

**BOILER REPLACEMENT
U.S. ARMY CORPS OF ENGINEERS
EDWARD MACDOWELL LAKE
PROJECT OFFICE
PETERBOROUGH, NH
Scope of Work
August 2018**

I. General

1. Scope of work

Furnish all equipment, materials and labor to remove existing oil fired boiler, oil tank and hot water tank with a high efficiency propane fired combination water and space heating system.

2. Location

The Edward MacDowell Lake is located at 75 Wilder Street, Peterborough, NH.

3. Site Visit

Contact the Technical Point of Contact to arrange a site visit. The Technical Point of Contact for the project is Matthew Cummings 603-924-3431 ext 443 or Matthew.P.Cummings@usace.army.mil.

4. Schedule

The period of performance shall be 45 days. The project area will be open to the contractor Monday through Friday 8:00 AM to 4:00 PM and all work must be done during those hours unless additional hours are approved by the Technical Point of Contact. No work shall be done on weekends or government holidays.

a. Safety

The contractor will comply with all pertinent provisions of the latest edition of the *U.S. Army Corps of Engineers Safety and Health Requirements* COE EM 385-1-1. A copy of COE EM 385-1-1 is available for reference at the project office or the manual may be viewed at the following link:

http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_385-1-1.pdf

- b. The Contractor shall prepare an Abbreviated Accident Prevention Plan (AAPP) specific to the activities being performed. It shall include an Activity Hazard Analysis (AHA) as described in "c" below. All work shall be conducted in accordance with the AAPP, the U.S. Army Corps of Engineers Safety and Health requirements Manual (EM 385-1-1, most recent edition), and all applicable federal, state, and local safety and health requirements.

Work shall not proceed until the APP has been reviewed by the Government Designated Authority (GDA) and deemed acceptable for use on the project.

- c. An AHA shall be submitted for each major phase of work. A major phase of work is defined as an operation involving a type of work presenting hazards not experienced in previous operations or where a new subcontractor or work crew is to perform the work. The analysis shall define all activities to be performed, identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable

level. Work shall not proceed on a phase of work until the AHA has been accepted by the GDA.

- d. The Contractor shall conduct a safety meeting at the project site on the first day of work, whenever a new activity or phase of work begins, or at least weekly during the progress of work. All safety meetings shall be documented. A safety meeting form may be obtained from the Technical Point of Contact, or a similar contractor-prepared form shall be used. Records of the safety briefings shall be submitted to the GDA weekly.
- e. All accidents and near misses shall be investigated by the Contractor. All work-related recordable injuries, illnesses and property damage accidents (excluding on-the-road vehicle accidents), in which the property damage exceeds \$5,000.00, shall be verbally reported to the GDA within 4 hours of the incident. Serious accidents as described in EM 385-1-1 Section 01.D shall be immediately reported to the GDA. ENG Form 3394 shall be completed and submitted to the GDA within five working days of the incident. A copy of ENG Form 3394 may be obtained from the Technical Point of Contact or the form may be viewed at the following link:
<http://www.poa.usace.army.mil/Portals/34/docs/safety/ENGForm3394AccidentInvestigationForm.pdf>
- f. The Contractor shall complete a “Contractor Monthly Summary Record of Injuries/Illness and Work Hour Exposure” (for prime and its subcontractors) and forward the completed form to the GDA no later than close of business on the 5th calendar day of the following month. A template may be obtained from the Technical Point of Contact.
- g. The contractor shall also comply with all OSHA work safety standards. The project staff can and will order the cessation of work at any time should the safety of employees and visitors become jeopardized.

5. Preconstruction Conference

Prior to the start of any work, the Technical Point of Contact will schedule and conduct a “Preconstruction Conference”. The Contractor’s Project Manager and Quality Control Personnel will attend this meeting. This conference will be held at the time and location agreeable to the government and contractor. No work may be performed under this contract prior to this conference. The purpose of the conference is to enable the Technical Point of Contact to outline the procedures that will be followed by the Government in its administration of the contract, and to discuss the performance that will be expected from the Contractor. This conference will allow the Contractor an opportunity to ask questions about the Government’s administration and inspection of contract work or obtain other pertinent information that might be required. At the Preconstruction conference the contractor shall provide to the name of the project superintendent with a telephone number for project coordination.

The following is a general list of items for discussion during this Preconstruction Conference:

- i. Authority of the Technical Point of Contact and Quality Assurance Inspectors
- ii. Contractor’s Safety Program (including sub-contractors)
- iii. Activity Hazard Analysis (Submitted & accepted prior to start of work on site)

- iv. Weekly Safety Meetings (Documented on NED Form 251)
- v. Accident Reporting (ENG Form 3394)
- vi. Safety Data Sheet (SDS) requirements
- vii. Correspondence, Communication and Administrative Procedures
- viii. Invoice and payment

6. Permits

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses, permits, and letters of certification. The Contractor shall comply with any applicable Federal, State, County, and Municipal laws, codes, and regulations in connection with the performance of the work specified under this contract.

