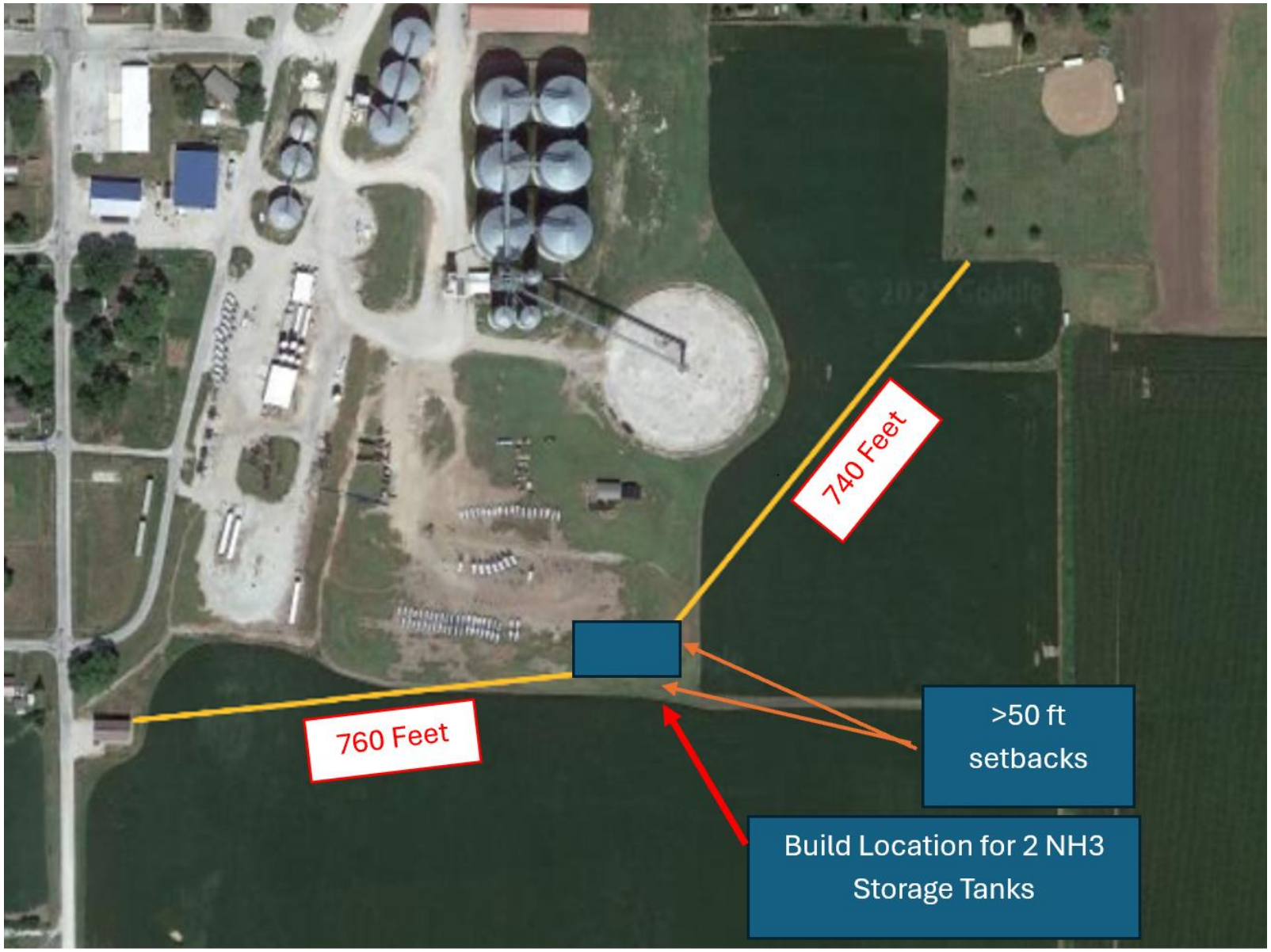
Randolph NH3 Anhydrous Capacity Expansion

Expansion Location

- Southeast portion of Heartland's Randolph Location
  - Setbacks
    - ~760 Feet from shed
    - ~740 Feet from city park
    - Greater than 50 feet from property lines



