



City of Norwich

Department of Finance – Purchasing Agent
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Invitation for Bid/Proposal Bid No. 25-34

The Purchasing Agent, City of Norwich, on behalf of Norwich Public Utilities, will receive bids/proposals for **Bog Meadow Reservoir Dam Repairs** until **2:00 P.M. prevailing time on November 5, 2024**, at which time they will be opened on the Procurement website and be available to view. All bids are to be submitted via the City of Norwich Procurement Portal at the following website:

[City of Norwich Procurement Portal](#)

The bid documents may be downloaded from the following website:

[City of Norwich Procurement Portal](#)

Addenda, if any, will be posted on the website listed above. All bidders, prior to submitting their bids, should check the websites to ensure they have received all issued addenda.

Norwich Public Utilities reserves the right to reject and all bids, in whole or in part, to waive minor irregularities in the bidding and to award the bid to other than the low bidder if deemed in the best interest of the City of Norwich.

No Bidder may withdraw its bid within sixty (60) days of the bid opening date. Should there be reason why the contract cannot be awarded within the specified time, the time may be extended by mutual agreement between Norwich Public Utilities and the designated, qualified low bidder.

All final awards of the bid shall follow the City of Norwich Code of Ordinances §7-46 – Delinquent Tax Setoff Against Money Due Bidder or Contractor.

All bidders must submit bids/proposals through the City Procurement Portal.

Responding bidders must ensure that employees and applicant for employment are not discriminated against because of their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to blindness, unless it is shown by such bidder that such disability prevents performance of the work involved.

Robert R. Castronova
Purchasing Agent

**INSTRUCTIONS TO BIDDERS
CITY OF NORWICH, CT 06360**

**Invitation for Bid: 25-34
Bog Meadow Reservoir Dam Repairs**

The following instructions and specifications shall be observed by all bidders:

1. Time and Place of Bid Opening

Bids will be received on November 5, 2024 at 2:00 P.M. online at:
<https://norwichct.bonfirehub.com/portal/?tab=openOpportunities>
No bids will be allowed after the time and date of bid opening.

2. Pre-Bid Meeting – Not mandatory. October 18, 2024, 8:00 AM, at the Bog Meadow Reservoir located at 5 Meadowbrook Drive (off of Scotland Road) in Norwich.

3. Availability of Bid Documents

Bidders are advised that all bid documents relative to this project are only available online at the following web address:

<https://norwichct.bonfirehub.com/portal/?tab=openOpportunities>

4. Bid Addenda

If additional information becomes available or changes are made to the bid documents, an addendum will be issued not later than 3 days prior to the bid opening date. All addenda shall become part of the Contract Documents.

Questions regarding this bid must be submitted in writing to Robert Castronova, Purchasing Agent, at rcastronova@cityofnorwich.org by October 18, 2024 at 24:30 P.M.

All addenda will be posted on the Procurement website. It is incumbent on the bidder to ensure that it has received all issued addenda by checking the websites listed above. Failure of any bidder to receive any such addendum shall not relieve it of the obligations under its bid as submitted. Certification of receipt of addenda shall be made by the bidder on the proposal.

Notice of any addendum will be posted on the following website:

<https://norwichct.bonfirehub.com/portal/?tab=openOpportunities>

5. Bid Surety Requirements

A Bid Surety in the amount of five percent (5%) of the total amount bid is required at the time of bid. Bid Surety shall be in the form of a Bid Bond provided by a surety licensed to do business in the State of Connecticut, Certified Check or Bank Check.

FAILURE OF A BIDDER TO PROVIDE THE REQUIRED BID SURETY SHALL RESULT IN REJECTION OF ITS BID.

6. Bid Instructions

Bids must be submitted to the City of Norwich Procurement portal at:

<https://norwichct.bonfirehub.com/portal/?tab=openOpportunities>

No bids will be accepted by mail, in person or by email.

All forms and associated documents must be uploaded through the procurement portal.

7. Examination of Site Conditions

Bidders must satisfy themselves by personal examination of the site and location of the proposed work as to the actual conditions and requirements of the work and inform themselves fully of the conditions relating to the construction and labor under which the work will be performed. No claim because of lack of knowledge by the contractor regarding the site, the proposed work or content of the specifications and drawings will be allowed. At the date established for the opening of bids, it will be presumed that each bidder has made an examination of the location and site of the work to be done under this contract and has satisfied itself as to the actual conditions and requirements.

8. Sales and Use Tax

Bidders are reminded that the Connecticut State Sales and Use Tax and associated Federal taxes are not applicable under this contract, and therefore these taxes are not to be included in the bid price(s).

Under the terms of Connecticut Agencies Regulations §12-426-18, Contractors and Subcontractors, the contractor may purchase materials and supplies as are to be installed or placed in projects being performed under these contracts and will remain in such projects after completion, including tangible personal property that remains tangible personal property after its installation or placement, without payment of the tax and shall not charge any such exempt organization or agency any sales or use tax thereon.

9. Definitions

For the purposes of these documents:

“NPU” refers to Norwich Public Utilities.

The word “Bidder” refers to the party or parties submitting a bid to perform the work to be done or materials to be furnished under the Contract; the legal representatives of such party or parties.

The word “Contractor” refers to the party or parties contracting to perform the work to be done or materials to be furnished under the Contract; the legal representatives of such party or parties.

10. Intent

The intent of these specifications is to obtain a Contractor that will furnish all labor, supervision, tools, materials and equipment necessary to perform the work and/or services as detailed in the Bid specifications.

11. Work Schedule

No work will be performed at night or on Sundays or legal holidays, except in case of emergency and only to the extent to make the work site safe. The normal work day shall be considered as any eight (8) hour period falling between 7:00 A.M. and 4:00 P.M., Monday through Friday. Special clearance will be required for work outside these times.

12. Evaluation of Prices Submitted

Bids will be compared on the basis of lump sum prices. In the event of a discrepancy between prices written in word and figures, the prices written in words shall govern. It is the intent of NPU to make award to the lowest, responsible qualified bidder (Ref. C. G. S. §4a-59).

13. Contractor Qualifications

Bidders, if requested, must be able to present satisfactory evidence that they are capable and fully prepared with necessary capital, personnel, materials and equipment to do the work to be contracted under this proposal.

14. Certificate in Good Standing

Any corporation whose bid is being considered for acceptance by NPU may be required, if requested, to provide a "Certificate of Good Standing" from the Office of the Secretary of State for Connecticut.

15. Acceptance/Rejection of Bids

NPU may reject bids which are incomplete, conditional, obscure, contain additions not called for, erasures or corrections not initialed, or which contain alterations or irregularities of any kind. NPU may rightfully waive informalities. The Purchasing Agent reserves the right to reject any or all bids; or the bids for any one or more commodities or contractual services included in any or all bids; and, unless otherwise specified, to buy any part or the whole from one or more bidders when it is in the best interest of NPU to do so. NPU also reserves the right to reject any or all bids, or to award any bid to other than the low bidder if it is deemed in the best interest of NPU to do so.

Determination of the best interest of NPU shall include consideration of active or pending civil litigation between the City of Norwich and any firm (or its subcontractors or suppliers) submitting a bid to the City or NPU.

16. Withdrawal of Bid Submitted

Any bid may be withdrawn prior to the designated date and time for receipt of bids. Bids may be withdrawn ninety (90) days after the bid opening if no award has been made by NPU. If NPU does not award a contract within ninety (90) days after opening of bids, all bids will be null and void, except this time may be extended on mutual agreement of NPU and the lowest qualified vendor, as determined by NPU.

17. Contract Execution

The firm(s) whose bid(s) has/have been accepted by NPU will be required to furnish all insurance certificates in the amounts specified, within 5 days from the date of the notice of award. The firm(s) will also be required to furnish all performance and payment bonds to NPU prior to contract signing.

The firm(s) whose bid is accepted will be required to execute a contract, in substantially the form included in the bid documents, on a date and time mutually agreed to by all parties. Once the contract is executed, the contractor(s) will be issued a Notice to Proceed and/or Purchase Order.

Contracts valued at less than \$25,000.00 may be executed directly via the issuance of a purchase order, at the discretion of NPU.

18. Inclusion of Contract Provisions

The bidders' attention is directed to the form of this agreement, which, in addition to the Instructions to Bidders includes the bid proposal forms, general provisions, special provisions, federal/state provisions, specifications, measurement and payment provisions, contract drawings (if applicable) and standard detail drawings.

19. Contractor's and Subcontractors' Insurance

Please see section 8 of the **Contract for Services**.

20. Bond Requirements

For all contracts in excess of \$50,000.00, the awarded contract shall provide NPU with the following bonds in the minimum amounts specified herein.

- a. **Labor and Materials Bond** in the amount equal to 100% of the Total Proposal Price guaranteeing to NPU payments for all labor, materials and equipment utilized in the completion of the work under this contract in the amount of the contract award.
- b. **Performance Bond** in the amount equal to 100% of the Total Proposal Price guaranteeing to NPU the completion of the Contract.

All bonds shall be issued by a surety that is named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) issued by the U.S. Department of the Treasury, Bureau of the Fiscal Service, Surety Bond Section.

It is distinctly agreed and understood that any changes in the plans and/or specifications for this work, whether such changes decrease or increase the amount thereof, or the manner or time of payment, shall in no way annul, release or affect the liability and surety on the bond given by the contractor.

21. Safety

All work done and all equipment used shall comply with all pertinent OSHA, Federal, State and local regulations, laws and ordinances affecting those employed and any affecting the conduct of the work.

Not later than thirty (30) after the date of contract award, the awarded contractor shall furnish proof to the Commissioner of the State of Connecticut Department of Labor that all employees performing manual labor on or in such public project, pursuant to such contract, have completed the 10 hour OSHA Construction Safety and Health course, or in the case of telecommunications workers, have completed at least 10 hours of training in accordance with 29 CFR 1910.268.

The State of Connecticut and all political subdivisions have adopted a zero tolerance policy for workplace violence. In accordance with Executive Order No. 16 issued by Governor John G. Rowland, all contractors, subcontractors and vendors must comply with this policy.

22. Personnel Requirements

All work under this contract shall be performed by competent and proficient tradesmen employed by the contractor and under its supervision. Apprentices and helpers may be used, but only under the direct supervision of the job foreman.

23. Subcontractors

The Contractor shall not sublet any portion of the work without written permission from NPU. In no case may it be more than forty-nine percent (49%) of the monetary value of the contract. The major units of the work shall be performed by the Contractor. If the Contractor sublets any part of the work, this does not relieve it or the bonding company of their liabilities and obligations to NPU. There is no contractual relationship between any subcontractor and NPU. Norwich Public Utilities deals only with the Contractor; subcontractors are recognized as employees of the Contractor.

The Contractor must not assign or dispose of its contract in any way without the consent of NPU. Disposal must be for cause.

24. Prevailing Wage Provisions

This project is subject to State of Connecticut Prevailing Wage rates.

25. Freedom of Information

All bids will be publicly opened and read and upon award shall be made available for public inspection, in accordance with the provisions of Connecticut General Statutes § 1-210, Freedom of Information. Copies of any information resulting from any bid opening are generally not available until a contract has been formally awarded.

26. Non-Collusion

The individual signing this bid hereby declares that no person or persons other than members of its organization are interested in this bid or in the contract proposed to be taken; that it is made without any connection to any other person or persons submitting a bid for the same work and is in all respects fair and without collusion or fraud; that no person acting on behalf of or employed by the City of Norwich or NPU is directly or indirectly interested in the supplies or work to which they relate or will receive any part of the profit or any commission therefrom in any manner which is unethical or contrary to the best interests of the City of Norwich or NPU.

BIDDER _____

BID FORMS

Norwich Public Utilities
16 South Golden Street
Norwich, Connecticut 06320

Proposal of _____, (hereinafter called "Bidder"),
Organized and existing under the laws of the State of _____, doing
business as a(n) _____.

To: The City of Norwich (hereinafter called "Owner").

For: Bog Meadow Reservoir Dam Repairs –Meadowbrook Road

In compliance with your Advertisement for Bids, the undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Owner in the form included in the Bidding Documents, to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

1. Bidders Acknowledgments

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for sixty (60) days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- B. Bidder acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

2. Bidders Representations

In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

BIDDER _____

<u>Addendum No.</u>	<u>Date</u>	<u>Date Received</u>
_____	___/___/___	___/___/___
_____	___/___/___	___/___/___
_____	___/___/___	___/___/___
_____	___/___/___	___/___/___
_____	___/___/___	___/___/___
_____	___/___/___	___/___/___

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

BIDDER _____

- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

3. Basis of Bid

Bidder agrees to perform all Work, including all labor, materials, equipment, tools, and all else necessary for the satisfactory completion of the Work, in full compliance with the contents and intent of the Bidding Documents for the following prices stated on the following page.

BIDDER _____

BASE BID

ITEM NUMBER	ESTIMATED QUANTITY	ITEMS WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT BID PRICE		AMOUNT BID	
			DOLLARS	CENTS	DOLLARS	CENTS
1	1	Site Preparation PER Lump Sum				
2	1	De-watering and Water Control PER Lump Sum				
3	1	Erosion and Sediment Controls PER Lump Sum				
4	1	Site Improvements PER Lump Sum				
5	60	Chain link Fence PER Linear Foot				
6	1	Mobilization PER Lump Sum				
7	1	Survey Control & Staking PER Lump Sum				
8	1	Traffic Control PER Lump Sum				

TOTAL BID (ROUNDED) _____

TOTAL PRICE BID WRITTEN IN WORDS	TOTAL PRICE BID IN NUMBERS
<p>.....</p> <p>.....</p> <p>.....</p>	<p>\$ _____</p>

BIDDER _____

Submitted On _____, 20__ Fed. Tax ID No.: _____

Company : _____ By: _____
(signature)

Address : _____

City, State, Zip : _____
(typed)

Telephone No. : _____

E : _____ Title: _____

4. Time of Completion

Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar Work days indicated in the Agreement.

5. Attachments to this Bid

The following documents are submitted with and made a condition of this Bid:

- A. Non-Collusion Bidding Certification.
- B. Bid Security.
- C. Statement of Bidders Qualifications with supporting data.
- D. Connecticut General Statutes Section 31- 57b Certificate of Compliance

6. Defined Terms

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**BOG MEADOW RESERVOIR DAM REPAIRS
AUGUST 23, 2024
INDEX OF TECHNICAL SPECIFICATIONS**

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END OF SECTION 00 01 10

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1. Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes for dam repair, void repairs, concrete wall section, and footings.

1.3 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data: For each type of product indicated.
- C. Design Mixtures: Shall conform to Class "F" concrete as specified in the "Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and incidental Construction" Form 819 with latest supplemental specifications.
- D. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.
- E. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork.
- F. Material certificates in lieu of material laboratory test reports when permitted by Engineer. Material certificates shall be signed by manufacturer and Contractor, certifying that each item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.
- G. Material test reports.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

- B. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- C. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents.
 - 1. ACI 301, "Specifications for Structural Concrete,"
 - 2. Sections 1 through 5 and Section 7, "Lightweight Concrete."
 - 3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- E. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at the Contractor's expense.
- F. Mockup: A mockup depicting the desired wall finish is required. New formwork is not acceptable. Seasoned formwork that represents the quality of the formwork that will be used on the project is required. The Contractor must use the same formwork release agent and application method, concrete placing and consolidation techniques, formwork removal times and curing method as planned for the project.
 - a. Mockup shall have seams, tie hole and surface repairs to represent the finish

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for a tight fit.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch (25 mm) in diameter on concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
 1. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M, epoxy coated, with less than 2 percent damaged coating in each 12-inch (300-mm) bar length.
- B. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884/A 884M, Class A coated, Type 1, plain or deformed steel.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice.
- D. Fabrication
 1. Fabricate reinforcement in accordance with ACI 315 to the lengths, sizes, and configurations shown on approved placing drawing.
- E. Protection
 1. Store reinforcement on dunnage above ground and protect from surface contaminants.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 1. Portland Cement: ASTM C 150, Type I.
 2. Blended Hydraulic Cement: ASTM C 595, Type IS, Portland blast-furnace slag cement.
 3. Normal-Weight Aggregates: ASTM C 33, graded.
 - a. Maximum Coarse-Aggregate Size: 3/4-inch (19-mm) nominal.
 - b. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
 4. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm)
 5. Water: ASTM C 94/C 94M and potable.

6. Admixtures General: Provide concrete admixtures that contain no more than 0.1 percent chloride ions.
7. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

2.4 ADMIXTURES

- A. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg. F (10 deg. C).
- B. Use air-entraining admixture in all cast-in-place concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total minimum air content of 6 percent with a tolerance of plus or minus 1-1/2 percent.
- C. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- D. Waterproofing Admixture: Krystol Internal Membrane (KIM), (2 percent of cementing materials).

