1. Detailed Project "Baseline" Schedule  
Contractor shall submit a detailed project schedule and narrative work plan within ten days after NTP. This detailed schedule shall be

established as the official project “baseline” schedule after it has been reviewed and approved by AHFC.

2. Monthly Detailed Schedule Updates

Detailed schedule updates shall be submitted monthly comparing actual progress against the project baseline schedule. The level of detail shall be the same as contained in the project baseline schedule. Each monthly detailed schedule update shall be accompanied by a narrative progress report highlighting salient changes to work status and progress.

B. SCHEDULE SUBMITTALS

1. Detailed Project “Baseline” Schedule and Work Plan

Within ten days after receipt of Notice to Proceed, the Contractor shall submit a detailed construction schedule and written work plan for execution of the work.

Detailed Schedule

The schedule shall be in the form of a time scaled detail logic diagram comprised of a number of schedule activities to be established by AHFC and Contractor at the time of Contract award. The number of activities will vary, depending on the complexity of the project. This schedule shall be prepared and presented using the latest version of “Project for Windows” scheduling software (by Microsoft). The schedule will contain contract milestones in addition to sufficient construction activities to convey the Contractor’s plan for execution of the work including work to be performed by subcontractors. All Contract pay items shall be reflected in the detailed schedule by individual work activities and these activities shall be cost-loaded so that a project cash flow can be produced by the “Project for Windows” schedule software. The network diagram will organize the schedule activities in accordance with the activity groupings (WBS) furnished by AHFC and shall show the following:

- Activity numbers and description
- Planned start and finish dates, activity durations and float (“total slack”)
- No schedule activity duration shall exceed 20 calendar days, regardless of the duration of the actual work.
- Critical path (highlighted)
- Relationships between activities (dependency lines)

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CONSTRUCTION PROGRESS SCHEDULES

- Milestone events
- Activity bars showing trailer lines depicting “total slack” related to each activity

In addition to the detailed logic diagram as described above, the schedule shall be accompanied by the following reports, as produced by Microsoft Project:

- Project cash flow report
- Supplementary tabular report containing the full activity listing indicating predecessor and successor activities to each schedule activity, relationship type and lead/lag times

Work Plan

The Contractor shall accompany the detailed schedule with a written work plan describing:

- The construction work methods to be used and duration of the major tasks
- Sequence for accomplishing the work
- Anticipated number of crews and crew composition for major activities
- Shifts and number of work days each week

The work plan will also identify planned staging areas, planned mobilization of material and supplies from their sources to the work site and Contractor’s plan for their storage at the site. The plan will also address other logistical matters such as set up of field support facilities such as shops, fuel storage, warehousing and yards if applicable. The plan will include a table showing planned total manpower staffing month by month (by craft) over the duration of the project.

The work plan shall contain a section describing the process by which the Contractor intends to prepare, monitor and update its schedules throughout the execution of the project work. This narrative shall identify who will prepare the schedules and reports and the internal review process to be used by the Contractor prior to submission of schedules and reports to the AHFC throughout the duration of the project.

Review and Approval

The AHFC will evaluate and review with the Contractor the proposed construction schedule and work plan within 10 working days of submission. The Contractor shall incorporate the comments of the AHFC and reissue a revised version of the detailed schedule within 10 working days of this review. This process shall continue until a detailed project schedule acceptable to AHFC has been submitted. In the event that resubmission of detailed schedules is required to meet the requirements of this Section, such required resubmission shall not be used as a basis for delay claims by Contractor. Once approved, this schedule shall become the official project "baseline" schedule and thereafter shall become the baseline for measuring Contractor's compliance with Contract schedule requirements.

As a pre-requisite to approval by AHFC, the Contractor shall submit a certification that the schedule has been reviewed in detail with all applicable parties and has been coordinated with all sub-contractors and major suppliers as it relates to their respective work operations.

**The Contractor shall not mobilize to the site of work until the review and approval of the project baseline schedule have been completed.**

AHFC may reject any proposed construction schedule or report that fails to reflect timely completion of the work, intermediate contract milestone dates or otherwise indicates unrealistic schedule performance. AHFC may, without incurring any liability, reduce the contract period if the Contractor proposes a baseline schedule utilizing less time than allowed in the Contract.

The Contractor's project progress will be measured against the approved baseline schedule on a monthly basis as described in the following section entitled Monthly Detailed Schedule Updates. The AHFC shall not approve the Contractor's first monthly progress billing for payment until the above process for establishment of the approved project baseline schedule has been completed. Upon completion of schedule reviews and final approval of Contractor's detail schedule by AHFC, Contractor shall furnish AHFC with an electronic copy of the approved schedule prior to electronically fixing the baseline.

*Note: AHFC acceptance and approval of the Contractor's schedule does not constitute a warranty of its feasibility, suitability or reasonableness.*

2. Monthly Detailed Schedule Updates

The Contractor will continuously monitor its progress against the approved project baseline construction schedule and will prepare and submit monthly schedule updates showing actual progress against the approved baseline schedule. The monthly update will contain the same level of detail as the approved project baseline schedule.

Monthly schedule updates will show the status of all activities, whether completed or in progress, to include actual start and finish dates, completion percentages based on work-in-place, revised start dates, completion dates and durations and any changes in network logic. In addition to the monthly schedule updates, Contractor shall submit a brief monthly narrative report describing schedule changes such as changes in network logic (predecessor/successor relationships), changes to activity start dates, completion dates and durations and changes to the critical path. The narrative reports will also address the amount of progress during the preceding month, discuss problem areas, current or anticipated delays and their estimated impact on the project schedule.

The Contractor will submit its first monthly update no later than 60 calendar days following receipt of Notice to Proceed and monthly thereafter. The schedule "update" dates will be the same dates established as the monthly cutoff dates for purposes of calculation of the monthly progress billings. Schedule progress will therefore correspond to the quantities/work progress reflected in the monthly progress billings. Submission of the monthly schedule updates and narrative reports shall be due five (5) workdays following the monthly cutoff dates for progress billings. Schedule updates and accompanying narrative reports shall be submitted monthly until completion of the project.

Contractor shall provide sufficient amounts in its bid price to cover the expense of establishing the project baseline schedule and preparation and submission of monthly updates throughout the duration of the project. AHFC has established the monthly sum of \$\_\_\_\_\_ (0 unless otherwise indicated) as the value to AHFC of each monthly

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CONSTRUCTION PROGRESS SCHEDULES

schedule update and report. This monthly amount has been extended by the estimated total number of months that Contractor is expected to submit schedule updates. This extension produces an estimated total value of \$\_\_\_\_\_ (0 unless otherwise indicated) for this Contract. Contractor shall use this amount as the total value of the pay item in the Schedule of Values for monthly schedule updates in conformity with the requirements of Section 01300.

If Contractor fails to submit an acceptable monthly schedule update with accompanying reports as specified in this section, the Contractor shall forfeit the above stipulated monthly amount. Said amount shall be deducted for each month that Contractor fails to submit an acceptable monthly schedule update and report. All such amounts withheld for failure to submit monthly schedule updates and accompanying reports shall be permanently forfeited by Contractor and are not recoverable upon completion of the project.

C. SUPPLEMENTAL SCHEDULE SUBMITTALS

In addition to the schedules enumerated above in subsection B, AHFC may require Contractor to prepare other special schedules if work progress and circumstances require. These may include "what if" schedules, recovery plan schedules or special schedules to evaluate the impact of change orders or other unexpected occurrences. Such additional scheduling shall not incur any added cost liability to the account of the AHFC.

**PART 2 PRODUCTS – Not Used**

**PART 3 EXECUTION – Not Used**

**END OF SECTION**

**ATTACHMENT A**

**WORK BREAKDOWN STRUCTURE (WBS)**  
**SAMPLE**  
**(Specific WBS to be tailored to each project)**

**WBS**

- Notice to Proceed
- Permitting
- Baseline Schedule (Submission/Review/Approval)
- Monthly schedule updates
- Mobilization
- Procurement/Fabrication/Shipping/Delivery
- Demolition work
- Submittals
- Site Work
- Excavation/Fill
- Foundations and Footings
- Framing
- Roof
- Building Shell & Close-in
- Site Utilities Connections
- Mechanical Systems
- Electrical Systems
- Punchlist/Cleanup
- Inspections
- Transfer Facilities to Owner
- Demobilization
- Record Drawings/ O&M Manuals Delivery
- Warranty Period

For projects entailing more than one building structure, the above WBS should be applied to each building or unit.

## **PART 1      GENERAL**

### **1.1      REQUIREMENTS INCLUDED**

- A.      General Quality Control
- B.      Workmanship
- C.      Manufacturer's Instructions
- D.      Owner Inspection Services
- E.      Manufacturers' Field Services
- F.      Testing Laboratory Services

### **1.2      RELATED REQUIREMENTS**

- A.      Section 01010 - Summary of Work
- B.      Section 01300 - Submittals

### **1.3      QUALITY CONTROL, GENERAL**

- A.      Maintain quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce Work of specified quality.

### **1.4      WORKMANSHIP**

- A.      Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B.      Perform Work by persons qualified to produce workmanship of specified quality.
- C.      Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration and racking.



**1.5 MANUFACTURERS' INSTRUCTIONS**

- A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Contract Administrator before proceeding.

**1.6 OWNER INSPECTION SERVICES**

- A. Submit written requests for inspection of work by Owner personnel. As a minimum the following will be inspected with written notice required.
  - 1. After installation of all below grade work, while work is under test and before backfill.
  - 2. After installation of all structural framing and above grade electrical and mechanical rough in and before insulation, gypsum board or roofing has been installed.
  - 3. After installation of all insulation and before vapor retarder has been installed.
  - 4. After installation of all above grade structural framing and sheathing and before roofing is installed.
  - 5. After all gypsum board has been installed and taped and prior to painting.
  - 6. Final inspection.
- B. Notice of inspections shall be received by the Owner seven (7) days prior to the requested time of inspection.
- C. Request shall identify the Project, Project No., its location, the Contractor and a contact person and describe the nature of the desired inspection.
- D. If the request is for a re-inspection of work previously inspected include the Owner's prior listing of deficiencies accompanied by the remedies provided since the prior inspection.

**1.7 MANUFACTURERS' FIELD SERVICES**

- A. When specified in respective Specification Sections, require manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment,

test, adjust and balance of equipment as applicable and to make appropriate recommendations.

- B. Manufacturer's Representative shall submit written report through the Contractor to the Contract Administrator listing observations, recommendations and acceptability of the work.

## **1.8 TESTING LABORATORY SERVICES**

- A. Contractor shall employ and pay for services of an Independent Testing Laboratory to perform inspections, tests and other services required by individual Specification Sections.
- B. Contractor shall use the services of a recognized independent test lab. Submit name and three (3) recent client references a minimum of 21 days before services are performed.
- C. Services will be performed in accordance with requirements of governing authorities and with specified standards.
- D. Reports will be submitted to Contract Administrator in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with Contract Documents.
- E. Contractor shall cooperate with Testing Laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.
  - 1. Notify Contract Administrator and Testing Laboratory 24 hours prior to expected time for operations requiring testing services.
  - 2. Make arrangements with Testing Laboratory and pay for additional samples and tests for Contractor's convenience.

**END OF SECTION**

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**SECTION 01500  
CONSTRUCTION FACILITIES  
AND TEMPORARY CONTROLS**

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Electricity
- B. Heat, Ventilation
- C. Telephone Service
- D. Sanitary Facilities
- E. Temporary Facilities
- F. Barriers
- G. Protection of Installed Work
- H. Security
- I. Cleaning During Construction
- J. Snow/Ice Removal

**1.2 RELATED SECTIONS**

- A. Section 01010 - Summary of Work.
- B. Section 01700 - Contract Closeout.

**1.3 ELECTRICITY, LIGHTING**

- A. Contractor is responsible for providing and paying for construction phase power. Permanent power may be utilized during construction, coordinate with Contract Administrator. Provide service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords. AHFC is not responsible for the adequacy of on-site power made available.
- B. Provide lighting for special construction operations.
- C. Contractor is responsible for providing and paying for construction phase

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SECTION 01500  
CONSTRUCTION FACILITIES  
AND TEMPORARY CONTROLS

lighting. Permanent lighting may be used during construction upon approval of the Contract Administrator. Maintain lighting and make routine repairs. Rebulb all fixtures prior to final inspection. AHFC is not responsible for adequacy of provided lighting.

**1.4 HEAT, VENTILATION**

- A. Provide as required to maintain specified conditions for construction operations, to protect materials and finishes from damage due to temperature or humidity.
- B. Prior to operation of permanent facilities for temporary purposes, verify that installation is approved for operation, and that filters are in place. Provide and pay for operation, maintenance, and utilities.
- C. Provide ventilation of enclosed areas to cure materials, to disperse humidity, and to prevent accumulations of dust, fumes, vapors, or gases.

**1.5 TELEPHONE SERVICE**

- A. Telephone service will not be provided. Contractor shall make arrangements as is required to satisfy their needs.

**1.6 SANITARY FACILITIES**

- A. Contractor to provide sanitary facilities for workers. Contractor may use public facilities where available upon approval by the Contract Administrator. Toilet facilities must be kept in a clean and sanitary condition. AHFC is not responsible for adequacy of on-site or public facilities.

**1.7 TEMPORARY FACILITIES FOR CONTRACTOR'S STORAGE AND OFFICE**

- A. Contractor is responsible for storage and office area. Coordinate with Contract Administrator where on-site storage or office space may be available. AHFC is not responsible for the adequacy of on-site space.

**1.8 TEMPORARY FACILITIES FOR ON-SITE INSPECTOR**

- A. The contractor is to provide office space onsite with adequate heat, lights, and electric outlets for use by the AHFC on-site inspector. The space shall be a minimum of 10' x 10', have a suitable desk, office chair, plans table, shelves, and dedicated phone service for at least one phone and one fax machine. The space shall have a separate and secure access

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AND TEMPORARY CONTROLS

door for the on-site inspector's sole use. The space shall comply with all codes for office space.

**1.9 BARRIERS**

- A. Provide as required to prevent public injury and entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

**1.10 PROTECTION OF INSTALLED WORK**

- A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- B. Provide protective coverings at walls, projections, jambs, sills, soffits, and openings. Protect finished floors and stairs from traffic, movement of heavy objects, and storage.

**1.11 SECURITY**

- A. Cooperate with Housing Operations in maintaining the existing security to protect Work and building from unauthorized entry, vandalism, and theft. In existing structures with security systems, exterior doors are to remain locked at all times.

**1.12 CLEANING DURING CONSTRUCTION**

- A. Control, contain, and dispose of accumulation of waste materials and rubbish daily.
- B. Clean interior areas daily prior to start of finish work. Maintain areas free of dust and other contaminants during finishing operations.

**1.13 SNOW AND ICE REMOVAL**

- A. Contractor is responsible for snow and ice removal during construction phase for all areas impacted by construction activities.

**PART 2 PRODUCTS NOT USED**

**PART 3 EXECUTION NOT USED**

**GENEVA WOODS AND MT. VIEW UST to AST  
REPLACEMENT**

**DIVISION 1**

**ALASKA HOUSING FINANCE CORPORATION**

**SECTION 01500  
CONSTRUCTION FACILITIES  
AND TEMPORARY CONTROLS**

**END OF SECTION**

**PART 1 GENERAL****1.1 REQUIREMENTS INCLUDED**

- A. Products
- B. Transportation and Handling
- C. Storage and Protection
- D. Product Options
- E. Contractor Representations
- F. Systems Demonstration

**1.2 RELATED REQUIREMENTS**

- A. Section 01010 - Summary of Work
- B. Section 01300 - Submittals
- C. Section 01700 - Contract Closeout

**1.3 PRODUCTS**

- A. Products include material, equipment and systems.
- B. Comply with specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a specification section shall be the same and shall be interchangeable.
- D. Do not use materials and equipment removed from existing structure, except as specifically required or allowed, by contract documents.

**1.4 TRANSPORTATION AND HANDLING**

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

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SECTION 01600  
MATERIALS AND PRODUCTS

- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.

**1.5 STORAGE AND PROTECTION**

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.

**1.6 PRODUCT OPTIONS**

- A. Products specified by naming one or more manufacturers followed by the term "No Substitutions": Use only specified manufacturers, no substitutions allowed.
- B. Products specified by reference standards or by description only: Use any product meeting those standards.
- C. Whenever a material, article or piece of equipment is identified in the Contract documents by reference to manufacturer or vendor's names, trade names, catalog numbers, etc., it is intended to establish a minimum standard. Unless otherwise noted any substitute material, article or equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design of the Project will be considered equally acceptable; provided, the substitute material, article or equipment so proposed is, in the opinion of the Contract Administrator, of equal substance, function, dimension, appearance and quality.
- D. Prior to the bid opening, the Bidder shall make his own determination in selecting which specified or substitute equipment to base his proposal



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SECTION 01600  
MATERIALS AND PRODUCTS

upon. Substituted items shall be equal to or better than that specified or indicated in regards to quality, workmanship, finish, space requirements, electrical requirements, performance or warranties.

- E. After the bid opening, the Contractor shall submit sufficient data in accordance with this Section to establish equality. The Contract Administrator shall be the sole judge of equality and acceptability.
- F. Acceptance of substitute materials will not relieve the Contractor of the responsibility for any changes in his own work or in the work of other crafts caused by the substitution. Any additional costs resulting from substitutions are the responsibility of the Contractor.
- G. Any proposed substitution whose characteristics differ from the specified item to such an extent as to necessitate changes in the mechanical, electrical or other basic design of the Project, shall include the cost of any such changes, the design and the cost of design, which costs shall be borne by the Contractor. Determination of a substitution request will be based on the Contract Administrator's comparisons as to quality, adaptability, aesthetics, contract amount change, if applicable, etc., between the proposed substitution and specified item.
- H. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.
- I. Substitute products shall not be ordered or installed without written acceptance.

**1.7 CONTRACTOR REPRESENTATION**

- A. Request for substitution constitutes a representation that the Contractor has investigated proposed product and has determined that it is equal to or superior in all respects to specified product.
- B. Contractor will provide same warranty for substitution as for specified product.
- C. Contractor will coordinate installation of accepted substitute, making such changes as may be required for work to be complete in all respects.
- D. Contractor certifies that cost data presented is complete and includes all related costs under this contract.
- E. Contractor waives claims for additional costs related to substitution, which may later become apparent.

## **1.8 SYSTEMS DEMONSTRATION**

- A. Prior to final inspection, demonstrate operation of each system to the Contract Administrator.
- B. Instruct Alaska Housing Finance Corporation personnel in operation, adjustment and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

**END OF SECTION**

**PART 1 GENERAL****1.1 REQUIREMENTS INCLUDED**

- A. Closeout Procedures
- B. Final Cleaning
- C. Project Record Documents
- D. As-Built Drawings
- E. Warranties

**1.2 RELATED REQUIREMENTS**

- A. Section 01010 - Summary of Work

**1.3 CLOSEOUT PROCEDURES**

- A. Contractor shall comply with contract closeout provisions as specified in the Contract.
- B. In addition to submittals required by the conditions of the Contract, the Contractor shall provide all submittals required by governing authorities and submit a final statement of accounting giving total adjusted Contract Price, previous payments made, and any sum remaining due.
- C. AHFC will issue a final Change Order reflecting approved adjustments to the Contract Price if not previously made. No final payment will become due, nor will any payment request be accepted for processing, until all documents and materials required to be delivered by the Contractor to AHFC have been delivered.
- D. Contractor shall submit the Certificate and Release with his request for final payment.

**1.4 FINAL CLEANING**

- A. The Contractor shall execute final cleaning prior to final completion. The Contractor shall clean site; rake clean.

**1.5 PROJECT RECORD DOCUMENTS**

- A. The Contractor shall maintain one record copy of:
  - 1. Contract Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Change Orders and other modifications to the Contract
  - 5. Approved submittals, i.e., shop drawings, product data, survey and field records, field test records, samples, etc.
  - 6. Inspection certificates
  - 7. Red-line drawings
- B. The Contractor shall during construction, store all required Contract Documents and samples in clean, dry and legible condition in Field Office apart from documents used for construction.
- C. The Contractor shall keep all required documents and samples available for inspection by AHFC through completion of the warranty period.

**1.6 AS-BUILT RED LINE DRAWINGS**

- A. The Contractor shall record actual construction information on a set of contract drawings and shop drawings, and shall:
  - 1. Use marking pens, maintaining separate colors for each major system, for recording information, and;
  - 2. Not conceal any work until required information is recorded, and;
  - 3. Record information concurrently with construction progress by legibly marking contract drawings and shop drawings to record actual construction, including measured:
    - a. Depths of elements of foundation in relation to finish first floor datum, and;

- b. Horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements, and;
  - c. Locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
- 4. Include and annotate changes made by Addenda, and;
- 5. Include and annotate all field changes of dimensions and details made by Design Clarification/Verification Request (DCVR), and;
- 6. Include and annotate changes made by Change Orders, and;
- 7. Include and annotate references to related shop drawings, and;
- 8. Include and annotate all other details not on original Contract Drawings and not mentioned above.
- B. The Contractor shall submit final marked-up as-built red-line drawings (approved by the A/E) to AHFC, using a letter of transmittal, within five days of the Contractor's notice of final completion inspection.

## **1.7 OPERATION AND MAINTENANCE (O&M) MANUAL**

- A. The Contractor shall provide two duplicate, bound copies for all equipment and products used in the project in Construction Specifications Institute format (e.g. division 1-16). Provide table of contents and assemble in binder with durable plastic cover.
- B. Format: 8½" x 11" white paper with manufacturer's data or typewritten.
- C. O&M Manual Drawings: The Contractor shall provide reinforced punched binder tab, bind in with text. Fold larger drawings to the size of the text page. Provide flyleaf for each separate product, or each piece of operating equipment. Provide typed description of product, and component parts of equipment. Provide text tabs. Supplement product drawings as necessary to clearly illustrate the relations of component parts of equipment and systems and control flow diagrams. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation. Do not use Project Record Documents as maintenance manual drawings.

- D. Cover: The Contractor shall identify each volume with a typed or printed title: "O&M Manual" and list, the title of the project and the general subject matter covered in the manual.
- E. Binders: Commercial quality three-ring binders with durable and cleanable plastic covers shall be used. Minimum ring size to be 2". When multiple binders are used the Contractor shall, correlate the data into related consistent groupings.
- F. Content: The Contractor shall prepare a neatly typewritten table of contents for each volume, arranged in a systematic order, including warranty procedures and content outline. The Contractor shall list, with each product, the name, address, and telephone number of the Subcontractor or installer and area of responsibility, Maintenance Contractor and area of responsibility, and local source of supply for parts and replacement. Identify each product by product name and other identifying symbols as set forth in the Contract Documents.
- G. Product Data: The Contractor shall include only those sheets which are pertinent to the specific product. Annotate each sheet to clearly identify the specific product or part installed, and the data applicable to the installation. Delete references to inapplicable information.
- H. The Contractor shall submit O&M Manuals to AHFC, using a letter of transmittal, as follows:
  - 1. For equipment put into use with AHFC's permission during construction, submit all required documentation within 10 days after first operation.
  - 2. Draft O&M Manuals are due a minimum of 30 days prior to project final completion inspection.
  - 3. Final O&M Manuals (approved by the A/E) must be delivered before the project will be determined finally complete, and prior to application for final payment.

## 1.9 WARRANTY MANUAL

- A. The Contractor shall provide all required warranty documents in duplicate, in a Warranty Manual. All warranties shall be properly executed by the contractor, subcontractors, and suppliers as applicable. Provide table of

contents and assemble in binder with durable plastic cover as described above for the O&M Manuals.

- B. The Contractor shall submit the Warranty Manual (approved by the A/E) to AHFC, using a letter of transmittal, 30 days prior to project final completion inspection, and/or application for final payment.

## **1.9 SPARE PARTS AND MAINTENANCE MATERIALS**

- A. The Contractor shall provide products and spare parts in quantities specified in each specification section, in addition to that used for the construction.
- B. Coordinate turnover of these materials with the Contract Administrator, and deliver to the project site or local AHFC maintenance warehouse. Obtain a receipt for materials turned over to AHFC, and submit a copy of that receipt to AHFC, using a letter of transmittal.
- C. The Contractor shall turn over spare parts and maintenance materials 30 days prior to project final completion, and/or application for final payment.

**END OF SECTION**

**PART 1 GENERAL****1.1 REQUIREMENTS**

- A. Provide temporary enclosures to separate work areas from areas used by public or occupied by residents, and to provide dust and weather protection. Adequately enclose and protect against weather any interior space where installation is incomplete at end of working day, and be responsible for any damage or inconvenience due to failure to do so.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.1 PREPARATION**

- A. For each phase of construction, erect dust proof enclosures separating occupied from unoccupied areas before beginning demolition. Remove enclosures when work is complete and patch surfaces damaged by work.
- B. Remove building equipment, cabinets, and fixtures as required. Store and protect items noted to be saved and/or reinstalled.
- C. Remove appliances, cabinets, equipment, partitions, walls, ceilings, floors, doors and frames, windows, ductwork, piping and other building components as required.
  - 1. Protect exposed utilities.
  - 2. Provide necessary shoring and bracing.
  - 3. Dispose of debris off site in accordance with applicable laws, ordinances, and regulations.
  - 4. Clean up and leave building and site prepared for renovation.
- D. Cutting, moving, and removing items as necessary to provide access or to allow alterations and new work to proceed. Include such items as:
  - 1. Repair or removal of hazardous or unsanitary conditions.
  - 2. Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit, and wiring.
  - 3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals, and deteriorated concrete.
  - 4. Repair or replacement of defective floor joists and subfloor for flooring work.



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5. Repair or replacement of defective rafters and sheathing for roofing work.
6. Cleaning of surfaces and removal of surface finishes, as needed to install new work and finishes.
7. Rerouting of utilities.
8. Providing access panels for maintenance of concealed plumbing work.
9. Patching, repairing, and refinishing existing items to remain, to specified conditions for each material, with workmanlike transition to adjacent new items of construction.

**END OF SECTION**

PART 1 GENERAL REQUIREMENTS

1.1 SCOPE

- A. This section covers the closure of underground fuel oil storage tank, associated piping, tank contents and accessories.

1.2 DEFINITIONS AND ABBREVIATIONS

- A. AIHA- American Industrial Hygiene Association.
- B. API- American Petroleum Institute.
- C. ASTM- American Society for Testing and Materials.
- D. CFR- Code of Federal Regulations.
- E. CGI- Combustible gas indicator
- F. Continuous Monitoring- At least every 15 minutes.
- G. DEC- Alaska Department of Environmental Conservation.
- H. EPA- Environmental Protection Agency.
- I. Fire Officials- Fire Marshals. Fire Chief, Fire Inspector or any other legal representative of the fire department.
- J. LEL- Lower explosive limit
- K. MSHA- Mine Safety and Health Administration.
- L. Net Exhaust- The air mover maximum capacity exceeds the volume of the tank.
- M. NFC- National Fire Code.

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- N. NFPA- National Fire Protection Association.
- O. NIOSH- National Institute for Occupational Safety and Health.
- P. NIST- National Institute of Science and Technology.
- Q. O2- Oxygen indicator
- R. O/O- Owners and operators
- S. OSHA- Occupational Safety and Health Administration.
- T. PEL- Permissible Exposure Limit.
- U. Periodic Monitoring- More than every 15 minutes.
- V. RP- Recommended Practice.
- W. Safety Can- An approved container, not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure. (NFPA 30)
- X. Sludge- See RCRA regulation 40 CFR.
- Y. Triple Rinse- EPA regulations state that tanks (until triple rinsed) are subject to RCRA Subtitle C regulations depending on the status to the generator (tank removal contractor) as stated in 40 CFR § 261.7 (one rinse equals 10% of tank capacity).
- Z. UL- Underwriters Laboratory.

1.3 APPLICABLE PUBLICATIONS

A. General Requirements

1. The Regulatory Requirements listed in this Section apply especially to underground storage tank closure and related operations. All work shall be done in full compliance with the publications listed in this section as well as the Uniform Building Code, Uniform Plumbing Code, Uniform Fire Code, the National Electrical Code, and as specified herein.
2. Safety and environmental regulations relating to EPA, OSHA, DOT, the DEC and the ADOL are hereby incorporated, by reference, into these Specifications.
3. Federal, State and Local regulations are continuously being developed and enacted. The Contractor is required to have current knowledge of all applicable regulations and shall conduct all UST removal and disposal operations in full compliance with all applicable regulations whether or not they are referenced herein.

B. Alaska State Administrative Codes Title 18 AAC 78; Underground Storage Tanks.

C. Alaska State Administrative Codes Title 18 AAC 75; Oil and Hazardous Substance Pollution Control Regulations.

D. Alaska State Administrative Codes Title 18 AAC 75.110; Guidance for Storage, Remediation, and

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Disposal of Non-UST Petroleum Contaminated Soils.

- E. Alaska State Statutes Title 46; Water, Air, and Environmental Conservation.
- F. U.S EPA 40 CFR § 280; Technical Standards and Corrective Action Requirements for Owner and Operators of Underground Storage Tanks (UST).
- G. American Petroleum Institute Publication 2015 Fourth Edition, January 1991; Safe Entry and Cleaning of Petroleum Storage Tanks.
- H. National Fire Protection Association 329; Handling Underground Releases of Flammable and Combustible Liquids 1992 Edition.
- I. Uniform Fire Code, 1991 Edition, Article 79
- J. Title 29 CFR Part 1926; Occupational Safety and Health.
- K. Title 49 CFR 100-199 Department of Transportation.
- L. American National Standard Institute (ANSI); Practices for Respiratory Protection.
- M. State of Alaska Occupational Safety and Health Standards Subchapter 5, 10, and 15.
- N. Where there are conflicting requirements in the above mentioned regulations/recommendations, the most stringent or more current will apply. Contractor must submit matters of interpretation with regard to State and Federal regulations and contents of this specification prior to beginning on-site activities.

1.4 QUALITY ASSURANCE

- A. The safety and protection of the Contractor's employees, sub-contractor's employees, Owner's employees, the facility, and the public is the sole responsibility of the Contractor.
- B. The Owner, his/her representative, or State or Federal agencies may make one or more unannounced daily visits to the site during site activities. The Contractor shall make two complete sets of clean, protective clothing and respirators available for visitors use.
- C. If the Contract Administrator or agency visitor determines that practices are in violation of applicable regulations, or are endangering workers or the facility, he will immediately notify the Contractor orally that operations must cease until corrective action is taken. Such notification will be followed by written confirmation.
- D. After receiving notification to stop work, the work may not be restarted until the Contractor receives written authorization from the Contract Administrator.
- E. Any costs resulting from a stop work order under this specification will be borne by the Contractor and will not be a basis for an increase in the contract amount or an extension of time.

1.5 SUBMITTALS

- A. Submittals Required: The Contractor shall submit the following documentation to the Owner for review, and approval. WORK SHALL NOT PROCEED UNTIL

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THE UST CLOSURE SUBMITTAL PACKAGE IS APPROVED. To facilitate review, the submittal shall be separated into sections containing the following information:

1. Contractor's Shop Drawings (see B below).
2. Contractor's Work Plan (see C below).
3. Contractor's Safety Plan (see D below).
4. Contractor's Schedule (see F below).
5. Contractor Owned Equipment (see G below).
6. Contractor's Respirator Program (see H below).
7. Contractor's Testing Laboratory (see I below).
8. Disposal Site Designations (see J below).
9. Waste Transporter Designation (see K below).
10. Contractor's                      Certifications                      and  
   Representations  
   (see  
   below).
11. Copies of Contractor's Notifications, Permits,  
and Certificates, DEC Notification to Close a  
UST system (see M below).
12. Contractor's "Competent Person" Designation  
and Experience (see N below).

B. Shop Drawings: Make all shop drawings accurately and to a scale sufficiently large to show all pertinent features of the work.

1. Shop drawings shall show:
  - a. Boundaries of each regulated work area.
  - b. Location of decontamination stations, showers and change rooms.
  - c. Location of temporary site storage facilities.
  - d. Location of emergency egress route(s).

C. Work Plan:

1. The work plan shall be prepared for this specific job in the form of checklists and

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shall include specific procedure for:

- a. Work area set-up and protection procedures.
  - b. UST closure procedures.
  - c. Worker protection procedures.
  - d. UST decontamination procedures.
  - e. Personnel decontamination procedures.
  - f. Waste transport and disposal procedures.
  - g. Site security procedures.
  - h. Outdoor spill clean-up procedures.
  - I. Contaminated soil stockpiling location and procedures.
  - j. Contaminated soil waste transport procedures.
  - k. UST atmospheric monitoring procedures.
2. The work plan shall be prepared and signed by the Contractor.
  3. The work plan shall contain sufficient detail so that a skilled worker, by following the plan, can perform hazardous material removal work in a safe, acceptable manner.
- D. Safety Plan: The safety plan shall be prepared for this specific job in the form of checklists, and shall include specific procedures for:
1. Emergency egress.
  2. Fire protection.
    - a. Fire prevention.
    - b. Fire detection.
    - c. Fire alarm procedures.
    - d. Fire notification.
      - (1) Authorities.
      - (2) Owner.
    - e. Fire fighting equipment and procedures.



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3. Accident prevention:
    - a. Heat/Cold stress monitoring.
    - c. Electrical equipment:
      - (1) Lock-outs.
      - (2) Ground Fault Circuit Interrupter Receptacles.
  4. Confined space entry procedures.
  5. Injury and accident procedures.
- E. UST Closure Progress Schedules: Show complete sequence of construction by work area. Show the dates for the beginning and completion of UST removal.
1. Specifically list:
    - a. Mobilization.
    - b. Submittal review and acceptance.
    - c. Work area preparation per area.
    - d. UST closure.
    - e. Soil collection and inspection.
    - f. Final Inspection and Punch List completion.
    - g. Final submittal review

Schedules shall provide "adequate time" for visual inspections and soil collection and analysis. "Adequate time" shall mean 24-hours (no weekends).

2. Prepare schedules in the form of a horizontal bar chart.
  - a. Provide separate horizontal bar for each excavation zone.
  - b. Horizontal time scale: Calendar days identify by date.

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- c. Scale and spacing: Allow space for notations and future revisions.
    - d. Clearly note start times which depend upon the performance of others, including testing laboratories, mail services, and review processes.
  - 3. If the nature of the work is such that the schedule is dictated by the Contractor and is thus not known when the submittal package is prepared, the submittal shall be supplemented with facsimiled schedules at least 24 hours prior to mobilization. Work in any excavation zone shall not begin until applicable shop drawings and schedules are received by the Owner and approved.
- F. Contractor Owned Equipment and supplies: The Contractor shall submit manufacturer's data for all equipment and supplies proposed to be used for the work.
- 1. Equipment: The submittal shall show the model, style, capacity, and the operation and maintenance procedures for the following, as applicable:
    - a. Contamination containment equipment.
    - b. Atmospheric monitoring equipment.
    - c. Vapor extraction equipment.
    - d. Oil/water separator pumps, filters, etc.
  - 2. Material Safety Data Sheets: The Contractor shall submit a Material Safety Data Sheet for each product used and proposed to be used.
- G. Respirator Program: The Contractor shall submit his/her written respirator program to the Owner. The Contractor's written and approved respirator program shall meet all requirements of ANSI Z88.2-

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1980, Practices for Respiratory Protection, State of Alaska Subchapter 0.5045 and 29 CFR 1910.134. Any deficiencies in the plan shall be corrected. The Contractor shall certify that all provisions of his/her approved respirator program are strictly enforced.

- H. Testing Laboratory: The Contractor shall submit the name, location, phone number, and Statement of Qualifications of his proposed testing laboratories. Laboratory must be DEC approved for performing diesel range hydrocarbon analysis. Field testing consultant shall maintain an approved DEC QAPP for collection of petroleum contaminated soils. This submittal shall describe the laboratories'/consultants' supervision and registration, shall provide a list of the technicians who are qualified to take samples in the field and evidence of their training. Field technicians shall be trained in the use, care, and calibration of soil screening equipment, and soil collection techniques.
  - I. Disposal Site Designations: The Contractor shall submit the name and location of his/her proposed DEC/EPA approved disposal site. The Contractor shall apply for and receive authorization from the disposal site prior to start-up of work.
  - J. The Contractor shall submit the name, address, and qualifications of his/her proposed waste transporter if that transporter is a different entity than the contractor.
  - K. Certifications Representations, and Indemnification: The Contractor shall submit certifications as required by these Specifications.
1. CONTRACTOR SHALL CERTIFY THAT THE OWNER CAN RELY UPON THE ACCURACY AND COMPLETENESS OF ALL CERTIFICATIONS SUBMITTED IN COMPLIANCE WITH

THESE SPECIFICATIONS.

2. Representation: All submittals shall be approved by the Contractor prior to submittal to the Owner. The Contractor shall stamp each submittal with the following statement:

"The Contractor hereby represents that he/she has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, and has checked and coordinated each submittal with requirements of the work and of the Contract Documents."

3. The submittal shall contain a statement by the Contractor that records of employees' work assignments, certifications, respirator fit tests, are up-to-date, and available for inspection.
4. Indemnification: Contractor shall defend, indemnify and save Owner and its officers, directors, employees, independent contractors (including without limitation, Consultant), agents, assigns, successors, attorneys and affiliates harmless from and against any and all liability, suits, actions, losses, claims or damages, including without limitation, punitive damages, costs, attorney fees, expert witness fees, court costs, expenses or fees, for any and all patent infringement or other patent, trademark, unfair trade practice, common law and/or statutory claims arising out of activities performed under or incident to the Contract. In discharging its defense obligations, the Contractor shall use the Owner's choice of counsel.

L. Notifications, Permits, and Certificates:

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1. The Contractor shall submit a written "Notification to the Department of Environmental Conservation of his/her intent and proposed closure plan to remove an underground storage tank system. This notification shall be submitted and approved by the DEC at least 30 working days before site work shall begin.
  2. The Contractor shall submit a list of proposed workers to be employed on the site. Each worker shall have a current 40 hour Hazardous Waste Operations and Emergency Response Certification and the operations shall be supervised by a State Licensed "Closure" technician.
  3. The Contractor shall submit legible copies of their workers' HAZWOPER Certificates to show that all workers have received their initial training or an eight-hour refresher course within the past year.
- M. Designated Competent Person: The Contractor shall submit the name of his/her proposed Designated Competent Person and a list of the previous projects and their duration where he/she was the Designated Competent Person. In lieu of at least one year's experience as a Designated Competent Person for UST Closure projects, the Contractor shall submit the proposed person's relevant qualifications and experience.
- N. Substitutions: The Owner will consider proposals for substitutions of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Owner to evaluate the proposed substitution.

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1. The Contractor is encouraged to use innovative materials, equipment, and methods which will increase the safety of the work, reduce the costs, and provide more complete UST closure .

1.6 SUBMITTAL FOR FINAL PAYMENT

- A. The Contractor shall submit three copies of the following documents with the application for final payment. Payment shall not be authorized if this submittal is not complete.

1. Employees daily sign-in sheets.
2. Contractor's actual "Start and Finish" Project Dates.
3. Waste Shipment Records.
4. Disposal Site Receipts.
5. Consultant Closure Report

1.7 SANITARY FACILITIES: Adequate toilet facilities shall be provided.

1.8 DELIVERY, STORAGE, AND PROTECTION

- A. Delivery: Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
- B. Storage: Store all materials subject to damage off the ground, away from wet or damp surfaces, and secure to prevent damage by weather or vandalism.
- C. Protection: Damaged or deteriorating materials shall not be used and shall be removed from the premises.

PART 2 PRODUCTS

2.1 RESPIRATORS

- A. The Contractor shall provide personally issued and marked respirators approved by NIOSH and MSHA, and provide sufficient replacement canisters for respirators with disposable filters.
- B. Respirators shall be suitable for dual cartridge use whenever both particulate hazards and solvent vapor hazards exist in the excavation.

2.2 PROTECTIVE CLOTHING

- A. Provide approved protective outer clothing consisting of disposable fire retardant, full body coveralls and hoods fabricated from nonwoven fabric. Eye protection, boots, gloves, aprons, and hard hats shall be provided to meet applicable safety regulations. Coveralls shall be taped securely shut at the gloves and boot tops.
- B. Cloth work clothes may be worn under disposable protective coveralls, boots and gloves for comfort as permitted by regulation.

2.3 EYE PROTECTION: The Contractor shall provide goggles to personnel engaged in UST removal operations.

2.4 OTHER MATERIALS: The Contractor shall provide standard commercial quality of all other materials such as lumber, nails, and hardware, etc.

PART 3 EXECUTION

3.1 GENERAL

- A. Closure in place of existing fuel oil storage tanks and piping, fuel oil supply and return piping, in accordance with the requirements of the Alaska Department of Environmental Conservation (DEC) 18 AAC-78.085 "Permanent Closure and Change-in-Service", in accordance with the Environmental Protection Agency (EPA) regulations 40 CFR 280

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Subpart G, in accordance with the procedures described in American Petroleum Institute (API) and 2015, "Safe Entry and Cleaning of Petroleum Storage Tanks". If contaminated soils are discovered, the Contractor shall comply with DEC's "Guidance Manual For Underground Storage Tank Regulations" 18 AAC-78.

- B. Notify, in writing, DEC thirty days prior to beginning tank closure of intent to close-in-place tank by filing "Alaska Underground Storage Tank Decommissioning Notice". Forms are available from DEC. Submit copies to Contract Administrator.
- C. Confirm, in writing, the date of intent to remove each tank with the Owner's Representative and the City of Ketchikan Fire Marshal's Office at most seven days and at least three days prior to tank closure.

3.2 CLOSURE-IN-PLACE

- A. Before beginning tank closure, the following safety precautions shall be taken:
  - 1. Use bright colored ribbon, barricades or other means to establish a perimeter of a minimum of 50 feet back from the UST area. At edge of the perimeter, warning signs should be prominently displayed. Warning signs shall read:
    - a. NO SMOKING AREA.
    - b. HARD HAT AREA.
    - c. NO OPEN FLAME OR SPARK PRODUCING EQUIPMENT BEYOND THIS POINT.
  - 2. Remove electrical and internal combustion equipment from the area unless it is designed to be "explosion proof".



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3. Use non-sparking tools to remove tank fitting and preparing for vapor freeing the tanks.
4. Have utility companies mark all underground gas, water, and electrical lines.
5. Tank closure shall be considered minimal, level "D" Hazmat site i.e., hardhat, eye protection, steel toe boots.

B. Controlling Static Electricity

1. All electrical and pneumatic equipment must be either bonded to the tank or grounded by using a grounding rod.
2. When working on bare steel tanks, the equipment shall be bonded to the tank.

C. Closure-in-place procedures

1. The tank and piping are initially prepared for closure-in-place in the same manner as for tank removal (see sections on preparing a safe work place, preparing the tank, getting rid of flammable vapors, and cleaning sludge).
2. After thorough tank cleaning and an effort to make sure that the site is free from contamination, one or more holes may be cut in the tank top if existing tank openings are not big enough for the introduction of the inert fill material (cement slurry, sand, etc.).
3. After filling, all tank openings must be plugged or capped unless it is necessary to cut open the tank top.
4. The vent line must be disconnected capped and removed. The tank can then be backfilled or

concrete may be patched.

D. Product Removal

1. Drain product in piping into tanks; use compressed air as required.
2. Remove and dispose of existing fuel oil supply and return piping accessible.
3. Remove tank contents and tanks in the presence of the Contract Administrator.
4. Remove and dispose of existing tank contents in their entirety. In addition to diesel fuel oil, assume the presence of water, sediments, and tank residue, some or all of which may be hazardous substances. Remove tank contents and tanks without release of contents to surrounding soil. Contractor is responsible for disposal of soil contaminated during tank removal. Contractor shall utilize a NFPA approved Safety can when disconnecting the product piping from the tank, to catch any product left in the product line. To comply with EPA regulations, triple rinse the tank before removal can begin.
5. Have at least 2 approved fire extinguisher on-site and in easy reach, in case of emergency.

3.3 REPORT

- A. Prepare closure reports, including the following information, for each tank removed and deliver to the Contract Administrator. Report shall be prepared by the Contractor's Consultant and contain the following information:

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1. Location of soils samples and test results.
2. Photographs.
3. Size of tank and piping.
4. Assessment of the condition of tank and piping based on soils test results and site observations.
5. Location and volume of any associated stored contaminated or potentially contaminated soil.
6. Scaled site plan depicting tank and piping locations and soil sample locations.
7. Manifests, prepared in accordance with State and Federal regulations, for tank contents removed and certification documenting proper disposal of tank contents. Provide certification on letter head of firm receiving tank.
8. Manifests, prepared in accordance with State and Federal regulations, for tanks removed and certification documenting proper disposal of tank. Provide certification on letter head of firm receiving tank.
9. Manifests, prepared in accordance with State and Federal regulations, for contaminated soil removed and certification documenting proper disposal of contaminated soil. Provide certification on letter head of firm

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operating the thermal soil remediation  
unit.

END SECTION

**PART 1 – GENERAL****1.1 DESCRIPTION**

This section describes materials, fabrication, installation, and testing requirements for the new 2,500-gallon aboveground double-wall fuel storage tank (AST) including appurtenances, supports, containment, piping, venting, and monitoring systems. This is the tank size that will be used at the Mt. View property located at 895 W 12<sup>th</sup> Juneau, AK

**1.2 QUALITY ASSURANCE****A. Codes and Standards**

Work shall conform to the latest editions of:

1. NFPA 30 – Flammable & Combustible Liquids Code
2. NFPA 31 – Installation of Oil-Burning Equipment
3. NFPA 37 – Stationary Combustion Engines & Gas Turbines (if generators)
4. International Fire Code (IFC)
5. UL 142 – Steel Aboveground Tanks for Flammable Liquids
6. UL 2085 – Protected Aboveground Tanks (if required by AHJ)
7. API 650 – Welded Tanks for Oil Storage (if vertical/large tanks)
8. EPA SPCC rules (40 CFR 112) where applicable

**B. Installer Qualifications**

1. Contractor must be experienced in AST installation and comply with state and federal regulations.
2. At least one on-site installer shall have experience with UL-listed AST systems.
3. Provide training to Owner's maintenance personnel.

**C. Drawings**

Diagrams show general layout. Contractor is responsible for field verification and all required fittings, offsets, and connections.

**1.3 SYSTEM IDENTIFICATION**

- A. Equipment tags: Aluminum or brass, min. 2" diameter with stamped lettering.
- B. Piping labels: Product type and flow arrow. Labels 2" lettering for O.D. > 2½".

**1.4 SUBMITTALS**

- A. AST shop drawings
- B. Certification of UL 142 or UL 2085 listing
- C. Site Safety Plan
- D. Spill containment drawings
- E. Installer experience documentation
- F. Product data for vents, gauges, valves, sensors
- G. Manufacturer's installation manual (required)

**PART 2 – PRODUCTS****2.1 ABOVEGROUND STORAGE TANK**

## ALASKA HOUSING FINANCE CORPORATION

**A. Tank Type**

Provide factory-built, double-wall, steel AST conforming to UL 142 or UL 2085 (fire-resistant/protected) as required by jurisdiction.

**B. Capacity and Configuration**

1. Nominal 2,500-gallon capacity
2. Rectangular or cylindrical horizontal tank
3. Skid-mounted, with integral supports or legs
4. Welded steel construction

**C. Design Requirements**

1. Primary tank and secondary containment (2-hour fire-resistant if UL 2085).
2. Openings
3. Fill port
4. Vent port
5. Emergency venting (per NFPA 30)
6. Supply and return
7. Overfill prevention
8. Spill containment
9. Exterior coating suitable for marine/cold climates of Alaska.

**D. Accessories**

1. Spill containment manway (at fill)
2. Mechanical level gauge
3. Electronic level/overfill sensor
4. Lockable fill cap
5. Vent whistles or audible overfill warning
6. Tie-downs / seismic bracing as required for high-wind/snow loads

**2.2 VENT PIPING**

A. Schedule 40 galvanized steel or black steel per ASTM A53.

B. Vent sized per NFPA 30 (usually 2" min).

C. Terminate vent:

- 12' above grade or 3' above roofline
- At least 10 ft from openings
- With weatherproof gooseneck or flame arrester

**2.3 ABOVEGROUND SUPPLY & RETURN PIPING**

A. Provide double-wall fuel piping or single-wall steel in containment.

B. Piping shall comply with:

- NFPA 31 requirements
- UL-listed components

## ALASKA HOUSING FINANCE CORPORATION

## C. Include:

- Thermal valves
- Anti-siphon valves
- Ball valves
- Unions
- Fire-safety/impact valves where required

**2.4 SPILL CONTAINMENT BASIN**

A. Provide integral secondary containment sized to 110% of tank volume OR field-built steel containment.

B. Include rain/snow removal method:

- Automatic pump, OR
- Drain valve with lockout/tag, OR
- Covered containment

**2.5 ELECTRONIC MONITORING**

A. Provide monitoring system capable of detecting:

- Interstitial leaks
- Overfill events
- High level alarm
- Low level alarm (optional)
- Power loss

B. Alarm must be audiovisual and located indoors where it can be observed by building staff.

C. Acceptable manufacturers: Veeder-Root, Morrison Bros, EMCO Wheaton.

**PART 3 – EXECUTION****3.1 INSTALLATION**

- A. Install per manufacturer's instructions, NFPA 30/31 requirements, and AHJ requirements.
- B. Maintain minimum 10 feet clearance from buildings, or more if site allows.
- C. Provide steel or concrete pad per structural requirements.
- D. Anchor tank using seismic-rated hardware for Alaska.

**3.2 TANK TESTING**

- A. Hydrostatic or pneumatic pre-installation test per UL listing.
- B. Leak test interstitial space.
- C. Tightness test all piping at 50 psi air (soap test) or 110% operating pressure.
- D. Test electronic alarms and sensors.
- E. Provide written reports to Owner.

**3.3 PIPING INSTALLATION**

- A. Slope piping back to tank.
- B. Protect from mechanical damage (bollards, barriers).
- C. Provide heat tracing and insulation if required by climate.

ALASKA HOUSING FINANCE CORPORATION

- D. Install fire-rated isolation valves where required.

**3.4 OVERFILL PROTECTION**

**A. Provide combination of:**

- Mechanical float valve, and/or
- Electronic shutoff,
- Fill whistle,
- High-level alarm

**B. Overfill devices must activate at 90% capacity (warning) and 95% (shutoff).**

**3.5 TRAINING**

Provide 4–8 hours of on-site training for Owner’s maintenance personnel, including:

- AST operation
- Spill procedures
- Alarm system
- Inspection and reporting requirements

**3.6 AS-BUILTS**

Provide complete as-built drawings including:

- Tank location and orientation
- Piping routes
- Vent piping
- Electrical/alarm wiring
- Spill containment
- Anchorage details

**3.7 CLEAN-UP**

Remove debris and packaging. Leave site clean and ready for occupancy.

**3.8 REGULATORY REQUIREMENTS**

Comply with:

- NFPA 30
- NFPA 31
- IFC
- UL Listing Requirements
- State of Alaska Fire Marshal requirements
- SPCC (if applicable)

**END OF SECTION**



# INVESTIGATIVE SITE ASSESSMENTS

- 13. UST - 895 West 12th Ave, Juneau AK
- 14. UST - 1617 Douglas, Juneau AK (Office)
- 15. UST - 1617 Douglas, Juneau AK (A North)
- 16. UST - 1617 Douglas, Juneau AK (A  
South)
- 17. UST - 1617 Douglas, Juneau AK (B)
- 18. UST - 1617 Douglas, Juneau AK (C)
- 19. UST - 1617 Douglas, Juneau AK (D)

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**INVESTIGATIVE REPORT**  
**895 WEST 12<sup>th</sup> AVENUE, JUNEAU, ALASKA**  
**TANK – MOUNTAIN VIEW**

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**SUMMARY**

A 2000-gallon underground, double-wall, steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old. The interstice is also dry and free of water and fuel.

The tank passed the EPA criteria for underground storage tank tightness.

The tank has a below grade fill connection within a spill containment manhole accessible through a manhole cover. The fuel piping connections are within another below grade sump and are accessible through a manhole cover. There is an operational overfill protection device present at the tank. There is also an extractor vent valve ball float shut off. Concrete pad is sloped away from openings for proper drainage.

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

The interstitial space monitoring sensor and high level sensor were installed correctly, however the control panel was not functional.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode Depletion	Replace anodes
Storage Tank	Pass		
Fueling Equipment	Pass		
Monitoring and Level Gauge	Fail	Control Panel	Abandon

# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosv@gmail.com](mailto:npetrosv@gmail.com) .:. (907)230-5222

Date: 10/28/2021

Facility: AHFC-Mountain View

Address: 895 West 12th Avenue

City: Juneau, AK

Contact: Michael Phelps

Phone: (907) 209-8218

E-mail: [mpheps@ahfc.us](mailto:mpheps@ahfc.us)



Tank ID: Mountain View

Tank Size: 2001

Construction Material: Steel

Single Wall: No

Compartment tank: No

Tank Age: 23 years

Tank Design: Horizontal UST

Exterior Coating: Black asphalt paint

Double Wall: Yes

Number of compartments: 1

Grounded: Yes

Bonded: NA

Cathodic protection mill volt measurement: -.561

Impressed current 100mlv drop measurement: NA

Tank is listed with UL, API, SWRI, Other: Yes/UL

## Storage Tank

Storage system exhibits no signs of leakage	Yes
Tank surface has no damage (cracking, major dents, deformities)	Unknown
Tank surface is free of major rust and paint separation	Unknown
Tank skids or supports are free of damage or deformity	NA
No split welds on supports or pitting of the chime base observed	NA
Ladders and platforms are secure and stable	NA
Tank is labeled (fire code, contents, emergency contact number, etc)	No

### Fueling Equipment

Tank overfill device is operational	Yes/Extractor & overfill
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes Primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Yes
Pump is free of leaks and grounded	Yes/boiler pump
Hoses swivel joints and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	NA
Tank gauges are operational and calibrated	No
High level alarm is functional	None
Tank interstice is free of fuel and water	Yes
Primary tank drain is locked	NA
Emergency shut off valve is operational or alarm system	Na

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### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes/low traffic
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	NA
Spill response materials are in place and adequate	No
Warning signs are in place (no smoking, emergency contact #, contents)	No
SPCC plan and emergency response plan present / accessible	NA

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### Portable Container Storage

Drum construction: None  
Contents stored: 0  
Estimated quantities (gallons): 0  
Drums are labeled with contents: 0  
Spill containment construction: Fiberglass  
Containment is free of debris, floating oil, or water: Yes  
Egress pathway is clear: Yes



Cathodic protection -.561

### Suggested minimum materials

55 gal open top drum  
2 gal drip pan  
Flat shovel  
Absorbent pads  
Gloves  
Eye wash  
First aid kit

Drum liners (bags)  
5 gal buckets  
Dry granular absorbent  
Sock boom absorbent  
Safety glasses - goggles  
Tyvek suits

Minimum material requirements met: No



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Comments: This is a very good example of how a tank system should be installed. The tank has 2 overfill devices controlling fuel deliveries, 95% overfill drop tube and the extractor valve ball float shut off. The tank is equipped with sump and interstice float sensor to detect fuel or water intrusion, but the control panel is not working properly, this does not pose a problem with 2 overfill devices in place. The fuel delivery company should be instructed to remove excess fuel and absorbent pads from the spill bucket after a delivery in the event a yearly walkthrough boiler inspector the fire marshal or your insurance company can make an issue of this condition. The slope is engineered over the tank cover is constructed with concrete and allows for proper drainage of wet conditions from entering the tank.

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Inspector:

John F. Carolan  
License # AST 104-09



# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 10/30/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	2001
PRODUCT VOL.	647
ULLAGE VOL.	1354
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Mountain View Tank

Location	AHFC-Mountain View
Address	895 West 12th Avenue
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 209-8218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Double wall

## PRESSURE SENSOR CALCULATION

27.0	x	0.031	=	0.837	PSI (1)
INCHES OF PRODUCT		WEIGHT OF PRODUCT			
0.0	x	.036	=	0.000	PSI (2)
INCHES OF WATER IN TANK					
Line 1 + Line 2 = Total Positive Head Pressure In Tank			=	0.837	PSI (3)
0.0	x	.036	=	0.000	PSI (4)
INCHES OF WATER OUTSIDE TANK					
Total Head Pressure Minus Outside Water Pressure			=	0.837	+/-PSI (5)
Always add .5 PSI			+	1.337	PSI (6)
NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI					
TEST PRESSURE			=	1.337	+/-PSI (7)

## ACOUSTIC TEST TIME

## Equipment Calibration due date and serial numbers

	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	11:10 AM	0.0			
Blower Started:	11:15 AM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	11:40 AM	1.350	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	11:45 AM	1.390	Pressure Sensor	71024108	06/2022
Test Began:	12:00 PM	1.390	Water Sensor Display	D1803293	06/2022
Test Ended:	12:10 PM	1.361	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

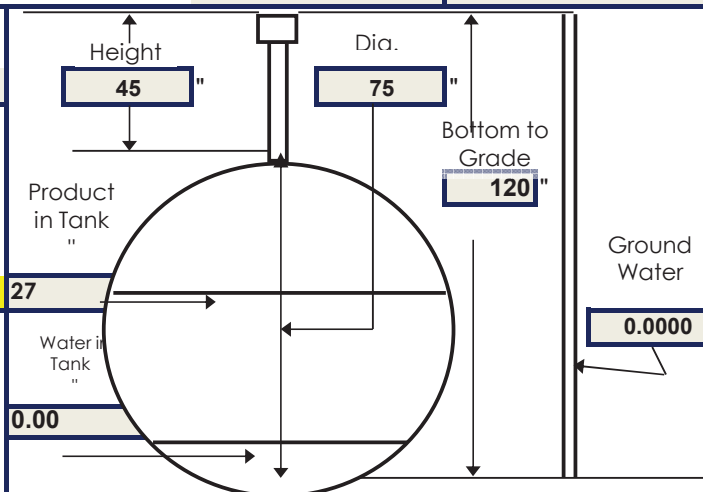
Added:			
	Cal #1	Cal #2	Cal #3
Average:			

## Calculation for Test Period:

	÷ 3780 =		÷ .05	#VALUE!	x 60 =	#VALUE!
Avg. Cal.		"A" Factor		Min.	Time of Test	

## Water Intrusion Test Period

Began:	
Ended:	







# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date

10/30/2021

## FINAL REPORT

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	2001
PRODUCT VOL.	647
ULLAGE VOL.	1354
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Mountain View Tank

Location	AHFC-Mountain View
Address	895 West 12th Avenue
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 209-8218

Depth of Groundwater Determined:

By: John F. Carolan

Where: Double wall

### THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:

#### ☒ TIGHT TANK

THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.

#### ☐ ULLAGE (DRY) PORTION OF LEAK

THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.

#### ☐ BELOW PRODUCT LEVEL (WET) PORTION LEAK

THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.

### WATER SENSOR INDICATES:

(CHECK ONLY ONE)

No Water Intrusion	<input type="checkbox"/>
Water Intrusion	<input type="checkbox"/>
Not Applicable	<input checked="" type="checkbox"/>

### Operator Information

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
	Anchorage, AK 99518		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT

### EQUIPMENT SERIAL NUMBERS AND CALIBRATION EXPIRATION DATES:

	Serial Number	Calibration Expiration Date
IN-TANK MICROPHONE	M1445002	06/2022
ACOUSTIC SIGNAL PROCESSOR	E218003	06/2022
PRESSURE SENSOR	71024108	06/2022
WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022

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**INVESTIGATIVE REPORT**  
**1617 DOUGLAS HIGHWAY, JUNEAU, ALASKA**  
**TANK – OFFICE**

---

**SUMMARY**

A 1000-gallon underground steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old, and it is possible that it is a double walled tank, however, the exact configuration is unknown and cannot be determined. It is unknown if there is an interstice.

The tank did not pass the tightness test; however, it does not show any evidence of leaks. A plastic fitting at the bottom of a retrofitted fill sump may be the cause air intrusion leading the tank to fail the tank tightness test.

It has an aboveground fill connection within a spill container that has been extended from an existing below grade sump that has been filled with concrete. The fill piping is routed through the existing piping sump manhole cover. The fuel piping connections are within the piping sump and are accessible through a secondary manhole cover also installed within the existing piping sump manhole cover (retrofit). There is an overfill protection device and its functionality is unknown and cannot be tested.

The fuel connection within the spill containment sump had no pipe adapter or piping cap and the primary fuel tank had 1/2-inch of water. Fuel oil was found within the piping sump.

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

Tank piping gauges and high-level alarms were not present at the tank.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode depletion	Replace anodes
Storage Tank	Fail	Piping leak	Replace plastic pipe at bottom of fill containment sump.
Fueling Equipment	Fail	Fill adapter and pipe cap, oil system piping leak	Install fill adapter and piping cap. Repair oil system leak in piping sump.
Monitoring and Level Gauge	N/A		



# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosv@gmail.com](mailto:npetrosv@gmail.com) .:. (907)230-5222

Date: 11/2/2021

Facility: AHFC-Riverbend

Address: 1617 Douglas Highway

City: Juneau, Alaska



Contact: Michael Phelps

Phone: (907) 203-8218

E-mail: [mphelps@ahfc.us](mailto:mphelps@ahfc.us)



Tank ID: Office

Tank Size: 1001 gal

Construction Material: Steel

Single Wall: Unknown

Compartment tank: No

Tank Age: 23 years

Tank Design: Horizontal UST

Exterior Coating: Black asphalt paint

Double Wall: Possible

Number of compartments: 1

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Grounded: Yes

Bonded: NA

Cathodic protection mill volt measurement: -.330

Impressed current 100mlv drop measurement: NA

Tank is listed with UL, API, SWRI, Other: Unknown

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## Storage Tank

Storage system exhibits no signs of leakage

Tank surface has no damage (cracking, major dents, deformities)

Tank surface is free of major rust and paint separation

Tank skids or supports are free of damage or deformity

No split welds on supports or pitting of the chime base observed

Ladders and platforms are secure and stable

Tank is labeled (fire code, contents, emergency contact number, etc)

No-oil in pipe sump

Unknown

Unknown

NA

NA

NA

NA

### Fueling Equipment

Tank overfill device is operational	No
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes-Primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Unknown- sump oil
Pump is free of leaks and grounded	Yes- boiler pump
Hoses swivel joints and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	Yes
Tank gauges are operational and calibrated	None
High level alarm is functional	None
Tank interstice is free of fuel and water	Unknown
Primary tank drain is locked	NA
Emergency shut off valve is operational or alarm system	NA

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### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	NA
Spill response materials are in place and adequate	No
Warning signs are in place (no smoking, emergency contact #, contents)	No
SPCC plan and emergency response plan present / accessible	NA

---

### Portable Container Storage

Drum construction: None  
Contents stored: 0  
Estimated quantities (gallons): 0  
Drums are labeled with contents: NA  
Spill containment construction: Steel  
Containment is free of debris, floating oil, or water: No  
Egress pathway is clear: Yes



### Cathodic Protection -.330

#### Suggested minimum materials

55 gal open top drum  
2 gal drip pan  
Flat shovel  
Absorbent pads  
Gloves  
Eye wash  
First aid kit

Drum liners (bags)  
5 gal buckets  
Dry granular absorbent  
Sock boom absorbent  
Safety glasses - goggles  
Tyvek suites

Minimum material requirements met: No



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Comments: The tanks in Geneva Woods have no camlock fill adaptors and seal tight caps in the spill overfill buckets to prevent vapors from escaping or water entry as seen left photo. The photo on the right is a sample of a full piping sump. The replacement spill buckets do not have relief valves to empty excess fuel back into the tank. The combination of no fill risers and no overfill drop valve eliminates the possibility to separate water, oil or derby before it enters the tank.

---

# *Northern Petroleum Testing & Services, Inc.*



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosvc@gmail.com](mailto:npetrosvc@gmail.com) .:. (907)230-5222

Inspector:

John F. Carolan  
License # AST 104-09



# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 11/2/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	668
ULLAGE VOL.	333
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Office tank

Location	AHFC Geneva Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Hillside location

## PRESSURE SENSOR CALCULATION

29.0	x	0.031	=	0.899	PSI (1)
INCHES OF PRODUCT		WEIGHT OF PRODUCT			
0.5	x	.036	=	0.018	PSI (2)
INCHES OF WATER IN TANK					
Line 1 + Line 2 = Total Positive Head Pressure In Tank			=	0.917	PSI (3)
0.0	x	.036	=	0.000	PSI (4)
INCHES OF WATER OUTSIDE TANK					
Total Head Pressure Minus Outside Water Pressure			=	0.917	+/-PSI (5)
Always add .5 PSI			+	1.417	PSI (6)
NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI					
TEST PRESSURE			=	1.417	+/-PSI (7)

## ACOUSTIC TEST TIME

## Equipment Calibration due date and serial numbers

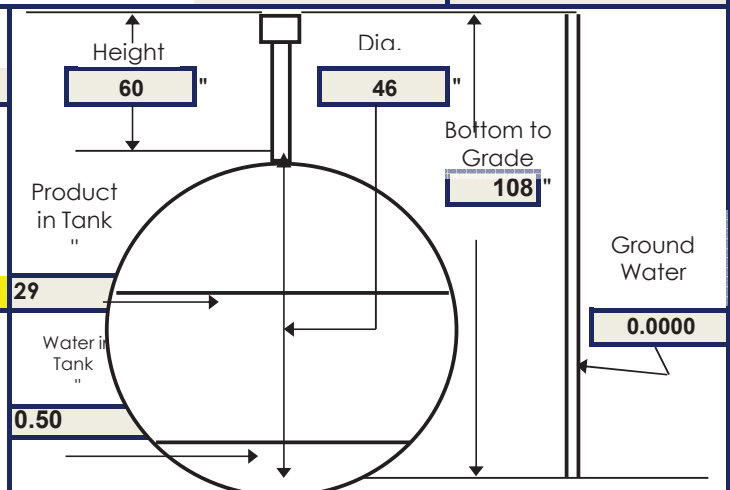
	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	10:25 AM	0.0			
Blower Started:	10:30 AM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	10:45 AM	1.425	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	10:55 AM	1.422	Pressure Sensor	71024108	06/2022
Test Began:	11:00 AM	1.421	Water Sensor Display	D1803293	06/2022
Test Ended:	11:10 AM	0.977	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

Added:			
	Cal #1	Cal #2	Cal #3
Average:			
Calculation for Test Period:			
Avg. Cal.	"A" Factor	#VALUE! x 60 =	#VALUE! Min. Time of Test

## Water Intrusion Test Period

Began: 3:30 PM  
Ended:



**PRESSURE CALCULATION & WATER SENSOR CALIBRATION****Test Date****11/2/2021****FINAL REPORT**

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	668
ULLAGE VOL.	333
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Office tank

Location	AHFC Geneva Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

**Depth of Groundwater Determined:****By:** John F. Carolan**Where:** Hillside location**THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:****TIGHT TANK**THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.**x ULLAGE (DRY) PORTION OF LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**BELOW PRODUCT LEVEL (WET) PORTION LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**WATER SENSOR INDICATES:****(CHECK ONLY ONE)**

No Water Intrusion

**x**

Water Intrusion

Not Applicable

**Operator Information**

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
	Anchorage, AK 99518		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT

**EQUIPMENT SERIAL NUMBERS AND CALIBRATION EXPIRATION DATES:**

	Serial Number	Calibration Expiration Date
IN-TANK MICROPHONE	M1445002	06/2022
ACOUSTIC SIGNAL PROCESSOR	E218003	06/2022
PRESSURE SENSOR	71024108	06/2022
WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022



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**INVESTIGATIVE REPORT**  
**1617 DOUGLAS HIGHWAY, JUNEAU, ALASKA**  
**TANK – BUILDING A NORTH**

---

**SUMMARY**

A 1000-gallon underground steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old, and it is possible that it is a double walled tank, however, the exact configuration is unknown and cannot be determined. It is unknown if there is an interstice.

The tank did not pass the tightness test; however, it does not show any evidence of leaks. A plastic fitting at the bottom of a retrofitted fill sump may be the cause air intrusion leading the tank to fail the tank tightness test.

It has an aboveground fill connection within a spill container that has been extended from an existing below grade sump that has been filled with concrete. The fill piping is routed through the existing piping sump manhole cover. The fuel piping connections are within the piping sump and are accessible through a secondary manhole cover also installed within the existing piping sump manhole cover (retrofit). There is an overfill protection device that is functional.

The fuel connection within the spill containment sump had no pipe adapter or piping cap that vents fumes to atmosphere and encourages water intrusion into the tank

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

Tank piping gauges and high level alarms were not present at the tank.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode depletion	Replace anodes
Storage Tank	Fail	Piping leak	Replace plastic pipe at bottom of fill containment sump
Fueling Equipment	Fail	Fill adapter and pipe cap	Install fill adapter and piping cap
Monitoring and Level Gauge	N/A		

# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosvc@gmail.com](mailto:npetrosvc@gmail.com) .:. (907)230-5222

Date: 11/1/2021  
Facility: AHFC-Geneva Woods  
Address: 1617 Douglas Highway  
City: Juneau, Alaska

Contact: Michael Phelps  
Phone: (907) 203-8218  
E-mail: [mphelps@ahfc.us](mailto:mphelps@ahfc.us)



Tank ID: Boiler room- A North  
Tank Size: 1001 gal  
Construction Material: Steel  
Single Wall: Unknown  
Compartment tank: No

Tank Age: 23 years  
Tank Design: Horizontal UST  
Exterior Coating: Black asphalt paint  
Double Wall: Possible  
Number of compartments: 1

---

Grounded: Yes  
Bonded: NA  
Cathodic protection mill volt measurement: -.491  
Impressed current 100mlv drop measurement: NA  
Tank is listed with UL, API, SWRI, Other: Unknown

---

## Storage Tank

Storage system exhibits no signs of leakage	Yes
Tank surface has no damage (cracking, major dents, deformities)	Unknown
Tank surface is free of major rust and paint separation	Unknown
Tank skids or supports are free of damage or deformity	NA
No split welds on supports or pitting of the chime base observed	NA
Ladders and platforms are secure and stable	NA
Tank is labeled (fire code, contents, emergency contact number, etc)	No



### Fueling Equipment

Tank overfill device is operational	No- float valve
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes-primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Yes-visual
Pump is free of leaks and grounded	Yes-boiler pump
Hoses swivel joints and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	NA
Tank gauges are operational and calibrated	None
High level alarm is functional	None
Tank interstice is free of fuel and water	Unknown
Primary tank drain is locked	NA
Emergency shut off valve is operational or alarm system	None

---

### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes-low traffic
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	Yes
Spill response materials are in place and adequate	No
Warning signs are in place (no smoking, emergency contact #, contents)	No
SPCC plan and emergency response plan present / accessible	NA

---

### Portable Container Storage

Drum construction: None  
Contents stored: 0  
Estimated quantities (gallons): 0  
Drums are labeled with contents: NA  
Spill containment construction: Steel  
Containment is free of debris, floating oil, or water: No  
Egress pathway is clear: Yes



Cathodic protection -.541

**Suggested minimum materials**

55 gal open top drum

2 gal drip pan

Flat shovel

Absorbent pads

Gloves

Eye wash

First aid kit

Drum liners (bags)

5 gal buckets

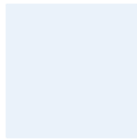
Dry granular absorbent

Sock boom absorbent

Safety glasses - goggles

Tyvek suits

Minimum material requirements met: No



Comments: This is a good example of the correction intended to divert water from entering the tank sump. The lower ring you see on the left is a OPW spill containment bucket intended to capture a accidental overflow of fuel, it will capture about 2 gallons. The bucket has a small plunger at the bottom which can be lifted, and the overflowed fuel will be routed through a ½' piece of tubing back into the tank when space becomes available through fuel use in the boiler. The correction whoever made it is novel because you do not have to remove the old bucket which is too low to the ground and submerged in rain water anyway. The new spill bucket with a couple of feet of 4" pipe is threaded into the fill port inside the old bucket and backfilled the bucket with concrete to prevent runoff water from entering the tank. The only problem I see concrete shrinks over time and is not intended to be a sealant. Inside the old spill bucket the threaded portion is made of plastic not intended to have leverage or weight exerted on it, at the time of correction the 4" pipe may have been overtightened resulting in cracking the plastic threads. This would explain part of the air ingress I can't detect and causing 4 tanks to fail the testing.

---

Inspector:

A handwritten signature in blue ink, appearing to read 'JFC', is written over a horizontal line.

John F. Carolan  
License # AST 104-09



# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 11/1/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	456
ULLAGE VOL.	545
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Boiler Room A-North

Location	AHFC-Geneva Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Hillside location

## PRESSURE SENSOR CALCULATION

29.0	x	0.031	=	0.899	PSI (1)
INCHES OF PRODUCT		WEIGHT OF PRODUCT			
0.0	x	.036	=	0.000	PSI (2)
INCHES OF WATER IN TANK					
Line 1 + Line 2 = Total Positive Head Pressure In Tank			=	0.899	PSI (3)
0.0	x	.036	=	0.000	PSI (4)
INCHES OF WATER OUTSIDE TANK					
Total Head Pressure Minus Outside Water Pressure			=	0.899	+/-PSI (5)
Always add .5 PSI			+	1.399	PSI (6)
NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI					
TEST PRESSURE			=	1.399	+/-PSI (7)

## ACOUSTIC TEST TIME

## Equipment Calibration due date and serial numbers

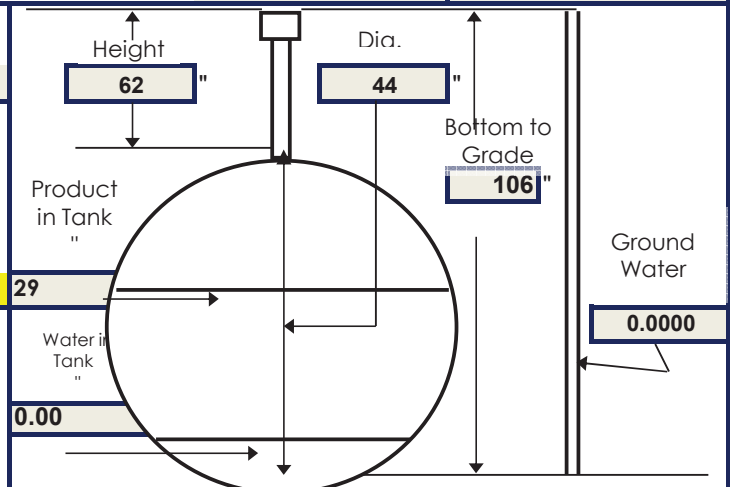
	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	10:10 AM	0.0			
Blower Started:	10:15 AM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	10:45 AM	1.411	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	10:50 AM	1.399	Pressure Sensor	71024108	06/2022
Test Began:	10:55 AM	1.275	Water Sensor Display	D1803293	06/2022
Test Ended:	11:10 AM	0.993	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

Added:	Cal #1	Cal #2	Cal #3
Average:			
Calculation for Test Period:			
Avg. Cal.	"A" Factor	#VALUE! x 60 =	#VALUE! Min. Time of Test

## Water Intrusion Test Period

Began: 3:30 PM  
Ended:





**PRESSURE CALCULATION & WATER SENSOR CALIBRATION****Test Date****11/1/2021****FINAL REPORT**

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	456
ULLAGE VOL.	545
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Boiler Room A-North

Location	AHFC-Geneva Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By: John F. Carolan

Where: Hillside location

**THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:****TIGHT TANK**THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.**x****ULLAGE (DRY) PORTION OF LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**BELOW PRODUCT LEVEL (WET) PORTION LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**WATER SENSOR INDICATES:**

(CHECK ONLY ONE)

No Water Intrusion	<input type="checkbox"/>
Water Intrusion	<input type="checkbox"/>
Not Applicable	<input checked="" type="checkbox"/>

**Operator Information**

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
	Anchorage, AK 99518		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT

**EQUIPMENT SERIAL NUMBERS AND CALIBRATION EXPIRATION DATES:**

	Serial Number	Calibration Expiration Date
IN-TANK MICROPHONE	M1445002	06/2022
ACOUSTIC SIGNAL PROCESSOR	E218003	06/2022
PRESSURE SENSOR	71024108	06/2022
WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022

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**INVESTIGATIVE REPORT**  
**1617 DOUGLAS HIGHWAY, JUNEAU, ALASKA**  
**TANK – BUILDING A SOUTH**

---

**SUMMARY**

A 1000-gallon underground steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old, and it is possible that it is a double walled tank, however, the exact configuration is unknown and cannot be determined. It is unknown if there is an interstice.

The tank did not pass the tightness test; however, it does not show any evidence of leaks. A tank vent fitting at an inaccessible location below grade may be causing air intrusion leading the tank to fail the tank tightness test.

It has an aboveground fill connection within a spill container that has been extended from an existing below grade sump that has been filled with concrete. The fill piping is routed through the existing piping sump manhole cover. The fuel piping connections are within the piping sump and are accessible through a secondary manhole cover also installed within the existing piping sump manhole cover (retrofit). There is an overfill protection device and its functionality is unknown and cannot be tested.

The fuel fill pipe within the spill containment sump had no pipe adapter or piping cap. The drop valve for return of overfilled fuel to the tank was functional. The piping sump has water within it from water leaking into the manhole cover. It is unknown if there is an interstice, and its condition could not be tested.

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

Tank piping gauges and high level alarms were not present at the tank.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode depletion	Replace anodes
Storage Tank	Fail	Piping leak	Replace plastic pipe at bottom of fill containment sump
Fueling Equipment	Fail	Fill adapter and pipe cap	Install fill adapter and piping cap
Monitoring and Level Gauge	N/A		

# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosvs@gmail.com](mailto:npetrosvs@gmail.com) .:. (907)230-5222

Date: 11/1/2021

Facility: AHFC-Geneva Woods

Address: 1617 Douglas Highway

City: Juneau, Alaska

Contact: Michael Phelps

Phone: (907) 203-8218

E-mail: [mphelps@ahfc.us](mailto:mphelps@ahfc.us)



Tank ID: Boiler room-A South

Tank Size: 1001 gal

Construction Material: Steel

Single Wall: Unknown

Compartment tank: No



Tank Age: 23 years

Tank Design: Horizontal UST

Exterior Coating: Black asphalt paint

Double Wall: Possible

Number of compartments: 1

---

Grounded: Yes

Bonded: NA

Cathodic protection mill volt measurement: -.541

Impressed current 100mlv drop measurement: NA

Tank is listed with UL, API, SWRI, Other: Unknown

---

## Storage Tank

Storage system exhibits no signs of leakage	Yes
Tank surface has no damage (cracking, major dents, deformities)	Unknown
Tank surface is free of major rust and paint separation	Unknown
Tank skids or supports are free of damage or deformity	NA
No split welds on supports or pitting of the chime base observed	NA
Ladders and platforms are secure and stable	NA
Tank is labeled (fire code, contents, emergency contact number, etc)	No

### Fueling Equipment

Tank overfill device is operational	Unknown
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes-Primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Yes- Visual
Pump is free of leaks and grounded	Yes-boiler pump
Hoses swivel joints and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	NA
Tank gauges are operational and calibrated	None
High level alarm is functional	None
Tank interstice is free of fuel and water	Unknown
Primary tank drain is locked	None
Emergency shut off valve is operational or alarm system	None

---

### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes-low traffic
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	Yes
Spill response materials are in place and adequate	None
Warning signs are in place (no smoking, emergency contact #, contents)	No
SPCC plan and emergency response plan present / accessible	NA

---

### Portable Container Storage

Drum construction: None  
Contents stored: 0  
Estimated quantities (gallons): 0  
Drums are labeled with contents: NA  
Spill containment construction: Steel  
Containment is free of debris, floating oil, or water: 26" of water  
Egress pathway is clear: Yes





**Cathodic Protection -.541**  
**Suggested minimum materials**

55 gal open top drum  
 2 gal drip pan  
 Flat shovel  
 Absorbent pads  
 Gloves  
 Eye wash  
 First aid kit

Drum liners (bags)  
 5 gal buckets  
 Dry granular absorbent  
 Sock boom absorbent  
 Safety glasses - goggles  
 Tyvek suits

Minimum material requirements met: No



Piping sump full of water



Replacement sump inside old sump

---

Comments: This is difficult to explain and I'm sure even harder to understand. I have never encountered buried tanks without a concrete pad covering the length and width of a tank. The pad is a retainer for fixtures such as a spill delivery bucket, vent pipes, grade ring for piping sump, interstice access and electronic probes for leak detection or manual inspection. The concrete is sloped from the center line of the pad about 2" to allow water to flow away from the fixtures keeping water from entering the tank, the Geneva Woods site installation has nothing like that. The current situation is the tanks are below a hillside and all the snow melt or rain runs over the tanks before it can be intercepted by ground drains. The piping sumps are flooded at this time and if they ever became frozen it would result in broken piping.

---

Inspector:

A handwritten signature in blue ink, appearing to read 'JFC', is written over a horizontal line.

John F. Carolan  
License # AST 104-09



# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 11/1/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1000
PRODUCT VOL.	626
ULLAGE VOL.	374
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Boiler room A-South

Location	AHFC-Geneva Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Hillside location

## PRESSURE SENSOR CALCULATION

$$27.0 \times 0.031 = 0.837 \text{ PSI (1)}$$

INCHES OF PRODUCT WEIGHT OF PRODUCT

$$0.0 \times .036 = 0.000 \text{ PSI (2)}$$

INCHES OF WATER IN TANK

$$\text{Line 1} + \text{Line 2} = \text{Total Positive Head Pressure In Tank} = 0.837 \text{ PSI (3)}$$

$$0.0 \times .036 = 0.000 \text{ PSI (4)}$$

INCHES OF WATER OUTSIDE TANK

$$\text{Total Head Pressure Minus Outside Water Pressure} = 0.837 \text{ +/- PSI (5)}$$

Always add .5 PSI

$$+ 1.337 \text{ PSI (6)}$$

NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI

$$\text{TEST PRESSURE} = 1.337 \text{ +/- PSI (7)}$$

## ACOUSTIC TEST TIME

Equipment Calibration due date and serial numbers

	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	1:00 PM	0.0			
Blower Started:	1:05 AM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	1:25 AM	1.341	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	1:30 AM	1.344	Pressure Sensor	71024108	06/2022
Test Began:	1:35 AM	1.342	Water Sensor Display	D1803293	06/2022
Test Ended:	1:45 AM	1.106	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

Added: Cal #1 Cal #2 Cal #3

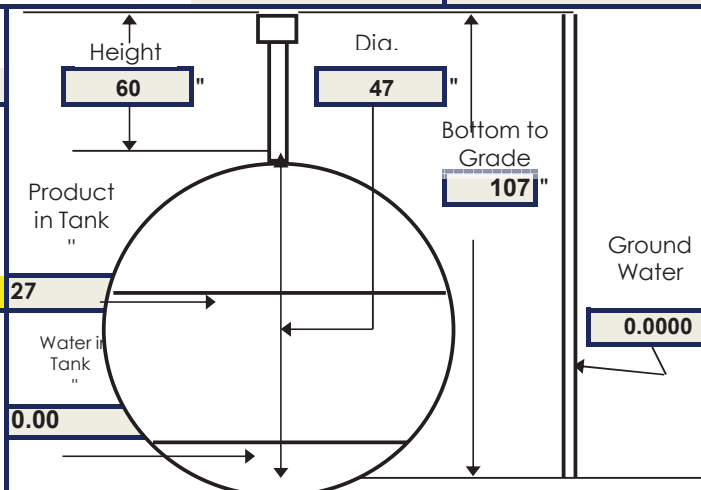
Average:

Calculation for Test Period:

$$\text{Avg. Cal.} \div 3780 = \text{"A" Factor} \times .05 \times \text{#VALUE!} \times 60 = \text{#VALUE!} \text{ Min. Time of Test}$$

## Water Intrusion Test Period

Began: 3:30 PM  
Ended:





# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date

11/1/2021

## FINAL REPORT

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1000
PRODUCT VOL.	626
ULLAGE VOL.	374
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Boiler room A-South

Location	AHFC-Geneva Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By: John F. Carolan

Where: Hillside location

### THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:

#### ☐ TIGHT TANK

THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.

