ADDENDUM NO. 1

TO THE PROJECT MANUAL AND DRAWINGS FOR

Oak Creek Water and Sewer Utility
Oak Creek, Wisconsin
Water Treatment Plant and Low Lift Pump Station Standby Power

Clark Dietz Project No. O0130014

DATED: February 23, 2011

PREPARED BY: CLARK DIETZ, INC.

Note: This Addendum is hereby declared a part of the Contract Documents for the project designated above and in case of conflict, the following Addendum shall govern. Bidders shall state in their Bid Form that this Addendum has been received and is reflected in the Bid submitted.

TO THE PROJECT MANUAL

Item 1. The following documents are available on the Oak Creek Water and Sewer Utility website www.water.oak-creek.wi.us in the Public Contracts section for reference:

Generator Equipment Purchase Package Bid Documents
Electrical Equipment Purchase Package Bid Documents
Asbestos Test Report
Preliminary Shop Drawing for Caterpillar Generator
Test Report for Pad Mounted Transformer XFMR-3A WEST

Item 2. Specification Section 00 01 10: Update Table of Contents and add the following specification sections indicated as "Issued in Addendum No. 1".

22 40 00 Plumbing Fixtures
23 25 00 HVAC Water Treatment

Item 3. Replace Specification Section 00 10 00 with the attached revised section indicated as "Reissued in Addendum No. 1". All changes to the document are in bold font.

Item 4. **CLARIFICATION** - Specification Section 00 41 13: Contractor shall provide their lump sum contract amount on page 3 of the Bid Proposal. Please do not include bid price on the Agreement 00 52 15.

Item 5. Specification Section 22 07 00, Para. 2.3.A.2: Replace paragraph in entirety with the following:

2. Thickness: 30 mil.

Item 6. Specification Section 22 07 00, Para. 2.3.B.2: Replace paragraph in entirety with the following:

2. Thickness: 0.016 inch thick sheet.

Item 7. Specification Section 22 07 00, Para. 2.3.B.6: Replace paragraph in entirety with the following:

6. Metal Jacket Bands: ½ inch wide; 0.015 inch thick aluminum.

Item 8. Specification Section 22 07 00, Para. 2.4.A: Replace paragraph in entirety with the following:

A. Piping 1-1/2 inches diameter and smaller; Galvanized steel insulation protection shield. Length: Based on pipe size and insulation thickness.

Item 9. Specification Section 22 11 00, Para. 2.1: Replace paragraph title with the following:

2.1 DOMESTIC WATER PIPING, ABOVE GRADE (POTABLE AND NON-POTABLE)

Item 10. Specification Section 22 11 00, Para. 2.12.A and B: Replace paragraphs in entirety with the following:

A. Construction: Class 150, Brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, combination blow-down or back-flush drain.

B. Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 5 psi.

Item 11. Specification Section 22 15 00, Para. 2.1.A: Replace paragraph A in entirety and add Paragraph B with the following:

A. Copper Tubing: ASTM B88, Type K, drawn.
   1. Fittings: ASME B16.18 cast copper alloy or ASME B16.22, wrought copper and bronze.
   2. Tee Connections: Mechanically extracted collars with notched and dimpled branch tube.
   3. Joints: AWS A5.8 Classification BCuP-3 or BCuP-4 silver braze.

B. Copper Tubing: ASTM B88, Type K, drawn, rolled grooved ends.
   1. Fittings: ASME B16.18 cast copper alloy, or ASME B16.22 wrought copper and bronze, grooved ends.
   2. Joints: Grooved mechanical couplings meeting ASTM F1476.
      a. Housing Clamps: ASTM A395/A395M and ASTM A536 ductile iron, enamel coated, compatible with copper tubing sizes, to engage and lock designed to permit some angular deflection, contraction, and expansion.
      b. Gasket: Elastomer composition for operating temperature range from 86 degrees F to 180 degrees F.
      c. Accessories: Stainless steel bolts, nuts, and washers.

Item 12. Specification Section 23 07 00, Para. 2.5.A.1: Replace paragraph in entirety with the following:

1. Thermal Conductivity: 0.24 at 75 degrees F.

Item 13. Specification Section 23 07 00, Para. 2.6.B.1: Replace paragraph in entirety with the following:

1. ASTM B209 Thickness: 0.016 inch thick sheet.

Item 14. Specification Section 23 21 13, Para. 2.1: Add the following paragraph:

B. Copper Tubing: ASTM B88, Type L, hard drawn.
   1. Fittings: ASME B16.18 cast brass, or ASME B16.22 solder wrought copper.
   2. Joints: Solder, lead free, ASTM B32 95-5 tin-antimony, or tin and silver, with melting range 430 to 535 degrees F.

Item 15. Replace Specification Section 23 33 00 with the attached revised section indicated as "Reissued in Addendum No. 1". All changes to the document are in bold font.

Item 16. Replace Specification Section 23 52 36 with the attached revised section indicated as "Reissued in Addendum No. 1". All changes to the document are in bold font.

Item 17. Specification Section 26 05 19, Para. 1.3.B: Add the following paragraph:

4. Service Entrance: Use only building wire, Type THWN or XHHN insulation, in raceway.

Item 18. Specification Section 26 05 53, Para. 2.2.E.1: Replace paragraph in entirety with the following:

1. Install conduit marker for each conduit by junction box, pull box, equipment, and where conduit penetrates building walls. Coordinate label descriptions with Engineer.

Item 19. Specification Section 26 13 14, Para. 3.2: Add the following paragraph:

D. Infrared Scanning: After Substantial Completion, but not more than 2 months after Final Acceptance, perform an infrared scan of transfer switchgear. Remove fronts to make joints and connections accessible to a portable scanner.
   1. Follow-up Infrared Scanning: Perform 1 additional follow-up infrared scan of equipment 11 months after date of Substantial Completion.
   2. Instrument: Use an approved infrared scanning device designed to measure temperature or detect significant deviations from normal values. Provide calibration record for device used.
   3. Record of Infrared Scanning: Prepare a certified report identifying equipment checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

Item 20. Specification Section 26 24 19, Para. 3.5: Add the following paragraph:

E. Infrared Scanning: After Substantial Completion, but not more than 2 months after Final Acceptance, perform an infrared scan of motor control center. Remove fronts to make joints and connections accessible to a portable scanner.
   1. Follow-up Infrared Scanning: Perform 1 additional follow-up infrared scan of equipment 11 months after date of Substantial Completion.
   2. Instrument: Use an approved infrared scanning device designed to measure temperature or detect significant deviations from normal values. Provide calibration record for device used.
   3. Record of Infrared Scanning: Prepare a certified report identifying equipment

checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

Item 21. Specification Section 26 28 26, Para. 3.2: Add the following paragraph:

D. Infrared Scanning: After Substantial Completion, but not more than 2 months after Final Acceptance, perform an infrared scan of automatic transfer switch. Remove fronts to make joints and connections accessible to a portable scanner.
   1. Follow-up Infrared Scanning: Perform 1 additional follow-up infrared scan of equipment 11 months after date of Substantial Completion.
   2. Instrument: Use an approved infrared scanning device designed to measure temperature or detect significant deviations from normal values. Provide calibration record for device used.
   3. Record of Infrared Scanning: Prepare a certified report identifying equipment checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

Item 22. Replace Specification Section 26 32 13 with the attached revised section indicated as "Reissued in Addendum No. 1". All changes to the document are in bold font.

Item 23. Specification Section 26 90 00, Para. 2.1: Add the following paragraph:

F. Pieper Electric.

Item 24. Specification Section 27 13 43: Delete all paragraphs related to optical fiber patch panels, cables, jumpers, and connectors.

Item 25. Replace Specification Section 40 10 00 with the attached revised section indicated as "Reissued in Addendum No. 1". All changes to the document are in bold font.

TO THE DRAWINGS

Item 26. Plan and Detail Drawings for Water Treatment Plant: Add the following general note:

1. Generator shall be moved to the east in the Electrical Room to provide 36" clearance between generator control panel and opened damper blades and actuator. Final location shall be determined in the field.

Item 27. Drawing A-00-101 – Architectural General Notes: Add the following note:

4. All the following equipment (piping, valves, ductwork, conduit, boxes, hangers and supports, etc.) being added or modified shall be painted to match existing equipment colors at the facilities. All major equipment (generators, transfer switches, motor control centers, panelboards, pumps, motors, mixing tank, mixer, etc.) shall be factory painted with manufacturer's standard colors unless otherwise noted.

Item 28. Drawing PR-20-101 – Notes: Add the following note:

4. All liquids from existing pipes, pumps, and tanks shall be drained and disposed of by Owner.

Item 29. Drawing HV-10-201: Delete keynote 31 and thermostat located by north exterior door.

Item 30. Drawing E-20-701, MCC-2 Schedule: Make the following changes to the schedule:

1. Cubicle 1F for Power Failure Control – Add note as follows "Provide phase loss relay".
2. Cubicle 4B for Screen SC-101 – Add note as follows "Provide 2 speed, 2 winding starter".
3. Cubicle 4C Exhaust Fan EF-105 – Delete note "See Note 2".
4. Notes: Add note 2 to read "Provide 2 sets of lugs for main lugs, one that can be used for permanent wiring and other to be used for temporary wiring from 75 kW natural gas generator during construction."

Item 31. Replace 21 drawings with revised drawings listed below as attachments.

END OF ADDENDUM NO. 1

This addendum consists of 5 pages and the following attachments.

Specification Sections

01 10 00	Summary
22 40 00	Plumbing Fixtures
23 25 00	HVAC Water Treatment
23 33 00	Air Duct Accessories
23 52 36	Flexible Water-tube Boilers
26 32 13	Engine Generators
40 10 00	Potassium Permanganate System

Drawings

G-00-103	Overall Site Plan and Staging Enlarged Plans
A-10-101	Administration and Filtration Facility Enlarged First Floor Architectural Demolition Plan
A-10-201	Administration and Filtration Facility Enlarged First Floor Architectural Plan
A-20-402	Low Lift Pump Station Structural Plans and Sections
P-10-201	Administration and Filtration Facility Enlarged First Floor Plumbing Plan
P-10-202	Administration and Filtration Facility Lower Level Plumbing Plan
P-20-202	Low Lift Pump Station Mezzanine Plumbing Plan
P-30-101	Plumbing Equipment Schedules and Details
E-10-101	Water Treatment Plant Electrical Site Plan
E-10-201	Administration and Filtration Facility First Floor Electrical Demolition Plan
E-10-202	Administration and Filtration Facility Enlarged First Floor Electrical Demolition Plan
E-10-301	Administration and Filtration Facility Enlarged First Floor Lighting and Special Systems Plan
E-10-402	Administration and Filtration Facility Enlarged First Floor Power Plan
E-10-403	Administration and Filtration Facility First Floor Power Plan
E-10-602	Water Treatment Plant Power and Grounding One-line Diagrams
E-20-401	Low Lift Pump Station First Floor Power Plan
E-20-702	Low Lift Pump Station PLC-G Enclosure
E-30-205	Electrical Interconnect Diagrams
S-10-101	Administration and Filtration Facility Building Sections
S-10-102	Administration and Filtration Facility Building Section
S-10-103	Low Lift Pump Station Building Sections

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Contract description.

B. Work by Owner.

C. Owner supplied products.

D. Salvaged equipment.

E. Contractor's use of site.

F. Owner occupancy.

G. Future work.

H. Utility Outages and Shutdown.

I. Work sequence.

1.2 CONTRACT DESCRIPTION

A. Work of the Project includes addition of natural gas standby generators, automatic transfer switches and modifications to the heating water system, potassium permanganate system, and natural gas system at the Water Treatment Plant and Low Lift Pump Station.

B. Perform Work of Contract under fixed cost contract with Owner in accordance with Conditions of Contract.

1.3 WORK BY OWNER

A. The Owner will provide programming modifications to the plant SCADA system.

1.4 OWNER SUPPLIED PRODUCTS

A. Owner’s Responsibilities:
   1. Arrange for and deliver Owner-reviewed Shop Drawings and Product Data to Contractor.
   2. Arrange and pay for delivery and unloading to site as part of separate contract. Notify Contractor at least 7 days prior to delivery.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient times.
   5. Arrange for manufacturers’ warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner-reviewed Shop Drawings and Product Data.
   2. Receive products at site; inspect for completeness or damage jointly with Owner.
   3. Move equipment from location where equipment is unloaded by equipment suppliers and into the buildings and onto the concrete equipment pads. Contractor shall coordinate with the Owner on the exact location where the equipment will be unloaded by the equipment supplier. The equipment will need to be relocated by Contractor as follows:
      a. Generator GEN-101 and pad mounted oil filled transformer XFMR-3A WEST shall be stored outside at the Water Treatment Plant.
      b. Automatic transfer switch ATS-101, GEN-101 accessories, and Panelboard PA shall be stored inside a building at the Water Treatment Plant.
      c. Generator GEN-102 shall be stored outside at the Low Lift Pump Station.
      d. Automatic transfer switch ATS-102, GEN-102 accessories, and motor control center MCC-2 shall be stored inside at the Low Lift Pump Station.
   4. Handle, store, install and finish products.
   5. Repair or replace items damaged after receipt.

C. Items furnished by Owner for installation by Contractor:
   1. Generators GEN-101 and GEN-102. Equipment will be ready for delivery by August 31, 2011.
   2. Generator accessories including the following (equipment will be ready for delivery by August 31, 2011):
      a. Engine accessories and coolant.
      b. Heat exchangers and expansion tanks.
      c. Exhaust silencer and fittings.
      d. Battery and charger.
   3. Automatic Transfer Switch ATS-101. Equipment will be ready for delivery by August 31, 2011.
   4. Automatic Transfer Switch ATS-102. Equipment will be ready for delivery by July 31, 2011.
   5. Pad Mounted Oil Filled Transformer XFMR-3A WEST. Equipment will be ready for delivery by August 31, 2011.
   6. Motor Control Center MCC-2. Equipment will be ready for delivery by June 30, 2011.
   7. Panelboard PA. Equipment will be ready for delivery by May 31, 2011.

1.5 SALVAGED EQUIPMENT

A. The following equipment shall be removed by the Contractor, turned over to the Owner, and stored on site where directed by the Owner.
   1. (1) potassium permanganate chemical metering pump and controller.
   2. (1) sodium hypochlorite chemical meter pump and controller.
   3. (1) hydropneumatic tank.
   4. (2) buckets and associated control devices from MCC-2.
   5. (1) PLC from LLPS.
   6. (1) turbine water pump.
   7. (1) welder receptacle.
   8. (1) portable generator receptacle.

1.6 CONTRACTOR'S USE OF SITE

A. Limit use of site to allow:
   1. Owner occupancy.

B. The existing buildings need to be secured at all times. Any openings cut into the walls in both facilities need to be secured at all times with plywood sheathing anchored to the existing structure.

1.7 OWNER OCCUPANCY

A. The Owner will occupy the site during the entire period of construction.

B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

C. Schedule the Work to accommodate Owner occupancy.

1.8 FUTURE WORK

A. Project is designed for a future building addition on the north end of the Administration and Filtration Facility.

B. Provide utilities stubbed out for future building addition and equipment in addition as indicated on the drawings.

1.9 UTILITY OUTAGES AND SHUTDOWN

A. All utility outages and shutdowns must be coordinated with Owner and have their approval prior to the outage or shutdown. Contractor shall coordinate all outages with Owner (Contractor shall also coordinate with WE Energies for natural gas service). Contractor shall provide 48 hours notice prior to the outage and get written approval from the owner of the outage.

B. All outages shall be during the weekdays and begin early in the morning. Outages may only be performed during low pumping demands from the facilities (e.g. between the hours of 8am – 3pm).

C. **Contractor shall submit a detailed plan for each outage. Contractor shall meet with Owner and Engineer on site prior to conducting each outage to discuss the following:**
   1. Review detailed plan of the outage and get approval of plan by Owner and Engineer.
   2. Number of workers that will complete the work and time required for the outage.
   3. List of processes or equipment that will be affected by the outage.

D. **All materials must be on site and installed prior to conducting associated outage.**

E. Power Outage Requirements
   1. The maximum allowable power outage for the facilities is 1 hour for each outage. **Temporary feeder conductors must be used during outage to temporarily feed power to panelboards and motor control centers.**

F. Natural Gas Outage Requirements
   1. The maximum allowable natural gas service outage for the facilities is 4 hours.

G. Potable and Non-potable Water Outage Requirements
   1. The maximum allowable potable and non-potable water service outage for the facilities is 4 hours per outage.

H. Heating Water System Outage Requirements
   1. The maximum allowable heating water system outage for the facilities is 4 hours for each outage.

I. Domestic Hot Water System Outage Requirements
   1. The maximum allowable domestic hot water system outage for the facility is 8 hours for each outage.

J. Compressed Air System Outage Requirements
   1. The maximum allowable compressed air system outage for the facilities is 4 hours for each outage.

K. Sanitary Sewer System Outage Requirements
   1. The maximum allowable sanitary sewer system outage for the facilities is 4 hours for each outage.

L. Potassium Permanganate System Outage Requirements
   1. The maximum allowable potassium permanganate system outage for the facility is 8 hours for each outage.

M. Carbon Feed System Outage Requirements
   1. The maximum allowable carbon feed system outage for the facility is 8 hours for each outage.

1.10 WORK SEQUENCE

A. GENERAL REQUIREMENTS
   1. Construct Work in stages to accommodate Owner's occupancy requirements during construction period. Coordinate construction schedule and operations with Owner and Engineer.
   2. The following is a Suggested Sequence of Construction for this project. The Contractor shall submit written Sequence of Construction to the Engineer and get the Engineer and Owner’s approval prior to proceeding with any shutdowns.

B. WATER TREATMENT PLANT
   1. Coordinate with WE Energies to install new natural gas service.
   2. Remove concrete slab in Electrical Room.
   3. Remove part of the concrete slab in Mechanical Room to install sanitary lines for generator heat exchanger and cap for future connection. Pour new concrete slab after sanitary lines are installed.
   4. COMPRESSED AIR SYSTEM OUTAGE: Provide outage to relocate air compressor AC-101.

a. Turn off existing AC-101 and relocate to new location.
b. Extend compressed air piping to relocated AC-101.
c. Turn on AC-101 and bring compressed air system back on line.

5. Shut off XFMR-T4A secondary circuit breaker.
6. Remove 208 volt feeder from XFMR-T4A to bypass isolation switch.
7. Provide temporary 208 volt feeder conductors from XFMR-T4A to existing panel PA and prepare for power outage.
8. POWER OUTAGE NO. 1: Provide power outage to temporarily feed existing panel PA.
   a. Turn off loads fed from panel PA.
   b. Determine existing feeder conductors from bypass isolation switch to panel PA.
   c. Terminate temporary feeder conductors from XFMR-T4A secondary circuit breaker.
   d. Energize panel PA and bring loads fed from panel PA on line.
9. Install new panel PA.
10. Turn off circuit breaker in MCC-4 feeding XFMR-T4.
11. Install new concrete pads for XFMR-T4 and bypass isolation switch.
12. Relocate bypass isolation switch.
13. Relocate XFMR-T4.
14. Install feeders from MCC-4 to XFMR-T4, bypass isolation switch, and panel PA.
15. Install conduits from panel PA to feed downstream panelboards (do not terminate conduits to existing conduits and enclosures at this time).
16. Energize new panel PA and prepare for power outage.
17. POWER OUTAGE NO. 2: Provide power outage to cut over power to panel H.
    a. Install temporary feeder conductors from spare circuit breaker in panel PA to panel H (do not terminate conductors at panel H at this time).
    b. Turn off existing breaker feeding panel H in existing panel PA to de-energize panel.
    c. Connect temporary feeder conductors from panel PA and re-energize panel.
    d. Connect existing conduit to new conduit from panel PA.
    e. Replace feeder conductors from new panel PA to panel H. Terminate conductors on circuit breaker in panel PA (do not terminate conductors to panel H at this time).
    f. Provide final power outage for panel H to de-terminate temporary feeder conductors and terminate new feeder conductors from panel PA. Re-energize panel H from new feed from panel PA.
18. POWER OUTAGE NO. 3: Provide power outage to cut over power to panel D-LEFT. Work for power outage shall be similar to panel H outage.
19. POWER OUTAGE NO. 4: Provide power outage to cut over power to panel B-LEFT. Work for power outage shall be similar to panel H outage.
20. **Install conduit and feeder conductors from panel PA to panel C (do not terminate conductors at panel C at this time).**
21. **POWER OUTAGE NO. 5: Provide power outage to cut over power to panel C.**
    a. Turn off existing breaker feeding panel C in existing panel PA to de-energize panel.
    b. De-terminate existing feeder conductors at panel C and terminate new feeder conductors. Re-energize panel C from new feed from Panel PA.
    c. Remove existing feeder conductors from panel PA to panel C.
22. After all power outages for panels fed from panel PA are complete, turn off XFMR-T4A secondary breaker feeding existing panel PA.
23. Remove existing panel PA and temporary feeder conductors.
24. Install feed from XFMR-T4A secondary breaker to bypass isolation switch.

25. Test operation of bypass isolation switch for both normal and emergency feeds.
26. Install new natural gas manifold, valves, and pressure regulators.
27. NATURAL GAS SYSTEM OUTAGE: Coordinate with WE Energies to provide outage to cut in the new natural gas service.
28. Install boiler B-101 and heating water circulation pumps.
29. Extend natural gas lines to B-101 and location for the relocated water heater WH-101.
30. Add new heating water system piping and prepare for cutover of heating water system.
31. HEATING WATER SYSTEM OUTAGE: Provide outage to bring new heating water system on line.
    a. Turn off existing boiler B-101 and drain piping system.
    b. Cut in piping for heating water system.
    c. Turn on gas/electric service to B-101, heating water pumps, and bring heating water system back on line.
32. Modify temperature control panels.
33. Remove existing boiler, heating water pumps and associated piping.
34. DOMESTIC HOT WATER SYSTEM OUTAGE: Provide outage to relocate domestic water heater WH-101.
    a. Turn off existing gas service to WH-101.
    b. Extend water supply and return piping to relocated WH-101.
    c. Turn on gas service to WH-101 and bring domestic hot water system back on line.
35. Reconnect existing natural gas piping to new valves and regulators.
36. Remove existing natural gas piping and metering.
37. Remove remainder of concrete slab in Mechanical Room.
38. Remove windows and part of exterior wall. Construct exterior CMU wall and frame in opening for new louvers and motorized dampers. Install temporary plywood wall to secure the space.
39. Extend underground sanitary sewer lines to generator heat exchanger sump pit and prepare for sanitary sewer outage.
40. Install pipe trench for coolant piping.
41. Install underground electrical conduits for GEN-101 and ATS-101. Extend conduits from ATS-101 to XFMR-3A WEST and 2.4 KV Switchgear (do not connect conduits to existing conduits and XFMR-3A WEST at this time).
42. Install remainder of concrete slab in Electrical and Mechanical Rooms. Install concrete equipment pads.
43. Construct Mechanical Room Wall.
44. SANITARY SEWER SYSTEM OUTAGE: Provide outage to cut in new sanitary line to existing sanitary sewer line.
45. Install exhaust fans and grills for Electrical Room.
46. Install ATS-101.
47. Install generator GEN-101.
48. Remove temporary plywood wall and install intake louvers and motorized dampers.
49. Install generator heat exchangers and potable water line back to existing potable water line and prepare for potable water system outage.
50. POTABLE WATER SYSTEM OUTAGE: Provide outage to connect generator heat exchangers to existing potable water line.
    a. Close isolation valve on potable water line and drain system.
    b. Connect new potable water line to existing line.
    c. Open isolation valve to fill potable water line.

d. Insulate potable water lines.

51. Install coolant piping to GEN-101.
52. Extend natural gas line to GEN-101.
53. Install generator silencer and associated piping.
54. Install 5 KV cables from GEN-101 to ATS-101.
55. POWER OUTAGE NO. 6: Provide power outage to bring ATS-101 and GEN-101 on line. Please note that WTP shall be powered from XFMR-3A EAST during this outage.
    a. Open main breaker in 2.4 KV Switchgear fed from XFMR-3A WEST and close tie breaker in 2.4 KV Switchgear.
    b. Open switch in outdoor 24.9 KV Switchgear to de-energize XFMR-3A WEST.
    c. Remove existing 25 KV cables from outdoor 24.9 KV Switchgear to XFMR-3A WEST.
    d. Remove existing 5 KV cables from XFMR-3A WEST to 2.4 KV Switchgear.
    e. Remove existing XFMR-3A WEST and concrete pad.
    f. Extend new conduits from ATS-101 to XFMR-3A WEST.
    g. Extend new conduits from outdoor 24.9 KV Switchgear to XFMR-3A WEST.
    h. Install concrete pad for new XFMR-3A WEST.
    i. Remove WE Energies CTs/PTs in 2.4 KV Switchgear.
    j. Extend new conduits from ATS-101 to existing conduits feeding 2.4 KV Switchgear. Install 5 KV cables and terminate on both ends.
    k. Install 5 KV cables from XFMR-3A WEST to ATS-101 and terminate on both ends.
    l. Install 25 KV cables from outdoor 24.9 KV Switchgear to XFMR-3A WEST and terminate on both ends.
    m. Close switch in outdoor 24.9 KV Switchgear to energize XFMR-3A WEST.
    n. Open tie breaker in 2.4 KV Switchgear and close main breaker in 2.4 KV Switchgear fed from XFMR-3A WEST to re-energize section of 2.4 KV Switchgear.
    o. Test for proper operation of ATS-101 in normal and emergency modes of operation.
56. POWER OUTAGE NO. 7: Provide power outage to cut over power to MCC-4.
    a. Place bypass isolation switch in normal position to feed panel PA from XFMR-T4A.
    b. Install temporary feeder conductors from circuit breaker in USS NO. 1 to MCC-4 (do not terminate conductors at this time).
    c. Turn off existing breaker in USS NO. 1 feeding MCC-4 to de-energize MCC.
    d. Connect temporary feeder conductors and re-energize MCC-4.
    e. Turn off breaker in SB NO. 1 feeding ATS-1. Remove emergency feeder conductors to ATS-1 and remove interior components from ATS-1 enclosure.
    f. Replace feeder conductors from USS NO. 1 to MCC-4 (do not terminate conductors at this time).
    g. Provide final power outage for MCC-4 to de-terminate temporary feeder conductors and terminate new feeder conductors from USS NO. 1. Re-energize MCC-4 from new feed from USS NO. 1.
57. POWER OUTAGE NO. 8: Provide power outage to cut over power to MCC-8. Work for power outage shall be similar to MCC-4 outage.
58. POWER OUTAGE NO. 9: Provide power outage to cut over power to MCC-10 from USS NO. 1 feed. Work for power outage shall be similar to MCC-4 outage except no temporary feeder is required as secondary 480 volt feed to MCC-10 will be used. Please note this outage should be minimal to switch kirk-key interlocked main breakers in MCC as MCC-10 has a second feeder from USS NO. 2 that can be utilized during the outage.
59. POWER OUTAGE NO. 10: Provide power outage to cut over power to MCC-10 from USS NO. 2 feed. Work for power outage shall be similar to MCC-10 from USS NO. 1 outage.

Please note this outage should be minimal as MCC-10 has a second feeder from USS NO. 1 that can be utilized during the outage.

60. Remove existing 250 kw natural gas generator, SB NO. 1, and associated conduit/wire.
61. POWER OUTAGE NO. 11 (FINAL): Simulate a 25 KV power outage from the outdoor 24.9 KV Switchgear and verify that ATS-101 properly operates and loads are properly brought on line on emergency power. After test is completed, restore 25 KV power to the facility and verify that loads are properly brought back on line on normal power.
62. Complete remaining work (e.g. miscellaneous trade work, finish grade and seeding, clean up, etc.).

C. LOW LIFT PUMP STATION

1. Coordinate with WE Energies to replace natural gas service meter. Install new manifold, valves, and pressure regulators.
2. NATURAL GAS SYSTEM OUTAGE: Coordinate with WE Energies to provide outage to cut in the new natural gas service meter.
3. POTABLE WATER SYSTEM OUTAGE: Provide outage to install isolation valves on existing potable water line to feed new equipment.
    a. Close valve on incoming potable water line and drain system.
    b. Install new isolation valves to feed new equipment.
    c. Open isolation valve on incoming potable water line and bring potable water system back on line.
4. Modify storm sewer and catch basin. Install concrete slab, curb and gutter.
5. Modify chain link fence and install gravel fill.
6. Install potable water line and compressed air to carbon feeder. Core building wall for carbon feed pipe.
7. Relocate existing air compressor AC-1.
8. Relocate carbon feeder CF-101, dumpster, and storage container.
9. Relocate unit heater by mezzanine.
10. Remove abandoned hydropneumatic tank, turbine water pump, and concrete equipment pads.
11. Remove existing equipment from Ammonia Room.
12. Patch holes in Ammonia Room (Chemical Room) walls and paint walls and floor.
13. Install concrete containment wall and equipment pads.
14. Install potassium permanganate tank T-4007 and mix tank agitator M-4007.
15. Relocate raw water booster supply pump P-4004 and filter FT-4004.
16. Install chemical metering pumps P-4010 and P-4011.
17. Install level indicating transmitter LIT-4007 and LE-4007 for tank.
18. Install potable water, non-potable water lines, and chemical feed lines to potassium permanganate mixing system.
19. Construct mezzanine extension and relocate existing stairs.
20. Install MCC-2.
21. **Install temporary disconnect switch and temporary feeder conductors from existing generator to MCC-2 (do not terminate conductors at generator at this time).**
22. Install ATS-102.
23. Install PLC-G enclosure. Install conduit and control conductors between PLC and remote control devices (do not terminate conductors at this time).
24. Install cat 6 cable between PLC-G enclosure and existing network switch and communication enclosure. Bring PLC-G on line.

