CITY OF HASTINGS
HASTINGS, NEBRASKA

ADDENDUM NO. 4
8/21/25

WEC UNIT 1 FLY ASH SILO
MECHANICAL CONSTRUCTION
WHELAN ENERGY CENTER, UNIT 1

Contract No. HU 2025-72

- Revised Painting requirements in Other Scope in Section 3.3 to include painting UCC provided pipe supports (they are received in primer finish), utility rack, and silo roof pipe tower. Per UCC drawing C-55650-05-002.
- Revised lines 13 and 14 on Proposal page to reflect painting requirements.

CITY OF HASTINGS

By Brandon Miller

Title Mechanical Engineer

The undersigned bidder hereby certifies that the revision set forth in this addendum have been incorporated in their bid and are a part of the contract documents.

Signed _____

Title _____

Firm _____

Date _____

ALL ISSUED ADDENDUM(S) MUST BE ACKNOWLEDGED
& RETURNED WITH YOUR BID DOCUMENTS

Proposal for WEC Unit 1
Fly Ash Silo Mechanical Construction
Contract No. HU 2025-72

TO: City of Hastings
1228 N. Denver Ave
Hastings, NE 68901

Bid Opening: Aug 27, 2025 (Wednesday)
SEALED BIDS MUST BE RECEIVED BY 1:30 P.M. AND WILL BE OPENED PROMPTLY AT THAT TIME

We, the undersigned, being familiar with all parts of these documents, being Notice to Bidders, Bid Proposal Price Sheets, Contract Document Forms, Plans and Specifications, Affidavit, Material List, and all other parts of this document, do herein submit our proposal to furnish, install, and perform all tasks required to complete said project area(s) for the total costs.

The labor portion is not subject to sales tax; however, the material portion is taxed accordingly. The project is outside of city limits and is subject to **5.5% sales tax**. See following tax rules and regulation language.

BID SECTION I: Fly Ash Silo System Construction

Item#	Description	Unit Price	Total
1	Mobilization	LUMP SUM	$
2	Labor for installation of UCC supplied equipment per the Equipment List, Project Drawings, and Scope of Work	LUMP SUM	$
3	Labor for installation of UCC supplied pipe rack, silo roof pipe tower, pipe supports, and pipe hangers per project drawings	LUMP SUM	$
4	Labor for installation of UCC supplied piping, fittings, valves and other hardware per valve list, project drawings, and scope of work	LUMP SUM	$
5	Labor for installation of COH supplied air receiver tank	LUMP SUM	$
6	Supply of materials for piping, fittings, valves for compressed air system and tie-ins to flue gas duct for vent lines	LUMP SUM	$
7	Labor for installation of piping, fittings, valves for compressed air system and tie-ins to flue gas duct for vent lines	LUMP SUM	$
8	Supply of materials for pipe insulation for ash conveyor lines, vent lines, and outdoor compressed air lines	LUMP SUM	$
9	Labor for installation of pipe insulation for ash conveyor lines, vent lines, and outdoor compressed air lines	LUMP SUM	$
10	Labor for demolition of existing piping, valves, and fittings per project drawings	LUMP SUM	$
11	Supply of materials for pipe supports, auxiliary steel, platform, ladder, and grating	LUMP SUM	$

THIS BID DOCUMENT MUST BE SUBMITTED WITH BID

	per Olsson design drawings		
12	Installation of pipe supports, auxiliary steel, platform, ladder, and grating per Olsson design drawings	LUMP SUM	$
13	Supply of materials for painting ungalvanized structural steel, utility rack, silo roof pipe tower, UCC provided pipe supports, carbon steel pipe, and other unpainted equipment	LUMP SUM	$
14	Labor for painting ungalvanized structural steel, utility rack, silo roof pipe tower, UCC provided pipe supports, carbon steel pipe, and other unpainted equipment	LUMP SUM	$
15	Sales Tax	*(For Option 1 Contractors only) Sales Tax on materials of the above items	$
TOTAL SECTION I			
			$
In Words			

BID SECTION II: Fly Ash Silo System Start-Up Support

Item#	Description	Unit Price	Total
1	Labor for start-up support provide a daily rate and expected number of crew members needed	LUMP SUM per day	$

Note: Material and Labor for building wall penetrations and seals, equipment base grouting, touch-up painting, all testing and NDE, and all other labor and materials not explicitly called out in proposal shall be subsidiary to line items listed in proposal.

Liquidated Damages: The Contractor shall pay a fee of $500.00 per working day for failure to deliver the work before the specified dates in accordance with Section 1.806 – Liquidated Damages of Section 1 – General Conditions.

Substantial Completion Date: November 20, 2025
Project Completion Date (including system checkout and startup): December 3, 2025

THIS BID DOCUMENT MUST BE SUBMITTED WITH BID

Proposal for WEC Unit 1
Fly Ash Silo Mechanical Construction
Contract No. HU 2025-72

Note: Unit prices shall prevail in the case of potential mathematical discrepancies.

The labor portion is not subject to sales tax; however, the material portion is taxed accordingly. See following tax rules and regulation language.

For purposes of sales/use tax, this project falls under Nebraska Sales and Use Tax Regulation 1-017 for Contractors. By definition, a contractor is "any person who repairs property annexed to, or who annexes property to, real estate, including leased property, by attaching building materials to the annexed property or improvement being built or repaired, or who arranges for annexation of property." Please refer to www.revenue.nebraska.gov/salestax.html for additional information.

For calculating this proposal:

- All contractors are to include sales/use tax on materials in the bidder's prices, if applicable.
- **Option 1 contractors must separately state materials, sales tax, labor, and other charges on all invoices for the project. Any invoices submitted that do not include this required breakdown of the charges will not be accepted for payment. (This requirement does not apply to Option 2 or 3 contractors.)**
- The sales/use tax rate on building materials is 7.0% for projects within Hastings' city limits and 5.5% for projects outside of city limits.
- Contractor labor charges for this proposal are not subject to sales/use tax per the Nebraska Department of Revenue Notice to Contractors effective October 1, 2007.
- In submitting this bid, the bidder certifies that he will comply with all applicable laws, ordinances, and codes of the City of Hastings and the State of Nebraska.
- For this project, Contractor will supply all materials.