#### ☒ ULLAGE (DRY) PORTION OF LEAK

THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.

#### ☐ BELOW PRODUCT LEVEL (WET) PORTION LEAK

THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.

### WATER SENSOR INDICATES:

(CHECK ONLY ONE)

No Water Intrusion ☐

Water Intrusion ☐

Not Applicable ☒

### Operator Information

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
	Anchorage, AK 99518		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT

### EQUIPMENT SERIAL NUMBERS AND CALIBRATION EXPIRATION DATES:

	Serial Number	Calibration Expiration Date
IN-TANK MICROPHONE	M1445002	06/2022
ACOUSTIC SIGNAL PROCESSOR	E218003	06/2022
PRESSURE SENSOR	71024108	06/2022
WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022

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**INVESTIGATIVE REPORT**  
**1617 DOUGLAS HIGHWAY, JUNEAU, ALASKA**  
**TANK – BUILDING B**

---

**SUMMARY**

A 1000-gallon underground steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old, and it is possible that it is a double walled tank, however, the exact configuration is unknown and cannot be determined. It is unknown if there is an interstice.

The tank did not pass the tightness test; however, it does not show any evidence of leaks. A tank vent fitting at an inaccessible location below grade may be causing air intrusion leading the tank to fail the tank tightness test.

It has an aboveground fill connection within a spill container that has been extended from an existing below grade sump that has been filled with concrete. The fill piping is routed through the existing piping sump manhole cover. The fuel piping connections are within the piping sump and are accessible through a secondary manhole cover also installed within the existing piping sump manhole cover (retrofit). There is an overfill protection device and its functionality is unknown and cannot be tested.

The fuel fill pipe within the spill containment sump had a piping cap and a broken drop valve for return of overfilled fuel to the tank. The piping sump has water within it from water leaking into the manhole cover

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

Tank monitoring and high-level alarms were not present at the tank.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode depletion	Replace anodes
Storage Tank	Fail	Fitting leak	Replace vent fitting
Fueling Equipment	Fail	Fill adapter and pipe cap	Install fill adapter and piping cap Replace spill container
Monitoring and Level Gauge	N/A		

# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosv@gmail.com](mailto:npetrosv@gmail.com) .:. (907)230-5222

Date: 11/2/2021

Facility: AHFC-Geneva Woods

Address: 1617 Douglas Highway

City: Juneau, Alaska

Contact: Michael Phelps

Phone: (907) 203-8218

E-mail: [mphelps@ahfc.us](mailto:mphelps@ahfc.us)



Tank ID: Building B

Tank Size: 1001 gal

Construction Material: Steel

Single Wall: Unknown

Compartment tank: No

Tank Age: 23 years

Tank Design: Horizontal UST

Exterior Coating: Black asphalt paint

Double Wall: Possible

Number of compartments: 1

---

Grounded: Yes

Bonded: NA

Cathodic protection mill volt measurement: -.661

Impressed current 100mlv drop measurement: NA

Tank is listed with UL, API, SWRI, Other: Unknown

---

## Storage Tank

Storage system exhibits no signs of leakage  
Tank surface has no damage (cracking, major dents, deformities)  
Tank surface is free of major rust and paint separation  
Tank skids or supports are free of damage or deformity  
No split welds on supports or pitting of the chime base observed  
Ladders and platforms are secure and stable  
Tank is labeled (fire code, contents, emergency contact number, etc)

Yes  
Unknown  
Unknown  
NA  
NA  
NA  
NA



### Fueling Equipment

Tank overfill device is operational	Unknown
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes-Primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Yes- Visual
Pump is free of leaks and grounded	Yes- boiler pump
Hoses swivel joints and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	Yes
Tank gauges are operational and calibrated	None
High level alarm is functional	None
Tank interstice is free of fuel and water	Unknown
Primary tank drain is locked	NA
Emergency shut off valve is operational or alarm system	NA

---

### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes-Low traffic
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	Yes
Spill response materials are in place and adequate	No
Warning signs are in place (no smoking, emergency contact #, contents)	No
SPCC plan and emergency response plan present / accessible	NA

---

### Portable Container Storage

Drum construction: None  
Contents stored: 0  
Estimated quantities (gallons): 0  
Drums are labeled with contents: NA  
Spill containment construction: Steel  
Containment is free of debris, floating oil, or water: No  
Egress pathway is clear: Yes



**Cathodic Protection -.330**

### **Suggested minimum materials**

55 gal open top drum  
2 gal drip pan  
Flat shovel  
Absorbent pads  
Gloves  
Eye wash  
First aid kit

Drum liners (bags)  
5 gal buckets  
Dry granular absorbent  
Sock boom absorbent  
Safety glasses - goggles  
Tyvek suites

Minimum material requirements met: No




---

Comments: The tank located at building -B exhibited a large vacuum leak at the time of testing. The test was conducted several times while the source of the leak was investigated. I feel the leak is a crack in the vent piping threads which cannot be accessed for a visual inspection, this situation may be caused from tank movement underground and the vent line being secured at the building. The photo on the right at the top of the report is a good example of the fill sump drain which should be in every sump to drop spilled fuel back into the tank. The sump is full of water as a result of the low to the ground installation and no drainage.

---

Inspector:





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John F. Carolan  
License # AST 104-09



# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 11/2/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	837
ULLAGE VOL.	164
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Building - B

Location	AHFC-Geneva Woods - B
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 2038218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Hillside Location5

## PRESSURE SENSOR CALCULATION

$$35.0 \times 0.031 = 1.085 \text{ PSI (1)}$$

INCHES OF PRODUCT WEIGHT OF PRODUCT

$$0.0 \times .036 = 0.000 \text{ PSI (2)}$$

INCHES OF WATER IN TANK

$$\text{Line 1 + Line 2 = Total Positive Head Pressure In Tank} = 1.085 \text{ PSI (3)}$$

$$0.0 \times .036 = 0.000 \text{ PSI (4)}$$

INCHES OF WATER OUTSIDE TANK

$$\text{Total Head Pressure Minus Outside Water Pressure} = 1.085 \text{ +/-PSI (5)}$$

Always add .5 PSI

$$+ 1.585 \text{ PSI (6)}$$

NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI

$$\text{TEST PRESSURE} = 1.585 \text{ +/-PSI (7)}$$

## ACOUSTIC TEST TIME

## Equipment Calibration due date and serial numbers

	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	1:30 AM	0.0			
Blower Started:	1:35 AM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	1:45 AM	1.588	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	1:55 AM	1.589	Pressure Sensor	71024108	06/2022
Test Began:	2:00 AM	1.591	Water Sensor Display	D1803293	06/2022
Test Ended:	2:10 AM	1.117	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

Added: Cal #1 Cal #2 Cal #3

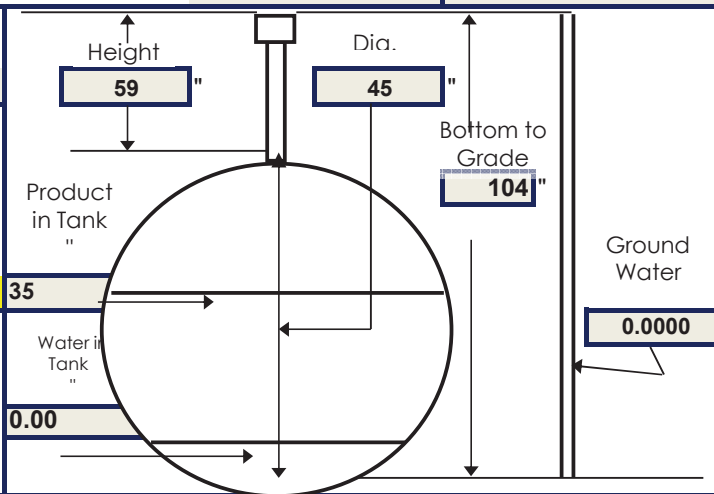
Average:

## Calculation for Test Period:

$$\text{Avg. Cal.} \div 3780 = \text{"A" Factor} \times .05 \times \text{#VALUE!} \times 60 = \text{#VALUE!} \text{ Min. Time of Test}$$

## Water Intrusion Test Period

Began:  
Ended:





# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date

11/2/2021

## FINAL REPORT

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	837
ULLAGE VOL.	164
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Building - B

Location	AHFC-Geneva Woods - B
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 2038218

Depth of Groundwater Determined:

By: John F. Carolan

Where: Hillside Location5

### THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:

#### ☐ TIGHT TANK

THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.

#### ☒ ULLAGE (DRY) PORTION OF LEAK

THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.

#### ☐ BELOW PRODUCT LEVEL (WET) PORTION LEAK

THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.

### WATER SENSOR INDICATES:

(CHECK ONLY ONE)

No Water Intrusion	<input checked="" type="checkbox"/>
Water Intrusion	<input type="checkbox"/>
Not Applicable	<input type="checkbox"/>

### Operator Information

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
	Anchorage, AK 99518		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT

### EQUIPMENT SERIAL NUMBERS AND CALIBRATION EXPIRATION DATES:

	Serial Number	Calibration Expiration Date
IN-TANK MICROPHONE	M1445002	06/2022
ACOUSTIC SIGNAL PROCESSOR	E218003	06/2022
PRESSURE SENSOR	71024108	06/2022
WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022

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**INVESTIGATIVE REPORT**  
**1617 DOUGLAS HIGHWAY, JUNEAU, ALASKA**  
**TANK – BUILDING C**

---

**SUMMARY**

A 1000-gallon underground steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old, and it is possible that it is double walled, but the exact configuration is unknown. It is unknown if there is an interstice.

The tank passed the EPA criteria for underground storage tank tightness.

It has an aboveground fill connection within a spill container that has been extended from an existing below grade sump that has been filled with concrete. The fill piping is routed through the existing piping sump manhole cover. The fuel piping connections are within the piping sump and are accessible through a secondary manhole cover also installed within the existing piping sump manhole cover (retrofit). There is an overfill protection device and its functionality is unknown and cannot be tested.

The fuel fill pipe within the spill containment sump had no pipe adapter or piping cap. The drop valve for return of overfilled fuel to the tank was not functional. The piping sump has water within it from water leaking into the manhole cover.

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

Tank monitoring and high-level alarms were not present at the tank.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode depletion	Replace anodes
Storage Tank	Pass		
Fueling Equipment	Fail	Fill adapter and pipe cap	Install fill adapter and piping cap Replace spill container
Monitoring and Level Gauge	N/A		

# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .: Anchorage, AK 99518 .: [npetrosv@gmail.com](mailto:npetrosv@gmail.com) .: (907)230-5222

Date: 11/3/2021

Facility: AHFC-Geneva Woods

Address: 1617 Douglas Highway

City: Juneau, Alaska

Contact: Michael Phelps

Phone: (907) 203-8218

E-mail: [mphelps@ahfc.us](mailto:mphelps@ahfc.us)



Tank ID: Building-C

Tank Size: 1001 gal

Construction Material: Steel

Single Wall: Unknown

Compartment tank: No

Tank Age: 23 years

Tank Design: Horizontal UST

Exterior Coating: Black asphalt paint

Double Wall: Possible

Number of compartments: 1

---

Grounded: Yes

Bonded: NA

Cathodic protection mill volt measurement: -.538

Impressed current 100mlv drop measurement: NA

Tank is listed with UL, API, SWRI, Other: Unknown

---

## Storage Tank

Storage system exhibits no signs of leakage

Tank surface has no damage (cracking, major dents, deformities)

Tank surface is free of major rust and paint separation

Tank skids or supports are free of damage or deformity

No split welds on supports or pitting of the chime base observed

Ladders and platforms are secure and stable

Tank is labeled (fire code, contents, emergency contact number, etc)

No- clean piping sump

Unknown

Unknown

NA

NA

NA

NA

### Fueling Equipment

Tank overfill device is operational	Unknown
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes-Primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Yes
Pump is free of leaks and grounded	Yes- boiler pump
Hoses swivel joins and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	Yes
Tank gauges are operational and calibrated	None
High level alarm is functional	None
Tank interstice is free of fuel and water	Unknown
Primary tank drain is locked	NA
Emergency shut off valve is operational or alarm system	NA

---

### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	Yes
Spill response materials are in place and adequate	No
Warning signs are in place (no smoking, emergency contact #, contents)	No
SPCC plan and emergency response plan present / accessible	NA

---

### Portable Container Storage

Drum construction: None
Contents stored: 0
Estimated quantities (gallons): 0
Drums are labeled with contents: NA
Spill containment construction: Steel
Containment is free of debris, floating oil, or water: No
Egress pathway is clear: Yes



**Cathodic Protection -.538**

### **Suggested minimum materials**

55 gal open top drum

Drum liners (bags)

2 gal drip pan

5 gal buckets

Flat shovel

Dry granular absorbent

Absorbent pads

Sock boom absorbent

Gloves

Safety glasses - goggles

Eye wash

Tyvek suites

First aid kit

Minimum material requirements met: No




---

Comments: The photo above is a shot of the inside example of all the fill ports view of the fill drop tube where the delivered fuel enters the tank during a fuel delivery. The center of the tube is a silver ring which is the overfill device which restricts filling the tank over 95% full preventing a overfill of fuel into the tank. I have been able to move the float lever to make sure it can move but I cannot guarantee it actually works, the drop tube needs to be removed to perform that inspection and this is not possible due to the 4" pipe assembly has concrete holding the sump pipe in place. The spill sump drain is broken although none of the spill containments in Geneva Woods have fill riser adaptor and tight seal caps so whatever is in the container, water or fuel will fall into the tank. The photo top and right of the report is



the piping sump, this is this a good view of ½" suction piping and the 2.5" vent line, this is the only sump clear of water and fuel.

---

Inspector:

A handwritten signature in blue ink, appearing to read "John F. Carolan", is written over a horizontal line.

John F. Carolan  
License # AST 104-09





# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 11/3/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	761
ULLAGE VOL.	240
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Building -C

Location	AHFC-Geneve Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Hill side Location

## PRESSURE SENSOR CALCULATION

32.0	x	0.031	=	0.992	PSI (1)
INCHES OF PRODUCT		WEIGHT OF PRODUCT			
0.0	x	.036	=	0.000	PSI (2)
INCHES OF WATER IN TANK					
Line 1 + Line 2 = Total Positive Head Pressure In Tank			=	0.992	PSI (3)
0.0	x	.036	=	0.000	PSI (4)
INCHES OF WATER OUTSIDE TANK					
Total Head Pressure Minus Outside Water Pressure			=	0.992	+/-PSI (5)
Always add .5 PSI			+	1.492	PSI (6)
NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI					
TEST PRESSURE			=	1.492	+/-PSI (7)

## ACOUSTIC TEST TIME

## Equipment Calibration due date and serial numbers

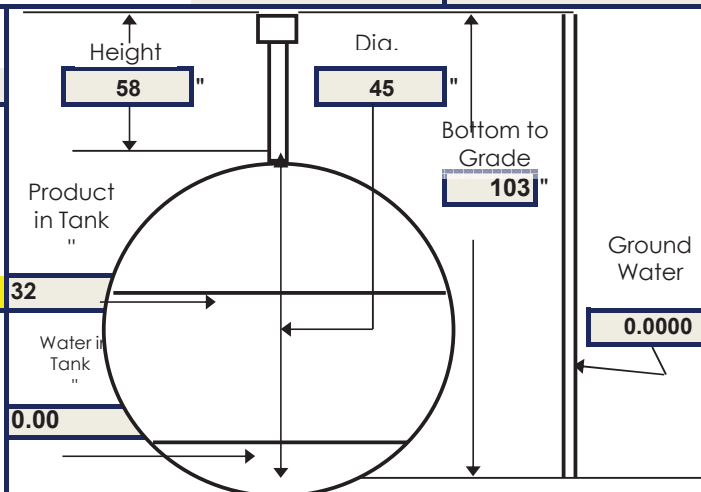
	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	10:55 AM	0.0			
Blower Started:	11:00 AM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	11:15 AM	1.510	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	11:20 AM	1.511	Pressure Sensor	71024108	06/2022
Test Began:	11:20 AM	1.511	Water Sensor Display	D1803293	06/2022
Test Ended:	11:25 AM	1.509	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

Added:	Cal #1	Cal #2	Cal #3
Average:			
Calculation for Test Period:			
Avg. Cal.	"A" Factor	#VALUE! x 60 =	#VALUE! Min. Time of Test

## Water Intrusion Test Period

Began:  
Ended:



**PRESSURE CALCULATION & WATER SENSOR CALIBRATION****Test Date****11/3/2021****FINAL REPORT**

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	761
ULLAGE VOL.	240
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Building -C

Location	AHFC-Geneve Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By: John F. Carolan

Where: Hill side Location

**THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:****x TIGHT TANK**THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.**ULLAGE (DRY) PORTION OF LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**BELOW PRODUCT LEVEL (WET) PORTION LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**WATER SENSOR INDICATES:**

(CHECK ONLY ONE)

No Water Intrusion	<input type="checkbox"/>
Water Intrusion	<input type="checkbox"/>
Not Applicable	<input checked="" type="checkbox"/>

**Operator Information**

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
	Anchorage, AK 99518		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT

**EQUIPMENT SERIAL NUMBERS AND CALIBRATION EXPIRATION DATES:**

	Serial Number	Calibration Expiration Date
IN-TANK MICROPHONE	M1445002	06/2022
ACOUSTIC SIGNAL PROCESSOR	E218003	06/2022
PRESSURE SENSOR	71024108	06/2022
WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022

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**INVESTIGATIVE REPORT**  
**1617 DOUGLAS HIGHWAY, JUNEAU, ALASKA**  
**TANK – BUILDING D**

---

**SUMMARY**

A 1000-gallon underground steel tank with asphalt paint is installed at the site. The tank is estimated to be approximately 23 years old, and it is possible that it is double walled, but the exact configuration is unknown. It is unknown if there is an interstice.

The tank passed the EPA criteria for underground storage tank tightness.

It has an aboveground fill connection within a spill container that has been extended from an existing below grade sump that has been filled with concrete. The fill piping is routed through the existing piping sump manhole cover. The fuel piping connections are within the piping sump and are accessible through a secondary manhole cover also installed within the existing piping sump manhole cover (retrofit). There is an overfill protection device and its functionality is unknown and cannot be tested.

The fuel fill pipe within the spill containment sump had no pipe adapter or piping cap. The drop valve for return of overfilled fuel to the tank was functional. The piping sump has water within it from water leaking into the manhole cover.

Inspector found that the cathodic protection system did not pass the minimum requirement of -0.850 mv.

Tank monitoring and high level alarms were not present at the tank.

**FUEL TANK TESTING RESULTS AND RECOMMENDATIONS**

TEST	PASS/FAIL	CAUSE	RECOMMENDATION
Cathodic Protection	Fail	Anode depletion	Replace anodes
Storage Tank	Pass		
Fueling Equipment	Fail	Fill adapter and pipe cap	Install fill adapter and piping cap Replace spill container
Monitoring and Level Gauge	N/A		

# Northern Petroleum Testing & Services, Inc.



635 East 74<sup>th</sup> Ave .:. Anchorage, AK 99518 .:. [npetrosvs@gmail.com](mailto:npetrosvs@gmail.com) .:. (907)230-5222

Date: 11/3/2021  
Facility: AHFC-Geneva Woods  
Address: 1617 Douglas Highway  
City: Juneau, Alaska

Contact: Michael Phelps  
Phone: (907) 203-8218  
E-mail: [mphelps@ahfc.us](mailto:mphelps@ahfc.us)



Tank ID: Building - D  
Tank Size: 1001 gal  
Construction Material: Steel  
Single Wall: Unknown  
Compartment tank: No

Tank Age: 23 years  
Tank Design: Horizontal UST  
Exterior Coating: Black asphalt paint  
Double Wall: Possible  
Number of compartments: 1

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Grounded: Yes  
Bonded: NA  
Cathodic protection mill volt measurement: -.661  
Impressed current 100mlv drop measurement: NA  
Tank is listed with UL, API, SWRI, Other: Unknown

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## Storage Tank

Storage system exhibits no signs of leakage  
Tank surface has no damage (cracking, major dents, deformities)  
Tank surface is free of major rust and paint separation  
Tank skids or supports are free of damage or deformity  
No split welds on supports or pitting of the chime base observed  
Ladders and platforms are secure and stable  
Tank is labeled (fire code, contents, emergency contact number, etc)

No-oil in pipe sump  
Unknown  
Unknown  
NA  
NA  
NA  
NA

### Fueling Equipment

Tank overfill device is operational	No-Unknown
Fill port has spill containment	Yes
Filling point is secured when not in use	Yes
Primary and secondary vents are clean and operational	Yes-Primary
Primary and secondary weighted vents are free	NA
All tank penetrations are free of leaks	Yes
Pump is free of leaks and grounded	Yes- boiler pump
Hoses swivel joins and associated piping exhibit no signs of leakage	Yes
Pump electrical is installed properly (explosion proof fittings)	Yes
Tank gauges are operational and calibrated	None
High level alarm is functional	None
Tank interstice is free of fuel and water	Unknown
Primary tank drain is locked	NA
Emergency shut off valve is operational or alarm system	NA

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### Site Safety

Tank system is in a low traffic area protected by bollards or secondary Containment	Yes-low traffic
Fire extinguisher present with current inspection tags	Yes
Lighting is adequate for operation of fueling duties	Yes
Electrical plug-in receptacles are 50' away from fueling or explosion proof	Yes
Spill response materials are in place and adequate	No
Warning signs are in place (no smoking, emergency contact #, contents)	None
SPCC plan and emergency response plan present / accessible	NA

---

### Portable Container Storage

Drum construction: None
Contents stored: 0
Estimated quantities (gallons): 0
Drums are labeled with contents: NA
Spill containment construction: Steel
Containment is free of debris, floating oil, or water: No
Egress pathway is clear: Yes



**Cathodic Protection -.661**

### **Suggested minimum materials**

55 gal open top drum  
2 gal drip pan  
Flat shovel  
Absorbent pads  
Gloves  
Eye wash  
First aid kit

Drum liners (bags)  
5 gal buckets  
Dry granular absorbent  
Sock boom absorbent  
Safety glasses - goggles  
Tyvek suites

Minimum material requirements met: No



Fuel fill sump



Fuel fill overfill device

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Comments: The photos above are the fill containment spill bucket and overfill device, the overfill device is inside 4" pipe riser connected to the tank and the overfill is inside the tank portion, this device limits the amount of fuel stored to prevent a overfill. The suction and return lines at each Geneva Woods tank installation are ½" soft copper with soldered fittings, and the return lines have been decommissioned and replaced with tiger loop systems. The cathodic anodes are all in decay with 50% remaining as an average.

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Inspector:



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John F. Carolan  
License # AST 104-09





# PRESSURE CALCULATION & WATER SENSOR CALIBRATION

Test Date 11/3/2021

## DATA SHEET

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	761
ULLAGE VOL.	240
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Building - D

Location	AHFC-Geneve Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

Depth of Groundwater Determined:

By:	John F. Carolan
Where:	Hill side Location

## PRESSURE SENSOR CALCULATION

$$33.0 \times 0.031 = 1.023 \text{ PSI (1)}$$

INCHES OF PRODUCT WEIGHT OF PRODUCT

$$0.0 \times .036 = 0.000 \text{ PSI (2)}$$

INCHES OF WATER IN TANK

$$\text{Line 1 + Line 2 = Total Positive Head Pressure In Tank} = 1.023 \text{ PSI (3)}$$

$$0.0 \times .036 = 0.000 \text{ PSI (4)}$$

INCHES OF WATER OUTSIDE TANK

$$\text{Total Head Pressure Minus Outside Water Pressure} = 1.023 \text{ +/-PSI (5)}$$

Always add .5 PSI

$$+ 1.523 \text{ PSI (6)}$$

NOTE: If Line 6 is Less Than .5 PSI Line 7 Shall be .5 PSI

$$\text{TEST PRESSURE} = 1.523 \text{ +/-PSI (7)}$$

## ACOUSTIC TEST TIME

Equipment Calibration due date and serial numbers

	Time	Pressure		Serial Number	Calibration Due Date
Baseline Background:	2:15 PM	0.0			
Blower Started:	2:20 PM	0.0	In-Tank Microphone	M1445002	06/2022
Test Pressure Reached:	2:40 PM	1.525	Acoustic Signal Processor	E218003	06/2022
Blower Turned Off:	2:45 PM	1.525	Pressure Sensor	71024108	06/2022
Test Began:	2:45 PM	1.525	Water Sensor Display	D1803293	06/2022
Test Ended:	2:45 PM	1.517	Water Sensor Probe	M1607006	06/2022

## WATER SENSOR CALIBRATION

Added: Cal #1 Cal #2 Cal #3

Average:

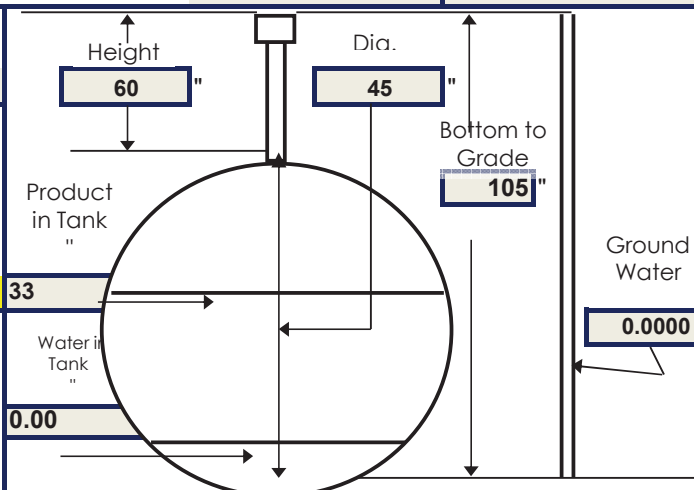
Calculation for Test Period:

$$\text{Avg. Cal.} \div 3780 = \text{"A" Factor} \times .05 \times \text{#VALUE!} \times 60 = \text{#VALUE!} \text{ Min. Time of Test}$$

Water Intrusion Test Period

Began:

Ended:





**PRESSURE CALCULATION & WATER SENSOR CALIBRATION****Test Date****11/3/2021****FINAL REPORT**

MANUFACTURED BY: ESTABROOK'S INC. 1-877-368-7215

TOTAL TANK VOL.	1001
PRODUCT VOL.	761
ULLAGE VOL.	240
PRODUCT TYPE	Heating oil
PBS # (NEW YORK)	NA
TANK #	Building - D

Location	AHFC-Geneve Woods
Address	1617 Douglas Highway
City/State/Zip	Juneau, AK
Location Contact	Michael Phelps
Location Phone	(907) 203-8218

**Depth of Groundwater Determined:****By:** John F. Carolan**Where:** Hill side Location**THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:****x TIGHT TANK**THIS UNDERGROUND STORAGE TANK PASSES THE CRITERIA SET FORTH BY THE U.S. EPA.**ULLAGE (DRY) PORTION OF LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**BELOW PRODUCT LEVEL (WET) PORTION LEAK**THIS UNDERGROUND STORAGE TANK FAILS THE CRITERIA SET FORTH BY THE U.S. EPA.**WATER SENSOR INDICATES:****(CHECK ONLY ONE)**

No Water Intrusion

Water Intrusion

Not Applicable

**x****Operator Information**

Print Name	John F. Carolan	Certification #	AK461
Sign Name		Expiration Date:	12/2021
Testing Firm	Northern Petroleum Testing & Services	Telephone #	(907) 230-5222
Address	635 East 74th Avenue		
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WATER SENSOR DISPLAY	D1803293	06/2022
WATER SENSOR PROBE	M1607006	06/2022

# CONSTRUCTION DOCUMENTS

1. a Geneva Woods UST Final Construction Manual  
Specifications,

1. b Geneva Woods UST Final Const. 22x34 Drawings,

1. a Mt. View Final Construction Manual Specifications,

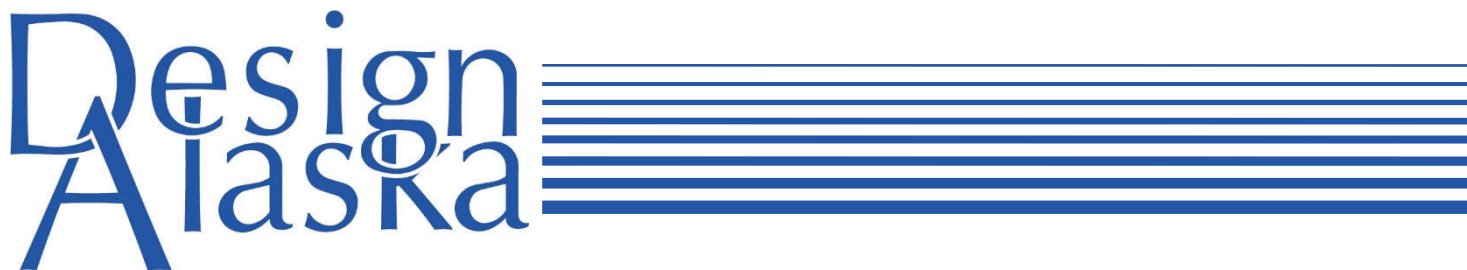
1. b Mt. View Heating Fuel Tank Replacement Final  
Drawings

# **Geneva Woods UST Closure & AST Installation Juneau, Alaska**

## **Final Construction Documents**

**For:  
Alaska Housing Finance Corporation  
4300 Boniface Parkway  
Anchorage, Alaska 99504**

**August 27, 2024**



# **Geneva Woods UST Closure & AST Installation Juneau, Alaska**

## **Final Construction Documents**

### **Table of Contents**

- **Narrative**
- **Specifications**
- **Submittal Register**
- **95% Design Review Comments**
- **Appendix**
  - **Field Report**

**By:**

**Design Alaska, Inc.  
601 College Road  
Fairbanks, Alaska 99701**

**August 27, 2024**

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**FINAL CONSTRUCTION DOCUMENTS  
PROJECT NARRATIVE**

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**EXECUTIVE SUMMARY**

This project addresses fuel oil storage systems serving AHFC buildings at the Geneva Woods Housing complex in Juneau, Alaska (Douglas side of canal). An investigation was performed to determine the status of existing underground storage tanks and their condition with respect to maintenance. A detailed tank investigation was performed in 2021 to assess the existing fuel tanks and piping systems at Geneva Woods, see RDS 009 dated 03/05/21 for investigative reports and tank testing. This site was selected by the Owner for storage tank closure and replacement with Above Ground Storage Tanks (AGT). Considerations for tank locations and size were made based on a second site visit in January 2024 and staff interviews performed on site. See Narrative Appendix 1 for a summary of the site visit.

**EXISTING CONDITIONS**

There are six underground fuel oil tanks at the site: one at each of the buildings, and two tanks at Building A. Each tank is 1000 gallons with fill connections and vents that terminate above grade at building walls. Existing tanks have no evidence of leaks as determined in the 2021 investigation, and soil contamination is not anticipated. Storage tanks supply fuel oil heating systems within each of the buildings. There are a total of five buildings (A, B, C, D, and the Community Center) with six mechanical rooms (Building A has a west and east boiler room). Fuel oil piping to the boilers has been standardized to supply piping with only fuel deaerators (i.e. no fuel oil return lines). Existing fuel oil return lines were visible at the site and are abandoned in place within the underground piping system. The existing fuel oil supply piping is copper piping buried within a 4-inch secondary PVC conduit/pipe, visible entering the boiler room where it has been cut and capped.

**DEMOLITION - TANK CLOSURE**

The tank closure procedure is specified and will be executed by the contractor. An independent Environmental Quality Assurance (QA) service provider, hired by the contractor, will execute the tank closure requirements specified. The specification requires the QA to provide a Tank Closure Plan and execute the plan during construction, including observations and record logging during demolition and disposal. A tank closure report will be provided for each tank with a record of a code compliant tank closure. All tanks will be removed, and all existing buried fuel oil piping will be removed to a point of connection at the piping entrance accessible within the boiler rooms. The fuel oil access piping will be removed to the greatest extent possible. Access piping entering the boiler room floor of Unit B will be reused and extended as needed for installation of underground piping to the newly installed AGT.

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**FINAL CONSTRUCTION DOCUMENTS**  
**PROJECT NARRATIVE**

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Remove tank and underground fuel oil piping to point of connection with new tank. Remove piping with access conduit as much as possible.	Buildings A, C, D, and Community Center
Remove tank and underground fuel oil tank piping to point of connection in boiler room, retain Access piping to extent required or UG piping	Building B

**FUEL TANK INSTALLATION**

Fuel tanks are installed to complement site and building boiler room locations. Considerations were made for access, filling, piping, sidewalks, and unit accessibility. The above ground fuel tanks will be double wall, meeting UL142 requirements, and will be secured to 4-inch concrete housekeeping pads designed to withstand seismic forces. Housekeeping pads slope away from the building and allow access and maintenance of appurtenances.

Tanks at Building A will be directly outside the boiler rooms. Building B's tank will be on the southwest corner of the building, along a stretch of blank wall, minimum 10 feet from the property line. Tanks at Buildings C, D, and Community Center will be installed in the approximate location of the existing tanks, but directly adjacent to their respective buildings.

A 6-foot tall chain link fence with privacy slats will surround each tank, with 3 feet of space around three sides of the tank where possible. Tanks at Building A will have less space within the fence to accommodate pedestrian circulation.

**FUEL TANK DESIGN**

Fuel oil tank sizes were standardized at 650 gallons each. A review of the fuel oil use at each site was evaluated and the 650-gallon tank size was selected. This meets the criteria for filling the tank once a month on the most demanding heating month. Heating oil filling records were evaluated, and it was determined that this amount of fuel will suit the needs of the buildings.

Above ground storage tanks will comply with venting and emergency venting requirements. The tanks will be equipped with clock gauges, high level alarms, and whistle vents for filling operator monitoring. At 95 percent full level, the fill-stop will engage disallowing additional fueling. Fill limiters require use of cam lock fittings. A spill containment bucket with a cover and drain is also provided at the fill port to ensure no fuel is spilled upon removal of the nozzle. Concrete pads will show evidence of fuel spilling or leakage at the tank and may be observed by the Owner. The tank design includes a passive interstitial device for monitoring the interstitial space for fuel, indicating whether the inner tank has been compromised.

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**FINAL CONSTRUCTION DOCUMENTS  
PROJECT NARRATIVE**

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Fuel oil piping will be routed to the boiler either through the existing crawlspace (Buildings C and D) or through the wall directly to the existing boiler room piping (Building A and Community Center) using steel piping and fittings with swing joints. Above ground piping will be used where possible to avoid buried piping installations. Flexible piping connections, anti-siphon valves and appurtenances are provided at the tank and will be enclosed within a protective fence. Connection to the existing piping will be above grade within the crawlspaces or boiler rooms. Building B piping is buried, with flexible double wall fuel piping located within a 4-inch fuel oil piping access pipe and sealed watertight at the surface.

Primary tank vent piping is routed to the edge of buildings and to locations on building walls and eaves to avoid damage from snow slides from shingle roof if they occur.

## **Specifications**



DIVISION 02	EXISTING CONDITIONS
02 65 01	Buried Heating Oil Tank Closure
02 84 19	Removal of Contaminated Soils
DIVISION 20	MECHANICAL
20 01 00	Operation and Maintenance for Mechanical
20 05 00	Common Work Results
20 05 11	Common Submittal Requirements for Mechanical
20 05 53	Identification for Mechanical
DIVISION 23	HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
23 11 13	Facility Fuel Oil Piping
23 13 23	Facility Aboveground Fuel Oil Storage Tanks
DIVISION 31	EARTHWORK
31 20 00	Earth Moving
DIVISION 32	EXTERIOR IMPROVEMENTS
32 13 13	Concrete Paving
32 31 13	Chain Link Fences and Gates
32 92 19	Seeding

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 02 65 01 - BURIED HEATING OIL TANK CLOSURE

- A. This section covers the closure of buried heating oil tanks.

### 1.2 SCOPE OF WORK

- A. General: The buried heating oil tank closure work consists of the assessment and closure of the heating oil storage system. Site specific tank, appurtenance, and fuel piping demolition and equipment locations are shown in the Drawings.
- B. The Contractor shall provide a Qualified Environmental Professional (QEP) as defined by Alaska Department of Environmental Conservation (ADEC). This may be a qualified staff member or qualified contractor.
- C. The QEP shall provide a Tank Closure Work Plan and include oversight, site assessment, quality assurance, analytical laboratory services, and reporting. The QEP shall be retained by the Contractor; be responsible be physically present at the construction site during tank closure plan execution and have the necessary education and/or experience in accordance with ADEC requirements.
  - 1. The costs of these Environmental Quality Professional services are the responsibility of the Contractor.
- D. The Contractor shall coordinate all fuel oil storage system closure efforts with the QEP and provide equipment and support during the planning and execution of tank closure.
- E. The Owner, Federal, State, or local agencies may require their representative(s) to be present to inspect the tank closure operations. The Contractor shall comply with all such assessment and inspection circumstances and the Tank Closure Work Plan. The Contractor shall notify the Owner immediately of any agency inspections.

### 1.3 QUALITY ASSURANCE

- A. The Qualified Environmental Professional (QEP) provided shall be employed by a firm who is regularly engaged in the closure of fuel oil tanks in Alaska. The contractor shall maintain an Office in Alaska with personnel to ensure prompt response (24 hour maximum) to an emergency call during the work period.
- B. The Contract and QEP shall be able to demonstrate that they have had experience writing and executing tank closure plans and providing ADEC required documentation and reports comparable in type and size called for in these Specifications.

- C. Within 2 weeks after award of contract, submit to the Owner the following items for Contractor qualification:
  - 1. Name of company and QEP personnel with proof of the ADEC credentials as defined by ADEC QEP standard.
  - 2. Proof of Alaskan Office, with full time representative.
  - 3. List of Alaskan projects with names, addresses, and phone numbers of Owners which are representative where tank closure has been performed and include a brief project description and summary of the work performed.

#### 1.4 CONTAMINATED SOILS

- A. There are no known contaminated soils present at the Project work area. However, owing to the nature of the work, the presence of contaminated soils may be discovered when the Contractor begins work. The Contractor and QEP should be alert to the possible presence of contaminated soils when following the Tank Closure Work plan and materials are encountered during storage tank demolition.
- B. If a contaminated soils are disturbed, or the Contractor suspects it has encountered such material it shall immediately stop work in the area and notify the Owner of the suspected contaminated soils.
- C. The Contractor's QEP shall conduct an assessment and shall make such tests as are necessary to determine whether contaminated soils exist.
- D. If the contaminated soils pose a hazard, the QEP shall provide an Assessment Report to the owner for evaluation.
- E. The Owner may ask the Contractor to revise its schedule or issue a change modifying the work. An equitable adjustment in the contract shall be made for any additions or deletions to the work. The Contractor shall not be entitled to any costs in addition to the Contract from any delay or subsequent extension of time from any act, omission, or work under this section.
- F. The Contractor shall provide the appropriate safeguards in order to avoid disturbing contaminated soils when warned and for the protection of its employees. The Contractor shall be liable for all costs resulting from its negligence in fulfilling its responsibilities under this Specification.

#### 1.5 SUBMITTALS

- A. Submit permits and notification as required by Alaska Department of Environmental Conservation and other regulatory authorities.

B. Tank Closure Work Plan

1. The Contractor shall provide Tank Closure Work Plans developed by the QEP. The Tank Closure Work plan and shall be submitted four (4) weeks after receipt of Notice to Proceed and shall include the following:
  - a. Scheduling of tank closure.
  - b. Simple discussion of proposed procedures for tank contents removal, tank cleaning, tank cutting, and tank disposal.
  - c. Key personnel to be used on the project and their responsibilities.
  - d. Provide Tank Closure plan with the following Items:
    - 1) Background and Existing Data with Vicinity Map and Site Layout.
    - 2) Scope of Work.
    - 3) Excavation.
    - 4) Sample, Analysis, and Reporting Plan with Planned Soil Sample Locations.
    - 5) Environmental Protection.
    - 6) Stockpiling.
    - 7) Waste Disposal Plan.
    - 8) Site Safety and Health Plan.
2. Tank Closure Final Report including:
  - a. Project summary.
  - b. Daily reports and records.
  - c. Quantities of fuel and sludge removed and its disposal.
  - d. Landfill or scrap yard receipt for disposal of the cut-up tank.
  - e. Photo journal of tank purging, contents removal and handling during excavation and closure and labeling prior to transport.
  - f. Correspondence: Copies of all correspondence with government agencies shall be furnished to the Owner immediately upon issue or receipt. All Contractor correspondence with ADEC, unless specified otherwise in this section, shall be through the Owner.

## 1.6 REFERENCES

### A. AMERICAN PETROLEUM INSTITUTE (API)

1. API Pub 2217 (Jun. 1984; 1st Ed) Guidelines for Confined Space Work in the Petroleum Industry.
2. API RP 1604 (Feb. 1921; 4th Ed) Removal and Disposal of Used Underground Petroleum Storage Tanks.
3. API RP 2015 (Jan. 1918; 8th Ed) Cleaning Petroleum Storage Tanks.

### B. STATE OF ALASKA

1. 18 AAC 78 Underground Storage Tanks.

## PART 2 PRODUCTS (NOT USED)

## PART 3 EXECUTION

### 3.1 WORK PLAN EXECUTION

- A. The Contractor shall perform all work in accordance with all Federal, State, and local laws and regulations; these specifications; and all approved plans submitted under this section.
1. The Contractor shall exercise quality control as required in this Section and in accordance with the approved Tank Closure Work Plan.

### 3.2 TANK CLOSURE

- A. Complete the following tasks in accordance with the methods approved in the Tank Closure Work Plan:
1. Tank contents removal.
  2. Purging and venting.
  3. Inspection of tank interior.
  4. Inspection of tank interior.
  5. Excavation.
  6. Closure.
  7. Disposal.

3.3 BACKFILLING

- A. Backfill the excavation with gravel, excavated soil, and patch surface to match surrounding area, extend finishes to what it abuts.

3.4 FINAL REPORT

- A. Contractor QEP will prepare the Final Tank Closure Report and submit to owner. The tank closure contractor shall coordinate all tank closure activities and cooperate with the Owner in providing all information and records required regarding tank closure, tank, and tank contents disposal.

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 02 84 19 - REMOVAL AND DISPOSAL OF CONTAMINATED SOILS

- A. This section covers the removal and disposal of contaminated soils.

### 1.2 SCOPE OF WORK

- A. General: the contaminated soil work consists of conducting contaminated soils removal handling, packaging, storage, transport and disposal in accordance with an approved work plan, applicable regulations, and this specification. There are no known contaminated soils present at the Project work area.
- B. The Contractor shall provide a Qualified Environmental Professional (QEP) as defined by Alaska Department of Environmental Conservation (ADEC). This may be a qualified staff member or qualified contractor.
- C. The QEP shall provide a Contaminated Soils Removal Plan and include soil removal oversight, site assessment, quality assurance, analytical laboratory services, and reporting. The QEP shall be retained by the Contractor; be responsible be physically present at the construction site during Plan execution and have the necessary education and/or experience in accordance with ADEC requirements.
  - 1. The costs of these Environmental Quality Professional services are the responsibility of the Contractor.
- D. The Contractor shall coordinate all contaminated soils removal efforts with the QEP and provide equipment and support during the planning and execution of tank closure.
- E. The Owner, Federal, State, or local agencies may require their representative(s) to be present to inspect the contaminated soils removal operations. The Contractor shall comply with all such assessment and inspection circumstances and the Contaminated Soils Removal Plan. The Contractor shall notify the Owner immediately of any agency inspections.

### 1.3 QUALITY ASSURANCE

- A. The Qualified Environmental Professional (QEP) provided shall be employed by a firm who is regularly engaged in the removal and disposal of contaminated soils in Alaska. The contractor shall maintain an Office in Alaska with personnel to ensure prompt response (24 hour maximum) to an emergency call during the work period.

- B. The QEP shall be able to demonstrate that he has had experience writing and executing contaminated soil removal plans and providing Alaska Department of Environmental Conservation required documentation and reports comparable in type and size called for in these Specifications.
- C. The Contract and QEP shall be able to demonstrate that they have had experience with handling and disposal of contaminated soils within Alaska or to another State with volume of material of comparable in type and size called for in these Specifications.
- D. Within 2 weeks after award of contract, submit to the Owner the following items for qualification:
  - 1. Name of company and QEP personnel with proof of the ADEC credentials as defined by Alaska Department of Environmental Conservation QEP standard.
  - 2. List of Alaskan projects with names, addresses, and phone numbers of Owners which are representative where and removal and closure has been performed and include a brief project description and summary of the work performed.

#### 1.4 SUBMITTALS

- A. Submit permits and notification as required by Alaska Department of Environmental Conservation and other regulatory authorities.
- B. Contaminated Soils Removal and Disposal Work Plan
  - 1. The Contractor shall provide the Contaminated Soils Removal and Disposal Plans developed by the QEP. The Contaminated Soils Removal and Disposal shall be submitted four (4) weeks after receipt of Contaminated Soils Assessment Report and shall include the following:
    - a. Scheduling of soils removal.
    - b. Simple discussion of proposed procedures for soils removal, storage, hauling, handling, and manifesting procedure.
    - c. Key personnel to be used on the project and their responsibilities.
    - d. Provide Contaminated Soils Removal and Disposal Plan with the following Items:
      - 1) Background and Existing Data with Vicinity Map and Site Layout.
      - 2) Scope of Work.
      - 3) Sample, Analysis, and Reporting Plan with Planned Soil Sample Locations.



- 4) Environmental Protection.
  - 5) Removal and Stockpiling.
  - 6) Waste Disposal Plan.
  - 7) Site Safety and Health Plan.
2. Contaminated Soils Removal and Disposal Closure Final Report including:
  - a. Project summary.
  - b. Daily reports and records.
  - c. Quantities of contaminated soils removed and their disposal.
  - d. Receipt for disposal of contaminated soils in approved location.
  - e. Photo journal of soils removal and handling during excavation and removal and labeling prior to transport.
  - f. Correspondence: Copies of all correspondence with government agencies shall be furnished to the Owner immediately upon issue or receipt. All Contractor correspondence with ADEC, unless specified otherwise in this section, shall be through the Owner.

## 1.5 REFERENCES

### A. STATE OF ALASKA

1. 8 AAC 61 Occupational Safety and Health Standards.
2. 18 AAC 60 Solid Waste Management.
3. 18 AAC 62 Hazardous Wastes.
4. 18 AAC 75 Oil and Hazardous Substances Pollution Control.
5. 18 AAC 78 Underground Storage Tanks.

### B. Title 40 CFR, Environmental Protection Agency (EPA)

1. Part 261 Identification and Listing of Hazardous Waste.
2. Part 263 Standards Applicable to Transporters of Hazardous Waste.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 WORK PLAN EXECUTION

- A. The Contractor shall perform all work in accordance with all Federal, State, and local laws and regulations; these specifications; and all approved plans submitted under this section.
  - 1. The Contractor shall exercise quality control as required in this Section and in accordance with the approved Contaminated Soils Removal and Disposal Work Plan.

3.2 CONTAMINATED SOILS REMOVAL

- A. Complete the following tasks in accordance with the methods approved in the Contaminated Soils Removal and Disposal Work Plan:
  - 1. Hazard assessment and site characterization.
    - a. Perform release investigation, soil sampling, collection, and testing.
    - b. Provide release investigation report to Owner and submit release investigation to required agencies as required.
  - 2. Corrective Action.
    - a. Remove and dispose of contaminated soil in accordance with applicable ADEC Statutes and dispose of contaminants.

3.3 BACKFILLING

- A. Backfill the excavation with gravel, excavated soil, and patch surface to match surrounding area.

3.4 FINAL REPORT

- A. Contractor QEP will prepare the Final Contaminated Soils Removal and Disposal Report and submit to owner. The contaminated soils removal Contractor shall coordinate all soil removal activities and cooperate with the Owner in providing all information and records required regarding soil removal and disposal.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 20 01 00 - OPERATION AND MAINTENANCE FOR MECHANICAL

- A. This Section covers form, content, and submittal of mechanical system Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 FORM

- A. Arrange operation and maintenance data sequentially by Specification Section.
- B. Provide two indexes at the front of the binder that locates individual items by tab number. The first by Specification Section. The second, an alphabetical index of all items without regard to Specification Section.
- C. Separate each item with consecutively numbered heavy stock divider sheets with plastic index tab. Type item number on both sides of paper inserts.
- D. Precede each item with a completed Item Data Sheet. See required format attached to the end of this Specification Section.
- E. Material included shall indicate the specific item(s) utilized for this Project. Delete or cross out all other items.
- F. Provide complete operation and maintenance manual submittals. Partial or incomplete submittals required under this Section will be returned without review.

2.2 DATA

- A. Provide data for all items, equipment, and equipment components specified or indicated under this Division, so that the Owner's maintenance personnel will have complete service and replacement information required for routine maintenance and repair and to provide maximum usable life. Include data not only for maintainable and repairable items, but also for replaceable but not repairable items. Typical items for which information is required include:
  - 1. Equipment including all components and accessories such as, fill limiters, level alarms, couplings, fuel connections, etc.
  - 2. Valves, strainers, filters, and other piping accessories.
  - 3. Storage tanks and accessories.

- B. Include the following data for each item as applicable. Some of these data can be extracted from equipment review submittals and included with the Operation and Maintenance Manuals.
  - 1. Manufacturer's catalog literature and illustrations.
  - 2. Operating characteristics including capacity data, flow rates, pressure drops, etc.
  - 3. Dimensions and connection sizes.
  - 4. Installation and adjustment instructions, requirements, and recommendations.
  - 5. Parts lists and assembly Drawings.
  - 6. Maintenance, operational, and troubleshooting instructions.
  - 7. Warranty data.
- C. Data shall be as provided by the equipment manufacturer or supplier.
- D. Data is required for all component items of equipment whether or not the components are products of the equipment manufacturer.
- E. All material must be clearly readable. "Faxed" then photocopied information is not acceptable.
- F. Include a chart, neatly typed, and arranged by system, summarizing periodic inspections and maintenance recommended by equipment manufacturers and/or required to properly maintain the storage system and new mechanical systems. The periodic maintenance summary chart shall include equipment name, identification symbol, location, type of maintenance or inspection required, and recommended time interval.
- G. Include an equipment schedule, neatly typed and arranged by system, listing new equipment with equipment symbol, nomenclature, function and area served, location, manufacturer, nameplate data including model and serial number.

## 2.3 BINDING

- A. Bind the Operation and Maintenance Manuals in three ring, D-ring style binders with page lifters and vinyl covers. Expandable catalog type two hole binders with soft board covers and metal prong fasteners will not be accepted.
- B. Provide multiple binders as required to limit single binder thickness to three inches. Divide binders at logical points. Do not overfill binders.
- C. Label the front cover and end panel. Label to include Project title, Project number, date, and facility name.

PART 3 EXECUTION

3.1 REQUIRED COPIES AND TIMING

A. Review Submittals:

1. Submit one electronic copy (PDF format) of the Operation and Maintenance Manual for review and acceptance by the Contracting Officer. Electronically Index (Bookmark) each section and item, by item data number and name within the electronic submittal.
2. Submit for review not less than thirty days prior to Substantial Completion Inspection.

B. Final Operation and Maintenance Manuals:

1. Provide one complete, reviewed, corrected, and accepted Operation and Maintenance Manuals in paper form and binding to the Contracting Officer a minimum of five working days prior to Project Substantial Completion Inspection and 5 working days prior to any scheduled training on equipment covered by the Operations and Maintenance Manual.
2. Provide one complete digital copy's (PDF format) of the accepted Operation and Maintenance Manuals to the Contracting Officer as part of the Final Operation and Maintenance Manual submittal. Provide digital copies on Compact Disc (CD) or USB compatible memory card (Flash).
  - a. Provide in PDF file format, current version. Provide a single file for each volume.
  - b. Electronically Index (Bookmark) each section and item, by item data number and name within the electronic submittal.
3. Contractor shall retain digital copy of the final accepted Operations and Maintenance manual for 5 years and shall provide a digital copy to AHFC as requested during that period.

END OF SECTION

ATTACHMENT: ITEM DATA SHEET

ITEM DATA SHEET

1. Item name/Drawing equipment number:
  
2. Specification section/Drawing number:
  
3. Manufacturer/model number:
  
4. Size/capacity:
  
5. Use and location: (1)
  
6. Spare parts source:
  
7. Providers of warranty service:
  
8. Other Contractor comments:

(1) This information must be provided for all items. Be specific as possible.

PART 1 GENERAL

1.1 SCOPE: SECTION 20 05 00 - COMMON WORK RESULTS

- A. This Section covers general mechanical requirements for Work covered under Divisions 20, 23 and 33.
- B. All Work and services specifically covered under this Division is supplementary to that covered under other Divisions of these Contract Documents. The requirements of this Division which are more stringent than that covered under other parts of these Contract Documents apply to Work covered under this Division.
- C. All incidental Work required but not specified under this Division shall comply with the Division in which it is specified.
- D. Review the Drawings and Specifications of all other Divisions for additional Work under Division 20.

1.2 GENERAL REQUIREMENTS

- A. Provide the Owner with complete, coordinated, operating, tested, and adjusted mechanical systems.
- B. Place all equipment in operation and instruct the Owner's maintenance personnel as to the proper operation and periodic maintenance new mechanical equipment and systems.
- C. The Drawings are somewhat diagrammatic and do not attempt to show all offsets or fittings required for installation of the mechanical system. Furnish and install pipes with fittings required for complete and proper installation of mechanical systems specified or required under this Division.
- D. Provide piping, equipment, and accessories indicated on the Drawings unless it is specifically indicated that the piping, equipment, or accessory is existing.
- E. Install piping, and equipment in accordance with manufacturer's recommendations, with accessories recommended by the manufacturer for service intended, and with accessories indicated. Should recommendations conflict with Contract Documents, contact Owner for clarification before proceeding.
- F. Coordinate the installation of the mechanical systems with the Work of other trades and existing conditions. Route mechanical systems as required to avoid interference with the Work of other trades and existing conditions.

- G. Provide access to underground pipe fittings requiring access for periodic maintenance, inspection, replacement, or adjustment. Furnish manholes of the proper type and size for the application.
- H. Do not scale the Mechanical Drawings. Verify dimensions as construction progresses.
- I. Field verify in regard to wall thicknesses, dimensions and other details of the building construction.
- J. Report any errors, discrepancies, or ambiguities to the Owner, who will answer all questions and interpret intended meaning of these Contract Documents. Accept Owner's interpretation as final.
- K. Perform Work in a neat and workmanlike manner with skilled craftsmen specializing in said Work.
- L. Provide new equipment and materials direct from the manufacturer unless specifically indicated otherwise. Remanufactured equipment and materials are specifically not acceptable.
- M. Provide the product of only one manufacturer for each item or type of item provided in quantity.
- N. Where the selection of materials or methods is left to the discretion of the Contractor, faithfully pursue the use of the best available materials or methods suitable for the purpose intended.

### 1.3 LOCAL CONDITIONS

- A. Bidders shall familiarize themselves with the Contract Documents and existing conditions which affect Work required by the Contract Documents. It will be assumed that bidders have made a personal examination of the jobsite and existing conditions.
- B. Failure to visit the jobsite will in no way relieve the successful bidder from the necessity of furnishing any materials or performing any Work that may be required to complete the Work in accordance with the Contract Documents with no additional cost to the Owner.

### 1.4 PERMITS, TESTING, AND INSPECTIONS

- A. Apply, obtain, pay for, and comply with the requirements of all permits, fees and inspections by public authorities required for the Work covered under this Division of the Specifications.
- B. Transmit copies of permit applications, permits received, and public authority inspection reports to the Owner.



- C. Test mechanical systems in accordance with the most restrictive procedures as defined under applicable codes or as specified elsewhere under this Division.
  - 1. Provide a minimum of three working days' notice to Owner and public authorities prior to performance of test.
  - 2. If less than required notice is given, the Owner may require the Contractor to repeat the test at no additional cost to the Owner.
  - 3. Test Work prior to concealing. If less than required notice is given prior to concealing, the Owner may require the Contractor to uncover such Work for inspection and recover same at no additional cost to the Owner.
  - 4. Submit certificate of compliance for all tests indicating system tested, results of tests, witnesses, and dates prior to calling for Substantial Completion and final inspections.
  - 5. During testing, isolate piping system equipment and accessories that are not rated to withstand test pressures or perform test prior to connection of such equipment and accessories to the piping system.
- D. Substantial Completion and Final Inspections:
  - 1. Provide minimum of 14 calendar days' notice to Owner and public authorities of intent to have Work ready for inspection. Confirm that Work will be ready for inspection a minimum of 3 working days' notice prior to requested inspection.
  - 2. Prior to inspection:
    - a. Deliver to the Owner required equipment, Drawings, and records.
    - b. Clean equipment and remove manufacturer's stickers and leave free of dust and dirt.
    - c. Remove boxes, scrap, and other debris.
    - d. Touch up holidays or damaged painted surfaces.
    - e. Contractor's Mechanical Administrator, licensed by the State of Alaska, shall review mechanical systems installation for conformance with Contract Documents. With request for inspection, Contractor's Mechanical Administrator shall verify in writing that this review has been performed and note anything not conforming to Contract Documents.
    - f. With request for re-inspection of Work previously inspected, provide the Owner's previous inspection's deficiency list accompanied by an item by item statement of measures taken to correct the previously listed deficiencies.

- g. Deliver to Owner personnel all special tools and devices furnished by the manufacturer with items, specialties, or equipment to allow installation, disassembly, adjustment, repair or maintenance. Identify special tools or devices as to item to which it is applicable.
  - h. Provide mechanical receivables that the Owner is to receive upon completion of the Project. Turn over an inventory list of materials provided for the Owner's use to the Owner prior to scheduling substantial completion and final inspections.
  - i. Deliver to the Owner a Certificate of Instruction signed by all Owner personnel receiving instruction, all Contractor personnel providing instruction, and indicating dates of instruction.
- 3. During inspection:
  - a. Provide complete and up-to-date set of current record drawings for use during inspection.
  - b. Demonstrate that the mechanical system performs in accordance with the Contract Documents. Provide material and personnel required to perform the demonstration.
  - c. Provide assistance to inspection personnel required for a complete and thorough inspection.

#### 1.5 CODES, ORDINANCES, AND STANDARDS

- A. Federal, State, and local Codes and Ordinances take precedence over these Specifications and Drawings where conflicts occur unless the Drawings or Specifications call for more stringent requirements. Notify the Owner in writing of conflicts.
- B. Follow latest adopted editions of Code of Federal Regulations, Alaska Administrative Code, International Mechanical Code, Uniform Plumbing Code, International Fire Code, National Electrical Code, NFPA, ASME, NEMA, etc. as applicable.
- C. Comply with all applicable laws, building and construction codes, OSHA Safety and Health Regulations and applicable requirements of any governmental agency under whose jurisdiction this Work is being performed.

#### 1.6 TEMPORARY HEAT & VENTILATION

- A. During construction and until the Work is accepted as substantially complete by the Owner, provide such temporary equipment, piping, fuel oil storage, fuel oil, wiring, power, vents, and related items as necessary to maintain heating and domestic hot water operation.

1. Provide temporary equipment of to maintain the associated facilities temperature requirements a minimum temperature of 70 degrees F, within associated buildings.
2. Provide temporary equipment of to maintain the associated facilities domestic hot water (DHW) requirements within associated buildings.
  - a. Maintain service DHW temperature of 120 +/- 15°. System outages will be scheduled outside of typical morning and evening usage 'DHW system shall be in working order daily, until 9am, and will be put back in service daily, no later than 4:30pm as practicable. The Owner may approve requests for outage during these times, in writing, if determined, at the sole discretion of AHFC, to be in the best interests of the project, property, and program.
3. Maximum Fuel consumption rates associated with each Building:
  - a. Building A #1 15 gallons fuel oil per day
  - b. Building A #2 15 gallons fuel oil per day
  - c. Building B 15 gallons fuel oil per day
  - d. Building C 15 gallons fuel oil per day
  - e. Building D 20 gallons fuel oil per day
  - f. Community Center 6 gallons fuel oil per day
- B. The system or parts of the system shall be complete in all respects prior to consideration of use.
- C. The Contractor retains responsibility for all damage or harm to facilities that might result from use of temporary heating equipment.
- D. Electric heaters are not permitted.
- E. Fuel containers not associated with the final fuel tank installation shall be removed from the site.

#### 1.7 MECHANICAL COMPLIANCE RECORD

- A. Record the performance of all tests, cleaning, and flushing of mechanical systems required under this Division.
- B. Include date, time and time interval, test results, brief description of method of tests, and witnesses.

- C. Submit this record to the Owner prior to scheduling Substantial Completion and final inspections.

#### 1.8 INSTRUCTION OF OWNER'S PERSONNEL

- A. Instruct designated Owner personnel in the proper operation, periodic maintenance and lubrication of the project's mechanical systems, equipment and accessories utilizing an accepted Operations and Maintenance Manual.
- B. As instructors, include journeymen plumbers, pipe fitters, and workers, electricians, control technicians, each fully knowledgeable of the project's mechanical systems and equipment.
- C. Instruct only those Owner personnel specifically designated by the Owner. Instruction of other Owner personnel will not meet the requirements of this Section.
- D. Include system operations; periodic maintenance including locations and techniques; including materials, methods and locations; location of concealed valves, instruments, location of electrical breakers and disconnects associated with mechanical equipment; and location of control items.
- E. Include a thorough orientation of the fuel system monitoring controls accompanied by a demonstration of the interrelationships of all control devices including sensors, relays, controllers, operators, etc. Locate monitoring equipment shown in the Drawings and demonstrate full operation of monitoring devices and systems.
- F. Instruct Owner personnel for a minimum of two (2) hours plus that required by other sections of this Division of the Specifications.
- G. Schedule the instruction period in the same manner as for system tests. The Contractor is obligated to only one instruction period. The instruction period may be divided into more than one period with the concurrence of the Owner.

#### 1.9 RECORD DOCUMENTS

- A. When submitting record documents required by Section 01700 "Project Closeout," also submit reproducible As-built Drawings of Contractor designed systems.
- B. Add the following to the list of items required by Section 01700 "General Requirements" that be legibly marked on Contract Drawings:
  - 1. Changes made to equipment identification assignments, replacing Contract Document assigned equipment designations, at each location that designation occurs.

1.10 MECHANICAL WORK IN EXISTING FACILITIES

- A. Carefully lay out Work in advance.
- B. Verify existing conditions affecting Work, including existing sizes and materials indicated, prior to beginning Work or ordering materials that are affected by existing conditions. Beginning of Work means acceptance of existing conditions. Match existing products and Work unless otherwise noted. Notify Owner of conflicts in writing.
- C. Verify locations and elevations of utilities that are crossed or connected to prior to installation of new Work.
- D. When portions of existing mechanical, electrical, structural, etc. conditions are shown, it is not meant to indicate that all of such systems are shown.
- E. Where cutting, channeling, chasing, or drilling of floors, walls, partitions, exterior overhangs or other surfaces is necessary for the proper installation, support or anchorage of the mechanical equipment or piping, carefully perform this Work and patch to match existing conditions.
- F. Repair any damage to building, piping, or equipment with skilled mechanics of the appropriate trade.
- G. Coordinate connection of new services to existing building systems, including required systems shut downs, with the Owner. Limit required shut down periods to a minimum. Restore existing systems to full operational condition.
- H. Cut, move, or remove existing items as necessary for installation of new Work and restore and replace at completion.
- I. Remove from site removed materials unless otherwise indicated that the material is to be salvaged for the Owner.
- J. Remove, cut, and patch in a manner to minimize damage and to provide means of restoring items to original conditions.
- K. Replace existing mechanical insulation that is removed to accomplish Work with new insulation matching existing.
- L. Remove fuel oil piping connected to or serving equipment being removed and other fuel tank monitoring equipment conduit being removed, back to its main or connection to a still active branch and cap. Remove associated hangers and supports. If such piping or conduit is connected to mains or still active branches in areas that are not accessible or that are not being made accessible, then remove piping into area of non-accessibility and cap. Patch, to match existing, openings in walls, ceilings, or floors left or created as a result of piping removal.

1.11 EXPOSED PIPING, EQUIPMENT, AND ACCESSORIES

- A. Exposed piping, equipment, and accessories shall be routed, supported, and coordinated to provide a neat, clean architectural appearance.
- B. Fabricate and install exposed piping, equipment, and accessories so that finished product exhibits a quality, craftsmanship, and appearance aesthetically acceptable to the Owner and suitable for final finishing.

1.12 ASBESTOS FREE MECHANICAL SYSTEMS

- A. Provide mechanical systems that do not contain asbestos or asbestos-containing materials.

1.13 PROJECT COMPLETION DOCUMENTATION AND MATERIAL TURN OVER

- A. See individual specification sections for required project completion documentation, and required maintenance or spare parts to be turned over to the Owner, including the following:
  - 1. Record documents and reports:
    - a. Record documents – Section 20 05 00 “Common Work Results.”
    - b. Conformed O&M manuals – Section 20 01 00 “Operation and Maintenance for Mechanical.”
    - c. Test performance records for cleaning and flushing of mechanical systems – Section 20 05 00 “Common Work Results.”
  - 2. Training completion record:
    - a. Mechanical instructions training completion record – Section 20 05 00 “Common Work Results.”
    - b. Mechanical access manholes and marker familiarization training completion record – Section 20 05 00 “Common Work Results.”

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 20 05 11 - COMMON SUBMITTAL REQUIREMENTS FOR MECHANICAL

- A. This Section covers required mechanical equipment review submittals of material, equipment, items, and accessories covered under this Division for review by the Owner to determine conformance with the Project design concepts and Contract documents prior to commencement of Work under this Division.

PART 2 PRODUCTS

2.1 FORM

- A. Submittal information is required for all material and equipment specified or indicated on the Drawings.
- B. Identify each item of the submittal with an item number.
- C. Precede each item with a completed Item Data Sheet. See required format attached to the end of this Specification Section.
- D. Material submitted shall indicate the specific item(s) proposed for this Project. Delete or cross out all other items.
- E. Submit the mechanical equipment review submittal in a single volume. Division of the submittal into separate volumes is not permitted.
- F. Include application schedule as indicated in submittal requirements, example schedule format attached indicating "Application Schedule."
- G. With each resubmittal include a complete summary of all changes and additions made to the equipment review submittal since the previous submittal. Only those items included in the summary will be reviewed with the resubmitted package.
- H. Do not submit "updates" for previous submittal packages with resubmittals. Previous submittals will not be updated.

## 2.2 DATA

- A. Include the following data for each item as applicable:
  - 1. Manufacturer and model number.
  - 2. Drawing equipment number.
  - 3. Catalog literature.
  - 4. Operating characteristics including capacity data, performance curves, flow rates, pressure drops, etc.
  - 5. Dimensions and connection sizes.
  - 6. Installation and adjustment instructions, requirements, and recommendations.
  - 7. Warranty data.
- B. A list of minimum submittals required is provided in each Section. These lists are not necessarily complete or all-inclusive and the Contractor is responsible for complete submittal.

## PART 3 EXECUTION

### 3.1 REQUIRED COPIES AND TIMING

- A. Submit one electronic copy (PDF format) of the Mechanical Equipment Review Submittal or resubmittal for review and acceptance by the Owner. Electronically Index (Bookmark) each section and item within the electronic submittal.
- B. Materials submitted shall be reviewed and accepted by the Owner before Contractor releases material for fabrication or shipment.

END OF SECTION

ATTACHMENT: ITEM DATA SHEET

ATTACHMENT: APPLICATIONS SCHEDULE



ITEM DATA SHEET

1. Item number:
2. Item name/Drawing equipment number:
3. Specification section/Drawing number:
4. Manufacturer/model number:
5. Use and location: (1)
6. Spare parts source:
7. Providers of warranty service:
8. Proposed deviations from the Contract Documents: (2)
9. Other Contractor comments:
10. Contractor Certification: (2)

The undersigned Contractor Representative certifies that he has reviewed the attached information and has determined that the proposed material complies with the requirements of the Contract Documents; he has coordinated installation of the material with the work of other trades and existing conditions; he has determined and verified field measurements, field construction criteria, manufacturer's installation requirements affecting the proposed material; and has notified the Owner of conflicts.

---

Contractor Representative's Signature

- (1) If this section is left blank it will be assumed that proposed equipment is exactly as specified and indicated on the Drawings.
- (2) The Contractor referenced here is the General Contractor for the project. The signature of a subcontractor representative is not acceptable.

APPLICATION SCHEDULE (EXAMPLE)

APPLICATION	PRODUCT	MATERIAL	SIZE

Contractor Comments:

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 20 05 53 - IDENTIFICATION FOR MECHANICAL

- A. This Section covers the identification of mechanical systems and components.

### 1.2 SUBMITTALS

- A. Manufacturer's Data:
1. Catalog Cuts and selections for identification products and accessory items.

## PART 2 PRODUCTS

### 2.1 PIPE MARKERS

- A. Pressure-sensitive identification markers banded in place with color-coded tape incorporating direction of flow arrows similar to "Opti-Code" markers and "Arrows On a Roll". Seton Name Plate Corp., Brady, Brimar, or AHFC approved equal. Painted stencil markers are not acceptable.

- B. Provide markers of length and with letter size indicated below. Diameter listed is outer diameter of insulation if piping is insulated.

Nominal <u>Diameter</u>	Marker <u>Length</u>	Letter <u>Height</u>
3/4 to 1-1/4 inch	8 inches	1/2-inch

Provide marker with appropriately color-coded background and with a clearly printed legend to identify the contents of the pipe in conformance with the "Scheme for the Identification of Piping Systems" (ANSI A13.1).

### 2.2 EQUIPMENT LABELS

- A. Minimum 1-inch high by 1/16-inch thick, black, laminated plastic with white core. "Setonply" by Seton Nameplate Corp., Craftmark, Brimar, or AHFC approved equal.
- B. Engraved with 3/8-inch high characters identifying the item or equipment by symbol and description indicated on the Drawings.

### 2.3 BURIED UTILITY LINE MARKERS

- A. Six inches wide, bright color facing, labeled as appropriate for utility marked. Seton Nameplate Corp. Brimar, Emedco or AHFC approved equal.
- B. Provide six inches wide metalized foil core markers for non-metallic buried utilities. Seton Nameplate Corp Detection Tape, Brimar, Emedco, or AHFC approved equal.

## PART 3 EXECUTION

### 3.1 GENERAL INSTALLATION

- A. Identify new piping and equipment in the facility whether concealed within accessible spaces or exposed.
- B. Locate identification so that it is readable by a person standing on the floor for exposed items or at point of access for concealed items.

### 3.2 PIPING

- A. Provide identification at both sides of partitions and floors, at all branch takeoffs, at connections to equipment and at intermediate intervals not in excess of 50 feet.
- B. Secure pipe pressure-sensitive vinyl markers in place with pressure-sensitive tape incorporating direction of flow arrows on both ends of label. At each end make two complete wraps around the pipe with tape so that tape is wrapped back on itself to assure attachment.

### 3.3 BURIED UTILITY LINE MARKERS

- A. Install full length of utility at a depth of one foot above fuel oil line.

### 3.4 EQUIPMENT

- A. Identify equipment, i.e., tanks, with equipment labels mounted in readily accessible and readable location.
- B. Mechanically secure labels with a minimum of two screws, bolts, or rivets. Adhesive backing does not provide secure mounting.

3.5 PIPING LABELING

- A. Label piping in accordance with ASME A13.1 requirements as specified by the following schedule.

<u>SERVICE</u>	<u>MARKER LABEL</u>	<u>LABEL/LETTER COLOR</u>	<u>BAND COLOR</u>
Fuel:			
Fuel Oil Supply	Fuel Oil Supply	Yellow/Black	
Fuel Oil Fill	Fuel Oil Fill	Yellow/Black	
Fuel Oil Vent	Vent	Yellow/Black	White

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 23 11 13 - FACILITY FUEL OIL PIPING

- A. This Section covers the selection, installation, and testing of fuel oil piping and accessories serving oil-fired equipment.

### 1.2 SUBMITTALS

- A. Manufacturer's Data, Catalog cuts of above ground pipe and fittings are not required.
  - 1. Catalog cuts and selections of equipment and accessory items.
- B. Application Schedule: Submit a schedule of piping and fittings listing the application, product, material, and size proposed for each application.

## PART 2 PRODUCTS

### 2.1 PIPING AND FITTINGS

- A. Buried piping:
  - 1. Shall be as listed below or approved equivalent alternative. Where alternative is desired, AHFC shall have sole discretion in determining equivalency for acceptance.
  - 2. Flexible, multi-layered fuel oil piping, with fluoropolymer (PVDF) primary and secondary piping, with protective outer layer. Vacuum testable interstitial. OPW Flexworks, Franklin fueling, EBW, or AHFC approved equal.
  - 3. Stainless steel, double-Wall pipe swivel couplings, with double O-rings, and permanent testing access to interstitial space with bolt-on connections, Flexworks SBC, Franklin Fueling, EBW, or AHFC approved equal.
  - 4. Dual Layer Access pipe, 4 inch and 6 inch diameter corrugated flexible pipe conduit that accommodates double walled carrier piping up to 3 inches. OPW Flexworks AXP, Franklin Fueling, EBW, or AHFC approved equal.
  - 5. Watertight transition assembly for use with Flexworks fuel oil piping and AXP access piping, Flexworks PTA-4175, Franklin Fueling, EBW, or AHFC approved equal.

- B. Above ground piping:
  - 1. Piping exposed to damage or supported from pipe hangers: IPS schedule 40 black steel. Steel fittings with socket welded joints or malleable iron or steel fittings with screwed joints at swing joints.
  - 2. Protected piping 7/8-inch OD (3/4-inch nominal) and smaller: Type L soft copper. Flare fittings above ground.
  - 3. Ground joints unions.
- C. Pipe dope for threaded fittings: Lead-free, non-hardening. Listed by the manufacturer as suitable for proposed use. Rated for exposure to temperatures ranging from minus 90 degrees F to 410 degrees F and to pressures up to 12,000 psig, Oatey Hercules grrip/grrip lite, Gasoila Soft-Set, Locktight PST B, or AHFC approved equal.

## 2.2 FILTERS

- A. Wool felt or porous stone media with minimum 10 microns discrimination. General or equal.
- B. Rated for minimum 25 GPH flow rate.
- C. UL listed for application.

## 2.3 PIPING ACCESSORIES

- A. Ball valve:
  - 1. Class 150, threaded, floating ball, regular port, packing replaceable without removing valve from pipeline, plastic grip handle indicating valve position, lockable. Morrison 691, Milwaukee Valve, Sharpe Series 5303 or AHFC approved equal.
  - 2. Stainless steel body and tailpiece.
  - 3. TFE seat and tailpiece gasket.
  - 4. Chrome plated carbon steel ball, stem, and compression ring.
- B. Anti-siphon valve with 304/316 Stainless Steel Body and integrated 25psi relief. Normally closed with factory preset 0-5ft pressure range that may be installed in horizontal or vertical position, Morrison Brothers 912 Series, EBW, Frankin Fueling, or Equal.
- C. Flexible Connectors: Corrugated hose and single braid fabricated from series 300 stainless steel. Swagelock FL, Flexonics series 400M, or AHFC approved equal.

- D. Foot Valve: poppet foot valve with 304 Stainless steel body with opening pressure less than 1psi, and -40F to 300F working temperature. Provide with 20 mesh 304 stainless steel inlet screen. Morrison Bros. Co. 934, EBW, Franklin Feling, or AHFC approved equal.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Connect fuel oil supply piping to oil-fired equipment and tanks, and install all accessories as indicated and in accordance with manufacturer's recommendations.
  - 1. Install above grade fuel oil supply pipe fittings within secure fence and accessible location.
  - 2. Install buried fuel oil supply piping within Dual Layer Access pipe, that accommodates double walled carrier piping.
  - 3. Install buried vent piping within Dual Layer Access pipe, that accommodates double walled carrier piping.
  - 4. Install watertight transition assembly at dual layer access pipe termination at flexible/hard pipe transitions.
- B. Make all tank connections with swing joints.
- C. Pitch all piping back to tank for drainage unless otherwise indicated.
- D. Seal all project generated penetrations at building with flexible sealant. Sealants shall be chosen based on anticipated differential movement, where such movement will not cause failure of the sealant.
- E. Where non-project generated penetrations are discovered and have, appear to have, or may potentially have an adverse effect on the building, systems, and/or occupants, photo document and report to the owner within 2 hours where a life-safety issue is present, and within 48 hours for all other discoveries. Report shall be made electronically to the Contract Administrator, where a life safety issue is present, a phone call will also be required within 2 hours. Maybe a sole statement about reporting findings in lieu of just here.

### 3.2 TESTING

- A. Test fuel oil piping with air at 5 psi. Demonstrate bubble tightness of joints using soap and water solution.

END OF SECTION



PART 1 GENERAL

1.1 SCOPE: SECTION 23 13 23 - FACILITY ABOVEGROUND FUEL OIL STORAGE TANKS

- A. This Section covers the selection, installation, and testing of above ground fuel storage tanks, associated tank fittings, and accessories.

1.2 QUALITY ASSURANCE

- A. The fuel oil storage system shall be furnished and installed by a mechanical contractor who is regularly engaged in the installation of fuel oil storage tanks and equipment in Alaska. The mechanical shall maintain an Office in Alaska with parts and maintenance personnel to ensure prompt response (24 hour maximum) to an emergency call during the guarantee period.
- B. The mechanical contractor shall be able to demonstrate that he has had experience installing fuel oil storage systems of comparable type and size to that called for in these Specifications.
- C. The control contractor, if other than the manufacturer, shall hold a manufacturer's franchise or license to design and install control systems for that manufacturer.
- D. Within 2 weeks after award of contract, submit to the Owner the following items for Contractor qualification:
  - 1. Proof of Alaskan Office, with full time service staff.
  - 2. List of Alaskan buildings with names, addresses, and phone numbers of Owners which are representative of fuel oil storage systems that have been installed by the mechanical contractor. Include a brief description and approximate control system construction cost of each system submitted.

1.3 SUBMITTALS

- A. Manufacturer's Data, catalog cuts for tank piping and fittings are not required.
  - 1. Catalog cuts and selections for tank components and accessories.
- B. Shop Drawings: Provide shop drawing for above ground fuel storage tank(s) indicating layout, dimensions, construction details, materials, accessories, and installation details.
  - 1. Include: Seismic calculations for tank support and connections with respect to seismic requirements in accordance with ASCE 7-5 and API requirements.

## PART 2 PRODUCTS

### 2.1 TANK FITTINGS

- A. Tank nipples, fill caps, pump outs, etc.: Schedule 40, A53, threaded, black steel pipe and fittings.
- B. Tank nipples connected to tank openings located below tank centerline: Schedule 80, A53, black steel.
- C. Pipe dope for threaded fittings: Lead-free, non-hardening. Listed by the manufacturer as suitable for proposed use. Rated for exposure to temperatures ranging from minus 90 degrees F to 410 degrees F and to pressures up to 10,000 psig. Hercules grrip/grrip lite, Gasoila Soft-Set, Locktight PST, or AHFC approved equal.
- D. Gasket material for flanges: Compatible with diesel fuel and minus 50 degrees F ambient temperatures. Durabla Duralon 8400, OPW, EBW, or AHFC approved equal.

### 2.2 ABOVEGROUND DOUBLE WALL STORAGE TANKS

- A. Rectangle / Cube Tank with steel primary storage tank surrounded steel outer tank and supported by welded steel supports. Entire assembly UL-142 labeled and constructed to meet seismic zone 4 requirements. Greer Steel Cube Tank – Double Wall, Anchorage Tank, or AHFC approved equal.
- B. Factory fabricated with all openings required and indicated.
- C. Complete with steel striker plates under the fill/gauging openings.
- D. Provide with 80-inch aluminum primary vent standpipe.
- E. Coordinate with manufacturer to provide integral Unistrut support connection points on tank as required for tank mounted piping, conduit, and equipment. Field modification of factory fabricated tank is not allowed.
- F. Gasket material for flanges: Compatible with fuel oil indicated and minus 50 degrees F ambient temperatures.
- G. Tank openings to match required piping configuration.
- H. Provide channel strut piping supports as required to meet piping installation requirements.
- I. Provide with 30 year warranty.

## 2.3 TANK ACCESSORIES

- A. Primary Tank Vent: Combination Vent/Overfill Alarm, fully mechanical with high intensity audible alarm, 2-inch full port pressure vacuum vent, 6oz/in<sup>2</sup> relief setting. Provide with cable adjustment tool, Morrison Bros. 922, Clay & Bailey, OPW or AHFC approved equal.
- B. Spill Container: 5 gallon minimum volume with drain back, steel, secondary containment basin with chain secured lid and drain to fill pipe. Greer Tank Fuel-Gard, Morrison Bros., Pomeco/OPW or AHFC approved equal.
- C. Emergency Vent: Cast iron construction. Releases at approximately 8oz pressure. Equipped with fire screen. O-ring gasketed between cover and base, Morrison 244, Clay & Bailey, OPW, or AHFC approved equal.
- D. Level Gauge with Alarm: Top mounted, side reading clock gauge with alarm. Aluminum body, stainless steel float, nylon coated stainless steel cable, vapor tight construction, 360 degree swivel body, high level decal. Provide with Drop Tube, Morrison Bros. 918, EBW, OPW, or AHFC approved equal.
- E. Fill Limiter: Two-inch pipe size. For use with fill nozzle equipped with female Camloc fitting adapter. Single stage automatic shut-off, complete with drop tube. Cast aluminum valve body, stainless steel cam, and bronze sintered bearing, and cylindrical float. Two psig pressure drop at 90 gpm fill rate. Installs through 4-inch tank opening. Complete with Camloc adapter for male tank inlet spout adaptor and dust cap. Morrison Bros. 9095AA, OPW, EBW, or AHFC approved equal.
- F. Fill Pipe Dust Cap: watertight cap, brass body with cast iron lid, gasket, lockable. OPW, Morrison Bros. Camlock, or AHFC approved equal.
- G. Leak detector, mechanically operated interstitial leak monitor, aluminum body with aluminum guard with red indicator in glass enclosure. Provide with stainless steel float, 2-inch threaded NPT, Morrison Bros. 724, OPW, EBW or equal.
- H. Vent stand pipe, 2-inch x 80-inch sched 40 threaded both ends, Greet Steel, Anchorage Tank, or AHFC approved equal

## 2.4 PAINTING AND LABELING

- A. Exterior surfaces sandblasted, primed with one coat of red iron oxide primer, and shop painted with one coat Aliphatic Acrylic Urethane two-component urethane paint, color shall be white.
- B. Apply on adhesive backed vinyl with moisture, abrasion, UV, and chemical resistant laminate layer, warnings and marking in accordance UL and STI compliance labeling.
- C. Provide tank labeling on indicating fuel type "HEATING OIL" and volume of tank.

D. Warning Labels indicating the following:

1. "NO SMOKING COMBUSTIBLE"

## 2.5 LOCKS

- A. Brass body, cylinder key with corrosion resistant hardened steel shackle designed for exterior service, Best or Master. Lock should be SFIC (Best Core) compatible and delivered to University of Alaska Lock-shop for keying prior to installation.
- B. Attached to locked item with 8-inch free length stainless steel bead chain.
- C. All tank fill valves and accessories at each site shall have identical keying.

## PART 3 EXECUTION

### 3.1 ABOVE GROUND TANKS, ASSOCIATED PIPING, AND ACCESSORIES

- A. Paint pipe, fittings, and tank accessories to match tank.
- B. Install spill container so that top of fill pipe is within two inches of top of containment basin.
- C. Manufacturer shall install overfill valve, overspill container, emergency vents, clock gauge with alarm, and camlock hardware. Provide Camlock adapter and pipe dust cap on overfill valve.
- D. Shop cut combination vent/alarm tubing to manufacture required length based on tank volume and size, set 90% full level with cable adjustment tool.
- E. Install fuel oil piping on coordinated piping supports.
- F. Adjust manufacturer installed clock fuel level gauge and alarm.

### 3.2 TESTING

- A. Test tank piping with air at 5 psig pressure for one (1) hour without noticeable pressure drop or air leaks. Demonstrate bubble tightness of pipe joints using soap and water solution.

