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of Engineers ®
New England District

Construct Waterline

Durham Meadows,
Durham, Connecticut

Construction Solicitation
and Specifications

May 2018

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

The general description below is given to indicate the approximate scope of this project only. It does not limit the work required under the project drawings and specifications.

Work of this project shall include, but not limited to, the following major items:

1. Construction of a new 0.8 million gallon prestressed concrete water storage tank, access roadway, site improvements, and appurtenances off Talcott Ridge Drive in the City of Middletown.

2. Modifications at the Long Hill Pump Station in the City of Middletown.

3. Installation of approximately 31,200 linear feet water main (20-inch to 6-inch diameter) and appurtenances in Town of Durham and CTDOT roadways, including but not limited to:

(1) South Main Street (Route 17) in Middletown from Talcott Ridge Drive to the town line with Durham,

(2) Main Street (Route 17) in Durham from the town line to Mill Pond Lane,

(3) Talcott Lane in Durham,

(4) Maple Avenue in Durham from Talcott Lane south to the Allyn Brook crossing and from the south point of the crossing near John’s Way to connect to the existing water main,

(5) Wallingford Road from Main Street west past Maple Avenue to near No. 47 Wallingford Road,

(6) Maiden Lane from Main Street to the intersection with Pickett Lane,

(7) Pickett Lane; and

(8) Main Street service extensions (limited lengths) at; Royal Oak Drive, Littleton Lane, Parson Lane, Winsome Road, Middlefield Road, Haddam Quarter Road, Maiden Lane and Pickett Lane.

4. Installation of approximately 500 linear feet of 12-inch water main and appurtenances on Town of Durham property west of Maple Avenue and crossing Allyn Brook.

5. Installation of approximately 206 water service connections (from corporation to curb stops) of which approximately 115 will be installed

into the building structure to establish a new water supply. Components of approximately 114 existing private water supply systems to be abandoned include existing wells and appurtenances, including pressure tanks and water treatment devices to be removed, as specified, including property restoration. Six supply wells shall be converted to monitoring wells.

6. Construction of a booster pump station on South Main Street, including site improvements and appurtenances, in Middletown on the northern portion of the CT DOT property across from the intersection of Talcott Ridge Road.

7. Construction of a water meter station, including site improvements and appurtenances, in the City of Middletown on City-owned property on South Main Street at the corner of Acorn Drive.

See Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES, Subpart TRAFFIC PROVISIONS AND TRAFFIC CONTROL PLAN for requirements and restrictions relative to traffic control and diversions on this project.

1.1.1 Soil and Groundwater Contamination

While most of the work will occur within the public roadways or other areas outside of the Durham Meadows Superfund Site source areas, installation of a water service connection to the Durham Manufacturing Company at 201 and 203 Main Street will involved trenching in an area of known contamination. Known site soil and groundwater contaminants in the work area, as shown on Contract Drawing C-21, include volatile organic compounds (VOCs), particularly TCE, PCE, methylene chloride. Additionally, well abandonment throughout the project area will involve potential contact with groundwater contaminated with VOCs. A summary of Site contamination is included in Appendix D of this specification.

1.1.2 Winter Shutdown

A mandatory winter shutdown period extending from 1 December to 31 March, inclusive, of any year, will be enforced during the performance period of this contract. During the winter shutdown periods, the Contractor will not be permitted to perform on-site construction work of any kind.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Maintenance and Plan of Operation (MAPO); G, RO

The Contractor shall submit a Maintenance and Plan of Operation (MAPO). The MAPO shall consist of a written narrative describing the proposed sequence of construction and proposed temporary equipment to be utilized to maintain operation of the force main, all services, and all hydrants during construction. No site work will be allowed until acceptance of the MAPO by the Contracting Officer.

Two-Week Schedule of Work Activities

In addition to the scheduling and notification requirements specified elsewhere in the contract, the Contractor shall provide to the Contracting Officer a detailed schedule of work activities, which the Contractor intends to perform over the following two week period (Monday thru Friday for two weeks).

Progress Report; G, RO

Quality Assurance Project Plan (QAPP); G, DO

Public Relations Liaison; G, DO

Green Remediation Practices

SD-07 Certificates

Request Application; G, RO

Request Application to work outside the hours of operation.

SD-11 Closeout Submittals

CT DPH Certificate

1.3 Quality Assurance Project Plan (QAPP)

The Contractor is required to prepare a Quality Assurance Project Plan (QAPP) to describe the steps that will be taken to ensure that environmental data collected are of the correct type and quality required, and that presents an organized and systematic description of the ways in which QA and QC will be applied to the collection and use of environmental data. The QAPP shall be submitted for reiew and approval by the Contracting Officer. The Contractor shall follow the guidance provided by the Environmental Protection Agency (EPA) document entitled "Uniform Federal Policy for Quality Assurance Project Plans", dated March 2005. This document is available at the following internet address: https://www.epa.gov/sites/production/files/documents/ufp_qapp_v1_0305.pdf

1.4 MAINTENANCE AND PLAN OF OPERATION (MAPO)

A. Contractor shall submit a Maintenance and Plan of Operation (MAPO) for requirements of this section and as specified herein.

B. MAPO shall consist of a proposed sequence of construction and proposed temporary equipment to be utilized to maintain operation of the force main during construction.

1. Contractor shall develop a detailed narrative to address the following:

a. Sequence of construction, testing, and start-up. Particular attention shall be paid to ensuring that there is no loss of fire protection for structures existing fire protection; that loss of water service shall not exceed 2 hours at any time.

b. The plan shall address the Contractor's approach to minimizing

residence time of the water in the system, with particular attention paid to the residence time in the Cherry Hill Storage Tank.

c. The plan shall address work during anticipated periods of high traffic, including daily as well as annual events, including the Durham Fair.

d. The plan shall include work schedules and proposed detours required during high traffic periods.

2. The MAPO shall include a schedule addressing the above.

C. No site work will be allowed until acceptance of the MAPO by the Contracting Officer.

1.5 SUPERINTENDENCE BY THE CONTRACTOR

a. At all times during the performance of the contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent project superintendent who is satisfactory to the Contracting Officer and has the authority to act for the Contractor.

b. The project superintendent shall maintain a physical presence at the site at all times and be responsible for all construction and related activities at the site, except as otherwise acceptable to the Contracting Officer.

c. Failure to comply with these requirements shall be deemed as cause for a non-compensatory stoppage and suspension of work until the deficiency is remedied.

1.6 COORDINATION AND DIRECTION DURING CONSTRUCTION

a. The Contractor shall not take or accept any direction or instructions issued by any person, employed by the Government or otherwise, other than the Contracting Officer that changes the terms and conditions of contract actions, the scope, or any change that impacts the cost, price, or schedule. Changes authorized by the Contracting Officer will be in the form of a written, official, signed modification to the contract action received by the Contractor before the Contractor will act upon those changes. The Contractor will comply with the changes clause of this contract when the Contractor believes direction has been given from persons other than the Government Contracting Officer that equate to a change by notifying the Contracting Officer as directed by the clause. Any direction given by any Government employee or any other person outside their authority must be reported to the Contracting Officer.

b. The Contracting Officer Representative (COR) is limited to the authorities stated in the COR appointment letter. If a COR is appointed under this contract, they will be appointed by written letter from the Contracting Officer to the Contractor and COR specific to this contract only. COR appointment letters from previous contracts are not valid for this contract. See the Contracting Officer’s Representative clause of this contract.

1.7 PUBLIC RELATIONS LIAISON

The Contractor shall include in the staffing for this project a Public Relations Liaison employee. The Contractor shall submit the qualifications of this Public Relations Liaison employee to the Contracting Officer for approval. This person's qualifications and duties shall be as listed below:

Qualifications:

1. Five years' experience in water line or other utility work.

2. Technical knowledge of utility projects.

3. Skill in oral and written communications.

Duties:

1. Coordinate with home/property owners for access, work activities, water service start-up, and testing of water service connections.

2. Coordinate with Connecticut DEP, U.S. Army Corps of Engineers, and USEPA. Prepare agendas, meeting minutes, and reports for weekly and monthly meetings and other reports as required in the specifications.

3. Coordinate with Durham and Middletown Water Departments for water line connections, valve openings and closings, outages, chlorination, pressure testing, coliform testing, and other related issues not otherwise noted.

4. Coordinate road and lane closures with all stakeholders including notifications.

5. Work with the U.S. Army Corps of Engineers to resolve disputes and complaints from home/property owners.

6. Support the EPA by attendance at four EPA run public meetings per year, held in the evening, approximately three hours in duration per meeting.

The Public Liaison position shall be a dedicated, full-time position, requiring a full-time presence on the project site. The person in this position shall not serve as QC Manager, SSHO, Site Superintendent, Project Manager, or any other position, and shall have no duties except Public Liaison.

1.8 PROJECT/SITE CONDITIONS

1.8.1 Site Security

The Contractor shall report any vandalism, suspicious activities or devices to the Contracing Officer or local police as soon as possible. The Contracting Officer will notify the Contractor of any heightened security measures and will expect vigilant monitoring of equipment and grounds while working. At a heightened security posture, there may be work areas that are restricted. The Contracting Officer will notify the Contractor of these restricted areas, and work may be delayed or restricted or will be performed in these areas under the direct supervision of U.S. Army Corps of Engineers personnel.

1.9 WORK SEQUENCE AND SCHEDULING

1.9.1 Hours of Operations

Amendment 1 - See next page

~~Normal work hours are from 7:00 a.m. through 4:00 p.m., Monday through Friday.~~ The Contractor will not be permitted to work on Saturday, Sunday or legal holidays unless otherwise authorized by the Contracting Officer. The exclusion of work on Saturday, Sunday and legal holidays has been considered in computing the performance time of this contract. The following legal holidays are observed:

January 1st
Third Monday in January
Third Monday in February
Last Monday of May
July 4th
1st Monday of September
2nd Monday of October
11th of November
Fourth Thursday of November
25th of December

When one of the above designated legal holidays falls on a Sunday, the following Monday will be observed as a legal holiday. When a legal holiday falls on a Saturday, the preceding Friday is observed as a holiday.

Work outside the normal hours of operation requires Contracting Officer approval and, in general, will only be permitted if required (and coordinated) by private property owners for water service connections and/or well abandonment work. The request to work outside the hours of operation shall be made in writing to the Contracting Officer 10 calendar days prior to such work to allow arrangements to be made by the Government. The request application shall include specific dates, hours, location, type of work to be performed, contract number and project title, and names of all individuals who will be working outside the hours of operations. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the Contracting Officer.