2.5 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- H. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.6 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1752, cork or self-expanding cork.
- B. Non-shrink, Non-Metallic Grout: Commercial formulation of proven satisfactory performance requiring only addition of water with minimum 28-day compressive strength of 5,000 psi with zero percent volume change for plastic shrinkage for hardened state in accordance with ASTM C157.
- C. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Grout (5 star) – U.S. Grout Corp.
 - 2. Upcon62 – Upco Div. – Emhart Chemical Group
 - 3. Non-Corrosive, Non-shrink Grout – A.C. Horn, Inc.
- D. Concrete Inserts: Internationally threaded with standard NC thread; stainless steel, inserts.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - a. Type LF.W, Closed ferrule – Richmond Screw Anchor Co.
 - b. Loop type threaded inserts – Superior Concrete Accessories

2.7 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Submit written reports to Engineer of each proposed mix for each class of concrete at least 15 days prior to start of Work.
- C. Design mixes to provide a normal weight concrete with the following properties as indicated on drawings:
 - 1. 4400-psi, 28-day compressive strength Class “F” Concrete. See “Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and incidental Construction” Form 819 with latest supplemental specifications.

- D. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
1. Cap Beam along top of bulkhead: Not less than 2 inches and not more than 4 inches.
- E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by the Engineer. Laboratory test data for revised mix design and strength results may be submitted to and accepted by Engineer before using in Work.
1. The Contractor shall at his own expense, adjust the concrete portions and consistency to correct any deficiencies indicated by testing.
- F. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of Portland cement, which would otherwise be used, by not less than 40 percent.
- G. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
- H. Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 4400 psi.
 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 3. Slump Limit: 4 inches (100 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch (25 mm).
 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.
 5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch (19-mm) nominal maximum aggregate size.
 6. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
 7. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb./cu. yd. (0.60 kg/cu. m).

2.8 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M and furnish batch ticket information.
1. When air temperature is between 85 and 90 deg. F (30 and 32 deg. C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg. F (32 deg. C), reduce mixing and delivery time to 60 minutes.
 2. Provide batch ticket for each batch discharged and used in Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

3.2 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
1. Install keyways, reglets, recesses, and the like, for easy removal.
 2. Do not use rust-stained steel form-facing material.
- D. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exterior corners and edges of permanently exposed concrete.
- F. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

- G. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- H. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

3.3 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that are attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- C. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- E. Place reinforcement to maintain minimum coverage as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- F. Bars shall not be bent or straightened in the field unless approval is granted. Bars with bends or kinks not indicated on the approved shop drawings shall not be used. Welding of bars will only be permitted or directed by the Engineer. Welding shall be in accordance with ASW D1.4 or as directed.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Provide keyways at 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.
- D. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.

- E. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- F. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- G. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
- H. Contraction Joints in Walls: Construct joints as indicated on the drawings with a bond break. The bond break material should be pre-molded plastic, hardboard, or a fiberboard strip. After concrete is cured, remove bond break and clean joint of loose debris.

3.6 PREPARING FORM SURFACES

- A. General: Coat contact surfaces of forms with an approved, non-residual, low-VOC, form-coating compound before placing reinforcement.
- B. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.
 - 1. Coat steel forms with a non-staining, rust-preventive material. Rust-stained steel formwork is not acceptable.

3.7 CONCRETE PLACEMENT

- A. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- B. The Contractor shall notify the Engineer at least 48 hours prior to the placement of concrete so that the Engineer, or his designated representative, may make arrangements for taking samples and inspection.
- C. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
1. Consolidate placed concrete by mechanical vibrating equipment and supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layers and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows:
1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 2. When average high and low temperature are expected to fall below 40 deg. F (4.4 deg. C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 3. When air temperature has fallen to or is expected to fall below 40 deg. F (4 deg. C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg. F (10 deg. C) and not more than 80 deg. F (27 deg. C) at point of placement.
 - a. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - b. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
 - c. During Cold weather concreting, the Contractor shall supply the Engineer with a calibrated thermometer to determine the ambient air temperature. Thermometer shall be accurate to within plus or minus 10 deg. F.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

- A. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.
- C. Walls
1. It is the intent of this Specification that forming operations be performed in a manner which will produce sound concrete surfaces, free of bulges and offsets, with a minimum of fins, blemishes due to form defects and honeycomb areas.
 2. Any exposed concrete which is not formed as shown on the Plans, or for any reason is out of alignment or level beyond tolerance specified, or shows a defective surface, shall be considered as not conforming with the intent of these Specifications; and shall be removed from the job by the Contractor, at his expense, unless the Engineer grants permission to patch the defective area.
 3. Immediately after removing forms, all concrete surfaces shall be inspected and any pour joints, voids, pockets, or other surface defects shall be repaired at once, before the concrete is thoroughly dry.
 4. Cut out surface defects which do not impair structural strength to one (1") inch depth and refill with fresh concrete. Thoroughly wet cuts immediately prior to filling with stiff concrete of approximately the same mix as the adjoining work. After a partial set, compress and rub to produce a finish similar in texture and color to adjoining work.
 5. Clean all exposed surfaces, concrete and adjoining work stained by the leakage of concrete.
 6. Remove wood cones remaining after the rods are snapped off, and fill holes with a concrete mortar finished to the same color and texture of surrounding concrete.
 7. **All visible surfaces shall have a "smooth rubbed finish" meeting the requirements of an SF-3.0 finish as defined by ACI 301-20.** Parging will not be accepted. **Finish all rubbed concrete surfaces in accordance with ACI 301, Section 5.3.3.4(a).**
 8. Do not clean, rub or patch in freezing temperatures, or when frost is on concrete surface.
 9. Permission to patch does not imply waiver of Engineer's right to require complete removal and replacement of said work if, in Engineer's opinion, said patching does not satisfactorily restore quality and appearance of work.

3.9 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.10 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Start initial curing as soon as free water has disappeared from concrete surface, after placing and finishing, or immediately after formwork is removed and surface finished. Weather permitting, keep continuously moist for not less than 7 days.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
- E. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.11 REMOVING FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg. F (10 deg. C) for 72 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.

- B. No superimposed load will be allowed on any foundation or wall until it has attained a compressive strength of 300 psi, as shown by field cured cylinders or nondestructive testing in accordance with ACI 301, Chapter 17, unless otherwise approved by the Engineer.

3.12 REUSING FORMS

- A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable to Engineer.

3.13 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

3.14 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173/C 173M, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg. F (4.4 deg. C) and below and when 80 deg. F (27 deg. C) and above, and one test for each composite sample.
6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 03 30 00

SECTION 31 10 00
SITE PREPARATION

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. All materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

Protection of existing trees, vegetation, landscaping materials, and site improvements not scheduled for clearing, which might be damaged by construction activities.

Clearing and grubbing of stumps, vegetation, debris, rubbish, designated trees, and site improvements.

Topsoil stripping and stockpiling.

Temporary erosion control, siltation control, and dust control.

Temporary protection of adjacent property, structures, benchmarks, and monuments.

Watering of trees and vegetation during construction activities.

Removal and legal disposal of cleared materials.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Section 312500 – Erosion and Sediment Controls

1.3 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, unless otherwise specified herein.
- B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.4 JOB CONDITIONS

- A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.

Protect improvements on adjoining properties and on Owner's property.
Restore damaged improvements to their original condition, as acceptable to property owners.

1.5 EXECUTION

- A. Test Pits: Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during test pit excavation.

Test shall be performed where noted. The Contractor may conduct other test pits to verify the location of subsurface utilities.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions.

Do not interrupt existing utilities serving facilities except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided.

- B. Site Clearing: Remove trees, shrubs, grass and other vegetation improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. "Removal" included excavating and off-site disposal of stumps and roots.

- C. Tree Protection

Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

Do not excavate within tree protection zones, unless otherwise indicated.

Cut minor roots and branches, less than 1 inch in diameter, of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.

When encountered, exposed roots, 1 inch and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Protect the Tree and Plant Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner's Representative of any spills, compaction, or damage and take corrective action immediately using methods approved by the Owner's Representative.

Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Landscape Architect.

At the end of the construction period or when requested by the Owner's Representative remove all temporary tree protection measures.

- D. Clearing and Grubbing: Clear site of trees, shrubs and other vegetation, except for those indicated to remain.

Completely remove and grind stumps, roots, and other debris protruding through ground surface. Chip all brush and limbs, stockpile for later use.

Use hand methods in vicinity of trees.

Fill depressions caused by clearing and grubbing operations with approved soil material, unless further excavation or earthwork is indicated.

- E. Topsoil: Topsoil is defined a friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, without weeds, roots, and other objectionable manner.

Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

Remove heavy growth of grass from areas before stripping.

Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover piles to prevent erosion, if required.

- F. Removal of Site Improvements: Remove existing above-ground and below grade improvements as indicated on Plans and as necessary to facilitate new construction.

- G. Clean-up: Keep grounds clean of rubbish caused by work and of unused materials at all times.

Dispose of cleared materials and rubbish off-site in a legal manner.

Remove unused materials and equipment. Leave area clean.

Do not store hazardous or flammable materials or liquids on site, unless stored in approved containers, properly labeled and approved by the owner.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

**SECTION 31 23 19
DEWATERING**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes construction dewatering.

1.2 RELATED DOCUMENTS

- A. Section 31 15 00 – Sedimentation and Erosion Control Measures.

1.3 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

1.4 SUBMITTALS

- A. Shop Drawings: For dewatering system. Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, discharge lines, piezometers, and flow-measuring devices; and means of discharge, control of sediment, and disposal of water.
- B. Delegated-Design Submittal: For dewatering system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
 - 1. During dewatering, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Provide temporary grading to facilitate dewatering and control of surface water.
- B. Monitor dewatering systems continuously.
- C. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 31 15 00 "Sedimentation and Erosion Control Measures" during dewatering operations.
- D. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
 - 1. Space well points or wells at intervals required to provide sufficient dewatering.
 - 2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- E. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- F. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
 - 1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
- G. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
 - 1. Maintain piezometric water level a minimum of 24 inches below surface of excavation.
- H. Provide standby equipment on site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner and at no change in Contract Time.
 - 1. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

END OF SECTION 31 23 19

SECTION 31 25 00
EROSION AND SEDIMENT CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work shall include the furnishing of all materials, labor, and equipment to place and maintain erosion controls including but not limited to construction entrance pad, filter fence, erosion control blanket, sediment traps, diversion berms, inlet protection and/or hay bales to control surface water.
- B. Compliance with requirements of the local inland wetlands.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Section 31 20 00 – Site Preparation

1.3 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to Form 819 - State of Connecticut Department of Transportation "Specifications for Roads, Bridges, Facilities and Incidental Construction" 2020 edition including current supplements, unless otherwise specified herein and the "2002 Connecticut Guidelines for Soil Erosion and Sediment Control."
- B. Workers: All workers shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Filter fabric fencing shall be a woven filter fabric and will meet the AASHTO M-288 and ASTM D-4439 for silt fence and geotextile usage.
- B. Hay bales shall be made of hay with forty pounds minimum weight and one hundred twenty pounds maximum weight. Wood stakes shall be a minimum of 1 inch by 1 inch normal size by a minimum of 3 feet long.
- C. Broken stone for construction entrance shall be 1 inch to 2 inch broken stone.
- D. Check dam stone shall be rounded stone riprap conforming to the following gradation requirements for Modified Riprap conforming to the requirements of M.12.02-3.

PART 3 - EXECUTION

- 3.1 Filter fabric fencing and hay bales shall be placed by the Contractor in locations shown on the plans, in accordance with the details shown on the plans.

- 3.2 Maintain/replace filter fabric fencing and hay bales as necessary and/or as directed by the Owner or Owner's representative.
- 3.3 Filter fabric fencing shall be installed by the Contractor in locations shown on the plans, in accordance with the details shown on the plans.
- 3.4 Contractor shall inspect erosion controls weekly and after storm events. Inspection reports shall be prepared and kept on-site.

END OF SECTION 31 25 00

SECTION 32 30 00
SITE IMPROVEMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Work under this section includes providing all materials, equipment, and services necessary to furnish and deliver work as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

- 1. Dam Repairs
- 2. Concrete Wall
- 3. Void Repairs
- 4. Stone Wall Re-build
- 5. Riprap and boulder placement

- B. Related Sections:

- 1. Section 321316 – Cast-in-Place Concrete

1.3 SUBMITTALS

- A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data and test reports as hereinafter required.
- B. Shop drawings for all site improvements.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: All materials and construction methods shall conform to Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, unless otherwise specified herein.
- B. Workers: all workers shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. All steel work shall conform to the latest edition of the American Institute of Steel Construction, Inc. "Manual of Steel Construction."
- D. All welding shall be performed by welders, tackers, and welding operators who have been qualified in the last six (6) months by test as prescribed in the Code for Welding in Building Construction of the American Welding Society.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. See Section 033000 – Cast-In-Place Concrete.
- B. Riprap and Boulders shall be 12”-18” min. in size and shall conform to Section 7.03 of Form 819 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2024 edition, unless otherwise specified herein.

2.2 INSTALLATION - GENERAL

- A. All items shall be assembled and erected per manufacturer's recommendation and located as shown on the Contract Drawings and/or as directed by the Architect.

2.3 CLEANING

- A. Clean up debris and unused material and remove from the site.

PART 3 - EXECUTION

- 3.1 Not Used

PART 4 - PART 4 – MEASUREMENT AND PAYMENT

- 4.1 All items listed in Section 1.2 of this specification will not be measured for payment.
- 4.2 The payment will be made based on the lump sum bid price for this item shall include the cost of furnishing all labor, equipment, and materials necessary to complete the work. Any repair or replacement of damaged or defective turbidity curtain shall be done at no cost to the owner.

END OF SECTION 32 30 00

BOG MEADOW RESERVOIR DAM REPAIRS

MEADOWBROOK ROAD
NORWICH, CONNECTICUT

SLR# 12274.00043
AUGUST 23, 2024

GENERAL NOTES:

- TOPOGRAPHIC INFORMATION HAS BEEN TAKEN FROM TOPOGRAPHICAL SURVEY PREPARED BY SLR CONSULTING AS SHOWN ON THE MAP ENTITLED "TOPOGRAPHIC SURVEY, BOG MEADOW RESERVOIR DAM, NORWICH, CONNECTICUT, DATED SEPTEMBER 27, 2023.
- NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT COORDINATE SYSTEM NAD 1983.
- ELEVATIONS, CONTOUR AND BENCHMARKS ARE BASED UPON NAVD 1988.
- INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "CALL BEFORE YOU DIG", 1-800-922-4455. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
- SLR INTERNATIONAL CORPORATION ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF MAPS AND DATA WHICH HAVE BEEN SUPPLIED BY OTHERS.
- ALL PROPOSED CONTOURS AND SPOT ELEVATIONS INDICATE FINISHED GRADE.
- THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ANY UTILITIES INCLUDING WATER SUPPLY PIPES PRIOR TO THE START OF CONSTRUCTION.
- ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- SEDIMENT AND EROSION CONTROL MEASURES AS DEPICTED ON THESE PLANS AND DESCRIBED WITHIN THE SEDIMENT AND EROSION CONTROL NARRATIVE SHALL BE IMPLEMENTED AND MAINTAINED UNTIL PERMANENT COVER AND STABILIZATION IS ESTABLISHED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL CONFORM TO THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, CONNECTICUT - 2002, AND IN ALL CASES BEST MANAGEMENT PRACTICES SHALL PREVAIL.
- ALL DISTURBED AREAS SHALL RECEIVE A MINIMUM OF 6" TOPSOIL AND BE SEEDED WITH GROUND COVER SEED MIX, AS SHOWN ON THE PLANS.
- ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE CITY OF NORWICH REQUIREMENTS AND TO THE APPLICABLE SECTIONS OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 918 AND ADDENDUMS.
- THE PLANS REQUIRE A CONTRACTOR'S WORKING KNOWLEDGE OF LOCAL, MUNICIPAL, WATER AUTHORITY, AND STATE CODES FOR UTILITY SYSTEMS. ANY CONFLICTS BETWEEN MATERIALS AND LOCATIONS SHOWN, AND LOCAL REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE EXECUTION OF WORK. THE ENGINEER WILL NOT BE HELD LIABLE FOR COSTS INCURRED TO IMPLEMENT OR CORRECT WORK WHICH DOES NOT CONFORM TO LOCAL CODE.
- COMPLIANCE WITH THE PERMIT CONDITIONS IS THE RESPONSIBILITY OF BOTH THE CONTRACTOR AND PERMITEE.