Iowa Code

21—43.6 (200) Standard for the storage and handling of anhydrous ammonia

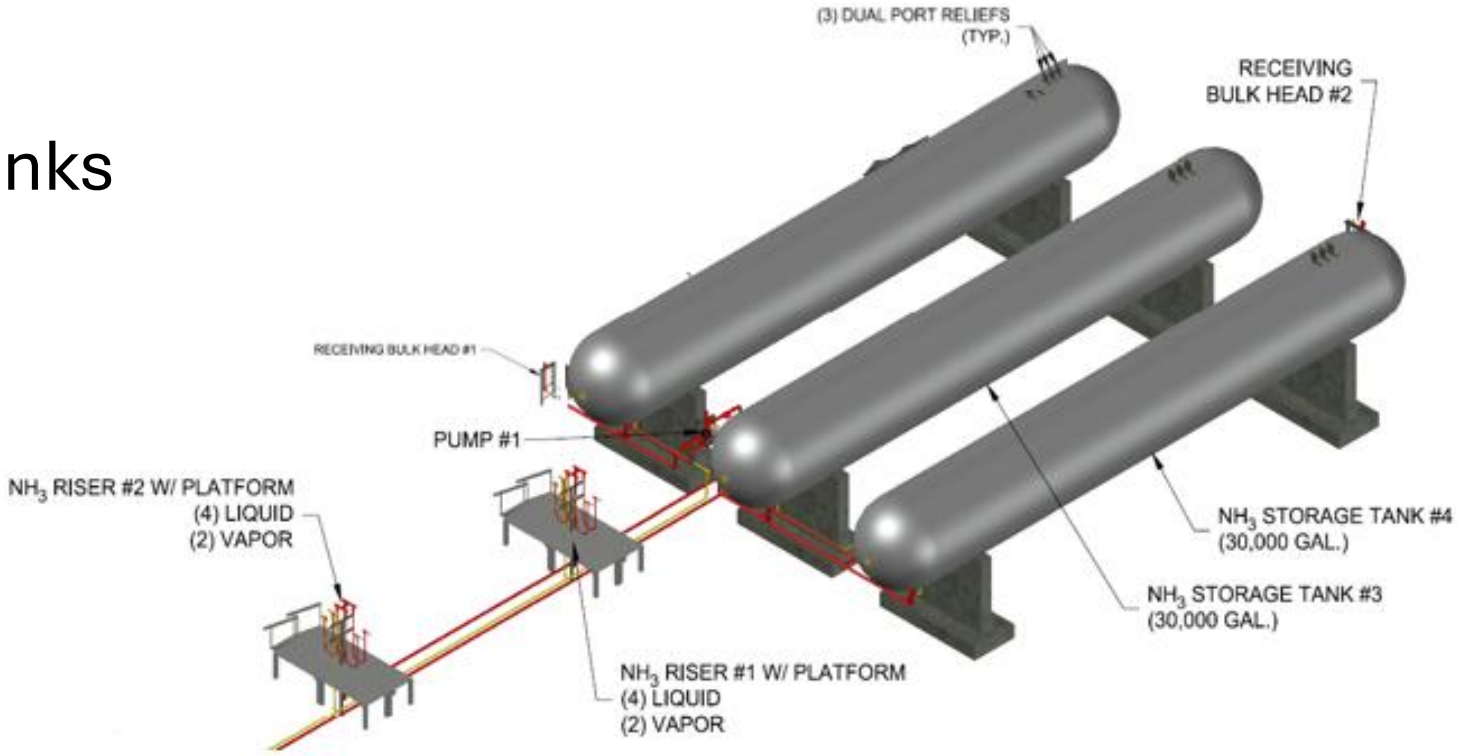
- Setbacks

Minimum Separation Distances for Location of Ammonia Storage Containers

	Minimum Distances (in feet or meters) from Each Container to:		
Nominal Capacity of Container[3] (Gallons or Cubic Meters)	Mainline of Railroad[4]	Highway[5] or Line of Adjoining Property which can be built upon	Place of Public Assembly[6] or Residential Occupancy[7]
Over 500 to 2,000 gals[9]	100 ft	25 ft	150 ft
Over 2,000 to 30,000 gals	100 ft	50 ft	300 ft
Over 30,000 to 100,000 gals	100 ft	50 ft	450 ft
Over 100,000 gals	100 ft	50 ft	600 ft
Over 2 to 8 m^3	30 m	8 m	45 m
Over 8 to 110 m^3	30 m	15 m	90 m
Over 110 to 400 m^3	30 m	15 m	140 m
Over 400 m^3	30 m	15 m	180 m