25. POWER OUTAGE NO. 1: Provide power outage to install circuit breaker in MSWB-1B to feed MCC-2. Please note that LLPS will be powered from MSWB-1A during this outage.
    a. Turn off loads fed from MSWB-1B and open main circuit breaker and tie breaker in MSWB-1B.
    b. Install MCC-2 circuit breaker.
    c. Install 480 volt feeder between MSWB-1B and MCC-2.
    d. Install conduits for 480 volt feeder conductors from MSWB-1B to ATS-102 (do not install conductors at this time).
    e. Re-energize MSWB-1B by closing main circuit breaker in MSWB-1B.
    f. Bring loads fed from MSWB-1B back on line.
26. POWER OUTAGE NO. 2: Provide power outages to existing 120 volt and 480 volt equipment and controls fed from existing MCC-2, MCC-3, and panel A.
    a. Cut over power and controls one load at a time. Confirm proper operation before proceeding to cut over of next load.
27. POTASSIUM PERMANGANATE SYSTEM OUTAGE: Provide outage to cut over potassium permanganate system.
    a. Relocate scale WE-4006 and WIT-4006.
    b. Cut in piping for potassium permanganate feed lines.
    c. Bring potassium permanganate system back on line on non-potable water supply.
    d. Relocate eductor pump P-4003.
28. **POWER OUTAGE NO. 3: Provide power outage to connect temporary feed from existing generator.**
    a. Terminate temporary feeder conductors for MCC-2 at existing generator.
    b. Turn off circuit breaker in MSWB-1B feeding MCC-2.
    c. Test operation of generator.
    d. After generator test is completed, de-energize generator and lock out temporary disconnect switch.
29. Remove existing MCC-2, MCC-3, and panel A.
30. Remove existing PLC-G control panel.
31. Remove remaining equipment from Chemical Room (Generator Room).
32. Remove exterior doors and cut opening in exterior wall of Generator Room. Install temporary plywood wall with door to secure the space.
33. Remove wall behind MCC-2 and install new CMU wall. **Cut exhaust duct opening in concrete ceiling. Install concrete pad for generator.** Patch holes in ceiling, walls, and floor in Generator Room.
34. Install exhaust fan, ductwork, grills, and exhaust louver for Generator Room.
35. Install generator GEN-102.
36. Remove temporary plywood wall and install intake louvers, door, and motorized dampers.
37. Install generator heat exchangers, coolant piping, and potable water line back to isolation valve.
38. Install generator silencer and associated piping.
39. Extend natural gas line to GEN-102.
40. Install 480 volt feeder from GEN-102 to ATS-102.
41. **POWER OUTAGE NO. 4:** Provide power outage to provide temporary power to MCC-2.
    a. Install temporary 480 volt feed from existing feeder breaker in MSWB-1A to MCC-2. Determinate conductors feeding MCC-2 from MSWB-1B and terminate conductors from MSWB-1A. Energize MCC-2.

42. **POWER OUTAGE NO. 5:** Provide power outage to bring ATS-102 and GEN-102 on line. Please note that LLPS will be powered from MSWB-1A during this outage.
    a. Turn off loads fed from MSWB-1B and open main circuit breaker and tie breaker in MSWB-1B.
    b. Open medium voltage switch SW-1B to de-energize XFMR-1B and service lateral conductors to MSWB-1B.
    c. Remove 480 volt service lateral conductors from XFMR-1B to MSWB-1B. Remove pullbox located below MSWB-1B.
    d. Extend service lateral conduits to ATS-102 and install 480 volt service lateral conductors from XFMR-1B.
    e. Concrete encase service lateral conduits.
    f. Install 480 volt feeder conductors from ATS-102 to MSWB-1B.
    g. Close medium voltage switch SW-1B to energize XFMR-1B and service lateral conductors to ATS-102.
    h. Test for proper operation of ATS-102 in normal and emergency modes of operation.
    i. Re-energize MSWB-1B by closing main circuit breaker in MSWB-1B.
    j. Bring loads fed from MSWB-1B back on line.
43. **POWER OUTAGE NO. 6:** Provide power outage to provide permanent power to MCC-2.
    a. Remove temporary 480 volt feed to MCC-2 from existing feeder breaker in MSWB-1A and reterminate conductors from MSWB-1B. **Disconnect temporary feeder conductors from temporary disconnect switch.** Energize MCC-2. **Remove temporary disconnect switch and temporary feeder conductors to existing generator.**
44. **POWER OUTAGE NO. 7 (FINAL):** Simulate a 25 KV power outage from the outdoor 24.9 KV Switchgear located at the WTP and verify that ATS-102 properly operates and loads are properly brought on line on emergency power. After test is completed, restore 25 KV power to the facility and verify that loads are properly brought back on line on normal power.
45. Remove existing 75 kw natural gas generator and associated conduit/wire.
46. Complete remaining work (e.g. finish grade and seeding, clean up, etc.).

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 22 40 00

PLUMBING FIXTURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Emergency Eye and Face Wash.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ANSI Z358.1 - Emergency Eyewash and Shower Equipment.

1.3 SUBMITTALS

A. Product Data: Submit catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

B. Manufacturer's Installation Instructions: Submit installation methods and procedures.

C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit fixture, trim, exploded view and replacement parts lists.

1.5 QUALITY ASSURANCE

A. Provide products requiring electrical connections listed and classified by Underwriters Laboratories Inc., as suitable for purpose specified and indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

PART 2 PRODUCTS

2.1 EMERGENCY EYE AND FACE WASH

A. Manufacturers:
   1. Bradley Corp.
   2. Chicago Faucet Co.
   3. Encon Safety Products.
   4. Speakman.
   5. Guardian.

B. Shower: ANSI Z358.1; free standing, self- cleaning, non-clogging 8 inch diameter plastic drench shower head, instant action stay open valve actuated by rigid stainless steel pull rod.

C. Eyewash: ANSI Z358.1; Stainless Steel bowl with aerated eye/face wash. 1-1/4 inch galvanized pipe pedestal with floor flange, instant action stay open valve actuated by push flag, twin spray heads, dust cover assembly, and tailpiece and with galvanized pipe P-trap.

D. Supply and Waste Piping: 1-1/4 inch galvanized pipe pedestal with floor flange.

E. Factory applied CRP (corrosive atmospheres coating).

F. Alarms: 120 VAC emergency alarm and light system, with flow switch and dry remote contacts for remote alarm activated when eyewash or safety shower in use.

G. Furnish universal emergency sign.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify electric power is available and of correct characteristics.

3.2 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.3 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome plated rigid supplies to fixtures with loose key stops, reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall supports or wall carriers and bolts.

3.4 INTERFACE WITH OTHER PRODUCTS

A. Review millwork shop-drawings. Confirm location and size of fixtures and openings before rough in and installation.

3.5 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.6 CLEANING

A. Clean plumbing fixtures and equipment.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Do not permit use of fixtures before final acceptance.

3.8 SCHEDULES

A. Emergency Eye and Face Wash: Standard: 38 inches to receptor rim.

END OF SECTION

SECTION 23 25 00

HVAC WATER TREATMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. System Cleaner

B. Closed system treatment (water).

C. Test Equipment

1.2 SUBMITTALS

A. Shop Drawing: Indicate system schematic, equipment location, and controls schematics.

B. Product Data: Submit chemical treatment materials, chemicals, and equipment including electrical characteristics and connection requirements.

C. Manufacturer's Installation Instructions: Submit placement of equipment in systems, piping configuration, and connection requirements.

1.3 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of equipment and piping, including sampling points and location of chemical injectors.

B. Operation and Maintenance Data: Submit data on chemical feed pumps, agitators, and other equipment including spare parts lists, procedures, and treatment programs. Include step by step instructions on test procedures including target concentrations.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. HOH Chemicals.

B. Butler Chemical Co.

C. Nalco Chemical Co.

2.2 SYSTEM CLEANER

A. Product Description: Liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products; sodium tri-Poly phosphate and sodium molybdate.

B. Biocide; chlorine release agents including sodium hypochlorite or calcium hypochlorite, or microbiocides including quaternary ammonia compounds, tributyl tin oxide, methylene bis (thiocyanate), or isothiazolones.

2.3 CLOSED SYSTEM TREATMENT (WATER)

A. Sequestering agent to reduce deposits and adjust pH; polyphosphate.

B. Corrosion inhibitors; liquid boron-nitrite, sodium nitrite and borax, sodium totyltriazole, low molecular weight polymers, phosphonates, sodium molybdate, or sulfites.

C. Conductivity enhancers; phosphates or phosphonates.

2.4 CHEMICAL FILTERING TYPE POT FEEDER

A. 1.8 gal quick opening cap for working pressure of 175 psig.

B. Filtering pot shall include replaceable bag type filters and sized to filter the system volume once every 4 hours.

2.5 TEST EQUIPMENT

A. Furnish white enamel test cabinet with local and fluorescent light, capable of accommodating 4 - 10 ml zeroing titration burettes and associated reagents.

B. Furnish following test kits:
1. Alkalinity titration test kit.
2. Chloride titration test kit.
3. Sulphite titration test kit.
4. Total hardness titration test kit.
5. Low phosphate test kit.
6. Conductivity bridge, range 0 - 10,000 micro-ohms.
7. Creosol red pH slide, complete with reagent.
8. Portable electronic conductivity meter.
9. High nitrite test kit.

PART 3 EXECUTION

3.1 PREPARATION

A. Operate, fill, start and vent systems prior to cleaning. Use temporary water meter to record capacity in each system. Place terminal control valves in open position during cleaning.

3.2 CLEANING

A. Concentration:
1. As recommended by manufacturer.
2. One pound per 100 gallons of water contained in the system.

3. One pound per 100 gallons of water for hot systems and one pound per 50 gallons of water for cold systems.
4. Fill steam boilers only with cleaner and water.

B. Hot Water Heating Systems:
1. Apply heat while circulating, slowly raising temperature to 160 degrees F and maintain for 12 hours minimum.
2. Remove heat and circulate to 100 degrees F or less; drain systems as quickly as possible and refill with clean water.
3. Circulate for 6 hours at design temperatures, then drain.
4. Refill with clean water and repeat until system cleaner is removed.

C. Use neutralizer agents on recommendation of system cleaner supplier and acceptance of Architect/Engineer.

D. Remove, clean, and replace strainer screens.

E. Inspect, remove sludge, and flush low points with clean water after cleaning process is completed. Include disassembly of components as required.

3.3 CLOSED SYSTEM TREATMENT

A. Provide one bypass feeder on each system. Install isolating and drain valves and interconnecting piping. Install around balancing valve downstream of circulating pumps as indicated on Drawings.

B. Introduce closed system treatment through bypass feeder when required or indicated by test.

C. Install ¾ inch water coupon rack around circulating pumps with space for (4) 12 test specimens.

3.4 DEMONSTRATION

A. Furnish two hour training course for operating personnel, instruction to include installation, care, maintenance, testing, and operation of water treatment systems. Arrange course at start up of systems.

END OF SECTION

SECTION 23 33 00

AIR DUCT ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Back-draft dampers.

B. Duct access doors.

C. Volume control dampers.

D. Control air dampers.

E. Actuators.

F. Flexible duct connections.

G. Duct test holes.

1.2 REFERENCES

A. Air Movement and Control Association International, Inc.:
   1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

B. National Fire Protection Association:
   1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.

C. Sheet Metal and Air Conditioning Contractors:
   1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.3 SUBMITTALS

A. Shop Drawings: Indicate for shop fabricated assemblies including volume control dampers duct access doors and duct test holes.

B. Product Data: Submit data for shop fabricated assemblies and hardware used.

C. Product Data: Submit for the following. Include where applicable electrical characteristics and connection requirements.
   1. Backdraft dampers.
   2. Flexible duct connections.
   3. Volume control dampers.
   4. Control air dampers.

5. **Actuators.**
6. Duct access doors.
7. Duct test holes.

1.4 QUALITY ASSURANCE

A. Dampers tested, rated and labeled in accordance with the latest UL requirements.

B. Damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect dampers from damage to operating linkages and blades.

B. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

C. Storage: Store materials in a dry area indoor, protected from damage.

D. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

PART 2 PRODUCTS

2.1 BACK-DRAFT DAMPERS

A. Product Description: Multi-Blade, back-draft dampers: Parallel-action, gravity-balanced, Galvanized 16 gage thick steel, or extruded aluminum. Blades, maximum 6 inch width, center pivoted, with felt or flexible vinyl sealed edges. Blades linked together in rattle-free manner with 90-degree stop, steel ball bearings, and plated steel pivot pin. Furnish dampers with adjustment device to permit setting for varying differential static pressure.

2.2 DUCT ACCESS DOORS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.

B. Fabrication: Rigid and close fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, furnish minimum 1 inch thick insulation with sheet metal cover.
   1. Less than 12 inches square, secure with sash locks.
   2. Up to 18 inches Square: Furnish two hinges and two sash locks.
   3. Up to 24 x 48 inches: Three hinges and two compression latches with outside and inside handles.
   4. Larger Sizes: Furnish additional hinge.
   5. Access panels with sheet metal screw fasteners are not acceptable.

2.3 VOLUME CONTROL DAMPERS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.

B. Splitter Dampers:
   1. Material: Same gage as duct to 24 inches size in both dimensions, and two gages heavier for sizes over 24 inches.
   2. Blade: Fabricate of double thickness sheet metal to streamline shape, secured with continuous hinge or rod.
   3. Operator: Minimum 1/4 inch diameter rod in self aligning, universal joint action, flanged bushing with set screw;
   4. Single Blade Dampers: Fabricate for duct sizes up to 6 x 30 inch. 12 x 48 inch. .

C. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized frame channel with suitable hardware.

D. End Bearings: Except in round ductwork 12 inches and smaller, furnish end bearings. On multiple blade dampers, furnish oil-impregnated nylon or sintered bronze bearings. Furnish closed end bearings on ducts having pressure classification over 2 inches wg;

E. Quadrants:
   1. Furnish locking, indicating quadrant regulators on single and multi-blade dampers.
   2. On insulated ducts mount quadrant regulators on standoff mounting brackets, bases, or adapters.
   3. Where rod lengths exceed 30 inches furnish regulator at both ends.

2.4 CONTROL AIR DAMPERS

A. Dampers:
   1. Performance: Test leakage and pressure drop per AMCA 500.
   2. Opposed style modulation blades are to be used for volume and pressure control for fresh air, return air and relief air control. Parallel blade style of construction can be used for exhaust air applications. Actuators and pilot-positioners shall be mounted out of the air stream.
   3. Bearings, bearing pins (axles), jamb seals or side seals, and damper linkages shall use stainless steel. The damper blade drive shaft shall be zinc plated.
   4. Leakage rates shall not exceed 7 cfm per sq. ft. at 1-inch w.c. and shall not exceed 15 cfm at 4 in w.c. for applications using entering air temperature that can fall below 55 degrees F db but not below 40 degrees F db.
   5. Ultra Low Leakage Dampers shall be required for applications using an entering air temperature that can fall below 40 F. Leakage rates for these dampers shall not exceed 3 cfm per sq. ft. at 1-inch w.c. and shall not exceed 7 cfm at 4 in w.c.
   6. Maximum individual blade height shall be 8 inches.
   7. All damper blades and drive components shall use 16 gage or heavier galvanized steel unless specified otherwise. Each damper frame shall use 12 gage or heavier galvanized steel. Use multiple damper motors for multiple

damper installations, jackshafts are not allowed. Note: Damper linkage is to be exposed in the air stream for maintenance purpose.

8. **A maximum damper area of 16-sq. ft. should be design criteria for each damper actuator. Individual blade length is to be limited to 48 inches.**
9. **Seals: Mechanically attached blade edge seals. Blade edge seals shall be extruded vinyl for standard temperature applications, silicon for high temperature applications (e.g. steam coil face and bypass dampers). Stainless steel jamb seals.**
10. **Linkage: Located exposed in the airstream. All linkage to be stainless steel.**
11. **Axles: Stainless steel. Extended through damper frame as required for operator (unless noted otherwise).**
12. **Modulating control dampers shall be sized to provide appropriate damper authority. Opposed blade dampers shall be selected to achieve a damper authority of 10-15%. Parallel blade dampers shall be selected to achieve a damper authority of 30-50%. They should not necessarily be duct size.**
13. **Maximum air velocity: Dampers shall be selected such that air velocity through the damper shall not exceed 2/3 of the manufacturers published maximum for the make and module used.**

2.5 ACTUATORS

A. General:

1. **All equipment shall use actuation as indicated on dampers.**
2. **Actuators shall be large enough to provide smooth modulating operation and shall have sufficient torque to operate dampers under all normal conditions of operation.**
3. **Provide "spring return" type motors on outside air dampers.**
4. **Actuators shall be rigidly mounted out of the airstream and located such that ambient temperatures exceed the control air dewpoint temperature.**
5. **Where controlled damper area exceeds 20 square feet, provide one actuator for each 20 square feet of damper area or portion thereof.**

B. Control Dampers:

1. **Operation: Reversing type proportional motor, spring-return.**
2. **Enclosure Rating: NEMA 250 Type 1.**
3. **Mounting: Direct mount.**
4. **Stroke: 90 seconds end to end full stroke, 15 seconds return to normal for spring return.**
5. **Protection: Electronic stall protection.**
6. **Power: Nominal 120 volt AC.**
7. **Torque: Size for minimum 150 percent of required duty.**
8. **Duty cycle: rated for 65,000 cycles.**

2.6 FLEXIBLE DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.

B. Connector: Fabric crimped into metal edging strip.

1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric conforming to NFPA 90A, minimum density 30 oz per sq yd.
2. Net Fabric Width: Approximately 2 3 6 inches wide.
3. Metal: 3 inch wide, 24 gage galvanized steel .

C. Leaded Vinyl Sheet: Minimum 0.55 inch thick, 0.87 lbs. per sq ft, 10 dB attenuation in 10 to 10,000 Hz range.

2.7 DUCT TEST HOLES

A. Permanent Test Holes: Factory fabricated, air tight flanged fittings with screw cap. Furnish extended neck fittings to clear insulation.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify rated walls are ready for fire damper installation.

B. Verify ducts and equipment installations are ready for accessories.

C. Check location of air outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

3.2 INSTALLATION.

A. Install in accordance with NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible.

B. Install back-draft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated on Drawings.

C. Access Doors: Install access doors at the following locations and as indicated on Drawings:

1. Spaced every 50 feet of straight duct.
2. Upstream of each elbow.
3. Before and after each duct mounted fan.
4. Before and after each automatic control damper.

D. Access Door Sizes: Install minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated on Drawings. Install 4 x 4 inch for balancing dampers only. Review locations prior to fabrication.

E. Install temporary duct test holes where indicated on Drawings and required for testing and balancing purposes. Cut or drill in ducts. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

END OF SECTION

SECTION 23 52 36

FLEXIBLE WATER-TUBE BOILERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Flexible water-tube boilers.

B. Boiler controls.

C. Hot water boiler trim.

D. Natural gas fired burner.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI Z21.13 - Gas-fired Low Pressure Steam and Hot Water Boilers.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
   1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

C. American Society of Mechanical Engineers:
   1. ASME Section I - Boiler and Pressure Vessel Code - Power Boilers.
   2. ASME Section IV - Boiler and Pressure Vessel Code - Heating Boilers.

D. Hydronics Institute:
   1. H.I. Heating Boiler Standard - Testing and Rating Standard for Heating Boilers.

E. National Electrical Manufacturers Association:
   1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

F. National Fire Protection Association:
   1. NFPA 31 - Standard for the Installation of Oil-Burning Equipment.
   2. NFPA 54 - National Fuel Gas Code.
   3. NFPA 58 - Liquefied Petroleum Gas Code.

G. Underwriters Laboratories Inc.:
   1. UL 726 - Oil-Fired Boiler Assemblies.

1.3 SUBMITTALS

A. Product Data: Submit capacities and accessories included with boiler. Include general layout, dimensions, size and location of water, steam, fuel, electric and vent connections, electrical

characteristics, weight and mounting loads. **Provide project specific wiring diagrams showing interface of all remote devices and interface to temperature control panel.**

B. Manufacturer's Installation Instructions: Submit assembly, support details, connection requirements, and include start-up instructions.

C. Manufacturers Field Reports: Indicate condition of equipment after start-up including control settings and performance chart of control system.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit manufacturer's descriptive literature, operating instructions, cleaning procedures, replacement parts list, and maintenance and repair data.

1.5 QUALITY ASSURANCE

A. Conform to ASME Section I Section IV and ANSI Z21.13 Code UL 726 for construction of boilers. Provide boilers registered with National Board of Boiler and Pressure Vessel Inspectors.

B. Boiler Performance Requirements: Conform to minimum efficiency prescribed by ASHRAE 90.1 when tested in accordance with H.I. Heating Boiler Standard.

C. Gas Train and Safety Controls: Conform to requirements of Factory Mutual (FM) Industrial Risk Insurers (IRI).

D. Unit Certification: AGA ETL UL certified.

E. Conform to applicable code for internal wiring of factory wired equipment.

F. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., testing firm acceptable to authority having jurisdiction as suitable for purpose specified and indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Accept boilers and accessories on site in factory shipping packaging. Inspect for damage.

B. Protect boilers from damage by leaving packing in place until installation.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.8 SYSTEM DESCRIPTION

A. Boiler Design: The basis of design is the Bryan Boilers gas fired boiler as specified in the Boiler Schedule – Gas Fired. Other listed manufacturer’s boiler must be equivalent and meet the same equipment standards pertaining to specifications, performance, and fit in the designated space shown on the drawings with proper working space clearances as required.

PART 2 PRODUCTS

2.1 FLEXIBLE WATER-TUBE BOILERS

A. Manufacturers:
   1. Bryan Steam Corporation
   2. Cleaver-Brooks
   3. International Boiler Works
   4. Universal Boiler Works, Inc.

B. Product Description: Factory assembled and tested, packaged type boiler. Factory mounted on steel base frame, complete with integral forced atmospheric draft burner, burner controls, boiler trim, and refractory. Factory assemble and wire boilers so only piping, fuel, electrical, and vent connections are required. Provide 5 square feet of heating surface per rated boiler horsepower.

C. Working Pressure: Water boiler designed, constructed, and hydrostatically tested according to ASME Section IV Section I, and contain ASME stamp for maximum working pressures up to 150 psig at 250 degree F

D. Construction: Shell constructed with welded steel boiler plate with steel drums, water legs, and tube headers. Water tubes constructed of 1 inch, steel of serpentine bend design not subject to thermal shock. Individual water tubes removable and replaceable without welding or rolling. Tube access from exterior of boiler. Furnish with tappings and inspection openings to allow for internal boiler inspection and cleaning. Furnish steam drum minimum of 24 inches in diameter with internals designed to produce steam quality in excess of 99 percent.

E. Jacket: Factory painted steel jacket mounted over structural steel frame. Each jacket panel and access door individually removable.

F. Insulation: Sides and top covered with minimum 1-1/2 inch glass fiber insulation. Interior walls lined with high temperature insulation. Floor beneath tubes lined with insulating refractory and mineral fiber backup insulation.

G. Gas Burner: Integral part of boiler. Constructed of tubular alloy steel. Atmospheric type for operation with atmospheric draft requiring no motor or blower. Electric ignition gas pilots.

H. Burner Controls: Furnish boiler complete with the following:
   1. Capacity control: on-off operation two stage, low fire start high fire run modulating.
   2. Automatic gas valve operator.
   3. Auxiliary safety shutoff valve.
   4. Pilot solenoid valve.
   5. Pilot ignition assembly.
   6. Pilot ignition transformer.
   7. Pilot gas shutoff valves.
   8. Main gas shutoff valves.
   9. Pilot gas pressure regulators.
   10. Main gas pressure regulators.
   11. Main manual gas shutoff valve.
   12. Air flow (air safety) switch.

13. Electronic combustion safety control with UV sensor.
14. Auxiliary safety gas shutoff valves.
15. Electronic pilot safety control.
16. 100 percent gas pilot safety shutoff.
17. Draft diverter or barometric draft control.

I. Hot Water Boiler Trim: Factory piped and wired according to ASME Code and UL requirements. Furnish boiler complete with the following:
1. Control Panel: NEMA 250 Type 1 enclosure, mounted on boiler with hinged metal door.
2. ASME safety relief valve.
3. Combination thermometer and pressure gauge.
4. Water temperature control operator.
5. High limit safety control.
6. Low water cut-off.
7. Manual reset type high limit.
8. Manual reset low water cutoff.
9. Auxiliary low water cutoff.
10. Alarm bell or horn.
11. Lead-lag system of control for two or more boilers.
12. Indicator lights as follows.
13. 120 volt control transformer mounted in control panel.
14. Motor starter.
15. Indirect water heating coil (tankless water heater).
16. Electric heating in addition to fossil fuel burners.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install boilers plumb and level, to plus or minus 1/16 inch over boiler base.

B. Maintain manufacturer's recommended clearances around and over boilers.

C. Install boiler on concrete housekeeping pad, minimum 3-1/2 inches high and 6 inches larger than boiler base on each side.

D. Connect natural gas piping in accordance with NFPA 54.

E. Connect natural gas piping to boiler, full size of boiler gas train inlet. Arrange piping with clearances for burner removal and service.

F. Connect hot water piping to supply and return boiler connections.

G. Install the following piping accessories.
1. On supply:
   a. Thermometer well for temperature controller.
   b. Thermometer well and thermometer.

c. Well for control system temperature sensor.
d. Strainer.
e. Nipple and flow switch.
f. Pressure gage.
g. Shutoff valve.

2. On return:
a. Thermometer well and thermometer.
b. Well for control system temperature sensor.
c. Pressure gage.
d. Shutoff valve.
e. Balancing valve.

H. Install the following piping accessories on natural gas piping connections. Strainer.
1. Pressure gage.
2. Shutoff valve.
3. Check valve.
4. Pressure reducing valve.

I. Install discharge piping from relief valves and drain valves to nearest floor drain.

J. Install boiler trim and accessories furnished loose for field mounting.

K. Install electrical devices furnished loose for field mounting.

L. Install control wiring between boiler control panel and field mounted control devices.

M. Connect flue to boiler outlet, full size of outlet.

3.2 FIELD QUALITY CONTROL

A. Perform combustion test including boiler firing rate, over fire draft, gas flow rate, heat input, burner manifold gas pressure, percent carbon monoxide, percent oxygen, percent excess air, flue gas temperature at outlet, ambient temperature, net stack temperature, percent stack loss, percent combustion efficiency, and heat output. Perform test at minimum, mid-range, and high fire.

B. Arrange with local authorities having jurisdiction for inspection of boiler, piping, and for certificate of operation.

3.3 MANUFACTURER’S FIELD SERVICES

A. Start-up boilers according to manufacturer's start-up instructions and in presence of boiler manufacturer's representative. Test controls and demonstrate compliance with requirements. Adjust burner for maximum burning efficiency. Replace damaged or malfunctioning controls and equipment.

3.4 CLEANING

A. Flush and clean boilers upon completion of installation, in accordance with manufacturer's start-up instructions.

3.5 DEMONSTRATION

A. Demonstrate operation and maintenance procedures.

B. Furnish services for manufacturer's technical representative for one 8 hour day to instruct Owner's personnel in operation and maintenance of boilers. Schedule training with Owner, provide at least 7 days notice to Architect/Engineer of training date.

END OF SECTION

SECTION 26 32 13

ENGINE GENERATORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Engine generator set.

B. Heat exchanger.

C. Exhaust silencer and fittings.

D. Fuel fittings.

E. Battery and charger.

1.2 REFERENCES

A. National Electrical Manufacturers Association:
   1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
   2. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
   3. NEMA ICS 10 - Industrial Control and Systems: AC Transfer Switch Equipment.
   4. NEMA MG 1 - Motors and Generators.

B. International Electrical Testing Association:
   1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

C. National Fire Protection Association:
   1. NFPA 30 - Flammable and Combustible Liquids Code.
   2. NFPA 99 - Standard for Health Care Facilities.
   3. NFPA 110 - Standard for Emergency and Standby Power Systems.

PART 2 PRODUCTS

2.1 GENERATOR SET

A. Generators and generator accessories will be furnished by the Owner, installed by the Contractor.

B. Generator accessories include the following:
   1. Heat exchangers.
   2. Heat exchanger expansion tanks.
   3. Exhaust silencer with connecting flanges and flexible stainless steel exhaust fitting.
   4. Batteries, cables, clamps, battery tray, and battery charger.
   5. Line circuit breaker (for Low Lift Pump Station generator).

6. Engine-Generator control panel.
7. Remote annunciator panel.
8. Communications Module and associated software.
9. Air/fuel ratio controller.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Disconnect and remove abandoned engine-generator assemblies and accessories.

B. Clean and repair existing engine-generator assemblies to remain or to be reinstalled.

3.2 INSTALLATION

A. Install equipment per manufacturer’s instructions.

B. Install engraved plastic nameplates in accordance with Section 26 05 53.

C. Ground and bond generator and other electrical system components in accordance with Section 26 05 26.

3.3 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.22.

D. Provide performance testing of ground-fault protection system per NEC 230.95(C).

3.4 ADJUSTING

A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.

B. Adjust generator output voltage and engine speed to meet specified ratings.

3.5 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Clean engine and generator surfaces. Replace oil and fuel filters with new.

3.6 DEMONSTRATION AND TRAINING

A. Simulate power outage by interrupting normal source, and demonstrate system operates to provide standby power.

B. Step Loading Requirements: Generator sets shall be tested with loads being brought on-line as follows.

1. Water Treatment Plant – 12 MGD pumping capacity and backwash capabilities.

a. Step 1: 600 amp load for 500 KVA, 480Y/277 volt transformer (lighting, controls, miscellaneous pumps, process equipment, etc.).

b. Step 2: High Lift Pump #7 – 250 HP motor on single speed, full voltage, 2300 volt controller.

c. Step 3: High Lift Pump #8 – 250 HP motor on single speed, full voltage, 2300 volt controller.

d. Step 4: Backwash Pump – 200 HP motor on single speed, full voltage, 2300 volt controller.