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 31 20 00 - EARTH MOVING

- A. Provide all site preparation, excavating, filling, compacting, and related items of work required to complete the earthwork as indicated on the Drawings and as specified herein.
- B. Remove from site and legally dispose of all excavated materials that are not suitable for reuse as fill. Disposal site as selected by Contractor.

### 1.2 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
- B. Excavation: Removal of material of whatever character encountered above subgrade elevations and to lines and dimensions indicated.
- C. Fill: Soil materials used to raise existing grades.
- D. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- E. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

### 1.3 INFORMATIONAL SUBMITTALS

- A. Submit copies of all ASTM D-2922 compaction test results within 24 hours of the performance of the test.
- B. Copies of permits required for activities associated with excavation, dewatering, or backfill.

### 1.4 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: Employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing. Agency shall be under the direct supervision of an engineer registered to practice in Alaska.

## 1.5 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.
- C. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures are in place.

## PART 2 PRODUCTS

### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter and is compactable under the provisions of SSHC 203-3.04 and 203-3.05.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

- 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- 2. Structural Fill: Material meeting the following gradation:

<u>Size</u>	<u>% Passing</u>
4"	100
No. 4 Mesh	30-60
No. 200 Mesh	0-5

- D. Bedding Material: Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

## 2.2 BORROW SOURCE

- A. Use materials from excavation where qualified. Additional materials to come from source of Contractor's choosing. All borrow materials shall be approved by the Owner.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Removal of trees, bushes, and landscaping features is not anticipated. Where identified as necessary by the contractor, not less than 10 business days shall be afforded to AHFC to determine course of action prior to the scheduled removal, modification, or other manipulation of existing flora. Where prior approval is not sought and received, contractor shall be responsible for replacement to the owner's satisfaction.
- D. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

### 3.2 EXCAVATION, GENERAL

- A. General:
  - 1. Depth and extent of excavation shall be in conformance with Contract Drawings and Specifications and shall be sufficient for placement of structural fill, bedding or other specified backfill beneath curbs, sidewalks, paved areas, utilities, foundations, slabs, and other structures at elevations shown on Drawings.
  - 2. No excavation is authorized below indicated depths unless so required in writing by Owner to obtain suitable bearing materials or to remove objectionable debris.

3. Unauthorized over-excavation beyond limits set by Drawings and/or Specifications shall be replaced with structural fill materials as specified elsewhere in this Section. Backfill and compaction of unauthorized over-excavation shall be at Contractor's expense.
  4. Organic and frozen material encountered below required excavation limits shall be removed and replaced with structural fill. Obtain written approval from Owner prior to accomplishing work below required excavation limits.
  5. Additional authorized excavation below elevations or outside lines as indicated on Drawings shall be paid for as a Contract extra at applicable unit prices.
  6. Maintain guardrails and barricades to protect all open cuts. Storage of excavated materials along one side of trench or excavation shall constitute a barricade for that side.
  7. Provide adequate lights, flares, and guards as required to protect the public.
  8. Protect adjacent building foundations, utilities, road surfacing, and survey controls by careful excavation and shoring as required.
  9. Provide bridging of excavations as required to permit access to all areas of the job site by other crafts.
- B. Sheeting and Bracing:
1. Contractor is responsible for establishing excavation backslopes and protecting banks for safe working conditions and prevention of erosion.
  2. Furnish, place, and maintain such sheeting and bracing as may be required to support the sides of the trenches and excavation and prevent any movement therein which might damage or delay the work or cause injury to adjacent property, and as necessary to provide full safety for workers and the public. If, in the opinion of the Owner, any timbering is inadequate, the Owner may order additional supports which must be furnished and placed, but compliance with such orders or failure of the Owner to give them shall not release the Contractor from responsibility in respect to the adequate maintenance of trenches or excavation. If necessary to preserve a suitable grade, the trench or excavation shall be solid-sheeted with interlocking sheeting which shall be driven far enough below grade to prevent the in-flow of material from outside the trench or excavation lines. Transverse bulkheads may also be required to prevent movement along the line of the trench.



3. Unless expressly ordered by the Owner, remove all shoring materials from the trench or excavations before or during the backfilling operations. If, in the opinion of the Owner, the safety of the street, public or private utilities, or public or private property requires that any portion of the shoring materials be left in the trench, the Owner shall so order, in writing, and shall designate particularly what shoring materials be left in place. Sheeting left in the trench shall be cut off about two feet below the finished surface of the ground.

### 3.3 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### 3.4 BACKFILL

- A. General:
  1. Obtain Owner's approval of excavations prior to placement of fills.
  2. No extra payment for fill in excess of limits shown on Drawings or as specified herein without written approval of Owner.
  3. Remove all forms, trash, and debris from excavation before starting to backfill.
  4. Lifts shall be placed on level planes. Step sides and bottom of excavations if necessary to accomplish level fills.
  5. Each lift of backfill material to be carried level to all sides of excavated area. No partial fills permitted.
  6. Edges of fills shall be compacted and brought up at a maximum slope of 2:1.
  7. Do not place fill on frozen ground unless specifically authorized by the Owner. Placing of fill on frozen ground shall only be done with the prior notification and written approval of the Owner.
  8. Clean up and grade all areas disturbed by placement of backfill.
- B. Structural Fill:
  1. Maximum loose depth of each lift shall be 8 inches in areas to be compacted by machine.

2. Fill in horizontal layers shall not exceed 6 inches loose depth where hand tampers or hand operated vibratory compactors are used.
  - C. Common Fill:
    1. Use common fill for backfill as shown on the plans and for areas outside of building and paved parking areas, except where other materials are indicated on Drawings.
    2. Maximum loose lift thickness 8 inches under footings or areas to be paved.
    3. Maximum loose thickness 12 inches under area grading or landscape areas.
- 3.5 BACKFILL AT UNDERGROUND STORAGE TANKS AND PIPING
- A. Backfill of excavations resulting from removal of underground storage tanks shall be done with uncontaminated common fill from the excavation or from other sources of the Contractor's choosing.
  - B. When not specified on the Drawings, the Contractor shall choose pea gravel or sand for bedding material.
  - C. Minimum bedding thickness for piping shall be 6 inches above and below piping unless otherwise designated on the Drawings.
  - D. Bedding shall extend the full width of the trench.
  - E. Under areas to be paved, common fill shall contain no organic contamination.
  - F. Refer to Section 02056 - Removal of Underground Storage Tank and Piping for additional requirements.
- 3.6 SOIL MOISTURE CONTROL
- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
    1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
    2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### 3.7 COMPACTION OF SOIL BACKFILLS

A. General:

1. Adjust moisture content as required to accomplish proper compaction and to provide dust control when required by the Owner.
2. Compaction shall be thorough and to minimum density specified herein at all points throughout depth of fill.

B. Compaction Requirements:

<u>Soil Material</u>	<u>% of Maximum Dry Unit Weight</u>
Top 6 inches of subgrade under structural fill or bedding	95%
Structural Fill	95%
Top 6 inches of subgrade under common fill	90%
Common Fill against foundations and footings within 5 feet of foundation wall	95%
Top 18 inches of Common Fill in areas to receive topsoil	90%

### 3.8 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus, or minus 1-inch.
2. Walks: Plus, or minus 1-inch.
3. Pavements: Plus, or minus 1/2-inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2-inch when tested with a 10-foot straightedge.

### 3.9 FIELD QUALITY CONTROL

#### A. Soil Testing:

1. Soil testing shall be performed by the Contractor's approved independent geotechnical engineering testing agency (see Section 1, TESTING, AND INSPECTION SERVICE) according to the approved Quality Control (QC) plan.
2. OR Maximum dry unit weight determination shall conform with ASTM D-1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

#### B. Compaction Testing:

1. Test methods:
  - a. Field density testing shall conform with ASTM D-6938 (nuclear gauge method), ASTM D-1556, (Sand-Cone Method) or by ASTM D-2167 (Rainhart Volumeter). The ASTM D-1556 and D-2167 is applicable only to cohesive soils and silty sands and shall only be used to test densities in sand bedding, or common fill which do not contain appreciable amounts of coarse materials in excess of 1.5 inches.
  - b. The location of tests shall be at the option of the Owner. The number of tests shall be (minimum) as follows. Additional testing shall be required if, in the opinion of the Owner, the soil compaction test results indicate that the specified compaction is not being obtained:
    - 1) For other buried structures, including fuel tanks: One per lift per 2000 square feet of excavation, but in no case fewer than two tests.
    - 2) For landscape or area grading areas: One per lift per 5000 square feet.

### 3.10 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  1. Scarify or remove and replace soil material to depth as directed by Owner; reshape and recompact.

- C. Where settling occurs within one year of project completion, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### 3.11 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 32 13 13 - CONCRETE PAVING

- A. This Section covers Drawings and general provisions of the Contract, including General and Supplementary Conditions. Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

- A. Section includes concrete paving, including the following:
  - 1. Concrete equipment pads.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For the following, from manufacturer:
  - 1. Cementitious materials.
  - 2. Steel reinforcement and reinforcement accessories.
  - 3. Fiber reinforcement.
- B. Material Test Reports for each of the following:
  - 1. Aggregates.
- C. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
- B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

1.8 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Admixtures. Use only admixtures shown in the approved mix design. Do not use calcium chloride.

PART 2 PRODUCTS

2.1 CONCRETE, GENERAL

- A. Comply with SSHC 501-2.01.
- B. Acceptance of Concrete will be as described in Field Quality Control, of this specification.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615, Grade 60; deformed.
- B. Tie Bars: ASTM A 615, Grade 60 deformed.

## 2.3 CONCRETE MIX

- A. Compressive strength at 28 days: Min 5000 psi
- B. Establish strength of concrete by testing prior to beginning concreting operation. Test consists of average of three cylinders made and cured in accordance with ASTM C192 and tested in accordance with ASTM C39.
- C. Maximum slump for concrete is 4 inches tested in accordance with ASTM C143.
- D. Minimum cement content: 650 lbs/cubic yard.
- E. Max water-cement ratio: 0.40.
- F. Air content must conform with ACI 318 Table 4.4.1.
- G. Fiber reinforcement shall conform to ASTM C1116, Type III.

## PART 3 EXECUTION

### 3.1 GENERAL

- A. See SSHC 501-3.03 – 3.08.

### 3.2 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

### 3.3 COLD-WEATHER CONCRETE PLACEMENT

- A. Submit a written cold weather concreting plan when air temperatures are expected to fall below 35 degrees F during the cure period. Obtain the Engineer's approval of the plan and put it into effect before placing any concrete when the descending air temperature in the shade, away from artificial heat, falls below 40 degrees F or, in the opinion of the Engineer, will likely do so within 24 hours after concrete is placed. Have in place the materials and equipment required to heat mixing water and aggregate and to protect freshly placed concrete from freezing.



- B. Temperature of Concrete. When the air temperature falls below 40 degrees F, ensure that concrete placed in forms has a temperature between 50 degrees F and 70 degrees F. Obtain these temperatures by heating the mixing water and/or aggregate. Heat mixing water to no more than 160 degrees F.
  - 1. Do not use binned aggregates that contain ice, are frozen, or have been heated directly by gas or oil flame or on sheet metal over an open fire. When heating aggregates in bins, use steam-coil or water-coil heating. Use other methods only when approved. If using live steam to thaw frozen aggregate piles, completely drain excess moisture.
  - 2. When the temperature of the water or aggregate exceeds 100 degrees F, mix them together so that the temperature of the mix does not exceed 80 degrees F when the cement is added.
- C. Cold Weather Placement. When placing concrete in cold weather, follow these precautions in addition to the above requirements:
  - 1. Heat forms and reinforcing steel before placing concrete to remove frost, ice, and snow from surfaces that will contact fresh concrete.
  - 2. When fresh concrete will contact hardened concrete, warm the surface of the hardened concrete to at least 35 degrees F and thoroughly wet. Remove free water before placing fresh concrete.
  - 3. Protection of Concrete. When using Type I or II cement, maintain freshly placed concrete at a temperature of at least 70 degrees F for 3 days or at least 50 degrees F for 5 days. When using Type III cement, maintain concrete at a temperature of at least 70 degrees F for 2 days or at least 50 degrees F for 3 days. The above requirements do not apply when the concrete no longer is in danger of freezing or when air temperatures of 40 degrees F or higher are anticipated during the 2 weeks after concrete placement.
  - 4. Maintain the concrete temperature using methods such as insulated forms, enclosures, and indirect heat. Maintain curing moisture. Protect the structure from overheating and fire.
  - 5. At the end of the curing period, remove the protection so the concrete drops in temperature gradually and not more than 30 degrees F in the first 24 hours.
- A. Protect the concrete during cold weather operations. Remove and replace concrete injured by frost action or overheating at no cost to the Owner.

### 3.4 HOT-WEATHER CONCRETE PLACEMENT.

- A. Comply with SSHC 501-3.06.

### 3.5 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
  - 1. Elevation: 3/4-inch.
  - 2. Thickness: Plus 3/8-inch, minus 1/4-inch.
  - 3. Surface: Gap below 10-feet- long; unleveled straightedge not to exceed 1/2-inch.
  - 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2-inch per 12 inches of tie bar.
  - 5. Lateral Alignment and Spacing of Dowels: 1-inch.
  - 6. Vertical Alignment of Dowels: 1/4-inch.
  - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4-inch per 12 inches of dowel.
  - 8. Joint Spacing: 3 inches.
  - 9. Contraction Joint Depth: Plus 1/4-inch, no minus.
  - 10. Joint Width: Plus 1/8-inch, no minus.

### 3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain at least one composite sample for each 100 cubic yards (curb and gutter) or 5000 square feet (sidewalks, drives, roadways, parking lots) or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  - 3. Air Content: ASTM C 231/C 231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 degrees F and below and when it is 80 degrees F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
  - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- I. Prepare test and inspection reports.

### 3.7 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.

- B. Drill test cores, where directed by Engineer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with Portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

- A. This Section covers Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes materials applicable for commercial/industrial and security chain link fence and gates.
  - 1. Galvanized steel coated chain link fabric.
  - 2. Galvanized steel framework and fittings.
  - 3. Swing gates.
  - 4. Installation.

1.3 ACTION SUBMITALS

- A. Product Data: For each type of product
  - 1. Include construction details, material descriptions, dimensions of individual components, and finishes for the following:
    - a. Fence and gate posts, rails, and fittings.
    - b. Chain-link fabric, reinforcements, and attachments.
    - c. Gates and hardware.
    - d. Accessories: privacy slats.
- B. Shop Drawings: For each type of fence and gate assembly
  - 1. Include plans, profiles, elevations, sections, details, and attachments to other work.
  - 2. Include accessories, hardware, footings, gate operation, and operational clearances.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of chain-link fence and gate.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver products to site per contract requirements.
- B. Storage: Store and protect products off the ground when required.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.7 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to comply with performance requirements.
    - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 CHAIN LINK FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selva ge knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
  - 1. Fabric Height: As indicated on Drawings.
  - 2. Steel Wire for Fabric: 9 gauge wire, 2 in. mesh.

3. Zinc-Coated Steel Fabric:
  - a. ASTM A392 hot dipped galvanized before or after weaving.
  - b. Class 1 – 1.2 oz/ft<sup>2</sup>
4. Selvage: Twisted bottom and knuckled top.

## 2.2 FENCE FRAMEWORK

- A. Round steel pipe and rail: ASTM F1043 Group IC Table 3 Heavy Industrial Fence Framework. Exterior zinc coating Type B, interior coating Type B or Type D.
  1. Fabric Width: As indicated on drawings.
  2. End, Corner, Gate post:
    - a. 2.375 in. OD, 3.12 lb/ft
    - b. 4.000 in. OD, 6.56 lb/ft
  3. Line post:
    - a. 1.90 in. OD, 2.28 lb/ft
  4. Top and bottom rails:
    - a. 1.66 in. OD, 1.84 lb/ft

## 2.3 TENSION WIRE

- A. Metallic Coated Steel Marcellled Tension Wire: 7 gauge (0.177 in.) marcellled wire complying with ASTM A824, with the following metallic coating:
  1. Type II: Zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:
    - a. Matching chain-link fabric coating weight.

## 2.4 FITTINGS

- A. General: Comply with ASTM F626.
- B. Tension and Brace Bands: Galvanized pressed steel, minimum steel thickness of 12 gauge (0.105 in.), minimum width of 3/4 in. and minimum zinc coating of 1.20 oz/ft<sup>2</sup>.

- C. Terminal Post Caps, Line Post Loop Tops, Rail and Brace Ends, Boulevard Clamps, Rail Sleeves: Pressed steel, galvanized after fabrication having a minimum zinc coating of 1.20 oz/ft<sup>2</sup>.
- D. Truss Rod Assembly: 3/8 in. diameter steel truss rod with a pressed steel tightener, minimum zinc coating of 1.2 oz/ft<sup>2</sup>, assembly capable of withstanding a tension of 2,000 lbs.
- E. Tension Bars: Galvanized steel one-piece length 2 in. less than the fabric height. Minimum zinc coating 1.2 oz. /ft<sup>2</sup>.
  - 1. Bars for 2 in. and 1 3/4 in. mesh shall have a minimum cross section of 3/16 in. by 5/8 in.

## 2.5 TIE WIRE AND HOG RINGS

- A. Tie Wire and Hog Rings: Galvanized minimum zinc coating 1.20 oz/ft<sup>2</sup>, 9 gauge (0.148 in.) steel wire in compliance with ASTM F626.

## 2.6 SWING GATES

- A. General: Comply with ASTM F900 for gate posts as well as double and single swing gate types.
  - 1. Gate leaf width and fabric height: as indicated on drawings.
  - 2. Match gate fabric to that of the fence system.
- B. Zinc-Coated Steel: Comply with ASTM F1043 and ASTM F1083 or a combination thereof; protective coating and finish to match fence framework.
- C. Gate Frame Members:
  - 1. ASTM F1043 Group IC pipe: 1.90 in. OD, 2.28 lb/ft.
- D. Gate Frame Construction:
  - 1. Frame members spaced no greater than 8 ft. apart vertically and horizontally.
  - 2. Frame members welded at all corners or assembled with corner fittings.
  - 3. Gates assembled with corner fittings shall have adjustable truss rods minimum 3/8 in. diameter on panels 5 ft. wide or wider and be the same base material and finish as the gate frame.



4. Welded joints protected by applying zinc-rich paint in accordance with ASTM Practice A780.
- E. Gate Hardware:
  1. Positive locking gate latch:
    - a. Fabricated of 5/16 in. thick by 1-3/4 in. pressed steel galvanized after fabrication.
    - b. Operable from both sides of gate with provision for padlocking accessible from both sides of gate.
  2. Post and frame hinges: Galvanized malleable iron or heavy gauge pressed steel.
- F. Gate Posts:
  1. Round steel pipe: ASTM F1043 Group IC pipe.
    - a. 4.00 in. OD, 6.56 lb/ft

## 2.7 GROUT AND ANCHORING CEMENT

- A. Non-shrink, Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer for exterior applications.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, as well as site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
  1. Do not begin installation before final grading is completed unless otherwise permitted by Project Manager.

- B. Contractor is responsible for verification of existing property lines and easements, and shall abide by the associated requirements of the authority having jurisdiction.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Indicate locations of utilities, underground structures, benchmarks, and property monuments.

### 3.3 CHAIN-LINK FENCE INSTALLATION

- A. General: Install chain-link fencing according to ASTM F567 and more stringent requirements specified.
  - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and intervals indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
  - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete.
  - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
    - a. Exposed Concrete: Extend 2 in. above grade; shape and smooth to shed water.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F567 and terminal pull posts at changes in horizontal or vertical alignment of 30 degrees or more. For runs exceeding 500 ft., space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at maximum 10 ft. O.C.
- F. Post Bracing
  - 1. General: Install according to ASTM F567, maintaining plumb position and alignment of fence posts.

2. Truss rods: Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
3. Install bracing so posts are plumb when under proper tension.
- G. Top Rail: Install lengths of rail continuous through the line post. Splice rail using top rail sleeves minimum 6 in. long. The rail shall be secured to the terminal post by a brace band and rail end.
- H. Bottom rail: Rail shall be field cut and secured to the line posts using boulevard bands or rail ends and brace bands.
- I. Tension Wire: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120 in. diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 in. O.C. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
  1. Extended along bottom of fence fabric. Install bottom tension wire within 6 in. of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2-inch +/- 0.5-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 in. O.C.
- L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
  1. Maximum Spacing: Tie fabric to line posts at 12 in. O.C. and to braces at 24 in. O.C.
- M. Fasteners: Carriage bolts used for fittings shall be installed with the head on the secure side of the fence.

#### 3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage.

- B. Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- C. Lubricate hardware and other moving parts.

### 3.5 FIELD QUALITY CONTROL

- A. Fabric Testing: Test fabric tension according to ASTM F1916.
- B. Fence Post Rigidity Testing: Test line posts for rigidity according to ASTM F1916.

### 3.6 CLEAN UP

- A. Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 32 92 19 - SEEDING

1.2 DESCRIPTION

A. Lawns and grasses includes, but is not limited to, the following:

1. Delivering and placing topsoil.
2. Fine grading.
3. Seeding.
4. Fertilizing.
5. Maintaining grass areas during warranty period.

1.3 SCOPE OF WORK

A. Contractor shall provide all Work described in this section, described elsewhere in the Specifications, and indicated on the Drawings.

1.4 REFERENCES

A. Codes and standards referenced in this, and subsequent articles of this section shall become a part of the Specifications to the extent of their applicability to the particular product, method, assembly, or system under consideration. In case of conflict the most stringent shall govern.

1. State of Alaska, Department of Environmental Conservation concerning applications of herbicides, pesticides, and inspections.
2. State of Alaska, *Seed Regulations*, 11 AAC 34.

B. Related Requirements:

1. Section 31 20 00 "Earth Moving" for excavation, subgrade preparation, and grading.

1.5 SUBMITTALS

A. PRODUCT DATA

1. Substitutions: Submit requests for substitutions 30 days prior to planting.

B. CERTIFICATES

1. Fertilizer: Certificate, bearing manufacturers guaranteed analysis.
2. Seed Certificates: Seed certificates bearing the grower's guaranteed analysis.

C. O&M DATA

1. Maintenance Schedule: Submit 30 days prior to Substantial Completion inspection for Owner's approval. Maintenance Schedule shall indicate:
  - a. Watering schedule for grass.
  - b. Fertilization/Liming schedule: Include fertilizer proportions and application rate to be used at the time of application.

1.6 PRODUCT DELIVERY, STORAGE, HANDLING, AND REPLACEMENT

- A. Deliver seed and fertilizer in original unopened containers, each bearing manufacturers guaranteed analysis, name, trade names, and conformance with governing regulations and law.
- B. Store materials in areas protected against harmful weather until product is used.
- C. Remove unacceptable products from the job site immediately and replace with material acceptable to Owner.
- D. Obtain appropriate certification of personnel handling herbicides and pesticides.

1.7 NOTICES

- A. Notify Owner one week minimum before Owner assumes maintenance.
- B. Notify Owner 24 hours before seeding and 48 hours prior to Substantial Completion Inspection.
- C. Not less than 72 hours prior to the application of herbicides or pesticides, notify Owner and relay necessary precautions, and use restriction periods.
- D. Notices to be provided in writing.

1.8 PROJECT/SITE CONDITIONS

- A. Do no seeding when air or ground temperatures are below 40 degrees F.
- B. Topsoil shall not be spread over frozen or excessively wet ground.
- C. Ensure potable water is available prior to the beginning of any planting operations and throughout the maintenance period.
- D. Seeding Season: All seeding shall be performed between June 1 and September 7. If unable to seed during this time, planting shall be done at the start of the next growing season. Seeding shall not be done during windy conditions or when climatic or ground conditions would hinder placement or proper growth.

1.9 MAINTENANCE/WARRANTY

- A. Provide one year and one full growing season of maintenance and warranty for lawn seed areas, not to include regular groundskeeping activities such as mowing and edging. Areas which show a germination rate lower than specified or a growth rate less than other seeded areas shall be replaced. If seed is installed in the middle or end of the growing season, warranty period shall continue until the end of next year's growing season.
- B. Satisfactory stand of seeded areas shall be defined as a minimum of 300 grass plants per square foot and where no gaps larger than 2 inches in diameter occur anywhere in the lawn area.
- C. The Contractor shall arrange an inspection with the Owner on or before June 15 of the year following the date of planting. Areas of insufficient coverage due to product failure to perform shall be replanted at the Contractor's expense. Acceptance will be based upon a satisfactory stand as defined above. Contractor shall not be held responsible where lack of growth is reasonably attributable, at AHFC's sole opinion, to condition(s) or occurrence(s) outside of their control.

PART 2 PRODUCTS

2.1 TOPSOIL

- A. Friable loam free of subsoil, large roots, grass, stones, noxious weeds, debris, and other foreign materials. Sandy-silt or silty sand not acceptable. Soil mixture must contain 25-45 percent sand, 35-55 percent silt, 10-20 percent by volume of finely chopped, well mixed organic materials, be free of stones 1/2-inch or larger in any dimension and other extraneous materials harmful to plant growth, and have a maximum moisture content of 50 percent with an Acidity (pH) range between 5.5 to 7.0.

1. Topsoil may be imported from off-site sources OR existing in-place surface soil may be amended to produce topsoil.
2. Approval of material and material source by the Owner required.
3. Topsoil provided by the government may not meet the topsoil specification but may be reused with the approval of the Owner.

## 2.2 FERTILIZER

- A. Provide 17-17-17 for initial application at the time of seeding.
  1. Contractor may vary the Nitrogen, Phosphorus and Potassium ratios for subsequent applications as required to produce healthy plant growth and reduce the possibility of diseases, molds, and stress from heat and cold. Variations in fertilizer mixture must be approved by the Owner prior to application.
- B. Standard commercial types in moisture-proof containers. Each container shall be marked with the weight and the manufacturer's guaranteed analysis.
- C. Tolerances of the chemical ingredients shall be plus or minus 2 percent.
- D. No cyanamide compounds or hydrated lime will be permitted in mixed fertilizers.

## 2.3 GRASS SEED MIX

- A. Conform to the following:

Name	Proportion by Weight	Purity	Germination
Seeding – 5 lbs/1,000 sf			
“Kenai” Kentucky Bluegrass ( <i>Poa pretensis</i> “Kenai”)	50%	90%	85%
Creeping Red Fescue ( <i>Festuca rubra</i> “Arctared”)	25%	90%	85%
Perennial Ryegrass ( <i>Lolium multiflorum</i> )	25%	90%	85%



B. Conform to the following:

Name	Proportion by Weight	Purity	Germination
Seeding – 3 lbs/1,000 sf			
Nortran Tufted Hairgrass (Deschampsia caespitosa)	50%	90%	85%
Creeping Red Fescue (Festuca rubra “Arctared”)	40%	90%	85%
Perennial Ryegrass (Lolium multiflorum)	10%	90%	85%

2.4 WATER

- A. Potable.
- B. Provide equipment using on-site source or Contractor provided source.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine subgrade areas for defects that will adversely affect the work.
- B. Start of work shall mean acceptance of areas as capable of producing an acceptable job.
- C. Do not plant until plant material has been inspected and determined acceptable by the Owner at site.
- D. Immediately remove all rejected materials from job site.

3.2 WASTE DISPOSAL

- A. Dispose of unsuitable earth, debris, clippings, and unused plant materials at an approved disposal site.

3.3 SEEDING

- A. Soil Preparation: Grade to smooth even line. Place topsoil to a 6 inch lightly compacted depth. Rake the seedbed lightly. Remove debris, plant growth, and irregularities.

- B. Fertilizer: Apply 12 pounds of 17-17-17 fertilizer per 1,000 sf at the time of seeding.
- C. Application Methods: Apply grass seed mixture specified in this Section at the rate of 5 pounds per 1,000 square feet. Seed, fertilizer, and mulch material may be placed by the following methods:
  - 1. Hydraulic Method: Place a slurry made of seed, fertilizer, seeding mulch, and water. Mulch shall be added to the water slurry in the hydraulic seeder after the proportionate amounts of seed and fertilizer have been added. Slurry mixture shall be combined and applied to result in an even distribution of all materials. Hydraulic seeding equipment shall be capable of maintaining a continuous agitation so that a homogeneous mixture can be applied through a spray nozzle. The pump shall be capable of producing sufficient pressure to maintain a continuous, non-fluctuating spray capable of reaching the extremities of the seeding area with the pump unit located on the roadbed. Sufficient hose shall be provided to reach areas not practical to seed from the nozzle unit situated on the roadbed.
  - 2. Dry Method: Mechanical spreader, seed drills, landscape seeder, cultipacker seeder, fertilizer spreader, or other approved mechanical spreading equipment may be used. Fertilizer shall be spread separately at the specified rates and then incorporated in one operation to a minimum depth of 2 inches. Seeded areas shall be compacted within 24 hours from the time the seeding is completed, weather and soil conditions permitting, by cultipacker, roller or other equipment satisfactory to the Owner.
    - a. Seeding by hand is not acceptable.
- D. Watering:
  - 1. Seed shall be watered immediately upon application.
  - 2. Follow approved watering schedule.

### 3.4 MAINTENANCE/WARRANTY

- A. General:
  - 1. Begin maintenance of seeding immediately following installation.
  - 2. Inspection of the seeding shall take place during the Substantial Completion acceptance inspection for the project. Contractor shall immediately remedy punch list items and request approval. Warranty and continuing maintenance shall commence upon execution of the Certificate of Substantial Completion. No partial acceptance will be granted for Substantial Completion.

3. Scope of Maintenance: Furnish all labor, materials, equipment, supervision, traffic control, transportation and secure all necessary permits and licenses required to maintain an attractive and healthy landscape. Meet requirements of the approved maintenance schedule.
4. Work Force: The Contractor shall have on his staff, supervisory personnel experienced in landscape maintenance. The Work Force is to be experienced and familiar with maintaining plant materials in sub-arctic conditions.
5. Materials: Shall conform to bid specifications.
6. Replacement of Damaged Improvements: Repair and replace dead or damaged improvements within 14 days of written notice from the Owner at no additional cost to the Owner.

B. Warranty:

1. Upon approval of Substantial Completion, commence warranty period and provide continuing maintenance. All work and material shall be guaranteed for a period of one year and through one full growing seasons from date of preliminary acceptance.
2. Growing season is defined as that period between May 1-September 30. If the project is completed in the fall of one year, the maintenance and warranty period will be suspended September 30 and begin again May 1 until the required maintenance and warranty provisions are satisfied.
3. Owner shall have the right to periodically inspect the site during the warranty period.
4. All seeded areas which are found to be dead, or in the determination of the Owner, in an unhealthy or unsightly condition shall be reseeded subject to the approval of the Owner at no additional expense to the Owner and shall be subject to a new maintenance and warranty for the affected materials.

C. Maintenance: Seeded Areas

1. Protect seeded areas against traffic by warning signs or barricades, as approved by the Owner. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading, reseeding, and re-mulching, as directed by the Owner and the Contractor shall otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the Work.
2. Watering: Meet approved maintenance schedule. Seeded areas shall be watered at such frequency as weather conditions require, to maintain soil moisture to below root zone. When establishing turf areas, the soils shall be watered often enough to maintain a moist seedbed to aid in seed germination and a vigorous, healthy vegetative growth throughout the entire maintenance period.

3. Repair: Repair and replacement of all damaged or dead turf or seeded areas shall occur immediately or upon request of the Owner at no additional cost to the Owner.
4. Fertilization: Fertilize one month following installation with Owner approved fertilizer mix and rate.
5. Disease and Pests: An approved pesticide or insecticide shall be applied as necessary to maintain turf and seeded areas in a healthy and growing condition.
6. Cleanup: The Contractor shall keep the project site clean and free of excess equipment, materials, and rubbish incidental to his work at all times. Leave walks, paving, adjacent walls, and windows clean and free of clippings and mud spatter.

END OF SECTION

## **Submittal Register**

Printed on:  
8/27/2024

Project: Geneva Woods UST Closure & AST Installation  
Project No: 672305

Owner:  
Contractor:  
Consultant: Design Alaska, Inc.

SD-01 Preconstruction; SD-02 Shop Drawings; SD-03 Product Data; SD-04 Samples; SD-05 Design Data; SD-06 Test Report; SD-07 Certificates; SD-08 Manufacturer's Instructions; SD-09 Manufacturer's Report; SD-10 O&M Data; SD-11 Closeout; SD-12 LEED

						1=No Exception Taken; 2 = Accepted as Noted; 3 = Revise & Resubmit; 4 = Submit Specified Item; 5 = Rejected				
Item No.	Transmittal No.	Spec. Section or Drawing No.	Submittal Description	Spec. Paragraph or Drawing Detail No.	Item Description	Contractor's Scheduled Submittal Date	Actual		Status	Review Comments
							Submittal Date	Return Date		
<div> Corrections or comments do not relieve Contractor from compliance with Contract Documents. Submittals are reviewed only for general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is responsible for confirming compliance with the Contract Documents, confirming &amp; correlating all quantities &amp; dimensions, selecting fabrication processes, techniques of construction, coordinating his work with that of other trades, and existing conditions; and performing his work in a safe and satisfactory manner. </div>										
<div> <div>02 65 01</div> <div>Buried Heating Oil Tank Closure</div> <div>11.5.ASD-01Permits and Notifications</div> <div>21.4.BSD-013.1, 3.2Tank Closure Work Plan</div> </div>										
<div> <div>02 84 19</div> <div>Removal and Disposal of Contaminated Soils</div> <div>11.4.ASD-01Permits and Notifications</div> <div>21.4.BSD-013.1, 3.2Contaminated Soil Removal and Disposal Work Plan</div> </div>										
<div> <div>20 05 53</div> <div>Identification for Mechanical</div> <div>11.2.ASD-032.1.APipe Markers - Pressure Sensitive</div> <div>21.2.ASD-032.2Equipment Labels</div> <div>31.2.ASD-032.3Buried Utility Line Markers</div> </div>										
<div> <div>23 11 13</div> <div>Facility Fuel Oil Piping</div> <div>11.2.ASD-032.1.ABuried Piping</div> <div>21.2.ASD-032.1.CPipe Dope</div> <div>31.2.ASD-032.2Filters</div> <div>41.2.ASD-032.3.ABall Valve</div> <div>51.2.ASD-032.3.BAnti-Siphon Valves</div> <div>61.2.ASD-032.3.CFlexible Connectors</div> <div>71.2.ASD-032.3.DFoot Valve</div> </div>										
<div> <div>23 13 23</div> <div>Facility Aboveground Fuel Oil Storage Tanks</div> <div>11.3.ASD-032.2Aboveground Double Wall Storage Tanks</div> <div>21.3.ASD-032.3.APrimary Tank Vent</div> <div>31.3.ASD-032.3.BSpill Container</div> <div>41.3.ASD-032.3.CEmergency Vent</div> <div>51.3.ASD-032.3.DLevel Gauge with Alarm</div> <div>61.3.ASD-032.3.EFill Limiter</div> <div>71.3.ASD-032.3.FFill Pipe Dust Cap</div> <div>81.3.ASD-032.3.GLeak Detector</div> <div>91.3.ASD-032.5Locks</div> <div>101.3.BSD-02Shop Drawings: Aboveground Fuel Storage Tank</div> </div>										
<div> <div>31 20 00</div> <div>Earth Moving</div> <div>11.3.ASD-06Compaction Test Results</div> <div>21.3.BSD-01Permits Required for Excavation, Dewatering, or Backfill</div> </div>										
<div> <div>32 13 13</div> <div>Concrete Paving</div> </div>										

Reviewed By \_\_\_\_\_

Date \_\_\_\_\_

Printed on:  
8/27/2024

Project: Geneva Woods UST Closure & AST Installation  
Project No: 672305

Owner:  
Contractor:  
Consultant: Design Alaska, Inc.

SD-01 Preconstruction; SD-02 Shop Drawings; SD-03 Product Data; SD-04 Samples; SD-05 Design Data; SD-06 Test Report; SD-07 Certificates; SD-08 Manufacturer's Instructions; SD-09 Manufacturer's Report; SD-10 O&M Data; SD-11 Closeout; SD-12 LEED

						1=No Exception Taken; 2 = Accepted as Noted; 3 = Revise & Resubmit; 4 = Submit Specified Item; 5 = Rejected				
Item No.	Transmittal No.	Spec. Section or Drawing No.	Submittal Description	Spec. Paragraph or Drawing Detail No.	Item Description	Contractor's Scheduled Submittal Date	Actual		Status	Review Comments
							Submittal Date	Return Date		
1		1.4.A	SD-03	2.2	Steel Reinforcement					
2		1.4.A	SD-03	2.3	Concrete Mix					
3		1.4.B	SD-05		Design Mixtures					
4		1.5.A.1	SD-07		Cementitious Materials Certificates					
5		1.5.A.2	SD-07		Steel Reinforcement and Reinforcement Accessories Certificates					
6		1.5.A.3	SD-07		Fiber Reinforcement Certificates					
7		1.5.B.1	SD-06		Aggregate Material Test Reports					
8		1.5.C	SD-06		Field Quality-Control Reports					
32 31 13					Chain Link Fences and Gates					
1		1.3.A	SD-03	2.1	Chain-Link Fence Fabric					
2		1.3.A	SD-03	2.2	Fence Framework					
3		1.3.A	SD-03	2.3	Tension Wire					
4		1.3.A	SD-03	2.5	Tie Wire and Hog Rings					
5		1.3.A	SD-03	2.6	Swing Gates					
6		1.3.A	SD-03	2.7	Grout and Anchoring Cement					
7		1.3.B	SD-02		Shop Drawings					
8		1.4.A	SD-07		Product Certificates					
32 92 19					Seeding					
1		1.5.B.1	SD-07		Fertilizer Certificates					
2		1.5.B.2	SD-07		Seed Certificates					
3		1.5.C.1	SD-10		Maintenance Schedule					

Corrections or comments do not relieve Contractor from compliance with Contract Documents. Submittals are reviewed only for general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is responsible for confirming compliance with the Contract Documents, confirming & correlating all quantities & dimensions, selecting fabrication processes, techniques of construction, coordinating his work with that of other trades, and existing conditions; and performing his work in a safe and satisfactory manner.

**95% Design Review Comments**



## REVIEW COMMENTS

PROJECT: Geneva Woods UST Closure & AST Installation  
 LOCATION: Juneau, Alaska  
 PHASE: 95% Draft Construction Documents  
 DESCRIPTION: Document review

PROJECT NUMBER: 672305  
 PROJECT MANAGER: FJK  
 CHECKED BY:

#	Reviewer	Discipline	Sheet or Section	Detail or Para No.	Review Comments	Response / Action Taken	Response By	Reviewer Back Check
1	FJK	Gen		Est.	update estimate for 2025 bidding, August 2026 escalation	Completed	FJK	
2	FJK	CM		DWG	pickup drawing markups	Completed	FJK	
3	FJK	M		M300	Roof Patch Detail - vent piping	Provided on detail sheets	FJK	
4	FJK	C		Background	show window locations or indicate tanks and accessories shall not block windows	Showed location of windows in plans	FJK	

# Appendix

# Field Report



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<b>To:</b>	Mike Carlson	<b>Field Visit Date:</b>	22-23 Jan, 2024
<b>Date:</b>	1/24/24	<b>Field Visit Time:</b>	830 a.m. to 5 p.m.
<b>Project:</b>	Geneva Woods Tank Removal and Repl.	<b>Weather:</b>	Snowing, 27F
<b>Location:</b>	1617 Douglass Highway, Bldg. A, B, C, D, & Community Center	<b>Present at Site:</b>	Florian Kienle, Cathryn Peterson

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**Summary:** The goal of the site visit was to inspect the site and determine possible above ground fuel oil tank locations. A site map is attached with possible tank locations to be confirmed by the Owner. Considerations for tank locations included topographical feasibility, encumbrances to residence, fuel oil piping connections to existing, fuel filler access, protective fencing locations, property lines, and site utilities. A tank plan with locations is included with this field report. Basis of design tank is a 650-gallon tank, chosen for reduced clearance to buildings and property lines as allowed by the International Fire Code – 2021, Section 605.

**General:** Arrived on site in snowy conditions: 2 plus feet of snow accumulation and snowing heavily during visit. Met with Kyle Schmitz on site upon arrival. Kyle assisted with site inspection setup and made boiler rooms available for inspection. Property access was clear enough of snow to access site and boiler rooms, but sidewalks. Kyle assisted with making boiler rooms available for inspection by providing access keys and taping over locks. Tape was removed upon completion of inspection and keys were returned to Ed Hayes on 1/23/24. Ed Hayes opened crawlspace in Building C for assessment and fuel oil piping installation review. He indicated that Buildings A, C and D have lighted crawlspaces with relatively high clearance, while Building B crawlspace requires a person to crawl on hands and knees. It was also noted that the fuel oil return piping in all buildings was capped on both ends and abandoned in place (crawlspace or underground) and each boiler is served by a single pipe fuel supply system.

**Site:** Field verified topographic and as-built drawings. Located aboveground markers of utilities and site conditions that were visible. This included transformers, utility poles, hydrants, storm drains (where visible), fuel vents, and building and hardscape locations. No evident discrepancies except that a few trees have been removed, a sidewalk with stairs leads from the parking lot up the side of Building C, and the playground between buildings A and B appears to have a slight redesign, moving it closer to building B and included a fenced retaining wall. Compared existing topography to that of the topography on the topo map from 1992, noting no obvious discrepancies besides the aforementioned playground.

**Building C:** The existing underground tank is on the downhill side of the building nearest the parking lot. Took measurements from ground up to the bottom of existing windows on that side and noted heights in the 90 to 100-inch range. Bottom of windows are 36 inches above the bottom of siding, and below that, concrete block walls enclose a crawlspace, with a 24-inch by 24-inch access hatch. Eaves overhang 24 inches, and gutters direct water to downspouts that went directly into the ground (matching our site maps). Fuel oil tank vent is attached to the building wall in vicinity of tank fill. Underground fuel oil supply (FOS) piping enters the crawlspace at this location through four inch PVC conduit. FOS is 1/2-inch tubing routed on crawlspace floor to boiler room. Observed the existing system is a single pipe supply to

a tiger loop at the boiler. This was confirmed by observation of the FOS piping in the crawlspace and boiler room wall. Recorded room size, FOS pipe routing, boiler locations, and fuel oil entrance location within boiler room. Crawlspace contains CMU block wall, fire wall, running approximately east to west with a fire door through it for access to adjacent crawlspace. Ed Hayes indicated that this CMU block fire wall construction was similar in Buildings A, B, & D. This was not physically verified due to snow conditions.

Tank Location Building C: The 650-gallon Above Ground Tank (AGT) will be placed on a 4-inch slab at grade with the vent pipe attached to wall between windows and painted to match existing siding. The new FOS will be routed from the tank and supported on the buildings CMU block wall. FOS piping will penetrate through the CMU block wall and connect to the existing FOS piping above grade in the crawlspace.

**Building D:** Boiler room is on west corner of building. This is the only boiler room with 36-inch eaves (the others all have 24-inch). Existing grade on the uphill side of the building has just enough room for a sidewalk, then a steep incline to the chain link fence surrounding the property, approx. 1:1 slope. The existing tank is on the downhill side of the building nearest the parking lot. Crawlspace access is available in the vicinity of the existing buried fuel tank location. Recorded measurements to siding and windows for tank placement. Fuel oil tank vent is attached to the building wall in vicinity of tank fill. Underground FOS piping enters the crawlspace at this location through 4-inch PVC conduit. FOS is 1/2-inch tubing routed on crawlspace floor to boiler room. The existing system is a single pipe FOS with a tiger loop at the boiler. This was confirmed by observation of the FOS piping entering the boiler room wall. Recorded room size, FOS pipe routing, boiler locations, and fuel oil entrance location within boiler room.

Tank Location Building C: The 650-gallon AGT will be placed on a 4-inch slab at grade with the vent pipe attached to wall between windows and painted to match existing siding. The new FOS will be routed from the tank and supported on the buildings' CMU block wall. FOS piping will penetrate through the CMU block wall and connect to the existing FOS piping above grade in the crawlspace.

**Building B:** Observed existing fuel oil tank location and spill container that is visible above grade. Existing tank is on the uphill side of the building, facing the parking lot. This face of the building has sidewalks and entrances to residences. At the northwest corner of the building is a 200-inch stretch of blank wall. Around the corner, a short section of chain link fence stretches between the building and the chain link fence surrounding the property. New Tank placement on the West wall of boiler room is not feasible due to walkway and retaining wall clearance. Fuel oil tank vent attached to the boiler room wall. Underground FOS piping enters the boiler room at this location through four inch PVC conduit. FOS is 1/2-inch tubing within the boiler room is routed low around the boiler room wall. The fuel system is a single pipe FOS to a tiger loop at the boiler. Recorded room size, FOS pipe routing, boiler locations, and fuel oil entrance location within boiler room. Crawlspace is accessible at the east side of the building, was locked and not visibly inspected.

Tank Location Building B: The 650 gallon above-ground tank (AGT) will be placed on a 4-inch slab at grade with the vent pipe attached to a wall on the Northwest side of the building and painted to match existing siding. The new FOS will be routed below grade to the existing 4-inch PVC below grade conduit

near the boiler room wall. Walking paths in the vicinity of the boiler room will need to be demolished and reinstalled.

**Building A North:** Observed fuel oil tank location and spill container, located underground near the Building A south boiler room. This design is likely for ease of access during tank filling. North fuel oil tank vent is attached to resident wall at Unit A2I. FOS is 1/2-inch tubing is routed below grade to boiler room from north tank near apartment A2. Underground FOS piping enters the boiler room at the boiler room location through four inch PVC conduit. FOS within the boiler room is 1/2-inch tubing routed low around the boiler room wall. The fuel system is a single pipe FOS to a tiger loop at the boiler. Recorded room size, FOS pipe routing, boiler locations, and fuel oil entrance location within boiler room. Crawlspace is accessible at the east side of Building A, between the north and south boiler rooms and was locked and not visibly inspected.

Tank Location Boiler A North: The 650-gallon above-ground tank (AGT) will be placed on a 4-inch slab at grade with vent attached to a wall on the northwest side of the building at the north boiler room (near Unit A5). The new FOS will be routed through the boiler room wall and connected to the existing FOS piping in the boiler room.

**Building A South:** Observed existing fuel oil tank location and spill container that is visible above grade. Observed fuel oil tank vent attached to boiler room wall. FOS is 1/2-inch tubing is routed below grade to boiler room from the south tank near apartment A2. Underground FOS piping enters the boiler room at the boiler room location through 4-inch PVC conduit. FOS within the boiler room is 1/2-inch tubing routed low around the boiler room wall. The fuel system is a single pipe FOS to a tiger loop at the boiler. Recorded room size, FOS pipe routing, boiler locations, and fuel oil entrance location within boiler room.

Tank Location Boiler A South: The 650-gallon AGT will be placed on a 4-inch slab at grade with vent attached to a wall on the northwest side of the building at the north boiler room (near Unit A1). The new FOS will be routed through the boiler room wall and connected to the existing FOS piping in the boiler room.

Date 01/22/2023

Geneva Woods Tank Removal and Replacement – Site Visit

Page 4

**Community Center:** Flattest part of the property. Existing tank is in open spot on downhill side of the building right outside the boiler room. Eaves overhang 24 inches about nine feet up. Plenty of space in this general area, but may need to locate outside of building drip line. Observed existing fuel oil tank location and spill container that is visible above grade. There does not appear to be crawlspace access from the exterior. Observed fuel oil tank vent attached to boiler room wall. FOS is 1/2-inch tubing is routed below grade to boiler room from the underground tank. FOS piping enters the boiler room at the north side of boiler room wall. FOS within the boiler room is 1/2-inch tubing routed low around the boiler room wall. The fuel system is a single pipe FOS to a tiger loop at the boiler. Recorded room size, FOS pipe routing, boiler locations, and fuel oil entrance location within boiler room.

Tank Location Community Center: The 650-gallon AGT will be placed on a 4-inch slab at grade with vent attached to a wall on the northeast side of the building. The new FOS will be routed through the boiler room wall and connected to the existing FOS piping in the boiler room.

Signature



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Florian Kienle  
Mechanical Engineer

xc: CT ☐ P ☐

Project No. 672305

p:\672305\m\photos & field notes\2024-01-22 to 01-23 site visit\672305 field report 2023-01-22.docx

ALASKA HOUSING FINANCE CORPORATION

# GENEVA WOODS UST CLOSURE AND AST TANK INSTALLATION

JUNEAU, ALASKA

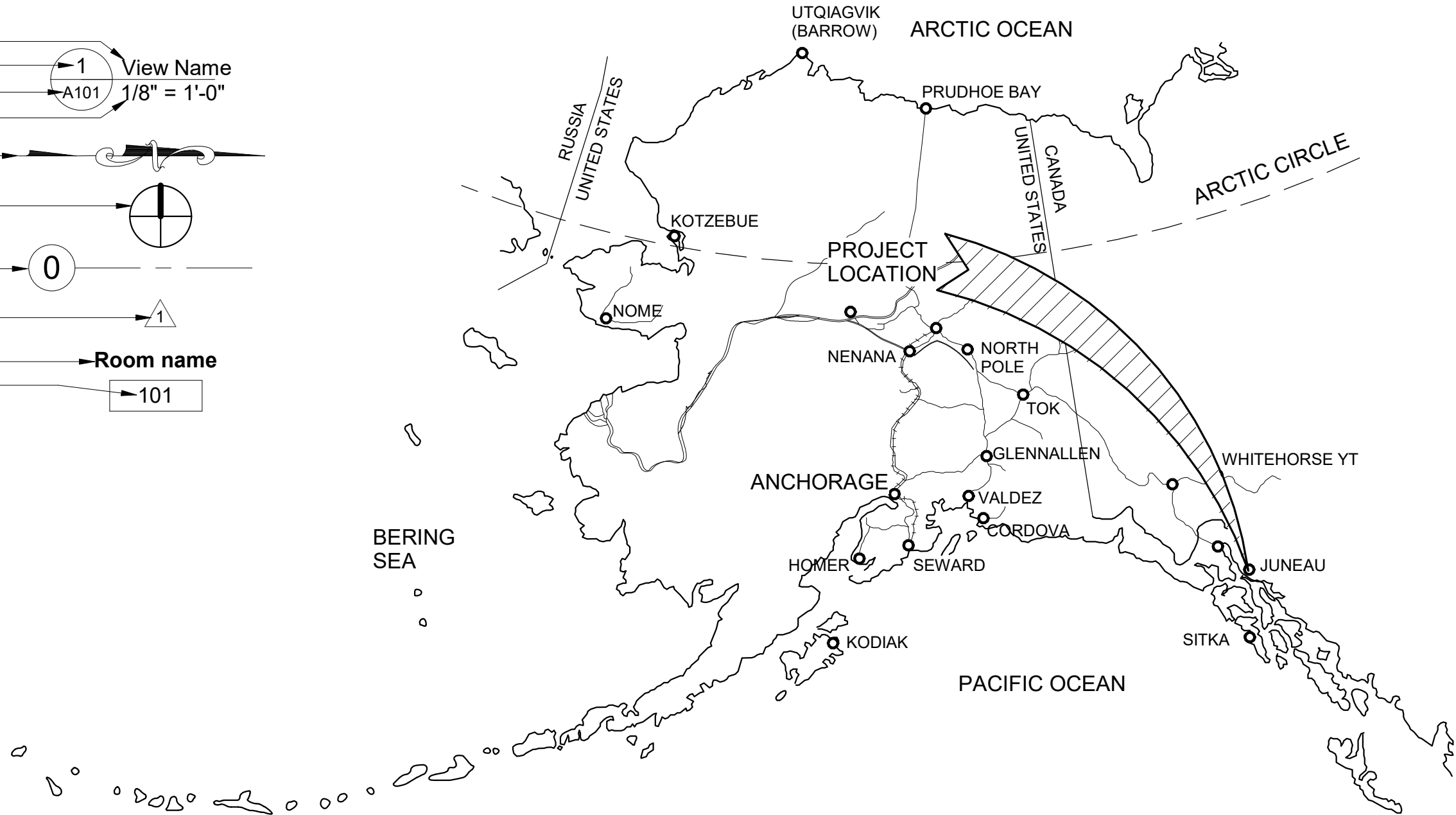
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G001	GENERAL INFORMATION
CIVIL	
C100	EXISTING CONDITIONS AND DEMOLITION PLAN
C200	SITE PLAN
C700	DETAILS
C701	FENCE DETAILS
MECHANICAL	
M001	SCHEDULES, LEGENDS, AND ABBREVIATIONS
M100	DEMOLITION PLANS
M200	INSTALLATION PLANS
M300	DETAILS
M301	DETAILS

## GENERAL SYMBOLS

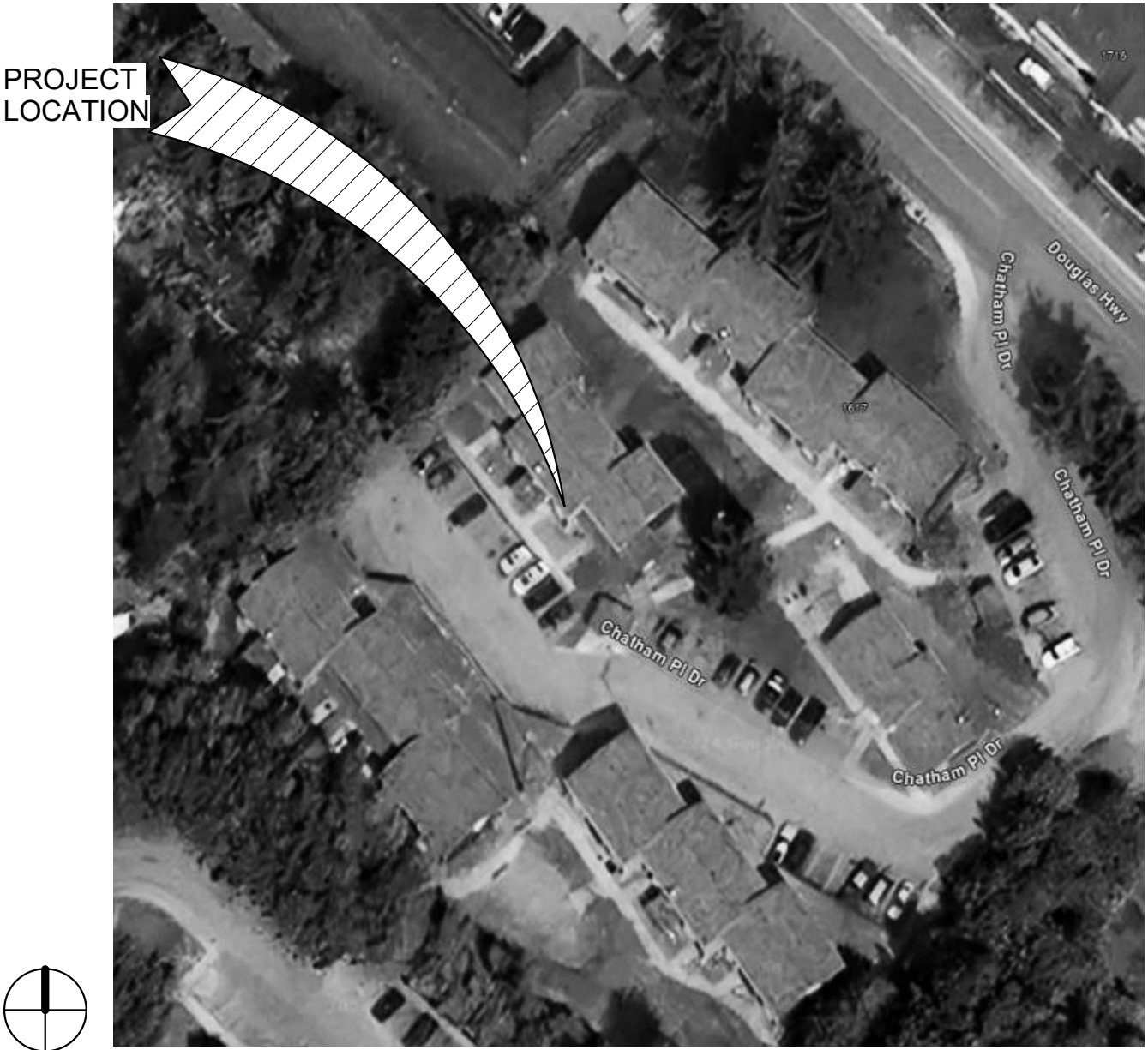
SEE DISCIPLINES FOR SPECIFIC SYMBOLS

NAME	View Name
NUMBER	1
SHEET LOCATION	A101
SCALE	1/8" = 1'-0"
TRUE NORTH	
PLAN NORTH	
GRID LINE	0
REVISION	
ROOM NAME	Room name
ROOM NUMBER	101

## ALASKA MAP



## VICINITY MAP



## PROJECT TEAM

**OWNERS REPRESENTATIVE**  
ALASKA HOUSING FINANCE CORPORATION  
POINT OF CONTACT: MIKE CARLSON  
4300 BONIFACE PARKWAY  
ANCHORAGE, ALASKA 99504  
(907) 330-8118  
mcarlson@ahfc.us

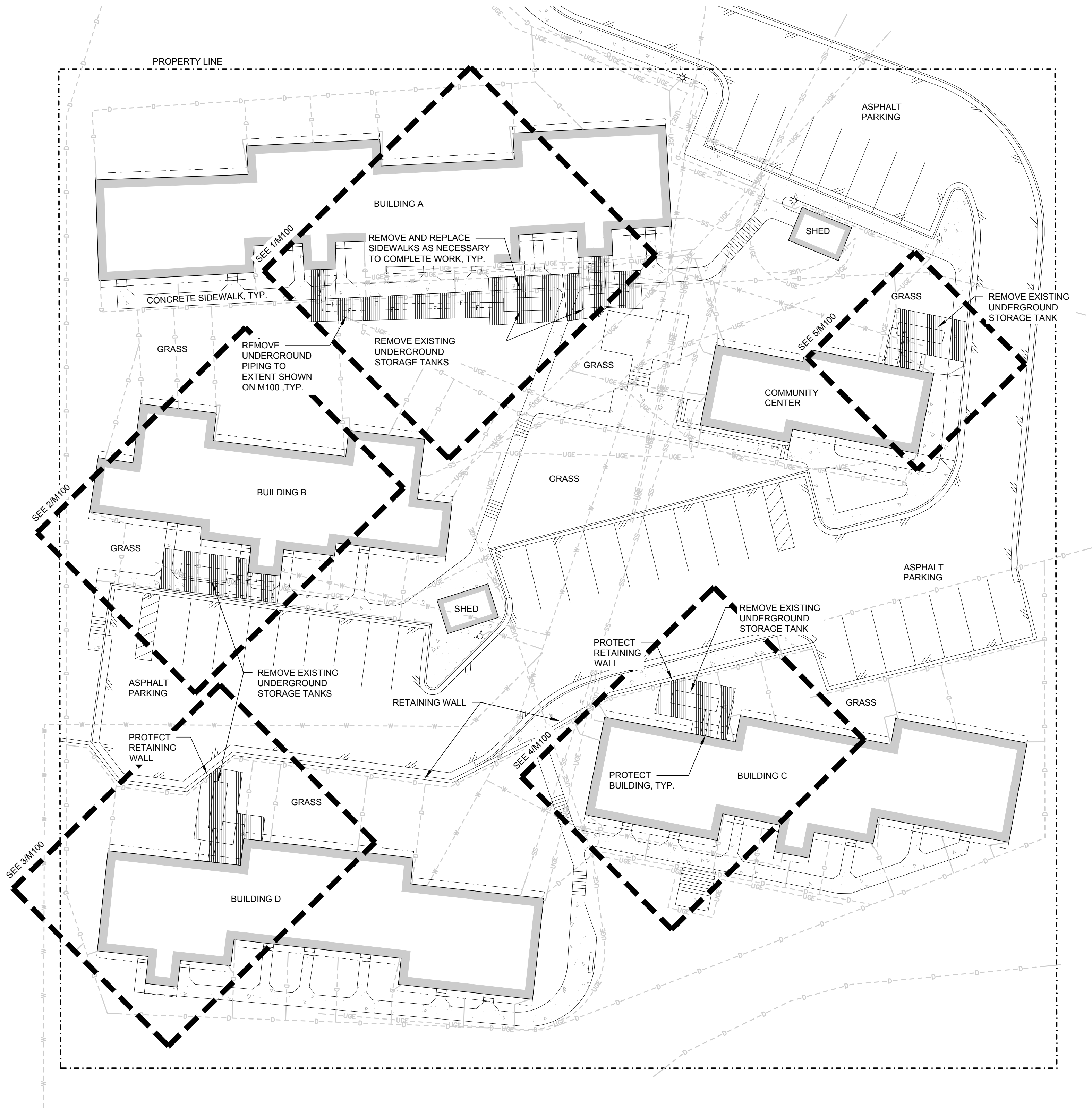
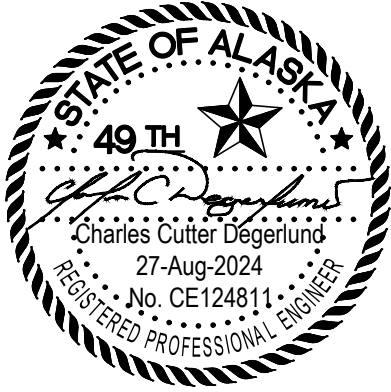
**DESIGNERS REPRESENTATIVE**  
DESIGN ALASKA  
POINT OF CONTACT: FLORIAN KIENLE  
601 COLLEGE ROAD  
FAIRBANKS, AK 99701  
(907) 452-1241  
florian@designalaska.com

GENEVA WOODS  
UST CLOSURE &  
AST INSTALLATION

GENERAL  
INFORMATION

G001





LEGEND	
	PROPERTY LINE
	DEMOLITION
	STRUCTURE
	ROOF OVERHANG
	EDGE OF ASPHALT PAVEMENT
	CHAIN-LINK FENCE
	BOLLARD
	DIRECTION OF WATER FLOW
	STORM DRAIN
	WATER VALVE
	HYDRANT
	UNDERGROUND WATER LINE
	FUEL RISER
	UNDERGROUND FUEL LINE
	UNDERGROUND SEWER LINE
	LIGHTPOLE
	UNDERGROUND POWER LINE

GENERAL NOTES

- EXISTING SITE PLAN WAS TAKEN FROM AHFC GENEVA WOODS HOUSING COMPLEX SITEWORK 2000 DRAWINGS AND GENEVA WOODS PHASE III MODERNIZATION PROJECT, 1992 DRAWINGS. A SITE SURVEY WAS NOT PERFORMED FOR THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER IF FIELD CONDITIONS DIFFER FROM THOSE DEPICTED HERE.
- ALL CONSTRUCTION METHODS AND MATERIALS USED FOR THIS PROJECT SHALL CONFORM TO CBJ ENGINEERING STANDARDS.
- LOCATION OF EXISTING FEATURES AND UNDERGROUND UTILITIES ARE APPROXIMATE. ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS IN THE FIELD AS NECESSARY PRIOR TO BEGINNING WORK, ALASKA DIGLINE: 1-800-478-3121.
- CONTRACTOR SHALL ADHERE TO ALL OCCUPATIONAL SAFETY AND HEALTHY ADMINISTRATION (OSHA) REGULATIONS DURING EXCAVATION AND BACKFILL.
- CENTER OF TANKS ESTIMATED TO BE APPROX 7' DEPTH. SHADED AREAS AROUND EXISTING TANKS INDICATE A 1H:1V LAYBACK FROM CENTER OF TANK. CONTRACTOR IS RESPONSIBLE FOR FINAL EXTENT OF DEMOLITION, PATCHING, AND PIPE LENGTHS NECESSARY TO COMPLETE PROJECT.
- NO SOIL CONTAMINATION IS ANTICIPATED FOR THIS PROJECT. NOTIFY OWNER IMMEDIATELY IF CONTAMINATION IS ENCOUNTERED DURING PROJECT.
- COORDINATE PHASING OF PROJECT SUCH THAT RESIDENTS HAVE UNIMPEDED ACCESS TO RESIDENCES AT ALL TIMES THROUGHOUT CONSTRUCTION.

GENEVA WOODS  
UST CLOSURE &  
AST INSTALLATION

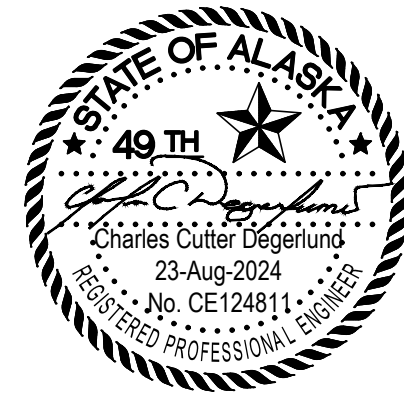
ISSUE DATE	27 AUG 2024
COMM. NUMBER	672305
DESIGNED BY	CCD
DRAWN BY	CBP
SCALE	0" = 1"

EXISTING  
CONDITIONS AND  
DEMOLITION PLAN

C100

1  
C100  
EXISTING CONDITIONS AND DEMOLITION PLAN  
1" = 20'

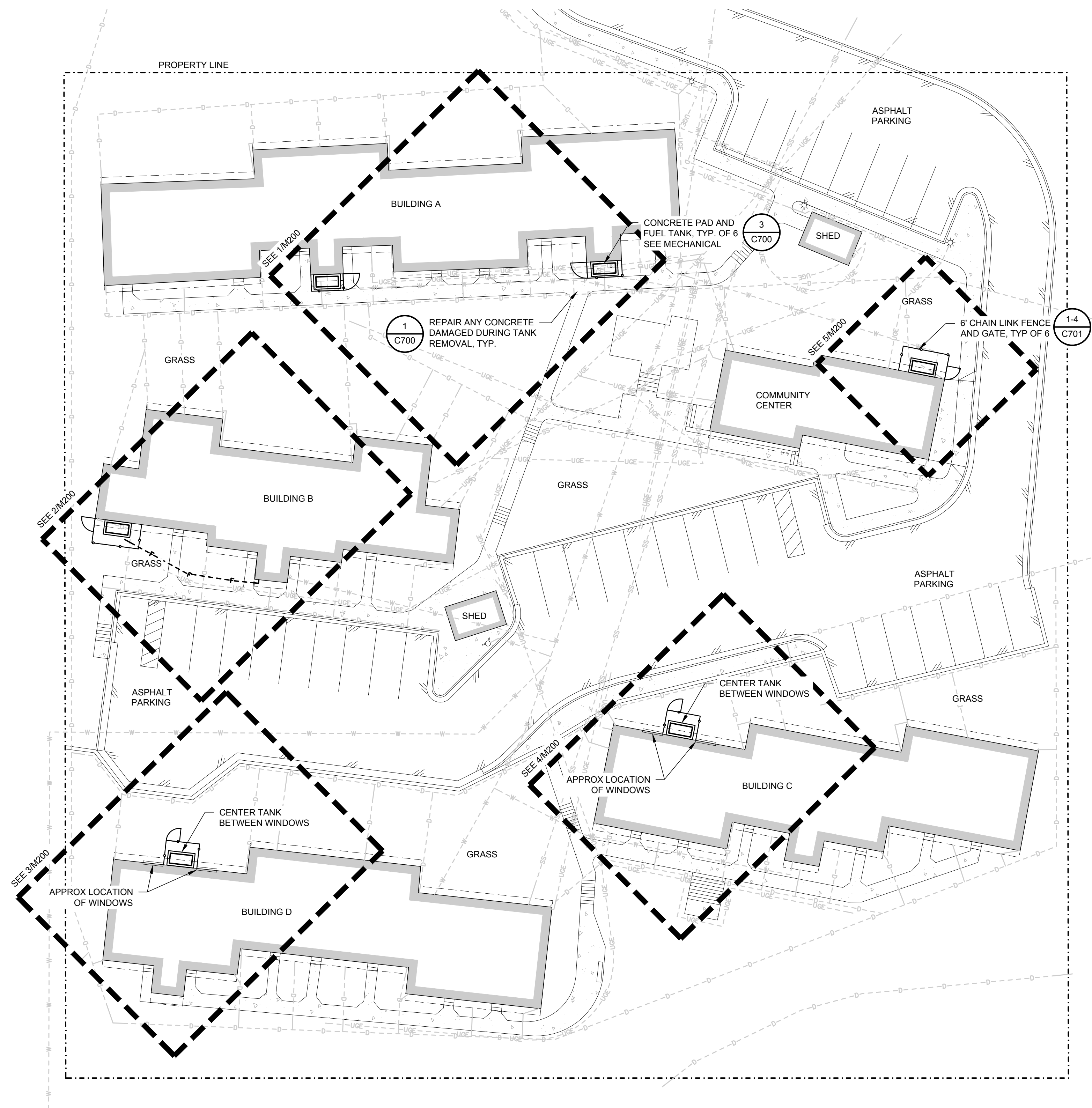




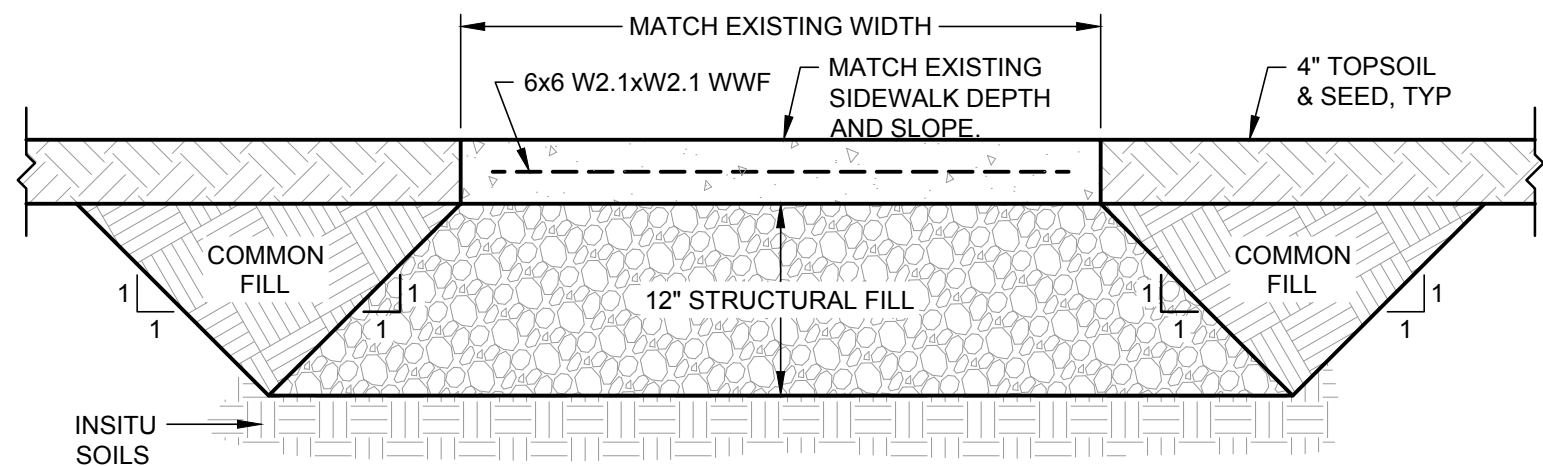
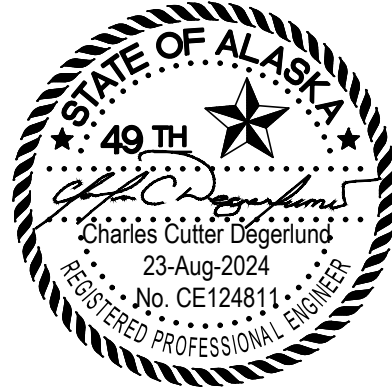
1. SLOPE FINISH GRADE AWAY FROM BUILDING AT MIN 5% FOR MIN 10 FEET.
2. SLOPE CONCRETE PAD AWAY FROM BUILDING AT 2%.
3. GATES SHALL SWING FREELY AND LATCH SECURELY, WITHOUT OBSTRUCTION, UPON COMPLETION OF THE PROJECT.
4. TANKS AND FENCES SHALL NOT OBSTRUCT WINDOWS.
5. CONTRACTOR SHALL REPAIR ANY DAMAGE DONE DURING CONSTRUCTION TO CONDITION MEETING OR EXCEEDING PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO OWNER.

ISSUE DATE 27 AUG 2024  
COMM. NUMBER 672305  
DESIGNED BY CCD  
DRAWN BY CBP  
SCALE 0" 1"

# C200



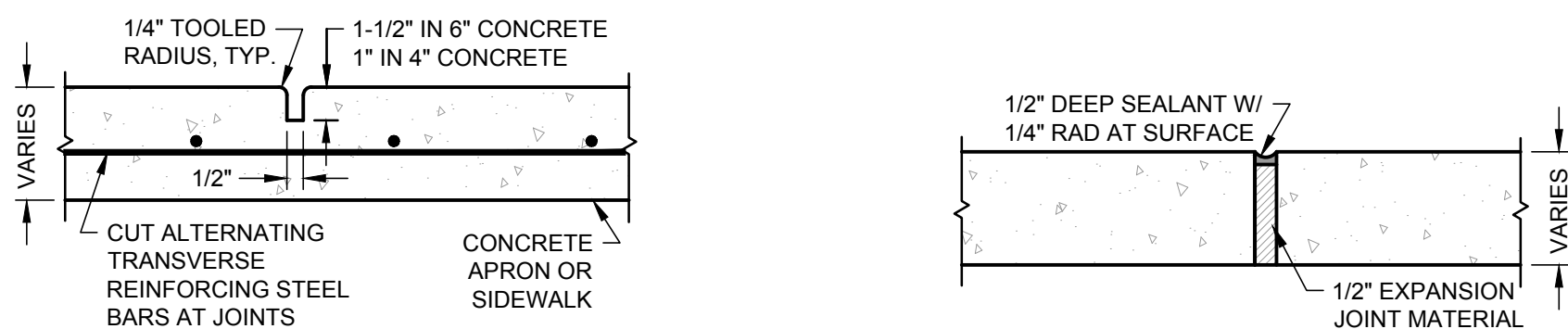
1 SITE PLAN  
C200 1" = 20'



#### NOTES

1. PROVIDE 1/2" EXPANSION JOINTS EVERY 24' AND AT ANY CORNERS UNLESS OTHERWISE NOTED.
2. CONNECT TO EXISTING CONCRETE WITH DOWELED JOINTS.
3. PROVIDE CONTROL JOINTS TO MATCH CONCRETE WIDTH. MAINTAIN APPROXIMATELY SQUARE SECTIONS, MAX DIMENSIONS TO BE 10', OR AS DIRECTED.

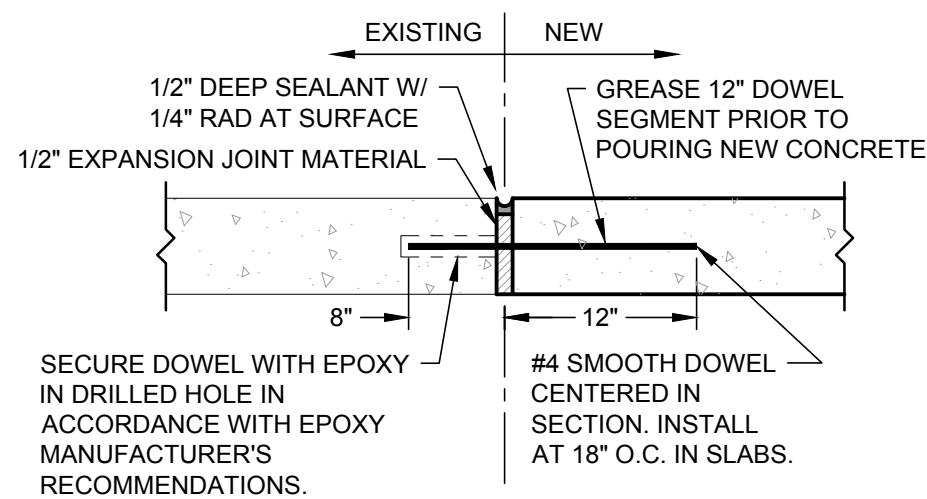
1  
C700  
CONCRETE SIDEWALK  
NOT TO SCALE



NOTE: PROVIDE CONTROL JOINTS TO MATCH SIDEWALK WIDTH. MAINTAIN APPROXIMATELY SQUARE SECTIONS. MAXIMUM DIMENSIONS TO BE 10', OR AS DIRECTED.