Proposed Randolph Expansion

3 – 30,000g NH3 Storage Tanks
2 – NH3 Riser Platforms



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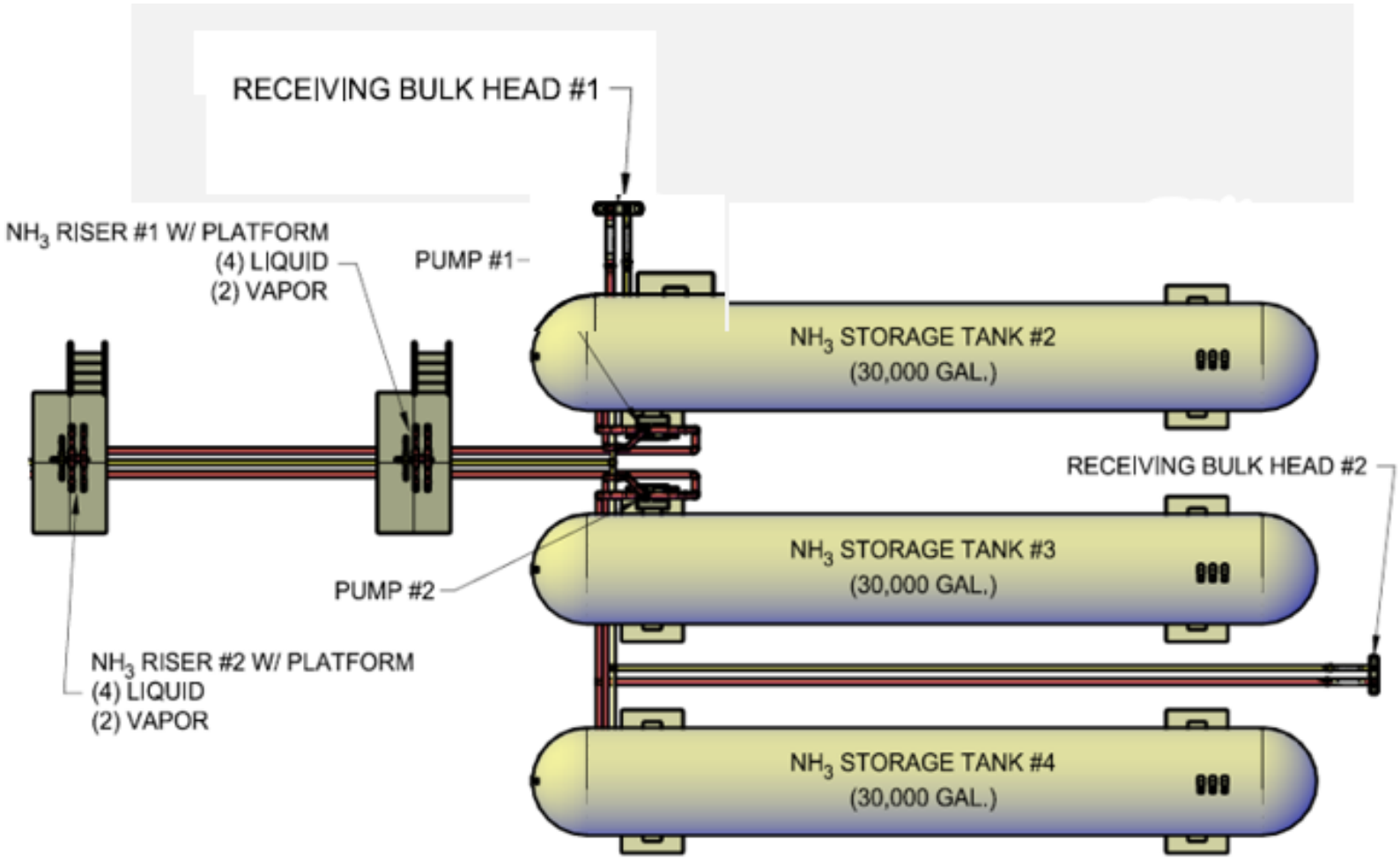


