DOCUMENT 00 00 11

ADDENDUM NO. 1
May 18, 2026

Fuel Farm Improvements
City of Duluth No. 26-4405
SP No. A6901A-63
Sky Harbor Airport
Duluth, Minnesota

SEH No. DULAI 188848

From: Short Elliott Hendrickson Inc.
3535 Vadnais Center Drive
St. Paul, MN 55110-3507
651.490.2000

To: Document Holders

DOCUMENT HOLDERS on the above-named project are hereby notified that this document shall be appended to, take precedence over and become part of the original bidding documents dated May 1, 2026, for this work. Bids submitted for the construction of this work shall conform to this document.

This addendum consists of 2 pages and attached Pre-bid Meeting Presentation, Document No. 00 41 00 Bid Form, Section Special Provisions – Mechanical, Fuel System Equipment,and attached Drawings G3.00, E0.50, E5.00, E5.02, and F105.

A pre-bid meeting was held May 14th, 2026. A recording of that meeting can be downloaded at the following link:

Sky Harbor Airport Fuel Farm Improvements Pre-Bid Meeting

Meeting Presentation is included in this addendum.

Changes to Bidding Requirements:

1. 00 41 00 Bid Form, Statement of Estimate Quantities was updated.

Changes to Specifications:

2. Fuel System Special Provisions: Fuel System Equipment, Part 2 Products
    a. Section 2.02, Aboveground Storage Tank(s), (2)
        i. Remove in its entirety and replace with: “Provide AvGas tank signage on all sides for "No Smoking" and "AvGas". The two ends of the tank shall include an NFPA 704 diamond indicating Health - 1, Flammability - 3 and Reactivity - 0. Additional labeling shall be provided in accordance with the MSFC and MPCA requirements.”
    b. Section 2.01, Submersible Pump
        i. Replace: “2.01” with “2.04”.
    c. Section 2.02, Fuel Management Unit/Card Reader, Remove in its entirety and replace with:
        i. 2.05 Fuel Management Unit/Card Reader
            A. Reuse existing FuelMaster card reader.
            B. Unit to provide access to new AvGas fueling cabinet.
            C. Existing card reader to be upgraded to process EMV transactions.

d. Section 2.03, Alarm Console
    i. Replace: “2.03” with “2.06”.
e. Section 2.04, Remote Fill Box
    i. Replace: “2.04” with “2.07”.
f. Section 2.05, Tank Level Gauge & Alarm
    i. Replace: “2.05” with “2.08”.
g. Section 2.06, Interstitial Leak Probe
    i. Replace: “2.06” with “2.09”.
h. Section 2.07, Overfill Valve and Drop Tube(s)
    i. Replace: “2.07” with “2.10”.
i. Section 2.08, Aboveground Piping
    i. Replace: “2.08” with “2.11”.
j. Section 2.09, Underground Piping
    i. Replace: “2.09” with “2.12”.
k. Section 2.10, Mechanical Line Leak Detection
    i. Replace: “2.10” with “2.13”.
l. Section 2.11, Containment Sump(s)
    i. Replace: “2.11” with “2.14”.
m. Section 2.12, Sump Probe(s)
    i. Replace: “2.12” with “2.15”.
n. Section 2.13, Valves
    i. Replace: “2.13” with “2.16”.
o. Section 2.14, Sign(s)
    i. Replace: “2.14” with “2.17”.
p. Section 2.15, Emergency Stop Switch
    i. Replace: “2.15” with “2.18”.
q. Section 2.16, Portable Supplies
    i. Replace: “2.16” with “2.19”.
r. Section 2.17, Crash Protection Bollards
    i. Replace: “2.17” with “2.20”.

Changes to Drawings:

3. G3.00 GENERAL NOTES AND STATEMENT OF QUANTITIES – Replace with attached G3.00.
4. E0.50 ELECTRICAL REMOVAL PLAN - Replace with attached E0.50.
5. E5.00 ELECTRICAL SITE PLAN - Replace with attached E5.00.
6. E5.02 ELECTRICAL DETAILS - Replace with attached E5.02.
7. F105 AVGAS P&ID - Replace with attached F105.

NOTE: Receipt of this Addendum No. 1, dated May 18, 2026 shall be acknowledged on **Bid Express.**. Failure to do so will not allow Bidder to submit Bid.

END OF ADDENDUM

Purchasing Division, Finance Department
218-730-5340 | purchasing@duluthmn.gov
Room 120 | 411 West First Street | Duluth, Minnesota 55802
www.duluthmn.gov

Addendum 1
Solicitation 26-4405
Fuel Farm Improvements

QUESTIONS:

The following questions were asked and have been answered in *italics* below.

1) In Bid Express it looks like I have the option to use a Surety2000 electronic bid bond but there is a bond form included in the bidding documents. Could you please confirm what method we are required to submit for the bid and if the Airport Authority should be listed as owner or the City of Duluth?
   a) *The Surety2000 option in BidExpress has been removed. All bid bonds should be emailed to Purchasing@duluthmn.gov.*
2) The Invitation to Bid references a standard City construction contract, will the bidder be required to sign that?
   a) *No, that language has been removed, the bidder will be required to sign the Airport's construction contract.*

Presentation for

Duluth International Airport Fuel Farm Relocation Pre-Bid Meeting

May 14, 2026

Meeting Attendees:
DAA:
Tristan Durfee
Jana Kayser

Contractors:
John Pesonen - Northland Constructors
Chip Marty- METCO
Jim Peterson-Hunt Electric
Mason Erickson - Rachel Contracting
Heath Line - KGM Contractors
Joe Barker - Petroleum Equipment, Inc
Adam Johnson - Zahl Petroleum Maintenance Co.
Troy Lyles

SEH:
Jessica Vinson
Rothana Thorng
Jon Kruse

Endpoint Solutions:
Wade Wollermann
Brian Ferguson

Minutes:

This meeting was held at 11:00 am virtually. The meeting link was provided on the Instructions to Bidders document.

Jessica (SEH) opened the meeting and went through the slide presentation for the Duluth International Airport Fuel Farm Relocation project.

No questions were brought up.

Jessica went through the slide presentation for the Sky Harbor Airport Fuel Farm Improvements project.

No questions were brought up.

Meeting recording can be downloaded and viewed:
https://sehincazure-my.sharepoint.com/:v:/g/personal/jvinson_sehinc_com/IQAqkzEzti_7Q68xAScQgRJDAXHnDj8SWcA3O29Qc_V9CqQ?e=hf7Svy

Introductions

- Duluth Airport Authority
  - Ryan Welch, Director of Operations, Planning, and Construction
  - Jana Kayser, Director of Business and Property Development
  - Tristan Durfee, Airside Manager
- SEH
  - Jessica Vinson, Project Manager
  - Shawn McMahon, Project Manager/Senior Engineer
  - Kaci Nowicki, Senior Planner
  - Jon Kruse, Electrical
  - Rothana Thorng, Electrical
- Endpoint Solutions
  - Wade Wollermann
  - Brian Ferguson

* Please sign in by using the chat window:

- Name, company, email, and phone number

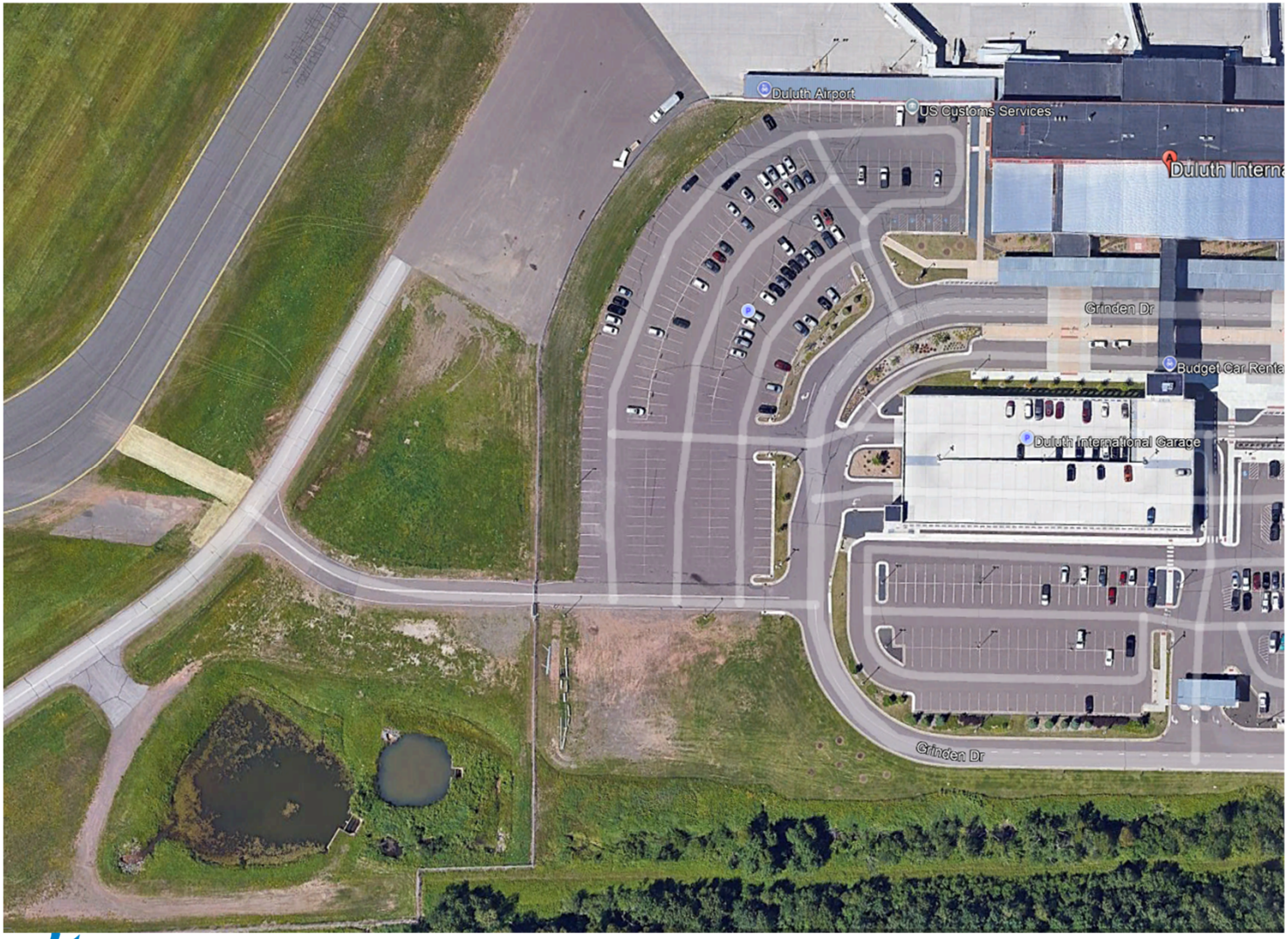
Main Points of Contact

- Project Manager
  - Jessica Vinson jvinson@sehinc.com
  - Shawn McMahon smcmahon@sehinc.com

Project Schedule – DLH Fuel Farm Relocation

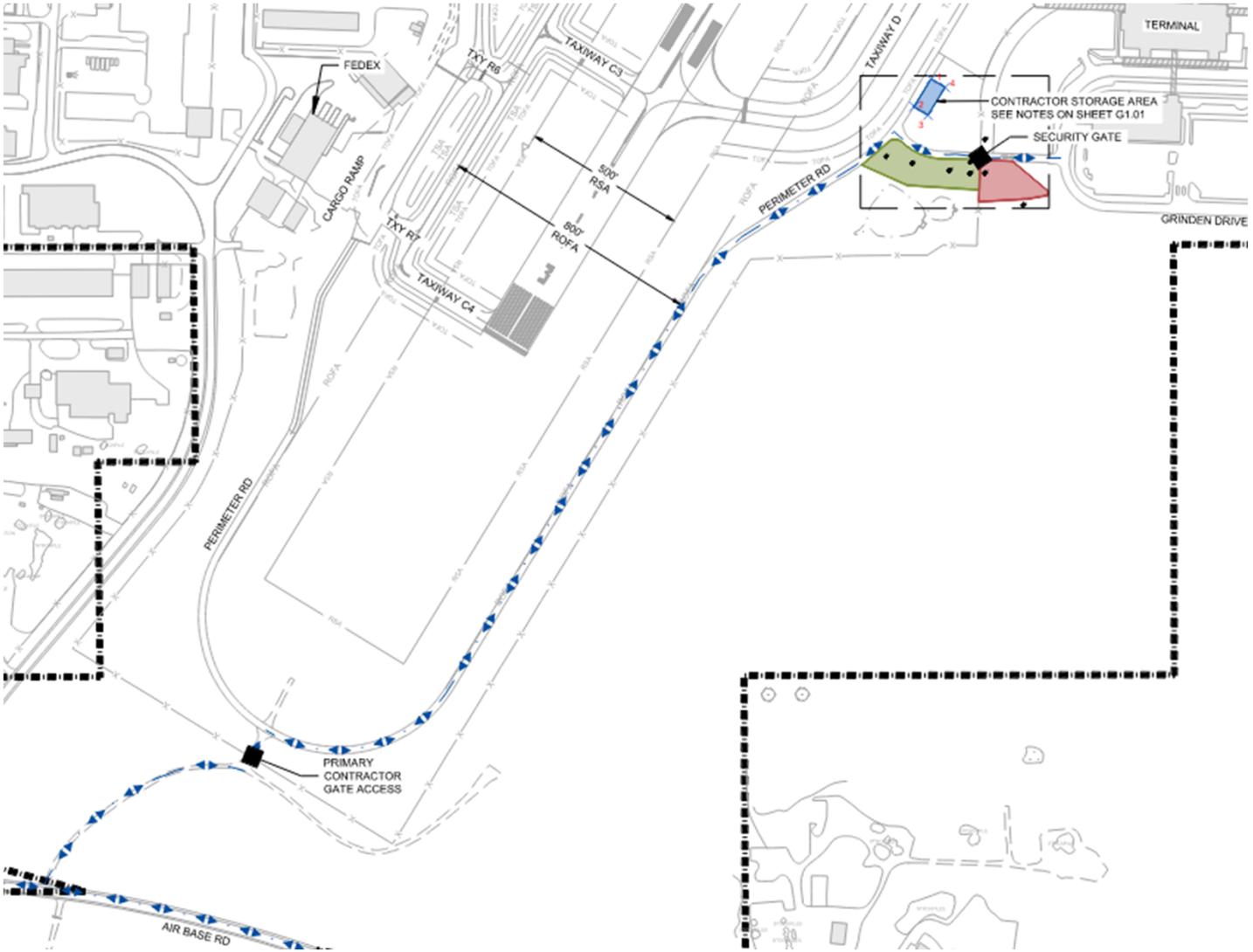
- May 6th — Advertisement for bids
- May 14th — Pre-Bid Meeting
- May 18th — Addendum No.1 Issued (Expected)
- **May 19th — Last day for questions**
- **May 20th — Addendum No. 2 Issued (Tentative)**
- *May 27th — 2 PM Bid opening (online) Bid Express*
- June 16th — Airport Authority Consideration of Award
- June 16th — Notice of Award
- July 2026 — Construction start
- October 15, 2026 — Substantial completion (90 days)