2. Low Lift Pump Station – 24 MGD pumping capacity.

a. Step 1: 150 amp load fed from MCC-2 (lighting, controls, process equipment, etc.).

b. Step 2: Low Lift Pump #4 – 300 HP on 480 volt soft start controller.

c. Step 3: Low Lift Pump #2 – 200 HP on 480 volt VFD.

d. Step 4: Low Lift Pump #1 – 200 HP on 480 volt soft start controller.

e. Step 5: Low Lift Pump #3 – 100 HP on 480 volt soft start controller.

END OF SECTION

SECTION 40 10 00

POTASSIUM PERMANGANATE SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Storage tank.

B. Mixers.

C. Chemical metering pumps.

1.2 SUBMITTALS

A. Section 01 33 00 – Submittal Procedures: Requirements for submittals.

B. Shop Drawings: Submit detailed dimensions for materials and equipment, including anchoring requirements, fasteners, and other details.

C. Product Data: Submit information concerning materials of construction, fabrication, and protective coatings.

D. Manufacturer's Installation Instructions: Submit detailed instructions on installation requirements including storage and handling procedures, anchoring, and layout.

E. Operation and Maintenance Manuals: Submit O&M manuals according to Section 01 33 00.

1.3 DELIVERY, STORAGE AND HANDLING

A. Section 01 60 00 – Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Store products in areas protected from weather, moisture, or possible damage; do not store products directly on ground; handle products to prevent damage to interior or exterior surfaces.

PART 2 PRODUCTS

2.1 STORAGE TANKS

A. Provide the following, or equal:

1.	Type:	Storage / Mixing Tank
2.	Part Number:	B7863
3.	Volume of Tanks, each, gallons:	628

4.	Tank Diameter, inches	48
5.	Tank Height, inches	84
6.	Liquid Storage Material:	Potassium Permanganate
7.	Liquid Storage Material, Specific Gravity:	1.30
8.	Construction Material:	Fiberglass
9.	Manufacturer, or equal:	Design Tanks 612 W. Blackhawk Street Sioux Falls, SD 57104-0321 888-830-0061 Fax: 605-965-1630

2.2 MIXERS

A. Provide the following, or equal:

1.	Type:	Lightnin Batch Mixers, USA Bluebook Ed. #120
2.	Catalog Page and Model Number:	pg. 159, MD-45928
3.	Quantity of Mixers:	1
4.	Shaft and Impeller Material:	316 Stainless Steel
5.	Power Source:	460 / 230 V
6.	Motor Type:	TEFC
7.	Motor Horsepower:	0.25
8.	Shaft Diameter, inches	3/4
9.	Shaft Length, inches	72

2.3 CHEMICAL METERING PUMPS

A. Provide the following, or equal:

1.	Type:	**Positive displacement, self-compensating, mechanical diaphragm, direct drive chemical feed pump**
2.	Manufacturer:	Wallace and Tiernan Encore 700
3.	Flowrate:	12 gph at 175 psi
4.	Motor Horsepower:	0.5 **(inverter duty type)**
5.	Quantity:	2
6.	Liquid Feed Material:	Potassium Permanganate
7.	Accessories:	Provide foot valve with strainer, pressure relief valve, back pressure valve and pulsation dampener **(Valcom or equal)** on discharge piping compatible with liquid feed material for each chemical metering pump. **Provide speed indicating controller for automatic and manual control of pump.**
8.	**Power Source:**	**120 V, 1 phase**

2.4 WARRANTIES

A. Warranties shall be provided for all products for minimum one year after delivery.

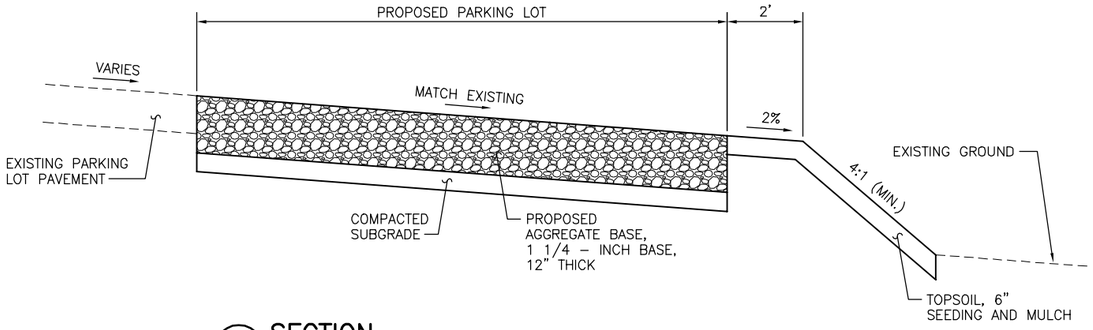
PART 3 EXECUTION

3.1 INSTALLATION

A. Install equipment and accessories where indicated on Drawings and in accordance with manufacturer's instructions.

B. Provide and connect piping and accessories to make system operational, ready for startup.

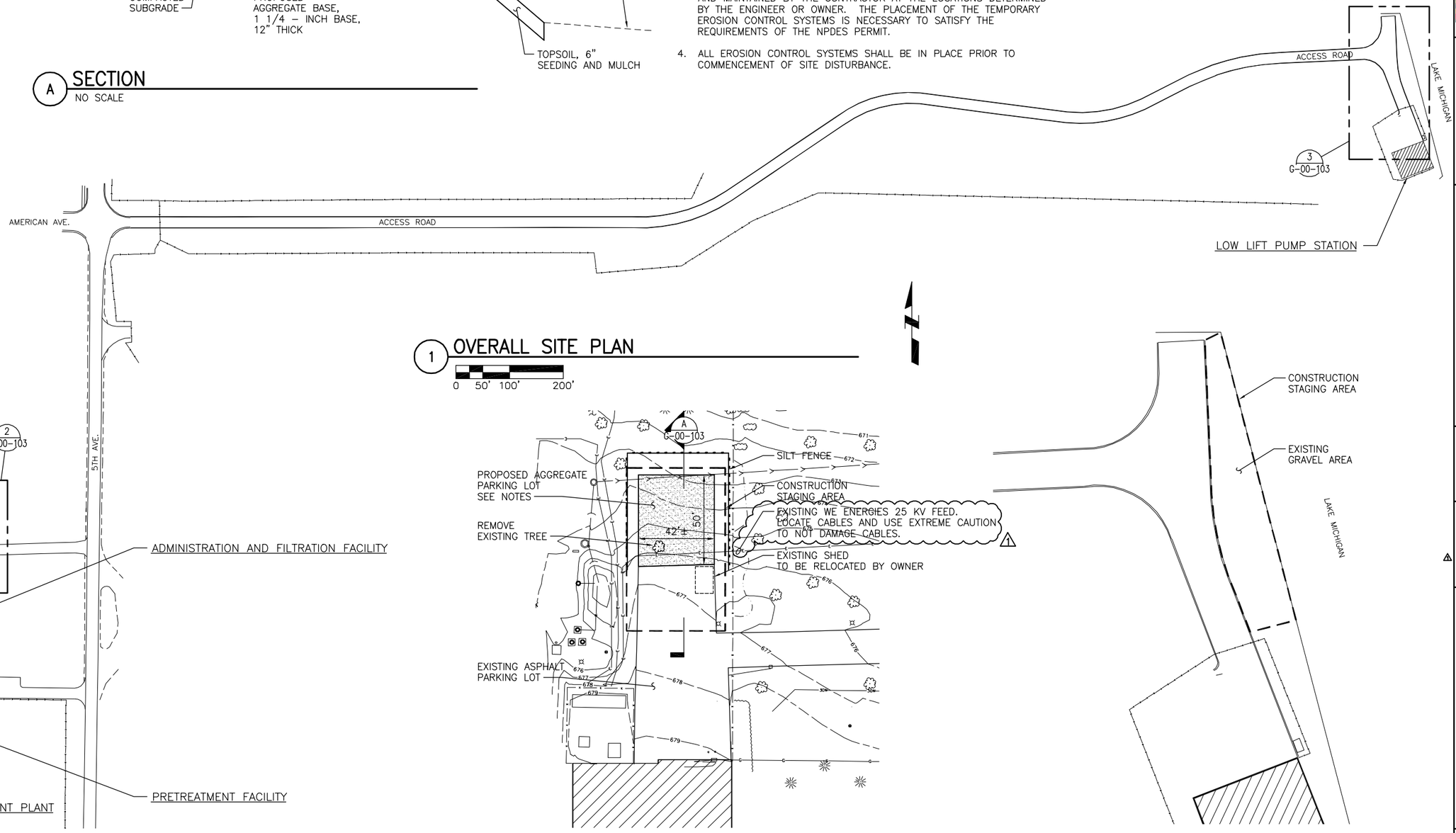
END OF SECTION



A SECTION
NO SCALE

NOTES

1. THE CONTRACTOR SHALL EXCAVATE EXISTING TOPSOIL WITHIN THE GRADING LIMITS AND STOCKPILE IT AT LOCATIONS APPROVED BY THE ENGINEER OR OWNER. THE TOPSOIL SHALL BE REUSED AND PLACED ON THE DISTURBED AREAS. THE CONTRACTOR WILL BE RESPONSIBLE FOR FURNISHING AND PLACING ANY ADDITIONAL TOPSOIL MATERIAL THAT MAY BE REQUIRED. THE TOPSOIL SHALL BE PLACED TO A MINIMUM THICKNESS OF 6" OVER ALL DISTURBED AREAS OF THE SITE.
2. THE FINISHED EARTHWORK SHALL HAVE VEGETATIVE SUSTAINING SOIL COVERING THE TOP 6" INCHES IN AREAS TO BE SEEDED.
3. THE TEMPORARY EROSION CONTROL SYSTEMS SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR AT THE LOCATIONS DETERMINED BY THE ENGINEER OR OWNER. THE PLACEMENT OF THE TEMPORARY EROSION CONTROL SYSTEMS IS NECESSARY TO SATISFY THE REQUIREMENTS OF THE NPDES PERMIT.
4. ALL EROSION CONTROL SYSTEMS SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF SITE DISTURBANCE.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR GRADING AND COMPACTING THE EXISTING EARTH SUBGRADE MATERIAL TO THE PROPOSED FINISHED ELEVATIONS PRIOR TO PLACING THE PROPOSED AGGREGATE BASE COURSE MATERIAL. THE CONTRACTOR SHALL FURNISH, SPREAD AND COMPACT THE AGGREGATE MATERIAL AS NECESSARY FOR THE PROPOSED IMPROVEMENTS.
6. AGGREGATE BASE COURSE SHALL BE PLACED WITH A MAXIMUM LIFT THICKNESS OF 6 INCHES AND SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROOF ROLLING A SECTION OF THE COMPACTED AGGREGATE BASE COURSE. THE PROOF ROLLING SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER.



1 OVERALL SITE PLAN
0 50' 100' 200'

2 WTP STAGING AREA ENLARGED PLAN
0 15' 30' 60'

3 LLPS STAGING AREA ENLARGED PLAN
0 15' 30' 60'

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY: SMW/SEM
DRAWN BY: JRF
CHECKED BY: SEM
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

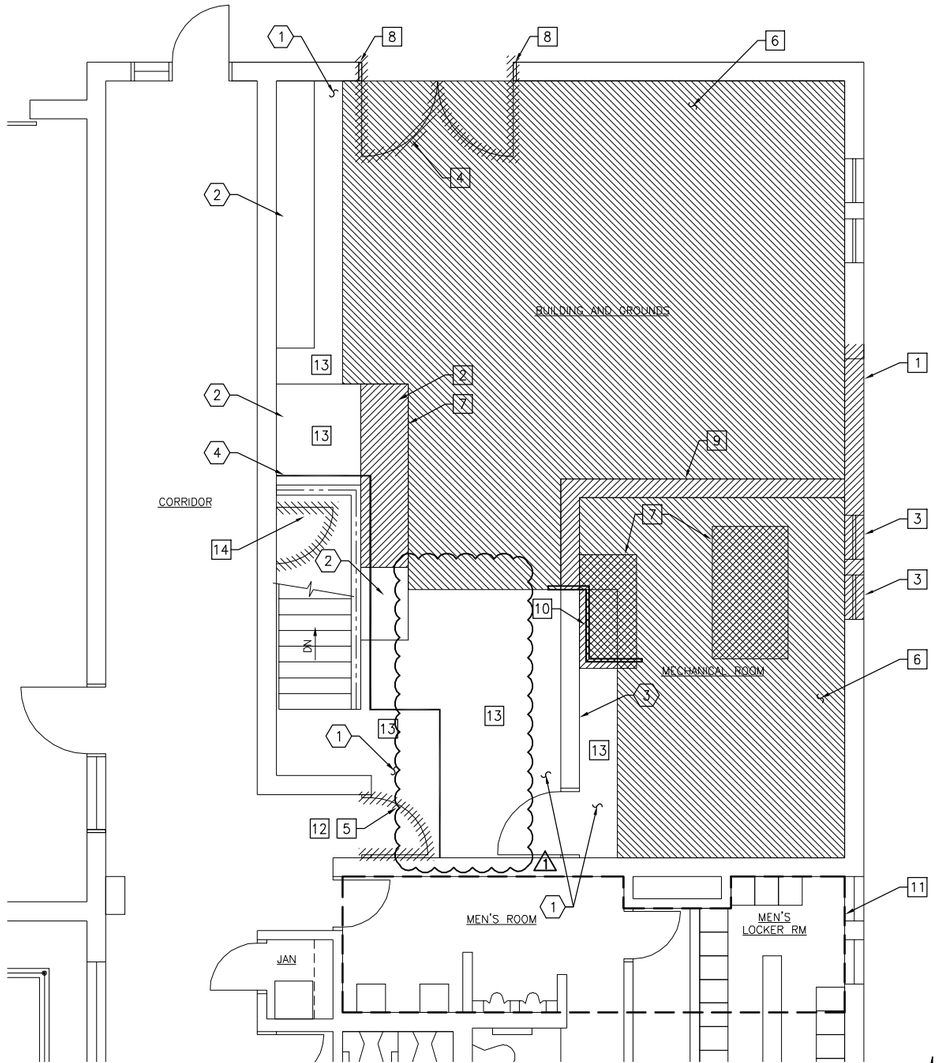
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
OVERALL SITE PLAN AND STAGING ENLARGED PLANS

PROJECT No.
O0130014

DRAWING No.
G-00-103

SHEET 003 OF 088 SHEETS



1 ENLARGED FIRST FLOOR ARCHITECTURAL DEMOLITION PLAN

(ELEV. 99.0)

0 1' 2' 4' 8'

NOTES

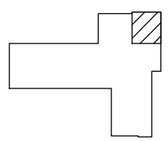
1. SEE DRAWING A-00-101 ARCHITECTURAL GENERAL NOTES.
2. CONTRACTOR SHALL USE EXTREME CAUTION WHEN CUTTING AND REMOVING CONCRETE FLOOR TO NOT DAMAGE UNDERGROUND CONDUITS AND UTILITIES. EXTREME CAUTION WILL NEED TO BE TAKEN DUE TO CONDUITS IN FLOOR THAT WILL NEED TO BE PROTECTED. CONTRACTOR SHALL TRACE ALL UNDERGROUND CONDUITS IN BUILDING AND GROUNDS ROOM AND MARK LOCATION ON CONCRETE FLOOR PRIOR TO REMOVAL OF FLOOR.
3. SEE DRAWING E-10-201 FOR WORK REQUIRED TO REMOVE CONCRETE FLOOR FOR GENERATOR AND SWITCHBOARD BEING REMOVED IN PUMP ROOM.
4. EXISTING CONCRETE FLOOR IS 7" THICK CONCRETE SLAB WITH 6x6WW MESH MEMBRANE ON 5" SAND CUSHION. CONCRETE SLAB IS THICKENED RUNNING EAST-WEST BELOW WALL BETWEEN BUILDING AND GROUNDS AND MECHANICAL ROOM.

DEMOLITION KEYNOTES

1. REMOVE WALLS AND ALL ASSOCIATED COMPONENTS. PATCH AND PREPARE SURFACES TO ACCEPT NEW PLAN. SALVAGE BRICK.
2. SEE ELECTRICAL DRAWINGS FOR DEMOLITION REQUIREMENTS. TERMINATE ALL CONNECTIONS AS NECESSARY PER CODE.
3. REMOVE WINDOWS AND ASSOCIATED COMPONENTS. PREPARE SURFACES TO ACCEPT NEW PLAN.
4. REMOVE DOOR, FRAME AND ASSOCIATED COMPONENTS. MAINTAIN WALL ABOVE OPENING. PREPARE SURFACES TO ACCEPT NEW PLAN.
5. REMOVE DOOR AND FRAME AND WALL ABOVE OPENING. REMOVE CMU WALL CONSTRUCTION TO ROOF STRUCTURE ABOVE. PREPARE SURFACES TO ACCEPT NEW PLAN.
6. REMOVE CONCRETE FLOOR AND PREPARE SURFACES TO ACCEPT NEW PLAN.
7. REMOVE CONCRETE EQUIPMENT PAD AND PREPARE SURFACES TO ACCEPT NEW PLAN.
8. REMOVE STEEL ANGLE IRON AROUND BRICK OPENING. PATCH AND PREPARE SURFACES TO ACCEPT NEW PLAN.
9. REMOVE 12" CMU WALL AND ALL ASSOCIATED COMPONENTS. PATCH AND PREPARE SURFACES TO ACCEPT NEW PLAN.
10. PROVIDE PERMANENT SHORING TO EXCAVATE EARTH FOR PIPE TROUGH ADJACENT TO EXISTING 12" CMU WALL AND SLAB TO REMAIN IN PLACE.
11. REMOVE EXISTING CEILING TILES AND GRID AS NECESSARY IN THIS AREA TO INSTALL NEW PIPING.
12. REMOVE CEILING AS REQUIRED FOR INSTALLATION OF NEW DOOR AND WALL ABOVE.
13. REMOVE PAINT FROM REMAINING EXPOSED CONCRETE FLOORS.
14. REMOVE DOOR AND FRAME.

KEYNOTES

1. EXISTING CONCRETE SLAB TO REMAIN.
2. EXISTING CONCRETE EQUIPMENT PAD TO REMAIN.
3. EXISTING 12" CMU WALL TO REMAIN.
4. PROVIDE TEMPORARY WALL MADE FROM PLYWOOD WITH DOOR TO BUILDING AND GROUNDS ROOM FOR DUST CONTROL THROUGHOUT CONSTRUCTION.



KEY PLAN

NO SCALE

Clark Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY:	KLW/TOC
DRAWN BY:	KLW/JRF
CHECKED BY:	TOC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

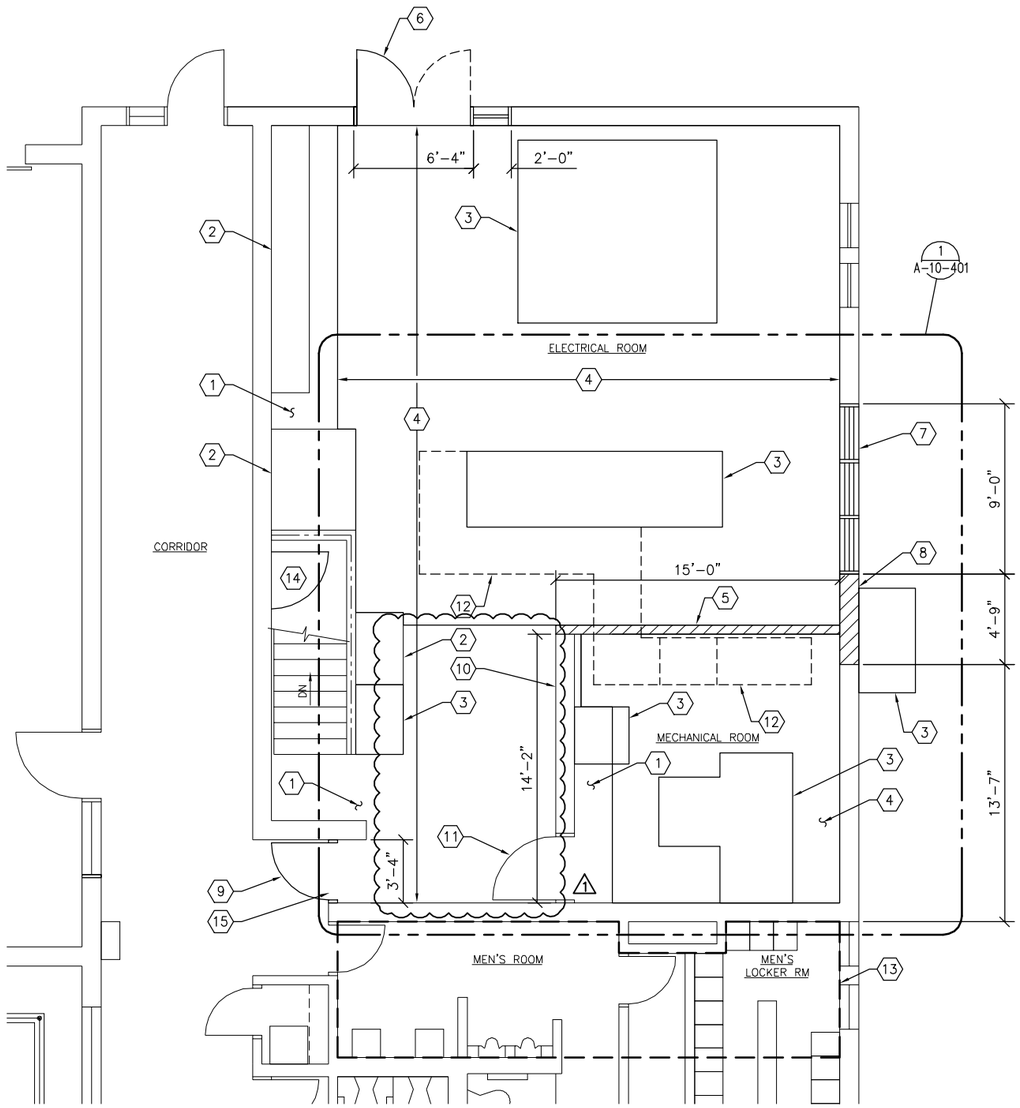
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY ENLARGED FIRST FLOOR ARCHITECTURAL DEMOLITION PLAN

PROJECT No.
O0130014

DRAWING No.
A-10-101

SHEET 007 OF 088 SHEETS



1 ENLARGED FIRST FLOOR ARCHITECTURAL PLAN

(ELEV. 99.0)

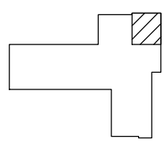
0 1' 2' 4' 8'

NOTES

1. SEE DRAWING A–00–101 FOR ARCHITECTURAL GENERAL NOTES.
2. ALL WALLS, FLOORS, AND CEILINGS IN ELECTRICAL ROOM AND MECHANICAL ROOM SHALL BE PAINTED TO MATCH EXISTING SURFACE COLORS.
3. PROVIDE 2–HOUR FIRE RATED SEAL AROUND ALL EXISTING AND NEW WALL PENETRATIONS IN ELECTRICAL ROOM WALLS.
4. PROVIDE LAMINATE SIGNS (TYPE TO MATCH EXISTING SIGNS) ON ELECTRICAL ROOM AND MECHANICAL ROOM INTERIOR DOORS.

(#) KEYNOTES

1. EXISTING CONCRETE SLAB.
2. EXISTING CONCRETE EQUIPMENT PAD.
3. PROVIDE CONCRETE EQUIPMENT PAD (COORDINATE EXACT SIZE WITH SELECTED EQUIPMENT).
4. PROVIDE CONCRETE SLAB TO MATCH EXISTING.
5. PROVIDE 6" CMU WALL.
6. PROVIDE DOOR AND GLASS PANELS, DOOR C.
7. PROVIDE REMOVABLE LOUVER.
8. PROVIDE SMOOTH FACE CMU/BRICK WALL.
9. PROVIDE 3'–0" x 7'–0" x 1 3/4", 1 1/2 HOUR FIRE RATED DOOR AND FRAME, DOOR A.
10. EXISTING 12" CMU WALL.
11. EXISTING DOOR.
12. PIPE TROUGH.
13. REPLACE CEILING TILE AND GRID IN THIS AREA FOLLOWING COMPLETION OF PIPE WORK ABOVE.
14. PROVIDE 3'–0" x 7'–0" x 1 3/4", 1 1/2 HOUR FIRE RATED DOOR AND FRAME, DOOR B. FIELD VERIFY EXISTING SIZE. DOOR IS LOCATED AT BOTTOM OF STAIR.
15. INSTALL DOUBLE 3 1/2" x 3 1/2" STEEL ANGLE LINTEL ABOVE DOOR WITH 8" CMU TO EXTEND TIGHT TO BOTTOM OF PRECAST CONCRETE ROOF STRUCTURE.



KEY PLAN

NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION
No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	KLW/TOC
DRAWN BY:	KLW/JRF
CHECKED BY:	TOC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

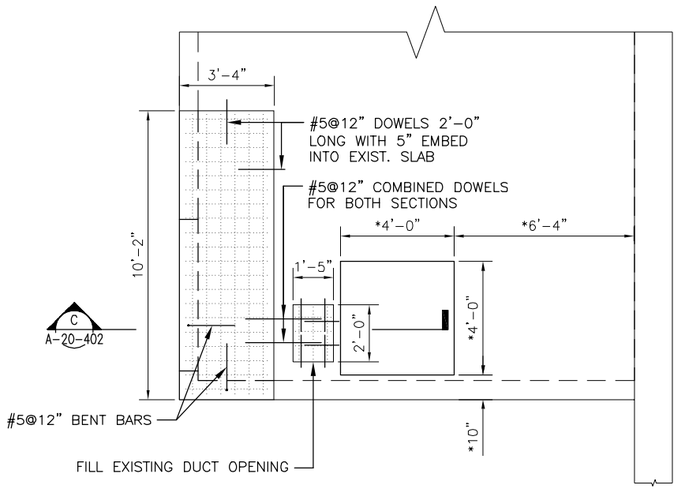
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY
ENLARGED FIRST FLOOR ARCHITECTURAL PLAN

PROJECT No.
O0130014

DRAWING No.
A-10-201

SHEET 008 OF 088 SHEETS

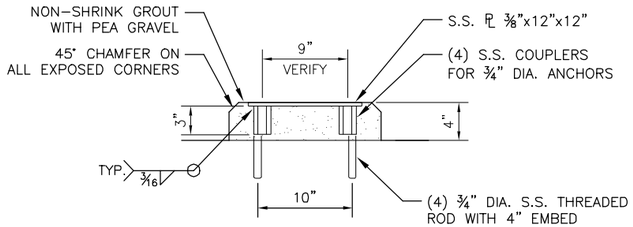


2 PLAN – GENERATOR ROOM CONCRETE CEILING

(ELEV. 22.0)

0 1' 2' 4'

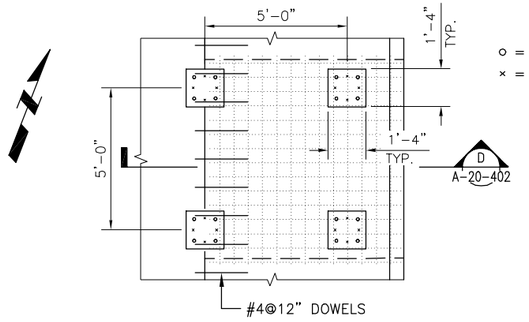
*NOTE:
CUT OPENING FOR NEW DUCT. NOMINAL DIMENSIONS SHOWN. COORDINATE DIMENSIONS AND LOCATION FOR SPECIFIC CONDITIONS AND EQUIPMENT.



NOTES:
1. COORDINATE THREADS AND FINAL LOCATION WITH CARBON FEEDER.
2. THREADED ROD EMBEDDED IN CONCRETE SHALL BE EPOXIED IN PLACE.
3. STAINLESS STEEL PLATES SHALL ALL BE LEVEL AND AT SAME ELEVATION.

