



Working Together for a
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BID SPECIFICATION PACKAGE

for

ELECTROSTATIC PRECIPITATOR TRANSFORMER-RECTIFIER

C 132670

Bid Opening Date/Time

Tuesday, July 11, 2023 at 2:00 p.m.
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact Information

Jayson Rezek, Production Engineer
City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: June 13, 2023

**ADVERTISEMENT TO BIDDERS
FOR
ELECTROSTATIC PRECIPITATOR TRANSFORMER-RECTIFIER
FOR
CITY OF GRAND ISLAND, NEBRASKA**

Sealed bids for Electrostatic Precipitator Transformer-Rectifier will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until **Tuesday, July 11, 2023 at 2:00 p.m. local time**, FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall City Clerk's Office located on 1st floor of City Hall. **Submit an original and three copies if submitting by mail.** Bid package and any Addendas are also available on-line at www.grand-island.com under Business-Bids and Request for Proposals-Bid Calendar under the bid opening date. Bidding documents, plans and specifications for use in preparing bids may be downloaded from the QuestCDN website www.QuestCDN.com for a \$42.00 fee. Submitting through QuestCDN requires one original document of the bid to be uploaded. **Bids received after the specified time will not be considered.**

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City of Grand Island Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.** Each envelope must be clearly marked indicating its contents. **Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised

(All bids must be submitted on this form)

ELECTROSTATIC PRECIPITATOR TRANSFORMER-RECTIFIER BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

The undersigned Bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to provide and install Four (4) replacement Transformer-Rectifier sets for the Joy-Western, hot-side electrostatic precipitator FOB the City of Grand Island, freight prepaid, at the following price:

<u>ITEM DESCRIPTION</u>	<u>EXTENDED COST</u>
Base Bid:	
Materials/Equipment	\$ _____
Installation Services	\$ _____
Labor	\$ _____
Applicable Sales tax*	\$ _____
Total Base Bid	\$ _____

* If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Exceptions Noted - Bidder acknowledges there are *Exceptions* and/or *Clarifications* noted to the above bid, and those exceptions are fully explained on a separate sheet, clearly marked, and included with the Bid.

Bidder Company Name Date

Company Address City State Zip

Print Name of Person Completing Bid Signature

Email: _____ Telephone No. _____

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05) _____ Option 2 (Section 1-017.06) _____ Option 3 (Section 1-017.07) _____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

By checking this box, Bidder acknowledges the specified delivery date of the project is **April 22, 2024.**

By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

Note: If Bidder supplies individual unit pricing information as supplemental pricing to the base material and labor cost above, said individual pricing is proprietary information and should not be released under a public records request. The total base bid is not considered proprietary information and will be released pursuant to City Procurement Code.

End of Bid Data Form

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

Individual unit pricing as listed on the Bid Data Form or supplied as supplemental information may be deemed proprietary information and not be released under a public records request. The total amount of the bid is not considered proprietary information and will be released pursuant to City Procurement Code.

4. SUBMISSION OF BIDS.

All Bids must be submitted intact with the correct number of copies no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid mailed must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw their Bid for a period of **thirty (30) days after** bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond, each in the full amount of the Contract price, within the time specified.

The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

Delivery time	Conformance with the terms of the Bid
Bid price	Documents
Cost of installation	
Suitability to project requirements	Responsibility and qualification of Bidder

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1) year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for *ELECTROSTATIC PRECIPITATOR TRANSFORMER-RECTIFIER*; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/her, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. **[NAME OF SUCCESSFUL BIDDER]** bid signed and dated **[DATE OF BID]**.

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] (\$00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Base Bid:	
Materials/Equipment	\$.00
Installation Services	\$.00
Labor	\$.00
Applicable Sales Tax (based on Tax Option)	<u>\$.00</u>
Total	\$.00

Nebraska Sales Tax Option _____

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the ELECTROSTATIC PRECIPITATOR TRANSFORMER-RECTIFIER.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Platte Generating Station, on or before **April 22, 2024**.

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval,

disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By _____ Date _____

Title _____

CITY OF GRAND ISLAND, NEBRASKA

By _____ Date _____
Mayor

Attest: _____
City Clerk

DRAFT

The Contract is in due form according to law and hereby approved.

Attorney for the City Date _____

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Mailed bids shall include the following on the **outside** of the mailing envelope: **“Electrostatic Precipitator Transformer-Rectifier”**. All bids submitted by mail must include **an original and three copies** of the bid. The bid specification and on-line bidding forms are also available at <http://www.grand-island.com/business/bids-and-request-for-proposals/bid-calendar> under the bid opening date and “Click here for bid document link” through QuestCDN for a \$42.00 fee. If submitting through QuestCDN, **one** original document of the bid is required to be uploaded. No verbal bids will be considered. All sealed bids are due no later than **Tuesday, July 11, 2023 at 2:00 p.m. local time.** to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802-1968

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall City Clerk’s Office located on 1st floor of City Hall. Any bid received after the specified date will not be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashier's check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the Bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.** Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered. Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders. All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. If exceptions and/or clarifications are noted to the bid, those exceptions must be fully explained on a separate sheet, clearly marked, and included with the Bid. Any changes that are found made to the original bid specification, other than Owner generated Addendums, would result in your bid not being considered. Please contact Jayson Rezek at 308-385-5495, for questions concerning this specification.

Electrostatic Precipitator Transformer-Rectifier

Grand Island Utilities Department-Detailed Specification

1.0 PROJECT DESCRIPTION

The City of Grand Island is accepting proposals to supply four (4) replacement Transformer-Rectifier (T/R) sets for the Joy-Western, hot-side electrostatic precipitator at Platte Generating Station (PGS). The primary purpose of the contract will be for the procurement of the four (4) T/R sets.

1.1 Background

Platte Generating Station operates with a Joy-Western, hot side precipitator that was commissioned in 1982. The precipitator is used to remove fly ash from the flue gas of a 100MW tangentially fired utility boiler, burning pulverized coal. The precipitator has four chambers with five high-voltage electric fields in each chamber.

Each chamber's electric field is energized by a total of twenty (20) transformer-rectifier (T/R) sets. The high voltage output of each T/R set is connected to high-voltage electrodes and distributed through bus ducts on the roof of the precipitator. Each field has two bus sections, individually energized through their own high voltage disconnect (HVD) switches.

The system of high-voltage discharge electrodes is suspended within, and insulated from, other systems of uniformly spaced collecting surfaces. The discharge from the electrodes creates an electrostatic field in the gas passages between the collecting surfaces. Oppositely charged dust particles are attracted to the collecting surfaces within the electrostatic precipitator. The collected material is periodically removed from the collecting surfaces by a system of rappers and falls by gravity into the precipitator hoppers.

The transformers are oil insulated and have developed rust on the exterior of the oil tanks that causes them to leak. There have also been several winding failures in recent years. These winding failures and the risk of oil containment failure are encouraging the replacement of the existing T/R sets.

1.1.1 Existing Equipment

The existing T/R sets have the following nameplate characteristics:

Manufacturer	Westinghouse
Phase	Single
Frequency	60 Hz
Class	OA
Capacity	70.8 kVA
Primary Voltage	LV 480 VAC Single Phase HV 53635 VAC Single Phase
Primary Current	147.5 Amps
Secondary Voltage	45 kV
Secondary Current	1100 mA
Type of Oil	WEMCO C, Non-PCB
Oil Capacity	90 gallons
Total Weight	1725 lbs

1.2 LOCATION

Platte Generating Station is located at 1035 W. Wildwood Drive, Grand Island, Nebraska.

1.3 SITE VISIT

A site visit by the Contractor before bidding is **Optional**.

1.4 CONTACT

Questions regarding this specification may be directed to:

Jayson Rezek
Platte Generating Station
1035 W. Wildwood Dr.
Grand Island, NE 68801
Ph. (308) 385-5681 ext. 6122
jrezek@giud.com

2.0 SCOPE

2.1 General

The design of the supplied T/R sets shall meet or exceed the original design parameters. The supplied T/R sets shall have compatible dimensions with the original transformers. There shall not be any modifications needed to connect the electrical, bus duct, or to the existing oil containment. The equipment provided by the manufacturer shall be of a heavy-duty industrial-grade design, suitable for use in a power plant operating environment. The T/Rs are exposed to environmental conditions such as rain, snow, sleet, and hail, and shall be constructed to withstand such conditions. The T/Rs are also exposed to temperature fluctuations of below 0°F and above 100°F and shall be constructed to withstand and maintain efficiency in these conditions.

The T/R set shall conform to the best modern practice in design and construction. The transformer rectifier set shall be fluid-immersed type OA suitable for outdoor installation, exposed to elements in various climates. The tank shall be designed to minimize the volume of the insulating fluid. Included rectifiers shall be mounted to minimize damage during transportation. The rectifiers shall also be mounted to allow them to be easily serviced. The T/R is controlled by the AVRs located on the ground floor. Whereas, the T/Rs are located on the precipitator roof approximately 7 stories high.

2.2 Equipment Requirements

2.2.1 Exterior Finish

All external welds shall be made smooth, rough edges shall be rounded and no weld splatter shall be on the exterior of the T/R. The T/R set shall be coated with an industrial-grade powder coating system. The coating shall consist of a minimum of a three-coat system. One primary coat with two finishes. The color of the coating shall be, ANSI #61, gray, semi-gloss. The coating shall be applied to the transformer in a uniform thickness a minimum of 3 mills thick. The powder coat shall be applied by a positive and negative static charge followed by a high-temperature bake. To maximize the anticorrosion effect an epoxy coating is preferred over enamel. A materials list shall be provided with the

specifications of the products used. A touch-up kit shall be included to repair any chips or scratches during transport and installation.