1.9.2 Restrictions During Annual Durham Fair

The Contractor shall be aware that special restrictions on allowed work areas and work tasks will apply during the the period five days prior to the start of, during, and one day after the completion of the Durham Fair, held annually in late September on a Thursday through Sunday. Specifically, during this annual 10 day period (Saturday before through the second following Monday), no road construction will be allowed and all roads shall be fully open for traffic flow, with equipment not restricting flow at any location. Work activities that may be allowed, subject to the Contracting Officer's approval, include; activity at the tank site and access road, Middletown pump station, and inside individual homes. Multiple deliveries of equipment or supplies will also not be allowed during this annual period.

Established dates for the Durham fair are as follows:

2018: 26 through 29 September

2019: To be determined

AMENDMENT 0001 OF SOLICITATION

1.1 CHANGES TO SPECIFICATIONS

1.1.1 Narrative Changes

1. Section 01 11 00 SUMMARY OF WORK, Subpart 1.9.1 "Hours of Operations"; in the first paragraph delete the first sentence in its entirety and insert the following in its place:

"Normal daytime work hours are from 7:00 a.m. through 4:00 p.m., Monday through Friday. The Contractor will also be permitted to work night time hours, in Durham only and on State Routes only, from 8:00 p.m. through 5:00 a.m, Monday through Friday. Work on private property and in private residences will only be allowed during the normal daytime work hours. These hours of operations are further subject to the restrictions described in Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS, Subpart 3.6 TRAFFIC PROVISIONS AND TRAFFIC CONTROL PLAN, and as described in Subpart 1.9.2 "Restrictions During Annual Durham Fair", and Subpart 1.9.3 "Restrictions in School Area" of this section of the specifications."

2019: To be determined

1.9.3 Restrictions in School Area

Contractor work in the school area involving excavation, pipe installation, paving, connection, testing, and certification activities shall only occur during the summer school break period. The school area is defined as all of Pickett Lane (Route 17 to Maiden Lane).

1.9.4 General Work Sequence

There are certain essential criteria relative to the preparation of a work sequence and time schedule which the Contractor will be required to implement and follow during the prosecution of the work. Minor variations in the sequence of the items of work as specified may be made by the Contractor, provided such variations do not conflict with critical elements of the schedule. Proposed minor variations shall be noted on the progress schedule. Variations shall be approved by the Contracting Officer prior to implementation.

1.9.4.1 Project Schedule

See Section 01 32 01 PROJECT SCHEDULE.

1.9.4.2 Two-Week Schedule of Work Activities

In addition to the scheduling and notification requirements specified elsewhere in the contract, the Contractor shall provide to the Contracting Officer a detailed schedule of work activities, which the Contractor intends to perform over the following two week period (Monday thru Friday for two weeks). The schedule of work activities shall be updated and submitted by the Contractor to the Contracting Officer on a weekly basis, by noon on every Thursday during the prosecution of work period. The schedule of work activities will be used as the basis for coordinating the Contractor's work with base activities, officials, and occupants. Failure to provide the two-week schedule of work activities may result in a stop work order being issued by the Contracting Officer. The denial of work activities due to the contractor's failure to submit the two-week schedule of work activities shall not be the basis for a government caused delay claim.

1.9.5 Organization at the Site

1.9.5.1 General

The Contractor shall employ ample personnel and sufficient equipment to accomplish the work of this contract in the least amount of time, within the prosecution period specified in SPECIAL CONTRACT REQUIREMENTS, Clause 1.

1.9.5.2 Rate of Progress

Should the Contractor fail to maintain a satisfactory rate of progress in accordance with the Contractor's approved progress schedule, the Contracting Officer may require that additional personnel and equipment be placed on the work and weekend and overtime work be performed, in order that the work be brought up to schedule and maintained.

1.10 CONTRACTOR'S USE OF FACILITIES AND HAULING ROUTES

The Contractor shall be responsible for the following:

(1) Determining the trucking and hauling routes and associated restrictions to and from the work, to include the coordination for the use of such routes with local, State, and Federal authorities.

(3) Complying with all local, State, and Federal regulations and restrictions when using any facilities or hauling routes.

1.11 CONTRACTOR USE OF PREMISES

1.11.1 Access to the Site

Access to the project site is available for construction traffic. The Contractor is responsible for maintaining access necessary for its equipment, material, and plant to and from the work area.

1.11.2 Temporary Facilities and Utilities, and Storage Areas

The Contractor shall conform to Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS regarding temporary facilities, temporary utilities, and storage areas. Confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

1.11.3 Work Limits

Work shall be restricted to the limits of work as shown on the contract drawings, to storage areas as indicated in Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS, and as indicated by the Contracting Officer.

Do not disturb portions of the Project site beyond areas in which the Work is indicated. Work in roadways is limited to public right of ways unless otherwise indicate.

Work on private property is limited to building exteriors unless private plumbing work is required inside basements. All work on private property is limited to the written access agreement provided and as coordinated with the Private Property Owner and Occupant.

1.11.4 Work Restrictions

Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

2. All work on private property to be pre-scheduled with the Private Property Owner and Contracting Officer.

1.11.5 Occupying Private Land

The Contractor shall confirm with the Contracting Officer that access has

been obtained before entering private property. When working on private property, the Contractor's personnel shall wear corporate identification tags

1.11.6 Protection and Security

a. Protection to Contractor personnel or their equipment cannot be provided at the worksite by the Government.

b. The Contractor shall protect all its personnel, Government personnel, and the general public from injury.

c. The Contractor shall conduct all its work so as to prevent injury or unsafe conditions during construction.

1.11.7 Work By Other Contractors

During the performance period of this contract, no other work is anticipated to occur by other contractors.

1.11.8 Emergency Contacts

The Contractor shall provide a list of emergency contacts in the event of an emergency. The list shall include the contact names, addresses, and telephone numbers. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

1.11.9 Damaged Property

Work shall proceed in a manner which will minimize disturbance or risk of damage to structures and surrounding lands. The Contractor shall repair such items damaged in the course of carrying out the work at no additional cost to the Government. All repairs shall match similar existing items in all aspects. All replacements shall be in kind.

1.11.10 Contractor's Receipt of Supplies

The Contractor shall be responsible for all arrangements for the receipt of materials and supplies at the job site. Government personnel are not permitted to receive or sign for items delivered to the site.

1.11.11 Daily Clean Up

The Contractor shall at all times keep rubbish from entering surrounding lands and water. Rubbish accumulated at the temporary facilities shall be removed from the premises daily.

1.11.12 Government Sanitary Facilities

Toilet facilities are not available on site for Contractor's use. The Contractor shall provide portable toilets for its personnel and subcontractors as specified in Section 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS.

1.11.13 Existing Utility Interruptions

Do not interrupt utilities serving facilities occupied by the Municipalities (Town of Durham/Middletown) or others unless permitted under the following conditions and then only after providing temporary utility

services according to requirements indicated:

1. Notify Contracting Officer not less than five working days days in advance of proposed utility interruptions.

2. Obtain Contracting Officer's written permission before proceeding with utility interruptions.

The Contractor shall confirm with the Contracting Officer that access has been obtained before entering private property. When working on private property, the Contractor's personnel shall wear corporate identification tags.

1.11.14 Contractor Employee Identification

Provide corporate identification tags (i.e., company name and logo) for Contractor personnel working on Private Property. The Contractor’s personnel shall provide Access Consent Form and wear corporate identification tags at all times.

1.11.15 Pipe Locations

A. Exterior pipelines will be located substantially as indicated on the contract drawings, but the right is reserved to the Owner, acting through the Contracting Officer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the contract drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

B. Small interior piping is indicated diagrammatically on the contract drawings, and the exact location is to be determined in the field. Piping shall be arranged in a neat, compact, and workmanlike manner, with a minimum of crossing and interlacing, so as not to interfere with equipment or access ways, and, in general, without diagonal runs.

1.11.16 Dimensions of Existing Structures

The Contractor shall verify the dimensions and locations of existing structures in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

1.11.17 Open Excavations

All open excavations shall be adequately safeguarded by providing temporary barricades, fencing, caution signs, lights, and other means to prevent accidents to persons and damage to property, and in accordance with applicable occupational health and safety regulations. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Contracting Officer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Contracting Officer may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street, and requiring that the trench shall not remain open overnight.

The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be well lighted at night.

1.11.18 Test Pits

Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor at the direction of the Contracting Officer. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Contracting Officer.

1.11.19 Interference with and Protection of Streets

The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefor from the proper authorities. If any street, road, or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.

Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.

The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments in writing, with a copy to the Contracting Officer, if the closure of a street or road is necessary. The Contractor shall cooperate with the Local Officials and/or State Police as required in the establishment of alternate routes and shall provide adequate detour signs plainly marked, and well lighted, in order to minimize confusion.

1.12 PROGRESS REPORTS AND PROGRESS PHOTOGRAPHS

The Contractor shall produce and submit a written biweekly progress report, including progress photographs, to document, organize, and summarize the construction progress made during the previous two week period. The report shall include a narrative describing all work completed during the previous two weeks. Photographs, a minimum size of 3-inches by 5-inches, shall accompany the narrative in sufficient quantity to document all significant work items. The reports shall also incude a narrative of work planned to be completed during the next two week work period. The narrative of planned work shall be coordinated with the two week look ahead schedule. Areas outside of the limits of work which are subject to possible impact by the Contractor's operations during the following two weeks, or which may be subject to damages from other future Contractor activities, shall also be photo-documented by the report. The written narrative, together with the photographs, shall constitute a recurring "Progress Report", which shall be submitted to the Contracting Officer for approval.

1.13 CARE AND PROTECTION OF PROPERTY

The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such

property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Contracting Officer.

1.14 INTERFERENCE WITH EXISTING WORKS

A. The Contractor shall at all times conduct his operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Contracting Officer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the existing facilities for the shortest possible time when the demands best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.

B. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to meet the above requirements.

1.15 MAINTAINING FLOWS

The Contractor shall at his own cost, provide all the flow of drains and water courses interrupted during the progress of the work, and shall immediately cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Contracting Officer well in advance of the interruption of any flow.

1.16 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the contract drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.

B. The Contractor shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.

C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract.