4 DETAIL – SUPPORT PAD

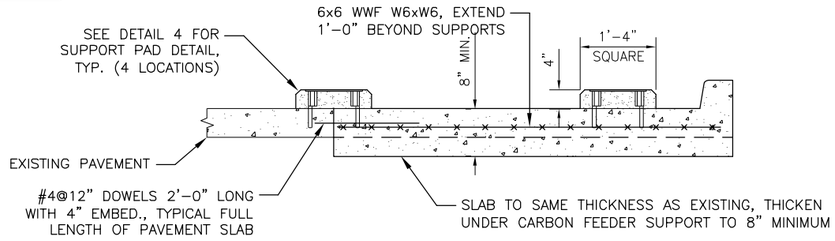
0 1' 2'



NOTE: SEE SHEET C-20-101 FOR CARBON FEEDER LOCATION

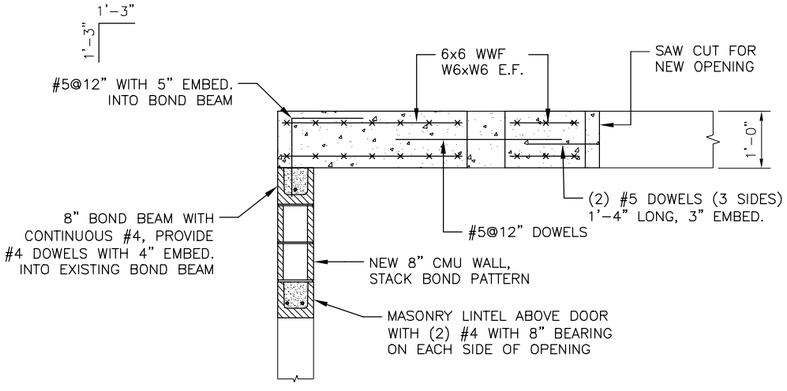
3 PLAN – CARBON FEEDER SUPPORT

0 1' 2' 4'



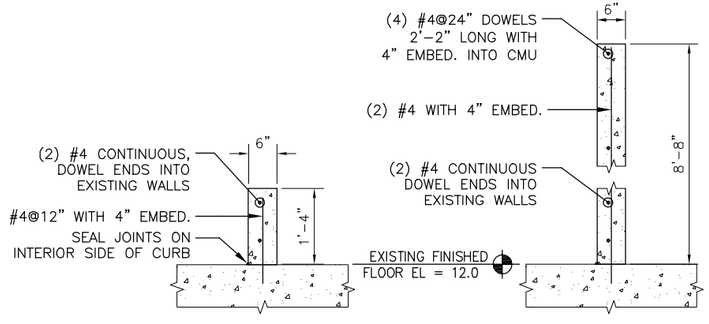
D SECTION – CARBON FEEDER SUPPORT

0 1' 2'



C SECTION – SLAB AND MASONRY WALL

0 1' 2'



E&F SECTION – CONTAINMENT CURB AND WALL

0 1' 2'

NOTES

1. SEE SHEET A-00-102 FOR STRUCTURAL GENERAL NOTES.
2. SEE SHEET A-30-103 FOR STRUCTURAL STANDARD DETAILS
3. CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING SLAB OVER PROPOSED GENERATOR ROOM.

Clark Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY:	SMM
DRAWN BY:	SMM
CHECKED BY:	PS
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
LOW LIFT PUMP STATION STRUCTURAL PLANS AND SECTIONS

PROJECT No.
O0130014

DRAWING No.
A-20-402

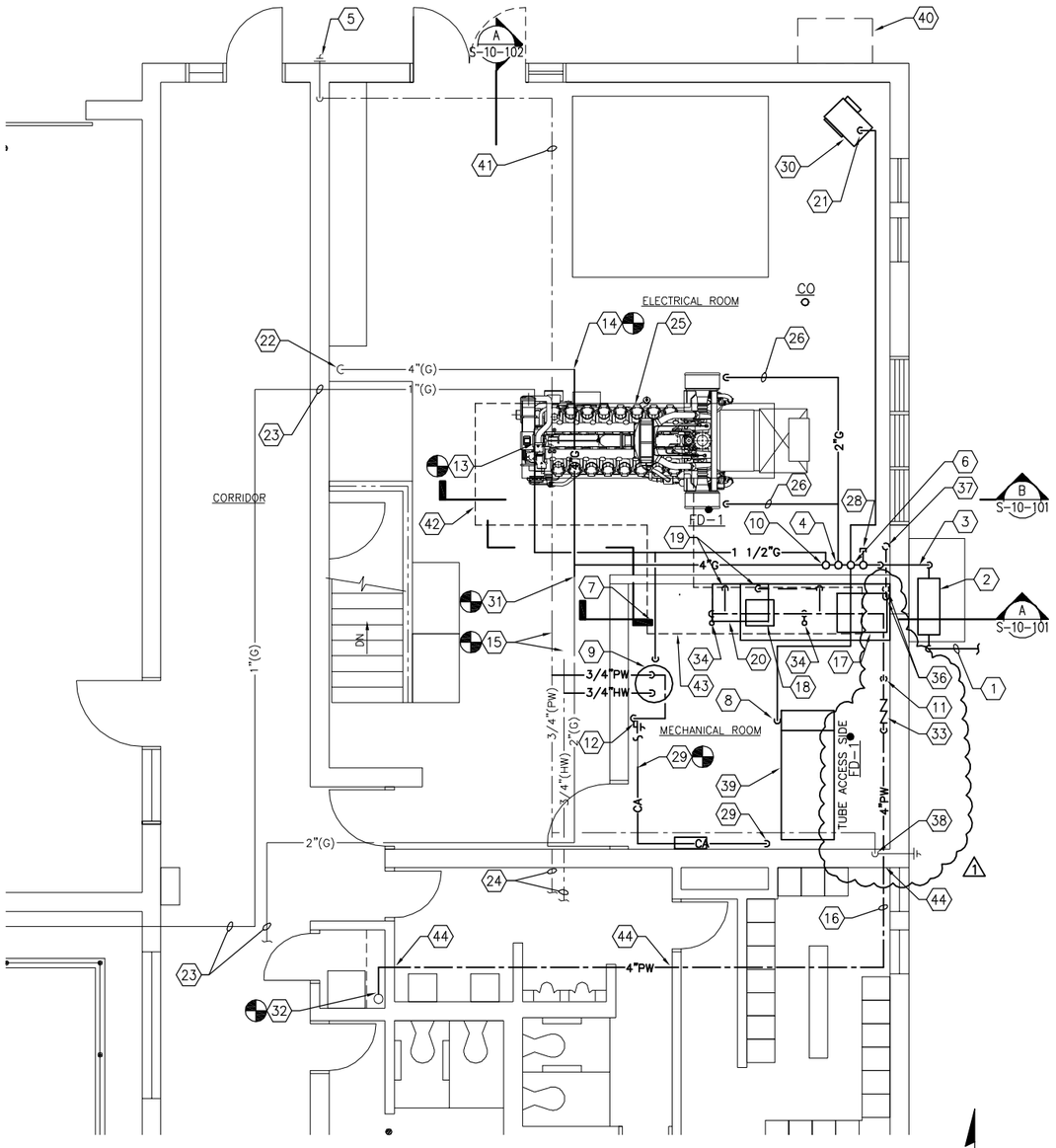
SHEET 017 OF 088 SHEETS

NOTES

1. SEE DRAWING P-00-101 FOR GENERAL NOTES, LEGENDS, AND ABBREVIATIONS.
2. ALL PIPING IN ELECTRICAL ROOM AND IN MECHANICAL ROOM ARE EXPOSED AT CEILING, UNLESS OTHERWISE INDICATED.

KEYNOTES

1. GAS SERVICE FROM WE ENERGIES. CONTRACTOR SHALL COORDINATE LOCATION AND SERVICE WITH WE ENERGIES.
2. GAS METER PROVIDED BY WE ENERGIES. THE METER SHALL BE RATED FOR 30,000 CFH AT 5 PSI. THE METER SHALL BE INSTALLED ON THE WALL. CONTRACTOR SHALL PROVIDE CONCRETE PAD BELOW METER. SEE DRAWING A-10-201 FOR ADDITIONAL INFORMATION. SEE DETAIL 1/P-30-101 FOR ADDITIONAL INFORMATION.
3. PROVIDE 4" GAS PIPING FROM METER INTO BUILDING. PROVIDE SLEEVE THROUGH WALL AND SEAL OPENING WATER TIGHT. SEE DETAIL 1/P-30-201. (1)
4. PROVIDE 3" GAS PIPING FOR NATURAL GAS GENERATOR GEN-101. SEE DETAIL 1/P-30-201.
5. EXISTING HOSE BIBB.

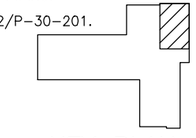


1 ENLARGED FIRST FLOOR PLUMBING PLAN (ELEV. 99.0)

0 1' 2' 4' 8'

KEYNOTES (CONT.)

6. PROVIDE 1 1/2" GAS PIPING INTO MECHANICAL ROOM. PROVIDE GAS REGULATOR TO ADJUST PRESSURE DOWN TO 14" WC FOR BOILER. TRANSITION PIPING TO 2 1/2" GAS.
7. PROVIDE 3/4" GAS PIPING DOWN TO RELOCATED WATER HEATER. SEE DETAIL 3/P-30-201.
8. PROVIDE 2 1/2" GAS PIPING DOWN TO HEATING HOT WATER BOILER B-101. SEE DETAIL 3/P-30-201.
9. RELOCATED WATER HEATER. PROVIDE 3/4" POTABLE WATER AND HOT WATER PIPING TO WATER HEATER. INSTALL WATER HEATER ON 4" THICK CONCRETE PAD.
10. PROVIDE 1" GAS PIPING. PROVIDE GAS REGULATOR TO ADJUST PRESSURE DOWN TO 1 PSI. TRANSITION PIPING TO 1 1/2" GAS.
11. PROVIDE 3/4" POTABLE WATER PIPING TO HEATING HOT WATER BOILER B-101. (1)
12. PROVIDE 1/2" POTABLE WATER PIPING DOWN TO WALL MOUNTED HOSE BIBB HB-1. CONNECT TO EXISTING PIPING.
13. PROVIDE 1" GAS PIPING TO REFEED EXISTING 1" GAS PIPING FOR BUILDING SERVICES.
14. PROVIDE 4" GAS PIPING TO REFEED EXISTING 4" GAS PIPING FOR HORIZONTAL SHAFT PUMP.
15. PROVIDE 3/4" POTABLE WATER AND HOT WATER PIPING TO/FROM RELOCATED HOT WATER HEATER, CONNECT TO EXISTING PIPING.
16. PROVIDE 4" POTABLE WATER PIPING TO HEAT EXCHANGERS FOR GENERATOR COOLING.
17. JACKET WATER HEAT EXCHANGER HX-101A. PROVIDE 4" POTABLE WATER AND 4" DRAIN PIPING TO HEAT EXCHANGER. SEE DETAIL 10/P-30-201.
18. AFTER COOLER HEAT EXCHANGER HX-101B. PROVIDE 2" POTABLE WATER AND 2" DRAIN PIPING TO HEAT EXCHANGER. SEE DETAIL 10/P-30-201.
19. PROVIDE DRAIN PIPING FROM HEAT EXCHANGERS. ROUTE PIPING DOWN TO SUMP PIT.
20. SUMP PIT. PROVIDE 6" SANITARY PIPING DOWN THRU SLAB.
21. PROVIDE 3/4" GAS PIPING DOWN TO GAS FIRED UNIT HEATER. SEE DETAIL 3/P-30-201.
22. EXISTING 4" GAS PIPING DOWN TO LOWER LEVEL.
23. EXISTING GAS PIPING TO BUILDING SERVICES.
24. EXISTING POTABLE WATER AND HOT WATER PIPING.
25. NATURAL GAS STANDBY GENERATOR GEN-101.
26. PROVIDE 2" GAS PIPING DOWN TO GENERATOR GEN-101. SEE DETAIL 3/P-30-201.
27. --NOT USED-- (1)
28. PROVIDE 3" GAS PIPING FOR FUTURE GENERATOR. PROVIDE CAP AND ISOLATION VALVE.
29. COMPRESSED AIR PIPING FROM LOWER LEVEL. EXTEND AND CONNECT TO EXISTING EXISTING PIPING CONTRACTOR SHALL VERIFY SIZES OF ALL PIPING PRIOR TO INSTALLATION.
30. GAS UNIT HEATER GUH-1.
31. PROVIDE 2" GAS PIPING TO REFEED EXISTING 2" GAS PIPING FOR BUILDING SERVICES.
32. PROVIDE 4" POTABLE WATER PIPING CONNECTION WITH ISOLATION VALVE TO EXISTING 6" THREADED STEEL POTABLE WATER RISER FROM LOWER LEVEL.
33. PROVIDE 4" POTABLE WATER PIPING TO GENERATOR COOLING HEAT EXCHANGERS. PROVIDE RPZ TYPE BACKFLOW PREVENTER, APPROXIMATELY 4' ABOVE FINISHED FLOOR. ROUTE DRAIN PIPING TO FLOOR DRAIN. MAINTAIN TUBE REMOVAL CLEARANCE FOR GAS FIRED BOILER. SEE DETAIL 9/P-30-201. (1)
34. PROVIDE LINE SIZE SOLENOID WATER FLOW CONTROL VALVE INTERCONNECTED WITH GENERATOR CONTROL PANEL. PROVIDE 120V CONTROL VALVE ACTUATOR. VERIFY VOTLAGE WITH GENERATOR MANUFACTURER. (1) (A)
35. --NOT USED-- (1)
36. PROVIDE 2" VENT PIPING UP THRU SLAB. EXTEND PIPING UP TO BELOW CEILING. CONNECT TO 3" VENT PIPING AT CEILING.
37. PROVIDE 2" VENT PIPING UP THRU SLAB. CONNECT TO 3" VENT PIPING AND EXTEND THRU ROOF. SEE DETAIL 4/P-30-201.
38. EXISTING WATER ISOLATION VALVE IN WALL FOR EXTERIOR HOSE BIBB.
39. GAS FIRED BOILER B-101.
40. SAWCUT AND REMOVE ASPHALT SURFACE FOR INSTALLATION OF SANITARY PIPING. PATCH ASPHALT SURFACE TO MATCH EXISTING.
41. EXISTING POTABLE WATER PIPING.
42. PIPE TRENCH FOR COOLANT PIPING.
43. PIPE TRENCH FOR COOLANT PIPING AND HEAT EXCHANGER DRAIN PIPING.
44. CORE EXISTING WALL FOR POTABLE WATER PIPING. SEE DETAIL 2/P-30-201.



KEY PLAN
NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8000
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY:	NTP
DRAWN BY:	NTP
CHECKED BY:	KRP
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

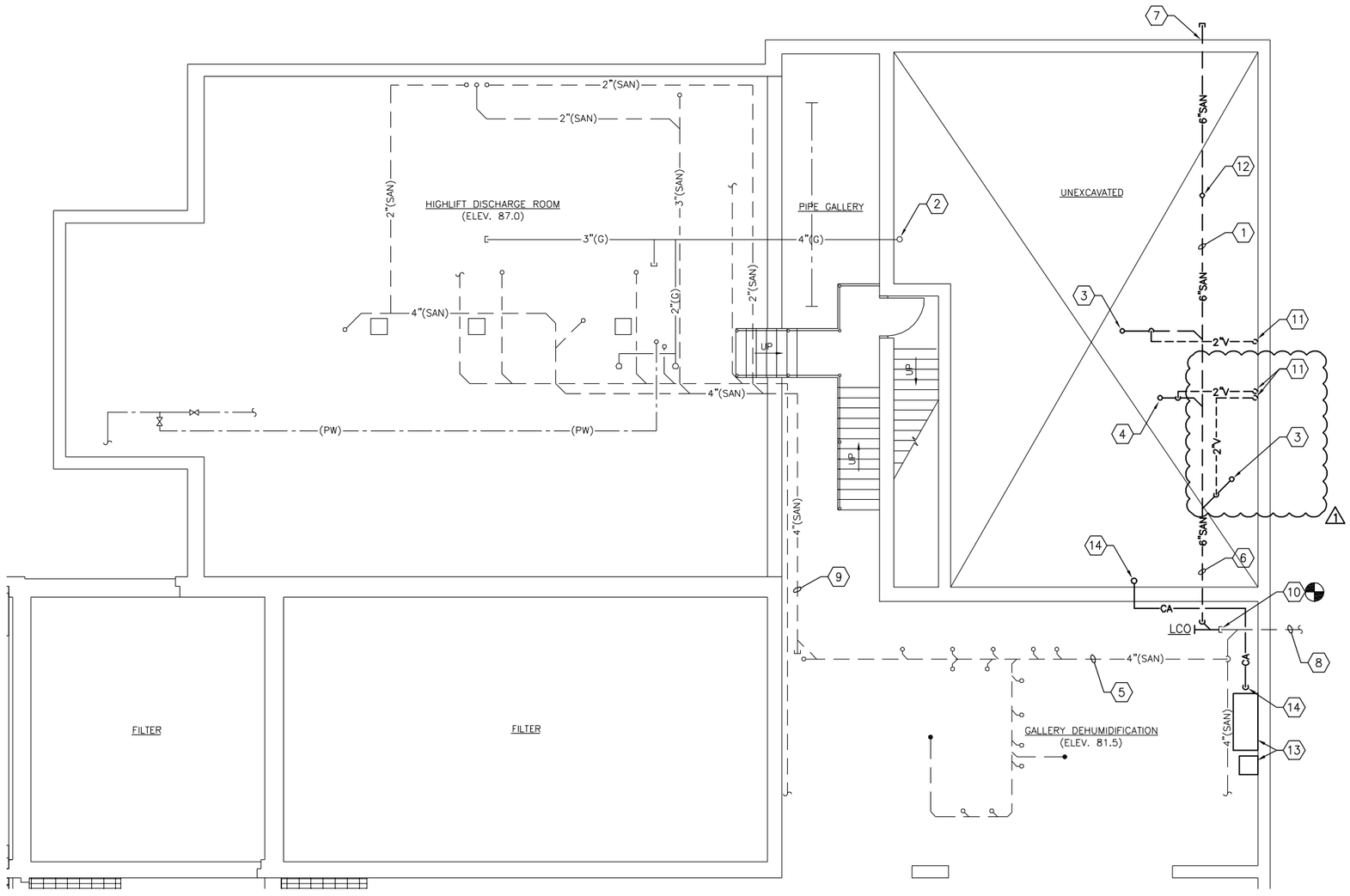
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY ENLARGED FIRST FLOOR PLUMBING PLAN

PROJECT No.
O0130014

DRAWING No.
P-10-201

SHEET 031 OF 088 SHEETS



NOTES

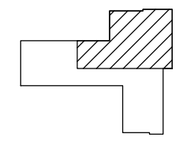
1. SEE DRAWING P-10-101 FOR GENERAL NOTES, LEGENDS AND ABBREVIATIONS.

KEYNOTES

1. PROVIDE 6" SANITARY PIPING BELOW SLAB.
2. EXISTING GAS PIPING FROM FLOOR ABOVE.
3. PROVIDE 4" SANITARY PIPING UP THRU SLAB TO FLOOR DRAIN FD-1. CONNECT TO FLOOR DRAIN.
4. PROVIDE 6" SANITARY PIPING UP THRU SLAB TO SUMP PIT.
5. EXISTING 4" SANITARY PIPING AT LOWER LEVEL CEILING.
6. PROVIDE 6" SANITARY PIPING FROM FIRST FLOOR.
7. PROVIDE 6" SANITARY PIPING THRU FOUNDATION. PROVIDE PIPE SLEEVE IN PENETRATION. EXTEND PIPING 3' PAST FOUNDATION WALL AND CAP FOR FUTURE EXPANSION. SEE DETAIL 1/P-30-201.
8. EXISTING 6" SANITARY PIPING FROM BUILDING (℄ ELEV. 87.5). (1)
9. EXISTING SANITARY PIPING FROM PUMP ROOM.
10. PROVIDE 6" SANITARY PIPING, CONNECT TO EXISTING 6" SANITARY PIPING.
11. PROVIDE 2" VENT PIPING UP THRU SLAB.
12. PROVIDE 4" SANITARY PIPING UP THRU SLAB TO FLOOR CLEANOUT. SEE DETAIL 6/P-30-201.
13. RELOCATE EXISTING AIR COMPRESSOR AND DRYER FROM MECHANICAL ROOM. INSTALL AIR COMPRESSOR ON 4" CONCRETE PAD. PROVIDE NEW PIPING, FILTER, DRAIN, VALVES, SEPARATORS, AND QUICK CONNECTS ABOVE COMPRESSOR.
14. COMPRESSED AIR PIPING UP TO FLOOR ABOVE FROM RELOCATED AIR COMPRESSOR. COORDINATE PIPE SIZING PRIOR TO INSTALLATION.

1 LOWER LEVEL PLUMBING PLAN

0 2' 4' 8' 12'



KEY PLAN
NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION
No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	NTP	
DRAWN BY:	NTP	
CHECKED BY:	KRP	
DATE CHECKED:	01/11	

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND
FILTRATION FACILITY
LOWER LEVEL
PLUMBING PLAN

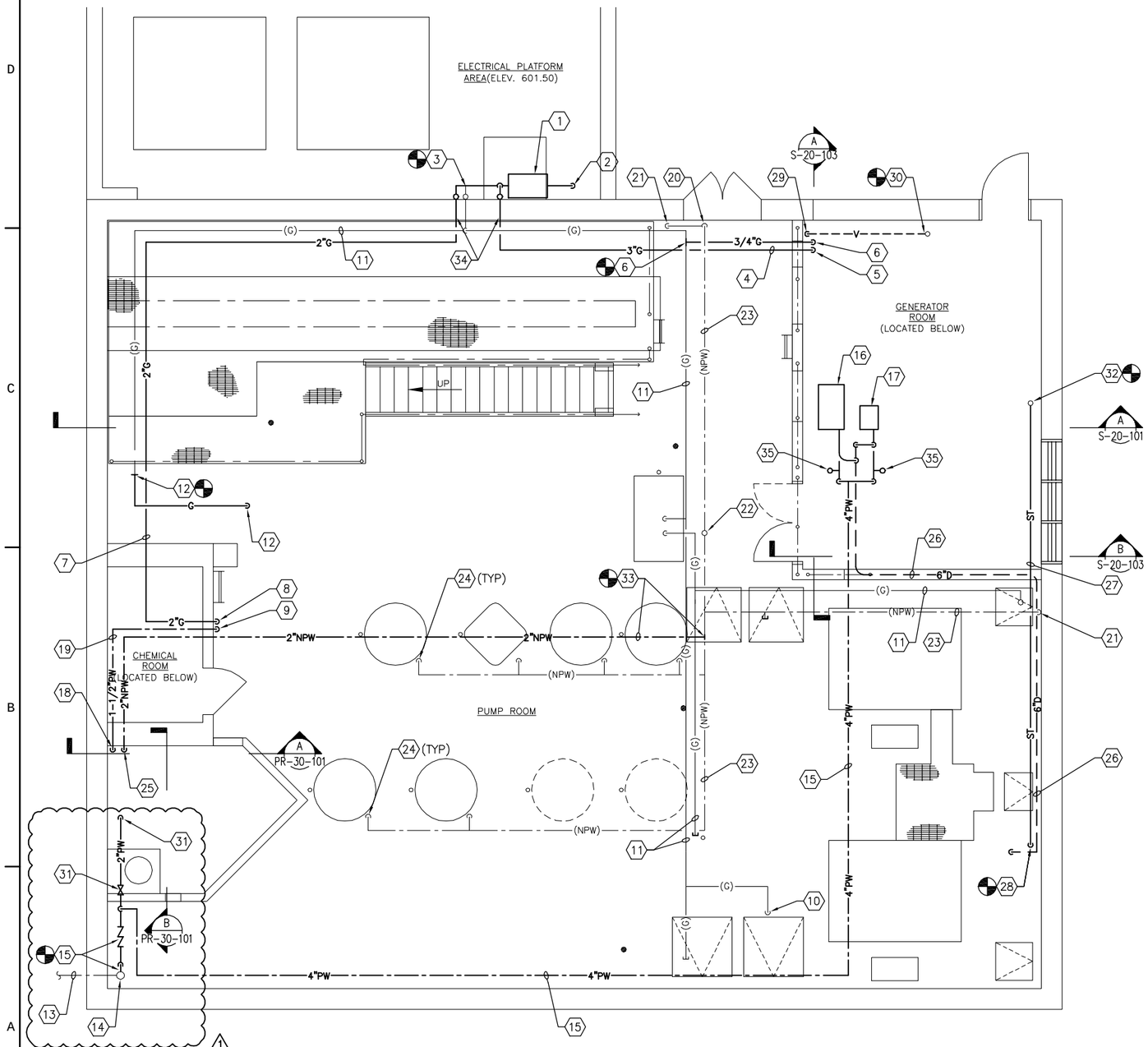
PROJECT No.
O0130014

DRAWING No.
P-10-202

SHEET 032 OF 088 SHEETS

NOTES

1. SEE DRAWING P-00-101 FOR GENERAL NOTES, LEGENDS AND ABBREVIATIONS.



1 MEZZANINE PLUMBING PLAN (ELEV. 22.0)

0 1' 2' 4' 8'

KEYNOTES

1. GAS SERVICE AND METER PROVIDED BY WE ENERGIES. THE METER SHALL BE RATED FOR 13,000 CFH AT 5PSI. CONTRACTOR SHALL COORDINATE LOCATION AND SERVICE WITH WE ENERGIES AS REQUIRED. SEE DETAIL 2/P-30-101 FOR ADDITIONAL INFORMATION.
2. EXISTING 3" GAS SERVICE UP TO GAS METER TO REMAIN AND BE REUSED.
3. PROVIDE 4" GAS PIPING FROM GAS METER/MANIFOLD ASSEMBLY TO EXISTING BUILDING SERVICES. PROVIDE REGULATOR RATED FOR SAME SETTINGS AS EXISTING SERVICE. CONNECT TO EXISTING PIPING.
4. PROVIDE 3" GAS PIPING TO NATURAL GAS GENERATOR. ROUTE GAS PIPING ALONG WALL.
5. PROVIDE 3" GAS PIPING DOWN TO NATURAL GAS GENERATOR GEN-102, (LOCATED IN GENERATOR ROOM).
6. PROVIDE 3/4" GAS PIPING DOWN TO GAS FIRED UNIT HEATER (LOCATED IN GENERATOR ROOM). CONNECT TO EXISTING GAS PIPING.
7. PROVIDE 2" GAS PIPING FOR WATER HEATER.
8. PROVIDE 2" GAS PIPING DOWN TO WATER HEATER (LOCATED BELOW).
9. PROVIDE 1 1/2" POTABLE WATER PIPING DOWN TO WATER HEATER AND THERMOSTATIC MIXING VALVE ASSEMBLY (LOCATED BELOW).
10. EXISTING GAS PIPING TO GAS FIRED UNIT HEATER BELOW.
11. EXISTING GAS PIPING.
12. EXTEND 3/4" GAS PIPING DOWN TO RELOCATED GAS FIRED UNIT HEATER (LOCATED BELOW).
13. EXISTING 4" INCOMING POTABLE WATER SERVICE INTO BUILDING.
14. EXISTING 4" POTABLE WATER RISER.
15. PROVIDE 4" POTABLE WATER PIPING TO GENERATOR HEAT EXCHANGERS AND POTASSIUM PERMANGANATE SYSTEM. CONNECT TO EXISTING PIPING USING EXISTING VALVE. PROVIDE RPZ TYPE BACKFLOW PREVENTER (MOUNT ABOVE EXISTING BACKFLOW PREVENTER). SEE DETAILS 3/P-30-101 AND 9/P-30-201. (1)
16. JACKET WATER HEAT EXCHANGER HX-102A. PROVIDE 4" POTABLE WATER AND 4" DRAIN PIPING TO HEAT EXCHANGER. SEE DETAIL 10/P-30-201.
17. AFTER COOLER HEAT EXCHANGER HX-102B. PROVIDE 2" POTABLE WATER AND 2" DRAIN PIPING TO HEAT EXCHANGER. SEE DETAIL 10/P-30-201.
18. PROVIDE 1 1/2" POTABLE WATER PIPING UP FROM BELOW.
19. ROUTE PIPING ALONG WALL. AVOID CONFLICT WITH EXISTING PROCESS PIPING.
20. EXISTING NON-POTABLE WATER PIPING DOWN TO BELOW MEZZANINE LEVEL.
21. EXISTING NON-POTABLE WATER PIPING DOWN TO HOSE BIBB.
22. EXISTING 4" NON-POTABLE WATER PIPING CONNECTION TO RAW WATER PIPING.
23. EXISTING NON-POTABLE WATER PIPING ALONG CEILING.
24. EXISTING NON-POTABLE WATER PIPING DOWN TO SEAL WATER VALVE ON LOW LIFT PUMP.
25. PROVIDE 2" NON-POTABLE WATER PIPING DOWN TO POTASSIUM PERMANGANATE SYSTEM (LOCATED BELOW).
26. PROVIDE 6" DRAIN PIPING FROM HEAT EXCHANGERS. ROUTE PIPING ALONG GENERATOR ROOM CEILING DOWN TO BELOW. CONNECT CONDENSATE DRAIN PIPING FROM SILENCER. SEE DRAWING HV-20-202 FOR LOCATION.
27. RELOCATE EXISTING 4" STORM DRAIN PIPING ALONG CEILING TO AVOID NEW EXHAUST LOUVER PLENUM.
28. RECONNECT EXISTING 4" STORM DRAIN PIPING DOWN FROM ROOF DRAIN AND DOWN INTO SUMP PIT (LOCATED BELOW) TO RELOCATED 4" STORM DRAIN.
29. PROVIDE 2" VENT PIPING FROM BELOW. ROUTE PIPING ALONG GENERATOR ROOM CEILING TO EXISTING SANITARY VENT THRU ROOF.
30. PROVIDE 2" SANITARY VENT PIPING UP TO EXISTING VENT THRU ROOF. TRANSITION TO EXISTING 4" VENT.
31. PROVIDE 2" POTABLE WATER PIPING DOWN TO POTASSIUM PERMANGANATE SYSTEM. PROVIDE ISOLATION VALVE.
32. RECONNECT EXISTING 4" PIPING DOWN FROM ROOF DRAIN TO RELOCATED 4" STORM DRAIN.
33. PROVIDE 2" NON-POTABLE WATER PIPING CONNECTED TO EXISTING NON-POTABLE WATER PIPING. PROVIDE SUPPORT BRACKET TO MOUNT OFF SIDE OF OVERHEAD MONORAIL.
34. CORE WALL FOR GAS PIPING. SEE DETAIL 1/P-30-201.
35. PROVIDE LINE SIZE SOLENOID WATER FLOW CONTROL VALVE INTERCONNECTED WITH GENERATOR CONTROL PANEL. PROVIDE 120V CONTROL VALVE ACTUATOR. VERIFY VOLTAGE WITH GENERATOR MANUFACTURER.