Duluth International Airport (DLH) – Existing Site



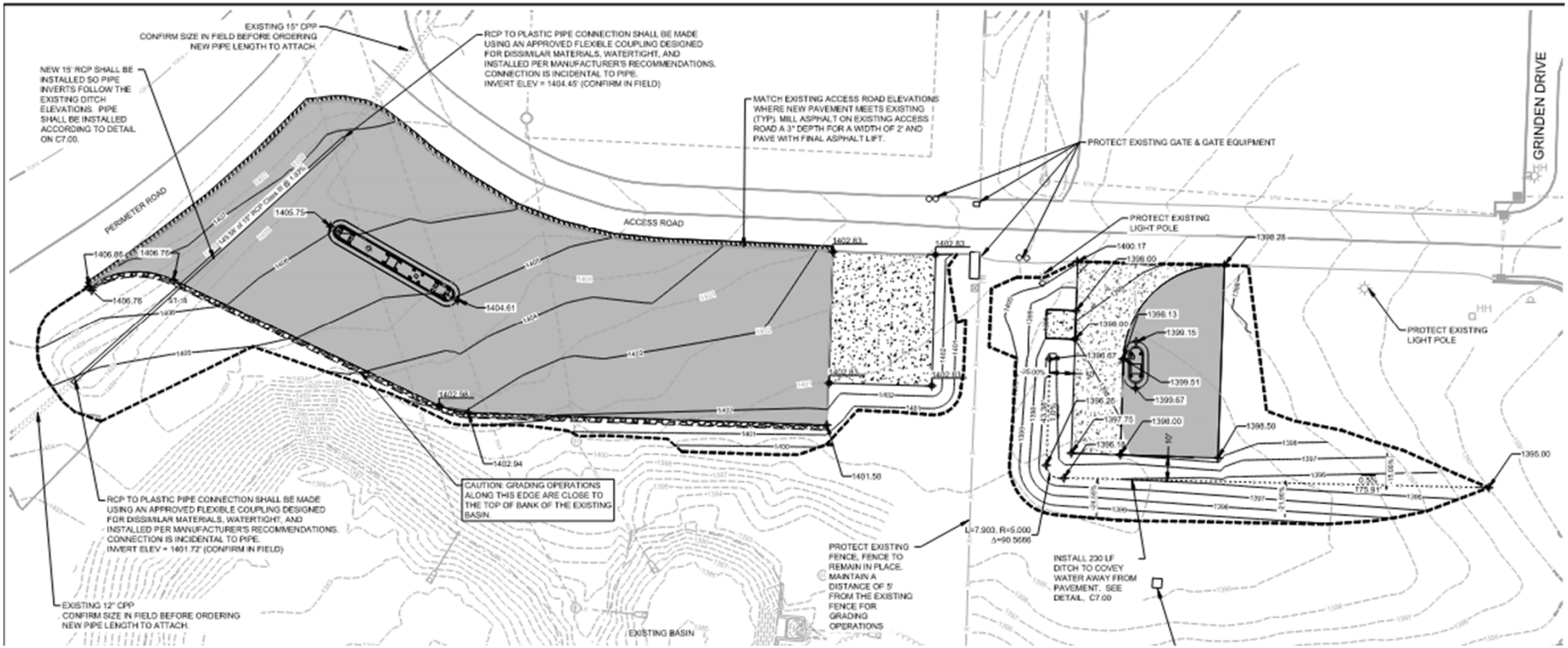
- For Site Visits:
  Unescorted landside access is available. For full site access, coordinate with Jessica Vinson, jvinson@sehinc.com.

DLH - Construction Safety Plan



- Existing Fence and Gate
- Contractor Parking and Staging
- Haul Route
- Active Airfield Pavement

DLH Project Overview

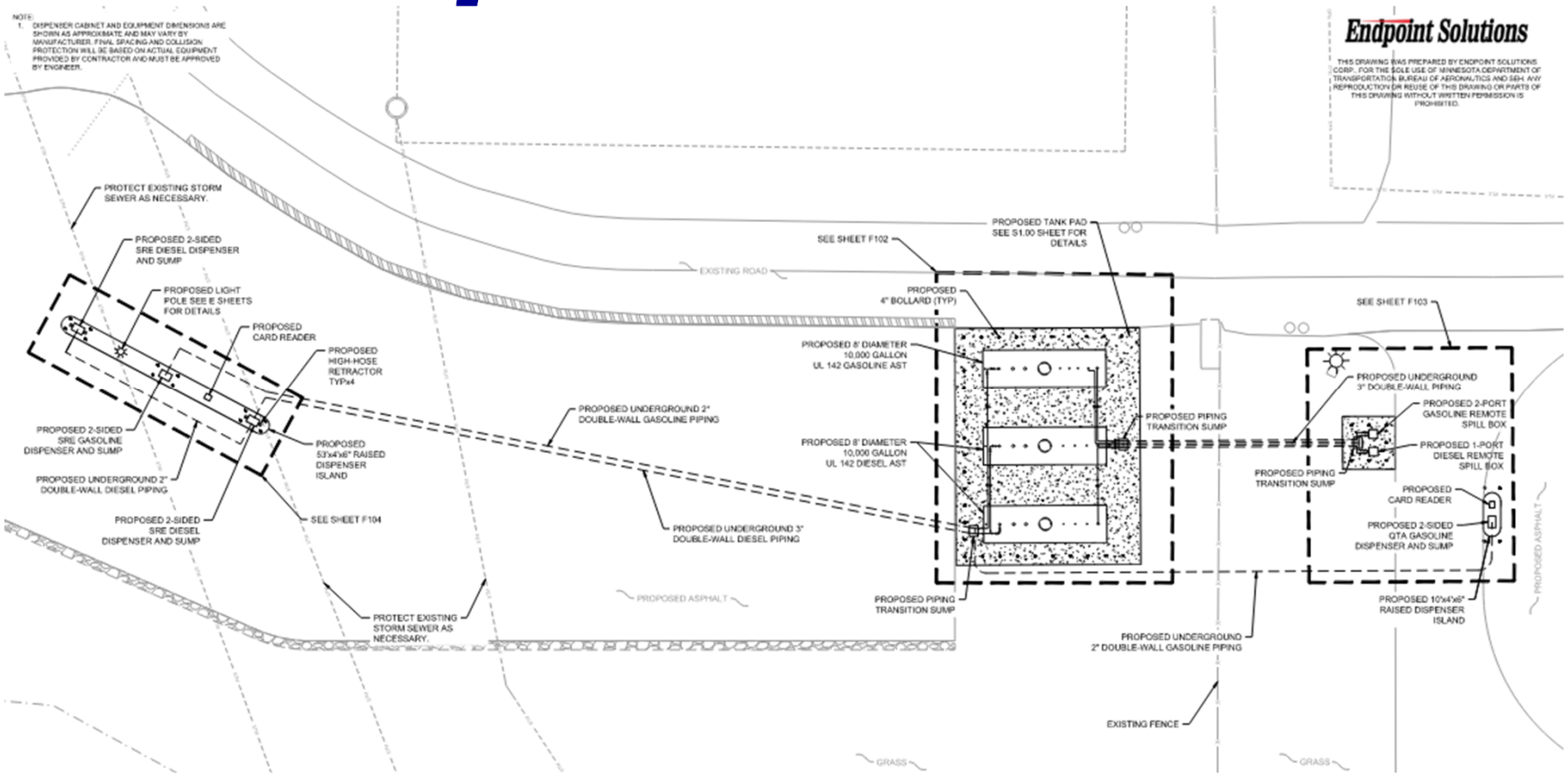


- Major Civil Work Items:
  - Asphalt paving
  - Concrete Paving, Reinforced Concrete pad
  - Soil correction under fueling pad
  - Gravel shoulder
  - Storm pipe installation
  - Grading
  - Pavement edge protection (potentially guard rail) to be included with Addendum 1.

- NOTES:
  - Steep drop off near pavement edge may make grading operations more challenging
  - Storm ponds need to be protected
  - NPDES permit required, double row of silt fence required

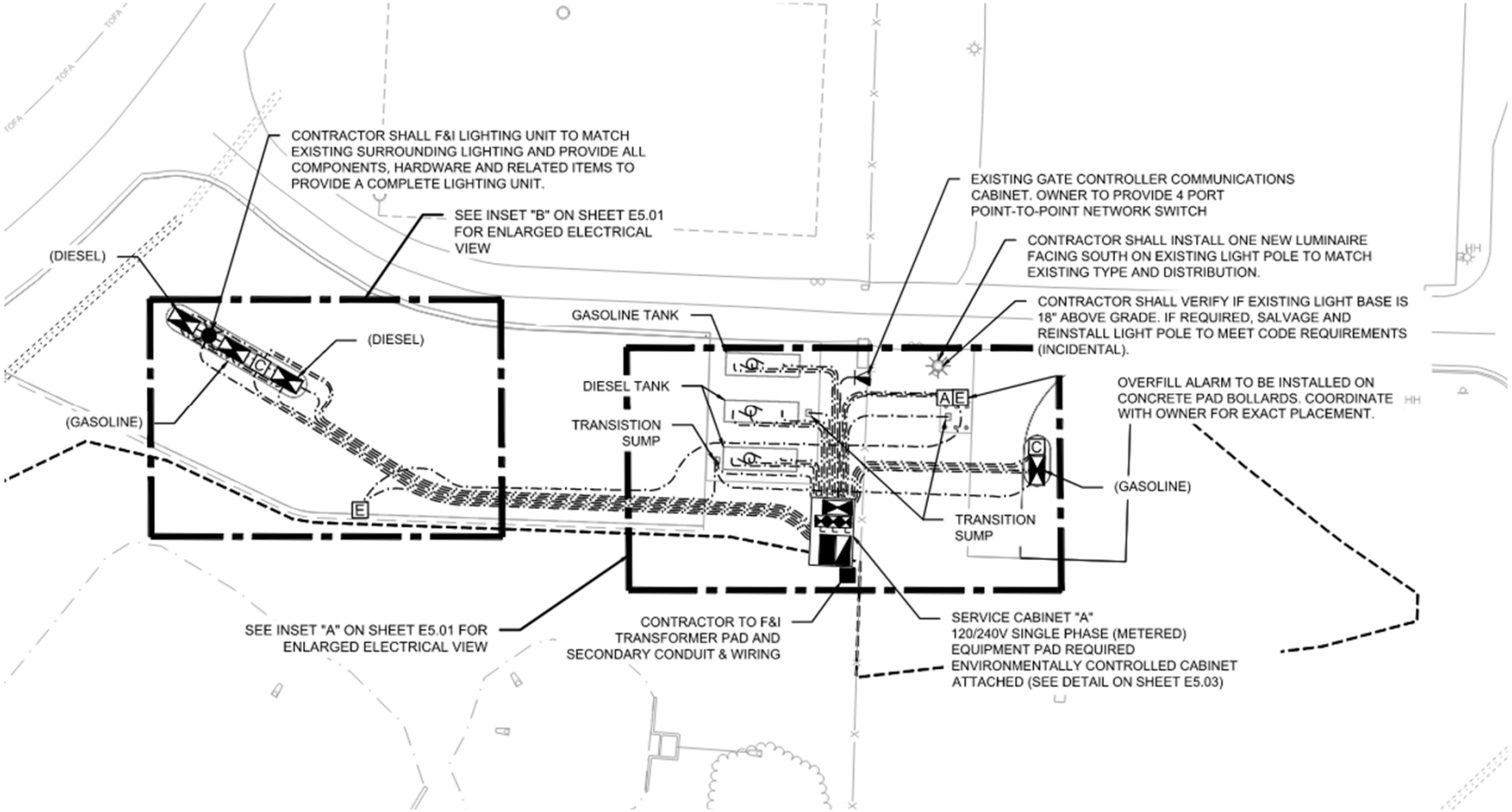
SEH

DLH Project Overview



- Major Fuel Work Items:
  - 2-10,000-gallon diesel AST
  - 1-10,000-gallon unleaded AST
  - 2 diesel dispensers, 2 unleaded dispensers
  - Underground piping
  - Remote Spill box
  - 2 card readers

DLH Project Overview



- Major Electrical Work Items:
  - Environmentally Controlled Service Cabinet
  - Site Lighting
  - MN Power coordination

Administrative Items

- Bid security – 5%
  - must be sent, received, and verified prior to bid
- Wage rates
  - MN prevailing wage rate requirements (Appendix B)
  - EEO (Appendix D).
- Substitution requests
  - Submit electronically to PM using form in project manual
- Survey
  - Control points (engineer's responsibility)
  - Construction staking (contractor's responsibility)
    - Including quantity surveys and as-built surveys
- Construction Schedule
  - Contractor to submit schedule prior to pre-construction meeting
  - Owner would prefer if tanks could be installed without a pause in work so construction start could shift to accommodate this depending on tank delivery date.
  - Schedule is important to uphold, the DAA needs functioning system for snow removal operations on the airfield

Administrative Items (cont'd)

- Permits (To be completed by Contractor)
  - NPDES permit required for project, weekly inspections per permit requirements
  - Coordination with City of Duluth required
  - Erosion Control, Lighting, Electrical
    - List may not be comprehensive; it is the contractor's responsibility to ensure all permits that are required are submitted.
- Weekly construction meetings led by SEH
- Security badging
  - Contractor's working inside the Air Operations Area (AOA) will be required to be badged. The exception is for contractor's on site for 5 days or less. They must be escorted by a badge holder.

    https://duluthairport.com/about/procedures-and-policies/badging/
- Security Firm
  - Required for gate guarding any time access gates are unlocked and in use

Administrative Items (Bid Procedures)

- Bid Express – all bids must be submitted through the City of Duluth Bid Express website.
  - Account is free, there is a $50 fee to bid
  - Bid Express :: City of Duluth – Solicitation No. 26-4404
  - All addenda must be acknowledged, as well as the Declaration of Non-Collusion, Equal Employment Opportunity Statement, and Responsible Contractor Verification and Certification of Compliance.
  - Document 00 41 00 Bid Form
    - Email Bid Form and additional documents shown in that document to Jessica Vinson (jvinson@sehinc.com) within 72 hours after bid opening

Addenda

- Any questions that result in a change to the bidding documents will be formally answered via addendum
- Verbal responses are not final
- Addendum No.1 – Issued May 18, 2026
- Addendum No.2 – Issued May 20, 2026

Questions?

