



Specifications for:

**Underground Fuel Pipe Modifications
and
Construct Concrete Valve Pit**

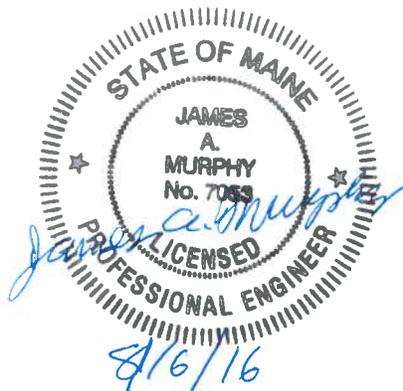
at

BANGOR INTERNATIONAL AIRPORT

August 2016

prepared by:

Jacobs Engineering Group, Inc.
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TABLE OF CONTENTS

INVITATION FOR BIDS

BID PROPOSAL

Bid Proposal	BP-1
Statement of Bidders Qualifications	BP-2
Signature of Bidder	BP-6

CONTRACT DOCUMENTS

Contract	
Article 1 – Statement of Work	C-1
Article 2 – Examination of Site	C-1
Article 3 – Ground Repair	C-1
Article 4 – Permits, Licenses and Compliance with Law	C-1
Article 5 – Definitions	C-2
Article 6 – Responsibilities of Contractor	C-2
Article 7 – Contract Amount	C-2
Article 8 – Labor, Materials, Equipment, Etc.	C-2
Article 9 – Taxes	C-2
Article 10 – Bonds	C-2
Article 11 – Insurance	C-3
Article 12 – Title and Risk of Loss	C-3
Article 13 – Indemnification	C-3
Article 14 – Defective Work	C-3
Article 15 – Cleaning	C-3
Article 16 – Independent Contractor	C-3
Article 17 – Subcontractors	C-4
Article 18 – Materials and Workmanship	C-4
Article 19 – Payments to Contractor	C-4
Article 20 – Warranties and Guaranties	C-4
Article 21 – Laws, Ordinances and Work Rules	C-5
Article 22 – Changes	C-5
Article 23 – Termination of Contract	C-5
Article 24 – Equal Employment Opportunity	C-5
Article 25 – Assignment of Contract	C-5
Article 26 – Governing Laws/Disputes	C-6
Article 27 – Liens	C-6
Article 28 – Protection of Property and Persons	C-6
Article 29 – Assignment and Subcontracts	C-7
Article 30 – Other Work	C-7
Article 31 – Safety Regulations and Security Requirements	C-7
Article 32 – Supplemental Contract Items	C-8
Article 33 – Conflicting Terms, Conditions, or Specifications	C-8
Article 34 – Notices	C-8
Article 35 – Entire Agreement	C-9
Contract Signatures	C-9

SUPPLEMENTAL ARTICLES

1.0	Project Description	SA-1
2.0	Project Duration	SA-1
3.0	Freedom of Access Act (FOAA)	SA-1
4.0	Compliance with Laws	SA-1
5.0	Tax Exemption	SA-1
6.0	Special Inspection Requirements	SA-1

7.0	Confined Space Entry Procedures	SA-2
8.0	Standard Specification References	SA-2
9.0	Insurance	SA-2
10.0	Special Hazards	SA-4
11.0	Construction Schedules	SA-4
12.0	Submittals, Shop Drawings, and Certifications	SA-4
13.0	Consent Decree	SA-4
14.0	Conflicting Terms, Conditions, or Specifications	SA-5

TECHNICAL SPECIFICATIONS

G-001	Special Work Requirements
G-002	Underground Fuel Pipe Modifications
G-003	Concrete Valve Pit

ADDENDA - RESERVED

INVITATION FOR BIDS

The City of Bangor, Maine invites sealed bid proposals for furnishing all labor and materials and performing all work in connection with a construction contract at the Bangor International Airport, Bangor, Maine as follows:

Underground Fuel Pipe Modifications and Construct Concrete Valve Pit

General information is available on the City's website at the following web address: www.bangormaine.gov/proposals. By submitting a response to this solicitation, the bidder accepts the responsibility for downloading, reading and bidding by the terms and conditions set forth in the City's "General Information for Vendors". Documents for bidding may be downloaded from the website after **10:00 a.m.** on **August 18, 2016**.

Sealed bid proposals **clearly** marked "**Underground Fuel Pipe Modifications and Construct Concrete Valve Pit**" will be received until **2:00 p.m.**, prevailing time, **September 8, 2016**, at the office of the PURCHASING DEPARTMENT, City Hall, 73 Harlow Street, Bangor, Maine 04401.

Proposals may also be submitted via email by sending to: bids@bangormaine.gov. If emailing, please reference "**Underground Fuel Pipe Modifications and Construct Concrete Valve Pit**" in the subject line. Proposals will be publicly opened on the date and time stated above.

A tabulation of all proposals received will be available as soon as practicable after the date of opening. Bid results may be viewed by visiting the City's website at www.bangormaine.gov/bidtabs.

All questions must be directed in writing to bids@bangormaine.gov no later than **4:30 p.m., August 31, 2016**. The City will issue a response to any questions or inquiries submitted in writing on or before **4:30 p.m. September 5, 2016**. The response will be in the form of an addendum, which will be available on the City's website. It is the bidder's responsibility to check the City's website for issuance of any addenda.

Prospective Bidders and Contractors may coordinate access to the project site by contacting the Bangor International Airport Fuel Department at 207-992-4643.

It is expected that the Contractor will order all necessary equipment and materials associated with the project as soon as the contract has been executed to avoid delays in executing the work.

Submissions may be modified or withdrawn in person or by written notice received at any time prior to the closing date and time specified. Bids may be withdrawn in person only by authorized representative of the bidder.

The following criteria will be used to select the proposal deemed to provide the best value for the City of Bangor:

- a. The quality of work performed by the Contractor(s) on past projects;
- b. The City's experience on previous projects with the Bidder;
- c. The Contractor's familiarity with aviation fueling systems;

- d. References and experience of others with the Bidder;
- e. The overall project cost.

Deborah Cyr
Finance Director
City of Bangor, Maine

BID PROPOSAL

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**Purchasing Department
 73 Harlow Street
 Bangor, Maine 04401
 207-992-4282**

**BID PROPOSAL
 UNDERGROUND FUEL PIPE MODIFICATIONS
 AND CONSTRUCT CONCRETE VALVE PIT**

Note: This form must be returned with proposal. Failure to comply may result in disqualification.

Item	Description	Price
G-001	Special Work Requirements	
G-002	Underground Fuel Pipe Modifications	
G-003	Concrete Valve Pit	
	Total Bid:	
Price must include all miscellaneous charges: fuel, transportation etc. No other charges will be accepted.		

Business Name:			
Contact Name & Title:			
Complete Address:			
Email Address:			
Telephone Number:		Date:	

STATEMENT OF BIDDER'S QUALIFICATIONS

The undersigned submits answers to the following questions to enable the Owner to judge the bidder's experience, ability and facilities for completing the proposed work:

- 1. The work, if awarded to you, will have the resident personal supervision of whom?
State his or their special qualifications.

- 2. Describe equipment you propose to use. State whether you own or rent it.

- 3. How many years has your organization been in business as a general contractor under the name in which you propose to execute this contract?

4. What projects has your present organization completed of character similar to that proposed? Give the information indicated by the following tabulation:

Name and Address of Owner for Whom Work Was Done	Work Done as Contractor or Subcontractor	Description of Work	Approx. Amount of Contract	Approx. Date Work Was Done

5. Has your present organization ever been involved in litigation on any work awarded to it? If so, state when, where and why.

6. Give below the name of one or more banks which have information that would enable them to advise regarding the financial ability of your company.

Name of Bank	Address

7. The name of all persons and parties interested in this proposal as principals are as follows:

**NOTE: In case of a corporation, give names of officers and directors;
In case of partnership, give names of all partners.**

8. The undersigned also agrees that all work to be performed by the subcontractors and the sums to be paid the subcontractors for the same, by the Contractor, are as follows:

Description of Subcontract Work	Name and Address of Subcontractor	Unit Prices Amounts

9. Have you on any of your projects failed to complete the work within the original contract completion time (during the past five-year period)? If so, indicate why for each project. The Owner reserves the right to recommend the disqualification of the bidder based upon the investigation of the information furnished.

Description of Contract Work	Name and Address of Sponsor	Extra Time Used to Complete Contract and Reasons for Same

10. Is your firm currently prequalified as a contractor with the State of Maine Department of Transportation?

YES

NO

SIGNATURE OF BIDDER:

*Signed _____ (Seal)

By: _____

Title: _____

Date: _____

This proposal includes Addendum Number(s) _____
(Fill in number(s) if Addendum(s) are issued).

Address of permanent place of business to which the Contract and/or Notice-to-Proceed should be sent:

*Important: Execute acknowledgment of officer or agent who signs this document (use proper form below):

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION:

State of _____)

County of _____) §

On this _____ day of _____, 20____, before me personally came and appeared _____ to me known, who, being by me duly sworn, did depose and say to me that he resides at _____, that he/she is the _____ of _____ the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the impressions affixed to said instrument is an impression of such seal; that it was so affixed by the order of the directors of said corporation, and that he signed his name thereto by like order.

(Seal) _____
Notary Public

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP:

State of _____)

County of _____) §

On this _____ day of _____ 20____, before me personally came and appeared _____ to me known and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

Notary Public

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL:

State of _____)

County of _____) §

On this _____ day of _____ 20____, before me personally came and appeared _____ to me known and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

Notary Public

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CONTRACT

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**Contract Agreement
between
The City of Bangor
and
CONTRACTOR**

This CONTRACT made this ___ day of _____ 2016, between the City of Bangor (hereinafter referred to as the "OWNER") and CONTRACTOR NAME, Inc, (hereinafter referred to as the "CONTRACTOR").

The parties noted above agree as follows:

Article 1: Statement of Work:

In consideration of the promises herein contained, the CONTRACTOR agrees to perform the following work:

Underground Fuel Pipe Modifications and Construct Concrete Valve Pit

Cutting and capping of existing active and abandoned fuel lines, removal of hazardous materials, installation of a gate valve, installation of a low point drain, and installation of a concrete valve pit in accordance with all applicable laws, codes, regulations and industry standards.

Article 2: Examination of Site:

The CONTRACTOR agrees that the CONTRACT price specified herein is based on the CONTRACTOR's examination of the site and that he/she will make no claim for additional compensation if the conditions encountered differ from those anticipated by such examination.

Article 3: Ground Repair:

The CONTRACTOR shall level, reseed, and place in good condition any grounds or pavements that are damaged by said CONTRACTOR or payment due the CONTRACTOR will be withheld.

Article 4: Permits, Licenses and Compliance with Law:

In connection with the work to be performed, the CONTRACTOR at his/her own expense, shall procure all necessary permits and licenses and agrees to comply with all laws, ordinances, codes and regulations applicable to the performance of work hereunder.

Article 5: Definitions:

- (a) The term "OWNER" shall mean the City of Bangor.
- (b) The term "CONTRACTOR" shall mean the person or firm entering into this CONTRACT to perform work or services for the OWNER.
- (c) The term "DAYS" shall mean calendar days.
- (d) The term "WORK" shall include all obligations, duties, requirements and responsibilities required for the successful completion of this CONTRACT by the CONTRACTOR including furnishing of all supervision, labor, materials, equipment, testing, and other supplies, in accordance with the terms and conditions set forth herein.

Article 6: Responsibilities of Contractor:

- (a) Obtain all necessary licenses and permits at his/her own expense.
- (b) Provide competent superintendence.
- (c) Take all precautions necessary to protect persons or property against injury or damage and be responsible for any such injury or damage as a result of his/her fault or negligence
- (a) Perform the work diligently and without unnecessarily interfering with other contractor's work or other activities of the OWNER.

Article 7: Contract Amount:

For full and complete performance, OWNER agrees to pay CONTRACTOR the sum of CONTRACT AMOUNT, payable after completion of the work in accordance with the terms hereof and to the satisfaction of the OWNER.

Article 8: Labor, Materials, Equipment, Etc.:

The CONTRACTOR agrees to furnish all labor, materials, supervision, tools, equipment and all other items of expense, except as otherwise specified herein, required to complete this CONTRACT.

Article 9: Taxes:

Unless otherwise specifically provided elsewhere, the CONTRACTOR shall not pay any sales and use taxes on labor, equipment, materials and personal property used or purchased for use in connection with the work.

Article 10: Bonds:

In the event this CONTRACT **exceeds \$50,000.00**, performance and payment bonds will be required by the CITY in the amount of 100% of the cost of the project prior to

the start of work and the issuance of a purchase order.

Article 11: Insurance:

Refer to section 9.0 – “Insurance” of the Supplemental Articles

Article 12: Title and Risk of Loss:

Title to all completed or partially completed work on the OWNER's property and to all materials to be incorporated in the work, stored at the OWNER's property shall be in the name of the OWNER.

Article 13: Indemnification:

Refer to section 9.0 – “Insurance” of the Supplemental Articles

Article 14: Defective Work:

No payment, in whole or in part, shall be deemed a waiver of any defect in materials or workmanship, and the OWNER reserves the right to withhold payment pending inspection of the work performed by the CONTRACTOR.

In spite of payment by the OWNER, the sums due hereunder or failure of the OWNER to discover or reject defective material and workmanship, the CONTRACTOR shall re-execute any work that fails to conform to the requirements of this CONTRACT and appears during the progress of the work, and shall remedy any defects due to faulty materials or workmanship which appear within a period of one (1) year from the date of completion of this CONTRACT. The provisions of this Article apply to work done by subcontractors as well as work done by direct employees of the CONTRACTOR.

Article 15: Cleaning:

The CONTRACTOR shall, at his/her own expense, at all times keep the premises free from accumulation of debris, waste material and rubbish, and at the completion of the work, he/she shall remove all tools, equipment, surplus materials, debris, waste material and rubbish and shall leave the premises in a neat and clean condition.

If the CONTRACTOR does not attend to such cleaning, the OWNER shall have the right to have this work done by others and deduct the cost from the payment due the CONTRACTOR hereunder.

Article 16: Independent Contractor:

The CONTRACTOR shall at all times be an Independent Contractor in performing the work under this CONTRACT including any addition thereon and shall furnish all supervision and direction required to complete the work.

Article 17: Subcontractors:

The submission of the name of a subcontractor in the bid shall be deemed to constitute an acceptance by the CONTRACTOR, if awarded the CONTRACT, of the bid of such subcontractor. Any alteration therein, after the award of the CONTRACT, shall be subject to the approval of the OWNER.

Article 18: Materials and Workmanship:

Unless accepted or directed by the OWNER, all materials incorporated in the work shall be new. The work shall be performed in a skillful and professional manner. Both materials and workmanship shall be subject to inspection by the OWNER, who shall require the CONTRACTOR to correct defective workmanship or materials without cost to the OWNER subject to limitations of the warranties and guaranties set forth in Article 20 below. Failure to inspect, or complete work not in accordance with the specifications, shall not relieve the CONTRACTOR from correcting all such work at his/her own expense.

Article 19: Payments to Contractor:

Upon completion and acceptance of all work by the OWNER, the amount due the CONTRACTOR under this CONTRACT shall be paid upon the receipt of a properly supported invoice. Upon receipt of the invoice, the CITY shall make payment to the CONTRACTOR in accordance with its normal invoice payment cycle (every two (2) weeks).

Prior to receiving final payment, the CONTRACTOR shall certify and furnish lien waivers as satisfactory proof that all material and labor costs incurred herein have been fully paid and discharged.

Article 20: Warranties and Guaranties:

- (a) Manufacturer's warranties on equipment purchased and installed by the CONTRACTOR will be assigned by the CONTRACTOR to the OWNER for its benefit prior to final payment.
- (b) In addition to any specific guaranties which may be required by the Technical Specifications, the CONTRACTOR guarantees all the work to be performed and all the materials to be furnished under this CONTRACT against defects for a period of two (2) years from the later of the date of acceptance, or the date of completion and use by the OWNER.

The CONTRACTOR shall, as promptly as practicable after written notice, thereof, repair/replace any defects in materials or workmanship which occur within said guarantee period, and any damage to other work caused by such defects or damage, at his/her own expense and without any cost to the OWNER whatsoever. Repaired or replaced work shall carry the same warranties and guaranties as the

original work.

Article 21: Laws, Ordinances and Work Rules:

The CONTRACTOR shall comply with all applicable laws and regulations and shall fully indemnify, save harmless and protect the OWNER, the OWNER's successors, assigns, agents, customers, affiliates, and agents and employees of all of them against any loss, claim liability damage, and expense arising from the CONTRACTOR's actual or alleged noncompliance with such laws and regulations.