What contractor option have you registered with the Nebraska Department of Labor (must select one)? Please refer to https://dol.nebraska.gov for additional information.

Option 1 _____

Option 2 _____

Option 3 _____

Is Nebraska Sales/Use Tax included in the above prices.

Yes _____ No _____

(ALL COSTS TO INCLUDE CITY AND STATE SALES TAX)

The undersigned bidder agrees to furnish the required performance bond and to enter into a contract within ten (10) days after acceptance of the Proposal and further agrees to complete all work covered by the foregoing Proposal in accordance with specified requirements.

THIS BID DOCUMENT MUST BE SUBMITTED WITH BID

Proposal for WEC Unit 1
Fly Ash Silo Mechanical Construction
Contract No. HU 2025-72

Exceptions: No ☐ Yes ☐ (If yes, list on ***"Instructions to Bidders"*** page)

Any modification of bid proposal will be considered non-conformance of the bid. All exceptions to the proposal shall be noted as an exception to the bid.

City of Hastings may at its own discretion delete any project area and / or component prior to award of contract. City of Hastings will award all bid sections to one contractor.

In submitting this proposal, it is further understood that the City of Hastings reserves the right to reject any or all proposals and may waive any informalities and may accept the proposal which best suits its needs. It is further understood that this proposal may not be withdrawn for a period of sixty days (60) days after bids are opened.

All bid documents, including proposals, bid bonds, subcontractor designation, etc., must be submitted with original signatures. No copies will be accepted.

OFFICIAL NAME & ADDRESS

Firm Name	Signature
Address	Typed or Printed Name
City, State, Zip	Title
Phone No.	Date
Fax No.	Email Address

ALL BIDS MUST BE CHECKED IN TO THE CITY OF HASTINGS PRIOR TO 1:30 PM DEADLINE

THIS BID DOCUMENT MUST BE SUBMITTED WITH BID

SECTION 3 – GENERAL DESCRIPTION AND SCOPE OF WORK

3.1 General:

The City of Hastings (Owner) is accepting bids for the installation of a new Fly Ash Silo and Conveying Equipment for Whelan Energy Center, Unit 1 in Hastings, Nebraska. The bidder is strongly encouraged to visit with Hastings prior to submitting a bid. The Bidder shall inform themselves of all conditions and factors which would affect the execution of the work. No claims for financial compensation or time extension, based on the lack of such prior information (or its effect on the cost of the work) will be permitted by the Owner. Please contact Brandon Miller, Mechanical Engineer, at 402-462-3653 if you have any questions about this project or would like to set up a visit.

3.2 Description of System:

Whelan Energy Center, Unit 1 (WEC1) is an 82 megawatt (MW), pulverized coal-fired generating plant located near Hastings, Nebraska. The Unit began commercial operation in 1981. The existing ash sluicing system is being replaced with a new fly ash silo and mechanical vacuum conveying system. The fly ash will be conveyed from existing precipitator, economizer, and air heater hoppers to a new fly ash silo being constructed north of the WEC1 precipitator building. Two mechanical exhausters will pull vacuum and convey the fly ash to the silo where it will be separated from the air stream by a filter separator on top of the silo. The fly ash will travel through a transfer hopper to the new silo. The silo will be equipped with a telescopic spout where it will be top loaded into a bulk transport trailer. The exhaust from the mechanical separators and vents from the telescopic spout and silo will be piped back to the flue gas duct upstream of the precipitator building.

3.3 Scope of Work Performed Under This Contract:

The contractor shall perform the following scope of work:

- Demolition of existing piping and equipment
    - Demolition of existing pipe, fittings, valves needed for routing of new pipe (See drawing PT-333-01 for details)
- Install UCC provided piping, fittings, and valves
    - Piping from existing economizer piping TP-1 and existing air heater piping TP-2 to precipitator hopper piping TP-3. (Dwg No. M-55650-05-004)
    - Piping from existing precipitator hopper piping TP-4 to filter separator. (Dwg No. M-55650-05-004)
    - Piping from telescopic spout to telescopic spout vent fan and from telescopic spout vent fan to connection at silo roof including all valves and fittings. (Dwg No. M-55650-05-005)
    - Piping from outlet plenum to silo vent fan motor and from silo vent fan motor to flue gas duct TP-6 including bypass line, valves, and fittings. (Dwg No. M-55650-05-005 and -008)
    - Silo relief valve SRV-1105
    - Piping from top of silo to filter separator including upper and lower equalizing valves (Dwg No. M-55650-05-005 and -006)