CONSTRUCTION SEQUENCE:

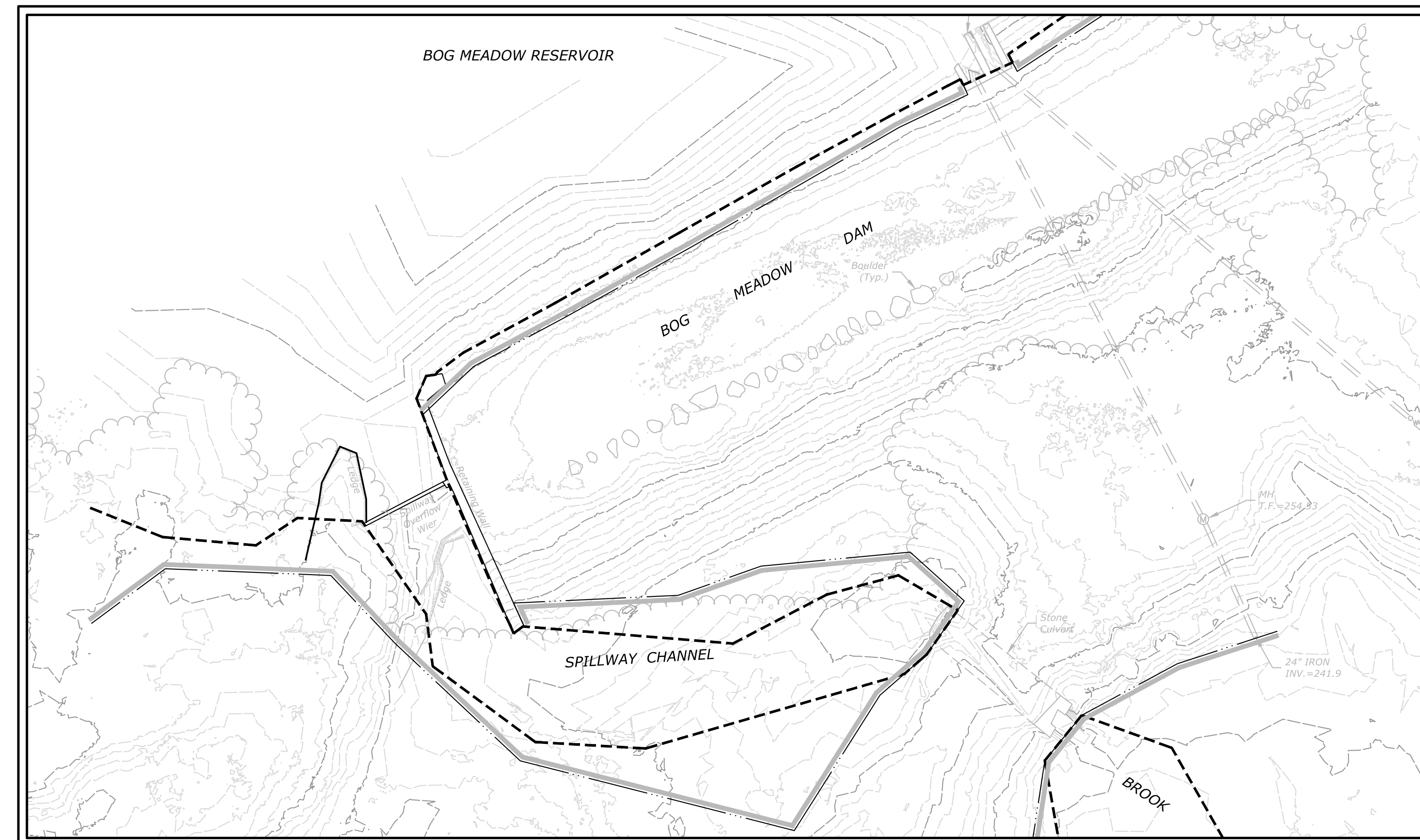
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR WILL CONTACT THE ENGINEER AND ARRANGE FOR A PRE-CONSTRUCTION MEETING.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT WATER HANDLING PLAN TO ENGINEER FOR APPROVAL BEFORE PRE-CONSTRUCTION MEETING. THE WATER HANDLING PLAN SHALL INCLUDE PLANS FOR BYPASSING WATER AROUND, OVER OR THROUGH THE CONSTRUCTION AREA SO THAT THE PROPOSED WORK CAN BE PERFORMED IN THE DRY. WORK ON THE DAM SHALL NOT START UNTIL THE CONTRACTOR'S WATER HANDLING PLAN HAS BEEN APPROVED BY THE ENGINEER. SEE SHEET SE FOR A PROPOSED WATER HANDLING PLAN.
- CONTRACTOR SHALL PLACE ALL SEDIMENTATION AND EROSION CONTROLS PRIOR TO THE COMMENCEMENT OF EXCAVATION OR SOIL REMOVAL ACTIVITIES. HE SHALL THEN MAINTAIN THEM DURING THE COURSE OF CONSTRUCTION ACTIVITIES AND REESTABLISH ANY DAMAGED CONTROL BARRIERS. THE TEMPORARY RIPRAP FILTER BERM MAY BE ADJUSTED, AT THE DIRECTION OF THE ENGINEER, TO SUIT FIELD CONDITIONS, WATER LEVELS AND CONSTRUCTION ACTIVITIES. THE TEMPORARY RIPRAP FILTER BER, MUST BE REMOVED UPON COMPLETION OF THE PROJECT.
- BARRIERS CONTROLLING PUBLIC ACCESS TO THE WORK SITE ON EACH SIDE OF THE DAM SHALL BE SET UP AT THE COMMENCEMENT OF CONSTRUCTION AND MAINTAINED UNTIL FINAL COMPLETION. IN PARTICULAR, THEY SHALL BE SET TO CLOSE OFF ACCESS AT THE END OF EACH WORKING DAY.
- INSTALL SANDBAG COFFER DAM.
- INSTALL DEWATERING PUMP AND PUMP OUT WATER FROM BEHIND THE COFFER DAM.
- PERFORM CONCRETE WORK ON THE UPSTREAM SPILLWAY TRAINING WALL.
- REPAIR MASONRY ON THE DOWNSTREAM SPILLWAY TRAINING WALL.
- PLACE RIPRAP ON THE UPSTREAM FACE OF THE DAM AND AT THE DOWNSTREAM END OF THE SPILLWAY TRAINING WALL.
- REPAIR ALL DISTURBED TURF TO ORIGINAL CONDITION.

HYDROLOGIC DATA TABLE

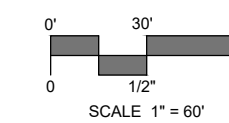
DRAINAGE AREA = 748.8 ACRES
 IMPOUNDMENT SURFACE AREA = 85.2 ACRES
 NORMAL WATER SURFACE ELE. = 258.6'
EXISTING DAM
 22'-3 1/2" BROAD CRESTED WEIR SPILLWAY
 TOP OF DAM ELEV. = 263.0'
 DAM LENGTH = 270'
 DAM HEIGHT = 17'
500 YEAR STORM EVENT
 Q500 = 541 CFS
 RESERVOIR EL. = 262 FT @ 500 YEAR FLOOD



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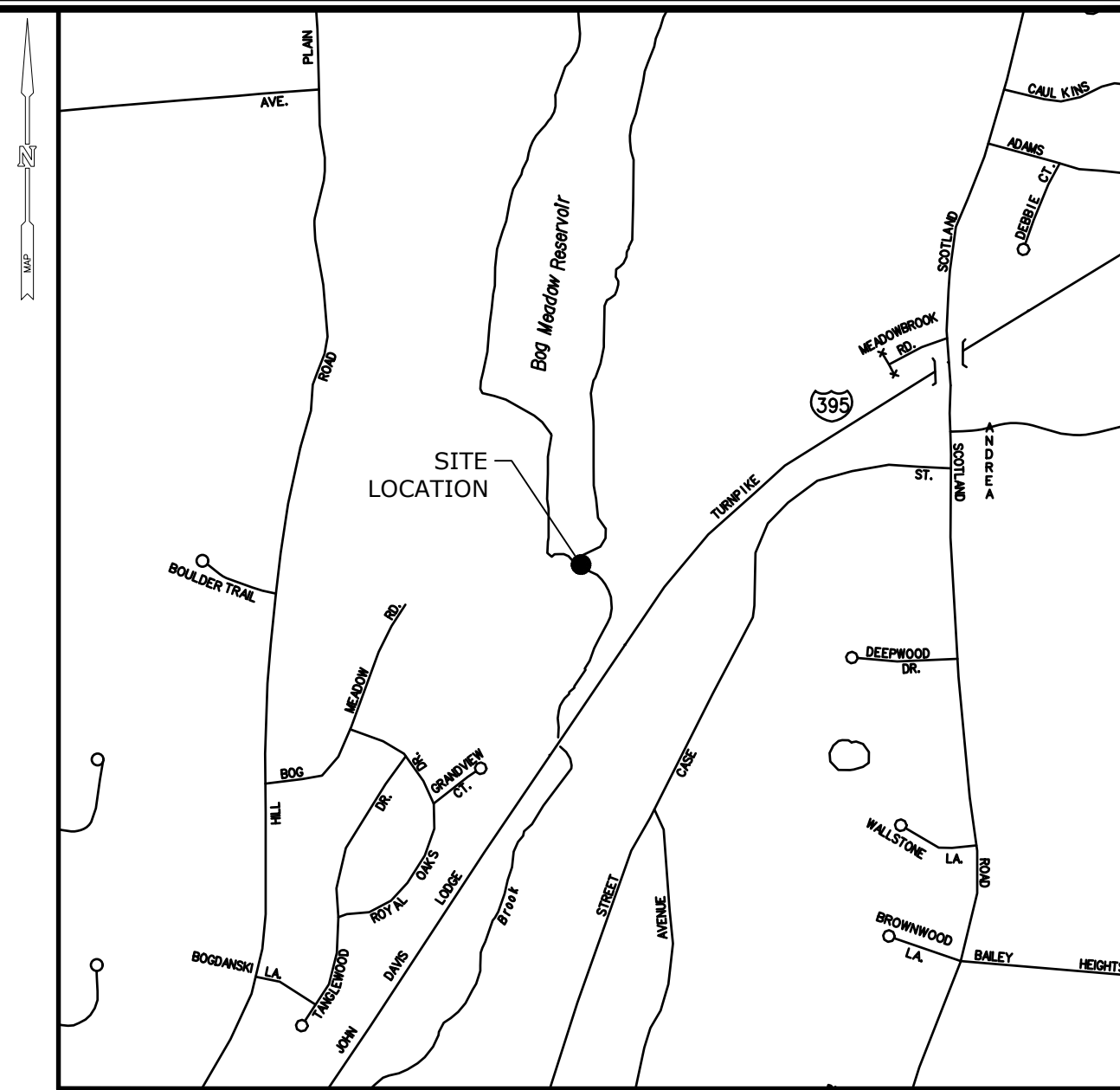
PROJECT SITE VICINITY MAP:



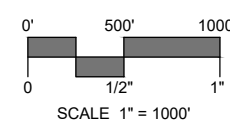
PREPARED BY:



99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
SLRCONSULTING.COM



LOCATION MAP:



LEGEND

EXISTING		PROPOSED
--- 70 ---	MAJOR CONTOUR	
--- 68 ---	MINOR CONTOUR	
x 70.5	SPOT GRADE	
---	WETLAND BOUNDARY	
---	ORDINARY HIGH WATER (OHW) LINE	
~ ~ ~	TREE LINE	
☀	TREE/SHRUB	
○	STONEWALL	
○	MANHOLE	
---	STORM PIPE	
---	LEDGE	
.....	SEDIMENT FILTER FENCE
○-○-○-○	CHAIN LINK FENCE	○-○-○-○
○-○-○-○	SAND BAG COFFER DAM	○-○-○-○

PREPARED FOR:

NORWICH PUBLIC UTILITIES
16 SOUTH GOLDEN STREET
NORWICH, CONNECTICUT 06360

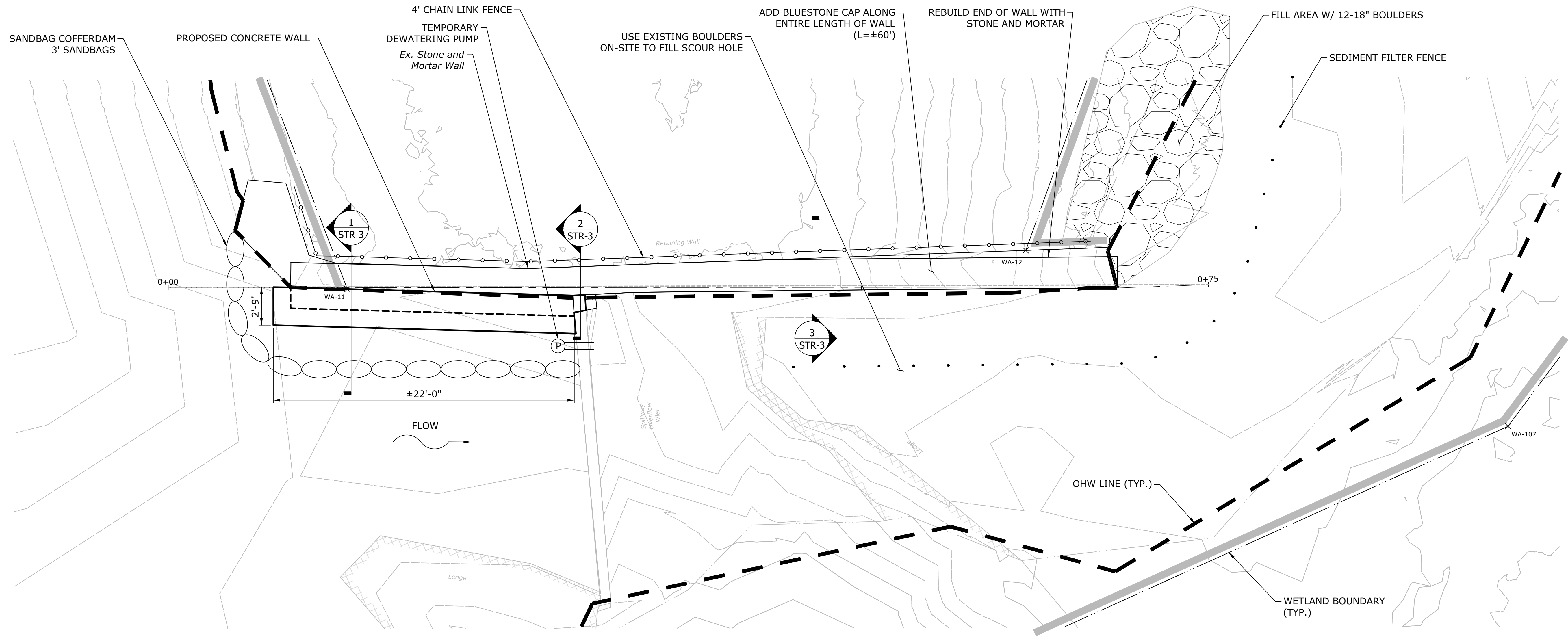
LIST OF DRAWINGS

NO.	NAME	TITLE
1	-	TITLE SHEET
2	EX	EXISTING CONDITIONS
3	SP	SITE PLAN
4	STR-1	STRUCTURAL PLAN - EXISTING CONDITIONS
5	STR-2	STRUCTURAL PLAN
6	STR-3	STRUCTURAL DETAILS
7	SE	SEDIMENT & EROSION CONTROL NOTES & DETAILS

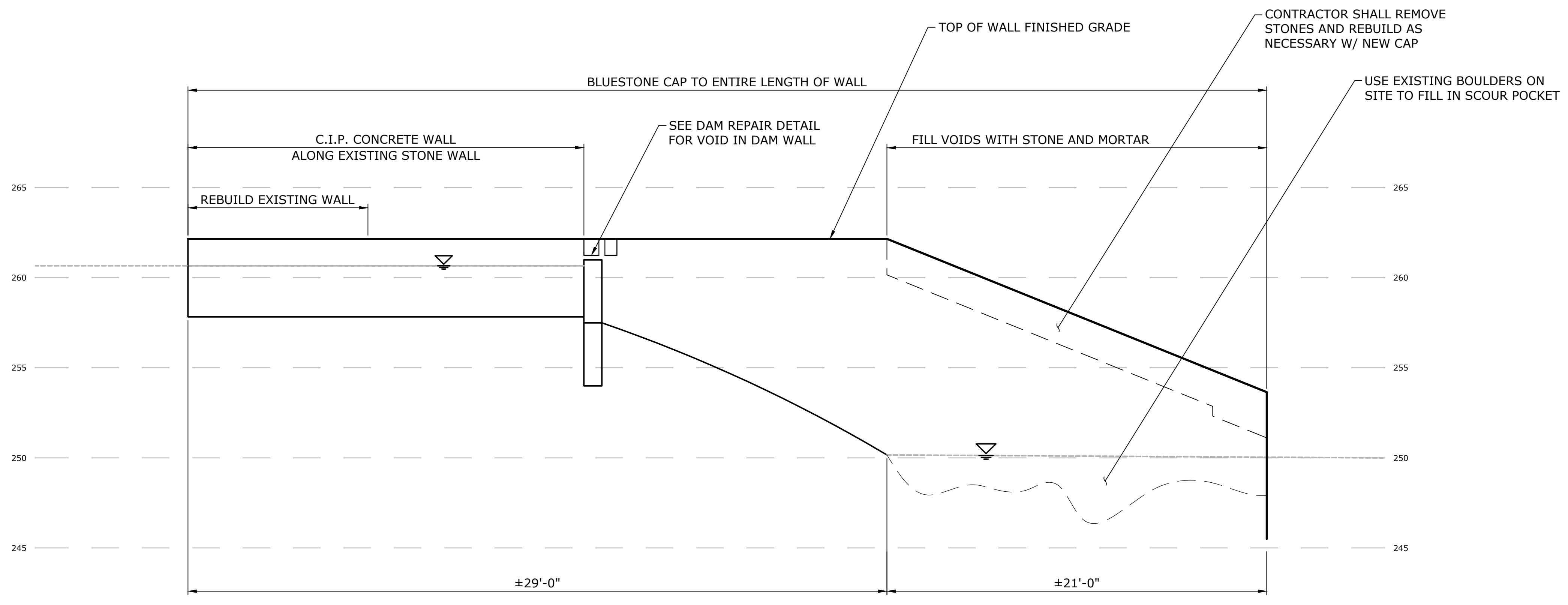


P.E. CT# 23980

1. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES.
 2. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES.
 3. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES.