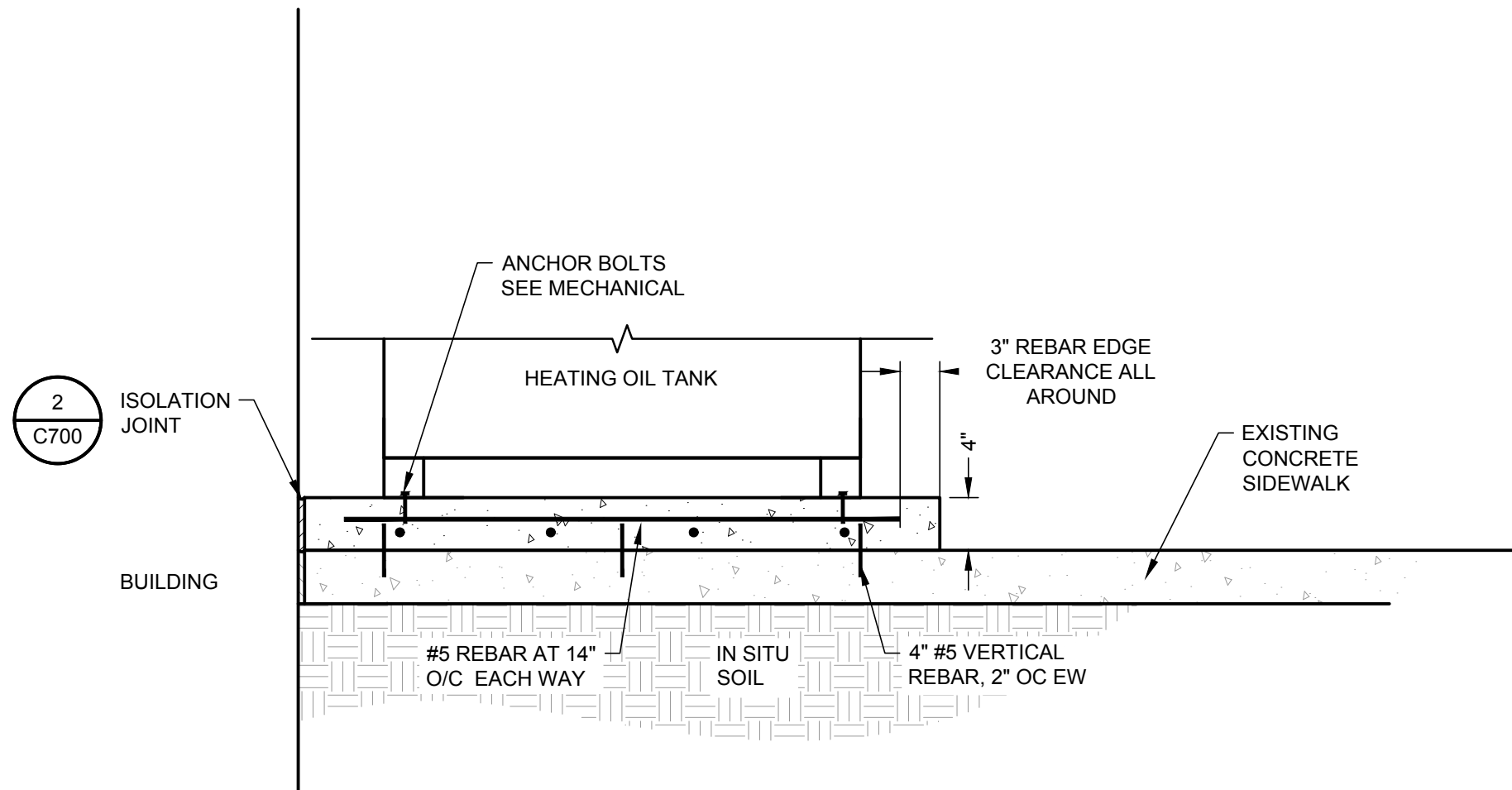
#### CONTROL JOINT-TYPICAL

#### EXPANSION/ISOLATION JOINT-TYPICAL

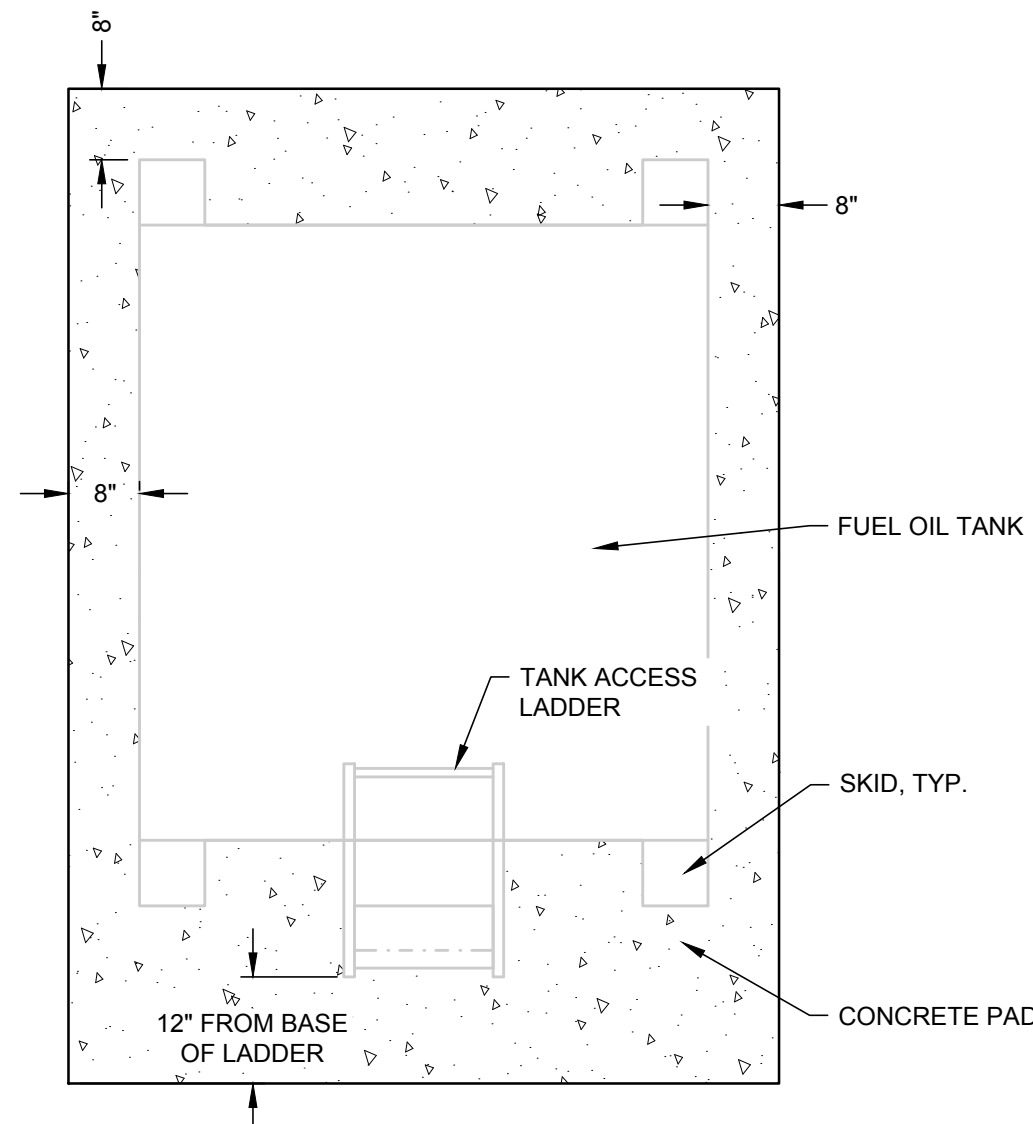


#### DOWELED JOINT - NEW TO EXISTING

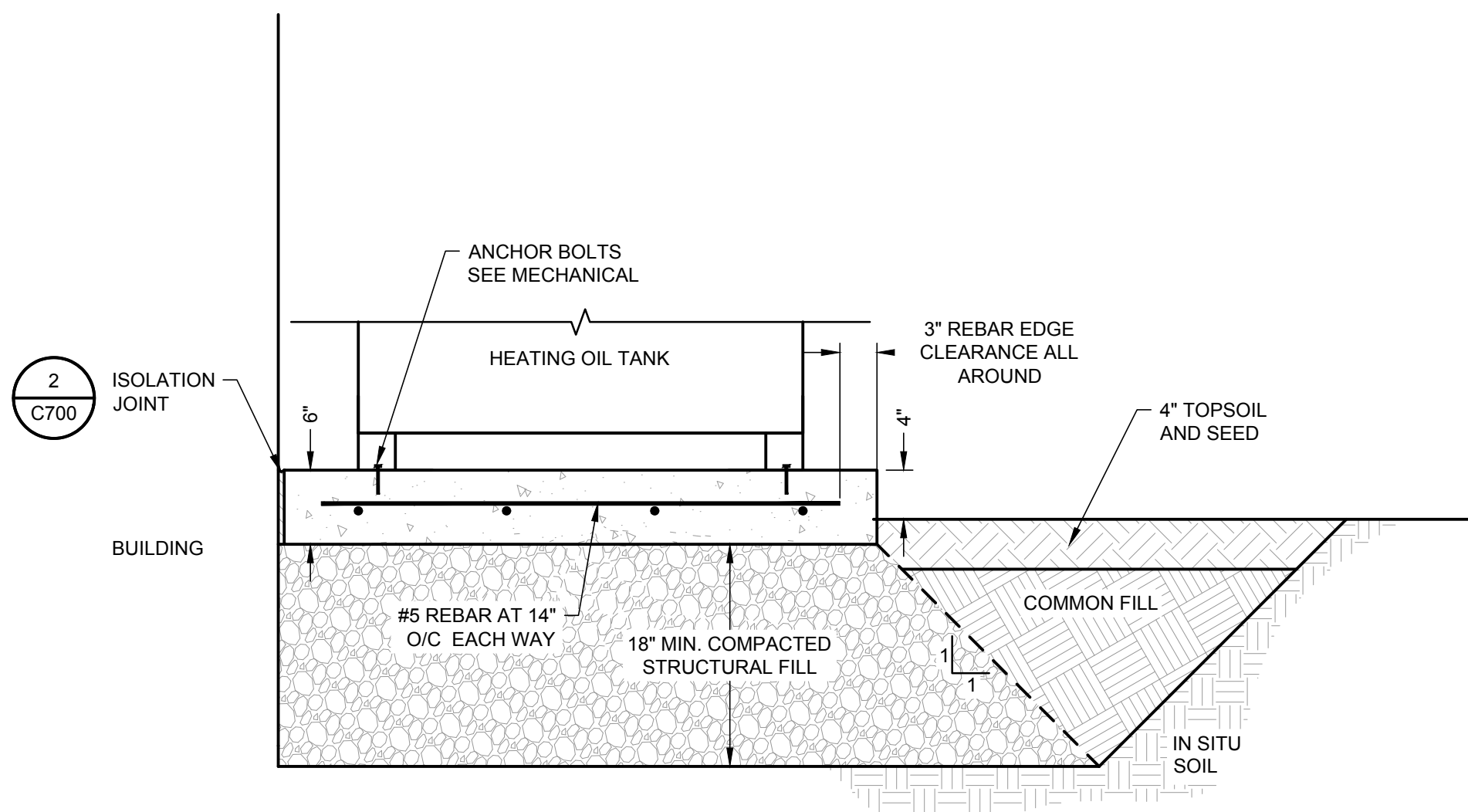
2  
C700  
CONCRETE JOINTS  
NOT TO SCALE



#### ABOVEGROUND TANKS ON CONCRETE



#### PLAN VIEW

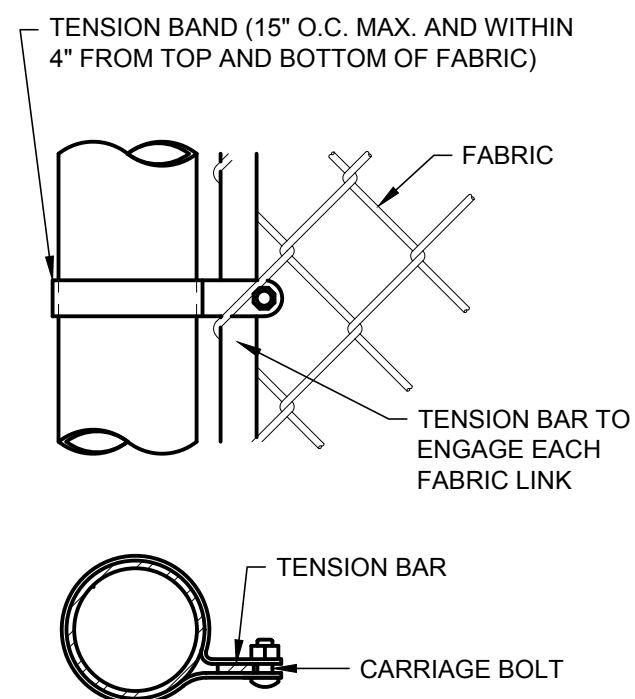


#### ABOVEGROUND TANKS ON SOIL

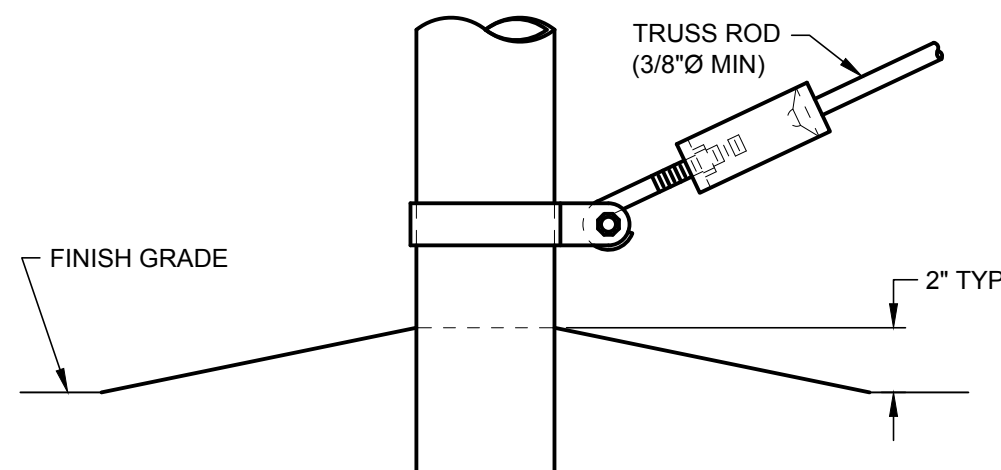
#### EXCAVATION NOTES

1. CONCRETE SLAB DIMENSIONS ARE APPROXIMATE. VERIFY DIMENSIONS AND LAYOUT WITH TANK MANUFACTURER PRIOR TO CONSTRUCTION.
2. OWNER'S REPRESENTATIVE SHALL INSPECT EXCAVATED MATERIAL AND BASE OF EXCAVATION FOR CONFORMANCE PRIOR TO BACKFILLING.
3. COMPACT BASE OF EXCAVATION WITH LARGE VIBRATORY PLATE COMPACTOR (MIN 10,000LB CENTRIFUGAL FORCE), MINIMUM THREE PASSES. A PASS IS COUNTED EACH TIME THE RUNNING COMPACTOR MOVES OVER AN AREA.
4. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 6-INCH LIFTS AND COMPACTED WITH A LARGE VIBRATORY PLATE COMPACTOR, MINIMUM THREE PASSES PER LIFT. EACH LIFT MUST BE COMPLETE PRIOR TO PLACING SUBSEQUENT LIFTS.
5. PERMANENT EROSION STABILIZATION MUST BE ACHIEVED ON ALL DISTURBED SOILS. IN GRASSY AREAS, INSTALL 4" TOPSOIL, FERTILIZE AND SEED. IN GRAVELY AREAS, GRADE SMOOTH AND COMPACT DISTURBED GROUND.
6. TOP OF SLAB SHALL BE 4" MIN. ABOVE ADJACENT GRADE.
7. PROVIDE POSITIVE DRAINAGE AWAY FROM TANK SLAB AND BUILDING. MATCH ADJACENT GRADE AND EXISTING FEATURES.

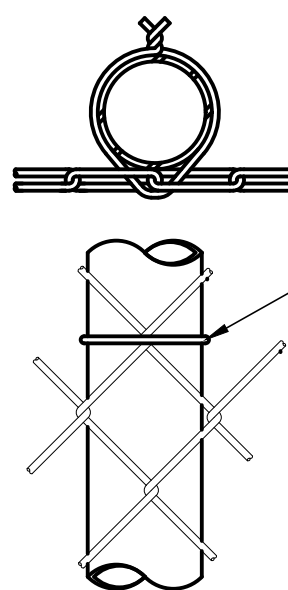
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C700  
STORAGE TANK FOUNDATION  
NOT TO SCALE



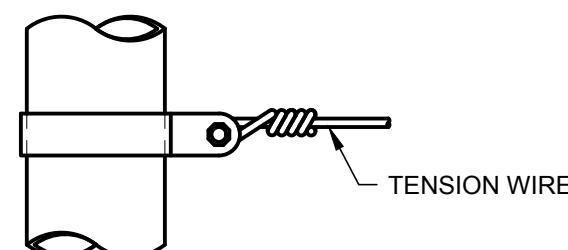
#### END OR GATE POST DETAIL



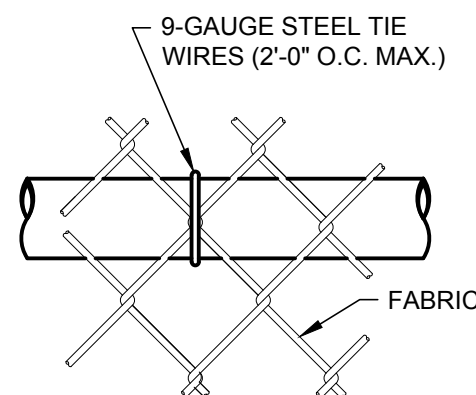
#### TRUSS ROD AND BAND



#### LINE POST ATTACHMENT



#### TENSION BAND DETAIL



#### TOP RAIL ATTACHMENT

4  
C700  
FENCE FASTENING DETAILS  
NOT TO SCALE

## GENEVA WOODS UST CLOSURE & AST INSTALLATION

ISSUE DATE 27 AUG 2024  
COMM. NUMBER 672305  
DESIGNED BY CCD  
DRAWN BY CBP  
SCALE 0" = 1"

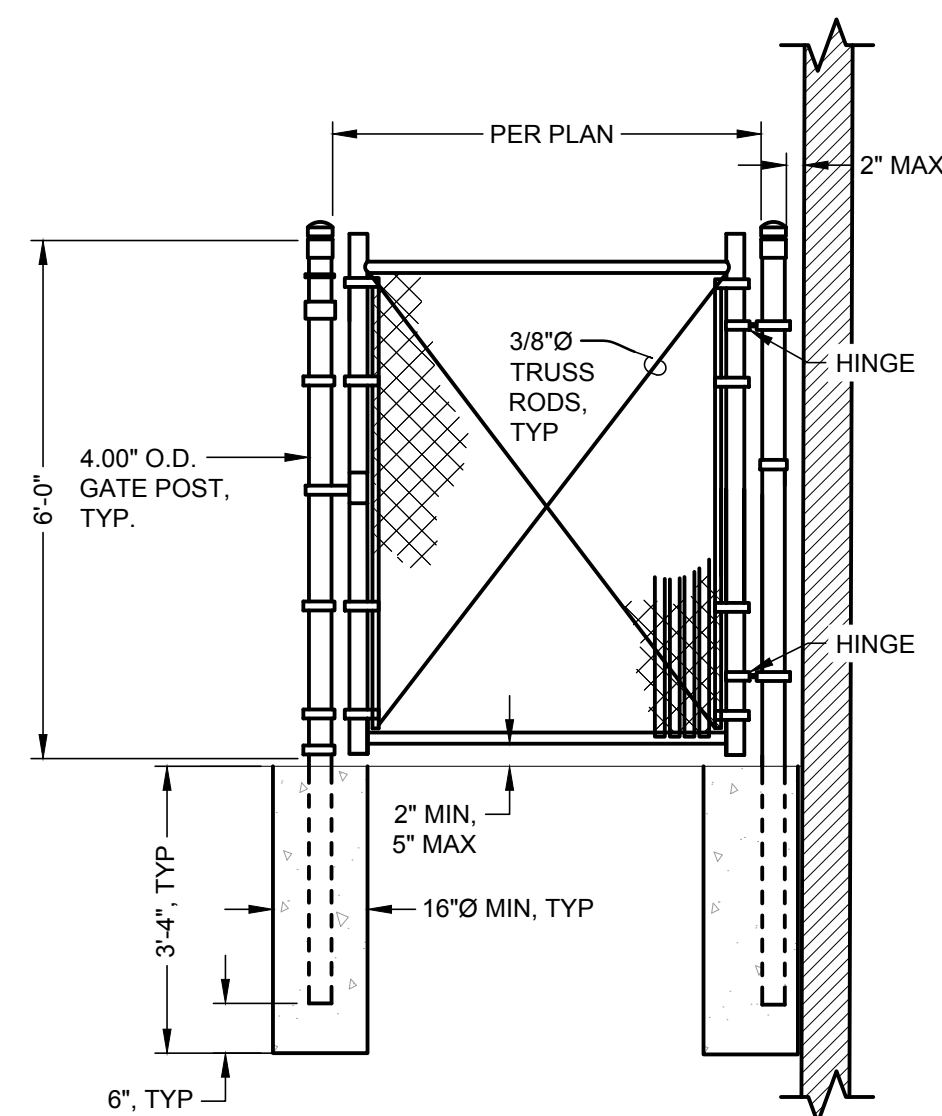
#### DETAILS

C700

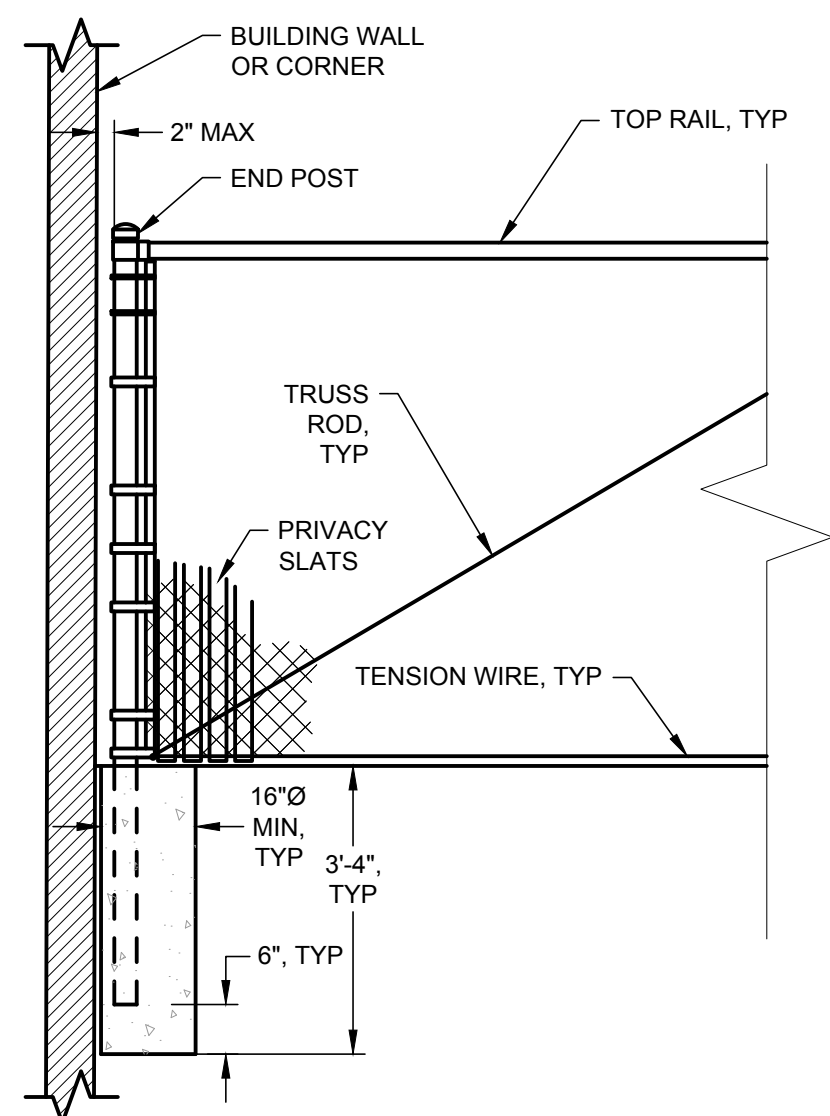


### GENERAL FENCING NOTES

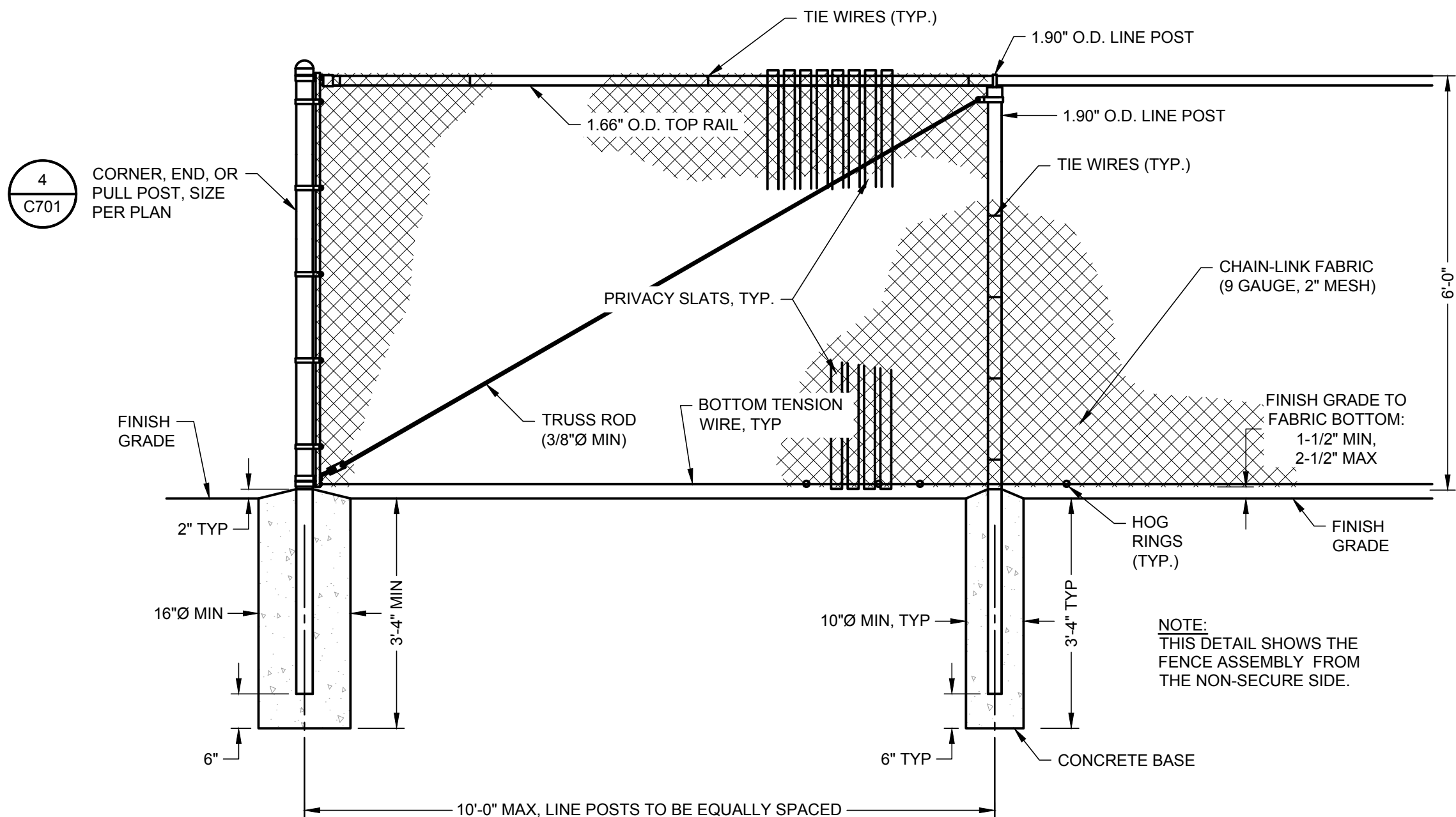
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.
2. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE SIDE OPPOSITE THE SECURE AREA.



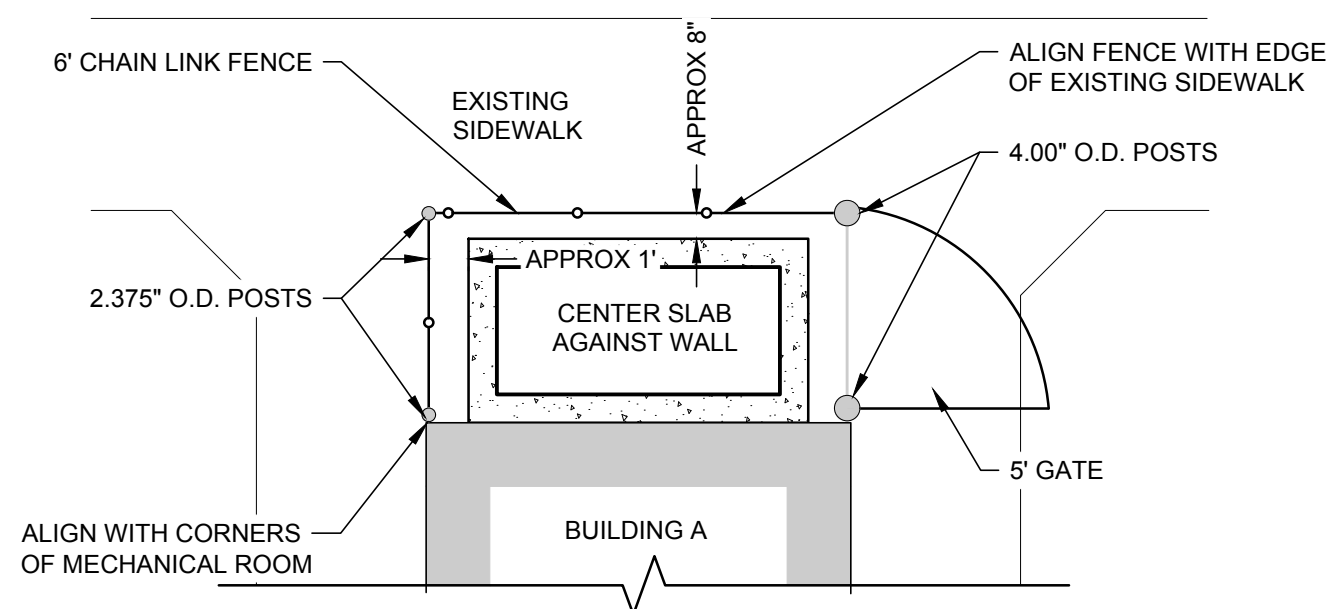
3 PERSONNEL GATE  
C701 NOT TO SCALE



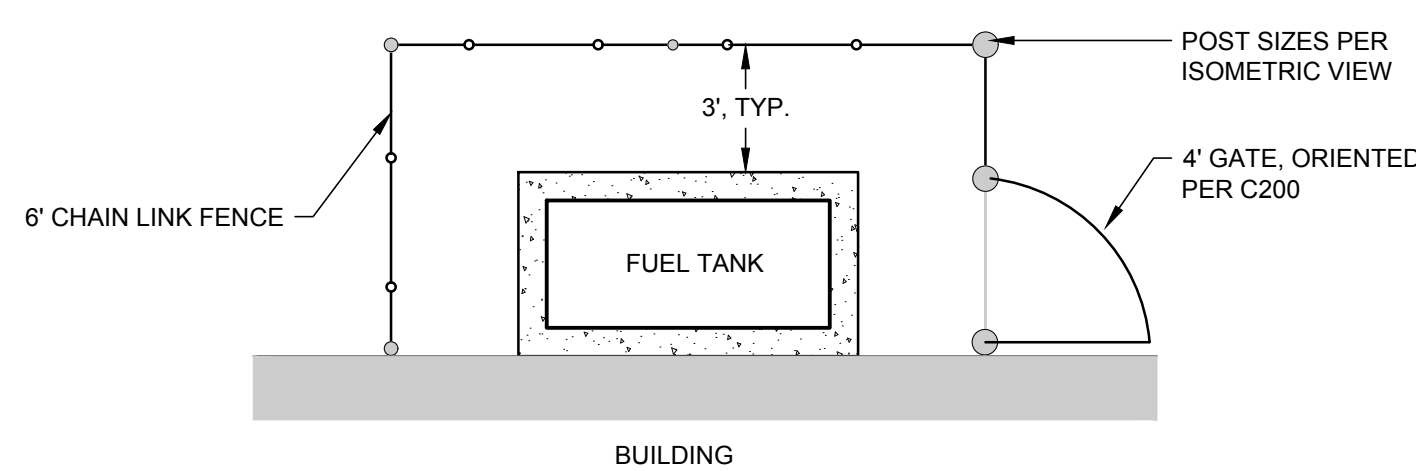
2 END POST AT BUILDING WALL  
C701 NOT TO SCALE



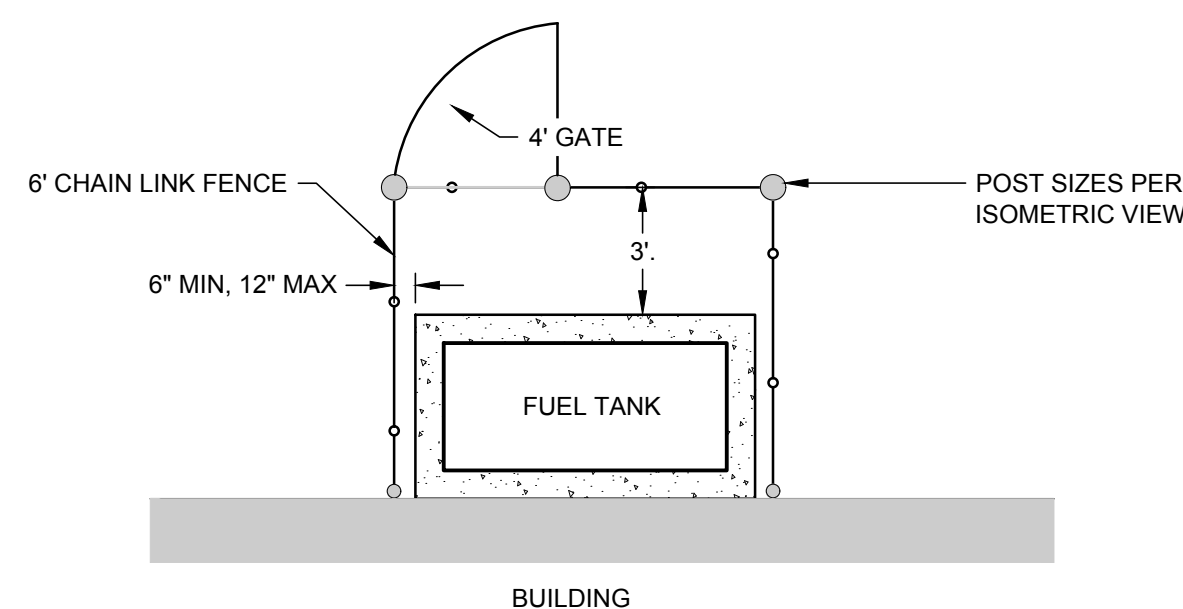
1 CHAIN-LINK SECURITY FENCE ASSEMBLY WITH PRIVACY SLATS  
C701 NOT TO SCALE



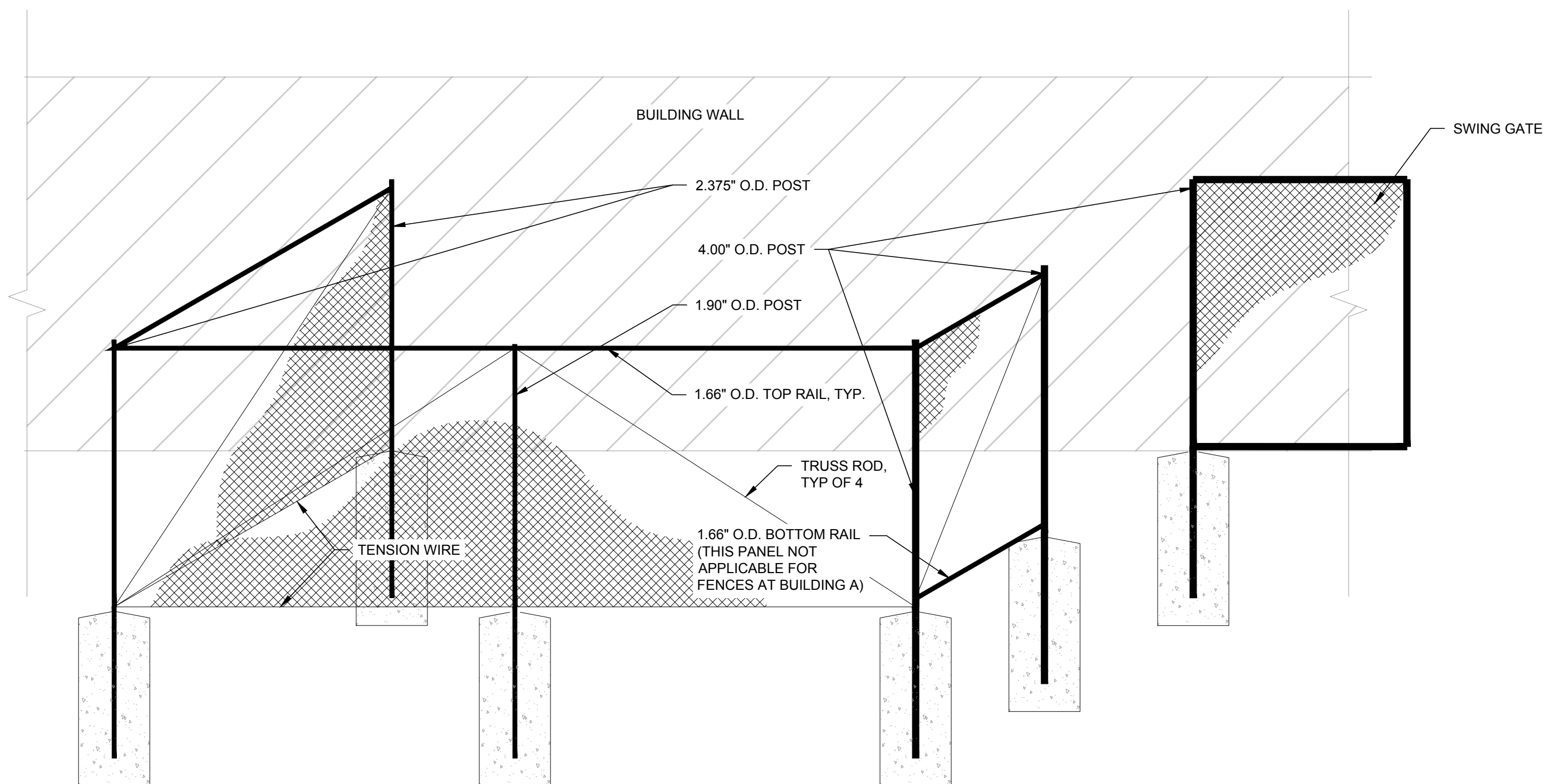
BUILDING A FENCING PLAN



BUILDING B AND COMMUNITY CENTER FENCING PLAN



BUILDINGS C AND D FENCING PLAN



TYPICAL ISOMETRIC VIEW

4 FENCE LAYOUT  
C701 NOT TO SCALE

## GENEVA WOODS UST CLOSURE & AST INSTALLATION

ISSUE DATE 27 AUG 2024  
COMM. NUMBER 672305  
DESIGNED BY CCD  
DRAWN BY CBP  
SCALE 0" = 1"

### FENCING DETAILS

C701




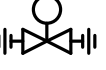







MECHANICAL ABBREVIATIONS

ABBREVIATION	FULL NAME
#	NUMBER
&	AND
(E)	EXISTING
@	AT
AFF	ABOVE FINISHED FLOOR
APPR	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASSOC	ASSOCIATED
AUTO	AUTOMATIC
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
DI	DUCTILE IRON
DIA	DIAMETER
DN	DOWN
ELEC	ELECTRICAL
FLEX	FLEXIBLE
GA	GAUGE
GALV	GALVANIZED
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPSH	NET PUMP SUCTION HEAD
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
SIM	SIMILAR
SPEC	SPECIFICATIONS
SS	STAINLESS STEEL
TYP	TYPICAL
V	VENT
W/	WITH
W/O	WITHOUT

MECHANICAL LINETYPES

ABBREVIATION	FULL NAME	LINETYPE
FOS	FUEL OIL SUPPLY	_____
FOR	FUEL OIL RETURN	____ _
	EXISTING	_____
	EXISTING TO BE REMOVED	=====

MECHANICAL SYMBOLS

	CONNECTION TO EXISTING		ISOLATION VALVE
	PIPE CONNECTION		2-WAY CONTROL VALVE
	PIPE ELBOW TURNED DOWN		FLOW ARROW
	PIPE ELBOW TURNED UP		UNION
	PIPE TEE DOWN		PIPE CAP
	PIPE BREAK		

SEISMIC - CONCRETE ANCHOR BOLT SCHEDULE

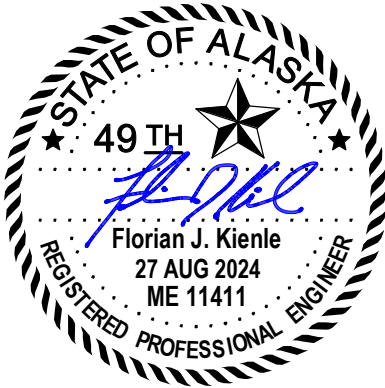
SYMBOL	ANCHOR BOLT DIAMETER (IN)	NUMBER OF BOLTS PER SIDE	MINIMUM ANCHOR EMBEDMENT (IN)	MINIMUM HOUSEKEEPING PAD THICKNESS (IN)	MINIMUM EDGE DISTANCE (IN)	MINIMUM SPACE BETWEEN ANCHORS (IN)
T-1	3/8	2	2	4	6	4-3/4
T-2	3/8	2	2	4	6	4-3/4
T-3	3/8	2	2	4	6	4-3/4
T-4	3/8	2	2	4	6	4-3/4
T-5	3/8	2	2	4	6	4-3/4
T-6	3/8	2	2	4	6	4-3/4

- (1) SEISMIC ANCHOR INSTALLATION REQUIRES PERIODIC INSTALLATION INSPECTION PER ICC CERTIFICATION.  
(2) ANCHOR BOLTS FOR EXTERIOR APPLICATIONS SHALL BE STAINLESS STEEL.  
(3) ANCHOR SELECTIONS FOR USE IN SLABS OF NORMAL WEIGHT CONCRETE ONLY. NOT FOR USE IN LIGHTWEIGHT CONCRETE.  
(4) ANCHOR FOR INSTALLATION INTO NEW CONCRETE (4,000 PSI).  
(5) ALTERNATIVE ANCHOR SELECTIONS WILL NOT BE REVIEWED WITHOUT FORCE CALCULATIONS SIGNED BY A LICENSED ENGINEER.  
(6) HILTI KH-EZ 316 STAINLESS STEEL SCREW ANCHOR.

FUEL OIL TANK SCHEDULE

SYMBOL	ITEM	CAPACITY / SIZE	OPERATING WEIGHT (LB)	BASIS OF DESIGN	REMARKS
T-1	ABOVE GROUND	650 GALLONS	6300	GREER TANK	1. UL-142 LISTED, DOUBLE WALLED
T-2	FUEL OIL TANK				
T-3					
T-4					
T-5					
T-6					

(1) OPERATING WEIGHT INDICATED. PLUS 10% IS MAXIMUM ALLOWED WEIGHT IF USING A SEISMIC DETAIL PROVIDED AS PART OF CONTRACT DOCUMENTS.

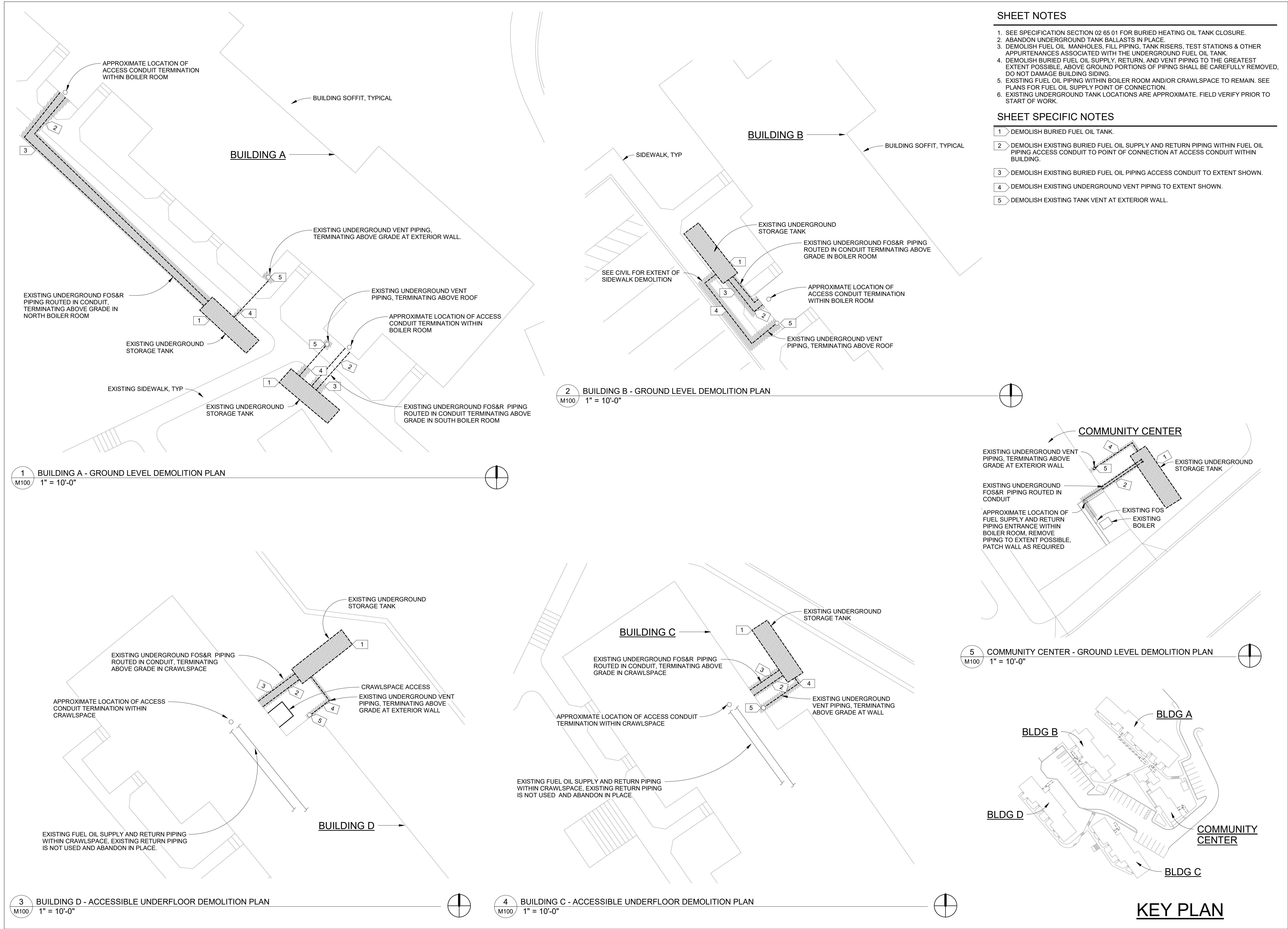


GENEVA WOODS  
UST CLOSURE &  
AST INSTALLATION

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SCHEDULES,  
LEGENDS, AND  
ABBREVIATIONS



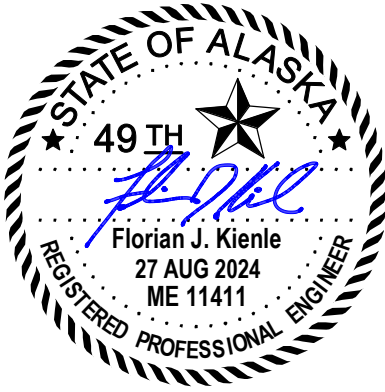


SHEET NOTES

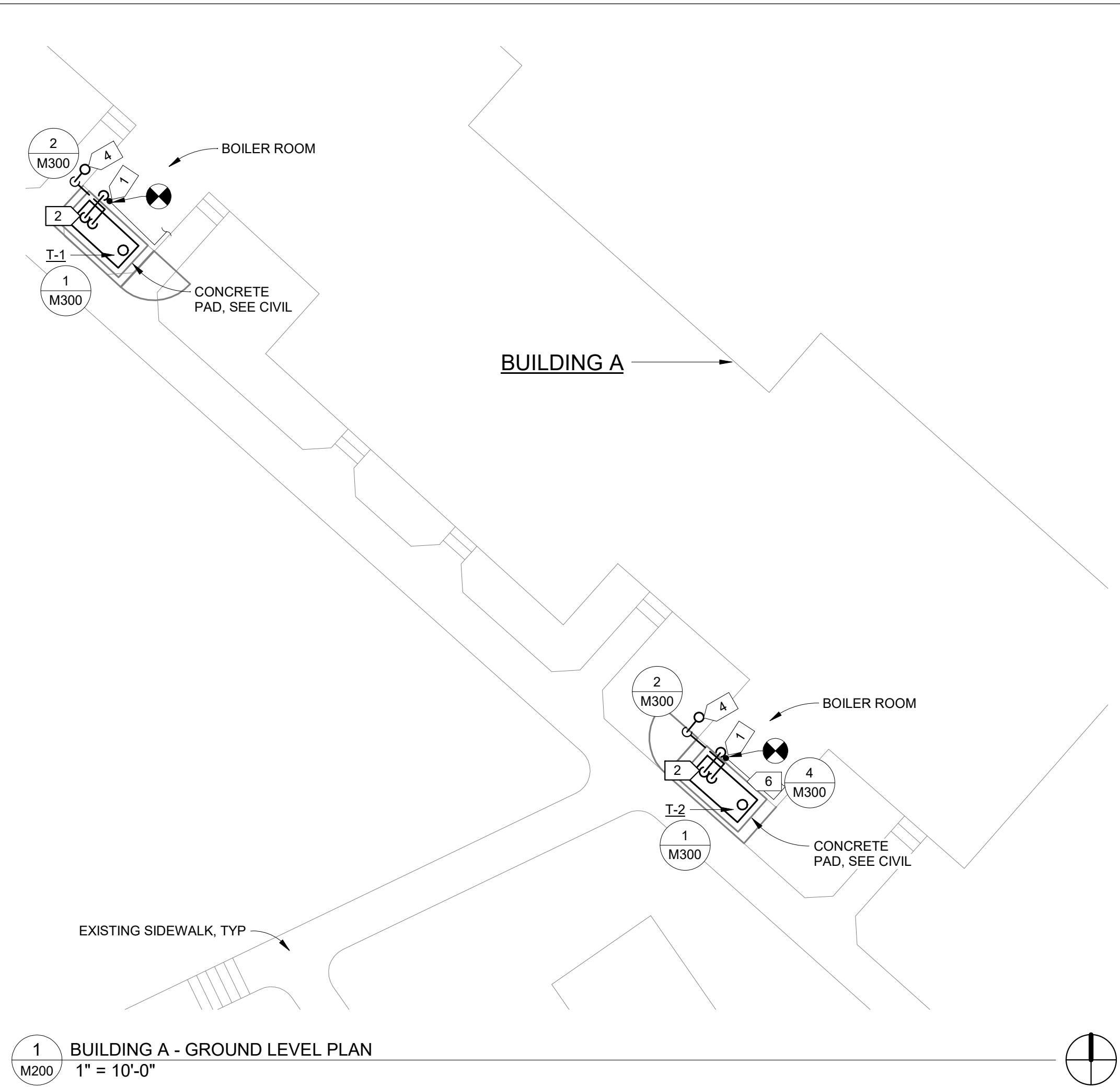
1. SEE SPECIFICATION SECTION 02 65 01 FOR BURIED HEATING OIL TANK CLOSURE.
2. ABANDON UNDERGROUND TANK BALLASTS IN PLACE.
3. DEMOLISH FUEL OIL MANHOLES, FILL PIPING, TANK RISERS, TEST STATIONS & OTHER APPURTENANCES ASSOCIATED WITH THE UNDERGROUND FUEL OIL TANK.
4. DEMOLISH BURIED FUEL OIL SUPPLY, RETURN, AND VENT PIPING TO THE GREATEST EXTENT POSSIBLE, ABOVE GROUND PORTIONS OF PIPING SHALL BE CAREFULLY REMOVED, DO NOT DAMAGE BUILDING SIDING.
5. EXISTING FUEL OIL PIPING WITHIN BOILER ROOM AND/OR CRAWLSPACE TO REMAIN. SEE PLANS FOR FUEL OIL SUPPLY POINT OF CONNECTION.
6. EXISTING UNDERGROUND TANK LOCATIONS ARE APPROXIMATE. FIELD VERIFY PRIOR TO START OF WORK.

SHEET SPECIFIC NOTES

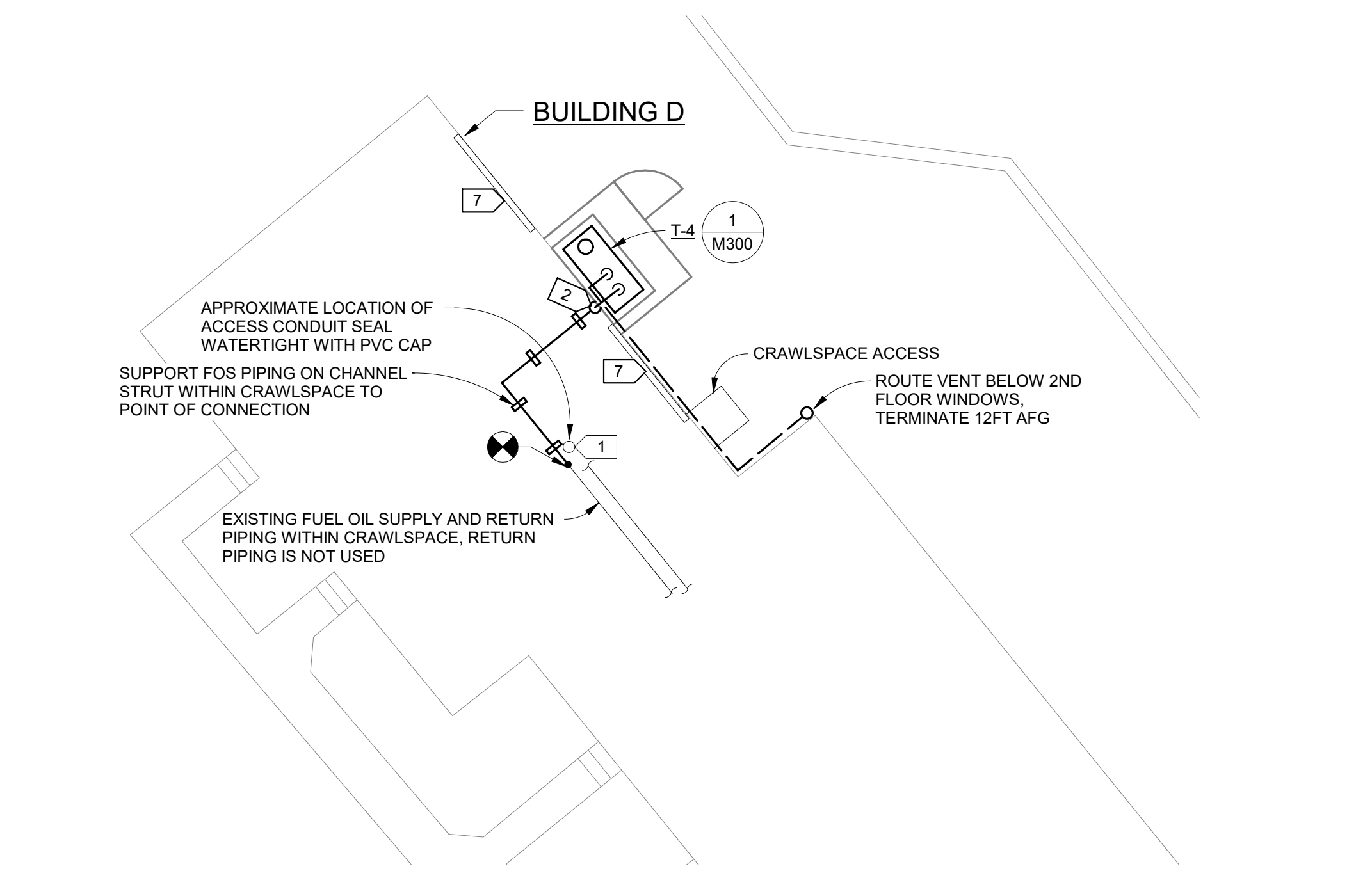
- 1 DEMOLISH BURIED FUEL OIL TANK.
- 2 DEMOLISH EXISTING BURIED FUEL OIL SUPPLY AND RETURN PIPING WITHIN FUEL OIL PIPING ACCESS CONDUIT TO POINT OF CONNECTION AT ACCESS CONDUIT WITHIN BUILDING.
- 3 DEMOLISH EXISTING BURIED FUEL OIL PIPING ACCESS CONDUIT TO EXTENT SHOWN.
- 4 DEMOLISH EXISTING UNDERGROUND VENT PIPING TO EXTENT SHOWN.
- 5 DEMOLISH EXISTING TANK VENT AT EXTERIOR WALL.



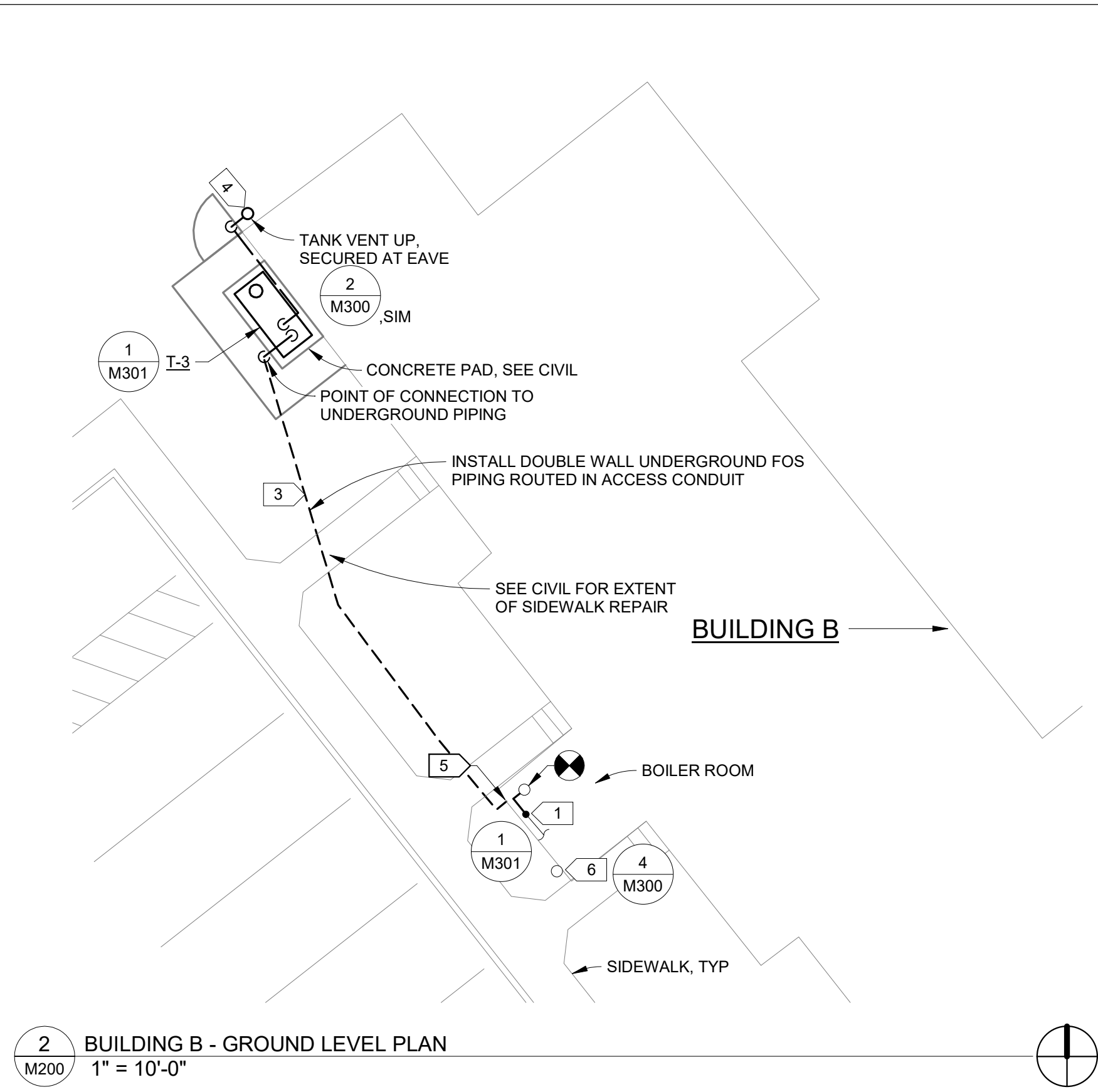




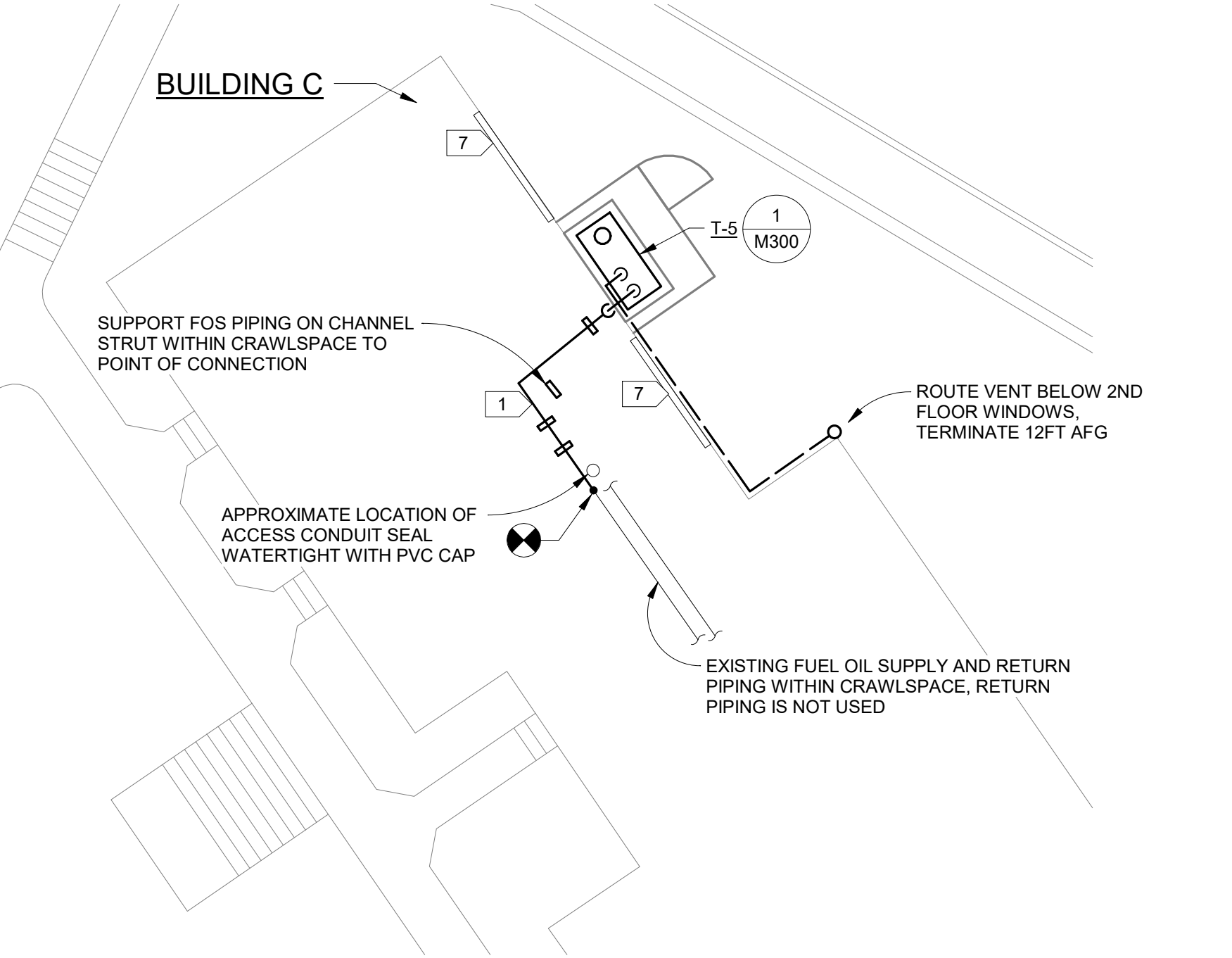
1 BUILDING A - GROUND LEVEL PLAN  
1" = 10'-0"



3 BUILDING DD - ACCESSIBLE UNDERFLOOR PLAN  
1" = 10'-0"



2 BUILDING B - GROUND LEVEL PLAN  
1" = 10'-0"



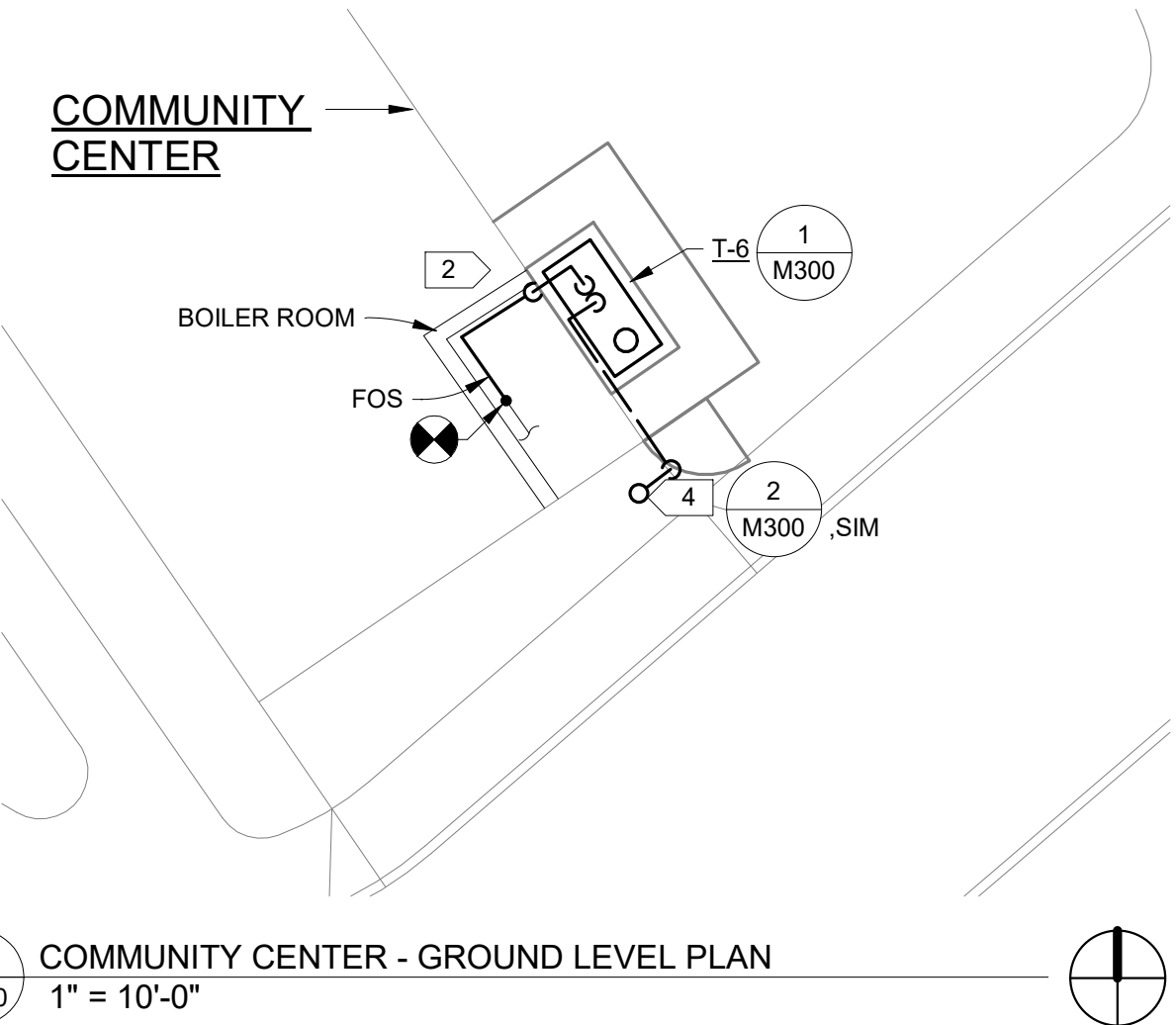
4 BUILDING C - ACCESSIBLE UNDERFLOOR PLAN  
1" = 10'-0"

## SHEET NOTES

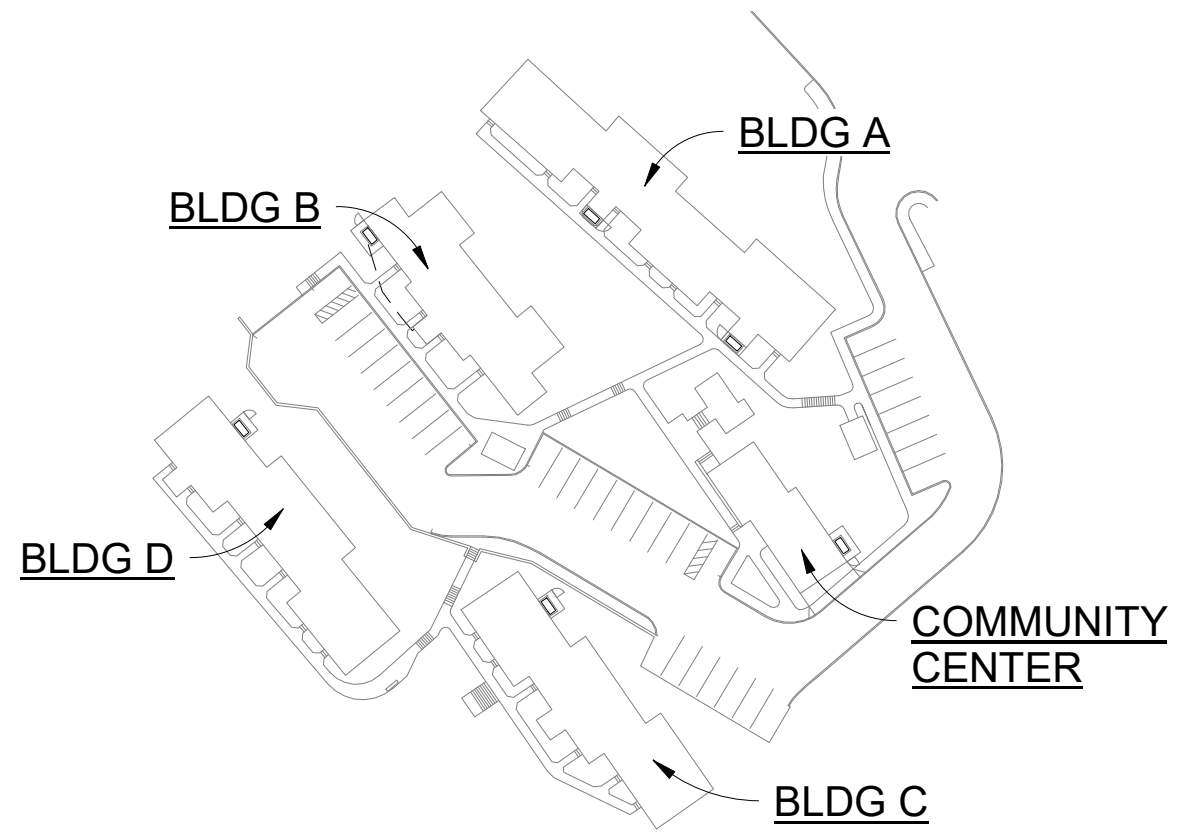
1. INSTALL ON CONCRETE PAD ADJACENT TO BUILDING. SEISMICALLY SECURE TANKS WITH STAINLESS STEEL ANCHOR BOLTS AS INDICATED IN SEISMIC ANCHOR BOLT SCHEDULE.
2. CONNECT FUEL OIL SUPPLY PIPING TO EXISTING FOS WITHIN CRAWLSPACE OR BOILER ROOM. SECURE TO EXTERIOR WALL USING CHANNEL STRUT WITH ALLOWANCES AT SUPPORTS FOR EXPANSION & CONTRACTION OF PIPING. SEAL PENETRATION LIQUID TIGHT.

## SHEET SPECIFIC NOTES

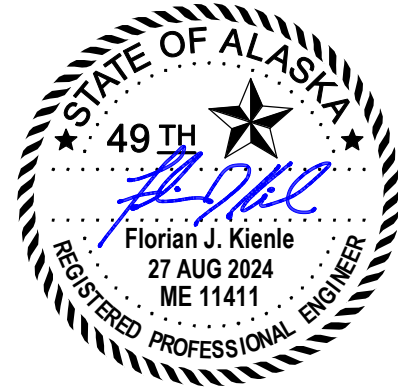
- 1 CONNECT INSTALL FOS PIPING TO EXISTING FUEL OIL SUPPLY PIPING AT POINT OF CONNECTION AT EXISTING ACCESS CONDUIT.
- 2 ROUTE 1/2" FUEL OIL SUPPLY PIPING THROUGH BUILDING AND WALL, SEAL WATERTIGHT. PAINT TO MATCH EXISTING SIDING.
- 3 1/2" FUEL OIL SUPPLY PIPE ROUTED WITHIN BURIED 4" ACCESS CONDUIT.
- 4 SUPPORT VENT HIGH ALONG WALL, SUPPORT ON EAVE, AND TERMINATE ABOVE EXISTING ROOF, PAINT TO MATCH EXISTING SIDING.
- 5 CONNECT TO EXISTING ACCESS CONDUIT BELOW GRADE.
- 6 PATCH EXISTING VENT THROUGH ROOF PENETRATION.
- 7 TANK ACCESSORIES SHALL NOT BLOCK OCCUPANT WINDOWS.



5 COMMUNITY CENTER - GROUND LEVEL PLAN  
1" = 10'-0"



## KEY PLAN

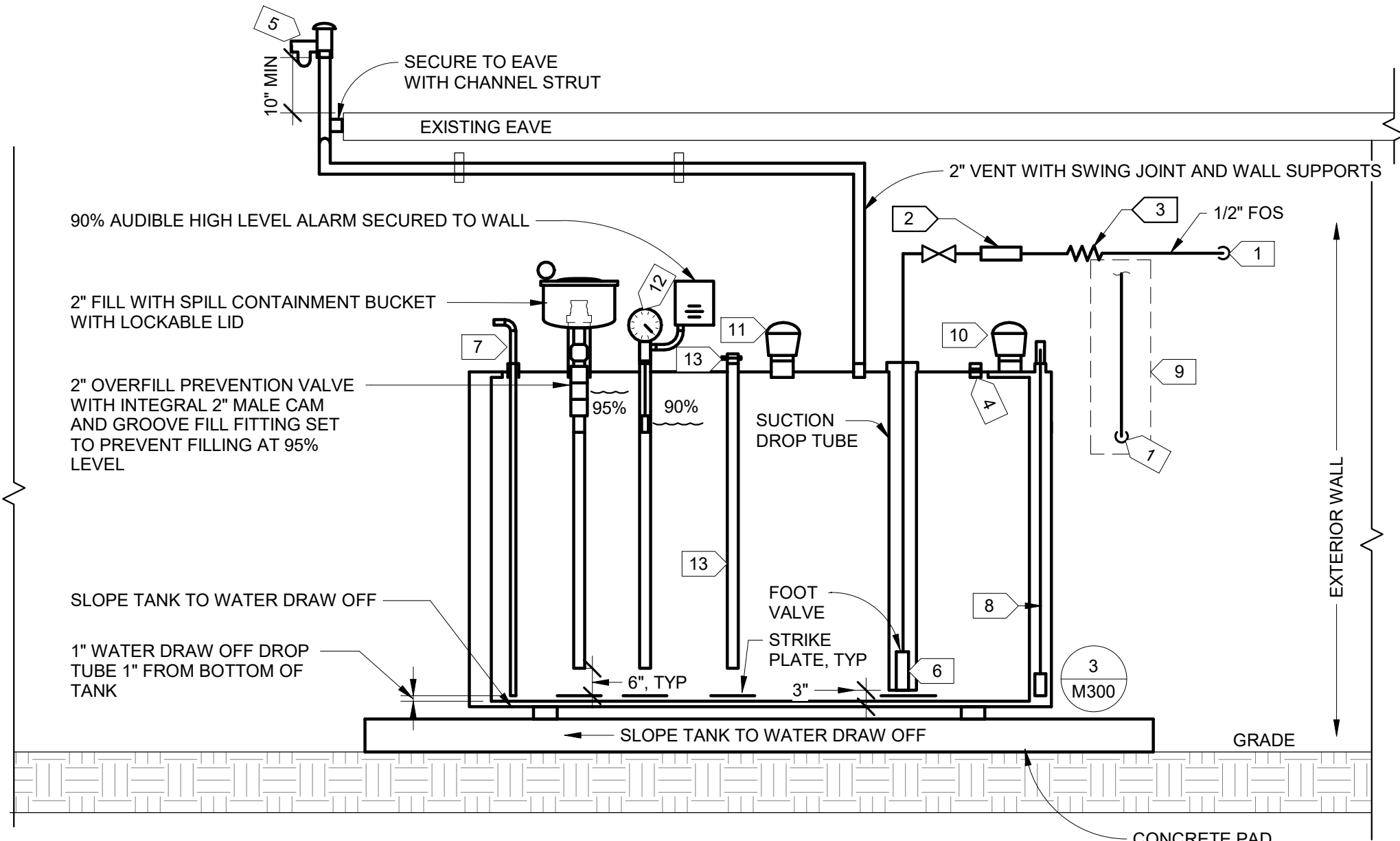
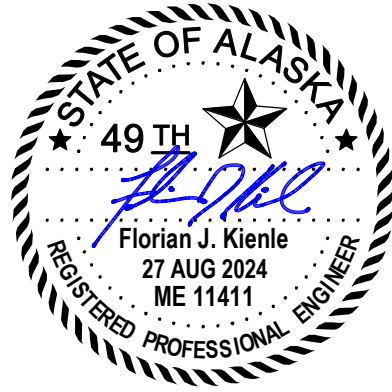


## GENEVA WOODS UST CLOSURE & AST INSTALLATION

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DESIGNED BY FJK  
DRAWN BY FJK  
SCALE 0" = 1"

## INSTALLATION PLANS

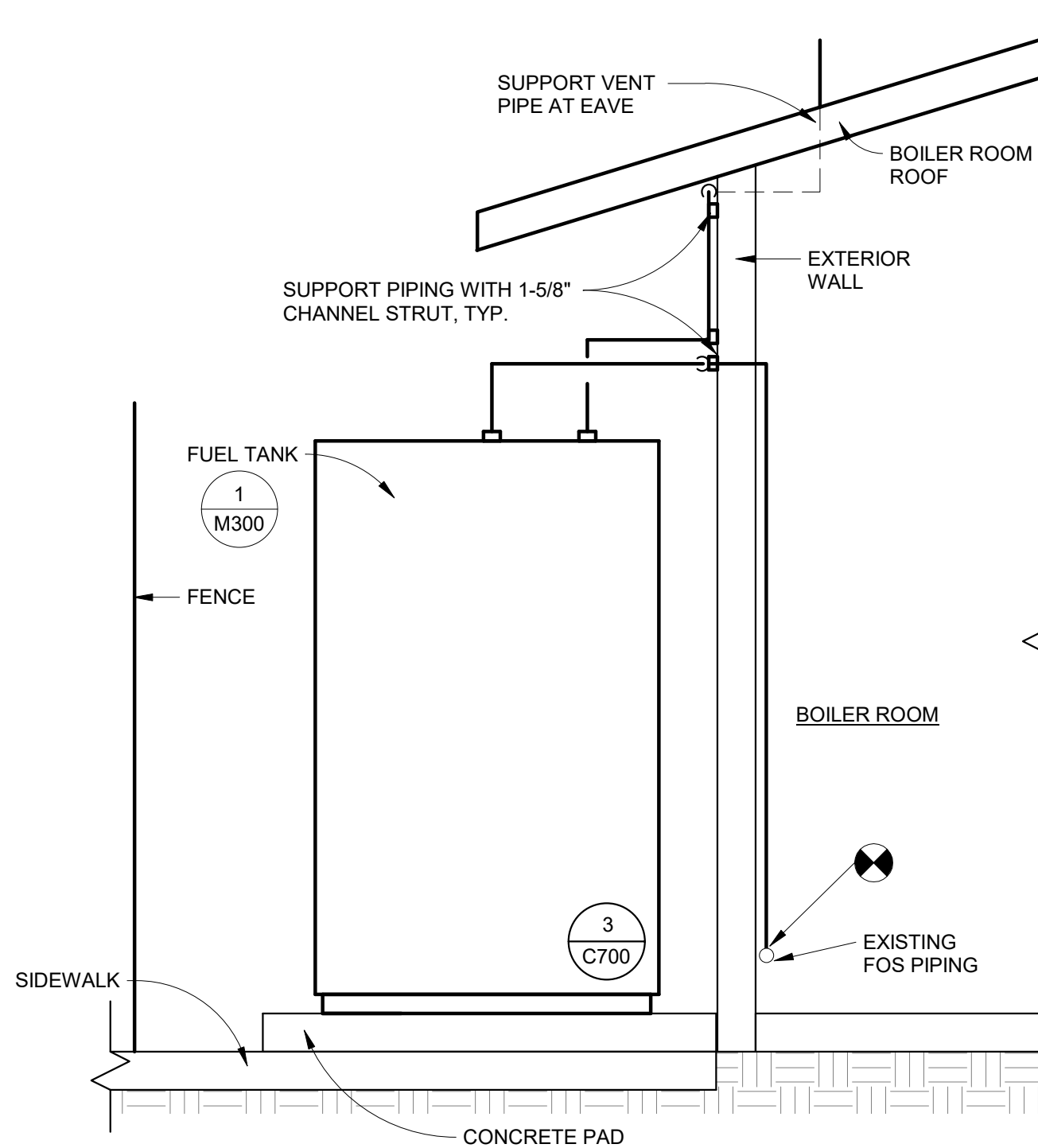
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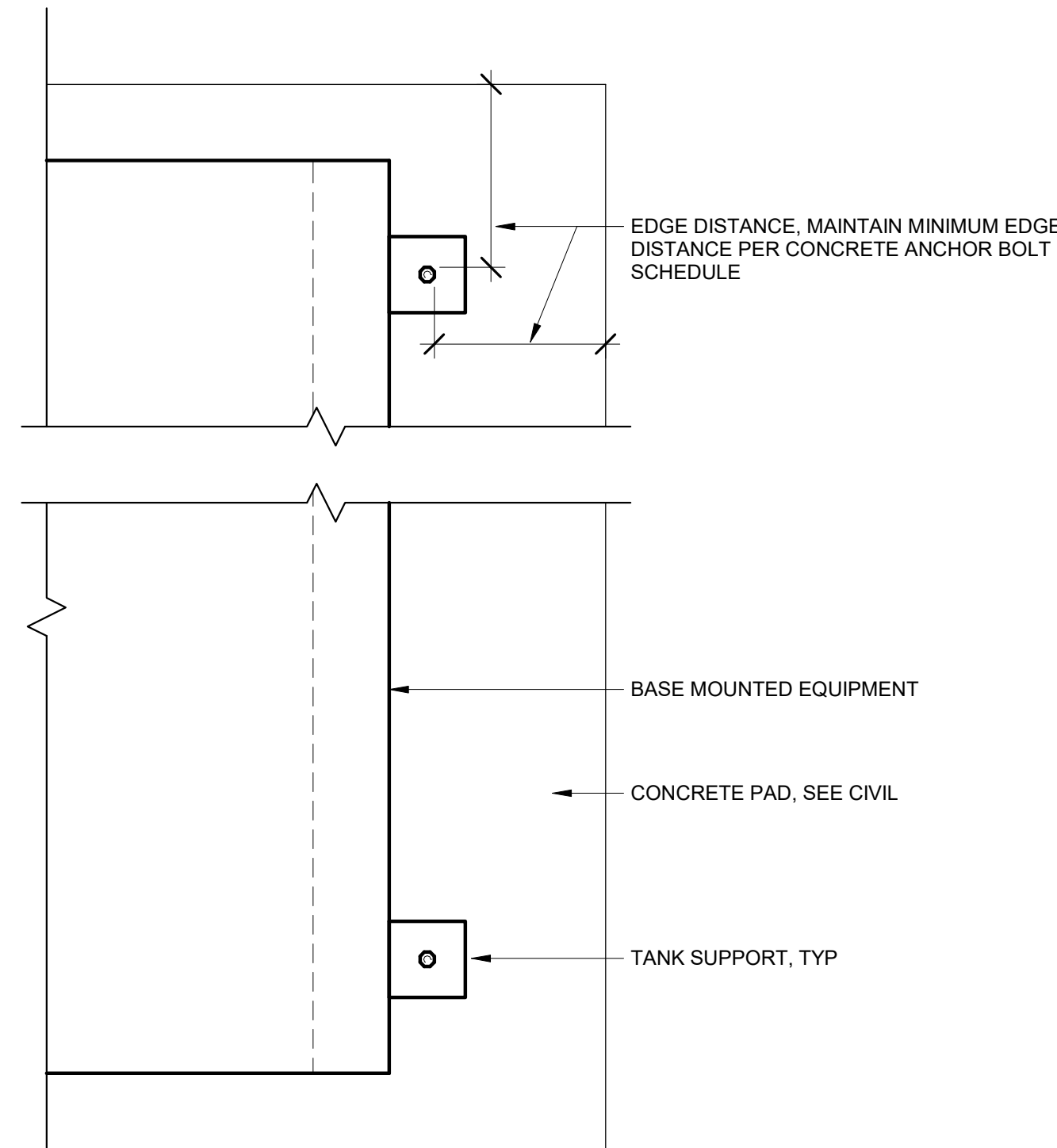
#### SPECIFIC NOTES

- 1 FOS TO BOILER ROOM THROUGH SLEEVED WATERTIGHT PENETRATION
- 2 1/2" ANTISIPHON VALVE
- 3 FLEXIBLE HOSE, 18" LENGTH, TYP.
- 4 4" SPARE THREADED CAST STEEL TANK FITTING
- 5 2" PRIMARY TANK VENT WITH AUDIBLE WHISTLE VENT, MORRISON 922, SET TO ALARM AT 90% TANK LEVEL. LOCATE MIN12FT ABOVE TANK AND 5FT AWAY FROM ANY BUILDING OPENING OR WINDOW
- 6 INSTALL FOOT VALVE AT BASE OF FUEL OIL SUPPLY RISER
- 7 1" WATER DRAW OFF WITH WATERTIGHT CAP. LOCATE PICKUP 1" ABOVE TANK BOTTOM. LABEL "WATER DRAW OFF" AT TANK OPENING
- 8 INTERSTITIAL LEAK DETECTION DEVICE
- 9 FOS TO CRAWLSPACE, ROUTE DOWN WALL TO POINT OF PENETRATION WITHIN EXTERIOR CONCRETE WALL
- 10 INTERSTITIAL TANK EMERGENCY VENT
- 11 PRIMARY TANK EMERGENCY VENT
- 12 VISUAL CLOCK GAUGE WITH AUDIBLE HIGH LEVEL ALARM SET TO ACTIVATE AT 90% FULL LEVEL, VISUALLY INDICATE HIGH LEVEL ON GAUGE FACE
- 13 2" STRAIGHT FILL PORT FOR MANUAL GAUGING WITH LOCKABLE CAP

1 ABOVE GROUND FUEL OIL TANK DETAIL  
NO SCALE



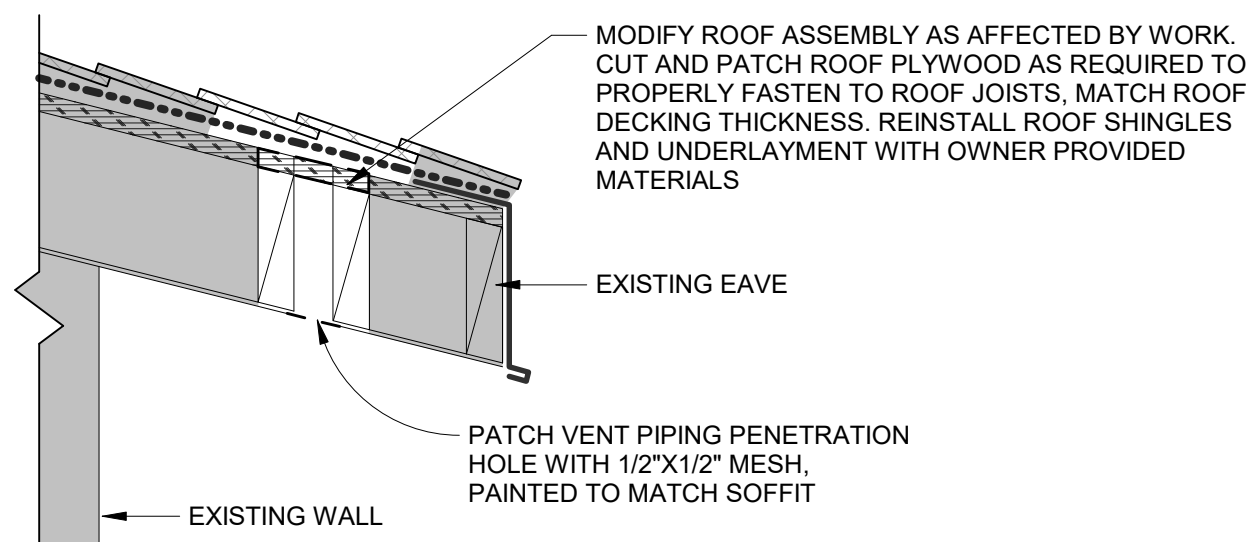
2 FUEL OIL PIPE SUPPORT BRACING DETAIL  
3/4" = 1'-0"



#### GENERAL NOTES

1. REFER TO CONCRETE ANCHOR BOLT SCHEDULE FOR REQUIRED INSTALLATION AND QUANTITY OF SEISMIC ANCHOR BOLTS FOR EQUIPMENT.

3 ABOVE GROUND TANK SEISMIC ANCHOR INSTALLATION DETAIL  
NO SCALE



4 ROOF PATCH DETAIL - VENT THROUGH EAVE  
NO SCALE

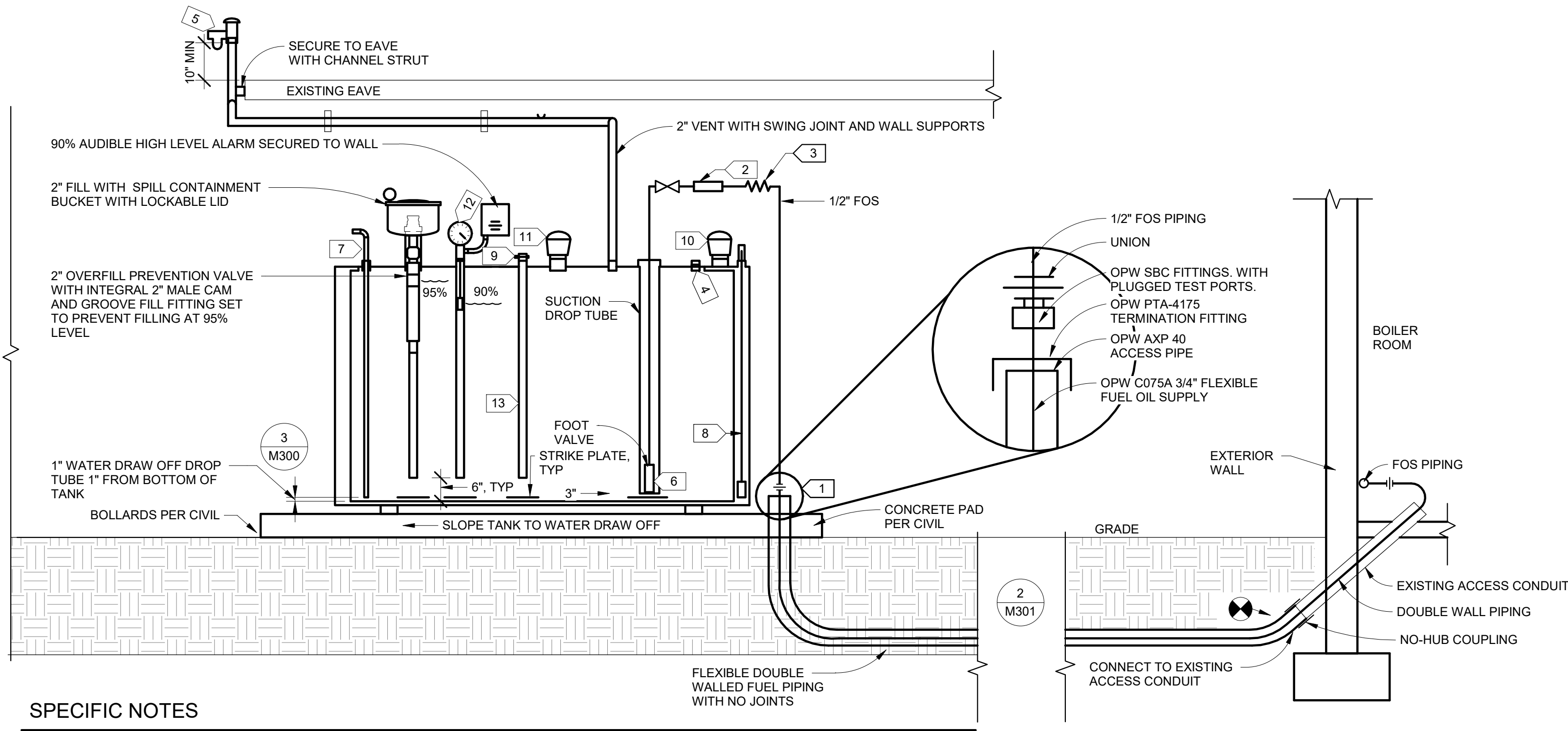
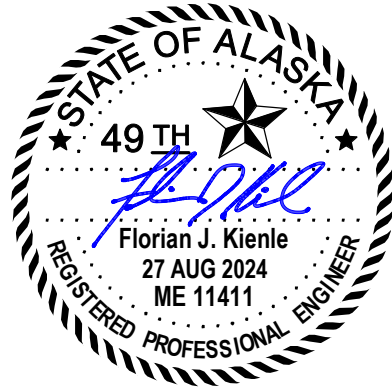
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#### DETAILS

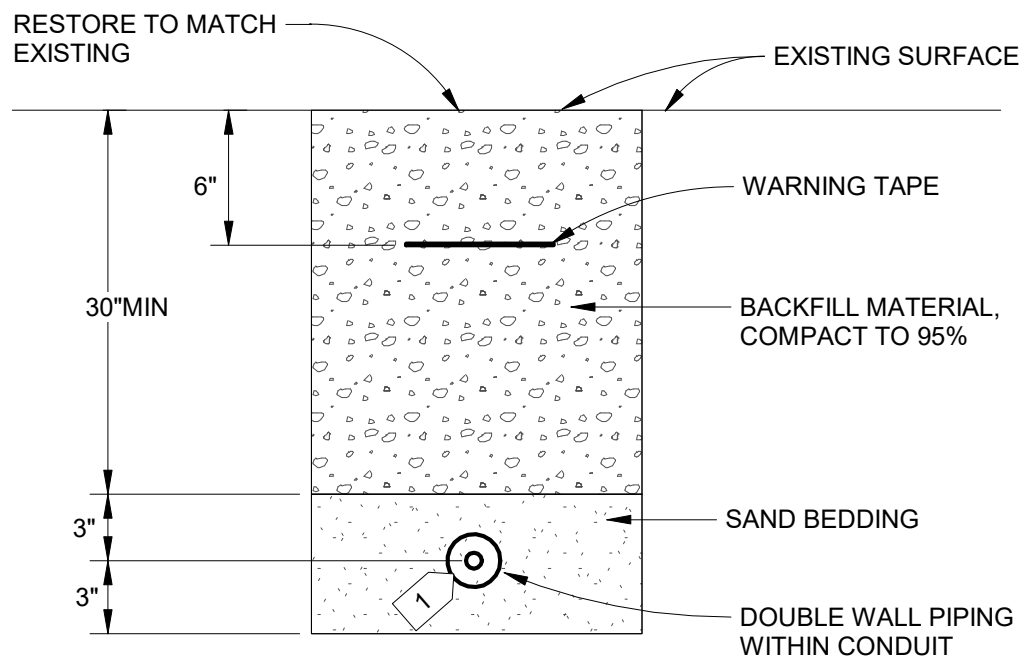
M300





#### SPECIFIC NOTES

- 1 WATERTIGHT DOUBLE WALL PIPE EXIT ABOVE GRADE
- 2 1/2" ANTISIPHON VALVE
- 3 FLEXIBLE HOSE, 18" LENGTH, TYP.
- 4 4" SPARE THREADED CAST STEEL TANK FITTING
- 5 2" PRIMARY TANK VENT WITH AUDIBLE WHISTLE VENT, MORRISON 922, SET TO ALARM AT 90% TANK LEVEL. LOCATE MIN 12FT ABOVE TANK AND 5FT AWAY FROM ANY BUILDING OPENING OR WINDOW
- 6 INSTALL FOOT VALVE AT BASE OF FUEL OIL SUPPLY RISER
- 7 1" WATER DRAW OFF WITH WATERTIGHT CAP. LOCATE PICKUP 1" ABOVE TANK BOTTOM. LABEL "WATER DRAW OFF" AT TANK OPENING
- 8 INTERSTITIAL LEAK DETECTION
- 9 2" STRAIGHT FILL PORT FOR MANUAL GAUGING WITH LOCKABLE CAP
- 10 INTERSTITIAL TANK EMERGENCY VENT
- 11 PRIMARY TANK EMERGENCY VENT
- 12 VISUAL CLOCK GAUGE WITH AUDIBLE HIGH LEVEL ALARM SET TO ACTIVATE AT 90% FULL LEVEL, VISUALLY INDICATE HIGH LEVEL ON GAUGE FACE
- 13 2" STRAIGHT FILL PORT FOR MANUAL GAUGING WITH LOCKABLE CAP



#### SPECIFIC NOTES

- 1 INSTALL DOUBLE WALL PIPING AND CONTAINMENT CONDUIT PER MANUFACTURER RECOMMENDATIONS

1 ABOVE GROUND FUEL OIL TANK DETAIL - BURIED PIPING  
NO SCALE

2 UNDERGROUND FUEL OIL PIPING INSTALLATION DETAIL  
NO SCALE

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#### DETAILS

M301

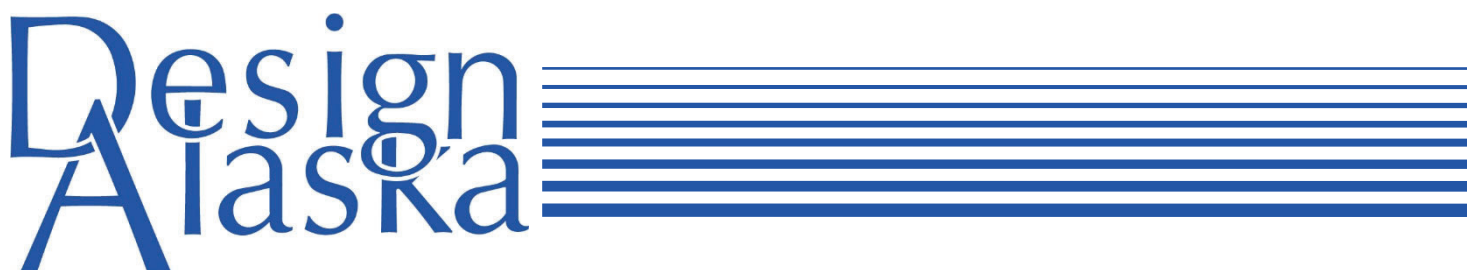


**Alaska Housing Finance Corporation  
Mountain View Heating  
Fuel Tank Replacement  
Juneau, Alaska**

**Final Construction Documents**

**For:  
Alaska Housing Finance Corporation  
4300 Boniface Parkway  
Anchorage, AK, 99504**

**May 22, 2025**



# **Alaska Housing Finance Corporation Mountain View Heating Fuel Tank Replacement Juneau, Alaska**

## **Final Construction Documents**

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- **Drawings**

**By:  
Design Alaska, Inc.  
601 College Road  
Fairbanks, Alaska 99701**

**May 22, 2025**

## **Specifications**

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02 65 01	Buried Heating Oil Tank Closure
02 84 19	Removal of Contaminated Soils
DIVISION 20	MECHANICAL
20 01 00	Operation and Maintenance for Mechanical
20 05 00	Common Work Results
20 05 11	Common Submittal Requirements for Mechanical
20 05 53	Identification for Mechanical
DIVISION 23	HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
23 11 13	Facility Fuel Oil Piping
23 13 23	Facility Above Ground Fuel Oil Storage Tanks
DIVISION 31	EARTHWORK
31 20 00	Earth Moving
DIVISION 32	EXTERIOR IMPROVEMENTS
32 13 13	Concrete Paving
32 31 13	Chain Link Fences and Gates
32 92 19	Seeding

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 02 65 01 - BURIED HEATING OIL TANK CLOSURE

- A. This section covers the closure of buried heating oil tanks and complete removal of tanks. Tanks shall be closed in accordance with this specification without regard to their status as regulated or non-regulated as defined by the Alaska Department of Environmental Conservation (ADEC).

