

ADDENDUM NO. 1

TO

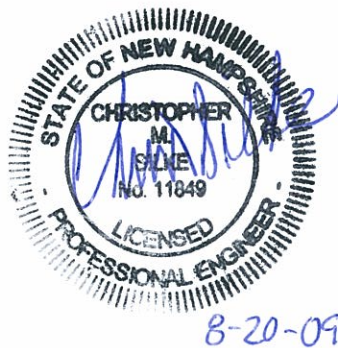
**City of Rochester
Rochester, New Hampshire**

BIDDING AND CONTRACT REQUIREMENTS AND SPECIFICATIONS

FOR

**COCHECO WELL NO. 1
WATER TREATMENT FACILITY**

AUGUST 20, 2009



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ADDENDUM NO.1

CITY OF ROCHESTER ROCHESTER, NEW HAMPSHIRE COCHECO WELL NO. 1 WATER TREATMENT FACILITY

This addendum amends and/or supplements the bid documents as indicated below. Only these items alter the Bid Documents; any verbal discussions or responses are hereby declared null and void.

SPECIFICATIONS

1. In the TABLE OF CONTENTS under DIVISION 3- CONCRETE, **ADD** Section 03420 Precast Concrete Structures.
2. Specification Section A-1.2. **ADD** to last paragraph on page:
"To be considered a responsive Bidder, the Contractor shall have obtained at least one set of paper plans and specifications from the City of Rochester. The Bid will not be awarded to a Bidder unless a record for the receipt of at least one set of paper plans and specifications exists in the City Business Office and the firm is on the published bidders list. To meet this requirement and to establish the record of receipt, a prospective Bidder must request paper plans and specifications using the name that is to appear in the Bid documents."

2. Section 06190 – Wood Trusses

Section 1.8.F.3 shall be **DELETED** entirely.

Section 2.1.A shall be **REPLACED** with the following: "Structural Lumber: Wood used in the manufacture of wood trusses shall be No. 2 kiln dry spruce-pine-fir or equal. All lumber shall be at 19% maximum moisture content."

Section 2.2 Manufacturers: **ADD** to the list "National Lumber, Mansfield, MA".

3. Section 13440. **ADD** the following to the Instrumentation Schedule:

TAG	TYPE/ SIZE	DESCRIPTION	LOCATION	ACTUAL RANGE	UNITS	SERVICE	POWER	SPEC. SECTION
AE/AIT -132A	pH	Raw Water pH Analyzer	Raw Water Line	0.0-14.0	pH	NEMA 4X	120 VAC	13440 2.1 C 9

4. Section 13440. **DELETE** Krohne Enviromag 2000 as an equivalent magnetic flow meter. Khrone does not satisfy the buy American provision. **DELETE** Kari KA as an equivalent float switch. Kari does not satisfy the buy American provision.

5. Section 13441. **ADD** the following to Part 3.1 D 3:
 - d. Raw Water pH Analyzer (AE/AIT-132A)
6. Section 13441. **ADD** the following to Part 3.1 D 6:
 - g. Raw Water pH
 - 1) A pH meter will measure the pH and temperature of the raw water. The pH and temperature will be displayed at the OIT.
 - 2) The pH and temperature will be displayed and historically trended at SCADA.
 - 3) The PLC shall monitor the fault status from the analyzer and activate an alarm at the OIT and SCADA if the analyzer faults.
7. Section 13441. Part 3.1 D 6 is duplicated. Change subsection "6. OIT and SCADA" to "7. OIT and SCADA"
8. Section 13441. **ADD** the following to Part 3.1 D 7:
 - ee. Raw Water pH (0.0 - 14.0)
 - ff. Raw Water pH Trend (SCADA only)
 - gg. Raw Water Temperature (####.# deg F)
 - hh. Raw Water Temperature Trend (SCADA only)
 - ii. Raw Water pH Analyzer Fault
9. Section 13441. **ADD** the following to Part 3.1 H 5 a, b, & c:
 - 3) The PLC shall monitor the fault status from the analyzer and activate an alarm at the OIT and SCADA if the analyzer faults.
10. Section 13441. **ADD** the following to Part 3.1 H 6:
 - s. Finish Water pH Analyzer Fault
 - t. Finish Water Fluoride Analyzer Fault
 - u. Finish Water Chlorine Analyzer Fault
11. Section 13441. **ADD** the following to Part 3.1

N. Loop 500 – Heat Exchanger Recirculation Loop Motorized Valve

1. General: Water from the clearwell is pumped by the Heat Exchanger Water Recirc Pump (HEWR-1) through a heat pump and back to the clearwell. A motorized control valve (CV-500) will shut off the recirc loop in the event of a heat pump failure.
2. Local Controls:
 - a. None.
3. Field Instruments:
 - a. Heat Exchanger Valve Position Indicating Controller (ZIC-500) Provided by Division 15
4. PLC:
 - a. The PLC will monitor a latching general alarm from the Division 15 Automatic Temperature Controller (ATC-1). The general alarm condition shall be displayed at the OIT and SCADA.

- b. Upon receipt of the heat pump general alarm the PLC shall send a close command to ZIC-500 which will close CV-500. The valve shall remain closed until the alarm condition is acknowledged from the Heat Exchanger Control Panel and at the Operator Interface.
 - c. The PLC will monitor the fully closed, fully open, and fault conditions from ZIC-500. These conditions shall be displayed at the OIT and SCADA.
 - 5. OIT and SCADA:
 - a. Heat Pump General Alarm
 - b. ZIC-500 Fully Open
 - c. ZIC-500 Fully Closed
 - d. ZIC-500 Fault
- 12. Section 15604. Part 3.1.A.1. **ADD** the following after the last sentence: "The general alarm signal from the controller shall be sent to ATC-1 to initiate the closure of the motor operated ball valve in the HEWR line to the clearwell."
- 13. Section 15604. 3.1.A.2. **ADD** a sentence at the end "When the general alarm signal is received from the Heat Pump controller, pumps CP-1 and CP-2 will be deactivated and the motor operated ball valve on the HEWR line to the clearwell shall close to isolate the clearwell water from the heat pump system."
- 14. Specification Section 16620. **DELETE** Part 2.1.B.9. and **REPLACE** with:
Part 2.1.B.9. Fuel System:
 - a. The Generator Set shall come equipped for a liquid propane fuel supply, and shall include a vaporizer/regulator which shall be removed from the generator and reinstalled by the contractor, on the outside of the building, as close to the interior generator set location as possible.
 - b. As an alternative to the above, the contractor may require that the generator supplier provide a unit equipped with a standard low pressure vapor system. The propane fuel supplier will then be required to supply a vaporizer/regulator outside the building close to the generator set location.
 - c. Refer to Division 15 requirements and related drawings for propane supply piping specifications and details.
- 15. **DELETE** in Appendix A the NHDES Contract No. 7 Letter within the S.W. Cole Geotechnical Report.
- 16. Refer to attached Specification Section 03420 Precast Concrete Structures for Holding Tank.
- 17. See the attached Minutes from the Non-Mandatory Pre-Bid Meeting held on 8/17/09.
- 18. Refer to Article 2 in the attached NH Rail Crossing Agreement for Insurance Limits during construction.

19. Specification Section A-3.5. **ADD** as Bid Item No. 11 with Lump Sum Quantity of 1, Electrical & Plumbing Improvements, Cleaning of On-Site House, Unit Bid Figures \$25,000, Amount in Figures \$25,000. This is an allowance to perform code compliant updates and utilize the house as a construction office when complete.

DRAWINGS

1. Drawing C-2. **ADD** hatched Demolition rectangle over the Greenhouse and Foundation abutting Route 11.
2. Drawing C-2. **ADD** callout to "DEMO GREENHOUSE AND FOUNDATION".
3. Drawing C-3. **REPLACE** "8" DIA. GATE VALVES" on Finished Water Line with "12" DIA. GATE VALVES".
4. Drawing C-3. North of Steel Casing. **ADD** callout for "12" MJ ADAPTER" to transition to Ductile Iron pipe to building.
5. Drawing C-3. **ADD** callout for "12 D.I. PIPE" on Finished Water Line.
6. Drawing C-3. **REPLACE** callout for "OVERFLOW LINE" with "OVERFLOW D.I. PIPE".
7. Drawing C-6A. **ADD** "FIELD VERIFY TOP OF CONCRETE ELEVATION. COORDINATE WITH ENGINEER. INSULATE IF WATER MAIN PASSES OVER CULVERT. ENCASE IN CONCRETE IF PASSING BELOW" text to "CULVERT CROSSING - SEE DETAIL" callout.
8. Drawing C-3. **ADD** 4" HDPE Exterior Footer Drain Pipe completely around foundation. Pipe will drain to daylight on easterly bank at Invert Elevation 235.00.
9. Drawing C-3. Within Westerly Directional Drill Pit. **ADD** callout for "8" MJ ADAPTER" to transition to Ductile Iron pipe to building.
10. Drawing C-3. **ADD** callout for "8 D.I. PIPE" on Raw Water Line nearby building.
11. Drawing C-6. Station 101+00 corresponds approximately to 0+00 in S.W. Cole Geotechnical Report for probe data.
12. Drawing C-12. ACCESS ROAD SECTION STA 11+75 to 21+75 Detail. **ADD** callout for "NON-WOVEN GEOTEXTILE" placed below the 12" of crushed stone.
13. Drawing I-1. CONTROL LOOPS. **ADD** the following to the control loops:

500 HEAT EXCHANGER RECIRC LOOP CONTROL VALVE ADDENDUM 1 FIGURE 1

14. Drawing I-2. **ADD** a Raw Water pH Analyzer to the Raw Water Line. Tag number shall be AE/AIT-132A. **ADD** a pH analog input, temperature analog input, and analyzer fault digital input to the PLC from AE/AIT-132A.
15. Drawing I-3. **DELETE** TK-960 label and **REPLACE** with "275 GALLON ORTHO POLYPHOSPHATE MIXING DAY TANK"
16. **ADD** Figure 1 to Instrumentation and Control Drawings.
17. Drawing PR-1. **DELETE** "wafer" from silent check valve callout. Wafer style check valves are not acceptable as delineated in the specifications.