Clark Dietz ENGINEERS

DESIGN FIRM REGISTRATION No. 184-000450

125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE

WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	NTP
DRAWN BY:	NTP
CHECKED BY:	KRP
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE

LOW LIFT PUMP STATION
MEZZANINE
PLUMBING PLAN

PROJECT No.
O0130014

DRAWING No.
P-20-202

SHEET 036 OF 088 SHEETS

WATER HEATER SCHEDULE – INSTANTANEOUS GAS FIRED

TAG	SERVICE / LOCATION	WATER				NATURAL GAS			THERMAL EFFICIENCY (%)	ELECTRIC DATA			INTAKE AIR	EXHAUST AIR	REMARKS	DESIGN BASIS	
		FLOW (GPM)	EWT (°F)	LWT (°F)	W.P.D. (PSI)	MIN. (MBH)	MAX. (MBH)	GAS PRESSURE (IN WC)		V	PH	HZ				MANUFACTURER	MODEL NUMBER
WH–102	EMERGENCY SHOWER / LLPS–PUMP ROOM	8.0	45.0	120.0	7.5	15.0	380.0	5–14	80.0	120	1	60	5"ø	5"ø	NOTE 1, 2, 3	TAKAGI	T–M50ASME

NOTES:

1. PROVIDE MANUFACTURER'S WALL MOUNTED SUPPORT KIT.
2. PROVIDE MANUFACTURER'S CONDENSATE NEUTRALIZER KIT IF REQUIRED.
3. PROVIDE MANUFACTURER'S INTAKE AND EXHAUST AIR TERMINATION KITS.

THERMOSTATIC MIXING VALVE SCHEDULE

TAG	SERVICE / LOCATION	VALVE DATA								REMARKS	DESIGN BASIS	
		TYPE	FLOW CAPACITY MIN.	FLOW CAPACITY MAX.	INLET	OUTLET	TEMP. CONDITIONS (°F) ENT. CW	ENT. HW	LVG. TW		MANUFACTURER	MODEL NUMBER
TMV–1	WH–102 / LLPS–PUMP ROOM	THERMOSTATIC	––	24.0	1–1/4"	1–1/4"	40.0	120.0	85.0	NOTE 1	LAWLER	SERIES 911E

NOTES:

1. PROVIDE WITH LOCKING TEMPERATURE REGULATOR AND WALL SUPPORT BRACKET.

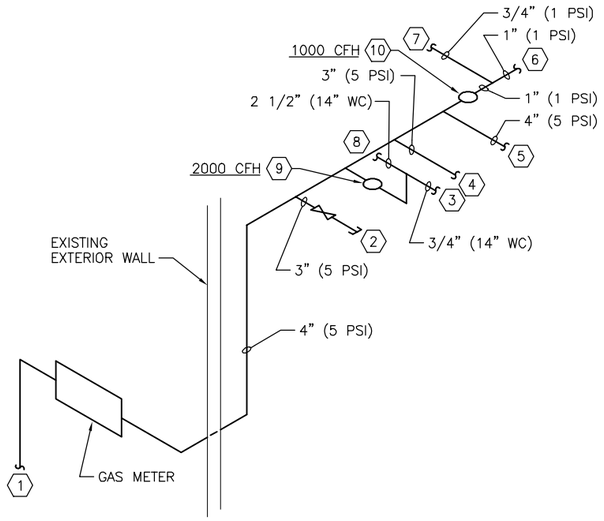
EQUIPMENT CONNECTION SCHEDULE

TAG	HW	PW	TW	G	D
HX–101A	––	4"	––	––	4"
HX–101B	––	2"	––	––	2"
HX–102A	––	4"	––	––	4"
HX–102B	––	2"	––	––	2"
TMV–1	1–1/4"	1–1/4"	1–1/4"	––	––
ESEW–1	––	––	1–1/4"	––	––
WH–101	3/4"	3/4"	––	––	––
WH–102	1"	1"	––	––	––
B–101	––	3/4"	––	2"	––

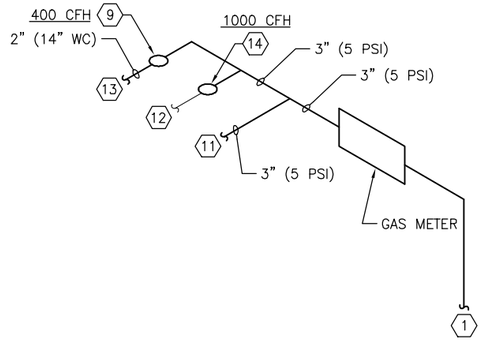
KEYNOTES

1. GAS SERVICE FROM WE ENERGIES.
2. 3" GAS PIPING FOR FUTURE GENERATOR.
3. 3/4" GAS PIPING FOR GAS FIRED UNIT HEATER GUH–1.
4. 3" GAS PIPING FOR GAS GENERATOR GEN–101.
5. 4" GAS PIPING TO REFEED EXISTING 4" GAS PIPING.
6. 1" GAS PIPING TO REFEED EXISTING 1" GAS PIPING.
7. 3/4" GAS PIPING FOR RELOCATED WATER HEATER.
8. 2 1/2" GAS PIPING FOR HEATING HOT WATER BOILER B–101.
9. GAS REGULATOR TO ADJUST PRESSURE DOWN TO 14" WC. CFH PROVIDED IS BASED ON AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY IN FIELD PRIOR TO SIZING REGULATORS.
10. GAS REGULATOR TO ADJUST PRESSURE DOWN TO 1 PSI. CFH PROVIDED IS BASED ON AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY IN FIELD PRIOR TO SIZING REGULATORS.
11. 3" GAS PIPING TO GAS GENERATOR GEN–102.
12. 4" GAS PIPING TO REFEED EXISTING 4" GAS PIPING.
13. 2" GAS PIPING FOR WATER HEATER WH–102.
14. GAS REGULATOR TO ADJUST PRESSURE TO EXISTING SERVICE SETTING. CFH PROVIDED IS BASED ON AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY IN FIELD PRIOR TO SIZING REGULATORS.
15. EXISTING 4" INCOMING POTABLE WATER SERVICE INTO BUILDING.
16. PROVIDE 4" POTABLE WATER PIPING. CONNECT TO EXISTING PIPING USING EXISTING VALVE.
17. PROVIDE RPZ TYPE BACKFLOW PREVENTER. MOUNT AT HEIGHT ABOVE EXISTING BACKFLOW PREVENTER TO ALLOW MAINTENANCE FROM EXISTING PLATFORM.
18. PROVIDE 2" POTABLE WATER PIPING TO POTASSIUM PERMANGANATE SYSTEM. PROVIDE ISOLATION VALVE.
19. PROVIDE 4" POTABLE WATER PIPING TO GENERATOR HEAT EXCHANGERS.
20. PROVIDE 1 1/2" POTABLE WATER PIPING TO HOT WATER HEATER. CONNECT TO EXISTING PIPING.
21. EXISTING POTABLE WATER BACKFLOW PREVENTER ASSEMBLY.
22. EXISTING 1 1/2" POTABLE WATER PIPING.

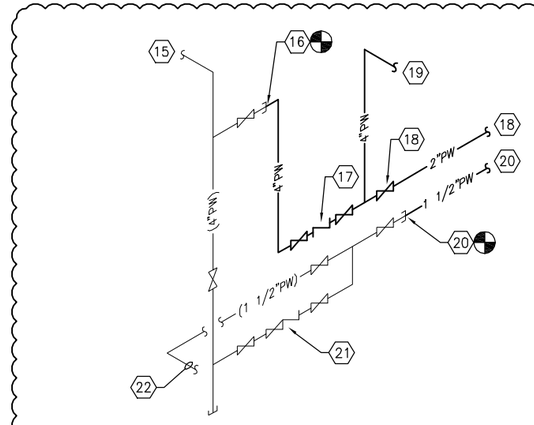
1



1 ADMINISTRATION AND FILTRATION FACILITY GAS PIPING DETAIL
NO SCALE



2 LOW LIFT PUMP STATION GAS PIPING DETAIL
NO SCALE



3 LLPS POTABLE WATER SERVICE DETAIL
NO SCALE

1

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY: NTP
DRAWN BY: NTP
CHECKED BY: KRP
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

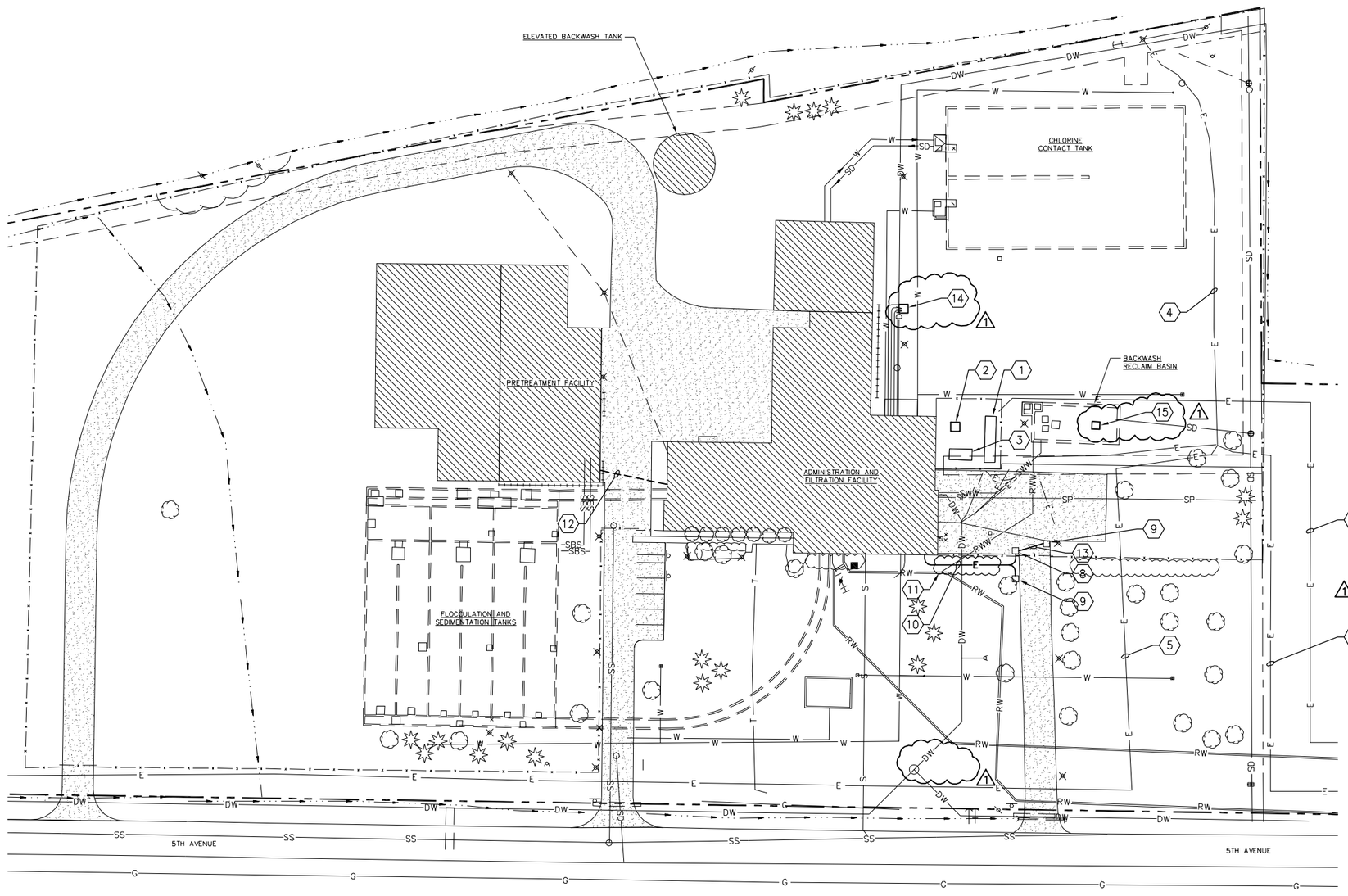
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
PLUMBING EQUIPMENT SCHEDULES AND DETAILS

PROJECT No.
O0130014

DRAWING No.
P-30-101

SHEET 037 OF 088 SHEETS



1 ELECTRICAL SITE PLAN

0 20' 40' 80'

NOTES

1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE SPECIFICATION 01 10 00 FOR A DESCRIPTION OF WORK REQUIRED FOR OWNER SUPPLIED PRODUCTS AND WORK SEQUENCE.

KEYNOTES

1. EXISTING OUTDOOR 24.9 KV SWITCHGEAR.
2. TRANSFORMER XFMR-3A WEST.
3. EXISTING TRANSFORMER XFMR-3B EAST.
4. EXISTING WE ENERGIES 25 KV FEED #1 - WEST SOURCE (PENNSYLVANIA AVE. SUBSTATION).
5. EXISTING WE ENERGIES 25 KV FEED #2 - EAST SOURCE (PENNSYLVANIA AVE. SUBSTATION).
6. EXISTING LOW LIFT PUMP STATION 25 KV FEED #1.
7. EXISTING LOW LIFT PUMP STATION 25 KV FEED #2.
8. EXISTING NORTH GATE OPENER.
9. EXISTING NORTH GATE CARD READER.
10. PROVIDE THE FOLLOWING DIRECT BURIED CONDUITS (LOCATE CONDUITS 48" WEST OF EXISTING CHAIN LINK FENCE). SEE DRAWING E-10-301 AND E-10-402 FOR CONTINUATION.
    - 1" CONDUIT WITH 3#12, 1#12 GROUND FOR POWER FROM PANEL B-RIGHT TO NORTH GATE OPENER.
    - 1" CONDUIT WITH CONTROL WIRES TO NORTH GATE CONTROLLER.
    - 1" CONDUIT WITH CONTROL WIRES FOR NORTH GATE CARD READERS AND INTERCOM.
    - 1" SPARE CONDUIT.
11. REMOVE EXISTING SHRUBS FOR INSTALLATION OF DIRECT BURIED CONDUITS.
12. REPLACE 480 VOLT FEEDER CONDUCTORS IN EXISTING UNDERGROUND CONDUITS FROM USS NO. 1 AND USS NO. 2 TO MCC-10 (SEE DRAWINGS E-10-403 AND E-10-501 FOR CONTINUATION).
13. PROVIDE (2) 1" DIRECT BURIED CONDUITS WITH WIRING TO CARD READER. SAWCUT ASPHALT SURFACE TO REMOVE AS REQUIRED FOR INSTALLATION OF CONDUITS (PATCH TO MATCH EXISTING SURFACE).
14. EXISTING METER PIT. REPLACE CONTROL WIRING FROM METER TO RELOCATED AUTOCON METER PIT PANEL (EXTEND CONDUIT IN BUILDING AS REQUIRED).
15. REMOVE ABANDONED (2) 2#18 TSP CABLES FROM METER TO EXISTING AUTOCON PANEL LOCATED IN ELECTRICAL ROOM (ABANDON UNDERGROUND CONDUIT IN PLACE).

Clark Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8000
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	SEM
DRAWN BY:	JRF
CHECKED BY:	CEC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

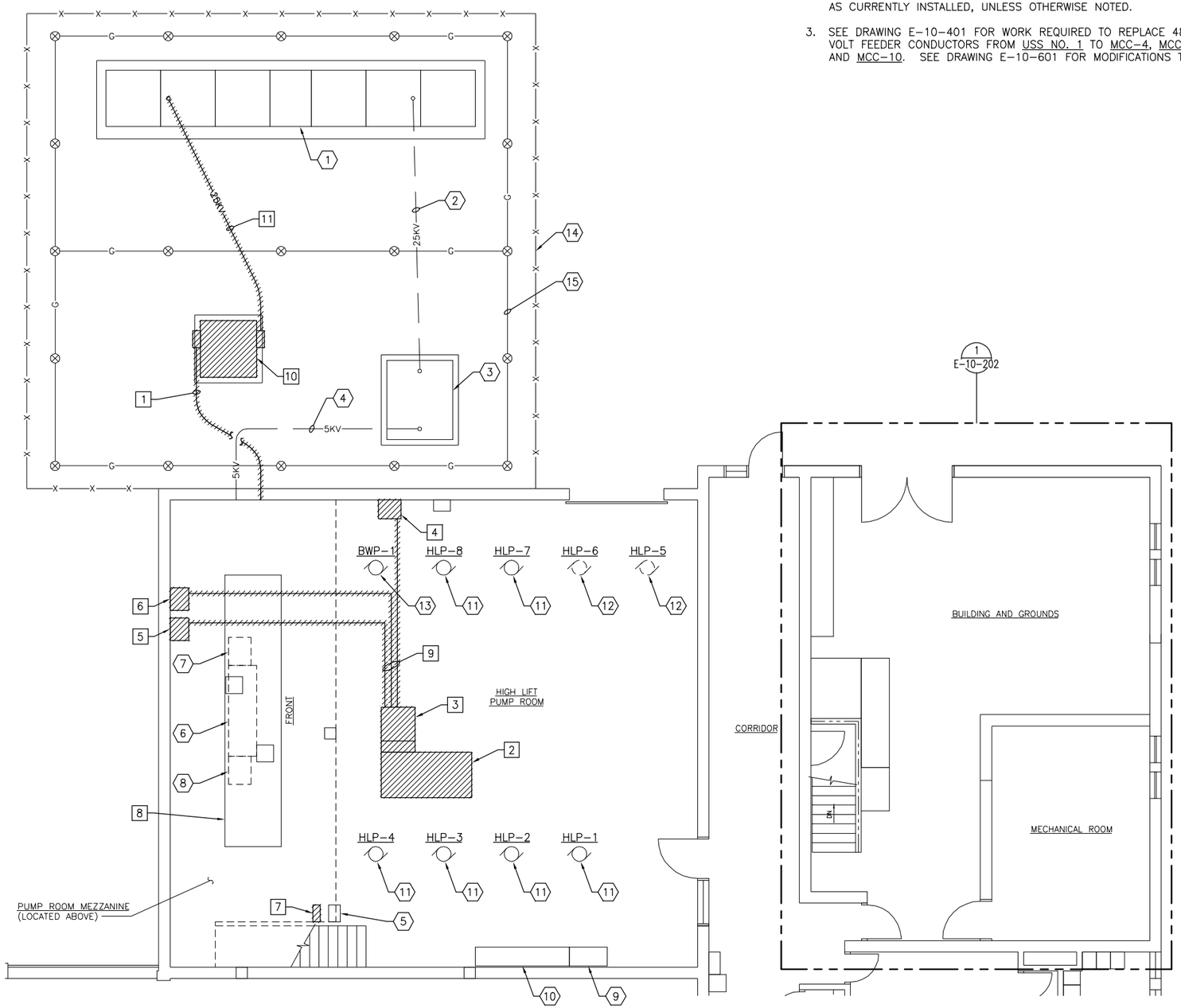
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
WATER TREATMENT PLANT
ELECTRICAL SITE PLAN

PROJECT No.
O0130014

DRAWING No.
E-10-101

SHEET 051 OF 088 SHEETS



NOTES

1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. ALL EQUIPMENT SHOWN ON THIS SHEET IS EXISTING AND TO REMAIN AS CURRENTLY INSTALLED, UNLESS OTHERWISE NOTED.
3. SEE DRAWING E-10-401 FOR WORK REQUIRED TO REPLACE 480 VOLT FEEDER CONDUCTORS FROM USS NO. 1 TO MCC-4, MCC-8, AND MCC-10. SEE DRAWING E-10-601 FOR MODIFICATIONS TO ATS.

DEMOLITION KEYNOTES

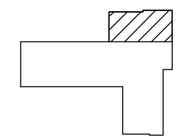
1. REMOVE EXISTING 5 KV SERVICE LATERAL CABLES FROM XFMR-3A WEST TO 2.4 KV SWITCHGEAR (ABANDON UNDERGROUND DUCTBANK IN PLACE). SEE DRAWING E-10-203 FOR CONTINUATION.
2. REMOVE EXISTING 250 KW NATURAL GAS STANDBY GENERATOR. REMOVE EXISTING CONCRETE EQUIPMENT PAD. PATCH AND FINISH SURFACE TO MATCH EXISTING.
3. REMOVE EXISTING SWITCHBOARD SB NO. 1. REMOVE EXISTING CONCRETE EQUIPMENT PAD. PATCH AND FINISH SURFACE TO MATCH EXISTING.

(1)

4. RETROFIT EXISTING AUTOMATIC TRANSFER SWITCH ATS-1. SEE NOTE 3.
5. RETROFIT EXISTING AUTOMATIC TRANSFER SWITCH ATS-3 (LOCATED ABOVE ON PUMP ROOM MEZZANINE). SEE NOTE 3.
6. RETROFIT EXISTING AUTOMATIC TRANSFER SWITCH ATS-4 (LOCATED ABOVE ON PUMP ROOM MEZZANINE). SEE NOTE 3.
7. REMOVE EXISTING WE ENERGIES METERING SOCKET, CABINET, AND ASSOCIATED CONDUIT/WIRE.
8. RETROFIT 2.4 KV SWITCHGEAR (SEE DRAWING E-10-701 FOR REQUIRED MODIFICATIONS).
9. REMOVE EXISTING CONDUITS AND FEEDER CONDUCTORS FROM SB NO. 1 TO ATS-1, ATS-3, AND ATS-4.
10. REPLACE EXISTING TRANSFORMER XFMR-3A WEST AND CONCRETE PAD.
11. REPLACE EXISTING 25KV CABLES FEEDING XFMR-3A WEST (EXISTING UNDERGROUND CONDUITS SHALL REMAIN AND BE EXTENDED AS REQUIRED).

KEYNOTES

1. EXISTING OUTDOOR 24.9 KV SWITCHGEAR TO REMAIN.
2. EXISTING UNDERGROUND 25KV FEED TO XFMR-3A EAST TO REMAIN.
3. EXISTING TRANSFORMER XFMR-3B EAST TO REMAIN.
4. EXISTING UNDERGROUND DUCTBANK WITH 5 KV SERVICE LATERAL CABLES FROM XFMR-3B EAST TO 2.4 KV SWITCHGEAR TO REMAIN. SEE DRAWING E-10-203 FOR CONTINUATION.
5. EXISTING WE ENERGIES METERING CABINET TO REMAIN.
6. EXISTING UNIT SUBSTATION USS NO. 1 AND 2 TO REMAIN (LOCATED ABOVE ON PUMP ROOM MEZZANINE).
7. EXISTING TRANSFORMER XFMR-1 (NORTH) TO REMAIN (LOCATED ABOVE ON PUMP ROOM MEZZANINE).
8. EXISTING TRANSFORMER XFMR-2 (SOUTH) TO REMAIN (LOCATED ABOVE ON PUMP ROOM MEZZANINE).
9. EXISTING MOTOR CONTROL CENTER MCC-2 TO REMAIN.
10. EXISTING MOTOR CONTROL CENTER MCC-1 TO REMAIN.
11. EXISTING HIGH LIFT PUMP TO REMAIN.
12. FUTURE HIGH LIFT PUMP.
13. EXISTING BACKWASH PUMP TO REMAIN.
14. EXISTING CHAIN LINK FENCE TO REMAIN.
15. EXISTING BARE COPPER GROUND GRID WITH GROUND RODS.



KEY PLAN
NO SCALE

1 FIRST FLOOR ELECTRICAL DEMOLITION PLAN
(ELEV. 99.0)
0 2' 4' 8' 12'

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION
No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY: SEM
DRAWN BY: JRF
CHECKED BY: CEC
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

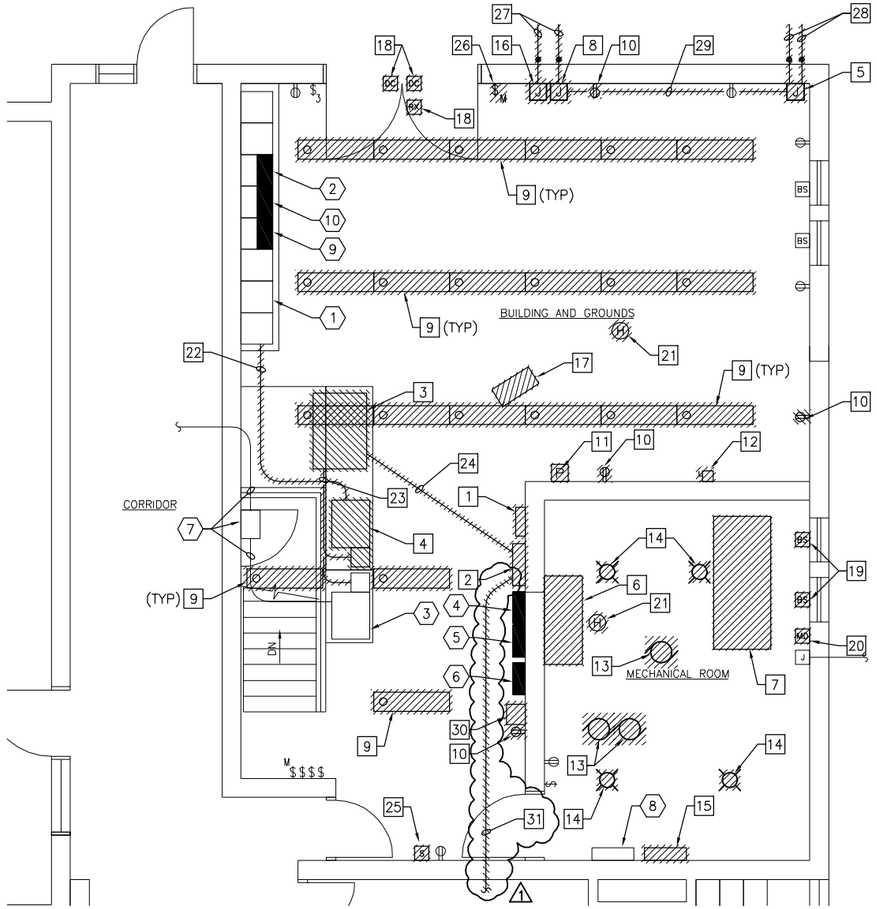
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND
FILTRATION FACILITY
FIRST FLOOR
ELECTRICAL
DEMOLITION PLAN

PROJECT No.
O0130014

DRAWING No.
E-10-201

SHEET 052 OF 088 SHEETS



1 ENLARGED FIRST FLOOR ELECTRICAL DEMOLITION PLAN

NOTES

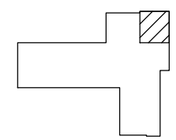
1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. ALL EQUIPMENT SHOWN ON THIS SHEET IS EXISTING AND TO REMAIN AS CURRENTLY INSTALLED, UNLESS OTHERWISE NOTED.
3. SEE DRAWING E-10-401 FOR WORK REQUIRED TO REPLACE 208 VOLT FEEDER CONDUCTORS FROM PANEL PA TO D-LEFT, C, AND H.
4. SEE DRAWING E-10-402 FOR WORK ASSOCIATED WITH RELOCATED OR REPLACED EQUIPMENT.

KEYNOTES

1. EXISTING MOTOR CONTROL CENTER MCC-4 TO REMAIN.
2. EXISTING 208Y/120V PANEL E TO REMAIN.
3. EXISTING TRANSFORMER XFMR-T4A TO REMAIN.
4. EXISTING 208Y/120V PANEL B-LEFT TO REMAIN AND BE REFED.
5. EXISTING 208Y/120V PANEL B-RIGHT TO REMAIN.
6. EXISTING 240/120V PANEL Z AND TRANSFORMER XFMR-T4B TO REMAIN.
7. EXISTING 480V FEEDER FROM USS NO. 1 AND PULLBOX TO REMAIN.
8. EXISTING TEMPERATURE CONTROL PANEL TO REMAIN.
9. EXISTING 480Y/277V PANEL AA TO REMAIN.
10. EXISTING 480Y/277V PANEL EE TO REMAIN.

DEMOLITION KEYNOTES

1. RELOCATE EXISTING AUTOCON METER PIT PANEL. SEE DRAWING E-30-205 FOR DETAILS.
2. REPLACE EXISTING 208Y/120V PANEL PA.
3. RELOCATE EXISTING BYPASS ISOLATION SWITCH.
4. RELOCATE EXISTING TRANSFORMER XFMR-T4.
5. RELOCATE EXISTING READER MODULE FOR NORTH GATE CARD READER. REMOVE EXISTING WALL BOX.
6. RELOCATE EXISTING AIR COMPRESSOR AND COMBINATION STARTERS.
7. REMOVE ELECTRICAL CONNECTED TO EXISTING BOILER AND CONTROL PANEL.
8. REPLACE EXISTING JUNCTION BOX, CONDUIT, AND CONTROL WIRING FOR NORTH GATE CONTROLLER.
9. REMOVE EXISTING 4' FLUORESCENT LIGHT FIXTURE.
10. REMOVE EXISTING DUPLEX RECEPTACLE.
11. RELOCATE EXISTING PAGING SYSTEM HANDSET.
12. REMOVE EXISTING WELDER DISCONNECT SWITCH AND RECEPTACLE AND TURN OVER TO OWNER.
13. REMOVE ELECTRICAL CONNECTED TO EXISTING HEATING WATER PUMP.
14. REMOVE EXISTING INCANDESCENT LIGHT FIXTURE.
15. EXISTING TEMPERATURE CONTROL PANEL TO BE REPLACED. SEE DRAWING E-30-204 FOR DETAILS.
16. REPLACE EXISTING JUNCTION BOX, CONDUIT, AND POWER WIRING FOR NORTH GATE CONTROLLER.
17. REMOVE ELECTRICAL CONNECTED TO EXISTING GAS UNIT HEATER.
18. REPLACE EXISTING DOOR CONTACTS. RELOCATE EXISTING REQUEST-TO-EXIT DEVICE.
19. REMOVE EXISTING BREAK GLASS SWITCH.
20. REMOVE ELECTRICAL CONNECTED TO EXISTING MOTORIZED DAMPER.
21. REMOVE EXISTING HEAT DETECTOR.
22. REPLACE EXISTING 480 VOLT FEEDER FROM XFMR-T4 TO MCC-4.
23. REPLACE EXISTING 208 VOLT FEEDERS FROM XFMR-T4 AND XFMR-T4A TO BYPASS ISOLATION SWITCH.
24. REMOVE EXISTING CONDUIT AND 208 VOLT FEEDER FROM BYPASS ISOLATION SWITCH TO PANEL PA (ABANDON UNDERGROUND CONDUIT IN PLACE).
25. REPLACE WALL MOUNTED INTERCOM SPEAKER.
26. REMOVE EXISTING MANUAL MOTOR STARTER FOR GAS UNIT HEATER.
27. REPLACE 1 1/2" AND 3/4" UNDERGROUND CONDUIT AND WIRE GOING TO NORTH GATE CONTROLLER.
28. REPLACE EXISTING UNDERGROUND CONDUITS AND CONTROL WIRES TO CARD READER.
29. REPLACE EXISTING CONDUIT WITH 9 LOW VOLTAGE CABLES FOR ACCESS CONTROL SYSTEM FROM DOWN LOW TO UP HIGH BY CEILING.
30. RELOCATE EXISTING AIR DRYER FOR AIR COMPRESSOR.
31. REMOVE EXISTING CONDUIT AND 208 VOLT FEEDER FROM PANEL PA TO C (ABANDON UNDERGROUND CONDUIT IN PLACE).