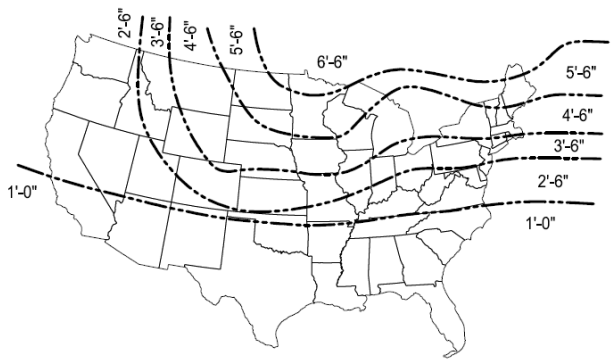
Pier Requirements

Example from previous expansion in Winterset Iowa

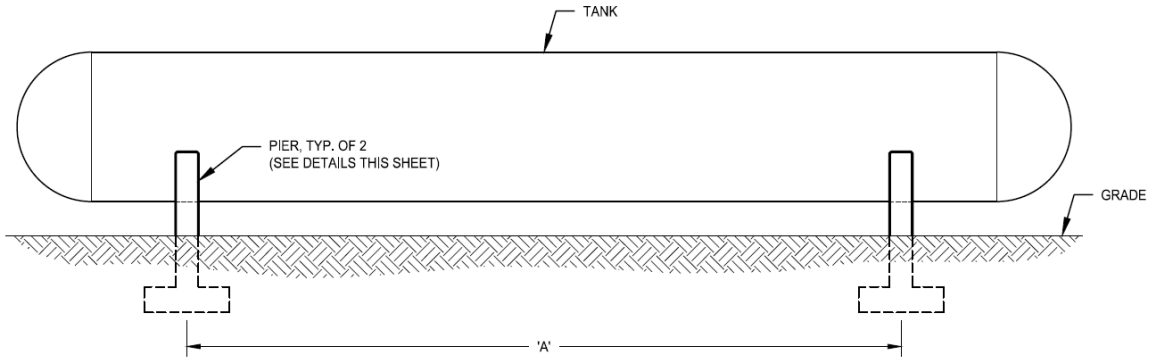
GENERAL NOTES:

1. FOOTINGS SHALL BE CARRIED TO FIRM BEARING BELOW FROSTLINE NOT LESS THAN THE DEPTHS INDICATED ON THIS DRAWING AND BEAR ON UNDISTURBED SOIL OR COMPACTED BACKFILL.
2. MINIMUM DEPTH REQUIRED BY LOCAL BUILDING CODES SHALL CONTROL IF GREATER THAN MINIMUM DEPTHS SHOWN.
3. FOUNDATION DESIGN IS BASED ON SOIL BEARING PRESSURE OF 2,000 LBS. PER SQ. FOOT.
4. REINFORCEMENT BARS SHALL BE INTERMEDIATE GRADE, TIE BARS WITH WIRE AT ALL INTERSECTIONS.
5. FORMS SHALL CONFORM TO SHAPE, LINES, AND DIMENSIONS SHOWN ON THIS DRAWING AND SHALL BE SUBSTANTIAL AND SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF MORTAR.
6. PORTLAND CEMENT AND FINE AND COURSE AGGREGATES SHALL COMPLY WITH MOST RECENT ASTM SPECIFICATIONS.
7. MIXING WATER SHALL BE CLEAR AND FREE FROM ACIDS, ALKALIS, OIL AND ORGANIC MATTER.
8. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3,500 P.S.I. IN 28 DAYS, SAMPLES SHALL TEST 15% GREATER. CONCRETE SHALL CONTAIN 6 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
9. ALL SALIENT CORNERS ABOVE GRADE TO HAVE 1" CHAMFER.
10. LOCATION OF FOUNDATION TO BE IN ACCORDANCE WITH LOCAL AND STATE CODES.
11. ALL DIMENSIONS ON THIS DRAWING ARE MINIMUM AND SUGGESTED ONLY DUE TO VARYING SOIL CONDITIONS, ETC. SMALLER FOOTING MAY BE POSSIBLE WITH SOIL ANALYSIS. PIER SPACING IS BASED ON ACCOMMODATING FOUR OPENINGS SPACED ON 1'-0" CENTERS FROM HEAD SEAM.
12. AFTER REMOVING FORMS, BACKFILL TO GRADE LEVEL.
13. DALES PETROLEUM SERVICE, INC. ASSUMES NO RESPONSIBILITY FOR SOIL CONDITIONS. THIS DRAWING IS ISSUED AS A RECOMMENDATION ONLY.