18. Drawing PR-1, PR-2, and PR-3. **DELETE** static mixer at sodium hypochlorite injection point in the aerated water piping. Sodium hypochlorite shall be injected into the aerated water at this location using a typical chemical injection nozzle as delineated on PR-4.
19. Drawing M-1, Section B. **DELETE** "control valve" on HEWR.
20. Drawing M-1, Lower level Plan. Control Valve on HEWR shall be a motor controlled ball valve as specified in Section 15106.
21. Drawing E-6. **ADD** the following Heat Exchanger Recirculation Loop Components and new panelboard:
 - a. Item 50 - CP-1 - Circulation Pump with associated 30A Disconnect Switch in Treatment Room (Refer to Mechanical Drawings); Power cable "P64"
 - b. Item 51 - CP-2 - Circulation Pump with associated 30A Disconnect Switch in Mechanical Room (Refer to Mechanical Drawings); Power cable "P65"
 - c. Item 52 - ZIC-500/CV-500 - Motor-operated control valve in Stairwell (Refer to Mechanical Drawings); Power cable "P63"; Control cable "C59"
 - d. Item 53 - PANELBOARD LP-1A - Mount to the east of Panelboard LP-1; Power cable "P66"
22. Drawing E-9. **ADD** the following to the Instrumentation Block Diagram:
 - a. Add Block labeled "HEAT PUMP"; add Cable C58 between Heat Pump and CP-4
 - b. Add motor-operated valve CV-500/ZIC-500; add Cable C59 between MOV CV-500 and CP-4
 - c. Add Block labeled "ATC-1"; add Cable C60 between ATC-1 and CP-4
 - d. Correct typo error on LOWER LEVEL SUMP FLOOD; should read LSH-5B; Delete AE-430C (CHLORINE - FINISH WATER) typeover
11. Drawing E-10.
 - a. A portion of this drawing will be reissued as Addendum 1, Figures 2 and 3 to reflect the addition of a second panelboard, LP-1A, to be subfed from Panelboard LP-1. **In some instances, LP-1 circuit numbers shown on Drawings E-5 and E-6 no longer apply; the Electrical Contractor is to refer to the Panelboard Schedules shown on Figures 2 and 3 for proper electrical load termination points and attach these to Drawing E-10.**
 - b. Light Fixture Schedule: The light fixture to be used in the Treatment Room will not be suspended, but will be ceiling surface mounted. It will be a 3-lamp unit. Change the suggested model number to LUN-4-332-EB8-120-CPP
12. Drawing E-11. **Make the following CHANGES and ADD** the following to the Conduit and Cable Schedule -
 - a. "P52" - **CHANGE** LP-1 to LP-1A
 - b. "P55" - **CHANGE** LP-1 to LP-1A
 - c. **ADD** P63 ½" 2-#12&1-#12 GND LP-1A CV-500 HEAT EXCHANGER RECIRC

- d. **ADD** P64 ½" 2-#12 & 1-#12 GND LP-1A CP-1 TREATMENT ROOM
- e. **ADD** P65 ½" 2-#12 & 1-#12 GND LP-1A CP-2 MECHANICAL ROOM
- f. **ADD** P66 ¾" 3-#8 & 1-#8 GND LP-1 LP-1A SUBPANEL FEEDER
- g. **ADD** C58 ½" 4-#14 HEAT PUMP CONTROLLER CP-4
- h. **ADD** C59 ¾" 10-#14 CP-4 CP-500/ZIC-500 HEAT EXCHGR
MOV
- i. **ADD** C60 ½" 4-#14 ATC-1 CP-4 GENERAL ALARM

13. Drawing A-3. **REVISE** as follows:

- a. On the West Elevation, **CHANGE** the dimension from the top of Door 114 to the top of Windows 'E' from 7'-4" to 9'-4".
- b. On the South Elevation, **ADD** two rows of Snow Fence on the 10 in 12 roof above the entrance equal in length to the entrance canopy.

14. Drawing A-4. **REPLACE** Drawing A-4 issued on 8-3-09 with the new Drawing A-4 issued with this addendum. Revisions are indicated with clouds.

15. Drawing A-6. **REVISE** as follows:

- a. **DELETE** FRP Panels from Window Details 'D', 'E' and 'F'.
- b. **DELETE** Composite Sill from Window Detail 'F'.
- c. **RETURN** GWB to window at the sill in Detail 'F'.

16. Drawing A-7. On the Detail 'F', **CHANGE** "GABLE END WALL 2x8 OR 10 @ 12" OC, OUTSIDE . . ." to **Read** "GABLE END WALL 2x10 @ 16" OC, OUTSIDE . . ."

17. Drawing S-1, Wood Truss Note 3 shall be **REPLACED** with the following:
"STRUCTURAL LUMBER: WOOD USED IN THE MANUFACTURE OF WOOD TRUSSES SHALL BE NO. 2 SPRUCE-PINE-FIR OR EQUIVALENT. ALL LUMBER SHALL BE AT 19% MAXIMUM MOISTURE CONTENT."

18. Drawing S-3, **REPLACE** Detail D with the attached sketch SK-2.

19. Drawing S-4, **REPLACE** sheet with attached revised drawing S-4REV.

20. Drawing S-6, **REPLACE** the two details "Typical CMU Wall Opening Greater than 3'-6" and "CMU Wall Reinforcing Schedule" with respective details on the attached sketch SK-1.

21. Drawing S-7, **DELETE** Detail F entirely.

21. Drawing S-7, **DELETE** "LIFT HOOK DETAIL" entirely. This detail is to be replaced with a lift hook detail as shown on the attached drawing S-4REV noted above.

SPECIFICATIONS

SECTION 03420

PRECAST CONCRETE STRUCTURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Precast concrete structures:
 - 1. 4,000-gallon holding tank.
- B. Joint sealants.
- C. Waterproofing.

1.2 RELATED SECTIONS

- A. Section 01340 - Submittals
- B. Section 02200 - Earthwork
- C. Section 02601 - Manholes, Covers and Frames
- D. Section 03300 - Cast-in-Place Concrete
- E. Section 03346 - Concrete, Finishing, Curing and Repairs
- F. Section 03604 - Non-Shrink Grout
- G. Section 05500 - Metal Fabrications
- H. Section 15092 - Pipe Sleeves and Seals

1.3 REFERENCES

- | | | |
|----|-----------------------|---|
| A. | ACI 211.1-91 - | Standard Practice for Selecting Proportions for Normal Heavyweight, and Mass Concrete |
| B. | ACI 301-05 - | Standard Specifications for Structural Concrete |
| C. | ACI 302.1R-04 - | Guide for Concrete Floor and Slab Construction |
| D. | ACI 304.2R-96 - | Placing Concrete by Pumping Methods |
| E. | ACI 305R-99 - | Hot Weather Concreting |
| F. | ACI 306.1-90 | Standard Specification for Cold Weather Concreting |
| G. | ACI 308R-01 - | Guide to Curing Concrete |
| H. | ACI 308.1-98 - | Standard Specification for Curing Concrete |
| I. | ACI 309R-05 - | Guide for Consolidation of Concrete |
| J. | ACI 318-05 -/318R-05 | Building Code Requirements for Structural Concrete and Commentary |
| K. | ACI 347R-03 - | Guide to Formwork for Concrete |
| L. | ASTM A82-02 - | Specification for Steel Wire, Plain, for Concrete Reinforcement |
| M. | ASTM A185-02 - | Specification for Steel Welded Wire Fabric, Plain for Concrete Reinforcement |
| N. | ASTM A615/A615M-03 - | Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement |
| O. | ASTM A775/-A775M-01 - | Specification for Epoxy-Coated Reinforcing Steel Bars |
| P. | ASTM C33-03 - | Specification for Concrete Aggregates |

- Q. ASTM C94/C94M-04a - Specification for Ready Mixed Concrete
- R. ASTM C150-02a - Specification for Portland Cement
- S. ASTM C260-01 - Specification for Air Entraining Admixtures for Concrete
- T. ASTM C309-98a - Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- U. ASTM C494/C494M-99a - Specification for Chemical Admixtures for Concrete
- V. ASTM C1602-04 - Specification for Mixing Water Used in the Production of Hydraulic Cement concrete
- W. Concrete Reinforcing Steel Institute - Manual of Standard Practice
- X. Concrete Reinforcing Steel Institute - Placing Reinforcing Bars

1.4 DESIGN REQUIREMENTS

- A. Design shall be for "Normal Sanitary Exposure" (Z=115) and shall be done by "Alternate Design Method" ACI 318, Appendix B or "Strength Design Method" ACI 318 and as amended by ACI 350R.
- B. Minimum 28 day compressive strength: $f_c' = 5,000$ psi.
- C. Reinforcing Steel: ASTM A615 grade 60 deformed bars.
- D. Concrete cover on reinforcing steel: 1½ inches minimum.
- E. The structures shall have a minimum of 8" thick walls, top slabs and base slabs.
- F. The precast concrete structure shall support its own weight plus the following minimum superimposed loads:
 - 1. Live load on top slab: H-20 vehicular loading.
 - 2. Dead load of soil on top slab: 125 PCF.
 - 3. Equivalent lateral fluid pressure - 90 PCF. The top of the pressure diagram shall be assumed to originate at Finish Grade as shown on the drawings.
 - 4. Uniform live load surcharge of 125 psf applied horizontally to the sides of the precast structure.
 - 5. Ground water shall be assumed to originate at finish grade.
 - 6. Factor of safety of 1.15 shall be used against flotation based on weights of empty structure and soil directly over footing extensions.
- G. Segmented structures with joints shall be designed and installed for watertight joints with no leakage at the joints.