D. If, in the opinion of the Contracting Officer, permanent relocation of a utility is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid at the Contract unit prices, if

applicable, or as extra work under Article 11 of the Supplementary Conditions. If relocation of a privately owned utility is required, the Contracting Offcier will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Contracting Officer and Utility, and shall have no claim for delay due to such relocation. The Contractor shall notify all utility companies in writing at least 72 hours (excluding Saturdays, Sundays, and Legal holidays) before excavating in any public way. Contractor shall also notify Dig Safe, 800-922-4455 at least 72 hours prior to start of work.

E. The Contractor shall coordinate the removal and replacement of traffic loops and signals, if required for the performance of the work, at no additional cost to the Government.

1.17 INSPECTION OF WORK AWAY FROM THE SITE

If work to be done away from the construction site is to be inspected on behalf of the Contracting Officer during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Contracting Officer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Contracting Officer in ample time so that the necessary arrangements for the inspection can be made.

1.18 COOPERATION WITHIN THIS CONTRACT

A. All firms or persons authorized to perform any work under this Contract shall cooperate with General Contractor and his Subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.

B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or recommended by the Contracting Officer.

1.19 CLEANUP AND DISPOSAL OF EXCESS MATERIAL

A. During the course of the work, the Contractor shall keep the site of his operations in as clean and as neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

B. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable Federal, State, and local laws, and regulations concerning waste material disposal, as well as the specific requirements stated in this Section and elsewhere in the Specifications.

C. The Contractor is advised that the disposal of excess excavated material in wetlands, stream corridors, and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. Therefore, the Contractor will be required to remove the fill at

his own expense and restore the area impacted.

1.20 LOCATION OF UNDERGROUND FACILITIES

Obtain necessary digging permits prior to start of excavation. Verify the elevations and horizontal location of existing piping, utilities, and any type of underground obstruction in locations to be impacted by the construction work of this project, using test pits where necessary. Verify elevations before installing new work.

1.20.1 Notification Prior to Excavation

For excavation work in Connecticut, call "Caal-Before-You-Dig" at 1-800-922-4455. Notification shall not be earlier than 30 days prior, nor later than 3 days prior, to the planned excavation.

1.21 BURIED UTILITY WARNING AND IDENTIFICATION TAPE

Provide warning tape manufactured specifically for warning and identification of buried piping.Provide tape in rolls, 6 inches minimum width, color coded for the utility involved with warning and identification imprinted in bold black letters continuously and repeatedly over entire tape length. Warning and identification shall be CAUTION BURIED UTILITY PIPING BELOW or similar language. Use permanent code and letter coloring unaffected by moisture and other substances contained in trench backfill material. Bury tape with the printed side up at a depth as indicated in the contract drawings.

1.22 PROTECTION AGAINST ELECTROLYSIS

Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other acceptable materials.

1.23 CULTURAL RESOURCES

Compliance with the requirements of the National Historic Preservation Act (NHPA) and the Connecticut State Historic Preservation Office (SHPO).

1. During the life of this contract, the Contractor is herewith required to immediately notify the Contracting Officer 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.

2. No further Work may proceed in the area in question until the EPA determines that the Work is not reasonably expected to adversely affect the discovered Cultural Resources.

See Section 01 57 20 ENVIRONMENTAL PROTECTION for additional requirements.

1.24 MISCELLANEOUS PROVISIONS

1.24.1 Green Remediation

The Contractor shall incorporate EPA Green Remediation practices whenever practical, in accordance with:

http://www2.epa.gov/superfund/superfund-green-remediation
The Contractor shall identify and submit the Green Remediation practices to be used during completion of the work.

1.25 EPA OFF-SITE RULE

A. Section 121(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) applies to any CERCLA response action involving the off-site transfer of any hazardous substance, pollutant or contaminant (CERCLA wastes). That section requires that CERCLA wastes may only be placed in a facility operating in compliance with the Resource Conservation and Recovery Act (RCRA) or other applicable Federal or State requirements. That section further prohibits the transfer of CERCLA wastes to a land disposal facility that is releasing contaminants into the environment, and requires that any releases from other waste management units must be controlled. These principles are interpreted in the Off-Site Rule (OSR), set forth in the National Contingency Plan (NCP), at 40 CFR 300.440. The purpose of the OSR is to avoid having CERCLA wastes from response actions authorized or funded under CERCLA contribute to present or future environmental problems by directing these wastes to management units determined to be environmentally sound (preamble to final OSR, 58 FR 49200, 49201, Sept. 22, 1993).

B. The OSR establishes the criteria and procedures for determining whether facilities are acceptable for the receipt of CERCLA wastes from response actions authorized or funded under CERCLA. The OSR establishes compliance criteria and release criteria, and establishes a process for determining whether facilities are acceptable based on those criteria. The OSR also establishes procedures for notification of unacceptability, reconsideration of unacceptability determinations, and re-evaluation of unacceptability determinations.

C. Contractor may ship hazardous substances, pollutants, and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Contractor will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if contractor obtain a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). All requests shall be made using the EPA Off-Site Compliance Request Form, included as Attachment 3.

D. Contractor may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide notice to the appropriate state environmental official in the receiving facility’s state and to the EPA. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments does not exceed 10 cubic yards. The notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Contractor also shall notify the state environmental official referenced above and the EPA of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Contractor shall provide the notice to EPA at least 60 days prior to the date when Waste Material is scheduled to be shipped.

E. Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, EPA’s Guide to

Management of Investigation Derived Waste, OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the Durham Meadows Record of Decision. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 CFR § 261.4(e) shipped off-site for treatability studies, are not subject to 40 C.F.R. § 300.440.

F. The property at 201/203 Main Street in Durham, Connecticut, as designated on the drawings, shall be considered the Site, for the purpose of this Contract.

1.26 QUALITY ASSURANCE

a. All items of work not addressed in the contract documents shall be completed in strict accordance with the manufacturers' specifications.

b. The Government is not obligated to inspect the Contractor's work, or to protect the Contractor from the consequences of its work. Government inspections are a general examination of the Contractor's conduct and workmanship and are solely for the purpose of the Government. Government-designated Quality Assurance Representatives (QARs) do not have the authority to accept work, nor is a Government inspection to be construed as conclusive.

c. Government agents including QARs and project engineers are not authorized to change the contract without the written approval of the Contracting Officer; this lack of authority extends to all situations in which the action of these agents could be construed as constituting a change.

d. The quality of workmanship is subject to audit by Government or Government-designated QARs at any time during the contract. The Contractor shall cooperate fully and provide all information necessary for this audit.

e. The Contractor shall submit all requests for changes in writing to the Contracting Officer. Do not proceed with changes without possession of written authorization of the Contracting Officer.

f. The Contractor shall not conceal any work unless the Contracting Officer has approved all items of work which are to be concealed. The Contractor shall notify the Contracting Officer of its intention to conceal work at least 24 hours in advance of concealment.

1.27 CERTIFICATION

Upon completion of all work, including construction and testing, the Contractor shall prepare the CT DPH Certificate of Completed Water or Treatment Works Construction/Installation letter for signature of the Administrative Official of the Public Water System, along with all required documentation. The form letter for certification may be found on the CT DPH website at:

http://www.ct.gov/dph/cwp/view.asp?a=3139&q=387316#CertificationLetter

1.28 GENERAL SAFETY REQUIREMENTS

1.28.1 General

The Contractor shall take all necessary precautions in observing safety

regulations in accordance with Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS, and shall assume the responsibility to guard against causing of fires and/or explosions and to protect Government property. The Contractor shall perform the work in a manner consistent with security and with fire safety regulations especially with regards to ingress and egress. Temporary closures shall not compromise life safety, security or fire safety.

1.28.2 Contractor's Project Superintendent

The Contractor's project superintendent shall take an active role in enforcing the safety requirements by participation in safety conferences, hazard analysis, tool box meetings, walk-through inspections, correction of violations, etc., and including that of any subcontractor's work.

1.29 ENVIRONMENTAL PROTECTION

To provide for control of all environmental pollution arising from construction activities, the Contractor and its subcontractors, in the performance of this contract, shall comply with Section 01 57 20 ENVIRONMENTAL PROTECTION, and all applicable federal, state, and local laws and regulations concerning environmental protection pollution control and abatement.

1.30 PRECONSTRUCTION CONFERENCE

The Contracting Officer will conduct a preconstruction conference with key Contractor personnel. The purpose of the conference is to review contract requirements and to establish a working relationship between the Contractor's Staff and the U.S. Army Corps of Engineers personnel who will be closely associated with the project. During the conference, the Contracting Officer will inform the Contractor concerning Job Safety, Quality Control, Labor Relations, and Environmental Protection. The Contractor's Superintendent, Quality Control Representative, and Site Safety and Health Officer (SSHO) shall attend this conference.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01 20 00

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SECTION 01 20 00

PROJECT MEETINGS

PART 1 TITLE

1.1 COORDINATION

A. General Contractor shall establish on-site lines of authority and communications.

1. Schedule and conduct progress meetings.

2. Establish procedures for intra-Project communications.

a. Submittals.

b. Reports and records.

c. Recommendations.

d. Coordination drawings.

e. Schedules.

f. Resolution of conflicts.

3. Interpret Contract Documents.

a. Consult with Contracting Officer to obtain interpretation, as required.

b. Assist in resolution of questions or conflicts which may arise.

c. Forward written interpretations to other Contractors, and to other concerned parties.

4. Assist in obtaining permits and approvals.

a. Building permits and special permits required for Work or temporary facilities.

b. Verify Contractors and Subcontractors have obtained inspections for Work and temporary facilities.

5. Control use of site.

a. Supervise field engineering and site layout.

b. Allocate space for each prime Contractor’s use for field offices, sheds, and Work and storage areas.

c. Allocate field office and storage space, and Work and storage areas, for use of each prime Contractor.

d. Establish access, traffic, and parking allocations and regulations.

e. Monitor use of site during construction

1.2 SUMMARY

A. Contractor shall schedule and administer progress meetings with their own staff and/or other contractors, construction foremen's meetings, and specially called meetings with these parties throughout progress of Work. Contractor shall:

1. Prepare agenda for meetings.

2. Distribute written notice of specially called meetings minimum of one working
day(s) in advance of meeting date.

3. Make physical arrangements for meetings.

4. Preside at meetings.

5. Record minutes; include significant proceedings and decisions.

6. Prepare formal minutes and distribute within 2 working days after each meeting to the following:

a. Meeting participants.

b. Parties affected by decisions made at meeting.

c. Contracting Officer.