    - Piping from filter separator to mechanical exhausters including valves, fittings, screens, and expansion joints. (Dwg No. M-55650-05-006 and -008)
    - Piping from mechanical exhauster to flue gas duct TP-7 including all valves, expansion joints, silencers, and fittings. (Dwg No. M-55650-05-008)
    - Valves and fittings, from compressed air branch line to silo fluidizing system. Piping is provided by contractor. (Dwg No. M-55650-05-007)
    - All other inline piping equipment, fittings, and hardware not called out but needed for a complete piping installation.
- Furnish and install piping, fittings, and valves (labeled as GC on UCC drawings and all piping on COH drawings)
    - Piping, valves, and fittings from existing compressed air header to new air receiver in precipitator building. (Dwg No. PT-333-03 and -04)
    - Piping, valves, and fittings from new air receiver to silo area. (Dwg No. PT-333-03 and -04)
        - All new compressed air piping will be field routed from tie-in locations to equipment.
    - All piping, valves, and fittings labeled as GC on UCC drawings for compressed air system. (Dwg No. M-55650-05-006, -007, and -009)
    - Piping at TP-6 from weld neck flange to flue gas duct. Contractor is responsible for making connection to flue gas duct. (Ref. Dwg No. G5 and G2 by C-E Walther, Inc.)
    - Piping at TP-7 from weld neck flange to flue gas duct. Contractor is responsible for making connection to flue gas duct. (Ref. Dwg No. G5 and G2 by C-E Walther, Inc.)
- Furnish and Install piping insulation
    - 1-1/2” thick mineral fiber insulation on portion of piping from TP-4 in precipitator building to filter separator that is outside the precipitator building. (Dwg No. M-55650-05-004)
    - 1-1/2” thick mineral fiber insulation on piping from mechanical exhausters to flue gas duct. (Dwg No. M-55650-05-008)
    - 1” thick mineral fiber insulation on all compressed air piping routed outside buildings.
- Install UCC provided equipment:
    - Telescopic spout assembly THC-001 (Dwg No. M-55650-05-005)
    - Telescopic spout vent fan, FAN-002, and motor, M-002. (Dwg No. M-55650-05-005)
    - Silo vent fan, FAN-003, and motor, M-003. (Dwg No. M-55650-05-005)
    - Outlet plenum on silo roof (Dwg No. M-55650-05-005)
    - Manhole on silo roof (Dwg No. M-55650-05-005)
    - Transfer hopper, VSL-002 (Dwg No. M-55650-05-006 & MA-55650-05-001)
    - Filter Separator FLT-001 including filter cages and filter bags (Dwg No. M-55650-05-006 & MA-55650-05-001)
    - Mechanical exhausters, ME-001 and ME-002 including partial enclosures and enclosure vent fans, FAN-004 and FAN-005. (Dwg No. M-55650-05-008)
    - Bin Outlet Hopper, H1, fluidizing elements, and diffuser stones. (Dwg No. M-55650-05-007)
    - Ventilation Louvers, VNT-001 and VNT-002
    - Ladder and Platform from silo roof to Filter Separator
- Installation of City of Hastings Provided Equipment:
    - Air receiver

- Pipe Rack, Silo Roof Pipe Tower, Pipe Supports, and Pipe Hangers provided by UCC
    - Erect the T-Post pipe rack provided by UCC. (Dwg No. ASD-55650-05-001, -002, -011, -012)
    - Erect silo roof pipe tower provided by UCC. (Dwg No. ASD-55650-05-021 and -022)
    - Install pipe supports provided by UCC. (Dwg No. SD-55650-05-001 to -081)
- Pipe Supports, auxiliary steel, and platform provided by Contractor
    - Supply and install auxiliary steel per Olsson drawings S001 to S401 including:
        - Auxiliary Steel #1
        - Auxiliary Steel #2
        - Auxiliary Steel #3
        - Infilling grating on existing platform per Section 3 on drawing S102.
        - Installing new platform steel, grating, access ladder with cage, toekick, and all hardware needed per Sections 1 and 2 on drawing S103 and Sections 1 and 2 on drawing S201, and details on drawing S400 and S401.
    - Provide and install pipe support steel, pipe hangers, and hardware for all field routed compressed air piping (CAA system).
- Relocate existing equipment:
    - Existing valve 1ASB-ABV-1059. (Dwg No. M-55650-05-004)
- System Start-Up Support:
    - Contractor shall provide labor to support testing and checkout of system. Contractor shall repair and fix items from their scope of work found to be defective during testing.
- Other scope
    - Create pipe penetration in building wall and provide seals for economizer and air heater piping from Unit 1 boiler building.
    - Create pipe penetration and provide seal for economizer and air heater ash piping going into precipitator building.
    - Create pipe penetration and provide seal for ash piping from precipitator building to fly ash silo.
    - Create pipe penetration for compressed air piping from precipitator building to fly ash silo area.
    - Create pipe penetrations in silo unloading floor wall for vent piping and compressed air piping on silo.
    - Grouting under equipment and pipe support bases as noted on drawings.
    - Painting of carbon steel pipe, utility rack, pipe tower at top of silo, UCC provided pipe supports, ungalvanized structural steel, and other unpainted equipment as needed per section 4.12 of the technical specifications.
    - Touch-up painting on all welded connections and equipment where factory supplied top coat is damaged during installation.
    - Hydrotesting and weld inspections for all piping as specified by ASME B31.1.

3.4 <u>Work Performed by Others:</u>

The following will be performed under Contract HU 2024-50:

- Supply of equipment for the fly ash silo including items indicated as supplied by UCC on UCC provided contract drawings:
    - Fly ash silo
    - Filter separator and transfer hopper

    - Telescopic spout
    - Telescopic spout vent fan and silo vent fan
    - Two mechanical exhausters
- Supply of piping, valves, and fittings per UCC provided contract drawings:
    - Ash conveyor piping/valves/ fittings from terminal point on existing piping in precipitator building to filter separator
    - Ash conveyor piping from existing air heater piping to tie-in at precipitator building
    - Ash conveyor piping from existing economizer hopper piping to tie-in at precipitator building
    - Exhauster suction piping from filter separator to mechanical exhausters
    - Exhauster discharge piping from mechanical exhausters to flue gas duct

The following will be performed under Contract HU 2025-57:

- Site earthwork, grading, removal of existing concrete/ asphalt paving
- Silo foundations, paving, and aggregate surfacing
- Pipe support and utility rack foundations
- Removal of existing and installation of new silo/ precipitator area storm drain piping
- Concrete and conduit for underground electrical and controls duct bank
- Installation of pipe bollards

The following will be performed under Contract HU 2024-102:

- Installation of the UCC provided Silo
- Grouting the base of the silo
- Installing silo stairs