1.5 SUBMITTALS

- A. Manufacturer's Data:
 - 1. Submit manufacturer's specifications and instructions for all manufactured materials and products. Include manufacturer's certifications and laboratory test reports as required.
 - 2. Contractor shall submit the proposed erection procedure for precast units, sequence of erection, and required handling equipment.
 - 3. A copy of handling and installation instructions and procedures shall be transmitted to the Erector.

B. Shop Drawings:

1. Submit shop drawings showing complete information for the fabrication and installation of precast concrete units.
2. Submit member dimensions and cross section, location, size, type and details of reinforcement, including special reinforcement and lifting devices necessary for handling and erection, joints and waterstops.
3. Submit layout, dimensions, and identification of each precast unit corresponding to the sequence and procedure of installation. Indicate welded connections by AWS standard symbols. Detail inserts, connections, and joints, including accessories and construction at opening in precast units.
4. Submit location and details of anchorage devices that are to be embedded in other construction. Furnish templates if required for accurate placement.
5. Submit structural design calculations and drawings demonstrating the structural integrity of all precast concrete units for the intended use and a buoyancy analysis with a factor of safety against flotation of 1.15 with the assumptions of the ground water table at finished grade and the precast concrete tank empty. Calculations and Drawings shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.
6. Submit concrete mix design including product data for concrete accessories and waterproofing materials.
7. Submit locations of wall penetrations for pipes. All openings shall be cast-in-place at the manufacturing plant. No field coring of pipe penetrations shall be allowed.

1.6 QUALITY ASSURANCE

- A. The manufacture shall exhibit satisfactory performance on projects of similar magnitude under similar or equal service conditions for a period not less than five (5) years. Submit past job list with Owner contact information.

1.7 WARRANTY

- A. The precast concrete manufacturer shall guarantee all precast concrete members against excessive movement after erection, causing separation of joints, cracking or misalignment of adjacent units. The Precaster shall further guarantee all joints between concrete sections against leakage and all members against infiltration of water through the concrete; the precast concrete erector shall repair and restore any unsatisfactory conditions or damage to the building resulting from and related to the precast concrete work, to the extent of replacement if so required at no expense to the Owner.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver precast concrete units to the project site in such quantities and at such times as will assure the continuity of the installation.

- B. Store units at the project site to ensure against cracking, distortion, staining, or other physical damage, and so that markings are visible. Lift and support units at the designated lift points only.

1.9 JOB CONDITIONS

- A. Erector must examine all parts of the supporting structure and the conditions under which the precast concrete work is to be erected, and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the installation until satisfactory conditions have been corrected in a manner acceptable to the Erector.
- B. Deliver anchorage items which are to be embedded in other construction before the start of such work. Provide setting diagrams, templates, instructions and directions as required for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Superior Concrete Company, Inc., Auburn, Maine.
- B. Scituate/Ray Precast Concrete Products, Marshfield, MA.
- C. Rotondo Precast Concrete Products, Rehoboth, MA.
- D. Or equivalent.

2.2 MATERIALS

- A. All precast units shall be tongue and grooved and of shape and section as shown on the Drawings.
- B. Cement for all units shall be Type II Portland cement, ASTM C150.
- C. Minimum compressive strength of concrete 5000 psi at 28 days.
- D. Entrained air content of concrete: $6\% \pm 1\%$.
- E. Reinforcing steel shall conform to ASTM A 615 grade 60 deformed bars.
- F. Cast-in-place plates shall conform to ASTM A 36.
- G. Liquid Asphalt Dampproofing: Non-fibrated asphalt emulsion for below grade wall dampproofing.
 - 1. First coat Sonneborn Building Products - Hydrocide 600 or equal.
 - 2. Second coat Sonneborn Building Products - Hydrocide 700 Mastic, or equal.
- H. Entrance Hatches: Provide openings as shown on the Drawings.
- I. Manhole Steps:
 - 1. Aluminum or polyethylene coated steel safety type designed with a minimum concentrated live load of 300 pounds.
 - 2. Thoroughly clean all surfaces to be embedded with a suitable cleaning agent to ensure that the surfaces are free from all foreign matter such as dirt, oil and grease.
 - 3. Aluminum surfaces to be embedded shall be given a protective coating of an approved poly-amide epoxy paint. The steps shall be thoroughly dry before being placed into the concrete.

- 4. All steps shall be cast into walls of the precast section so as to form a continuous ladder with a distance of 12-inches between steps.
- J. Manhole covers and frames shall be provided in Specification Section 02601.
- K. Precast section joints shall use solid, continuous elastomeric gaskets to achieve watertight joints.

PART 3 - EXECUTION

3.1 FABRICATION AND PLACING REINFORCEMENT

- A. Detailing and fabrication of reinforcement shall conform to details on drawings, and otherwise to the CRSI Code of Standard Practice.
- B. Bars when placed shall be clean and free from loose mill scale and rust and from coatings that reduce bond.
- C. Place reinforcement of structural members on accessory bolsters and chairs as specified in Specification Section 03300, for reinforcement of cast-in-place structural members. Accessories shall be stainless steel or have plastic tips.
- D. Specifications for splicing bars given in the ACI Code are applicable to this work.
- E. All reinforcing shall have adequate cover as required by ACI 318 and 350R.

3.2 PRODUCTION AND CURING

- A. Production and curing of the precast units shall in all respects conform to the provisions of ACI Standards.
- B. Each precast concrete unit shall be an integral placement without any construction or cold joints. Floor slabs shall be an integral placement with the bottom wall section.
- C. Structures shall be fabricated from the minimum number of precast sections while keeping with transportation and installation restrictions.

3.3 STORAGE, HANDLING, TRANSPORTATION

- A. Units shall be stored in moist condition for at least 14 days and shall be supported in such a way as to avoid any deformation, discoloration, or permanent set. Handling and transportation shall not produce stresses beyond the allowable stresses or cause cracks and spalls.

3.4 CONDITIONS OF UNITS AND PATCHING

- A. Damaged, cracked, or chipped units shall be satisfactorily repaired and patched if structurally and architecturally acceptable. The Engineer shall be sole judge as to acceptability and his decision shall be final if made within these specifications. The Precasters assumes responsibility for any damage or impairment of the precast units until the unit is erected and permanently fastened. All exposed to view units to be cleaned to obtain a uniform finish before acceptance is made.

3.5 INSPECTION

- A. Material and workmanship shall be at all times subject to inspection by the Engineer and ready access for such inspection shall be permitted to all work during fabrication and erection.
- B. Material and workmanship not in conformity with the provisions of this specification may be rejected at any time defects are found during the progress of the job.

3.6 EMBEDDED AND ATTACHED ITEMS

- A. Pipe sleeves, inserts, bolts, lifting hooks dowels, and all other items required for transportation and erection shall be patched so that they shall have adequate concrete cover in the finished structure. Location to be as shown on Drawings or as required for handling and erection.

3.7 ERECTION

- A. Install all precast structures and/or structure sections level and plumb to the elevations and in the locations shown on the Drawings.
- B. Installation Tolerances: Install precast units without exceeding the following tolerance limits:
 - 1. Variations from Plumb: 1/4" in any 20' run or story height ; 1/2" total in any 40' or longer run.
 - 2. Variations from Level or Elevation: 1/4" in any 20' run; 1/2" in any 40' run; total plus or minus 1/2" at any location.
 - 3. Variation from Theoretical Position in Plan: Plus or minus 1/4" maximum at any location.
 - 4. Offsets in Alignment of Adjacent Members at Any Joint: 1/16" in any 10' run: 1/4" maximum.
- C. Perform jointing in strict accordance with the manufacturer's recommendations.
- D. Make sure all joints are watertight.

3.8 CLEANING, REPAIRING AND PROTECTION

- A. After erection is complete, any chipped or damaged units and any depressions left by removal of lifting devices shall be properly repaired by the erector. Also, all erection dirt incurred during the erection process shall be removed. Muriatic acid or similar products are not to be used without the specific consent of the manufacturer and the Engineer.
- B. All finished work in any way exposed shall be protected by the General Contractor against damage. Cutting and patching of any precast concrete shall only be allowed with the express permission of the Engineer. Any such work shall only be done by the Erector, either at this own expense should the fault be his, or at the expense of the party responsible for the damage for the additional work required.

3.9 LIQUID ASPHALT DAMPPROOFING APPLICATION

- A. Apply dampproofing to all concrete tank walls below grade.

- B. First Coat - Brush or spray on at a rate of 125-150 square feet per gallon, filling all voids in concrete surfaces, completely.
- C. Allow first coat to dry before applying second coat.
- D. Second Coat - Trowel apply at a rate of 20-25 square feet per gallon.
- E. Do not place backfill for at least 24 to 48 hours after application.

3.10 CLEANING

- A. Clean any adjacent materials affected by the application of the penetrating dampproofing with a material recommended by the dampproofing manufacturer.

3.11 TESTING

- A. General:
 - 1. Perform leakage tests on all precast concrete tanks.
 - 2. All testing must be performed in the presence of the Engineer.
 - 3. Suitably plug all pipes entering precast concrete tank and brace plugs to prevent blow out.
- B. Exfiltration Tests Prior to Backfilling:
 - 1. Fill precast concrete tank with potable water furnished by the Contractor to the top of the cover.
 - 2. A period of up to 12 hours may be permitted, if the Contractor so wishes, to allow for absorption.
 - 3. At the end of the absorption period, refill precast concrete tank with water to the top of the precast concrete tank cover and begin the 4-hour test period.
 - 4. At the end of the 4-hour test period, refill precast concrete tank to the top of the precast concrete tank cover and measure the volume of water added. The leakage for each precast concrete tank shall not exceed 1 gallon per 50 square feet of tank wall per 4-hour period.