B. Representatives of Contractor, Subcontractors, and Suppliers attending meetings shall be qualified and authorized to act on behalf of entity each represents.

C. Contracting Officer may attend meetings.

1.3 PRECONSTRUCTION CONFERENCE

A. Contracting Offcier will schedule and conduct preconstruction conference in accordance with the Contract and this section.

B. Location: At location to be selected by Contracting Offcier.

C. Attendance.

1. Contractor's Project Manager.

2. Contractor's Resident Superintendent.

3. Contractor's "hands-on" person designated by Contractor to submit ShopDrawings to Contracting Officer.

4. Subcontractors' or suppliers' representatives Contractor may desire to invite or Contracting Officer may request.

5. Contracting Officer.

6. Local utility representatives

7. Public Liaison Officer

D. Suggested format includes, but not be limited to following:

1. Project Safety.

2. Presentation of preliminary progress schedule in accordance with the “Construction Progress Schedule” and preliminary schedule of Shop Drawing and sample submissions in accordance with Section “Submittals” of Contract Documents.

3. Check of required bonds and insurance policies prior to Notice to Proceed.

5. Liquidated damages.

6. Procedures for handling submittals such as substitutions and Shop Drawings.

7. O&M submittal procedures.

8. Training requirements.

9. Requirements for startup, and performance testing.

10. On-site witness testing by independent subconsultants and approval/regulatory agencies.

11. Direction of correspondence and coordinating responsibility.

12. Weekly and monthly progress meetings.

13. Equal opportunity requirements.

14. Laboratory and field testing requirements.

15. Provisions for inventory of material stored on-site or off-site if off-site storage is authorized.

16. Schedule of values, application for progress payment, and progress payment procedures.

17. Change Order procedures.

18. Posting of Funding Agency’s sign.

19. Contractor’s proposed Environmental Management and Erosion Control Plan.

20. Contractor’s proposed Health and Safety Plan.

21. Contractor’s proposed Quality Control Plan.

22. Coordination requirements with plant staff and ongoing operations.

23. Construction sequencing and stipulated construction and plant

operational constraints.

1.4 PROGRESS MEETINGS WITH CONTRACTING OFFICER

A. In addition to other regular project meetings for other purposes (as indicated elsewhere in the Contract Documents), hold general progress meetings with times coordinated with preparation of payment requests. Monthly meeting dates and schedule will be established by the Contracting Officer. All personnel then involved in the planning, coordination or performance of work to be represented at each meeting. Personnel from the EPA, CTDEEP, Town of Durham, and City of Middletown may participate in these regular progress meetings.

B. Suggested format includes, but not limited to following:

1. Review each entity's present and future needs including interface requirements

2. Construction sequence, coordination and shutdown requirements

3. Construction schedule and progress reporting

4. On-site witness testing by independent subconsultants and approval/regulatory agencies

5. Deliveries

6. Access

7. Site utilization

8. Temporary facilities and services

9. Hours of work

10. Safety, hazards and risks

11. Housekeeping

12. Submittals

13. Change managements (request for quotation, change directives, change orders)

14. Contract administration logs (request for information, etc.)

15. Documentation of information for payment requests

16. O&M submittal

17. Training

18. Startup, commissioning, and performance testing

19. Coordination with land ownwers and local government

20. Restricted access (driveways), utility coordination, and traffic control

C. Discuss whether each element of current work is ahead of schedule. Determine how behind-time work will be expedited and secure commitments from the entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within the Contract Time. Review everything of significance which could affect the progress of the work.

D. Within two days after each progress meeting date, the Contracting Officer will forward copies of the minutes-of-the-meeting, to the Contractor.

E. Immediately following each progress meeting where revisions to the Progress Schedule/Critical Path Schedule have been made or recognized (regardless of whether agreed to by each entity represented), revise the Schedule. Reissue revised Schedule within 10 working days after meeting.

F. At intervals matching the preparation of payment requests, revise and reissue the Schedule to show actual progress of the work in relation to the latest revision of the Schedule.

1.5 CONSTRUCTION FOREMEN'S MEETINGS

A. Schedule weekly.

B. Location: Contractor's field office.

C. Attendance.

1. Resident superintendent.

2. Subcontractor's foremen.

D. Suggested Agenda

1. Health and safety.

2. Review agenda of Work progress since previous meeting.

3. Proposed progress and schedule for succeeding Work period.

4. Field observations, problems, and conflicts.

5. Problems which affect construction schedule.

6. Coordination and shutdown requirements.

1.6 HEALTH AND SAFETY MEETINGS

A. Schedule Biweekly.

B. Location: Contractor's field office.

C. Attendance.

1. Resident superintendent.

2. Subcontractor's foremen.

3. Contractor’s Health and Safety Manager

4. Contracting Officer's Health and Safety Representative

5. Contracting Officer’s Health and Safety Representative

D. Suggested Agenda.

1. Health and safety statistics.

2. Review Work progress since previous meeting.

3. New staff and training requirements.

1.7 TESTING, STARTUP AND COMMISSIONING MEETINGS

Schedule in advance as provided in the project schedule and in agreement with the Contracting Officer and Owner’s representatives, and local utility representatives.

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PART 3 EXECUTION (Not Applicable)

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SECTION 01 22 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-05 Design Data

Quantity Surveys

Submit originals of all field notes and all other records relating to quantity surveys.

1.2 JOB PAYMENT ITEMS

Payment items for the work of this contract for which contract job payments will be made are listed in the BIDDING SCHEDULE and described below. The job price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items. Submit originals of all field notes and all other records relating to Quantity Surveys.

1.4 BIDDING SCHEDULE - PAYMENT ITEMS

Payment items for the work of this contract on which the contract progress payments will be based are listed in the BIDDING SCHEDULE and are described below. All costs for items of work, which are not specifically mentioned to be included in a particular Bidding Schedule job or unit price payment item, shall be included in the listed item most closely associated with the work involved.

Base Bid Items

a. Item Number 0001, "16-inch DI Pipe".

All costs for labor, equipment, and materials for 16-inch DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

b. Item Number 0002, "12-inch DI Pipe".

All costs for labor, equipment, and materials for 12-inch DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

c. Item Number 0003, "8-inch DI Pipe".

All costs for labor, equipment, and materials for 8-inch DI pipe, as shown on the contract drawings and in accordance with the

specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

d. Item Number 0004, "20-inch Restrained Joint DI Pipe".

All costs for labor, equipment, and materials for 20-inch restrained joint DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

e. Item Number 0005, "16-inch Restrained Joint DI Pipe".

All costs for labor, equipment, and materials for 16-inch restrained joint DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and

accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

f. Item Number 0006, "12-inch Restrained Joint DI Pipe".

All costs for labor, equipment, and materials for 12-inch restrained joint DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

g. Item Number 0007, "8-inch Restrained Joint DI Pipe".

All costs for labor, equipment, and materials for 8-inch restrained joint DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be

measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

h. Item Number 0008, "6-inch Restrained Joint DI Pipe".

All costs for labor, equipment, and materials for 6-inch restrained joint DI pipe, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

i. Item Number 0009, "4 inch DI Pipe for School Services".

All costs for labor, equipment, and materials for 4 inch DI pipe for school services, as shown on the contract drawings and in accordance with the specifications. The length of pipe under this item shall be measured by the linear foot along the centerline of the completed pipe, including all fittings, bends and appurtenances installed, tested and accepted, and not specifically included for payment under other items. No deductions will be made for bends, fittings, couplings, sleeves, or valves. Cut and uncut lengths of pipe not installed will not be measured or included for payment. Measurement of water main used for lateral connections shall be from the centerline of tees or tapping sleeves to the centerline of tees or tapping sleeves. Water main used

for hydrant branches shall be paid for under the hydrant assembly. The unit price for this item shall constitute full compensation for furnishing and installing the piping including but not limited to pipe, all associated fittings, joint restraints, ~~saw cutting~~, excavation, removal and legal disposal of existing bituminous and/or cement concrete and/or reinforced concrete pavement, dewatering, bedding, geotextile, backfill, temporary pavement or surface restoration, connections to existing piping, appurtenances, testing, all work required for a complete and functional installation, as indicated on the drawings and as specified including all work incidental thereto and not specifically included for payment under other items. Amendment 5

Unit of Measure: Linear Foot (LF).

j. Item Number 0010, "16" x 16" x 16" Tee".

All costs for labor, equipment, and materials for 16" x 16" x 16" tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

k. Item Number 0011, "16" x 16" x 12" Tee".

All costs for labor, equipment, and materials for 16" x 16" x 12" tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

l. Item Number 0012, "16" x 16" x 8" Tee".

All costs for labor, equipment, and materials for 16" x 16" x 8" tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

m. Item Number 0013, "16" x 16" x 8" x 8" Cross".

All costs for labor, equipment, and materials for a 16" x 16" x 8" x 8" Cross, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

n. Item Number 0014, "12″ x 12″ x 12″ Tee".

All costs for labor, equipment, and materials for 12″ x 12″ x 12″ tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

o. Item Number 0015, "12″ x 12″ x 8″ Tee".

All costs for labor, equipment, and materials for 12″ x 12″ x 8″ tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

p. Item Number 0016, "12″ x 12″ x 4″ Tee".

All costs for labor, equipment, and materials for 12″ x 12″ x 4″ tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

q. Item Number 0017, "12″ x 8″ Wye".

All costs for labor, equipment, and materials for a 12″ x 8″ wye, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

r. Item Number 0018, "8″ x 8″ x 8″ Tee".

All costs for labor, equipment, and materials for 8″ x 8″ x 8″ tees, as shown on the contract drawings and in accordance with the specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

s. Item Number 0019, "4″ x 4″ x 4″ Tee".

All costs for labor, equipment, and materials for 4″ x 4″ x 4″ tees, as shown on the contract drawings and in accordance with the

specifications. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

t. Item Number 0020, "20" Butterfly Valve".

All costs for labor, equipment, and materials for a 20" butterfly valve, as shown on the contract drawings and in accordance with the specifications. Includes but not limited to, valve interconnections, estrained joints, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

u. Item Number 0021, "16" Butterfly Valve".