2.2.2 Tank Construction

The tank shall be constructed of a minimum of 10-gauge steel with welded joints and stiffeners where required. The tank shall be of a minimum NEMA 4 rating. The tank shall be hermetically sealed with the cap having a gasket. This cap shall be oil-tight and weatherproof. If the tank is to be filled under a complete vacuum, a pressure test of 10 psi shall be used. For all other transformers, a pressure test of 5 psi can be used. The tank shall be made to fit into our existing oil containment. See attached drawings.

2.2.3 Insulating Oil

The liquid-cooled transformer shall be filled with mineral oil as the cooling fluid. The fluid shall contain zero PCB. An absolute pressure of 5 mm mercury or less must be maintained by continuous vacuum pumping for at least 2 hours before starting to fill the unit. The absolute pressure shall not exceed 10 mm mercury while filling. A maximum liquid flow rate of 5 gallons per minute shall be allowed while filling the unit. When the liquid reaches its proper level and the liquid inlet valve has been closed, the vacuum pumping should be continued to maintain an absolute pressure of 5 mm mercury or less for 8 hours or until no more gas in the form of bubbles is being released from the core and coil assembly.

After the filling process is complete, the tank shall be pressurized with dried nitrogen to prevent any humidity from infiltrating the tank.

2.2.4 Accessories

The transformer shall come equipped with the following accessories:

- Liquid Level Gauge – Optional alarm contacts can be provided
- Temperature Gauge – Optional alarm contacts can be provided
- Vacuum-Pressure Gauge
- Inspection Cover
- Drain Valve – 1" NPT with plug and sampling device
- Filling coupling – 1" NPT on the top tank (including a pressure relief valve and nitrogen access valve)
- Vent
- External Voltage Metering Multiplier Resistor
- External Current Metering Shunt Resistor

2.2.5 Electrical Components and Connections

The configuration of the electrical components and connections shall accommodate existing equipment and wiring. All electrical terminations shall be completed per the manufacturer's specification. The provided transformer shall have the following electrical characteristics:

- Frequency 60 Hz
- Capacity 70.8 kVA
- Primary Voltage LV 480 VAC Single Phase
 HV 53635 VAC Single Phase
- Primary Current 147.5 Amps

- Secondary Voltage 45 kV
- Secondary Current 1100 mA

The output configuration shall be a single bushing, full-wave output.

The voltage divider resistor shall be sized accordingly, existing is 120Megohms. The voltage divider shall be located inside the T/R tanks and shall be completely submerged in insulating fluid. Bushings will be enclosed by a bus duct.

2.2.6 Radiators

A radiator shall be installed to provide proper cooling by natural convection. The radiator shall be designed to resist damage during hoisting and installation.

2.2.7 Nameplate

A corrosion-resistant nameplate shall be permanently fixed to the tank in a visible location. The nameplate shall be engraved on a stainless placard with a satin finish. All wording on the nameplate shall be etched and filled with black enamel. The nameplate shall provide the following information:

- Manufacturers Name, Address, and Phone Number
- Model Number
- Serial Number
- Manufacturing Date
- kVA Rating
- Input Voltage
- Input Current
- Peak Surge Current
- Current Form Factor
- Output Voltage (kV peak, no load)
- Output Current (mA DC)
- Number of Phases
- Input Frequency
- Cooling Class (per ANSI C57)
- Maximum Ambient Temperature
- Maximum Temperature Rise
- Weight of transformer and rectifier
- Weight of Tank
- Weight of Oil
- Total Weight of Unit
- Volume of Oil (gallons)
- Type of Insulating Fluid
- Schematic Diagram

2.2.8 Windings

The transformer shall be wound with pure copper windings. The transformer shall be a two-winding, single-phase power rectifier type. The transformer shall have an insulation rating to achieve a temperature rise of 45°C above ambient. The high-voltage windings shall be insulated to withstand 1.5 times the rated voltage.

2.2.9 Grounding Terminal

The tank shall be equipped with two grounding pads on opposite corners to accommodate the existing grounding system. The grounding pad shall be 304 stainless steel. The ground pad shall be bare and not be covered with any insulating type materials to ensure a good electrical connection.

2.2.10 Lifting

The tank shall be equipped with attachment points for lifting the tank as an assembled unit. The lifting provisions shall be sufficient for lifting the T/R set fully assembled and filled with oil. The lifting points shall be located on the tank in positions that will prevent damage to the unit while lifting directly above the center of gravity.

2.2.11 Current Limiting Reactor

The T/R set shall work with the existing current limiting reactor. The specs for the existing reactor are as follows:

- Inductance: 2.2 MH @ 162 Amps
- Linear \pm 5%: 64 to 456 Volts
- Terminal Volts @ rated current: 134.4
- System Volts: 480V
- Voltage Class: 600V
- Temp. Rise: 105°C
- Insulation Class: H
- Performance Data at 120°C
- D.C. resistance: 0.0136 Ω (Ohms)
- Load Loss at Full Load: 390 Watts
- Core Loss at Rated Voltage: 24 Watts
- Sound level at Full Load: 45dB
- Ground Lug for #2/0 to #4 Conductor
- Max Ambient: 50°C

2.3 Factory Testing

The supplier shall complete a full functional test on all T/R sets before shipping the units. The functional test shall include, but not be limited to the following:

- 150% output voltage
- 100% current
- Forced spark
- A thermal model shall be provided, that uses the transformer's primary current, thermal time constants, and ambient air temperatures to predict oil and winding temperatures. The equation can be presented in differential form.
- Transformer ratio
- No load loss and current
- Dielectric tests
- CT tests: impedance, polarity, ratio
- Insulation resistance
- Load loss and short circuit impedances: Primary and Secondary
- Winding resistance
- Temperature rise test

The purchaser shall have the option of witnessing the factory testing. A full report shall be provided for each test. The report shall include:

- Details of test results
- Statement of measurement uncertainty for each test
- Specific transformer details

2.4 Delivery

The T/R sets shall be delivered to the site as an assembled unit filled with oil. The supplier shall ensure proper delivery of the T/R sets, so they are not damaged in route to the site. The delivery shall be made with an air ride truck, and a route shall be chosen to avoid slopes greater than 25° longitudinal and 30° transverse. The T/R sets must be delivered no later than **Monday, April 22nd, 2024. Any exception to meeting this delivery date must be noted.**

2.5 Installation

The Contractor shall be responsible for the installation of the T/R sets. The anticipated outage dates are April 25th-May 10th 2024. The installation shall include, but not be limited to:

- Removing Existing T/R Sets
- Modifying Existing Secondary Oil Containment
- Remove all surface rust and coat the oil containment with an epoxy coating to mitigate any future rusting.
- Removing Existing Current Limiting Reactor
- Installing New T/R Sets
- Installing New Current Limiting Reactor
- Integrating T/R Sets with existing precipitator controls
- Ensuring proper connections to electric bus
- Ensuring Airtight seal with bus ducts

The Contractor shall be present when the transformers arrive on site. The Contractor shall complete a full inspection of the transformers before accepting the shipment. The onsite inspection shall include, but not be limited to:

- Checking for Positive gas pressure
- Outer inspection for scratches and dents
- Transformer Impedance and Insulation Testing

During the installation, the Contractor shall modify the secondary oil containment system to prevent the T/R sets from being exposed to water sitting in the secondary containment system. All proposed modifications shall not influence the structural integrity of the precipitator building. All proposed modifications shall be approved by plant personnel before implementing changes.

The City of Grand Island will be hiring MRL to provide all crane and rigging services needed to complete this scope of work.

The Contractor will be responsible for properly disposing of all unwanted and leftover materials involved in this scope of work.

2.6 Site Testing

The Contractor shall perform inspections and testing on the T/R sets once they are sitting in final positions on the precipitator. Inspections and testing shall include, but not be limited to:

- Checking for Positive gas pressure
- Outer inspection for scratches and dents
- Oil Sample Testing
- Test of alarms and control system

The Contractor will be required to provide a report of all on-site testing.

2.7 Startup

The supplier shall oversee the startup of the precipitator to ensure the proper startup of new equipment. A manual of recommended startup procedures shall be provided.

2.8 Training

The Contractor shall provide training on recommended startup and maintenance procedures for the supplied T/R sets.

2.9 Warranty

The Contractor shall provide a minimum of a one-year warranty. This warranty shall cover any parts and labor associated with the failure of the T/Rs.

3.0 BIDDING

Bids shall be separated by procurement of equipment (sections 2.1-2.4 & 2.9) and installation services (sections 2.5-2.8). For installation services, the contractor shall provide a technician/engineer with a minimum of five (5) years of experience with equipment provided and installation. The Contractor shall provide three (3) references of previous work experience, identical to the scope listed herein. The Contractor shall include in his bid an itemized list of not-to-exceed estimates of all costs associated with the scope of work herein. Including, but not limited to all expenses, equipment, labor, mobilization and demobilization, and subcontractors. Please ensure that all bids contain the following as a minimum:

- Explanation of Deviations
- Installation and Startup Manual
- Estimated Delivery Date
- Hardware Specifications
- Drawings with dimensions to ensure clearance with the existing setup.
- Planned Startup Procedure
- Sample Test Report
- Sample Startup Report
- Itemized List Pricing
 1. T/R set
 2. Site testing
 3. Startup oversight
 4. Training
- References

Itemized list should look identical to the table below.

Item	Price
T/R Set (Quantity of 4)	
Estimated Shipping	
Optional Installation and Startup Services <ul style="list-style-type: none"> • Mobilization • Labor • Demobilization • Associated Travel fees • Training fees 	

Bids will be evaluated by the Owner based on price, schedule, quality, the economy of operation, experience of the contractor, and adherence to specification. The primary evaluation factor will be the itemized price. The owner reserves the right to reject any or all bids and waive informalities and accept whichever bid may be in the best interest of the owner, at its sole discretion. **Bids must be received by 2:00 P.M. Tuesday, July 11, 2023.**

3.1 UNIT PRICING

The contractor shall provide unit pricing for the supplied T/R sets, associated hardware, and labor rate sheets for tasks performed outside this scope of work.