### 1.2 SCOPE OF WORK

- A. General: The buried heating oil tank closure work consists of the assessment and closure of the heating oil storage system. Site specific tank, appurtenance, and fuel piping demolition and equipment locations are shown in the Drawings.
- B. The Contractor shall provide a Qualified Environmental Professional (QEP) as defined by ADEC. This may be a qualified staff member or qualified contractor.
- C. The QEP shall provide a Tank Closure Work Plan and include oversight, site assessment, quality assurance, analytical laboratory services, and reporting. The QEP shall be retained by the Contractor; be responsible be physically present at the construction site during tank closure plan execution and have the necessary education and/or experience in accordance with ADEC requirements.
  - 1. The costs of these Environmental Quality Professional services are the responsibility of the Contractor.
- D. The Contractor shall coordinate all fuel oil storage system closure efforts with the QEP and provide equipment and support during the planning and execution of tank closure.
- E. The Owner, Federal, State, or local agencies may require their representative(s) to be present to inspect the tank closure operations. The Contractor shall comply with all such assessment and inspection circumstances and the Tank Closure Work Plan. The Contractor shall notify the Owner immediately of any agency inspections.

### 1.3 QUALITY ASSURANCE

- A. The Qualified Environmental Professional (QEP) provided shall be employed by a firm who is regularly engaged in the closure of fuel oil tanks in Alaska. The contractor shall maintain an Office in Alaska with personnel to ensure prompt response (24 hour maximum) to an emergency call during the work period.

- B. The Contract and QEP shall be able to demonstrate that they have had experience writing and executing tank closure plans and providing ADEC required documentation and reports comparable in type and size called for in these Specifications.
- C. Within 2 weeks after award of contract, submit to the Owner the following items for Contractor qualification:
  - 1. Name of company and QEP personnel with proof of the ADEC credentials as defined by ADEC QEP standard.
  - 2. Proof of Alaskan Office, with full time representative.
  - 3. List of Alaskan projects with names, addresses, and phone numbers of Owners which are representative where tank closure has been performed and include a brief project description and summary of the work performed.

#### 1.4 CONTAMINATED SOILS

- A. There are no known contaminated soils present at the Project work area. However, owing to the nature of the work, the presence of contaminated soils may be discovered when the Contractor begins work. The Contractor and QEP should be alert to the possible presence of contaminated soils when following the Tank Closure Work plan and materials are encountered during storage tank demolition.
- B. If a contaminated soils are disturbed, or the Contractor suspects it has encountered such material it shall immediately stop work in the area and notify the Owner of the suspected contaminated soils.
- C. The Contractor's QEP shall conduct an assessment and shall make such tests as are necessary to determine whether contaminated soils exist.
- D. If the contaminated soils pose a hazard, the QEP shall provide an Assessment Report to the owner for evaluation.
- E. The Owner may ask the Contractor to revise its schedule or issue a change modifying the work. An equitable adjustment in the contract shall be made for any additions or deletions to the work. The Contractor shall not be entitled to any costs in addition to the Contract from any delay or subsequent extension of time from any act, omission, or work under this section.
- F. The Contractor shall provide the appropriate safeguards in order to avoid disturbing contaminated soils when warned and for the protection of its employees. The Contractor shall be liable for all costs resulting from its negligence in fulfilling its responsibilities under this Specification.

1.5 SUBMITTALS

- A. Submit permits and notification as required by ADEC and other regulatory authorities.
- B. Tank Closure Work Plan
  - 1. The Contractor shall provide Tank Closure Work Plans developed by the QEP. The Tank Closure Work plan and shall be submitted four (4) weeks after receipt of Notice to Proceed and shall include the following:
    - a. Scheduling of tank closure.
    - b. Simple discussion of proposed procedures for tank contents removal, tank cleaning, tank cutting, and tank disposal.
    - c. Key personnel to be used on the project and their responsibilities.
    - d. Provide Tank Closure plan with the following Items:
      - 1) Background and Existing Data with Vicinity Map and Site Layout.
      - 2) Scope of Work.
      - 3) Excavation.
      - 4) Sample, Analysis, and Reporting Plan with Planned Soil Sample Locations.
      - 5) Environmental Protection.
      - 6) Stockpiling.
      - 7) Waste Disposal Plan.
      - 8) Site Safety and Health Plan.
  - 2. Tank Closure Final Report including:
    - a. Project summary.
    - b. Daily reports and records.
    - c. Quantities of fuel and sludge removed and its disposal.
    - d. Landfill or scrap yard receipt for disposal of the cut-up tank.

- e. Photo journal of tank purging, contents removal and handling during excavation and closure and labeling prior to transport.
- f. Correspondence: Copies of all correspondence with government agencies shall be furnished to the Owner immediately upon issue or receipt. All Contractor correspondence with ADEC, unless specified otherwise in this section, shall be through the Owner.

## 1.6 REFERENCES

### A. AMERICAN PETROLEUM INSTITUTE (API)

- 1. API Pub 2217 (Jun. 1984; 1st Ed) Guidelines for Confined Space Work in the Petroleum Industry.
- 2. API RP 1604 (Feb. 1921; 4th Ed) Removal and Disposal of Used Underground Petroleum Storage Tanks.
- 3. API RP 2015 (Jan. 1918; 8th Ed) Cleaning Petroleum Storage Tanks.

### B. STATE OF ALASKA

- 1. 18 AAC 78 Underground Storage Tanks.

## PART 2 PRODUCTS (NOT USED)

## PART 3 EXECUTION

### 3.1 WORK PLAN EXECUTION

- A. The Contractor shall perform all work in accordance with all Federal, State, and local laws and regulations; these specifications; and all approved plans submitted under this section.
  - 1. The Contractor shall exercise quality control as required in this Section and in accordance with the approved Tank Closure Work Plan.

### 3.2 TANK CLOSURE

- A. Complete the following tasks in accordance with the methods approved in the Tank Closure Work Plan:
  - 1. Tank contents removal.
  - 2. Purging and venting.



3. Inspection of tank interior.
4. Inspection of tank exterior.
5. Excavation.
6. Closure.
7. Disposal.

### 3.3 BACKFILLING

- A. Backfill the excavation with gravel, excavated soil, and patch surface to match surrounding area, extend finishes to what it abuts.

### 3.4 FINAL REPORT

- A. Contractor QEP will prepare the Final Tank Closure Report and submit to owner. The tank closure contractor shall coordinate all tank closure activities and cooperate with the Owner in providing all information and records required regarding tank closure, tank, and tank contents disposal.

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 02 84 19 - REMOVAL AND DISPOSAL OF CONTAMINATED SOILS

- A. This section covers the removal and disposal of contaminated soils.

### 1.2 SCOPE OF WORK

- A. General: the contaminated soil work consists of conducting contaminated soils removal handling, packaging, storage, transport and disposal in accordance with an approved work plan, applicable regulations, and this specification. There are no known contaminated soils present at the Project work area.
- B. The Contractor shall provide a Qualified Environmental Professional (QEP) as defined by Alaska Department of Environmental Conservation (ADEC). This may be a qualified staff member or qualified contractor.
- C. The QEP shall provide a Contaminated Soils Removal Plan and include soil removal oversight, site assessment, quality assurance, analytical laboratory services, and reporting. The QEP shall be retained by the Contractor; be responsible be physically present at the construction site during Plan execution and have the necessary education and/or experience in accordance with ADEC requirements.
  - 1. The costs of these Environmental Quality Professional services are the responsibility of the Contractor.
- D. The Contractor shall coordinate all contaminated soils removal efforts with the QEP and provide equipment and support during the planning and execution of tank closure.
- E. The Owner, Federal, State, or local agencies may require their representative(s) to be present to inspect the contaminated soils removal operations. The Contractor shall comply with all such assessment and inspection circumstances and the Contaminated Soils Removal Plan. The Contractor shall notify the Owner immediately of any agency inspections.

### 1.3 QUALITY ASSURANCE

- A. The Qualified Environmental Professional (QEP) provided shall be employed by a firm who is regularly engaged in the removal and disposal of contaminated soils in Alaska. The contractor shall maintain an Office in Alaska with personnel to ensure prompt response (24 hour maximum) to an emergency call during the work period.

- B. The QEP shall be able to demonstrate that he has had experience writing and executing contaminated soil removal plans and providing Alaska Department of Environmental Conservation required documentation and reports comparable in type and size called for in these Specifications.
- C. The Contract and QEP shall be able to demonstrate that they have had experience with handling and disposal of contaminated soils within Alaska or to another State with volume of material of comparable in type and size called for in these Specifications.
- D. Within 2 weeks after award of contract, submit to the Owner the following items for qualification:
  - 1. Name of company and QEP personnel with proof of the ADEC credentials as defined by Alaska Department of Environmental Conservation QEP standard.
  - 2. List of Alaskan projects with names, addresses, and phone numbers of Owners which are representative where and removal and closure has been performed and include a brief project description and summary of the work performed.

#### 1.4 SUBMITTALS

- A. Submit permits and notification as required by Alaska Department of Environmental Conservation and other regulatory authorities.
- B. Contaminated Soils Removal and Disposal Work Plan
  - 1. The Contractor shall provide the Contaminated Soils Removal and Disposal Plans developed by the QEP. The Contaminated Soils Removal and Disposal shall be submitted four (4) weeks after receipt of Contaminated Soils Assessment Report and shall include the following:
    - a. Scheduling of soils removal.
    - b. Simple discussion of proposed procedures for soils removal, storage, hauling, handling, and manifesting procedure.
    - c. Key personnel to be used on the project and their responsibilities.
    - d. Provide Contaminated Soils Removal and Disposal Plan with the following Items:
      - 1) Background and Existing Data with Vicinity Map and Site Layout.
      - 2) Scope of Work.
      - 3) Sample, Analysis, and Reporting Plan with Planned Soil Sample Locations.

- 4) Environmental Protection.
  - 5) Removal and Stockpiling.
  - 6) Waste Disposal Plan.
  - 7) Site Safety and Health Plan.
2. Contaminated Soils Removal and Disposal Closure Final Report including:
  - a. Project summary.
  - b. Daily reports and records.
  - c. Quantities of contaminated soils removed and their disposal.
  - d. Receipt for disposal of contaminated soils in approved location.
  - e. Photo journal of soils removal and handling during excavation and removal and labeling prior to transport.
  - f. Correspondence: Copies of all correspondence with government agencies shall be furnished to the Owner immediately upon issue or receipt. All Contractor correspondence with ADEC, unless specified otherwise in this section, shall be through the Owner.

## 1.5 REFERENCES

### A. STATE OF ALASKA

1. 8 AAC 61 Occupational Safety and Health Standards.
2. 18 AAC 60 Solid Waste Management.
3. 18 AAC 62 Hazardous Wastes.
4. 18 AAC 75 Oil and Hazardous Substances Pollution Control.
5. 18 AAC 78 Underground Storage Tanks.

### B. Title 40 CFR, Environmental Protection Agency (EPA)

1. Part 261 Identification and Listing of Hazardous Waste.
2. Part 263 Standards Applicable to Transporters of Hazardous Waste.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 WORK PLAN EXECUTION

- A. The Contractor shall perform all work in accordance with all Federal, State, and local laws and regulations; these specifications; and all approved plans submitted under this section.
  - 1. The Contractor shall exercise quality control as required in this Section and in accordance with the approved Contaminated Soils Removal and Disposal Work Plan.

3.2 CONTAMINATED SOILS REMOVAL

- A. Complete the following tasks in accordance with the methods approved in the Contaminated Soils Removal and Disposal Work Plan:
  - 1. Hazard assessment and site characterization.
    - a. Perform release investigation, soil sampling, collection, and testing.
    - b. Provide release investigation report to Owner and submit release investigation to required agencies as required.
  - 2. Corrective Action.
    - a. Remove and dispose of contaminated soil in accordance with applicable ADEC Statutes and dispose of contaminants.

3.3 BACKFILLING

- A. Backfill the excavation with gravel, excavated soil, and patch surface to match surrounding area.

3.4 FINAL REPORT

- A. Contractor QEP will prepare the Final Contaminated Soils Removal and Disposal Report and submit to owner. The contaminated soils removal Contractor shall coordinate all soil removal activities and cooperate with the Owner in providing all information and records required regarding soil removal and disposal.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 20 01 00 - OPERATION AND MAINTENANCE FOR MECHANICAL

- A. This Section covers form, content, and submittal of mechanical system Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 FORM

- A. Arrange operation and maintenance data sequentially by Specification Section.
- B. Provide two indexes at the front of the binder that locates individual items by tab number. The first by Specification Section. The second, an alphabetical index of all items without regard to Specification Section.
- C. Separate each item with consecutively numbered heavy stock divider sheets with plastic index tab. Type item number on both sides of paper inserts.
- D. Precede each item with a completed Item Data Sheet. See required format attached to the end of this Specification Section.
- E. Material included shall indicate the specific item(s) utilized for this Project. Delete or cross out all other items.
- F. Provide complete operation and maintenance manual submittals. Partial or incomplete submittals required under this Section will be returned without review.

2.2 DATA

- A. Provide data for all items, equipment, and equipment components specified or indicated under this Division, so that the Owner's maintenance personnel will have complete service and replacement information required for routine maintenance and repair and to provide maximum usable life. Include data not only for maintainable and repairable items, but also for replaceable but not repairable items. Typical items for which information is required include:
  - 1. Equipment including all components and accessories such as, fill limiters, level alarms, couplings, fuel connections, etc.
  - 2. Valves, strainers, filters, and other piping accessories.
  - 3. Storage tanks and accessories.

- B. Include the following data for each item as applicable. Some of these data can be extracted from equipment review submittals and included with the Operation and Maintenance Manuals.
  - 1. Manufacturer's catalog literature and illustrations.
  - 2. Operating characteristics including capacity data, flow rates, pressure drops, etc.
  - 3. Dimensions and connection sizes.
  - 4. Installation and adjustment instructions, requirements, and recommendations.
  - 5. Parts lists and assembly Drawings.
  - 6. Maintenance, operational, and troubleshooting instructions.
  - 7. Warranty data.
- C. Data shall be as provided by the equipment manufacturer or supplier.
- D. Data is required for all component items of equipment whether or not the components are products of the equipment manufacturer.
- E. All material must be clearly readable. "Faxed" then photocopied information is not acceptable.
- F. Include a chart, neatly typed, and arranged by system, summarizing periodic inspections and maintenance recommended by equipment manufacturers and/or required to properly maintain the storage system and new mechanical systems. The periodic maintenance summary chart shall include equipment name, identification symbol, location, type of maintenance or inspection required, and recommended time interval.
- G. Include an equipment schedule, neatly typed and arranged by system, listing new equipment with equipment symbol, nomenclature, function and area served, location, manufacturer, nameplate data including model and serial number.

## 2.3 BINDING

- A. Bind the Operation and Maintenance Manuals in three ring, D-ring style binders with page lifters and vinyl covers. Expandable catalog type two hole binders with soft board covers and metal prong fasteners will not be accepted.
- B. Provide multiple binders as required to limit single binder thickness to three inches. Divide binders at logical points. Do not overfill binders.
- C. Label the front cover and end panel. Label to include Project title, Project number, date, and facility name.

PART 3 EXECUTION

3.1 REQUIRED COPIES AND TIMING

A. Review Submittals:

1. Submit one electronic copy (PDF format) of the Operation and Maintenance Manual for review and acceptance by the Contracting Officer. Electronically Index (Bookmark) each section and item, by item data number and name within the electronic submittal.
2. Submit for review not less than thirty days prior to Substantial Completion Inspection.

B. Final Operation and Maintenance Manuals:

1. Provide one complete, reviewed, corrected, and accepted Operation and Maintenance Manuals in paper form and binding to the Contracting Officer a minimum of five working days prior to Project Substantial Completion Inspection and 5 working days prior to any scheduled training on equipment covered by the Operations and Maintenance Manual.
2. Provide one complete digital copy's (PDF format) of the accepted Operation and Maintenance Manuals to the Contracting Officer as part of the Final Operation and Maintenance Manual submittal. Provide digital copies on USB compatible memory card (Flash).
  - a. Provide in PDF file format, current version. Provide a single file for each volume.
  - b. Electronically Index (Bookmark) each section and item, by item data number and name within the electronic submittal.
3. Contractor shall retain digital copy of the final accepted Operations and Maintenance manual for 5 years and shall provide a digital copy to AHFC as requested during that period.

END OF SECTION

ATTACHMENT: ITEM DATA SHEET



ITEM DATA SHEET

1. Item name/Drawing equipment number:
  
2. Specification section/Drawing number:
  
3. Manufacturer/model number:
  
4. Size/capacity:
  
5. Use and location: (1)
  
6. Spare parts source:
  
7. Providers of warranty service:
  
8. Other Contractor comments:

(1) This information must be provided for all items. Be specific as possible.

PART 1 GENERAL

1.1 SCOPE: SECTION 20 05 00 - COMMON WORK RESULTS

- A. This Section covers general mechanical requirements for Work covered under Divisions 20, 23 and 33.
- B. All Work and services specifically covered under this Division is supplementary to that covered under other Divisions of these Contract Documents. The requirements of this Division which are more stringent than that covered under other parts of these Contract Documents apply to Work covered under this Division.
- C. All incidental Work required but not specified under this Division shall comply with the Division in which it is specified.
- D. Review the Drawings and Specifications of all other Divisions for additional Work under Division 20.

1.2 GENERAL REQUIREMENTS

- A. Provide the Owner with complete, coordinated, operating, tested, and adjusted mechanical systems.
- B. Place all equipment in operation and instruct the Owner's maintenance personnel as to the proper operation and periodic maintenance new mechanical equipment and systems.
- C. The Drawings are somewhat diagrammatic and do not attempt to show all offsets or fittings required for installation of the mechanical system. Furnish and install pipes with fittings required for complete and proper installation of mechanical systems specified or required under this Division.
- D. Provide piping, equipment, and accessories indicated on the Drawings unless it is specifically indicated that the piping, equipment, or accessory is existing.
- E. Install piping, and equipment in accordance with manufacturer's recommendations, with accessories recommended by the manufacturer for service intended, and with accessories indicated. Should recommendations conflict with Contract Documents, contact Owner for clarification before proceeding.
- F. Coordinate the installation of the mechanical systems with the Work of other trades and existing conditions. Route mechanical systems as required to avoid interference with the Work of other trades and existing conditions.
- G. Do not scale the Mechanical Drawings. Verify dimensions as construction progresses.

- H. Field verify in regard to wall thicknesses, dimensions and other details of the building construction.
- I. Report any errors, discrepancies, or ambiguities to the Owner, who will answer all questions and interpret intended meaning of these Contract Documents. Accept Owner's interpretation as final.
- J. Perform Work in a neat and workmanlike manner with skilled craftsmen specializing in said Work.
- K. Provide new equipment and materials direct from the manufacturer unless specifically indicated otherwise. Remanufactured equipment and materials are specifically not acceptable.
- L. Provide the product of only one manufacturer for each item or type of item provided in quantity.
- M. Where the selection of materials or methods is left to the discretion of the Contractor, faithfully pursue the use of the best available materials or methods suitable for the purpose intended.

### 1.3 LOCAL CONDITIONS

- A. Bidders shall familiarize themselves with the Contract Documents and existing conditions which affect Work required by the Contract Documents. It will be assumed that bidders have made a personal examination of the jobsite and existing conditions.
- B. Failure to visit the jobsite will in no way relieve the successful bidder from the necessity of furnishing any materials or performing any Work that may be required to complete the Work in accordance with the Contract Documents with no additional cost to the Owner.

### 1.4 PERMITS, TESTING, AND INSPECTIONS

- A. Apply, obtain, pay for, and comply with the requirements of all permits, fees and inspections by public authorities required for the Work covered under this Division of the Specifications.
- B. Transmit copies of permit applications, permits received, and public authority inspection reports to the Owner.

- C. Test mechanical systems in accordance with the most restrictive procedures as defined under applicable codes or as specified elsewhere under this Division.
  - 1. Provide a minimum of three working days' notice to Owner and public authorities prior to performance of test.
  - 2. If less than required notice is given, the Owner may require the Contractor to repeat the test at no additional cost to the Owner.
  - 3. Test Work prior to concealing. If less than required notice is given prior to concealing, the Owner may require the Contractor to uncover such Work for inspection and recover same at no additional cost to the Owner.
  - 4. Submit certificate of compliance for all tests indicating system tested, results of tests, witnesses, and dates prior to calling for Substantial Completion and final inspections.
  - 5. During testing, isolate piping system equipment and accessories that are not rated to withstand test pressures or perform test prior to connection of such equipment and accessories to the piping system.
- D. Substantial Completion and Final Inspections:
  - 1. Provide minimum of 7 calendar days' notice to Owner and public authorities of intent to have Work ready for inspection. Confirm that Work will be ready for inspection a minimum of 3 working days' notice prior to requested inspection.
  - 2. Prior to inspection:
    - a. Deliver to the Owner required equipment, Drawings, and records.
    - b. Clean equipment and remove manufacturer's stickers and leave free of dust and dirt.
    - c. Remove boxes, scrap, and other debris.
    - d. Touch up holidays or damaged painted surfaces.
    - e. Contractor's Mechanical Administrator, licensed by the State of Alaska, shall review mechanical systems installation for conformance with Contract Documents. With request for inspection, Contractor's Mechanical Administrator shall verify in writing that this review has been performed and note anything not conforming to Contract Documents.
    - f. With request for re-inspection of Work previously inspected, provide the Owner's previous inspection's deficiency list accompanied by an item by item statement of measures taken to correct the previously listed deficiencies.

- g. Deliver to Owner personnel all special tools and devices furnished by the manufacturer with items, specialties, or equipment to allow installation, disassembly, adjustment, repair or maintenance. Identify special tools or devices as to item to which it is applicable.
    - h. Provide mechanical receivables that the Owner is to receive upon completion of the Project. Turn over an inventory list of materials provided for the Owner's use to the Owner prior to scheduling substantial completion and final inspections.
    - i. Deliver to the Owner a Certificate of Instruction signed by all Owner personnel receiving instruction, all Contractor personnel providing instruction, and indicating dates of instruction.
  - 3. During inspection:
    - a. Provide complete and up-to-date set of current record drawings for use during inspection.
    - b. Demonstrate that the mechanical system performs in accordance with the Contract Documents. Provide material and personnel required to perform the demonstration.
    - c. Provide assistance to inspection personnel required for a complete and thorough inspection.

#### 1.5 CODES, ORDINANCES, AND STANDARDS

- A. Federal, State, and local Codes and Ordinances take precedence over these Specifications and Drawings where conflicts occur unless the Drawings or Specifications call for more stringent requirements. Notify the Owner in writing of conflicts.
- B. Follow latest adopted editions of Code of Federal Regulations, Alaska Administrative Code, International Mechanical Code, Uniform Plumbing Code, International Fire Code, National Electrical Code, NFPA, ASME, NEMA, etc. as applicable.
- C. Comply with all applicable laws, building and construction codes, OSHA Safety and Health Regulations and applicable requirements of any governmental agency under whose jurisdiction this Work is being performed.

1.6 TEMPORARY HEAT

- A. During construction and until the Work is accepted as substantially complete by the Owner, provide such temporary equipment, piping, fuel oil storage, fuel oil, wiring, power, vents, and related items as necessary to maintain heating and domestic hot water operation using existing equipment. Fuel consumed during construction will be reimbursed by the owner monthly, keep adequate accounting of fuel consumption at each location.
- B. System outages will be scheduled to limit impact of building occupants. Existing systems shall be in working order daily, until 9am, and will be put back in service daily, no later than 4:30pm as practicable. The Owner may approve requests for outage during these times, in writing, if determined, at the sole discretion of AHFC, to be in the best interests of the project, property, and program.
- C. Maximum Fuel consumption rates associated with each Building are expected not to exceed 20 gallons per day at Cedar Park and 120 gallons per day at Mountain View.
- D. Fuel containers not associated with the final fuel tank installation shall be removed from the site.

1.7 MECHANICAL COMPLIANCE RECORD

- A. Record the performance of all tests, cleaning, and flushing of mechanical systems required under this Division.
- B. Include date, time and time interval, test results, brief description of method of tests, and witnesses.
- C. Submit this record to the Owner prior to scheduling Substantial Completion and final inspections.

1.8 INSTRUCTION OF OWNER'S PERSONNEL

- A. Instruct designated Owner personnel in the proper operation, periodic maintenance and lubrication of the project's mechanical systems, equipment and accessories utilizing an accepted Operations and Maintenance Manual.
- B. As instructors, include journeymen plumbers, pipe fitters, and workers, electricians, control technicians, each fully knowledgeable of the project's mechanical systems and equipment.
- C. Instruct only those Owner personnel specifically designated by the Owner. Instruction of other Owner personnel will not meet the requirements of this Section.

- D. Include system operations; periodic maintenance including locations and techniques; including materials, methods and locations; location of concealed valves, instruments, location of electrical breakers and disconnects associated with mechanical equipment; and location of control items.
- E. Include a thorough orientation of the fuel system monitoring controls accompanied by a demonstration of the interrelationships of all control devices including sensors, relays, controllers, operators, etc. Locate monitoring equipment shown in the Drawings and demonstrate full operation of monitoring devices and systems.
- F. Instruct Owner personnel for a minimum of two (2) hours plus that required by other sections of this Division of the Specifications.
- G. Schedule the instruction period in the same manner as for system tests. The Contractor is obligated to only one instruction period. The instruction period may be divided into more than one period with the concurrence of the Owner.

#### 1.9 RECORD DOCUMENTS

- A. When submitting record documents required by Section 01700 "Project Closeout," also submit reproducible As-built Drawings of Contractor designed systems.
- B. Add the following to the list of items required by Section 01700 "General Requirements" that be legibly marked on Contract Drawings:
  - 1. Changes made to equipment identification assignments, replacing Contract Document assigned equipment designations, at each location that designation occurs.

#### 1.10 MECHANICAL WORK IN EXISTING FACILITIES

- A. Carefully lay out Work in advance.
- B. Verify existing conditions affecting Work, including existing sizes and materials indicated, prior to beginning Work or ordering materials that are affected by existing conditions. Beginning of Work means acceptance of existing conditions. Match existing products and Work unless otherwise noted. Notify Owner of conflicts in writing.
- C. Verify locations and elevations of utilities that are crossed or connected to prior to installation of new Work.
- D. When portions of existing mechanical, electrical, structural, etc. conditions are shown, it is not meant to indicate that all of such systems are shown.

- E. Where cutting, channeling, chasing, or drilling of floors, walls, partitions, exterior overhangs or other surfaces is necessary for the proper installation, support or anchorage of the mechanical equipment or piping, carefully perform this Work and patch to match existing conditions.
- F. Repair any damage to building, piping, or equipment with skilled mechanics of the appropriate trade.
- G. Coordinate connection of new services to existing building systems, including required systems shut downs, with the Owner. Limit required shut down periods to a minimum. Restore existing systems to full operational condition.
- H. Cut, move, or remove existing items as necessary for installation of new Work and restore and replace at completion.
- I. Remove from site removed materials unless otherwise indicated that the material is to be salvaged for the Owner.
- J. Remove, cut, and patch in a manner to minimize damage and to provide means of restoring items to original conditions.
- K. Replace existing mechanical insulation that is removed to accomplish Work with new insulation matching existing.
- L. Remove fuel oil piping connected to or serving equipment being removed and other fuel tank monitoring equipment conduit being removed, back to its main or connection to a still active branch and cap. Remove associated hangers and supports. If such piping or conduit is connected to mains or still active branches in areas that are not accessible or that are not being made accessible, then remove piping into area of non-accessibility and cap. Patch, to match existing, openings in walls, ceilings, or floors left or created as a result of piping removal.

#### 1.11 EXPOSED PIPING, EQUIPMENT, AND ACCESSORIES

- A. Exposed piping, equipment, and accessories shall be routed, supported, and coordinated to provide a neat, clean architectural appearance.
- B. Fabricate and install exposed piping, equipment, and accessories so that finished product exhibits a quality, craftsmanship, and appearance aesthetically acceptable to the Owner and suitable for final finishing.

#### 1.12 ASBESTOS FREE MECHANICAL SYSTEMS

- A. Provide mechanical systems that do not contain asbestos or asbestos-containing materials.



1.13 PROJECT COMPLETION DOCUMENTATION AND MATERIAL TURN OVER

- A. See individual specification sections for required project completion documentation, and required maintenance or spare parts to be turned over to the Owner, including the following:
  - 1. Record documents and reports:
    - a. Record documents – Section 20 05 00 “Common Work Results.”
    - b. Conformed O&M manuals – Section 20 01 00 “Operation and Maintenance for Mechanical.”
    - c. Test performance records for cleaning and flushing of mechanical systems – Section 20 05 00 “Common Work Results.”
  - 2. Training completion record:
    - a. Mechanical instructions training completion record – Section 20 05 00 “Common Work Results.”
    - b. Mechanical access manholes and marker familiarization training completion record – Section 20 05 00 “Common Work Results.”

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 20 05 11 - COMMON SUBMITTAL REQUIREMENTS FOR MECHANICAL

- A. This Section covers required mechanical equipment review submittals of material, equipment, items, and accessories covered under this Division for review by the Owner to determine conformance with the Project design concepts and Contract documents prior to commencement of Work under this Division.

PART 2 PRODUCTS

2.1 FORM

- A. Submittal information is required for all material and equipment specified or indicated on the Drawings.
- B. Identify each item of the submittal with an item number.
- C. Precede each item with a completed Item Data Sheet. See required format attached to the end of this Specification Section.
- D. Material submitted shall indicate the specific item(s) proposed for this Project. Delete or cross out all other items.
- E. Submit the mechanical equipment review submittal in a single volume. Division of the submittal into separate volumes is not permitted.
- F. Include application schedule as indicated in submittal requirements, example schedule format attached indicating "Application Schedule."
- G. With each resubmittal include a complete summary of all changes and additions made to the equipment review submittal since the previous submittal. Only those items included in the summary will be reviewed with the resubmitted package.
- H. Do not submit "updates" for previous submittal packages with resubmittals. Previous submittals will not be updated.

## 2.2 DATA

- A. Include the following data for each item as applicable:
  - 1. Manufacturer and model number.
  - 2. Drawing equipment number.
  - 3. Catalog literature.
  - 4. Operating characteristics including capacity data, performance curves, flow rates, pressure drops, etc.
  - 5. Dimensions and connection sizes.
  - 6. Installation and adjustment instructions, requirements, and recommendations.
  - 7. Warranty data.
- B. A list of minimum submittals required is provided in each Section. These lists are not necessarily complete or all-inclusive and the Contractor is responsible for complete submittal.

## PART 3 EXECUTION

### 3.1 REQUIRED COPIES AND TIMING

- A. Submit one electronic copy (PDF format) of the Mechanical Equipment Review Submittal or resubmittal for review and acceptance by the Owner. Electronically Index (Bookmark) each section and item within the electronic submittal.
- B. Materials submitted shall be reviewed and accepted by the Owner before Contractor releases material for fabrication or shipment.

END OF SECTION

ATTACHMENT: ITEM DATA SHEET

ATTACHMENT: APPLICATIONS SCHEDULE

ITEM DATA SHEET

1. Item number:
2. Item name/Drawing equipment number:
3. Specification section/Drawing number:
4. Manufacturer/model number:
5. Use and location: (1)
6. Spare parts source:
7. Providers of warranty service:
8. Proposed deviations from the Contract Documents: (2)
9. Other Contractor comments:
10. Contractor Certification: (2)

The undersigned Contractor Representative certifies that he has reviewed the attached information and has determined that the proposed material complies with the requirements of the Contract Documents; he has coordinated installation of the material with the work of other trades and existing conditions; he has determined and verified field measurements, field construction criteria, manufacturer's installation requirements affecting the proposed material; and has notified the Owner of conflicts.

---

Contractor Representative's Signature

- (1) If this section is left blank it will be assumed that proposed equipment is exactly as specified and indicated on the Drawings.
- (2) The Contractor referenced here is the General Contractor for the project. The signature of a subcontractor representative is not acceptable.

APPLICATION SCHEDULE (EXAMPLE)

APPLICATION	PRODUCT	MATERIAL	SIZE

Contractor Comments:

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 20 05 53 - IDENTIFICATION FOR MECHANICAL

- A. This Section covers the identification of mechanical systems and components.

### 1.2 SUBMITTALS

- A. Manufacturer's Data:
1. Catalog Cuts and selections for identification products and accessory items.

## PART 2 PRODUCTS

### 2.1 PIPE MARKERS

- A. Pressure-sensitive identification markers banded in place with color-coded tape incorporating direction of flow arrows similar to "Opti-Code" markers and "Arrows On a Roll". Seton Name Plate Corp., Brady, Brimar, or AHFC approved equal. Painted stencil markers are not acceptable.

- B. Provide markers of length and with letter size indicated below. Diameter listed is outer diameter of insulation if piping is insulated.

Nominal <u>Diameter</u>	Marker <u>Length</u>	Letter <u>Height</u>
3/4 to 1-1/4 inch	8 inches	1/2-inch

Provide marker with appropriately color-coded background and with a clearly printed legend to identify the contents of the pipe in conformance with the "Scheme for the Identification of Piping Systems" (ANSI A13.1).

### 2.2 BURIED UTILITY LINE MARKERS

- A. Provide six inches wide metalized foil core markers for non-metallic buried utilities. Seton Nameplate Corp Detection Tape, Brimar, Emedco, or AHFC approved equal.

## PART 3 EXECUTION

### 3.1 GENERAL INSTALLATION

- A. Identify new piping and equipment in the facility whether concealed within accessible spaces or exposed. Locate identification so that it is easily readable by a person standing on the floor for exposed items or at point of access for concealed items.

### 3.2 PIPING

- A. Secure pipe pressure-sensitive vinyl markers in place with pressure-sensitive tape incorporating direction of flow arrows on both ends of label. At each end make two complete wraps around the pipe with tape so that tape is wrapped back on itself to assure attachment.

### 3.3 BURIED UTILITY LINE MARKERS

- A. Install full length of utility at a depth of one foot above fuel oil line.

### 3.4 EQUIPMENT

- A. Identify equipment, i.e., tanks, with equipment labels mounted in readily accessible and readable location.
- B. Mechanically secure labels with a minimum of two screws, bolts, or rivets. Adhesive backing does not provide secure mounting.

### 3.5 PIPING LABELING

- A. Label piping in accordance with ASME A13.1 requirements as specified by the following schedule.

<u>SERVICE</u>	<u>MARKER LABEL</u>	<u>LABEL/LETTER COLOR</u>	<u>BAND COLOR</u>
Fuel:			
Fuel Oil Supply	Fuel Oil Supply	Yellow/Black	
Fuel Oil Fill	Fuel Oil Fill	Yellow/Black	
Fuel Oil Vent	Vent	Yellow/Black	White

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 23 11 13 - FACILITY FUEL OIL PIPING

- A. This Section covers the selection, installation, and testing of fuel oil piping and accessories serving oil-fired equipment.

### 1.2 SUBMITTALS

- A. Manufacturer's Data, Catalog cuts of above ground pipe and fittings are not required.
  - 1. Catalog cuts and selections of equipment and accessory items.
- B. Application Schedule: Submit a schedule of piping and fittings listing the application, product, material, and size proposed for each application.

## PART 2 PRODUCTS

### 2.1 PIPING AND FITTINGS

- A. Buried piping:
  - 1. Shall be as listed below or approved equivalent alternative. Where alternative is desired, AHFC shall have sole discretion in determining equivalency for acceptance.
  - 2. Flexible, multi-layered fuel oil piping, with fluoropolymer (PVDF) primary and secondary piping, with protective outer layer. Vacuum testable interstitial. OPW Flexworks, Franklin fueling, EBW, or AHFC approved equal.
  - 3. Stainless steel, double-Wall pipe swivel couplings, with double O-rings, and permanent testing access to interstitial space with bolt-on connections, Flexworks SBC, Franklin Fueling, EBW, or AHFC approved equal.
  - 4. Dual Layer Access pipe, 4 inch and 6 inch diameter corrugated flexible pipe conduit that accommodates double walled carrier piping up to 3 inches. OPW Flexworks AXP, Franklin Fueling, EBW, or AHFC approved equal.
  - 5. Watertight transition assembly for use with Flexworks fuel oil piping and AXP access piping, Flexworks PTA-4175, Franklin Fueling, EBW, or AHFC approved equal.



- B. Above ground piping:
  - 1. Piping exposed to damage or supported from pipe hangers: IPS schedule 40 black steel. Steel fittings with socket welded joints or malleable iron or steel fittings with screwed joints at swing joints.
  - 2. Protected piping 7/8-inch OD (3/4-inch nominal) and smaller: Type L soft copper. Flare fittings above ground.
  - 3. Ground joints unions.
  - 4. Apply two component abrasion and chemical resistant epoxy coating to all above ground piping and joints. Rust-Oleum Rocepoxy Direct-To-Metal Epoxy Mastic 9100 or similar.
- C. Pipe dope for threaded fittings: Lead-free, non-hardening. Listed by the manufacturer as suitable for proposed use. Rated for exposure to temperatures ranging from minus 90 degrees F to 410 degrees F and to pressures up to 12,000 psig, Oatey Hercules grrip/grrip lite, Gasoila Soft-Set, Locktight PST B, or AHFC approved equal.

## 2.2 FILTERS

- A. Wool felt or porous stone media with minimum 10 microns discrimination. General or equal.
- B. Rated for minimum 25 GPH flow rate.
- C. UL listed for application.

## 2.3 OIL DEAERATOR

- A. Self-venting, float operated level control, configured for connection to one pipe fuel oil distribution systems with fuel oil storage tank elevated above or below burner. Tigerholm Tiger Loop, Crown, Westwood, or equal.
- B. Built-in check valve, aluminum body, plastic bowl, fusible valve, UL listed for application.
- C. Rated for minimum 10 psig working pressure and continuous ambient temperature of 140 degrees F.

## 2.4 PIPING ACCESSORIES

- A. Ball valve:
  - 1. Class 150, threaded, floating ball, regular port, packing replaceable without removing valve from pipeline, plastic grip handle indicating valve position, lockable. Morrison 691, Milwaukee Valve, Sharpe Series 5303 or AHFC approved equal.
  - 2. Stainless steel body and tailpiece.
  - 3. TFE seat and tailpiece gasket.
  - 4. Chrome plated carbon steel ball, stem, and compression ring.
- B. Anti-siphon valve with 304/316 Stainless Steel Body and integrated 25psi relief. Normally closed with factory preset 0-5ft pressure range that may be installed in horizontal or vertical position, Morrison Brothers 912 Series, EBW, Franklin Fueling, or Equal.
- C. Flexible Connectors: Corrugated hose and single braid fabricated from series 300 stainless steel. Swagelock FL, Flexonics series 400M, or AHFC approved equal.
- D. Foot Valve: poppet foot valve with 304 Stainless steel body with opening pressure less than 1psi, and -40F to 300F working temperature. Provide with 20 mesh 304 stainless steel inlet screen. Morrison Bros. Co. 934, EBW, Franklin Feling, or AHFC approved equal.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Connect fuel oil supply piping to oil-fired equipment and tanks, and install all accessories as indicated and in accordance with manufacturer's recommendations.
  - 1. Install above grade fuel oil supply pipe fittings within secure fence and accessible location.
  - 2. Install buried fuel oil supply piping within Dual Layer Access pipe, that accommodates double walled carrier piping.
  - 3. Install buried vent piping within Dual Layer Access pipe, that accommodates double walled carrier piping.
  - 4. Install watertight transition assembly at dual layer access pipe termination at flexible/hard pipe transitions.
- B. Make all tank connections with swing joints.

- C. Pitch all piping back to tank for drainage unless otherwise indicated.
- D. Seal all project generated penetrations at building with flexible sealant. Sealants shall be chosen based on anticipated differential movement, where such movement will not cause failure of the sealant.
- E. Where non-project generated penetrations are discovered and have, appear to have, or may potentially have an adverse effect on the building, systems, and/or occupants, photo document and report to the owner within 2 hours where a life-safety issue is present, and within 48 hours for all other discoveries. Report shall be made electronically to the Contract Administrator, where a life safety issue is present, a phone call will also be required within 2 hours. Maybe a sole statement about reporting findings in lieu of just here.

### 3.2 TESTING

- A. Test fuel oil piping with air at 5 psi. Demonstrate bubble tightness of joints using soap and water solution.

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 23 13 23 - FACILITY ABOVE GROUND FUEL OIL STORAGE TANKS

- A. This Section covers the selection, installation, and testing of above ground fuel storage tanks, associated tank fittings, and accessories.

### 1.2 QUALITY ASSURANCE

- A. The fuel oil storage system shall be furnished and installed by a mechanical contractor who is regularly engaged in the installation of fuel oil storage tanks and equipment in Alaska. The mechanical shall maintain an Office in Alaska with parts and maintenance personnel to ensure prompt response (24 hour maximum) to an emergency call during the guarantee period.
- B. The mechanical contractor shall be able to demonstrate that he has had experience installing fuel oil storage systems of comparable type and size to that called for in these Specifications.
- C. The control contractor, if other than the manufacturer, shall hold a manufacturer's franchise or license to design and install control systems for that manufacturer.
- D. Within 2 weeks after award of contract, submit to the Owner the following items for Contractor qualification:
  - 1. Proof of Alaskan Office, with full time service staff.
  - 2. List of Alaskan buildings with names, addresses, and phone numbers of Owners which are representative of fuel oil storage systems that have been installed by the mechanical contractor. Include a brief description of each system submitted.

### 1.3 SUBMITTALS

- A. Manufacturer's Data, catalog cuts for tank piping and fittings are not required.
  - 1. Catalog cuts and selections for tank components and accessories.
- B. Shop Drawings: Provide shop drawing for above ground fuel storage tank(s) indicating layout, dimensions, construction details, materials, accessories, and installation details.
  - 1. Include: Seismic calculations for tank support and connections with respect to seismic requirements in accordance with ASCE 7 and API requirements.

## PART 2 PRODUCTS

### 2.1 TANK FITTINGS

- A. Tank nipples and risers to vents, fill caps, pumpouts, etc.: Schedule 40, A53, threaded, black steel pipe and fittings.
- B. Tank nipples connected to tank openings located below tank centerline: Schedule 80, A53, black steel.
- C. Pipe dope for threaded fittings: Lead-free, non-hardening. Listed by the manufacturer as suitable for proposed use. Rated for exposure to temperatures ranging from minus 90 degrees F to 410 degrees F and to pressures up to 10,000 psig. Hercules grrip/grrip lite, Gasoila Soft-Set, Locktight PST or AHFC approved equal.
- D. Gasket material for flanges: Compatible with diesel fuel and minus 50 degrees F ambient temperatures. Similar to Durabla Duralon 8400.

### 2.2 ABOVEGROUND DOUBLE WALL STORAGE TANKS

- A. Cylindrical steel primary storage tank, 300 degree wrap, surrounded by cylindrical steel outer tank and supported by welded steel support saddles. Entire assembly UL-142 and STI 921 labeled and constructed to meet seismic zone 4 requirements. Greer Tank, Anchorage Tank, Ace Tank & Equipment Company, or approved equal.
- B. Provide tank support stand/saddle designed to support full gravity weight of filled tank and seismic forces in accordance with ASCE 7-16 and referenced API requirements.
- C. Factory fabricated with all openings required and indicated.
- D. Complete with steel striker plates under the fill/gauging openings.
- E. Provide with gauging opening that accommodates water draw off pipe to bottom of tank.
- F. Provide with OSHA Type Fuel Tank Ladder at fill end of tank.
- G. Gasket material for flanges: Compatible with fuel oil indicated and minus 50 degrees F ambient temperatures.
- H. Channel strut piping supports as required to meet piping installation requirements.
- I. Provide with 30 year warranty.

## 2.3 TANK ACCESSORIES

- A. Primary Tank Vent: Combination Vent/Overfill Alarm, fully mechanical with high intensity audible alarm, 2-inch full port pressure vacuum vent, 6oz/in<sup>2</sup> relief setting. Provide with cable adjustment tool, Morrison Bros. 922, Clay & Bailey, OPW or AHFC approved equal.
- B. Pipe Cap: watertight cap, brass body with cast iron lid, gasket, lockable. Similar to Morrison 178.
- C. Spill Container: Five gallon, steel, secondary containment basin with chain secured lid and drain to fill pipe. Morrison 518, Greer Tank "Fuel-Gard", Pomeco/OPW, or AHFC approved equal.
- D. Emergency Vent: Cast iron construction. Releases at approximately 8oz pressure. Equipped with fire screen. O-ring gasketed between cover and base. Morrison 244, Clay & Bailey, OPW, or AHFC approved equal.
- E. Level Gauge with Alarm: Top mounted, side reading clock gauge with alarm. Aluminum body, stainless steel float, nylon coated stainless steel cable, vapor tight construction, 360 degree swivel body, high level decal. Provide with Drop Tube, Morrison Bros. 918, EBW, OPW, or AHFC approved equal.
- F. Overfill Prevention Valve: Two-inch pipe size, for installation on threaded four-inch male riser. Valve with two-inch female threaded inlet and two-inch drop tube fitting outlet. Single stage automatic shutoff function when fluid reaches shutoff level. Aluminum valve body with stainless steel shaft and linkage. 230 gpm at 10 psig pressure drop. Provide with separate 2" male cam and groove style quick disconnect fitting with dust cap on male to male threaded nipple. Provide separate drop tube. Similar to Morrison Bros 9095AA.
- G. Quick disconnect fill fitting must be replaceable without removal of overfill prevention valve
- H. Provide with field replaceable 2" male cam and groove style quick disconnect
- I. Anti-Siphon Valve: Stainless steel body, UL listed with oil tight sealing disc. Select resistive pressure as required for elevation change. Similar to Morrison Bros 912.
- J. Leak detector, mechanically operated interstitial leak monitor, aluminum body with aluminum guard with red indicator in glass enclosure. Provide with stainless steel float, 2" threaded NPT, Morrison Bros. 724, OPW, EBW or AHFC approved equal.
- K. Manual Shutoff Valve: Double reduced port, stainless steel body, ball, retainer, stem, gland, and handle. Blow-out proof stem and locking handle. Reinforced teflon seat and washer with graphite packing. API 607 Fire-Safe listed. Similar to Milwaukee Valve 10SSOD.

## 2.4 PAINTING AND LABELING

- A. Exterior surfaces sandblasted, primed with one coat of red iron oxide primer, and shop painted with three coat Marine grade coating, color shall be white.
- B. Apply on adhesive backed vinyl with moisture, abrasion, UV, and chemical resistant laminate layer, warnings and marking in accordance UL and STI compliance labeling.
- C. Provide tank labeling on indicating fuel type "HEATING OIL" and volume of tank.
- D. Warning Labels indicating the following:
  - 1. "NO SMOKING COMBUSTIBLE"

## 2.5 LOCKS

- A. Brass body, cylinder key with corrosion resistant hardened steel shackle designed for exterior service, Best or Master.
- B. All locks shall have identical keying.

## PART 3 EXECUTION

### 3.1 ABOVE GROUND TANKS, ASSOCIATED PIPING, AND ACCESSORIES

- A. Paint pipe, fittings, and tank accessories to match tank.
- B. Install and adjust level gauge.
- C. Install spill container so that top of fill pipe is within two inches of top of containment basin.
- D. Install fuel oil piping on coordinated channel strut supports.
- E. Repair any damages to tank coating during shipping or construction.

### 3.2 TESTS

- A. Test tank piping with air at 5 psig pressure for one hour without noticeable pressure drop or air leaks. Demonstrate bubble tightness of pipe joints using soap and water solution.

END OF SECTION

## PART 1 GENERAL

### 1.1 SCOPE: SECTION 31 20 00 - EARTH MOVING

- A. Provide all site preparation, excavating, filling, compacting, and related items of work required to complete the earthwork as indicated on the Drawings and as specified herein.
- B. Provide all excavation and backfill as required for the installation of all buried utility work.
- C. Remove from site and legally dispose of all excavated materials that are not suitable for reuse as fill. Disposal site as selected by Contractor.

### 1.2 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
- B. Excavation: Removal of material of whatever character encountered above subgrade elevations and to lines and dimensions indicated.
- C. Fill: Soil materials used to raise existing grades.
- D. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- E. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

### 1.3 INFORMATIONAL SUBMITTALS

- A. Submit qualifications of independent geotechnical engineering testing agency used to perform quality control tests for this work.
- B. Submit ASTM C-117/C-136 Gradation Analyses for structural fill, sand bedding, pea gravel bedding, or other backfill material specified to be used for this work. Submit test results prior to beginning any backfill work. At the discretion of the Project Manager retest and resubmittal may be required when source of material changes or when the appearance of the product delivered to the jobsite varies significantly.
- C. Submit ASTM D-1557 Modified Proctor test results for structural fill, pea gravel bedding, sand bedding, common fill, and in-situ soils below structures requiring compaction of subgrade. Submit test results prior to beginning any backfill work. Retest and resubmittal required when source of fill changes or varies significantly. Determination to be made by the Project Manager.



- D. Submit copies of all ASTM D-2922 compaction test results within 24 hours of the performance of the test.
- E. Copies of permits required for activities associated with excavation, dewatering, or backfill.

#### 1.4 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: Employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing. Agency shall be under the direct supervision of an engineer registered to practice in Alaska.

#### 1.5 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.
- C. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures are in place.

### PART 2 PRODUCTS

#### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter and is compactable under the provisions of SSHC 203-3.04 and 203-3.05.

- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
2. Structural Fill: Material meeting the following gradation:

<u>Size</u>	<u>% Passing</u>
4"	100
No. 4 Mesh	30-60
No. 200 Mesh	0-5

- D. Common Fill under Improvements: Any sandy gravel, sand, sandy-silt, silt, or other common soil materials, containing no debris or organic contamination and is compactable under the provisions of Part 3 of this Section.

- E. Common Fill for Area Grading or Landscape Areas: Any sandy gravel, sand, sandy-silt, or other common soil material containing no debris. Organic materials up to 10 percent by weight may be mixed in the soil mass provided the material is reasonably mixed and the organic content does not consist of large roots, stumps or tree limbs.

- F. Crushed Aggregate: Base Course: Material meeting the requirements of SSHC 703-2.03 AGGREGATE FOR BASE AND SURFACE COURSE, Gradation D-1. Mechanically crushed and artificially graded mixture of crushed gravel, crushed stones and natural or crushed sand free of organic material, debris or other deleterious material and meeting the following gradation:

<u>Size</u>	<u>% Passing</u>
1	100
¾"	70-100
3/8"	50-80
No. 4	35-65
No. 8	20-50
No. 50	6-30
No. 200	0-6

- G. Bedding Material: Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

## 2.2 BORROW SOURCE

- A. Use materials from excavation where qualified. Additional materials to come from source of Contractor's choosing. All borrow materials shall be approved by the Owner.

## 2.3 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
  - 1. Red: Electric.
  - 2. Yellow: Gas, oil, steam, and dangerous materials.
  - 3. Orange: Telephone and other communications.
  - 4. Blue: Water systems.
  - 5. Green: Sewer systems.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Removal of trees, bushes, and landscaping features is not anticipated. Where identified as necessary by the contractor, not less than 10 business days shall be afforded to AHFC to determine course of action prior to the scheduled removal, modification, or other manipulation of existing flora. Where prior approval is not sought and received, contractor shall be responsible for replacement to the owner's satisfaction.
- D. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

### 3.2 DEWATERING

- A. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding Project site and surrounding area.
- B. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation support, undercutting footings, and soil changes detrimental to stability of subgrades and foundations.

### 3.3 EXCAVATION, GENERAL

- A. General:
  - 1. Depth and extent of excavation shall be in conformance with Contract Drawings and Specifications and shall be sufficient for placement of structural fill, bedding or other specified backfill beneath curbs, sidewalks, paved areas, utilities, foundations, slabs, and other structures at elevations shown on Drawings.
  - 2. No excavation is authorized below indicated depths unless so required in writing by Owner to obtain suitable bearing materials or to remove objectionable debris.
  - 3. Unauthorized over-excavation beyond limits set by Drawings and/or Specifications shall be replaced with structural fill materials as specified elsewhere in this Section. Backfill and compaction of unauthorized over-excavation shall be at Contractor's expense.
  - 4. Organic and frozen material encountered below required excavation limits shall be removed and replaced with structural fill. Obtain written approval from Owner prior to accomplishing work below required excavation limits.
  - 5. Additional authorized excavation below elevations or outside lines as indicated on Drawings shall be paid for as a Contract extra at applicable unit prices.
  - 6. Maintain guardrails and barricades to protect all open cuts. Storage of excavated materials along one side of trench or excavation shall constitute a barricade for that side.
  - 7. Provide adequate lights, flares, and guards as required to protect the public.
  - 8. Protect adjacent building foundations, utilities, road surfacing, and survey controls by careful excavation and shoring as required.
  - 9. Provide bridging of excavations as required to permit access to all areas of the job site by other crafts.

B. Sheeting and Bracing:

1. Contractor is responsible for establishing excavation backslopes and protecting banks for safe working conditions and prevention of erosion.
2. Furnish, place, and maintain such sheeting and bracing as may be required to support the sides of the trenches and excavation and prevent any movement therein which might damage or delay the work or cause injury to adjacent property, and as necessary to provide full safety for workers and the public. If, in the opinion of the Owner, any timbering is inadequate, the Owner may order additional supports which must be furnished and placed, but compliance with such orders or failure of the Owner to give them shall not release the Contractor from responsibility in respect to the adequate maintenance of trenches or excavation. If necessary to preserve a suitable grade, the trench or excavation shall be solid-sheeted with interlocking sheeting which shall be driven far enough below grade to prevent the in-flow of material from outside the trench or excavation lines. Transverse bulkheads may also be required to prevent movement along the line of the trench.
3. Unless expressly ordered by the Owner, remove all shoring materials from the trench or excavations before or during the backfilling operations. If, in the opinion of the Owner, the safety of the street, public or private utilities, or public or private property requires that any portion of the shoring materials be left in the trench, the Owner shall so order, in writing, and shall designate particularly what shoring materials be left in place. Sheeting left in the trench shall be cut off about two feet below the finished surface of the ground.

3.4 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.5 BACKFILL

A. General:

1. Obtain Owner's approval of excavations prior to placement of fills.
2. No extra payment for fill in excess of limits shown on Drawings or as specified herein without written approval of Owner.
3. Remove all forms, trash, and debris from excavation before starting to backfill.

4. Lifts shall be placed on level planes. Step sides and bottom of excavations if necessary to accomplish level fills.
  5. Each lift of backfill material to be carried level to all sides of excavated area. No partial fills permitted.
  6. Edges of fills shall be compacted and brought up at a maximum slope of 2:1.
  7. Do not place fill on frozen ground unless specifically authorized by the Owner. Placing of fill on frozen ground shall only be done with the prior notification and written approval of the Owner.
  8. Clean up and grade all areas disturbed by placement of backfill.
- B. Structural Fill:
1. Material required (MINIMUM) beneath referenced structure or area when not specifically detailed on plans:
    - a. Building footings: 12 inches.
    - b. Exterior walks and curbs: 12 inches.
    - c. Asphalt paving: 18 inches.
    - d. Concrete parking apron: 12 inches.
  2. Maximum loose depth of each lift shall be 8 inches in areas to be compacted by machine.
  3. Fill in horizontal layers shall not exceed 6 inches loose depth where hand tampers or hand operated vibratory compactors are used.
- C. Pea Gravel and Sand Bedding:
1. Pea gravel and sand fills shall be placed in lifts as required to fill the designated areas.
  2. Adjust lift thickness, moisture content and placement methods as necessary to achieve specified density.
  3. Water jetting or slurring shall be permitted only with prior approval from the Project Manager.

D. Common Fill:

1. Use common fill for backfill as shown on the plans and for areas outside of building and paved parking areas, except where other materials are indicated on Drawings.
2. Maximum loose lift thickness 8 inches under footings or areas to be paved.
3. Maximum loose thickness 12 inches under area grading or landscape areas.

3.6 BACKFILL AT UNDERGROUND STORAGE TANKS AND PIPING

- A. Backfill of excavations resulting from removal of underground storage tanks shall be done with uncontaminated common fill from the excavation or from other sources of the Contractor's choosing.
- B. When not specified on the Drawings, the Contractor shall choose pea gravel or sand for bedding material.
- C. Minimum bedding thickness shall be 12 inches above and below the tanks and 6 inches above and below piping unless otherwise designated on the Drawings.
- D. Use structural fill in top 18 inches or as shown on the Drawings, except when in areas designated on plans as area grading or landscaping where common fill may be used.
- E. Bedding and structural fill shall extend the full width of the trench.
- F. Under areas to be paved, common fill shall contain no organic contamination.
- G. Refer to Section 02 65 01 - Buried Heating Oil Tank Closure for additional information

3.7 WARNING TAPE INSTALLATION

- A. Lay in continuous strip of plastic warning tape for each utility as follows:
  1. Water: Blue, place 36 inches above pipe.
  2. Fuel piping: Yellow, place 24 inches above piping.
- B. Requirements.

### 3.8 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### 3.9 COMPACTION OF SOIL BACKFILLS

- A. General:
  - 1. Adjust moisture content as required to accomplish proper compaction and to provide dust control when required by the Owner.
  - 2. Compaction shall be thorough and to minimum density specified herein at all points throughout depth of fill.
- B. Compaction Requirements:

<u>Soil Material</u>	<u>% of Maximum Dry Unit Weight</u>
Top 6 inches of subgrade under structural fill or bedding	95%
Structural Fill	95%
Sand	98%
Pea Gravel	98%
Top 6 inches of subgrade under common fill	90%
Common Fill against foundations and footings within 5 feet of foundation wall	95%
Top 18 inches of Common Fill in areas to receive topsoil	90%



### 3.10 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
  - 1. Turf or Unpaved Areas: Plus, or minus 1-inch.
  - 2. Walks: Plus, or minus 1-inch.
  - 3. Pavements: Plus, or minus 1/2-inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2-inch when tested with a 10-foot straightedge.

### 3.11 FIELD QUALITY CONTROL

- A. Soil Testing:
  - 1. Soil testing shall be performed by the Contractor's approved independent geotechnical engineering testing agency (see Section 1, TESTING, AND INSPECTION SERVICE) according to the approved Quality Control (QC) plan.
  - 2. OR Maximum dry unit weight determination shall conform with ASTM D-1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- B. Compaction Testing:
  - 1. Test methods:
    - a. Field density testing shall conform with ASTM D-6938 (nuclear gauge method), ASTM D-1556, (Sand-Cone Method) or by ASTM D-2167 (Rainhart Volumeter). The ASTM D-1556 and D-2167 is applicable only to cohesive soils and silty sands and shall only be used to test densities in sand bedding, or common fill which do not contain appreciable amounts of coarse materials in excess of 1.5 inches.

- b. The location of tests shall be at the option of the Owner. The number of tests shall be (minimum) as follows. Additional testing shall be required if, in the opinion of the Owner, the soil compaction test results indicate that the specified compaction is not being obtained:
  - 1) For other buried structures, including fuel tanks: One per lift per 2000 square feet of excavation, but in no case fewer than two tests.
  - 2) For landscape or area grading areas: One per lift per 5000 square feet.

### 3.12 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  - 1. Scarify or remove and replace soil material to depth as directed by Owner; reshape and recompact.
- C. Where settling occurs within one year of project completion, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

### 3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 32 13 13 - CONCRETE PAVING

- A. This Section covers Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes concrete paving, including the following:
  - 1. Concrete equipment pads

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For the following, from manufacturer:
  - 1. Cementitious materials.
- B. Material Test Reports for each of the following:
  - 1. Aggregates.
- C. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
- B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

1.8 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Admixtures. Use only admixtures shown in the approved mix design. Do not use calcium chloride.

PART 2 PRODUCTS

2.1 CONCRETE, GENERAL

- A. Comply with SSHC 501-2.01.
- B. Acceptance of Concrete will be as described in Field Quality Control, of this specification.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615, Grade 60; deformed.
- B. Tie Bars: ASTM A 615, Grade 60 deformed.

PART 3 EXECUTION

3.1 GENERAL

- A. See SSHC 501-3.03 – 3.08.

### 3.2 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

### 3.3 COLD-WEATHER CONCRETE PLACEMENT

- A. Submit a written cold weather concreting plan when air temperatures are expected to fall below 35 degrees F during the cure period. Obtain the Engineer's approval of the plan and put it into effect before placing any concrete when the descending air temperature in the shade, away from artificial heat, falls below 40 degrees F or, in the opinion of the Engineer, will likely do so within 24 hours after concrete is placed. Have in place the materials and equipment required to heat mixing water and aggregate and to protect freshly placed concrete from freezing.
- B. Temperature of Concrete. When the air temperature falls below 40 degrees F, ensure that concrete placed in forms has a temperature between 50 degrees F and 70 degrees F. Obtain these temperatures by heating the mixing water and/or aggregate. Heat mixing water to no more than 160 degrees F.
  - 1. Do not use binned aggregates that contain ice, are frozen, or have been heated directly by gas or oil flame or on sheet metal over an open fire. When heating aggregates in bins, use steam-coil or water-coil heating. Use other methods only when approved. If using live steam to thaw frozen aggregate piles, completely drain excess moisture.
  - 2. When the temperature of the water or aggregate exceeds 100 degrees F, mix them together so that the temperature of the mix does not exceed 80 degrees F when the cement is added.
- C. Cold Weather Placement. When placing concrete in cold weather, follow these precautions in addition to the above requirements:
  - 1. Heat forms and reinforcing steel before placing concrete to remove frost, ice, and snow from surfaces that will contact fresh concrete.
  - 2. When fresh concrete will contact hardened concrete, warm the surface of the hardened concrete to at least 35 degrees F and thoroughly wet. Remove free water before placing fresh concrete.

3. Protection of Concrete. When using Type I or II cement, maintain freshly placed concrete at a temperature of at least 70 degrees F for 3 days or at least 50 degrees F for 5 days. When using Type III cement, maintain concrete at a temperature of at least 70 degrees F for 2 days or at least 50 degrees F for 3 days. The above requirements do not apply when the concrete no longer is in danger of freezing or when air temperatures of 40 degrees F or higher are anticipated during the 2 weeks after concrete placement.
  4. Maintain the concrete temperature using methods such as insulated forms, enclosures, and indirect heat. Maintain curing moisture. Protect the structure from overheating and fire.
  5. At the end of the curing period, remove the protection so the concrete drops in temperature gradually and not more than 30 degrees F in the first 24 hours.
- D. Protect the concrete during cold weather operations. Remove and replace concrete injured by frost action or overheating at no cost to the Owner.

#### 3.4 HOT-WEATHER CONCRETE PLACEMENT.

- A. Comply with SSHC 501-3.06.

#### 3.5 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
1. Elevation: 3/4-inch.
  2. Thickness: Plus 3/8-inch, minus 1/4-inch.
  3. Surface: Gap below 10-feet- long; unlevelled straightedge not to exceed 1/2-inch.
  4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2-inch per 12 inches of tie bar.
  5. Lateral Alignment and Spacing of Dowels: 1 inch.
  6. Vertical Alignment of Dowels: 1/4-inch.
  7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4-inch per 12 inches of dowel.
  8. Joint Spacing: 3 inches.

9. Contraction Joint Depth: Plus 1/4-inch, no minus.
10. Joint Width: Plus 1/8-inch, no minus.

### 3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:
  1. Testing Frequency: Obtain at least one composite sample for 5000 square feet (sidewalks, drives, roadways, parking lots) or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C 231/C 231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 degrees F and below and when it is 80 degrees F and above, and one test for each composite sample.
  5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
  6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
    - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

- D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- I. Prepare test and inspection reports.

### 3.7 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.
- B. Drill test cores, where directed by Engineer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with Portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION



PART 1 GENERAL

1.1 SCOPE: SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

- A. This Section covers Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes materials applicable for commercial/industrial and security chain link fence and gates.
  - 1. Galvanized steel coated chain link fabric
  - 2. Galvanized steel framework and fittings
  - 3. Swing gates
  - 4. Installation
- B. Related Project Contract Sections:
  - 1. 01 33 13 Certificates
  - 2. 01 33 23 Shop Drawings, product data
  - 3. 01 43 13 Manufacturers Qualifications
  - 4. 01 43 23 Installer Qualifications
  - 5. 01 45 00 Quality Control
  - 6. 01 65 00 Product Delivery Requirements
  - 7. 01 66 00 Product Storage and Handling Requirements
  - 8. 32 13 13 Concrete Paving

### 1.3 ACTION SUBMITALS

- A. Product Data: For each type of product
  - 1. Include construction details, material descriptions, dimensions of individual components, and finishes for the following:
    - a. Fence and gate posts, rails, and fittings.
    - b. Chain-link fabric, reinforcements, and attachments.
    - c. Gates and hardware.
    - d. Accessories: Privacy slats.
- B. Shop Drawings: For each type of fence and gate assembly
  - 1. Include plans, profiles, elevations, sections, details, and attachments to other work.
  - 2. Include accessories, hardware, footings, gate operation, and operational clearances.

### 1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of chain-link fence and gate

### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver products to site per contract requirements.
- B. Storage: Store and protect products off the ground when required.

### 1.6 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

## 1.7 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to comply with performance requirements.
    - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 2. Warranty Period: Five years from date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 CHAIN LINK FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
  - 1. Fabric Height: As indicated on Drawings.
  - 2. Steel Wire for Fabric: 9 gauge wire, 2-inch mesh.
  - 3. Zinc-Coated Steel Fabric:
    - a. ASTM A392 hot dipped galvanized before or after weaving.
    - b. Class 1 – 1.2 oz/ft<sup>2</sup>
    - c. Class 2 – 2.0 oz/ft<sup>2</sup>
  - 4. Selvage: Twisted bottom and knuckled top.

### 2.2 FENCE FRAMEWORK

- A. Round steel pipe and rail: ASTM F1043 Group IC Table 3 Heavy Industrial Fence Framework. Exterior zinc coating Type B, interior coating Type B or Type D.
  - 1. Fabric Width: As indicated on drawings.
  - 2. End, Corner, Pull post:
    - a. 2.375 in. OD, 3.12 lb/ft (Fabric width 72 inches or less)

- 3. Line post:
  - a. 1.90 in. OD, 2.28 lb/ft (Fabric width 72 inches or less)
- 4. Top, bottom, intermediate, and brace rails:
  - a. 1.66 in. OD, 1.84 lb/ft

## 2.3 TENSION WIRE

- A. Metallic Coated Steel Marcellled Tension Wire: 7 gauge (0.177-inch) marcellled wire complying with ASTM A824, with the following metallic coating:
  - 1. Type II: Zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:
    - a. Matching chain-link fabric coating weight.

## 2.4 FITTINGS

- A. General: Comply with ASTM F626.
- B. Tension and Brace Bands: Galvanized pressed steel, minimum steel thickness of 12 gauge (0.105-inch), minimum width of 3/4-inch and minimum zinc coating of 1.20 oz/ft<sup>2</sup>.
- C. Terminal Post Caps, Line Post Loop Tops, Rail and Brace Ends, Boulevard Clamps, Rail Sleeves: Pressed steel, galvanized after fabrication having a minimum zinc coating of 1.20 oz/ft<sup>2</sup>.
- D. Truss Rod Assembly: 3/8-inch diameter steel truss rod with a pressed steel tightener, minimum zinc coating of 1.2 oz/ft<sup>2</sup>, assembly capable of withstanding a tension of 2,000 lbs.
- E. Tension Bars: Galvanized steel one-piece length 2 in. less than the fabric height. Minimum zinc coating 1.2 oz. /ft<sup>2</sup>.
  - 1. Bars for 2-inch and 1 3/4-inch mesh shall have a minimum cross section of 3/16-inch by 5/8-inch.

## 2.5 TIE WIRE AND HOG RINGS

- A. Tie Wire and Hog Rings: Galvanized minimum zinc coating 1.20 oz/ft<sup>2</sup>, 9 gauge (0.148 inch) steel wire in compliance with ASTM F626.

## 2.6 SWING GATES

- A. General: Comply with ASTM F900 for gate posts as well as double and single swing gate types.
  - 1. Gate leaf width and fabric height: as indicated on drawings.
  - 2. Match gate fabric to that of the fence system.
- B. Zinc-Coated Steel: Comply with ASTM F1043 and ASTM F1083 or a combination thereof; protective coating and finish to match fence framework.
- C. Gate Frame Members:
  - 1. ASTM F1043 Group IC pipe: 1.90-inch OD, 2.28 lb/ft.
- D. Gate Frame Construction:
  - 1. Frame members spaced no greater than 8 ft. apart vertically and horizontally.
  - 2. Frame members welded at all corners or assembled with corner fittings.
  - 3. Gates assembled with corner fittings shall have adjustable truss rods minimum 3/8-inch diameter on panels 5 foot wide or wider and be the same base material and finish as the gate frame.
  - 4. Welded joints protected by applying zinc-rich paint in accordance with ASTM Practice A780.
- E. Gate Hardware:
  - 1. Positive locking gate latch:
    - a. Fabricated of 5/16-inch thick by 1 3/4-inch pressed steel galvanized after fabrication.
    - b. Operable from both sides of gate with provision for padlocking accessible from both sides of gate.
  - 2. Post and frame hinges: Galvanized malleable iron or heavy gauge pressed steel.
- F. Gate Posts:
  - 1. Round steel pipe: ASTM F1043 Group IC pipe.
    - a. 2.875-inch OD, 4.64 lb/ft

## 2.7 GROUT AND ANCHORING CEMENT

- A. Non-shrink, Nonmetallic Grout: Premixed, factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer for exterior applications.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, as well as site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
  - 1. Do not begin installation before final grading is completed unless otherwise permitted by Project Manager.
- B. Contractor is responsible for verification of existing property lines and easements, and shall abide by the associated requirements of the authority having jurisdiction.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

### 3.3 CHAIN-LINK FENCE INSTALLATION

- A. General: Install chain-link fencing according to ASTM F567 and more stringent requirements specified.
  - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and intervals indicated, in firm, undisturbed soil.

- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
  - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete.
  - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
    - a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F567 and terminal pull posts at changes in horizontal or vertical alignment of 30 degrees or more. For runs exceeding 500 foot, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 10 feet O.C.
- F. Post Bracing
  - 1. General: Install according to ASTM F567, maintaining plumb position and alignment of fence posts.
  - 2. Truss rods: Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
  - 3. Horizontal brace rails: Locate horizontal braces at mid-height of fabric 72 in. or higher, on fences with top rail, and at two-third fabric height on fences without top rail.
  - 4. Diagonal brace rods: For fences which do not have a top rail, or for military fencing, diagonally brace terminal posts to adjacent line posts with brace rails. Install brace rails at end and gate posts and at both sides of corner and pull posts.
  - 5. Install bracing so posts are plumb when diagonal rod is under proper tension.
- G. Top Rail: Install 21 foot lengths of rail continuous through the line post. Splice rail using top rail sleeves minimum 6 inches long. The rail shall be secured to the terminal post by a brace band and rail end.
- H. Bottom or intermediate rail: Rail shall be field cut and secured to the line posts using boulevard bands or rail ends and brace bands.

- I. Tension Wire: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches O.C. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
  - 1. Extended along top and bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2-inch +/- 0.5-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15-inch O.C.
- L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
  - 1. Maximum Spacing: Tie fabric to line posts at 12-inch O.C. and to braces at 24-inch O.C.
- M. Fasteners: Carriage bolts used for fittings shall be installed with the head on the secure side of the fence.

### 3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage.
- B. Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- C. Lubricate hardware and other moving parts.

### 3.5 FIELD QUALITY CONTROL

- A. Fabric Testing: Test fabric tension according to ASTM F1916.
- B. Fence Post Rigidity Testing: Test line posts for rigidity according to ASTM F1916.



3.6 CLEAN UP

- A. Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE: SECTION 32 92 19 - SEEDING

1.2 DESCRIPTION

A. Lawns and grasses includes, but is not limited to, the following:

1. Delivering and placing topsoil.
2. Fine grading.
3. Seeding.
4. Fertilizing.
5. Maintaining grass areas during warranty period.

1.3 SCOPE OF WORK

A. Contractor shall provide all Work described in this section, described elsewhere in the Specifications, and indicated on the Drawings.

1.4 REFERENCES

A. Codes and standards referenced in this, and subsequent articles of this section shall become a part of the Specifications to the extent of their applicability to the particular product, method, assembly, or system under consideration. In case of conflict the most stringent shall govern.

1. State of Alaska, Department of Environmental Conservation concerning applications of herbicides, pesticides, and inspections.
2. State of Alaska, *Seed Regulations*, 11 AAC 34.

B. Related Requirements:

1. Section 01 56 39 "Temporary Tree and Plant Protection" for protecting, trimming, pruning, repairing, and replacing existing trees to remain that interfere with, or are affected by, execution of the Work.

2. Section 31 20 00 "Earth Moving" for excavation, subgrade preparation, and grading.
3. Section 329300 "Plants" for trees, shrubs, and landscape accessories.

#### 1.5 SUBMITTALS

##### A. PRODUCT DATA

1. Substitutions: Submit requests for substitutions 30 days prior to planting.

##### B. CERTIFICATES

1. Fertilizer: Certificate, bearing manufacturers guaranteed analysis.
2. Seed Certificates: Seed certificates bearing the grower's guaranteed analysis.

##### C. O&M DATA

1. Maintenance Schedule: Submit 30 days prior to Substantial Completion inspection for Owner's approval. Maintenance Schedule shall indicate:
  - a. Watering schedule for grass.
  - b. Fertilization/Liming schedule: Include fertilizer proportions and application rate to be used at the time of application.

#### 1.6 PRODUCT DELIVERY, STORAGE, HANDLING, AND REPLACEMENT

- A. Deliver seed and fertilizer in original unopened containers, each bearing manufacturers guaranteed analysis, name, trade names, and conformance with governing regulations and law.
- B. Store materials in areas protected against harmful weather until product is used.
- C. Remove unacceptable products from the job site immediately and replace with material acceptable to Owner.
- D. Obtain appropriate certification of personnel handling herbicides and pesticides.