3.5 <u>Miscellaneous Materials and Services Scope:</u>

Miscellaneous Materials and Services Scope			
Item	Description	Contractor (Applies to)	Owner (Applies to)
1.	Receipt, inspection, unloading and storage of materials provided by Silo Supplier		X
2.	Receipt, inspection, unloading and storage of materials supplied by Contractor	X	
3.	Supply and installation of anchor bolts for contractor installed equipment	X	
4.	All hardware, welding supplies, and miscellaneous materials not provided by owner that is necessary for the completion of the work	X	
5.	Removal and disposal of all demolished equipment, piping and materials	X	
6.	Supply, installation, and removal of all temporary erection bracing, rigging, attachments and supports	X	
7.	All tooling and equipment required to perform the specified work	X	

8.	Survey and layout of the work from the Purchaser's designated control points	X	
9.	Supply of lifting equipment including cranes, man lifts, fork lifts, and telehandlers needed to complete the work	X	
10.	Supply of all work platforms including scaffolding, and OSHA required fall protection	X	
11.	Tests and inspections as required by specification	X	
12.	Grouting of equipment and column bases	X	
13.	Supply and install of touch up coatings	X	
14.	Station services including air, water, and electrical power		X
15.	Sanitary services in the form of portable toilets	X	
16.	Supply of common trash dumpster		X
17.	Clean up of work area	X	

3.6 Other Requirements:

The contractor shall comply with the following:

- All of Contractor's employees and any Sub-Contractor's employees shall take a mandatory safety orientation provided by City of Hastings before starting work on the project. The safety orientation is required once a year and is good from Jan 1 through Dec 31 each year.
- Contractor shall comply with site LOTO policy. LOTO will be performed by City of Hastings prior to starting any work on the system.
- Contractor shall comply with site Hotwork and Confined Spacy policies where applicable. Owner will provide Hotwork permits.
- Contractor shall follow all relevant OSHA regulations including fall protection and trenching and shoring.
- Weekly progress meetings between Contractor's project superintendent and Project Engineer.

3.7 Submittal Requirements:

The contractor shall submit the following information to the owner:

- Product data sheets for all contractor supplied materials.
  - Piping
  - Fittings
  - Valves
- Material test reports.
- Red-lined drawings indicating deviations from original drawing designs.

3.8 Project Schedule:

The new fly ash silo is scheduled to be completed during the WEC Unit 1 2025 Fall outage per the dates below. The existing ash sluicing system will need to be kept in-service until after ash has been

cleared from the precipitator hoppers once the outage begins. The below details work that will need to be done during the outage:

- Work to be completed during WEC1 Fall 2025 Outage:
  - Demolition of existing and installation of new piping, fittings, pipe supports, and hardware between TP-1 (economizer) and TP-2 (air heater) to TP-3 (upstream of precipitator ash hoppers).
  - New pipe supports in WEC1 boiler building.
  - Tie-in of piping for compressed air system into existing piping in Unit 1 boiler building.

- Work to be completed ahead of WEC1 Fall 2025 Outage:
  - Installation of all equipment on silo and silo foundation, utility racks, auxiliary steel, platform, ladder, all other equipment that does not affect existing piping or tie-in points. Including all piping downstream of TP-4 at precipitator to silo.
  - Installation of compressed air piping, air receiver, valves, and fittings with exception to tie-in, TP-20, to existing WEC1 system.
  - Vent Piping from silo and mechanical exhauster discharge piping, valves, fittings, with exception to tie-ins, TP-6 and TP-7, at flue gas duct upstream of precipitator.

Work will be coordinated with electrical and instrumentation contractors to allow completion during scheduled outage.

Material and Installation Contract:

Activity	Schedule
Bid Opening	Wednesday, August 27, 2025
Anticipated Contract Award Date	Monday, September 8, 2025

Preliminary Construction Schedule:

The work under this contract will have to be coordinated with City of Hastings and other Contractors to assure the Fly Ash Silo is completed before the end of the scheduled outage. A preliminary construction schedule is shown below.

Activity	**Schedule**
Completion of Silo Foundations and Paving	Friday, July 25, 2025
Delivery of Fly Ash Silo	Tuesday, August 5, 2025
Erection of Fly Ash Silo	Monday, August 11, 2025 through Friday, September 5, 2025
Start of Fall Outage	**Friday, November 7, 2025 at 23:59**
End of Fall Outage	**Thursday, December 4, 2025 at 11:59**
Pre-Outage Mechanical Construction	Monday, September 29, 2025 through Friday, November 7, 2025
Outage Mechanical Construction	Saturday, November 8, 2025 through Thursday, November 20, 2025

PLC Programming Controls and System Checkout	Friday, November 21, 2025 through Wednesday, December 3, 2025

3.9 <u>Project Drawings:</u>

The following drawings are part of the project. Vendor drawings for materials and equipment will be supplied to Contractor before the start of work. They are also available upon request. A full set of Issued For Construction drawings will be sent to the contractor electronically via Sharepoint after contract has been signed.

Drawing No.	Revision	Description
PT-333-01	-	DEMOLITION PLAN
PT-333-02	-	DEMOLITION PLAN
PT-333-03	-	STATION AIR P&ID
PT-333-04	-	COMPRESSED AIR PIPING PLAN
PT-333-05	-	VALVE LIST
PT-333-06	-	PIPELINE LIST
G2	C	CE WALTHER PRECIPITATOR ELEVATION
G5	C	CE WALTHER PRECIPITATOR INLET DUCTWORK
ASD-55650-05-001	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-002	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-011	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-012	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-021	0	AUXILIARY STEEL SILO ROOF TOWER UNIT 1
ASD-55650-05-022	0	AUXILIARY STEEL SILO ROOF TOWER UNIT 1
C-55650-05-001	0	GENERAL NOTES AND REFERENCE DRAWINGS PIPING
C-55650-05-002	0	GENERAL NOTES AND REFERENCE DRAWINGS PIPE SUPPORTS
C-55650-05-003	0	PLAN, SECTION AND DETAIL FLY ASH NUVEYOR VACUUM SYSTEM HOPPER AREA UNIT 1
C-55650-05-004	0	PLAN, SECTION AND DETAIL FLY ASH NUVEYOR VACUUM SYSTEM HOPPER AREA UNIT 1
C-55650-05-005	0	PLAN, SECTION AND DETAIL FLY ASH AIR VACUUM SYSTEM FILTER SEPARATORS TO EXHAUSTERS UNIT 1
C-55650-05-006	0	PLAN, SECTION AND DETAIL FLY ASH AIR VACUUM SYSTEM EXHAUSTERS DISCHARGE TO DUCT UNIT 1
C-55650-05-007	1	PLAN, SECTION AND DETAIL SILO VENT PIPING VENT FAN TO DUCT TIE-IN UNIT 1
C-55650-05-008	0	PLAN, SECTION AND DETAIL SILO VENT PIPING VENT FAN TO DUCT TIE-IN UNIT 1
CL-55650-05-001	A	PIPE SUPPORT LOAD DATA
CL-55650-05-002	A	PIPE SUPPORT LOAD DATA

