CITY OF GRAND ISLAND

Working Together for a Better Tomorrow. Today.

SPECIFICATION PACKAGE

for

WATER TREATMENT SYSTEM REPLACEMENT

Bid Opening Date/Time
Tuesday, January 11, 2011 @ 2:15 pm (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact
City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: December 17, 2010

ADVERTISEMENT TO BIDDERS
FOR
WATER TREATMENT SYSTEM REPLACEMENT
FOR
CITY OF GRAND ISLAND, NEBRASKA

Sealed bids will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until Tuesday, January 11, 2011 at 2:15 p.m. local time for Water Treatment System Replacement, FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall Council Conference Room #1 located on 1st floor of City Hall. Submit an original and three copies. Bid proposal package is also available on-line at www.grand-island.com under Calendars. Bids received after the specified time will be returned unopened to sender.

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 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 fourteen (14) 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 in clearly marked and separate envelopes will result in your bid not being opened or considered.** Surety companies authorized to do business in the State of Nebraska must 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 bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

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.

   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.

4. SUBMISSION OF BIDS.

   All Bids must be submitted intact not 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 here in. Each Bid 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 his Bid for a period of 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 in behalf of the Surety must attach a notarized copy of his power of attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statue requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

   Within 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:

Conformance with the terms of the Bid Documents.	Bid price. Cost of installation.

Suitability to project requirements. Responsibility and qualification of Bidder.
Delivery time.

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 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 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 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 power-of-attorney as evidence of his 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 *WATER TREATMENT SYSTEM REPLACEMENT;* 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 the 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, or themselves, and its, his, 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:	$	.00
Sales Tax on Materials/Equipment:	$	.00
Sales Tax on Labor:	$	.00
Total	$	.00

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 WATER TREATMENT SYSTEM REPLACEMENT.

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, and complete the work on or before ***JUNE 15, 2011.***

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.

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

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

_____ Date _____
Attorney for the City

(All bids must be submitted on this form)

Water Treatment System Replacement
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 such equipment FOB the City of Grand Island, freight prepaid, at the following price:

ITEM DESCRIPTION	EXTENDED COST
Base Bid:	
Material	$ _____
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 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.**

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

☐ By checking this box, Bidder acknowledges the specified completion date of the project is **June 15, 2011.**

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.

_____
Bidder Company Name Date

_____
Company Address City State Zip

_____
Print Name of Person Completing Bid Signature

Telephone No._____ Fax No._____

☐ By checking this box, Bidder acknowledges there are Exceptions noted to the bid.
NOTE: Any exceptions to specifications must be fully explained on a separate sheet attached to bid.

CHECKLIST FOR BID SUBMISSION

FOR

WATER TREATMENT SYSTEM REPLACEMENT

Bids must be received by the City Clerk before *2:00 p.m. on Tuesday, January 11, 2011*.

The following items must be completed for your bid to be considered.

- ❑ A signed original and three copies of the bidding documents.
- ❑ A reference list of at least three projects of similar scope and complexity, including a description, name and phone contact.
- ❑ A delivery schedule.
- ❑ Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- ❑ Details of the proposed warranty.
- ❑ Chemical and power consumption for new system.
- ❑ Dimensional layout required for equipment.
- ❑ Selection of Nebraska Sales Tax Option.
- ❑ Acknowledgment of Addenda Number(s) _____.
- ❑ Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- ❑ A certified check, cashiers check or bid bond 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 in clearly marked and separate envelopes will result in your bid not being opened.

  Please check off each item as completed.

_____ _____

Company Signature

Telephone No. _____ Fax No. _____

CITY OF GRAND ISLAND

Working Together for a Better Tomorrow, Today.

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 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Bids shall include the following on the **outside** of the mailing envelope: **"Water Treatment System Replacement".** All sealed bids are due no later than **Tuesday, January 11, 2011 at 2:15 p.m. local time**. Submit **an original and three copies** of the bid to:

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

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 Council Conference Room #1 located on 1st floor of City Hall. Any bid received after the specified date will not be considered. No verbal bid will 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 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 cashiers check, or bid bond payable to the City 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 fourteen (14) 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 in clearly marked and separate envelopes will result in your bid not being opened or considered.** Surety companies authorized to do business in the State of Nebraska must 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. Please contact Lynn Mayhew at 308-385-5495, for questions concerning this specification.

Platte Generating Station / 1035 W. Wildwood Drive / Box 1968 / Grand Island, Nebraska 68802-1968
Phone (308) 385-5496 / FAX (308) 385-5353

PLATTE GENERATING STATION
WATER TREATMENT SYSTEM REPLACEMENT

1. Scope

1.1.1. The manufacturer shall provide equipment, shipping, start up assistance and training to replace the water treatment system at the Platte Generating Station to meet the water quality requirements stated in this specification.

2. Description

2.1.1. The Platte Generating Station is located at 1035 West Wildwood Drive in Grand Island, Nebraska.

3. Process Detail and Technical Specification

3.1 Process Description

3.1.1. Raw feed water will be supplied at 60-70 psi (by Platte Generating Station) to the proposed water treatment system. An option may be included for Vendor supplied system feed pumps. The pressurized feed water will be sent through cartridge filters to remove residual suspended solids from the water.