3.12 PRECAST CONCRETE TANK REPAIRS

- A. Correct leakage by reconstruction, replacement of gaskets and/or other methods as approved by the Engineer.
- B. The use of lead-wool or expanding mortar will not be permitted.
- C. Subsequent to the repair, tanks shall be refilled as previously described and re-tested until such time as the structures can demonstrate compliance with the testing requirements and at no additional cost to the Owner.
- D. The Contractor shall dispose of the water as directed by the Engineer.

END OF SECTION

NHDOT RAIL AGREEMENT

CROSSING AGREEMENT

Agreement made this _____ day of _____ 2009 between the State of New Hampshire, by and through the New Hampshire Department of Transportation, Bureau of Rail and Transit, PO Box 483, Concord, NH, hereinafter referred to as the State, and City of Rochester, 19 Wakefield Street, Rochester New Hampshire, hereinafter referred to as the Permittee.

WHEREAS, the State is the owner of the Farmington Branch railroad corridor in the City of Rochester, County of Coos, State of New Hampshire. The State-owned Railroad Corridor is managed by the Department of Resources and Economic Development (Trails Bureau) for recreational purposes under the terms of a cooperative agreement.

WHEREAS, the Permittee is desirous of obtaining permission to cross a portion of the State-owned Farmington Branch railroad corridor to: construct, use, maintain, and reconstruct a driveway, overhead utility and underground utility crossings within the right-of-way near approximate Valuation Station 691+30+/-, Map 4.2/14 hereinafter referred to as the facility, as per the approved plan titled City of Rochester, NH Cocheco Well No. 1 Water Treatment Facility, dated July, 2009 and prepared by Wright Pierce, which is hereby incorporated in the Agreement.

NOW THEREFORE, subject to and conditioned upon the performance by the Permittee of all the covenants set forth below, the State grants to the Permittee, permission to construct, use, maintain, repair, and reconstruct said facility on the above-described portion of said railroad corridor.

1. Construction and Maintenance

1.1 The Permittee agrees that all work on construction, maintenance, repair, and reconstruction of said facility shall be performed at a time and under conditions acceptable to State, and shall at no time interfere with the management of the railroad corridor by the State, its lessees or assigns.

1.2 The Permittee agrees that it is liable for the cost of all work and materials required to construct, use, maintain, repair, relocate and reconstruct said facility on NHDOT Railroad Property as indicated in the Prosecution of Work on NHDOT Railroad Property, dated July 6, 2009. Such responsibility shall include but not be limited to the cost of all on-site inspectors or other representatives of the State to inspect the materials and to monitor construction, if such individuals are necessary in the sole judgment of the State. Any deficiencies in materials, methods of construction or workmanship shall be promptly corrected to the mutual satisfaction of the Permittee and the State. The Permittee is solely responsible for the presence of its equipment along the State-owned railroad corridor.

1.3 Any damage to the State-owned railroad corridor contained herein which, as determined by the State, is caused by, results from or arises out of the installation, maintenance or presence of the Permittee's facility shall be repaired by the State. The Permittee shall fully compensate the State for all costs associated with the repair of any such damage.

1.4 The Permittee shall coordinate any and all work within the State-owned railroad corridor with the State by contacting State personnel at (603) 271-3254 and giving them a minimum of 48 hours advance notice of the work to be performed in the area.

1.5 The Permittee shall, at the State's request and the Permittee's expense, provide whatever protection is deemed necessary by the State, in the event the State performs any work on within the State-owned railroad property limits, including but not limited to inspection, maintenance, cleaning, snow removal, construction, rehabilitation, and repair of such State-owned railroad property.

1.6 The Permittee shall submit any proposed alterations to the plans described above in writing to the State for review and approval before implementing those alterations.

2. Indemnification and Insurance

2.1 The Permittee acknowledges that the facility is being requested for the Permittee's advantage and does not involve the State's performance of its duties to the public. The Permittee further acknowledges that the installation and use of the facility by the Permittee will expose the State to additional liability to which it would not otherwise be exposed. Accordingly, the Permittee agrees that the State shall not be liable for injury or death of the Permittee or agent of Permittee, regardless of status as guest, invitee or trespasser, or for loss or destruction of or damage to any property of the Permittee or any agent of the Permittee while upon, or about, or in the use of the facility. The Permittee and its employees, contractors and agents agree to defend, indemnify, and hold harmless the State, its officers, agents and employees, from and against any and all losses suffered by the State, its successors and assigns, officers, agents, employees from any and all claims, liabilities or penalties asserted against the State, its successors and assigns, officers, agents and employees, by or on behalf of any person on account of, based or resulting from, arising out of (or which may be claimed to arise out of) the acts or omissions of the Permittee or from the use, maintenance, installation, removal or existence of this facility, respective of any negligence on the part of the State, or their agents or employees. Without limiting the foregoing, it is agreed that this covenant of indemnification shall apply to all cases of loss, damage, injury, death, cost or expense for which any party to this agreement may or shall be liable. For the purpose of this agreement, all persons using the facility shall be deemed agents of the Permittee. This covenant shall survive the termination of this Agreement. In addition the Permittee shall pay the premiums on a policy or policies of insurance effective during construction of the facility, covering the following, and naming the State of New Hampshire as additional insured.

2.1.1 Commercial General Liability:
\$1,000,000.00 each occurrence/\$2,000,000.00 in the aggregate

2.1.2 Comprehensive Automobile Liability:
\$500,000.00 combined single limit

2.1.3 Worker's Compensation Insurance
In the amount as required by current State Statute

2.2 The Permittee shall also obtain and maintain comprehensive automobile liability insurance covering the Permittee's owned, hired and borrowed vehicles, for all claims of bodily injury, death or property damage, in policy amounts of not less than five hundred thousand (\$500,000.00) dollars combined single limit

2.3 The Permittee agrees to obtain and keep in force, after construction, for the life of the facility, a policy or policies of insurance covering said facility, providing Comprehensive General Liability or Comprehensive Personal Liability with a

minimum \$1,000,000.00 per occurrence limit covering bodily injury and property damage.

2.4 Procurement and delivery of a certificate indicating such insurance acceptable to the State is a condition precedent to the effectiveness of this Agreement. The Permittee shall provide to the State a certificate of insurance demonstrating that the required coverage has been obtained and containing the following wording. "The State of New Hampshire is named as additional insured with respect to liability arising from the use and/or occupation of State-owned premises under this Crossing Agreement between the State and the Named Insured." Nothing contained herein shall be construed as a waiver of sovereign immunity.

2.5 No provision of this Agreement is intended to waive any aspect of the State's sovereign immunity, and any possible counterclaims or defenses it may assert relative to any claim brought related to this Agreement or the facility.

3. Bonding – (BLANK)

4. Taxes

4.1 Where applicable, in accordance with RSA 72:23, I(b), this Agreement is made between parties subject to the condition that the Permittee shall pay all properly assessed current and potential real and personal property taxes. Failure of the Permittee to pay the duly assessed real and personal property taxes when due shall be cause to terminate this Agreement by the State. In accordance with the requirements of RSA 72:23, I(b), the Permittee shall be obligated to pay any taxes which may be assessed on structures or improvements added. See New England Telephone And Telegraph Company v. City of Rochester, 740 A.2d 135 (N.H. 1999); Opinion of the Justices (Municipal Tax Exemptions For Electric Utility Personal Property), 746 A.2d 981 (N.H. 1999); Opinion of the Justices (Property Taxation of Telephone Poles), 142 N.H. 102 (1997); New England Telephone And Telegraph Company v. City of Franklin, 141 N.H. 449 (1996).

5. Fees and Term

5.1 In consideration of this Agreement, the Permittee shall pay to the State an initial preparation fee of three hundred fifty (\$350.00) dollars, then one hundred (\$100.00) dollars per annum, beginning on the date first written above, and due annually on the anniversary of said date.

5.2 There will be no additional annual fee specific to the underground utility crossings per RSA 373.6.

6. Default and Removal

6.1 Failure of the Permittee to perform any of the above specified covenants shall authorize the State to take up and remove said facility after fourteen (14) calendar days written notice to Permittee.

6.2 The State may revoke this Agreement for any reason at any time upon thirty (30) calendar days written notice to the Permittee, without compensation to the Permittee.

6.3 In the event of the Permittee's breach of any of the provisions of the Agreement, the State shall be compensated for its damages, including all

consequential damages which arise out of the breach, and attorneys' fees and costs incurred in connection with undertaking such an action.

7. Non-Assignment and Amendment

7.1 This Agreement may not be assigned or transferred. Until terminated, this Agreement shall inure to the sole benefit of and be binding upon the parties hereto.

7.2 This Agreement may be amended only by an instrument in writing, signed by the parties hereto, and only after approval of such amendment by the State.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate, the day and year first-written above.

PERMITTEE

By: _____

Print Name and Title

Witness: _____

STATE

By: _____

Christopher Morgan, Administrator
For Director of Administration, NHDOT

Witness: _____

The foregoing Agreement, having been reviewed by this office, is approved as to form and execution on _____, 20 ____.

OFFICE OF THE ATTORNEY GENERAL

By: _____

Assistant Attorney General

PRE-BID MEETING MINUTES

**CITY OF ROCHESTER, NEW HAMPSHIRE
COCHECO WELL NO. 1
WATER TREATMENT FACILITY**

PRE-BID MEETING MINUTES

August 17, 2009

9:00 a.m.