Article 22: Changes:

The OWNER may order changes in writing in the drawings and specifications within the general scope of the Order. If the changes involve an increase or decrease in the cost of or time required for performing the work, the CONTRACTOR shall so advise the OWNER in writing and an equitable adjustment in costs or schedule will be negotiated. As a condition to any increase in the cost of the work, the CONTRACTOR shall submit in writing adequately documented costs incurred for any authorized change for review, evaluation and approval by the OWNER.

Article 23: Termination of Contract:

Termination for Convenience: The OWNER may terminate this CONTRACT, in whole or in part, whenever the OWNER determines that such termination is in the best interest of the OWNER, without showing cause, upon giving thirty (30) days written notice to the CONTRACTOR. The OWNER will pay all invoices for services up to the date of termination. The CONTRACTOR will not be reimbursed for any profits that may have been anticipated but have not been earned up to the date of termination.

Termination for Default: When the CONTRACTOR has not performed or has unsatisfactorily performed this CONTRACT, the OWNER may terminate this CONTRACT for default. Upon termination for default, payment may be withheld at the discretion of the OWNER. Failure on the part of the CONTRACTOR to fulfill contractual obligations shall be considered just cause for termination of this CONTRACT.

Article 24: Equal Employment Opportunity:

The CONTRACTOR agrees not to discriminate against any employee or applicant for employment because of age, race, color, religion, sex or national origin. The CONTRACTOR shall comply with applicable laws, Executive Orders, and regulations concerning nondiscrimination in employment, including the Equal Opportunity Clause of Section 202. Executive Order 11246, as amended, which is hereby incorporated by reference.

Article 25: Assignment of Contract:

This CONTRACT or any part thereof shall not be assigned by the CONTRACTOR without written consent of the OWNER, nor shall the CONTRACTOR assign any monies due or to

become due to him/her thereunder, without the prior written consent of the OWNER.

Article 26: Governing Laws/Disputes:

In spite of any other provision of this CONTRACT, any dispute concerning any question of fact or law arising between the CONTRACTOR and the OWNER shall be decided by a court of competent jurisdiction of the State of Maine in accordance with the laws of the State of Maine.

Article 27: Liens:

The CONTRACTOR shall indemnify and save harmless the OWNER from all claims, demands, causes of action, or suits of whatever nature arising out of services, labor and materials furnished by the CONTRACTOR or his/her subcontractors in the work, and from all laborers', materialmen and mechanic's liens upon the property upon which the work is located arising out of the services, labor and materials furnished by the CONTRACTOR or any of his/her subcontractors under the work. Shall keep said property free and clear of all liens, claims, and encumbrances arising from the performance of the work by the CONTRACTOR or his/her subcontractors.

The CONTRACTOR shall have the right to contest the validity or amount of any such lien. If the CONTRACTOR shall contest the validity or amount of any such lien, then upon the final determination of such questions, any judgment which may be rendered against the CONTRACTOR shall be promptly paid and he/she shall procure the release of such lien.

Pending the discharge of any such lien of record and notice thereof to the OWNER, the OWNER may retain out of any monies then due or to become due the CONTRACTOR an amount sufficient to discharge such lien and to reimburse the OWNER for any cost or expense incurred in any action or proceeding for the enforcement or removal thereof. The CONTRACTOR agrees to reimburse the OWNER for all monies paid and expenses incurred by the OWNER in discharging such liens or in connection with any action or proceedings for the removal or enforcement of same.

Prior to receiving final payment for his/her work, the CONTRACTOR shall certify and furnish proof satisfactory to the OWNER that all material and equipment embodied in the work and all labor costs incurred thereon have been fully paid and discharged.

The CONTRACTOR shall include a provision satisfying the requirements of this Article as a part of any and all subcontractors entered into for the work or any portion thereof.

Article 28: Protection of Property and Persons:

The CONTRACTOR will adequately protect the OWNER's property from injury or loss, and will take all necessary precautions during the progress of the work to protect all persons and the property of others from injury or damage. The CONTRACTOR will assume full responsibility for all tools, equipment and materials to be used in connection with the completion of the work.

Article 29: Assignment and Subcontracts:

The CONTRACTOR shall not assign his/her interest in this CONTRACT, sublet or subcontract any portion of the work without written permission of the OWNER. The CONTRACTOR agrees to bind every subcontractor approved by the OWNER to all of the terms and conditions of this CONTRACT. The CONTRACTOR agrees that he/she is fully responsible to the OWNER for the acts and omissions of his/her subcontractors and of persons either directly or indirectly employed by any subcontractor, as the CONTRACTOR is for the acts and omissions of him/herself and of persons directly employed by him/her.

Article 30: Other Work:

It is understood that work not covered by this CONTRACT may be performed by the OWNER or others in the same area that must be occupied by the CONTRACTOR. In such event, the CONTRACTOR shall properly connect and coordinate his/her work with theirs. It is also understood that the OWNER may occupy the premises during performance of work by the CONTRACTOR hereunder and that such occupancy shall not constitute acceptance of the work by the OWNER.

Article 31: Safety Regulations and Security Requirements:

The employees of the CONTRACTOR will observe the OWNER's general safety rules and the area or departmental safety rules in the area in which they are working which will include the following:

- a. Smoking: Absolutely no smoking will be permitted except in authorized smoking areas. Any CONTRACTOR violating this rule shall be asked to leave the premises and will forfeit payment for work up to that point.
- b. Personal Protective Equipment: The CONTRACTOR will observe all reasonable requirements and be held responsible for furnishing to his/her employees any items of personal protective equipment which may be necessary for the safe performance of the work (safety glasses, hard hats, etc.).
- c. Excavations and Barricading: The CONTRACTOR will be expected to use proper barricading, ropes, warnings signs and other such devices wherever excavating, performing overhead work, hoisting, opening pits or trenches or the like is in progress.

The CONTRACTOR will also keep all aisles and roadways clear, and at no time obstruct passageways to existing emergency equipment such as showers, eye wash fountains, fire blankets, hoses, alarm boxes, extinguishers, shut off valves and switches, etc.

- d. Unless other arrangements are worked out in advance with local management, the CONTRACTOR is expected to supply fire extinguishers, blankets and other firefighting equipment in or near the work area.
- e. Good housekeeping conditions will be maintained at all times. The CONTRACTOR is

responsible for cleanup and disposal of debris, the proper storage of materials, keeping work areas clean and free of tripping hazards and wherever necessary, the daily removal of trash and other waste.

- f. The CONTRACTOR will not manipulate any switch controls, valves or instruments without the advanced approval of the OWNER. The CONTRACTOR will request advance permission before undertaking any work on piping distribution systems, utility lines entering tanks, sewers or vessels and as necessary for any work in or near special or hazardous operations.

Article 32: Supplemental Contract Items

The following sections are hereby incorporated into this Contract.

General Information for Vendors
Supplemental Articles
Technical Specifications
Addenda (if issued)

Article 33: Conflicting Terms, Conditions or Specifications:

In the event that one item conflicts with another item found in this CONTRACT or any other document pertaining to this CONTRACT, the item with the most stringent requirements shall prevail.

Article 34: Notices:

All notices required or permitted to be given under this CONTRACT or the specifications shall be in writing and shall be deemed to be properly and sufficiently given when deposited in the mail, postage prepaid, registered or certified, and addressed to the party entitled to receive such notice as set forth below or to such other address as that party shall subsequently designate to the other party by notice given in accordance with this section.

CITY:

CONTRACTOR:

Notice given in any other manner shall be deemed effective only when the written notice is actually received.

Article 35: Entire Agreement:

This CONTRACT contains all the terms, conditions and provisions pertaining to the work, there being no other understandings, agreements, warranties either express or implied, relative to the CONTRACT that are not fully expressed herein.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed on the day and year first above written.

WITNESS:

CITY OF BANGOR (OWNER)

WITNESS:

(CONTRACTOR)

Date Signed

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SUPPLEMENTAL ARTICLES

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This section of these specifications is a part of the Contract Documents as defined in the Contract. All applicable parts of the balance of the Contract Documents are equally as binding for this as for all other sections.

1.0 - Project Description. This project consists of cutting and capping of existing active and abandoned fuel lines, removal of hazardous materials, installation of a gate valve, installation of a low point drain, and installation of a concrete valve pit in accordance with all applicable laws, codes, regulations and industry standards.

2.0 - Project Duration. This project shall be completed in 7 working days.

3.0 - Freedom of Access Act (FOAA). Under Maine's Freedom of Access Act, all records in possession of the City and related to the transaction of its business are public, unless designated as confidential, privileged, or otherwise exempt by law. Accordingly, any documents you submit may be available to the public.

4.0 - Compliance with Laws. The bidder/contractor is assumed to be familiar with and agrees to observe and comply with all Federal, State and local laws, statutes, ordinances and regulations. The bidder shall fully indemnify, save harmless and protect the City, their successors, assigns, agents, customers, affiliates, agents and employees against any loss, claim liability damage, and expense arising from the bidder's actual or alleged noncompliance with such laws and regulations.

The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

5.0 - Tax Exemption. The City of Bangor is exempt from paying sales or use tax by State of Maine Statute and has been issued a Permanent Exemption Certification by the State of Maine.

Permanent Exemption Certificate Number: E81590

Federal Identification Number: 016000020

6.0 - Special Inspection Requirements

A. The project will be financially sponsored by the City of Bangor acting through Bangor International Airport. All work done under this Contract will be subject to the rules and regulations and the approval of said Administration and Department. The Contractor shall provide authorized representatives of said Administration and Department with proper access to the work for inspection progress at any time during the preparation for or progress on the Contract work.

B. The Contractor shall throughout the course of the work give proper notice to the Owner and all others having jurisdiction of his/her schedule of operations. It shall be the Contractor's responsibility to ensure all parts of the work inspected and approved by the proper authorities as required.

C. All application inspection and certification requirements of the Technical Specifications referred to herein will be enforced, in addition to any other inspections or certifications deemed necessary by applicable laws, codes, and standards.

7.0 - Confined Space Entry Procedures. The Contractor shall be aware of and follow proper confined space entry procedures as outlined by the National Institute for Occupational Safety and Health (NIOSH). Confined spaces are generally defined as spaces which:

- a. are NOT designed for continuous worker presence,
- b. have limited openings for entry and exit, and
- c. have less than ideal natural ventilation.

The Contractor shall, as a minimum, have the following equipment on hand for use by his/her employees, subcontractors, inspectors, etc.:

- a. 3 - harnesses
- b. 3 - 40' lengths of 5/8" nylon rope
- c. 3 - sets of leather gloves
- d. 3 - sets of safety glasses
- e. 1 - ventilation blower
- f. 1 - tripod w/ winch
- g. 1 - tri gas detectors of the latest approved models

8.0 - Standard Specification References. Wherever in this set of drawings or specifications the term:

"ASTM" occurs, it shall be understood to mean the Standards (or Tentative Standard) Specifications or Standard Method of Test of the American Society for Testing Materials, Serial Designation in effect at the date of receipt of bids for this contract work.

"AASHO" or "AASHTO" Specification occurs, it shall be understood to mean Standard Specifications or Test Methods of the American Association of State Highway and Transportation Officials, and be the edition in effect at the date of receipt of bids for this contract.

"NEMA" Specification occurs, it shall be understood to mean the National Electrical Manufacturers Association.

9.0 - Insurance.

CONTRACTOR AGREEMENT

INDEMNIFICATION AND INSURANCE REQUIREMENTS:

In consideration of the utilization of Contractor's services by the City of Bangor and other valuable considerations, the receipt of which is hereby acknowledged, Contractor agrees that all persons furnished by Contractor shall be considered the Contractor's employees or agents and that Contractor shall be responsible for payment of all unemployment, social security and other payroll taxes including contributions from them when required by law.

The CONTRACTOR hereby expressly agrees to protect, defend, indemnify and hold the Owner and Architect/Engineer and their respective employees, agents, officers and servants free and harmless from any and all losses, claims, liens, demands and causes of action of every kind and character including but not limited to, the amounts of judgments, penalties, interests, court costs, legal fees and all other expenses incurred by the Owner and Architect/Engineer arising in favor of any party, including claims, liens, debts, personal injuries, including employees of the Owner or Architect/Engineer death or damages to property (including property of the Owner, Authority or

Architect/Engineer) and without limitation by enumeration, all other claims or demands of every character occurring or in any way incident to, in connection with or arising or directly indirectly out of this Contractor Agreement. The CONTRACTOR agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands or suits at the sole handle, of the CONTRACTOR. CONTRACTOR also agrees to bear all other costs and expense related thereto, even if the claim or claims alleged are groundless, false or fraudulent. For this purpose, the CONTRACTOR hereby expressly waives any and all immunity he/she may have under Maine's Workers Compensation Act in regard to such claims made or asserted by the CONTRACTOR's agents, servants, or employees. This provision is not intended to create any cause of action in favor of any third party against Contractor or the City or to enlarge in any way the CONTRACTOR'S liability but is intended solely to provide for indemnification of the City from liability for damages or injuries to third persons or property arising from CONTRACTOR'S performance hereunder. The Contractor's Indemnity and hold harmless agreement shall not be applicable to any liability based upon the sole negligence of the Owner.

The CONTRACTOR agrees to arrange and maintain in full force the following coverage throughout the period of performance:

- a. Comprehensive General Liability insurance written on occurrence form, including completed operations coverage, personal injury liability coverage, broad form property damage liability coverage, XCU coverage and contractual liability coverage insuring the agreements contained herein. The minimum limits of liability carried on such insurance shall be \$5,000,000 each occurrence and, where applicable, in the aggregate combined single limit for bodily injury and property damage liability; \$5,000,000 annual aggregate personal injury liability.
- b. Automobile liability insurance for owned, non-owned and hired vehicles. The minimum limit of liability carried on such insurance shall be \$1,000,000 each accident, combined single limits for bodily injury and property damage. The City of Bangor must be listed as a Certificate Holder on the policy.
- c. Workers' Compensation insurance whether or not required by Maine Statute, with statutory coverage and including employer's liability insurance.

Worker's Compensation Insurance	Statutory
Employer's Liability Insurance	\$100,000 each accident
	\$500,000 disease – policy unit
	\$100,000 disease – each empl.
- d. Any and all deductibles on the above described insurance policies shall be assumed by and be for the account of, and at the sole risk of Contractor.
- e. Insurance companies utilized must be admitted to do business in Maine or be on the Insurance Commissioner's list of approved non-admitted companies and shall have a rating of (A) or better in the current edition of Best's Key Rating Guide.
- f. CONTRACTOR agrees to furnish certificate(s) of the above mentioned insurance to the Owner within fourteen (14) days from the date of this agreement and, with respect to the renewals of the current insurance policies, at least thirty (30) days in advance of each renewal date. Such certificates shall, with respect to comprehensive general liability and auto liability insurance, name the Owner, Architect/Engineer firms

designated by Owner as an additional insured (except workers' compensation) and, with respect to all policies shall state that in the event of cancellation or significant modification, written notice shall be given to the Owner at least thirty (30) days in advance of such cancellation or modification.

- g. The purchase of the insurance required or the furnishing of the aforesaid certificate shall not be a satisfaction of CONTRACTOR'S liability hereunder or in any way modify the CONTRACTOR'S indemnification responsibilities to the Owner or Architect/Engineers.
- h. It shall be the responsibility of CONTRACTOR to ensure that all subcontractors comply with the same insurance requirements that he/she is required to meet.
- i. The Owner shall be listed as an additional insured (except Workers' Compensation Insurance).

10.0 - SPECIAL HAZARDS

The Contractor's and Subcontractor's Public Liability, Property Damage, Vehicle Liability, and Vehicle Property Damage insurance coverages shall provide adequate protection against the following special hazards:

- a. Damage or injury to aircraft or persons in aircraft operating on or near the project site, resulting from any operations under this Contract.
- b. Fire
- c. Pollution of the Environment

11.0 - Construction Schedules. The overall project schedule shall be coordinated with the Owner prior to beginning work.

Prior to the beginning of work each day, the Contractor's Site Superintendent shall meet with the Owner to discuss the days' work schedule. The Contractor shall be responsible for coordinating the work of subcontractors and must notify the Owner at least one day in advance of any items that will require the Owner's performance or prior coordination.

12.0 - Submittals, Shop Drawings, and Certifications. Submittals, Shop Drawings, and or material certifications are required for all items to be incorporated into the work. Specific requirements for each item submittal may be stated in the technical specifications.

Submittals and certifications must include sufficient information to confirm compliance or submittal will be returned with no action.

13.0 - Consent Decree. All Contractors and Subcontractors are hereby notified that the City of Bangor has entered into a Consent Decree with the United States and the State of Maine. For the purposes of the Consent Decree, Contractors and Subcontractors are deemed agents of the City. Any and all work performed by Contractors and Subcontractors must conform with the terms of the Consent Decree. Contractors must familiarize themselves with the contents of the document and must make the document available to all subcontractors. This document is available electronically at

http://www.bangormaine.gov/filestorage/318/350/7758/ENV_ENFORCEMENT.PDF or in hard-copy

in the City of Bangor’s Engineering Department. Failure to comply with the contents of the document will result in the following penalties:

Penalty Per Violation Per Day	Period of Noncompliance
\$750	1st through 10th Day
\$1,000	11th through 20th Day
\$2,500	21st Day and beyond

14.0 - Conflicting Terms, Conditions or Specifications. In the event that one item conflicts with another item found in this Contract or any other document pertaining to this Contract, the item with the most stringent requirements shall prevail.