3.1.2. Filtered water will be treated with acid or antiscalent if required. The water is then passed through Reverse Osmosis (RO) units where the majority of the dissolved solids content is removed. Permeate from the RO units is stored in a permeate tank. Permeate from the permeate tank is then delivered to the demineralizer unit that removes the remaining dissolved solids to produce very high purity water before being sent to the two existing on site Demineralized Water Storage Tanks for downstream process use.

3.1.3. Some demineralized water from the DM Water Storage Tank will be used as a source of demineralizer regeneration and wash water. Acid and caustic used for regeneration of the demineralizer skids will be supplied from local acid and caustic totes or current on site storage tanks.

3.1.4. Waste from the filters and reverse osmosis units will be discharged to the Platte Generating Station waste treatment system. Waste from the demineralizers will be sent to a supplied waste neutralization system before being discharged by gravity to the Platte Generating Station waste treatment system.

3.2 Sub-System Process Description

3.2.1. Key sub-system processes are described here:

3.2.2. **Filtration**

Water under pressure will feed the cartridge filters for removal of suspended solids.

3.2.3. **Antiscalent Addition**

Due to the nature of the water it may be necessary to add antiscalent to prevent scaling on the RO membranes. Vendor to determine.

3.2.4. Reverse Osmosis

Reverse Osmosis (RO) uses semi-permeable membranes with very small pores, smaller than 0.001 µm. Water is able to diffuse across the membrane much more readily than dissolved solutes (salts). High feed water pressure is used to counteract the natural osmotic pressure enabling the passage of water from the side of high concentration (feed) of the membrane to the side of low concentration (permeate). A percentage of the water fed to the RO is discarded, as it will contain the salts rejected by the RO membrane. The permeate exiting the RO system is collected in the Permeate Tank.

Membrane systems do experience fouling. Pre-filtration (see Filtration above) and acid and/or antiscalent are employed to extend the performance of the RO membrane. Periodic cleaning is required to restore permeate flow.

Salt passage out of the RO will vary over time; it will increase in summer as water warms and as the membranes age. Other operational reasons such as o-ring leakage etc can also lead to variations in permeate quality. For this reason the demineralizers are outfitted with feed forward conductivity control (described further below) that will compensate for these variations automatically.

3.2.5. Reverse Osmosis Cleaning

The system is supplied with a cleaning system that will be used to periodically clean the RO units. The RO cleaning operation involves recirculation of a heated chemical solution through the RO units. An electric heater supplies heat.

3.2.6. Feed Forward Conductivity Control

A Conductivity Controller is used to optimize the on-stream cycle of the Demineralizer Unit. This optimizes the consumption of regenerant chemicals by automatically adjusting the on-stream volume as the feed water conductivity varies. The controller consists of a conductivity display, and an analyzer that continuously measures the feed conductivity.

3.2.7. Demineralization

Filtered water is drawn from the permeate tank by the on-skid demineralizer unit feed pump and fed through the separate cation and anion exchanger beds.

The distinctive design and operational features of the short-bed

demineralizer unit allow for the reliable production of high quality water with minimal chemical usage, waste production and operator attention. The demineralizer unit is fully automated. Regeneration is initiated based on a preset volume throughput or an effluent conductivity set point. The demineralizer will be fed with concentrated acid and caustic from local totes.

Regeneration of the cation and anion exchangers requires a source of demineralized water. Water from the Demineralized Water Storage Tanks (supplied by Purchaser) will provide this source.