PROPOSED PLAN
SCALE: 1/4" = 1'-0"



PROPOSED ELEVATION
SCALE: 1/4" = 1'-0"



DESCRIPTION	DATE	BY
OHW LINE	3/18/2024	SMM

STRUCTURAL PLAN
BOG MEADOW RESERVOIR DAM REPAIRS
 MEADOWBROOK ROAD
 NORWICH, CONNECTICUT

KP	DR	KP
DESIGNED	DRAWN	CHECKED
SCALE: AS NOTED		
DATE: AUGUST 23, 2024		
PROJECT NO: 12274.00043		
SHEET NO: 5 OF 7		

STR-2

SEDIMENT & EROSION CONTROL SPECIFICATIONS

GENERAL:
THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.

IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, INSOFAR AS POSSIBLE, EROSION ON THE SITE.

ADDITIONAL TEMPORARY VEGETATIVE COVER MEASURES SUCH AS, FOR EXAMPLE, EROSION CONTROL MATS SHALL BE INSTALLED AS MAY BE DIRECTED BY THE TOWN PLANNER OR ZONING ENFORCEMENT OFFICER.

LAND GRADING

- GENERAL:
- THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
 - THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
 - THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
 - THE CUT FACE OF ROCK EXCAVATION SHALL NOT BE STEEPER THAN ONE HORIZONTAL TO FOUR VERTICAL (1:4).
 - PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO STORM DRAINS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
 - EXCAVATIONS SHOULD NOT BE MADE SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTY WITHOUT PROTECTING SUCH PROPERTY FROM EROSION, SLIDING, SETTLING, OR CRACKING.
 - NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON THE PREMISES OF ANOTHER OWNER OR UPON ADJACENT WETLANDS, WATERCOURSES, OR WATERBODIES.
 - PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.

TOPSOILING

- GENERAL:
- TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT, GROWTH, AND MAINTENANCE OF VEGETATION.
 - UPON ATTAINING FINAL SUBGRADES, SCARIFY SURFACE TO PROVIDE A GOOD BOND WITH TOPSOIL.
 - REMOVE ALL LARGE STONES, TREE LIMBS, ROOTS AND CONSTRUCTION DEBRIS.
 - APPLY LIME ACCORDING TO SOIL TEST OR AT THE RATE OF TWO (2) TONS PER ACRE. MATERIAL: 1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.
 - TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE. 3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF STONES LARGER THAN 1.25", LUMPS OF SOIL, ROOTS, TREE LIMBS, TRASH, OR CONSTRUCTION DEBRIS. IT SHOULD BE FREE OF ROOTS OR RHIZOMES SUCH AS THISTLE, NUTGRASS, AND QUACKGRASS.
 - AN ORGANIC MATTER CONTENT OF SIX PERCENT (6%) IS REQUIRED. AVOID LIGHT COLORED SUBSOIL MATERIAL. SUITABLE. AVOID TIDAL MARSH SOILS BECAUSE OF HIGH SALT CONTENT
 - SOLUBLE SALT CONTENT OF OVER 500 PARTS PER MILLION (PPM) IS LESS 6. THE pH SHOULD BE 5.5 TO 7 IF LESS, ADD LIME TO INCREASE pH TO AN ACCEPTABLE LEVEL.

EXECUTION

- AVOID SPREADING WHEN TOPSOIL IS WET OR FROZEN.
- SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST SIX INCHES (6"), OR TO THE DEPTH SHOWN ON THE LANDSCAPING PLANS.

VEGETATIVE COVER SELECTION & MULCHING

TEMPORARY VEGETATIVE COVER:
PERENNIAL RYEGRASS 5 LBS./1,000 SQ.FT. (LOLIUM PERENNE)
* PERMANENT VEGETATIVE COVER: SEE SPECIFICATIONS

- TEMPORARY MULCHING:
CLEAN DRY STRAW OR HAY FREE OF WEEDS WITH A MULCH TACKIFIER 70-90 LBS./1,000 SQ.FT. (TEMPORARY VEGETATIVE AREAS)
WOOD FIBER IN HYDROMULCH SLURRY 25-50 LBS./1,000 SQ. FT.
- ESTABLISHMENT:
- SMOOTH AND FIRM SEEDBED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT PRIOR TO SEEDING (EXCEPT WHEN HYDROSEEDING).
 - SELECT ADAPTED SEED MIXTURE FOR THE SPECIFIC SITUATION. NOTE RATES AND THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. ABOVE).
 - APPLY SEED UNIFORMLY ACCORDING TO RATE INDICATED, BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
 - COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4 INCH OF SOIL WITH SUITABLE EQUIPMENT (EXCEPT WHEN HYDROSEEDING).
 - MULCH IMMEDIATELY AFTER SEEDING, IF REQUIRED, ACCORDING TO TEMPORARY MULCHING SPECIFICATIONS. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION ABOVE).
 - USE PROPER INOCULANT ON ALL LEGUME SEEDINGS, USE FOUR (4) TIMES NORMAL RATES WHEN HYDROSEEDING.
 - USE SOD WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IN CRITICAL AREAS WHERE IT IS IMPORTANT TO GET A QUICK VEGETATIVE COVER TO PREVENT EROSION.

- MAINTENANCE:
- TEST FOR SOIL ACIDITY EVERY THREE (3) YEARS AND LIME AS REQUIRED.
 - ON SITES WHERE GRASSES PREDOMINATE, BROADCAST ANNUALLY 500 POUNDS OF 10-10-10 FERTILIZER PER ACRE (12 LBS. PER 1,000 SQ. FT.) OR AS NEEDED ACCORDING TO ANNUAL SOIL TESTS.
 - ON SITES WHERE LEGUMES PREDOMINATE, BROADCAST EVERY THREE (3) YEARS OR AS INDICATED BY SOIL TEST 300 POUNDS OF 0-20-20 OR EQUIVALENT PER ACRE (8 LBS PER 1,000 SQ. FT.).

EROSION CHECKS

GENERAL:
TEMPORARY PERVIOUS BARRIERS USING BALES OF HAY OR STRAW, HELD IN PLACE WITH STAKES DRIVEN THROUGH THE BALES AND INTO THE GROUND OR GEOTEXTILE FABRIC FASTENED TO A FENCE POST AND BURIED INTO THE GROUND, SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

- CONSTRUCTION:
- BALES SHOULD BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
 - EACH BALE SHALL BE EMBEDDED INTO THE SOIL A MINIMUM OF FOUR (6") INCHES.
 - BALES SHALL BE SECURELY ANCHORED IN PLACE BY WOOD STAKES OR REINFORCEMENT BARS DRIVEN THROUGH THE BALES AND INTO THE GROUND. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
 - GEOTEXTILE FABRIC SHALL BE SECURELY ANCHORED AT THE TOP OF A THREE FOOT (3') HIGH FENCE AND BURIED A MINIMUM OF SIX INCHES (6") TO THE SOIL. SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF TWO FEET (2').

- INSTALLATION AND MAINTENANCE:
- BALED HAY EROSION BARRIERS SHALL BE INSTALLED AT ALL STORM SEWER INLETS.
 - BALED HAY EROSION BARRIERS AND GEOTEXTILE FENCE SHALL BE INSTALLED AT THE LOCATION INDICATED ON THE PLAN AND IN ADDITIONAL AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.
 - ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
 - INSPECTION SHALL BE FREQUENT (PER TABLE BELOW) AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
 - EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.

TEMPORARY VEGETATIVE COVER

TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE SEDIMENT, AREAS WHERE FINAL GRADING HAS BEEN COMPLETED, AND AREAS WHERE THE ESTIMATED PERIOD OF BARE SOIL EXPOSURE IS LESS THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED IF AREAS WILL NOT BE PERMANENTLY SEEDBED BY SEPTEMBER 1.

- GENERAL:
- INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
 - REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
 - APPLY LIME ACCORDING TO SOIL TEST OR AT A RATE OF TWO (2) TON OF GROUND DOLOMITIC LIMESTONE PER ACRE (5 LBS. PER 100 SQ. FT.).
 - APPLY FERTILIZER ACCORDING TO SOIL TEST OR AT THE RATE OF 300 LBS. OF 10-10-10 PER ACRE (7 LBS. PER 1,000 SQ. FT.) AND SECOND APPLICATION OF 200 LBS. OF 10-10-10 (5 LBS. PER 1,000 SQ. FT.) WHEN GRASS IS FOUR INCHES (4") TO SIX INCHES (6") HIGH. APPLY ONLY WHEN GRASS IS DRY.
 - UNLESS HYDROSEEDDED, WORK IN LIME AND FERTILIZER TO A DEPTH OF FOUR (4") INCHES USING A DISK OR ANY SUITABLE EQUIPMENT.
 - TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.
- SITE PREPARATION:
- SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING)
 - APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
 - UNLESS HYDROSEEDDED, COVER RYEGRASS SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.
 - MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE)

PERMANENT VEGETATIVE COVER

GENERAL:
PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS VARIOUS SECTIONS OF THE PROJECT ARE COMPLETED IN ORDER TO STABILIZE THE SOIL, REDUCE DOWNSTREAM DAMAGE FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE AESTHETIC NATURE OF THE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE FINAL GRADING HAS BEEN COMPLETED AND A PERMANENT COVER IS NEEDED.

- SITE PREPARATION:
- INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
 - REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
 - PERFORM ALL PLANTING OPERATIONS PARALLEL TO THE CONTOURS OF THE SLOPE.
 - APPLY TOPSOIL AS INDICATED ELSEWHERE HEREIN.
 - APPLY FERTILIZER ACCORDING TO SOIL TEST OR PER THE TECHNICAL SPECIFICATIONS.

FLOOD CONTINGENCY PLAN

THIS FLOOD CONTINGENCY PLAN IS DESIGNED TO PROVIDE THE CONTRACTOR WITH GUIDELINES DURING A FLOOD OR A THREATENING FLOOD PERIOD IN ORDER TO PROTECT THE DAM AND SURROUNDING COMMUNITY.

THE CONTRACTOR SHALL MONITOR THE WEATHER FORECASTS DAILY AND PLAN CONSTRUCTION ACCORDINGLY.

IF THE WEATHER FORECASTS INDICATE THE POSSIBILITY OF A MAJOR WEATHER SYSTEM WITHIN 24 TO 48 HOURS, (A RAINFALL OF 2" OR MORE) THE CONTRACTOR SHOULD PLAN FOR THE POSSIBILITY OF HIGH WATER LEVELS IN THE POND. ALL EQUIPMENT AND MATERIALS SHALL BE MOVED TO HIGH GROUND TO AVOID FLOOD DAMAGE. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER.

THE CONTRACTOR MUST MAINTAIN 40 C.Y. OF INTERMEDIATE RIPRAP ON-SITE ALONG WITH 70 S.Y. OF NON-WOVEN FILTER FABRIC PROPEX, GEOTEX NW-351 OR EQUAL. THESE MATERIALS ARE REQUIRED FOR IMMEDIATE USE TO PROTECT THE DAM AREA WHEN THE EXISTING 30" RCP AND 15" RCP PIPES HAVE BEEN REMOVED AND PRIOR TO THE COMPLETION OF THE NEW SPILLWAY IF FLOODING OF THE SPILLWAY/WORK AREA IS IMMINENT.

THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF THE WORK SITE AND SPILLWAY AREA DURING A FLOOD EVENT. IF FLOODING IS IMMINENT WHEN THERE ARE AREAS EXPOSED TO EROSION, THE CONTRACTOR IS TO PLACE THE FILTER FABRIC OVER THE EXPOSED SOIL AND THEN PLACE 18" OR MORE OF RIPRAP ON TOP OF THE FABRIC.

IF A SIGNIFICANT RAINFALL OCCURS, THE CONTRACTOR SHOULD MAINTAIN CONTINUED SURVEILLANCE OF THE DAM AND RECORD WATER LEVEL READINGS EVERY TWO HOURS.

IF THE WATER LEVEL IN THE RESERVOIR REACHES AN ELEVATION OF 662.5' APPROXIMATELY HALF A FOOT BELOW THE EXISTING CREST OF THE DAM OR A POTENTIALLY UNSAFE CONDITION DEVELOPS, THE CONTRACTOR SHALL ALERT THE FOLLOWING PERSONNEL OF A POTENTIAL EMERGENCY:

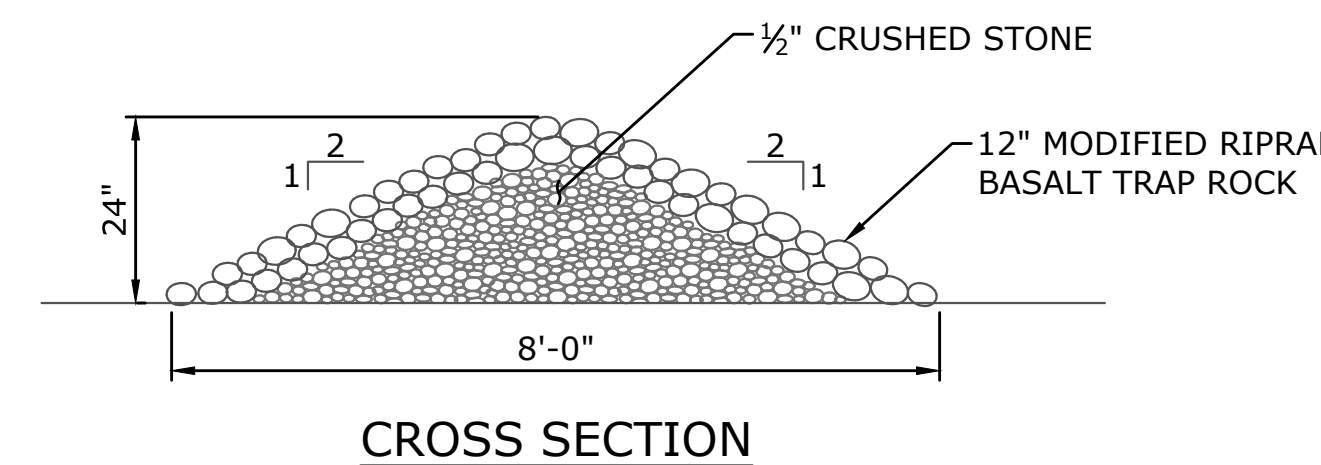
NORWICH PUBLIC UTILITY:	LARRY SULLIVAN	(203) 823-4527
DEEP DAM SAFETY:	(860) 424-3706	
ENGINEER:	TED HART	(203) 271-1773
POLICE DEPARTMENT:	(860) 886-5561 (911)	
FIRE DEPARTMENT:	(860) 886-5561 (911)	

THE CONTRACTOR SHALL MAINTAIN SUFFICIENT EQUIPMENT AND MANPOWER AT THE SITE IN ORDER TO REACT TO A FLOOD EMERGENCY.