KEY ITEMS

- ARRA FUNDING AND CONTRACT COMPLIANCE
- LEED CERTIFICATION OF PROJECT
- USE OF THE EXISTING HOUSE AS A CONSTRUCTION OFFICE
There will be a lump sum item included in the addendum for costs to upgrades req'd to use house as a construction office.
- DIRECTIONALLY DRILLED RAW WATER MAIN AND CONDUIT
- DIRECTIONALLY DRILLED CROSSING UNDER RT 11
- 16" DUCTILE IRON DISTRIBUTION WATER MAIN
- ADDENDUM #1
 - CONVERSION FROM SCISSOR TO CONVENTIONAL TRUSS DESIGN

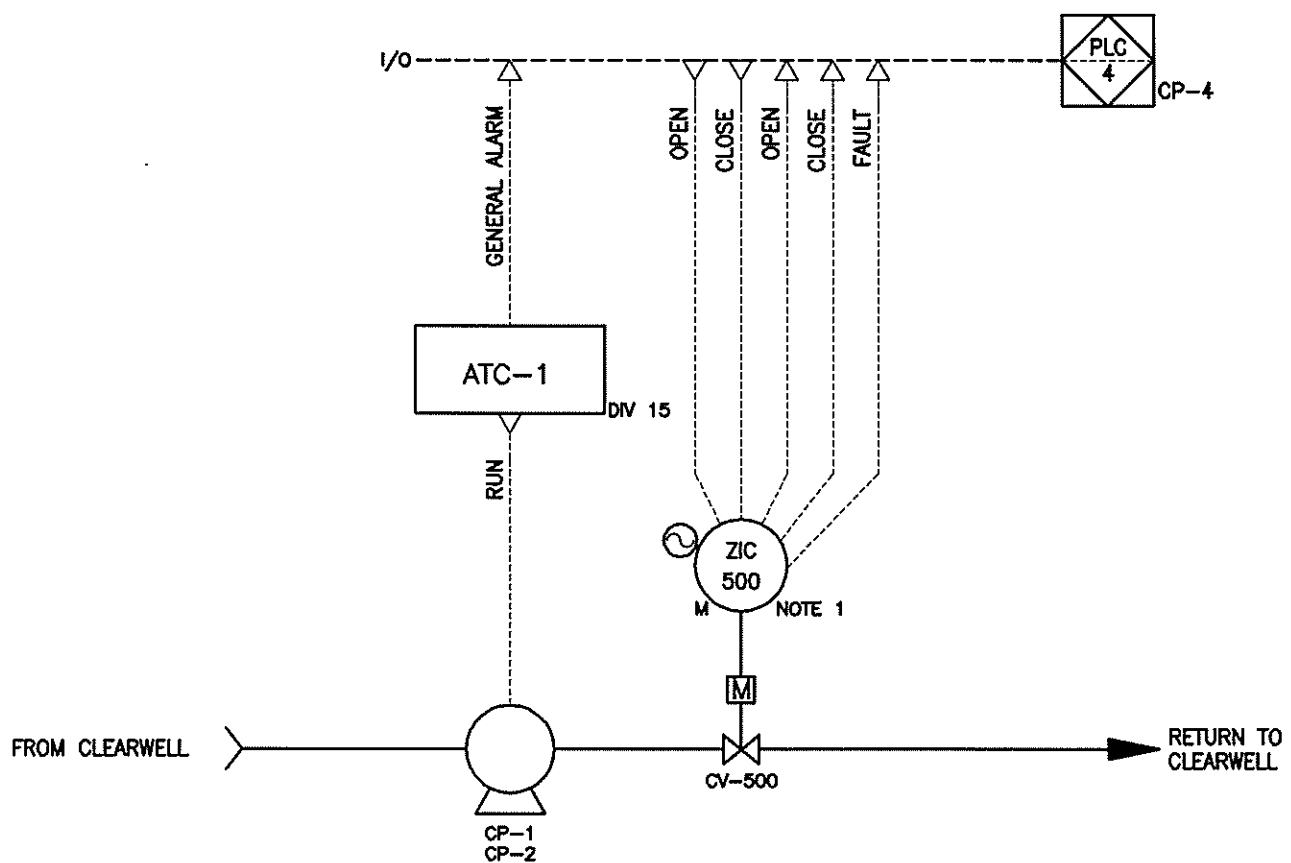
Contractor Discussion

Well pump elevations are listed on the well pump detail sheet E-7. Well is the flood plain. The top of the well casing will need to be raised as delineated.

Intent of Access Road modifications from station 21+75 to 71+33 requires surface grading only unless required for construction purposes. Access road modifications from station 11+75 to 21+75 shall reflect the referenced cross section on sheet C-12. Filter fabric shall be required under the entire cross section from station 11+75 to 21+75.

There shall be no mining of gravel from the site during construction.

FIGURES



HEAT EXCHANGER RECIRC LOOP CONTROL VALVE

LOOP 500

NOTES

1. ZIC-500 PROVIDED BY DIV 15.

CITY OF ROCHESTER, NEW HAMPSHIRE COCHECO WELL PUMP STATION ADDENDUM

PROJ NO: 11302A DATE: AUGUST 2009 FIGURE:

WRIGHT-PIERCE
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1

PANELBOARD LP-1

PANEL LOCATION: ELECTRIC ROOM

VOLTAGE: 120/208Y
PHASE: 3
WIRE: 4
AIC: 14,000

FEEDER POINT: T-1 (45KVA)
MOUNTING: WALL
BUS RATING: 225 AMPS

MAIN TYPE: ~~125~~ MLO 125A MCB 125A TRIP AMPS

CKT NO.	AMPS	NO. POLES	DESCRIPTION	PHASE LOAD (VA)			DESCRIPTION	NO. POLES	AMPS	CKT. NO.
				A	B	C				
1	20	1	PUMP CONTROL PANEL	< 1000			> FIRE ALARM SYSTEM	1	20	2
3	20	1	SECURITY SYSTEM	< 500	500		> EF-1 TOILET; EF-2 ELECTRICAL ROOM;	1	20	4
5	30	1	BATTERY CHARGER; GENSET BLOCK HEATER	< 300	300		> EF-3 GENERATOR ROOM			
7	20	1	GENERATOR CONTROL PANEL	< 500		2000	> EF-4 PIPE GALLERY	1	20	6
9	20	2	RCP-1 CONTROL ROOM	< 100		100	> ERV-1 TREATMENT ROOM	2	20	8
11				< 300			>			10
13	20	1	HYP-1, HYP-2 CHEMICAL FEED PUMPS	< 100		1500	> FC-1	2	20	12
15	20	1	SODA-1, SODA-2 CFPS	< 1500	100		>			14
17	20	1	LIGHTING - CHEMICAL ROOM, GENERATOR ROOM	< 1000	1000		> ECH-1 TOILET	2	20	16
19	20	1	LIGHTING - LOWER LEVEL; STAIRWELL	< 256		1152	>			18
21	20	1	RECEPTACLES - GENERATOR, MECHANICAL AND ELECTRICAL ROOMS	< 540	900		> RECEPTACLES - CHEMICAL ROOMS	1	20	20
23	20	1	LIGHTING - EXTERIOR	< 540	540		> RECEPTACLES - PIPE GALLERY	1	20	22
25	20	1	LIGHTING - ELECTRICAL ROOM, MECHANICAL ROOM	< 300		400	> LIGHTING - EMERGENCY AND EXIT	1	20	24
27	20	1	RECEPTACLES - EXTERIOR	< 720	400		> SPARE	1	20	26
29	20	1	PHOS-1, PHOS-2 CFPS	< 600			> SPARE	1	20	28
31	20	1	WIT-900; LSH-910B	< 100			> SPARE	1	20	30
33	20	1	LIGHTING - TREATMENT ROOM	< 500			> SPARE	1	20	32
35	20	1	RECEPTACLES - CONTROL ROOM, TOILET	< 400			> CHEMICAL FILL PANEL CFP-800	1	20	34
37	50	3	SUBFEED TO PANELBOARD LP-1A	< 100			> NaF-1, NaF-2 CFPS	1	20	36
39				< 3900			> EYEWASH ALARM PANEL; ATC-1; ATC-2	1	20	38
41				< 3900			> RECEPTACLES - TREATMENT ROOM	1	20	40
				< 3900			> COMPOSTING TOILET	1	20	42
SUB-TOTAL TOTAL				8795	8860	11852				
				29507						

ESTIMATED DEMAND LOAD 29.5 KVA
DEMAND LINE CURRENT 81.9 AMP

CITY OF ROCHESTER, NEW HAMPSHIRE COCHECO WELL PUMP STATION ADDENDUM

PROJ NO: 11302A DATE: AUGUST 2009 FIGURE:

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2

PANELBOARD LP-1A

PANEL LOCATION: ELECTRIC ROOM

VOLTAGE: 120/208Y
PHASE: 3
WIRE: 4
AIC: 14,000

FEEDER POINT: LP-1
MOUNTING: WALL
BUS RATING: 125 AMPS

MAIN TYPE: ☒ MLO ☐ MCB _____ TRIP AMPS

CKT. NO.	AMPS	NO. POLES	DESCRIPTION	PHASE LOAD (VA)			DESCRIPTION	NO. POLES	AMPS	CKT. NO.
				A	B	C				
1	20	1	SUMP PUMP	< 500			> CP-1	1	20	2
				1000						
3	20	1	MOTORIZED DOOR OPENER	<	1200		> CP-2	1	20	4
					1000					
5	30	1	MOTORIZED CONTROL VALVE CV-500	<		500	> SPARE	1	20	6
7	20	1	SPARE	<			> POINT-OF-USE WATER HEATER	2	20	8
				2250						
9	20	2	SPARE	<			>			10
					2250					
11				<		1500	> EUH-1	2	20	12
13				<			>			14
				1500						
15				<			>			16
17				<			>			18
SUB-TOTAL				5250	4450	2000				
TOTAL				11700						