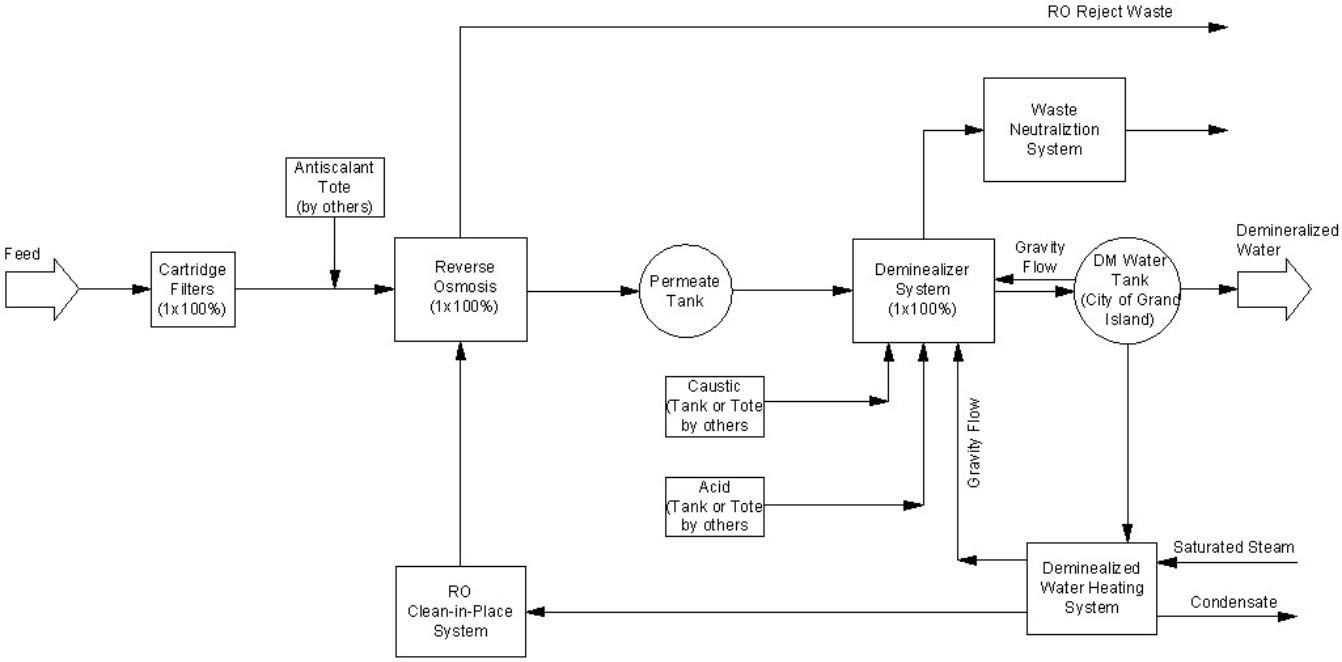
3.2.8. Waste Neutralization System

A standard waste neutralization system is required. The first step in waste neutralization is to bring the waste streams together and provide time for them to react and form neutral salts. This is accomplished by bringing the sequential streams together into a surge tank. The tank has one outlet to allow waste to overflow to the neutralization tank. A high-level alarm control ensures that the tank will not overflow, by stopping the regeneration sequence. In normal operation, this alarm should never be triggered.

The sequential acid and alkaline streams from the demineralizers are fed into the bottom of the surge tank. As the waste stream enters the tank, the waste fluid raises the previously neutralized solution, allowing it to drain out of the surge tank.

A neutralization tank is used for fine pH trimming. The neutralization tank is sized to retain the waste for approximately ten minutes to ensure pH stabilization. The tank is equipped with a pH controller, acid and caustic metering pumps and a mixer. In theory the chemical metering pumps should not be required. However, some trimming may be required. The pH controller will send a signal any time the pH is beyond the controlled range. The signal will operate either the acid or caustic metering pump to bring the pH within the controlled range. The neutralized waste is then discharged by gravity.

4. Process Schematic Drawing



5. Basis of Design

5.1.1. Water Analysis

The system is to be designed based on the Platte Generating Station supplied water analysis; some assumptions may need to be made.

Parameter	Units	Design
Temperature	^{o} Fahrenheit	55 – 60
pH	---	7.6 – 7.74
Total Organic Carbon	mg/L as C	Not indicated
Turbidity	NTU	0.3
Barium	mg/L as Ba	0.01 – 0.16
Calcium	mg/L as Ca	120

Chloride	mg/L as Cl	23 – 34.5
Fluoride	mg/L as F	0.4 – 0.5
Free chlorine	mg/L as Cl_2	Not indicated
M-Alkalinity	mg/L as HCO_3	180 – 230
Magnesium	mg/L as Mg	23
Nitrate	mg/L as NO_3	5.1 – 76
Potassium	mg/L as K	6.0
Silica	mg/L as SiO_2	23 – 25
Sodium	mg/L as Na	43 – 69
Strontium	mg/L as Sr	0.58 – 0.77
Sulfate	mg/L as SO_4	150 – 220

6. System Performance

6.1.1. For treatment of water outlined in section 4.3.1, the system product quality and flow will be as follows:

6.1.2. **System Demineralized Product Flow:**

Average Net Product per Train 55 US gpm

Number of Trains:

Filtration	1
Reverse Osmosis	1
Ion Exchange (demineralizer)	1

Redundancy of Trains:
(100% = 55 USgpm product flow)

Filtration	1 x 100%
Reverse Osmosis	1 x 100%
Ion Exchange	1 x 100%

6.1.3. **Quality:**

Parameter	**Units**	**Design**
Specific Conductivity	µS/cm	< 0.1
Silica	mg/L as SiO_2	≤ 0.010

The average net demineralized water discharge flow-rate in USgpm shall be calculated as the quantity of demineralized water produced over a 24-hour period (including at least one full regeneration cycle of the Demineralization Equipment) divided by 24 hours.

7. Scope of Supply

7.1 Vendor shall propose to supply a system that will provide water as described in Section 4.3.2 of this proposal.

7.2 **Demineralization System Equipment**

7.2.1. One (1 x 100%) Cartridge Filters, complete with elements, fittings, inlet pressure gauge and common differential pressure switch;

7.2.2. One (1) Antiscalent addition system with two (1 x 100%) metering pumps, fittings and stand;

7.2.3. One (1 x 100%) RO Train consisting of the following:

7.2.4. One (1) Centrifugal RO feed pump with motor and fittings;

7.2.5. RO vessels each containing six (6) elements. Vessels are arranged in two (2) stages;

7.2.6. Stainless steel piping for the feed and reject lines

7.2.7. PVC piping on permeate line

7.2.8. Instrument air tubing;

7.2.9. Modulating control valves on the feed and reject lines;

7.2.10. Flow transmitters on the feed and reject lines;

7.2.11. Conductivity controller on the permeate line;

7.2.12. One (1) RO Clean-In-Place System complete with polyethylene tank, fittings, cartridge filter, CPVC piping, cleaning/flushing pump, electric heater, level switch and temperature control;