3.2 TERMS AND CONDITIONS

Provide all and any other standard terms and conditions which will be in effect during the completion of this scope of work.

3.3 DEVIATIONS

The bid shall provide any explanation of any anticipated deviations from the detailed scope of work.

4.0 SAFETY

The contractor shall follow all applicable OSHA regulations and plant safety regulations. All personnel working on-site will be required to view the plant's safety presentation before beginning work. All workers shall provide and wear hard hats, safety glasses, and leather boots at all times while onsite (except for the office area).

5.0 INSURANCE

The contractor shall comply with the attached City's insurance requirements.



REQUEST FOR BIDS - SITE CONDITIONS

ELECTROSTATIC PRECIPITATOR TRANSFORMER-RECTIFIER

Site Visit: Bidders shall visit the site in order to inform themselves of the conditions under which the work is to be performed, concerning the site of the work, the nature of the existing facilities, the obstacles which may be encountered, the sequence of the work, and all other relevant matters concerning the work to be performed. No extra compensation shall be allowed by reason of the failure of such bidder to fully inform themselves of said site conditions prior to the bidding. The Contractor shall employ, so far as possible, such methods and means in the carrying out of their work as will not cause any interruption or interference with the City's operations and any other contractors.

A site visit may be arranged by contacting Jayson Rezek at (308) 385-5496 or jrezek@giud.com .

Signature of person visiting site: _____

Signature of Utilities personnel witnessing visit: _____

Date of Visit: _____

****Optional****

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$ 500,000 Combined Single Limit
---------------------------------	----------------------------------

3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract. **The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**

Westinghouse®

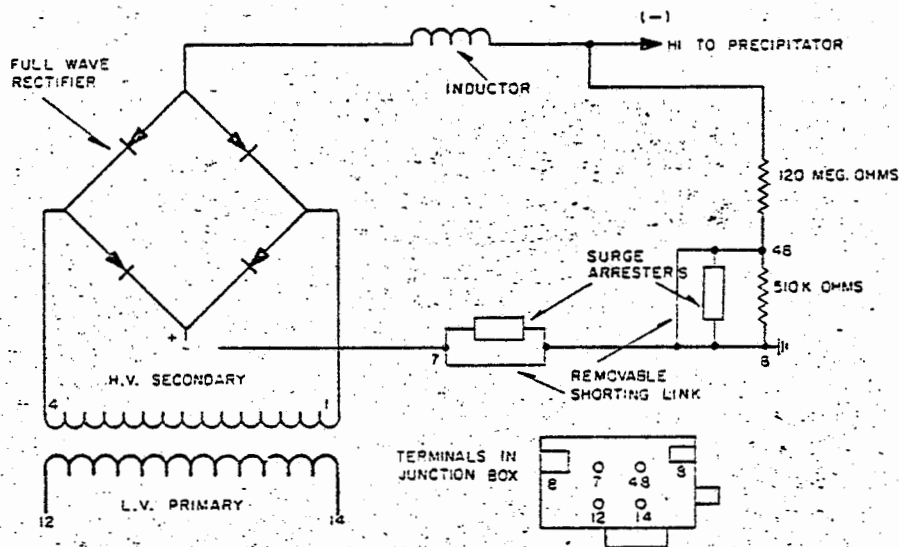


RECTIFIER
FULL WAVE
AVERAGE D.C. OUTPUT
1100 MILLIAMPERES
45000 VOLTS
PIV 75000
STYLE DAS3790

SILICON RECTIFIER
POWER UNIT
SINGLE PHASE
60 HERTZ CLASS 0A
I.B. 45-060-101

TRANSFORMER
70.8 KVA
L.V. 480 H.V. 53635
PRIMARY 147.5 AMPS
FULL LOAD CONTINUOUSLY
45 °C. RISE
SUBSTRACTIVE POLARITY

SERIAL IMPEDANCE % GALLONS OIL 90
APPROX. WT. IN LBS. TRANSF. & RECTIF. 600 CASE 450 OIL 675 TOTAL 1725
MADE IN USA WESTINGHOUSE ELECTRIC CORPORATION 220P412401B



CONNECTIONS				
PRIMARY INPUT			AVERAGE D.C. OUTPUT	
VOLTS	AMPS	LEADS	VOLTS	MA
480	147.5	12 - 14	45000	1100

PEAK SURGE CURRENT OR MAXIMUM SHORT CIRCUIT CURRENT MUST NOT EXCEED 15 AMPERES FOR TO HERTZ
PRIMARY CIRCUIT MUST NOT BE OPENED OR CLOSED UNLESS TREATER IS CONNECTED IN CIRCUIT.
TANK MUST BE SECURELY GROUNDED BEFORE CONNECTING INTO CIRCUIT.

P & SPEC
.032 STAINLESS STEEL 10702CT SATIN FINISH—ETCHED—FILLED WITH BAKED BLACK ENAMEL
REDUCE TO 5 - X 8 PROPORTION 2 1/2:1 AREA 40 SQ. IN.
S. O. DAS3487 ASSEMB. SEC. SHARON
1/2" HOLES FOR .190-32 X 3/8" SCREW
(2) 7/32" BETWEEN CENTERS OF HOLES ON LONG EDGE OF PLATE
(2) 4 1/8" BETWEEN CENTERS OF HOLES ON SHORT EDGE OF PLATE
RETURN TO WESTINGHOUSE ELECTRIC CORPORATION, SHARON WORKS, SHARON, PA., U. S. A.

CHG'D TO TREATER TO
PRECIPITATOR

78 005V013

THIS OUTLINE CAN BE USED FOR ERECTION OR MOUNTING PURPOSES IT IS NOT TO BE REARDED AS INDICATING EXACT DETAILS OF CONSTRUCTION

DWG 2017C71 SUB 1

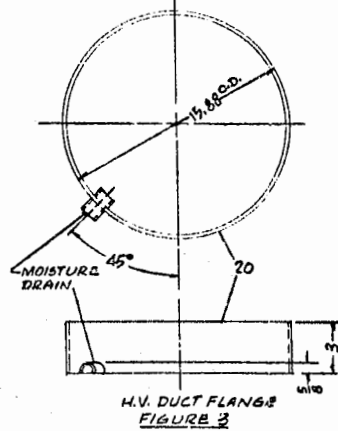
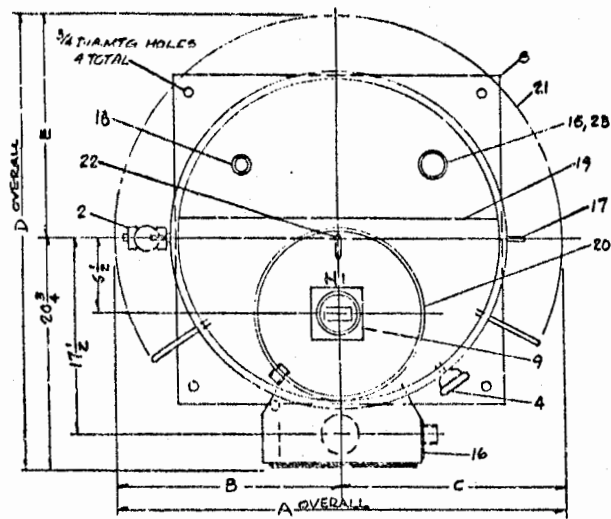
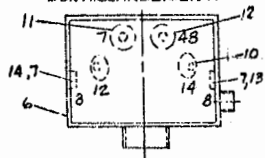
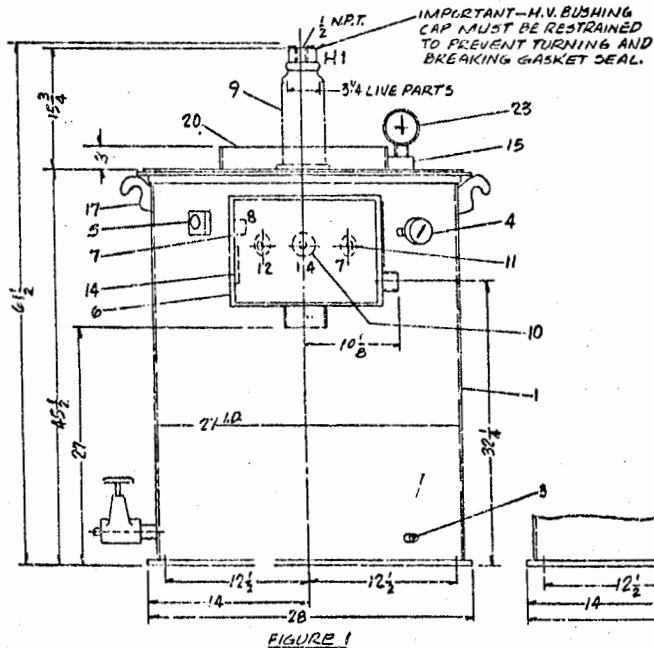


FIGURE 2 SAME AS FIGURE 1 EXCEPT FOR L.V. JUNCTION BOX ARRANGEMENT.