Presentation for

Sky Harbor Airport
Fuel Farm Improvements
Pre-Bid Meeting

May 14, 2026

SEH

Introductions

- Duluth Airport Authority
  - Ryan Welch, Director of Operations, Planning, and Construction
  - Jana Kayser, Director of Business and Property Development
  - Tristan Durfee, Airside Manager
- SEH
  - Jessica Vinson, Project Manager
  - Shawn McMahon, Project Manager/Senior Engineer
  - Kaci Nowicki, Senior Planner
  - Jon Kruse, Electrical
  - Rothana Thorng, Electrical
- Endpoint Solutions
  - Wade Wollermann
  - Brian Ferguson

* Please sign in by using the chat window:

- Name, company, email, and phone number

Main Points of Contact

- Project Manager
  - Jessica Vinson jvinson@sehinc.com
  - Shawn McMahon smcmahon@sehinc.com

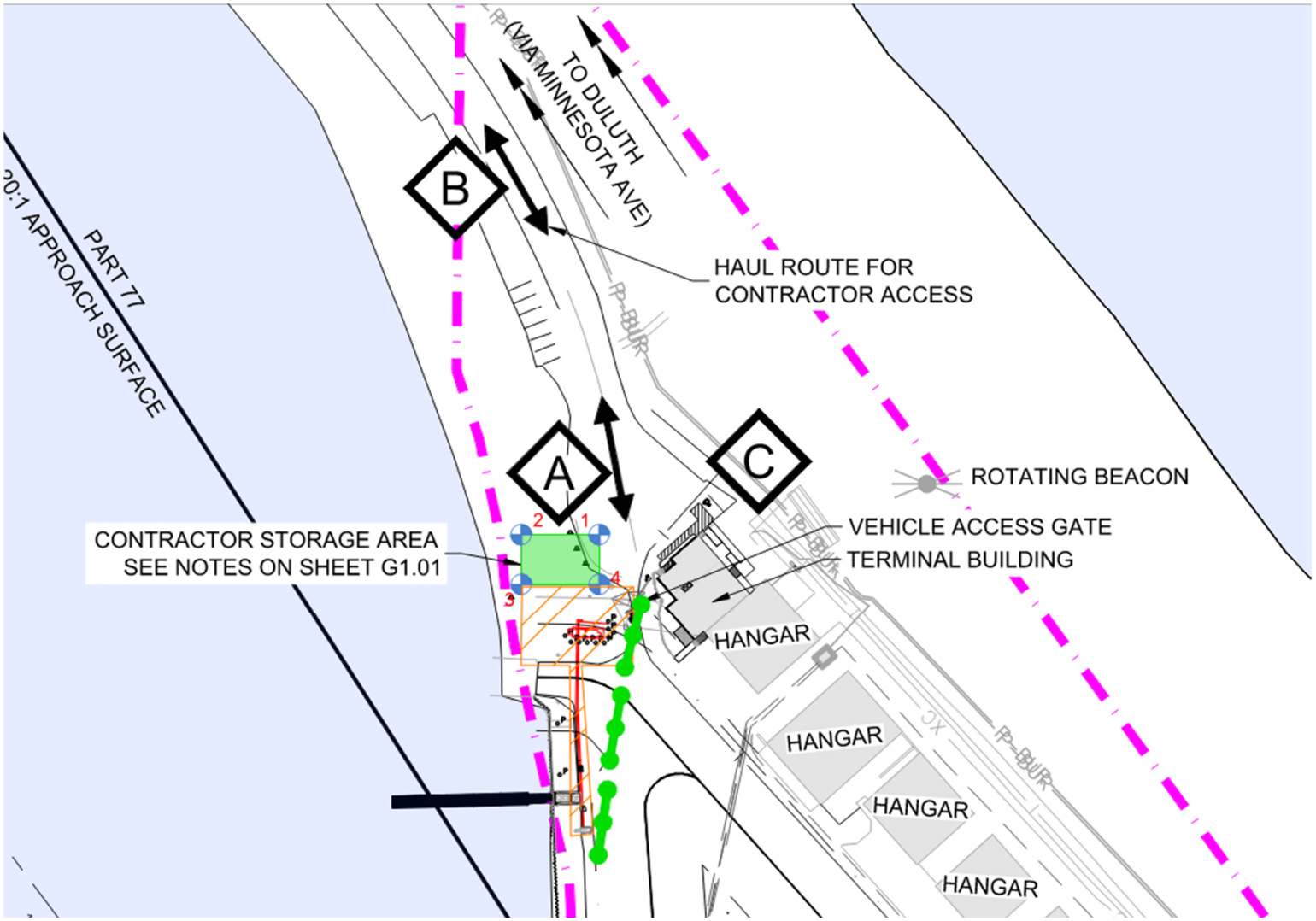
Project Schedule – DYT Fuel Farm Improvements

- May 6th — Advertisement for bids
- May 14th — Pre-Bid Meeting
- May 15th — Addendum No.1 Issued (Expected)
- **May 19th — Last day for questions**
- **May 20th — Addendum No. 2 Issued (Tentative)**
- *May 27th — 2 PM Bid opening (online) Bid Express*
- June 16th — Airport Authority Consideration of Award
- June 16th — Notice of Award
- April 2027 — Construction start after material in hand
- May 30, 2027 — Substantial completion (30 days)

Sky Harbor Airport (DYT) – Existing Site

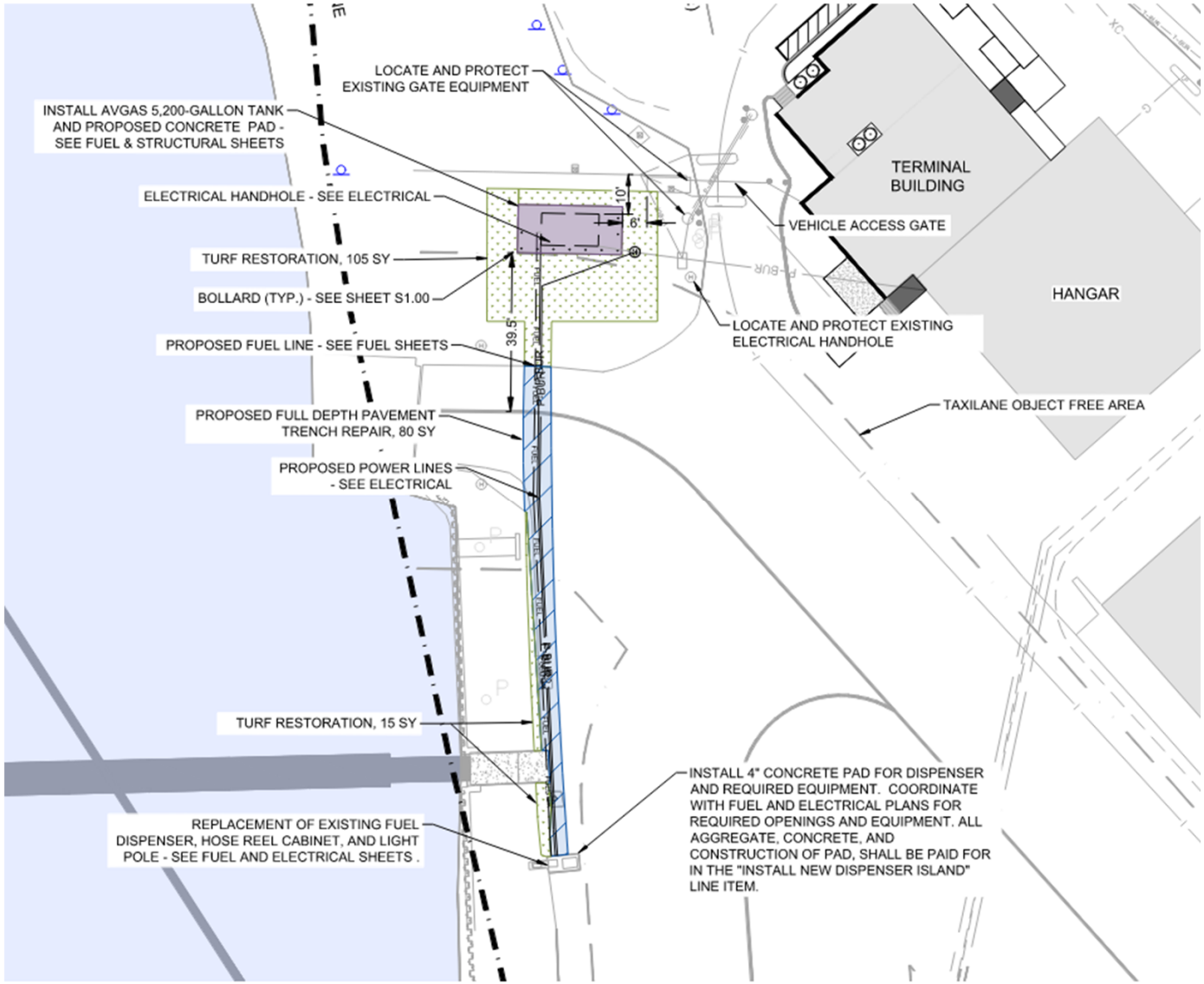
- For Site Visits:
  For full site access, coordinate with Jessica Vinson, jvinson@sehinc.com.

DYT - Construction Safety Plan



- Existing Fence and Gate
- Contractor Parking and Staging
- Haul Route
- Active Airfield Pavement

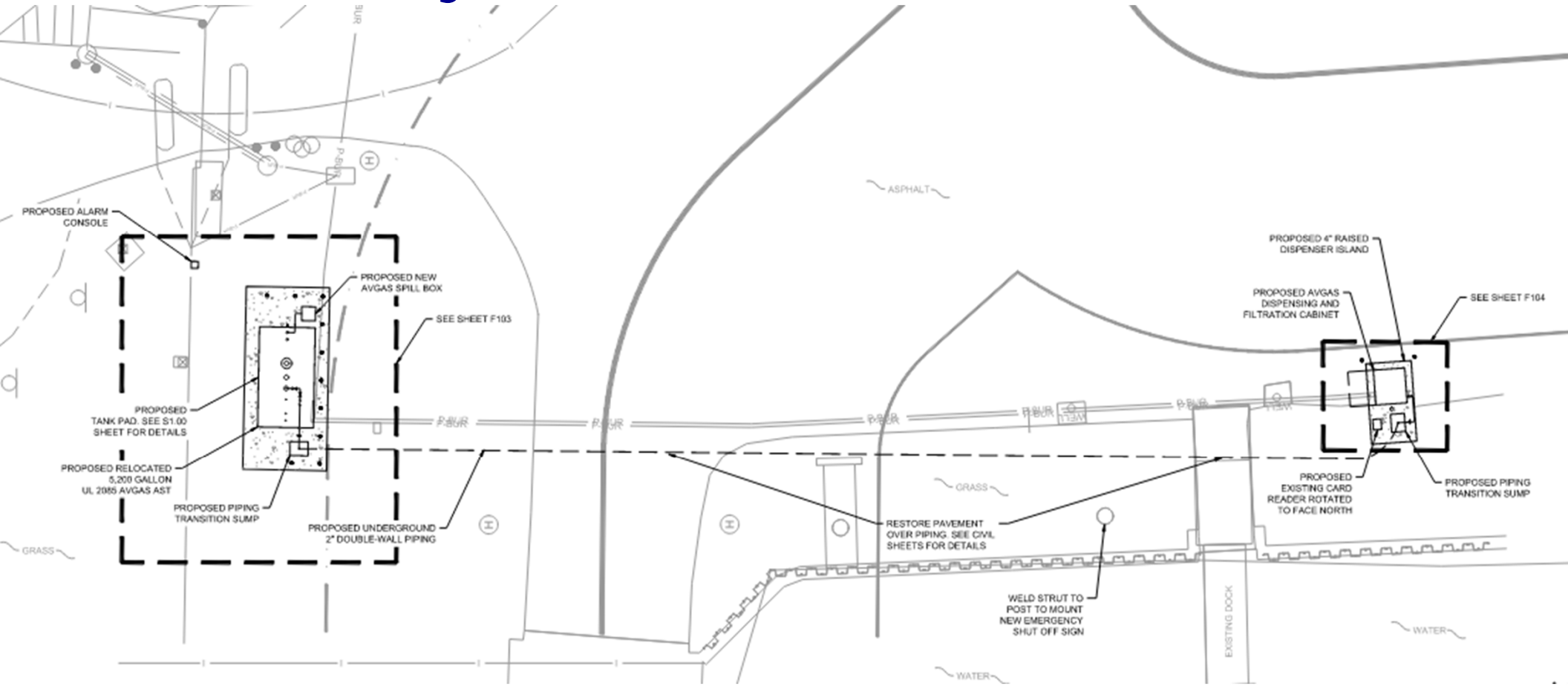
DYT Project Overview



- Major Civil Work Items:
  - Concrete Pad Removal
  - Reinforced Concrete pad
  - Concrete pad for fueling dispenser and equipment
  - Sawcut asphalt
  - Pavement repair over utility trench