7.2.13. One (1) Polyethylene permeate tank complete with level control and fittings

7.2.14. One (1) Feed Forward Conductivity Controller;

7.2.15. One (1 x 100%) Demineralizer Train (separate cation and anion exchangers), fully automated, skid mounted, complete with stainless steel piping, resin, rubber lined steel vessel, pump, motor and fittings, 304SS main piping, instrument air tubing, valves, flowmeters, pressure gauges, on-skid regeneration system and conductivity controllers;

7.2.16. One (1) DM Water Heating System complete with fittings, water addition valve, level controller, recirculation pump and steam heater;

7.2.17. One (1) Waste Neutralization System to include surge tank, neutralization tank, acid metering pump, caustic metering pump, effluent pH controller, overflow fitting to drain, and accessories.

7.2.18. One (1) Control System complete with the following:

7.2.19. NEMA 12 Control Panels

7.2.20. Distributed Control Panels on each RO and demineralizer skid with Allen Bradley Micrologix PLC, touchscreen and Ethernet communication module

7.2.21. Wall-Mounted Central Control Panel with Allen Bradley Micrologix PLC, touchscreen and Ethernet communication module

7.2.22. Equipment Name Plates

7.3 System Services

7.3.1. Functionality testing at the factory. This must include actual chemical performance of the demineralizer equipment.

7.3.2. One (1) factory representatives for on-site start-up and commissioning supervision and operator training.

7.4 **Documentation**

7.4.1. Three (3) Training manuals

7.4.2. Three (3) O&M manuals

8. Items Not Included in Scope of Supply

8.1.1. **Demineralized Water Storage Tank**[2]

The Demineralized Water Storage Tank retains the water processed and to supply regeneration water as required. The Platte Generating Station has one 43,800 gallon demineralized water storage tank and one 47,000 condensate storage tank.

8.1.2. **Chemical Supply**

A supply of antiscalent, acid and caustic will be sourced locally. Based upon the consumption rates, Vendor should recommend what storage capacity will be required for suitable supply of chemistry. Currently the Platte Generating Stations uses a 5,000 gallon acid and 5,000 gallon caustic storage tanks.

8.1.3. **Interconnecting Piping**

The supply of piping, fittings (as required), and assembly between system equipment will be provided by City of Grand Island. Vendor shall supply interconnecting piping up to the boundaries of the supplied equipment skids.

8.1.4. **Interconnecting Wiring**

The supply of wiring, fittings (as required), and assembly between system equipment will be provided by City of Grand Island. Vendor shall supply interconnecting wiring up to the boundaries of the supplied equipment skids.

8.1.5. **Civil Work**

The required civil work for the system is under the City of Grand Island's scope of supply.

8.1.6. **Installation**

Unloading, storage, and installation services.

Foundations, anchor bolts, structures and equipment on which the Vendor's equipment will be installed.

Insulation and/or heat tracing where required.

All solutions and chemicals for start up and operation.

8.1.7. **Power Supply**

Supply power for operation of the system.

8.1.8. **System Grounding**
Grounding of the system.

8.1.9. **Air Supply**
Supply Instrument air for operation of the system.

8.1.10. **System Operating Personnel**
Plant personnel will be appointed by the City of Grand Island to provide monitoring and maintenance of the system on an on-going basis.

8.1.11. **Motor Control Center (MCC)**
A motor control center with starters or electrical contactors for all three phase motors will be provided by Purchaser.

8.1.12. **Chemical & Utility Consumption**

Consumption per 1000 US gal of demineralized water produced as per the water analysis stated in section 5.1.1:

Vendor shall provide estimates for chemical and utility consumptions and operating/maintenance costs for their proposed demineralization system.

<u>Chemical:</u>		
Antiscalent (neat)	--	USgal
Sulfuric Acid (as 96% w/w)	--	USgal
Sodium Hydroxide (as 50% w/w)	--	USgal
<u>Waste:</u>		
Reverse Osmosis	--	USgal
Demineralizer Train	--	USgal
<u>Electrical:</u>		
Reverse Osmosis	--	kWh
Demineralizer Train	--	kWh
Misc. pumps, etc.	--	kWh
<u>Compressed Air:</u>		
Instrument-	--SCF	
Saturated Steam at 75 psig:		
Warm Water Heating System	--	lbs

8.2 Preliminary Equipment Specifications

8.2.1. Purchaser's preferred specifications for the process equipment are included in the following subsections.

9. Reverse Osmosis Equipment Specifications

9.1.1. Pre-assembled, automatic reverse osmosis system for freshwater applications, skid mounted, complete with membrane modules, feed water pump, valves, and on-skid instrumentation.