All costs for labor, equipment, and materials for 16" butterfly valves, as shown on the contract drawings and in accordance with the specifications. Includes but not limited to, valve interconnections, restrained joints, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

v. Item Number 0022, "12" Gate Valve".

All costs for labor, equipment, and materials for 12" gate valves, as shown on the contract drawings and in accordance with the specifications. Includes but not limited to, valve interconnections, restrained joints, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

w. Item Number 0023, "8" Gate Valve".

All costs for labor, equipment, and materials for 8" gate valves, as shown on the contract drawings and in accordance with the specifications. Includes but not limited to, valve interconnections, restrained joints, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

x. Item Number 0024, "6″ Gate Valve".

All costs for labor, equipment, and materials for a 6″ gate valve, as shown on the contract drawings and in accordance with the specifications. Includes but not limited to, valve interconnections, restrained joints, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

y. Item Number 0025, "4″ Gate Valve".

All costs for labor, equipment, and materials for a 4″ gate valve, as shown on the contract drawings and in accordance with the specifications. Includes but not limited to, valve interconnections, restrained joints, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing. The unit prices for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

z. Item Number 0026, "Fire Hydrant Assembly".

All costs for labor, equipment, and materials for fire hydrant assemblies, as shown on the contract drawings and in accordance with the specifications. The price bid for the Fire Hydrant shall be furnished and installed as specified, including but not limited to excavation and backfill, thrust restraint, valve interconnections, restrained joints and piping, tee and valves, glands, gaskets, thrust blocks, valve boxes, appurtenances, and testing, painting and all other work incidental thereto, and not specifically included for payment under other items. The unit price for this item shall not include payment for items related to excavation which are paid under other items.

Unit of Measure: Each (EA).

aa. Item Number 0027, "Manual Drain Assembly".

All costs for labor, equipment, and materials for a manual drain assembly, as shown on the contract drawings and in accordance with the specifications. The price bid for the Manual Drain Assembly shall be furnished and installed as specified, including but not limited to excavation and backfill, thrust restraint, valve interconnections, restrained joints and piping, tee and valves, glands, gaskets, thrust blocks, valve boxes, precast concrete manhole, appurtenances, and testing, painting and all other work incidental thereto, and not specifically included for payment under other items. The unit price for this item shall not include payment for items related to excavation which are paid under other items

Unit of Measure: Each (EA).

bb. Item Number 0028, "Water Service 1-inch Corporations".

All costs for labor, equipment, and materials for water service 1-inch corporations, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

cc. Item Number 0029, "Water Service 1.5-inch Corporations".

All costs for labor, equipment, and materials for water service 1.5-inch corporations, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

dd. Item Number 0030, "Water Service 2-inch Corporations".

All costs for labor, equipment, and materials for water service 2-inch corporations, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

ee. Item Number 0031, "Water Service 1-inch Curb Stops".

All costs for labor, equipment, and materials for water service 1-inch curb stops, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

ff. Item Number 0032, "Water Service 1.5-inch Curb Stops".

All costs for labor, equipment, and materials for water service 1.5-inch curb stops, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

gg. Item Number 0033, "Water Service 2-inch Curb Stops".

All costs for labor, equipment, and materials for water service 2-inch curb stops, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

hh. Item Number 0034, "Water Service 1-inch Copper Pipe".

All costs for labor, equipment, and materials for water service 1-inch copper pipe, as shown on the contract drawings and in accordance with

the specifications.

Unit of Measure: Linear Feet (LF).

ii. Item Number 0035, "Water Service 1.5-inch Copper Pipe".

All costs for labor, equipment, and materials for water service 1.5-inch copper pipe, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Linear Feet (LF).

jj. Item Number 0036, "Water Service 2-inch Copper Pipe".

All costs for labor, equipment, and materials for water service 2-inch copper pipe, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Linear Feet (LF).

kk. Item Number 0037, "External Water Service Meter Pits".

All costs for labor, equipment, and materials for external water service meter pits, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

ll. Item Number 0038, "Special 4-inch Water Service Meter Pits".

All costs for labor, equipment, and materials for special 4-inch water service meter pits, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

mm. Item Number 0039, "External Backflow Preventer".

All costs for labor, equipment, and materials for external backflow preventers, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

nn. Item Number 0040, "Water Service Installation by Soil Piercing Method Under Sidewalks".

All costs for labor, equipment, and materials for Water Service Installation by soil piercing method under sidewalks, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Linear Feet (LF).

oo. Item Number 0041, "Plumbing Work Required to Complete New Water Service Installation to Building Cold Water Feed Plumbing".

All costs for labor, equipment, and materials for plumbing work required to complete new water service installation to building cold water feed plumbing, as shown on the contract drawings and in accordance with the specifications.

Unit of Measure: Each (EA).

pp. Item Number 0042, "Decommissioning of Water Supply Wells".

All costs for labor, equipment, and materials for decommissioning of water supply wells, as shown on the contract drawings and in accordance with the specifications. The work of this section includes the furnishing of all labor, tools, materials, equipment and performing all operations in connection with the abandoning and decommissioning of private supply wells in accordance with State and Local regulations; including disinfecting and plugging the well, treatment of the displaced well water, removal of the hydropneumatic tank and related piping, and site restoration complete as specified including all work incidental thereto and not specifically included for payment under other items. The Contractor or Subcontractor who performs the Work shall be certified to complete the work in the State of Connecticut. The Contractor must gain an access agreement with the property owner before working on private property as approved by the Contracting Officer. The decommissioning Work cannot be performed until the new water service to the watermain has been completed, tested, and approved by the Contracting Officer. Decommissioning of private water supply wells shall be measured based on the actual number completed, as specified herein, regardless of depth, as approved by the Contracting Officer. Well water displaced to be treated as specified will not be measured and shall be included in the decommissioning unit price for each well. Decommissioning of wells includes three to be converted to monitoring wells (Bid Item ~~0039~~ 0043 Amendment 5).

Unit of Measure: Each (EA).

qq. Item Number 0043, "Conversion of Water Supply Wells to Monitoring Wells".

All costs for labor, equipment, and materials for conversion of water supply wells to monitoring wells, as shown on the contract drawings and in accordance with the specifications. Conversion of water supply wells to monitoring wells includes three private wells and one well at the Durham Fairgrounds.

Unit of Measure: Each (EA).

rr. Item Number 0044, "Decommissioning of Durham Fairground Wells".

All costs for labor, equipment, and materials for decommissioning of Durham Fairground wells, as shown on the contract drawings and in accordance with the specifications. The work of this section includes the furnishing of all labor, tools, materials, equipment and performing

all operations in connection with the abandoning and decommissioning of Durham Center Wells in accordance with State and Local regulations; including disinfecting and plugging the well, treatment of the displaced well water, removal of the hydropneumatic tank and related piping, and site restoration complete as specified including all work incidental thereto and not specifically included for payment under other items. The Contractor or Subcontractor who performs the Work shall be certified to complete the work in the State of Connecticut. The Contractor must gain an access agreement with the property owner before working on private property as approved by the Contracting Officer. The decommissioning Work cannot be performed until the new water service to the watermain has been completed, tested, and approved by the Contracting Officer. Well water displaced to be treated as specified will not be measured and shall be included in the decommissioning unit price for each well. Decommissioning of Durham Fairground wells includes one to be fully abandoned (this Bid Item) and one to be converted to a monitoring well (Bid Item 0039).

Unit of Measure: Job.

ss. Item Number 0045, "Removal and Disposal of Treatment Units".

All costs for labor, equipment, and materials for removal and disposal of treatment units, as shown on the contract drawings and in accordance with the specifications..

Unit of Measure: Each (EA).

tt. Item Number 0046, "Stream Crossing, STA 904+50 to STA 905+50".

All costs for labor, equipment, and materials for a Stream Crossing, STA STA 904+50 to STA 905+50, as shown on the contract drawings and in accordance with the specifications. For constructing the 36-in steel casing pipe and 12-in DI water main piping as specified and indicated on the drawings including but not limited to; all labor, equipment, tools and materials necessary to complete the work performed by the Contractor and its Subcontractor(s) for the installation of the casing pipe and watermain including all fittings, excavation, backfill and compaction, legal disposal of excess materials, casing spacers, sand fill, bulkheads, temporary structures, site restoration and all other incidental work relative thereto and not specifically included for payment under other items.

Unit of Measure: Job.

uu. Item Number 0047, "Stream Crossing, STA 509+20 to STA 512+00".

All costs for labor, equipment, and materials for a Stream Crossing, STA 509+20 to STA 512+00, as shown on the contract drawings and in accordance with the specifications. For constructing the 36-in steel casing pipe and 12-in DI water main piping as specified and indicated on the drawings including but not limited to; all labor, equipment, tools and materials necessary to complete the work performed by the Contractor and its Subcontractor(s) for the installation of the casing pipe and watermain including all fittings, excavation, backfill and compaction, legal disposal of excess materials, casing spacers, sand

fill, bulkheads, temporary structures, site restoration and all other incidental work relative thereto and not specifically included for payment under other items.

Unit of Measure: Job.

vv. Item Number 0048, "Stream Crossing, STA 410+50 to STA 412+00".

All costs for labor, equipment, and materials for a Stream Crossing, STA 410+50 to STA 412+00, as shown on the contract drawings and in accordance with the specifications. For constructing the 36-in steel casing pipe and 12-in DI water main piping as specified and indicated on the drawings including but not limited to; all labor, equipment, tools and materials necessary to complete the work performed by the Contractor and its Subcontractor(s) for the installation of the casing pipe and watermain including all fittings, excavation, backfill and compaction, legal disposal of excess materials, casing spacers, sand fill, bulkheads, temporary structures, site restoration and all other incidental work relative thereto and not specifically included for payment under other items.

Unit of Measure: Job.

ww. Item Number 0049, "Long Hill Pump Station Modifications".

All costs for labor, equipment, and materials for Long Hill Pump Station modifications, as shown on the contract drawings and in accordance with the specifications. For the improvements to Long Hill Pump Station, complete the Work, as specified, and as indicated on the drawings including but not limited to; all labor, equipment, tools and materials necessary to complete the work performed by the Contractor and its Subcontractor(s) for select demolition, the delivery and installation of new equipment including VFDs, chlorination feed system, legal disposal of materials, site restoration, and all other incidental work relative thereto and not specifically included for payment under other items. Payment for System Programmer charges shall be made at 100 percent of the actual charges paid by the Contractor based on invoice receipts.