SEH

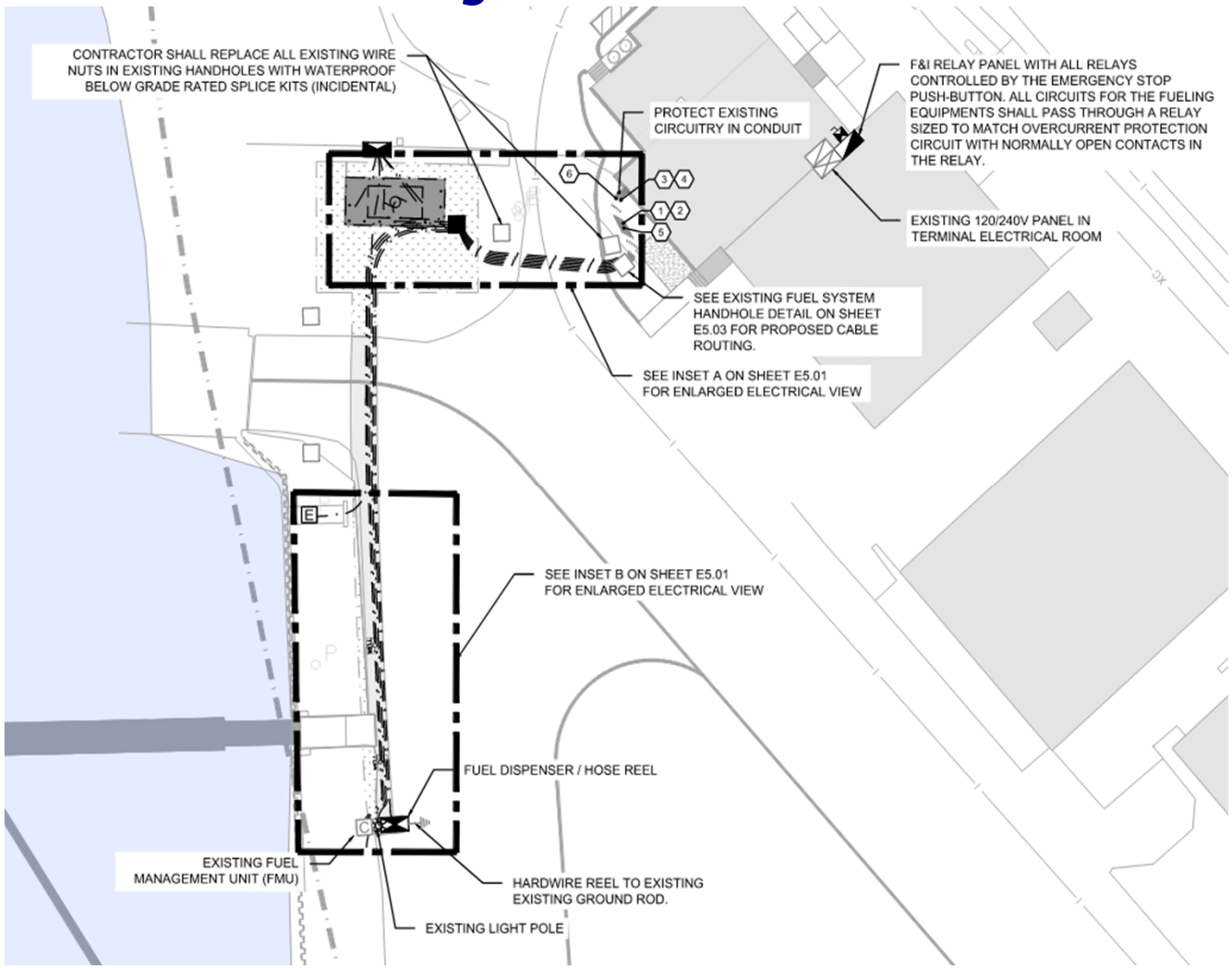
DYT Project Overview



- Fuel Demolition:
  - Removal of existing tank (salvage and deliver to Duluth International)
  - Removal of existing fuel lines
  - Removal of existing dispenser
  - See plans for full demolition

- Major Fuel Work Items:
  - 5,200-gallon AVGAS tank transported from Duluth International, cleaned per spec and installed on new concrete pad
  - AVGAS dispensers
  - Underground piping
  - New Spill box
  - Card reader replacement when chip reading is available

DYT Project Overview



- Major Electrical Work Items:
  - Electrical demolition of existing lines as shown on plans
  - Site Lighting
  - Electrical lines to existing handhole
  - Work inside existing terminal mechanical room

Administrative Items

- Bid security – 5%
  - must be sent, received, and verified prior to bid
- Wage rates
  - MN prevailing wage rate requirements (Appendix B)
  - EEO (Appendix D).
- Substitution requests
  - Submit electronically to PM using form in project manual
- Survey
  - Control points (engineer's responsibility)
  - Construction staking (contractor's responsibility)
    - Including quantity surveys and as-built surveys

Administrative Items (cont'd)

- Permits (To be completed by Contractor)
  - Coordination with City of Duluth required
  - Erosion Control, Lighting, Electrical
    - List may not be comprehensive; it is the contractor's responsibility to ensure all permits that are required are submitted.
- Weekly construction meetings led by SEH
- Construction schedule
  - Construction cannot begin in spring 2027 until contractor has long lead time items.
  - Contractor should install pad and new tank first before taking old system offline.
  - Fuel system should be offline for no longer than 14 days.
  - Schedule is very important for this project, construction must be continuous.

Administrative Items (Bid Procedures)

- Bid Express – all bids must be submitted through the City of Duluth Bid Express website.
  - Account is free, there is a $50 fee to bid
  - Bid Express :: City of Duluth – Solicitation No. 26-4405
  - All addenda must be acknowledged, as well as the Declaration of Non-Collusion, Equal Employment Opportunity Statement, and Responsible Contractor Verification and Certification of Compliance.
  - Document 00 41 00 Bid Form
    - Email Bid Form and additional documents shown in that document to Jessica Vinson (jvinson@sehinc.com) within 72 hours after bid opening

Addenda

- Any questions that result in a change to the bidding documents will be formally answered via addendum
- Verbal responses are not final
- Addendum No.1 – Issued May 18, 2026
- Addendum No.2 – Issued May 20, 2026

Questions?

In addition to the Bid Worksheet electronically completed and submitted online, this BID FORM - DOCUMENT 00 41 00 and the attachments provided must be completed emailed to jvinson@sehinc.com within 72 hours of Bid opening.

DOCUMENT 00 41 00

BID FORM

Contractor's Name _____

Telephone _____

PROJECT IDENTIFICATION: **Fuel Farm Improvements**
Sky Harbor Airport (DYT)
Duluth, Minnesota
SEH No. DULAI 188848

BIDS TO BE OPENED: **Wednesday, May 27, 2026, at 2:00 p.m.**

TABLE OF ARTICLES

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to **Bid Express** Online .

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – ATTACHMENTS TO THIS BID

2.01 The following documents are attached to and made a condition of this Bid and shall be uploaded via **Bid Express** Online :

A. Document 00 43 00 - Bid Bond

B. Document 00 43 37 - List of Proposed Suppliers.

C. Document 00 45 19 - Affidavit of Non-Collusion.

D. Document 00 45 45 - Verification of Compliance with Minnesota Statutes 16C.285.

E. Document 00 45 47 - Certification of Compliance with Minnesota Statutes 363A.36.

ARTICLE 3 – BASIS OF BID

3.01 Bidder will complete the Work in accordance with the Contract Documents for the prices as indicated on the **Bid Express** Online Bid Worksheet .

UNIT PRICE BID

Unit Prices have been computed in accordance with Paragraph 13.03 of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4 – TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5 – BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 Bid Acceptance Period

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 60 days after the day of Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 Instructions to Bidder

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security.

5.03 Receipt of Addenda

A. Bidder hereby acknowledges receipt of the Addenda via **Bid Express** Online.

ARTICLE 6 – BIDDER'S REPRESENTATION AND CERTIFICATIONS

6.01 Bidders Representations

A. In submitting this Bid, Bidder represents that:

1. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents and acknowledged receipt of the Addenda via **Bid Express** online.
2. Bidder has visited the site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress and performance of the Work.
4. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
5. Bidder has carefully studied reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, and (3) Bidder's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder certifies that:

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
3. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
    a. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
    b. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
    c. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
    d. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 7 – DEFINED TERMS

7.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 8 – BID SUBMITTAL

8.01 The Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed):_____

By:_____ (SEAL)
(Individual's signature)

Doing business as:_____

A Partnership

Partnership Name:_____ (SEAL)

By:_____
(Signature of general partner - attach evidence of authority to sign)

Name (typed or printed):_____

A Joint Venture

Name of Joint Venturer:_____

First Joint Venturer Name:_____ (SEAL)

By:_____
(Signature of first joint venture partner - attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____

Second Joint Venturer Name:_____ (SEAL)

By:_____
(Signature - attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

A Corporation

Corporation Name:_____

State of Corporation:_____

Name (General Business, Professional, Service, Limited Liability):_____

By:_____
(Signature - attach evidence of authority to sign)

Name (typed or printed):_____

Title:_____
(CORPORATE SEAL)

Attest:_____
(Signature of Corporate Secretary)

Date of Qualification to do business in _____ is ____/____/____.
(State Where Project is Located)

Contact Information

Bidder's Business Address:_____

_____

Phone:_____ Facsimile: _____ E-mail: _____

Submitted on _____, 20_____.

State Contractor License No. _____. (If applicable)

END OF DOCUMENT

STATEMENT OF ESTIMATED QUANTITIES

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	01 71 13	MOBILIZATION	LS	1
2	01 71 23	FIELD ENGINEERING	LS	1
3	01 55 15	MAINTENANCE & RESTORATION OF HAUL ROADS	LS	1
4	31 25 10	SILT FENCE, TYPE PREASSEMBLE (INCL. INSTALLATION, MAINTENANCE, & REMOVAL)	LF	700
5	31 25 10	FILTER LOG, TYPE WOOD FIBER BIOROLL (INCL. MAINTENANCE)	LF	100
6	31 23 10	COMMON EXCAVATION	CY	32
7	32 91 10	TOPSOIL BORROW (IF NEEDED)	CY	22
8	02 41 33	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	250
9	02 41 33	REMOVE EXISTING TANK PAD	LS	1
10	Spec. Prov.	REMOVE/CLOSURE OF EXISTING AST/PIPING/DISPENSER	LS	1
11	32 12 16	FULL DEPTH PAVEMENT REPAIR OVER UTILITY TRENCH (MATCH EXISTING PAVEMENT S	SY	120
12	03 30 00	REINFORCED CONCRETE SLAB (12 INCH)	SY	60
13	32 92 12	TURF ESTABLISHMENT (BRILLION) (INCL SEED, FERTILIZER, MULCH, & WATER)	LS	1
14	ELEC	ELECTRICAL DEMO	LS	1
15	ELEC	SALVAGE LIGHTING UNIT	EA	1
16	ELEC	INSTALL LIGHTING UNIT	EA	1
17	ELEC	HANDHOLE	EA	1
18	ELEC	EMERGENCY FUEL STOP SYSTEM	EA	1
19	ELEC	RELAY PANEL	EA	1
20	ELEC	3/4" NON-METALLIC CONDUIT	LF	1385
21	ELEC	UNDERGROUND WIRE 1/C 10 AWG	LF	5610
22	ELEC	BELDEN CABLE #8760	LF	288
23	ELEC	CAT6A CABLE	LF	342
24	ELEC	COMBINATION STARTER/DISCONNECT	EA	1
25	ELEC	MODIFY WIREWAY	EA	1
26	ELEC	MODIFY EXISTING HANDHOLE	EA	1
27	ELEC	EXPLOSION PROOF FITTINGS	EA	4
28	ELEC	MODIFY EXISTING PANEL	LS	1
29	ELEC	COMMISSIONING	LS	1
30	Spec. Prov.	RELOCATE CLEAN AND PREP USED 5,200-GAL AST	LS	1
31	Spec. Prov.	PROCURE AND INSTALL NEW SPILL BOX	LS	1
32	Spec. Prov.	PROVIDE AND INSTALL - AST, PUMP, ABOVE GROUND PIPING & APPURTANANCES	LS	1
33	Spec. Prov.	PROCURE AND INSTALL- UG PIPIING AND SUMPS	LS	1
34	Spec. Prov.	INSTALL NEW DISPENSER ISLAND	LS	1
35	Spec. Prov.	PROCURE AND INSTALL - NEW AVGAS DISPENSER CABINET	LS	1
36	Spec. Prov.	PORTABLE SUPPLIES/SIGNAGE	LS	1
37	Struct.	CONCRETE BOLLARD WITH SLIP COVER	EA	15

FUEL SYSTEM EQUIPMENT

PART 1 - GENERAL

1.01 Scope of Work

A. The Work under this Contract includes the removal and replacement of the existing AvGas (100LL) fuel system including the aboveground storage tank (AST), dispenser, and all incidental items necessary to complete the Work as shown on the Plans and included in the Proposal and Contract.

B. These Special Provisions and Technical Specifications will identify the equipment performance to be met by the Contractors.

C. Due to the specific nature of how various equipment components are put together to make up a functioning aircraft fueling system, known manufacturers and suppliers of acceptable equipment will be identified.

D. “Or approved equal" equipment is acceptable if, in fact, it is equal in performance, materials, code compliance, and serviceability as determined by the Engineer.

1.02 References

A. Work shall conform to procedures and practices in the following regulatory guidelines and industry standards when applicable:

1. Minnesota State Fire Code (MSFC) Chapter 20 “Aviation Facilities,” Chapter 22 "Fire Prevention and Protection" and Chapter 34 "Flammable and Combustible Liquids"
2. Minnesota Pollution Control Agency (MPCA) Chapter 7150 "Underground Storage Tanks; Program" and Chapter 7151 "Aboveground Storage of Liquid Substances"
3. National Fire Protection Association, NFPA 30, “Flammable and Combustible Liquids Code”, 2024 Edition.
4. National Fire Protection Association, NFPA 30A, “Motor Fuel Dispensing Facilities and Repair Garages Code”, 2024 Edition
5. National Fire Protection Association NFPA 70, "National Electrical Code", 2026 edition.
6. National Fire Protection Association, NFPA 407 “Standard for Aircraft Fuel Servicing”, 2022 Edition
7. Petroleum Equipment Institute “Recommended Practices for Installation of Aboveground Storage Systems, PEI RP 200-24”
8. Petroleum Equipment Institute “Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment, PEI RP 500-24”
9. Petroleum Equipment Institute “Recommended Practices for Design, Installation, Service, Repair, and Maintenance of Aviation Fueling Systems, PEI RP 1300-25”
10. Energy Institute “Identification Markings for Dedicated Aviation Fuel Manufacturing and Distribution Facilities, Airport Storage and Mobile Fueling Equipment”, EI 1542, 10th Edition.
11. American Society of Mechanical Engineers, ASME B31.3 "Process Piping", 2024 Edition.

1.03 Scope of Equipment and Special Services

A. The Work under this Contract consists of obtaining and installing fueling equipment, fuel facilities, electrical, site work, security lighting, prep work, and all incidental items necessary to complete the Work as shown on the Drawings and included in the Proposal.

B. Significant major construction is planned for the area of this project.

C. ENGINEER will provide the following:

1. Engineer will review Shop Drawing Submittals of major equipment specified and furnished.
2. Engineer will provide periodic construction site visits for design compliance review. Copies of all the installation paper work is to be given to the Owner with the Equipment and Warranty Manuals.

D. CONTRACTOR: The qualified low bidding General Contractor (prime contractor), their subcontractors and equipment vendors will complete:

1. Submit major equipment cut sheet submittals and manufacturer's pre-production (shop) drawings showing details of construction and materials for the proposed work to the Owner and Engineer for approval before the start of work. Shop drawings and submittals should be assigned a submittal number and the contract number and project name shall be identified. The submittals shall have each page numbered, and the part number or model being furnished should be identified by highlighting (yellow marker) or asterisk. Shop drawings not containing the previously referenced identification will be sent back "Not Reviewed".
2. Purchase equipment including freight and sales tax.
3. Apply for and obtain the required Tank Installation Permit from the local code officials / Authority Having Jurisdiction (AHJ) based on the bidding documents. Provide one set of approved plans to the Engineer and one set to the Owner. Any Permit changes will be coordinated between the Engineer, AHJ, Owner, the Department and the Contractor.
4. Obtain required local permits, i.e., electrical permit.
5. Install equipment per the permit design drawings and specifications.
6. Remove and properly dispose of existing equipment not scheduled for re-use.
7. The Contractor is responsible to call for and conduct all the inspections required by the local fire code enforcement officer at the correct time(s).
8. Maintain record drawings and pictures of as-built system.
9. Conduct factory and site pressure testing of all system parts. Submit the results to the Engineer, Owner and State Tank Inspector.
10. Start up the systems and calibrate, verify and document flow rates and pressures. Verify functionality of all system components.
11. Be licensed as a Place-In-Service Agent through the State of Minnesota Weights and Measures Division and register all fuel dispenser flow meters accordingly.
12. Provide a minimum of 4-hours of Owner training on <u>each</u> major system (fueling dispensers, tank monitor, etc.).
13. Provide owner documentation for the project per the contract documents.
14. Provide completed punch list provided by Owner, Engineer and Department Project Manager for final payment.
15. Update AST registration.