ESTIMATED DEMAND LOAD 11.7 KVA
DEMAND LINE CURRENT 32.5 AMP

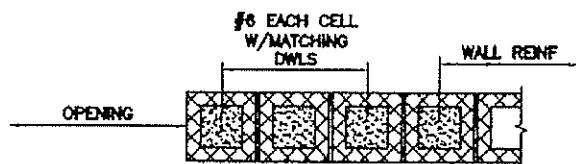
CITY OF ROCHESTER, NEW HAMPSHIRE COCHECO WELL PUMP STATION ADDENDUM

PROJ NO: 11302A DATE: AUGUST 2009 FIGURE:

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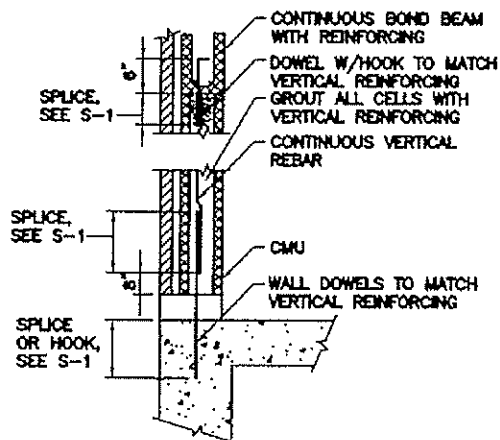
3



NOTE: DETAIL TYPICAL AT ALL OPENINGS EXCEPT AT INTERIOR BEARING WALL. REFER TO CMU WALL REINFORCING SCHEDULE.

TYPICAL CMU WALL OPENING GREATER THAN 3'-6"

NTS



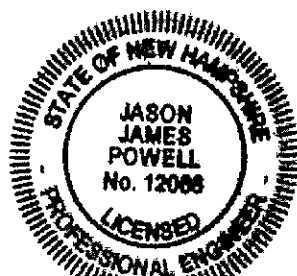
CMU WALL REINFORCING SCHEDULE

NTS

WALL TYPE	VERTICAL REINFORCING	BOND BEAMS	HORIZONTAL REINFORCING
8" CMU (ALL EXTERIOR WALLS)	#6 @ 24" OC	16" BB @ TOP	9 GAUGE LADDER TYPE @ 16" OC 4 #6 IN BOND BEAM
8" CMU (INTERIOR BEARING WALL)	#7 @ 8" OC (BELOW 8" BB) #8 @ 32" OC (ABOVE 8" BB)	16" BB @ TOP, 8" BB ABOVE LINTEL	9 GAUGE LADDER TYPE @ 16" OC 4 #8 IN TOP BB 2 #5 IN 8" BB
8" CMU (INTERIOR @ STAIR)	#5 @ 32" OC	8" BB @ TOP	9 GAUGE LADDER TYPE @ 16" OC 2 #5 IN BOND BEAM
8" CMU (INTERIOR PARTITION)	#5 @ 32" OC	8" BB @ TOP	9 GAUGE LADDER TYPE @ 16" OC 2 #5 IN BOND BEAM

NOTES:

1. ALL LADDER HORIZONTAL REINFORCING TO BE TERMINATED AT VERTICAL CONTROL JOINTS IN MASONRY. BOND BEAM REINFORCING SHALL BE CONTINUOUS THROUGH CONTROL JOINTS.
2. ALL EXTERIOR WALLS SHALL HAVE 16" BOND BEAMS WITH 4 #6 CONTINUOUS BARS AT THE TOP OF THE WALL. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ADDITIONAL BOND BEAMS.



Jason Powell 8/10/09

TOWN OF ROCHESTER, NH
COCHICO WELL NO. 1
WATER TREATMENT FACILITY
ADDENDUM NO. 1

REF: DRAWING S-6

CMU WALL REINFORCEMENT REVISIONS

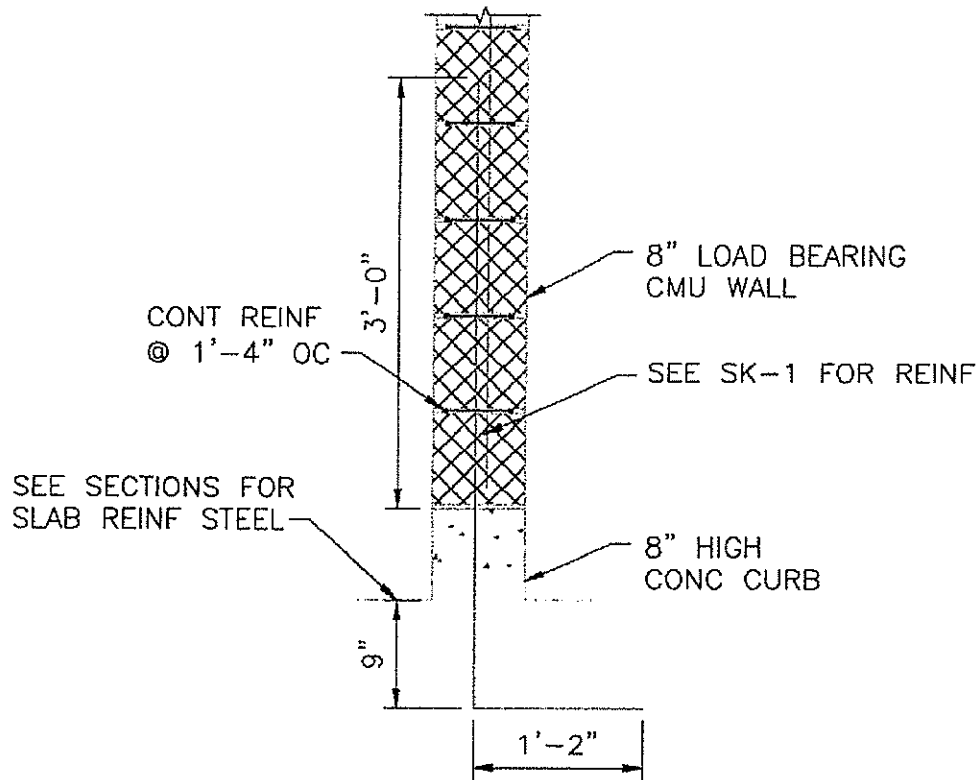
PROJ NO: 11302A

DATE: AUG 2009

FIGURE:

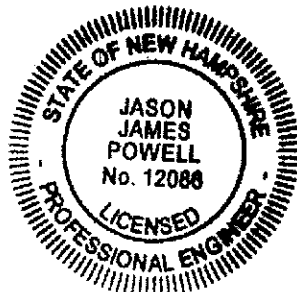
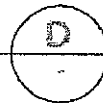
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SK-1