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TECHNICAL SPECIFICATIONS

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ITEM G-001 Special Work Requirements

GENERAL

001-1.1 General. The purpose of these requirements is to ensure that the contract work does not damage private property or create any hazard to aircraft operations, and to bring to the Contractor's attention special coordination that the Contractor should be aware of that may be unique to airfield construction or unique to the Owner's Facility. It is Contractor's responsibility to conduct all work in strict accordance with the requirements set forth herein and to fully cooperate with the Owner in every way necessary to fulfill the purposes of these requirements as set forth above.

001-1.2 Work Limitations. All work shall be performed between the hours of 7am and 4pm M-F unless otherwise approved by the Owner. Work may not be allowed on specific days as determined by the Owner. Such days will not count towards exhausted contract time.

The following specification sections and regulations further define how work must be executed.

- FAA Advisory Circular 150/5370-2F "Operational Safety on Airports during Construction"
- The Construction Safety and Phasing Plan (CSPP)
- The Contractor's Safety Plan Compliance Document (SPCD)
- Airport Security and Compliance Requirements

001-1.3 Coordination. The Contractor must coordinate all operations with the Owner. The Owner will handle coordination with the Federal Aviation Administration, Air Traffic Control Tower, and Tenants.

001-1.4 Regulations. All work shall be performed in accordance with FAA Advisory Circular 150/5370-2F "Operational Safety on Airports during Construction".

001-1.5 Construction Safety and Phasing Plan. In addition, all work shall be performed in accordance with the approved Construction Safety and Phasing Plan. This plan is prepared by the Owner and approved by the FAA. It outlines the site specific requirements for safely performing the work in accordance with AC 150/5370-2F. The Contractor shall review, in detail, the Construction Safety and Phasing Plan (CSPP). The CSPP is provided as an attachment to the end of this specification.

001-1.6 Contractor's Safety Plan Compliance Document (SPCD). Once the Contractor has read and fully understands the CSPP, they shall prepare and submit for approval a Safety Plan Compliance Document (SPCD) as required by FAA AC 150/5370-2F.

Similar to a shop drawing the SPCD, including all requirements of this specification, shall be submitted to the Owner for review at least 1-week prior to beginning construction. The SPCD must be reviewed and approved by the Owner prior to issuance of the notice-to-proceed.

The Contractor shall designate an individual as the Site Safety officer (SSO). The SSO may be the Contractor's Site Superintendent who is responsible for day to day operations on the site. The SSO shall be on site daily and work on a daily basis to implement and enforce the CSPP and SPCD. The SSO shall conduct daily inspections. When necessary, the SSO will work with the Owner on safety related items.

At a minimum, the SPCD shall include the items listed in Section 204.b.(1) through (18) of FAA AC 150/5370-2F to include but not be limited to the following:

- Designate a Site Safety Officer and provide the SSO's contact information
- Contractor's points of contact, including 24-hr emergency point of contact
- Owner's contact information
- list of all equipment to be used
- maximum height of all equipment to be used
- acknowledgement of height restrictions on airport construction
- typical daily work hours
- FOD management procedures (inspections, equipment to be used and methods for cleanup)
- Material stockpile locations and limitations
- identify potential hazards (i.e. management of dust/FOD)
- A certification statement acknowledging receipt of the CSPP (include CSPP approval date)
- A certification statement by the Contractor that indicates they understand the operational safety requirements of the CSPP and they assert they will not deviate from the approved CSPP and SPCD unless written approval is granted by the Owner.

A template for the SPCD is attached to the end of this specification

The Contractor shall be required to maintain a copy of the CSPP and SPCD at the project site at all times throughout the project duration.

001-1.7 Height Restrictions. No equipment will be allowed to penetrate the Runway approach surfaces and transitions defined in 49 CFR Part 77 when the runway is active. The CSPP as filed with the FAA has assumed a maximum height for equipment to be used. If the Contractor intends to use any piece of equipment with a height greater than 25-feet a 7460 must be filed with the FAA to determine if the equipment will create a hazard to aircraft. Tall equipment, such as cranes or boom trucks, will be required to have a flag attached to the highest point. Additionally, during periods of darkness or reduced visibility a red light at the highest point shall also be required.

001-1.8 Marking of Vehicles and Equipment. Each motorized vehicle operating on the airport shall be equipped with an amber flashing light. All equipment must have a 3-foot square flag consisting of international orange and white squares not less than one foot square displayed in full view above the vehicle. Equipment must also have an amber flashing light when operated during periods of limited visibility including darkness, fog, and rain. When not in use, all equipment shall be returned to the designated staging area and lowered to the maximum extent possible. All Contractors and subcontractors vehicles shall have the company identification plainly visible on both sides of the vehicle in order to identify the vehicle.

001-1.9 Setback Requirements. No construction operations shall be carried on within 107 feet from the centerline of any active taxiway or within 400 feet of the centerline of any active runway unless prior approval has been obtained and such actions are included in the CSPP. The distances above represent the Taxiway Safety Area and the Runway Object Free Area respectively.

001-1.10 Protection of Restricted Areas. The Airport shall install lighted barricades adjacent to the work area as shown on the plans so that workmen can readily recognize the limitations of the work area.

001-1.11 Radio Control and Communication. At a minimum the Contractor shall have two-way communications between the superintendent and the airport-provided escort(s) to coordinate access to and

from the work site. No FAA or airport frequency shall be used for this purpose. Cell phones are acceptable for this purpose.

001-1.12 Owner Provided Escorts. The Owner will provide escorts as specifically called for in the plans or CSPP. The Contractor shall provide 48-hours' notice for the purpose of coordinating and scheduling the escort.

001-1.13 Haul Routes. When public highways must be used for haul routes, it will become the Contractor's responsibility to obtain the proper permits needed for this function and to obey all rules and regulations pertinent to the public highways.

The Contractor's personnel and vehicles will not have access to the entire airport, but shall be limited to the designated work area(s), staging area(s), and haul route(s).

All paved haul roads or access roads shall be kept clean at all times to prevent the accumulation of dirt and mud and the generation of dust. Cleaning shall be performed by the Owner by sweeping, washing, or other methods.

001-1.14 Security. The Contractor shall comply with all airport security requirements as directed by the Owner. The Contractor's personnel, equipment, materials and deliveries shall be subject to security checks prior to or while on airport property. Any delays incurred due to security inspections shall not be a valid claim for delays.

Personal Vehicles (POV's) are not permitted on the Airfield. The Contractor shall provide safe and adequate transportation to and from the area where POV's are parked and the work area(s).

001-1.15 Storage of Materials and Equipment. The area for storing materials and parking/servicing equipment is shown in the contract drawings and CSPP. The Contractor will be required to return all equipment to the appropriate Contractor's staging area at the end of work, each day, unless otherwise approved. Equipment shall be parked in the designated area when not in use.

The Contractor shall provide all necessary temporary fencing and gates to protect materials and equipment from pilferage. The Owner is not responsible for any vandalized equipment or materials stored on the property.

Any area occupied or utilized by the Contractor shall be maintained in a clean and orderly condition satisfactory to the Owner. At the completion of the project, all Contractor's facilities shall be removed promptly and in a workman like manner and the area left clean and free of all debris or surplus material. The Contractor is responsible for restoring to original condition any areas used for the Contractor's operation at no additional cost to the Owner.

001-1.16 Maintenance of the Construction Site. The Contractor shall keep the construction site free of paper, boxes, and other debris that could be blown onto the runways, taxiways, and/or aprons.

All airport pavements shall be kept clear and clean at all times. All rocks, mud, and other debris carried on to the airport pavement by the Contractor's equipment must be reported to the Owner. Airport Operations will then close the affected area to air traffic and will immediately sweep the area.

The Contractor shall be particularly careful not to track foreign material onto pavements outside of the work area(s) (e.g., rocks, soils, etc). The Contractor shall be responsible for removing foreign materials from vehicle tires prior to the vehicle leaving its work area.

001-1.17 Smoking. Absolutely no smoking will be permitted except in authorized smoking areas. Any Contractor violating this rule shall be asked to leave the premises.

MATERIALS

001-2.1 Materials. Prior to ordering, the Contractor shall submit shop drawings to the Owner for all materials to be used. The shop drawings shall include a manufacturer's certification that each product meets the specified standard(s), when applicable.

METHOD OF MEASUREMENT

001-3.1 Special Work Requirements shall be measured as a lump sum.

BASIS OF PAYMENT

001-4.1 Special Work Requirements. Payment shall be made at the contract unit price for performing all special work requirements. This item includes but is not limited to reading and understanding the Construction Safety and Phasing Plan, preparing and implementing the SPCD, maintenance of the work area, and project coordination with the Owner. This price and payment thereof shall constitute full compensation for all labor, preparation, materials, equipment, expenses and incidentals.

Payment shall be made under:

Item G-001-1	Special Work Requirements	per Lump Sum
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END OF ITEM G-001

AFTER CONSTRUCTION SAFETY AND PHASING PLAN(S) & CONTRACTOR SAFETY PLAN COMPLIANCE DOCUMENT TEMPLATE

Bangor International Airport

Bangor Maine

**UNDERGROUND FUEL PIPE MODIFICATIONS AND
CONSTRUCT CONCRETE VALVE PIT**

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

Prepared by:

JACOBS ENGINEERING GROUP INC.
Two Executive Park Drive, Suite 205
Bedford, New Hampshire 03110

Prepared: July 26, 2016

TABLE OF CONTENTS

		Page
1.	General	1
2.	Project Description	1
3.	Coordination	1
4.	Phasing	2
5.	Areas and Operations Affected by Construction Activity	4
6.	Protection of Navigational Aids (NAVAIDS)	5
7.	Contractor Access	5
8.	Wildlife Management	8
9.	Foreign Object Debris (FOD) Management	8
10.	Hazardous Material (HAZMAT) Management	8
11.	Notification of Construction Activities	8
12.	Inspection Requirements	10
13.	Underground Utilities	10
14.	Penalties	10
15.	Special Conditions	11
16.	Runway and Taxiway Visual Aids	11
17.	Markings and Signs for Access Routes	12
18.	Hazard Marking, Lighting and Signing	12
19.	Protection of Runway and Taxiway Safety Areas	12
20.	Other Limitations on Construction	13
21.	Acronyms and Abbreviations	13
22.	Comments/Revisions Log	14

Appendix

Drawing C-100 Construction Safety and Phasing Plan

1. **General**

The Bangor International Airport is owned and operated by the City of Bangor Maine. When the term “Airport Operator” or “Airport” is used herein it shall be understood to mean the City of Bangor-Airport Department.

All construction shall be accomplished in accordance with FAA Advisory Circular (AC) 150/5370-2F “Operational Safety on Airports During Construction”.

2. **Project Description**

The project consists of the following:

- Install a fuel shutoff valve for the underground hydrant fuel system.
- Construct a concrete valve pit around the new shutoff valve.

Work items include:

- Decommission existing fuel lines
- Excavation
- Cut existing fuel lines
- Fill existing fuel pit with controlled low-strength material
- Cap existing abandoned fuel lines
- Install new shutoff valve on active line
- Install concrete valve pit around new valve
- Backfill the concrete structure
- Restore the work area

Details of work area are depicted on the attached Safety and Phasing Plan. (herein referred to as the drawing).

3. **Coordination (reference paragraph 205 in FAA AC 150/5370-2F)**

The Airport Operator will notify tenants, local users, ARFF, ATCT and any field operations personnel of the planned construction activity via the following methods or a combination thereof:

a. Pre-Construction Coordination

- The Airport will notify the tenants, users, ARFF, and ATCT of the upcoming construction via e-mail notification and/or phone call.
- The Airport will issue a NOTAM prior to the start of construction.
- The Airport Fuel Department will coordinate with the local FAA Tech Ops and Airport Maintenance Department to verify the area is clear of underground utilities.
- The Airport Fuel Department and Contractor will plan the execution of work prior to beginning work. The Contractor will report directly to the Airport Fuel Department Supervisor for the duration of the project.

b. On-site Coordination

- The Airport Fuel Department personnel will remain on-site with the Contractor for the duration of the project. The Fuel Department and the Contractor shall coordinate continuously for the duration of the project.

- The Airport-provided escort will coordinate with ATCT and handle all radio communications. The escort will notify the ATCT prior to beginning work each morning and upon completion of work each afternoon.
 - The escort will continuously coordinate with the Fuel Department Supervisor & Contractor.
 - The Airport-provided escort and the ATCT will coordinate access to and from the work area.
 - The Airport-provided escort and the ATCT will coordinate moving all men and equipment from the group V taxiway object free area for all aircraft with a wingspan of greater than 138-ft.
- c. Scope or schedule changes
- Changes to the scope of work or construction schedule as detailed here-in may require portions of this document to be revised and submitted for approval by the Airport Operator and/or the Federal Aviation Administration (FAA) for approval. Approval may take up to 45 working days.
- d. FAA Air Traffic Office (ATO) Coordination
- Refer to the section entitled ‘AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITY’ of this document for additional information.

4. *Phasing (reference paragraph 206 in FAA AC 150/5370-2F)*

a. Work Area Elements

1) Areas closed to aircraft operations:

- All areas of the Airport will be available for use by aircraft for the duration of the project.
- All men and equipment will be required to “pull back” and vacate the group V object free area in order to maintain wingtip clearance for aircraft with wingspans of greater than 138-ft.

2) Taxi Routes:

- This project will not affect any taxi routes.
- When work is being performed, the ATCT will call the Airport-provided escort on 121.9 prior to directing aircraft with wingspans greater than 138-ft past the work area.
- When work is not being performed, the standard group V object free area will be provided.
- A standard group V safety area will be provided for the duration of the project. The excavation will be outside the safety area (i.e. >107’ from the Taxiway A centerline).

- 3) Emergency Access Routes:
 - The Airport Rescue and Fire Fighting (ARFF) will have access to all areas of the Airport throughout the project.
 - The Airport Operator will notify ARFF prior to the start of construction.
- 4) Construction Staging Areas:
 - The construction staging area for this project will be located outside of the AOA as shown on the attached drawing.
 - Any deviations from the planned staging area location will be as determined by the Airport Operator.
 - The height of equipment and stock piles within the staging area will be below the Part 77 surface of 14 Code of Federal Regulations (CFR).
 - Equipment stationed within a staging area will not obstruct nor impede aircraft or airport vehicle movement.
- 5) Construction Access and Haul Routes:
 - Access to the airfield will be via the existing airport access gate as indicated on the Safety and Phasing Plan. The Airport-provided escort will unlock the gate as required.
 - The Airport-provided escort will escort the Contractor between the access gate and the work area.
 - Construction traffic in the movement area will be escorted by the Airport-provided escort.
 - Construction traffic will follow the designated haul route. Reference the attached drawing.
 - The Airport-provided escort will be a member of the Airfield Maintenance Staff or Airport Fuel Department. All escorts will be airport trained; SIDA badged individuals with driving and escort privileges.
- 6) Impacts to Visual Aids/NAVAIDS:
 - This project will not have any effect on Visual Aids / NAVAIDS.
- 7) Lighting and Marking Changes:
 - This project will not have any effect on existing lighting and marking.
- 8) Available Runway Length:
 - The full length of the runway will be available throughout the project.
- 9) Declared Distances:
 - This project will not affect Declared Distances.
- 10) Required hazard marking and lighting:
 - Refer to paragraph 7.b.4) for vehicle marking and lighting.
- 11) Lead times:
 - The Contractor shall provide 72 hour advanced notice prior to start of work.
- b. Construction Safety Drawings
 - Refer to the attached Construction Safety and Phasing Plan Drawing
 - C-100 Safety and Phasing Plan and General Notes

5. *Areas and Operations Affected by Construction Activity (reference paragraph 207 in FAA AC 150/5370-2F)*

a. Identification of Affected Areas

- 1) Closing or partial closing of runways and taxiways:
 - This project will not close any runways or taxiways.
 - Refer to the attached drawing for the locations of lighted barricades. Barricades are used to define the limits of the work area and prevent personnel and equipment from entering the object free area of the active taxiway.
 - Lighted barricades will also mark the limits of excavations so that they are visible to maintenance personnel and ARFF.
- 2) Closing of ARFF access routes:
 - The location of the work to be performed will not impact access routes used by ARFF vehicles.
- 3) Closing of access routes used by airport and airline support vehicles:
 - The location of the work to be performed will not impact access routes used by Airport operations or maintenance vehicles.
- 4) Interruption of utilities, including water supplies for firefighting:
 - No utilities, including water supplies for firefighting, are expected to be interrupted during construction.
- 5) Approach/departure surfaces affected by heights of objects:
 - This project will not affect any approach/departure surfaces.
- 6) Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads:
 - Refer to the work area, storage area and access route (haul route) as shown on the attached drawing.
 - No material or equipment will be stored within the approach, primary and transitional surfaces defined by 14 CFR Part 77.19.
 - The access/haul route is shown on the attached drawing. At all times aircraft will have the right of way.
 - The Airport shall be responsible for maintaining haul route and access route free of foreign object debris (FOD) by sweeping any construction debris from the pavements. To minimize dust, water will be applied as required prior to sweeping.

b. Mitigation of Effects

- 1) Temporary changes to runway and/or taxi operations:
 - The Airport-provided escort shall notify the ATCT prior to beginning work each morning and upon completion of work each afternoon.
 - During construction, the ATCT shall notify the Airport-provided escort on 121.9 prior to directing aircraft with a wingspan of greater than 138 feet past the work area. A list of common aircraft wingspans is provided on the attached drawing.