7. Security

The contractor will comply with all established security policies at Hopkinton Lake and Merrimack River Basin Office. Due to periods of heightened security that may affect the access to the areas covered under this contract, areas may be subject to periodic closures, which in turn may reduce or inhibit the Contractor's ability to access certain areas. During periods of heightened security, the Government reserves the right, at any time, to close any property or portion of property and reschedule and/or cancel any subsequent service in an area. The Contractor shall be given at least 24 hour notice of any such closure.

8. Contractor Conduct

Alcohol and firearms are prohibited on project grounds. Contractor must comply with CFR 36 Rules and Regulations.

9. Payment

Payment shall be made on a per job basis. After final inspection and acceptance by the Government, the Contractor must submit an invoice to the Technical Point of Contact. The invoice shall include the invoice date, contract number, dates of service, description of work, quantities, process, and total amount due per line item. For jobs greater than 30 days the contractor may request progress payment.

All invoices may be mailed to:

Edward MacDowell Lake
75 Wilder Street
Peterborough, NH 03458

Or Emailed to Matthew.P.Cummings@usace.army.mil

II. Technical Requirements:

Part 1 General:

Existing Conditions:

Edward MacDowell Lake Project Office:

The existing oil fired boiler is located in the Project Office basement, which can be accessed internally through a short hallway and door leading down a stairwell (the stairwell is 32” wide). The boiler is a Weil McLain Gold Series (See Informational Photos) with an IBR Rating of 152,000 BTUs.

The Project Office has two (2) circulator pumps and four (4) thermostatic programmable controls; one main floor with three (3) primary rooms and two (2) public restrooms heated by baseboard radiators, and one (1) garage area heated by a modine-style ceiling mounted heating elements;

1. Main Office Area
2. Interpretive/Conference Room
3. Restroom (Internal)
4. Public Restrooms (External)
5. One-Bay Garage
6. Partial Basement (unconditioned)

Requests for Information:

Requests concerning the work of this project should be directed to the Technical Point of Contact at the Edward MacDowell Lake Office at 603-924-3431 ext 443 or Matthew.P.Cummings@usace.army.mil.

Submittals:

Although the Government technically reviews submissions required by this scope of work, it is emphasized that the Contractor’s work must be prosecuted using proper internal controls and review procedures. The documents identified below must be prepared in accordance with the applicable standards, submitted to the Technical Point of Contact for review and accepted by the government prior to the commencement of any field activities.

- Abbreviated Accident Prevention Plan (APP) & Activity Hazard Analysis (AHA) (Prior to start of field work)
- New Hampshire Plumbing License (prior to start work)
- New Hampshire Oil Heating Technician Certificate (Prior to start of work)
- Specification sheets (Prior to ordering equipment)
 - Boiler
 - Indirect Water Tank*
 - Heat-zone Piping
 - Essential Parts and Accessories
- Energy Star “Most Efficient” Label
- 12 Year Manufacturer Warranty (Boiler)
- 7 Year Manufacture Warranty (Indirect Water Tank)*
- 2 Year Parts Warranty of System

***NOTE:** In-Direct Water Tank may not be required if boiler is equipped to provide domestic hot water.

Clean Up:

The Contractor shall practice good housekeeping to maintain a safe job site. The contractor shall keep the work area, including any storage areas, free from the accumulation of waste materials. Upon completing work in an area the contractor shall remove any tools, equipment, and materials that are not the property of the government. Upon completion of work, the Contractor shall clean up the job site to the satisfaction of the Government.

Government Resources:

The contractor is responsible for providing all materials to complete the project. Unless specified in the contract, the Government will not provide any equipment, telephone services or other resources.

1. Services Provided by the Government:

- a. A level concrete pad approximately 4'x8' for placement of a 500 gallon above ground propane storage tank
- b. A trench, more or less straight without turns, from the center of the pad to the point of entry into the Project Office Building 18" deep by no less than 12" wide.
- c. Adequate volume of fine sand onsite for placement within the trench.

Omissions:

This contract may not cover all specified activities, steps, and procedures required to supply the contract product. In case of omission, the normal industry, state, or federal standards, practices, specifications, and/or guides shall prevail. In no instance shall an omission be reason to produce less than an acceptable product.

Quality Assurance:

The contractor is responsible for the quality control of the contract work. The government has the right to inspect and test all items called for by the contract at all times and at all places during the term of the contract.

Receiving and Storing Materials:

The contractor is responsible for protecting any stored material until it is placed in service. The contractor is responsible for receiving and unloading of delivered goods. Government employees will not receive material or supplies for the contractor and will not be responsible for damage to contractor equipment or material.

Part 2 Products:

1) Propane fired boiler shall meet the following minimum requirements:

- a) One hundred thirty (130) net IBR output Heating Capacity (MBH) propane fired boiler or greater.
- b) The boiler shall have a ninety five percent (95%) AFUE efficiency rating or better.
- c) Turndown Ration 5:1 or better.
- d) Cast iron or stainless steel boiler construction.
- e) Must be compatible with Polypropylene (anti-freeze).