PIER DIMENSIONS				
TANK CAPACITY	'A'	'B'	'C'	'D'
30,000	46'	5'	12'	4'

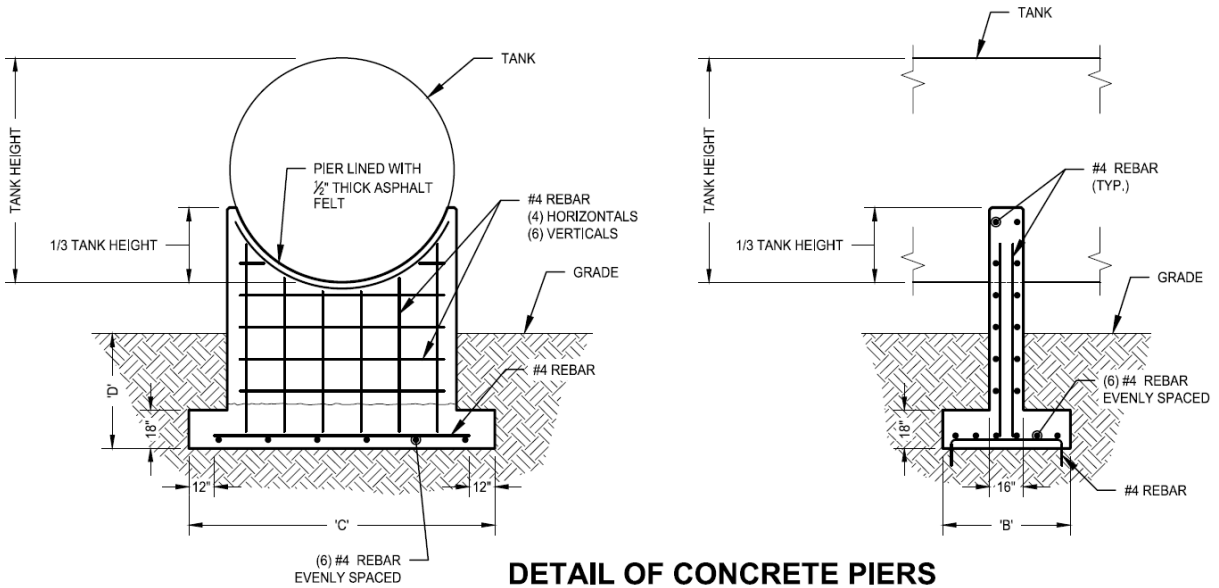


FOOTING DEPTH BELOW GRADE DIMENSION 'D'



LOCATION OF CONCRETE PIERS

NOT TO SCALE



DETAIL OF CONCRETE PIERS

NOT TO SCALE

TANK INFORMATION

CAPACITY: 30,000 GAL.

NORMAL DIMENSIONS

OUTSIDE DIAMETER: 109"

OVERALL LENGTH: 66'