Vessels and Housing

Item	Specifications
Design Conformance	In accordance to ASME coding Section X
Housing Dimensions	20.3 cm diameter
Elements per housing	6
Test pressure	1.3 times design
Connections	Victaulic, Side Port
Material of Construction	Fiberglass

Membrane Elements

Item	Specifications
Membrane type	Spiral wound, composite polyamide
Element Dimensions	20.3 cm diameter, 152.4 cm long

Skid Frame

Item	Specifications
Material of construction	Welded carbon steel
Exterior finish	Sand blasted to SSPC-SP5 (near white metal) and painted with two part epoxy 6-8 mil (0.152 – 0.204 mm)
Exterior finish color	Light Gray
Seismic Design	International Building Code 2006 S_s=12.6, S_1=4.1

Piping

Item	Specifications
Feed and Reject Piping Material of Construction	304 stainless steel
Permeate Piping Material of Construction	PVC
Test pressure	1.5 times design
Instrument Air Tubing Material of Construction	Polyethylene with polypropylene fittings

Feed Pump

Item	Specifications
Type	Centrifugal
Material of construction	Stainless steel
Motor	High efficiency TEFC, VFD, 460V, 3 phase, 2900 rpm (60 Hz)
Seal	Single, mechanical

Valves

Item	Specifications
Valve Type	2" and above: wafer type butterfly valves, rubber lined metal body with stainless steel disc c/w air to open spring closed actuator. Below 2": diaphragm or ball valve, c/w spring closed actuator. Modulating feed and reject valves.
Tags	Engraved phenolic attached with stainless steel chain
Position Switch	Not Included

Instrumentation

Flow Measurement

Item	Specifications
Flowmeter type	Magnetic on Feed, Paddlewheel on Permeate
Quantity	Two: feed and permeate flow
Panel display	Digital (4-20mA)

Pressure Gauges

Item	Specifications
Type	Glycerine filled, dial indication, Bourdon tube gauge with stainless steel case and internals, 100 mm (4") diameter
Quantity	Three (3)
Location	Inlet of first stage Between the stages 3) Reject stream
Isolation valves	None

Pressure Control

Item	Specifications
Type	Feed pressure switch

Temperature Control

Item	Specifications
Type	Feed temperature switch

Electrical Control

Item	Equipment Specifications
Design Conformance	National Electrical Code
Certification of the Manufactured Panel	None
Control Panel Rating	NEMA 12
Power Supply Frequency	1 phase, 120V, 60 Hz
Control Voltage	24 VDC (internal power supply in panel)
Electrical Enclosure Material	Painted Steel
PLC, HMI and Communication	Allen Bradley MicroLogix PLC with 6" greyscale touchscreen and Ethernet communication module
Conduit	Rigid PVC with short flexible runs where required
Lights/Switches	Allen Bradley 22 mm, NEMA 4X/IP64
Labels	English
Wire Marking	Computer generated label
Control Wire Size	16 AWG (1.25 mm^2)
Wire Termination	Tension Clamp Terminal Blocks with bare wire insertion

Demineralizer Equipment Specifications

Pre-assembled, skid-mounted two-bed (cation/anion) demineralizer, complete with fully charged resin beds, feed/regenerant water pump, automatic valves, on-skid regenerant dilution, instrumentation and controls. Factory tested prior to shipment.

Vessels

Item	Equipment Specifications
Design Conformance	In accordance to ASME coding Section VIII, Div. 1, strength formulas
Codes	None – ASME Exempt (clarification statement available)
Test Pressure	1.3 times design pressure (per ASME

	guidelines)
Thermal Relief Valves	Not Included
Material of Construction	Carbon steel
Internal Lining	5 mm (3/16") butyl rubber
Fasteners	Zinc plated carbon steel
Exterior Finish	Sand blasted to SSPC-SP10 (near white metal), and painted with two part epoxy 6 mil (0.152 mm) minimum
Exterior Color	Light Gray

Cation Exchange Resin

Item	Equipment Specifications
Bed Diameter	TBD
Resin Type	Strong acid cation, sulphonated polystyrene/divinyl benzene crosslinked
Resin Structure	Gel
Freeboard	None

Anion Exchange Resin

Item	Equipment Specifications
Bed Diameter	TBD
Resin Type	Strong base anion quaternary amine polystyrene/divinyl benzene crosslinked
Resin Structure	Gel
Freeboard	None

Skid Frame

Item	Equipment Specifications
Material of Construction	Welded carbon steel
Exterior Finish	Sand blasted to SSPC-SP6 (near white metal), and painted with two part epoxy 4-8 mils (0.1-0.2 mm), paint suitable for exposure to salt and sand laden air
Seismic Design	International Building Code 2006 S_s=12.6, S_1=4.1

Piping

Item	Equipment Specifications
Main Piping Material of Construction	304 stainless steel
Acid Piping Material of Construction	304 stainless steel
Caustic Piping Material	304 stainless steel

of Construction	
Test Pressure	1.5 times design pressure for metal 1.0 times design pressure for plastic

Valves

Item	Equipment Specifications
Valve Type	2" and above: wafer type butterfly valves, rubber lined metal body with stainless steel disc c/w air to open spring closed actuator. Below 2": diaphragm or ball valve, c/w spring closed actuator.
Tags	Engraved phenolic attached with stainless steel chain
Limit Switches	Not Included

Air Solenoids

Item	Equipment Specifications
Type	Sliding soft seat spool
Instrument/Air Tubing Material of Construction	Polyethylene with polypropylene fittings

Air Requirements

Item	Equipment Specifications
Operating Pressure - Minimum	5.6 kg/cm² (80 psi)
Operating Pressure - Maximum	7.0 kg/cm² (100 psi)