CL-55650-05-003	A	PIPE SUPPORT LOAD DATA
CL-55650-05-004	A	PIPE SUPPORT LOAD DATA
CL-55650-05-005	A	PIPE SUPPORT LOAD DATA
CL-55650-05-006	B	PIPE SUPPORT LOAD DATA
EL-55650-05-001	D	I/O LIST
EL-55650-05-002	A	POWER DISTRIBUTION ELECTRICAL LOAD LIST
G-55650-05-001	C	GENERAL ARRANGEMENT OF FLY ASH SILO UNIT 1
G-55650-05-002	B	SILO FLOOR & UNLOADING FLOOR EQUIPMENT PLANS & SECTIONS UNIT 1
G-55650-05-003	B	SILO UNLOADING FLOOR EQUIPMENT ELEVATION
G-55650-05-004	B	SILO ROOF EQUIPMENT PLAN & SECTION
G-55650-05-005	B	SILO ROOF EQUIPMENT DETAILS
M-55650-05-001	C	P&I DIAGRAM GENERAL NOTES
M-55650-05-002	A	P&I DIAGRAM STANDARD SYMBOLS
M-55650-05-003	B	KEY PROCESS DIAGRAM FLY ASH NUVEYOR VACUUM SYSTEM
M-55650-05-004	C	P&I DIAGRAM FLY ASH NUVEYOR VACUUM SYSTEM HOPPER AREA
M-55650-05-005	C	P&I DIAGRAM FLY ASH NUVEYOR VACUUM AND UNLOADING SYSTEM SILO AREA
M-55650-05-006	C	P&I DIAGRAM FILTER SEPARATOR - CONTINUOUS OPERATION
M-55650-05-007	C	P&I DIAGRAM BIN FLUIDIZING SYSTEM
M-55650-05-008	C	P&I DIAGRAM MECHANICAL EXHAUSTERS
M-55650-05-009	C	P&I DIAGRAM COMPRESSED AIR FLY ASH NUVEYOR VACUUM SYSTEM
MA-55650-05-001	C	TRANSFER HOPPER STACKUP
ML-55650-05-001	B	VALVE LIST
ML-55650-05-002	B	INSTRUMENT LIST
ML-55650-05-003	A	EQUIPMENT LIST
ML-55650-05-004	A	TERMINAL POINT LIST
ML-55650-05-005	A	LUBRICATION LIST
S-55650-05-001	A	GENERAL NOTES FOR STRUCTURAL DRAWINGS
S-55650-05-002	A	DRAWING INDEX & ABBREVIATION LIST FOR STRUCTURAL DRAWINGS
SD-55650-05-001	0	ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-002	0	ANCHOR, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-003	0	GUIDE, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-004	0	ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-005	0	ANCHOR, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-006	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-007	0	SUPPORT, ELEVATED, 6", VACUUM, DURITE, STEEL

SD-55650-05-008	0	ANCHOR, ELEVATED, 6", VACUUM, DURITE, STEEL
SD-55650-05-009	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-010	0	ANCHOR, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-011	0	GUIDE, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-012	0	ANCHOR, FLOOR, 6", VACUUM, NUVOLOY, CONCRETE
SD-55650-05-013	0	ANCHOR, FLOOR, 6", VACUUM, DURITE, CONCRETE
SD-55650-05-014	0	SPRING HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-015	0	SPRING HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-016	0	ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-017	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-018	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-020	0	ANCHOR, FLOOR, 8", VACUUM, DURITE, CONCRETE
SD-55650-05-021	0	ANCHOR, FLOOR, 8", VACUUM, NUVALOY, CONCRETE
SD-55650-05-022	0	GUIDE, FLOOR, 8", VACUUM, NUVALOY, CONCRETE
SD-55650-05-023	0	ANCHOR, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-024	0	GUIDE, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-025	0	ANCHOR, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-026	0	ANCHOR, RACK, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-027	0	GUIDE, RACK, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-028	0	ANCHOR, SILO, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-029	0	GUIDE, SILO, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-030	0	ANCHOR, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-031	0	GUIDE, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-032	0	GUIDE, RACK, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-040	0	GUIDE, RACK, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-041	0	GUIDE, SILO, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-042	0	ANCHOR, SILO, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-043	0	GUIDE, FLOOR, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-044	0	ANCHOR, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE
SD-55650-05-045	0	SUPPORT, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE
SD-55650-05-050	0	ANCHOR, FLOOR, 8", VENT, CARBON STEEL, CONCRETE