- The Contractor shall provide of 72 hours advanced notice prior to beginning construction.
 - The Airport will coordinate with the appropriate FAA Airports Regional Office, local FAA Tech Ops, and the FAA air traffic manager, and issue NOTAMs as required.
- 2) Detours for ARFF and other airport vehicles:
- The work to be performed will not alter travel patterns of any ARFF or other airport vehicles.
- 3) Maintenance of essential utilities:
- No underground cables are planned to be disturbed as part of this project.
 - Other essential utilities (water, gas, sewer, and phone) are not expected to be impacted as a result of this construction project.
 - Should an unforeseen utility be encountered and determined to be essential, the Airport shall clear the area around the utility and it shall be protected.
- 4) Temporary changes to ATC procedures:
- During Construction, the ATCT shall notify the Airport-provided escort on 121.9 prior to directing any aircraft with a wingspan larger than 138' past the work area. Refer to paragraph 5.b.1 above.
6. ***Protection of NAVAIDs (reference paragraph 208 in FAA AC 150/5370-2F)***
- This project will not require work within NAVAID critical areas.
 - At no time during this project will NAVAID shut down be required.
7. ***Contractor Access (reference paragraph 209 in FAA AC 150/5370-2F)***
- The Airport will provide a trained, AOA badged escort at all times when work is being performed in the AOA. For airport access and haul route see the attached drawing.
- a. Location of Stockpiled Construction Materials
- All stockpiles and construction materials shall be located within the Contractor's construction staging area. If there is any deviation from the planned area then the Contractor must obtain approval regarding the location of the stockpiled materials from the Airport Operator. No materials shall be stockpiled within the group V TOFA. The TOFA is shown on the attached drawing.
- b. Vehicle and Pedestrian Operations
- 1) Construction Site Parking:
- Contractor employee parking shall be located as shown on the attached drawing. It is the Contractor's responsibility to establish a privately owned vehicle (POV) parking area and safely transport work crews to and from the POV parking area to the construction site. No personal vehicles shall operate on the airport.
- 2) Construction Equipment Parking:
- The Airport will provide equipment for excavation and backfill. When not in use all equipment shall be parked outside of the ROFZ, ROFA and group V TOFA.

- 3) Access and haul roads:
 - The haul route is shown on the attached drawing. The Contractor shall not use any access or haul roads other than those approved. The Contractor's equipment shall not operate on any apron or taxiway that is open to aircraft without an airport provided escort.
 - When required, the Contractor and/or Airport will move all equipment from the TOFA until the aircraft has passed.
 - The haul route will not impact any emergency vehicles utilizing the Airport.
 - The haul route will not interfere with any NAVAIDS nor runway threshold approach surfaces.

- 4) Marking and lighting of vehicles:
 - All vehicles shall comply with FAA AC 150/5210-5D, Painting, Marking, and Lighting of Vehicles Used on an Airport.
 - All vehicles to be used on the airport shall have the company logo or name visible and legibly identified.
 - Each construction vehicle shall be equipped with an approved yellow rotating or flashing beacon light and this light must be unobstructed from view in all directions and from the air.
 - Each piece of construction equipment shall have a 3' x 3' orange/white checkered flag attached to the highest point.

- 5) Description of proper vehicle operations:
 - At all times, vehicles shall give right of way to passing aircraft.
 - When within the Airport Operations Area (AOA), all construction vehicles must be escorted and remain within the designated work area and travel along the planned haul route.
 - If a vehicle is inoperable due to a mechanical emergency, it must be moved to a safe area, away from aircraft and airport vehicles, for normal repairs that take less than 10 minutes or removed from within the AOA for complex repairs requiring extended time.
 - Repairs involving the use of petrochemicals and other flammable fluids, flammable aerosols and powders, and small parts and accessories that can easily become FOD shall not be conducted on the airfield.

- 6) Required escorts:
 - Refer to paragraph 4.a.5 above.

- 7) Training requirements for vehicle drivers:
 - The Airport will provide escorts. The Contractor may not operate vehicles on the AOA without a proper escort.

- 8) Situational awareness:
 - At all times, vehicles shall give the right of way to passing aircraft.
 - Contractor personnel that are not badged will be escorted at all times when on the airfield.
 - The Contractor shall treat all aircraft with caution, regardless of whether they are occupied or not.

- 9) Radio Communications:
 - All radio communications with the ATCT will be made by the Airport-provided escort.
- 10) Maintenance of the secured area of the airport:
 - Only authorized persons and vehicles shall have access to the AOA. Prior to the start of the project and prior to accessing the AOA, the Contractor must understand airport procedures.
 - The Airport-provided escort shall be responsible for coordinating locking of the access gate.

8. ***Wildlife Management (reference paragraph 210 in FAA AC 150/5370-2F)***
 - The Contractor shall maintain the construction and staging area so that they are kept clean and free of debris which might attract birds or other wildlife.
 - The Contractor's dumpsters, if used, shall be the 'roll-away' type and be covered and emptied weekly or more frequently if full.
 - The Contractor and Airport shall not permit standing water in the work site.
 - The Airport-provided escort will notify the Airport's wildlife officer upon detection of wildlife within the Airport's fence.

9. ***Foreign Object Debris (FOD) Management (reference paragraph 211 in FAA AC 150/5370-2F)***
 - Any FOD that is tracked outside the work area or that is deemed a hazard by the Airport escort shall be dealt with immediately.
 - The Airport shall be responsible for providing sweepers and/or vacuum trucks as required to keep the taxiway and haul route clean.

10. ***Hazardous Material (HAZMAT) Management (reference paragraph 212 in FAA AC 150/5370-2F)***
 - The Contractor shall comply with all Federal, State, and local laws and regulations controlling pollution of the environment and hazardous waste.
 - The Contractor shall have on hand and accessible at all times the MSDS sheets for all chemicals on site.
 - All construction equipment shall be serviced and refueled in the Contractor's staging area or at the Airfield Maintenance Shop. Approved secondary containment shall be used during servicing and refueling. Airport Operations must be notified of any spills. The Airport Fuel Department and/or Compliance will make the appropriate notifications.

11. ***Notification of Construction Activities (reference paragraph 213 in FAA AC 150/5370-2F)***

The Airport Administration will inform all local users, tenants, ATCT and ARFF of the planned construction project via e-mail, phone call, and/or NOTAM.

a. List of Responsible Representatives/ Points of Contact

A list of responsible representatives and the associated contact numbers shall be maintained in this document and shall be distributed to the Contractor and Airport staff. Any updates to the original list in this document must be made promptly and the full list reflecting those amendments shall be redistributed separately.

- | | |
|------------------------------------|--|
| 1. Emergency | 911 |
| 2. Airport Owner/Operator | |
| a. Bangor International Airport | 207.992.4600 |
| b. Duty Officer | TBD |
| c. Fuel Department | 207.992.4643 / 207.735.4073 |
| 3. FAA NAVAIDS | Ed Phipps 207.942.6690 |
| 4. Contractor | |
| a. Project Manager | TBD upon award of contract |
| b. Superintendent | TBD upon award of contract |
| 5. FAA NE Region Operations Center | 24-hr. Accident and Incident Response 404.305.5156 |
- b. Notices to Airmen (NOTAMs)
- **Only the Airport Operator shall initiate or cancel NOTAMs.** The Airport Operator must coordinate the issuance, maintenance and cancellation of NOTAMs about airport conditions resulting from the construction activities with the ATCT, tenants and the local air traffic facility, and must provide information on the closed or hazardous conditions on the airport movement areas to the FAA Flight Service Station (FSS) so that it can issue a NOTAM.
 - Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the Airport Operator immediately.
- c. Emergency Notification Procedures
- The Airport Operator shall be the first point of contact for any emergency involving the construction of the project.
 - For an emergency requiring immediate medical attention, 911 may be contacted prior the alerting the Airport Operator.
 - Refer to Section 15 “Special Conditions” in the event of an emergency on the Airfield.
- d. Coordination with Emergency Response Personnel
- The Airport will notify the ARFF of proposed construction and any changes to the location of the work areas.
- e. Notification to the FAA
- The Airport Operator has notified the FAA of the proposed construction by filing this CSPP through the FAA OE/AAA website. The assumed maximum construction equipment height for this notice was 25-feet. A separate 7460 Notice of Construction will be submitted for any equipment or materials exceeding 25-feet as required.

12. Inspection Requirements (reference paragraph 214 in FAA AC 150/5370-2F)

- a. Daily Inspections
- Inspections to ensure compliance with this CSPP shall be monitored by the Airport. A sample checklist is provided in Appendix 4 of FAA AC 150/5370-2F.
 - Safety issues are to be corrected immediately by the Contractor and/or Airport.
 - All work areas and the haul route will be inspected by Airport prior to completion of the work shift.

b. Final Inspections

- The Airport Fuel Department shall inspect all work.
- Site restoration (topsoil, seed, grading, etc.) shall be performed by the Airport.

13. *Underground Utilities (reference paragraph 215 in FAA AC 150/5370-2F)*

- The scope of work for this project includes excavations and installation of a concrete valve pit.
- The Airport is responsible for coordination with local utilities, Airport Electrician, and FAA ATO/Technical Operations to identify the presence of any utilities in the vicinity of planned excavations.
- Utilities not located by the utility provider or the FAA shall be located by the Airport prior to excavation.
- No excavation work shall be done prior to proper notifications and markings by the local utility companies, Airport fuel service, Airport Maintenance and FAA.

14. *Penalties (reference paragraph 216 in FAA AC 150/5370-2F)*

- The Airport Operator may suspend all construction activity if and when:
 - A Contractor or subcontractor employee enters the Air Operations Area (AOA) outside of the designated work area.
 - Construction vehicles fail to yield to aircraft.
 - The Contractor's operations create an incident with Aircraft operations.
 - A properly trained escort is not available.
- The Airport Operator may permanently prohibit any contract employee acting in violation with airport rules and regulations from entering or working on airport property.
- Bangor International Airport Certification Manual Consequences of non-compliance (by reference).

15. *Special Conditions (reference paragraph 217 in FAA AC 150/5370-2F)*

- Aircraft Accident - All construction personnel will immediately vacate airport property and remain off until cleared by the Airport Operator.

16. *Runway and Taxiway Visual Aids (reference paragraph 218 in FAA AC 150/5370-2F)*

a. General

- This project will not affect any runway or taxiway visual aids.

b. Markings

- 1) Closed Runways and Taxiways
 - a) Permanently Closed Runways.
 - Not applicable to the project.
 - b) Temporarily Closed Runways.
 - Not applicable to the project.
 - c) Partially Closed Runways and Displaced Thresholds
 - Not applicable to the project.

- d) Taxiways
 - Not applicable to the project.
 - e) Temporarily Closed Airport
 - Not applicable to the project.
- c. Lighting and Visual NAVAIDS
- 1) Permanently Closed Runways and Taxiways
 - Not applicable to the project.
 - 2) Temporarily Closed Runways
 - Not applicable to the project.
 - 3) Partially Closed Runways and Displaced Thresholds
 - Not applicable to the project.
 - 4) Temporarily Closed Taxiways
 - Not applicable to the project.
- d. Signs
- This project will not affect any signs.

17. *Markings and Signs for Access Routes (reference paragraph 219 in FAA AC 150/5370-2F)*

- No temporary roadway markings shall be used.

18. *Hazard marking and lighting (reference paragraph 220 in FAA AC 150/5370-2F)*

- Prior to the start of construction, lighted barricades shall be installed along the limits of the group V TSA adjacent to the work area to prevent construction personnel from entering areas open to aircraft. The barricades shall also mark the location of the excavation and make it visible to airport maintenance and ARFF.

19. *Protection of Runway and Taxiway Safety Areas (reference paragraph 221 in FAA AC 150/5370-2F)*

- a. Runway Safety Area (RSA)
 - Not applicable to the project.
- b. Runway Object Free Area (ROFA)
 - Not applicable to the project.
- c. Taxiway Safety Area (TSA)
 - Not applicable to the project. All work shall occur outside the group V TSA.
- d. Taxiway Object Free Area (TOFA)
 - TOFA locations are indicated on the drawings.
 - During construction, the ATCT shall notify the escort of aircraft with a wingspan of greater than 138'. Upon notification the Contractor and Airport shall move all equipment from the TOFA until the aircraft has passed.

- Prior to the start of construction, the TOFA shall be surveyed and marked out in the work area by the Airport to ensure no unauthorized entrance into the area occurs.
- e. Runway Obstacle Free Zone (OFZ)
 - Not applicable to the project.
- f. Runway Approach/Departure Areas and Clearways
 - Not applicable to the project.

20. Other Limitations on Construction (reference paragraph 222 in FAA AC 150/5370-2F)

- No use of tall equipment (cranes, etc.) shall occur until a CSPP determination letter is issued by the FAA for such equipment.
- The Airport Fuel Department shall notify ARFF prior to any welding or open flame torch cutting.
- Smoking will not be permitted in the AOA at any time. Anyone caught smoking in the AOA will be subject to fines and/or removal from the project.
- The excavation will be located out of the group V TSA. It will be marked with lighted barricades and will be open for the duration of the project.

21. Acronyms and Abbreviations

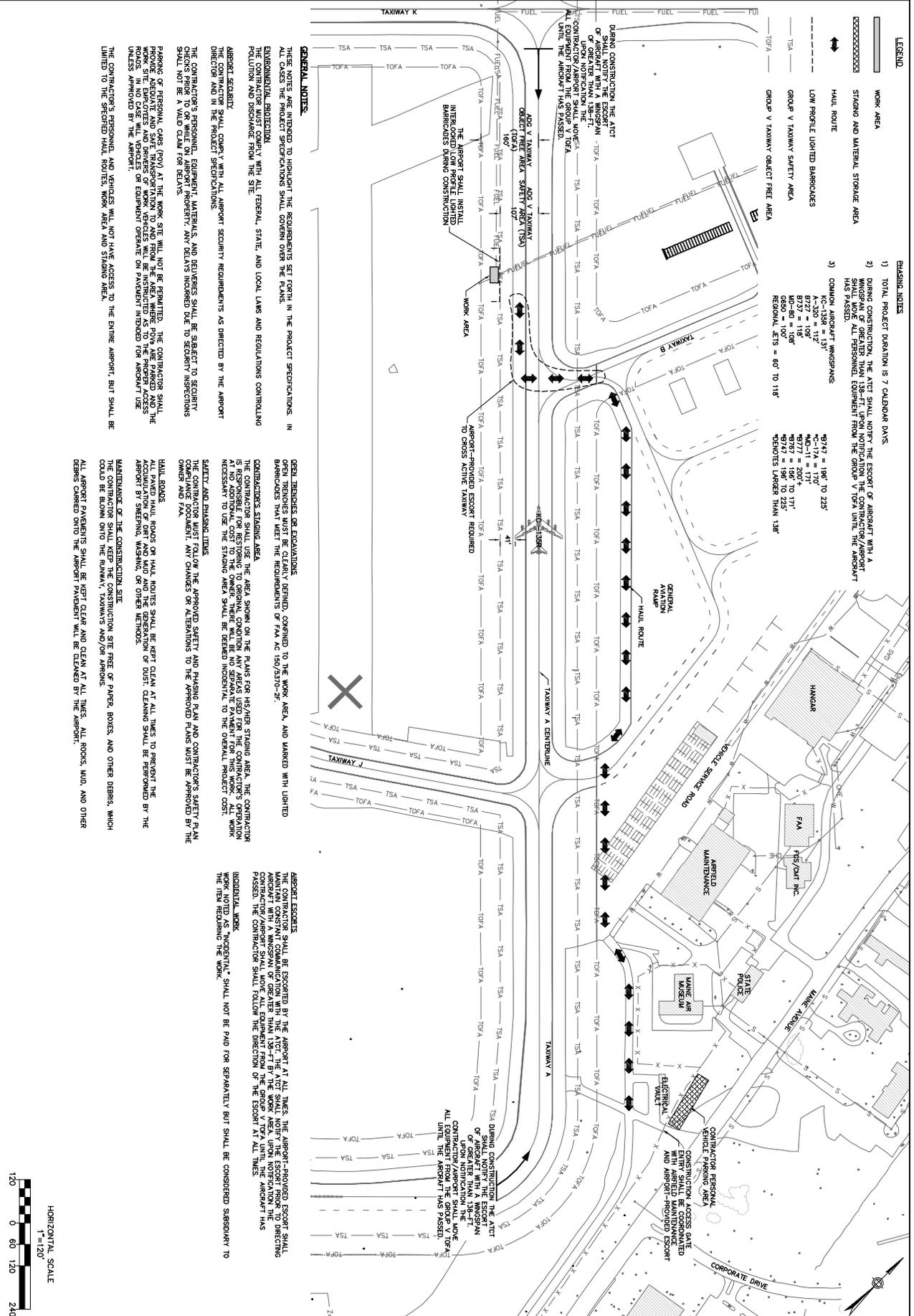
AC	- Advisory Circular
AOA	- Airport Operations Area
ARFF	- Airport Rescue and Fire Fighting
ASDA	- Accelerated Stop Distance Available
ASOS	- Automated Surface Observing System
ATO	- Air Traffic Office
CSPP	- Construction Safety and Phasing Plan
CTAF	- Common Traffic Advisory Frequency
FAA	- Federal Aviation Administration
FBO	- Fixed Based Operator
FOD	- Foreign Object Debris
Ft	- feet
HAZMAT	- Hazardous Materials
LDA	- Landing Distance Available
NAVAID	- Navigational Aid
NTP	- Notice to Proceed
OFA	- Object Free Area
OFZ	- Obstacle Free Zone
PAPI	- Precision Approach Path Indicator
POFZ	- Precision Object Free Zone
POV	- Privately Owned/Operated Vehicle
REIL	- Runway End Identifier Lights
ROFZ	- Runway Object Free Zone
ROFA	- Runway Object Free Area
RSA	- Runway Safety Area
RW	- Runway
TODA	- Take-off distance available
TOFA	- Taxiway Object Free Area