JUNCTION BOX WHEN VOLTAGE DIVIDER IS USED FIGURE 2

- | ITEM | DESCRIPTION |
|------|---|
| 1 | TANK WITH WELDED ON COVER. |
| 2 | ONE 1 1/2" N.P.T. DRAIN VALVE WITH SAMPLING DEVICE. |
| 3 | GROUND CLAMP FOR #2 TO 250 MCM CABLE. |
| 4 | DIAL TYPE THERMOMETER (WITH ALARM IF REQUIRED) |
| 5 | MAGNETIC TYPE LIQUID LEVEL GAUGE. |
| 6 | L.V. JUNCTION BDX WITH ONE 3/4" CONDUIT FITTING OUT THE BOTTOM AND ONE 1" CONDUIT FITTING OUT THE RIGHT SIDE. |
| 7 | SURGE ARRESTER. |
| 8 | TANK BOTTOM - 3/8" THK WITH FOUR 3/4 DIA. HOLES FOR MOUNTING. |
| 9 | H.V. BUSHING - DWG 615D 93060B WITH 1 1/2" N.P.T. IN TOP. |
| 10 | L.V. BUSHING - 2 TOTAL WITH MECHANICAL CONNECTOR PER TABLE BELOW. |
| 11 | D.C. (+) BUSHING WITH 1/4-20 STUD TERMINAL. |
| 12 | D.C. VOLTMETER BUSHING WITH 1/4-20 STUD TERMINAL. |
| 13 | 510 K OHM VOLTMETER RESISTOR. |
| 14 | FIXED POWER RESISTOR (MILLIAMMETER) WHEN REQUIRED. |
| 15 | TWO INCH FILLING PLUG. |
| 16 | NAMEPLATE. |
| 17 | LIFTING HOOKS FOR LIFTING COMPLETE UNIT - 2 TOTAL. |
| 18 | ONE INCH FILLING PLUG. |
| 19 | BOLTED ON HANDHOLE COVER FOR REMOVAL OF RECTIFIER. |
| 20 | H.V. BUSHING DUCT FLANGE (SEE FIG. 3). |
| 21 | COOLING TUBES (WHEN REQUIRED). |
| 22 | COVER LIFTING LOOP - FOR LIFTING COVER ONLY. |
| 23 | VACUUM PRESSURE GAUGE (WHEN REQUIRED). |



LINE NO.	D.C. KILOVOLTS	D.C. MILLIAMPS	L.V. BUSHING CABLE GAUGE	A	B	C	D	E	F	APPROX. WT. LB.	GALLONS OIL
1											
2											
3											
4											
5	45	1100	6 TO 410	36 1/2	18 3/4	19 1/2	39 3/4	19		1725	90
6											
7											
8											

NOTES

- 1 A SHUNT IS PLACED ACROSS SURGE ARRESTER. ACROSS 1 TO B AND IS TO BE REMOVED BEFORE PLACING UNIT IN SERVICE WITH A MILLIAMMETER ACROSS THESE POINTS.
- 2 WHEN A VOLTAGE DIVIDER (FIG. 2) IS PROVIDED, REMOVE SHUNT ACROSS 48 AND B BEFORE PLACING UNIT IN SERVICE.

WESTERN PRECIP

WESTINGHOUSE ELECTRIC CORPORATION FW

APPARATUS TRANSFORMER RECTIFIER WITH NO SWITCH - 3700V 1000W
THREE PHASE - 60 HZ - 45°C RISE OUTLINE

DIMENSIONS IN INCHES - SCALE HTB SUB 1

DFTM: [] APPD: []
APPR: []

CHKD: [] APPD: []

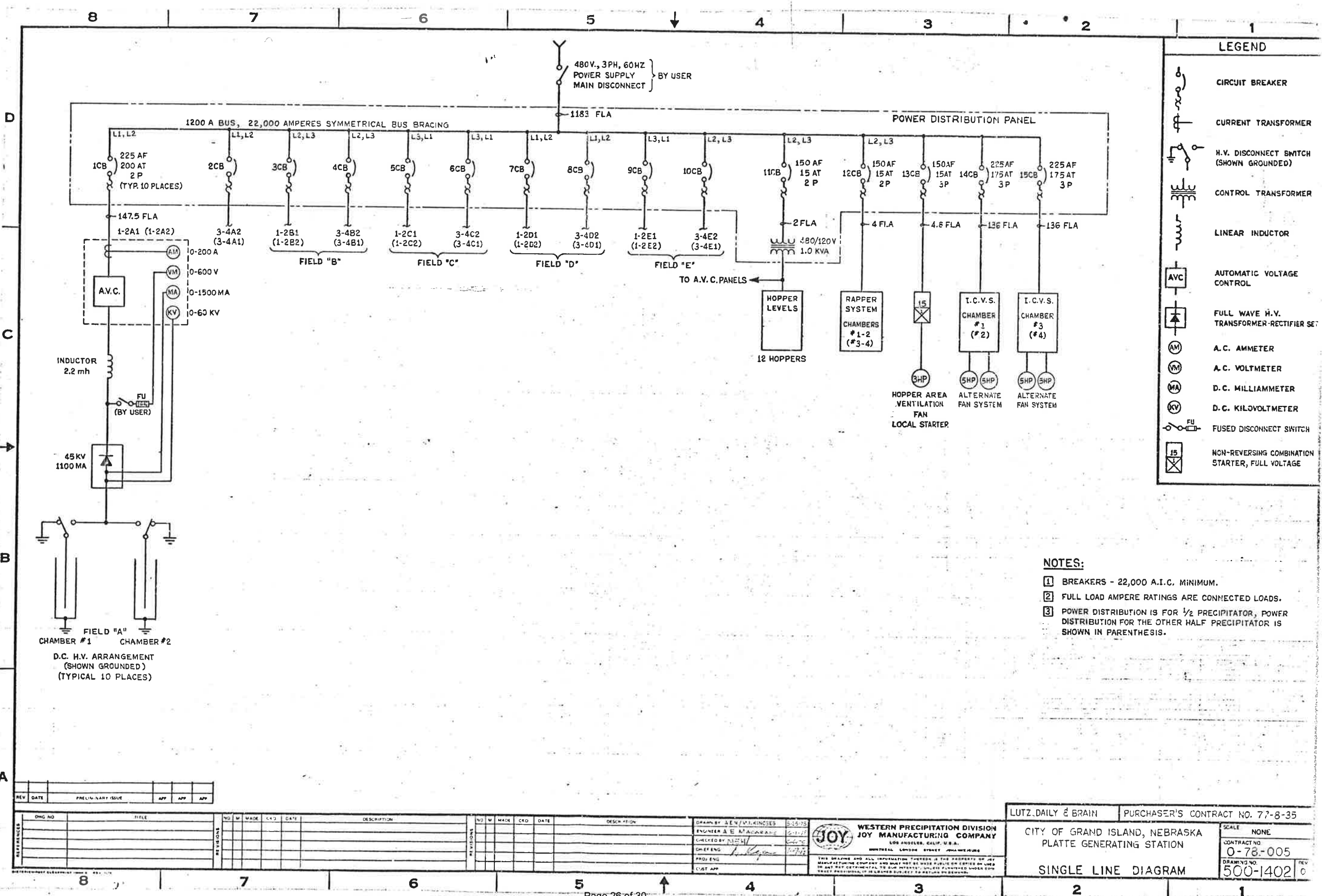
TRANSFORMER DIVISION - SHARON PLANT

SHARON, PA. U.S.A.
EIGHT SEPT 1970 NO. 1002














2017 C 71

78 005V011

6-6



LEGEND

-  CIRCUIT BREAKER
-  CURRENT TRANSFORMER
-  N.V. DISCONNECT SWITCH (SHOWN GROUNDED)
-  CONTROL TRANSFORMER
-  LINEAR INDUCTOR
-  AUTOMATIC VOLTAGE CONTROL
-  FULL WAVE H.V. TRANSFORMER-RECTIFIER SET
-  A.C. AMMETER
-  A.C. VOLTMETER
-  D.C. MILLIAMMETER
-  D.C. KILOVOLTMETER
-  FUSED DISCONNECT SWITCH
-  NON-REVERSING COMBINATION STARTER, FULL VOLTAGE

NOTES:

- 1 BREAKERS - 22,000 A.I.C. MINIMUM.
- 2 FULL LOAD AMPERE RATINGS ARE CONNECTED LOADS.
- 3 POWER DISTRIBUTION IS FOR 1/2 PRECIPITATOR, POWER DISTRIBUTION FOR THE OTHER HALF PRECIPITATOR IS SHOWN IN PARENTHESIS.

REV	DATE	DESCRIPTION	APP	APP	APP
		PRELIMINARY ISSUE			

NO	DATE	DESCRIPTION	NO	DATE	DESCRIPTION

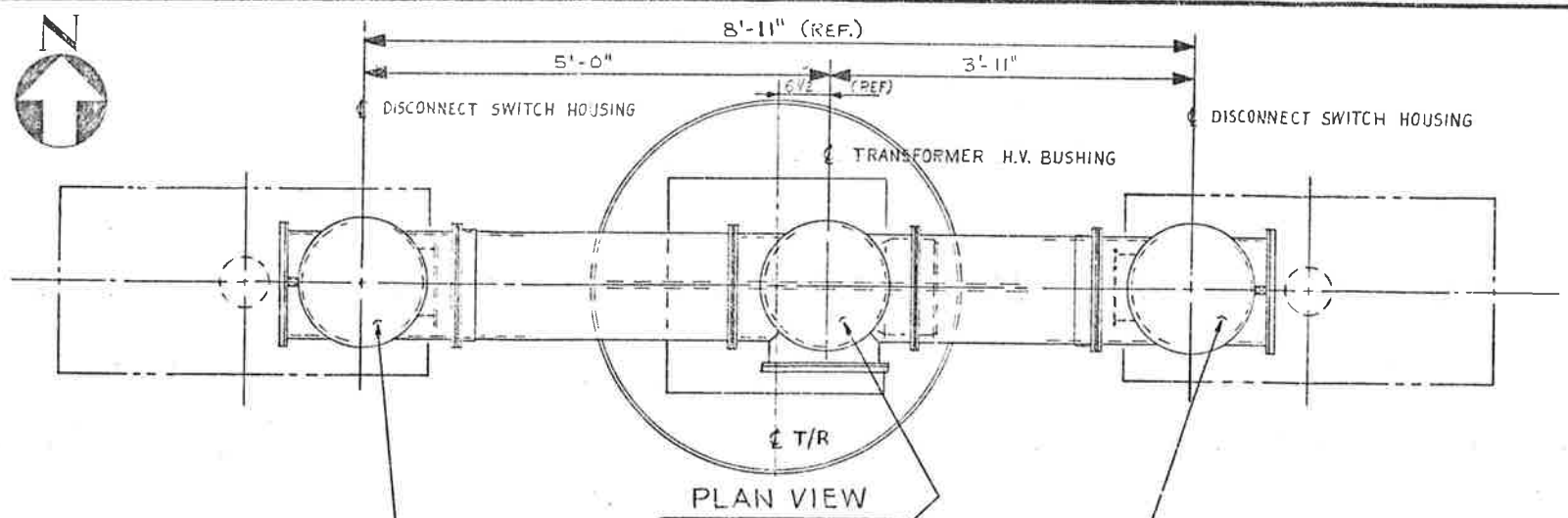
DRAWN BY: J.E.M./M.KINCHES 5-25-75
 ENGINEER: A.E. MACGARRAH 5-21-75
 CHECKED BY: R.C.H. 5-27-75
 DREW: R.C.H. 5-27-75
 PROJECT: *[Signature]*
 CUST APP:

JOY
 WESTERN PRECIPITATION DIVISION
 JOY MANUFACTURING COMPANY
 LOS ANGELES, CALIF., U.S.A.
 MONTREAL, LONDON, SYDNEY, JOHANNESBURG

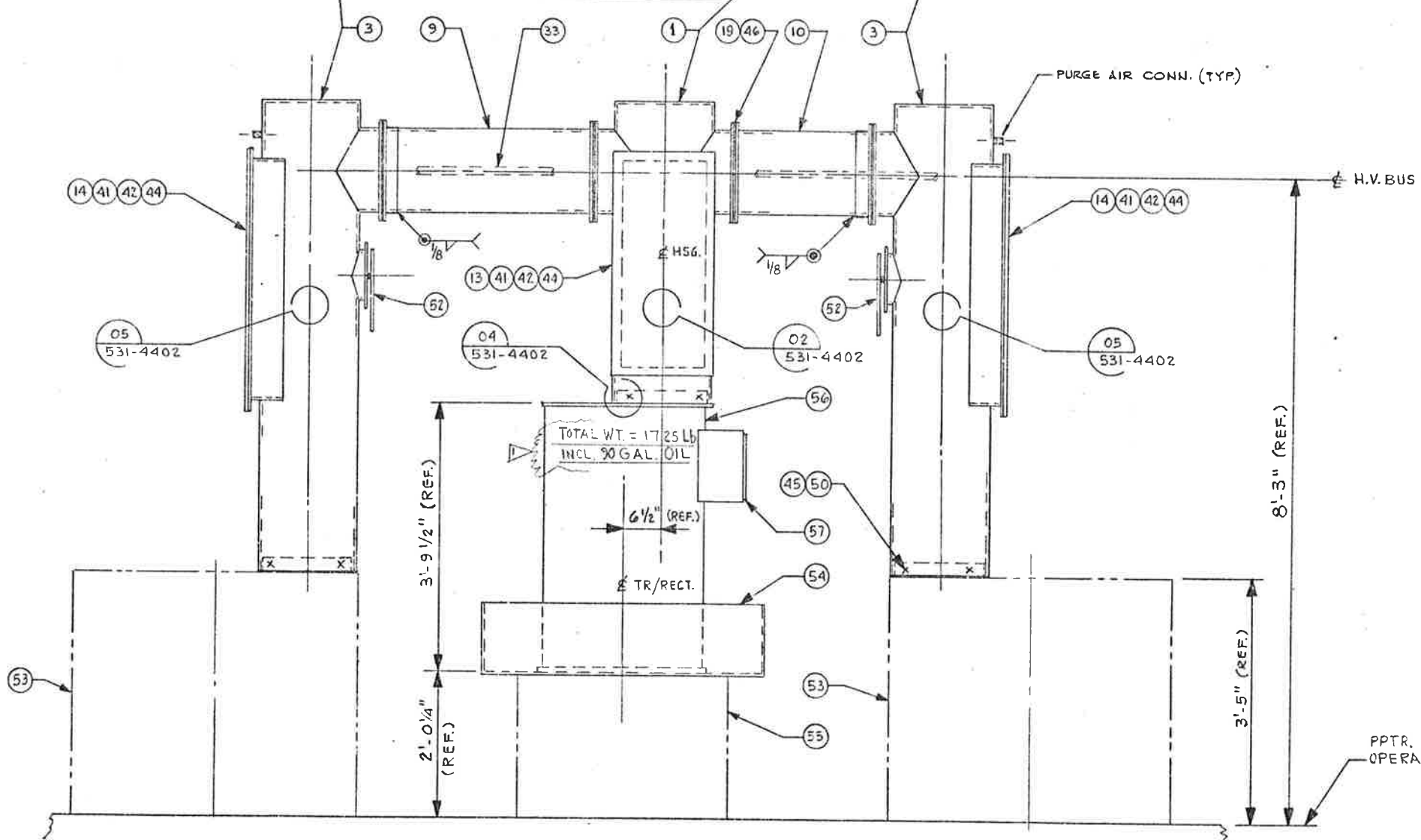
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LUTZ, DAILY & BRAIN PURCHASER'S CONTRACT NO. 77-8-35
 CITY OF GRAND ISLAND, NEBRASKA
 PLATTE GENERATING STATION
 SINGLE LINE DIAGRAM

SCALE: NONE
 CONTRACT NO: 0-78-005
 DRAWING NO: 500-1402



NOTES:
 1.- ALL TWENTY (20) TYPICAL ARRANGEMENTS SHALL BE ORIENTATED AS SHOWN IN PLAN AND AS PER NORTH ARROW.



ELEVATION
 TYPICAL ARRANGEMENT
 (20 PLACES)
 FOR KEY PLAN, SEE DWG. 2-1502

ITEM	DESCRIPTION	MARK OR DETAIL NO.
1	HOUSING (TRANSFORMER H.V. BUSHING)	531-7401-01
2		
3	HOUSING (DISCONNECT SWITCH)	531-7401-04
4		
5		
6		
7		
8		
9	BUS DUCT (24" LONG)	531-7402-51
10	▼ ▼ (1'-10" LONG)	▼ -6
11		
12		
13	COVER PLATE	531-7402-21
14	▼ ▼ (WITH WINDOW)	▼ -6
15		
16		
17	GASKET	531-7402-04
18		-03
19		-01
20	BUS MOUNTING HANGER RING FOR ITEM 21.	531-7402-48
21	INSULATOR (LAPP NO. 42594) (SHOWN ON 531-4402)	
22	INSULATOR (LAPP NO. 48943) (SHOWN ON 531-4402)	
23	INSULATOR-BUSHING (LAPP NO. 62844) (SHOWN ON 531-4402)	
24	JAW HANGER ADAPTER	531-7402-25
25		
26		
27	CONNECTING STRAP	531-7402-31
28	STEEL WASHER	-41
29	FLEX. CONNECTOR	-13
30	FLEX. CONNECTOR	-14
31	SPECIAL PIPE CAP AND ACCESSORIES	531-7402-26
32	GROUND CLAMP (PENN-UNION NO. KP-1)	
33	1/2" STD. STEEL PIPE GALV.	
34	FULL THREAD CONDUIT 26" LONG	
35	STEEL PIPE LOCKNUT - GALV.	
36	COUPLING - GALV.	
37	GALV. T.O.E. (12" LG)	
38	GALV. T.B.E. (4" LG)	
39		
40		
41	1 1/4" W. x 1/8" TH. STRIP GASKETING (GARLOCK NO. 617)	
42	⊗ DANGER SIGN	557-01-7201
43	* PORTABLE GROUNDING DEVICE	531-7402-52
44	BLIND RIVETS - SERIES 8864D ("SCOVILL" OR EQUAL)	
45	3/8" x 1" LONG SELF TAPPING SCREW	
46	3/8" - 16 x 1" HEX. HEAD BOLT & NUT	
47	1/2" - 13 x 3/4" HEX. HEAD CAP SCREW (SHOWN ON 531-4402)	
48		
49	3/8" - 16 x 1 1/4" HEX. HEAD BOLT & NUT & LOCKWASHER (SHOWN ON 531-4402)	
50	RTV SILICON ADHESIVE SEALANT "DOW-CORNING" #752 (SHOWN ON 531-4402)	
51		
52	DISCONNECT SWITCH ASSEMBLY (REF.)	541-4401-01
53	INSULATOR COMP'T (REF.)	
54	OIL CONTAINER (REF.)	
55	PEDFSTAL (REF.)	
56	H.V. TRANSFORMER-RECTIFIER 48 KV. 11000 MA.	
57	LOW VOLTAGE JUNCTION BOX (REF.)	
58		
59		
60		

⊗ = WESTINGHOUSE DWG NO. 2017 C 71-
 NOTES:

1. THE HIGH VOLTAGE BUS DUCT SYSTEM IS OF BOLTED CONSTRUCTION USING ITEM 46 AT ALL BUS DUCT FLANGES
- * 2. FOR ITEM 43 SEE INSTRUCTIONS ON DRAWING 580-5403.
- ⊗ 3. USING THE DANGER SIGN AS TEMPLATE, FIELD DRILL FOUR (4) #11 (192-196) HOLES IN COVERS (ITEMS #13 & 14). FOR APPROX. LOCATION SEE DRAWING 531-7402. FASTEN THE DANGER SIGN WITH RIVETS, ITEM 44, USING "SCOVILL" MODEL H-500 HAND TOOL (OR EQUIVALENT). ALTERNATE TO RIVETS: #16 (177) DRILL FOR PK TYPE F SELF TAP SCREWS, SIZE #10-32 x 1/4" LG.