E. OWNER: The Owner will:

1. Coordinate with Contractor to minimize residual fuel levels prior to AST removal.
2. Order fuel delivery for initial AST fill and testing.

1.04 Submittals

A. Equipment components to have shop drawings/submittals reviewed by the Engineer include, but are not limited to, the following items:

1. Aboveground Tank
2. Manual Tank Gauge & Alarm
3. Interstitial Leak Indicator
4. Dispenser
5. Overfill Prevention Valve & Drop Tube

6. Submersible Pump
7. Remote Fill Box
8. Vents & Vent Piping
9. Aboveground Piping & Supports
10. Underground Piping
11. Sump Monitor
12. Line Leak Detection
13. Containment Sump(s)
14. Sump Probe(s)
15. Fueling Hose
16. Fueling Nozzle
17. Hose Reel
18. Grounding Reel
19. Filtration
20. Valves
21. Flex Connectors
22. Signs & Labeling
23. Aggregate, Asphalt and Concrete
24. Conduits and Wires
25. Emergency Stop
26. Overfill Alarm
27. Portable Supplies
28. Bollards and Bollard Slip Covers

1.05 Downtime for the Fueling Systems.

A. The Work on this project shall be constructed in a timely manner not to exceed 30 days of downtime to the Airport before the new systems are operational.

1.06 Site Work.

A. See civil technical specifications and project drawings.

1.07 Electrical Power for Fueling Equipment.

A. Construct Electrical Power for Fueling Equipment in accordance with all of the Drawings and this Special Provision.

1. Provide Electrical Power for the Fueling Equipment as shown on the Drawings, Site Plan and Electrical Details (E0.50-E6.00) to provide a complete and operable power supply for fueling system. All electrical work in this Contract shall be done under the direct supervision of a currently certified State of Minnesota Certified Master Electrician
2. All electrical work is to be completed per the NFPA 30, 70, and 407 codes. All electrical equipment and wiring shall be of a type specified by and installed in accordance with NFPA 70, National Electric Code (NEC).
3. The Drawings are intended to locate loads, identify preferred materials of construction, locate connection points, suggest conduit layout and give general electrical information. It is the Contractors responsibility to meet the letter of the code, develop final wiring drawings as may be necessary, understand equipment wiring diagrams from equipment manufacturer drawings and cut sheets, assist the mechanical contractor in selecting required service for the various types of equipment to be efficient, install the distribution panels, conduit, wires, make the final

connections, test the systems for operation, and pull the local electrical permit. Electrician must be aware of the total system Drawings and these specifications.

4. The tank probe interface cable shall be Belden 87761, Carol C2534 or approved equal.
5. Electrical power to the new fueling system(s) shall be routed from the identified tie-in location to the AST and dispensing areas (by the Contractor).
6. Control, and single-phase power (120/240 VAC) to various equipment loads are to be on separate circuits. Control and power circuits shall all be in separate conduits.

PART 2 - PRODUCTS

2.01 Construct Aviation Fuel Systems.

A. Construct Aviation Fueling Systems in accordance with the Drawings and these Special Provisions.

1. Construct Fueling Systems as shown on Drawings (F101 – F106) to provide a complete and operable system. All materials must conform to the size and type called for in this specification and to applicable laws, codes and ordinances.
2. The Contractor shall be responsible for the safe storage and handling of all materials used in the work. Store all materials in areas designated by the Owner. Store and/or handle materials so as to not adversely affect traffic, drainage, fire protection, or public safety. Inconveniences to airport personnel, customers and general public from the storage and handling of materials shall be kept to a minimum.
3. The Contractor shall employ and furnish a power broom or sweeper to provide unobstructed and safe passage of aircraft across taxiway and apron pavements in and adjacent to the construction area for the duration of this project. Equipment shall be provided by the contractor on-site during this period. Paved surfaces shall be cleaned throughout the working day and at the end of each working day of dirt debris and other objects that could damage aircraft.

2.02 Aboveground Storage Tank(s)

Relocate 5,200-gallon, 8-foot diameter, double wall, aboveground tank with monitored interstice from Duluth International Airport (4701 Grinden Dr, Duluth, MN 55811).

1. Clean the interior surfaces of the tank to remove all debris, prior product residue, and surface rust before the tank is placed into service.
2. Provide AvGas tank signage on all sides for "No Smoking" and "AvGas". The two ends of the tank shall include an NFPA 704 diamond indicating Health - 1, Flammability - 3 and Reactivity - 0. Additional labeling shall be provided in accordance with the MSFC and MPCA requirements.

2.03 Dispensing and Offloading Cabinet

A. Acceptable Manufacturers: Westmor, Garsite, Semler or approved equal.

B. Description:

1. Provide and install one (1) AvGas dispenser cabinet.
2. All of the following equipment is to be furnished by the cabinets' Manufacturer.
3. All piping shall be 304L stainless steel equivalent or better (interior minimum of Schedule 10 with exterior flanges Schedule 40).
4. Equipment to be factory painted and rated at 150 psi for aviation fuel service. Manufacturer pre-piped, pressure tested and pre-wired cabinets. Any equipment size or rating change must be identified and verified that the design flows and pressures can still be met and approved by the Engineer.
5. Equipment Manufacturers must be familiar with other sections of this specification which affects the total fueling system (electrical, mechanical, etc.).
6. Cabinet shall be built to comply with NFPA 407 requirements for AvGas.

C. Construction:

1. Cabinets and pump weather enclosures shall be of stainless-steel frame construction with integral stainless-steel drip pan under entire cabinet.
2. Cabinet covers to be constructed of stainless steel and have removable cover or panels. The cabinet covers without maintenance access panels must be removable by one person (hinged). It is acceptable to have sliding or hinged, single person removable, side door panels to access equipment for maintenance and repair. Cabinets shall include lockable single, double or triple weather tight front doors.
3. Cabinets shall not have sharp corners or edges. No painted steel, powder coated steel, galvanized steel, or aluminum cover material allowed.
4. Dispensers and pumps shall be anchored to concrete slab.

D. Configuration:

1. Facing the doors of each cabinet, opening the door or doors will give access to all fueling equipment. Doors must open freely without obstruction.
2. Facing the front of the AvGas dispensing cabinet the over wing hose reel will be on the left. The field electrical comes in the rear of the cabinet. Cabinet arrangements vary by the manufacturer. The intent is to have all necessary devices easily accessible for self-service and attendant operation, including required product testing and maintenance access.
3. Cabinet and bollards shall be situated such that the service doors of the cabinets can fully open.
4. Cabinets will have easy to read operating and safety instructions permanently mounted on the back side of the front doors and shall be readable with the doors open day or night.
5. Remote cabinets shall include removable 1-gallon stainless containers/trays for discharge location of pressure relief and air-eliminator tubing.

E. Flow Rates:

1. AvGas over wing to be regulated at 30 GPM for aircraft fueling.

F. AvGas Dispensing Cabinet Components:

1. Electrical control from main power selector “Hand-Off-Auto” keyed switch at cabinet. In "Auto" position, cabinet power is controlled by card reader and depowered when switch in "Off" position. “Hand” position by-passes card reader.
2. One (1) 2-inch 150# isolation valve locking with thermal expansion relief.
3. One (1) 2-inch stainless steel throttle valve.
4. AvGas Filter:
    a. Acceptable Manufacturers: Velcon, or approved equal.
    b. One (1) Velcon #VF 62 1-1/2-inch filter (or approved equal), 1/2-inch drain ball valve, Aquacon ACO 52401R 0.5-micron filter element (or approved equal).
    c. Provide one (1) complete spare set of replacement filter elements.
5. Grounding:
    a. Acceptable Manufacturers: Ametek Hunter, Gammon, or approved equal.
    b. Steel static ground reel with totally enclosed spring drive automatic retrieve adjustable speed control.
    c. Include 100-feet of stainless-steel wire with kink resistant vinyl coating.
    d. Reel must be hard wired to positive grounding system to ground rods.
    e. Provide aviation standard grounding clamp.
    f. The wire to clamp connection must be protected and reinforced (typical breaking point).
6. One (1) fueling line pressure gauge sensing through stainless steel tubing to over-the-wing control valve.

7. One (1) 2-1/2-inch face liquid filled 0-160 psi line pressure gauge. The gauge is to be mounted on a 1/2-inch pipe tee on the main line after any filters or monitors. Locate the gauge on the top of the tee and a plug in the horizontal.
8. Interior explosion proof light (60-watt equivalent minimum) for reading instructions and fueling at night.
9. Direct-read filter differential pressure gauge visible from front of cabinet.
10. Control Valve:
    a. One (1) two stage solenoid-controlled valve.
    b. Must have pressure, flow control adjustable for over-wing fueling rates.
11. Hose Reel:
    a. Provide hose reel with swivel joints, 1/2 HP motor operated for 1-inch hose electric hose reels with gear reducer for slow retrieve (98 f/m 12:40 ratio).
    b. Provide Clutch release. Clutch release shall be labeled for user to locate.
    c. Provide backup hand crank.
    d. Pressurized hose must fit on the reel.
    e. Reels to have stainless steel hose alignment roller assembly to keep hose on reel and not rub on cabinet and stop bar to prevent nozzle from falling over to the back of the hose reel.
12. Dispenser Hose:
    a. Acceptable Manufacturers: Goodyear, Hewitt or approved equal.
    b. For over wing fueling provide 75-feet of 1-inch hose.
    c. Hose shall be aviation approved hose meeting EI bulletin 1529, 7th Edition, 2014, Grade II Type C and NFPA #407 (2017 Revision), factory installed couplers, shop pressure tested and certified.
    d. Hose certifications are required in the equipment manuals.
13. Dispenser Nozzles:
    a. Acceptable Manufacturers: OPW, Emco Wheaton or approved equal.
    b. Over Wing: 1-inch nozzle inlet swivel joint, 100 mesh strainer, 1-inch aviation type nozzle, 1-inch x 1-1/4-inch x 1-inch or approved equal with hose ground wire, heavy duty clip, dead man manual nozzle control (NO AUTO FILL OVERRIDE ON THE NOZZLE), and dust cover for fueling nozzle.
14. AvGas Meter:
    a. Acceptable Manufacturers: Liquid Controls or approved equal.
    b. One (1) 1-1/2-inch Liquid Controls M5-C2 meter, strainer w/ 100-mesh stainless steel screen, air eliminator, with 1/10th gallon totalizer register, electronic 100:1 pulse transmitter for connection to Fuel Management Unit.
    c. 1/2-inch check valve in tubing to relief line piped in cabinet to removable 1-gallon container/tray.

2.04 Submersible Pump

A. Acceptable Manufacturers: Franklin Fueling, Veeder Root or approved equal.

B. Description:
1. Provide one (1) 1.5 HP, 1-phase, 240V, submersible pump with internal check valve mounted to the AvGas tank.
2. Design output:
    a. 30 GPM at 40 psi (nozzle).
3. System expansion relief shall be set at 5 psi greater than system maximum pump pressure.
4. The submersible pump is the be furnished and installed by the contractor.

5. The remote pump starter is to be furnished and installed by the Contracting Electrician.

2.05 Fuel Management Unit/Card Reader

A. Reuse existing FuelMaster card reader.

B. Unit to provide access to new AvGas fueling cabinet.

C. Existing card reader to be upgraded to process EMV transactions.

2.06 Alarm Console

A. Acceptable Manufacturers: Pneumercator LC1000-A or approved equal.

B. Provide and install one (1) alarm console. Console to have NEMA4X weatherproof enclosure and capacity for a minimum of four (4) inputs.

C. Alarm console shall be provided and installed near the AST along the existing fence. Location of console shall be coordinated with Airport and Engineer and as specified on drawings. Label each indicator as to its corresponding probe location.

D. All components used will be consistent with Minnesota material approval for the tank monitor unit.

E. The alarm console shall be connected to the new AvGas system components including:

1. Two (2) new sump probes
2. One (1) new interstitial probe
3. One (1) new tank level gauge high level relay

2.07 Remote Fill Box

A. Recondition and reuse existing offloading remote fill box. Remove all loose paint and rust and repaint with a white polyurethane enamel, Sherwin Williams Polane 8890, or equal.

B. Provide rear entry with 3-inch cam and groove connection and dust cap, 3” isolation valve, and 3” check valve.

2.08 Tank Level Gauge & Alarm

A. Acceptable Manufacturers: Morrison Model 918C or approved equal.

B. Provide and install one (1) tank level clock gauge on AST

C. Gauge to be float actuated and gallons display. Display to be visible from offloading spill box location.

D. Install float to activate audible and visual alarm at 90% of tank shell capacity through alarm console.

2.09 Interstitial Leak Probe

A. Acceptable Manufacturers: Pneumercator LS600, Gems LS-750, or approved equal.

B. Provide and install one (1) interstitial leak probe in AST interstitial well. Probe to be non-discriminating and compatible with Secondary Containment Monitor.

2.10 Overfill Valve and Drop Tube(s)

A. Acceptable Manufacturers: Clay Bally, OPW, Morrison, or approved equal.

B. The 2-inch AvGas pressure fill drop tube is to have mechanical overfill valve set at 95% of full tank shell capacity.

C. The overfill prevention valve shall be sized internally to match the off-load piping diameter and shall be suitable for use with offloading pump pressure.

2.11 Aboveground Piping

A. The AvGas tank is to have 2-inch fill and supply stainless steel aboveground piping.

B. Materials:

1. All aboveground piping shall be welded Schedule 40 304L stainless steel equivalent or better.
2. Piping and fittings shall be of metal, suitable for aviation fuel service, and designed for the working pressure and mechanically and thermally produced structural stresses to which they could be subjected and shall comply with ASME B31.3 Process Piping.
3. All piping is to be welded and flanged, with the exception of connecting to the underground tank fittings. Welders must be ASME Section IX Certified for the welding they are doing. Welding techniques to minimize introduction of carbon and oxygen into the weld shall be used to avoid sensitization and poor corrosion performance. Piping interior shall be cleaned and free of slag and welding deposits.
4. The dispensing cabinets are to have all stainless-steel piping. All tubing is to be stainless steel with Swedge Lock fittings or approved equal.
5. Per the fire code and fuel quality standards; no soft metals (brass, bronze, copper) or cast iron is to be used in the piping systems.
6. Any deviation must be authorized by the authority having jurisdiction and the Engineer.