TORA - Take-off run available
TWY - Taxiway
UNICOM - Universal Communications

22. Comments/Revisions Log

Appendix A

Construction Safety and Phasing Plan Drawing



REVISIONS NO. DATE DESCRIPTION BY		BANGOR INTERNATIONAL AIRPORT BANGOR, ME UNDERGROUND FUEL PIPE MODIFICATIONS AND CONSTRUCT CONCRETE VALVE PIT		SCALE: 1" = 120' DATE: AUG 2016 DESIGNED BY: JMH DRAWN BY: JMH CHECKED BY: JRH APPROVED: JAM		PROJECT DESIGNER JACOBS 2 Executive Park Drive Suite 200 Bedford, NH 03110 PHONE: (603) 886-7181 FAX: (603) 886-7185	
SHEET 3 OF 4		HORIZONTAL SCALE 1"=120' 120 0 60 120 240		C-100		DRAWING NO.	

SAMPLE

CONTRACTOR'S SAFETY PLAN COMPLIANCE DOCUMENT

FAA AC 150/5370-2F Section 204.B - The Safety Plan Compliance Document

I, _____, of the _____ Corporation, have read the *Bangor International Airport, Underground Fuel Pipe Modifications and Construct Concrete Valve Pit Construction Safety and Phasing Plan* dated _____ 2016, approved by the FAA on _____ TBD, and will abide by it as written and with the following additions as noted below.

Further, I understand that any deviation from the CSPP and SPCD will require prior written approval from the Owner.

1. General

No supplemental information or add comments as required.

2. Project Description

No supplemental information or add comments as required.

3. Coordination

No supplemental information or add comments as required.

4. Phasing

No supplemental information or add comments as required

5. Areas and operations affected by the construction activity

No supplemental information or add comments as required.

6. Protection of navigation aids (NAVAIDS)

No supplemental information.

7. Contractor access

Contractor will be escorted by the airport-provided escort at all times.

8. Wildlife management

No supplemental information or add comments as required.

9. Foreign Objects Debris (FOD) management

No supplemental information or add comments as required.

10. Hazardous materials (HAZMAT) management

Add comments such as how the Contractor will handle residual fuel and asbestos wrapped pipe removal and disposal.

11. Notification of construction activities

The Project Site Safety Officer (SSO) is _____, 207-XXX-XXXX

Provide additional contact numbers as per the CSPP in the specs.

Bangor International Airport 207-992-4600

Bangor International Airport Fuel Dept. 207-992-4643

List of Equipment to be used on the Airfield with Maximum Height:

Add comments as required.

12. Inspection requirements

No supplemental information or add comments as required.

13. Underground utilities

No supplemental information or add comments as required.

14. Penalties

No supplemental information or add comments as required.

15. Special conditions

No supplemental information or add comments as required.

16. Runway and taxiway visual aids

No supplemental information.

17. Marking and signs for access routes

No supplemental information or add comments as required.

18. Hazard marking and lighting

No supplemental information or add comments as required.

19. Protection

No supplemental information or add comments as required.

20. Other limitations on construction.

We understand prior approval is required for equipment exceeding 25-ft in height.

ITEM G-002
Underground Fuel Pipe Modifications

GENERAL

002-1.1 Description

This item shall consist of cutting and capping the existing fuel pipes, removal of hazardous materials, installation of fuel piping, installation of a gate valve, installation of flanges, pipe welding, radiographic ultrasonic testing of the welds, and pressure testing the fuel pipes as illustrated in the contract drawings and in accordance with these specifications.

002-2.1 General

- A. The Airport shall provide a certified installer to observe the work per DOT regulations. The certified installer shall be present at all times when the work is being performed. No person other than the certified installer may observe the work.
- B. The existing fuel pipes are asbestos wrapped pipes. The Contractor shall remove the hazardous material from Airport property and legally dispose of it in conformance with MeDEP and all other applicable regulations.
- C. All construction shall follow the requirements set forth in NFPA 407 *Standard for Aircraft Fuel Servicing* and any other laws, ordinances, codes, and regulations applicable to the performance of the work.
- D. The Contractor is responsible for all dewatering during the project.

002-2.2 Materials

All materials included in the work shall meet all applicable codes and standards that govern the work and meet standard industry practice.

- A. **Pipe.** Pipe shall meet the requirements set forth in NFPA 407. The pipe shall be metal and rated for no less than 150 psi. The pipe shall be protected from corrosion per industry standards and shall be acceptable to the Owner.
- B. **Valve.** The Airport shall provide the Contractor with one (1) Warren Valve Model Number 1155-8, 12" 150LB WCB OS&Y to be used for the work.
- C. **Sealant.** Sealant to be used around the pipes penetrating the concrete valve pit shall be Link Seal Modular Seal or an approved equal.
- D. **Flanges.** Flanges shall meet the requirements set forth in NFPA 407. The Flanges shall be rated to no less than ANSI Class 150 and installed so that the mechanical strength of the joint will not be impaired if exposed to fire.
- E. Exposed steel surfaces shall be protected against atmospheric corrosion per applicable standards. At a minimum, the Contractor shall apply a primer coat of epoxy-polyamide, zinc rich primer, 4 to 6 mils DFT Ameron System 395 or equivalent. The top coat shall

be epoxy polyamide, 4 to 6 mils DFT, Ameron System 395 for equivalent. The total dry film thickness shall be 10-12 mils. Preparation and application shall be per the manufacturer's recommendations.

002-2.3 Existing Conditions

The following photo is of the existing pipes that are depicted in the Contract Drawings. Pipes are currently re-buried and will not be available for the Contractor to view prior to submission of bids.



002-2.4 Site Preparation

- A. Prior to the start of construction, the Airport shall decommission all fuel pipes. The existing fuel within the pipes shall be collected and disposed of by the Airport.
- B. The Airport shall install lighted barricades as shown on the plans at the limits of the Taxiway Safety Area (TSA). At all times with the exception of approval from the Airport, the Contractor's personnel shall stay outside the TSA and be limited to the work area.
- C. The Airport shall conduct all excavation to the limits shown on the plans. The side slopes of the excavation will be cut back to approximately a 1:1 slope. Any additional excavation past the limits shown shall be conducted by the Contractor at no additional cost.

- D. The Contractor shall cut the pipes as shown on the plans. The exact location of the cuts shall be determined in the field by the Contractor.
- E. The Airport shall fill the existing fuel pit with on-site borrow.
- F. The Airport will notify the Aircraft Rescue Firefighting (ARFF) prior to any open flame or welding work and obtain the necessary written approval to perform the work. The Contractor must notify the Airport at least one day in advance.

002-2.5 Construction

- A. The Contractor's attention is directed to the difference in pipe sizes of the two pipes to be connected. The Contractor shall install a transition from a 12" pipe to a 10" pipe downstream of the valve.
- B. All pipe welds shall be made by qualified welders in accordance with all applicable codes and standards including but not limited to the American Welding Society and ANSI / ASME B31.3.
- C. The Contractor's work shall include installing the Airport provided valve.
- D. Procedure: Immediately after the existing pipes are cut the Contractor shall install a "plug" in all lines that are to remain active to prevent contamination of the lines. The Contractor may then weld on the necessary flanges. The "plugs" shall be removed and the pipes thoroughly cleaned to the Owners satisfaction immediately prior to making final connections.

002-2.6 Post Construction

- A. At the completion of the work, a radiographic inspection shall be performed by the Contractor on all constructed welds per applicable codes and standards. Should any deficiencies be found, the Contractor shall correct the deficiencies and re-inspect at no additional cost.
- B. At the completion of the work, a pressure test shall be performed by the Contractor on the new pipe per applicable codes and standards. Should any leaks be found, the Contractor shall correct the leaks and re-test at no additional cost.

METHOD OF MEASUREMENT

- 002-3.1** All work and costs involved in the underground fuel pipe modifications shall be measured as lump sum. This includes but is not limited to all removals and installation of new flanges, pipe, connections, the new valve, low point drain and testing.

BASIS OF PAYMENT

- 002-4.1** Payment shall be made at the contract lump sum price. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the underground fuel pipe modifications.

Payment will be made under:

Item G-002-1

Underground Fuel Pipe Modifications

Lump Sum

END ITEM G-002

Fig No.:WARREN-1155-8

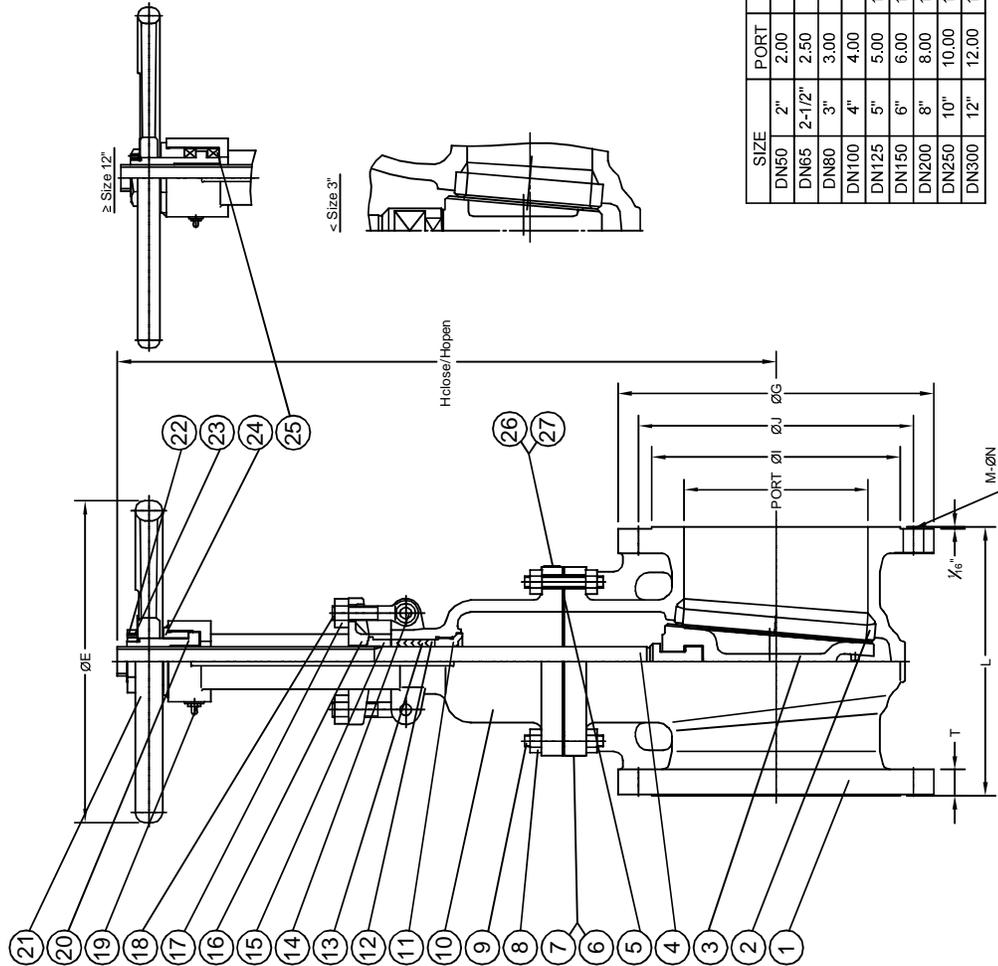
APPLICABLE STANDARDS:
 Gate Valve:API 600
 Shell Wall Thickness:API 600
 Face to Face:ANSI B16.10
 End Flanges:ANSI B16.5

TEST PRESSURE:
 Test inspection Per API 598
 Shell(by Water):450Psig
 Seat(by Water):314Psig
 (by Air):80Psig
 Low Emission:ISO 15848-2,50PPM

BODY MARK
 WARREN
 2
 150
 WCB

MATERIALS LIST

NO.	NAME PARTS	MATERIALS
1	BODY	ASTM A216 Gr. WCB
2	SEAT RING	ASTM A105+STL 6#
3	WEDGE	ASTM A216 Gr. WCB+13Cr (FLEXIBLE WEDGE)
4	STEM	ASTM A182 Gr.F6a
5	GASKET	GRAPHITE+304
6	NAMEPLATE	ASTM A666 Gr. 304
7	RIVET	ASTM A688 Gr. 304
8	BONNET NUT	ASTM A194 Gr. 2H (HEAVY)
9	BONNET BOLT	ASTM A193 Gr. B7
10	BONNET	ASTM A216 Gr. WCB
11	BACK SEAT RING	ASTM A276 Gr.410
12	PACKING	BRAIDED GRAPHITE (Cup and Cone Design)
13	PACKING	FLEXIBLE GRAPHITE (Cup and Cone Design)
14	EYE BOLT PIN	AISI 1045
15	GLAND	ASTM A276 Gr.410
16	GLAND FLANGE	ASTM A216 Gr. WCB
17	EYE BOLT	ASTM A193 Gr. B7
18	EYE BOLT NUT	ASTM A194 Gr. 2H (HEAVY)
19	OIL FILLER	CARBON STEEL
20	STEM NUT	ASTM A439 Gr. D-2
21	HANDWHEEL	ASTM A536 65-45-12
22	HANDWHEEL NUT	AISI 1035
23	SCREW	AISI 1035
24	RETAINING NUT	AISI 1035
25	THRUST BEARING	UNS 52100
26	LOW EMISSION NAMEPLATE	ASTM A666 Gr. 304
27	RIVET	ASTM A666 Gr. 304



DIMENSIONS

SIZE	PORT	L	ØE	Hdase	Hopen	ØG	ØJ	ØI	T	M	ØN	Weight(lbs)	Cv's(GPM)	Torque(lbf-in)
DN50	2"	7.00	7.87	12.60	14.84	6.00	4.75	3.62	0.75	4	0.75	40.79	60.3	106.2
DN65	2-1/2"	7.50	7.87	14.53	17.52	7.00	5.50	4.12	0.88	4	0.75	52.91	75.4	159.3
DN80	3"	8.00	9.84	15.31	18.66	7.50	6.00	5.00	0.94	4	0.75	72.75	109.7	194.7
DN100	4"	9.00	9.84	17.60	21.85	9.00	7.50	6.18	0.94	8	0.75	108.03	190.0	327.5
DN125	5"	10.00	11.81	19.76	25.16	10.00	8.50	7.32	0.94	8	0.88	149.92	342.0	469.1
DN150	6"	10.50	11.81	23.11	29.57	11.00	9.50	8.50	1.00	8	0.88	191.80	427.5	646.1
DN200	8"	11.50	13.78	28.14	36.46	13.50	11.75	10.63	1.12	8	0.88	291.01	759.8	1053.2
DN250	10"	13.00	17.72	33.98	44.41	16.00	14.25	12.75	1.19	12	1.00	425.49	1187.3	1646.2
DN300	12"	14.00	19.69	40.16	52.60	19.00	17.00	15.00	1.25	12	1.00	562.18	1699.2	2345.4

unit:inch

APPROVED BY:	CHECK BY:	DRAWN BY:	DRAWINGNO.	MATERIAL	UNIT	DESCRIPTION
CN Chen	Ji Zhuping	Wang Wei	WARREN-1155-8	MATERIALS LIST	inch	CARBON STEEL GATE VALVES FLANGE END , ANSI CLASS 150
DATE	11/17/2014	11/17/2014	REVISION	SCALE	FREE	