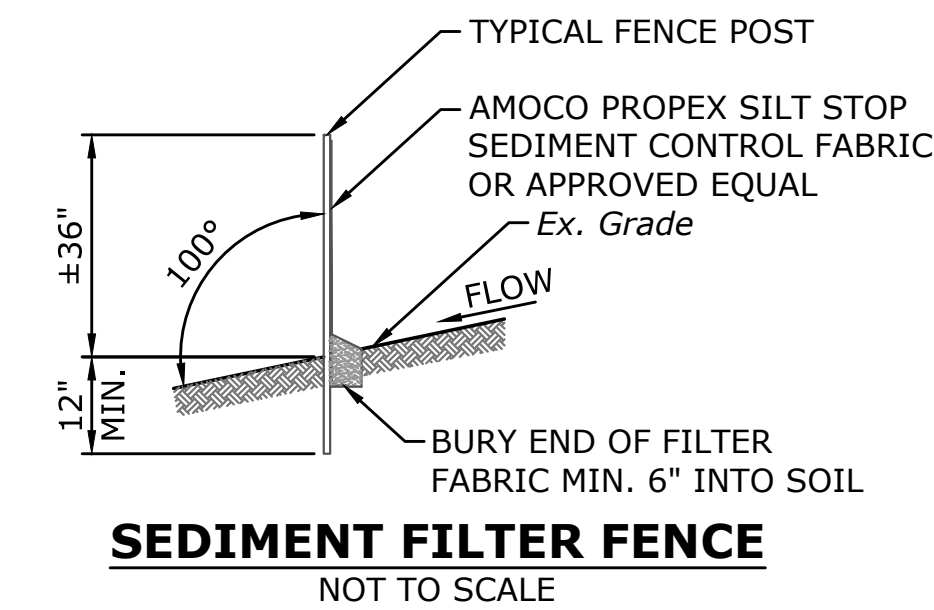
PROPOSED WATER HANDLING PLAN

BOG MEADOW RESERVOIR DAM

- CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND WHEN A RAINFALL EVENT OF 1" OR MORE IS FORECASTED THE CONTRACTOR SHALL PROTECT THE WORK AREA AND ITEMS THAT HAVE BEEN PARTIALLY COMPLETED FROM FLOODING DAMAGE.
- INSTALL TEMPORARY RIPRAP FILTER BERM IN THE DOWNSTREAM CHANNEL.
- INSTALL COFFERDAM AS SHOWN ON SHEET STR-2 AND STR-3.
- INSTALL DEWATERING PUMP BEHIND COFFERDAM THAT DISCHARGES TO TEMPORARY DEWATERING BASIN.
- INITIATE WORK ON THE UPSTREAM SPILLWAY TRAINING WALL AND REPLACE STONES AND MORTAR IN THE DOWNSTREAM SPILLWAY TRAINING WALL.
- IT IS NOT ANTICIPATED THAT THE RESERVOIR WATER LEVEL WILL BE DRAWN DOWN.
- THE CONTRACTOR SHALL MONITOR THE SITE DAILY WHEN 0.5 INCHES OF PRECIPITATION IS FORECASTED AND MONITORING SHALL CONTINUE UNTIL THE PRECIPITATION HAS ENDED.
- WHEN CONSTRUCTION IS NOT ACTIVE (E.G., WEEKENDS AND WINTER SHUTDOWN) THE CONTRACTOR SHALL MONITOR THE SITE AT LEAST WEEKLY.
- THE CONTRACTOR SHALL SUBMIT A WATER HANDLING PLAN WITH ANY MODIFICATIONS TO THE ENGINEER FOR APPROVAL.

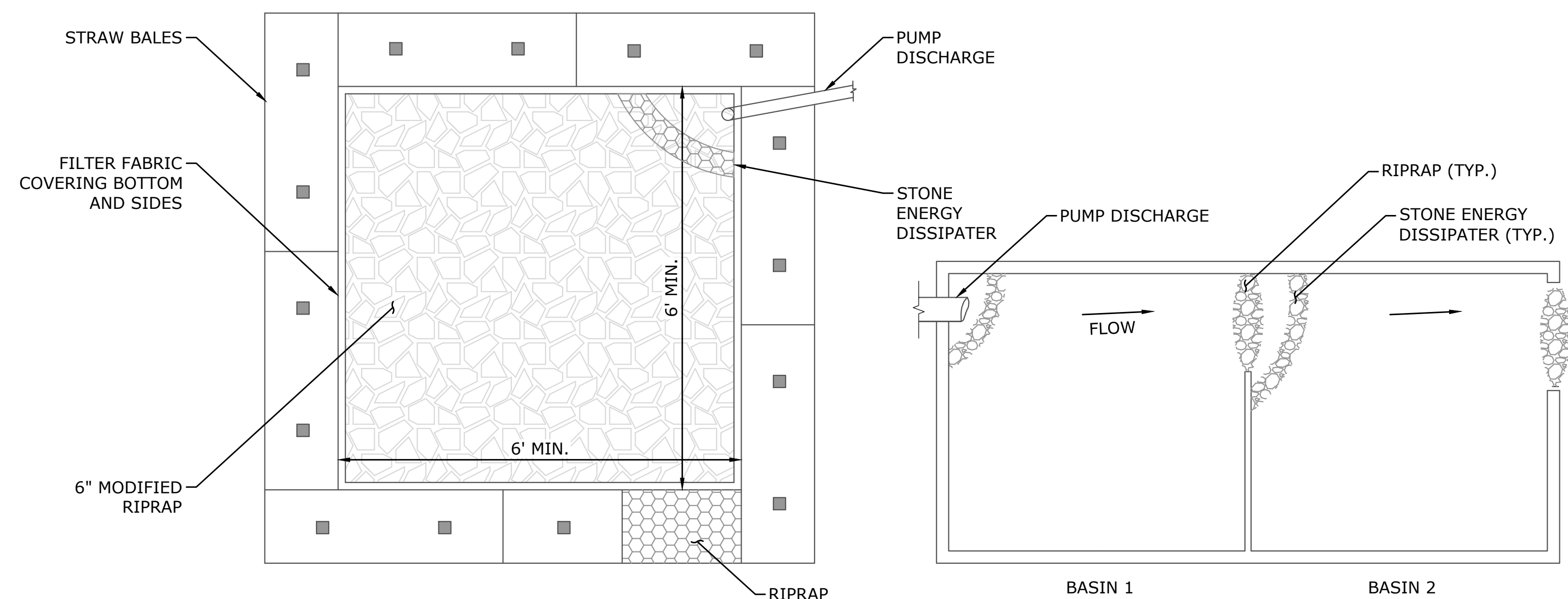


RIP RAP FILTER BERM
NOT TO SCALE



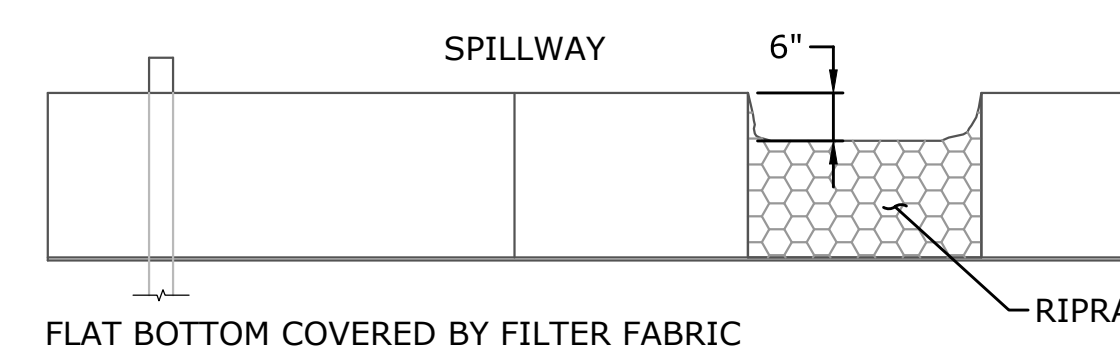
SEDIMENT FILTER FENCE
NOT TO SCALE

TO BE PAID UNDER ITEM 3 - EROSION AND SEDIMENT CONTROLS



PLAN VIEW - SINGLE BASIN

PLAN VIEW - DOUBLE BASIN



ELEVATION VIEW

TEMPORARY DEWATERING BASIN

NOT TO SCALE

TO BE PAID UNDER ITEM 2 - DE-WATERING AND WATER CONTROL

NOTES:

- IF PUMPING VOLUME EXCEEDS CAPACITY (I.E. EXIT WATERS REMAIN TURBID) SETTLING AREA TO BE USED IN TANDEM OR TIERS.
- INCREASE RIPRAP SIZE ON SETTLING AREA BOTTOM AS NECESSARY TO MAINTAIN SEDIMENT-FREE DISCHARGE WATERS
- SETTLING AREA SHALL BE LIMITED TO DISCHARGE OF 3.4 GPM UNLESS STORAGE VOLUME IS INCREASED IN ACCORDANCE WITH 2002 CT SEDIMENT AND EROSION CONTROL SECTION 5-13-7.



99 REALTY DRIVE
SUITE 100
283-271-1773
SLRCONSULTING.COM

DESCRIPTION	DATE	BY

SEDIMENT & EROSION CONTROL NOTES & DETAILS
BOG MEADOW RESERVOIR DAM REPAIRS
MEADOWBROOK ROAD
NORWICH, CONNECTICUT

SMM	SMM	EAH
DESIGNED	DRAWN	CHECKED
AS NOTED		
DATE AUGUST 23, 2024		
PROJECT NO. 12274.00043		
SHEET NO. 7 OF 7		
SE		
SHEET NAME		

1. CONTRACT AND CONTRACT DOCUMENTS

The drawings, plans, specifications, and addenda enumerated in the Technical Specification, the General Conditions, the Advertisement for Bid, the Information for Bidders, and the Bid Proposal as accepted by the Owner, shall be binding upon the parties to this Agreement as if fully set forth therein. Whenever the term Contract Documents is used it shall mean and include the drawings, specifications and addenda. The Owner shall interpret his own requirements. In case of conflict or inconsistency between the provisions of the signed portions of the Contract Documents and those of the specifications, the provisions of the signed portions shall govern.

2. DEFINITIONS

Project Manager: Individual in responsible charge of the work with skill and abilities to interpret plans and specifications, schedules and layout of the work and direct the work force at the job site and with experience as defined in Superintendence by the Contractor.

Field Technician: Individual having the skills and abilities equivalent to that of a journeyman for all necessary work to be performed, such as pipe-fitter, mason, welder, truck driver, or equipment operator.

Owner: The Owner of the project is the City of Norwich via Norwich Public Utilities.

Contractor: The term "Contractor" as hereinafter used shall refer to the General Contractor for this job.

Owner's Representative: The term "Owner's Representative" as hereinafter used shall refer to any engineer or inspector whom the Owner may designate to inspect, test or oversee the work herein specified.

Contract: Wherever the term "contract" is used in the General Conditions, it shall mean the actual Bid Form, Specifications, Plans, General Conditions, any Special Conditions and formal purchase order issued to successful bidder.

3. REPRESENTATIONS OF THE CONTRACTOR

The Contractor represents and warrants:

- a. That he is financially solvent and that he is experienced and competent to perform the type of work required under this contract and that he is able to furnish the plant, materials, supplies, or equipment that may be necessary to perform the work as specified.
- b. That he is familiar with all Federal, State and municipal laws, ordinances, orders, and regulations which may in any way effect the project work, or the employment of

- persons thereon, including but not limited to any special acts relating to the work or to the project of which it is a part.
- c. That such temporary and permanent work required by the contract documents to be done by him will be satisfactorily constructed and can be used for the purpose for which it was intended and that such construction will not injure any person or damage property.
 - d. That he has carefully examined the drawings, specifications, and addenda, if any, and the site of the work and that from his own investigations, he has satisfied himself as to the nature and location of the work, the character of equipment and other facilities needed for the performance of the work, the general and local conditions, and all other items that may affect the work.
 - e. That he is aware of the hazards involved in the work and the danger to life and property both evident and inherent and that he will conduct the work in a careful and safe manner without injury to persons or property.

4. CONTRACTOR'S OBLIGATIONS

The Contractor shall perform all work in a good workmanlike manner, and in accordance with the plans and specifications and any supplements thereto, and according to any directions or orders given by the Owner unless otherwise stipulated. He shall furnish all supplies, materials, except those supplies and materials furnished by the Owner, facilities, equipment, tools and anything else necessary or proper to perform and complete the work required by this contract. He shall furnish, erect, maintain, and remove any construction plant or temporary work as may be required. He alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods and for any damage which may result from their failure or their improper construction maintenance, or operation. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the contract and specifications and shall do, carry on, and complete the entire work to the satisfaction of the Owner.

The Contractor shall be solely responsible for all the work and shall provide all precautionary measures necessary for preventing injury to persons or damage to property. All injury or damage of whatever nature resulting from the work or resulting to persons, property, or the work during its progress, from whatever cause, shall be the responsibility of the Contractor.

The Contractor shall hold the Owner and their duly authorized agents, harmless and defend and indemnify them against damages or claims for damages due to injuries to persons or property arising out of the execution of the project work, and for damages to materials furnished for the work, for infringement of inventions, patents, and patent rights used in doing the work, and for any act, omission, or instance of neglect by the Contractor, his agents, employees, or subcontractors.

The Contractor shall bear all losses resulting to him, including but not limited to losses sustained on account of the character, quality, or quantity of any part of the work, or all parts of the work, or because the nature of the conditions in or on the project site are different from what was estimated or indicted, or on account of the weather, elements, or other causes.

5. SUPERINTENDENCE BY THE CONTRACTOR

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Owner in every possible way.

At the site of the work the Contractor shall, at all times employ a suitably experienced foreman who shall have full authority to act for the Contractor. It is understood that the employment of such representatives shall be acceptable to the Owner and shall be persons as can be continued in that capacity for the duration of the contract.

6. USE OF PREMISES AND REMOVAL OF DEBRIS

Nothing herein contained or shown on any drawings shall be construed as giving the Contractor exclusive occupancy of the work area. The Owner or any other contractors employed by him, the various utility companies, contractors or subcontractors employed by State or Federal agencies, or any other agencies involved in the general project or upon public rights-of-way, may enter upon or cross the area of work or occupy portions of the area as is directed or necessary. When the territory of one contract is the convenient means of access to the other, the Contractor shall arrange his work in such a manner as to permit such access to the other and prevent unnecessary delay to the work as a whole.

The Contractor shall undertake at his own expense:

- a. To take every precaution against injuries to persons or damage to property.
- b. To store his apparatus, materials, equipment, and supplies in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or any others.
- c. To place upon the work or any part thereof, only such loads as are consistent with the safety of that portion of the work.
- d. To clean frequently all refuse, scrap, and debris caused by his operations, and to dispose of same away from the site, so that the work site is maintained in a neat, workmanlike appearance.
- e. To effect all cutting, fitting, or patching of his work required to make the same conform to the drawings and specifications, and except with the consent of the Owner, not to cut or otherwise alter the work of any other contractor.

- f. Before final payment, to remove all surplus materials falsework, temporary structures, including foundations thereof, plants of any description, and debris of any nature resulting from his operations and to dispose of same away from the site, so that the site is left in a neat, orderly, and workmanlike condition.

7. GENERAL WARRANTY

Neither the final certificate of payment nor any provision in the contract documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty workmanship or materials.

The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year (1) from the date of final acceptance of the work, unless a longer period is specified by the Owner. The Owner will give final notice of observed defects with reasonable promptness.

8. PROTECTION OF WORK AND PROPERTY - EMERGENCY

- a. The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work, and that of adjacent property, from damage. The Contractor shall replace or make good any such damage, loss, or injury at no additional expense to the Owner.
- b. In case of an emergency which threatens loss or injury of property, and/or safety of life the Contractor will be allowed to act, without previous instructions from the Owner, in a diligent manner. He shall notify the Owner immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Owner for approval.
- c. Where the Contractor has not taken action but has notified the Owner of an emergency threatening injury to persons or damage to the work or to any adjoining property, he shall act as instructed or authorized by the Owner.

9. THE OWNER'S AUTHORITY

The Owner shall give all orders and directions contemplated under this contract and specifications relative to the execution of the work. The Owner shall determine the amount, quality, acceptability, and fitness of the work and materials which are to be paid for under this contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Owner's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the Owner shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected by such questions. The Owner shall decide 'the meaning and intent of

any portion of the specifications and of any plans or drawings where the same may be found to be obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor and other contractors performing work for the Owner shall be adjusted and determined by the Owner.

10. ALL WORK SUBJECT TO CONTROL BY THE OWNER

In the performance of the work, the Contractor shall abide by all orders, directions, and requirements of the Owner, and shall perform all work to the satisfaction of the Owner, and at such times and places, by such methods, and in such manner and sequence as he may require. The Owner shall determine the amounts, quality, acceptability, and fitness of all parts of the work. The Owner shall interpret the drawings, specifications, contract documents, all other documents, and the extra work orders. The Owner shall also decide all other questions in connection with the work. The Contractor shall employ no plant, equipment, materials, methods or men to which the Owner objects and shall remove no plant, materials, or equipment or other facilities from the work site without the Owner's permission. Upon request the Owner will confirm in writing any oral order, direction, requirement, or determination.

Inspectors shall be authorized to inspect all work done and materials furnished. Such inspection may extend to all parts of the work and to the preparation or manufacture of the materials to be used. The presence or absence of an inspector shall not relieve the Contractor from any requirements of the contract. In case of any dispute arising between the Contractor and the inspector as to materials furnished or the manner in which the work is being executed, the inspector shall have the authority to reject material or suspend work until the question has been decided by the Owner. The inspector shall not be authorized to revoke, alter, enlarge, relax, or release any requirement of these specifications; neither shall the inspector be authorized to approve or accept any portion of the work or to issue instructions contrary to the drawings and specifications. The inspector shall in no case act as foreman or perform other duties for the Contractor, or interfere with the management of the work by the latter. Any advice which the inspector may give the Contractor shall in no way be construed as binding the Owner, or the Engineers in any way, nor releasing the Contractor from the fulfillment of the terms of the contract.

11. THE OWNER'S CONTROL NOT LIMITED

The enumeration in this contract of particular instances in which the opinion, judgment, discretion, or determination of the Owner shall control or in which work shall be performed to his satisfaction or subject to his approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed and performed, but without exception all the work shall be so governed and performed.

12. INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

Except for the Contractor's executed set, any/all drawings and/or specifications are the properties of the Owner. The Owner will furnish the Contractor drawings and/or specifications as needed and if applicable. Anything on the drawings and not mentioned in the specifications, or anything

in the specifications that is not shown on the drawings shall have the same force and effect as if mentioned in both. In case of conflict or inconsistency between the drawings and the specifications, the specifications shall take precedence.

13. REPORTS, RECORDS AND DATA

The Contractor and each of his subcontractors, shall submit to the Owner such schedules of quantities, and costs, progress schedules, payrolls, reports, estimates, records, or other data as the Owner may request concerning the work performed or to be performed under this contract.

14. RIGHTS-OF-WAY AND SUSPENSION OF WORK

Land and rights-of-way for the purpose of this contract shall be furnished by the Owner to the extent shown on the drawings; the Owner will use due diligence in acquiring said lands and rights-of-way as speedily as possible.

If, however, lands or rights-of-way cannot be obtained before work on the project begins, the Contractor shall begin his work upon such land or rights-of-way as have been previously acquired by the Owner, and no claims for damages whatsoever will be allowed by reason of the delay in obtaining the remaining land and rights-of-way. Should the Owner be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement by reason of litigation, or by reason of its inability to procure the lands or rights-of-way for the said work, the Contractor shall not be entitled to make or assert a claim for damages by reason of the said delay, or to withdraw from the contract except by consent of the Owner. Time for completion of work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to be set forth in writing.

15. SUBCONTRACTORS

The Contractors may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors. If subcontractors are employed in the hourly contract, they shall be paid for at the established unit prices in the Proposal without further markups

The Contractor shall not award work to any subcontractor without the prior written approval of the Owner, which approval will not be given until the Contractor submits a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work, to bind the subcontractors to the contract documents insofar as applicable to the subcontract work and to give the Contractor under any provisions of the contract documents.

Nothing contained in this contract shall create any contractual relationship between the Owner and any subcontractor.

16. ASSIGNMENTS

The Contractor shall not assign the whole or any part of this contract or any monies due or to become due hereunder without the written consent of the Owner. In case the Contractor assigns all or part of any monies due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms, or corporations for services rendered or materials supplied for the performance of the work called for in this contract.

17. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage to the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration. If such other contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor who shall indemnify and save harmless the Owner against any such claim.

18. SEPARATE CONTRACTS

The Owner reserves the right to let other contracts in connection with the contemplated work of the project, or contiguous projects of the Owner. The Contractor, therefore, will afford to any such other contractors' reasonable opportunity for the introduction and storage of their materials and the execution of their work, will properly connect and coordinate his work with theirs, and will not commit or permit any act which will interfere with the performance of their work.

19. SAFETY AND HEALTH REGULATIONS

If the Contractor, in the Owner's opinion, fails to provide a safe condition at the construction area, then the Owner may take control of the site and provide needed safety measures at the Contractor's expense.

The fact that the Owner may retain control of the premises, or that it or its agents may take action to erect or maintain railings or fences shall not relieve the Contractor's obligations hereunder.

In addition to the above, when and as necessary, or when required by the Owner, the Contractor shall post sign and employ watchmen or flagmen for the direction of traffic at the site and for excluding at all times unauthorized persons from the work site.

The Contractor shall be responsible for excluding at all times from the land within the construction areas, all persons not directly connected with the work.

These contract documents, and the joint and several phases of construction hereby contemplated, are to be governed, at all times, by the applicable provisions of the Federal law(s) including but not limited to the following:

1. Williams-Steiger Occupational Safety and Health Act, 1970, Public Law 92-596;
2. Part 1910 of the Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
3. This project is subject to all of the Safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974.
4. Any and all safety and health standards as noted in the Technical Specification and Norwich Public Utilities' Safety Guidelines (attached).

In the event of any inconsistencies between the above laws and regulations and the provisions of these contract documents, the laws and regulations shall prevail.

20. AS BUILT DRAWINGS/DATA

- a. The Contractor shall submit promptly to the Owner data and information required by the Owner and prepared in accordance with a schedule predetermined between the Owner and the Contractor. After examination of such drawings/data by the Owner, and the return thereof, if resubmission is required the Contractor shall make such corrections to the drawings and postings as have been indicated and shall furnish the Owner with corrected copies. Regardless of corrections made in or approval given to such drawings by the Owner, the Contractor will, nevertheless, be responsible for the accuracy of such data and information and for their conformity to specifications, unless he notifies the Owner in writing of any deviations at the time he furnishes the data and information. Contractor shall provide accurate As-Built information for any/all underground construction prior to payment for any work performed.
- b. The Owner reserves the right to direct the contract to deliver 'As Built' information using GIS.

21. MATERIALS, SERVICES AND FACILITIES

It is understood that, except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever, necessary to protect, execute, complete, and deliver the work within the specified time. Should the Contractor require electric power and/or water, he shall make necessary arrangements with the Owner for securing it and bear any expense involved, unless expressly provided for otherwise in the specifications.

22. CONTRACTOR'S TITLE TO MATERIALS

No material, supplies, or equipment for the work shall be purchased by the Contractor or any subcontractor, subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the work and further warrants upon completion of all work, to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by him, to the Owner free from any claims, liens, or charges, or encumbrances and further agrees that neither he nor any person, firm, or corporation furnishing any material or labor for any work covered by this contract shall have the right to a lien upon the premises or any improvement or appurtenance thereon.

23. INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the completion of the project shall be new and of current manufacture. If required by the Owner, testing will be done in accordance with accepted standards and as directed by the Owner; the laboratory or inspection agency shall be selected and paid for by the Owner.

All materials and workmanship shall be subject to inspection, examination, and testing by the Owner at any and all times during manufacture and/or construction and at any and all places where such manufacture and or construction is carried on, to establish conformance with these specifications and suitability for uses intended. Without additional charge the Contractor shall furnish promptly all reasonable facilities, labor, and materials necessary to make tests so required safe and convenient; he shall also furnish any mill, factory, or other such tests based on the Standards and Tentative Standards of the American Society for Testing Materials as required by the Owner.

24. BRAND NAME OR EQUAL CLAUSE

Gas specific materials must comply with Build America Buy America and the materials specified herein.

25. COMPETENT HELP TO BE EMPLOYED

All work shall be accomplished by able, skilled and competent personnel. If any person employed on the work by the Contractor shall appear to be incompetent or unreliable in any way, he shall be discharged immediately upon the request of the Owner and shall not again be employed on the work.

26. SPIRITUOUS LIQUORS AND DRUGS

The Contractor shall neither permit nor suffer the introduction or use of spirituous liquors upon the work embraced in this contract. Illegal substances or drugs of any kind unless ordered by a

physician are prohibited. Any employee found using spirituous liquors, illegal substances or drugs of any kind unless ordered by a physician shall be immediately discharged.

27. PROHIBITING EMPLOYEE DISCRIMINATION BY CONTRACTOR

The Contractor agrees and warrants that in the performance of this contract he will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved in any manner prohibited by the laws of the United States or of the State of Connecticut, and further agrees to provide the commission on human rights and opportunities with such information requested by the commission concerning the employment practices and procedures of the Contractor as relate to the provisions of this section.

28. CLAIMS FOR EXTRA WORK

After the contract has been signed, no claims for extra work will be honored, unless authorized in writing by the Owner.

29. OWNER'S RIGHT TO DO WORK

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the Owner, after five (5) days written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment, then or thereafter due the Contractor.

30. PAYMENTS

Payment for the work will be made when the work outlined in the specifications is completed or in accordance with the terms stated herein. Invoices shall be prepared in prescribed form by the Contractor and shall be submitted to the Owner's Representative for verification.

No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance or delay from any cause in the progress of work whether such hindrance or delays be avoidable or unavoidable.

31. PAYMENT TO SUBCONTRACTOR

The Owner assumes no obligation to pay to or to see to the payment of any sum to any subcontractor.

32. WORK IN INCLEMENT WEATHER

The Owner or the Owner's Representative will determine when conditions are unfavorable for work and may order the work or any portion of it suspended whenever, in his opinion the conditions are not such as will insure first class work. In general, work shall be prosecuted

throughout the year and the Contractor will be expected to keep work going and employment of labor as continuous as possible. However, the Contractor shall, and shall cause his subcontractors to protect carefully his and their work against damage or injury from the weather. If this is not done to the Owner's satisfaction and any damage to the work occurs, the work shall be removed and replaced at the expense of the Contractor.

33. ARCHEOLOGICAL FINDS

The Contractor, for the life of this contract, is herewith required to immediately notify the resident engineer or inspector and the following organization in the event that any articles such as "Charcoal", "bone", "shell", "cultural objects, fire cracked stones or stone flaking material" or any other such related items of historical significance are discovered:

Connecticut Historic Preservation Commission
59 South Prospect Street
Hartford, Connecticut 06106 (Tel. 566-3116)

34. TOILET ACCOMMODATIONS

The Contractor shall provide necessary sanitary toilet accommodations for the workmen.

35. LIENS

The final payment for the work will not be made until the Owner is satisfied that no liens have, or can be placed for material or labor on this work. If required by the Owner, waivers of liens may be required. If the Contractor or any subcontractor refuses to furnish a release or waiver of liens, they may furnish a bond satisfactory to the Owner to indemnify the Owner against any liens.

36. GENERAL GUARANTEE

The Contractor shall guarantee his work for a period of one (1) year after the date of the Owner's Representative's final inspection and acceptance as evidenced by final payment. He shall during that period repair promptly, at his own cost and expense all breaks, failures or defects which develop in his work because of faulty material or workmanship. The performance bond shall remain in effect through the guarantee period.

37. FINAL INSPECTION AND ACCEPTANCE

Upon receipt of written notice from the Contractor that his work is complete, the Owner's Representative will make a final inspection and will notify the Contractor of all instances in which the work fails to comply with the specifications as well as any defects which he may discover. The Contractor shall thereupon comply with the specifications, and he shall remedy any defects at his own cost and expense and to the satisfaction of the Owner's Representative. Upon the completion of such alterations or repairs the Owner's Representative will issue his

certificate of final acceptance of work. The issuance of such certificate of final acceptance by the Owner's Representative shall not prevent the Owner from recovering damages at any subsequent time for work found to be defective.

38. FINAL PAYMENT

The acceptance by the Contractor of payment for the final invoice, made after the Owner's Representative's certification of final acceptance as provided for in these General Conditions, shall release the Owner and every agent of the Owner from all further claims or liabilities to the Contractor of whatever nature, except for the remaining sum or sums of money withheld under the provisions of the contract.

39. CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT

The approval of the final Request for Payment by the Owner and the making of the final payment by the Owner to the Contractor shall NOT relieve and Contractor of the responsibility for faulty materials or workmanship. The Owner shall promptly give notice to faulty materials or workmanship and the Contractor shall promptly replace any such defects discovered within two years from the date of written acceptance of the work. The Owner shall decide all questions arising under this paragraph.

40. USE OF "HE", "HIS" OR "HIM"

Whenever in these specifications the masculine words, "he", "his", or "him" are used pertaining to the Contractor, Owner, Engineer or any other entity or person it shall be for brevity, and in no way is any sexual discrimination intended.

41. SAFETY AND HEALTH STANDARDS

The Contractor must comply with the following Safety and Health Standards:

- 29 CFR 1926.650 "Excavations-Scope, application, and definitions"
- 29 CFR 1926.651 "Excavations-Specific Excavation Requirements"
- 29 CFR 1926.652 "Excavations-Requirements for Protective Systems"
- 29 CFR 1926.Subpart P Appendix F – "Selection of Protective Systems"
- 29 CFR 1910.1200 "Hazard Communication"
- 29 CFR 1910.146 "Permit Required Confined Spaces"
- 49 CFR part 199 and 49 CFR part 40 The successful bidder shall provide written documentation and reports verifying of Drug and Alcohol testing compliance to the Owner no later than February 15 of each contract year.
- DOT "Pipeline Safety Regulations Part 192"
- The successful bidder shall provide written documentation of each employee's "NGA Operator Qualifications" for the tasks listed in this section prior to commencement of the work.
- The successful bidder shall provide written "competent person" training documentation.

- All welding shall be performed by a person qualified under API 1104 and also adhere to all NPU welding procedures.
- All PE pipes to be joined shall be done by a fully qualified person in accordance with NGA pipe joiners' program.
- Norwich Public Utilities Gas Operations, Inspection & Maintenance Manual, current edition.
- Norwich Public Utilities Gas Construction Standards, current edition.

The Contractor is responsible for ensuring OSHA compliance, and his responsibility includes supervising and monitoring work site conditions for OSHA compliance. If the contractor uses subcontractors, those which is responsible for ensuring that the sub-contractors fulfill their obligations with respect to employee safety, particularly including those, which affect the entire site. The contractor shall always have a competent person on the job site. A Competent person in this context means one who can identify existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

The City shall consider OSHA violations over the past five years in determining the ability of the Contractor to comply with OSHA requirements and in determining whether the contractor is an acceptable bidder.

If there has been an OSHA violation within the past five (5) years (measured from the date of the bid), the contractor shall provide copies of the citation(s), all documents regarding final determination of such citations including settlements or any explanations(s) of such violation(s).

The Contractor shall install the separate utilities in conformance with the typical construction methods and standards of the City including appropriate sections of DOT Form 818 as amended. Materials supplied by the Contractor shall conform in quality to the typical materials used by each Department and to appropriate section of DOT Form 818. Reference will be given to Buy American/ Build American products listed within this Bid. Any substitutions must be approved by Norwich Public Utilities. Workmanship shall be of a quality that is completely acceptable to the City and to its satisfaction.

42. LENGTH OF TRENCH TO BE OPENED

The length of trench opened at any time from the point where the ground is being broken to complete backfill and the amount of space in the streets or public and private lands occupied by equipment or supplies shall not exceed the length or space considered reasonably necessary and expedient by the City. In determining the length of the open trench or spaces for equipment, material, and supplies and other necessities, the City will consider the nature of the lands or streets where work is being done, types and methods of construction and equipment being used, inconvenience to the public or to private parties, possible dangers and other matters. All work must be constructed with a minimum of inconvenience and danger to all parties concerned.

Whenever the trench obstructs pedestrian and vehicular traffic, or any public or private property, the Contractor shall take such means as is necessary to maintain such traffic and access. Until

such time as the work may have attained sufficient strength to support backfill or if for any reason it is not expedient to backfill the trench immediately the Contractor shall construct and maintain suitable plank crossings and plating crossings to carry essential traffic in or to the street or property in question, as specified or directed.

43. CONTRACTOR TO LAY OUT HIS OWN WORK

The Owner will establish such general reference points as in his judgment will enable the Contractor to proceed with the work. The Contractor, at his own expense shall provide all materials and equipment and such qualified helpers as the Owner may require for setting out general reference points and shall protect and preserve all stakes, benches, and other markers used to identify the reference points. The Contractor shall lay out all the Contract work from the above and shall be responsible for the accuracy of all lines, grades and measurements

The contractor shall coordinate work with Norwich Public Utilities as outlined in the Specifications, where appropriate, or as required by the Owner.

All costs associated with sequencing of work and coordination shall be included in the bid prices for other items.

44. MAINTENANCE AND PROTECTION OF TRAFFIC

The Contractor shall maintain traffic in the project area to the satisfaction of the Owner and in accordance with the Manual on Uniform Traffic Control Devices, latest edition. The Contractor must maintain pedestrian and vehicular traffic and permit access to businesses, factories, residences, and intersecting streets. Where detours will be required, the Owner may require the Contractor to submit a proposed detour plan for all portions of the work to the Owner. This submittal shall be made at least seven days prior to commencing construction. It shall be the sole responsibility of the Contractor to keep the Local Agencies (including but not limited to the Police and Fire Departments) pre-warned at least 72 hours in advance of changes in traffic patterns due to reduction of pavement widths or closing of streets. The Contractor shall supply, install, maintain, adjust, move, relocate, and store all signs, suitably lighted barricades, traffic cones and traffic delineators, as necessary to carry out the traffic routing plan and maintain vehicular and pedestrian traffic. All this work shall meet with the requirements of the State of Connecticut, Local Agencies and the Owner.

45. WORK ON OR NEAR PRIVATE PROPERTY

Every effort shall be made to protect private or public property during construction. All damaged areas shall be replaced in kind by the Contractor at no additional cost to the Owner. All materials not specifically described in other sections, but required for replacement work shall be new, first quality of their respective kinds, and subject to the approval of the Owner.

All areas affected by the construction outside of the work limits shall be repaired to the complete satisfaction of the Owner. This work shall also include the reinstallation of all mailboxes, signs,

and posts that may be affected during construction. Should these items become damaged by the construction, the Contractor shall replace the damaged items at no additional cost to the Owner.

46. DEWATERING, CONTROL AND DIVERSION OF WATER

The Contractor will be responsible for furnishing all labor, equipment and materials, and performing all operations in connection with the dewatering, control and diversion of water, and all other operations necessary to maintain in a dry condition all excavation and work areas of this Contract.

The Contractor shall be responsible for performing all required dewatering in such a manner as to prevent injury to persons or public health, or damage to existing facilities of the work in progress.