SD-55650-05-051	0	SUPPORT, FLOOR, 8", VENT, CARBON STEEL, CONCRETE
SD-55650-05-052	0	GUIDE, FLOOR, 8", VENT, CARBON STEEL, CONCRETE
SD-55650-05-053	0	GUIDE, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-054	0	SUPPORT, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-055	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-056	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-057	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-058	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-059	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-060	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-061	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-062	0	ANCHOR, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-070	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-071	0	ANCHOR, SILO, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-072	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-073	0	ROD HANGER, SILO, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-074	0	GUIDE, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-075	0	SUPPORT, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-076	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-077	0	LINE STOP, RISER, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-078	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-079	0	GUIDE, FLOOR, 8" VENT, CARBON STEEL, STEEL
SD-55650-05-080	0	GUIDE, ELEVATED, 8", CARBON STEEL, STEEL
SD-55650-05-081	0	ANCHOR, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SV-55650-05-S001		TARSCO SILO DRAWINGS

PIPE SUPPORT CONTRACT DESIGN DRAWINGS

10.0 GENERAL NOTES - PIPE SUPPORTS

10.1. DO NOT SCALE DESIGN DRAWINGS. USE FIGURE DIMENSIONS ONLY.
10.2. ALL CHANGES IN DIRECTION GENERALLY REQUIRE AN ANCHOR IN A CONVEYING SYSTEM.
10.3. ALL CONVEYOR PIPING SYSTEMS UTILIZE MECHANICAL JOINTS, EACH REQUIRING ONE GUIDE AND ONE SUPPORT ON EACH SIDE OF THE MECHANICAL JOINT, EXCEPT AT FITTING LOCATIONS.
10.4. EACH MECHANICAL JOINT IN A RISER REQUIRES A GUIDE BENEATH THE JOINT.
10.5. PIPE SUPPORTS ARE GENERALLY LOCATED 1'-6" TO 3'-0" FROM THE CENTERLINE OF THE ADJACENT MECHANICAL JOINT.
10.6. EXPANSION JOINTS WILL REQUIRE A GUIDE UPSTREAM AND ANCHOR DOWNSTREAM. EXPANSION JOINTS LOCATED MID-WAY BETWEEN ANCHOR POINTS WILL REQUIRE A GUIDE BOTH UP AND DOWNSTREAM.
10.7. CONVEYOR LINE GATES GENERALLY ARE TO BE ISOLATED FROM CONVEYOR PIPING THERMAL GROWTH.
10.8. PIPE SECTIONS ARE TOGGLED TO ACCOMMODATE THE DIFFERENTIAL LATERAL AND VERTICAL MOVEMENTS THAT MAY BE IMPOSED ON THE PIPING. DEPENDING ON PIPE LENGTH AND MOVEMENT, TOGGLE PIPE SECTIONS MAY REQUIRE SPRING HANGER(S). ANCHORS UPSTREAM AND DOWNSTREAM ARE REQUIRED TO BE SUPPORTED FROM SEPARATE STRUCTURES.
10.9. PIPE SUPPORTS SYSTEMS UNDER COLLECTION HOPPERS USUALLY USE HANGER RODS ATTACHED TO THE COLLECTION HOPPER, ONE ON EITHER SIDE OF THE ASH INTAKE. SPRING HANGERS WILL BE REQUIRED WHEN THE DIFFERENTIAL MOVEMENT BETWEEN THE ATTACHMENT POINT AND THE PIPE EXCEEDS 1/8".
10.10. RUBBER EXPANSION JOINTS LOCATED BY ROTATING EQUIPMENT ARE USED TO ISOLATE PIPING SYSTEM FROM ROTATING EQUIPMENT. NO LOADS ARE TO BE IMPOSED ON ROTATING EQUIPMENT NOZZLES FROM THE PIPING SYSTEM. CONTROL RODS PROVIDED WITH THE EXPANSION JOINT ARE TO BE "LOCKED OUT" SUCH THAT THERE IS NO COMPRESSION, EXTENSION OR LATERAL OFFSET ALLOWED OF THE RUBBER EXPANSION JOINT. PIPING OPPOSITE THE RUBBER EXPANSION JOINT FROM THE ROTATING EQUIPMENT IS TO BE ANCHORED. THE ANCHOR SHOULD BE DESIGNED TO WITHSTAND THE PRESSURE, MOMENTUM, AND THERMAL LOADS ON THE PIPING ISOLATED BY THE RUBBER EXPANSION JOINT. CONTROL RODS MUST BE IN POSITION DURING ROTATING EQUIPMENT OPERATION.
10.11. SUPPORT STRUCTURE/RACK STEEL MOVEMENTS ARE NOT CONSIDERED.
10.12. SUPPORT LOCATIONS INDICATED ON THE PIPING DRAWINGS ARE APPROXIMATE. ACTUAL PIPE SUPPORT LOCATION MAY VARY UP TO +/- 1'-0" FROM LOCATION INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
10.13. PIPE SUPPORTS SHALL BE DESIGNED TO PROVIDE ADEQUATE CLEARANCE FOR INSTALLATION AND MAINTENANCE OF CONNECTIONS.
10.14. HANGER RODS AND ATTACHMENT HARDWARE FOR PRESSURE VESSELS ARE FURNISHED AS PART OF PRESSURE VESSEL ASSEMBLY DRAWINGS.
10.15. THE FOLLOWING SERVICES AND STRUCTURES/MATERIALS ARE NOT FURNISHED BY UCC:
- CONCRETE
- CONCRETE REINFORCING STEEL
- EMBEDDED STEEL IN CONCRETE
- FIELD FINISH PAINT
- GROUT
- SMALL BORE SUPPORTS
- CONSTRUCTION CONSUMABLES
- AUXILIARY STEEL BEYOND 3'-0" (BUILDING AREA)

13.0 LOAD ANALYSIS

13.1. ALL CONSTRUCTION SHALL BE PERFORMED IN CONFORMANCE WITH THE BUILDING CODE AND DESIGN CODES REFERENCED BELOW. UNLESS NOTED OTHERWISE, THE PROJECT DOCUMENTS REFER TO THE FOLLOWING CODES AND STANDARDS:
- ASME CODE FOR POWER PIPING ASME B31.1-2022
- 2018 INTERNATIONAL BUILDING CODE (IBC)
- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES ASCE 7-16
- "MANUAL FOR STEEL CONSTRUCTION", FOURTEENTH EDITION (AISC 360-10)
- BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI 318-14
- "PIPE HANGERS AND SUPPORTS - MATERIAL, DESIGN, MANUFACTURE, SELECTION, APPLICATION & INSTALLATION" (ANSI/MSS SP-58-2018)
- "PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION" (ANSI/MSS SP-69-2003)