KEY PLAN
NO SCALE

Clark-Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	SEM
DRAWN BY:	JRF
CHECKED BY:	CEC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

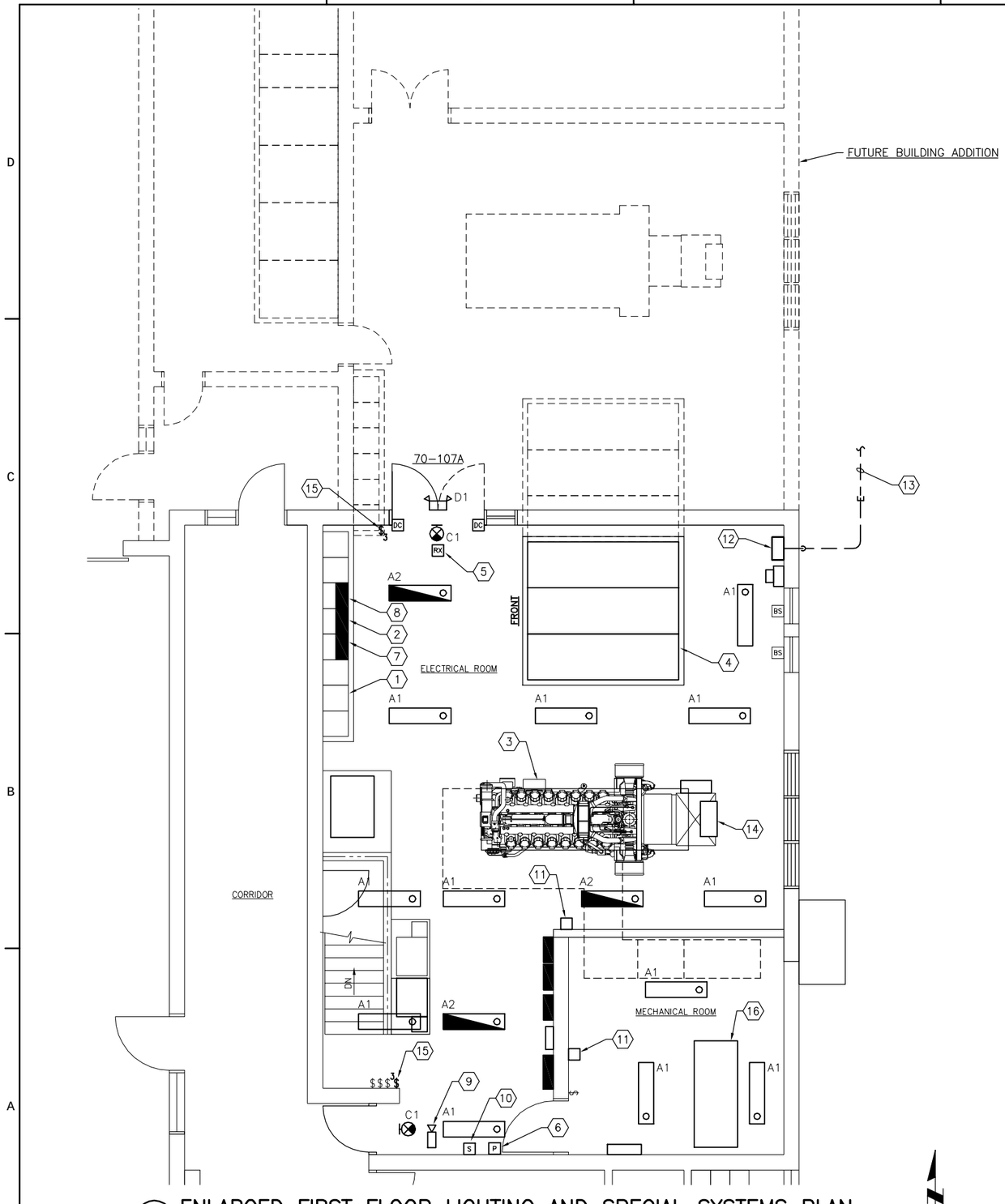
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY
ENLARGED FIRST FLOOR ELECTRICAL DEMOLITION PLAN

PROJECT No.
O0130014

DRAWING No.
E-10-202

SHEET 053 OF 088 SHEETS



1 ENLARGED FIRST FLOOR LIGHTING AND SPECIAL SYSTEMS PLAN

(ELEV. 99.0)

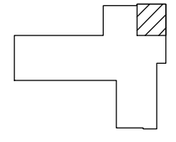
0 1' 2' 4' 8'

NOTES

1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING E-30-102 FOR LIGHT FIXTURE SCHEDULE.
3. SEE SPECIFICATION 01 10 00 FOR A DESCRIPTION OF THE WORK REQUIRED FOR OWNER SUPPLIED PRODUCTS AND WORK SEQUENCE.
4. EMERGENCY LIGHTS BALLASTS SHALL BE WIRED WITH HOT LEG TO TURN LAMPS ON UPON LOSS OF POWER TO ROOM. EXIT SIGNS SHALL BE WIRED HOT AND UNSWITCHED.

(#) KEYNOTES

1. EXISTING MOTOR CONTROL CENTER MCC-4.
2. EXISTING 480Y/277V PANEL EE. REUSE EXISTING 20 AMP, 1 POLE CIRCUIT BREAKERS TO REFEED LIGHTS IN ELECTRICAL ROOM AND MECHANICAL ROOM. PROVIDE NEW CONDUIT AND WIRE TO FEED NEW LIGHTS.
3. NATURAL GAS STANDBY GENERATOR GEN-101.
4. AUTOMATIC TRANSFER SWITCH ATS-101.
5. RELOCATED REQUEST-TO-EXIT DEVICE.
6. RELOCATED PAGING SYSTEM HANDSET. REPLACE EXISTING WIRING BACK TO AUDIO EQUIPMENT IN BCP-1 (EXTEND CONDUIT AS REQUIRED).
7. EXISTING 480Y/277V PANEL AA.
8. EXISTING 208Y/120V PANEL E.
9. PROVIDE SURVEILLANCE CAMERA 70-C107A. CAMERA SHALL BE AXIS #P1344 TO MATCH EXISTING CAMERAS. PROVIDE CAT 6 CABLE IN 3/4" CONDUIT FROM CAMERA TO EXISTING NETWORK SWITCH AND COMMUNICATION ENCLOSURE LOCATED IN CONTROL ROOM (SEE DRAWING E-10-402 FOR LOCATION).
10. PROVIDE WALL MOUNTED INTERCOM SPEAKER. SPEAKER SHALL BE TESSCO #SPC15T TO MATCH EXISTING SPEAKERS. RECONNECT TO EXISTING AUDIO CABLE.
11. PROVIDE TEMPERATURE SENSOR TIED TO PLC-H IN BCP-1 FOR MONITORING ROOM TEMPERATURE AND CONTROL OF EXHAUST FANS.
12. PROVIDE 18"x18"x4" HINGED COVER ENCLOSURE FOR RELOCATED READER MODULE FOR NORTH GATE CARD READERS AND DOOR 70-107A DEVICES. REPLACE EXISTING CONDUIT AND CONTROL WIRES LOCATED ON NORTH WALL WITH NEW.
13. PROVIDE DIRECT BURIED CONDUITS WITH WIRE TO GATE OPENER, INTERCOM, AND CARD READERS (SEE DRAWINGS E-10-101 FOR CONTINUATION).
14. GEN-101 GENERATOR CONTROL PANEL.
15. REPLACE 3-WAY LIGHT SWITCH FOR ELECTRICAL ROOM LIGHTS.
16. BOILER B-101.



KEY PLAN

NO SCALE

Clark Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY:	SEM
DRAWN BY:	JRF
CHECKED BY:	CEC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

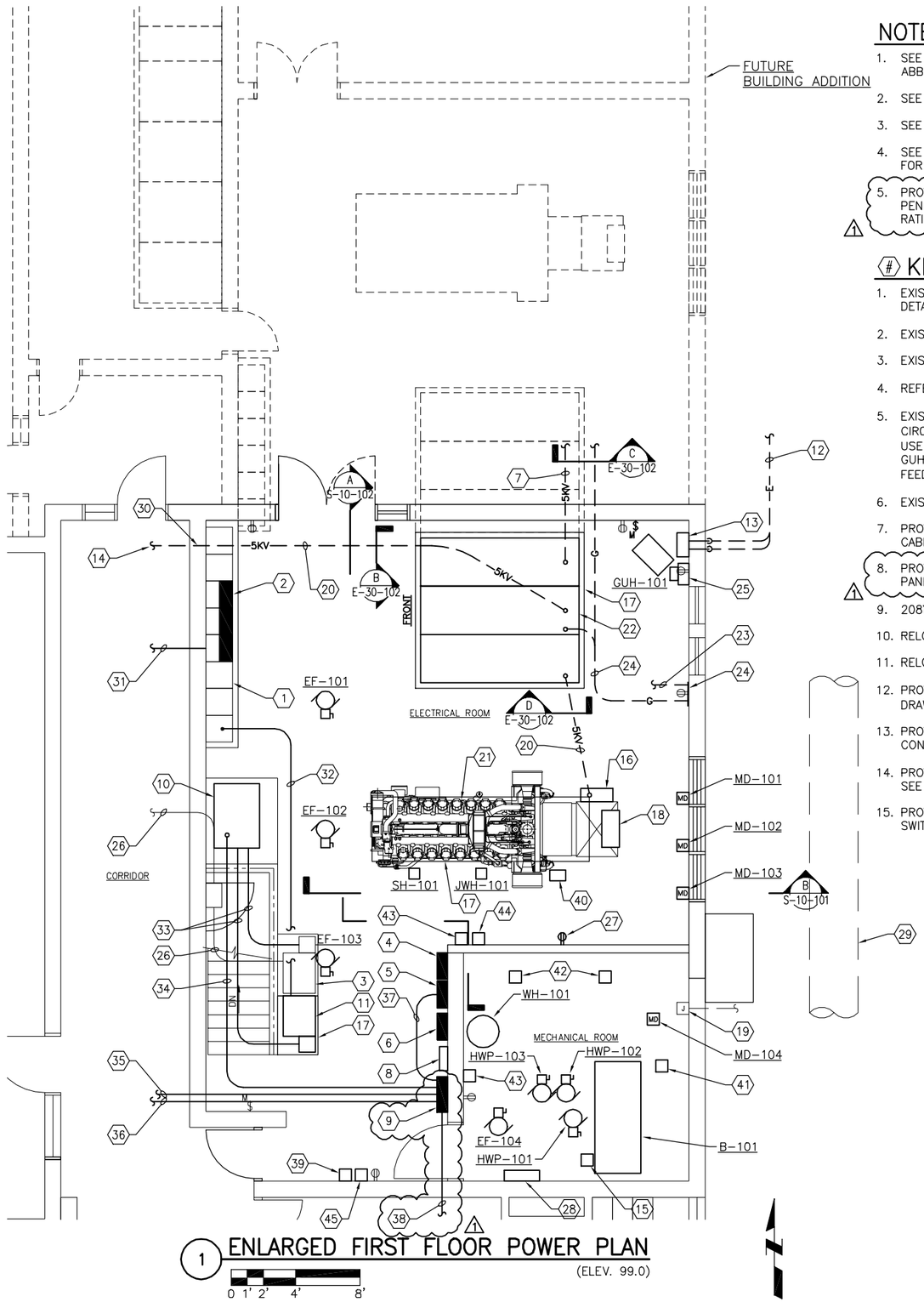
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY ENLARGED FIRST FLOOR LIGHTING AND SPECIAL SYSTEMS PLAN

PROJECT No.
O0130014

DRAWING No.
E-10-301

SHEET 055 OF 088 SHEETS



1 ENLARGED FIRST FLOOR POWER PLAN
(ELEV. 99.0)

0 1' 2' 4' 8'

NOTES

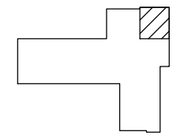
1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING E-30-101 FOR EQUIPMENT CONNECTION SCHEDULE.
3. SEE DRAWING E-10-601 AND E-10-602 FOR POWER ONE-LINE DIAGRAMS.
4. SEE SPECIFICATION 01 10 00 FOR A DESCRIPTION OF THE WORK REQUIRED FOR OWNER SUPPLIED PRODUCTS AND WORK SEQUENCE.
5. PROVIDE FIRE CAULK AROUND ALL NEW AND EXISTING CONDUITS PENETRATING WALLS AROUND ELECTRICAL ROOM TO PROVIDE 2-HOUR FIRE RATING. (1)

KEYNOTES

1. EXISTING MOTOR CONTROL CENTER MCC-4. SEE DRAWING E-10-702 FOR DETAILS.
2. EXISTING 208Y/120V PANEL E.
3. EXISTING TRANSFORMER XFMR-T4A.
4. REFEED EXISTING 208Y/120V PANEL B-LEFT.
5. EXISTING 208Y/120V PANEL B-RIGHT. REMOVE (2) SPARE 20A, 1 POLE CIRCUIT BREAKERS AND INSTALL (1) 30A, 2 POLE BREAKER FOR JWH-101. USE (3) 20A, 1 POLE CIRCUIT BREAKER FOR THE FOLLOWING: SH-101, GUH-101, AIR DRYER. USE EXISTING 20A, 1 POLE CIRCUIT BREAKER FEEDING "S-EMERGENCY GENERATOR" FOR GENERATOR BATTERY CHARGER.
6. EXISTING 240/120V PANEL Z AND TRANSFORMER XFMR-T4B.
7. PROVIDE CONCRETE ENCASED DUCTBANK WITH 5KV SERVICE LATERAL CABLES. SEE DRAWING E-10-401 FOR CONTINUATION.
8. PROVIDE ELECTRICAL CONNECTION TO RELOCATED AUTOCON METER PIT PANEL. SEE DRAWING E-30-205 FOR DETAILS. (1)
9. 208Y/120V PANEL PA.
10. RELOCATED BYPASS ISOLATION SWITCH.
11. RELOCATED TRANSFORMER XFMR-T4.
12. PROVIDE DIRECT BURIED CONDUITS WITH WIRING TO GATE CONTROLLER (SEE DRAWING E-10-101 FOR CONTINUATION).
13. PROVIDE JUNCTION BOX FOR NORTH GATE CONTROLLER POWER AND CONTROL WIRING. EXTEND CONDUIT AND WIRE AS REQUIRED.
14. PROVIDE CONDUITS WITH 5KV CABLES (LOCATED BELOW IN LOWER LEVEL). SEE DRAWING E-10-404 FOR CONTINUATION.
15. PROVIDE ELECTRICAL CONNECTION TO BOILER MAKE-UP WATER FLOW SWITCH.

KEYNOTES (CONT.)

16. GEN-101 POWER TERMINATION BOX.
17. 4" CONCRETE EQUIPMENT PAD.
18. GEN-101 GENERATOR CONTROL PANEL.
19. EXISTING JUNCTION BOX AND CONDUIT FOR POWER TO FOUNTAIN.
20. PROVIDE UNDERGROUND CONCRETE ENCASED CONDUITS WITH 5KV CABLES.
21. NATURAL GAS STANDBY GENERATOR GEN-101.
22. ATS-101 AND WE ENERGIES METERING SECTION.
23. PROVIDE 1" PVC CONDUIT WITH 1#4/0 BARE COPPER GROUNDING ELECTRODE TO NEW REBAR IN CONCRETE.
24. PROVIDE 4" x 24" x 1/4" COPPER GROUND BAR (WALL MOUNT AT 24" AFF) FOR TERMINATING BUILDING GROUND. PROVIDE 1" UNDERGROUND CONDUIT WITH GROUNDING ELECTRODE CONDUCTOR TO ATS-101, EXISTING GROUND GRID OUTSIDE OF THE BUILDING, AND WATER PIPE.
25. PROVIDE METER CABINET AND SOCKET AS REQUIRED FOR WE ENERGIES METER (PROVIDE 1" CONDUIT WITH CONTROL WIRING TO METERING SECTION IN ATS-101 AS REQUIRED PER WE ENERGIES STANDARDS).
26. EXISTING 480 VOLT FEEDER FROM USS NO. 1 TO XFMR-T4.
27. USE EXISTING 120 VOLT CIRCUIT FEEDING EXISTING RECEPTACLES BEING REMOVED FOR NEW DUPLEX RECEPTACLE.
28. EXISTING TEMPERATURE CONTROL PANEL TC-1 AND NEW TEMPERATURE CONTROL PANEL TC-2. SEE DETAIL HV-10-201 FOR DETAILS.
29. EXISTING 30" RAW WATER PIPE.
30. CORE THRU LOWER LEVEL WALL AND PROVIDE WATERTIGHT SEAL AROUND CONDUITS.
31. REPLACE 480 VOLT FEEDER CONDUCTORS IN EXISTING UNDERGROUND CONDUIT FROM MCC-4 TO USS NO. 1 VIA ATS-1 ENCLOSURE.
32. PROVIDE OVERHEAD CONDUIT WITH 480 VOLT FEEDER CONDUCTORS FROM MCC-4 TO XFMR-T4.
33. PROVIDE OVERHEAD CONDUIT WITH 208 VOLT FEEDER CONDUCTORS FROM XFMR-T4 AND XFMR-T4A TO BYPASS ISOLATION SWITCH.
34. PROVIDE OVERHEAD CONDUIT WITH 208 VOLT FEEDER CONDUCTORS FROM BYPASS ISOLATION SWITCH TO PA.
35. PROVIDE OVERHEAD CONDUIT TO CONNECT TO EXISTING CONDUIT ABOVE DROP CEILING FOR 208 VOLT FEEDER CONDUCTORS FROM PANEL PA TO H.
36. PROVIDE OVERHEAD CONDUIT TO CONNECT TO EXISTING CONDUIT ABOVE DROP CEILING FOR 208 VOLT FEEDER CONDUCTORS FROM PANEL PA TO D-LEFT.
37. PROVIDE OVERHEAD CONDUIT WITH 208 VOLT FEEDER CONDUCTORS FROM PANEL PA TO B-LEFT.
38. PROVIDE OVERHEAD CONDUIT WITH 208 VOLT FEEDER CONDUCTORS FROM PANEL PA TO C. CORE EXISTING CMU WALL. SEE DRAWING E-10-403 FOR CONTINUATION. (1)
39. GENERATOR REMOTE EMERGENCY STOP STATION.
40. GENERATOR BATTERY CHARGER.
41. PROVIDE ELECTRICAL CONNECTION TO POTABLE WATER FLOW CONTROL VALVE.
42. PROVIDE ELECTRICAL CONNECTION TO GENERATOR HEAT EXCHANGER LOW COOLANT LEVEL SWITCH.
43. PROVIDE ELECTRICAL CONNECTION TO TEMPERATURE SENSOR FOR CONTROL OF EXHAUST FAN.
44. THERMOSTAT FOR GUH-101.
45. REMOTE GENERATOR ANNUNCIATOR PANEL.



KEY PLAN
NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY:	SEM
DRAWN BY:	JRF
CHECKED BY:	CEC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

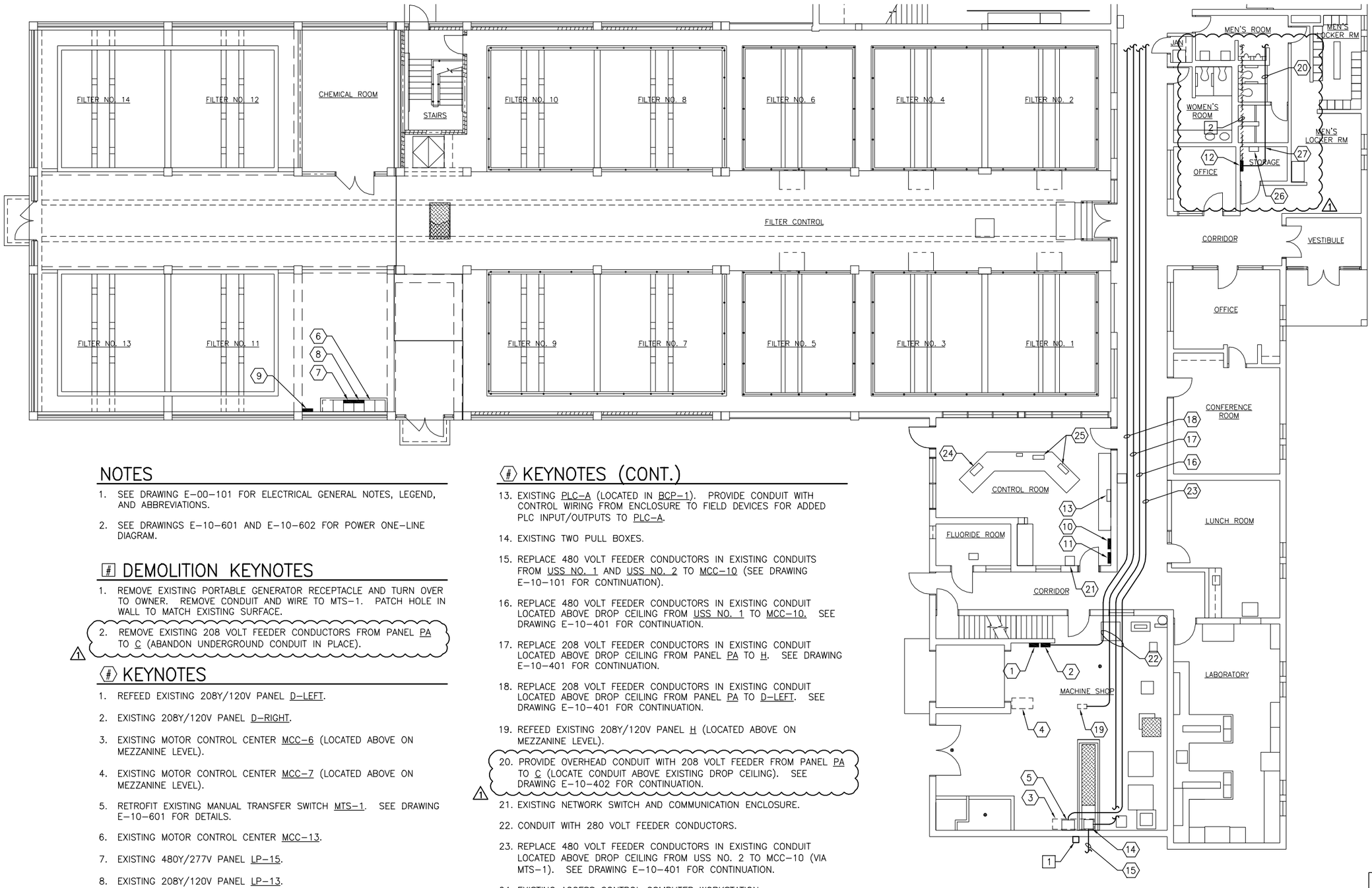
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY ENLARGED FIRST FLOOR POWER PLAN

PROJECT No.
O0130014

DRAWING No.
E-10-402

SHEET 057 OF 088 SHEETS



NOTES

1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWINGS E-10-601 AND E-10-602 FOR POWER ONE-LINE DIAGRAM.

DEMOLITION KEYNOTES

1. REMOVE EXISTING PORTABLE GENERATOR RECEPTACLE AND TURN OVER TO OWNER. REMOVE CONDUIT AND WIRE TO MTS-1. PATCH HOLE IN WALL TO MATCH EXISTING SURFACE.
2. REMOVE EXISTING 208 VOLT FEEDER CONDUCTORS FROM PANEL PA TO C (ABANDON UNDERGROUND CONDUIT IN PLACE). (1)

KEYNOTES

1. REFEED EXISTING 208Y/120V PANEL D-LEFT.
2. EXISTING 208Y/120V PANEL D-RIGHT.
3. EXISTING MOTOR CONTROL CENTER MCC-6 (LOCATED ABOVE ON MEZZANINE LEVEL).
4. EXISTING MOTOR CONTROL CENTER MCC-7 (LOCATED ABOVE ON MEZZANINE LEVEL).
5. RETROFIT EXISTING MANUAL TRANSFER SWITCH MTS-1. SEE DRAWING E-10-601 FOR DETAILS.
6. EXISTING MOTOR CONTROL CENTER MCC-13.
7. EXISTING 480Y/277V PANEL LP-15.
8. EXISTING 208Y/120V PANEL LP-13.
9. EXISTING 208Y/120V PANEL LP-12B.
10. EXISTING 208Y/120V PANEL LP-12A.
11. EXISTING 208Y/120V PANEL LP-12.
12. REFEED EXISTING 208Y/120V PANEL C. REMOVE PART OF CMU WALL ABOVE DROP CEILING TO INSTALL CONDUIT DOWN CORE IN CMU TO EXISTING PANEL. INSTALL BREAKERS AS REQUIRED FOR TEMPORARY POWER TO CONSTRUCTION TRAILERS. (1)
13. EXISTING PLC-A (LOCATED IN BCP-1). PROVIDE CONDUIT WITH CONTROL WIRING FROM ENCLOSURE TO FIELD DEVICES FOR ADDED PLC INPUT/OUTPUTS TO PLC-A.
14. EXISTING TWO PULL BOXES.
15. REPLACE 480 VOLT FEEDER CONDUCTORS IN EXISTING CONDUITS FROM USS NO. 1 AND USS NO. 2 TO MCC-10 (SEE DRAWING E-10-101 FOR CONTINUATION).
16. REPLACE 480 VOLT FEEDER CONDUCTORS IN EXISTING CONDUIT LOCATED ABOVE DROP CEILING FROM USS NO. 1 TO MCC-10. SEE DRAWING E-10-401 FOR CONTINUATION.
17. REPLACE 208 VOLT FEEDER CONDUCTORS IN EXISTING CONDUIT LOCATED ABOVE DROP CEILING FROM PANEL PA TO H. SEE DRAWING E-10-401 FOR CONTINUATION.
18. REPLACE 208 VOLT FEEDER CONDUCTORS IN EXISTING CONDUIT LOCATED ABOVE DROP CEILING FROM PANEL PA TO D-LEFT. SEE DRAWING E-10-401 FOR CONTINUATION.
19. REFEED EXISTING 208Y/120V PANEL H (LOCATED ABOVE ON MEZZANINE LEVEL).
20. PROVIDE OVERHEAD CONDUIT WITH 208 VOLT FEEDER FROM PANEL PA TO C (LOCATE CONDUIT ABOVE EXISTING DROP CEILING). SEE DRAWING E-10-402 FOR CONTINUATION. (1)
21. EXISTING NETWORK SWITCH AND COMMUNICATION ENCLOSURE.
22. CONDUIT WITH 280 VOLT FEEDER CONDUCTORS.
23. REPLACE 480 VOLT FEEDER CONDUCTORS IN EXISTING CONDUIT LOCATED ABOVE DROP CEILING FROM USS NO. 2 TO MCC-10 (VIA MTS-1). SEE DRAWING E-10-401 FOR CONTINUATION.
24. EXISTING ACCESS CONTROL COMPUTER WORKSTATION.
25. EXISTING OPERATOR WORKSTATION.
26. EXISTING ACCESS CONTROL NETWORK CONTROLLER NC-3.
27. CORE EXISTING CMU WALL FOR CONDUIT. (1)

1 FIRST FLOOR POWER PLAN

(ELEV. 99.0)

0 2' 4' 8' 16'

KEY PLAN
NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	SEM	
DRAWN BY:	JRF	
CHECKED BY:	CEC	
DATE CHECKED:	01/11	

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

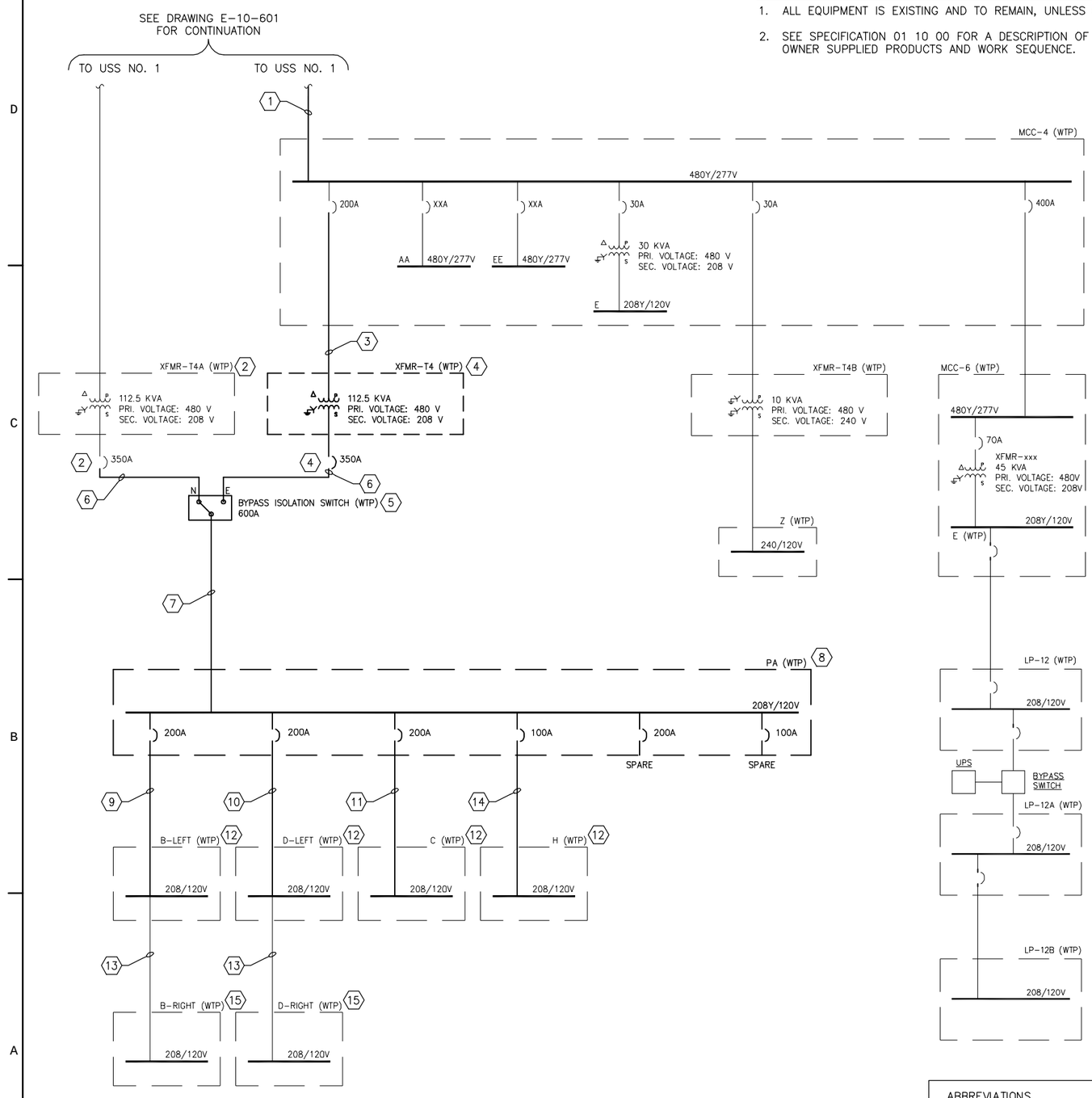
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND
FILTRATION FACILITY
FIRST FLOOR POWER PLAN

PROJECT No.
O0130014

DRAWING No.
E-10-403

SHEET 058 OF 088 SHEETS



1 POWER ONE-LINE DIAGRAM
NO SCALE

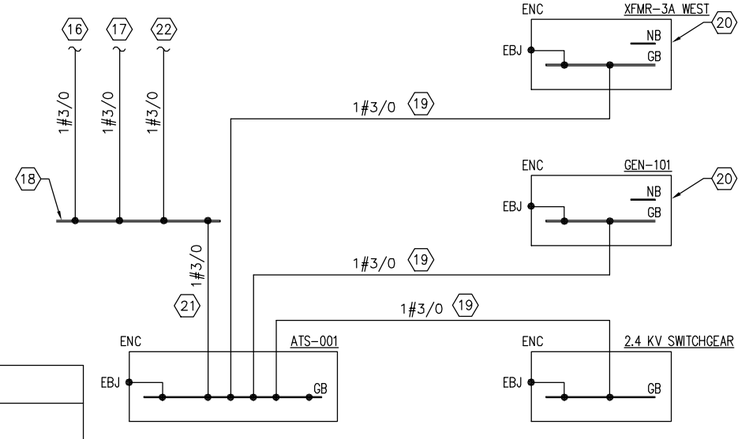
NOTES

1. ALL EQUIPMENT IS EXISTING AND TO REMAIN, UNLESS OTHERWISE NOTED.
2. SEE SPECIFICATION 01 10 00 FOR A DESCRIPTION OF THE WORK REQUIRED FOR OWNER SUPPLIED PRODUCTS AND WORK SEQUENCE.