Water Pump

Item	Equipment Specifications
Type	Centrifugal Pump
Material of Construction	Stainless steel
Motor	High efficiency TEFC, VFD, 3 phase, 460V, 2900 rpm (60 Hz)
Seal	Single mechanical

Caustic Injection Pump

Item	Equipment Specifications
Type	Air operated diaphragm pump or functional alternate
Material of Construction	Polypropylene body with teflon diaphragm

Acid Injection Pump

Item	Equipment Specifications
Type	Air operated diaphragm pump or functional alternate
Material of Construction	Polypropylene body with teflon diaphragm

Instrumentation

Flow Measurement

Item	Equipment Specifications
Flowmeter Type	Paddlewheel / Turbine Sensor
Location	Two (2) sensors: one (1) vortex for water flow one (1) vortex for regeneration/rinse
Panel Display	Digital

Pressure Gauges

Item	Equipment Specifications
Type and Size	Glycerine filled, dial indication, Bourdon tube gauge with stainless steel case and internals 100 mm (4") diameter dial for location 3, 4, 5, 6 60 mm (2 ½") dial for location 1 & 2
Quantity	6
Location	1. Acid Regenerant Line 2. Caustic Regenerant Line 3. Top of Cation Bed 4. Top of Anion Bed 5. Bottom of Anion Bed 6. Bottom of Polisher Bed

Electrical Control

Item	Equipment Specifications
Design Conformance	National Electrical Code
Certification of the Manufactured Panel	None
Control Panel Rating	NEMA 12
Power Supply Frequency	1 phase, 120V, 60 Hz
Control Voltage	24 VDC (internal power supply in panel)
Electrical Enclosure Material	Painted Steel
PLC, HMI and Communication	Allen Bradley MicroLogix PLC with 6” greyscale touchscreen and Ethernet communication module
Conduit	Rigid PVC with short flexible runs where required

Lights/Switches	Allen Bradley 22 mm, NEMA 4X/IP64
Labels	English
Wire Marking	Computer generated label
Control Wire Size	16 AWG (1.25 mm²)
Wire Termination	Tension Clamp Terminal Blocks with bare wire insertion

Central Control

Item	Equipment Specifications
Design Conformance	National Electrical Code
Certification of the Manufactured Panel	None
Control Panel Rating	NEMA 12
Power Supply Frequency	1 phase, 120V, 60 Hz
Control Voltage	24 VDC (internal power supply in panel)
Electrical Enclosure Material	Painted Steel
PLC, HMI and Communication	Allen Bradley MicroLogix PLC with 19" TFT touchscreen with windows software and Ethernet communication module
Conduit	Rigid PVC with short flexible runs where required
Lights/Switches	Allen Bradley 22 mm, NEMA 4X/IP64
Labels	English
Wire Marking	Computer generated label
Control Wire Size	16 AWG (1.25 mm²)
Wire Termination	Tension Clamp Terminal Blocks with bare wire insertion

10. Warranty

The Contractor shall warrant the material and workmanship against defects for a minimum of one year from the date placed in-service by the City. Details of all proposed warranties shall be submitted with the bid.

11. Qualifications

The manufacturer shall be a firm specializing in the design of water treatment equipment used in the power generation industry. A reference list of projects of similar scope and complexity shall be provided with the Bid. A list of intended major water treatment components and their source of supply shall be included with the proposal. Items provided by outsourced manufacturing, independent of the label applied to the component, shall be specifically identified as such.

12. Schedule

The completed equipment shall be delivered no later than June 15th, 2011 with an approval to be given by January 25th, 2011.

13. Installation

Installation is to be provided by City of Grand Island. The new system is to be temporarily installed in the current available space as shown in the attached drawing to allow for water production while the existing system is removed. If the proposed new system will require space currently being occupied by the existing equipment, the manufacturer must include in their bid cost to produce water while the system is replaced.

14. Service Rates

The Contractor shall include a firm lump sum price for providing the specified equipment, supervision, expenses, and all other standard terms and conditions. The manufacturer shall also include in the bid the cost to treat water if the new system cannot be temporarily used in the available space.

The Platte Generating Station is NOT tax exempt and is subject to 7.0% sales tax. See the Nebraska Department of Revenue web site at www.revenue.state.ne.us for contractor's tax information. Applicable taxes shall be included in the proposal price and identified separately on the bidders proposal form.

15. Invoicing

When equipment and similar goods are purchased that cannot immediately be put into operation, the City reserves the right to withhold from payment of such invoice retainage of 10% of the amount pending approval of the operation of such equipment and/or goods. The retainage shall be paid after it is verified that the construction is completed and the system operates satisfactorily.

16. Bid Evaluation

Bids will be evaluated on initial equipment cost, annual chemical and power consumption, space requirements, and installation requirements.

17. Submittals Required

17.1 Supplier shall submit the following documentation for review with the bid:

References for at least 3 projects of a similar scope, including a description, name, and phone contact.

Delivery schedule.

Details of the proposed warranty.

Firm lump sum pricing.

Firm unit pricing for temporary water treatment based on 1000 treated gals, if unable to utilize new equipment for water production in a temporary location.

Chemical and power consumption for new system.

Dimensional layout required for equipment.

18. Contact

Questions may be directed to Lynn Mayhew at the Platte Generating Station, telephone 308-385-5495.