Fig No.:WARREN-1155-8

APPLICABLE STANDARDS:
 Gate Valve:API 600
 Shell Wall Thickness:API 600
 Face to Face:ANSI B16.10
 End Flanges:ANSI B16.5

BODY MARK
 WARREN
 14
 150
 WCB

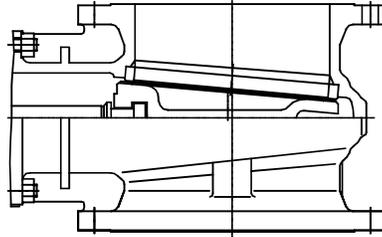
TEST PRESSURE:
 Test inspection Per API 598
 Shell(by Water):450Psig
 Seat(by Water):314Psig
 (by Air):80Psig

Low Emission:ISO 15848-2 50PPM

MATERIALS LIST

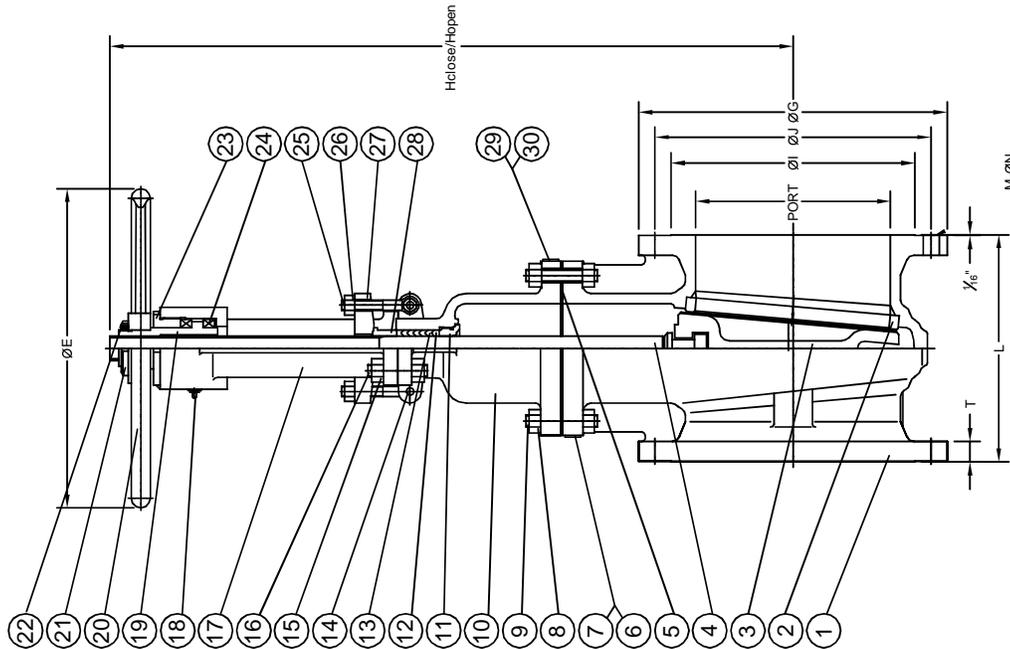
NO.	NAME PARTS	MATERIALS
1	BODY	ASTM A216 Gr. WCB
2	SEAT RING	ASTM A105+STL 6#
3	WEDGE	ASTM A216 Gr. WCB+13Cr (FLEXIBLE WEDGE)
4	STEM	ASTM A182 Gr.F6a
5	GASKET	GRAPHITE+304
6	NAMEPLATE	ASTM A666 Gr. 304
7	RIVET	ASTM A686 Gr. 304
8	BONNET NUT	ASTM A194 Gr. 2H (HEAVY)
9	BONNET BOLT	ASTM A193 Gr. B7
10	BONNET	ASTM A216 Gr. WCB
11	BACK SEAT RING	ASTM A276 Gr.410
12	PACKING	BRAIDED GRAPHITE (Cup and Cone Design)
13	PACKING	FLEXIBLE GRAPHITE (Cup and Cone Design)
14	EYE BOLT PIN	AISI 1045
15	YOKE NUT	ASTM A194 Gr. 2H (HEAVY)
16	YOKE BOLT	ASTM A193 Gr. B7
17	YOKE	ASTM A216 Gr. WCB
18	OIL FILLER	CARBON STEEL
19	STEM NUT	ASTM A439 Gr. D-2
20	HANDWHEEL	ASTM A536 65-45-12
21	HANDWHEEL NUT	AISI 1035
22	SCREW	AISI 1035
23	RETAINING NUT	AISI 1035
24	THRUST BEARING	UNS 52100
25	EYE BOLT	ASTM A194 Gr. 2H (HEAVY)
26	EYE BOLT NUT	ASTM A193 Gr. B7
27	GLAND FLANGE	ASTM A216 Gr. WCB
28	GLAND	ASTM A276 Gr.410
29	LOW EMISSION NAMEPLATE	ASTM A666 Gr. 304
30	RIVET	ASTM A686 Gr. 304

≥ Size 18"



DIMENSIONS

SIZE	PORT	L	ØE	Hopen	ØG	ØJ	ØI	T	M	ØN	Weight(lbs)	Cv's(GPM)	Torque(lb-in)	unit:inch
														Weight(lbs)
DN350	14"	13.25	15.00	19.69	21.00	18.74	16.26	1.38	12	1.14	1082.48	2144.6	3000.4	
DN400	16"	15.25	16.00	23.62	23.50	21.26	18.50	1.46	16	1.12	1175.07	2485.0	5053.8	
DN450	18"	17.25	17.00	23.62	25.00	22.75	21.00	1.56	16	1.25	1410.97	3644.3	6487.6	
DN500	20"	19.25	18.00	23.62	27.50	25.00	23.00	1.69	20	1.25	1719.61	4523.9	8099.6	



APPROVED BY:	CHECK BY:	DRAWN BY:	DRAWING NO.	MATERIAL	UNIT	DESCRIPTION
CN Chen	Ji Zhuping	Wang Wei	WARREN-1155-8	MATERIALS LIST	inch	CARBON STEEL GATE VALVES FLANGE END , ANSI CLASS 150
DATE	REVISION	SCALE	02	FREE		

ITEM G-003
Concrete Valve Pit

GENERAL

003-1.1 Description

This item shall consist of constructing the concrete valve pit as illustrated in the contract drawings and in accordance with these specifications.

003-2.1 Materials

- A. **Concrete.** Concrete materials shall meet the requirements of Section 502 – Structural Concrete (Class A) of the MEDOT Standard Specifications.
- B. **Steel.** Reinforcing steel shall meet the requirements of Sections 503 & 709 – Reinforcing Steel of the MEDOT Standard Specifications. Steel shall be deformed bars and conform to ASTM A615.
- C. **Bedding Material.** Bedding Material shall be ¾” crushed stone placed to the depth shown on the plans.
- D. **Geotextile.** Geotextile material shall meet the requirements of Section 722 –Geotextiles of the MEDOT Standard Specifications for separation geotextiles.
- E. **Waterstop.** The waterstop shall be surface applied and bentonite based.
- F. **Frame and Cover.** The frame and cover shall be a Neenah model R-1883-H1 or approved equal and be load rated for the given design loads.

003-2.2 Concrete Valve Pit

- A. The Contractor shall design the valve pit. The loading calculations shall be performed for a live load of HS-25 or P-15 crash truck (fire truck) loading, whichever produces greater stresses. The loadings are provided as an attachment to the end of this specification. Wheel configurations on the top, walls, and foundation shall be placed to create maximum potential loads and stresses for design. Shop drawings and calculations shall be submitted to the Owner with certification that the structures meet the loadings specified. Shop drawings shall include details of reinforcing, certification of load capacity and the design shall be stamped by a Professional Engineer licensed in the state of Maine.
- B. The opening at the top of the valve pit shall be a minimum of 24” square opening. The size and orientation must allow for the new gate valve to be installed and/or removed.
- C. The overall size of the valve pit, orientation of the piping, and size/location of the access opening shall be coordinated such that the valve is fully operational and serviceable. Upon completion, the valve shall be able to be installed and/or removed without making any modifications to the structure.
- D. The Owner shall backfill the structure and restore the work area with topsoil and seed at the end of the project.

- E. The Contractor shall be responsible for all dewatering, installation of the geotextile and stone bedding, construction of the concrete structure, removal of all form work and removal of all debris and excess materials (other than soils) from the work area.

METHOD OF MEASUREMENT

- 003-3.1** All work and costs involved in the construction of the concrete valve pit shall be measured as lump sum.

BASIS OF PAYMENT

- 003-4.1** Payment shall be made at the contract lump sum price. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete construction of the concrete valve pit. No separate payment shall be made for reinforcing steel, concrete, bedding material, formwork, frame/cover or other items.

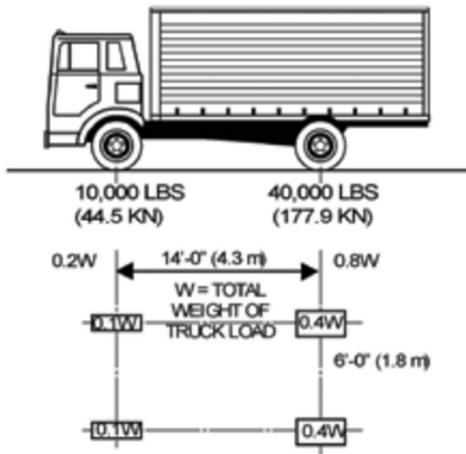
Payment will be made under:

Item G-003-1	Concrete Valve Pit	Lump Sum
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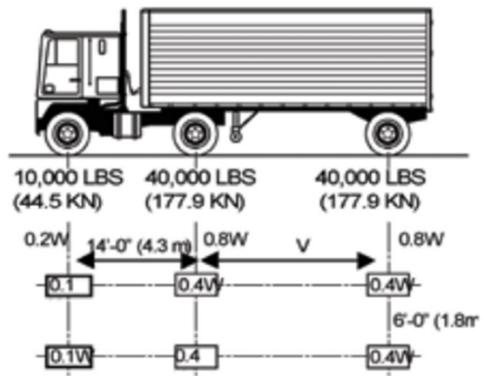
END ITEM G-003

AFTER LOADING DETAILS

H-25



HS-25

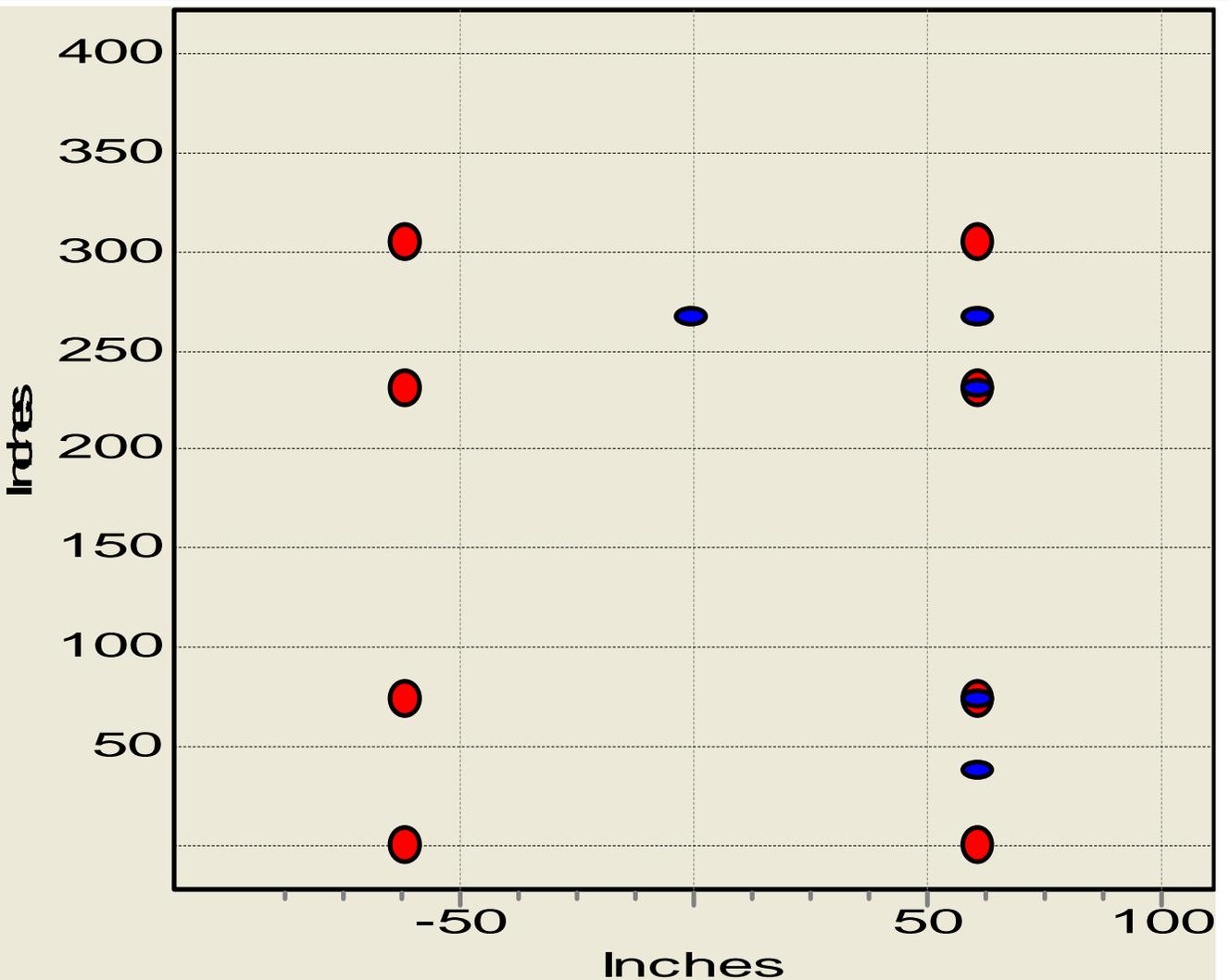


W = COMBINED WEIGHT ON THE FIRST TWO AXLES WHICH IS THE SAME AS FOR THE CORRESPONDING H (M) TRUCK.

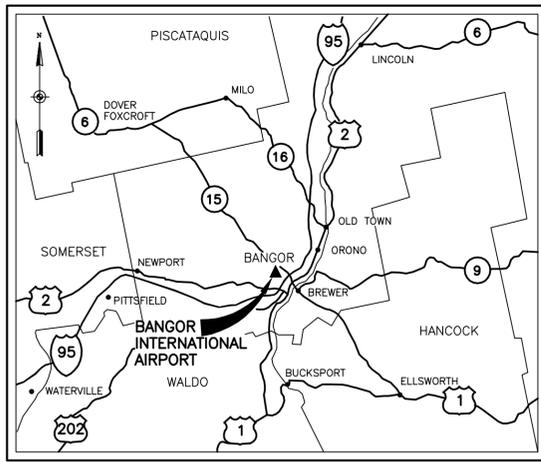
V = VARIABLE SPACING - 14 FEET TO 30 FEET (4.3-9.1 m) INCLUSIVE SPACING TO BE USED IS THAT WHICH PRODUCES MAXIMUM STRESSES.