KEYNOTES

1. PROVIDE 3#350, 1#1 GROUND IN EACH OF THE (2) CONDUITS FROM USS NO. 1 TO MCC-4.
2. EXISTING XFMR-T4A AND CIRCUIT BREAKER TO REMAIN.
3. REPLACE EXISTING 480V FEEDER WITH 3#3/0, 1#6 GROUND FROM MCC-4 TO XFMR-T4 (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED).
4. RELOCATE EXISTING XFMR-T4 AND CIRCUIT BREAKER.
5. RELOCATE EXISTING BYPASS ISOLATION SWITCH.
6. REPLACE EXISTING 208 VOLT FEEDER WITH OVERHEAD 3 1/2" CONDUIT WITH 4#500, 1#3 GROUND.
7. REMOVE EXISTING 208 VOLT FEEDER CABLES FROM BYPASS ISOLATION SWITCH TO PA (ABANDON IN PLACE UNDERGROUND CONDUITS). PROVIDE OVERHEAD 3 ½" CONDUIT WITH 4#500, 1#3 GROUND.
8. REPLACE EXISTING 208Y/120V PANEL PA. PANEL SHALL BE 600A MLO, 3ø, 4W, 208Y/120V, 42 KAIC RATED, NEMA 1 SURFACE MOUNTED ENCLOSURE. PROVIDE 3 POLE CIRCUIT BREAKERS AS INDICATED.
9. REPLACE EXISTING 208 VOLT FEEDER WITH OVERHEAD 2" CONDUIT WITH 4#3/0, 1#6 GROUND FROM PA TO B-LEFT.
10. REPLACE EXISTING 208 VOLT FEEDER WITH 4#3/0, 1#6 GROUND FROM PA TO D-LEFT (REUSE EXISTING 2 1/2" CONDUIT AND EXTEND AS REQUIRED).
11. REPLACE EXISTING 208 VOLT FEEDER WITH OVERHEAD 2" CONDUIT WITH 4#3/0, 1#6 GROUND FROM PA TO C.
12. REFEED EXISTING PANEL.
13. EXISTING 208V FEEDER TO REMAIN.
14. REPLACE EXISTING 208 VOLT FEEDER WITH 4#1, 1#8 GROUND FROM PA TO H (REUSE EXISTING 2 1/2" CONDUIT AND EXTEND AS REQUIRED).
15. EXISTING PANEL TO REMAIN.
16. BOND TO EXISTING GROUND GRID WITH EXOTHERMIC WELD.
17. BOND TO WATER PIPE WITH GROUND CLAMP.
18. PROVIDE COPPER GROUND BAR (LOCATED ON EAST WALL OF ELECTRICAL ROOM).
19. EQUIPMENT GROUND CONDUCTOR INSTALLED IN CONDUIT WITH PHASE CONDUCTORS.
20. DO NOT BOND NEUTRAL BUS TO GROUND BUS AT GENERATOR OR AT TRANSFORMER.
21. GROUNDING ELECTRODE CONDUCTOR IN 1" PVC CONDUIT.
22. BOND TO REBAR IN ELECTRICAL AND MECHANICAL ROOMS CONCRETE FLOOR.

ABBREVIATIONS
EBJ – ENCLOSURE BONDING JUMPER
ENC – ENCLOSURE
GB – GROUND BUS
NB – NEUTRAL BUS



2 GROUNDING ONE-LINE DIAGRAM
NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION
No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8000
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY: SEM
DRAWN BY: JRF
CHECKED BY: CEC
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

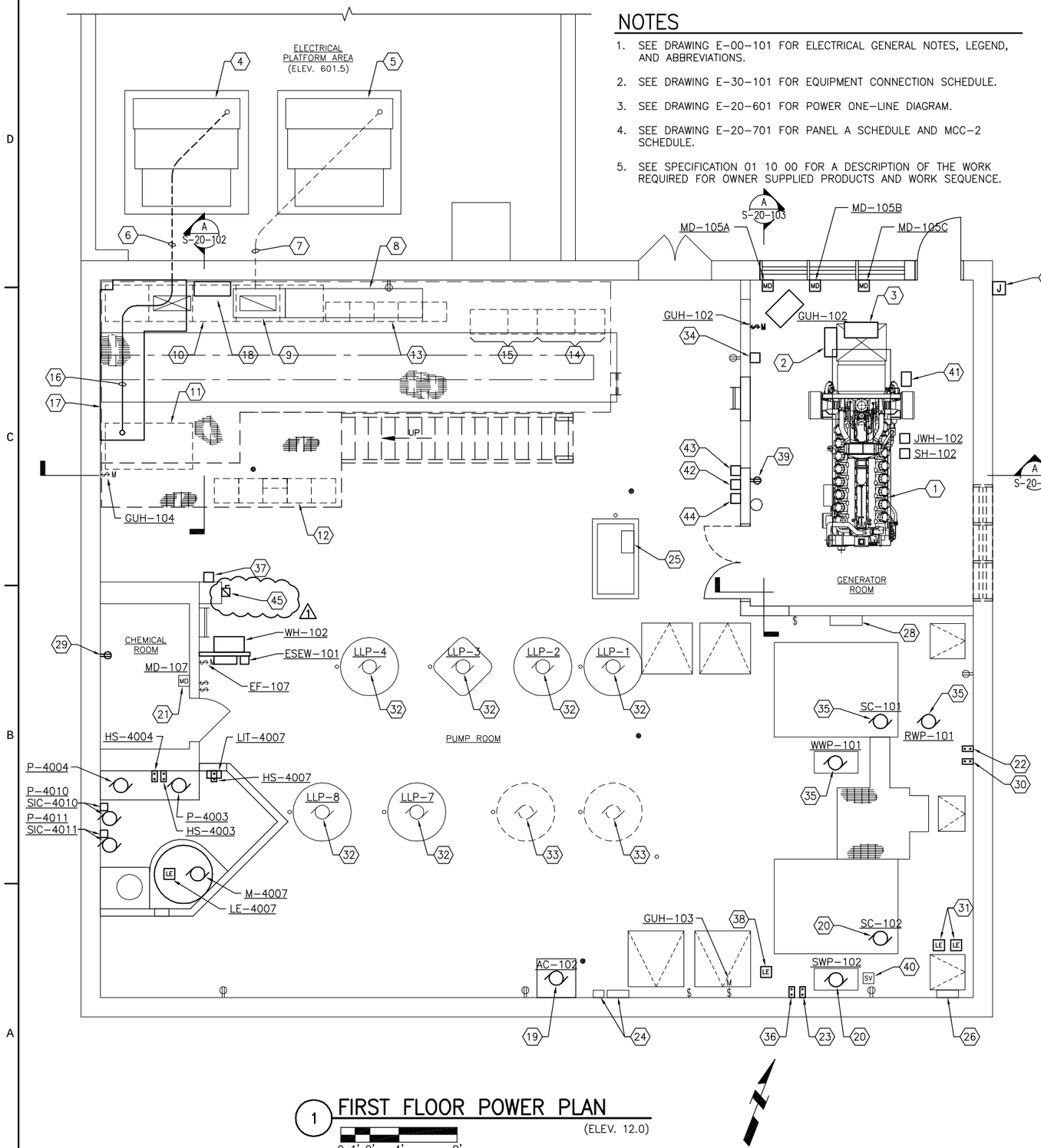
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
WATER TREATMENT PLANT
POWER AND GROUNDING
ONE-LINE DIAGRAMS

PROJECT No.
O0130014

DRAWING No.
E-10-602

SHEET 062 OF 088 SHEETS



1 FIRST FLOOR POWER PLAN (ELEV. 12.0)

0 1' 2' 4' 8'

NOTES

1. SEE DRAWING E-00-101 FOR ELECTRICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE DRAWING E-30-101 FOR EQUIPMENT CONNECTION SCHEDULE.
3. SEE DRAWING E-20-601 FOR POWER ONE-LINE DIAGRAM.
4. SEE DRAWING E-20-701 FOR PANEL A SCHEDULE AND MCC-2 SCHEDULE.
5. SEE SPECIFICATION 01 10 00 FOR A DESCRIPTION OF THE WORK REQUIRED FOR OWNER SUPPLIED PRODUCTS AND WORK SEQUENCE.

KEYNOTES

1. NATURAL GAS STANDBY GENERATOR GEN-102.
2. GEN-102 MAIN CIRCUIT BREAKER.
3. GEN-102 CONTROL PANEL.
4. EXISTING TRANSFORMER XFMR-1B (LOCATED ABOVE ON ELECTRICAL PLATFORM AREA). DISCONNECT EXISTING AND RECONNECT NEW SERVICE LATERAL CABLES.
5. EXISTING TRANSFORMER XFMR-1A (LOCATED ABOVE ON ELECTRICAL PLATFORM AREA).
6. REPLACE EXISTING 480 VOLT SERVICE LATERAL CABLES FROM XFMR-1B IN EXISTING UNDERGROUND CONDUITS.
7. EXISTING UNDERGROUND CONDUITS WITH 480 VOLT SERVICE LATERAL CABLES TO MSWB-1A.
8. EXISTING PULLBOX WITH 480 VOLT FEEDER CABLES.
9. EXISTING PULLBOX WITH 480 VOLT SERVICE LATERAL CONDUCTORS TO MSWB-1A.
10. EXISTING MSWB-1A AND MSWB-1B (LOCATED ABOVE ON MEZZANINE).
11. ATS-102 (LOCATED ABOVE ON MEZZANINE).
12. MCC-2 (LOCATED ABOVE ON MEZZANINE).
13. EXISTING MCC-1A AND MCC-1B (LOCATED ABOVE ON MEZZANINE).
14. EXISTING LOW LIFT PUMP NO. 7 VFD (LOCATED ABOVE ON MEZZANINE).
15. EXISTING LOW LIFT PUMP NO. 2 VFD (LOCATED ABOVE ON MEZZANINE).
16. PROVIDE CONDUITS WITH 480 VOLT SERVICE LATERAL CABLES FROM XFMR-1B TO ATS-102. MOUNT CONDUITS UP HIGH BELOW MEZZANINE STEEL FRAMING. SEE KEYNOTE 17.
17. CONCRETE ENCASEMENT FOR CONDUITS WITH 480 VOLT SERVICE LATERAL CABLES FROM EXISTING FLOOR TO MEZZANINE STRUCTURE. SEE DRAWING A-20-401 FOR DETAILS.
18. PROVIDE PLC-G ENCLOSURE.
19. PROVIDE CONDUIT AND WIRE TO FEED RELOCATED EQUIPMENT.
20. REPLACE WIRING FOR 480 VOLT POWER FEED TO EXISTING EQUIPMENT (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED).
21. REPLACE CONTROL WIRING FOR EXISTING EQUIPMENT (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED).
22. REPLACE LOCAL CONTROL STATION HS-RWP-101, CONDUIT, AND CONTROL WIRING FOR RWP-101.
23. REPLACE LOCAL CONTROL STATION HS-SWP-102, CONDUIT, AND CONTROL WIRING FOR SWP-102.
24. EXISTING HORIZONTAL SHAFT NATURAL GAS PUMP AUTOMATIC CONTROL PANEL AND 3 PHASE UNDERVOLTAGE MONITOR. REPLACE CONTROL WIRING TO CONTROL PANEL (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED).
25. EXISTING HORIZONTAL SHAFT NATURAL GAS PUMP AND CONTROL PANEL.
26. REPLACE WIRING FOR 480 VOLT POWER FEED TO TRAVELING SCREEN SC-102 CONTROL PANEL (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED). PROVIDE CONDUIT AND CONTROL WIRING TO PLC-G.
27. PROVIDE 12"x12"x4" NEMA 4X JUNCTION BOX WITH INSULATED TERMINAL STRIPS FOR CONNECTION TO CARBON FEEDER CF-101 (MOUNT JUNCTION BOX AT 24" ABOVE GRADE). PROVIDE REMOVABLE KNOCKOUT ON BOTTOM OF ENCLOSURE FOR CONNECTION OF SEALTIGHT CONDUIT TO CF-101.
28. EXISTING WATER LEVEL DIFFERENTIAL CONTROLLER.
29. PROVIDE 120 VOLT DUPLEX RECEPTACLE FOR WIT-4006 (MOUNT AT 48" AFF)
30. PROVIDE LOCAL CONTROL STATION HS-WWP-101, CONDUIT, AND CONTROL WIRING FOR WWP-101.
31. REPLACE ANALOG CONTROL WIRING FROM EXISTING SHORE WELL BEFORE SCREEN LEVEL TRANSMITTER RAW WATER TEMPERATURE SENSOR TO PLC-G VIA SC-102 CONTROL PANEL (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED).
32. EXISTING LOW LIFT PUMP.
33. FUTURE LOW LIFT PUMP.
34. THERMOSTAT FOR GUH-102.
35. PROVIDE NEW OVERHEAD CONDUIT WITH WIRES TO REFEED EQUIPMENT (ABANDON EXISTING UNDERGROUND CONDUIT IN PLACE).
36. REPLACE LOCAL CONTROL STATION, CONDUIT, AND CONTROL WIRING FOR SC-102.
37. REPLACE ANALOG CONTROL WIRING FROM EXISTING RAW WATER TEMPERATURE SENSOR TO PLC-G.
38. REPLACE ANALOG CONTROL WIRING FROM EXISTING SHORE WELL AFTER SCREEN LEVEL TRANSMITTER TO PLC-G VIA SC-102 CONTROL PANEL (REUSE EXISTING CONDUIT AND EXTEND AS REQUIRED).
39. PROVIDE 120 VOLT DUPLEX RECEPTACLE (CONNECT TO EXISTING RECEPTACLE BRANCH CIRCUIT).
40. EXISTING SPRAY WATER SWP-102 SOLENOID VALVE.
41. GENERATOR BATTERY CHARGER.
42. GENERATOR REMOTE EMERGENCY STOP STATION.
43. THERMOSTAT FOR GUH-103 AND GUH-104.
44. REMOTE GENERATOR ANNUNCIATOR PANEL.
45. PROVIDE TEMPORARY 200 AMP, 3 POLE FUSIBLE DISCONNECT SWITCH FOR EXISTING NATURAL GAS GENERATOR. PROVIDE TEMPORARY CABLES AND TERMINATE ON EXISTING GENERATOR AND MCC-2 THAT WILL BE USED ONLY IF POWER IS LOST DURING CONSTRUCTION.

⚠1

Clark-Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8000
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY: SEM
DRAWN BY: JRF
CHECKED BY: CEC
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
LOW LIFT PUMP STATION
FIRST FLOOR
POWER PLAN

PROJECT No.
O0130014

DRAWING No.
E-20-401

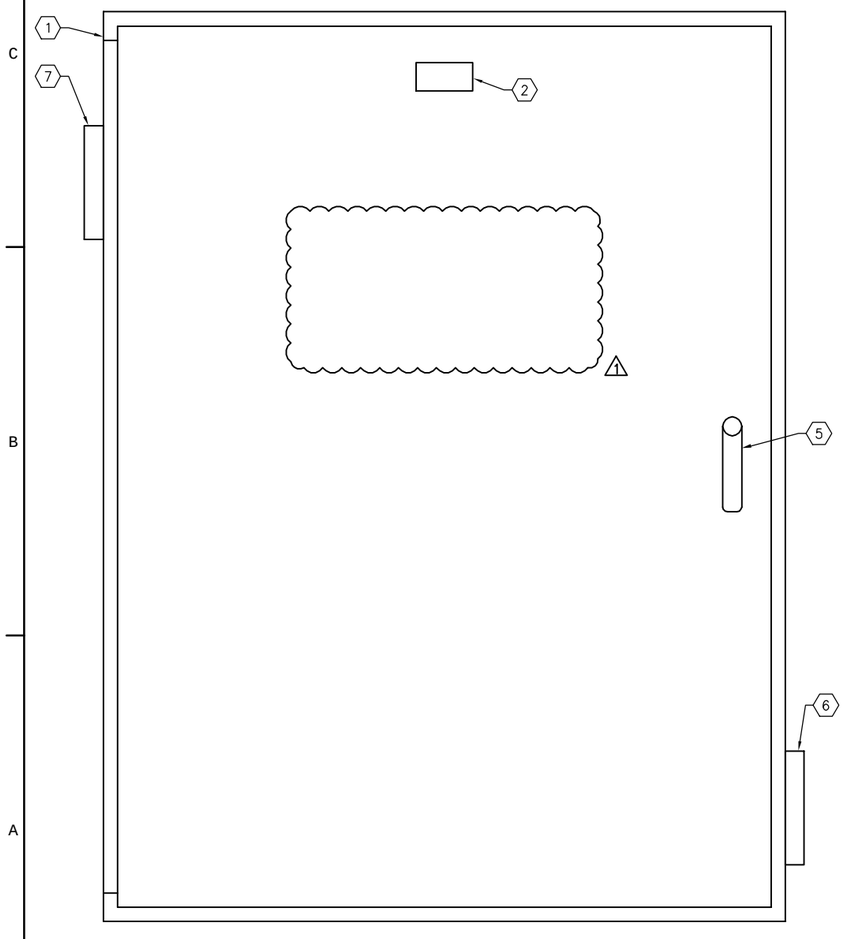
SHEET 068 OF 088 SHEETS

NOTES

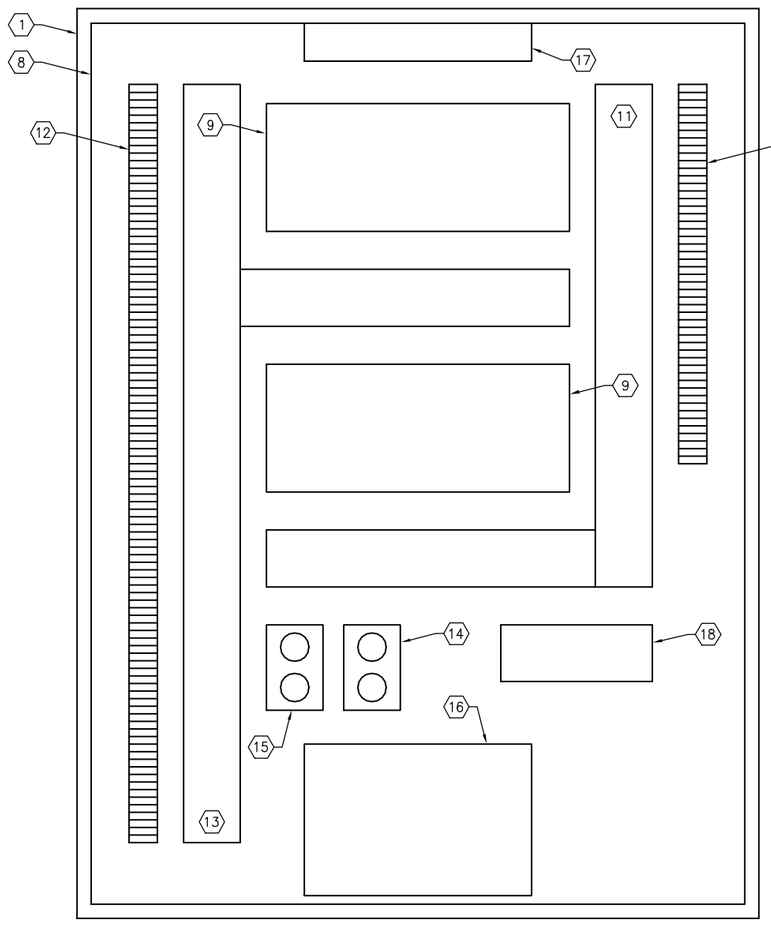
1. PANEL LAYOUT SHOWN IS A SUGGESTED LAYOUT TO MATCH EXISTING PLC ENCLOSURE ON SITE. INTEGRATOR SHALL BUILD PANEL AND LAYOUT COMPONENTS TO PROPERLY FIT IN ENCLOSURE. ENGINEER WILL REVIEW AND APPROVE PANEL LAYOUT DURING SHOP DRAWING REVIEW.

KEYNOTES

1. 48"H x 36"W x 16"D NEMA 12 HINGED COVER ENCLOSURE.
2. LAMINATED NAMEPLATE.
3. --NOT USED--
4. --NOT USED--
5. HANDLE WITH 3-POINT LATCH.
6. INTAKE LOUVER WITH FILTER.
7. EXHAUST LOUVER WITH FAN.
8. INTERIOR MOUNTING PANEL.
9. PLC CHASSIS (10 SLOT RACK).
10. TERMINAL STRIPS FOR ANALOG SIGNALS.
11. PLASTIC CHANNEL WITH REMOVABLE COVER FOR ANALOG CABLES.
12. TERMINAL STRIPS FOR 120 VOLT AND DISCRETE SIGNALS.
13. PLASTIC CHANNEL WITH REMOVABLE COVER FOR DISCRETE CONTROL WIRES.
14. DUPLEX RECEPTACLE (USED FOR SERVICE EQUIPMENT).
15. DUPLEX RECEPTACLE (USED FOR UPS).
16. PROVIDE APC (OR EQUAL) UPS WITH MINIMUM SIZE OF 1500 VA.
17. FLUORESCENT LIGHT FIXTURE (MOUNTED TO TOP OF ENCLOSURE) WITH DOOR SWITCH.
18. POWER XPERT GATEWAY (EATON # PXG600A).



1 EXTERIOR DOOR LAYOUT
NO SCALE



2 INTERIOR PANEL LAYOUT
NO SCALE

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION
No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY: SEM
DRAWN BY: JRF
CHECKED BY: CEC
DATE CHECKED: 01/11

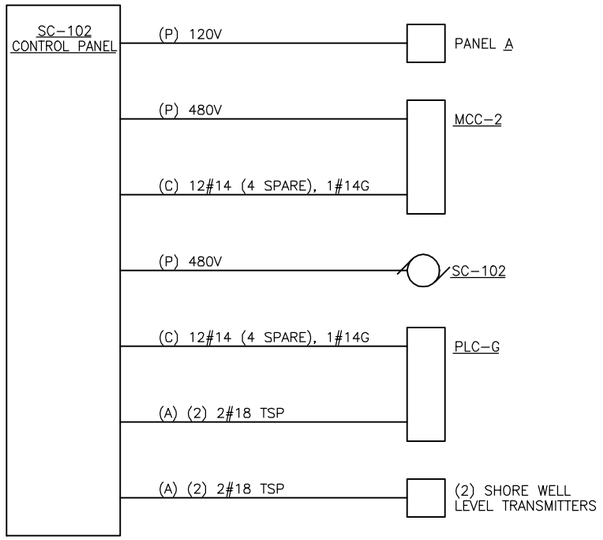
NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
LOW LIFT PUMP STATION
PLC-G ENCLOSURE

PROJECT No.
O0130014

DRAWING No.
E-20-702

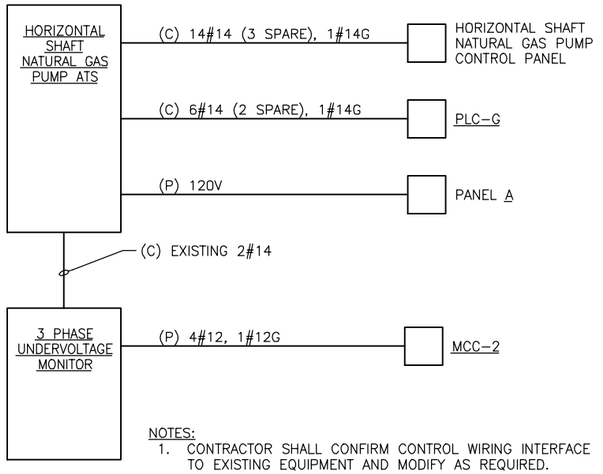


26 TRAVELING SCREEN SC-102

NO SCALE

CABLE LEGEND

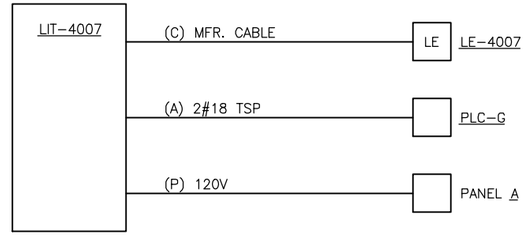
(A) ANALOG
(C) CONTROL
(D) DATA
(P) POWER



NOTES:
1. CONTRACTOR SHALL CONFIRM CONTROL WIRING INTERFACE TO EXISTING EQUIPMENT AND MODIFY AS REQUIRED.

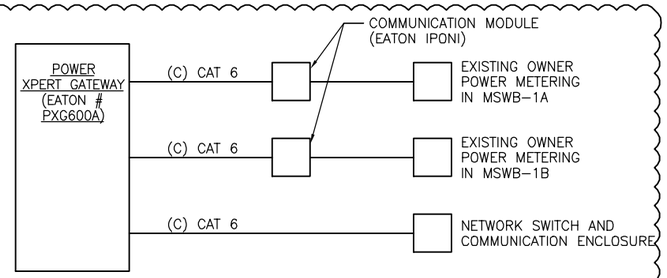
27 LLPS HORIZONTAL SHAFT PUMP

NO SCALE



28 LEVEL TRANSMITTER LIT-4007

NO SCALE

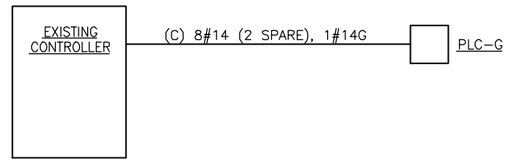


NOTES:
1. PROVIDE EATON # ELC-PS02 POWER SUPPLY FOR GATEWAY.
2. PROVIDE 8 HOURS FIELD SERVICE BY MANUFACTURER'S REPRESENTATIVE TO CONFIGURE GATEWAY AND COORDINATE WITH OWNER ON PROGRAMMING OF PLANT SCADA SYSTEM.