The excavations for work required under this Contract may extend below existing ground water levels. The Contractor shall provide, operate and maintain all pumps, drains, well points, screens or any facility necessary for the control, collection and disposal of all surface and subsurface water encountered in the performance of the Contract work.

The Contractor's pumping and dewatering operation shall be carried out in such a manner that no loss of ground will occur. All pipelines or structures not stable against up-lift during construction or prior to completion shall be thoroughly braced or otherwise protected against movement or damage.

Water being disposed of by the pumping and dewatering operations shall be disposed of in such a manner to avoid injury to persons or public or private property, or to the work completed or in progress. Dewatering shall be accomplished by approved methods which have a successful record of dewatering similar excavations and subsurface conditions similar to those expected to be encountered in the work.

The Contractor shall be responsible for providing and maintaining all ditching, grading, sheeting and bracing, pumping and appurtenant work for the temporary diversion of water courses and protection from flooding as necessary to permit the construction of work in the dry.

Upon completion of the Contract work, the Contractor shall remove all temporary construction and shall do all necessary earthwork and grading to restore the area disturbed to their original condition or to such other condition as indicated or directed by the Owner.

Water shall not be permitted to flow into or through excavations in which work is underway or has been partially completed. The Contractor shall not restrict or close off the natural flow of water in such a way that ponding or flooding will occur and shall at all times prevent flooding of public and private property. All damage resulting from flooding or restriction of flows shall be the sole responsibility of the Contractor, at no additional expense to the Owner.

The Contractor shall be responsible during his work to provide all erosion protection and siltation prevention facilities required by the Contract and to carry out his operation by methods acceptable to the applicable local, State or Federal agencies.

47. DUST CONTROL

The Contractor shall take measures acceptable to the Owner for the control of dust during construction activities. Typical dust control measures include the application of water and/or calcium chloride to disturbed areas. The Contractor is responsible for furnishing and applying all dust control measures.

Calcium chloride shall conform to the requirements of AASHTO M 144, except that the pellet form and the flake form shall be equally acceptable. It shall be spread in such manner and by such devices that uniform distribution is attained over the entire area on which it is ordered placed.

48. SEDIMENTATION AND EROSION CONTROL

The Contractor shall furnish all equipment, labor, materials and related work necessary to minimize, to the greatest extent possible, erosion within the work area of this Contract, in and around the trenched area, and to prevent the entrance of any silt laden runoff from the work areas into any standing or moving bodies of water on or adjacent to the work. Any erosion control devices installed by the Contractor shall be removed when ordered by the Owner.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

- Name of Bidder:

- Permanent main office address:

- When organized:

- If a corporation, where incorporated:

- How many years have you been engaged in the contracting business under your present firm or trade name?

- General character of work performed by your company:

- Have you ever failed to complete any work awarded to you? If so, where and why?

- Have you ever defaulted on a contract? If so, where and why?

- List projects similar to this that your organization completed within the last 5 years? The contractor shall attach a summary of such work that identifies:
 - Name of Owner
 - Date of Work
 - Contract Amount
 - Brief Description of Work

- Experience in construction work similar in importance to this project.
- Background and experience of the principal members of your organization including the officers.
- Will you, upon request, fill out a confidential detailed financial statement and furnish any other information that may be required by the OWNER?
- The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner or representative in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at _____ this _____ day of _____, 20____.

(Name of Bidder)

By _____

Title _____

State of _____)

) ss.

County of _____)

_____ being duly sworn deposes and says that he is _____

_____ of _____

(Name of organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

My Commission expires _____ 20____.

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, _____ of _____ (hereinafter called Principal) as Principal, and _____ a corporation organized and existing under the laws of the State of _____ and duly authorized to transact a surety business in the State of Connecticut (hereinafter called Surety), are held and firmly bound unto the City of Norwich as Owner, in the penal sum of _____ in lawful money of the United States of America, for the payment of which sum, well and truly made to the Owner, we bind ourselves, our heirs, successors, and assigns, jointly and severally, firmly by these presents has herewith submitted a bid for the for the contract for the _____ project, bids for which are scheduled to be opened on _____

THE CONDITION OF THIS OBLIGATION is such, that whereas the Principal has herewith submitted a bid for the contract for the above referenced project

NOW, THEREFORE, if the following conditions are satisfied, this obligation shall become void:

- a) the Principal shall not withdraw its bid within _____ days after the bid opening of the same without the consent of the Owner, and
- b) the Owner shall award said project to the Principal in writing, and
- c) the Principal shall, as required by the Owner pursuant to the bid specifications for the project, execute a contract in writing for the project within the time specified by the Owner, after being notified by the Owner in writing of the award, including all submissions relating to that contract execution as may be required by the bid specifications, to be submitted to the Owner prior to contract execution, and
- d) the Principal shall deliver such surety bond as shall be acceptable to the Owner for the performance of the work according to said written agreement (contract), and shall in all other respects perform the agreement created by the acceptance of said bid.

Otherwise, the Principal and Surety hereto agree to pay unto the Owner the difference between the amount of the bid of said Principal, submitted herewith, and the amount for which the Owner may contract with another party to perform the work covered by the said bid of the Principal.

The Surety executing this instrument hereby agrees that its obligation shall not be impaired by any extension(s) of the time for contract execution that the Principal and Owner may agree to, notice of which extension(s) to the Surety being hereby waived; provided that such waiver of notice shall apply only with respect to extensions aggregating not more than _____ calendar days in addition to the original _____ days allowed for expiration of this bid bond.

IN TESTIMONY WHEREOF, the said Principal and Surety have caused this bond to be signed by their duly-authorized representatives and have caused their names and corporate seals to be affixed on this form on the respective dates of their signatures.

Surety

Principal

Print Surety Name

Print Name

Agent's signature and date. **Enclose a valid Power of Attorney**

Signature of Authorized Representative and date

STATE OF CONNECTICUT

Certificate of Compliance with Connecticut General Statute Section 31 - 57b

I hereby certify that all of the statements herein contained below have been examined by me, and to the best of my knowledge and belief are true and correct.

The _____ **HAS** **HAS NOT**
Company Name (Check Applicable)

been cited for three (3) or more willful or serious violations of any Occupational Safety and Health (OSHA) Act or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the solicitation, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act of 1970, and not abated within the time fixed by the citation and such citation has not been set aside following appeal to the appropriate agency of court having jurisdiction or **HAS** **HAS NOT** (Check Applicable) received one or more criminal convictions related to the injury or death of any employee in the three-year period preceding the solicitation.

The list of violations (if applicable) is attached.

(Name of Firm, Organization or Corporation)

Signed:

Written Signature:

Name Typed: (Corporation Seal)

Title:

(Title of Above Person, typed)

Dated:

State of _____)

County of _____) **ss:** _____ **A.D., 20** _____

_____)

Sworn to and personally appeared before me for the above, _____,
(Name of Firm, Organization, Corporation)

Signer and Sealer of the foregoing instrument of and acknowledged the same to be the free act and deed of

_____, and his/her free act and deed as
(Name of Person appearing in front of Notary or Clerk)

(Title of Person appearing in front of Notary or Clerk)

My Commission Expires: _____
(Notary Public) (Seal)



City of Norwich

Norwich Public Utilities
16 South Golden Street

Contract No. 25-34

CONTRACT FOR SERVICES

THIS AGREEMENT, made and entered into this **day of month, year**, by and between **Vendor Name, Address, City, State, Zip Code**, hereinafter called Contractor or Vendor, and Norwich Public Utilities, 16 South Golden Street, Norwich, CT 06360, hereinafter called "**NPU**."

WHEREAS NPU desires to enter into a contract for services, and the Contractor represents itself as competent and qualified to accomplish the specific requirements of this contract to the satisfaction of NPU, therefore this contract is entered into under the following terms and conditions:

1. The Contractor agrees to perform the services contained in **Bid 25-34 for Bog Meadow Reservoir Dam Repairs**. The terms and conditions as contained in this Contract for Services shall take precedence over any conflicting terms as may be attached hereto.
2. **Term of the Contract: Work completed by May 30,2024.**
3. **Contract Price:** NPU shall pay the Contractor
4. **Liquidated Damages:** In the event the Contractor fails to complete the work within the time limit or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to NPU in the amount of \$1500.00 per calendar day.
5. **Contract Documents:** The Contract Documents consist of this Agreement, the Project Description, the Standard Bid and Contract Terms and Conditions, the Instructions to Bidders, the Contractor's bid as accepted by the City, the General and Special Conditions of the Work, the Technical Specifications, the drawings and all Addenda attached hereto.

The Contract Documents are complementary and what is called for by anyone shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of this Agreement and the provisions of any of the other Contract Documents, the provisions of this Agreement shall prevail.

Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the edition of the standard specification, manual, code or laws or regulations identified in the reference. In the event a particular edition is not identified, the reference shall mean the latest edition in effect at the time of receipt of the bid. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the City, the Contractor or any of their consultants, agents or employees from those set forth in the Contract Documents.

6. **Obligations And Liability Of The Contractor:** The Contractor shall, as herein specified, do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise expressly provided herein) necessary for the proper performance and completion of the work in the manner and within the time hereinafter specified, in strict accordance with the Drawings, Specifications and other Contract Documents, in conformity with the directions and to the satisfaction of NPU, and at the prices herein agreed upon therefor.

All parts of the work and all fixtures, equipment, apparatus and other items indicated on the Drawings and not mentioned in the Specifications, or vice versa, and all work and material usual and necessary to make the work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether

or not it is indicated on the Drawings or mentioned in the Specifications, shall be furnished and executed the same as if it is called for both by the Drawings and by the Specifications.

The Contractor shall coordinate its operations with those of any other contractors who may be employed on other work of for NPU, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials and equipment.

The Contractor shall conduct its work so as to interfere as little as possible with private business and public travel. Wherever and whenever necessary or required it shall maintain fences, furnish watchmen, maintain lights, and take such other precaution as may be necessary to protect life and property.

To the extent provided by law, the Contractor shall indemnify and save harmless NPU and its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the work, whether or not due to or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, its officers, agents, employees, any of its subcontractors, NPU or any of their respective officers, agents, employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings, provided, however, that the Contractor shall not be required to indemnify NPU, its officers, agents, or employees, against any such damages occasioned solely by acts or omissions of NPU other than supervisory acts or omissions of NPU in the work.

The Contractor shall have complete responsibility for the work and the protection thereof, and for preventing injuries to persons and damage to the work and property and utilities on or about the work, until final completion and final acceptance thereof. It shall in no way be relieved of its responsibility by any right of NPU to give permission or directions relating to any part of the work, by any such permission or directions given, or by failure of NPU to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the work is done being different from that indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes.

The Contractor shall conduct its operations so as not to damage existing structures or work installed either by it or by other contractors. In case of any such damage resulting from its operations, it shall repair and make good as new the damaged portions at its own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue liable for the damage caused.

The Contractor shall be as fully responsible to NPU for the acts and omissions of its subcontractors, their officers, agents, servants and employees as it is for its own acts and omissions and those of its own officers, agents, servants and employees.

Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against NPU therefor, other than for an extension of time, but shall have recourse solely to such other contractor or subcontractor.

If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the Contractor or of any of its subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage.

The Contractor agrees to and does hereby indemnify and save harmless NPU from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay and from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

The Contractor shall promptly pay all federal, state and local taxes which may be assessed against it in connection with the work or its operations under this Agreement and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

7. Supervision of Work: The Contractor shall be solely responsible for supervision of the work, shall give the work the constant attention necessary to ensure the expeditious and orderly progress thereof, and shall cooperate with NPU, its officers, agents or employees in every possible way.

At all times, the Contractor shall have as its agent on the work a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to execute the directions of the Engineer without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the work without the prior written consent of NPU. If, in the opinion of NPU, the superintendent or any successor proves incompetent, the Contractor shall replace him with another person approved by NPU; such approval, however, shall in no way relieve or diminish the Contractor's responsibility for supervision of the Work.

Whenever the Contractor or its agent or superintendent is not present on any part of the work where it may be necessary to give directions or instructions with respect to such work, such directions or instructions may be given in writing (verbal instructions are not acceptable) by NPU and shall be received and obeyed by the foreman or any other person in charge of the particular work involved.

8. Insurance: The Contractor shall comply with every condition herein. The Contractor shall provide and maintain the insurance coverage set forth below during the term of its agreement with NPU. Any Subcontractor(s) hired by the Contractor shall maintain insurance coverage equal to that required of the Contractor. It is the responsibility of the Contractor to assure compliance with this provision. NPU accepts no responsibility arising from the conduct, or lack of conduct, of the Subcontractor.

Exceptions to the above requirements are subject to the sole discretion of NPU, based on the size and scope of the project and associated risk exposures to NPU.

With reference to the foregoing insurance requirements, Contractor shall agree to or specifically endorse applicable insurance policies as follows:

NPU shall be included as an additional insured with respect to General Liability, Automobile Liability, and if applicable, Pollution Liability and excess/umbrella liability, all on a separate endorsement (s).

The Contractor agrees to waive any right of claim against the NPU, and their employees, agents, and officers for any losses, damages, and expenses arising out of the services in the Agreement between NPU and the Contractor. All insurance required hereunder shall contain waivers of subrogation in favor of NPU and its employees, agents, and officers.

All insurance policies shall be endorsed to the effect that NPU will receive at least thirty (30) days' written notice prior to cancellation or non-renewal of the insurance. Contractor is ultimately responsible for notice of cancellation should its carrier be unable to comply with the above requirement. All insurance policies, which include NPU as an additional insured, must be endorsed to read as primary and non-contributory coverage regardless of the application of other insurance. All insurance policies shall be endorsed to require the insurer to immediately notify NPU of any material change in the insurance coverage that would cause non-compliance with the specific provisions required herein, as well as exhaustion of any aggregate limits.

All liability policies shall contain no cross-liability exclusions or insured versus insured restrictions.

Required limits may be satisfied by any combination of primary and umbrella liability insurances.

Contractor may maintain reasonable and customary deductibles, subject to approval by NPU. Deductibles/retentions over \$100,000 must be declared.

Insurance must be purchased from insurers having a minimum A.M. Best rating of A- / VIII.

Contractual Liability under the General Liability policy must be maintained covering the Contractor's obligations contained in the contract. Certificates of Insurance shall be prepared and executed by the insurance company or its authorized agent and shall contain provisions representing and warranting the required endorsements and insurance coverages according to requirements and instructions contained herein.

A valid Certificate of Insurance verifying each of the coverages required above shall be issued directly to NPU within ten (10) business days after contract award and prior to starting any work by the successful contractor's insurance agent of record or insurance company. Also, prior to the start of any work and at the same time that the Certificate of Insurance is issued and sent to NPU, all required endorsements identified above shall be sent to NPU.

Compliance with Insurance Requirements – Contractor's obligation to obtain insurance coverage is separate and distinct from Contractor's obligation to indemnify, hold harmless, and defend pursuant to this Agreement. Compliance with the requirements of this section shall not relieve the Contractor of its obligations under any indemnity or hold harmless provisions under this Agreement. NPU reserves the right to withhold payments to the Contractor in the event of material non-compliance with the insurance requirements outlined above.

It is agreed that as an independent entity or individual, Contractor is not eligible for employee benefits such as medical, dental, life, disability, workers' compensation, and related insurance and benefits.

It is agreed that coverage exceeding NPU requirements remains available in the event of a claim.

The following types of insurance shall be provided before starting and until final completion and acceptance of the Work and expiration of the guarantee period provided for in the Agreement.

The limits of liability for insurance required below, shall provide coverage for not less than the following amounts or greater where required by NPU. It is understood that Contractor insurance exceeding required levels, is considered available to NPU depending on the specific circumstances of claims.

A. Workers' Compensation, Employers' Liability, and related coverages:

- a. State: Statutory
- b. Voluntary Compensation Same as State Workers' (by any exempt entities) Compensation
- c. Employer's Liability:
 - \$1,000,000 Each Accident
 - \$1,000,000 Disease, Policy Limit
 - \$1,000,000 Disease, Each Employee
- d. The policy must contain a waiver of subrogation in favor of NPU, executed by the insurance company. If there is an exposure of injury to Contractor's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act or under laws, regulations, or statutes applicable to work on, next to, or above water, coverage shall be included for such injuries or claims.

NPU shall have sole discretion on requiring Workers' Compensation, Employers' Liability, and related coverages.

B. Commercial General Liability coverage, including Premises-Operations; Products/Completed Operations; Broad Form Property Damage:

- a. Bodily Injury:
 - \$1,000,000 Each Occurrence
 - \$2,000,000 Aggregate
- b. Property Damage:
 - \$1,000,000 Each Occurrence
 - \$2,000,000 Aggregate
- c. Property Damage Liability Insurance shall include coverage for the following hazards:
 - X (Explosion), C (Collapse), U (Underground)
- d. Personal/Advertising Injury, (with Employment Exclusion deleted if applicable):
 - \$1,000,000 Each Occurrence
 - \$2,000,000 Aggregate
- e. If General Liability policy includes a General Aggregate, such General Aggregate shall not be less than \$2,000,000.