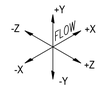
13.2. SUPPORT LOADING IS PROVIDED FOR 2 ½" NOMINAL AND ABOVE PIPING SEGMENTS. PIPING 2" NOMINAL AND SMALLER IS CONSIDERED SMALL BORE PIPING AND IS NOT ANALYZED.
13.3. SUPPORT LOADS INCLUDE PIPE AND CONVEYING MATERIAL WEIGHT, ICE, PRESSURE, THERMAL EXPANSION/COMPRESSION, FRICTION, WIND, AND SEISMIC.
13.4. WORST CASE LOADING IS PROVIDED FOR EACH SUPPORT.
13.5. SUPPORT DEAD LOADS CONSIST OF THE WEIGHT OF PIPE, CONVEYING MATERIAL, INSULATION, AND ALL PIPING COMPONENTS. THE PLUGGED DESIGN ASH LOAD IN THE PIPE IS TAKEN AS 100% FULL. RISERS ARE PLUGGED AT THE BOTTOM 10'-0" ONLY. THE OPERATING DESIGN ASH LOAD IN THE PIPE IS TAKEN AS:
- 10% FULL FOR VACUUM AND PRESSURE SYSTEMS.
- 50% FULL FOR DENSE PHASE SYSTEMS.
- 100% FULL FOR SLUICE SYSTEMS.

13.6. ICE LOADING APPLIES TO OUTDOOR PIPE ONLY. A 1" THICK COATING ALONG THE PIPE CIRCUMFERENCE IS CONSIDERED FOR ANALYSIS.
13.7. SUPPORT THERMAL LOADS CONSIST OF THE FORCES REQUIRED TO CAUSE A DISPLACEMENT IN EXPANSION JOINTS (ACTUATION FORCE) AND STATIC FRICTION. THE COEFFICIENT OF FRICTION IS CONSIDERED TO BE:
- 0.6 FOR CARBON STEEL PIPE ON STEEL.
- 0.4 FOR CAST IRON PIPE ON STEEL.

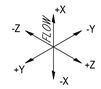
13.8. WIND LOADS:
- WIND SPEED: 120 MPH
- EXPOSURE CATEGORY: C

13.9. SEISMIC LOADS:
- SITE CLASSIFICATION: D
- IMPORTANCE FACTOR: 1.0
- RISK CATEGORY: III
- SEISMIC DESIGN CATEGORY: A
- ANALYSIS METHOD USED: ASCE 7-16 SECTION 1.4

13.10. RESOLUTION OF LOADS TO INTERFACE OF PIPE SUPPORT DESIGNS IS NOT INCLUDED.
13.11. LOADS ARE REPORTED IN LOCAL COORDINATES AT THE CENTERLINE OF PIPE. WHEN PIPE RUNS CHANGE DIRECTION FROM HORIZONTAL TO VERTICAL, THE COORDINATE SYSTEM SHALL ROTATE AROUND THE Z-Z AXIS. COORDINATE SYSTEM IS AS SHOWN:



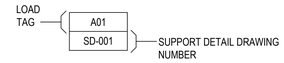
HORIZONTAL



VERTICAL

14.0 PIPE SUPPORT DESIGN

14.1. SUPPORT DESIGNS ARE PROVIDED FOR 2 ½" NOMINAL AND ABOVE PIPING SEGMENTS. PIPING 2" NOMINAL AND SMALL IS CONSIDERED SMALL BORE PIPING AND IS NOT INCLUDED.
14.2. PIPE SUPPORTS ARE DESIGNED FOR AN INTERFACE POINT NOT TO EXCEED 3'-0" FROM THE PIPE CENTER LINE.
14.3. UCC ASSUMES THAT EXISTING STRUCTURES ARE SOUND. IT IS THE OWNER'S OBLIGATION TO PERFORM A THOROUGH REVIEW OF THE EXISTING STRUCTURE (I.E. FIELD SURVEY, STRUCTURAL CALCULATIONS, ETC.) TO ENSURE THAT IT IS ADEQUATE TO SUPPORT THE NEW EQUIPMENT AS SHOWN ON THE CONTRACT DRAWINGS. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER.
14.4. INTERFACE OF PIPE SUPPORTS WITH STEEL UTILIZES FIELD WELDED CONNECTIONS DESIGN FOR ADJUSTABILITY IN THE FIELD.
14.5. PIPING WILL NOT BE HUNG FROM U-BOLTS IN LOCATIONS OF THERMAL GROWTH.
14.6. PIPE SUPPORT DETAIL DRAWINGS ARE NOT CONSIDERED STRUCTURAL DRAWINGS AND ARE NOT REQUIRED TO BE SEALED BY A LICENSED PROFESSIONAL ENGINEER.
14.7. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
14.8. BASE PLATES SHALL BE GROUTED USING 5-STAR DP EPOXY GROUT OR FOX INDUSTRIES FOX PACK 1700 HS EPOXY GROUT OR APPROVED EQUAL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.
14.9. DO NOT SCALE DESIGN DRAWINGS. USE FIGURE DIMENSIONS ONLY.
14.10. PIPE SUPPORTS ARE IDENTIFIED ON THE PIPING DRAWINGS AND ARE TAGGED INDICATING THE SUPPORT LOAD TAG AND DETAIL IDENTIFIER (SUPPORT DETAIL DRAWING) AS SHOWN IN THE SUPPORT TAG NUMBER BELOW:



15.0 SUPPORT FABRICATION

15.1. PIPE SUPPORT STEEL AND HARDWARE SHALL BE COATED PER THE PIPING AND PIPE SUPPORT COATING SCHEDULE.
15.2. SURFACES WITHIN 2" OF ANY FIELD WELD AND 6" OF ANY FIELD CUT ARE TO BE LEFT UNPAINTED AND COATED WITH A WELDABLE PRIMER.
15.3. WEEP HOLES WILL NOT BE PROVIDED ON SEALED, HOLLOW PAINTED SECTIONS IN ORDER TO PROTECT THE INTERIOR FROM CORROSION.
15.4. MATERIAL SOURCED FROM THE U.S. IS PREFERRED. FOREIGN SOURCED MATERIAL IS ACCEPTABLE PROVIDED THE MATERIAL MEETS ALL APPLICABLE ASTM STANDARDS.