Source: AASHTO Standard Specifications for Highway Bridges

PCASE Vehicle Specification Data					
Vehicle Designation:		P-15 CRASH TRUCK (FIRE TRUCK)			
Aircraft:		No		Custom:	
				No	
Standard Load:	130860			Percent of load on Main Gear:	100
Minimum Load:	75180			Surface Thickness Group Number:	3
Maximum Load:	130860			Base Thickness Group Number:	2
ACN/PCN Rigid & Flexible Constants					
Rigid			Flexible		
Subgrade Category	Intercept	Slope	Subgrade Category	Intercept	Slope
A	0.2156	0.0755	A	-0.7184	0.0531
B	0.1273	0.081	B	-1.0007	0.0676
C	-0.5765	0.0934	C	-0.9633	0.0763
D	-0.6655	0.0998	D	-1.6263	0.095
Pass to Coverage Ratios					
Traffic Area	Rigid		Traffic Area	Flexible	
A	1.4324		A	1.4324	
B,C,D	2.3485		B,C,D	2.3485	



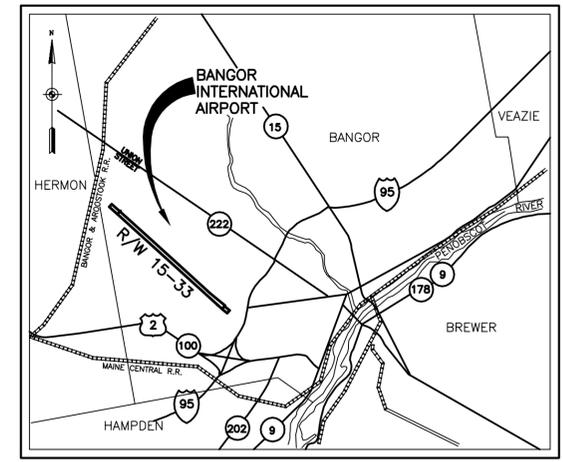
Vehicle Designation:		P-15 CRASH TRUCK (FIRE TRUCK)									
Gear Tire Data											
X Coord	Y Coord	% Load	Pressure	Contact Area	Shape	Nose Gear Tire	Use for Acn	Use for Eswl	Use for Led	Use for Pcr	Use for Stress
61.00	304.00	12.75	70.00	238.35	1.65	No	Yes	Yes	Yes	Yes	Yes
61.00	230.00	12.75	70.00	238.35	1.65	No	Yes	Yes	Yes	Yes	Yes
61.00	74.00	12.25	70.00	229.01	1.65	No	Yes	Yes	Yes	Yes	Yes
61.00	.00	12.25	70.00	229.01	1.65	No	Yes	Yes	Yes	Yes	Yes
-61.00	.00	12.25	70.00	229.01	1.65	No	Yes	Yes	Yes	Yes	Yes
-61.00	74.00	12.25	70.00	229.01	1.65	No	Yes	Yes	Yes	Yes	Yes
-61.00	230.00	12.75	70.00	238.35	1.65	No	Yes	Yes	Yes	Yes	Yes
-61.00	304.00	12.75	70.00	238.35	1.65	No	Yes	Yes	Yes	Yes	Yes



VICINITY MAP



**UNDERGROUND FUEL PIPE MODIFICATIONS
AND
CONSTRUCT CONCRETE VALVE PIT
AUGUST 2016**



LOCATION MAP

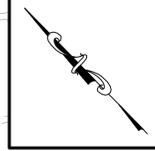
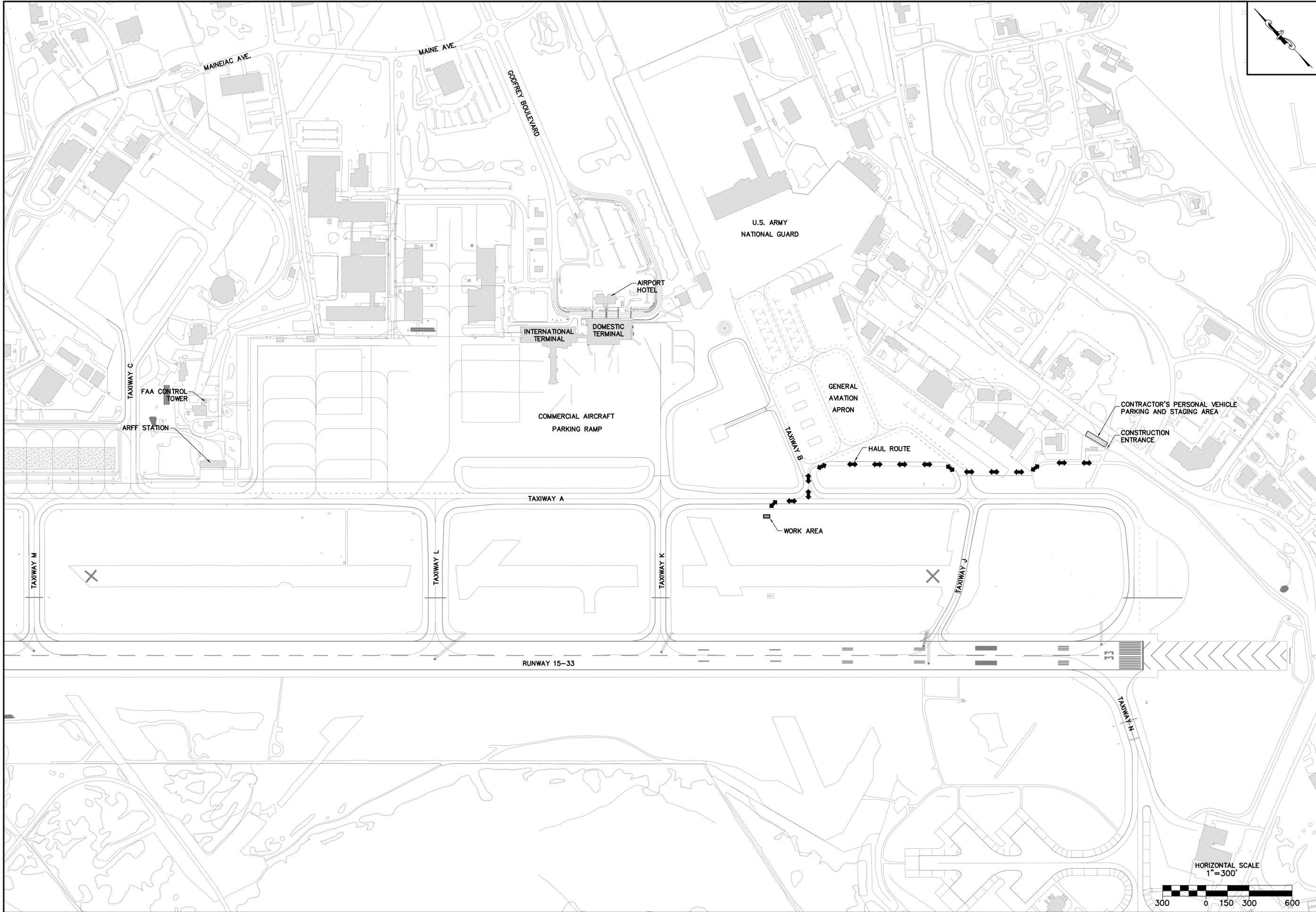
INDEX TO DRAWINGS	
DRAWING NUMBER	TITLE
G-000	TITLE SHEET
G-100	GENERAL PLAN
C-100	SAFETY AND PHASING PLAN AND NOTES
C-200	VALVE PIT DETAILS



AIRPORT DEPARTMENT
CITY OF BANGOR, MAINE
ANTHONY CARUSO J.R.
AIRPORT DIRECTOR

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STATE OF MAINE
 JAMES A. MURPHY
 No. 7053
 LICENSED PROFESSIONAL ENGINEER
 8/16/16

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SCALE: 1" = 300'
 DATE: AUG 2016
 DESIGNED BY: JMH
 DRAWN BY: JMH
 CHECKED BY: JRH
 APPROVED: JAM

BANGOR INTERNATIONAL AIRPORT
 BANGOR, ME
 UNDERGROUND FUEL PIPE MODIFICATIONS
 AND CONSTRUCT CONCRETE VALVE PIT
GENERAL PLAN

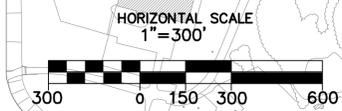
REVISIONS

REV. NO.	DATE	DESCRIPTION	BY

REV. NO.	DATE	DESCRIPTION	BY

PROJ. NO.: E2X42722
 FILE NO.: P/2016/42722
 AIP NO.:

DRAWING NO.
G-100
 SHEET 2 OF 4



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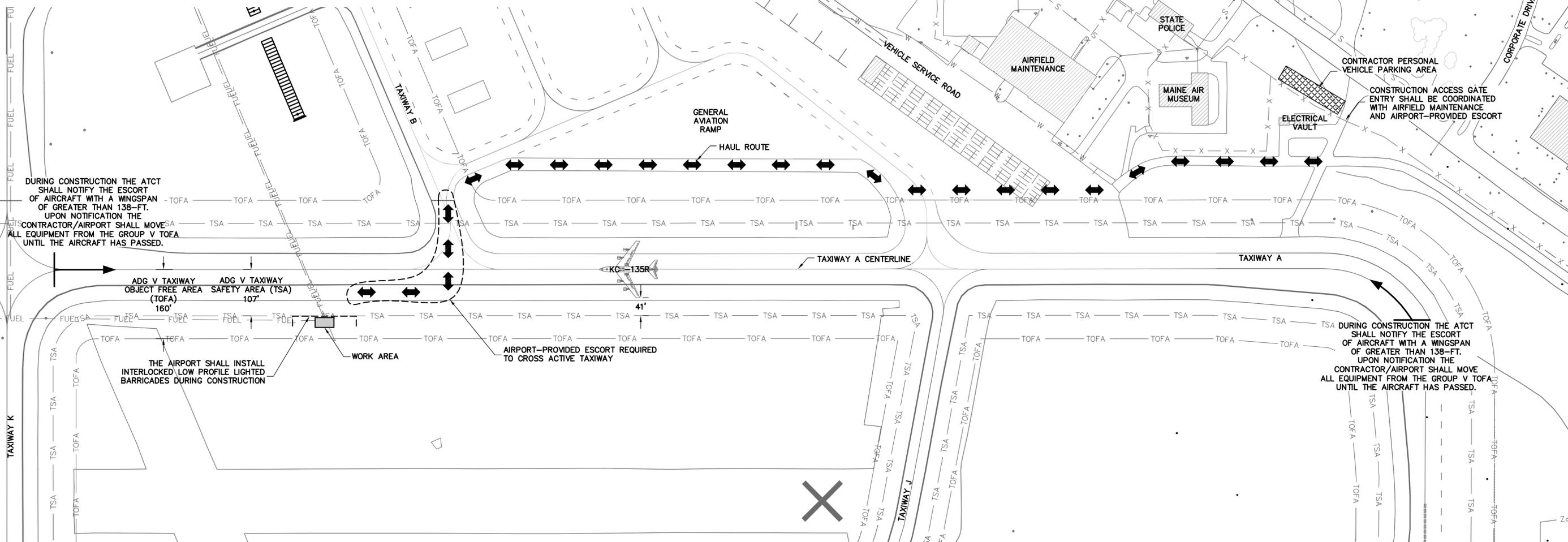
LEGEND

-  WORK AREA
-  STAGING AND MATERIAL STORAGE AREA
-  HAUL ROUTE
-  LOW PROFILE LIGHTED BARRICADES
-  TSA GROUP V TAXIWAY SAFETY AREA
-  TOFA GROUP V TAXIWAY OBJECT FREE AREA

PHASING NOTES

- 1) TOTAL PROJECT DURATION IS 7 CALENDAR DAYS.
- 2) DURING CONSTRUCTION, THE ATCT SHALL NOTIFY THE ESCORT OF AIRCRAFT WITH A WINGSPAN OF GREATER THAN 138'-FT. UPON NOTIFICATION THE CONTRACTOR/AIRPORT SHALL MOVE ALL PERSONNEL EQUIPMENT FROM THE GROUP V TOFA UNTIL THE AIRCRAFT HAS PASSED.
- 3) COMMON AIRCRAFT WINGSPANS:
 KC-135R = 131'
 A-320 = 112'
 B727 = 109'
 B737 = 118'
 MD-80 = 108'
 G650 = 100'
 REGIONAL JETS = 60' TO 118'

- *B747 = 196' TO 225'
- *C-17A = 170'
- *MD-11 = 171'
- *B777 = 200'+
- *B767 = 156' TO 171'
- *B747 = 196' TO 225'
- *DENOTES LARGER THAN 138'



DURING CONSTRUCTION THE ATCT SHALL NOTIFY THE ESCORT OF AIRCRAFT WITH A WINGSPAN OF GREATER THAN 138'-FT. UPON NOTIFICATION THE CONTRACTOR/AIRPORT SHALL MOVE ALL EQUIPMENT FROM THE GROUP V TOFA UNTIL THE AIRCRAFT HAS PASSED.

DURING CONSTRUCTION THE ATCT SHALL NOTIFY THE ESCORT OF AIRCRAFT WITH A WINGSPAN OF GREATER THAN 138'-FT. UPON NOTIFICATION THE CONTRACTOR/AIRPORT SHALL MOVE ALL EQUIPMENT FROM THE GROUP V TOFA UNTIL THE AIRCRAFT HAS PASSED.

GENERAL NOTES:

THESE NOTES ARE INTENDED TO HIGHLIGHT THE REQUIREMENTS SET FORTH IN THE PROJECT SPECIFICATIONS. IN ALL CASES THE PROJECT SPECIFICATIONS SHALL GOVERN OVER THE PLANS.

ENVIRONMENTAL PROTECTION

THE CONTRACTOR MUST COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS CONTROLLING POLLUTION AND DISCHARGE FROM THE SITE.

AIRPORT SECURITY

THE CONTRACTOR SHALL COMPLY WITH ALL AIRPORT SECURITY REQUIREMENTS AS DIRECTED BY THE AIRPORT DIRECTOR AND IN THE PROJECT SPECIFICATIONS.

THE CONTRACTOR'S PERSONNEL, EQUIPMENT, MATERIALS, AND DELIVERIES SHALL BE SUBJECT TO SECURITY CHECKS PRIOR TO OR WHILE ON AIRPORT PROPERTY. ANY DELAYS INCURRED DUE TO SECURITY INSPECTIONS SHALL NOT BE A VALID CLAIM FOR DELAYS.

PARKING OF PERSONAL CARS (POV) AT THE WORK SITE WILL NOT BE PERMITTED. THE CONTRACTOR SHALL PROVIDE ADEQUATE AND SAFE TRANSPORTATION TO AND FROM THE AREA WHERE POVS ARE PARKED AND THE WORK SITE. EMPLOYEES AND DRIVERS OF WORK VEHICLES WILL BE INSTRUCTED AS TO THE PROPER ACCESS ROADS. IN NO CASE WILL VEHICLES OR EQUIPMENT OPERATE ON PAVEMENT INTENDED FOR AIRCRAFT USE UNLESS APPROVED BY THE AIRPORT.

THE CONTRACTOR'S PERSONNEL AND VEHICLES WILL NOT HAVE ACCESS TO THE ENTIRE AIRPORT, BUT SHALL BE LIMITED TO THE SPECIFIED HAUL ROUTES, WORK AREA AND STAGING AREA.

OPEN TRENCHES OR EXCAVATIONS

OPEN TRENCHES MUST BE CLEARLY DEFINED, CONFINED TO THE WORK AREA, AND MARKED WITH LIGHTED BARRICADES THAT MEET THE REQUIREMENTS OF FAA AC 150/5370-2F.

CONTRACTOR'S STAGING AREA

THE CONTRACTOR SHALL USE THE AREA SHOWN ON THE PLANS FOR HIS/HER STAGING AREA. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING TO ORIGINAL CONDITION ANY AREAS USED FOR THE CONTRACTOR'S OPERATION AT NO ADDITIONAL COST TO THE OWNER. THERE WILL BE NO SEPARATE PAYMENT FOR THIS WORK. ALL WORK NECESSARY TO USE THE STAGING AREA SHALL BE DEEMED INCIDENTAL TO THE OVERALL PROJECT COST.

SAFETY AND PHASING ITEMS

THE CONTRACTOR MUST FOLLOW THE APPROVED SAFETY AND PHASING PLAN AND CONTRACTOR'S SAFETY PLAN COMPLIANCE DOCUMENT. ANY CHANGES OR ALTERATIONS TO THE APPROVED PLANS MUST BE APPROVED BY THE OWNER AND FAA.

HAUL ROADS

ALL PAVED HAUL ROADS OR HAUL ROUTES SHALL BE KEPT CLEAN AT ALL TIMES TO PREVENT THE ACCUMULATION OF DIRT AND MUD AND THE GENERATION OF DUST. CLEANING SHALL BE PERFORMED BY THE AIRPORT BY SWEEPING, WASHING, OR OTHER METHODS.

MAINTENANCE OF THE CONSTRUCTION SITE

THE CONTRACTOR SHALL KEEP THE CONSTRUCTION SITE FREE OF PAPER, BOXES, AND OTHER DEBRIS, WHICH COULD BE BLOWN ONTO THE RUNWAY, TAXIWAYS AND/OR APRONS.

ALL AIRPORT PAVEMENTS SHALL BE KEPT CLEAR AND CLEAN AT ALL TIMES. ALL ROCKS, MUD, AND OTHER DEBRIS CARRIED ONTO THE AIRPORT PAVEMENT WILL BE CLEANED BY THE AIRPORT.

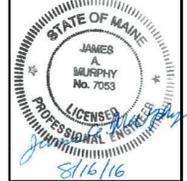
AIRPORT ESCORTS

THE CONTRACTOR SHALL BE ESCORTED BY THE AIRPORT AT ALL TIMES. THE AIRPORT-PROVIDED ESCORT SHALL MAINTAIN CONSTANT COMMUNICATION WITH THE ATCT. THE ATCT SHALL NOTIFY THE ESCORT PRIOR TO DIRECTING AIRCRAFT WITH A WINGSPAN OF GREATER THAN 138'-FT BY THE WORK AREA. UPON NOTIFICATION THE CONTRACTOR/AIRPORT SHALL MOVE ALL EQUIPMENT FROM THE GROUP V TOFA UNTIL THE AIRCRAFT HAS PASSED. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE ESCORT AT ALL TIMES.