Unit of Measure: Job.

xx. Item Number 0050, "Meter Vault at Main Street, STA 125+60+/-".

All costs for labor, equipment, and materials for a Meter Vault at Main Street, STA 125+60+/-, as shown on the contract drawings and in accordance with the specifications. For the delivery and installation of the precast structure, installation and testing of metering equipment and water main and fittings; including excavation, backfill and compaction, legal disposal of excess materials, site restoration, new driveway and metal beam rail installation, electrical work and all other incidental work relative thereto and not specifically included for payment under other items.

Unit of Measure: Job.

yy. Item Number 0051, "PRV Vault at Main Street, STA 163+50+/-".

All costs for labor, equipment, and materials for a PRV Vault at Main Street, STA 163+50+/-, as shown on the contract drawings and in accordance with the specifications. For the delivery and installation of the precast structure, installation and testing of pressure relief valve, watermain and all fittings; including excavation, backfill and compaction, legal disposal of excess materials, site restoration, electrical work and all other incidental work relative thereto and not specifically included for payment under other items. Payment for electric utility charges shall be made at 100 percent of the actual charges paid by the Contractor based on invoice receipts

Unit of Measure: Job.

zz. Item Number 0052, "Excavation and Backfill of Test Pits".

All costs for labor, equipment, and materials for excavation and backfill of test pits, as shown on the contract drawings and in accordance with the specifications. The quantity of earth excavation and backfill above normal depth to be paid for under this item shall be the number of cubic yards excavated and backfilled, measured to the extent of the work done as ordered by the Contracting Officer for test pits.

Unit of Measure: Cubic Yard (CD).

aaa. Item Number 0053, "Excavation of Earth Material Outside of Standard Trench Limits".

All costs for labor, equipment, and materials for excavation of earth material outside of standard trench limits, as shown on the contract drawings and in accordance with the specifications. The quantity of earth excavation below normal depth (limit of normal excavation) to be included for payment under this item shall be the number of cubic yards of unsuitable material excavated, measured to the depths and lengths ordered, and to the width between payment limits for normal excavation as indicated on the drawings. No payment will be made for replacement of unsuitable material above trench grade when suitable excess excavated material is available from other excavations made under this Project.

Unit of Measure: Cubic Yard (CD).

bbb. Item Number 0054, "Rock and/or Boulder Excavation Including Replacement With Suitable Fill Material".

All costs for labor, equipment, and materials for rock and/or boulder excavation including replacement with suitable fill material, as shown on the contract drawings and in accordance with the specifications. Where rock is encountered, it shall be uncovered but not excavated until measurements have been made by the Contracting Officer, unless in the opinion of the Engineer, satisfactory measurements can be made in some other manner.

The quantity of rock to be paid for under this item shall be the number

of cubic yards of rock, measured in place before excavation, within the payment limits indicated on the drawings and as defined in this Section, unless rock excavation beyond such limits has been authorized inwriting by the Contracting Officer, in which case measurements shall be made to the authorized limits.

Excavated rock which has not been disposed of shall not be included for payment.

The bidder shall include in his bid for items involving excavation, the cost of doing the entire excavation as earth, the price for this item being intended to cover the difference between the cost of rock excavation and the cost of earth excavation. The price for this item shall be paid in addition to any payment made for earth excavation.

The unit price for this item shall constitute full compensation for rock excavation and disposal, for all necessary backfilling, and for furnishing all additional material needed for backfilling

Unit of Measure: Cubic Yard (CD).

ccc. Item Number 0055, "Bank-run Gravel".

All costs for labor, equipment, and materials for bank-run gravel, as shown on the contract drawings and in accordance with the specifications. Bank-run gravel backfill below normal depth shall be paid for under this item. The quantity of bank-run gravel backfill below normal depth to be paid for shall be the same as that number of cubic yards of earth excavation below normal depth measured for payment under the appropriate subdivision of "Miscellaneous Earth Excavation", which said gravel replaces.

Bank-run gravel ordered for backfill of trenches above normal depth shall be paid for under this item. The quantity of bank-run gravel used as backfill for trenches above normal depth shall be measured by the cubic yard to the depth and length ordered and to the width between payment limits for normal excavation as indicated on the drawings. Bank-run gravel outside the limits of normal excavation shall be furnished, placed, and compacted at the Contractor's expense, and no measurement will be made for such gravel.

Bank-run gravel ordered to be used at other locations shall be measured after compaction and paid for under this item as the number of cubic yards of gravel actually placed and compacted as specified.

Bank-run gravel used to backfill rock excavations will not be measured for payment under this item.

Unit of Measure: Cubic Yard (CD).

ddd. Item Number 0056, "Additional Screened Gravel".

All costs for labor, equipment, and materials for additional screened gravel, as shown on the contract drawings and in accordance with the specifications. Screened gravel backfill below normal depth shall be paid for under this item. The quantity of screened gravel backfill below normal depth to be paid for shall be the same as that number of

cubic yards of earth excavation below normal depth measured for payment under the appropriate subdivision of "Miscellaneous Earth Excavation", which said gravel replaces.

Additional screened gravel used for support of existing utilities or ordered to be used at other locations shall be paid for under this item. The quantity to be paid for shall be the number of cubic yards, measured in place after compaction, of additional screened gravel within the limits directed by the Contracting Officer.

Screened gravel used for bedding pipe, to backfill unauthorized excavations, for any drainage purpose, or as indicated on the drawings for work for which appropriate payment items have been provided, shall not be measured for payment under this item.

Unit of Measure: Cubic Yard (CD).

eee. Item Number 0057, "Selected Borrow".

All costs for labor, equipment, and materials for selected borrow, as shown on the contract drawings and in accordance with the specifications. Selected borrow backfill below normal depth shall be paid for under this item. The quantity of selected borrow backfill below normal depth to be paid for shall be the same as that number of cubic yards of earth excavation below normal depth measured for payment under the appropriate subdivision of "Miscellaneous Earth Excavation," which said borrow replaces.

Selected borrow ordered for backfill of trenches above normal depth shall be paid for under this item. The quantity of selected borrow used as backfill for trenches above normal depth shall be measured by the cubic yard to the depth and length ordered and to the width between payment limits for normal excavation as indicated on the drawings. Selected borrow outside the limits of normal excavation shall be furnished, placed, and compacted at the Contractor's expense, and no measurement will be made for such borrow.

Selected borrow ordered to be used at other locations shall be measured after compaction and paid for under this item as the number of cubic yards of borrow actually placed and compacted as specified.

Selected borrow used to backfill rock excavations will not be measured for payment under this item.

Unit of Measure: Cubic Yard (CD).

fff. Item Number 0058, "Removal and Disposal of Contaminated Material".

All costs for labor, equipment, and materials for removal and disposal of contaminated material, as shown on the contract drawings and in accordance with the specifications. ~~This item would be used only if contaminated materials are encountered during construction.~~ No payment will be made for materials cross contaminated by the placement of clean excavated material with contaminated excavated material. This item shall include, but not limited to, the excavation, stockpiping, covering, control of water, the pumping, temporary storage, treatment prior to discharge, analytical testing to determine disposal

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requirements, discharge, transport, disposal and any Licensed Site Professional (LSP) services associated with the work.

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This work does not include treatment of the water displaced by the decommissioning of water supply wells included under a separate bid item.

Payment shall be review of the invoices submitted by the Contractor for work by subcontractors, consultants, vendors, haulers, or disposal facilities, and detailed, itemized summaries for work completed directly by the Contractor, as reviewed and approved by the Contracting Officer.

Unit of Measure: Cubic Yard (CD).

ggg. Item Number 0059, "Miscellaneous Concrete".

All costs for labor, equipment, and materials for miscellaneous concrete, as shown on the contract drawings and in accordance with the specifications. The quantity of concrete to be measured for payment under this item shall be the number of cubic yards placed as recommended by the Contracting Officer.

No measurement shall be made under this item for concrete used as indicated on the drawings for work for which appropriate payment items have been provided or for concrete used to backfill unauthorized excavations.

Unit of Measure: Cubic Yard (CD).

hhh. Item Number 0060, "Sheeting Left in Place".

All costs for labor, equipment, and materials for sheeting left in place, as shown on the contract drawings and in accordance with the specifications. The quantity of sheeting left in place to be paid for under this item shall be that sheeting indicated on the drawings to be left in place, and not included for payment under other items, or otherwise ordered by the Contracting Officer to be left in place, and shall be measured by the square foot along vertical planes parallel to the centerline of the pipe.

The number of square feet of sheeting to be measured shall be ONLY that left in place, as specified above. No measurement shall be made for sheeting, bracing, and cofferdamming which is left in place at the option of the Contractor or which is removed from the excavation, it being understood and agreed that the compensation for all such sheeting and for cost of furnishing, placing, cutting, and removal thereof is included in the price to be paid for the items involving earth excavation for which sheeting is used.

Unit of Measure: Square Yard (SY).

iii. Item Number 0061, "~~Concrete~~ Sawcut in State Roads".

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All costs for labor, equipment, and materials for ~~concrete~~ sawcuts in State roads, as shown on the contract drawings and in accordance with

AMENDMENT 0001 OF SOLICITATION

1.1 CHANGES TO SPECIFICATIONS

2. Section 01 22 00 MEASUREMENT AND PAYMENT, Subpart 1.4 BIDDING SCHEDULE - PAYMENT ITEMS, Section fff. Item Number 0058, "Removal and Disposal of Contaminated Material"; insert the following after the first paragraph in this section:

"This Bid Item covers the removal and disposal costs of contaminated material that exists at 203R Main Street. Analytical information for soil at this location is in the Appendix to the section of the specifications entitled "Subsurface Investigation Results for the Durham Meadows Waterline RD". The extent of the contamination can be determined from the information on Sheet C-21 of the contract drawings.

If contaminated soil is discovered by the Contractor during the prosecution of the work at other locations with similar contamination to that found at 203R Main Street, this line item will cover removal and disposal of the newly discovered contaminated soil.

Should contaminated soil be discovered by the Contractor during the prosecution of the work with more extensive contamination requiring removal and disposal procedures different from that of this bid item, the Contractor will be required to satisfy the requirements for establishing a differing site condition under FAR 52.236-2 "Differing Site Conditions", in order for the Government to consider an equitable adjustment to the contract.