1.7 NOTICES

- A. Notify Owner one week minimum before Owner assumes maintenance.
- B. Notify Owner 24 hours before seeding and 48 hours prior to Substantial Completion Inspection.
- C. Not less than 72 hours prior to the application of herbicides or pesticides, notify Owner and relay necessary precautions, and use restriction periods.
- D. Notices to be provided in writing.

1.8 PROJECT/SITE CONDITIONS

- A. Do no seeding when air or ground temperatures are below 40 degrees F.
- B. Topsoil shall not be spread over frozen or excessively wet ground.
- C. Ensure potable water is available prior to the beginning of any planting operations and throughout the maintenance period.
- D. Seeding Season: All seeding shall be performed between June 1 and September 7. If unable to seed during this time, planting shall be done at the start of the next growing season. Seeding shall not be done during windy conditions or when climatic or ground conditions would hinder placement or proper growth.

1.9 MAINTENANCE/WARRANTY

- A. Provide one year and one full growing season of maintenance and warranty for lawn seed areas, not to include regular groundskeeping activities such as mowing and edging. Areas which show a germination rate lower than specified or a growth rate less than other seeded areas shall be replaced. If seed is installed in the middle or end of the growing season, warranty period shall continue until the end of next year's growing season.
- B. Satisfactory stand of seeded areas shall be defined as a minimum of 300 grass plants per square foot and where no gaps larger than 2 inches in diameter occur anywhere in the lawn area.
- C. The Contractor shall arrange an inspection with the Owner on or before June 15 of the year following the date of planting. Areas of insufficient coverage due to product failure to perform shall be replanted at the Contractor's expense. Acceptance will be based upon a satisfactory stand as defined above. Contractor shall not be held responsible where lack of growth is reasonably attributable, at AHFC's sole opinion, to condition(s) or occurrence(s) outside of their control.

## PART 2 PRODUCTS

### 2.1 TOPSOIL

- A. Friable loam free of subsoil, large roots, grass, stones, noxious weeds, debris, and other foreign materials. Sandy-silt or silty sand not acceptable. Soil mixture must contain 25-45 percent sand, 35-55 percent silt, 10-20 percent by volume of finely chopped, well mixed organic materials, be free of stones 1/2-inch or larger in any dimension and other extraneous materials harmful to plant growth, and have a maximum moisture content of 50 percent with an Acidity (pH) range between 5.5 to 7.0.
  - 1. Topsoil may be imported from off-site sources OR existing in-place surface soil may be amended to produce topsoil.
  - 2. Approval of material and material source by the Owner required.
  - 3. Topsoil provided by the government may not meet the topsoil specification but may be reused with the approval of the Owner.

### 2.2 FERTILIZER

- A. Provide 17-17-17 for initial application at the time of seeding.
  - 1. Contractor may vary the Nitrogen, Phosphorus and Potassium ratios for subsequent applications as required to produce healthy plant growth and reduce the possibility of diseases, molds, and stress from heat and cold. Variations in fertilizer mixture must be approved by the Owner prior to application.
- B. Standard commercial types in moisture-proof containers. Each container shall be marked with the weight and the manufacturer's guaranteed analysis.
- C. Tolerances of the chemical ingredients shall be plus or minus 2 percent.
- D. No cyanamide compounds or hydrated lime will be permitted in mixed fertilizers.

## 2.3 GRASS SEED MIX

A. Conform to the following:

Name	Proportion by Weight	Purity	Germination
Seeding – 5 lbs/1,000 sf			
“Kenai” Kentucky Bluegrass ( <i>Poa pretensis</i> “Kenai”)	50%	90%	85%
Creeping Red Fescue ( <i>Festuca rubra</i> “Arctared”)	25%	90%	85%
Perennial Ryegrass ( <i>Lolium multiflorum</i> )	25%	90%	85%

B. Conform to the following:

Name	Proportion by Weight	Purity	Germination
Seeding – 3 lbs/1,000 sf			
Nortran Tufted Hairgrass ( <i>Deschampsia caespitosa</i> )	50%	90%	85%
Creeping Red Fescue ( <i>Festuca rubra</i> “Arctared”)	40%	90%	85%
Perennial Ryegrass ( <i>Lolium multiflorum</i> )	10%	90%	85%

## 2.4 WATER

A. Potable.

B. Provide equipment using on-site source or Contractor provided source.

## PART 3 EXECUTION

### 3.1 INSPECTION

A. Examine subgrade areas for defects that will adversely affect the work.

B. Start of work shall mean acceptance of areas as capable of producing an acceptable job.

- C. Do not plant until plant material has been inspected and determined acceptable by the Owner at site.
- D. Immediately remove all rejected materials from job site.

### 3.2 WASTE DISPOSAL

- A. Dispose of unsuitable earth, debris, clippings, and unused plant materials at an approved disposal site.

### 3.3 SEEDING

- A. Soil Preparation: Grade to smooth even line. Place topsoil to a 6 inch lightly compacted depth. Rake the seedbed lightly. Remove debris, plant growth, and irregularities.
- B. Fertilizer: Apply 12 pounds of 17-17-17 fertilizer per 1,000 sf at the time of seeding.
- C. Application Methods: Apply grass seed mixture specified in this Section at the rate of 5 pounds per 1,000 square feet. Seed, fertilizer, and mulch material may be placed by the following methods:
  - 1. Hydraulic Method: Place a slurry made of seed, fertilizer, seeding mulch, and water. Mulch shall be added to the water slurry in the hydraulic seeder after the proportionate amounts of seed and fertilizer have been added. Slurry mixture shall be combined and applied to result in an even distribution of all materials. Hydraulic seeding equipment shall be capable of maintaining a continuous agitation so that a homogeneous mixture can be applied through a spray nozzle. The pump shall be capable of producing sufficient pressure to maintain a continuous, non-fluctuating spray capable of reaching the extremities of the seeding area with the pump unit located on the roadbed. Sufficient hose shall be provided to reach areas not practical to seed from the nozzle unit situated on the roadbed.
  - 2. Dry Method: Mechanical spreader, seed drills, landscape seeder, cultipacker seeder, fertilizer spreader, or other approved mechanical spreading equipment may be used. Fertilizer shall be spread separately at the specified rates and then incorporated in one operation to a minimum depth of 2 inches. Seeded areas shall be compacted within 24 hours from the time the seeding is completed, weather and soil conditions permitting, by cultipacker, roller or other equipment satisfactory to the Owner.
    - a. Seeding by hand is not acceptable.

D. Watering:

1. Seed shall be watered immediately upon application.
2. Follow approved watering schedule.

3.4 MAINTENANCE/WARRANTY

A. General:

1. Begin maintenance of seeding immediately following installation.
2. Inspection of the seeding shall take place during the Substantial Completion acceptance inspection for the project. Contractor shall immediately remedy punch list items and request approval. Warranty and continuing maintenance shall commence upon execution of the Certificate of Substantial Completion. No partial acceptance will be granted for Substantial Completion.
3. Scope of Maintenance: Furnish all labor, materials, equipment, supervision, traffic control, transportation and secure all necessary permits and licenses required to maintain an attractive and healthy landscape. Meet requirements of the approved maintenance schedule.
4. Work Force: The Contractor shall have on his staff, supervisory personnel experienced in landscape maintenance. The Work Force is to be experienced and familiar with maintaining plant materials in sub-arctic conditions.
5. Materials: Shall conform to bid specifications.
6. Replacement of Damaged Improvements: Repair and replace dead or damaged improvements within 14 days of written notice from the Owner at no additional cost to the Owner.

B. Warranty:

1. Upon approval of Substantial Completion, commence warranty period and provide continuing maintenance. All work and material shall be guaranteed for a period of one year and through one full growing seasons from date of preliminary acceptance.
2. Growing season is defined as that period between May 1-September 30. If the project is completed in the fall of one year, the maintenance and warranty period will be suspended September 30 and begin again May 1 until the required maintenance and warranty provisions are satisfied.



3. Owner shall have the right to periodically inspect the site during the warranty period.
4. All seeded areas which are found to be dead, or in the determination of the Owner, in an unhealthy or unsightly condition shall be reseeded subject to the approval of the Owner at no additional expense to the Owner and shall be subject to a new maintenance and warranty for the affected materials.

C. Maintenance: Seeded Areas

1. Protect seeded areas against traffic by warning signs or barricades, as approved by the Owner. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading, reseeding, and re-mulching, as directed by the Owner and the Contractor shall otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the Work.
2. Watering: Meet approved maintenance schedule. Seeded areas shall be watered at such frequency as weather conditions require, to maintain soil moisture to below root zone. When establishing turf areas, the soils shall be watered often enough to maintain a moist seedbed to aid in seed germination and a vigorous, healthy vegetative growth throughout the entire maintenance period.
3. Repair: Repair and replacement of all damaged or dead turf or seeded areas shall occur immediately or upon request of the Owner at no additional cost to the Owner.
4. Fertilization: Fertilize one month following installation with Owner approved fertilizer mix and rate.
5. Disease and Pests: An approved pesticide or insecticide shall be applied as necessary to maintain turf and seeded areas in a healthy and growing condition.
6. Cleanup: The Contractor shall keep the project site clean and free of excess equipment, materials, and rubbish incidental to his work at all times. Leave walks, paving, adjacent walls, and windows clean and free of clippings and mud spatter.

END OF SECTION

**Drawings**



ALASKA HOUSING FINANCE CORPORATION

MOUNTAIN VIEW HEATING FUEL TANK

REPLACEMENT

JUNEAU, ALASKA

SHEET INDEX

GENERAL	
G010	GENERAL INFORMATION
CIVIL	
C101	MOUNTAIN VIEW EXISTING CONDITIONS AND DEMOLITION PLAN
C201	MOUNTAIN VIEW SITE PLAN
C700	DETAILS
C701	DETAILS
MECHANICAL	
M001	MECHANICAL ABBREVIATIONS, LEGENDS, AND SCHEDULES
M200	MECHANICAL DETAILS

GENERAL SYMBOLS

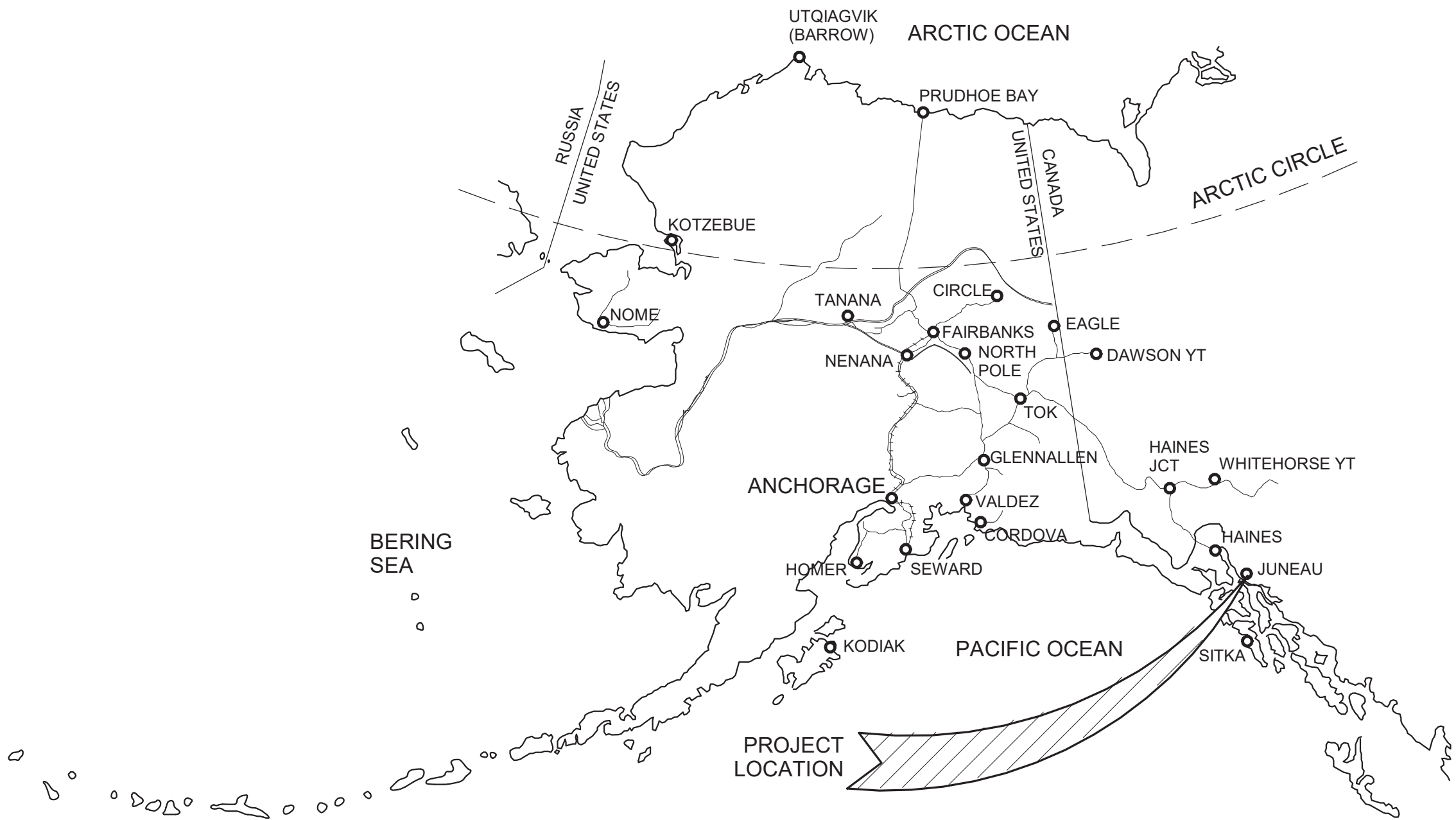
SEE DISCIPLINES FOR SPECIFIC SYMBOLS	
NAME	View Name
NUMBER	1
SHEET LOCATION	A101
SCALE	1/8" = 1'-0"
TRUE NORTH	
PLAN NORTH	
GRID LINE	0
REVISION	1
ROOM NAME	Room name
ROOM NUMBER	101

PROJECT TEAM

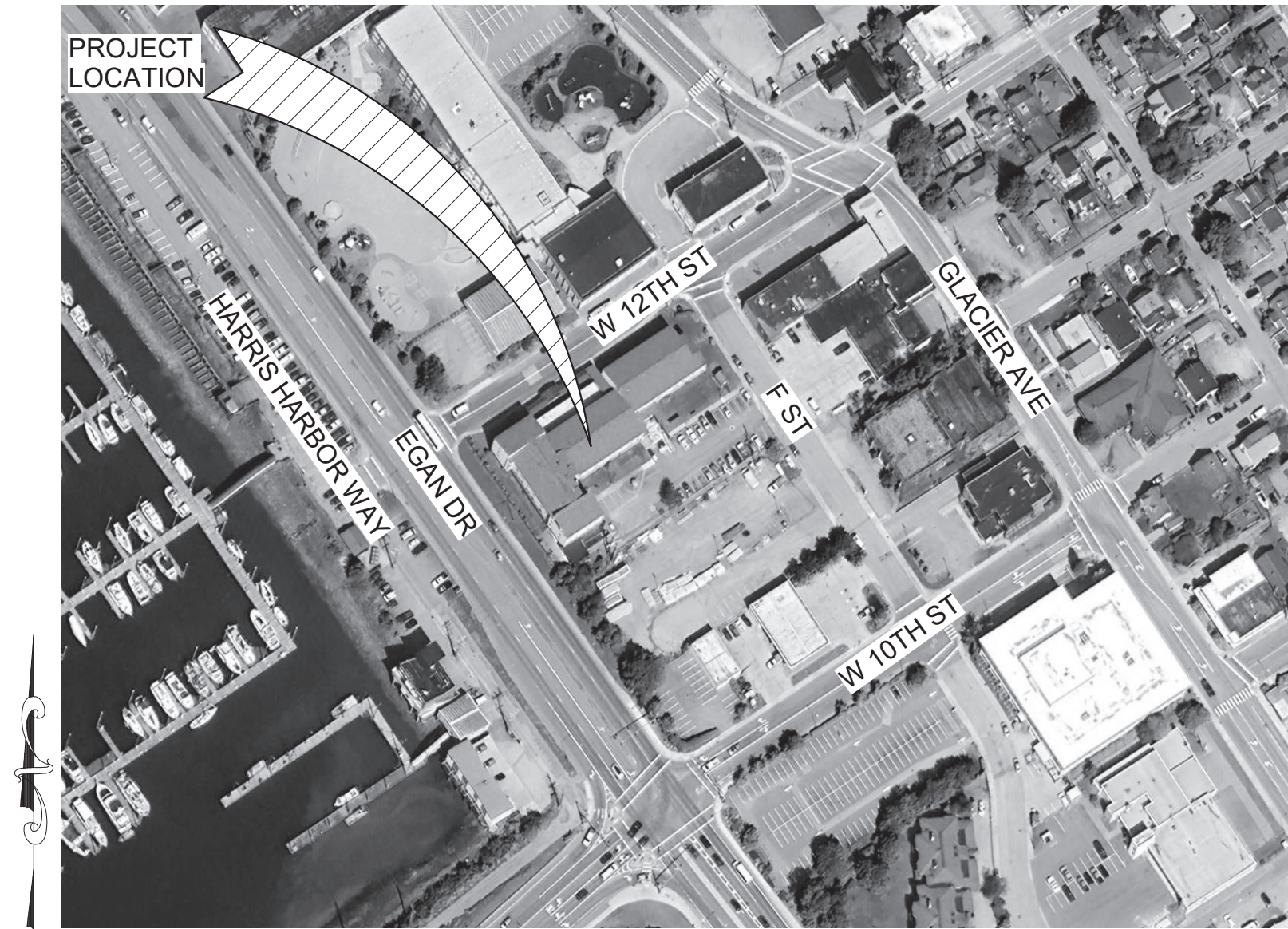
**OWNERS REPRESENTATIVE**  
ALASKA HOUSING FINANCE CORPORATION  
POINT OF CONTACT: MICHAEL CARLSON  
4300 BONIFACE PARKWAY  
ANCHORAGE, AK 99504  
907-330-8120  
mcarlson@ahfc.us

**DESIGNERS REPRESENTATIVE**  
DESIGN ALASKA  
POINT OF CONTACT: BLAKE BURLEY  
601 COLLEGE ROAD  
FAIRBANKS, AK 99701  
907-452-1241  
blake@designalaska.com

ALASKA MAP



VICINITY MAP



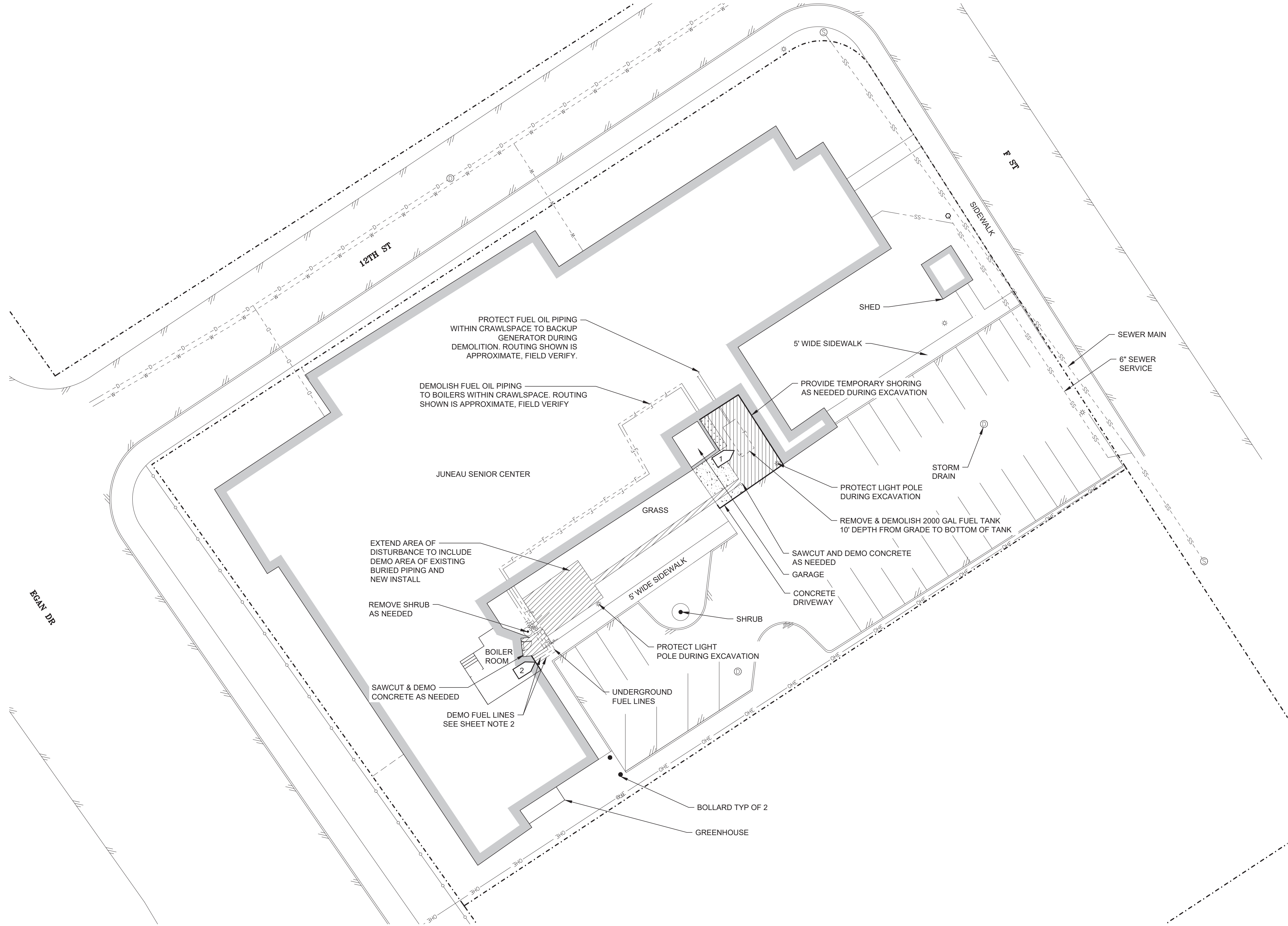
MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

ISSUE DATE	22 MAY 2025
COMM. NUMBER	672501
DESIGNED BY	-
DRAWN BY	-
SCALE	0" = 1"

GENERAL  
INFORMATION

G010





LEGEND

	PROPERTY LINE
	DEMOLITION
	STRUCTURE
	ROOF OVERHANG
	EDGE OF ASPHALT PAVEMENT
	CHAIN-LINK FENCE
	SIGN
	BOLLARD
	STORM DRAIN
	STORM MANHOLE
	UNDERGROUND WATER LINE
	SEWER CLEANOUT
	SEWER MANHOLE
	UNDERGROUND SEWER LINE
	UTILITY POLE
	TRANSFORMER
	LIGHT POLE
	OVERHEAD POWER LINE
	UNDERGROUND FUEL LINE
	UNDERGROUND HOT WATER RETURN
	UNDERGROUND HOT WATER SUPPLY

SURVEY NOTES

- NO SURVEY WAS PERFORMED FOR THIS PROJECT.
- DRAWINGS ARE BASED ON AERIAL IMAGERY, SITE PHOTOS AND AVAILABLE RECORD DRAWINGS.
- CONTRACTOR TO VERIFY LOCATION OF ANY BELOW GROUND UTILITIES PRIOR TO COMMENCING EARTH WORK ACTIVITIES.

SHEET SPECIFIC NOTES

- REMOVE ALL EXISTING BURIED FUEL OIL PIPING ASSOCIATED WITH DEMOLISHED TANK. REMOVE EXISTING FUEL OIL TANK AND APPURTENANCES INCLUDING ABOVE GRADE VENT PIPING FROM THE SIDE OF THE BUILDING.
- APPROXIMATE LOCATION OF BURIED FUEL OIL LINE ENTRANCE INTO MECHANICAL ROOM. PRECISE ROUTING IS UNKNOWN. FIELD VERIFY AND CONFIRM DEMOLITION OF ALL BURIED FUEL OIL PIPING SERVING EXISTING UNDERGROUND STORAGE TANK. PROTECT EXISTING UNDERGROUND HOT WATER SUPPLY AND RETURN PIPING.

MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
DESIGNED BY IAL  
DRAWN BY AJM  
SCALE 0" 1"

MOUNTAIN VIEW  
EXISTING  
CONDITIONS AND  
DEMOLITION PLAN

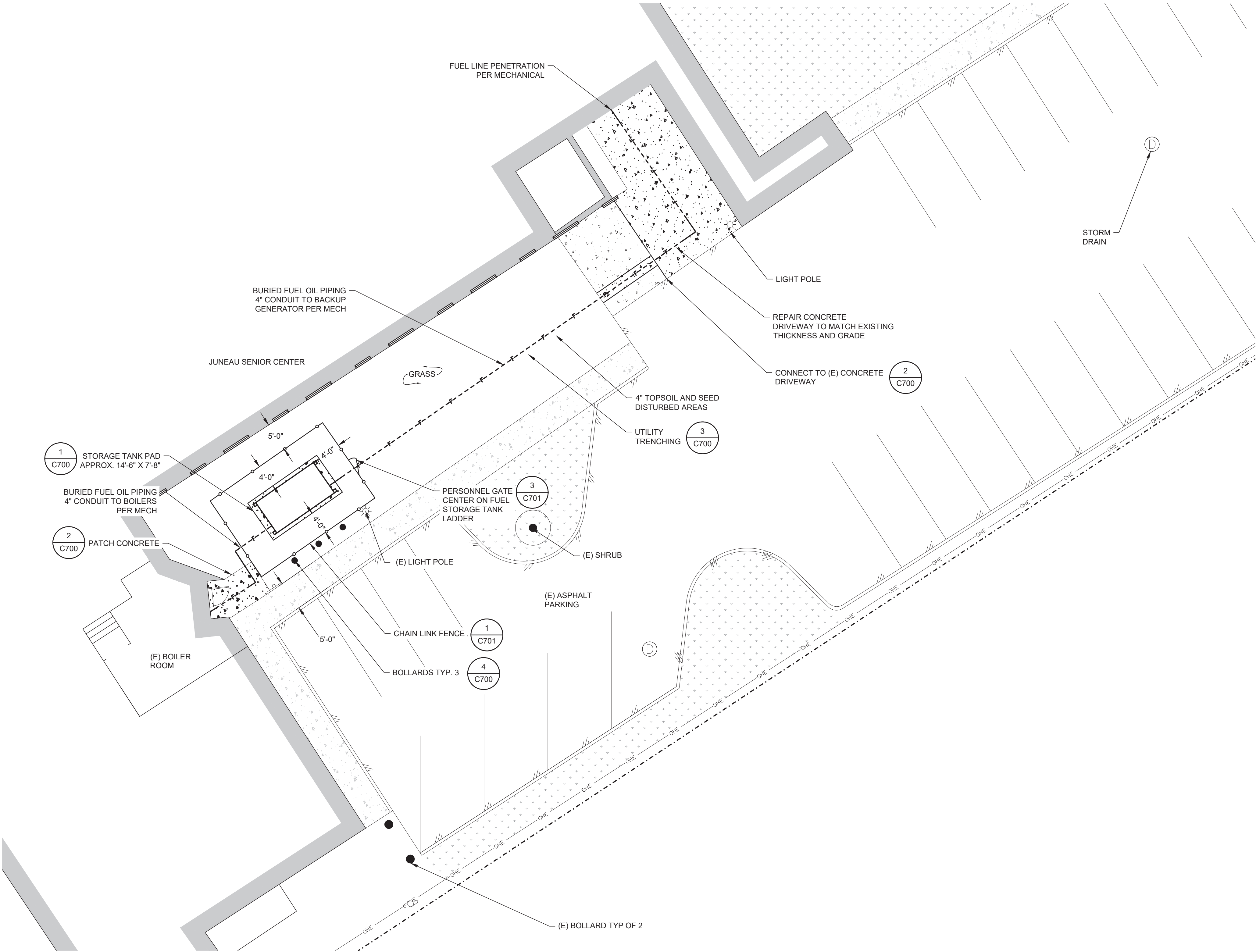
C101

1 MOUNTAIN VIEW EXISTING CONDITIONS  
C101 1"=20'



NOTES

1. 4" TOPSOIL AND SEED AREAS OF MAINTAINED LAWN DISTURBED BY THIS WORK.
2. FINISH GRADE SHALL SLOPE AWAY FROM EXISTING BUILDINGS AND NEW WORK AND SHALL GENERALLY MATCH EXISTING SLOPES AND DRAINAGE DIRECTION.



1 MOUNTAIN VIEW SITE PLAN  
C201 1"=10'

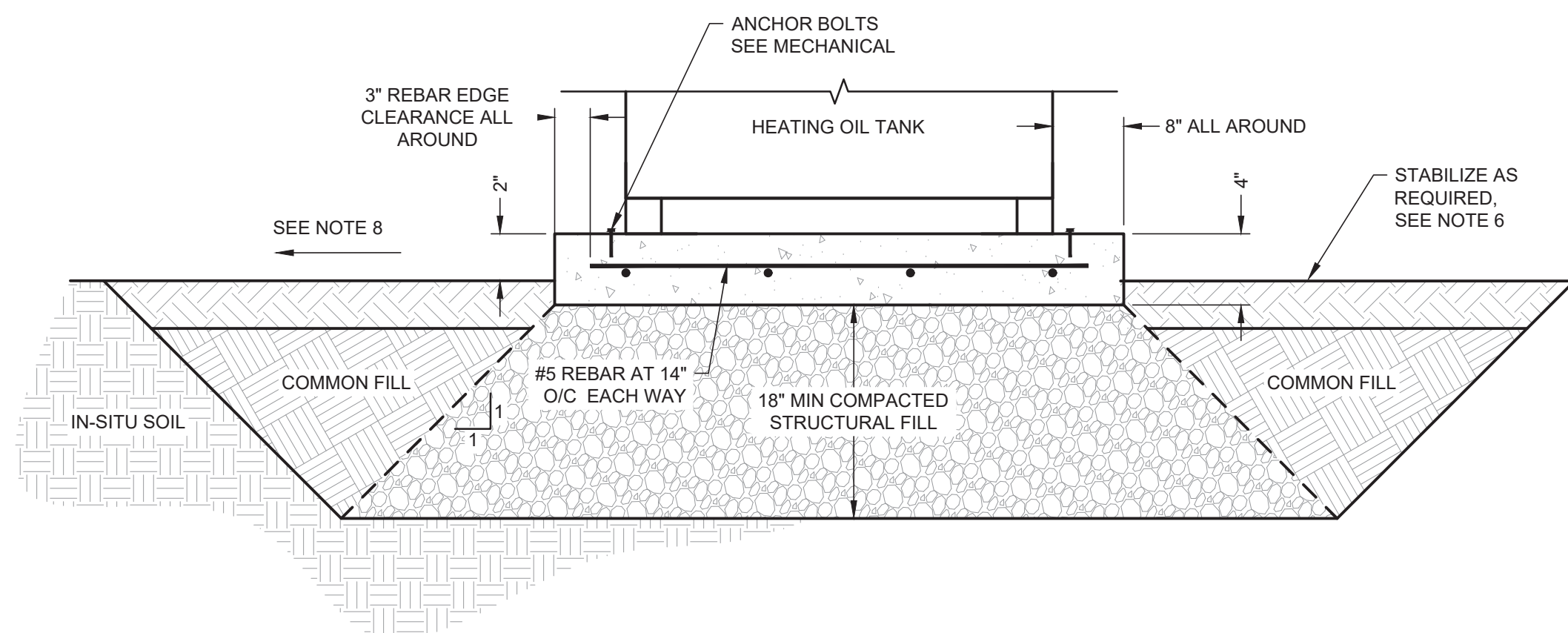
MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
DESIGNED BY IAL  
DRAWN BY AJM  
SCALE 0" 1"

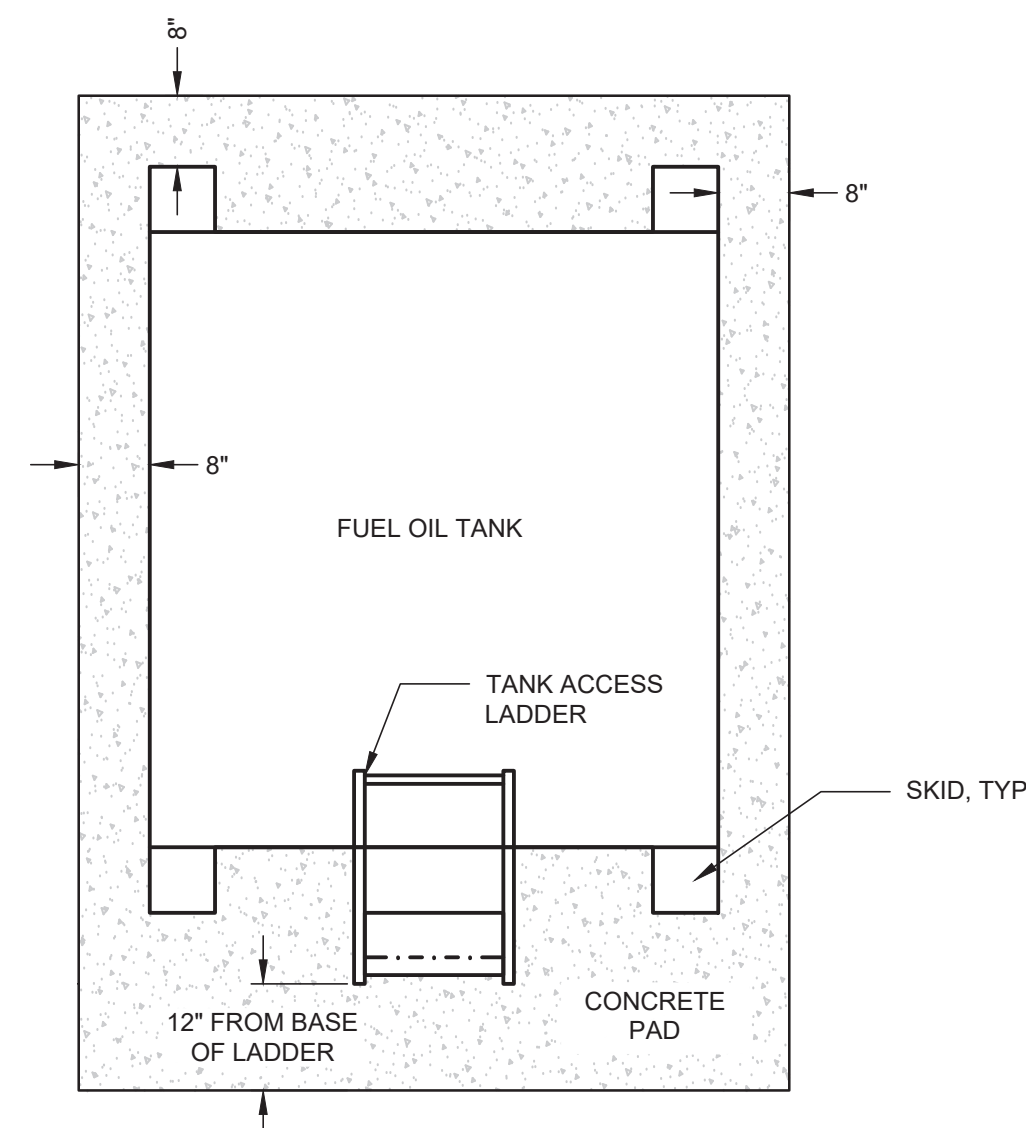
MOUNTAIN VIEW  
SITE PLAN

C201

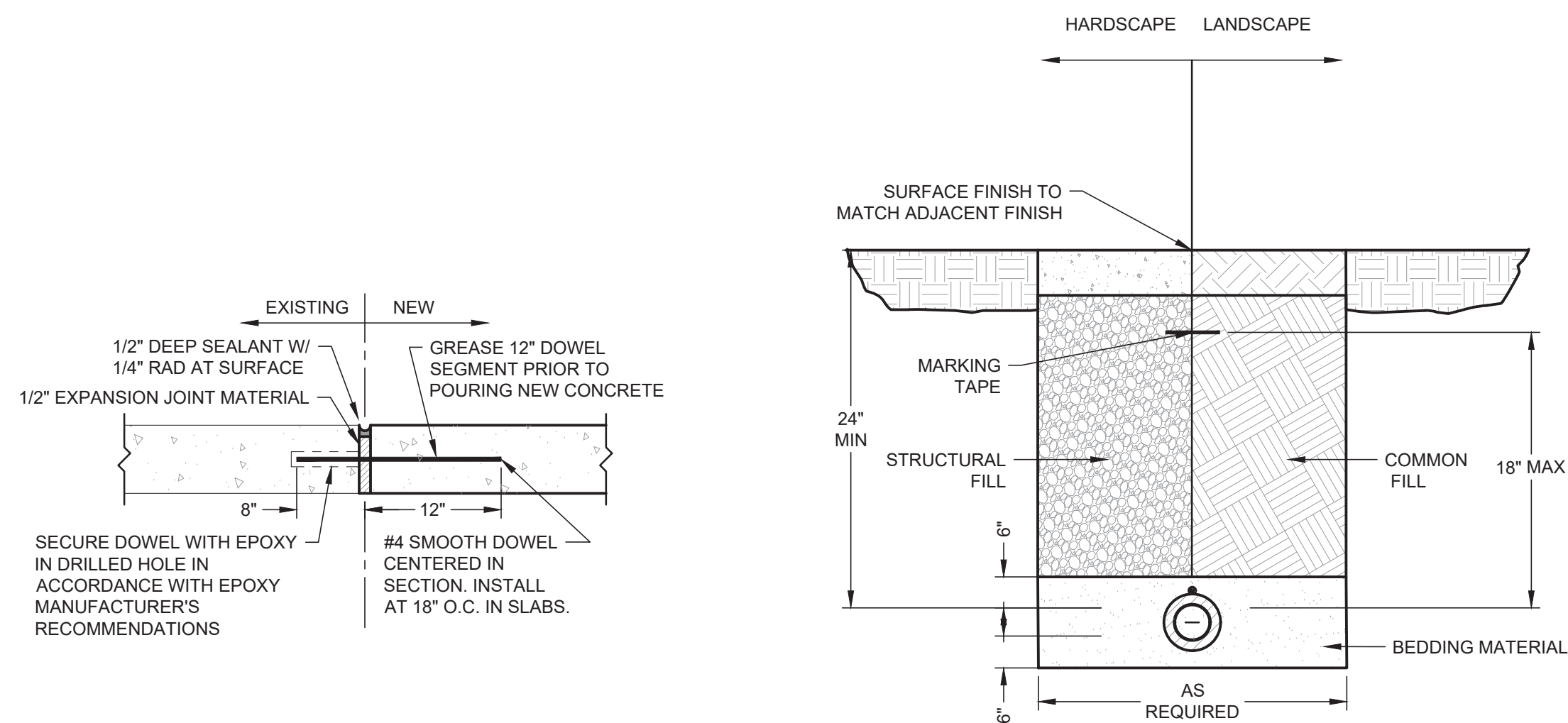




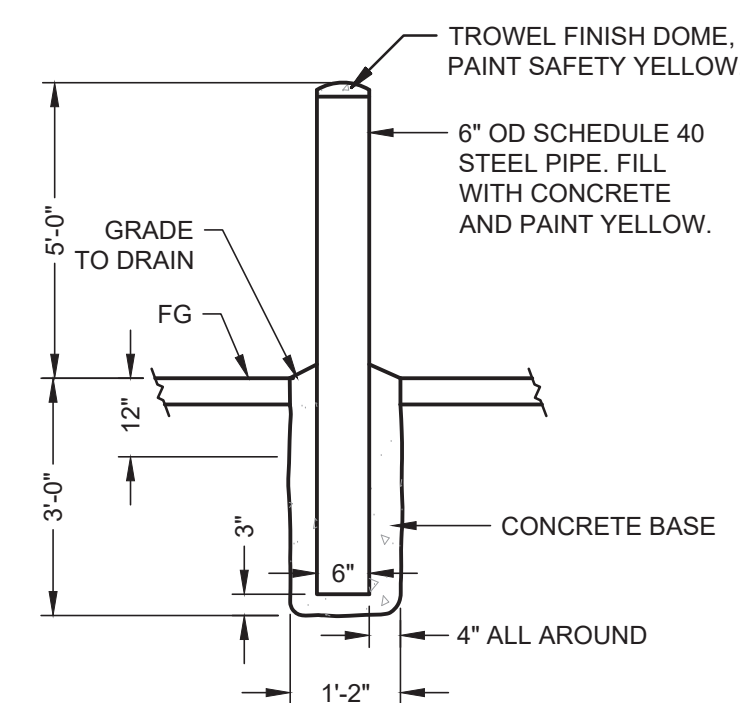
1. CONCRETE SLAB DIMENSIONS ARE APPROXIMATE. VERIFY DIMENSIONS AND LAYOUT WITH TANK MANUFACTURER PRIOR TO CONSTRUCTION.
2. EXCAVATE AND STOCKPILE EXISTING GRAVEL PAD MATERIAL AS REQUIRED FOR INSTALLATION OF THE NEW HEATING OIL TANK. GRAVEL PAD MATERIAL MAY BE RE-USED IF IT CONFORMS TO STRUCTURAL FILL SPECIFICATION.
3. OWNER'S REPRESENTATIVE SHALL INSPECT EXCAVATED MATERIAL AND BASE OF EXCAVATION FOR CONFORMANCE PRIOR TO BACKFILLING.
4. COMPACT BASE OF EXCAVATION WITH LARGE VIBRATORY PLATE COMPACTOR (MIN. 10,000LB CENTRIFUGAL FORCE). MINIMUM THREE PASSES. A PASS IS COUNTED EACH TIME THE RUNNING COMPACTOR MOVES OVER AN AREA.
5. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 6-INCH LIFTS AND COMPACTED WITH A LARGE VIBRATORY PLATE COMPACTOR. MINIMUM THREE PASSES PER LIFT. EACH LIFT MUST BE COMPLETE PRIOR TO PLACING AND COMPACTING SUBSEQUENT LIFTS.
6. PERMANENT EROSION STABILIZATION MUST BE ACHIEVED ON ALL DISTURBED SOILS. IN GRASSY AREAS, INSTALL 4" TOPSOIL, FERTILIZE AND SEED. IN GRAVELLY AREAS, GRADE SMOOTH AND COMPACT DISTURBED GROUND.
7. TOP OF SLAB TO BE 2" MIN. ABOVE ADJACENT GRADE.
8. PROVIDE POSITIVE DRAINAGE AWAY FROM TANK AND SLAB. SLOPE MINIMUM 5% FOR 5' AWAY FROM TANK FOUNDATION. BETWEEN TANK AND ADJACENT BUILDING, MAINTAIN EXISTING SLOPE AWAY FROM BUILDING. MATCH ADJACENT GRADE AND EXISTING FEATURES.



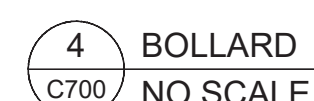
1 STORAGE TANK FOUNDATION EXCAVATION SECTION  
C700 NO SCALE




1. FOR NON-PAVING AREAS, BACKFILL MATERIAL ABOVE THE PIPE BEDDING WITH COMMON FILL.
2. SHEETING AND SHORING SHALL BE AS REQUIRED PER OSHA STANDARDS.
3. USE 3" DETECTABLE MARKING TAPE, BURIED 24" ABOVE UPPER SURFACE OF PIPE INSULATION. (SEE SPEC 31 20 00 FOR FUEL LINE COLOR).
4. KEEP TRENCH FREE OF WATER DURING BACKFILL



## PLAN AT EQUIPMENT



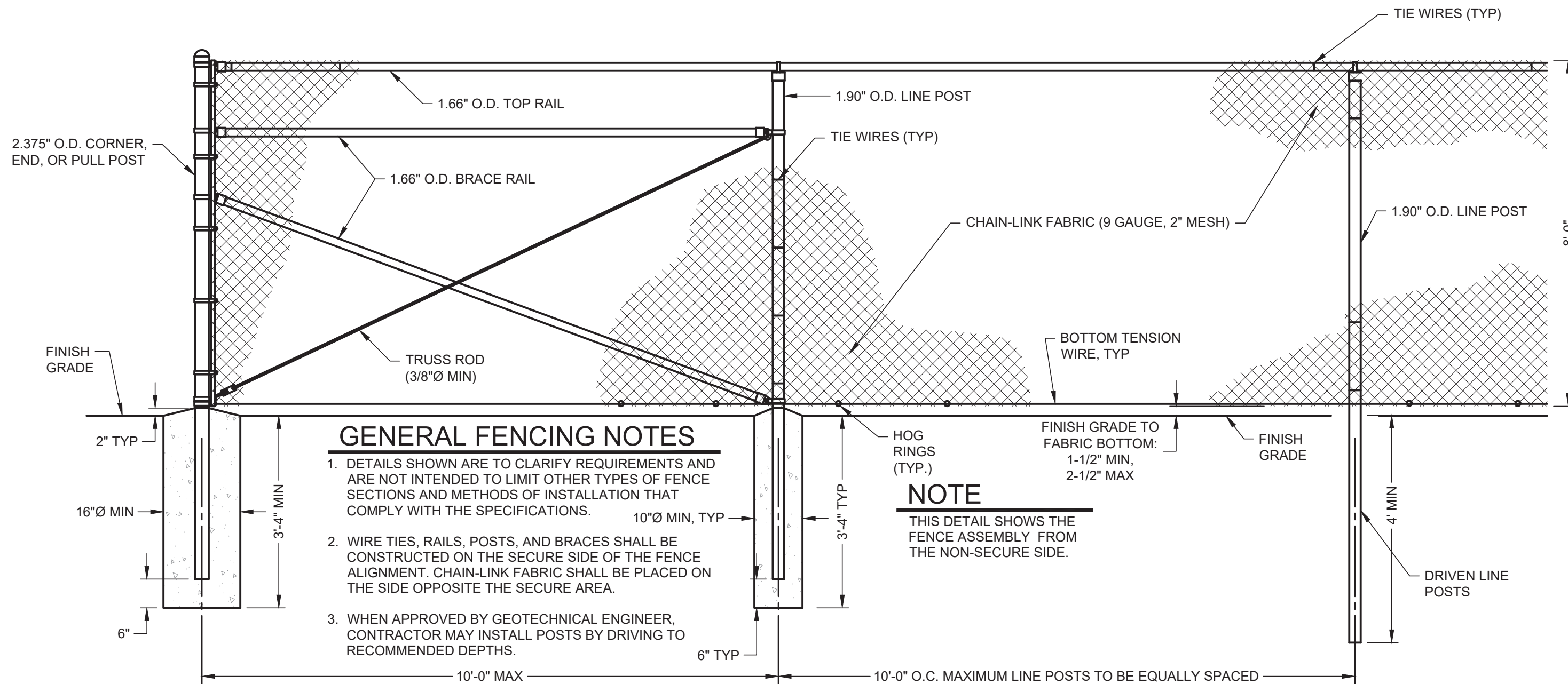
ISSUE DATE 22 MAY 2025

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
DESIGNED BY IAL  
DRAWN BY AJM  
SCALE 0"  1"

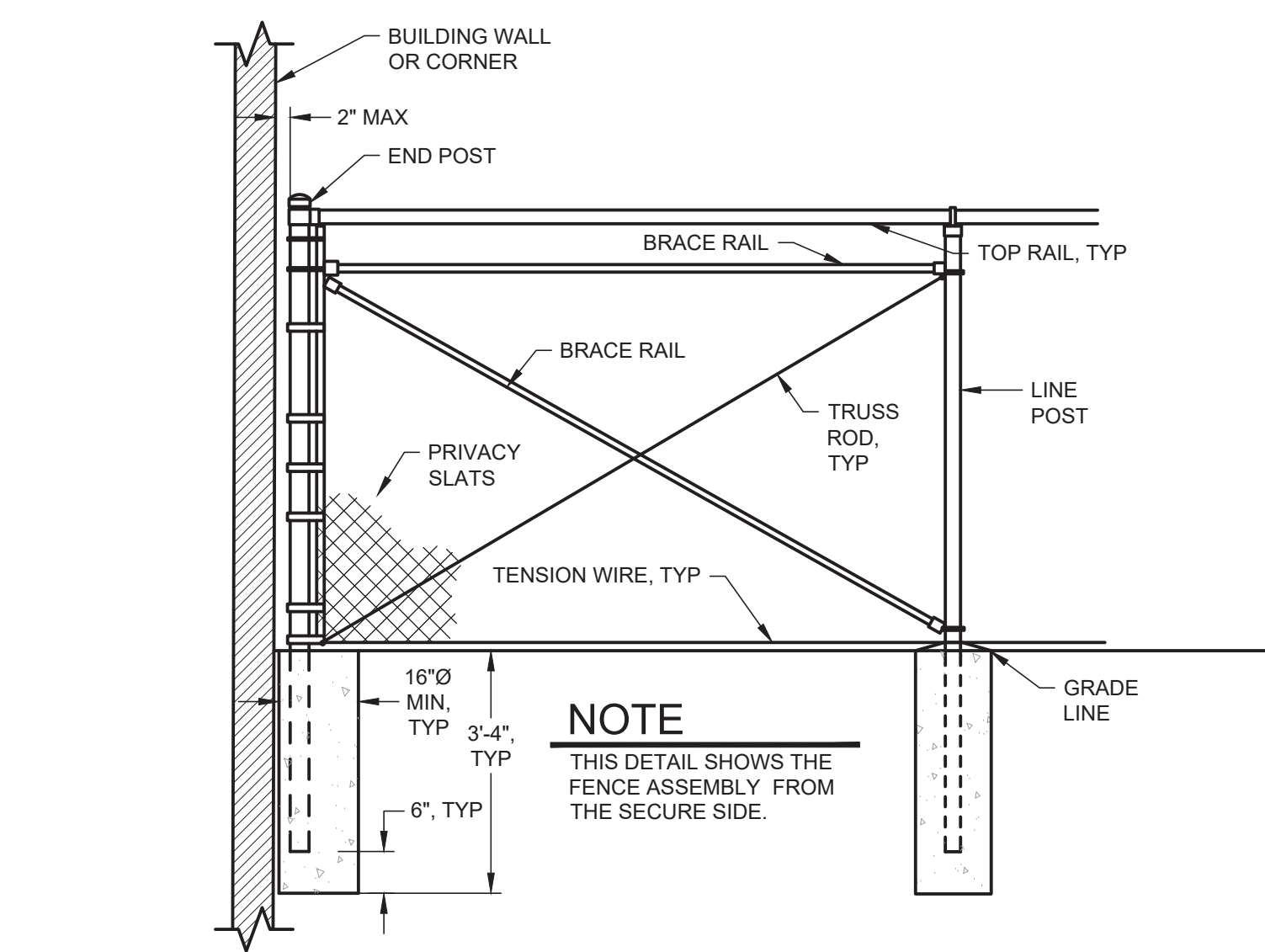
## DETAILS

# C700

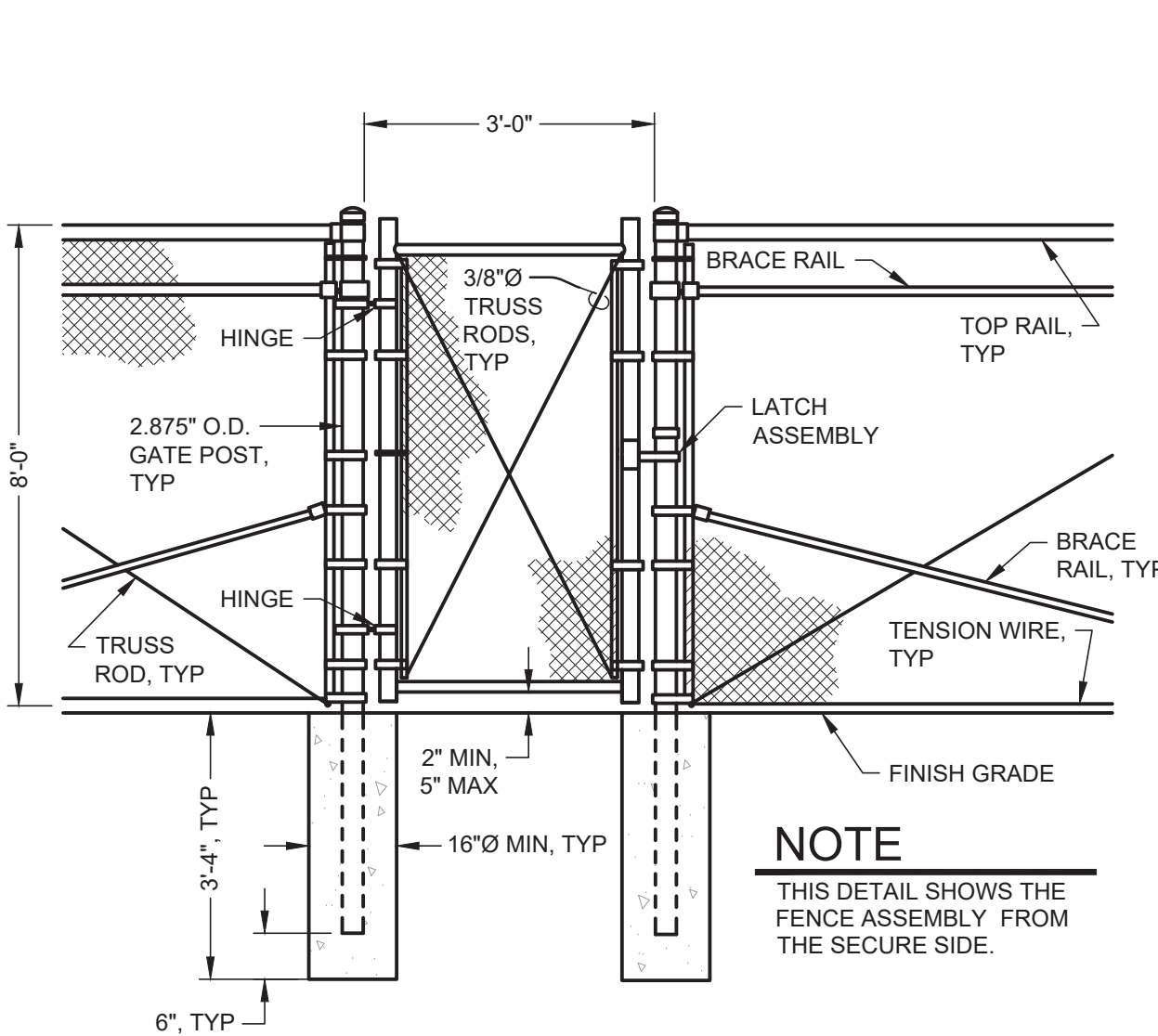




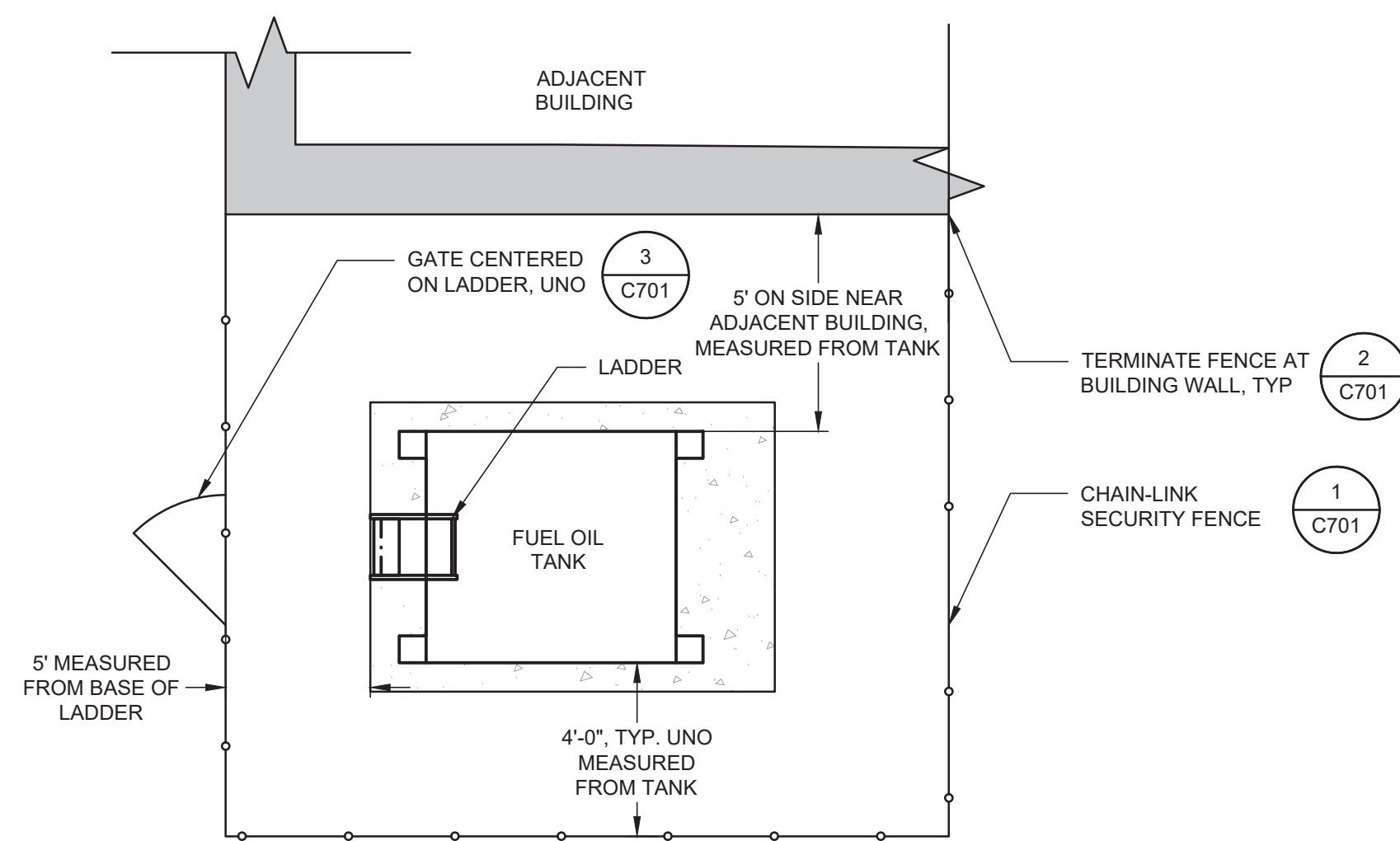
1 CHAIN-LINK SECURITY FENCE ASSEMBLY  
NOT TO SCALE



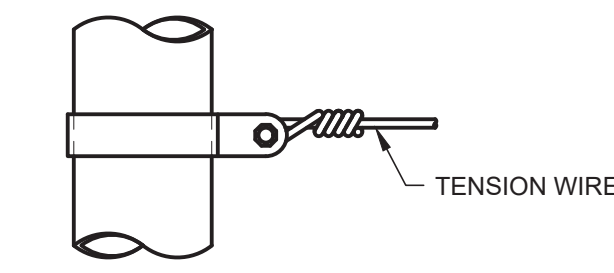
2 BRACE PANEL AND END POST AT BUILDING WALL  
NOT TO SCALE



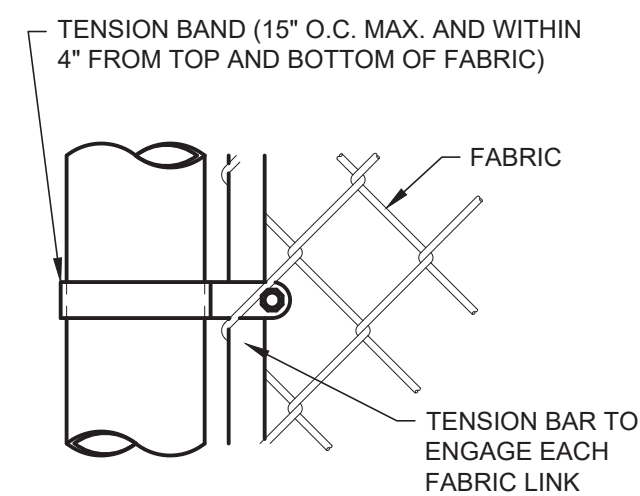
3 PERSONNEL GATE  
NOT TO SCALE



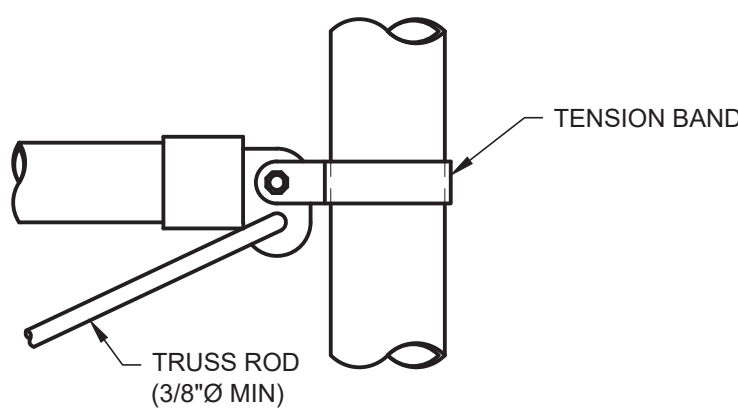
4 FENCE LAYOUT  
NOT TO SCALE



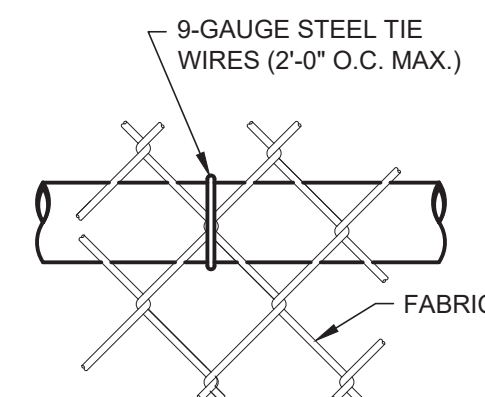
TENSION BAND DETAIL



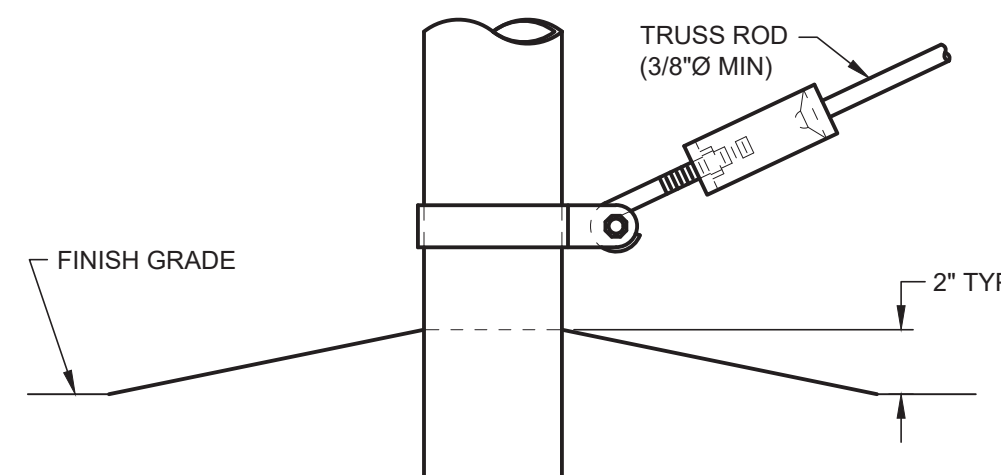
END OR GATE POST DETAIL



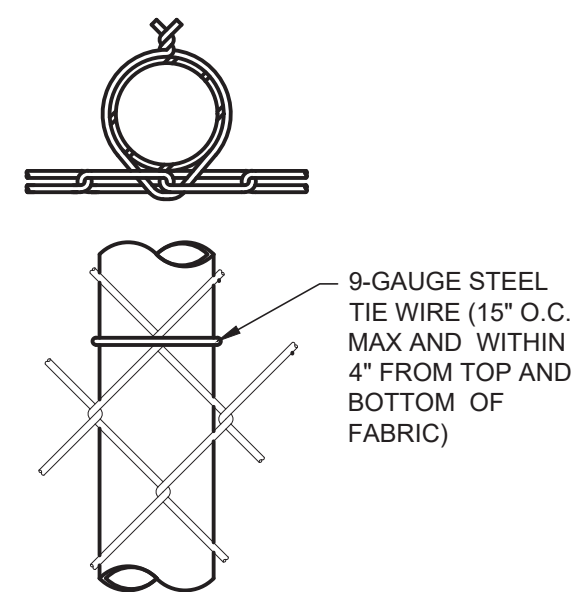
BRACE RAIL CLAMP DETAIL



TOP OR BRACE RAIL ATTACHMENT



TRUSS ROD AND BAND



LINE POST ATTACHMENT

5 FASTENING DETAILS  
NOT TO SCALE



MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
DESIGNED BY BAB  
DRAWN BY BAB  
SCALE 0" = 1"

MECHANICAL  
ABBREVIATIONS,  
LEGENDS, AND  
SCHEDULES

M001

MECHANICAL ABBREVIATIONS

ABBREVIATION	FULL NAME	ABBREVIATION	FULL NAME
#	NUMBER	MAX	MAXIMUM
&	AND	MECH	MECHANICAL
(E)	EXISTING	MIN	MINIMUM
AFF	ABOVE FINISHED FLOOR	NC	NORMALLY CLOSED
APPR	APPROVED	NC	NOISE CRITERIA
APPROX	APPROXIMATE	NIC	NOT IN CONTRACT
ARCH	ARCHITECTURAL	NO	NORMALLY OPEN
ASSOC	ASSOCIATED	NTS	NOT TO SCALE
AUTO	AUTOMATIC	OA	OUTSIDE AIR
BAL	BALANCING	OC	ON CENTER
BFF	BELOW FINISHED FLOOR	OD	OUTSIDE DIAMETER
CI	CAST IRON	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CO	CLEAN OUT	OFOI	OWNER FURNISHED, OWNER INSTALLED
DB	DECIBEL	ORD	OVERFLOW ROOF DRAIN
DI	DUCTILE IRON	ORL	OVERFLOW RAIN LEADER
DIA	DIAMETER	OSA	OUTSIDE AIR
DN	DOWN	PRV	PRESSURE RELIEF VALVE
ELEC	ELECTRICAL	RA	RETURN AIR
ESP	EXTERNAL STATIC PRESSURE	RD	ROOF DRAIN
EWI	ENTERING WATER TEMPERATURE	RHW	RECIRCULATING HOT WATER
EXIST	EXISTING	RL	RAIN LEADER
FLA	FULL LOAD AMPERAGE	SIM	SIMILAR
FLEX	FLEXIBLE	SPEC	SPECIFICATIONS
FP	FIRE PROTECTION	SS	STAINLESS STEEL
GA	GAUGE	TYP	TYPICAL
GALV	GALVANIZED	V	VENT
GI	GALVANIZED IRON	VERT	VERTICAL
ID	INSIDE DIAMETER	W	WASTE
IE	INVERT ELEVATION	W/	WITH
INSUL	INSULATION	W/O	WITHOUT
IPS	IRON PIPE SIZE		

MECHANICAL LINETYPES

ABBREVIATION	FULL NAME	LINETYPE
W	WASTE	_____
V	VENT	-----
GHS	GLYCOL HEATING SUPPLY	_____
GHR	GLYCOL HEATING RETURN	-----
FOS	FUEL OIL SUPPLY	_____
FOR	FUEL OIL RETURN	-----
	EXISTING	_____
	EXISTING TO BE REMOVED	-----
	EXISTING PIPING/DUCTWORK/ EQUIPMENT TO BE REMOVED	////

MECHANICAL SYMBOLS

	CONNECTION TO EXISTING		ISOLATION VALVE
	PIPE BREAK		CHECK VALVE
	PIPE FLOW ARROW		MOTORIZED DAMPER
	PIPE CONNECTION		2-WAY CONTROL VALVE
	PIPE ELBOW TURNED DOWN		PRESSURE RELIEF VALVE
	PIPE ELBOW TURNED UP		PRESSURE REDUCING VALVE
	PIPE TEE DOWN		DRAIN VALVE
	UNION		BOILER SHUTDOWN SWITCH
	PIPE CAP		

MECHANICAL TAG LEGEND



MISCELLANEOUS EQUIPMENT SCHEDULE

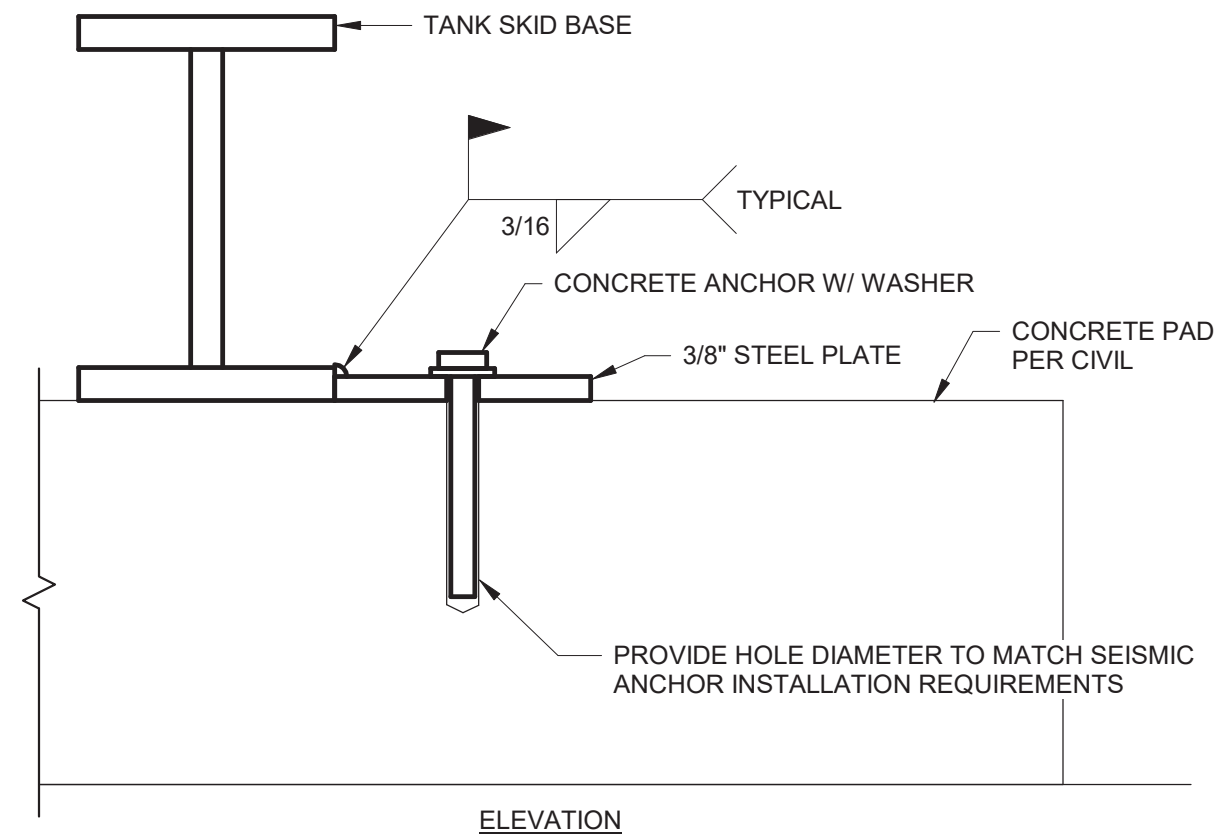
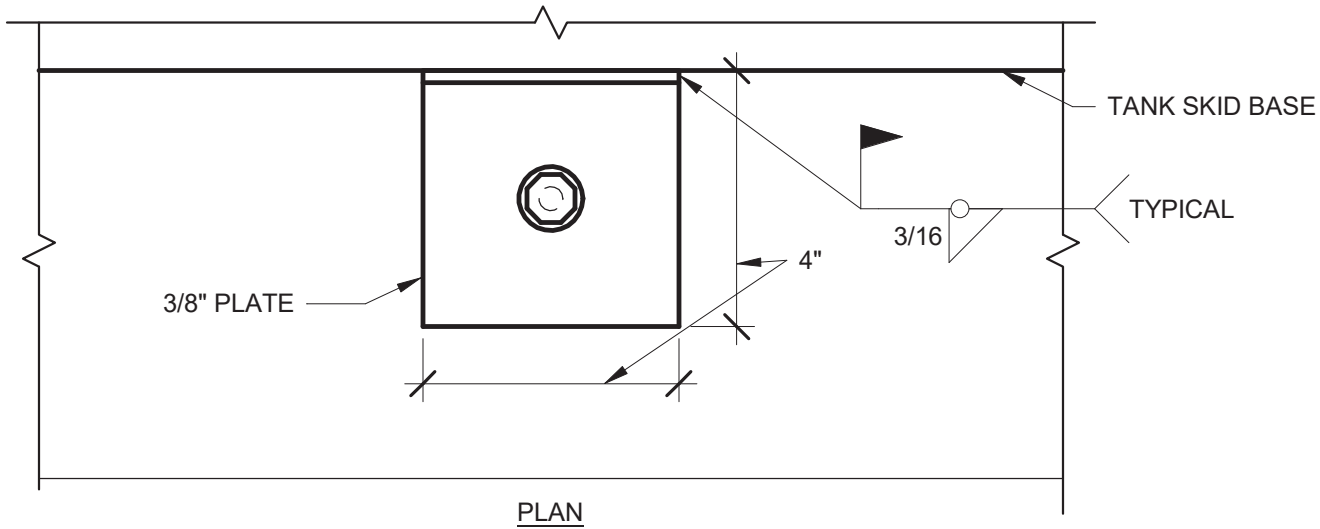
SYMBOL	ITEM	CAPACITY / SIZE	OPERATING WEIGHT {1} (LB)	BASIS OF DESIGN	REMARKS
T-1	ABOVE GROUND FUEL TANK	2,500 GALLONS 76" Ø X 12'-0" L	24,550	GREER TANK STI F921	1. UL-142 DOUBLE WALL CONSTRUCTION 2. PROVIDED W/ ACCESSORIES INDICATED ON 1/M100 3. PROVIDE ANTI-SIPHON VALVE W/ MIN OPENING VACUUM OF 17" FUEL OIL. MORRISON 912-052000 AV OR EQUAL 4. LOCATE AS INDICATED ON CIVIL DRAWINGS

{1} OPERATING WEIGHT INDICATED. PLUS 10% IS MAXIMUM ALLOWED WEIGHT IF USING A SEISMIC DETAIL PROVIDED AS PART OF CONTRACT DOCUMENTS.

SEISMIC - CONCRETE ANCHOR BOLT SCHEDULE

SYMBOL	ANCHOR BOLT DIAMETER (IN)	NUMBER OF BOLTS PER SIDE	NOMINAL ANCHOR EMBEDMENT (IN)	EFFECTIVE ANCHOR EMBEDMENT (IN)	MINIMUM HOLE DEPTH (IN)	MINIMUM CONCRETE THICKNESS (IN)	MINIMUM EDGE DISTANCE (IN)	MINIMUM SPACING BETWEEN ANCHORS (IN)	MAXIMUM TORQUE (FT-LBS)
T-1	3/8	2	2-1/2	2	2-3/4	4	8	6	157

{1} SEISMIC ANCHOR INSTALLATION REQUIRES SPECIAL INSPECTION.  
{2} ANCHOR BOLTS FOR EXTERIOR APPLICATIONS SHALL BE STAINLESS STEEL.  
{3} ANCHOR SELECTIONS FOR USE IN SLABS OF NORMAL WEIGHT CONCRETE ONLY. NOT FOR USE IN LIGHTWEIGHT CONCRETE.  
{4} ANCHOR FOR INSTALLATION INTO NEW CONCRETE (4,000 PSI).  
{5} ALTERNATIVE ANCHOR SELECTIONS WILL NOT BE REVIEWED WITHOUT FORCE CALCULATIONS SIGNED BY A LICENSED ENGINEER.  
{6} HILTI KH-EZ SCREW ANCHOR, HEX HEAD, 316 STAINLESS STEEL.



2 ANCHOR PLATE DETAIL  
M001 NO SCALE



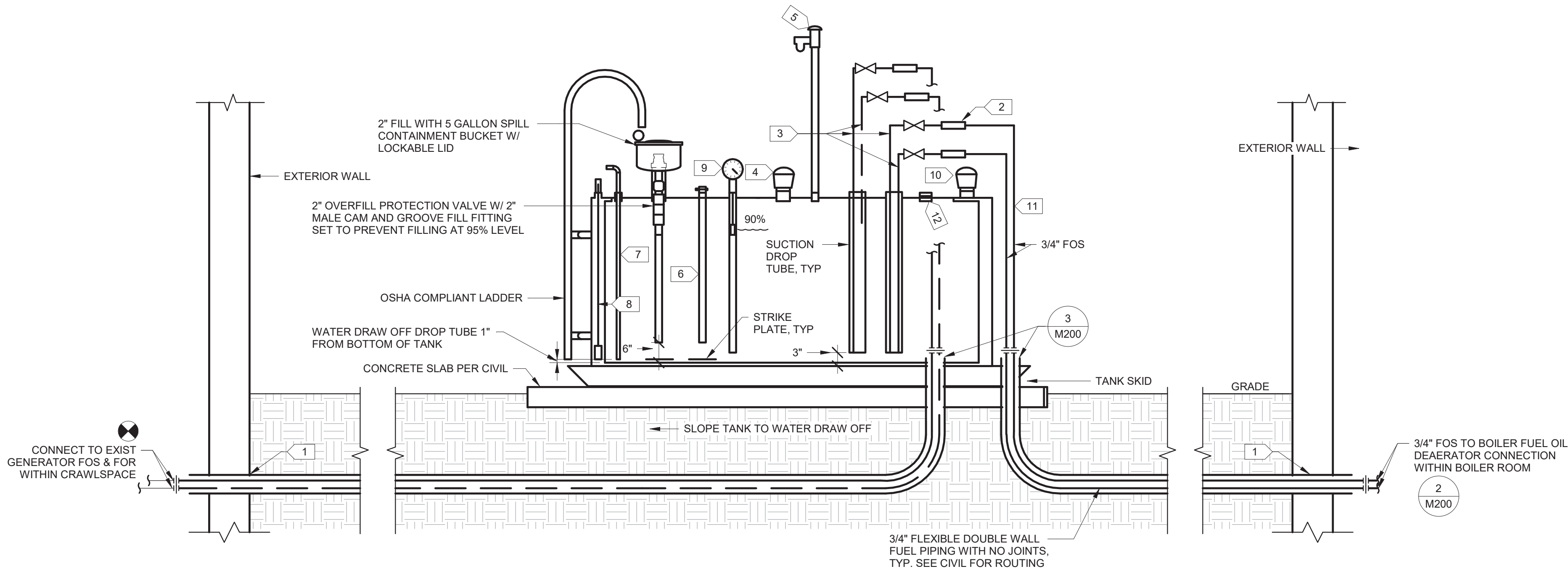


GENERAL NOTES

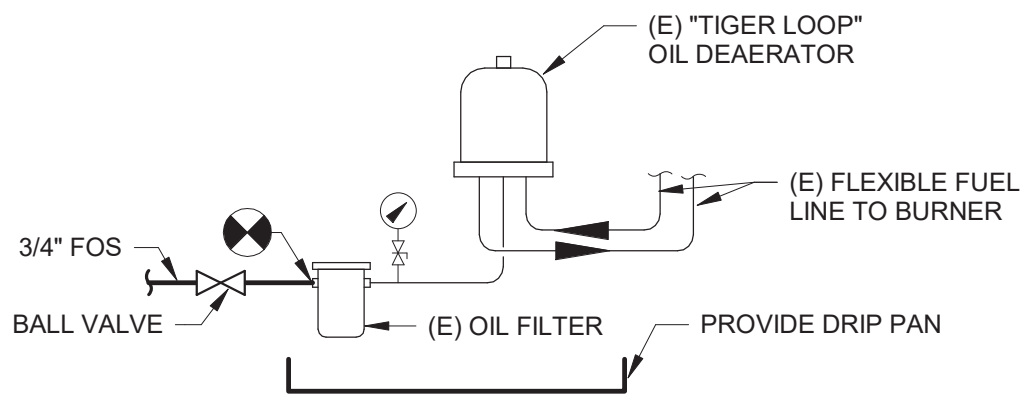
- DEMOLISH LEAK DETECTION PANEL, LOCATED IN THE BOILER ROOM, ASSOCIATED W/ DEMOLISHED TANK WITH ALL ASSOCIATED CONDUIT AND APPURTENANCES
- DEMOLISH EXISTING FUEL OIL PIPING FROM DEMOLISHED TANK TO EXISTING TO REMAIN FUEL OIL FILTERS
- T-1 SERVES TWO EXISTING FUEL OIL FIRED BOILERS AND ONE EXISTING BACKUP GENERATOR

SHEET SPECIFIC NOTES

- SEAL SLEAVED BUILDING PENETRATIONS LIQUID TIGHT, TYP
- ANTISIPHON VALVE, MORRISON 912, TYP. SEE TANK SCHEDULE ON M001 FOR SETTING
- FOS & FOR PIPING SHOWN VERTICALLY OFFSET FOR CLARITY ONLY, MINIMIZE HEIGHT ABOVE TANK
- PRIMARY TANK EMERGENCY VENT
- 2" PRIMARY TANK VENT, MIN 12'-0" ABOVE GRADE, W/ AUDIBLE WHISTLE VENT, MORRISON 922, SET TO ALARM AT 90% TANK LEVEL
- 2" STRAIGHT FILL PORT FOR MANUAL GAUGING W/ LOCKABLE CAP
- 1" WATER DRAW OFF WITH WATERTIGHT CAP. LOCATE PICKUP 1" ABOVE TANK BOTTOM. LABEL "WATER DRAW OFF" AT TANK OPENING
- INTERSTITIAL LEAK DETECTION
- VISUAL TANK LEVEL CLOCK GAUGE W/ AUDIBLE HIGH LEVEL ALARM SET TO ACTIVATE AT 90% FULL
- INTERSTITIAL TANK EMERGENCY VENT
- SUPPORT PIPE FROM CHANNEL STRUT ATTACHED TO TANK SKID
- 4" SPARE THREADED CAST STEEL TANK FITTING



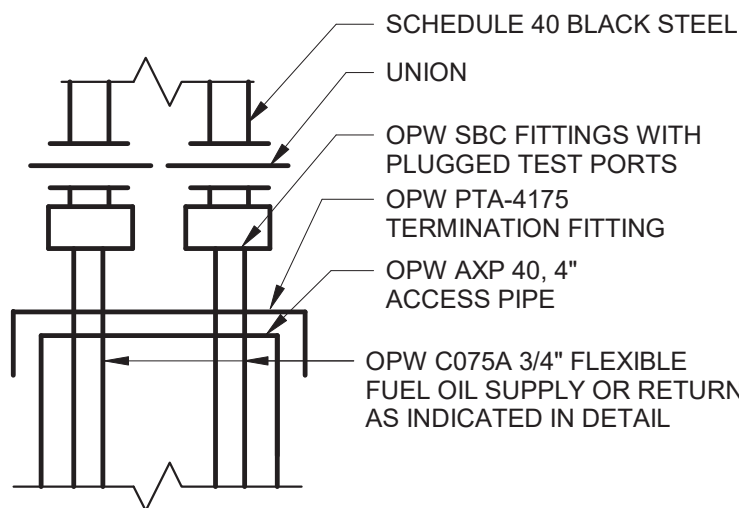
1 ABOVE GROUND FUEL OIL TANK DETAIL  
NO SCALE



GENERAL NOTES

- CONNECT FUEL OIL SUPPLY FROM TANK AT ACCESSIBLE LOCATION WITHIN MECHANICAL ROOM TO POINT OF CONNECTION W/ REMOVED PIPING.
- EXISTING BOILER FUEL OIL AND PIPING ACCESSORIES TO REMAIN.