C. Aboveground piping to be supported and secured in accordance with ASME B31.3 Process Piping Standards.

D. Piping and spill containment boxes to be labeled in accordance with EI 1542. 100LL piping to have blue bands at intervals no more than 20-feet. Provide flow direction arrow labels on exterior piping 2-inches or larger, at least once per piping segment, utilizing the associate product color (blue).

2.12 Underground Piping

A. Acceptable manufacturers: Franklin Fueling (UPP), OmegaFlex (Double Trac), or Approved Equal

B. Materials: Provide and install 2-inch (supply) double-walled flexible fuel product piping as indicated on the drawings.

C. Piping to be installed per manufacturer recommendations including observance of minimum bend radius requirements and be approved for automotive fuel service.

D. No buried connections will be allowed and all piping connections must occur within a monitored sump.

E. Sump penetrations must be sealed with compatible transition boot manufactured for the specific pipe material used.

F. Piping must be compatible with mechanical line leak detection (MLLD) system.

G. Piping must slope back to the containment sumps per manufacturer minimum slope requirements.

H. Piping transitions from underground to aboveground require a flexible connector rated for the application.

2.13 Mechanical Line Leak Detection

A. Acceptable Manufacturers: Veeder Root, Franklin Fueling or Approved Equal

B. Provide and install MLLD equipment for double-wall underground piping.

C. MLLD system shall be compatible with pump model and be able to detect a 3 gallon per hour (gph) leak at 10 pounds per square inch (psi) within 1 hour with a 0.95 probability of detection and a 0.05 probability of false alarm.

D. A 2" solenoid valve to be installed prior to the AvGas dispenser. The solenoid valve to be controlled by an adjustable timer set to open after a preset time delay upon startup of the submersible pump. The adjustable timer to be furnished and installed by the Electrical Contractor.

2.14 Containment Sump(s)

A. Acceptable Manufacturers: Bravo, Franklin Fueling or Approved Equal

B. Provide and install monitored liquid-tight containment sump at piping transitions as shown.

C. Any product pipe connections must occur within a containment sump. All sump penetrations must be water tight and compatible with piping products utilized. No penetrations through sump bottoms will be permitted.

D. Electrical and signal connections should enter over the top of the sump wall.

E. Sumps must be hydrostatically tested during installation.

2.15 Sump Probe(s)

A. Acceptable Manufacturers: Pneumercator LS600-LDBN, Gems LS-750, or approved equal.

B. Provide and install one (1) non-discriminating liquid probe per sump (two (2) total) for leak monitoring.

C. Probes to be compatible with alarm console.

D. Sump probes must be set to alarm at the console when liquid is detected in the sump.

2.16 Valves

A. Valves and fittings shall be of metal, suitable for aviation fuel service and designed for the working pressure and mechanically and thermally produced structural stresses to which they could be subjected and shall comply with ASME B31.3 Process Piping.

B. Per the fire code and fuel quality standards; <u>no soft metals (brass, bronze, copper) or cast iron</u> is to be used in the valves.

C. Any deviation must be authorized by the authority having jurisdiction and the Engineer.

2.17 Sign(s)

A. Signage is to be furnished and installed by the Contractor per the Code. Signage to include:

1. Emergency instructions
    a. Sign should be a minimum size of 48" x 48" and have a minimum of 1-1/2" high letters.
    b. Confirm address to be listed on sign with Engineer prior to ordering.
2. Tank Overfill Alarm
    a. Sign should be minimum size of 12" x 8" and have a minimum of 2-inch-high letters.
3. Emergency Stop Switch
    a. Sign should be minimum size of 12" x 8" and have a minimum of 2-inch-high letters.

B. Standard signs will be made of metal with white powder coated or dipped coating background with Red Vinyl letters unless directed otherwise. Or, alternately, heavy duty 0.060 plastic signs with a coating to resist sun, paints, and chemicals with mounting grommets may be utilized.

C. Signs to be mounted to frame and braced for wind.

D. Signs to be mounted as indicated on the drawings.

2.18 Emergency Stop Switch

A. Reuse existing emergency stop switch. Add signage per NFPA 407 and drawings.

2.19 Portable Supplies

A. Fire Extinguishers:

1. Provide and install two (2) new fire extinguishers and cabinets for placement near dispensing system on Unistrut frames.
2. Locate per NFPA 30A as shown on the Drawings.

B. One (1) stainless steel fuel test bucket. Velcon, Gammon Model GTP-3905-2, or approved equal.

C. One (1) fuel testing kit, Gammon “Q” Kit or approved equal. To include:

Description	Quantity	Part No.
Mini Monitor Kit	1	GTP-172
Monitors (box of 48)	1	GTP-1985
Notebook	1	GTP-1400
Filing Pages (set of 10)	1	GTP-1331
Tweezers	1	GTP-2099
Envelopes (package of 500)	1	GTP-1267
Water Finding Paste	1	GTP-982-12
White Bucket (2 gallon)	1	GTP-2518-2
Hydrometer Jar	1	GTP-1073
AvGas Thermohydrometer (ASTM 258H)	1	GTP-9185

D. One (1) Manual Tank Gauge Stick for manual gauging the AvGas AST.

E. One (1) full spare set of replacement filter elements for the AvGas cabinet filter separator.

2.20 Crash Protection Bollards

A. Provide and install eleven (11) crash protection bollards for AST systems protection. Bollards shall be poured-in-place and constructed of 6-inch ID Schedule 40 steel pipe, concrete-filled.

B. Posts shall extend four (4) feet above grade and have yellow plastic slip covers.

PART 3 - EXECUTION

3.01 Work Sequence

A. The Work on this project needs to be constructed to accommodate the Owner’s occupancy and operational requirements during the construction period. Provide work in the following sequence. Modifications to the sequence shall be approved by the Engineer.

1. Obtain required permits
2. Set up low-profile construction barricades per the Construction Safety and Phasing Plan (CSPP).
3. Set erosion control items.
4. Make safety arrangements before using a crane or any equipment that exceeds twenty (20) feet in height.
5. Contractor to remove and dispose any remaining fuel from existing AvGas AST.
6. Disconnect all tank electrical.
7. Remove existing fueling dispenser, hose reel cabinet and light.

8. Remove existing AvGas AST, aboveground and underground piping and tank appurtenances. Cap all openings and transport AST to the SRE maintenance building at Duluth International Airport. Sawcut and excavate area for dispensing island and new AST. If materials are temporarily stockpiled near the excavation, the Contractor shall provide erosion control for stockpile.
9. No contamination is expected in the location of the AST. Geotechnical soil boring profile information for the project area is provided with the bidding information.
10. Dispose of all excavated and removed material off-site to a site provided by Contractor.
11. Install new buried conduits and connect underground electrical power from the electrical supply panels indicated on the drawings to the new AST and dispensing area. Provide seal-offs above grade prior to their entry into non-classified electrical area(s). Contractor is required to coordinate this work through the Engineer to ensure it takes place before the aggregate base course has been compacted.
12. Open trench for conduit shall be backfilled immediately upon completion of the conduit installation.
13. Install containment sumps with non-discriminating leak probes.
14. Place structural fill and subbase, compact and install concrete for tank pad, and new AST area. Complete all grounding, electrical conduit installation and stub-outs within concrete slab footprints, collision protection bollards, transition sump with non-discriminating leak probes and other required underground components prior to pouring concrete pads.
15. Install steel concrete-filled collision protection bollards around AST and new dispenser. Install at locations shown on the drawings, providing adequate space to access cabinet.
16. Clean and install relocated AST. Tank to be installed per manufacturer instructions, MSFC and MPCA code, all reference codes and per the project drawings. Shim tank to level as needed.
17. Cap all openings and perform integrity test on tank per manufacturer recommendation.
18. Anchor AST in accordance with drawing and tank manufacturer recommendations.
19. Install manual clock gauge and alarm on AST.
20. Install interstitial leak detector in AST interstitial space.
21. Install mechanical overfill shut off valves that will stop the transfer when the tank reaches 95% shell capacity. The overfill prevention valve shall be sized internally to match the off-load piping diameter.
22. Install 2”-inch service vent on AST.
23. Furnish and install submersible pump, aboveground supply piping and supports to transition sumps and underground supply piping to the dispenser including MLLD, valves and flex connectors. Pressure test piping.
24. Leak test all sumps.
25. Install remote off-loading spill box and connections. Label remote spill box with a sticker labeled “AvGas.”
26. Install aboveground piping and piping supports from offloading connection to tank. Pressure test piping.
27. Rotate and reinstall existing card readers/FMUs as shown on the drawings. Connect new dispenser to FMU. The card reader shall activate power to the dispenser, pump, and solenoid valve(s) when payment is authorized and depower system after transaction has timed out.
28. Install new alarm console in location as specified on the drawings.
29. Pull signal from tank systems and dispensing areas to new alarm console for all sump probes, interstitial probe, and tank gauge and connect to console location.
30. Provide signage for Overfill Alarm, Emergency Stop and Emergency Calling Instructions. Install signage per the drawings. Install labeling on tanks, cabinets, and fill connections per specifications.
31. Connect underground electrical to new fueling system equipment. Wire all the electrical power, control, electronic (data) equipment for the Fueling System.

32. Provide code required equipment testing and conduct a Minnesota Certified Calibration of all meters. Seal the meters after accurate calibration.
33. Conduct system pressure tests and fuel quality tests and equipment start up, including verifying and documenting flow rates. Conduct owner training on the new system.
34. Restore Fueling System areas and other vegetated areas disturbed by Contractor's operations to surrounding grade with suitable clean backfill, plus 4” topsoil, grass seed mix, fertilizer, and stabilized fiber matrix, or to match existing pavement.
35. Remove Construction Barriers and perform site cleanup.
36. Provide all portable supplies.
37. Deliver all equipment manuals, warranties, and as built drawings to the Engineer for review and approval.

3.02 Pre-Start-Up Soak Testing & Flushing

A. The new dispensing hoses will be subject to an 8-hour soak and flush as required by EI 1540 to remove impurities from new hoses.

1. New aircraft fuelling hoses (meeting EI 1529 or EN 1361) shall be filled with product and left to soak for a minimum of eight hours at a temperature of 15°C or higher before flushing with at least 2000 litres.
2. Longer soak times are required where product temperatures are lower.
3. Flushed product shall be visually inspected until no evidence of manufacturing residue or discolouration is detected. This flushed product should then be disposed of.
4. After a clean and clear fuel is detected, the remaining flushed product may be returned to the storage tank.
5. Sampling procedures
    a. Fill each tank to approximately 50% capacity.
    b. AvGas / 100LL Tank(s)
        (a) In lieu of recirculation, a static test may be performed, whereby the tank is filled with product and let sit for seven days.
    c. On the sixth day of soaking an ASTM approved epoxy lined sample can (call fuel supplier to order) should be filled and soak for 24 hours prior to use.
    d. Prepare the approved sample can to receive the fuel for testing (1-gallon epoxy lined can for Avgas). Flush the can with like product twice and allow to drain.
    e. A clean and bright sample must be achieved prior to filling the epoxy lined sample can. Be careful to avoid contact between the fuel sample for testing and brass or copper material. Be sure to bond all receptacles when performing sumps. If the tank uses a sump pump, be sure the pump is flushed with product prior to taking the sample for test to insure a clean and bright sample.
    f. When filling the sample can to be shipped for testing, be sure the receptacle is bonded to the fuel system. Fill the sample can to no more than 90% capacity. Properly close the receptacle and tighten all plugs immediately after filling to prevent the evaporation of product. Place the receptacle upside down for 1 hour, on top of paper and sufficient absorbent material, and observe for evidence of leakage.

3.03 Demolition

A. Provide Demolition in accordance with these Special Provisions.

B. The Contractor shall remove, clean and properly dispose of existing tank, dispensers, hose reel, light pole, bollards, pavements and other fuel system structures as shown on the Drawings.

1. The Contractor is responsible for compliance with the applicable and respective local, state and federal regulations throughout the project.

2. All existing materials shall be removed off site, at a location provided by the Contractor.
3. The Contractor is responsible for compliance with the applicable and respective local, state and federal regulations throughout the project.
4. All existing materials shall be removed off site, at a location provided by the Contractor.

3.04 Electrical Modifications for Fueling Systems.

A. See electrical plans.

3.05 Owner Documentation.

A. Upon completion of the installation, all relevant information for the fueling system shall be provided to the Owner/Engineer including, but not limited to, following:

B. Documentation shall be neatly bound into a single document (one document per site) and labeled and one (1) copy provided to Owner and one (1) copy to Engineer.

1. Listing of new equipment including name and serial numbers
2. Copies of all State of Minnesota correspondence/forms:
    a. Installation Permit
    b. Installation Application Form
    c. Construction Installation Checklists
    d. AST Removal Notification (State & Local)
3. Piping and Sump Tightness Testing Reports
4. Calibration Reports
5. Manufacturer Drawings
6. Tank Charts
7. Equipment Warranty Documentation
8. Bills of Lading
9. Waste Disposal Records
10. Tank Shipping & Receiving Records
11. Equipment Installation & Operation Manuals
12. Construction Photos
13. Record Drawings

3.06 Method of Measurement

A. Remove Existing AvGas Fueling Systems

1. This item shall be full compensation for all labor, equipment, and materials required to remove:
    a. One (1) existing AvGas AST,
    b. One (1) existing dispenser & associated piping.
2. Including, but not limited to, removing and disposing fuel product and sludge, removal/closure of AST and appurtenances, saw cutting and removing concrete and pavements, backfilling (including importing any additional backfill needed), compaction, reshaping and compacting existing aggregate base, repaving areas to matches the depth of the existing surrounding pavement, sawing and sealing joints in new concrete, turf restoration, site assessment, notification, reporting and owner documentation, as shown on the plans and provided in the specifications. This item shall also be full compensation for all materials, tools, equipment, labor, and incidentals necessary to complete the work.

B. Furnish and Install new AvGas Fueling System

1. This item shall be full compensation for all labor, equipment, and materials required to install the:
    a. AvGas AST and appurtenances,
    b. AvGas aboveground piping,
    c. AvGas underground piping,
    d. AvGas dispensing cabinet,
    e. AvGas remote spill box,
    f. Tank gauging & overfill alarm,
    g. Signage, and
    h. Portable supplies.
2. Including but not limited to, valves, electrical connections to the appurtenances, meter calibration, testing, training, startup and owner documentation, together as a complete operating unit as required for complete operation as shown on the plans and provided in the specifications. This item shall also be full compensation for all materials, tools, equipment, labor, and incidentals necessary to complete the work. Measurement per tank.
3. Cable and conduit required to install the appurtenances shall be considered incidental to the installation and will not be measured separately for payment.
4. This item shall also be full compensation for all materials, tools, equipment, labor, and incidentals necessary to complete the work. Measurement per tank.