END OF AMENDMENT 0001

the specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Linear Feet (LF).

jjj. Item Number 0062, "Bituminous Sawcut in Town Roads".

All costs for labor, equipment, and materials for bituminous sawcuts in Town roads , as shown on the contract drawings and in accordance with the specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Linear Feet (LF).

kkk. Item Number 0063, "Road Gravel Base Course Material".

All costs for labor, equipment, and materials for road gravel base course material, as shown on the contract drawings and in accordance with the specifications. The unit price for gravel-base course shall constitute full compensation for furnishing material for gravel-base course as specified and as indicated, when so ordered by the Contracting Offcier. Placing and compacting the gravel-base course is incidental to the appropriate items involving backfill. Suitable material, as determined by the Contracting Offcier, taken from excavations made as part of the contract work and used for gravel-base course shall not be included for payment under this item.

Unit of Measure: Cubic Yard (CD).

lll. Item Number 0064, "3-inch Trench Pavement Furnished and Placed in Town Roads".

All costs for labor, equipment, and materials for 3-inch trench pavement furnished and placed in Town roads, as shown on the contract drawings and in accordance with the specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Square Yard (SY).

mmm. Item Number 0065, "6-inch Trench Pavement Furnished and Placed in State Roads".

All costs for labor, equipment, and materials for 6-inch trench pavement furnished and placed in State roads, as shown on the contract drawings and in accordance with the specifications. The unit price for trench pavement in State roadways shall constiture full compensation for furnishing and installing up to 6-inches of supplemental bituminous pavement as required to replace concrete base removed, and shall be

measured by square yard as specified and indicated. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and
State requirements.

Unit of Measure: Square Yard (SY).

nnn. Item Number 0066, "HMA S1 Bituminous Concrete to Match Existing Thickness in State Roads".

All costs for labor, equipment, and materials for HMA S1 bituminous concrete to match existing thickness in State Roads, as shown on the contract drawings and in accordance with the specifications. The unit price for HMA S1 bituminous concrete to match existing thickness shall constitute full compensation for furnishing and installing supplemtal bituminous pavement as measured and approved by the Contracting Officer. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Ton.

ooo. Item Number 0067, "2-inch Overlay Pavement Furnished and Placed in Town Roads".

All costs for labor, equipment, and materials for 2-inch overlay pavement furnished and placed in Town roads, as shown on the contract drawings and in accordance with the specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Square Yard (SY).

ppp. Item Number 0068, "Milling and 2-inch Overlay Pavement Furnished and Placed in State Roads".

All costs for labor, equipment, and materials for Milling and 2-inch overlay pavement furnished and placed in State roads, as shown on the contract drawings and in accordance with the specifications. The unit price for Milling and 2-inch overlay pavement in State raods shall include saw cutting existing pavement, milling and removal and disposal of existing pavement, installation of pavement overlay, adjusting existing structures, valve boxes, frames and covers to grade, pavement striping and crosswalk replacement, and incidental work in accordance with the Drawings and Specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Square Yard (SY).

qqq. Item Number 0069, "Driveway Apron Overlay Furnished and Placed at State Roadways".

All costs for labor, equipment, and materials for driveway apron overlay furnished and placed at State roadways, as shown on the contract drawings and in accordance with the specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Square Yard (SY).

rrr. Item Number 0070, "6-inch Bituminous Concrete Curbing".

All costs for labor, equipment, and materials for 6-inch bituminous concrete curbing, as shown on the contract drawings and in accordance with the specifications. All pavement work shall also include cooordination with the Town of Durham and the State of Connecticut Department of Transporation to ensure complete conformance with Town and State requirements.

Unit of Measure: Linear Foot (LF).

sss. Item Number 0071, "Main Street Traffic Loop Detector at Middlefield Road".

All costs for labor, equipment, and materials for a Main Street traffic loop detector at Middlefield Road, as shown on the contract drawings and in accordance with the specifications. The price bid under this item shall be constitute full compensation for furnishing, installation, and maintenance during construction of the traffic loop detectors at each state road intersectionbut not limited to sawcutting roadway, installation of wiring, coordination with traffic signals in accordance with CT DOT requirements as indicated on the drawings and as specified including all work incidental thereto.

Unit of Measure: Job.

ttt. Item Number 0072, "Main Street Traffic Loop Detector at Wallingford Road".

All costs for labor, equipment, and materials for a Main Street traffic loop detector at Wallingford Road, as shown on the contract drawings and in accordance with the specifications. The price bid under this item shall be constitute full compensation for furnishing, installation, and maintenance during construction of the traffic loop detectors at each state road intersectionbut not limited to sawcutting roadway, installation of wiring, coordination with traffic signals in accordance with CT DOT requirements as indicated on the drawings and as specified including all work incidental thereto.

Unit of Measure: Job.

uuu. Item Number 0073, "Main Street Traffic Loop Detector at Pickett Lane".

All costs for labor, equipment, and materials for a Main Street traffic loop detector at Pickett Lane, as shown on the contract drawings and in

accordance with the specifications. The price bid under this item shall be constitute full compensation for furnishing, installation, and maintenance during construction of the traffic loop detectors at each state road intersectionbut not limited to sawcutting roadway, installation of wiring, coordination with traffic signals in accordance with CT DOT requirements as indicated on the drawings and as specified including all work incidental thereto.

Unit of Measure: Job.

vvv. Item Number 0074, "Calcium Chloride, Furnished and Placed for Dust Control".

All costs for labor, equipment, and materials for placement of calcium chloride, as shown on the contract drawings and in accordance with the specifications. The quantity of calcium chloride to be paid for under this item shall be equal to the number of pounds furnished and spread to the extent ordered by the Contracting Officer.

Unit of Measure: Pound (LB).

www. Item Number 0075, "Erosion Control Silt Fence, Furnished and Placed for Dust Control".

All costs for labor, equipment, and materials for erosion control silt fence furnished and placed for dust control, as shown on the contract drawings and in accordance with the specifications. The quantity of silt fence to be paid for under this item shall be equal to the number of linear feet furnished and installed to the extent ordered by the Contracting Officer.

Unit of Measure: Linear Foot (LF).

xxx. Item Number 0076, "Uniformed Police Officers".

All costs for labor, equipment, and materials for uniformed police officers, in accordance with the specifications. The Contractor shall provide a minimum of two uniformed police officers at each active work area on public roadways. The Contractor shall also meet all State and Local traffic control requirements in accordance with FAR clause 52.236-7 "Permits and Responsibilities".

The actual amount to be paid under this item shall constitute full compensation for wages paid, premiums on Workmen's Compensation Insurance, payment of Social Security and other direct assessments on payroll, and all other costs incidental to the employment of such uniformed special officers.

Unit of Measure: Job.

yyy. Item Number 0077, "Dewatering for Water Main Installation, Furnished, Installed, Maintained and Removed".

All costs for labor, equipment, and materials for dewatering for water main installation, furnished, installed, maintained and removed, as

shown on the contract drawings and in accordance with the specifications. Work under this item includes but is not limited to design, permits, installation, operation, maintenance and removal of the dewatering system (such as but not limited to pumps, well points, and header pipes), legal disposal of all water obtained during the operation of the dewatering system and all other incidental work related thereto, not specifically included for payment under other items.

No additional payment will be made for any excavation and/or materials which are required for the installation and removal of the dewatering system.

Unit of Measure: Job.

zzz. Item Number 0078, "Dewatering for Stream Crossing at STA 904+50 to STA 905+50, Furnished, Installed, Maintained and Removed".

All costs for labor, equipment, and materials for dewatering for stream crossing at STA 904+50 to STA 905+50, furnished, installed, maintained and removed, as shown on the contract drawings and in accordance with the specifications. Work under this item includes but is not limited to design, permits, installation, operation, maintenance and removal of the dewatering system (such as but not limited to pumps, well points, and header pipes), legal disposal of all water obtained during the operation of the dewatering system and all other incidental work related thereto, not specifically included for payment under other items.

No additional payment will be made for any excavation and/or materials which are required for the installation and removal of the dewatering system.

Unit of Measure: Job.

aaaa. Item Number 0079, "Dewatering for Stream Crossing at STA 509+20 to STA 512+00, Furnished, Installed, Maintained and Removed".

All costs for labor, equipment, and materials for dewatering for stream crossing at STA 509+20 to STA 512+00, furnished, installed, maintained and removed, as shown on the contract drawings and in accordance with the specifications. Work under this item includes but is not limited to design, permits, installation, operation, maintenance and removal of the dewatering system (such as but not limited to pumps, well points, and header pipes), legal disposal of all water obtained during the operation of the dewatering system and all other incidental work related thereto, not specifically included for payment under other items.

No additional payment will be made for any excavation and/or materials which are required for the installation and removal of the dewatering system.

Unit of Measure: Job.

bbbb. Item Number 0080, "Dewatering for Stream Crossing at STA 410+50 to

STA 412+00, Furnished, Installed, Maintained and Removed".

All costs for labor, equipment, and materials for dewatering for stream crossing at STA 410+50 to STA 412+00, furnished, installed, maintained and removed, as shown on the contract drawings and in accordance with the specifications. Work under this item includes but is not limited to design, permits, installation, operation, maintenance and removal of the dewatering system (such as but not limited to pumps, well points, and header pipes), legal disposal of all water obtained during the operation of the dewatering system and all other incidental work related thereto, not specifically included for payment under other items.

No additional payment will be made for any excavation and/or materials which are required for the installation and removal of the dewatering system.

Unit of Measure: Job.

cccc. Item Number 0081, "Coordination, Permitting, Traffic Control, Site Preparation, Environmental Controls, and Turf Establishment or Other Incidental Work".

All costs for labor, equipment, and materials for coordination, permitting, traffic control, site preparation, environmental controls, and turf establishment or other incidental work not specifically included in other bid items, as shown on the contract drawings and in accordance with the specifications. Work under this item includes but is not limited to all cleaning, installation, protection and maintenance of erosion/pollution/sedimentation control measures, coordination with Call-Before-You-Dig, any required permitting, specialized bonds and insurance associated with work within state, or town roadway rights of way, private property, signage, reestablishment of turf in areas disturbed during construction, coordination with Town, State,utilities, authorities, cleaning storm drainage pipes and structures at project closeout and other tasks associated with preparation for the work under this contract which is not otherwise noted on the bid form including all work incidental thereto and not specifically included for payment under other items.