DETAIL

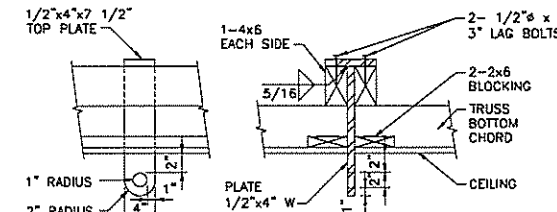
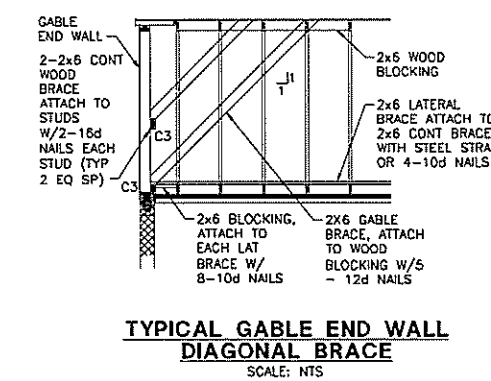
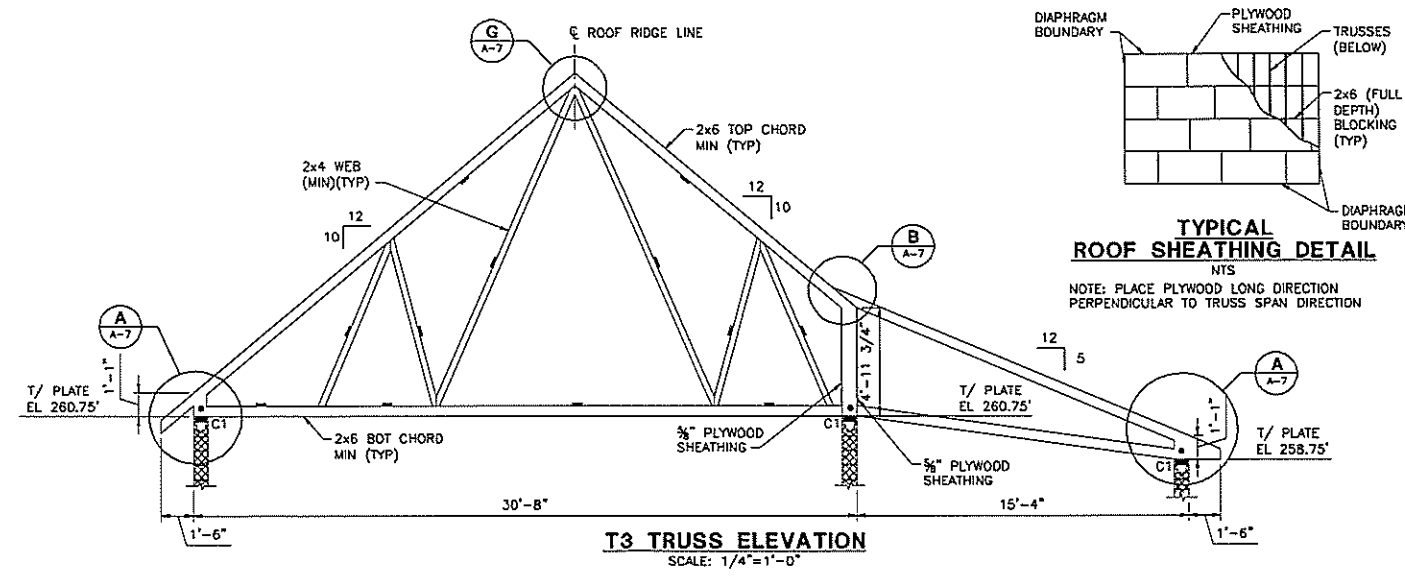
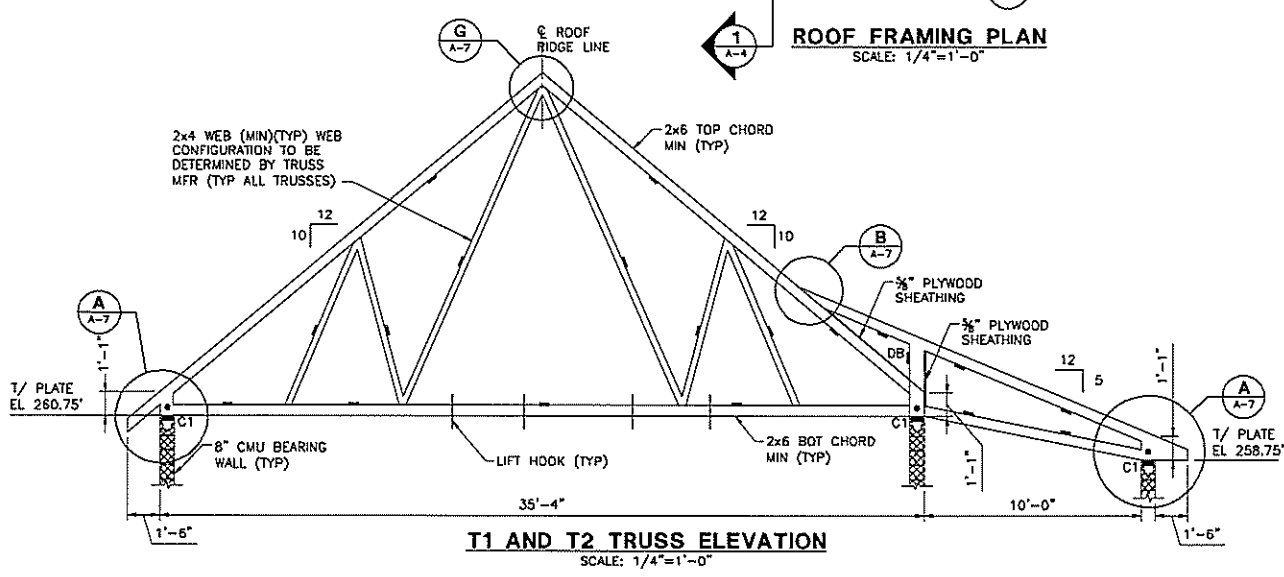
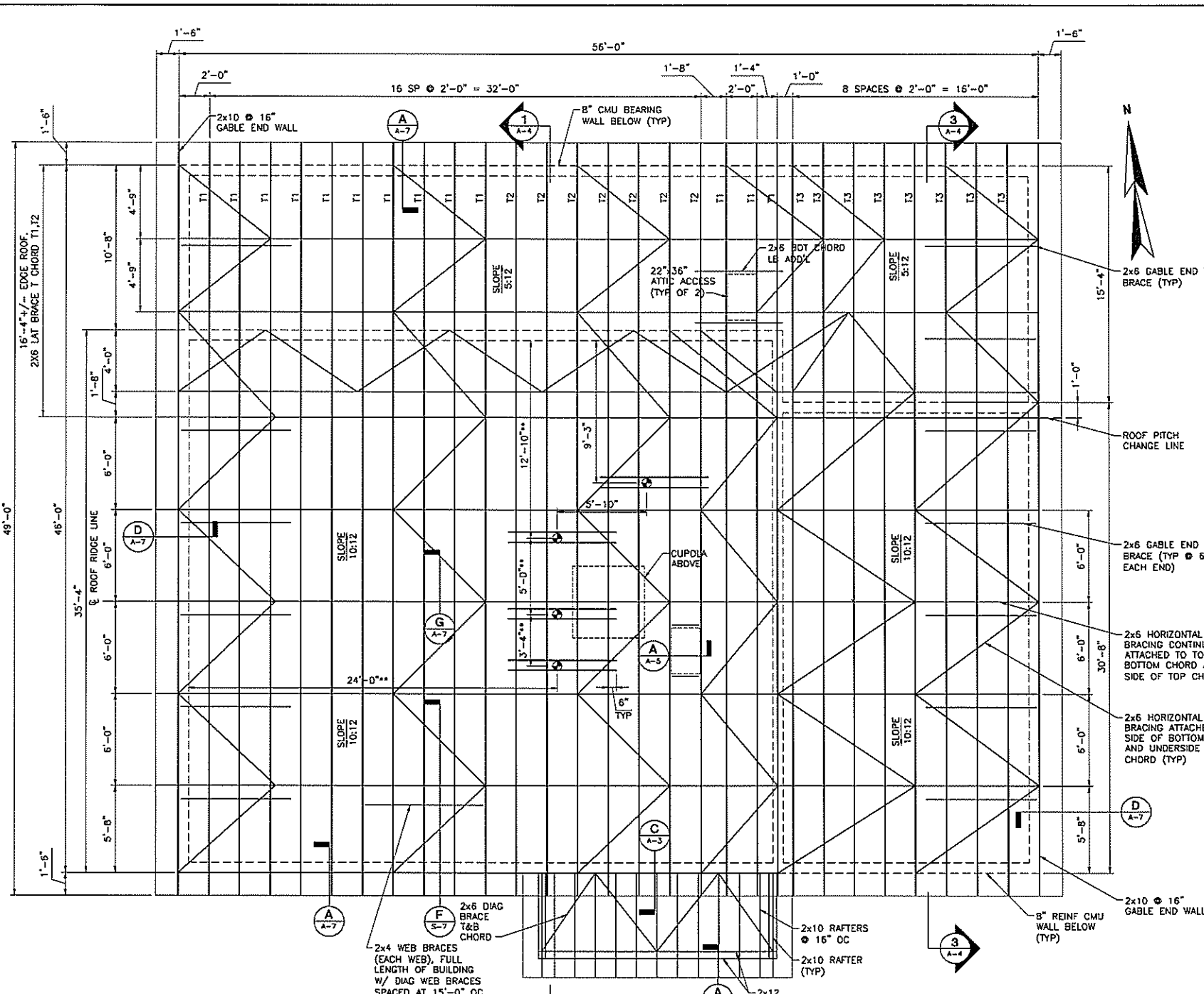
SCALE: 3/4" = 1'-0"



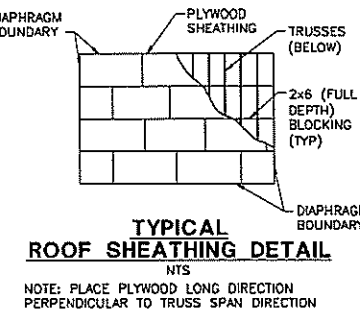
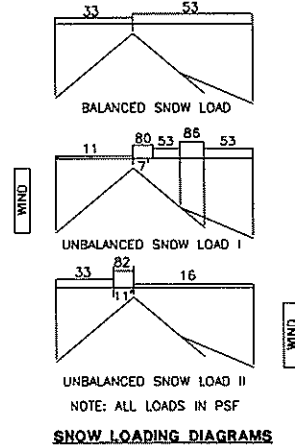
Jason Powell 8/20/09