2 FUEL OIL BOILER PIPING CONNECTION DETAIL W/ (E) DEAERATOR  
NO SCALE



3 UNDERGROUND PIPING TERMINATION DETAIL  
NO SCALE

MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
DESIGNED BY BAB  
DRAWN BY BAB  
SCALE 0" = 1"

MECHANICAL  
DETAILS

M200

# Drawings

ALASKA HOUSING FINANCE CORPORATION

# MOUNTAIN VIEW HEATING FUEL TANK REPLACEMENT

JUNEAU, ALASKA

SHEET INDEX

GENERAL	
G010	GENERAL INFORMATION
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MECHANICAL	
M001	MECHANICAL ABBREVIATIONS, LEGENDS, AND SCHEDULES
M200	MECHANICAL DETAILS

GENERAL SYMBOLS

SEE DISCIPLINES FOR SPECIFIC SYMBOLS

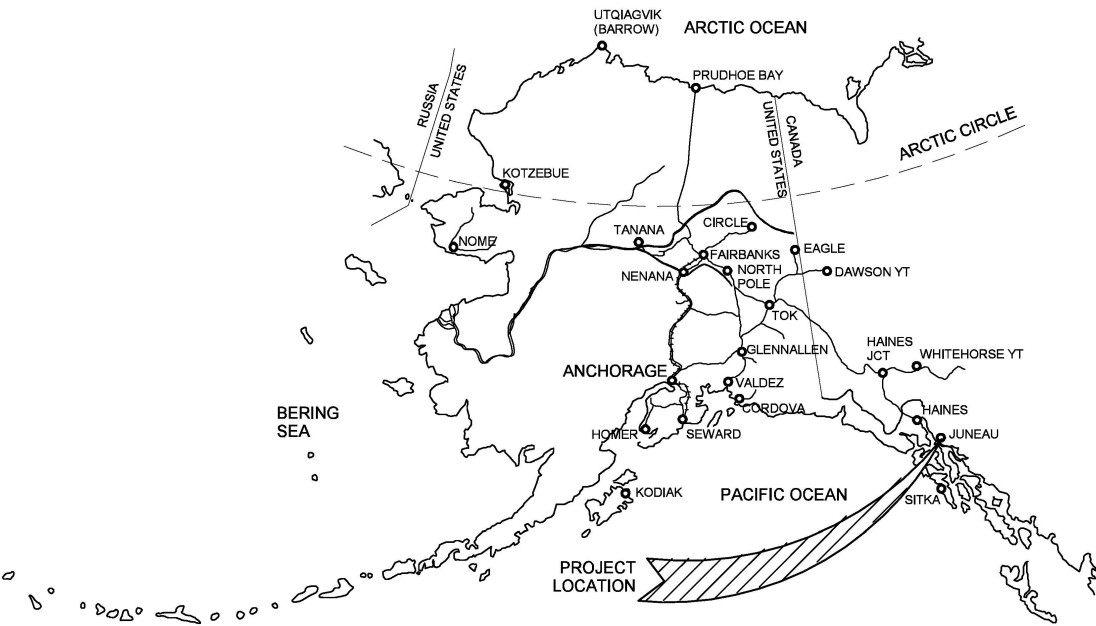
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NUMBER	1
SHEET LOCATION	A101 1/8" = 1'-0"
SCALE	
TRUE NORTH	
PLAN NORTH	
GRID LINE	0
REVISION	1
ROOM NAME	Room name
ROOM NUMBER	101

PROJECT TEAM

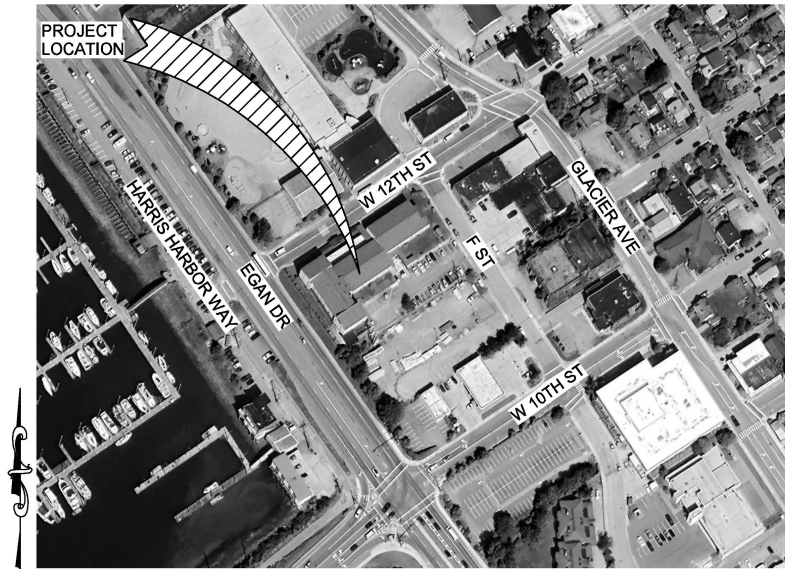
OWNERS REPRESENTATIVE  
ALASKA HOUSING FINANCE CORPORATION  
POINT OF CONTACT: MICHAEL CARLSON  
4300 BONIFACE PARKWAY  
ANCHORAGE, AK 99504  
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mcarlson@ahfc.us

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DESIGN ALASKA  
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FAIRBANKS, AK 99701  
907-452-1241  
blake@designalaska.com

ALASKA MAP



VICINITY MAP

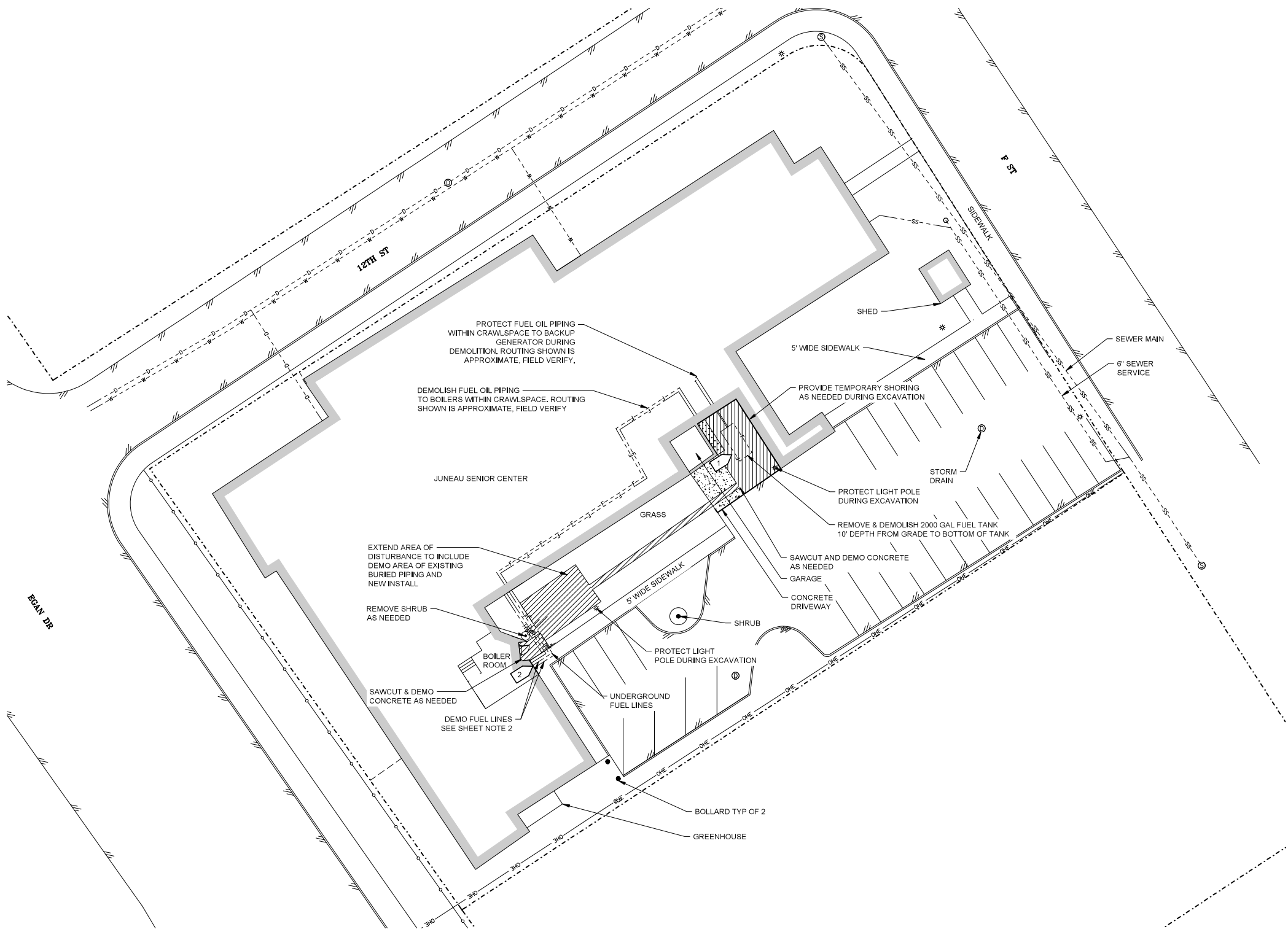


MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

ISSUE DATE	22 MAY 2025
COMM. NUMBER	672501
DESIGNED BY	-
DRAWN BY	-
SCALE	0" = 1"

GENERAL  
INFORMATION

G010



LEGEND	
	PROPERTY LINE
	DEMOLITION
	STRUCTURE
	ROOF OVERHANG
	EDGE OF ASPHALT PAVEMENT
	CHAIN-LINK FENCE
	SIGN
	BOLLARD
	STORM DRAIN
	STORM MANHOLE
	UNDERGROUND WATER LINE
	SEWER CLEANOUT
	SEWER MANHOLE
	UNDERGROUND SEWER LINE
	UTILITY POLE
	TRANSFORMER
	LIGHT POLE
	OVERHEAD POWER LINE
	UNDERGROUND FUEL LINE
	UNDERGROUND HOT WATER RETURN
	UNDERGROUND HOT WATER SUPPLY

- SURVEY NOTES**
- NO SURVEY WAS PERFORMED FOR THIS PROJECT.
  - DRAWINGS ARE BASED ON AERIAL IMAGERY, SITE PHOTOS AND AVAILABLE RECORD DRAWINGS.
  - CONTRACTOR TO VERIFY LOCATION OF ANY BELOW GROUND UTILITIES PRIOR TO COMMENCING EARTH WORK ACTIVITIES.

- SHEET SPECIFIC NOTES**
- REMOVE ALL EXISTING BURIED FUEL OIL PIPING ASSOCIATED WITH DEMOLISHED TANK, REMOVE EXISTING FUEL OIL TANK AND APPURTENANCES INCLUDING ABOVE GRADE VENT PIPING FROM THE SIDE OF THE BUILDING.
  - APPROXIMATE LOCATION OF BURIED FUEL OIL LINE ENTRANCE INTO MECHANICAL ROOM, PRECISE ROUTING IS UNKNOWN, FIELD VERIFY AND CONFIRM DEMOLITION OF ALL BURIED FUEL OIL PIPING SERVING EXISTING UNDERGROUND STORAGE TANK, PROTECT EXISTING UNDERGROUND HOT WATER SUPPLY AND RETURN PIPING.

1 MOUNTAIN VIEW EXISTING CONDITIONS  
C101 1"=20'



**MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT**

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
DESIGNED BY IAL  
DRAWN BY AJM  
SCALE 0" 1"

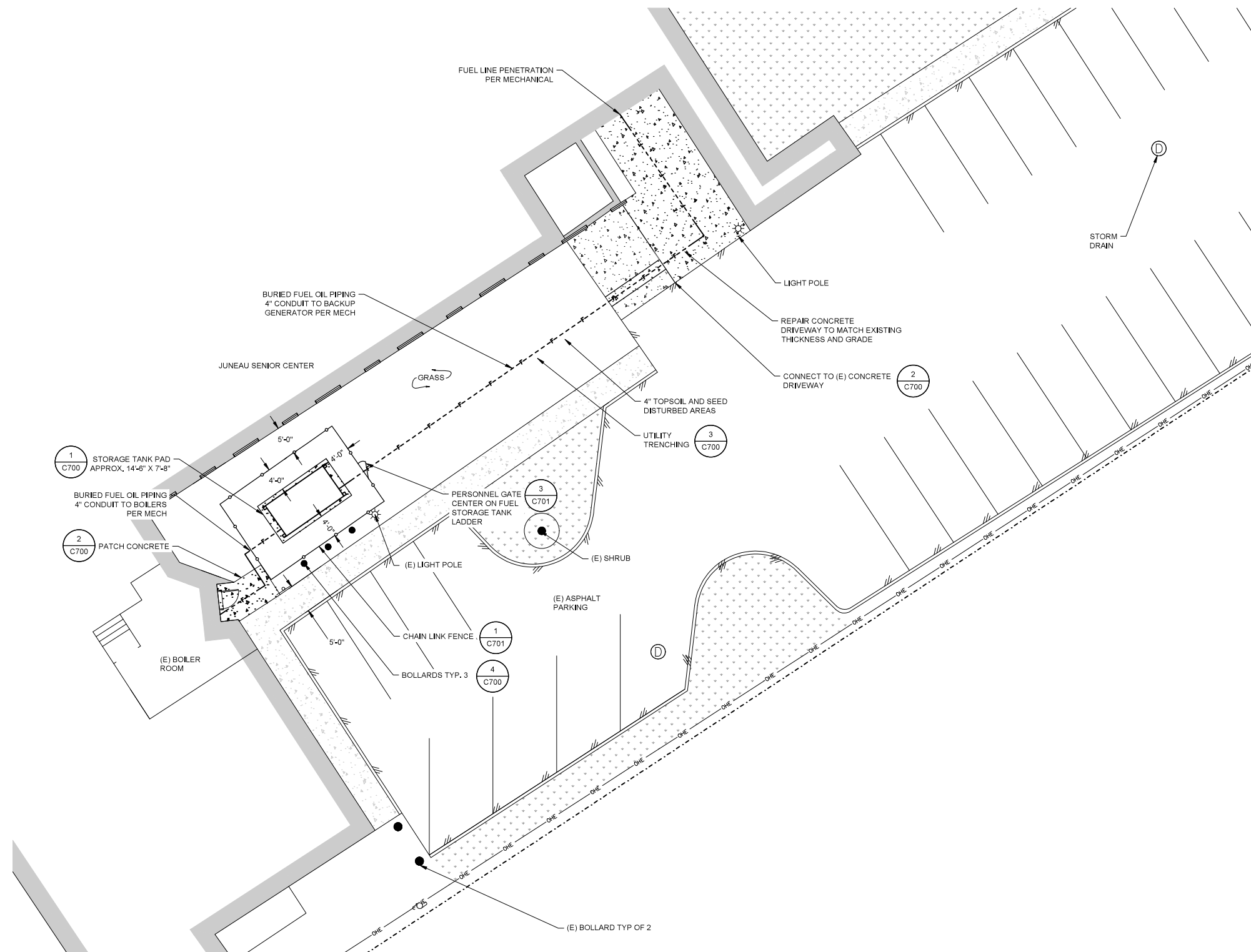
**MOUNTAIN VIEW  
EXISTING  
CONDITIONS AND  
DEMOLITION PLAN**

**C101**



## NOTES

- 4" TOPSOIL AND SEED AREAS OF MAINTAINED LAWN DISTURBED BY THIS WORK.
- FINISH GRADE SHALL SLOPE AWAY FROM EXISTING BUILDINGS AND NEW WORK AND SHALL GENERALLY MATCH EXISTING SLOPES AND DRAINAGE DIRECTION.



1 MOUNTAIN VIEW SITE PLAN  
1"=10'

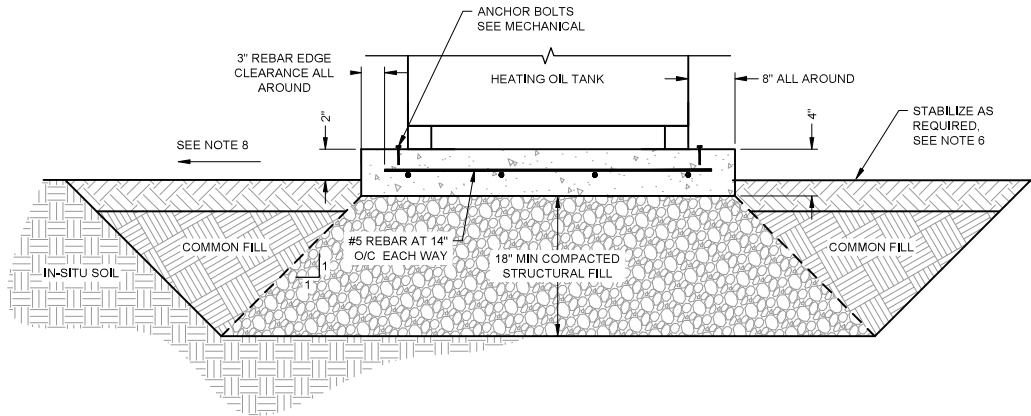
## MOUNTAIN VIEW HEATING FUEL TANK REPLACEMENT

ISSUE DATE 22 MAY 2025  
COMM. NUMBER 672501  
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DRAWN BY AJM  
SCALE 0" 1"

## MOUNTAIN VIEW SITE PLAN

C201



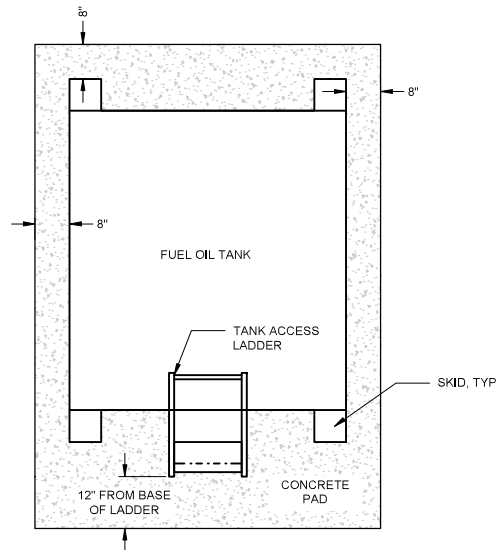


ABOVEGROUND TANKS ON SOIL

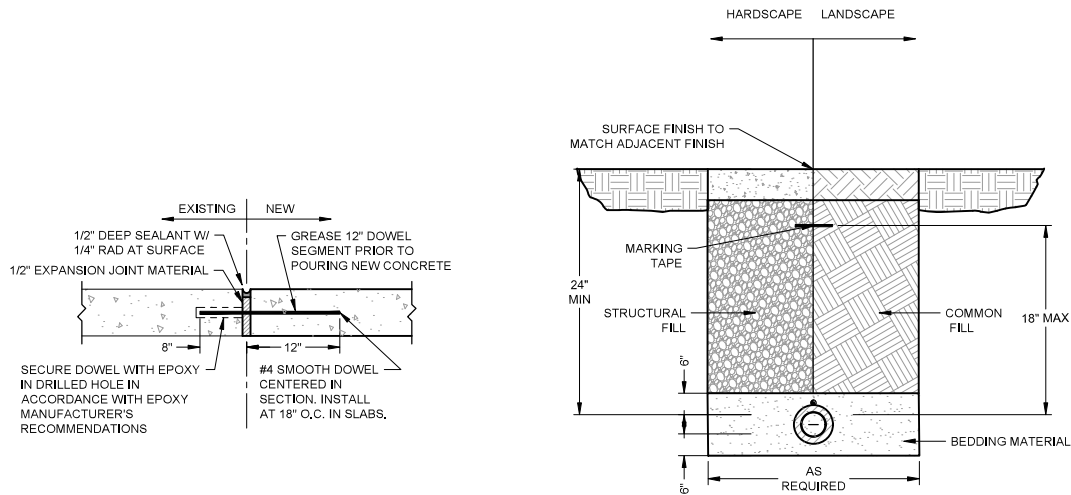
### EXCAVATION NOTES

1. CONCRETE SLAB DIMENSIONS ARE APPROXIMATE. VERIFY DIMENSIONS AND LAYOUT WITH TANK MANUFACTURER PRIOR TO CONSTRUCTION.
2. EXCAVATE AND STOCKPILE EXISTING GRAVEL PAD MATERIAL AS REQUIRED FOR INSTALLATION OF THE NEW HEATING OIL TANK. GRAVEL PAD MATERIAL MAY BE RE-USED IF IT CONFORMS TO STRUCTURAL FILL SPECIFICATION.
3. OWNER'S REPRESENTATIVE SHALL INSPECT EXCAVATED MATERIAL AND BASE OF EXCAVATION FOR CONFORMANCE PRIOR TO BACKFILLING.
4. COMPACT BASE OF EXCAVATION WITH LARGE VIBRATORY PLATE COMPACTOR (MIN 10,000LB CENTRIFUGAL FORCE). MINIMUM THREE PASSES, A PASS IS COUNTED EACH TIME THE RUNNING COMPACTOR MOVES OVER AN AREA.
5. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 6-INCH LIFTS AND COMPACTED WITH A LARGE VIBRATORY PLATE COMPACTOR, MINIMUM THREE PASSES PER LIFT. EACH LIFT MUST BE COMPLETE PRIOR TO PLACING AND COMPACTING SUBSEQUENT LIFTS.
6. PERMANENT EROSION STABILIZATION MUST BE ACHIEVED ON ALL DISTURBED SOILS. IN GRASSY AREAS, INSTALL 4" TOPSOIL, FERTILIZE AND SEED. IN GRAVELLY AREAS, GRADE SMOOTH AND COMPACT DISTURBED GROUND.
7. TOP OF SLAB TO BE 2" MIN. ABOVE ADJACENT GRADE.
8. PROVIDE POSITIVE DRAINAGE AWAY FROM TANK AND SLAB, SLOPE MINIMUM 5% FOR 5' AWAY FROM TANK FOUNDATION. BETWEEN TANK AND ADJACENT BUILDING, MAINTAIN EXISTING SLOPE AWAY FROM BUILDING, MATCH ADJACENT GRADE AND EXISTING FEATURES.

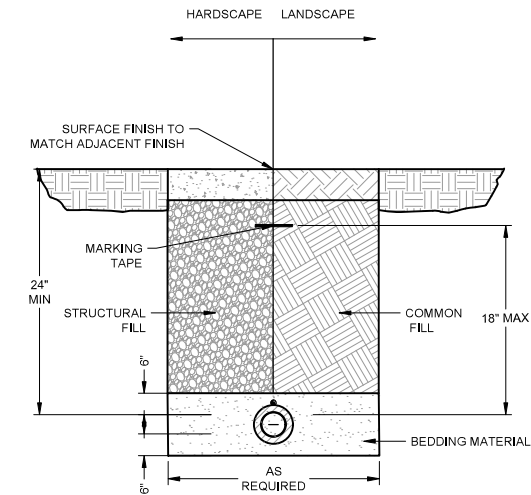
1 STORAGE TANK FOUNDATION EXCAVATION SECTION  
C700 NO SCALE



PLAN VIEW



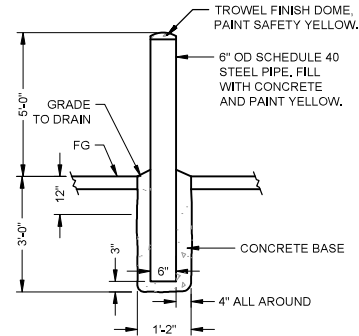
2 NEW TO EXISTING CONCRETE  
C700 NO SCALE



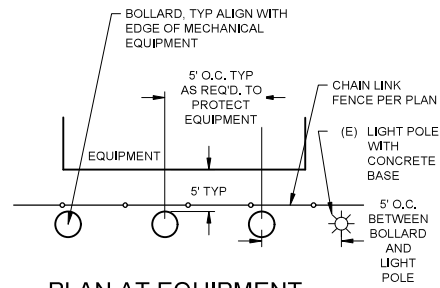
3 UTILITY TRENCH  
C700 NO SCALE

### NOTES

1. FOR NON-PAVING AREAS, BACKFILL MATERIAL ABOVE THE PIPE BEDDING WITH COMMON FILL.
2. SHEETING AND SHORING SHALL BE AS REQUIRED PER OSHA STANDARDS.
3. USE 3" DETECTABLE MARKING TAPE, BURIED 24" ABOVE UPPER SURFACE OF PIPE INSULATION, (SEE SPEC 31 20 00 FOR FUEL LINE COLOR).
4. KEEP TRENCH FREE OF WATER DURING BACKFILL.



TROWEL TOP SECTION



PLAN AT EQUIPMENT

4 BOLLARD  
C700 NO SCALE

Design  
Alaska

Architects • Engineers • Surveyors  
601 College Road Fairbanks AK 99701  
907.452.1241 AECC511 designalaska.com

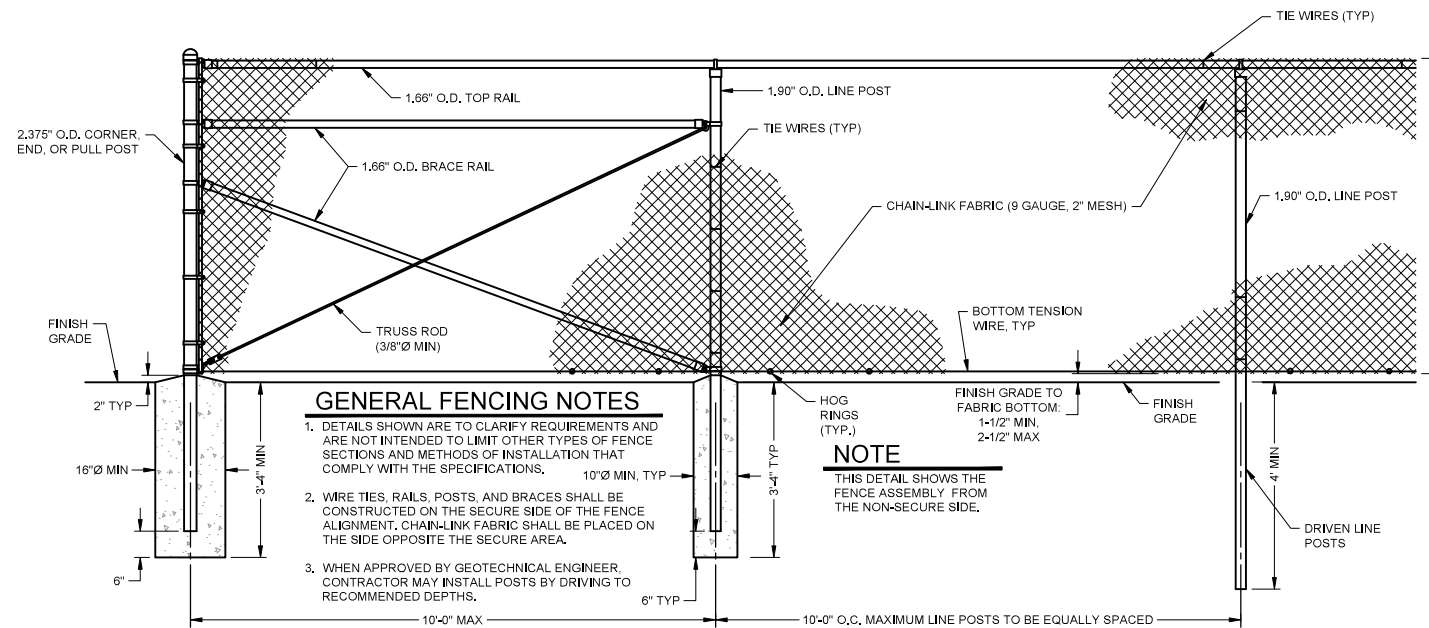


### MOUNTAIN VIEW HEATING FUEL TANK REPLACEMENT

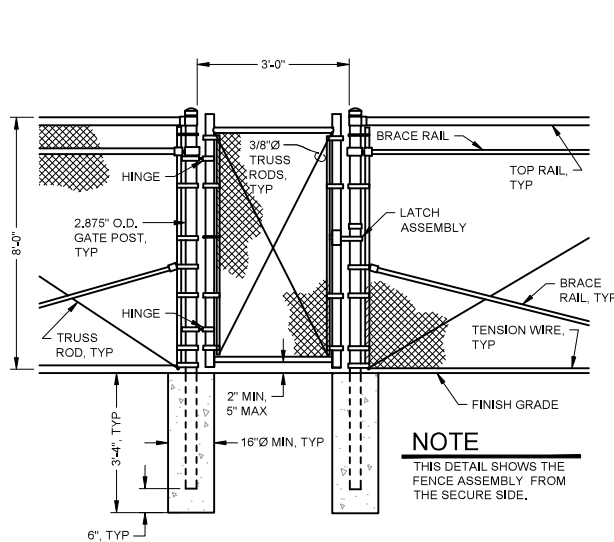
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### DETAILS

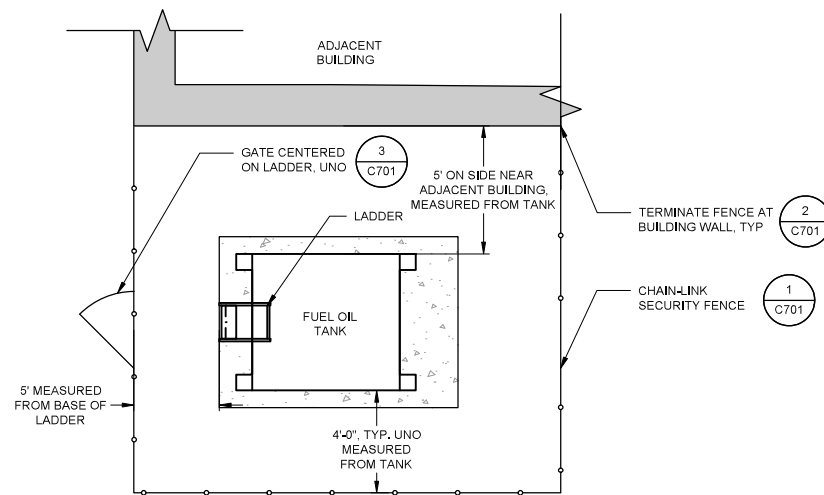
C700



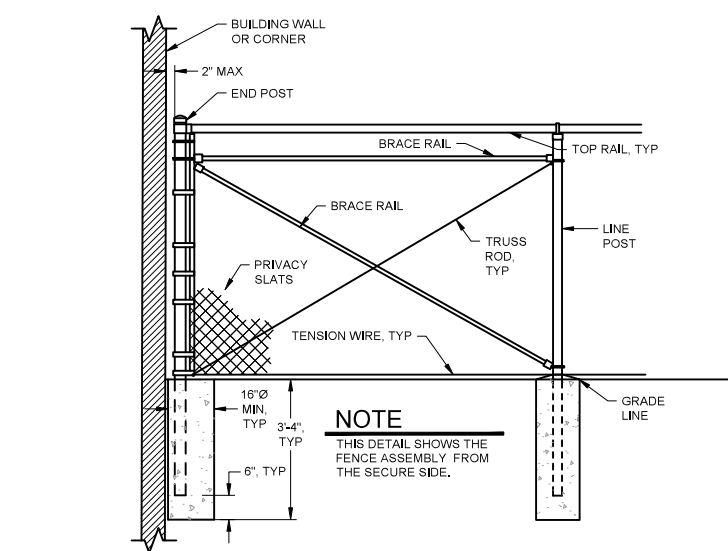
1 CHAIN-LINK SECURITY FENCE ASSEMBLY  
C701 NOT TO SCALE



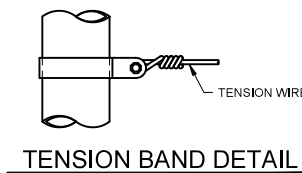
3 PERSONNEL GATE  
C701 NOT TO SCALE



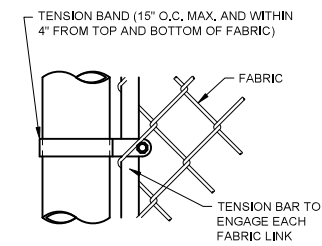
4 FENCE LAYOUT  
C701 NOT TO SCALE



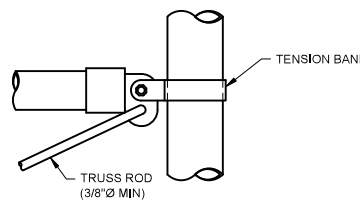
2 BRACE PANEL AND END POST AT BUILDING WALL  
C701 NOT TO SCALE



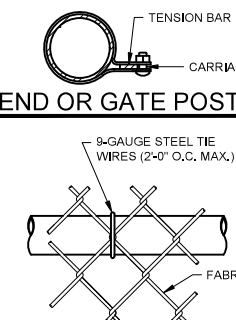
TENSION BAND DETAIL



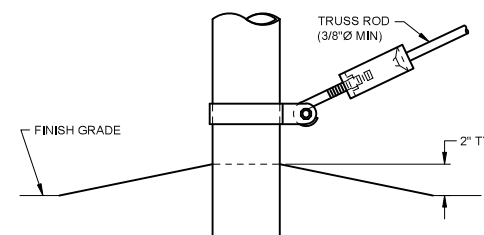
END OR GATE POST DETAIL



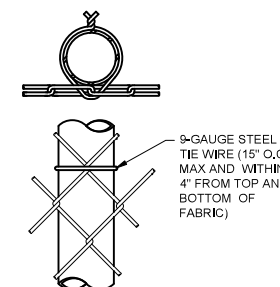
BRACE RAIL CLAMP DETAIL



TOP OR BRACE RAIL ATTACHMENT



TRUSS ROD AND BAND



LINE POST ATTACHMENT

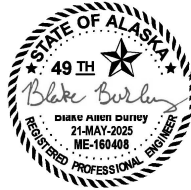
5 FASTENING DETAILS  
C701 NOT TO SCALE

MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

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DETAILS

C701



MECHANICAL ABBREVIATIONS

ABBREVIATION	FULL NAME	ABBREVIATION	FULL NAME
#	NUMBER	MAX	MAXIMUM
&	AND	MECH	MECHANICAL
(E)	EXISTING	MIN	MINIMUM
AFF	ABOVE FINISHED FLOOR	NC	NORMALLY CLOSED
APPR	APPROVED	NC	NOISE CRITERIA
APPROX	APPROXIMATE	NIC	NOT IN CONTRACT
ARCH	ARCHITECTURAL	NO	NORMALLY OPEN
ASSOC	ASSOCIATED	NTS	NOT TO SCALE
AUTO	AUTOMATIC	OA	OUTSIDE AIR
BAL	BALANCING	OC	ON CENTER
BFF	BELOW FINISHED FLOOR	OD	OUTSIDE DIAMETER
CI	CAST IRON	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CO	CLEAN OUT	OFOI	OWNER FURNISHED, OWNER INSTALLED
DB	DECIBEL	ORD	OVERFLOW ROOF DRAIN
DI	DUCTILE IRON	ORL	OVERFLOW RAIN LEADER
DIA	DIAMETER	OSA	OUTSIDE AIR
DN	DOWN	PRV	PRESSURE RELIEF VALVE
ELEC	ELECTRICAL	RA	RETURN AIR
ESP	EXTERNAL STATIC PRESSURE	RD	ROOF DRAIN
EWT	ENTERING WATER TEMPERATURE	RHW	RECIRCULATING HOT WATER
EXIST	EXISTING	RL	RAIN LEADER
FLA	FULL LOAD AMPERAGE	SIM	SIMILAR
FLEX	FLEXIBLE	SPEC	SPECIFICATIONS
FP	FIRE PROTECTION	SS	STAINLESS STEEL
GA	GAUGE	TYP	TYPICAL
GALV	GALVANIZED	V	VENT
GI	GALVANIZED IRON	VERT	VERTICAL
ID	INSIDE DIAMETER	W	WASTE
IE	INVERT ELEVATION	W/	WITH
INSUL	INSULATION	W/O	WITHOUT
IPS	IRON PIPE SIZE		

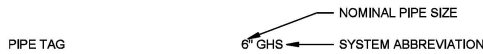
MECHANICAL LINETYPES

ABBREVIATION	FULL NAME	LINETYPE
W	WASTE	_____
V	VENT	-----
GHS	GLYCOL HEATING SUPPLY	_____
GHR	GLYCOL HEATING RETURN	____ _
FOS	FUEL OIL SUPPLY	_____
FOR	FUEL OIL RETURN	____ _
	EXISTING	_____
	EXISTING TO BE REMOVED	-----
	EXISTING PIPING/DUCTWORK/ EQUIPMENT TO BE REMOVED	//////

MECHANICAL SYMBOLS

	CONNECTION TO EXISTING		ISOLATION VALVE
	PIPE BREAK		CHECK VALVE
	PIPE FLOW ARROW		MOTORIZED DAMPER
	PIPE CONNECTION		2-WAY CONTROL VALVE
	PIPE ELBOW TURNED DOWN		PRESSURE RELIEF VALVE
	PIPE ELBOW TURNED UP		PRESSURE REDUCING VALVE
	PIPE TEE DOWN		DRAIN VALVE
	UNION		BOILER SHUTDOWN SWITCH
	PIPE CAP		

MECHANICAL TAG LEGEND



MISCELLANEOUS EQUIPMENT SCHEDULE

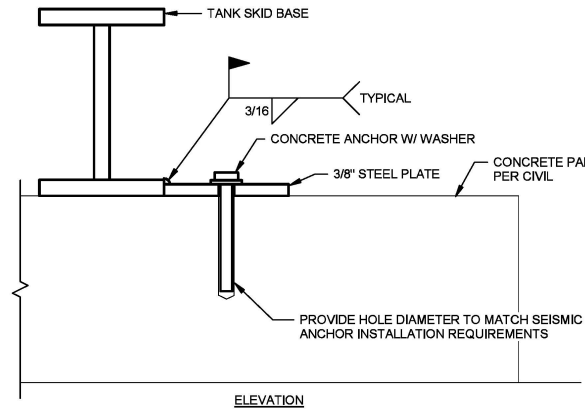
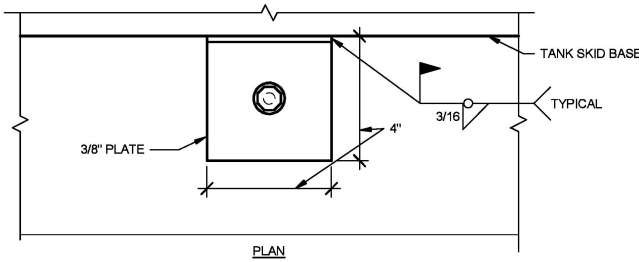
SYMBOL	ITEM	CAPACITY / SIZE	OPERATING WEIGHT {1} (LB)	BASIS OF DESIGN	REMARKS
T-1	ABOVE GROUND FUEL TANK	2,500 GALLONS 76" Ø X 12'-0" L	24,550	GREER TANK STI F921	1. UL-142 DOUBLE WALL CONSTRUCTION 2. PROVIDED W/ ACCESSORIES INDICATED ON 1/M100 3. PROVIDE ANTI-SIPHON VALVE W/ MIN OPENING VACUUM OF 17" FUEL OIL, MORRISON 912-052000 AV OR EQUAL 4. LOCATE AS INDICATED ON CIVIL DRAWINGS

{1} OPERATING WEIGHT INDICATED. PLUS 10% IS MAXIMUM ALLOWED WEIGHT IF USING A SEISMIC DETAIL PROVIDED AS PART OF CONTRACT DOCUMENTS.

SEISMIC - CONCRETE ANCHOR BOLT SCHEDULE

SYMBOL	ANCHOR BOLT DIAMETER (IN)	NUMBER OF BOLTS PER SIDE	NOMINAL ANCHOR EMBEDMENT (IN)	EFFECTIVE ANCHOR EMBEDMENT (IN)	MINIMUM HOLE DEPTH (IN)	MINIMUM CONCRETE THICKNESS (IN)	MINIMUM EDGE DISTANCE (IN)	MINIMUM SPACING BETWEEN ANCHORS (IN)	MAXIMUM TORQUE (FT.-LBS)
T-1	3/8	2	2-1/2	2	2-3/4	4	8	6	157

- {1} SEISMIC ANCHOR INSTALLATION REQUIRES SPECIAL INSPECTION.  
{2} ANCHOR BOLTS FOR EXTERIOR APPLICATIONS SHALL BE STAINLESS STEEL.  
{3} ANCHOR SELECTIONS FOR USE IN SLABS OF NORMAL WEIGHT CONCRETE ONLY. NOT FOR USE IN LIGHTWEIGHT CONCRETE.  
{4} ANCHOR FOR INSTALLATION INTO NEW CONCRETE (4,000 PSI).  
{5} ALTERNATIVE ANCHOR SELECTIONS WILL NOT BE REVIEWED WITHOUT FORCE CALCULATIONS SIGNED BY A LICENSED ENGINEER.  
{6} HILTI KH-EZ SCREW ANCHOR, HEX HEAD, 316 STAINLESS STEEL.



2 ANCHOR PLATE DETAIL  
M001 NO SCALE

MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

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DRAWN BY BAB  
SCALE 0" 1"

MECHANICAL  
ABBREVIATIONS,  
LEGENDS, AND  
SCHEDULES

M001



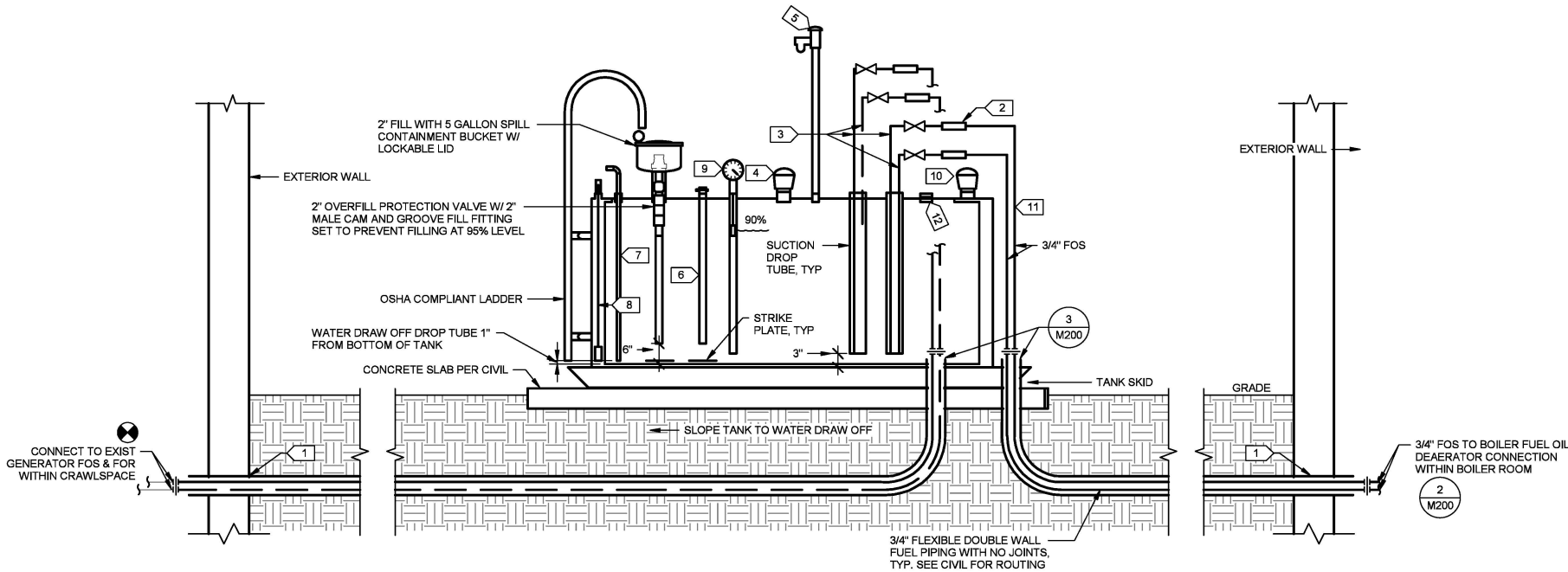


GENERAL NOTES

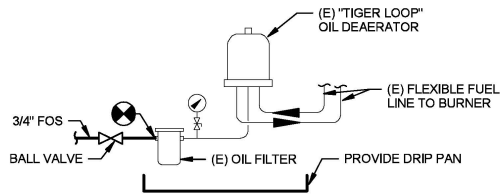
1. DEMOLISH LEAK DETECTION PANEL, LOCATED IN THE BOILER ROOM, ASSOCIATED W/ DEMOLISHED TANK WITH ALL ASSOCIATED CONDUIT AND APPURTENANCES
2. DEMOLISH EXISTING FUEL OIL PIPING FROM DEMOLISHED TANK TO EXISTING TO REMAIN FUEL OIL FILTERS
3. T-1 SERVES TWO EXISTING FUEL OIL FIRED BOILERS AND ONE EXISTING BACKUP GENERATOR

SHEET SPECIFIC NOTES

- 1 SEAL SLEAVED BUILDING PENETRATIONS LIQUID TIGHT, TYP
- 2 ANTISIPHON VALVE, MORRISON 912, TYP. SEE TANK SCHEDULE ON M001 FOR SETTING
- 3 FOS & FOR PIPING SHOWN VERTICALLY OFFSET FOR CLARITY ONLY, MINIMIZE HEIGHT ABOVE TANK
- 4 PRIMARY TANK EMERGENCY VENT
- 5 2" PRIMARY TANK VENT, MIN 12'-0" ABOVE GRADE, W/ AUDIBLE WHISTLE VENT, MORRISON 922, SET TO ALARM AT 90% TANK LEVEL
- 6 2" STRAIGHT FILL PORT FOR MANUAL GAUGING W/ LOCKABLE CAP
- 7 1" WATER DRAW OFF WITH WATERTIGHT CAP. LOCATE PICKUP 1" ABOVE TANK BOTTOM. LABEL "WATER DRAW OFF" AT TANK OPENING
- 8 INTERSTITIAL LEAK DETECTION
- 9 VISUAL TANK LEVEL CLOCK GAUGE W/ AUDIBLE HIGH LEVEL ALARM SET TO ACTIVATE AT 90% FULL
- 10 INTERSTITIAL TANK EMERGENCY VENT
- 11 SUPPORT PIPE FROM CHANNEL STRUT ATTACHED TO TANK SKID
- 12 4" SPARE THREADED CAST STEEL TANK FITTING



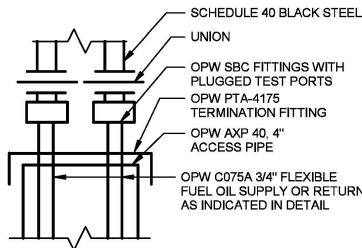
1 ABOVE GROUND FUEL OIL TANK DETAIL  
M200 NO SCALE



GENERAL NOTES

1. CONNECT FUEL OIL SUPPLY FROM TANK AT ACCESSIBLE LOCATION WITHIN MECHANICAL ROOM TO POINT OF CONNECTION W/ REMOVED PIPING.
2. EXISTING BOILER FUEL OIL AND PIPING ACCESSORIES TO REMAIN.

2 FUEL OIL BOILER PIPING CONNECTION DETAIL W/ (E) DEAEATOR  
M200 NO SCALE



3 UNDERGROUND PIPING TERMINATION DETAIL  
M200 NO SCALE

MOUNTAIN VIEW  
HEATING FUEL  
TANK  
REPLACEMENT

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SCALE 0" 1"

MECHANICAL  
DETAILS

M200

# **ALASKA HOUSING FINANCE CORPORATION (AHFC)**

## **GENERAL TERMS AND CONDITIONS FOR CONSTRUCTION**

### **Corporate Funds**

## GENERAL TERMS AND CONDITIONS

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**ARTICLE 1  
EXTENT OF CONTRACT**

- 1.1     EXTENT OF CONTRACT:** The Contract, as defined in 1.2.8, represents the entire agreement between AHFC and the Contractor and supersedes all prior negotiations, representations or agreements. Except as expressly set forth elsewhere in this Contract, the parties to this Contract shall not be bound by or liable for any statement, representation, promise, inducement or understanding of any kind or nature not set forth herein. No changes, amendments or modifications of any of the terms and conditions hereof shall be valid unless reduced to writing and signed by both parties. The Contractor shall have no contractual rights until the Contract has been fully executed by both parties and a Notice to Proceed has been issued.

The documents identified in the Contract shall be considered together, so that any part of the work shown or described on the drawings though not specifically referred to in the specifications, or elsewhere in the Contract, shall be deemed executed by the Contractor as a part of the Contract, as well as any work which, in the opinion of AHFC, may be fairly inferred from the specifications, drawings, or other documents. To the extent any of the provisions of the drawings and specifications are found to be in conflict with any provision of this Contract, the provisions of this Contract shall control unless the Contract is amended by written instrument signed by both AHFC and the Contractor.

Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In the case of a difference or conflict between the drawings and the specifications, the specifications shall govern. Further, in the event of a difference or conflict between these General Terms and Conditions and the specifications or drawings, the General Terms and Conditions shall control.

- 1.2     DEFINITIONS:**     The project is the total construction of which the work is a part. The work comprises the completed construction required by the drawings and specifications.

**1.2.1    AHFC**

Alaska Housing Finance Corporation  
4300 Boniface Parkway  
P.O. Box 101020  
Anchorage, AK 99510

**1.2.2    AS-BUILT DRAWINGS**

Contract drawings, Contractor-prepared drawings and shop vendor drawings marked-up by the Contractor to represent the as-built conditions.

**1.2.3    BONDS**

Performance, Payment, and Bid Bonds and other instruments of security furnished by the Contractor and its surety in accordance with the Contract.

**1.2.4    CALENDAR DAYS OR DAYS**

Measurement of days, as required within the Contract, which are measured in sequential calendar days [seven (7) day weeks]. A calendar day shall begin at 12:01 a.m. local time and continue for a twenty-four (24) hour period. Notwithstanding any express reference to calendar days at any place in this Contract, the term "day" shall mean calendar day unless otherwise specifically designated.

**1.2.5    CERTIFICATE OF SUBSTANTIAL COMPLETION**

A written notice to the Contractor, signed by AHFC certifying that all work and materials have been carefully inspected by duly authorized agents or representatives of AHFC and that the Contractor

has substantially completed the work covered by the Contract.

#### **1.2.6 CHANGE ORDER**

A written order to the Contractor, signed by AHFC authorizing or directing an addition, deletion, or revision within the scope of work or an adjustment in the Contract price, delivery time, or completion time issued after execution of the Contract.

#### **1.2.7 CONTRACT**

The Contract is the agreement made between the Contractor and AHFC, also referred to as the "Prime Contract", which shall incorporate and include:

- (1) Invitation for Bid;
- (2) Instructions to Bidders;
- (3) General Terms and Conditions as set forth in this document;
- (4) Bid Form with all required attachments submitted by the successful bidder;
- (5) Any and all addenda;
- (6) Evidence of insurance required by the above listed documents;
- (7) All appendices;
- (8) Drawings and specifications; and
- (9) All other documents required by the terms and conditions of items (1) through (8) above and all modifications as defined in the General Terms and Conditions.

The contents of the Contract may not be modified except in writing signed by both parties.

All components of the Contract are complementary, and what is in any one document shall be as binding as though indicated in all documents.

#### **1.2.8 CONTRACT ADMINISTRATOR**

The Contract Administrator is the duly authorized representative of the Contracting Officer. The Contract Administrator may be an AHFC employee, or a person under contract to AHFC. For purposes of this Contract, and unless notified otherwise in writing by AHFC, the winning offeror may report to the Contract Administrator designated by AHFC for this project.

#### **1.2.9 CONTRACTING OFFICER**

The term Contracting Officer means AHFC's Director of Administrative Services, Chief Procurement Officer or his/her designee. For purposes of this Contract, and unless notified in writing by AHFC, the Contracting Officer is identified as Gregory Rochon.

#### **1.2.10 CONTRACTOR**

All persons, firms, partnerships, or corporations entering into this Contract with AHFC.

#### **1.2.11 CONTRACTOR FURNISHED**

Items the Contractor must supply and deliver to job site.

#### **1.2.12 CONTRACTOR'S CERTIFICATE AND RELEASE**

A written notice to AHFC, signed by the Contractor, certifying that all work under the Contract and as required under Change Orders have been performed. The notice further releases AHFC from any and all claims, except those specifically noted, arising under the Contract.

#### **1.2.13 DESIGN CLARIFICATION/VERIFICATION REQUEST**

A Design Clarification/Verification Request (DC/VR) is a form which will be provided to the Contractor by AHFC and will be submitted by the Contractor to the Contract Administrator for the sole purpose of requesting clarification or verification of any aspect of the project design which the Contractor may perceive is ambiguous or conflicting. Submittal of a DC/VR does not constitute "a written notice of claim" under the provisions of Article 12.2.

#### **1.2.14 DIRECTIVE**

Written instructions from AHFC requiring certain actions from the Contractor.

#### **1.2.15 DRAWINGS OR ARCHITECT/ENGINEER'S DRAWINGS**

Those portions of the Contract consisting of the plans and detail drawings or subsequently issued plans and detail drawings which show the character and scope of the work to be performed and have been prepared by or for the Architect/Engineer and are referred to as the "drawings" or the "Architect/Engineer's drawings" in the Contract.

When reference to the work "plans" is made anywhere in the Contract, it shall be understood that such reference refers to the drawings.

Where "as shown," "as detailed," "as indicated," "as noted," or words of like meaning are used, it shall be understood that reference is being made to the drawings, unless stated otherwise.

#### **1.2.16 FINAL ACCEPTANCE**

AHFC's written acceptance of the work in the form of a "memorandum of acceptance" stating that the Contractor has completed the work in accordance with all Contract requirements, and AHFC thereby assumes full responsibility for the completed work, except as provided by warranties or guarantees, or in the case of latent defects, fraud or gross mistakes amounting to fraud.

#### **1.2.17 FINAL COMPLETION**

Final Completion is defined as the total completion of all of the work items and the acceptance of such work by AHFC.

**1.2.18 INSTALL**

Build into the work, ready to use in a complete, finished, and operable system.

**1.2.19 JOB SITE**

The site of the project as defined in the Contract.

**1.2.20 MEMORANDUM OF ACCEPTANCE**

AHFC's written acceptance of the work stating that the Contractor has completed the work in accordance with all Contract requirements, and AHFC thereby assumes full responsibility for the completed work, except as provided by warranties or guarantees, or in the case of latent defects, fraud or gross mistakes amounting to fraud.

**1.2.21 NOTICE**

All notices required under this Contract must be made in written form. Service of such notices may be made by personal delivery, mail or by fax. When personal service is made, it must be made, in the case of the Contractor (or subcontractor), to a person serving in a supervisory capacity or an officer of the Contractor (or subcontractor). Service of all notices to AHFC must, with the exception of any Contractor claim under Article 12.1, be served to the Contract Administrator. Contractor claims submitted under Article 12.1 must be served to the Contracting Officer, with a copy sent to the Contract Administrator.

**1.2.22 NOTICE TO PROCEED**

The written notice given by AHFC to the Contractor to commence work under the Contract.

**1.2.23 PROGRESS PAYMENT OR PROGRESS ESTIMATE**

The Contractor's written request for payment of the amount due for completed portions of the work.

**1.2.24 PROJECT**

Work shall include but is not limited to the renovation of Units of the Bethel Heights Housing Complex for compliance with current accessibility regulations.

**1.2.25 REJECTION NOTICE OF WORK NOT IN COMPLIANCE**

Written notice from AHFC to the Contractor that the materials or the finished product in which the materials are used or the work performed are not in conformity with the Contract.

**1.2.26 SPECIFICATIONS OR TECHNICAL REQUIREMENTS**

Those portions of the Contract consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the materials to be supplied or work performed and certain administrative details applicable thereto.

**1.2.27 SUBCONTRACTOR**

Those contractors deriving their authority to perform work under the Contract from the Contractor, after approval by AHFC.

**1.2.28 SUBSTANTIAL COMPLETION**



As used in these General Terms and Conditions, the phrase "Substantial Completion" has the meaning given in subparagraph 5.3.1 of these General Terms and Conditions.

#### **1.2.29 WORK**

The work consists of all obligations, duties, and responsibilities necessary for the successful completion of the Contract undertaken by the Contractor under the Contract, including all labor, materials, equipment, and other incidentals and the furnishing thereof.

### **ARTICLE 2 CONTRACTOR'S RESPONSIBILITIES**

#### **2.1 CONTRACTOR'S SERVICES**

**2.1.1** The Contractor shall be responsible for the complete construction of the project. As further set forth in Article 2, Paragraph 2.2.3, the Contractor shall develop a construction schedule. The schedule developed must be in accord with AHFC's program requirements and criteria. All materials, labor, equipment and transportation required for the work shall be provided by the Contractor. Any design, engineering, architectural or other professional service required to be performed by the Contractor under this Contract shall be performed by duly licensed personnel.

The Contractor represents that it is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly licensed, bonded, equipped, organized and financed to perform such work.

The Contractor shall act as an independent contractor and not as an agent of AHFC. The Contractor, in performing work under the Contract, shall maintain complete control over its employees and all of its subcontractors. The Contractor shall perform all work in an orderly and workmanlike manner, enforce strict discipline and order among its employee and ensure strict discipline and order by its subcontractors.

The Contractor shall perform on the site, and with its own organization, work equivalent to at least \_\_\_\_\_ [twelve percent (12%) unless otherwise indicated] of the total amount of work to be performed under the Contract. This percentage may be reduced by a supplemental agreement to this Contract if, during the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of AHFC.

All work shall be done, and all complaints shall be handled with due regard for AHFC's public relations. The Contractor agrees that complaints of any nature received from property owners or public authorities shall receive immediate attention. All complaints and any action taken by the Contractor in connection with such complaints shall be reported to the Contract Administrator in writing.

A. Project Management: The construction equipment provided by the Contractor, its labor force, and its methods and organization for handling work, shall be such as will achieve the necessary quality of work and rate of progress required by the Contract.

The Contractor shall provide the Contract Administrator with full information in advance as to its plans for carrying on each part of the work. If at any time during the progress of the work, the Contractor's actual progress appears to the Contract Administrator to be inadequate to meet the requirements of the Contract, the Contract Administrator may notify the Contractor of such imminent or actual non-compliance with the Contract. The Contractor shall thereupon take such steps as may be necessary to improve its progress, and the Contract Administrator may require an increase in labor force, the number of shifts, overtime operations, days of work, or any combination of the foregoing, all without

additional cost to AHFC. Neither such notice, nor failure to issue such notice by the Contract Administrator shall relieve the Contractor from its obligation to achieve the quality of work and rate of progress required by the Contract.

Failure of the Contractor to comply with the instructions of the Contract Administrator under these provisions may be grounds for determination by AHFC that the Contractor is not prosecuting work with such diligence as will ensure completion within the time specified. Upon such determination, AHFC may terminate the Contractor's right to proceed with the performance of the Contract, or any separable part thereof, in accordance with the applicable provisions of the Contract.

- B. Personnel: Before starting work, the Contractor shall designate a competent authorized representative to represent and act with full authority for the Contractor, and shall inform the Contract Administrator in writing of the qualifications, name, address and telephone number of such representative and of any change in such designation. This representative shall have authority to make binding and enforceable decisions in the name of the Contractor. Such representative shall be present or be duly represented at the site of work at all times when work is actually in progress, and, during periods when work is suspended, arrangements acceptable to the Contract Administrator shall be made for any emergency work which may be required. The Contractor's authorized representative shall be supported by competent assistants as necessary, and the authorized representative and his/her assistant shall be satisfactory to the Contract Administrator. All requirements, instructions and other communications given to the authorized representative by the Contract Administrator shall be as binding as if given to the Contractor.

The Contractor shall employ only competent and skilled workers to perform any work. The Contractor shall be responsible for maintaining satisfactory conduct of its employees.

The Contractor shall, if requested to do so by the Contract Administrator, remove from the job site any personnel of the Contractor or its subcontractors whom the Contract Administrator determines to be incompetent, dishonest, careless, inexperienced in work he is responsible for performing, negligent or uncooperative. Failure to comply with such requests shall be sufficient grounds for termination of the Contract. The lack of proper supervision by the Contractor or by its supervisory personnel shall be just cause for the termination of the Contract.

The Contractor is responsible for maintaining labor relations in such a manner that there is harmony among workers.

The Contractor shall notify the Contract Administrator of all pending or actual labor disputes and shall keep the Contract Administrator informed of any changes or conditions which may affect the progress of its work or the work of other contractors on the project.

In addition, the Contractor shall provide to the Contract Administrator, upon request, copies of all labor agreements, amendments and special project agreements applicable to the Contractor's and its subcontractors' work.

To the extent constitutional and not otherwise unlawful, and to the extent that Alaskan contractors are competent and qualified, the Contractor shall use its best efforts to subcontract project work to Alaskan contractors.

- C. Submittals: By signing this contract, the Contractor certifies that all products and materials incorporated in the work are (1) in compliance with the requirements of the

Contract, (2) currently and readily available, (3) not obsolete or discontinued, and (4) not to be discontinued or deleted from the supplier's or manufacturer's stock within the next calendar year.

### **2.1.2 COOPERATION**

The Contractor and AHFC will work closely together to ensure that the project can be constructed within the lump sum bid amount as defined in this Contract. The Contractor will keep AHFC advised of the effects of any AHFC requested changes on the Contract time schedule and/or the lump sum. Construction of the project shall be in accordance with the drawings and specifications provided to the Contractor and all applicable current codes and regulations.

**2.1.3** If AHFC determines that the project, or any part thereof, is no longer feasible, practical, or desirable, AHFC may, in its sole discretion, terminate this Contract in accordance with the provisions set forth in Paragraph 9.4, TERMINATION FOR CONVENIENCE.

## **2.2 RESPONSIBILITIES WITH RESPECT TO CONSTRUCTION**

**2.2.1** The Contractor will provide all construction supervision, labor, materials, tools, construction equipment and subcontracted items necessary for the execution and completion of the project. The Contractor shall keep and promptly provide copies of all daily construction logs, inspection reports, and test results to the Contract Administrator. The Contractor shall maintain a full set of Contract documents at the project site at all times and record all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walk. The Contractor shall also furnish all necessary water, heat and electrical power not made available to the Contractor by AHFC at no cost under the provisions of the Contract documents.

The Contractor shall give notices and comply with all laws, ordinances rules, regulations, codes, and orders of any public authority bearing on the work, and with all rules and conditions of any insurance company which shall have issued a policy or policies upon any part of the work or in connection therewith. If the Contractor performs any portion of the work contrary to such laws, ordinances, rules and regulations, the Contractor shall assume full responsibility therefor and shall bear all costs attributed thereto.

The Contractor shall notify the Contract Administrator, in writing, whenever the drawings or specifications are faulty or at variance with local or State requirements, and shall not proceed with such work, except under the circumstances described in Article 6.3, until further instructions have been received from AHFC. The Contractor will submit such notice using a Design Clarification/Verification Request ("DC/VR").

### **2.2.2 TAXES**

The Contractor shall pay all applicable federal, State and local taxes incurred by the Contractor in the performance of this Contract, and proof of payment of these taxes is a condition precedent to payment by AHFC under this Contract. Proof of payment shall be in the form of the Contractor's certification.

### **2.2.3 SCHEDULE SUBMITTAL**

The Contractor shall comply with the requirements of Specification Section 1350 ("Construction Progress Schedules") which is expressly incorporated into this Contract.

### **2.2.4 REMOVAL OF MATERIALS**

The Contractor shall at all times keep the premises free from the accumulation of waste

materials or rubbish caused by their work. At the completion of the work, they shall remove all of their waste material and rubbish from and around the project as well as all their tools, construction equipment, machinery and surplus materials.

#### **2.2.5 LICENSES AND PERMITS**

The Contractor shall, without additional expense to AHFC, be responsible for obtaining any necessary licenses, permits, and paying any fees except for those permits specifically listed as being supplied by AHFC.

A copy of each permit or license shall be furnished to AHFC.

#### **2.2.6 SAFETY AND ACCIDENTS**

The Contractor shall prepare and submit a copy of its safety plan prior to commencement of work. Further, the Contractor shall take necessary precautions for the safety of its employees on the project, and shall comply with all applicable provisions of federal, State and municipal safety laws to prevent accidents or injury to persons on, about or adjacent to the project site. The Contractor shall erect and properly maintain, at all times, as required by the conditions and progress of work, necessary safeguards for the protection of workmen and the public. The Contractor shall hold weekly safety meetings with all subcontractors and shall send copies of documents pertaining to the weekly safety meetings to the Contract Administrator as required by the specifications section of the Contract.

The Contractor shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of its performance under this Contract, and its methods of performing under this Contract, and for any damages which may result from its failure or its improper construction, maintenance, or operation.

The Contractor shall promptly report in writing to AHFC all accidents, of any nature whatsoever arising out of, or in connection with the performance of the work, giving full details and statements of witnesses. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to AHFC's Risk Management Manager at (907) 330-8145, email at [risk@ahfc.us](mailto:risk@ahfc.us), or fax # (907) 330-8217.

If a claim is made by anyone against the Contractor or any of its subcontractors or on account of any accident associated with the work, the Contractor shall promptly report the full details in writing to AHFC.

The Contractor shall be responsible for, and shall bear any and all risk of loss of, or damage to, any work and all materials and equipment until final acceptance under this Contract, unless such loss or damage results from the sole negligence of AHFC, in which case, the Contractor's liability shall be limited to the coverage and limits as set forth in the requirements for the builders risk insurance, if any.

The Contractor shall promptly take all necessary precautions against any conditions created during the performance of the Contract which involve a risk of bodily harm to others or a risk of damage to work or to property, including the property of AHFC, and any other party under contract with AHFC or other contractors. The Contractor shall inspect all work, materials and equipment to discover any such conditions. The Contractor assumes all liability for its failure to comply with the foregoing, regardless of any right AHFC, the Architect/Engineer or the Contract Administrator may have to inspect the Contractor's work.

#### **2.2.7 PROTECTION OF PROPERTIES, STRUCTURES AND UTILITIES**

The Contractor shall provide all necessary facilities, equipment, material, and services to protect

on-site material, equipment, structures, property, and completed or partially completed work against damage by the Contractor's operations and/or use. Such protection shall include, but shall not be limited to, protection against fire, theft, vandalism, or other related and/or resulting acts.

The Contractor shall coordinate and work with other contractors at the site who are performing work on behalf of AHFC to protect all areas of common interest so as to assure against damage from its own operations or from operations of its subcontractors or from damage due to the elements. The Contractor shall not delay or interfere with the work or storage of materials and equipment of AHFC or other contractors.

Any damage resulting from lack of proper protection of the work shall be repaired at the expense of the Contractor and shall be subject to the acceptance of the Construction Manager. All reasonable requests of the Contract Administrator to specifically protect such property shall be complied with.

## **2.2.8 BOOKS AND RECORDS**

The Contractor's and subcontractor's books, records, correspondence, accounting procedures and practices and any other supporting evidence relating to this Contract (all foregoing hereinafter referred to as "records") shall be open to inspection and subject to audit and/or reproduction, during normal working hours, by AHFC or its authorized representative during performance of the work and for a duration of three (3) years following the date of final acceptance.

The Contractor's and subcontractor's records relating to personnel, payrolls, invoices of materials, and any and all other data relevant to the performance of this Contract, must be kept in accordance with generally accepted accounting principles and practices.

Payroll records must contain the name and address of each employee, his/her correct classification, social security number, rate of pay, daily and weekly number of hours of work, deductions made, and actual wages paid. The Contractor and subcontractor shall make employment records available for inspection by authorized representatives of the State Department of Labor and AHFC and will permit such representatives to interview employees during working hours on the job.

The Contractor shall submit to the State Department of Labor, the original certified weekly payrolls and the statement of compliance each workweek from the time of commencement of work on the project until completion of the Contractor's work on the project. The Contractor agrees to include this requirement in all subcontracts. If the Contractor performs no work on the project during a given work week, the payroll for the next work week must include a statement by the Contractor that to the best of its knowledge, no employee worked on the project during the prior week or work weeks, as applicable. The Contractor shall identify the initial and final payrolls by marking them as "Initial" and "Final". Payrolls must be completed and submitted not later than seven (7) workdays following completion of the workweek. Payrolls may be submitted on Department of Labor form WH-347, Payroll.

For the purpose of evaluating or verifying actual or claimed costs or units expended, AHFC or its authorized representative shall have access to said records from the effective date of this Contract, for the duration of the work and until three (3) years after the date of final payment by AHFC to the Contractor pursuant to this Contract. The Contractor shall preserve all such records for a period of three (3) years after the final payment or longer where required by law.

AHFC or its authorized representative shall have access, during normal working hours, to all necessary Contractor and subcontractor facilities, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with the provisions of this article. AHFC shall give the Contractor or subcontractor reasonable advance notice of intended

audits. Except in the case of an emergency, two (2) business days shall be deemed reasonable notice.

The Contractor shall require subcontractors to comply with the provisions of this article by insertion of the requirements hereof in any subcontract pursuant to this Contract.

## **2.2.9 CONFORMITY WITH PLANS AND SPECIFICATIONS**

All work performed and all materials furnished shall be in conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on the plans or indicated in the specifications.

In the event the Contract Administrator finds the material or the finished product in which the materials are used in not in conformity with the plans and specifications but that reasonably acceptable work has been produced, the Contract Administrator may make, in his/her sole discretion, a determination to accept the work and permit it to remain in place. In this event, the Contract Administrator will document the basis of acceptance by Change Order, which will provide for an appropriate adjustment in the Contract price for such work or materials, as he/she deems necessary to conform to his/her determination.

In the event the Contract Administrator finds the materials or the finished product in which the materials are used or the work performed are not in conformity with the plans and specifications and/or have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor. The Contractor will be notified of such non-conformity by the issuance of a "Rejection Notice of Work Not in Compliance" issued by the Contract Administrator.

## **2.2.10 CORRECTION OF WORK**

The Contractor shall correct all portions of the work rejected by AHFC as failing to conform to the Contract, without cost or expense to AHFC.

Work found not to be in compliance with the Contract's requirements, including any and all unsatisfactory work and punch list items, shall be corrected within ten (10) calendar days of written notice to the Contractor, or such lesser time as AHFC may determine appropriate. If the Contractor fails to fully and satisfactorily correct all nonconforming or unsatisfactory work, or punch list items within the time allowed by AHFC, AHFC shall have the right, without declaring default, to offset from the Contract price an amount deemed appropriate by AHFC for curing such nonconforming or unsatisfactory work or punch list items. AHFC shall then have the right to complete the work in any manner it sees fit. This offset shall take the form of a unilateral Change Order and will appear as a deduction on the Contractor's next sequential Periodic Payment. Insufficient funds remaining for offset will result in a claim against the Contractor. This remedy, including the right of offset, is in addition to all other remedies available to AHFC under the Contract and law, and any decision by AHFC to exercise such a remedy shall not operate to extinguish, limit or in any way waive the Contractor's and surety's obligations to faithfully and fully perform all other duties and responsibilities existing under the Contract, including all warranty obligations.

If AHFC requires the Contractor to work overtime, on weekends or on holidays in order to correct incomplete or nonconforming work, the Contractor must first notify AHFC in writing of the overtime schedule. If AHFC determines, in its sole discretion, that it is necessary to have AHFC staff present or on call during the Contractor's overtime, the Contractor shall reimburse AHFC for all of its costs for such supervision or on call status, including but not limited to, labor costs for AHFC staff at one and a half times the regular staff rate. Should the Contractor fail to reimburse AHFC by the next progress payment requested by the Contractor, AHFC may deduct such reimbursement from the Contractor's next progress payment. Insufficient funds remaining for

offset will result in a claim against the Contractor.

**2.3 ROYALTIES AND PATENTS:** The Contractor shall pay all royalties and license fees for materials, methods and systems incorporated in the work. The Contractor shall defend all suits or claims for infringement of any patent rights and shall hold AHFC harmless from loss on account thereof.

**2.4 WARRANTIES AND COMPLETION:** Notwithstanding any provisions herein to the contrary, the establishment of the time periods set forth in Paragraphs 2.4.1 and 2.4.2 relate only to the specific obligation of the Contractor to correct the work under this express warranty obligation, and have no relationship to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligations under the Contract. Further, the existence of the below reference express warranties shall in no way limit or extinguish any other remedy available to AHFC under the law.

**2.4.1 CONSTRUCTION WARRANTY**

All materials and equipment incorporated into any work covered by the Contract shall conform to the Contract documents and will be new, unless otherwise specified, and will be of the most suitable grade of their respective kinds for their intended use and operations. All workmanship shall be in accordance with competent and professional construction practices. The Contractor warrants all equipment, materials and labor furnished or performed under this contract against defects in materials and workmanship for a period of twelve (12) months after issuance of a Certificate of Substantial Completion as to the work, regardless of whether the same was furnished or performed by the Contractor or by any of its subcontractors of any tier, except as otherwise agreed or specified in writing. The Contractors' warranties as set out in these general terms and conditions are in addition to, and not in substitution of, any warranties provided by any other persons, including but not limited to warranties from suppliers and manufacturers of equipment and materials. The Contractor agrees to assign over to AHFC all third party warranties as a condition precedent to the issuance of the Certificate of Substantial Completion. AHFC's exercise of its rights under one warranty shall not prejudice its right to also pursue its rights under any other warranty. Upon receipt by the Contractor, within the applicable warranty period, of written notices from AHFC of any defect or failure to conform to the Contract of any such equipment, materials or labor, the Contractor agrees to repair, replace or make good the item(s) supplied hereunder at no cost to AHFC, including any damage to the work which results from the defect, and/or failure to conform. Such repair or replacement shall take place at a time which is consistent with AHFC's operating schedule, and shall be completed no later than five (5) working days after written notice is given to the Contractor, unless good cause is shown why a longer time frame is needed. In the event immediate action reasonably appears to be necessary to avoid a threat to life or property, AHFC may undertake warranty work itself, and the Contractor shall be responsible for all costs incurred by AHFC for labor and materials for such warranty work.

**2.4.2 MATERIAL AND EQUIPMENT WARRANTY**

The Contractor warrants that the materials and equipment supplied hereunder are suitable for operations and are free from all defects, latent or patent, in design, material and workmanship, and conform to the description and/or specifications forming a part hereof. The Contractor also warrants to AHFC that equipment furnished hereunder will operate and function in the manner represented by the Contractor and will achieve the performance stated in the specifications when operating within the design conditions described therein. Equipment which fails, within the Contractor's warranty period to achieve the specified performance shall be repaired or replaced by the Contractor and/or modified and adjusted as necessary to enable the equipment to achieve the specified performance. The warranty period for the equipment supplied hereunder shall be defined in the specifications and shall begin to run after issuance of a Certificate of Substantial Completion as to the work. In the event the specifications do not provide a specific warranty period for the equipment, the warranty period shall be twelve (12) months, beginning from the date of issuance of a Certificate of Substantial Completion as to the work. If during the warranty period, the equipment is found defective or otherwise fails to conform to the Contract, AHFC shall give prompt notice thereof to the Contractor. The Contractor agrees to repair, replace or make

good the item(s) supplied hereunder at no cost to AHFC including any damage to the work, which results from the defect, and/or failure to conform. Such repair or replacement shall take place at a time which is consistent with AHFC's operating schedule, and shall be completed no later than twenty-one (21) days after written notice is given to the Contractor, unless good cause is shown why a longer time frame is needed. In the event immediate action reasonably appears to be necessary to avoid a threat to life or property, AHFC may undertake warranty work itself, and the Contractor shall be responsible for all costs incurred by AHFC for labor and materials for such warranty work.

Should any equipment be repaired or replaced pursuant to this article, such goods shall be warranted as described herein except that the warranty period shall be one (1) year from the completion of such repair or replacement or the remainder of the original warranty period, whichever is greater.

For the technical services for installation and start-up furnished hereunder, such services shall be rendered in a competent and diligent manner and in accordance with accepted industry practice and any applicable professional standards. Any services performed which do not conform to such practice or standard during the warranty period shall, upon request of AHFC, be corrected by the Contractor at its expense.

#### **2.4.3 SERVICES WARRANTY**

The Contractor warrants that all work and services hereunder provided shall be performed to the satisfaction of AHFC with the highest degree of skills, competence and care consistent with accepted industry standards for services of a similar nature. In the event that any reports, data or information supplied hereunder or work performed in connection herewith shall prove to be erroneous or not within the limits of quality or accuracy prescribed by the Contract or to the satisfaction of AHFC, the Contractor shall re-perform the same upon request of AHFC at no cost to AHFC and shall reimburse AHFC for any loss occasioned thereby.

#### **2.4.4 FIELD LABOR**

Field labor associated with any repair, adjustment, modification, replacement of parts or services covered by this Contract undertaken by the Contractor pursuant to the provisions of this warranty will be furnished by the Contractor. AHFC, will give the Contractor access and permit the Contractor to work on the equipment covered by this Contract under the conditions and for the time reasonably necessary to perform any such repair, adjustment, modification or replacement.

#### **2.4.5 SUBMISSION OF CERTIFICATE OF INSPECTION**

The Contractor will secure any required certificates of inspection, testing or approval and deliver them at or prior to final completion to AHFC.

#### **2.4.6 SUBMISSION OF WRITTEN WARRANTIES, AS-BUILT DRAWINGS AND O & M MANUALS**

The Contractor will collect all written and executed warranties and deliver them to AHFC with the request for final inspection. Drafts of all required O&M manuals shall be transmitted at the time of Substantial Completion. Final operations and maintenance manuals will be delivered prior to the final completion date.

AHFC will not consider any final payment request from the Contractor, nor will any other monies be due to the Contractor, until AHFC has received all such written warranties and operations and maintenance manuals.

The Contractor shall provide to AHFC without request all accurate information necessary for the preparation of as-built drawings at the time of Substantial Completion. For this purpose, the Contractor shall record on one set of Contract drawings all changes from the installations



originally indicated, and record final locations of all underground lines by depth from furnish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or the edges of sidewalks. AHFC will not consider any final pay request from the Contractor, nor will any other monies be due to the Contractor, until AHFC has received all such accurate information to be used in the preparation of permanent as-built drawings.

#### **2.4.7 SYSTEMS START-UP AND TESTING**

The Contractor will be responsible for the initial start-up and testing of all systems and equipment.

- 2.5 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK:** The Contractor shall satisfy itself concerning the nature and the location of the work, the general and local conditions, particularly those affecting transportation, disposal, handling and storage of materials, availability of labor, water and electric power, roads, climatic conditions and seasons, tidal related conditions, river hydrology and river stages, physical conditions at the actual work sites and project area as a whole, job site topography and ground surface conditions, equipment and facilities needed preliminary to and during work prosecution, and all other matters which can in any way affect the work, or the cost thereof. AHFC shall not be responsible for delays, claims or damages caused by conditions and matters which could affect any work or the performance of any work in any way which result from the Contractor's failure to comply with its obligations under this section. Failure of the Contractor to acquaint itself with all available information regarding any applicable condition will not relieve it from the responsibility of properly estimating either the difficulties or the costs of successfully performing the work.

To the extent that AHFC provides the site for the location of the work, AHFC does not represent that the available cores, samples, logs, test data and other available subsurface information, if any, show the conditions that will be encountered in performing the work, such cores, samples, logs, test data and other subsurface information being obtained only for purposes of study and design. Any such cores, samples, logs, test data and other subsurface information are not part of the Contract and there is no representation or warranty, expressed or implied, as to the sufficiency or completeness of the investigations made, that the conditions interpreted from investigations are correct, that different material or materials in different proportions or developments will not occur. It is expressly understood that the making of deductions, interpretations and conclusions from all of the accessible factual information, including the nature of the materials to be excavated, the difficulties of making and maintaining the required excavations, and the difficulties of doing other work affected by the geology are the Contractor's full responsibility.

- 2.6 DIFFERING SITE CONDITIONS:** Should the Contractor encounter (1) subsurface or latent physical conditions at the site, differing materially from those identified in the Contract; or (2) unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract, which subsurface, latent or unknown conditions are not among the risks of performance assumed by the Contractor and which will be considered by the Contractor as a basis for a claim for extra compensation, before such conditions are disturbed, the Contractor shall promptly notify the Contract Administrator in writing of the alleged conditions. The Contractor's obligation to give "prompt notice" of a differing site condition, shall mean that the Contractor shall give written notice of the differing site condition to AHFC by hand delivery or by facsimile transmittal within forty-eight (48) hours of discovery. Changed conditions that occur as result of any negligence or inattention on the part of the Contractor, its employees or agents will not be considered eligible for extra payment. The Contract Administrator will, as promptly as practicable, investigate such conditions and make a written finding and determination to the Contractor. If the Contract Administrator determines that such conditions do materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work under the Contract, such matters shall be by Change Order as specified in Paragraph 6.2, CHANGE ORDERS, for the particular phase of the work in question, and the Contract shall be modified accordingly. The Change Order shall set forth in complete detail the nature of the change and the reasons therefor, the compensation to be paid the Contractor, and the amount of addition to or reduction from the original Contract costs. No claim of the Contractor under this article will be allowed unless the Contractor has

given the required notice prior to disturbance beyond that necessary to identify the condition. If the Contractor disagrees with the Contract Administrator's determination, or if the parties fail to agree upon the adjustment to be made, the Contract Administrator's determination will be final and conclusive unless the Contractor submits a notice of claim under Article 12, DISPUTES.

Conditions which would have been revealed by a reasonable site investigation and inspection by the Contractor shall in no event be considered the basis for a changed condition or granting an adjustment.

In any event, the Contractor shall not be relieved, unless permitted in writing by AHFC, from its obligation of continuing construction operations pending decision as to the validity of the claim, or pending execution of a Change Order to the Contract.

No request by the Contractor for an equitable adjustment to the Contract for differing site conditions shall be allowed if made after final payment of this Contract.

### **ARTICLE 3 AHFC'S REPRESENTATIVE AND AUTHORITY**

**3.1 CONTRACT ADMINISTRATOR:** The Contractor shall consult with the Contract Administrator to ensure that all work by the Contractor under this Contract meets AHFC's requirements. Neither the Contracting Officer nor the Contract Administrator shall be personally liable to the Contractor for any acts or omission in the performance of his/her duties under this Contract. Should the Contract Administrator change at any time the Contractor will be notified in writing of the new Contract Administrator.

**3.2 CONTRACT ADMINISTRATOR'S AUTHORITY:** Unless otherwise provided, any notice of claim by the Contractor, all questions concerning interpretation or clarification of the Contract or acceptable fulfillment of the Contract on the part of the Contractor and all questions as to compensation, extensions of time, or both, shall be submitted in writing to the Contract Administrator for determination. All determinations and instructions of the Contract Administrator, whether in response to a question or otherwise, will be final unless the Contractor submits a notice of claim under the Article 12, DISPUTES.

At all times the Contractor shall proceed with the work in accordance with the determinations and instructions of the Contract Administrator. The Contractor's failure to object to the Contract Administrator's determination, instructions, or decision, by filing a timely notice of claim as permitted under the article entitled DISPUTES, shall constitute a waiver of claim by the Contractor.

The Contractor shall request by DC/VR any instructions or interpretations which the Contractor may consider necessary to perform the work. Costs incurred by the Contractor attributable to a failure to initiate a timely DC/VR shall not be compensable.

**3.3 AHFC'S RESPONSIBILITY:** AHFC shall respond to the Contractor initiated DC/VR's and other notices which may be permitted or required under the provisions of this Contract within a reasonable period of time, under the circumstances.

**3.4 AHFC ACCESS TO WORK AREAS:** AHFC, the Contract Administrator, their duly authorized representatives and employees, and all duly authorized representatives of governmental agencies requiring access to the work areas shall at all reasonable times, for the purpose of determining compliance with Contract requirements and applicable laws, have access to such areas and the premises used by the Contractor. The Contractor shall also arrange for AHFC, the Contract Administrator, and their said representatives and employees, to have access at all reasonable times to all places where equipment or materials are being manufactured, produced or fabricated for use under the Contract.

### **3.5 ARCHITECT/ENGINEER'S DUTIES, RESPONSIBILITIES AND AUTHORITY**

The Architect/Engineer for this Contract, and any successor, shall be designated in writing by the Contracting Officer.

The Architect/Engineer shall serve as the Contracting Officer's technical representative with respect to

architectural, engineering, and design matters related to the work performed under the Contract.