19. Attachments

77-8-AR-13 Water Treatment Area & Laboratory Floor Plan

20. Insurance

The Contractor shall comply with the attached Insurance Requirements.

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 be not 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 be not 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

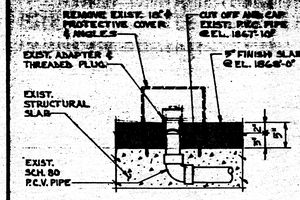
The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

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 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.**



SECTION 5-AR-13
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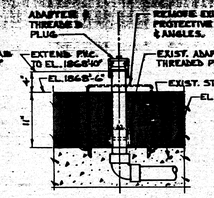

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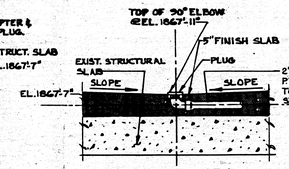

SECTION 7-AR-13
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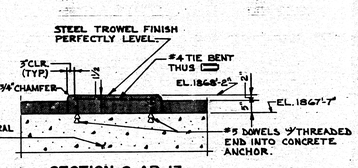

SECTION 8-AR-13
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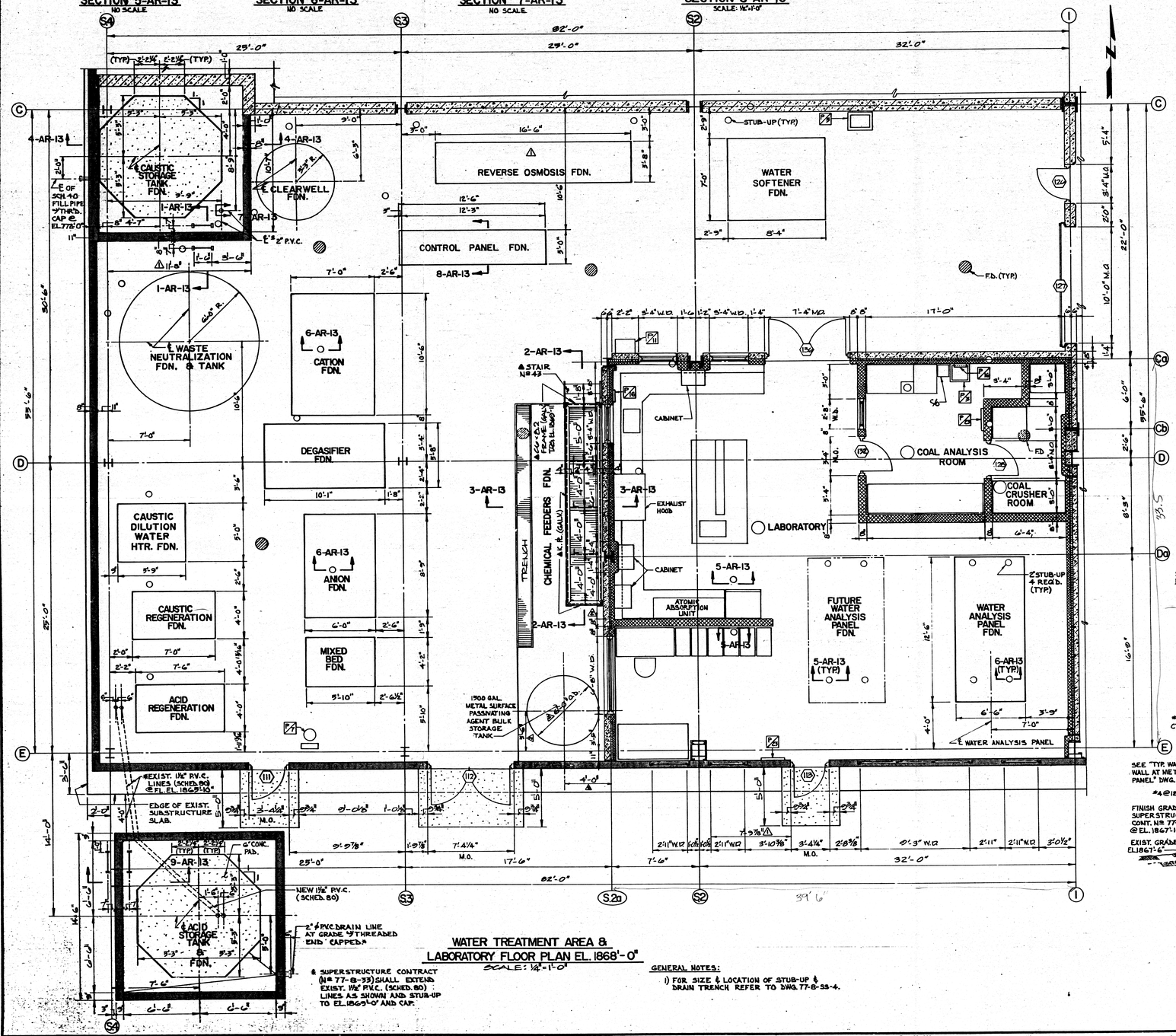
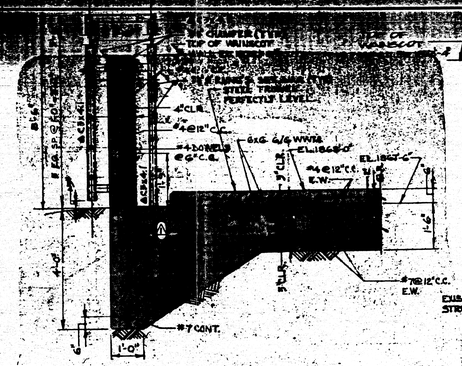


WATER TREATMENT AREA & LABORATORY FLOOR PLAN EL. 1868'-0"
SCALE: ¼"=1'-0"

℄ SUPERSTRUCTURE CONTRACT (№ 77-8-33) SHALL EXTEND EXIST. 1½" P.V.C. (SCHED. 80) LINES AS SHOWN AND STUB-UP TO EL. 1869'-0" AND CAP.