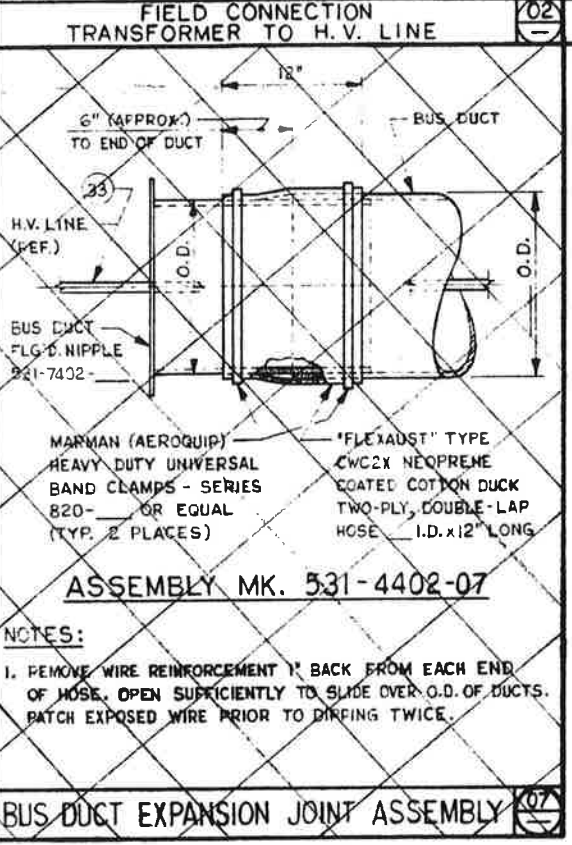
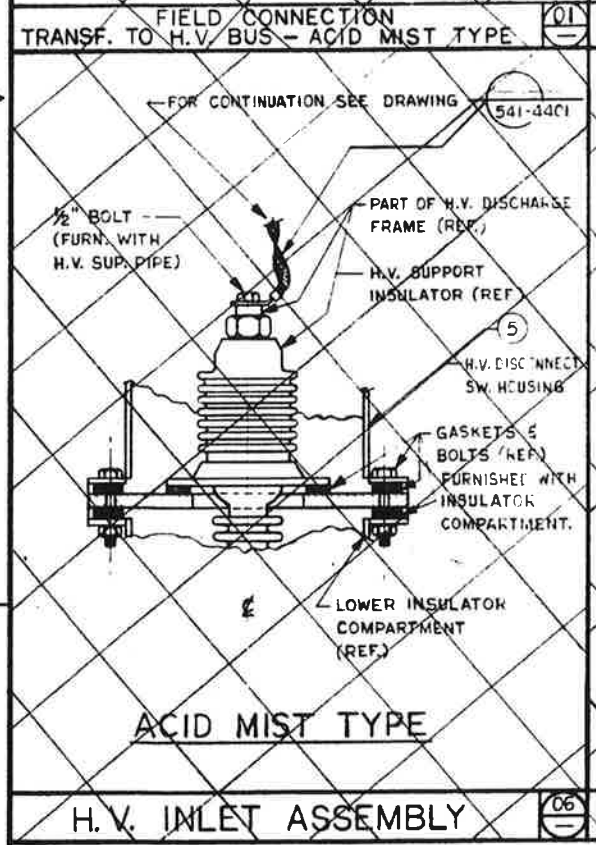
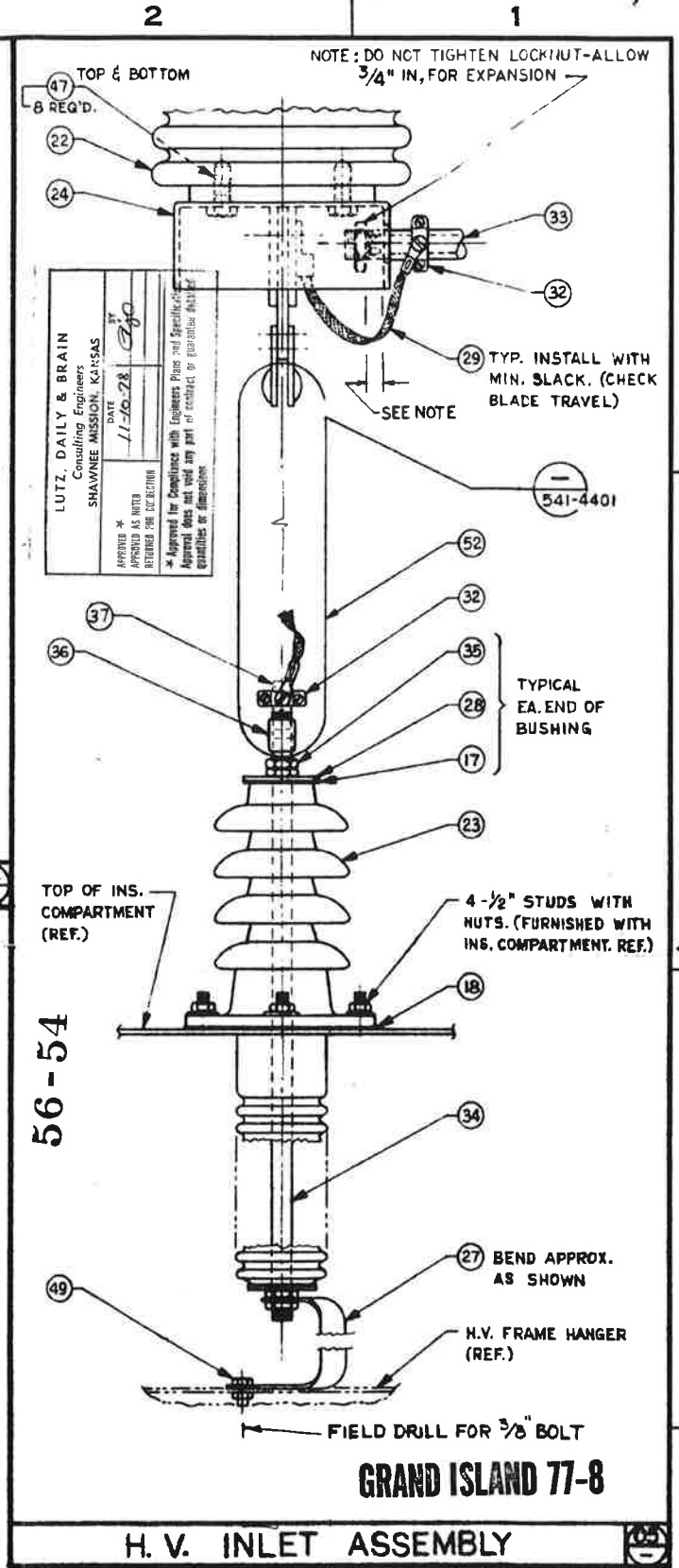
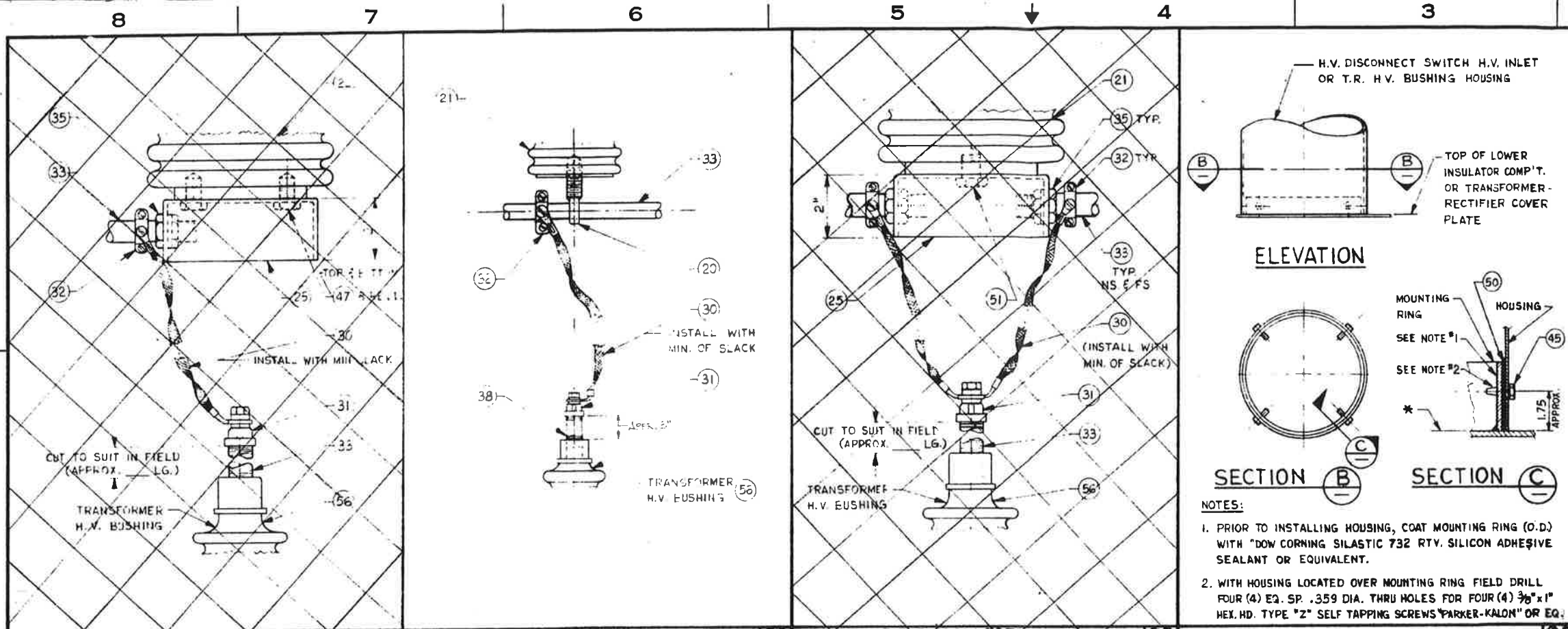
REV	DATE	PRELIMINARY ISSUE	APP	APP	APP

DWG NO	FILE	NO	DATE	DESCRIPTION	NO	DATE	DESCRIPTION
531-4402	EXTERNAL H.V. SYSTEM - FIELD ASSEMBLY	1	A.S.	W/ 2017 C 71 WAB (W) 275 C 307			
531-7401	EXTERNAL H.V. SYSTEM - HOUSING DETAILS						
531-7402	EXTERNAL H.V. SYSTEM - DETAILS						
2-1502	GENERAL ARRANGEMENT-PLAN						



LUTZ, DAILY & BRAIN
 CITY OF GRAND ISLAND, NEBRASKA
 PLATTE GENERATING STATION
 EXTERNAL H. V. SYSTEM
 BUS DUCT AND FITTINGS ASSEMBLIES

SCALE: NONE
 CONTRACT NO.: 0-78-005
 DRAWING NO.: 531-4401



REV.	DATE	PRELIMINARY ISSUE	APP.	APP.	APP.