16.0 SUPPORT INSTALLATION

16.1. ALL BOLTS SHALL BE SNUG-TIGHT UNLESS SPECIFICALLY NOTED OTHERWISE. BOLTING SHALL CONFORM TO THE PROVISIONS OF THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", UNLESS NOTED OTHERWISE ON DETAIL DRAWINGS. U-BOLT NUTS SHALL BE INSTALLED SNUG-TIGHT.
16.2. DUE TO SITE CONDITIONS AT TIME OF INSTALLATION, INSTALLING CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO FIELD CUTTING AND/OR WELDING FOR FIT UP AND/OR INSTALLATION OF COMPONENTS.
16.3. WELDING PER UCC GENERAL WELDING SPECIFICATION 98009 OR OWNER'S SPECIFICATION. USE WHICHEVER IS MORE STRINGENT. WELD PROCEDURES AND WELDER QUALIFICATION TEST REPORTS SHALL BE SUBMITTED TO UCC FOR ALL NON-PREQUALIFIED WELDS PER AWS D1.1.
- WELDING ELECTRODES SHALL BE E70 LOW HYDROGEN AND HAVE A MINIMUM STRENGTH OF 70 KSI.
- WHEN WELDING STAINLESS STEEL TO CARBON STEEL, USE E309 TYPE ELECTRODES.

16.4. TOUCH UP PAINTING FOR FIELD WELDING GALVANIZED MATERIAL IS THE RESPONSIBILITY OF THE FIELD PAINTING CONTRACTOR.
16.5. REPAIR DAMAGED AND UNCOATED AREAS OF GALVANIZED STRUCTURAL STEEL, WELDS, ETC USING ZINC BASED ALLOYS PER ASTM A780 ANNEX A1 OR A3.
16.7. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO COORDINATE THE PIPE SUPPORT DRAWINGS WITH THE STRUCTURAL AND CONVEYOR DRAWINGS, AS WELL AS ANY OTHER APPLICABLE TRADES, AND TO NOTIFY THE OWNER AND RESPONSIBLE ENGINEER OF ANY DISCREPANCIES BETWEEN THE DRAWINGS FOR RESOLUTION PRIOR TO PROCEEDING WITH THE WORK. DO NOT ASSUME THAT EITHER OF THE DRAWINGS OR SPECIFICATIONS TAKE PRECEDENCE.
16.8. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE INDICATED, THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION.
16.9. PERISHABLE CONSTRUCTION MATERIAL TO BE USED BEFORE SHELF LIFE EXPIRES.

PIPING AND PIPE SUPPORT COATING SCHEDULE

EQUIPMENT	FINISH	COMMENTS
CARBON STEEL NUTS AND BOLTS	NONE	LIGHT MACHINING OIL FILM
CAST FLANGE CLAMPS	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
CAST IRON PIPE	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
CAST IRON FITTINGS	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
CARBON STEEL PIPE	NONE	MILL FINISH WILL RUST IF STORED OUTDOORS
FABRICATED PIPE SUPPORT HARDWARE	HOT DIP GALVANIZED	IF ITEM IS NOT AVAILABLE IN HDG ITEM WILL BE ZINC PLATED
CAST PIPE SUPPORT HARDWARE	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
PIPE SUPPORT STEEL	PRIMER	PER 4505-1, HIGH TEMP
SILO AREA AUX STEEL	PRIMER	PER 4505-1, LOW TEMP

SUPPORT SYMBOLS

2D DRAWINGS (PLAN)	2D DRAWINGS (ELEV)	3D MODEL	ISOMETRIC	SYMBOL LEGEND
				ANCHOR SUPPORT - TO PREVENT MOVEMENT IN ANY DIRECTION.
				GUIDE SUPPORT - TO SUPPORT WEIGHT OF PIPE AND PREVENT LATERAL MOVEMENT (¼" GAP UN)
				PLAIN SUPPORT - TO SUPPORT WEIGHT OF PIPE FROM BELOW.
			SEE PLAIN SUPPORT	ROD HANGER - TO SUPPORT WEIGHT OF PIPE FROM ABOVE.
				ROLLER SUPPORT - TO SUPPORT WEIGHT OF PIPE FROM BELOW AND PREVENT FRICTION ALONG THE LENGTH OF THE PIPE.
				SPRING HANGER - TO SUPPORT WEIGHT OF PIPE FROM ABOVE AND ACCOMMODATE VERTICAL/LATERAL MOVEMENT.
				LINE STOP - TO PREVENT MOVEMENT ALONG THE PIPE AXIS.

SAFETY NOTE:
REFER TO UCC DOCUMENT NO. 721005 LOCATED IN THE UCC O&M MANUAL, "SYSTEMS AND EQUIPMENT SAFETY INSTRUCTIONS", FOR IMPORTANT SAFETY CONSIDERATIONS WHEN PERSONNEL ARE NEAR THE SYSTEM EQUIPMENT FOR ANY REASON.

NOTES

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK			

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE
GENERAL NOTES AND REFERENCE DRAWINGS
PIPE SUPPORTS

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
C-55650-05-002	0