The policy must contain a waiver of subrogation in favor of NPU, executed by the insurance company and shall be endorsed to have General Aggregate apply to this Project only.

C. Commercial Automobile Liability (owned, non-owned, or hired autos):

- a. Bodily Injury:
 - \$1,000,000 Each Person

- \$1,000,000 Each Accident
- b. Property Damage:
 - \$1,000,000 Each Accident
 - c. Or Combined Single Limit of \$ 1,000,000

D. Professional Liability coverage (if providing professional services):
\$1,000,000 per claim
\$1,000,000 annual aggregate

Professional Liability Coverage shall be maintained for 3 years after completion of the professional services provided.

NPU shall have discretion in determining or increasing the Professional Liability coverage requirement depending on the scope and/or size of the work performed by Contractor.

E. Cyber Liability coverage (if Contractor has direct access to NPU's network, technology infrastructure, or NPU employee personal identifiable information): \$1,000,000 per cyber incident

F. Property Insurance: Contractor shall be responsible for maintaining any and all property insurance on their own equipment and shall require all subcontractors to do likewise.

G. Pollution Liability, if applicable.

If Contractor or its Subcontractors are required to perform pollution or hazardous material operations, or where there are pollution exposures, it must, in addition to the above requirements, carry a "Contractor's Pollution Liability" policy with limits not less than \$1,000,000 per occurrence and \$1,000,000 aggregate for bodily injury, personal injury and property damage, naming NPU as additional insured. If Contractor or their subcontractors haul, hazardous waste they must carry Automobile Liability insurance with \$1,000,000 combined single limit for bodily injury and property damage applicable to all hazardous waste hauling vehicles and include the MCS 90 endorsement.

NPU shall have sole discretion in increasing the Pollution Liability coverage requirements depending on the scope and/or size of the work performed by Contractor.

H. Umbrella/Excess Liability coverage (over commercial general liability, commercial automobile liability, and employer liability):

Minimum Coverage: \$2,000,000 per occurrence / \$2,000,000 aggregate, Over Primary Insurance.

NPU shall have discretion in determining or increasing the Umbrella/Excess Liability coverage requirements depending on the scope and/or size of the work performed by Contractor.

I. Builders' Risk coverage: Unless specified otherwise, the Contractor shall purchase and maintain, until final payment, builders' risk insurance upon the Work at the site in an amount equal to the total bid price for the completed work. This insurance shall include the interests of Owner, Contractor, Subcontractors, Engineer and Engineer's consultants in the Work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism, and malicious mischief, collapse and water damage, and shall include damages, losses and expenses rising out of or resulting from any physical loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals).

J. Owner/Contractor Protective Liability (OCP):

Contractor shall purchase and maintain a separate Owner/Contractor Protective Liability (OCP) policy, issued to Owner at the expense of Contractor, including Owner as named insured. This insurance shall provide coverage for not less than the following amounts:

- a. Bodily Injury
 - \$1,000,000 Each Occurrence
 - \$2,000,000 Annual Aggregate
- b. Property Damage including Explosion Collapse and Underground coverage.
 - \$1,000,000 Each Occurrence
 - \$2,000,000 Annual Aggregate

NPU has the sole discretion for waiving OCP insurance requirements depending on the scope and/or size of the work performed by Contractor.

9. Contract: This Agreement, which includes all the Contract Document elements listed in paragraph 1 above, forms the Contract between the parties identified in the heading of this document. In the event that any provision of the Contract conflicts with any other provision of this Contract, the decision of NPU will be final.

10. Funding and Fiscal Year Appropriations: Authorization to spend for a particular purpose is made on a fiscal year basis. The fiscal year of NPU is the twelve (12) month period ending June 30 of each year.

11. Termination: If Contractor fails to fulfill its obligations, NPU may terminate this Contract by giving written (includes electronic communication) notice to the Contractor at least seven (7) calendar days before the effective date of termination stated in the notice. The notice shall state the circumstances of the alleged breach and may state a period during which the alleged breach may be cured, which cure shall be subject to approval by NPU.

12. Obligations in Event of Termination:

A. Upon termination, all finished or unfinished documents, data, studies, and reports prepared by the Contractor pursuant to this Contract, shall become the property NPU.

B. NPU shall promptly pay the Contractor for all services performed to the effective date of termination, subject to indemnification provisions of Paragraph 5 hereof and subject to offset of sums due the Contractor against sums owed by the Contractor to NPU.

13. Record keeping, Audit, and Inspection of Records: The Contractor shall maintain books, records and other compilations of data pertaining to the requirements of the Contract to the extent and in such detail as shall properly substantiate claims for payment under the Contract. All such records shall be kept for a period of six (6) years or for such longer period as is specified herein. All retention periods start on the first day after final payment under this Contract. If any litigation, claim, negotiation, audit or other action involving the records is commenced prior to the expiration of the applicable retention period, all records shall be retained until completion of the action and resolution of all issues resulting therefrom, or until the end of the applicable retention period, whichever is later. The Federal grantor agency, the State Auditor, NPU, or any of their duly authorized representatives or designees shall have the right at reasonable times and upon reasonable notice, to examine and copy, at reasonable expense, the books, records, and other compilations of data of the Contractor which pertain to the provisions and requirements of this Contract. Such access shall include on-site audits, review, and copying of records.

14. Publicity, Publication, Reproduction and Use of Contract Products or Materials: Unless provided otherwise by law or by NPU, title and possession of all data, reports, programs, software, equipment, furnishings, and any other documentation or product paid for with NPU funds shall vest with NPU at the termination of the Contract. The Contractor shall at all times obtain the prior written approval of NPU before it, any of its officers, agents, employees or subcontractors, either during or after termination of the Contract, makes any statement bearing on the work performed or data collected under this Contract to the press or issues any material for publication through any medium of communication. If the Contractor, or any of its subcontractors, publishes a work dealing with any aspect of performance under the Contract, or of the results and accomplishments attained in such performance, NPU shall have a royalty-free non-exclusive and irrevocable license to reproduce, publish or otherwise use and to authorize others to use the publication. The Contractor shall use reasonable means to inform the public that NPU provides financial support for its operations and services by explicitly stating on publicity material, stationery, posters and other written materials, and on its premises the following: "This program is supported in part (in full) by NPU."

15. Assignment by Contractor and Subcontracting: The Contractor shall not assign or in any way transfer any interest in this Contract without the prior written consent of the City, nor shall it subcontract any services without the prior written approval of NPU.

16. Connecticut Law: It is agreed that this contract shall be governed by, construed, and enforced in accordance with the internal laws of the State of Connecticut.

17. Venue: In the event of litigation, the parties do agree to be contractually bound to submit themselves to the personal jurisdiction of the state courts of Connecticut. The venue for any court proceeding shall be in the Superior Court for the Judicial District for Norwich at New London, Connecticut.

18. Waiver of Jury Trial: CONTRACTOR HEREBY EXPRESSLY WAIVES ANY AND ALL RIGHTS IT MAY HAVE TO TRIAL BY JURY OF ANY CLAIM, DEMAND, ACTION OR CAUSE OF ACTION (1) ARISING UNDER THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH, OR (2) IN ANY WAY CONNECTED WITH OR RELATED OR INCIDENTAL TO THE DEALINGS OF THE PARTIES HERETO OR ANY OF THEM WITH RESPECT TO THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH, OR THE TRANSACTIONS RELATED HERETO OR THERETO, IN EACH CASE WHETHER NOW EXISTING OR HEREAFTER ARISING, AND WHETHER SOUNDING IN CONTRACT OR TORT OR OTHERWISE; AND CONTRACTOR HEREBY AGREES AND CONSENTS THAT ANY SUCH CLAIM, DEMAND, ACTION OR CAUSE OF ACTION SHALL BE DECIDED BY COURT TRIAL WITHOUT A JURY, AND THE CITY MAY FILE AN ORIGINAL COUNTERPART OR A COPY OF THIS SECTION WITH ANY COURT AS WRITTEN EVIDENCE OF CONTRACTOR'S CONSENT TO THE WAIVER OF ITS RIGHT TO TRIAL BY JURY.

19. Nondiscrimination and affirmative action provisions, nondiscrimination provisions regarding sexual orientation, Executive Order Number Three and guidelines and rules, Executive Order Number Seventeen, Executive Order Number Sixteen, Federal Executive Order Numbers 11246 and 12549, Federal Regulation 2 CFR 200.16, and sexual harassment policy:

For the purposes of this article, the word "contractor" is substituted for and has the same meaning and effect as if it read "Contractor's name." Section A of this article is inserted in connection with subsection (a) of § 4a-60 of the General Statutes of Connecticut, as revised. Section E of this article is inserted in connection with subsection (a) of § 4a-60a of the General Statutes of Connecticut, as revised.

- A. (1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, or in any manner prohibited by the laws of the United States or of the State of Connecticut. The contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, or in any manner prohibited by the laws of the United States or of the State of Connecticut; (2) the contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the contractor agrees to comply with each provision of this section and Conn. Gen. Stat. §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to Conn. Gen. Stat. §§ 46a-56, 46a-68e, 46a-68f and 46a-86; (5) the contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records, and accounts concerning the employment practices and procedures of the contractor as they relate to the provisions of this section and Conn. Gen. Stat. § 46a-56.
- B. Any contractor who is party to a municipal public works contract or quasi-public agency project, where any such contract is valued at less than \$50,000 for each year of the contract, shall provide the Commission on Human Rights and Opportunities with a written or electronic representation that complies with the nondiscrimination agreement and warranty under subsection (A)(1) above, provided if there is any change in such representation, the contractor shall provide the updated representation to the Commission not later than 30 days after such change. Any contractor who is party to a municipal public works contract or a quasi-public agency project where any such contract is valued at \$50,000 or more for any year of the contract, shall provide the Commission with any one of the following: (1) Documentation in the form of a company or corporate policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of such contractor that complies with the nondiscrimination agreement and warranty under subsection (A)(1) above; (2) Documentation in

the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (a) the prior resolution is certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and the executive director of the Commission on Human Rights and Opportunities or designee certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (A)(1) above; or (3) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (A)(1) above and is in effect on the date the affidavit is signed.

This contract is subject to Connecticut Prevailing Wage laws.

- C. (1) If the contract is a municipal public works contract or a quasi-public agency project, the Contractor agrees and warrants that s/he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project. The contractor shall include the provisions of subdivision (A) (1) above in every subcontract or purchase order entered into to fulfill any obligation of a public works contract or contract for a quasi-public agency project, and such provisions shall be binding on a subcontractor, vendor or manufacturer, unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. The contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance in accordance with Conn. Gen. Stat. §46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission regarding a state contract, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter; (2) Determination of the contractor's good faith efforts shall include, but shall not be limited to, the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects; (3) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts; (4) The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.
- D. "Minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise and (3) who are members of a minority, as such term is defined in subsection (a) of Conn. Gen. Stat. §32-9n; and "good faith" means the degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements. Determination of the contractor's good faith efforts shall include, but shall not be limited to, the following factors: The contractor's employment and subcontracting policies; affirmative advertising recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission on Human Rights and Opportunities may prescribe that are designed to ensure the participation of minority business enterprises in municipal public works contracts or quasi-public agency projects. "Municipal public works project" means that portion of an agreement entered into on or after October 1, 2015, between any individual, form of corporation and a municipality for the construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees but excluding any project of an alliance district, as defined in Conn. Gen. Stat. §10-262u, financed by state funding in an amount equal to fifty thousand dollars or less. "Quasi-public agency project" means the construction, rehabilitation, conversion, extension, demolition or repair of a building or other changes or improvements in real property pursuant to a contract entered into on or after October 1, 2015, which is financed in whole or in part by a quasi-public agency using state funds, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.
- E. This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971, and, as such, this contract may be cancelled, terminated, or suspended by the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Three, or any State or federal law concerning nondiscrimination, notwithstanding that the State Labor Commissioner is not a party to this contract. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and

agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

The contractor agrees, as part consideration hereof, that this contract is subject to the Guidelines and Rules issued by the State Labor Commissioner to implement Executive Order No. Three, and that it will not discriminate in its employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the State Labor Commissioner.

- F. This contract is subject to the provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this contract may be cancelled, terminated, or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the State Labor Commissioner may not be a party to this contract. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.
- G. This contract is subject to the provisions of Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, and, as such, the contract may be canceled, terminated, or suspended by the State for violation of or noncompliance with said Executive Order No. Sixteen. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Sixteen is incorporated herein by reference and made a part hereof. The parties agree to comply with such executive order. In addition, the contractor agrees to include a copy of Executive Order No. Sixteen, and the requirement to comply with said executive order, in all contracts with its contractors, subcontractors, consultants, sub-consultants, and vendors.
- H. This contract is subject to federal Executive Order No. 11246 (federal equal opportunity opportunity). The parties to this contract, as part of the consideration hereof, agree that federal Executive Order No. 11246 is incorporated herein by reference and made a part hereof. The parties agree to comply with such executive order. In addition, the contractor agrees to include a copy of Executive Order No. 11246, and the requirement to comply with said executive order, in all contracts with its contractors, subcontractors, consultants, sub-consultants, and vendors.
- I. This contract is subject to federal Executive Order No. 12549 (government-wide debarment and suspension) and CGS 31-53a). The parties to this contract, as part of the consideration hereof, agree that federal Executive Order No. 12549 is incorporated herein by reference and made a part hereof. The parties agree to comply with such executive order. In addition, the contractor agrees to include a copy of Executive Order No. 12549, and the requirement to comply with said executive order, in all contracts with its contractors, subcontractors, consultants, sub-consultants, and vendors.
- J. This contract is subject to compliance with federal regulation 2 CFR 200.16, Prohibition on certain telecommunication and video surveillance services or equipment, implementing section 889 of Public Law 115-232, as may be amended from time to time. The parties to this contract, as part of the consideration hereof, agree that federal regulation 2 CFR 200.16, Prohibition on certain telecommunication and video surveillance services or equipment is incorporated herein by reference and made a part hereof. The parties agree to comply with such regulation.
- K. This contract is subject to the provisions of the City of Norwich Sexual Harassment Policy ("Policy") and, as such, the contract may be canceled, terminated, or suspended by the City in the event that the contractor, its employees, contractors, subcontractors, consultants, sub-consultants, or vendors engages in behavior prohibited by the provisions of the Policy (a copy of the Policy is attached hereto). The contractor agrees to include a copy of the Policy, and the requirement to prevent behavior as defined in such Policy, in all contracts with its contractors, subcontractors, consultants, sub-consultants, and vendors.

20. Force Majeure: Neither party shall be liable to the other or be deemed to be in breach of this Contract for any failure or delay in rendering performance arising out of causes beyond its reasonable control and without its fault or negligence. Such causes may include, but are not limited to, acts of God or of a public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather. Dates or times of performance shall be extended to the extent of delays excused by this section, provided that the party whose performance is affected notifies the other promptly of the existence and nature of such delay.

21. Compliance with Laws and Indemnification of NPU: The Contractor shall comply with all applicable laws, rules, regulations, ordinances, orders or requirements of the State of Connecticut and any governmental authority relating to the delivery of the services specified in this Contract. NPU may require the Contractor to pay fines, penalties, and damages that may arise out of or may be imposed because of, the Contractor's breach or failure to comply with the provisions of this Contract. Unless otherwise provided by law the Contractor shall indemnify and hold harmless NPU, its agents, officers and employees against any and all liability, loss, damages, penalties, costs or expenses for personal injury or damage to real or tangible personal property which NPU may sustain, incur or be required to pay resulting from, arising out of, or in connection with the services performed or delivered under this Contract by reason of acts, inactions, omissions, negligence, reckless or intentional misconduct of the Contractor, its agent(s), officers, employees or subcontractors; provided that the Contractor is notified of any claim within a reasonable time after NPU becomes aware of it, and the Contractor is afforded an opportunity to participate in the defense of such claim. In such event, no negotiated settlement agreement shall be binding on the Contractor without the Contractor's concurrence.

22. Waivers and Severability: All conditions, covenants, duties and obligations contained in this Contract can be waived only by written agreement. Forbearance or indulgence in any form or manner by a party shall not be construed as a waiver, nor in any way limit the legal or equitable remedies available to that party. A waiver or breach of any term, condition, or covenant by a party shall not constitute a waiver or breach of any other term, condition or covenant. If any court of competent jurisdiction declares a provision of this Agreement invalid, illegal, or otherwise unenforceable, the remaining provisions of the Agreement shall remain in full force and effect.

23. Amendments: No amendment to this Contract shall be effective unless it is signed by authorized representatives of both parties and complies with all other regulations and requirements of law.

24. Entire Agreement: The parties understand and agree that this Contract and attachments (if any), which includes all Contract Documents, supersede all other verbal and written agreements and negotiations by the parties relating to the services under this Contract.

25. Notice: Unless otherwise specified in an attachment hereto, any notice hereunder shall be in writing addressed to the persons and addresses indicated in the caption of this Contract on page 1.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed.

Norwich Public Utilities:

Contractor/Vendor: C.B. Utility Co., Inc.