3.07 Basis of Payment

A. Payment shall be made on a lump sum basis, as listed on the Bid Form.

GENERAL NOTES:

1. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL MINNESOTA'S ONE-CALL NOTIFICATION CENTER (GSOC) AT 1-800-252-1166, AND COORDINATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING AND UTILITY WORK. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ANY UTILITIES DAMAGED DURING CONSTRUCTION TO THE SATISFACTION OF THE UTILITY OWNER AT NO COST.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS REQUIRED BY THE CONSTRUCTION COVERED IN THE PLANS.
3. ALL WORK SHALL CONFORM TO APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS.
4. THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
5. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES. THE CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS AS SHOWN ON THE PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL EXISTING AREAS, PAVEMENTS, STRUCTURES, OR OTHER FACILITIES DAMAGED DURING CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER CONDITION AT NO COST TO THE OWNER.
7. THE CONTRACTOR SHALL REMOVE ALL DEBRIS RESULTING FROM WORK UNDER THIS CONTRACT TO AN APPROVED OFF-AIRPORT DUMP SITE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE OWNER'S REPRESENTATIVE WITH REDLINED PLANS AND AS-BUILT SURVEYS, CERTIFIED BY A PROFESSIONAL LAND SURVEYOR IN THE STATE OF MINNESOTA.
9. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.

EARTHWORK NOTES:

1. STRIPPING, ON SITE STOCKPILING AND PLACING OF STRIPPED AND SALVAGED TOPSOIL WILL BE PAID FOR UNDER COMMON EXCAVATION.
2. EXCAVATION OR FIELD GRADING QUANTITIES OUTSIDE OF THE GRADING LIMITS SHALL BE DETERMINED QUANTITIES FROM A TOPOGRAPHIC SURVEY FROM BEFORE & AFTER THE WORK. THE SURVEY DATA COMPLETED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE ENGINEER.

STATEMENT OF ESTIMATED QUANTITIES

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	01 71 13	MOBILIZATION	LS	1
2	01 71 23	FIELD ENGINEERING	LS	1
3	01 55 15	MAINTENANCE & RESTORATION OF HAUL ROADS	LS	1
4	31 25 10	SILT FENCE, TYPE PREASSEMBLE (INCL. INSTALLATION, MAINTENANCE, & REMOVAL)	LF	700
5	31 25 10	FILTER LOG, TYPE WOOD FIBER BIOROLL (INCL. MAINTENANCE)	LF	100
6	31 23 10	COMMON EXCAVATION	CY	32
7	32 91 10	TOPSOIL BORROW (IF NEEDED)	CY	22
8	02 41 33	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	250
9	02 41 33	REMOVE EXISTING TANK PAD	LS	1
10	Spec. Prov.	REMOVE/CLOSURE OF EXISTING AST/PIPING/DISPENSER	LS	1
11	32 12 16	FULL DEPTH PAVEMENT REPAIR OVER UTILITY TRENCH (MATCH EXISTING PAVEMENT SECTION)	SY	120
12	03 30 00	REINFORCED CONCRETE SLAB (12 INCH)	SY	60
13	32 92 12	TURF ESTABLISHMENT (BRILLION) (INCL SEED, FERTILIZER, MULCH, & WATER)	LS	1
14	ELEC	ELECTRICAL DEMO	LS	1
15	ELEC	SALVAGE LIGHTING UNIT	EA	1
16	ELEC	INSTALL LIGHTING UNIT	EA	1
17	ELEC	HANDHOLE	EA	1
18	ELEC	EMERGENCY FUEL STOP SYSTEM	EA	1
19	ELEC	RELAY PANEL	EA	1
20	ELEC	3/4" NON-METALLIC CONDUIT	LF	1385
21	ELEC	UNDERGROUND WIRE 1/C 10 AWG	LF	5610
22	ELEC	BELDEN CABLE #8760	LF	288
23	ELEC	CAT6A CABLE	LF	342
24	ELEC	COMBINATION STARTER/DISCONNECT	EA	1
25	ELEC	MODIFY WIREWAY	EA	1
26	ELEC	MODIFY EXISTING HANDHOLE	EA	1
27	ELEC	EXPLOSION PROOF FITTINGS	EA	4
28	ELEC	MODIFY EXISTING PANEL	LS	1
29	ELEC	COMMISSIONING	LS	1
30	Spec. Prov.	RELOCATE CLEAN AND PREP USED 5,200-GAL AST	LS	1
31	Spec. Prov.	PROCURE AND INSTALL NEW SPILL BOX	LS	1
32	Spec. Prov.	PROVIDE AND INSTALL - AST, PUMP, ABOVE GROUND PIPING & APPURTANANCES	LS	1
33	Spec. Prov.	PROCURE AND INSTALL- UG PIPIING AND SUMPS	LS	1
34	Spec. Prov.	INSTALL NEW DISPENSER ISLAND	LS	1
35	Spec. Prov.	PROCURE AND INSTALL - NEW AVGAS DISPENSER CABINET	LS	1
36	Spec. Prov.	PORTABLE SUPPLIES/SIGNAGE	LS	1
37	Struct.	CONCRETE BOLLARD WITH SLIP COVER	EA	15

STATEMENT OF ESTIMATED QUANTITY NOTES:

LINE ITEM NO. 1: LIMITED TO 10% OF THE TOTAL PROJECT COSTS RELATED TO THE BID SCHEDULE.
LINE ITEM NO. 11: ITEM SHOULD INCLUDE COST FOR FULL DEPTH PAVEMENT REPAIR IN TRENCHED AREA, INCLUDING THE COLD PATCH INSTALLATION AND SUBSEQUENT REMOVAL, AND RECOMPACTION OF TRENCHED AREA, AND THE FINAL HMA INSTALLATION.

SEH Project	DULAI 188848
Drawn By	NAP
Designed By	NAP
Checked By	JLV

Rev.#	Plan Revision Issue Description	Date
1	ISSUE FOR BID	05/01/2026

Rev.#	Sheet Revision Issue Description	Date
1	ADDENDUM NO. 1	05/15/2026

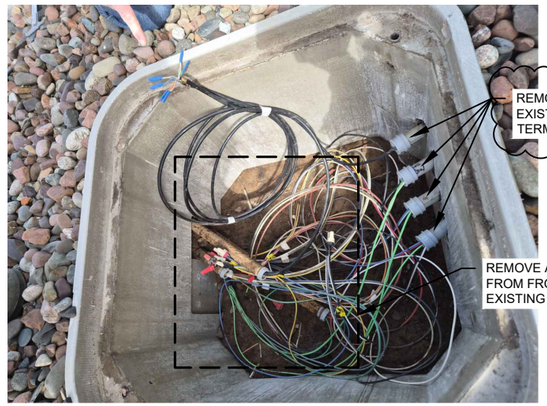
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Jessica Vinson, PE
DATE 05/01/2026 LICENSE NO. 63559

FUEL FARM IMPROVEMENTS
DULUTH, MN

GENERAL NOTES & STATEMENT OF QUANTITIES

G3.00

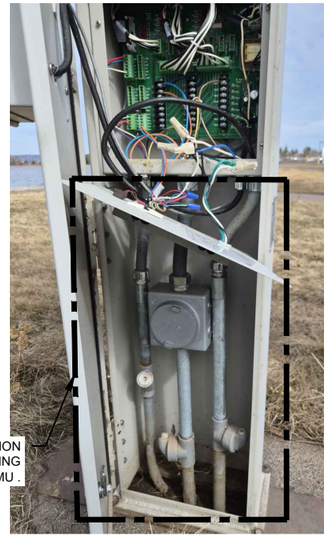


REMOVE ALL WIRING FROM EXISTING HANDHOLE TO TERMINAL ELECTRICAL ROOM

REMOVE ALL CONDUIT AND WIRING FROM FROM EXISTING HANDHOLE TO EXISTING EQUIPMENTS

EXISTING FUEL SYSTEM HANDHOLE

NOT TO SCALE



REMOVE ALL ABOVE GRADE EXPLOSION PROOF EQUIPMENTS, CONDUITS, AND WIRING GOING INTO THE FMU .

EXISTING FUEL MANAGEMENT UNIT

NOT TO SCALE

REMOVE ALL ABOVE GRADE EXPLOSION PROOF EQUIPMENTS, CONDUITS, WIRING AND ASSOCIATED ELECTRICAL EQUIPMENT COMING IN/OUT OF THE DISPENSER AND HOSE REEL .

EXISTING FUEL DISPENSER

NOT TO SCALE

EXISTING HOSE REEL

NOT TO SCALE

REMOVE ALL ABOVE GRADE EXPLOSION PROOF JUNCTION BOXES, CONDUIT, WIRING, AND ASSOCIATED ELECTRICAL EQUIPMENT.

EXISTING AVGAS TANK

NOT TO SCALE

REMOVE EXISTING EMERGENCY STOP PUSH-BUTTON AND ABOVE GRADE EXPLOSION PROOF FITTINGS, CONDUITS, AND WIRING.

EXISTING EMERGENCY SHUT OFF PEDESTAL

NOT TO SCALE

GENERAL NOTES:

A. FROM THE EXISTING FUEL SYSTEM HANDHOLE TO THE EXISTING FUEL SYSTEM EQUIPMENTS: REMOVE ALL EXISTING CONDUIT AND WIRING.

B. FROM THE TERMINAL ELECTRICAL ROOM TO THE EXISTING FUEL SYSTEM HANDHOLE: REMOVE WIRING. EXISTING 3/4" CONDUITS TO REMAIN IN PLACE.

C. CONTRACTOR TO VERIFY EXACT ROUTING OF CONDUIT AND WIRING TO BE REMOVED.

SEH Project	DULAI 188848
Drawn By	RT
Designed By	RT
Checked By	JEK

Rev.#	Plan Revision Issue Description	Date
1	ADDENDUM NO. 1	05/15/2026

Rev.#	Sheet Revision Issue Description	Date
1	ISSUE FOR BID	04-25-2026

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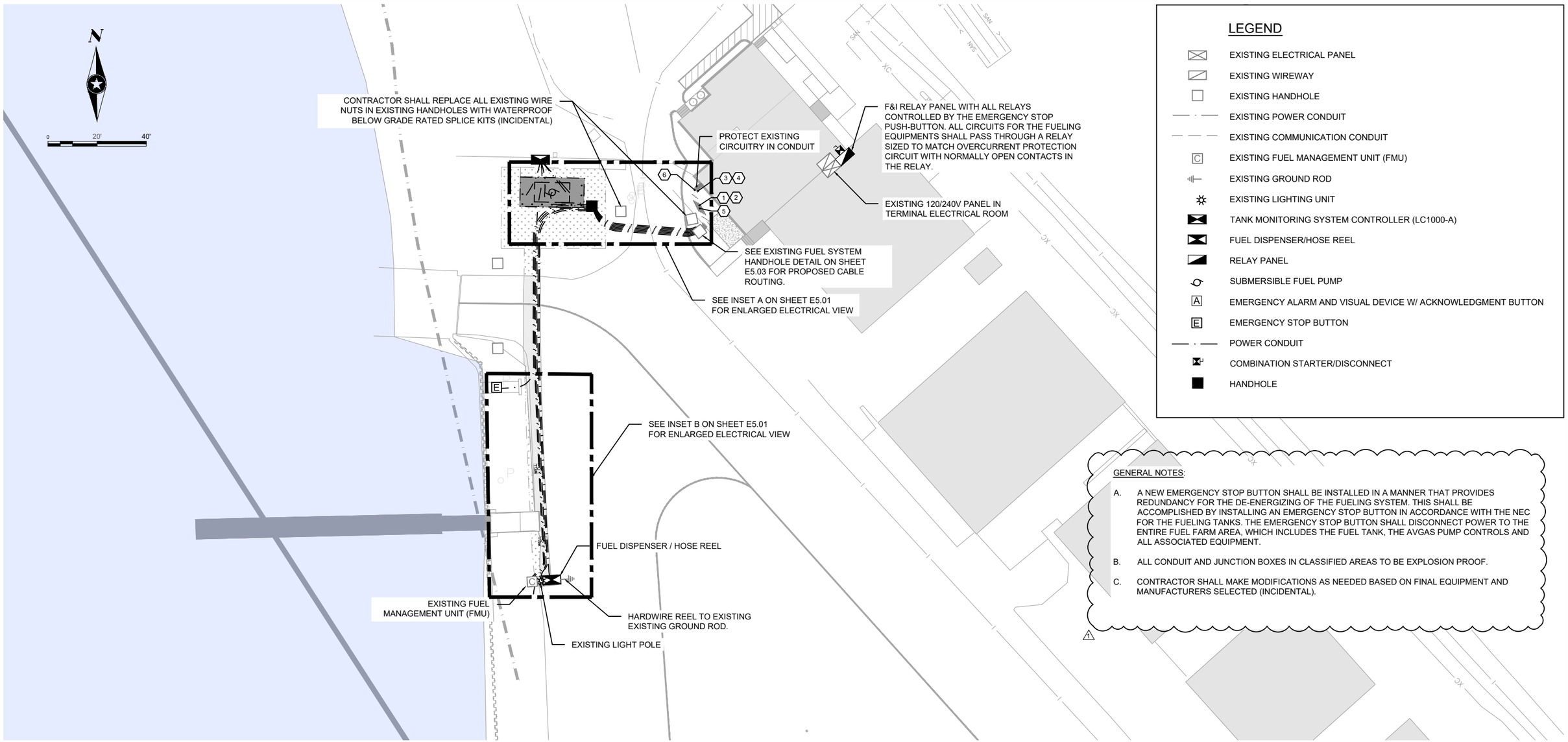
ROTHANA THORNG, P.E.
DATE 05/01/2026 LICENSE NO. 63074

FUEL FARM IMPROVEMENTS
DULUTH, MN

E070 ELECTRICAL REMOVAL PLAN

E0.50



GENERAL NOTES:

A. A NEW EMERGENCY STOP BUTTON SHALL BE INSTALLED IN A MANNER THAT PROVIDES REDUNDANCY FOR THE DE-ENERGIZING OF THE FUELING SYSTEM. THIS SHALL BE ACCOMPLISHED BY INSTALLING AN EMERGENCY STOP BUTTON IN ACCORDANCE WITH THE NEC FOR THE FUELING TANKS. THE EMERGENCY STOP BUTTON SHALL DISCONNECT POWER TO THE ENTIRE FUEL FARM AREA, WHICH INCLUDES THE FUEL TANK, THE AVGAS PUMP CONTROLS AND ALL ASSOCIATED EQUIPMENT.