INCIDENTAL WORK

WORK NOTED AS "INCIDENTAL" SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM REQUIRING THE WORK.

HORIZONTAL SCALE
1"=120'



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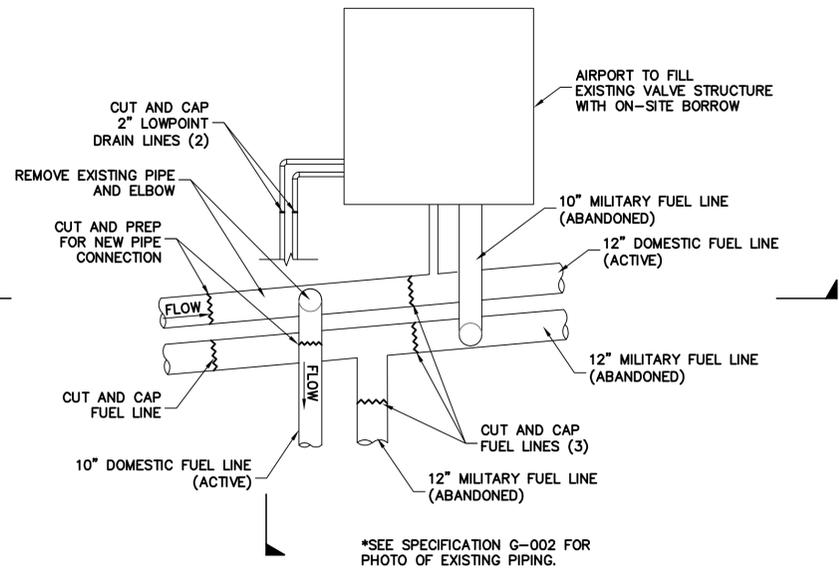
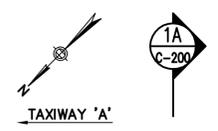
SCALE: 1" = 120'
 DATE: AUG 2016
 DESIGNED BY: JMH
 DRAWN BY: JMH
 CHECKED BY: JRH
 APPROVED: JAM

BANGOR INTERNATIONAL AIRPORT
 BANGOR, ME
 UNDERGROUND FUEL PIPE MODIFICATIONS
 AND CONSTRUCT CONCRETE VALVE PIT
**SAFETY AND PHASING
 PLAN AND NOTES**

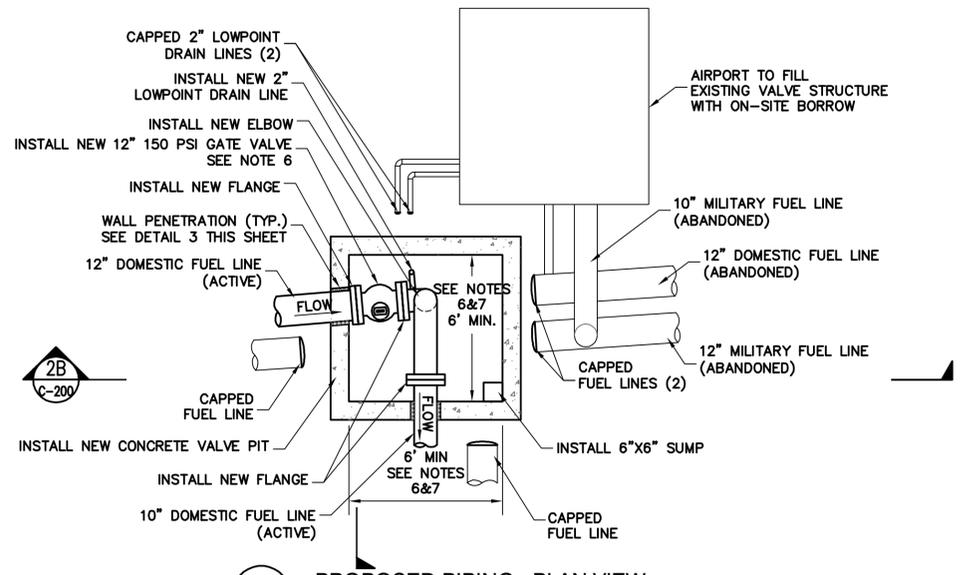
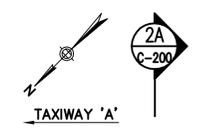
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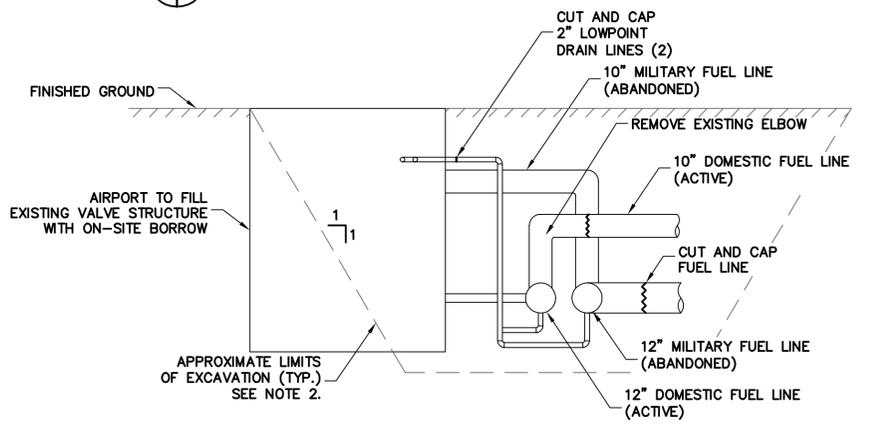
DRAWING NO.
C-100
 SHEET 3 OF 4



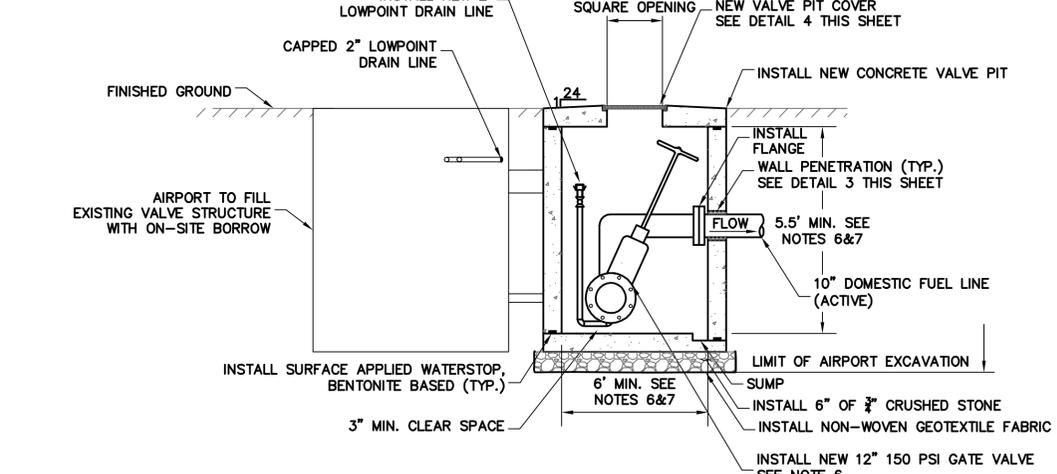
1 EXISTING PIPING - PLAN VIEW
C-200 C-200 NOT TO SCALE



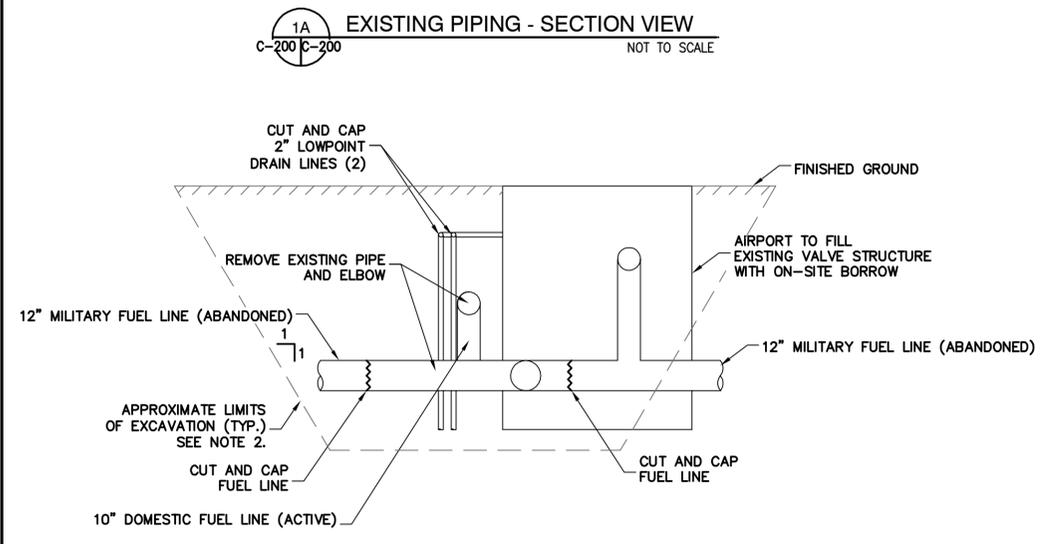
2 PROPOSED PIPING - PLAN VIEW
C-200 C-200 NOT TO SCALE



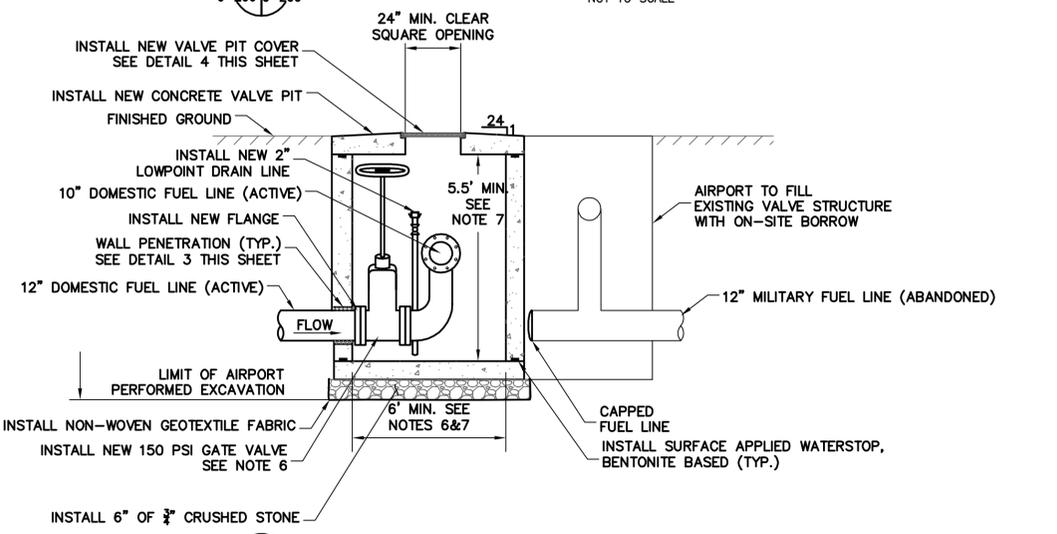
1A EXISTING PIPING - SECTION VIEW
C-200 C-200 NOT TO SCALE



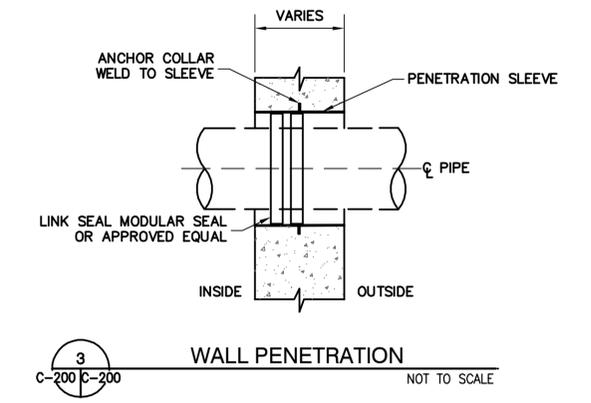
2A PROPOSED PIPING - SECTION VIEW
C-200 C-200 NOT TO SCALE



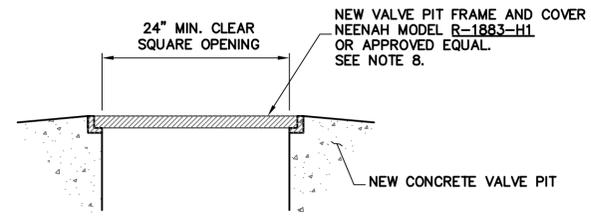
1B EXISTING PIPING - SECTION VIEW
C-200 C-200 NOT TO SCALE



2B PROPOSED PIPING - SECTION VIEW
C-200 C-200 NOT TO SCALE

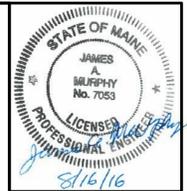


3 WALL PENETRATION
C-200 C-200 NOT TO SCALE



4 VALVE PIT COVER
C-200 C-200 NOT TO SCALE

- NOTES:**
- EXISTING PIPES ARE ASBESTOS WRAPPED. ASBESTOS REMOVAL AND DISPOSAL SHALL BE PERFORMED BY THE CONTRACTOR.
 - ALL EXCAVATION SHALL BE PERFORMED BY THE AIRPORT. THE SIDE SLOPES SHALL BE CUT BACK AT APPROX. 1 TO 1 SLOPE. THE AIRPORT WILL ALSO BACKFILL AND RESTORE THE WORK AREA WITH TOPSOIL & SEED AT THE COMPLETION OF CONSTRUCTION.
 - THE AIRPORT SHALL DECOMMISSION ALL FUEL LINES.
 - THE AIRPORT SHALL COLLECT AND DISPOSE OF EXISTING FUEL IN THE FUEL LINES.
 - THE AIRPORT WILL PROVIDE A CERTIFIED INSTALLER TO OBSERVE THE WORK PER DOT REGULATIONS.
 - THE GATE VALVE SHALL BE A WARREN 1155-8 12" 150LB WCB OS&Y. THE VALVE WILL BE PROVIDED BY THE AIRPORT AND INSTALLED BY THE CONTRACTOR. THE VALVE SHALL BE ORIENTED AND MOUNTED TO FIT IN THE VALVE PIT. IT IS ANTICIPATED THE HEIGHT OF THE VALVE FROM BOTTOM OF FLANGE/BODY TO TOP OF HANDWHEEL NUT WILL BE APPROXIMATELY 63-INCHES IN THE OPEN POSITION.
 - THE CONTRACTOR SHALL DESIGN THE CONCRETE VALVE PIT. THE STRUCTURE SHALL BE DESIGNED FOR A HS-25 OR P-15 CRASH TRUCK (FIRE TRUCK) LIVE LOADING, WHICHEVER PRODUCES GREATER STRESSES. PROVIDE REINFORCING STEEL, WALL THICKNESS, AND STRUCTURE DIMENSIONS AS REQUIRED. REFER TO THE SPECIFICATION G-003 FOR MORE DETAILS ON THE LIVE LOADS.
 - THE OPENING AT THE TOP OF THE CONCRETE PIT SHALL BE A MINIMUM 24" SQUARE OPENING AND MUST BE LARGE ENOUGH FOR THE GATE VALVE TO PASS THROUGH.
 - THE SEAL AROUND THE PIPES PENETRATING THE WALLS OF THE CONCRETE PIT SHALL BE LINK SEAL MODULAR SEAL OR APPROVED EQUAL.
 - THE TRANSITION FROM A 12" PIPE TO A 10" SHALL BE DOWNSTREAM OF THE GATE VALVE.
 - EXACT PIPE CUTTING LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD.
 - THE CONTRACTOR SHALL X-RAY ALL WELDS AND PERFORM A PRESSURE TEST AT THE COMPLETION OF THE WORK.
 - ALL ITEMS NOT SPECIFICALLY CALLED FOR TO BE PERFORMED BY THE AIRPORT SHALL BE PERFORMED BY THE CONTRACTOR.



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DATE: AUG 2016
DESIGNED BY: JMH
DRAWN BY: JMH
CHECKED BY: JRH
APPROVED: JAM

BANGOR INTERNATIONAL AIRPORT
BANGOR, ME
UNDERGROUND FUEL PIPE MODIFICATIONS
AND CONSTRUCT CONCRETE VALVE PIT
VALVE PIT DETAILS

REVISIONS	DESCRIPTION	DATE	BY

PROJ. NO.:	E2X42722
JE FILE:	P/2016/42722
AIP NO.:	
REV. NO.	

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C-200
SHEET 4 OF 4

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