The Architect/Engineer's duties and responsibilities may include but shall not be limited to:

- A. Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to AHFC which shall report observed deficiencies. The Architect/Engineer shall file a copy of the report with the Contractor's designated representative at the site;
- B. Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of Change Orders and other Contract modifications for issuance by the Contracting Officer;
- C. Reviewing and making recommendations with respect to (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery mechanical, and other equipment and materials or other articles proposed for use by the Contractor; and
- D. Assisting in inspections and making recommendations with respect to acceptance of work completed under the Contract.

**3.6 PERSONAL LIABILITY OF AHFC'S OFFICIALS:** In carrying out any of the provisions hereof within the normal course and scope of their duties, or in exercising any power or authority granted to the Contracting Officer or the Contract Administrator by the Contract, when acting within the course and scope of their employment, there will be no liability imposed upon the Contracting Officer, the Contract Administrator, nor upon their authorized representatives, either personally or as officials of AHFC, it being always understood that in such matters they act as agents and representatives of AHFC.

#### **ARTICLE 4 SUBCONTRACTS**

- 4.1** All portions of the work that the Contractor does not perform with its own forces shall be performed under subcontracts.
- 4.2** No contractual relationship shall exist between AHFC and any subcontractor. The Contractor shall be responsible for the management of the subcontractors in the performance of their work.
- 4.3** The Contractor shall not enter into any subcontract with any subcontractor who is under a current order or finding that temporarily denies that subcontractor the right to participate in any program administered by the United States Department of Housing and Urban Development or the State of Alaska. Further, the Contractor shall not enter into any subcontract with any subcontractor who has been suspended or debarred from participation in any program administered by the United States Department of Housing and Urban Development or the State of Alaska.

Within five (5) days of issuance of the Notice to Proceed, the Contractor shall submit to the Contract Administrator a list of the names, along with copies of current Alaska business licenses, of all proposed subcontractors for AHFC's approval.

- 4.4** The Contractor shall insert in all subcontracts under this prime contract the following clause:

Subcontractor shall be bound by the provisions of the Prime Contract to the same extent that the General Contractor is bound by the provisions of the Prime Contract, and shall perform all work within the scope of this subcontract in accordance with all requirements imposed upon the General Contractor under the Prime Contract. The Prime Contract is incorporated into this subcontract by reference, and made binding upon subcontractor to the extent it applies to the

performance of the work undertaken by subcontractor. Subcontractor shall include a clause equivalent in legal effect to this clause in any sub-subcontracts which subcontractor may enter into relating to the project, which is the subject of this subcontract.

- 4.5 On demand from AHFC, the Contractor shall promptly provide AHFC with copies of any and all subcontracts existing between the Contractor and any subcontractor(s).

## **ARTICLE 5 CONTRACT TIME SCHEDULE**

### **5.1 TIME IS OF THE ESSENCE**

It is hereby understood and mutually agreed by and between the Contractor and AHFC, that the date of beginning and the time for completion, for each phase to be performed under this Contract, are essential conditions of this Contract. It is further mutually understood and agreed that the Contractor shall vigorously prosecute the work to completion. The Contractor shall proceed only after Notice to Proceed has specifically been issued by AHFC. In no event shall AHFC be liable for costs or changes, including loss of anticipated profit, for those portions of the work for which a Notice to Proceed was not issued. It is expressly understood and agreed by and between the Contractor and AHFC that the time for completion of the work described herein is a reasonable time for the completion of same, taking into consideration the climatic range, the availability of the work force, and other conditions prevailing in the project locality.

It is further agreed that time is of the essence for each and every portion of this Contract for the performance of any portion of the work whatsoever including any changes in the work; and that where under the Contract additional time is allowed for completion of any phase of the work, the new time limit fixed by such extension shall be of the essence of this Contract.

When the Contract completion time, including interim completion schedules or milestones, is specified as a fixed calendar date, it shall be the date on which all work on the project or included in the interim schedule or milestone shall be complete.

If the Contract term ends on a weekend or State holiday, AHFC shall have the sole discretion to extend the Contract term, without executing a Change Order, to the end of the next business day.

### **5.2 PROJECT SCHEDULE AND COMMENCEMENT OF WORK**

Prior to starting work at the project site, and after delivery of a Notice to Proceed, the Contractor shall submit a project schedule to the Contract Administrator, in a form acceptable to the Contract Administrator, which shows the time for accomplishing major milestones for the project. The Contract Administrator may reject the project schedule if he/she reasonably determines that it is not possible or it is commercially impractical for the Contractor to complete the work, or the major milestones within the work, within the time frame shown in the schedule. The Contractor shall not perform any work until a project schedule has been approved by the Contract Administrator unless such work is specifically authorized by a partial Notice to Proceed.

### **5.3 SUBSTANTIAL COMPLETION**

**5.3.1** Substantial Completion is the stage in the progress of the work when the work or a designated portion thereof is sufficiently complete in accordance with the contract documents so that AHFC can occupy or utilize the work for its intended use.

**5.3.2** When the Contractor considers the work, or a portion thereof which AHFC agrees to accept separately, is Substantially Complete, the Contractor shall request a Substantial Completion inspection. If it is necessary after the inspection, the Contractor will be given a comprehensive list of items to be completed or corrected in order to achieve Substantial Completion. A punch list of work to be completed before the final completion inspection will also be given to the Contractor.

The Contractor shall proceed to promptly complete and correct the items on the list. Failure to include an item on the list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract documents. Within ten (10) days of issuance of the comprehensive list, the Architect/Engineer or the Contract Administrator will make an inspection to determine whether the work or designated portion thereof is substantially complete. The Architect/Engineer or the Contract Administrator shall give the Contractor at least twenty-four (24) hours advance notice as to the date and time when the inspection will take place. If the inspection discloses any item, whether or not included in the comprehensive list, which is not in accordance with the requirements of the Contract documents, and which will prevent AHFC from occupying or utilizing the work for its intended use, the Contractor shall complete or correct such item upon notification from the Architect/Engineer or the Contract Administrator, before issuance of the Certificate of Substantial Completion. The Contractor shall then submit a request for another inspection to determine Substantial Completion. The Contractor shall be responsible for the costs incurred by AHFC for any inspections which are required after the first two inspections of the work or any designated portion thereof. When the work or designated portion thereof is substantially complete, the Contract Administrator will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish the responsibilities of the Contractor and of AHFC for security, maintenance, heat, utilities, damage to the work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the certificate. In the absence of an agreement for some other deadline for final completion, the Contractor shall achieve final completion within thirty (30) days after the Contract Administrator issues the Certificate of Substantial Completion.

- A. If the Contractor does not meet the deadline for final completion, AHFC shall have the option to terminate the Contract, and complete the work itself, or to complete the work using another contractor, and to back charge the Contractor for all expenses incurred in attaining final completion. Warranties required by the Contract documents shall commence on the date of substantial completion of the work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.
- B. The Certificate of Substantial Completion shall be submitted by AHFC to the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.
- C. The Contractor shall request the Substantial Completion inspection not less than thirty (30) days (unless otherwise indicated) prior to the date for final completion of the entire project as shown in the Contract documents as modified by approved Change Orders. AHFC may perform its first substantial completion inspection at any time thereafter, as if the Contractor had requested it.
- D. In no event shall final completion of the work be achieved later than ninety (90) days after the Notice to Proceed has been given to the Contractor, except to the extent that additional time has been granted to the Contractor in writing by AHFC. The Contractor shall be liable to AHFC for liquidated damages as set forth in Paragraph 11.4.

#### **5.4 PARTIAL OCCUPANCY OR USE**

- 5.4.1** AHFC may occupy or use any completed or partially completed portion of the work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurers who are providing builder's risk insurance and/or property insurance on that portion of the work, and is authorized by public authorities having jurisdiction over the work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided AHFC and the Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the work and insurance, and have agreed in writing concerning the period for completion and correction of the work and for commencement of warranties required by the Contract documents. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. AHFC's occupancy or use of any part of the work shall

not affect the Contractor's obligation to timely attain substantial completion and final completion, unless otherwise agreed.

**5.4.2** Unless otherwise agreed upon in writing, partial occupancy or use of a portion or portions of the work shall not constitute acceptance of work not complying with the requirements of the Contract documents.

**5.4.3** The Contractor shall not use any permanently installed equipment unless such use is approved by the Contract Administrator in writing. Where the Contractor's written request is granted for the use of certain equipment, the Contractor shall properly use and maintain and, upon completion of its use and at its expense, recondition said equipment to its new condition to the satisfaction of the Contract Administrator.

## **5.5 DELAY AND EXTENSIONS OF TIME**

**5.5.1** If, for reasons beyond the Contractor's control, the Contractor is delayed or disrupted in its performance of the work within the time allowed by the Contract, and if the Contracting Officer determines pursuant to subparagraph 5.5.3 that the Contractor is entitled to a time extension, then the Contractor shall be entitled to an extension of time as its sole and exclusive remedy. The Contractor agrees to complete the work within the Contract time as thus extended. Such extension shall postpone the beginning of the time period for payment of liquidated damages by the Contractor, but such delay or events causing delay shall not be grounds for claims by the Contractor for damages or for additional costs, expenses, overhead, profit or other compensation.

**5.5.2** The Contractor shall file with the Contract Administrator a written request for an extension of time within seven (7) calendar days after the Contractor knows or by reasonable diligence should know, of the event causing or likely to cause delay. The request shall state the portion of the work so delayed and shall fully state the reasons for such delay. The request shall be accompanied by a current computerized schedule in electronic or diskette form, showing the most recent previous version of the schedule, and the new schedule which will apply if the requested time extension is granted.

When Change Orders or delays are experienced by the Contractor, and the Contractor requests an extension of time under one or more of the Contract clauses, the Contractor shall submit a written Time Impact Analysis (TIA) illustrating the influence of each change or delay on the Contract completion date or milestones, utilizing the current updated project schedule. Each TIA shall include a fragnet demonstrating how the Contractor proposes to incorporate the Change Order or delay into the Project Schedule. A fragnet is defined as a sequence of new activities and/or activity revisions that are proposed to be added to the existing schedule to demonstrate the influence of delay and the method for incorporating delays and impacts into the schedule as they are encountered.

The following procedures shall be utilized when preparing a TIA:

- A. Update the schedule at the time the Change Order or unexpected event occurs, without considering the Change Order or unexpected event, or the Change Order or unexpected event's impact on the schedule.
- B. Study the scope of the change (alleged or directed) or the extent of the delay encountered. Review all Contract reference material. Prepare an accurate description of the changed condition or the delay encountered. Be aware of Contract notice requirements.
- C. Identify all contracting parties who are affected by the change or delay and request any participation or documentation assistance that may be necessary.
- D. Review the updated schedule to determine which activities the Change Order or

unexpected event will affect and how. Determine the scheduled start and finish dates for all affected activities.

- E. Consider whether the current schedule takes into account:
  - ◆ Any pending adjustments to Contract completion dates
  - ◆ Activity in-progress status
  - ◆ Notice to proceed for any directed changes
  - ◆ Other alleged or actual delay occurrences
- F. Prepare a fragnet illustrating the sequence of the change or delay and define its relationship to the current "adjusted" schedule. Identify notice of impact and demonstrate the effect of the alleged delay on the existing schedule and the remaining activities required to be performed. Avoid exaggerating the effects of the change or delay.
- G. Insert the fragnet into the current "adjusted" schedule and recalculate the schedule with the change or unexpected event.
- H. Compare the un-impacted update (the current "adjusted" schedule) with the impacted update to determine the affect the unexpected event had on the updated schedule. Determine if any alternatives exist for mitigating the impact of the change or unexpected event.
- I. If more than one change or delay occurs during the same period, determine and document on a chronological basis the time impact caused by *each* Change Order or delay encountered.
- J. Prepare a written report of the overall schedule analysis and quantify the net time impact (if any) associated with each change or delay.

**5.5.3** The Contract Administrator will review the written request for an extension of time, and will forward his/her written recommendation regarding the request to the Contracting Officer. The Contracting Officer will then decide whether or not to grant the requested extension of time. If the Contracting Officer determines that the requested extension of time should be granted, the Contract may be modified by a Change Order in writing. The Contracting Officer's determination will be given to the Contractor, and such determination shall be final and conclusive.

**5.5.4** If the Contractor fails to give timely notice under Paragraph 5.5.2 above, such failure shall be deemed to be a waiver of the Contractor's right to any time extension or any other remedy to which the Contractor might otherwise assert.

**5.6** **FINAL COMPLETION:** Upon receipt of written notice from the Contractor that the work is ready for final inspection and acceptance, the Architect/Engineer will proceed to make his/her inspection within ten (10) working days after the notice is delivered to AHFC. The request for final inspection and acceptance shall include a certification by the Contractor that the work is complete or will be complete by the date of the inspection, that all required tests have been passed satisfactorily, that all test reports have been delivered, that all required submittals have been made and approved, and that all as-built drawings are complete and ready for delivery to the Architect/Engineer on the day of the inspection. The Contract Administrator will not declare final completion of the project until the Contractor delivers notification of final acceptance by the local building authority and a Certificate of Occupancy for the entire project. Final completion shall include the Contractor's completed demobilization from the job site and all related cleanup activities. Provisions for seasonal work will not alleviate the requirement for complete demobilization and cleanup. Time extensions will not be granted to complete punch list items that are under the control of the Contractor. AHFC's inspection, and the Contractor's entitlement to final payment,

will be governed by Paragraph 7.8 of these General Terms and Conditions.

## **ARTICLE 6 CHANGES IN THE PROJECT**

- 6.1 AHFC'S AUTHORITY TO MAKE CHANGES:** AHFC may, at any time, without invalidating the Contract and without notice to the Contractor's sureties, by written order designated or indicated to be a directive authorized by AHFC and issued by the Contracting Officer, make changes in the work within the general scope of the Contract by altering, adding to, or reducing the work, or by altering the sequence, manner, or method of performance of the work.

If such changes cause an increase or decrease in the Contractor's cost of, or time required for, performance of the Contract, an equitable adjustment by a Change Order shall be made and the Contract modified in writing accordingly.

Nothing provided in this article shall excuse the Contractor from proceeding with the prosecution of the work as directed. Except as may be provided by a written Change Order, no extension of time or adjustment of the Contract sum will be allowed.

AHFC will have authority to order minor changes in the work not involving an adjustment in the lump sum or an extension of the Contract schedule and not inconsistent with the intent of the drawings and specifications. Such changes may be effected by written Directive and shall be binding on AHFC and the Contractor.

- 6.2 CHANGE ORDERS:** Unless otherwise required, the Contractor shall, within seven (7) calendar days following receipt of a Request for Proposal (RFP) or Directive for changes in the work submit in writing to the Contract Administrator a proposal for accomplishing such change or extra work. The proposal shall set forth any increase or decrease in cost to AHFC in comparison to such cost had such change or extra work not been authorized. The proposal shall state the basis of compensation for all work in connection with any such changes or extra work. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this Contract. If the facts justify it, after receipt of a written request from the Contractor within the seven (7) day period identified above, the Contract Administrator may extend the period for submission of the Contractor's proposal.

Sufficient detail shall be given in said proposal to permit thorough analysis of the proposal by the Contract Administrator. This detail must be provided regardless of the method used to determine the basis for compensation outlined in 6.2.1. Unless otherwise directed, the detail shall permit an analysis of all materials, labor, equipment and overhead costs as well as profit, and shall cover all work involved to accomplish the change, whether deleted, added or changed.

### Allowable Costs

The detail provided shall include the following allowable costs:

1. Direct Labor Costs. For all labor furnished and used by the Contractor for all manual classifications up to and including foremen and surveyors, the Contractor shall be reimbursed for labor costs, overhead and profit as provided hereinafter. Costs shall not be included for superintendents, assistant superintendents, general foremen, office personnel, timekeepers and maintenance mechanics. The time charged to changed work shall be subject to the written approval of the Contract Administrator, and evidence of such approval shall be submitted by the Contractor with its billing. Payment made for labor shall be computed by the Contract Administrator and shall be the sum of the following:
  - a. Labor. Labor rates used to calculate the costs shall be the prevailing wage rates of the Alaska Department of Labor in effect during the accomplishment of the changed work, inclusive of benefits paid on behalf of labor by the



Contractor, as follows:

- (i) Federal Insurance Compensation Act (FICA);
  - (ii) Federal Unemployment Tax Act (FUTA);
  - (iii) State unemployment compensation; and
  - (iv) Vacation allowance, overtime premium and any other payroll additives required to be paid by the Contractor by law or collective bargaining agreements.
- b. Travel allowance and/or subsistence. The Contractor shall be reimbursed the actual costs of travel and/or subsistence allowances paid to labor engaged upon the work when said allowances are required not to exceed that authorized by the provisions of the Alaska Administrative Manual (AAM) in effect as of the date of this Contract.
- c. Travel and moving expenses below supervisory level will not be an allowable cost for Change Orders under this Contract unless the Contractor can demonstrate that qualified employees are unavailable in the Alaska job market. Prior to incurring travel and moving expenses for employees below supervisory level, the Contractor shall have a written authorization from AHFC or its agent, which authorizes these expenses.
- d. Camp. In lieu of subsistence costs, if any, the Contractor shall be reimbursed for the actual cost, if any, of providing room and board for labor engaged in such Change Order work up to the allowable AAM cost, in effect as of the date of this Contract, per man day or pro rata share thereof for less than eight (8) hours work per day.
- e. Workers' Compensation Insurance (supported by proof of rates). The Contractor shall be reimbursed the actual rate times the total number of hours worked.
- f. Overhead and profit. The Contractor shall be paid an amount not to exceed fifteen percent (15%) overhead of the sum of the applicable items listed in subparagraphs a. through d. above as the costs of labor supplied directly by the Contractor, which percentage payment shall constitute full compensation for miscellaneous tools, supplies, on-site and home office overheads, supervision, profit, additional bond coverage, all other insurances, and all other payments made to or on behalf of labor in addition to those items specifically set forth above. No other indirect costs are allowed. The Contractor shall be allowed an amount not to exceed ten percent (10%) profit on the sum of the items listed above, including overhead. Except as provided in subparagraph 6.2(5), below, the Contractor shall not be allowed overhead or profit on the overhead and profit received by any subcontractor. Payments made to any lower tier subcontractor for labor on changed work shall similarly be limited to a maximum ten percent (10%) profit. Overhead shall be calculated using the table in Paragraph 5 of this section. With its pay request for changed work, the Contractor shall submit documentation which shows pay requests from subcontractors, sufficient to allow verification of the amount of overhead and profit being paid to subcontractors for labor used for changed work. No additional mark-ups shall be allowed.
2. Material Costs. For all materials furnished by the Contractor for the changed work, payment shall be made for its actual invoice cost of such materials including actual freight and express charges, less all offered or available discounts and rebates, notwithstanding the fact that they may not have been taken by the Contractor. The Contractor shall furnish documentation supporting all charges for materials furnished by the Contractor for use in performing any changed work. Supporting documentation shall

include, but not be limited to, valid copies of vendor's invoices, freight and express bills.

For such materials as may be furnished from the Contractor's stock for which an invoice is not available, the Contractor shall furnish an affidavit certifying to its actual costs of such materials. If the Contract Administrator determines that the Contractor's cost of such materials furnished is excessive, or if the Contractor does not furnish satisfactory evidence of its costs, AHFC reserves the right to establish the costs of all or part of such materials at the lowest current wholesale prices, less all applicable discounts and exemption at which said materials are available in the quantities required/delivered to the location of the work. AHFC reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs and profit on such materials.

The Contractor shall be allowed a maximum of ten percent (10%) profit on the sum of the items listed above, excluding overhead. Except as provided in subparagraph 6.2(5), below, the Contractor shall not be allowed overhead or profit on the overhead and profit paid to any subcontractor for changed work. Payments made to any lower tier subcontractor for materials for changed work shall similarly be limited to a maximum of ten percent (10%) profit. Overhead shall be calculated using the table in Paragraph 5 of this section. With its pay request for changed work, the Contractor shall submit copies of documentation which shows pay requests from subcontractors, sufficient to allow verification of the amount of overhead and profit being paid to subcontractors for materials used for changed work. No additional mark-ups shall be allowed.

3. Equipment Costs. For any machine power tools or equipment, which the Contract Administrator may deem necessary or desirable to perform the Change Order work, the Contractor shall receive a rental rate as agreed upon with the Contract Administrator before such work is begun. If an agreement cannot be reached, the Contract Administrator shall have the right to establish a rate based on prevailing commercial rates for similar equipment in the area.

The equipment rates computed above shall apply for all hours the equipment is actually used for performing force account work regardless of the number of hours per day the equipment is engaged in force account or other Contract work.

The above equipment rates shall apply for all equipment utilized to perform time and materials work, regardless of ownership, lease or rental arrangements, unless otherwise specifically approved in writing by the Contract Administrator.

When, in the opinion of the Contract Administrator, it is necessary to obtain equipment from sources off the job site exclusively for time and materials work, the actual cost of transferring the equipment to the job site of the work and return will be allowed as an additional item of expense. Where the move is made by common carrier, the move-in allowance will be limited to the amount of the freight bill or invoice. If the Contractor hauls the equipment with its own forces, the allowance will be limited to the rental rate for the hauling unit plus operator wages. In the event that the equipment is transferred under its own power, the moving allowance will be limited to one-half of the normal hourly rental rate plus operator's wages. In the event that the move-out is to a different location, payment will in no instance exceed the amount of the move-in. Move-in allowance shall not be made for equipment brought to the project for force account work which is subsequently retained on the project and utilized for completion of Contract items, camp maintenance, or related work.

No payment shall be made for equipment on stand-by unless specifically ordered or approved by the Contract Administrator. Equipment authorized to be on a stand-by basis shall be paid for at the stand-by rental rate for the number of hours in the Contractor's normal work shift less any hours actually worked, but not to exceed eight (8) hours per

day. The stand-by rental rate shall be based on prevailing commercial rates for similar equipment in the area.

All equipment real time will be recorded to the nearest one-quarter hour for purposes of computing compensation to the Contractor for equipment utilized for force account work.

The equipment rates as determined above shall be full compensation, including overhead and profit, for providing the required equipment and other costs such as, but not limited to, fuels, lubricants, replacement parts, maintenance costs, insurance or incidental expenses. Cost of repairs and/or modifications, both major and minor, as well as charges for mechanic's time utilized in servicing equipment to ready it for use prior to moving to the project and similar charges while on-site will not be allowed.

The Contractor shall be allowed a maximum of ten percent (10%) profit on the sum of the items listed above, excluding overhead. Except as provided in subparagraph 6.2(5), below, the Contractor shall not be allowed overhead or profit on the overhead and profit paid to any subcontractor for changed work. Payments made to any lower tier subcontractor for equipment for changed work shall similarly be limited to a maximum of ten percent (10%) profit (and no overhead beyond the rental rate). With its pay request for changed work, the Contractor shall submit copies of documentation which shows pay requests from subcontractors, sufficient to allow verification of the amount of overhead and profit being paid to subcontractors for equipment rental charges for changed work. No additional mark-ups shall be allowed.

4. Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
5. Subcontract and Outside Services Costs. Charges for changed work subcontracted by the Contractor will only be paid to the Contractor by AHFC in accordance with subparagraph 6.2.1 of these General Terms and Conditions. However, the Contractor shall not be allowed overhead and profit on the overhead and profit received by a subcontractor. Compensation to the Contractor for overhead and supervision on work and services will be based on the table set out below, and will be full compensation for administrative expenses incurred in connection with such work.

<u>Value of Work</u>	<u>Maximum Markup</u>
To \$1,000	10%
\$1,000 to \$10,000	\$100 plus 5% of excess of \$1,000
\$10,000 and over	\$550 plus 3% of the excess over \$10,000

6. The aforesaid labor, materials, equipment and subcontract compensation as herein provided shall be payment in full for all work and shall cover all expenses of every nature, kind and description, including but not limited to: overhead expenses, payments required under the Social Security Act, and any other federal or State revenue acts, together with all premiums on public liability and property damage insurance policies, use of small tools and equipment with a new cost of \$1,500 or less each for which no rental is allowed, supplies, overhead mobilization and demobilization, travel and subsistence, and supervision.
7. No claim for such work shall be allowed except upon written order by AHFC prior to the performance of such work or except for ordered emergency work. In the event of

ordered emergency work, the Contractor shall keep accurate records of actual costs in accordance with Items 1. through 5. above, until such time as agreement on compensation is reached. Keeping of such records shall not be construed as an indication that the force account method of compensation is necessarily acceptable for such emergency work, and shall not preclude the possibility of agreement to pay for such emergency work by unit price or lump sum basis. Upon determination as to the compensation due the Contractor for performing any emergency work, the Contract will be amended. Work which can be measured under the specifications and paid for at the unit prices and lump sums listed in this Contract shall not be construed as force account work.

8. For all time and materials work, the Contractor shall maintain a daily record of labor hours, equipment hours and material utilized in accomplishing such force account work. Copies of such records shall be submitted to the Contract Administrator as requested for review and concurrence as to their accuracy.

9. The Contractor shall submit an itemized statement of cost of work, purpose and location of the work, a complete breakdown of labor, materials, equipment, subcontracts and taxes in accordance with the above provisions. The statement will be submitted to the Contract Administrator for verification and approval within ten (10) calendar days following the day on which the force account work was completed. Failure to submit full and complete documentation regarding time and materials statements in the time or manner specified will be considered cause for denial of payment for work done by such force account. The Contract Administrator will note any exceptions to claims submitted, and provide written notice of such exceptions to the Contractor. No payment shall be made for any such noted exceptions until agreement has been reached on the items in dispute, or a resolution to the dispute has been reached under Article 12 of the Contract.

Where payment for labor, materials or equipment is based upon the cost thereof to forces other than the Contractor's, the Contractor expressly guarantees that the cost records of such other forces shall be open to inspection and audit by representatives of AHFC on the same terms and conditions as the cost records of the Contractor. If an audit is to be commenced more than sixty (60) days after the acceptance date of the Contract work, the Contractor will be given a reasonable notice of the time when the audit is to begin.

The Contractor shall commence and perform such changed work to meet all requirements set forth in the Contractor's current construction schedule, provided that if the Contract Administrator determines that the performance of any such changes or extra work causes any material change in the schedule, the schedule shall be revised to reflect such change. A copy of the revised schedule shall promptly be submitted to the Contract Administrator.

Employee hire-related expenses, e.g., newspaper ads, employment agency fees, below supervisory level will not be an allowable cost for Change Orders under this Contract for out-of-state employee recruitment unless the Contractor can demonstrate that qualified employees are unavailable in the Alaska job market. Prior to incurring employee hire-related expenses for employees below supervisory level, the Contractor shall have a written authorization from AHFC or its agent which authorizes these expenses.

- 6.2.1** The basis of compensation proposed by the Contractor shall be one of the following which are listed below in order of preference, provided that if the Contractor does not propose the method of compensation for such work or any part thereof, or if any proposed method is not acceptable, or if a method of compensation cannot be agreed upon, the Contractor when so directed by the Contract Administrator shall proceed with such work, and compensation will be made on a time and materials basis subject to any limitations in cost, time or means and methods directed by

AHFC. Compensation for time and materials is expressly limited to allowable costs as defined above. If at any time after the Contractor commences such work, a method of compensation is agreed upon, such compensation will be made in accordance with such agreement. In any event the Contractor shall keep accurate records of the actual cost to the Contractor for such work. Such records shall be kept in accordance with Items 1 through 10 above:

Order of Preference

- A. Contract unit or lump sum prices;
- B. New unit or lump sum prices; and
- C. Time and materials.

- 6.3** **EMERGENCIES:** In any emergency affecting the safety of persons or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any increase in the lump sum or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Paragraph 6.2, CHANGE ORDERS.

**ARTICLE 7**  
**PAYMENTS TO THE CONTRACTOR**

- 7.1** **CONTRACT AMOUNT:** AHFC shall pay the Contractor the price as provided in the Contract, except as modified in writing as permitted under the Contract at Article 6.2, CHANGE ORDERS.

- 7.2** **PROGRESS PAYMENTS:** AHFC shall make progress payments within thirty (30) days of receipt by AHFC of approved progress payment request submittals as the work proceeds, on estimates of work accomplished which meet the standards of quality established under the Contract. Under no circumstances will AHFC be required to make progress payments more often than once per calendar month unless AHFC, subject to the written determination and approval of the Contract Administrator, agrees to make more frequent payments to contractors which are qualified small businesses.

- 7.3** **RETAINED PERCENTAGE:** AHFC may retain from the monies payable to the Contractor during the progress of all work, a sum of up to ten percent (10%) of the cumulative progress payments. Notwithstanding the above, the payment may be withheld as may be necessary to cover or prevent losses for reasons including, but not limited to:

- A. Defective work not remedied;
- B. Stop notices filed or reasonable cause to believe that stop notices will be filed;
- C. Failure of the Contractor to make payments promptly to its own employees or to the subcontractors and vendors for materials or labor within a reasonable time after the Contractor has received the material or labor for incorporation into the work;
- D. Liquidated damages;
- E. Any claim or set off of AHFC against the Contractor;
- F. Any amounts which AHFC may be authorized to retain or expend pursuant to State or local law or pursuant to any provision of the Contract; or
- G. Failure to submit reports, submittals, schedules, or revisions or updates of schedules on time as required.

If any of the proceeding conditions are not promptly removed by the Contractor after service on the Contractor of written notice regarding the existence of such conditions, AHFC may remove such conditions or obligations and deduct all costs in connection with such removal from such withheld payment or payments. If the amount of such withheld payment or payments is insufficient to meet such costs, or if

any claim against the Contractor shall be discharged by AHFC after final payment is made, the Contractor and its surety or sureties, if any, shall promptly pay to AHFC all costs incurred thereby, regardless of when such claims arose. Retainage under this provision does not preclude other legal or equitable remedies available to AHFC.

**7.4      REDUCTION OF RETAINAGE:**      Upon application by the Contractor, the Construction Director, in the exercise of his/her sole discretion, may but shall not be required to, reduce the amount of the retainage, which is being held by AHFC. Such reduction, if any, shall be based upon the percentage of completion of the work which has been attained, the submission of evidence that subcontractors and materialmen have been paid, the submission of evidence that the work is on schedule, and such other factors as the Construction Director deems relevant.

**7.5      MATERIALS ON SITE:**      When computing progress payments, the Contract Administrator may take into consideration material delivered on the site and preparatory work done. Materials delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved in writing by the Contract Administrator; (3) the material is insured to cover its full value; and (4) the material will be used to perform this Contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contract Administrator may require to assure the protection of AHFC's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding any transfer of title to AHFC.

**7.6      MATERIAL SOLE PROPERTY OF AHFC:** All material and work covered by progress payments made shall, at the time of payment, become the sole property of AHFC, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the replacement of damaged materials and restoration of any damaged work; (2) waiving the right of AHFC to require the fulfillment of all of the terms of this Contract. In the event the work of the Contractor has been damaged by other contractors, subcontractors or persons other than employees of AHFC in the course of their employment, the Contractor shall restore such damaged work without the cost to AHFC and seek redress for its damage only from others who directly caused it.

**7.7      OTHER SUBMITTALS:**      Prior to making any payment, the Contract Administrator may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contract Administrator determines such evidence is necessary to substantiate claimed costs.

**7.8      FINAL ACCEPTANCE AND PAYMENT**

**7.8.1**      Whenever the Contractor deems that its obligations under the Contract have been fulfilled, the Contractor shall submit to the Contract Administrator a request for final payment on the form provided. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Contract Administrator the following: (1) a Contractor's Certificate and Release certifying that all work under the Contract and as required under Change Orders has been performed and that the Contractor releases AHFC from any and all claims arising under the Contract, (2) a binder containing all required warranty documents, and (3) if required by AHFC, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be required by AHFC. If a subcontractor or material supplier refuses to furnish a release or waiver required by AHFC, the Contractor may furnish a bond in a principal sum satisfactory to AHFC to indemnify AHFC against such claims or liens. Provision of such bond (s) shall not relieve the Contractor of its obligations to defend, indemnify, and hold AHFC and its property harmless as to all claims or liens known or unknown on the date of final payment.

**7.8.2**      If after Substantial Completion of the work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the

Architect/Engineer so confirms, AHFC shall, upon application by the Contractor and certification by the Architect/Engineer, and without terminating the Contract, make payment of the balance due for that portion of the work fully completed and accepted. AHFC shall, in any event, be entitled to retain payment from the Contractor in an amount equal to one and one half (1½) times the value of the unfinished portion of the work. Payment of retainage under this subparagraph shall be made under terms and conditions governing final payment, except that such payment shall not constitute a waiver of claims.

- 7.8.3** Acceptance of final payment by the Contractor, a subcontractor or a material supplier shall constitute a waiver of claims by that payee except those claims previously made in writing and identified by that payee as unsettled at the time of final application for payment. The making of final payment by AHFC does not constitute a waiver of claims against the Contractor by AHFC.
- 7.8.4** The request for final payment shall be prepared on the basis of the Contract, including all authorized Change Orders. The Contractor's Certificate and Release and request for final payment warrants that the Contractor has fully completed the performance of the Contract and the construction included in the Contract and has fully paid for all materials, equipment, supervision, labor, services, taxes, use of equipment, and all other costs and expenses of every nature and kind made. If any dispute exists between the Contractor and any person, firm or corporation to which the Contractor might be obligated in connection with the Contract, the Contractor shall state the name of the claimant and the amount and general nature of the claim against the Contractor. Such Certificate and Release and certificate of final payment shall also state the amount and nature of all present and future claims that the Contractor may have against AHFC relative to the Contract in addition to the Contractor's final request for final payment.
- 7.8.5** Upon receipt of the request for final payment, the Contract Administrator will determine if all work, which by the terms of the Contract is to be performed, has been satisfactorily performed. Acceptance of construction shall be evidenced by a Memorandum of Acceptance in writing signed by AHFC's Contracting Officer. No other act of AHFC shall constitute final acceptance of the work.

Upon issuing its memorandum of acceptance, AHFC will, within thirty (30) calendar days, make the final payment which shall consist of the entire sum found to be due after deducting all previous payments and all amounts to be deducted under the provisions of the Contract. The Contractor agrees that AHFC may require from it upon completion of the work and at the time of the final payment, a statement that all of the Contractor's claims against AHFC are satisfied and discharged. AHFC shall have the right to retain from any payment then due the Contractor so long as any bills or claims remain unsettled and outstanding, a sum sufficient, in the sole discretion of AHFC to provide for the payment of the same. It is also understood and agreed that, in case of any breach by the Contractor of the provisions of the Contract, AHFC may retain from any payment or payments, which may become due, a sum sufficient in the sole discretion of AHFC to compensate for all damages occasioned by such breach, including in such damages any damages arising out of delay on the part of the Contractor. As a further condition precedent to final payment to the Contractor, the Contractor agrees that AHFC may, at its sole option, make payment from funds otherwise due the Contractor directly to unpaid subcontractors or suppliers or other persons to whom the Contractor remains obligated pertaining to said work. The Contractor further agrees that it shall reimburse to AHFC, and AHFC may retain from any funds due or to become due to the Contractor, a sum sufficient to reimburse AHFC for all costs, expenses and attorney's fees incurred by AHFC in processing or defending any claims made against any monies due or to become due the Contractor, whether such claims be founded or unfounded, or whether made by subcontractors, materialmen, laborers, taxing bodies or otherwise.

The acceptance by the Contractor of such final payment shall operate as, and shall be, a release to AHFC, the Contract Administrator, and AHFC's directors, representatives, agents and employees, respectively, from all claims of and liability to the Contractor or any third party for

anything done or furnished for, or in relation to, any work under the Contract, or for any act or omission of AHFC, the Contract Administrator, AHFC's directors, officers, representatives, agents and employees, respectively, or of any person relating to or affecting any work under the Contract unless AHFC, upon request of the Contractor and at the option of AHFC, consents in writing to the reservation of certain specific claims.

## **ARTICLE 8 INSURANCE AND INDEMNITY**

**8.1**     **INDEMNITY:** The Contractor shall indemnify, save harmless and defend AHFC and the State, its officers, agents, and employees from all liability, including costs and expenses, for all actions or claims resulting from personal injuries or property damages sustained by any person or property arising directly or indirectly as a result of any error, omission, or negligent act of the Contractor, its subcontractors, or anyone directly or indirectly employed by Contractor in the performance of this Contract.

All actions or claims, including costs and expenses, resulting from injuries or damage sustained by any person or property arising directly or indirectly from Contractor's performance under this Contract which are caused by the joint negligence of AHFC and the Contractor shall be apportioned on a comparative-fault basis. Any such joint negligence on the part of AHFC must be a direct result of active involvement by AHFC.

**8.2**     **CONTRACTOR'S LIABILITY INSURANCE:**

**8.2.1**   The Contractor shall purchase and maintain such insurance as will protect the Contractor from the claims set forth below which may arise out of or result from the Contractor's operations under this Contract whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Insurance policies required to be maintained by the Contractor will name AHFC as additional insureds for Commercial General Liability Insurance and Automobile Liability Insurance. The Contractor agrees to obtain a waiver, where applicable, of all subrogation rights against AHFC, its officers, officials, employees and volunteers for losses arising from work performed by the Contractor, or anyone directly or indirectly employed by them.

- A.     Claims under Workers' Compensation, disability benefit and other similar employee benefit acts which are applicable to the work to be performed;
- B.     Claims for damages because of bodily injury, occupational sickness or disease, or death of his/her employees under any applicable employer's liability law;
- C.     Claims for damages because of bodily injury, or death of any person other than his/her employees;
- D.     Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor; or (2) by any other subcontractor or other person;
- E.     Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use;
- F.     Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle; and
- G.     Claims for damages because of errors, omissions or negligent acts of the Contractor, or any person directly or indirectly employed by them, made in the performance of this Contract which results in financial loss to AHFC.



**8.2.2** The Commercial General Liability Insurance shall include coverage for premises-operations (including explosion, collapse and underground coverage) elevators, independent contractors, completed operations, and blanket contractual liability on all written contract, all including broad form property damage coverage.

**8.2.3** The Contractor's Commercial General, and Automobile Liability Insurance, as required in Subparagraph 8.2.1, shall be written for not less than limits of liability as follows:

Without limiting Contractor's indemnification, it is agreed that Contractor will purchase at its own expense and maintain in force at all times during the performance of services under this Contract, the following policies of insurance.

AHFC Risk Management reserves the right, but not the obligation, to review and revise any of the following insurance requirements, based on insurance market conditions which may affect the availability or affordability of coverage; or based on changes in the scope of work or specifications that apply to this Contract. In addition, AHFC Risk Management reserves the right, but not the obligation, to review and reject any insurance policies failing to either meet the necessary criteria or that have been provided by an insurer in poor financial condition or legal status.

The requirements contained herein, as well as AHFC Risk Management review or acceptance of insurance maintained by Contractor is not intended to, and shall not in any manner, limit or qualify the liabilities or obligations assumed by Contractor under this Contract.

Insurance policies required to be maintained by Contractor will name AHFC as additional insured for all coverage except Workers' Compensation insurance.

Contractor and its subcontractors agree to obtain a waiver, where applicable, of all subrogation rights against AHFC, its officers, officials, employees and volunteers for losses arising from work performed by the Contractor and its subcontractors for AHFC. However, this waiver shall be inoperative if its effect is to invalidate in any way the insurance coverage of either party.

Where specific limits are shown, it is understood that they will be the minimum acceptable limits. If the Contractor's policy contains higher limits, AHFC will be entitled to coverage to the extent of such higher limits. The coverages and/or limits required are intended to protect the primary interests of AHFC, and the Contractor agrees that in no way will the required coverages and/or limits be relied upon as a reflection of the appropriate types and limits of coverage to protect Contractor against any loss exposure whether a result of this Contract or otherwise.

Failure to furnish satisfactory evidence of insurance or lapse of any required insurance policy is a material breach and grounds for termination of the Contract pursuant to Article 9 of this Contract.

A. Workers' Compensation Insurance: The Contractor will provide and maintain, for all employees of the Contractor engaged in work under the Contract, Workers' Compensation Insurance as required by AS 23.30.045. The Contractor shall be responsible for ensuring that any subcontractor that directly or indirectly provide services under this Contract has Workers' Compensation Insurance for its employees. This coverage must include statutory coverage for all States in which employees are engaging in work and employer's liability protection for not less than \$100,000 per occurrence. Where applicable, coverage for all federal acts (i.e., USL & H and Jones Acts) must also be included.

B. Commercial General Liability (CGL) Insurance: The Contractor will provide and maintain Commercial General Liability Insurance with not less than \$1,000,000 per occurrence limit, and will include premises-operation, products/completed operation, broad form

property damage, blanket contractual and personal injury coverage. Coverage shall not contain any endorsement(s) excluding or limiting contractual liability nor providing for cross liability.

- C. Automobile Liability Insurance: The Contractor will provide and maintain Automobile Liability Insurance covering all owned, hired and non-owned vehicles with coverage limits not less than \$1,000,000 per occurrence bodily injury and property damages. In the event Contractor does not own automobiles, Contractor agrees to maintain coverage for hired and non-owned liability which may be satisfied by endorsement to the CGL policy or by separate Business Auto Liability policy.
- D. Contractor's Pollution Liability (or equivalent) Insurance: Contractor will provide and maintain Contractor's Pollution Legal Liability Insurance covering all errors, omissions, or negligent acts of the Contractor, its sub-contractors, or anyone directly or indirectly employed by them, made in the performance of this Contract. Limits required are not less than \$ 1,000,000 per occurrence.
- E. Umbrella or Excess Liability: The Contractor may satisfy the minimum liability limits required above for CGL and Business Auto under an umbrella or excess liability policy. There is no minimum per occurrence limit under the umbrella or excess policy; however the annual aggregate limit shall not be less than the highest per occurrence limit stated above. Contractor agrees to endorse AHFC as an additional insured on the umbrella or excess policy unless the certificate of insurance states that the umbrella or excess policy provides coverage on a pure "true follow form" basis above the CGL and Business Auto policy.
- F. Certificates of Insurance: The Contractor agrees to provide AHFC with certificates of insurance evidencing that all coverages, limits and endorsements as described above are in full force and effect and will remain in full force and effect as required by this Contract. Certificates shall include a minimum thirty (30) day notice to AHFC of cancellation or non-renewal. The Certificate Holder address shall read:

Alaska Housing Finance Corporation  
Risk Management Department  
4300 Boniface Parkway  
Anchorage, Alaska 99504  
Fax (907) 330-8217  
[risk@ahfc.us](mailto:risk@ahfc.us)

- G. Coverage Required under this Contract: If any of the above insurance coverage is not required under the Contract, AHFC's Risk Manager will have clearly marked out and initialed reference to the coverage provided in this bid document.
- G. Information for Insurance Agents/Brokers: The Contractor is strongly encouraged to provide its insurance agent/broker with a copy of this Subparagraph 8.2.3 of this Contract in order that the Contractor may timely obtain and maintain the insurance and bonding required by the Contract.

**8.2.4** Commercial General Liability Insurance may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by an excess or umbrella liability policy.

**8.2.5** The foregoing policies shall contain a provision that coverages afforded under the policies will not be canceled or not renewed until at least thirty (30) days prior written notice has been given to AHFC. Certificates of insurance stating the insurance company, type of coverage, limits, effective

date, expiration date, additional insured, and waiver of subrogation must be filed with AHFC prior to commencement of the work.

**8.2.6 Waiver of Subrogation:** AHFC and the Contractor waive all rights against each other and each of their subcontractors, sub-subcontractors, officers, directors, agents, and employees, for recovery for damages caused by fire and other perils to the extent covered by builder's risk insurance, or any other property insurance applicable to the work.

**8.3 ADDITIONAL BOND SECURITY:** The Contractor shall promptly furnish additional security required to protect AHFC and persons supplying labor or materials under this Contract if:

- A. Any surety upon any bond furnished with this Contract becomes unacceptable to AHFC;
- B. Any surety fails to furnish reports on its financial condition as may be required by AHFC; or
- C. The Contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contract Administrator.

Any Contract changes or modifications and increases in the Contract price must be reported in writing by the Contractor to the surety and a rider or endorsement to the original bond furnished to AHFC.

## ARTICLE 9 SUSPENSION OR TERMINATION OF THE CONTRACT AND AHFC'S RIGHT TO PERFORM CONTRACTOR'S OBLIGATIONS

**9.1 SUSPENSION OF WORK FOR AHFC'S CONVENIENCE:** AHFC may, at its sole option, by notice in writing to the Contractor suspend at any time the performance of all or any portion of work to be performed under the Contract. Upon such notice of suspension of work, the Contractor shall permit AHFC to designate the amount and type of plant, labor and equipment to remain on the project. During the period of suspension, the Contractor shall use its best efforts to minimize costs associated with suspension.

**9.1.1** Upon receipt of any such written notice, the Contractor shall, unless the notice requires otherwise:

- A. Immediately discontinue work on the date and to the extent specified in the notice;
- B. Place no further orders or subcontracts for material, services or facilities with respect to suspended work other than to the extent required in the notice;
- C. Promptly make every reasonable effort to obtain suspension upon terms satisfactory to AHFC of all orders, subcontracts and rental agreements to the extent that they relate to performance of work suspended; and
- D. Unless otherwise specifically stated in the notice, continue to protect and maintain the project, including those portions on which work has been suspended.

**9.1.2** Except as set forth in 9.2 below, as full compensation, the Contractor will be reimbursed for the costs listed in items A through D below, reasonably incurred, without duplication of any item, to the extent that such costs directly result from such suspension of work. No other claims by the Contractor for damages or extra compensation shall be allowed;

- A. All amounts due and not previously paid to the Contractor for work completed in accordance with the Contract prior to such notice, and for work thereafter completed as specified in such notice;
- B. The reasonable cost of settling and paying claims arising out of the suspension of work

under subcontracts or orders as provided in Subparagraph 9.1.1 above;

- C. The reasonable costs incurred pursuant to Subparagraph 9.1.1 above; and
- D. The foregoing amounts shall include a reasonable sum, under all of the circumstances, as profit for the work performed by the Contractor.

**9.2 SUSPENSION OF WORK FOR CAUSE:** If the Contractor's performance of work or any part thereof is in non-compliance with any of the provisions of the Contract, the Contract Administrator may, at his/her sole option, by written notice to the Contractor, suspend at any time the performance of those portions of the work contributing to the non-compliance, and advise the Contractor to take the steps necessary to stop or prevent such non-compliance before continuing with such work. The Contractor shall within forty-eight (48) hours of receipt of such suspension notice submit to the Contract Administrator its written plan for correcting such non-compliance. The Contract Administrator shall review the Contractor's plan for corrective action and upon approval will authorize the Contractor to recommence such suspended work. The Contractor shall not be entitled and shall not receive any time extension or compensation for such suspensions, nor shall the **Contractor** be entitled to compensation for corrective actions.

**9.3 TERMINATION FOR DEFAULT:** The Contract Administrator may give notice in writing to the Contractor and its surety of any default if the Contractor:

- A. Fails to vigorously prosecute the work;
- B. Fails to perform work with sufficient workmen, equipment or materials to assure the prompt completion of said work;
- C. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable;
- D. Discontinues the prosecution of the work;
- E. Fails to resume work which has been discontinued within a reasonable time after notice to do so;
- F. Fails to achieve final completion or punch list work at or within deadlines imposed under this Contract, or any extensions thereto;
- G. Becomes insolvent, except that if the Contractor declares bankruptcy, termination shall be in accordance with 11 U.S.C. 362 and/or 11 U.S.C. 365. In the event that the Contractor declares bankruptcy, the Contractor agrees that the Contract will be assumed or rejected in a timely manner so that the Contract will be completed by the date specified in the Contract;
- H. Allows any final judgment to stand unsatisfied against the Contractor for a period of sixty (60) days;
- I. Makes an assignment for the benefit of creditors, without the consent of the Contracting Officer; or
- J. For any other cause whatsoever, fails to carry on the work in an acceptable manner, or is in breach of another provision or provisions of this Contract.

If the Contractor or surety, within the time specified in the notice, does not proceed in accordance therewith, then AHFC may, upon written notification from the Contract Administrator of the fact of such delay, neglect or default and the Contractor's failure to comply with such notice, have full power and authority, without violating the Contract, to take the prosecution of the work out of the hands of the Contractor. AHFC may appropriate or use any or all materials and equipment on the project site as may be suitable and acceptable and may enter into an agreement for the completion of said Contract according to the terms and provisions thereof, or use such other methods that in the opinion of the Contract Administrator are required for the completion of said

Contract in an acceptable manner.

The Contracting Officer may, by written notice to the Contractor and its surety or its representative, transfer the employment of the work from the Contractor to the surety, or if the Contractor abandons the work undertaken under the Contract, the Contracting Officer may, at his/her option, with written notice to the surety and without any written notice to the Contractor, transfer the employment for said work directly to the surety. The surety shall submit its plan for completion of the work, including any contracts or agreements with third parties for such completion, to AHFC for approval prior to beginning completion of the work. Approval of such contracts shall be in accordance with all applicable AHFC requirements and procedures for approval of subcontracts, except that the limitation on percent of work subcontracted, if any, shall not apply.

Upon receipt of such notice the surety shall enter upon the premises and take possession of all materials, tools, and appliances thereon for the purpose of completing the work included under the Contract and employ, by contract or otherwise, any person or persons to finish the work and provide the materials therefor, without termination of the continuing full force and effect of this Contract. In case of such transfer of employment to the surety, the surety shall be paid in its own name on estimates covering work subsequently performed under the terms of the Contract and according to the terms thereof without any right of the Contractor to make any claim for the same or any part thereof.

In case of discontinuance of employment by the Contracting Officer as stated above, the Contractor shall not be entitled to receive any further balance of the amount to be paid under the Contract until the work shall be fully finished, at which time, if the unpaid balance of the amount to be paid under this Contract shall exceed the expenses incurred by AHFC in finishing the work and all damages sustained, or which may be sustained by AHFC by reason of such refusal, neglect, failure or discontinuance of employment, such excess shall be paid by AHFC to the Contractor, but if such expenses and damage shall exceed the unpaid balance, the Contractor and its surety and each thereof shall be jointly and severally liable therefor to AHFC, and shall pay the difference to AHFC.

If, after the Notice of Termination of the Contractor's right to proceed under the provisions of this clause, it is determined for any reason that the Contractor was not in default under the provisions of this clause, or that the delay was excusable under the provisions of this clause, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued as a termination for convenience of AHFC.

**9.4 TERMINATION FOR CONVENIENCE:** The performance of work under the Contract may be terminated by AHFC in accordance with this section in whole or in part, whenever, for any reason AHFC, through its Contracting Officer or Contract Administrator, shall determine that such termination is in the best interest of AHFC. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination from the Contracting Officer specifying that the termination is for the convenience of AHFC, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

**9.4.1** After receipt of a Notice of Termination and except as otherwise directed by the Contract Administrator, the Contractor shall;

- A. Stop work under the Contract on the date and to the extent specified in the Notice of Termination;
- B. Place no further orders or subcontract for materials, services, or facilities except as may be necessary for completion of such portion of the work under the Contract as is not terminated;
- C. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

- D. With the approval or ratification of the Contract Administrator, to the extent they may require, settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, the costs of which would be reimbursable, in whole or in part, in accordance with the provisions of the Contract;
- E. Submit to the Contract Administrator a list, certified as to quantity and quality, of any or all items of termination inventory exclusive of items the disposition of which had been directed or authorized by the Contract Administrator;
- F. Transfer to the Contract Administrator the completed or partially completed plans, drawings, information, and other property which, if the Contract had been completed, would be required to be furnished to AHFC; and
- G. Take such action as may be necessary, or as the Contract Administrator may direct, for the protection and preservation of the property related to the Contract which is in the possession of the Contractor and in which AHFC has or may acquire any interest.

The Contractor shall proceed immediately with the performance of the above obligations notwithstanding any delay in determining or adjusting the amount of any item or reimbursable cost under this clause.

- 9.4.2** When AHFC orders termination of work under a Contract effective on a certain date, all completed units of work within each pay item as of that date will be paid for at the Contract unit price, if any, subject to the express limitations applying to cost reimbursement as outlined below. Payment for partially completed work or for materials will be made either at agreed prices or by time and materials methods as described in Article 6 of this Contract, subject to the express limitations applying to cost reimbursement as outlined below.

After receipt of a Notice of Termination, the Contractor shall submit to the Contract Administrator, its claim for additional damages or costs not covered above or elsewhere in these specifications.

The intent of negotiating this claim would be an equitable settlement figure to be reached with the Contractor. In no event, however, will the following costs or damages be deemed reimbursable, and the Contractor expressly waives any right or entitlement to claim for such costs or damages;

- A. Loss of anticipated profits, including any claim for damages flowing from such loss of anticipated profits;
- B. Any profit on the completed portions of the Contract, if AHFC reasonably determines that the Contractor would have incurred a loss had the entire Contract been completed;
- C. Any costs associated with bid preparations;
- D. Any costs associated with general and administrative expenses (G&A), or any other indirect cost, as defined in 48 CFR 31.203(10-1-96), as amended, not expressly identified herein;
- E. Any legal fees incurred in conjunction with the Contractor's performance on the Contract including, but not limited to, legal fees incurred in conjunction with the preparation of any claim, incurred prior to the effective date of the termination for convenience; and
- F. Any costs associated in any way with the Contractor's preparation of its termination for convenience settlement claim including, but not limited to, legal fees, expert fees, accounting fees, copying fees, or any other direct or indirect costs associated with the preparation of the settlement claim.

- 9.4.3** The Contractor's termination claim shall be submitted promptly, but in no event later than ninety (90) days from the effective date of termination, unless one or more extensions in writing are granted by the Contract Administrator upon request of the Contractor made in writing within the ninety (90) day period. Upon failure of the Contractor to submit its termination claim within the time allowed, the Contract Administrator may determine, on the basis of information available to her/him, the amount, if any, due the Contractor by reason of the termination and will thereupon pay to the Contractor the amount so determined.

In the event the Contractor and the Contract Administrator agree in whole or in part the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this section, the Contract will be amended accordingly. The Contract will be amended accordingly, and the Contractor will be paid the agreed amount.

In the event of the failure of the Contractor and the Contract Administrator to agree in whole or in part, as provided herein, as to the amounts with respect to costs to be paid to the Contractor in connection with the termination of work, the Contract Administrator will determine, on the basis of information available to him/her, the amount, if any, due to the Contractor by reason of the termination and will pay the Contractor the amount determined as follows:

- A. All costs and expenses reimbursable in accordance with the Contract not previously paid to the Contractor for the performance of the work prior to the effective date of the Notice of Termination;
- B. So far as not included under A. above, the cost of settling and paying claims arising out of the termination of work under subcontracts or orders which are properly chargeable to the terminated portions of the Contract. However, in no event shall the Contractor be entitled to legal fees or other costs associated with the pursuit or defense of any claims associated with work performed under such subcontracts; and
- C. The reasonable costs of settlement with respect to the terminated portion of the Contract, to the extent that these costs have not been covered under the payment provisions of the Contract.

- 9.4.4** The Contractor shall have the right to dispute the Contracting Officer's decisions described in Paragraph 9.4 under the dispute provisions of this Contract, except if the Contractor has failed to submit its claim within the time provided, or has failed to request and receive an extension of such time from AHFC, they shall have no such right of review.

In arriving at the amount due the Contractor under Section 9.4 there shall be deducted:

- A. All previous payments made to the Contractor for the performance of work under the Contract prior to termination;
- B. Any claim or set off which AHFC may have against the Contractor;
- C. Any claim by the Contractor for work performed negligently, or in any manner inconsistent with the Contract requirements, which was not accepted by AHFC;
- D. The agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the Contractor or sold pursuant to the provisions of this section and not otherwise recovered by or credited to AHFC; and
- E. All partial payments made to the Contractor under the provisions of this section.

AHFC may, from time to time under such terms and conditions as it may prescribe, make partial payments on account against costs incurred by the Contractor in connection with the terminated portion of the Contract whenever in the sole discretion of the Contract Administrator the

aggregate of such payments shall be within the amount to which the Contractor will be entitled hereunder, otherwise the Contractor shall not be entitled to receive further payments until final settlement is reached.

- 9.5 RESERVATION OF RIGHTS ON TERMINATION:** Where the work has been terminated by AHFC, this termination shall not affect or terminate any of the rights of AHFC against the Contractor or its surety then existing or which may thereafter accrue because of such termination. Any retention or payment of monies by AHFC due to the Contractor under the terms of the Contract shall not release the Contractor or its surety from liability.

Unless otherwise provided for in the specifications or the Contract, or by applicable statute, the Contractor, from the effective date of termination and for a period of three (3) years after final settlement under this Contract, shall preserve and make available to AHFC at all reasonable times at the office of the Contractor, all its books, records, documents, and other evidence bearing on the cost and expenses of the Contractor under this Contract and relating to the work terminated hereunder.

## **ARTICLE 10 WORK BY OTHERS, ASSIGNMENT AND GOVERNING LAW**

- 10.1 WORK BY OTHERS:** AHFC may undertake or award other contracts for additional work, and the Contractor shall fully cooperate with such other contractors and carefully fit its own work to such additional work as may be directed by AHFC and/or the Contract Administrator. The Contractor shall not commit nor permit any act, which will interfere with the performance of work by any other contractor or by employees of AHFC.
- 10.2 CONTRACTOR NOT AN AGENT OF AHFC:** It is agreed that the Contractor is an independent contractor under the laws of the State of Alaska and is not an agent of AHFC.
- 10.3 CONSENT TO ASSIGNMENT:** Any assignment of the performance of the Contract without prior written consent of AHFC shall be void. Any assignment consented to by AHFC shall be evidenced by a written assignment agreement executed by the Contractor and its assignee in which the assignee expressly agrees to be legally bound by all of the terms and conditions of this Contract and to assume the duties, obligations, and responsibilities being assigned. AHFC retains the sole and absolute right to withhold its consent for any requested assignment for any reason whatsoever. Consent will not be given to any proposed assignment, which would relieve the original Contractor or its surety of their responsibilities under the Contract. The Contractor may assign monies due or to become due it under the Contract, to the extent permitted by law, and such assignment will be recognized by AHFC, if written notice thereof is given to AHFC at least ten (10) calendar days before a payment is due, but any assignment of monies shall be subject to all proper set offs in favor of AHFC, and to all deductions provided for in the Contract and particularly all money withheld, whether assigned or not, shall be subject to being used by AHFC for the completion of the work in the event that the Contractor should be in default therein or for the payment of claims or liens.

The consent to any assignment or transfer shall not operate to relieve the Contractor or its sureties of any of their obligations under this Contract or the Payment and Performance Bonds.

AHFC reserves the right to assign this Contract at any time to another department or agency of the State of Alaska, or its political subdivisions.

Each party to this Contract binds itself, its partners, successors, executors, administrators and assigns to the other party to this Contract, and to the partners, successors, executors, administrators and assigns of the other party in respect to all covenants in this Contract. Nothing in this Contract may be construed as creating any personal liability on the part of any officer or employee of AHFC, nor may anything in this Contract be construed as giving any rights or benefits to anyone other than the parties



bound by this Contract.

- 10.4 JURISDICTION AND VENUE:** This Contract is governed by the laws of the State of Alaska. Any judicial action between the Contractor and AHFC arising out of this Contract shall be under the jurisdiction of and heard by the District or Superior Court, Third Judicial District at Anchorage, State of Alaska. Disputes will be governed by the provisions of AHFC regulations 15AAC150.300 -15AAC150.490, and under Article 12 of this Contract.

## **ARTICLE 11 MISCELLANEOUS PROVISIONS**

- 11.1 DELIVERY OF NOTICE:** Any written notice to be given to the Contractor by AHFC or the Contract Administrator may be delivered to the Contractor's authorized representative at the project site or mailed or faxed to the address given by the Contractor in its bid or subsequently requested by the Contract Administrator. Except for the notice required under Article 12 of this Contract, any written notice to be given to AHFC by the Contractor shall be mailed or delivered to the Contract Administrator at:

Alaska Housing Finance Corporation  
4300 Boniface Parkway  
Anchorage, Alaska 99504

- 11.2 NON-WAIVER OF RIGHTS:** No waiver of default of any part of this Contract by AHFC may operate as a waiver of any subsequent default of any part of this Contract that is to be performed by the Contractor. Consent or notice by AHFC may not be construed as consent or notice in the future.

The rights and remedies of AHFC provided under this Contract are in addition to any other rights and remedies provided under law.

- 11.3 SEVERABILITY:** If any part of this Contract is declared to be invalid by a court of competent jurisdiction, the other parts of the Contract remain in full force.

- 11.4 LIQUIDATED DAMAGES:** AHFC, the Contractor and the Contractor's sureties agree that if the Contractor fails to complete the work within the time specified herein, or any extension approved by AHFC in writing, the Contractor will pay to AHFC liquidated damages in the amount of ZERO dollars (\$0.00) per day for each day required for Final Completion. This dollar amount has been arrived at using the methodology and figures set out in attachment \_\_\_\_\_ to this Contract, and the Contractor has reviewed that attachment and agrees that the methodology and figures set out therein are a fair and reasonable estimate of the actual daily damages which AHFC will incur in the event that the final completion of the work is delayed. AHFC, the Contractor and the Contractor's sureties agree that the sum set forth herein for liquidated damages are a reasonable forecast of AHFC's expected loss and that the amounts are not so high as to be considered a penalty. Further, the Contractor and the Contractor's sureties shall pay to AHFC as liquidated damages the amounts stated above for each calendar day of delay where different completion dates are specified in the Contract for separate parts or stages of the work. Such liquidated damages shall be assessed until the date(s) the work is satisfactorily completed.

- 11.5 TITLE TO MATERIALS FOUND:** The title to water, soil, rock, gravel, sand, minerals, timber, and other materials developed or obtained in the excavation or other operations of the Contractor or any of its subcontractors and the right to use said materials or dispose of same is hereby expressly reserved by AHFC unless otherwise specifically provided in the Contract. Neither the Contractor, its subcontractors, nor any of their representatives or employees shall have any right, title or interest in said materials nor shall they assert or make any claim thereto. Upon approval, the Contractor may be permitted to use in its work any such materials which meet the requirements of the Contract provided there is no cost to AHFC.

- 11.6 OWNERSHIP OF WORK DOCUMENTS:** Work products produced under this Contract, except items which have pre-existing copyrights, are the property of AHFC. Payments to the Contractor for services hereunder include full compensation for all work products produced by the Contractor and its subcontractors and AHFC shall have royalty free non-exclusive and irrevocable right to reproduce, publish, or otherwise use,

and to authorize others to use, such work products.

- 11.7 THIRD PARTIES NOT BENEFITED:** It is specifically agreed by the parties that they do not intend by any provisions of any part of the Contract to create in the public or any member thereof a third party beneficiary hereunder, or to authorize anyone not a party to this Contract to initiate a suit for personal injuries or property damage pursuant to this Contract.

## **ARTICLE 12 DISPUTES**

### **12.1 CONTRACTOR'S CLAIMS PROCEDURES:**

- 12.1.1** If the Contractor becomes aware of any act, occurrence or omission which may form the basis of a claim by the Contractor for additional compensation or an extension in time for performance; or takes exception to any instruction or directive from the Contract Administrator or Contracting Officer given by drawing, correspondence, Change Order, DC/VR response, or otherwise, which materially affects the Contractor's costs or time of performance of the work; or if the Contractor disagrees with the adjustment in Contract price or Contract time for any Change Order, the Contractor shall submit a written notice of claim to the Contracting Officer with a copy to the Contract Administrator identifying the general nature and basis of the claim no later than seven (7) calendar days after the occurrence of such act or the receipt of such directive or Change Order and in any event before proceeding to incur any cost related to such claim.

After receiving a notice of claim, the Contracting Officer, in his/her sole discretion, shall determine whether it is a claim which should be subject to mandatory mediation. The Contracting Officer shall prepare and deliver to the Contractor, within seven (7) days after receipt of the written notice of claim, a written acknowledgment of the notice of claim. The acknowledgment of the notice of claim shall specify whether the claim is subject to the mandatory mediation requirements set out in Paragraph 12.4 of these General Terms and Conditions.

The Contractor shall have no right to additional compensation or additional time for any claim for which timely written notice of claim as required herein has not been made. If the Contracting Officer determines that the claim is subject to mandatory mediation, then completion of the mandatory mediation proceedings is a condition precedent to the Contractor's right to pursue further proceedings in front of the Contracting Officer and the Courts.

Within fourteen (14) days after receiving the Contracting Officer's acknowledgment of the notice of claim, or within fourteen (14) days after completing the requirements for mandatory mediation in those cases where the Contracting Officer has determined that the claim is subject to mandatory mediation, the Contractor shall submit in writing to the Contracting Officer the details and supporting documentation of the Contractor's claim. The Contractor may request in writing within the fourteen (14) calendar days an extension of time for good cause shown. Good cause shown shall include time for the Contractor to prepare its claim. Upon receipt of a request for an extension of time the Contracting Officer may grant an extension of time for submittal of details and supporting documentation of not more than twenty-one (21) calendar days. Failure by the Contractor to furnish the details and supporting documentation or a request for an extension of time within the initial fourteen (14) calendar day period shall constitute a waiver of the claim.

In presenting the claim and supporting documentation, the Contractor shall specifically include, to the extent then possible, the following:

- A. A narrative which includes:
  - 1. A brief summary of the claim and the facts pertinent to the claim;
  - 2. The application of the provisions of the Contract to the claim under the basis it

is made;

3. Description of the relative responsibilities of each party giving rise to the claim; and
  4. A description of the connection between the relative responsibilities of the parties resulting in damage under the claim;
- B. Supporting documentation to the narrative including schedules, graphs, charts, photographs, and any other pertinent documents or information;
- C. Quantitative analysis and presentation of requested additional compensation and/or the additional time including:
1. A summary of additional compensation and/or additional time requested; and
  2. Calculations, subcalculations, cost data and documents including proof of expenditures to support the claimed additional compensation and/or additional time.

**12.1.2** The Contractor must show that it suffered damages and/or delays; that those conditions were actually a result of the acts, events or conditions complained of; and that the Contract provides entitlement to relief to the Contractor for such acts, events, or conditions. No subcontractor claim will be considered or allowed unless the Contractor is injured, agrees the claim is valid, and has paid the subcontractor for the matters in dispute. The Contracting Officer reserves the right to make written request to the Contractor at any time for additional information, which may be reasonably available to the Contractor relative to the claim. The Contractor agrees to provide AHFC such additional information within thirty (30) calendar days of receipt of such a request. Failure to furnish such additional information may be regarded as a waiver of the claim.

Any claim submitted to the Contracting Officer **MUST** contain a certification from the Contractor stating that:

- A. The claim is made in good faith;
- B. The Contractor's supporting data is accurate and complete;
- C. The amount requested as a result of the controversy accurately reflects the amount for which the Contractor believes AHFC is liable; and
- D. The Contractor has either not been required to participate in mandatory mediation under the acknowledgment of notice of claim, or has participated in good faith in mediation in accordance with Paragraph 12.4 of these General Terms and Conditions, and that the mediation failed to resolve the claim.

**12.1.3** Following submission of all required information to the Contracting Officer, a written decision will be issued. This written decision will be issued by the Contracting Officer no more than ninety (90) days after receipt of all information deemed necessary from the Contractor, the Contract Administrator, and other sources as determined appropriate by the Contracting Officer. The Contractor will be served a copy of the Contracting Officer's written decision. Before issuing the decision, the Contracting Officer will review the facts relating to the controversy and obtain necessary assistance from legal, fiscal, and other essential advisors. The decision will include:

- A. A description of the controversy;
- B. Reference to the pertinent Contract provisions; and

- C. A statement of the reasons supporting the decision.

## **12.2 AHFC'S CLAIMS PROCEDURES**

**12.2.1** If the Contract Administrator becomes aware of any act, occurrence or omission which may form the basis of a claim by AHFC that the Contractor has failed to comply with any requirement existing under this Contract, the Contract Administrator may submit a written notice to the Contractor identifying the general nature and basis of the claim at any time before final payment is made by AHFC.

This claims procedure does not in any way limit any other remedies available to AHFC under any other provision of this Contract or the law, including but not limited to enforcement of warranties.

If AHFC's claim is not disposed of by meetings between the Contractor and the Contract Administrator within thirty (30) calendar days from written notice of claim, provided additional time is not noticed in writing by the Contract Administrator, a formal written decision on the disposition of AHFC's claim shall be issued by the Contract Administrator. The Contract Administrator's decision is final and conclusive unless, within fourteen (14) calendar days of service of the Contract Administrator's decision, the Contractor delivers a written notice of claim to the Contracting Officer.

In presenting the Contractor's claim, disputing the Contract Administrator's decision, to the Contracting Officer, the Contractor shall specifically include, to the extent then possible, the following:

- A. An narrative which includes:
1. A brief summary of the claim and the facts pertinent to the claim;
  2. The application of the provisions of the Contract to the claim under the basis it is made;
  3. Description of the relative responsibilities of each party giving rise to the claim; and
  4. A description of the connection between the relative responsibilities of the parties resulting in damage under the claim;
- B. Supporting documentation to the narrative including schedules, graphs, charts, photographs, and any other pertinent documents or information;
- C. Quantitative analysis and presentation of requested additional compensation and/or the additional time including:
1. A summary of additional compensation and/or additional time requested; and
  2. Calculations, subcalculations, cost data and documents including proof of expenditures to support the claimed additional compensation and/or additional time.

**12.2.2** The Contracting Officer reserves the right to make written request to the Contractor at any time for additional information which the Contractor may possess relative to the claim. The Contractor agrees to provide AHFC such additional information within thirty (30) days of the request. Failure to furnish such additional information may be regarded as a waiver of the claim.

Any claim submitted to the Contracting Officer MUST contain a certification from the Contractor

stating that:

- A. The claim is made in good faith;
- B. The Contractor's supporting data is accurate and complete;
- C. The amount requested as a result of the controversy accurately reflects the amount for which the Contractor believes AHFC is liable; and
- D. Contractor has either not been required to participate in mandatory mediation under the acknowledgment of notice of claim, or has participated in good faith in mediation in accordance with Paragraph 12.4 of these General Terms and Conditions, and that the mediation failed to resolve the claim.

**12.2.3** Following submission of all required information to the Contracting Officer, a written decision will be issued. This written decision will be issued by the Contracting Officer no more than ninety (90) days after AHFC's receipt of all information deemed necessary from the Contractor, Contract Administrator, and other sources as determined appropriate by the Contracting Officer. The Contractor will be served a copy of the Contracting Officer's written decision. Before issuing the decision, the Contracting Officer will review the facts relating to the controversy and obtain necessary assistance from legal, fiscal, and other essential advisors. The decision will include:

- A. A description of the controversy;
- B. Reference to the pertinent Contract provisions; and
- C. A statement of the reasons supporting the decision.

**12.3** **WORK CONTINUATION AND PAYMENT:** Unless otherwise agreed in writing, the Contractor shall carry on the work and maintain the schedule of work pending the resolution of any dispute.

**12.4** **MANDATORY MEDIATION:** In the event that the Contracting Officer issues a written decision that mandatory mediation will apply to the claim, the Contractor shall engage in mandatory mediation with AHFC under this subparagraph. The Contractor shall provide written notice to the Contract Administrator, within ten (10) days after receiving the acknowledgment of notice of claim from the Contracting Officer, that the Contractor is requesting mediation pursuant to this subparagraph of the General Terms and Conditions of the Contract. The request for mediation shall identify the name and mailing address of the individual who is authorized to negotiate on behalf of the Contractor during the mediation. Upon receipt of such a request for mediation, the Contract Administrator shall forward a copy of the request for mediation to the Director of the Public Housing Division of AHFC, who shall either represent AHFC in the mediation, or appoint one or more representatives to represent AHFC in the mediation.

The person who is to represent AHFC in the mediation shall then send a letter to the person who is representing the Contractor, and shall schedule a time for a pre-mediation meeting, which shall take place within seven (7) days from the date of the letter. At the pre-mediation meeting, the representatives of AHFC and of the Contractor shall attempt to agree upon a person who can act as mediator, and upon the procedures and timelines, which are to be used for the mediation. If no agreement is reached regarding the identity of the mediator, the Contracting Officer shall appoint a mediator for the parties.

After a mediator is agreed upon or appointed by the Contracting Officer, the mediation shall take place using such procedures and timelines as have been agreed upon by the parties. To the extent the parties have not agreed regarding procedural issues and timelines, the mediator may decide all procedural issues and timelines to be used for the mediation, after consulting with the parties. In no event shall the mediation be scheduled to begin more than thirty (30) days after the mediator accepts appointment as the mediator, unless AHFC consents in writing. The mediation shall continue until both parties agree that further efforts should be terminated, or until the mediator decides that the mediation should be terminated. Once the mediation has terminated, the representative of AHFC shall send a written notice to

the representative of the Contractor that the mediation has ended, and that the time for submitting the claim to the Contracting Officer has started to run again. All costs of the mediation shall be split evenly between AHFC and the Contractor.

## BID FORM

**Project Title:** Geneva Woods and Mt. View UST to AST Replacement

**ITB Number:** 26T05-002

**Project Site:** Juneau, Alaska

**Business Name:**

**Address:**

**Bus. Phone:**

**Bidder's Designated Representative:**

**Phone:**

**Email:**

**Alaska Business License:**

**Alaska General Contractor's License No:**

**Type:**

(Example type: Electrical, Plumbing, Heating, Pest Control, Specialty, etc)

**Bidder is a:** ☐ Individual ☐ Partnership ☐ Corporation in the State of : \_\_\_\_\_

☐ Other (specify) :

### **Proposed Subcontractors**

Subcontractor Name

Services

AK Business License No:

1.

2.

3.

*The undersigned has familiarized himself/herself with the Contract documents, which include: Invitation for Bid; Notices; Summary of Work; Bid Form, and all required attachments; and all Addenda and Modifications. The undersigned further agrees to furnish all supervision, technical personnel, labor, materials, equipment, tools and machinery, transportation, and all other facilities, items or services necessary or required, whether temporary or permanent, to comply and perform things necessary or required for the completion of the work for the amounts stated below. The undersigned further agrees that the offer may not be withdrawn for thirty (30) days after the date of the bid opening and that a Contract between the bidder and AHFC is formed upon AHFC's acceptance of this bid set forth herein. The undersigned agrees that the AHFC may accept this bid by signing below or by sending to the bidder a Notice to Proceed within thirty (30) days of the date bids are opened.*

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Fax:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_



### RECEIPT OF ADDENDA

Receipt of Addenda numbered \_\_\_\_\_ is hereby acknowledged.

#### OFFERORS TO NOTE THE FOLLOWING:

1. For price comparison only, the low bidder will be determined on the basis of the **Adjusted Total Base Bid Amount** to reflect the Alaska Bidder's Preference. Contract award will be made on the **Total Base Bid Amount**.
2. A current insurance certificate covering the insurance requirements listed in the Supplement to General Contract Conditions must be submitted before the Corporate will issue a Notice to Proceed.

ITEM NO.	ARTICLE OR SERVICE	TOTAL BASE BID AMOUNT
1	<b>BASE BID 1:</b> Removal of Underground Storage Tanks (USTs) and ancillary equipment that currently supply heating oil to residential units and replacement of: six (6) units at the Geneva Woods property located at 1617 Douglass Highway located in Juneau, Ak. as described in the Summary of Work.	\$ _____

Less 5% Alaska Bidder's Preference \$ \_\_\_\_\_

**ADJUSTED TOTAL BASE BID AMOUNT** \$ \_\_\_\_\_

#### ADDITIVE ALTERNATE 1

ITEM NO.	ARTICLE OR SERVICE	BID AMOUNT
1	<b>ADDITIVE ALTERNATE 1:</b> Removal of Underground Storage Tanks (USTs) and ancillary equipment that currently supply heating oil to residential units and replacement of one (1) unit at the Mt. View property located at 895 West 12th Avenue located in Juneau, Ak. as described in the Summary of Work.	\$ _____

The undersigned submits, as true and correct, the following information:

1. ☐ The bidder has completed, signed and had notarized the enclosed "Affidavit of Disclosure of Interest."
2. ☐ The bidder has completed, signed and had notarized the enclosed "Affidavit of Noncollusion."



3. ☐ The bidder has completed, signed and had notarized the enclosed "Bid Bond."
4. ☐ The bidder has attached a listing of projects to which bidder is currently obligated or anticipates being obligated to in the near future.
5. ☐ The bidder has attached a statement of similar work performed during the three (3) years prior to the date of this bid and has provided the names and telephone numbers of persons who may be contacted as references for those projects.
6. ☐ The bidder has paid all fees, taxes and other money due to the State of Alaska.
7. ☐ The bidder holds the required license(s) or permit(s) as required by federal, state and/or local law, regulation or ordinance and has attached a copy of each of the current licenses.

**Bidder's Seal if Bidder is a Corporation:** \_\_\_\_\_

#### CORPORATE CERTIFICATION

State of \_\_\_\_\_)  
 \_\_\_\_\_ Judicial District ) ss.  
 Municipality of \_\_\_\_\_)

THIS IS TO CERTIFY that on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me, the undersigned, a notary public in and for the State of \_\_\_\_\_, duly commissioned and sworn, personally appeared \_\_\_\_\_, and on oath stated to me that s/he was the \_\_\_\_\_ of the corporation that executed the within foregoing bid, and acknowledged the said bid to be a free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated that s/he was authorized to execute said bid, and that the seal affixed is the corporate seal of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and official seal the day and year in this certificate first above written.

\_\_\_\_\_  
 Notary Public in and for the  
 State of \_\_\_\_\_  
 My Commission Expires:\_\_\_\_\_

**ACCEPTANCE BY AHFC**

On this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, AHFC hereby accepts the Total Base Bid Amount set forth on this Bid Form and as outlined in the Invitation to Bid and Contract documents.

ADDITIVE ALTERNATE 1 – Amount \$\_\_\_\_\_

ALASKA HOUSING FINANCE CORPORATION

Gregory Rochon  
Chief Procurement Officer

**AFFIDAVIT OF DISCLOSURE OF INTEREST**

STATE OF \_\_\_\_\_)  
\_\_\_\_\_JUDICIAL DISTRICT OR ) ss.  
MUNICIPALITY OF \_\_\_\_\_)

The undersigned, being first duly sworn, deposes and says:

1. My name is \_\_\_\_\_.
2. I am submitting this bid on behalf of \_\_\_\_\_.  
(Name of business entity)
3. I am the \_\_\_\_\_.  
(a partner or officer of the firm, etc.)  
of the above named party and I am authorized and empowered to sign this statement on behalf of said entity.
4. The above named party is a bidder on the \_\_\_\_\_.
5. To the best of my knowledge and in good faith, it is my belief that the following employees or board members of AHFC have a financial, business or familial interest, direct or indirect, in or with the bidder or me: (if None, so state)  
Name: \_\_\_\_\_  
AHFC Position: \_\_\_\_\_  
Explanation of Nature of Interest: (Circle if applicable: financial, business or familial) in that:
6. I am ( ) am not ( ) an employee of AHFC; if I have previously served AHFC as an employee, my service terminated more than twenty-four (24) months ago.

Further affiant sayeth naught.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, at \_\_\_\_\_.

\_\_\_\_\_  
Name of Bidder

\_\_\_\_\_  
Name of Affiant

\_\_\_\_\_  
Signature of Affiant

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public in and for the

State of \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

\* \* \* \* \*

Agency Action

Comments:

**AFFIDAVIT OF NONCOLLUSION**

STATE OF \_\_\_\_\_)  
\_\_\_\_\_, JUDICIAL DISTRICT OR) ss.  
MUNICIPALITY OF \_\_\_\_\_)

\_\_\_\_\_, being first duly sworn, deposes and says:

That he/she is \_\_\_\_\_  
(a partner or officer of the firm of, etc.)

that party making the foregoing proposal or bid, that such proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, or to fix any overhead profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against AHFC or any person interested in the proposed contract; and that all statements in said proposal or bid are true.

\_\_\_\_\_  
Signature of:  
Bidder, if the bidder is an  
individual:

\_\_\_\_\_  
Partner, if the bidder is a  
partnership:

\_\_\_\_\_  
Officer, if the bidder is a  
corporation:

SUBSCRIBED AND SWORN to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public in and for the  
State of \_\_\_\_\_  
My Commission Expires:\_\_\_\_\_

## BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS we, the undersigned \_\_\_\_\_ as Principal, and \_\_\_\_\_ as the Surety, are hereby held and firmly bound unto the Alaska Housing Finance Corporation as Owner in the penal sum of \$\_\_\_\_\_ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has submitted to the Alaska Housing Finance Corporation a certain bid, attached hereto and hereby made a part hereof, to enter into a contract in writing for the \_\_\_\_\_ project, \_\_\_\_\_, in \_\_\_\_\_ Alaska, as required by the Contract documents.

NOW, THEREFORE,

- (a) If said bid shall be rejected, or in the alternative,
- (b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of Contract attached hereto (properly completed in accordance with said bid) and shall furnish a bond for his faithful performance of said Contract, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be voided, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the surety for any claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporation seals to be hereto, affixed and these present to be signed by their proper offices, the day and year first set forth below.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_. Address of Surety: \_\_\_\_\_

\_\_\_\_\_(SEAL)

By: \_\_\_\_\_  
Title

Local Agent: \_\_\_\_\_

Address of Local Agent: \_\_\_\_\_

\_\_\_\_\_(SEAL)

By: \_\_\_\_\_

Phone No of Local Agent: \_\_\_\_\_

NOTE: Bidder must attach Power of Attorney with Bid Bond.

## LABOR AND MATERIALS PAYMENT BOND

### **KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_  
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called Contractor, and \_\_\_\_\_  
(Insert legal title of Surety)

as Surety, hereinafter called Surety, are held and firmly bound unto the Alaska Housing Finance Corporation (AHFC), as Obligee, for the use and benefit of claimants as herein below defined in the amount of \_\_\_\_\_ Dollars (\$\_\_\_\_\_), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement, dated \_\_\_\_\_, 20\_\_\_\_ entered into a contract with AHFC which contract is by reference made a part hereof, and is hereafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use, in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Contractor, or with a subcontractor of the Contractor for labor, materials, or both, used or reasonably required for use in the performance of the Contract, labor and materials being construed to include that part of water, power, gas, light, heat, oil, gasoline, telephone service, or rental of equipment directly applicable to the Contract.
2. The above named Contractor and Surety hereby jointly and severally agree that every claimant as herein defined, who has not been paid in full before the expiration of this period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimants, may sue on this bond for the use of such claimant in the name of AHFC, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon, provided, however, AHFC shall not be liable for the payment of any costs or expenses of any such suit.
3. No suit or action shall be commenced hereunder by any claimant

- (a) Unless claimant, other than one having a direct contract with the Contractor, shall have given written notice to the Contractor within ninety (90) days after such claimant performed the last of the work or labor, or furnished the last of the materials for which such claim is made, stating with substantial accuracy the amount claimed, and the name of the party for whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Contractor at any place where the Contractor maintains an office or conducts business, or the Contractor's residence, or in any manner in which the aforesaid project is located, save that such notice need not be made by a public officer.
  - (b) After the expiration of one (1) year following the date on which the Contractor ceased work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by or contrary to Alaska Statute 36.25.020 or any other law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation consistent with and permitted by such law.
- 4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
(SEAL)  
Principal

Witness

\_\_\_\_\_  
Signature Title

\_\_\_\_\_  
(SEAL)  
Principal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Signature Title

\_\_\_\_\_  
(SEAL)  
Principal

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Signature Title

\_\_\_\_\_  
Address of Surety

\_\_\_\_\_  
Local Agent

\_\_\_\_\_  
Address and Phone Number of Local Agent



**CERTIFICATION AS TO CORPORATION PRINCIPAL**

I, \_\_\_\_\_, certify that I am the  
\_\_\_\_\_ of the corporation  
named as Principal in the within bond; that \_\_\_\_\_  
who signed the said bond on behalf of the Principal, was then the \_\_\_\_\_ of  
said the corporation; that I know his/her signature, and his/her signature thereto is genuine;  
that said bond was duly signed, sealed and attested for and on behalf of said corporation by  
authority of its Board of Directors.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(Title)

(CORPORATE SEAL)

The rate of premium on this bond is  
Dollars (\$\_\_\_\_\_) per thousand.

Total amount of premium charged  
Dollars (\$\_\_\_\_\_) per thousand.