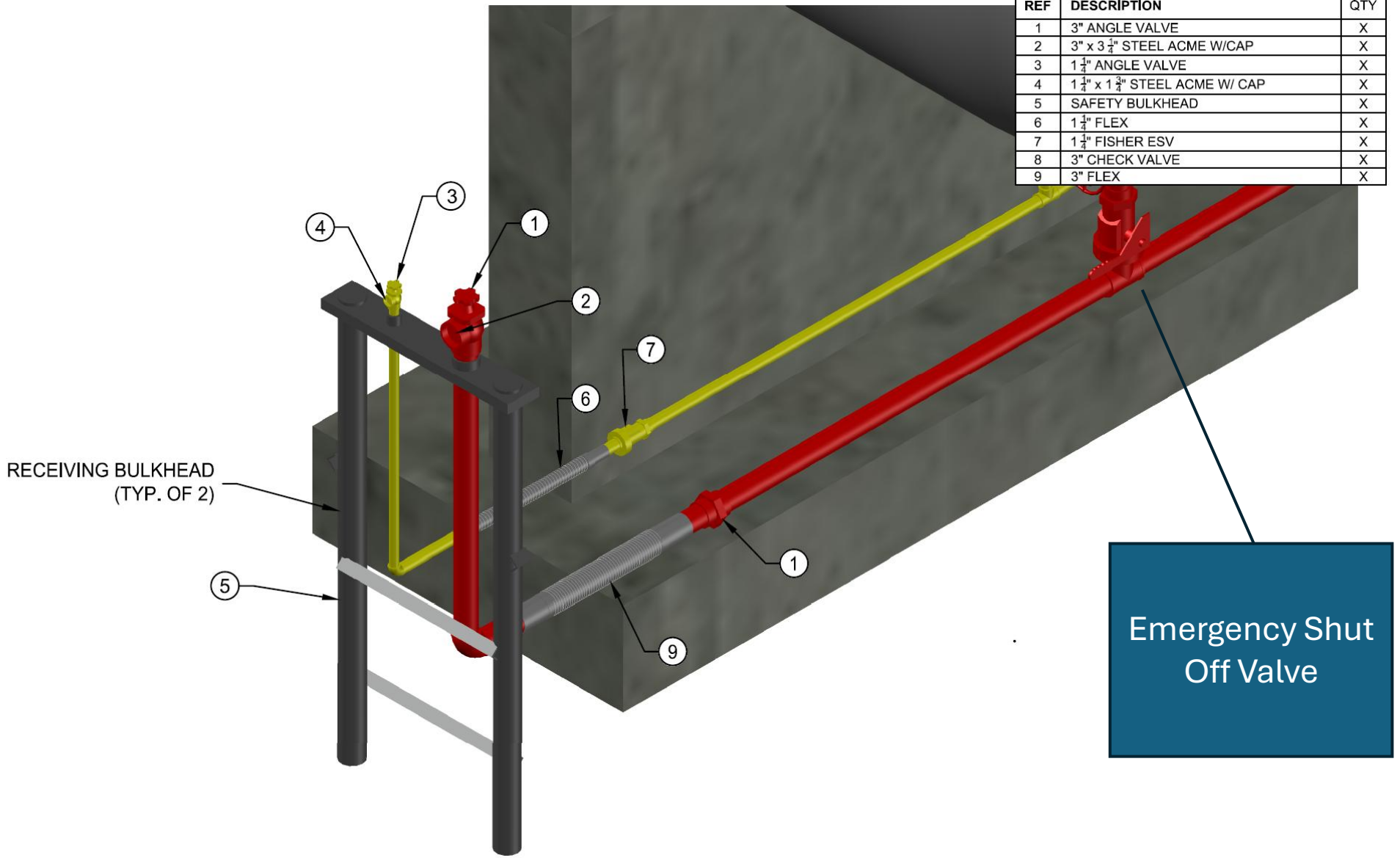
PRINT NAME: PIER DETAILS - NH_3 TANK

DALE'S PETROLEUM SERVICE INC.
Fort Dodge, IA 50501

DATE: 1/15/2025	HEARTLAND CO-OP - WINTERSET, IA	REVISION: 0

Bulkhead

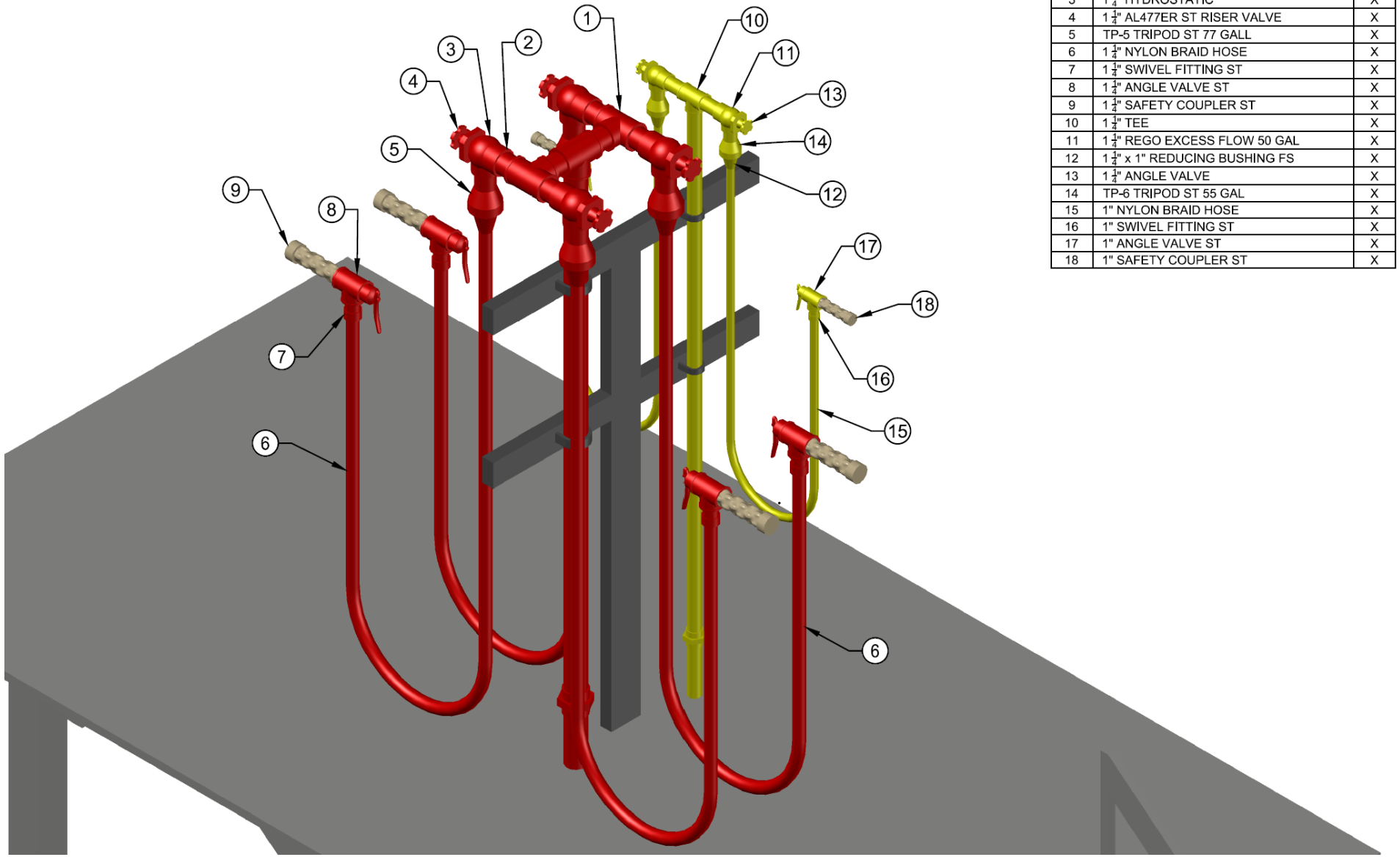
Bulkhead where transports will load and unload



REF	DESCRIPTION	QTY
1	3" ANGLE VALVE	X
2	3" x 3 $\frac{1}{4}$" STEEL ACME W/CAP	X
3	1 $\frac{1}{4}$" ANGLE VALVE	X
4	1 $\frac{1}{4}$" x 1 $\frac{3}{4}$" STEEL ACME W/ CAP	X
5	SAFETY BULKHEAD	X
6	1 $\frac{1}{4}$" FLEX	X
7	1 $\frac{1}{4}$" FISHER ESV	X
8	3" CHECK VALVE	X
9	3" FLEX	X

Riser Diagram

- 9 - Riser Safety couplers for filling
- 5 - Emergency break aways on each hose



REF	DESCRIPTION	QTY
1	2" TEES	X
2	2" XH BLK NIPPLE	X
3	1 ¼" HYDROSTATIC	X
4	1 ¼" AL477ER ST RISER VALVE	X
5	TP-5 TRIPOD ST 77 GALL	X
6	1 ¼" NYLON BRAID HOSE	X
7	1 ¼" SWIVEL FITTING ST	X
8	1 ¼" ANGLE VALVE ST	X
9	1 ¼" SAFETY COUPLER ST	X
10	1 ¼" TEE	X
11	1 ¼" REGO EXCESS FLOW 50 GAL	X
12	1 ¼" x 1" REDUCING BUSHING FS	X
13	1 ¼" ANGLE VALVE	X
14	TP-6 TRIPOD ST 55 GAL	X
15	1" NYLON BRAID HOSE	X
16	1" SWIVEL FITTING ST	X
17	1" ANGLE VALVE ST	X
18	1" SAFETY COUPLER ST	X