NO.	MADE	CKD	DATE	DESCRIPTION

NO.	MADE	CKD	DATE	DESCRIPTION

DRAWN BY ALICE SUCIU 10-2-78

ENGINEER

CHECKED BY Hg/ABC 11/3/78

CHEF ENG H2J+ 11/2/78

PROJ. ENG.

CUST. APP.

WESTERN PRECIPITATION DIVISION
JOY MANUFACTURING COMPANY
 LOS ANGELES, CALIF. U.S.A.
 MONTREAL LONDON SYDNEY JERUSALEM

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LUTZ, DAILY & BRAIN

CITY OF GRAND ISLAND, NEBRASKA

PLATTE GENERATING STATION

EXTERNAL HIGH VOLTAGE SYSTEM

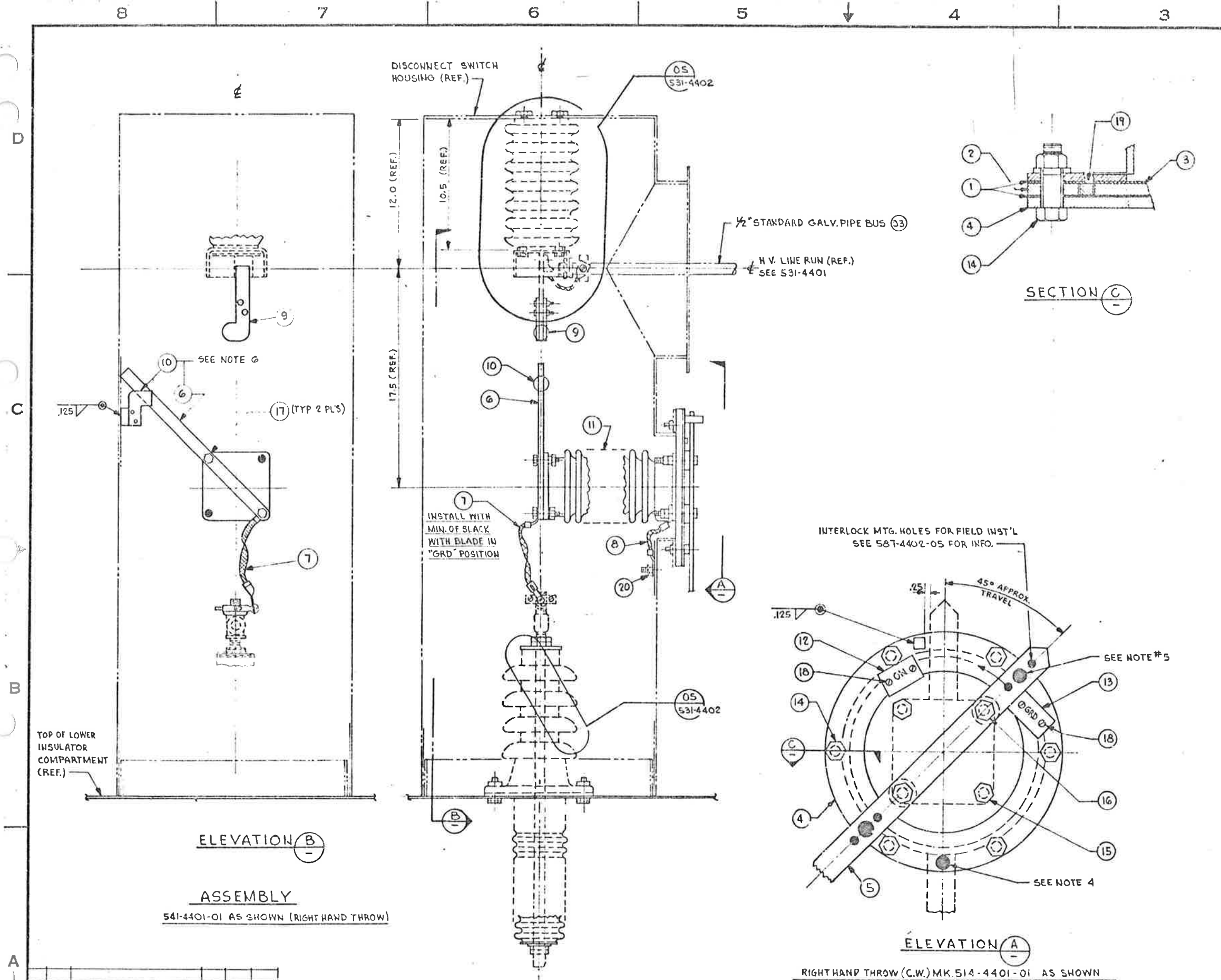
FIELD ASSEMBLY

SCALE: N. T. S.

CONTRACT NO.: 0-78-005

DRAWING NO.: 531-4402

REV. 0



ITEM	DESCRIPTION	MARK OF PART NUMBER
1	GASKET	541-01-7401-01
2	SPACER RING	-02
3	MOUNTING PLATE	-03
4	LOCKING RING	-04
5	LEVER	-05
6	BLADE	-06
7	FLEX CONNECTOR A = 12" LG.	-26
8	FLEX CONNECTOR A = 6" LG.	-24
9	JAW ASSEMBLY	-12
10	GROUND CONTACT ASSEMBLY	541-01-7401-13
11	INSULATOR "LAPP" NO. 10946	
12	NAMEPLATE "ON"	541-01-7401-14
13	NAMEPLATE "GRD"	541-01-7401-15
14	3/8"-16x1 1/4" LG. HEX. HD. BOLTS, NUTS & LOCKWASHER, 6 REQUIRED	6 REQUIRED
15	1/2"-13x1 3/4" LG.	2
16	1/2"-13x2 3/4" LG.	2
17	1/2"-13x1 1/2" LG.	2
18	NO. 6x1/4 PARKER-KALON TYPE "U" DRIVESCREWS	4
19	FILLER (SEE NOTE #2)	541-01-7401-11
20	1/2"-13 HEX NUT & LOCKWASHER	1 REQUIRED

- WHEN INSTALLING SPACER RING (2), THE .125x.125 DRAIN SLOT TO BE AT THE BOTTOM, FACING OUT.
- ENDS OF FILLER (19) TO TERMINATE AT BOTTOM, MATCHING SLOT OF SPACER RING (2).
- SEE DWG. 531-4401 FOR ADDITIONAL ITEMS & ASSY. OF H.V. SYSTEM WITHIN DISCONNECT SWITCH HOUSING.
- FIELD DRILL 1/16" (.6875) DIA. THRU HOLE WITH SWITCH LEVER IN THE "ON" POSITION.
- FIELD DRILL SAME AS ABOVE WITH SWITCH LEVER IN THE "GRD" POSITION.
- POSITION BLADE (6) AS SHOWN AND LOCATE GRD CONTACT ASSEMBLY (10) WITH EDGES APPROX FLUSH WITH LEADING EDGE OF BLADE TO INSURE MAX ELECT CLEARANCE TO "ON" JAWS (9), THEN WELD TO INSIDE OF SW HSG AS SHOWN.
- NON CONDUCTIVE COATINGS SUCH AS PAINT OR OTHER FOREIGN MATTER, SHALL BE REMOVED FROM THE CONTACT SURFACES BEFORE ATTACHING FLEX CONNECTORS, CLAMPS, ETC. REFER TO NATIONAL ELECTRICAL CODE ART. 250 AND RELEVANT LOCAL CODES.

REV	DATE	PRELIMINARY ISSUE	APP	APP	APP

REV	DATE	DESCRIPTION	NO	BY	MADE	CHKD	DATE	DESCRIPTION

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WESTERN PRECIPITATION DIVISION
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LUTZ, DAILY & BRAIN