B. ALL CONDUIT AND JUNCTION BOXES IN CLASSIFIED AREAS TO BE EXPLOSION PROOF.

C. CONTRACTOR SHALL MAKE MODIFICATIONS AS NEEDED BASED ON FINAL EQUIPMENT AND MANUFACTURERS SELECTED (INCIDENTAL).

CONDUIT AND WIRE SCHEDULE (FROM TERMINAL ELECTRICAL ROOM TO EXISTING FUEL SYSTEM HANDHOLE)

(X) IDENTIFIER	LOAD SERVED "FROM"	LOAD SERVED "TO"	CONDUIT SIZE	CONDUCTORS	GROUND	NOTE
1	EXISTING ELECTRICAL PANEL	EXISTING HANDHOLE	3/4" (EXISTING)	(4) #10	(2) #10	1
2	COMBINATION STARTER/DISCONNECT					
3	EXISTING ELECTRICAL PANEL	EXISTING HANDHOLE	3/4" (EXISTING)	(6) #10	(1) #10	2
4	COMBINATION STARTER/DISCONNECT					
5	EXISTING ELECTRICAL PANEL	EXISTING HANDHOLE	3/4" (EXISTING)	(4) #10	(2)#10	3
6	EXISTING FUEL COMMUNICATION BOX	EXISTING HANDHOLE	3/4" (EXISTING)	(1) BELDEN 7929A	N/A	4

NOTE:
1. UTILIZE EXISTING CONDUIT 3/4" CONDUIT FROM EXISTING HANDHOLE TO EXISTING WIREWAY FOR NEW WIRING TO LC1000-A CONSOLE AND SUBMERSIBLE FUEL PUMP.
2. UTILIZE EXISTING CONDUIT 3/4" CONDUIT FROM EXISTING HANDHOLE TO EXISTING WIREWAY FOR NEW WIRING TO EMERGENCY STOP PUSH-BUTTON AND EXISTING FMU (SIGNAL & POWER).
3. UTILIZE EXISTING 3/4" CONDUIT FROM EXISTING HANDHOLE TO EXISTING WIREWAY FOR NEW WIRING TO FUEL DISPENSER/HOSE REEL AND EXISTING LIGHT POLE.
4. UTILIZE EXISTING 3/4" CONDUIT FROM EXISTING HANDHOLE TO EXISTING WIREWAY FOR NEW COMMUNICATION WIRING TO EXISTING FMU.

CONTRACTOR SHALL VERIFY CONTROL CIRCUITRY CABLE, CONDUIT SIZE, TYPE, AND ROUTING WITH MANUFACTURER FOR DISPENSER, FUEL MANAGEMENT UNIT, AND TANK MONITORING SYSTEM. PLAN AND SPECIFICATION REVISIONS SHALL BE SENT TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. ANY CHANGES SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT SHALL BE MADE FOR MATERIAL OR LABOR TO PROVIDE A COMPLETE AND OPERATIONAL ELECTRICAL AND CONTROL SYSTEM.

SEH Project	DULAI 188848
Drawn By	RT
Designed By	RT
Checked By	JEK

Rev.#	Plan Revision Issue Description	Date
1	ADDENDUM NO. 1	05/15/2026

Rev.#	Sheet Revision Issue Description	Date

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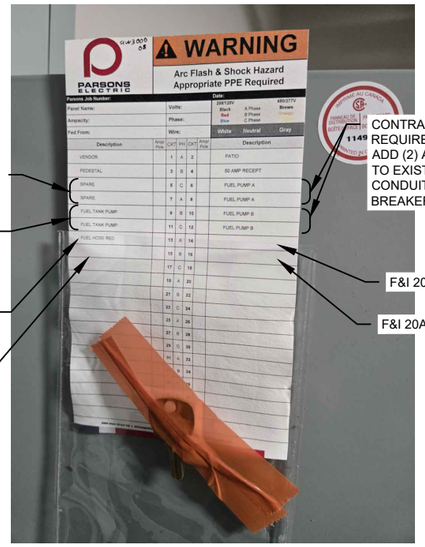
ROTHANA THORNG, P.E.
DATE 05/01/2026 LICENSE NO. 63074

FUEL FARM IMPROVEMENTS
DULUTH, MN

ELECTRICAL SITE PLAN

E5.00



UTILIZE EXISTING 30A-2P CIRCUIT BREAKER (5 & 7) FOR NEW FUEL TANK PUMP

EXISTING 20A-2P CIRCUIT BREAKER (9 & 11) TO REMAIN AS SPARE

REUSE EXISTING 20A-1P CIRCUIT BREAKER (19) TO POWER NEW FUEL DISPENSER/HOSE REEL

F&I 20A-1P BREAKER FOR FMU

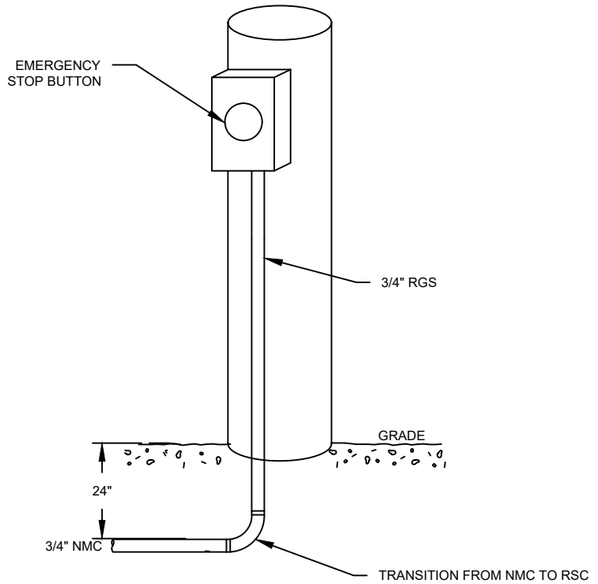
CONTRACTOR SHALL FIELD VERIFY IF CIRCUITS FOR PUMP 'A' AND PUMP 'B' ARE REQUIRED TO REMAIN. IF THEY ARE REQUIRED TO REMAIN, CONTRACTOR SHALL ADD (2) ADDITIONAL 3/4" EXPLOSION PROOF RACEWAY FROM WIREWAY TO EXISTING HANDHOLD (INCIDENTAL) FOR ADDITIONAL NEW CIRCUITRY (SEE CONDUIT AND WIRE SCHEDULE). OTHERWISE, CONTRACTOR SHALL LEAVE BREAKERS IN PLACE AS SPARES AND DISCONNECT AND REMOVE CONDUCTORS.

F&I 20A-1P BREAKER FOR EMERGENCY STOP BUTTON

F&I 20A-1P BREAKER FOR LIGHT POLE

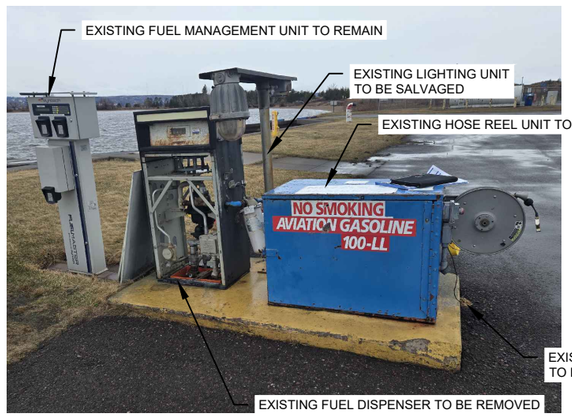
EXISTING FUEL SYSTEM ELECTRICAL PANEL AND SCHEDULE

NOT TO SCALE



EMERGENCY STOP PUSH-BUTTON ON EXISTING PEDESTAL

NOT TO SCALE

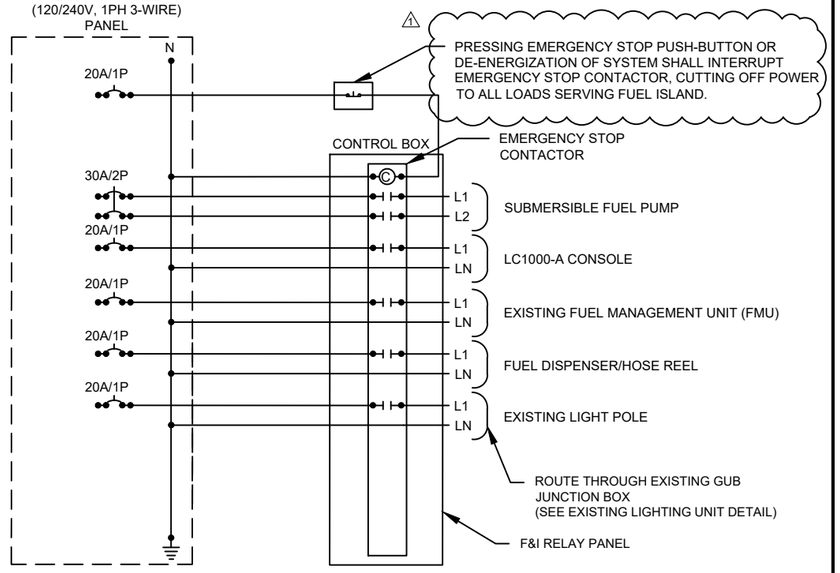


EXISTING FUEL DISPENSER ISLAND

NOT TO SCALE

EXISTING LIGHTING UNIT

NOT TO SCALE



EMERGENCY FUEL STOP SCHEMATIC

LEGEND

- NORMALLY OPEN CONTACT
- NORMALLY CLOSED PUSH-BUTTON

SEH Project	DULAI 188848	Rev.#	Plan Revision Issue Description	Date	Rev.#	Sheet Revision Issue Description	Date
Drawn By	RT	1	ADDENDUM NO. 1	05/15/2026			
Designed By	RT						
Checked By	JEK						

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

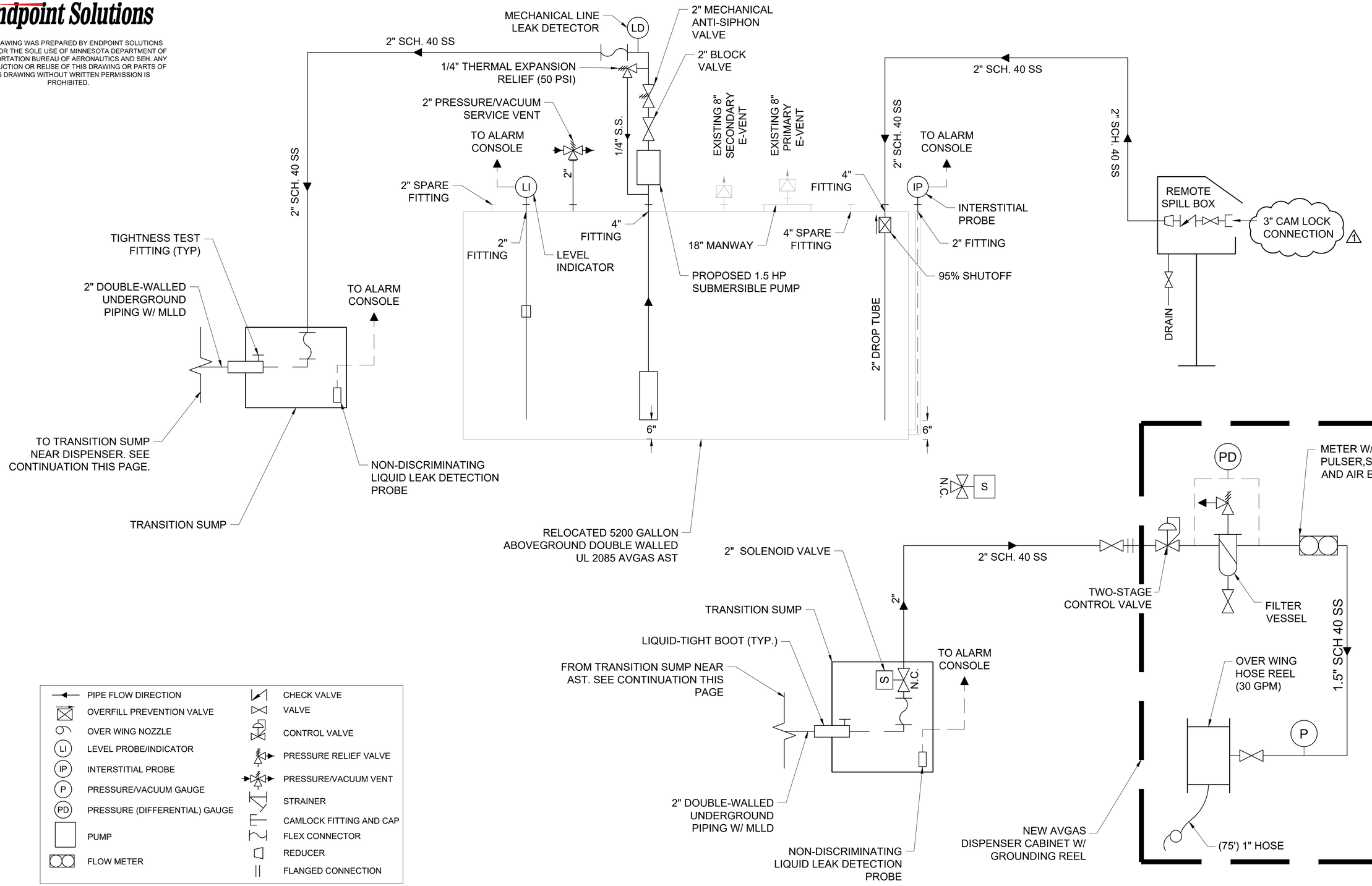
ROTHANA THORNG, P.E.
DATE 05/01/2026 LICENSE NO. 63074

FUEL FARM IMPROVEMENTS
DULUTH, MN

ELECTRICAL DETAILS

E5.02

Endpoint Solutions



- PIPE FLOW DIRECTION
- OVERFILL PREVENTION VALVE
- OVER WING NOZZLE
- LI — LEVEL PROBE/INDICATOR
- IP — INTERSTITIAL PROBE
- P — PRESSURE/VACUUM GAUGE
- PD — PRESSURE (DIFFERENTIAL) GAUGE
- PUMP
- FLOW METER
- CHECK VALVE
- VALVE
- CONTROL VALVE
- PRESSURE RELIEF VALVE
- PRESSURE/VACUUM VENT
- STRAINER
- CAMLOCK FITTING AND CAP
- FLEX CONNECTOR
- REDUCER
- FLANGED CONNECTION

SEH Project	DULAI 188848
Drawn By	BMF
Designed By	WCW
Checked By	WCW

Rev.#	Plan Revision Issue Description	Date
1	ADDENDUM NO.1	05/15/2026

Rev.#	Sheet Revision Issue Description	Date

Endpoint Solutions

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MN.

WADE C. WOLLERMANN, PE
DATE 05-15-26 LICENSE NO. 55562

FUEL FARM RELOCATION

DULUTH, MN

AVGAS P&ID

F105

Save: 5/14/2026 2:28 PM bfurgason Plot: 5/14/2026 2:43 PM P:\SEH - 775\012 - Sky Harbor\CAD\F105_775-012-001 AVGAS P&ID.dwg