GENERAL NOTES:

1) FOR SIZE & LOCATION OF STUB-UP & DRAIN TRENCH REFER TO DWG. 77-8-SS-4.



SECTION 9-AR-13
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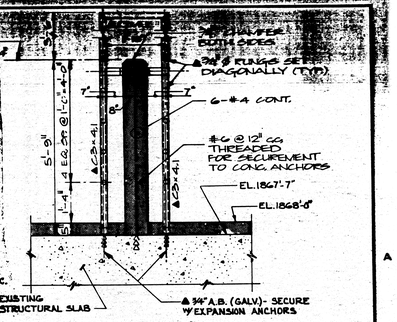

SECTION 1-AR-13
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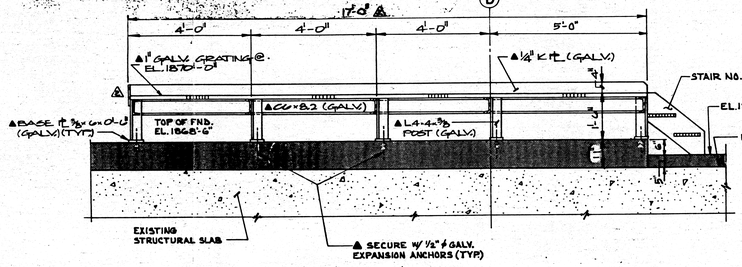

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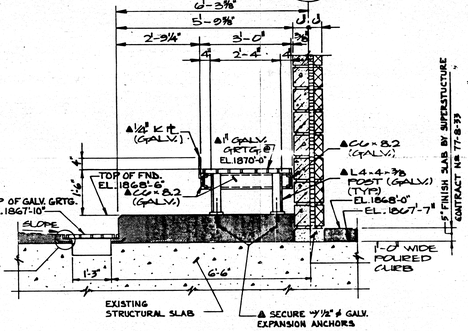

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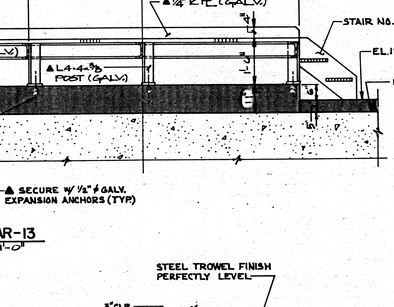

TYPICAL FOUNDATION SECTION
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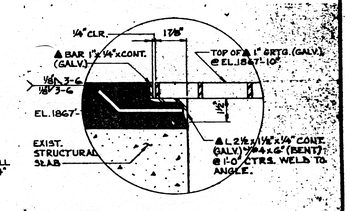
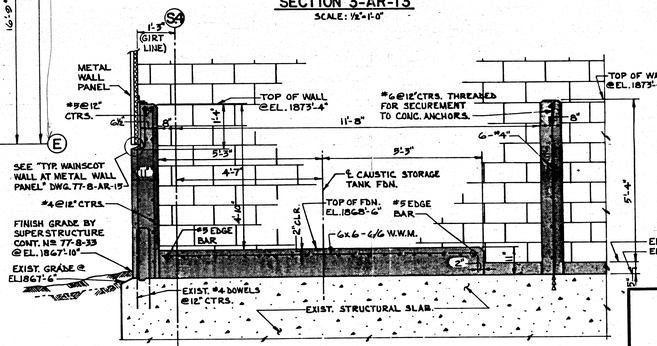


DETAIL "A"
SCALE: 3"=1'-0"



SECTION 4-AR-13
SCALE: ½"=1'-0"

OCT 1 1980

JACK F. DAILY E-1377 STATE OF NEBRASKA REGISTERED PROFESSIONAL ENGINEER

UTILITY SYSTEM IMPROVEMENTS

GRAND ISLAND, NEBRASKA

WATER TREATMENT AREA & LABORATORY FLOOR PLAN EL. 1868'-0" AND DETAILS

LUTZ, DAILY & BRAIN CONSULTING ENGINEERS
P.O. BOX 718 SHAWNEE MISSION, KANSAS 66201

REV.	DESCRIPTION
⚠	REVISIONS NOTED THUS WFS 10-80
⚠	REVISIONS NOTED THUS WFS. 7-80

DESIGN BY	MDP & EGB 12-79
DRAWN BY	WFS 12-79
CHECKED BY	MDP 1-80
APPROVED BY	EEC 1-80

DRAWING NUMBER: 77-8-AR-13

SHEET № 17 OF 96