CITY OF GRAND ISLAND, NEBRASKA
 PLATTE GENERATING STATION

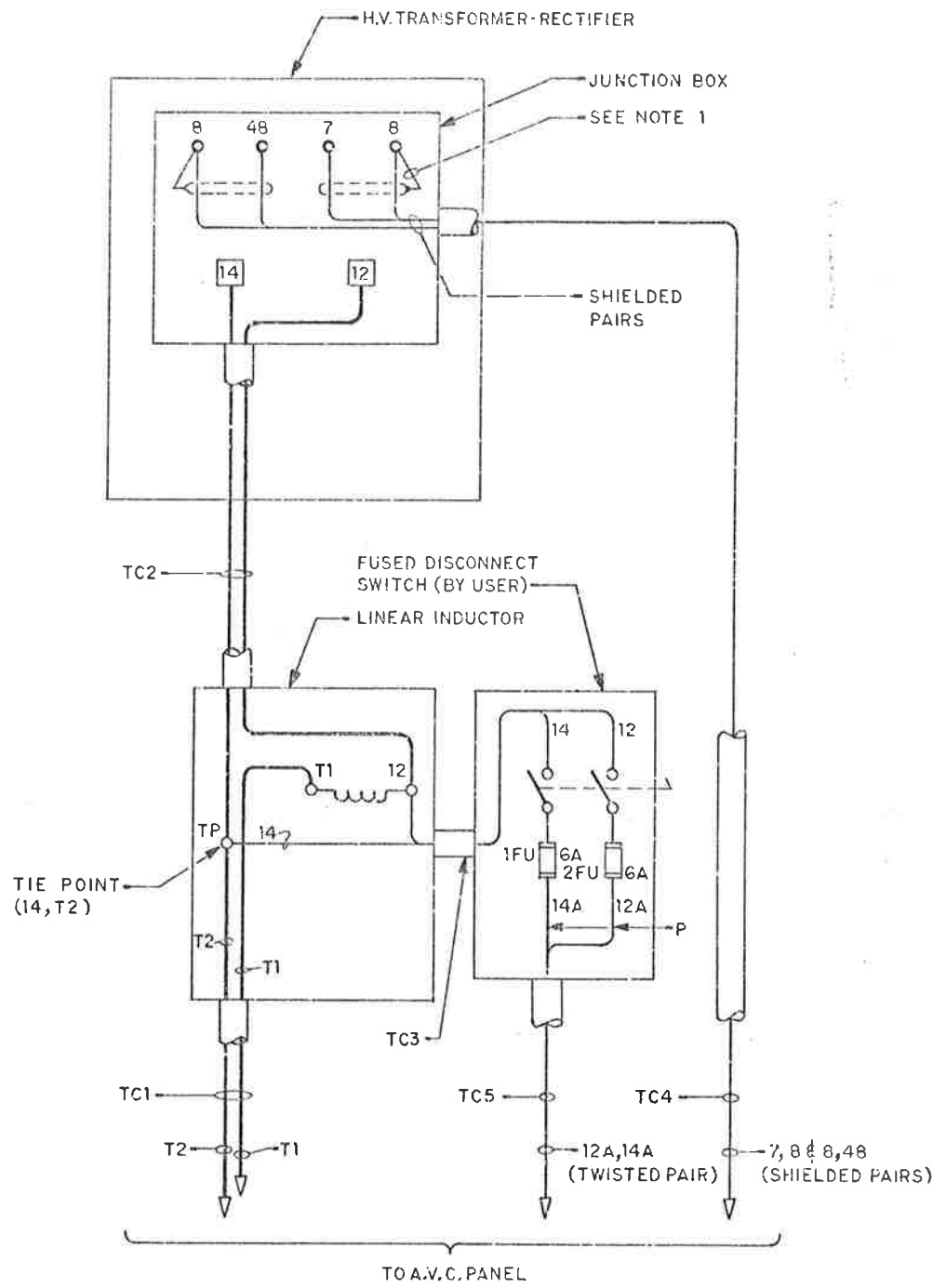
**EXTERNAL HIGH VOLTAGE SYSTEM
 DISCONNECT SWITCH ASSEMBLY**

SCALE: N.T.S.

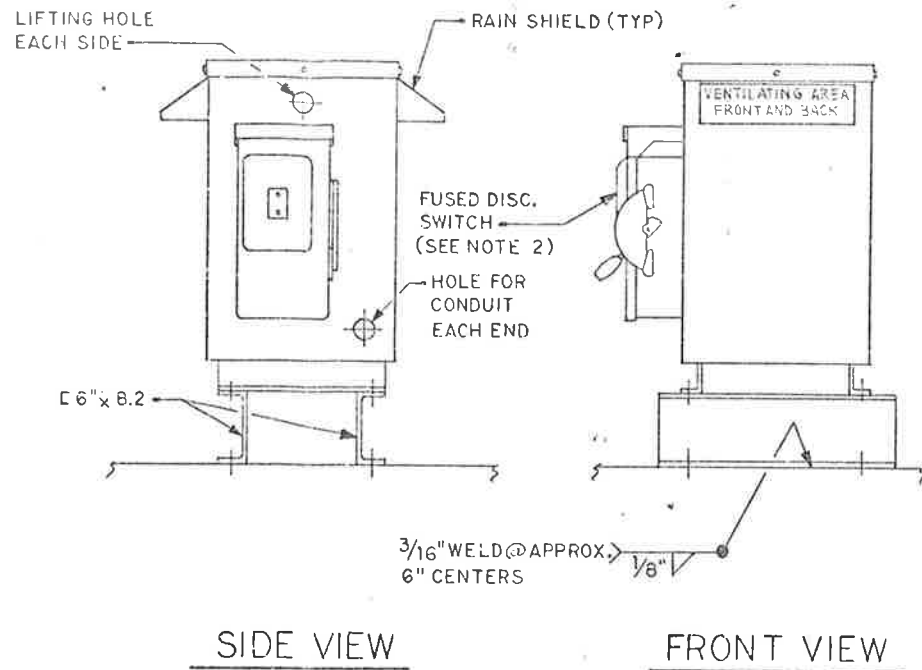
CONTRACT NO: 0-78-005

DRAWING NO: 541-4401

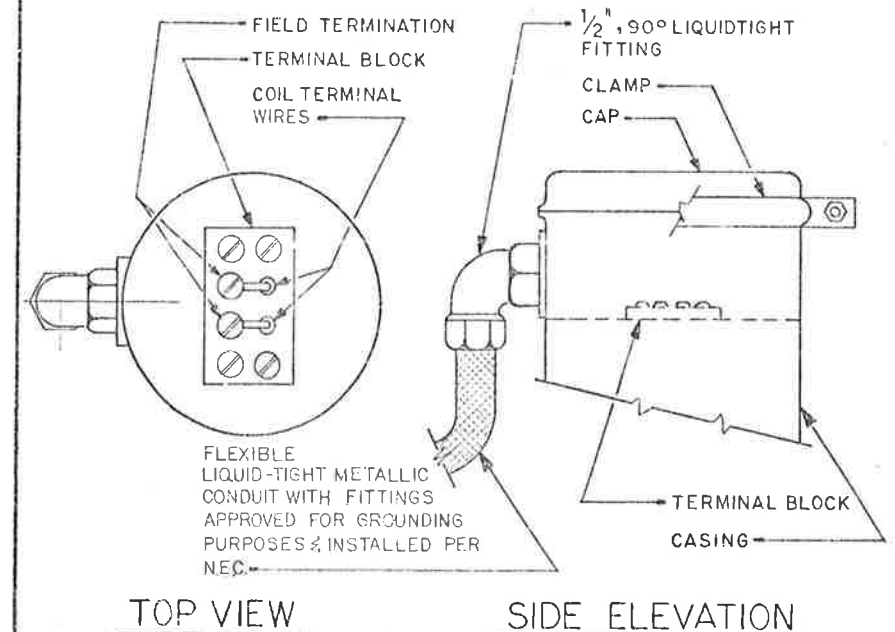
REV: 0



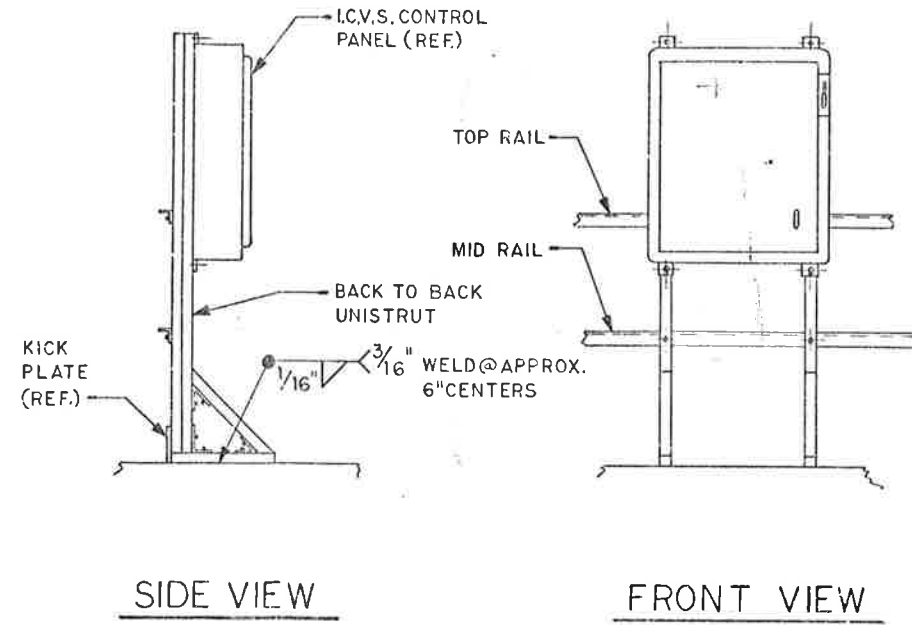
H.V. TRANSFORMER-RECTIFIER, LINEAR INDUCTOR AND FUSED DISCONNECT SWITCH-FIELD CONNECTION



LINEAR INDUCTOR AND FUSED DISCONNECT SWITCH MOUNTING DETAILS



ER-860 ELECTRIC RAPPER FIELD CONNECTION



I.C.V.S. PANEL-MOUNTING DETAILS

NOTE:

1. TERMINATE SHIELD AT TERMINAL (8) AT THE H.V. TRANSFORMER JUNCTION BOX ONLY.
2. FIELD MOUNT FUSED DISCONNECT SWITCH APPROXIMATELY AS SHOWN.

REV.	DATE	REVISED BY	CHKD. BY	ENG. APP.	DESCRIPTION

REV.	DATE	REVISED BY	CHKD. BY	ENG. APP.	DESCRIPTION

DRAWN BY	ELG	DATE	10-28-72
ENGINEER	A E MACARAGG	CHECKED BY	
CHIEF ENG.		DATE	11-13-72
PROJ. ENG.			

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LUTZ DAILY & BRAIN PURCHASER'S CONTRACT No. 77-8-35

CITY OF GRAND ISLAND, NEBRASKA
 PLATTE GENERATING STATION
 LOW VOLTAGE CIRCUITS
 DETAILS

SCALE: NONE
 CONTRACT NO: 0-78-005
 DRAWING NO: 580-5406