32 MSWB-1A SWITCHBOARD METERING

NO SCALE

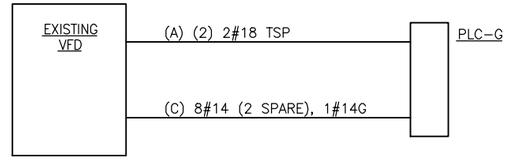
TYPICAL FOR THE FOLLOWING:
- MSWB-1B



33 LOW LIFT PUMP #1 CONTROLLER

NO SCALE

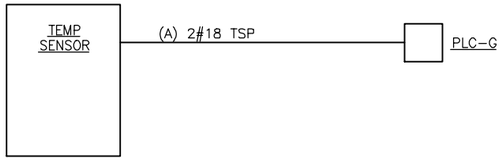
TYPICAL FOR THE FOLLOWING:
- PUMP #3, #4, #5, #6, #8



34 LOW LIFT PUMP #2 VFD

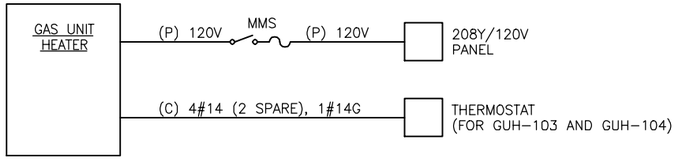
NO SCALE

TYPICAL FOR THE FOLLOWING:
- PUMP #7



29 TEMPERATURE SENSOR

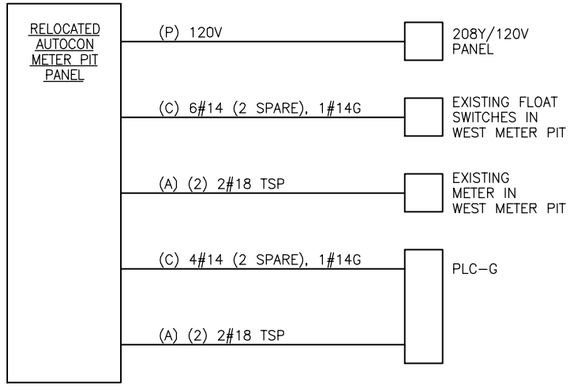
NO SCALE



30 GAS UNIT HEATER GUH-101

NO SCALE

TYPICAL FOR THE FOLLOWING:
- GUH-102,GUH-103,GUH-104



NOTES:
1. REMOVE ABANDONED 9#14 FROM AUTOCON METER PIT PANEL TO OLD COMPUTER STATION.
2. REMOVE ABANDONED (2) 2#18 TSP CABLES FROM AUTOCON METER PIT PANEL TO RECLAIM BASIN.
3. REPLACE EXISTING WIRES AND CABLES FROM WEST METER PIT TO AUTOCON METER PIT PANEL (EXTEND CONDUITS TO RELOCATED PANEL).

31 AUTOCON METER

NO SCALE

1

1

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION
No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY: SEM
DRAWN BY: JRF
CHECKED BY: CEC
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

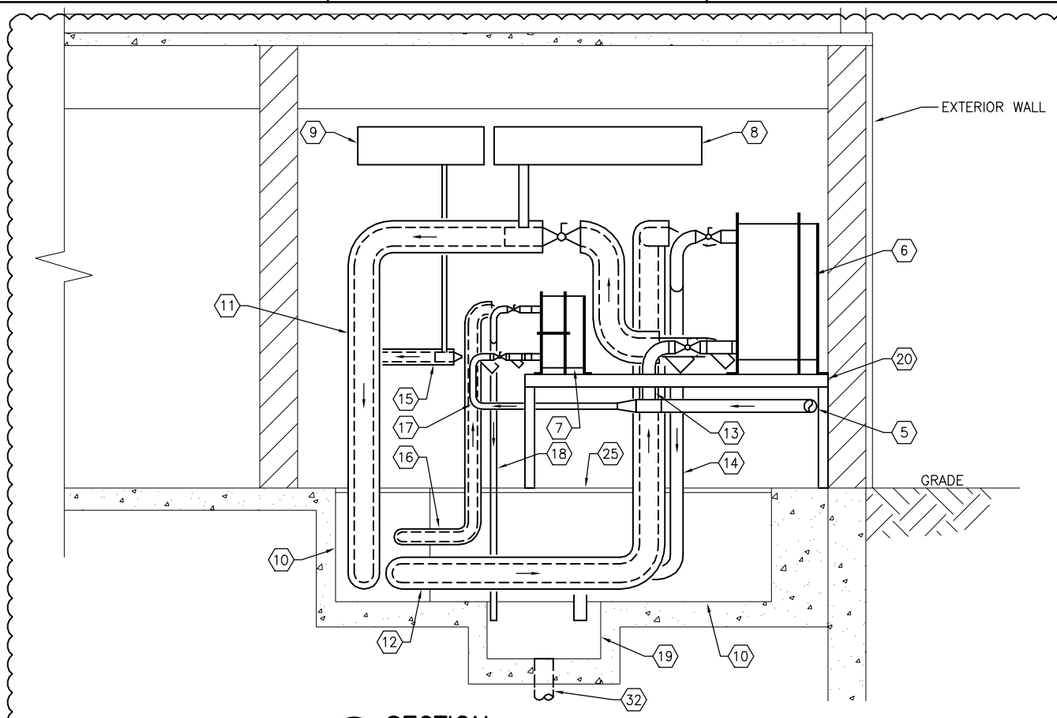
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ELECTRICAL
INTERCONNECT DIAGRAMS

PROJECT No.
O0130014

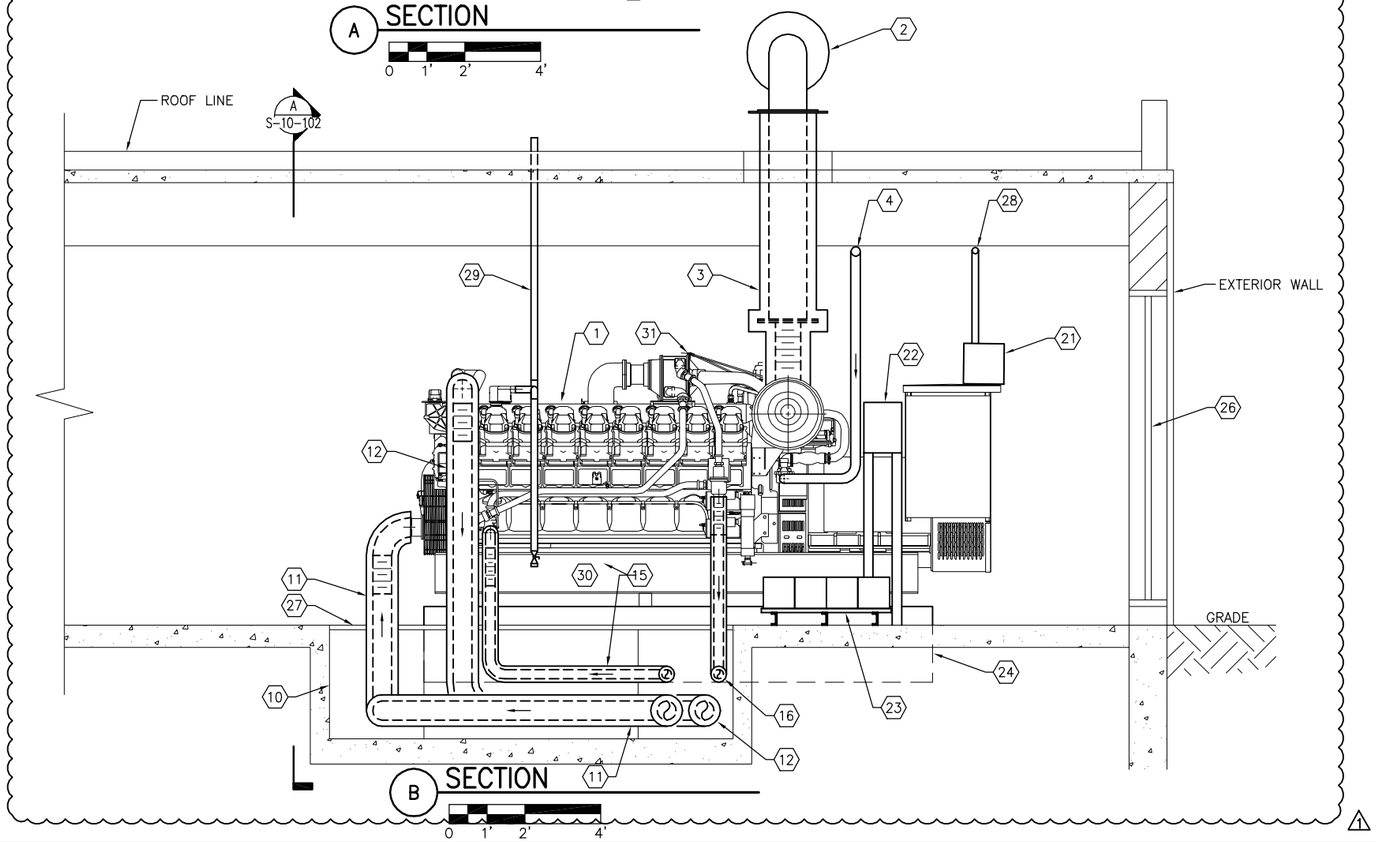
DRAWING No.
E-30-205

SHEET 081 OF 088 SHEETS



A SECTION

0 1' 2' 4'



B SECTION

0 1' 2' 4'

NOTES

1. SEE DRAWINGS E-00-101, P-00-101, AND HV-00-101 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. EXPOSED INSULATED COOLANT PIPING IN ELECTRICAL ROOM SHALL HAVE STAINLESS STEEL JACKET FROM FLANGE CONNECTION ON GENERATOR DOWN TO FLOOR AND EXTEND 2" BELOW ALUMINUM PLATE ON TRENCH. JACKET SEAM SHALL BE ON GENERATOR SIDE OF PIPE.

(#) KEYNOTES

1. GENERATOR GEN-101.
2. GENERATOR SILENCER.
3. INSULATED 12" DIAMETER EXHAUST PIPING.
4. 3" GAS PIPING TO GENERATOR.
5. 4" POTABLE WATER PIPING.
6. JACKET WATER HEAT EXCHANGER HX-101A.
7. AFTER COOLER HEAT EXCHANGER HX-101B.
8. JACKET WATER LOOP EXPANSION TANK.
9. AFTER COOLER LOOP EXPANSION TANK.
10. PIPE TRENCH.
11. INSULATED 6" JACKET WATER COOLANT SUPPLY PIPING.
12. INSULATED 6" JACKET WATER COOLANT RETURN PIPING.
13. 4" POTABLE WATER PIPING FOR JACKET WATER HEAT EXCHANGER.
14. 4" DRAIN PIPING FOR JACKET WATER HEAT EXCHANGER.
15. INSULATED 3" AFTER COOLER COOLANT SUPPLY PIPING.
16. INSULATED 3" AFTER COOLER COOLANT RETURN PIPING.
17. 2" POTABLE WATER PIPING FOR AFTER COOLER HEAT EXCHANGER.
18. 2" DRAIN PIPING FOR AFTER COOLER HEAT EXCHANGER.
19. SUMP PIT.
20. ALUMINUM GRATING ON STAINLESS STEEL SUPPORT RACK.
21. GENERATOR CONTROL PANEL.
22. BATTERY CHARGER.
23. BATTERY RACK.
24. GENERATOR EQUIPMENT PAD.
25. ALUMINUM GRATING OVER PIPE TRENCH.
26. INTAKE AIR LOUVER AND MOTORIZED DAMPER.
27. ALUMINUM PLATE OVER PIPE TRENCH.
28. CONDUITS FOR 120 VOLT POWER AND CONTROL WIRING.
29. 2" PIPING FOR CRANKCASE FUME DISPOSAL.
30. 2" PIPING WITH VALVE FOR CRANKCASE DRIP COLLECTOR.
31. AUTOMATIC BREATHER VALVE FOR AIR BLEED.
32. 6" SANITARY PIPING.

Clark Dietz
ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK
WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY: SEM/JRF
DRAWN BY: JRF
CHECKED BY: CEC
DATE CHECKED: 01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

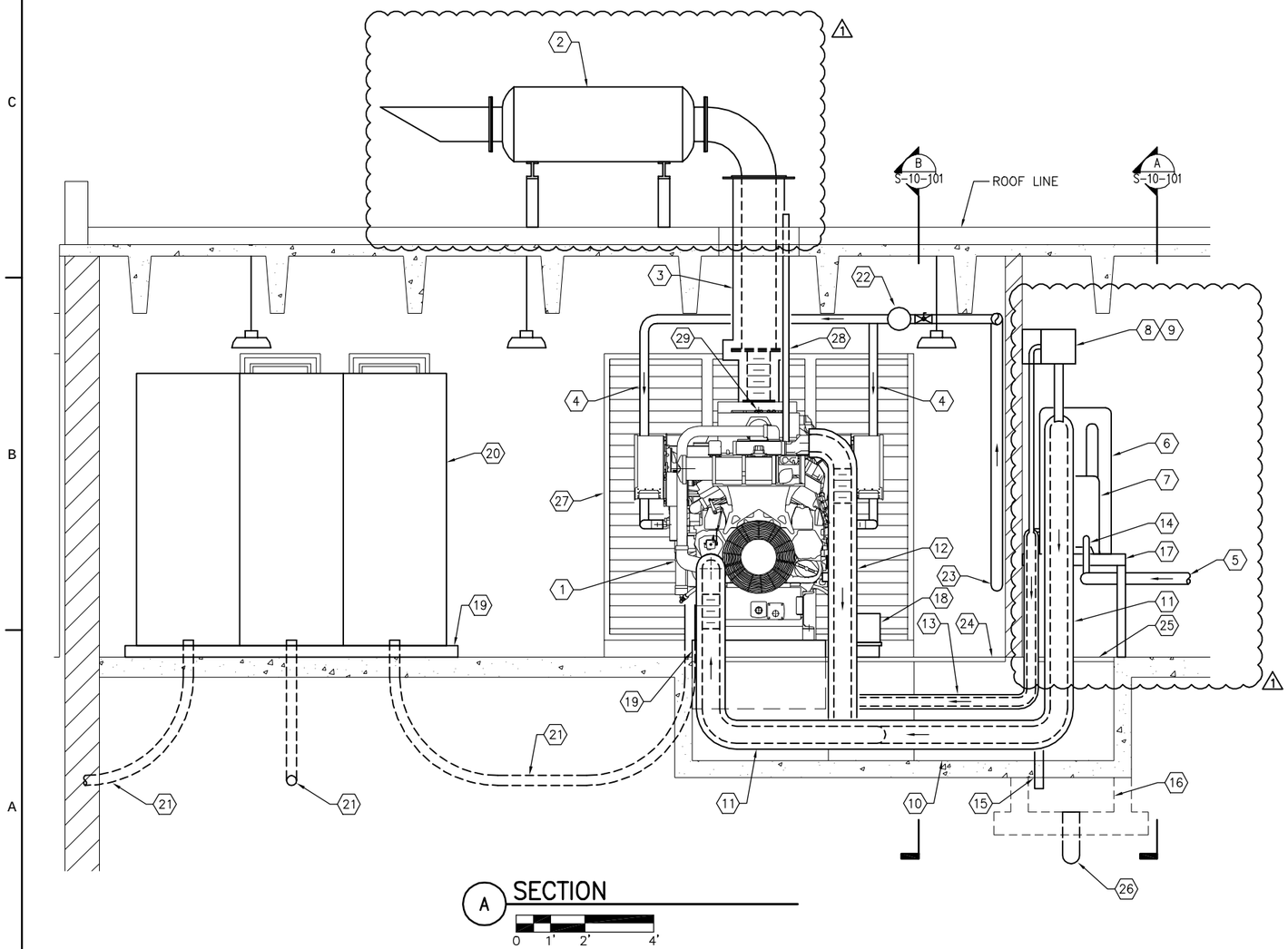
DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
ADMINISTRATION AND FILTRATION FACILITY BUILDING SECTIONS

PROJECT No.
O0130014

DRAWING No.
S-10-101

SHEET 084 OF 088 SHEETS



A SECTION

0 1' 2' 4'

NOTES

1. SEE DRAWINGS E-00-101, P-00-101, AND HV-00-101 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. EXPOSED INSULATED COOLANT PIPING IN ELECTRICAL ROOM SHALL HAVE STAINLESS STEEL JACKET FROM FLANGE CONNECTION ON GENERATOR DOWN TO FLOOR AND EXTEND 2" BELOW ALUMINUM PLATE ON TRENCH. JACKET SEAM SHALL BE ON GENERATOR SIDE OF PIPE.

(#) KEYNOTES

1. GENERATOR GEN-101.
2. GENERATOR SILENCER.
3. INSULATED 12" DIAMETER EXHAUST PIPING.
4. 3" GAS PIPING TO GENERATOR.
5. 4" POTABLE WATER PIPING.
6. JACKET WATER HEAT EXCHANGER HX-101A.
7. AFTER COOLER HEAT EXCHANGER HX-101B.
8. JACKET WATER LOOP EXPANSION TANK.
9. AFTER COOLER LOOP EXPANSION TANK.
10. PIPE TRENCH.
11. INSULATED 6" JACKET WATER COOLANT SUPPLY PIPING.
12. INSULATED 6" JACKET WATER COOLANT RETURN PIPING.
13. INSULATED 3" AFTER COOLER COOLANT SUPPLY PIPING.
14. 2" POTABLE WATER PIPING FOR AFTER COOLER HEAT EXCHANGER.
15. 2" DRAIN PIPING FOR AFTER COOLER HEAT EXCHANGER.
16. SUMP PIT.
17. ALUMINUM GRATING ON STAINLESS STEEL SUPPORT RACK.
18. BATTERY RACK.
19. EQUIPMENT PAD.
20. ATS-101 AND WE ENERGIES METERING SECTION.
21. CONCRETE ENCASED UNDERGROUND CONDUITS WITH 5KV CABLES.
22. GAS VALVE AND REGULATOR.
23. 4" GAS PIPING TO GAS METER.
24. ALUMINUM PLATE OVER PIPE TRENCH.
25. ALUMINUM GRATING OVER PIPE TRENCH.
26. 6" SANITARY PIPING.
27. MOTORIZED DAMPERS.
28. 2" PIPING FOR CRANKCASE FUME DISPOSAL.
29. AUTOMATIC BREATHER VALVE FOR AIR BLEED.

Clark Dietz ENGINEERS

DESIGN FIRM REGISTRATION No. 184-000450

125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE

WATER TREATMENT PLANT
AND LOW LIFT PUMP STATION
STANDBY POWER

DESIGNED BY:	SEM/JRF
DRAWN BY:	JRF
CHECKED BY:	CEC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE

ADMINISTRATION AND
FILTRATION FACILITY
BUILDING SECTION

PROJECT No.
O0130014

DRAWING No.
S-10-102

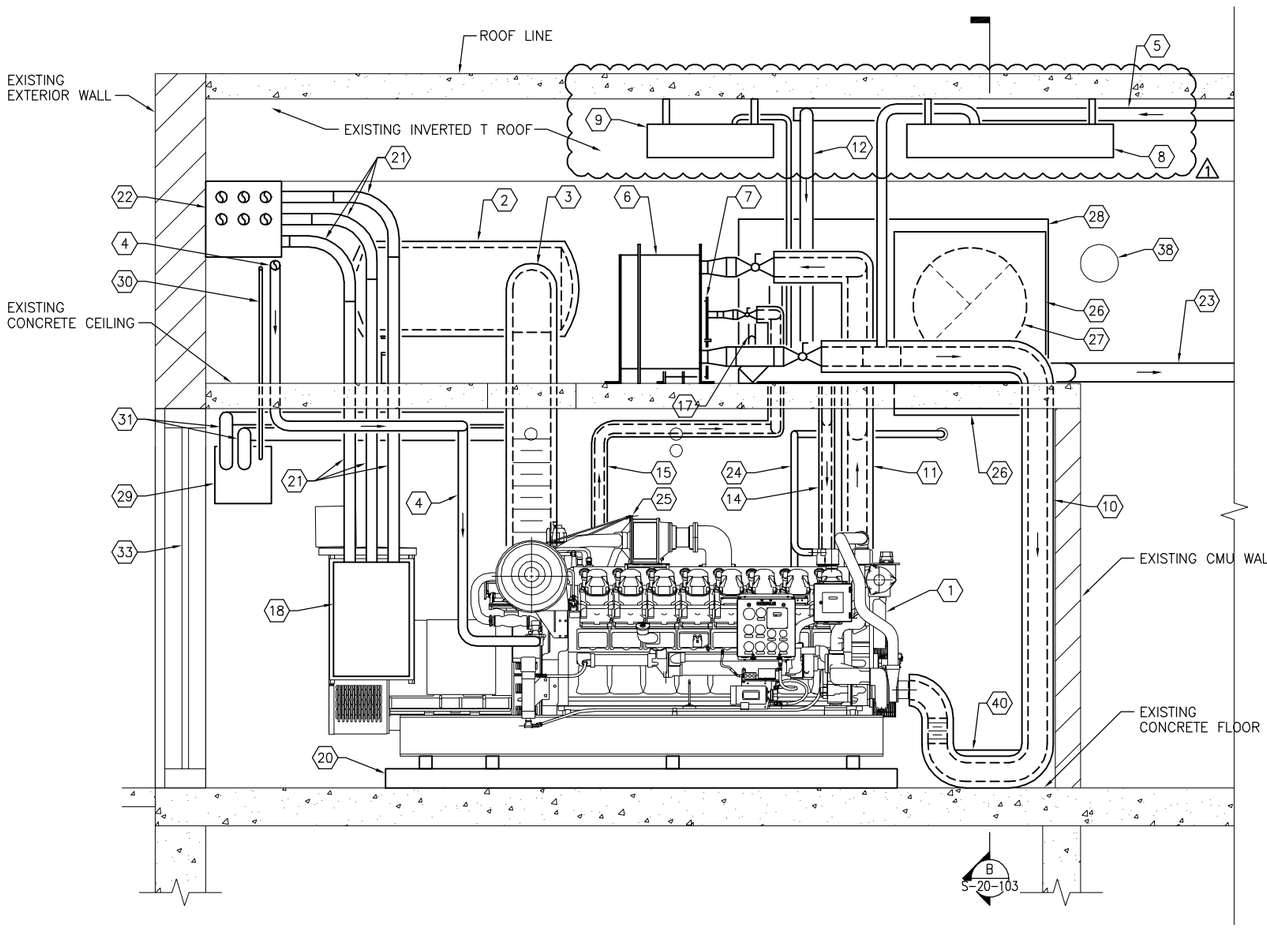
SHEET 085 OF 088 SHEETS

NOTES

1. SEE DRAWING E-00-101, P-00-101, AND HV-00-101 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
2. GUARDRAIL AROUND EXISTING CONCRETE CEILING NOT SHOWN FOR CLARITY.

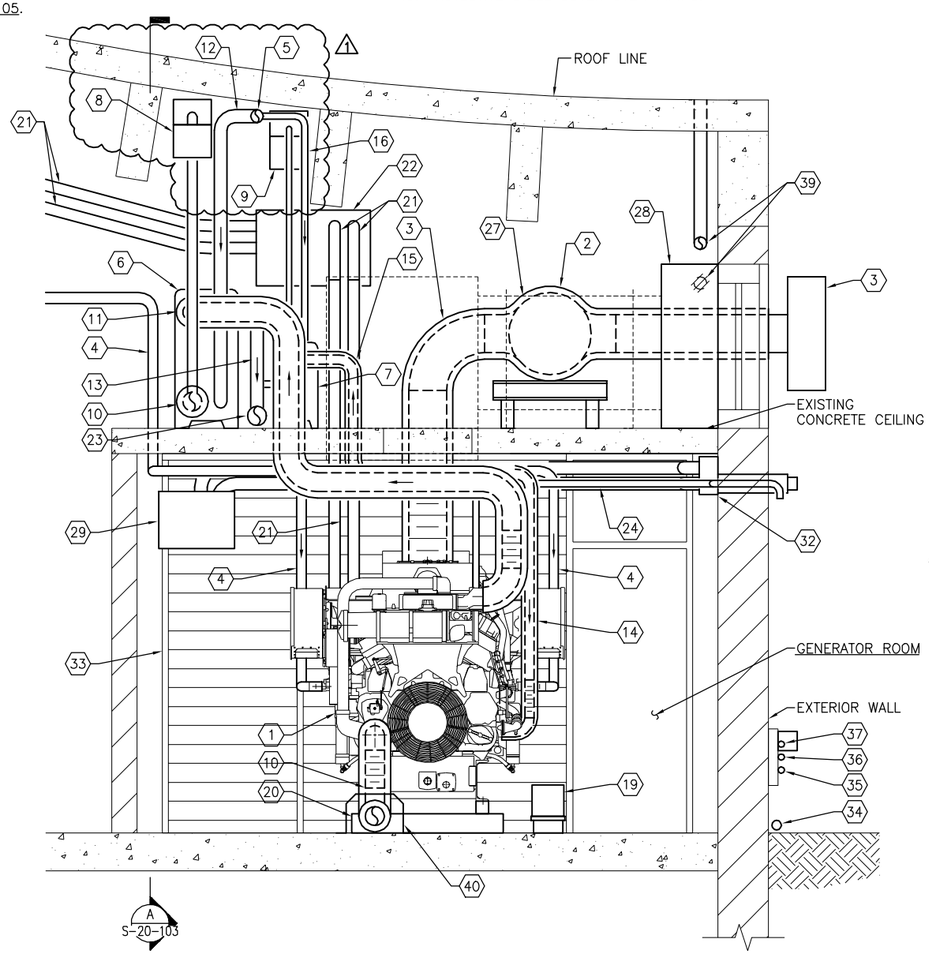
KEYNOTES

1. GENERATOR GEN-102.
2. GENERATOR SILENCER.
3. 12" DIAMETER EXHAUST PIPING WITH STEEL SCREEN ON END OF HORIZONTAIL PIPE.
4. 2" GAS PIPING TO GENERATOR.
5. 4" POTABLE WATER PIPING.
6. JACKET WATER HEAT EXCHANGER HX-102A.
7. AFTER COOLER HEAT EXCHANGER HX-102B.
8. JACKET WATER LOOP EXPANSION TANK.
9. AFTER COOLER LOOP EXPANSION TANK.
10. INSULATED 6" JACKET WATER COOLANT SUPPLY PIPING.
11. INSULATED 6" JACKET WATER COOLANT RETURN PIPING.
12. 4" POTABLE WATER PIPING FOR JACKET WATER HEAT EXCHANGER.
13. 4" DRAIN PIPING FOR JACKET WATER HEAT EXCHANGER.
14. INSULATED 3" AFTER COOLER COOLANT SUPPLY PIPING.
15. INSULATED 3" AFTER COOLER COOLANT RETURN PIPING.
16. 2" POTABLE WATER PIPING FOR AFTER COOLER HEAT EXCHANGER.
17. 2" DRAIN PIPING FOR AFTER COOLER HEAT EXCHANGER.
18. GENERATOR MAIN CIRCUIT BREAKER.
19. BATTERY RACK.
20. CONCRETE EQUIPMENT PAD.
21. CONDUITS WITH 480 VOLT FEEDER CABLES.
22. PULLBOX.
23. 6" DRAIN PIPING FROM HEAT EXCHANGERS.
24. 2" PIPING FOR CRANKCASE FUME DISPOSAL.
25. AUTOMATIC BREATHER VALVE FOR AIR BLEED.
26. 48"x48" EXHAUST DUCTWORK WITH EXHAUST GRILLE.
27. EXHAUST FAN EF-105.
28. EXHAUST LOUVER EL-101 WITH 18" DEEP PLENUM.
29. GAS FIRED UNIT HEATER GUH-102.
30. 3/4" GAS PIPING TO GAS FIRED UNIT HEATER.
31. COMBUSTION AIR INTAKE AND FLUE VENT FOR GAS FIRED UNIT HEATER.
32. CONCENTRIC VENT KIT FOR GAS FIRED UNIT HEATER.
33. MOTORIZED DAMPERS.
34. FLEXIBLE CARBON FEED PIPING.
35. 3/4" COMPRESSED AIR PIPING.
36. 1 1/2" INSULATED POTABLE WATER PIPING.
37. (3) 3/4" CONDUITS FEEDING CARBON FEEDER JUNCTION BOX.
38. EXISTING 6" EXHAUST PIPE.
39. RELOCATE EXISTING 4" STORM DRAIN PIPING.
40. PROTECTIVE STEEL COVER OVER PIPING.



A SECTION

0 1' 2' 4'



B SECTION

0 1' 2' 4'

Clark-Dietz ENGINEERS
DESIGN FIRM REGISTRATION No. 184-000450
125 WEST CHURCH STREET
CHAMPAIGN, IL 61820
PHONE : 217.373.8900
FAX : 217.373.8923

Partners in Design ARCHITECTS

OAK CREEK WATER and SEWER UTILITY

PROJECT TITLE
WATER TREATMENT PLANT AND LOW LIFT PUMP STATION STANDBY POWER

DESIGNED BY:	SEM/JRF
DRAWN BY:	JRF
CHECKED BY:	CEC
DATE CHECKED:	01/11

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DATE	REVISION
2/23/11	ADDENDUM NO. 1
2/3/11	ISSUED FOR BIDS

DRAWING TITLE
LOW LIFT PUMP STATION BUILDING SECTIONS

PROJECT No.
O0130014

DRAWING No.
S-20-103

SHEET 088 OF 088 SHEETS