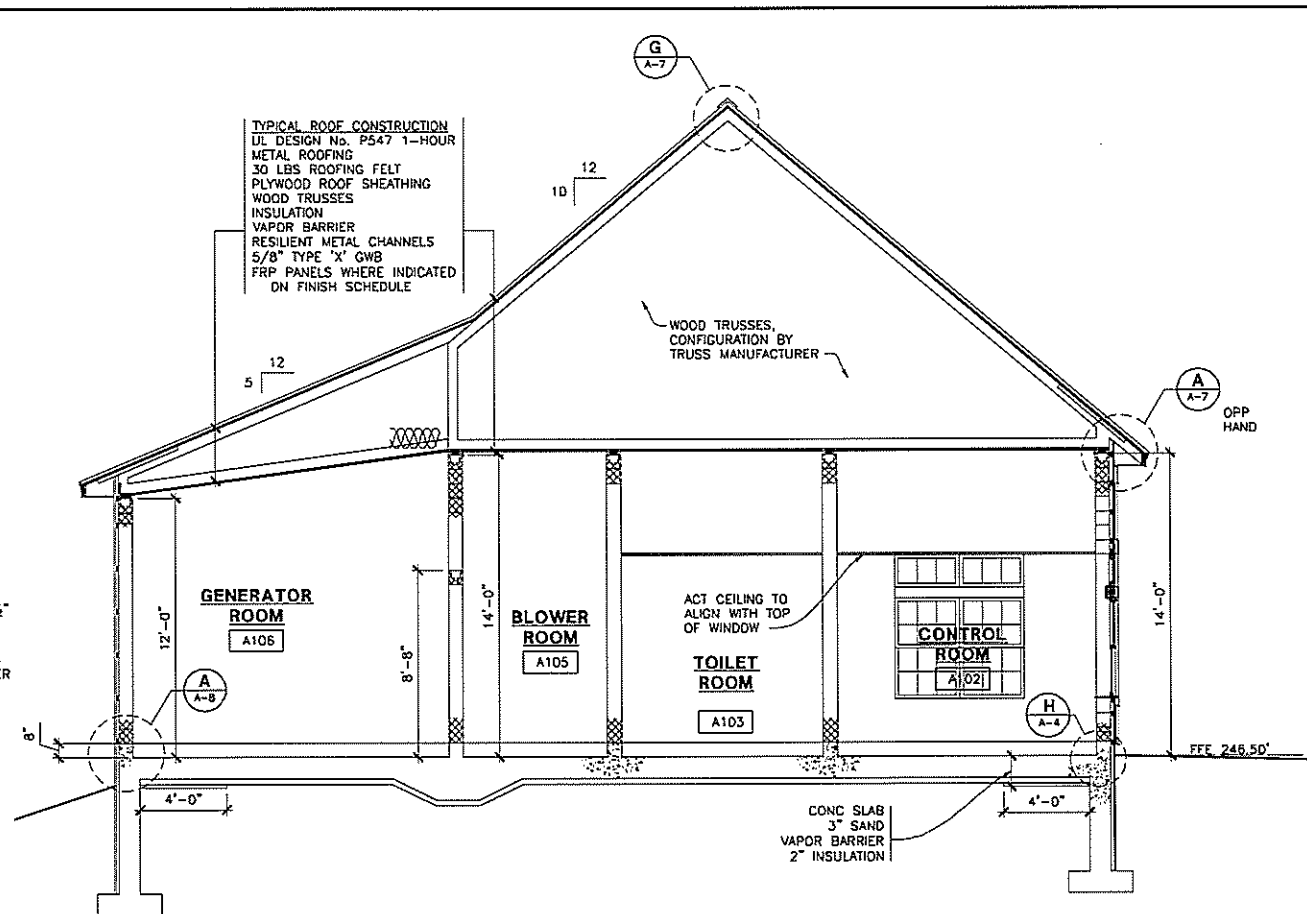
TOWN OF ROCHESTER, NH COCHECO WELL NO. 1 WATER TREATMENT FACILITY ADDENDUM NO. 1 REF: DRAWING S-3 CMU WALL REINFORCEMENT REVISIONS					
PROJ NO:	11302A	DATE:	AUG 2009	FIGURE:	
WRIGHT-PIERCE  Engineering a Better Environment			SK-2		



DRAWINGS

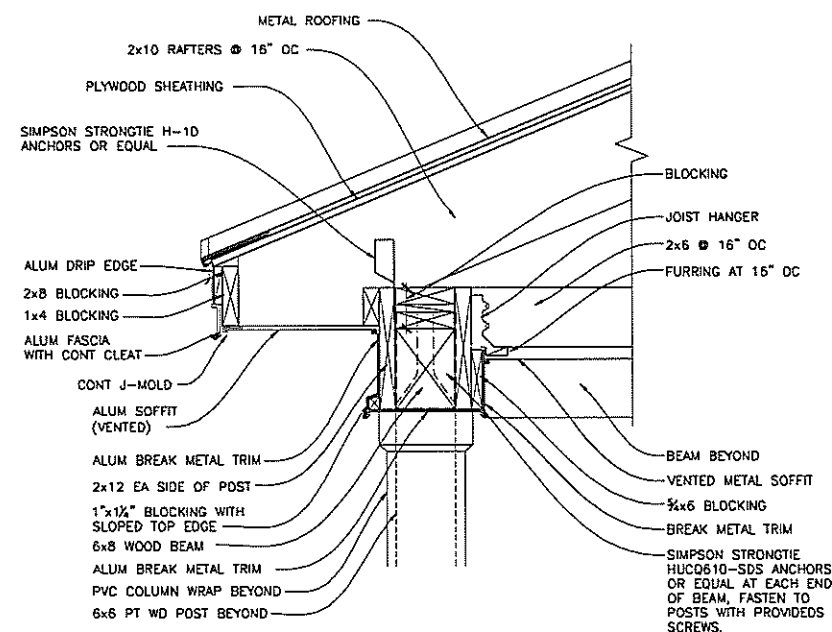
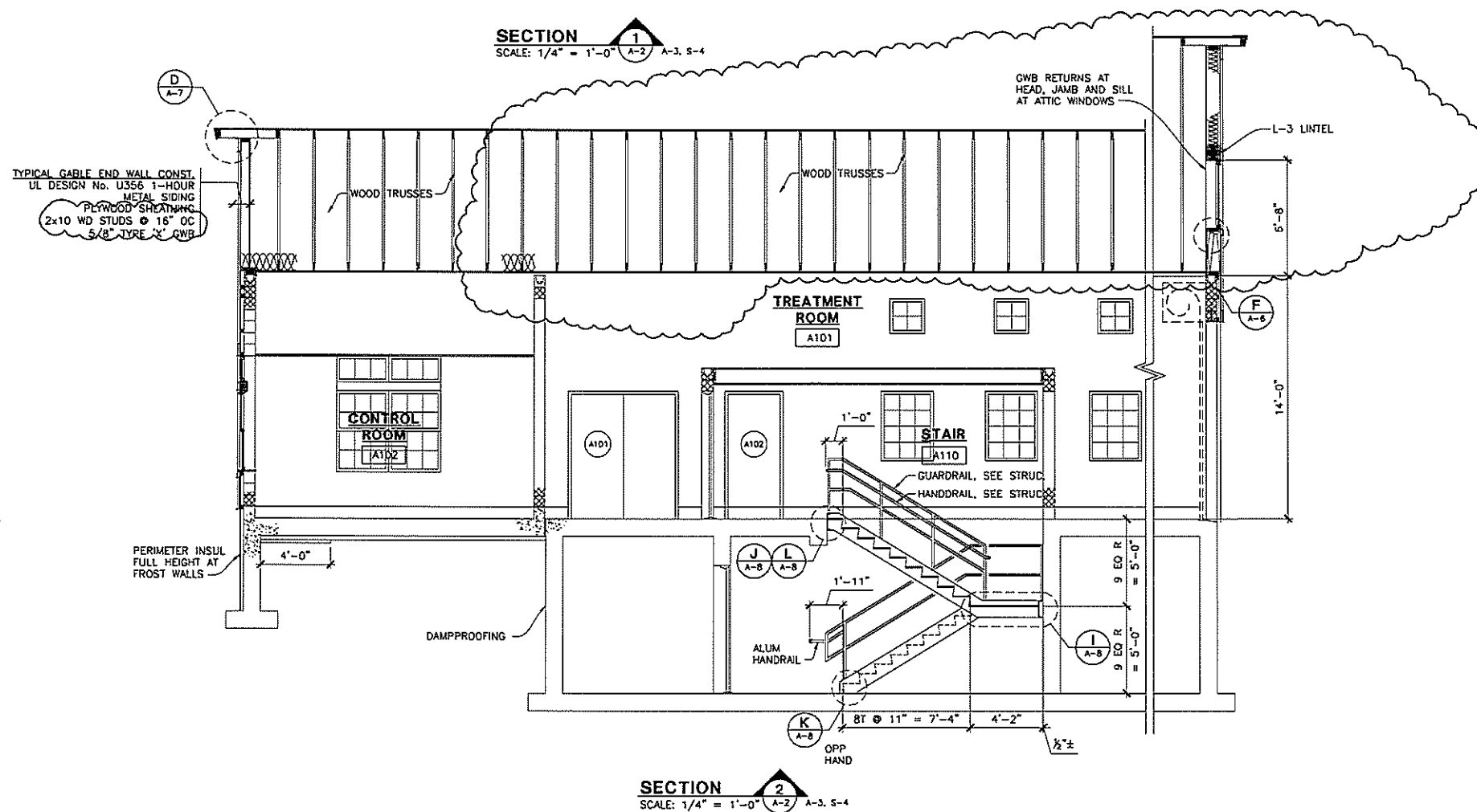


- NOTES:**
1. TRUSS DESIGN LOADS:
TOP CHORD LIVE LOAD = 33 PSF
1/2 SLOPE = SOUTH SIDE = 33 PSF
1/2 SLOPE = NORTH SIDE = 53 PSF
1/2 SLOPE = 53 PSF
TOP CHORD DEAD LOAD = 11 PSF
BOTTOM CHORD LIVE LOAD = 20 PSF (OVER ENTIRE BOTTOM CHORD)
BOTTOM CHORD DEAD LOAD = 15 PSF
ADDITIONAL LOADS:
LIFTING HOOKS - ALL LIFTING HOOKS SHALL BE LABELED "1 TON CAPACITY". TRUSSES SHALL BE DESIGNED TO SUPPORT ONLY ONE LIFT HOOK AT A TIME. EACH TRUSS SHALL BE DESIGNED TO SUPPORT 1/2 OF THE LIFTING HOOK LOAD. CUPOLA - ADDITIONAL 750 LB OVER 4'-0" SQ AREA
 2. HURRICANE ANCHOR SCHEDULE:
C1 - PINNED - USP RT16 OR USP RT16-2, OR EQUIVALENT
C2 - GABLE END BRACE - OBC BY SIMPSON STRONGTIE OR EQUIVALENT
ALL ANCHORS SHALL BE STAINLESS STEEL OR ZMAX G185 HDG.
 3. REFER TO DRAWING S-1 FOR TRUSS BRACING AND NAILING. LAP ALL LATERAL BRACING 2 TRUSSES MINIMUM.
 4. FOR STRUCTURAL NOTES AND TYPICAL DETAILS, SEE DRAWINGS S-1, S-6 AND S-7.





SECTION  **3**
SCALE: 1/4" = 1'-0"  A-2 A-3, S-4



DETAIL
SCALE: 1-1/2" = 1'-0"

[illegible]