- f) Offer Domestic Hot Water of no less than a twenty four (24) gallon reservoir OR offer an in-direct combo water tank designed to work with this unit (See Product #2), and
- g) Provide contiguous 3.2 gallons per minute (gpm) or greater;
 - i) Based on AHRI Standards and a 90 degree rise in temperature.
- h) Energy Star “Most Efficient” Compliant (The contractor is encouraged to visit <http://www.energystar.gov> for complete product specifications and updated lists of qualifying products.)
- i) 12 Year Manufacturer Warranty

Note: The Utica Boiler, Model UBSSC-200* and Rinnai QP-130 both meet the above requirements.

2) In-Direct Hot Water Tank:*

- a) Twenty four (24) gallons minimum, but not to exceed thirty (30) gallon storage tank.
- b) Indirect Tank design to be compatible with water and space heating systems.
- c) Provide contiguous 3.2 gallons per minute (gpm) or greater;
 - i) Based on AHRI Standards and a 90 degree rise in temperature.
- d) 7 Year Manufacturer Warranty

NOTE: In-Direct Water Tank may not be required if boiler is equipped to provide sufficient domestic hot water.

- 3) All other additional parts required for a sound and fully installed water and space heater combination heating system to meet manufacture’s recommendations such as;
 - a) Fuel Supply Filter, Circulator Pumps, Control Relays, Heat-Zone Piping, and a Particulate in-line Filter designed to trap any debris in the existing hydronic baseboard radiators and water lines.

Part 3 Execution:

Demolition:

1. The Contractor shall de-energize the electrical system and follow the applicable lock out tag out requirements.
2. The Contractor shall disconnect the fuel line and filter from the boiler.
 - a. The fuel line shall be purged and cleaned.
 - b. All purged fuel, filter and material shall be re-used or disposed of off-site in accordance with all applicable laws and regulations.
3. The Contractor shall disconnect the existing circulator pumps, control relays, expansion tank, boiler, oil tank, and hot water tank.
4. The Contractor shall remove the existing circulator pumps, control relays, expansion tank, hot water tank, burner, boiler, oil tank, flue and venting and discontinued pipping from the site and shall dispose of or salvage all material in accordance with all applicable laws and regulations.
5. The Contractor shall properly seal to industry best practices any gaps, holes or voids created by the removal of any materials during the demolition to include but not limited to; Chimney, foundation, walls and floors.

It should be noted: Any existing pipe and fittings disconnected as part of the demolition or installation associated with the hot-water tank removal and establishment of the new water and space heating system is to be removed as part of this installation.

Installation:

All work will be performed by a New Hampshire Licensed Plumber or a New Hampshire Certified Oil Heating Technician.

1. Contractor shall install the new boiler in accordance with the New Hampshire Building Code and the manufactures recommendations, including:
 - a. Place and Install new 500g propane tank on established pad set approximately 50 feet from the Project Office.
 - b. Provide all pipping and connections to properly establish exterior tank connections into the building and secure trench with provided backfill material.
 - c. Wall Mount boiler (see Informational Image for potential locations).
 - d. Install all supply lines, electrical, ventilation and plumbing, to include but not limited to manifolds, particle filters, pressure relief valves, controls, fittings, and any heat-zone piping in accordance with the manufacturer recommendations.
 - e. Maintain and tie into the establish zoning design with independent thermostatic programmable controls;
 - f. Connect new boiler and heat-zone piping in a neat and orderly fashion.
Note: The installation shall allow the new boiler to function properly and be easily serviced. The new piping shall not interfere with the swing of service doors or access.
2. Contractor shall patch any floor holes to industry best practices and patch any holes utilized by new piping.
3. Contractor shall reestablish the plumbing necessary, including shut-offs, to provide water to the fixtures once the hot water tank is removed and the new system installed.
4. At the completion of the installation the Contract will conduct a system performance test for a minimum of two heating cycles. The Technical Point of Contact will confirm that the each element of the system is working properly, including the boiler, circulator pumps, relays, piping, baseboard radiators and the domestic hot water at each location.

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Informational Photos



Informational Photo Number 1: Existing Oil Fired Boiler Manufacture's Plate

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Informational Photos



Informational Photo Number 2: Existing Oil Fired Boiler, Hot Water Tank and Oil Tank layout

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Informational Photo Number 3: Existing Oil Fired Boiler, hot water tank and heat zone piping (2 circulator pumps).

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Informational Photos



Information Photo Number 4: Existing oil tank and basement window used for fill-up access.

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Informational Photos



Informational Photo Number 5: 32" Doorway, Basement Stairwell Access

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Informational Photos



Informational Photo Number 6: Existing oil fill-up (basement window access) with nearby communication wiring.

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Informational Photos



Informational Photo Number 7: Proposed location of Pad and trench to Project Office basement window access.

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Bid Schedule

| ITEM | UNIT | QTY | UNIT PRICE | TOTAL |
|---|------|-----|---------------|-------|
| <hr/> | | | | |
| 1. Project Office Oil Boiler Replacement (& Hot Water Tank Removal) to a new Propane Water and Space Heating System | Job | 1 | | |
| <hr/> | | | | |
| | | | TOTAL | <hr/> |