IDALS Approval Requirements

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

Bill Northey, Secretary of Agriculture

REQUIREMENTS FOR INSTALLATION OF ANHYDROUS AMMONIA STORAGE

1. CONSIDERING NH3 STORAGE INSTALLATION- **CONTACT** IDALS FEED & FERTILIZER DEPT
2. IDALS will send a field inspector to the proposed site for a site approval.
3. ***Storage tank*** must comply with most current NH3 storage requirements (ANSI/CGA G-2.1). Check with IDALS before purchase!
4. Tank will need U1A build sheet or good data plate with proper markings to ensure it is compatible for anhydrous ammonia storage.
5. The dealer will receive an application for installation of an Anhydrous Ammonia storage facility from the inspector. The following will be required to be submitted with the signed and notarized application to IDALS in Des Moines; **PRIOR** to beginning construction:
   a. Copy of the pier diagram
   b. Copy of the actual plumbing diagram
   c. Legible picture of data plate and/or U1-A form.
   d. Copy of the public notice posted prior to meeting with the local jurisdiction
   e. Copy of the minutes where local jurisdiction approved the installation.
   f. Map and/or aerial photo of the location with distances marked.
6. If approved, dealer will receive notification and a construction affidavit to be signed by the contractor and dealer/owner, notarized and returned to IDALS in Des Moines once construction is finalized. An IDALS inspector will inspect and put site into service.
7. ALL installations are inspected by IDALS annually, and must comply with all Fertilizer Laws.
8. Dealer is responsible for submitting or updating their RMP once installation is complete and before the threshold of 10,000 lbs. of Nh3 is reached.

Neal Vaughn
Fertilizer Administrator
Feed & Fertilizer Bureau
515-249-2938
515-242-6338 office
Neal.Vaughn@iowaagriculture.gov

IDALS Application forms

Application for Approval of Anhydrous Ammonia Storage Installation

1. Name & address of firm proposing installation:
   _____ (Name)
   _____ (Address) (City) (State) (Zip)
2. Location of installation:
   _____ (911 address)
   _____ (County) (City) (State) (Zip)
3. Capacity of tank(s), (water gallons): _____ Site existing storage total: _____
4. Are tank(s) constructed in accordance with ASME Codes and State of Iowa Regulations? ☐YES ☐NO
5. Will this installation meet all distances required by the State of Iowa and local jurisdiction? ☐YES ☐NO
6. Is an accurate and to scale plot plan complete to a distance of 500 feet from the proposed installation noting property lines and neighboring places of public assembly enclosed with this application? ☐YES ☐NO
7. Are foundations, (piers), of an approved type, (1/3 of circumference)? ☐YES ☐NO
   (Submit blueprint for proposed foundations including the size and location of reinforcing rod to be used)
8. Are all piping, pump, and control devices of an approved type? ☐YES ☐NO
   (Submit plumbing diagram showing location of all bulkheads & control and safety devices)
9. Are locking devices furnished for all primary valves? ☐YES ☐NO
10. Will all necessary safety equipment, required by the State of Iowa, be available on the site? ☐YES ☐NO
11. Is the site subject to city jurisdiction or county jurisdiction? ☐ City ☐ County
    (Sites subject to city jurisdiction must receive city council approval after public notification that site approval is being considered. Sites subject to county jurisdiction must receive board of supervisor approval after public notification that site approval is being considered.)
12. Are the public notice of meeting agenda and minutes of meeting with favorable vote attached to this application? (If a zoning group exist for the county, the groups recommendation must be discussed by county board.) ☐YES ☐NO
13. Will personnel performing installation be properly trained in such functions? List below ☐YES ☐NO

Name	Address

14. Do you understand that approval must be granted from the Iowa Department of Agriculture and Land Stewardship before any construction shall commence on the proposed site? ☐YES ☐NO
    (A copy of this application will be returned with signatures granting approval.)
15. Do you understand that affidavits of construction, in compliance with the submitted plans, must be completed prior to putting installation into service? ☐YES ☐NO
16. Do you understand that, if the applicant receives approval from the Iowa Department of Agriculture and Land Stewardship to install anhydrous ammonia storage and does not begin such installation within 6 months of approval date, said approval becomes null and void? ☐YES ☐NO
17. **Do you understand that the proposed site must be licensed before application can be submitted?** ☐YES ☐NO
    License Number of site _____ **Note: Misinformation may result in rescinding approval**

I, the undersigned, hereby state that the information contained in the above application for an anhydrous ammonia storage installation is true and correct to the best of my knowledge.

_____ By: _____
(Name of firm, same as #1 above) (Firm official) (Title)

State of Iowa,
County of
Subscribed and sworn to before me this _____ day of _____ A.D.
My commission expires: _____
_____ (Notary Public)

(Completed and Notarized application goes back to the IDALS Inspector for initial approval and submission.)

IDALS Inspector:
_____ (Signature) (Approval Date)
Fertilizer Administrator:
_____ (Signature) (Approval Date)