Unit of Measure: Job.

dddd. Item Number 0082, "Engineer’s Field Office, Furnished, Installed, and Removed".

All costs for labor, equipment, and materials for engineer’s field office, furnished, installed, and removed, as shown on the contract drawings and in accordance with the specifications. Payment for furnishing, installation and removal shall be in an amount of 75 percent of the lump sum bid amount for the Engineer’s Field Office based on Engineer’s approval for full installation. The remaining 25 percent (exclusive of normal contract retainage) will be made following the removal of the engineer’s Field Office from the Project.

Unit of Measure: Job.

eeee. Item Number 0083, "Engineer's Field Office, Maintained".

All costs for labor, equipment, and materials for engineer's field office, maintained, as shown on the contract drawings and in accordance with the specifications. Payment for maintaining Engineer's field office shall be on a monthly basis based on Engineer's approval.

Unit of Measure: Month (MO).

ffff. Item Number 0084, "Construct Water Treatment System, Furnished, Installed, and Removed".

All costs for labor, equipment, and materials for construction of a water treatment system, furnished, installed, and removed, as shown on the contract drawings and in accordance with the specifications. Payment for furnishing, installation and removal shall be in an amount of 75 percent of the lump sum bid amount for the Treatment System based on Contracting Officer's approval for full installation. The remaining 25 percent (exclusive of normal contract retainage) will be made following the removal of the Treatment System from the Project.

Unit of Measure: Job.

gggg. Item Number 0085, "Construct Water Treatment System, Operated and Maintained".

All costs for labor, equipment, and materials for construction of a water treatment system, operated and maintained, as shown on the contract drawings and in accordance with the specifications. Payment for maintaining Water Treatment System shall be on a monthly basis based on Contracting Officer's approval

Unit of Measure: Month (MO).

hhhh. Item Number 0086, "Construction Water Analytical Testing".

All costs for labor, equipment, and materials for construction water analytical testing, as shown on the contract drawings and in accordance with the specifications. Payment for construction water analytical testing shall be on a lump sum basis for each test as approved by the Contracting Officer.

Unit of Measure: Job.

iiii. Item Number 0087, "Water Storage Tank and Access Roadway to STA 23+00".

All costs for labor, equipment, and materials for the water storage tank and access roadway, including the associated mechanical, instrumentation and electrical work at the tank site, as shown on the contract drawings and in accordance with the specifications. For the construction of the Water Storage Tank and Access roadway on the contract drawings including the water main installation and connection to the 20-in water main at STA 23+00 in Talcott Ridge Drive. No other payment item will be used for compensation for work performed under

this item, except rock excavation and disposal and replacement of unsuitable materials which are included in other bid items.

The System Integrator identified under Division 13 shall be contracted to complete programming and integration of the new Tank and related equipment operation with the existing control system for the Middletown Water Department. This work shall be coordinated with Long Hill Pump Station Modifications and included in the job bid under Item 0046. No payment will be made for the System Programmer.

Unit of Measure: Job.

jjjj. Item Number 0088, "Booster Station and Apputenances (Sta. 750+59)".

All costs for labor, equipment, and materials for a booster station and apputenances at Station 750+59, as shown on the contract drawings and in accordance with the specifications

Unit of Measure: Job.

kkkk. Item Number 0089, "Permanent Electrical Service to Water Tank, Booster Station, Meter Station, and PRV Vault".

The electrical allowance of $20,000 specified is to pay for utility company charges to provide permanent electrical service to the water tank, booster station, meter station, and PRV vault and incidental work, and shall be included in the lump sum bid under this Item. Payment for electric company charges shall be made at 100 percent based on the actual charges paid by the Contractor based on invoice receipts.

Unit of Measure: Job.

llll. Item Number 0090, "Permanent Telephone Service to Water Tank, Booster Station, and Meter Station".

The electrical allowance of $15,000 specified is to pay for utility company charges to provide permanent telephone service to the water tank, booster station,and meter station and incidental work, and shall be included in the lump sum bid under this Item. Payment for telephone company charges shall be made at 100 percent based on the actual charges paid by the Contractor based on invoice receipts.

Unit of Measure: Job.

mmmm. Item Number 0091, "Permanent Natural Gas Service to Booster Station".

The electrical allowance of $5,000 specified is to pay for utility company charges to provide permanent natural gas service to the booster station and incidental work, and shall be included in the lump sum bid under this Item. Payment for natural gas company charges shall be made at 100 percent based on the actual charges paid by the Contractor based on invoice receipts.

Unit of Measure: Job.

nnnn. Item Number 0092, "Connecticut Water Service Company Service Connections".

The allowance of $50,000 has been established to pay for services provided by Connecticut Water Company (CWC) related to service connections in Durham including setting the meter and performing start-up. The allowance has been estimated based on a CWC price list. Measurement shall be made per the established CWC price list and approved by the Contracting Officer. Payment for CWC charges shall be made at 100 percent of the actual charges paid by the Contractor based on invoice receipts. If the total cost for such charges is greater or less than the allowance amount stated under this item in the BID, a debit or credit of the difference in cost shall be assessed to the Contract value.

Unit of Measure: Job.

oooo. Item Number 0093, "Connection Fee for Access to City of Middletown Water System".

The allowance of $140,000 has been established to pay for services related to the connection fee for access to the City of Middletown Water System. The allowance is based on a the calculated value for the meter sizes to be installed; 10 inch and 2 inch. Payment shall be made at 100 percent of the actual charges paid by the Contractor based on invoice receipts. If the total cost for such charges is greater or less than the allowance amount stated under this item in the BID, a debit or credit of the difference in cost shall be assessed to the Contract value.

Unit of Measure: Job.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01 32 01

PROJECT SCHEDULE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AACE INTERNATIONAL (AACE)

AACE 29R-03	(2011) Forensic Schedule Analysis
AACE 52R-06	(2006) Time Impact Analysis - As Applied in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1-1-11	(1995) Administration -- Progress, Schedules, and Network Analysis Systems

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Project Scheduler Qualifications; G, RO

Preliminary Project Schedule; G, RO

Initial Project Schedule; G, RO

Periodic Schedule Update; G, RO

1.3 PROJECT SCHEDULER QUALIFICATIONS

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating and production of reports. The authorized representative must have a minimum of two years experience scheduling construction projects similar in size and nature to this project with scheduling software that meets the requirements of this specification. Representative must have a comprehensive knowledge of CPM scheduling principles and application.

PART 2 PRODUCTS

2.1 SOFTWARE

The scheduling software utilized to produce and update the schedules required herein must be capable of meeting all requirements of this specification.

2.1.1 Government Default Software

The Government intends to use Primavera P6.

2.1.2 Contractor Software

Scheduling software used by the Contractor must be commercially available from the software vendor for purchase with vendor software support agreements available. The software routine used to create the required sdef file must be created and supported by the software manufacturer.

2.1.2.1 Primavera

If Primavera P6 is selected for use, provide the "xer" export file in a version of P6 importable by the Government system.

2.1.2.2 Other Than Primavera

If the contractor chooses software other than Primavera P6, that is compliant with this specification, provide for the Government's use two licenses, two computers, and training for two Government employees in the use of the software. These computers will be stand-alone and not connected to Government network. Computers and licenses will be returned at project completion.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval a Project Schedule, as specified herein, pursuant to FAR Clause 52.236-15, SCHEDULE FOR CONSTRUCTION CONTRACTS. Show in the schedule the proposed sequence to perform the work and dates contemplated for starting and completing all schedule activities. The scheduling of the entire project is required. The scheduling of construction is the responsibility of the Contractor. Contractor management personnel must actively participate in its development. Subcontractors and suppliers working on the project must also contribute in developing and maintaining an accurate Project Schedule. Provide a schedule that is a forward planning as well as a project monitoring tool. Use the Critical Path Method (CPM) of network calculation to generate all Project Schedules. Prepare each Project Schedule using the Precedence Diagram Method (PDM).

3.2 BASIS FOR PAYMENT AND COST LOADING

The schedule is the basis for determining contract earnings during each update period and therefore the amount of each progress payment. The aggregate value of all activities coded to a contract CLIN must equal the value of the CLIN.

3.2.1 Activity Cost Loading

Activity cost loading must be reasonable and without front-end loading. Provide additional documentation to demonstrate reasonableness if requested by the Contracting Officer.

3.2.2 Withholdings / Payment Rejection

Failure to meet the requirements of this specification may result in the disapproval of the preliminary, initial or periodic schedule updates and subsequent rejection of payment requests until compliance is met.

In the event that the Contracting Officer directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the Contracting Officer may withhold 10 percent of pay request amount from each payment period until such revisions to the project schedule have been made.

3.3 PROJECT SCHEDULE DETAILED REQUIREMENTS

3.3.1 Level of Detail Required

Develop the Project Schedule to the appropriate level of detail to address major milestones and to allow for satisfactory project planning and execution. Failure to develop the Project Schedule to an appropriate level of detail will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.3.2 Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities shall have Original Durations (OD) greater than 20 work days or 30 calendar days.

3.3.3 Procurement Activities

Include activities associated with the critical submittals and their approvals, procurement, fabrication, and delivery of long lead materials, equipment, fabricated assemblies, and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days.

3.3.4 Mandatory Tasks

Include the following activities/tasks in the initial project schedule and all updates.

a. Submission, review and acceptance of SD-01 Preconstruction Submittals (individual activity for each).

b. Submission, review and acceptance of features require design completion

c. Submission of mechanical/electrical/information systems layout drawings.

d. Long procurement activities

e. Submission and approval of O & M manuals.

f. Submission and approval of as-built drawings.

g. Submission and approval of DD1354 data and installed equipment lists.

h. Submission and approval of testing and air balance (TAB).

i. Submission of TAB specialist design review report.

j. Submission and approval of fire protection specialist.

k. Submission and approval of Building Commissioning Plan, test data, and reports: Develop the schedule logic associated with testing and commissioning of mechanical systems to a level of detail consistent with the contract commissioning requirements. All tasks associated with all building testing and commissioning will be completed prior to submission of building commissioning report and subsequent contract completion.

l. Air and water balancing.

m. Building commissioning - Functional Performance Testing.

n. Controls testing plan submission.

o. Controls testing.

p. Performance Verification testing.

q. Other systems testing, if required.

r. Contractor's pre-final inspection.

s. Correction of punch list from Contractor's pre-final inspection.

t. Government's pre-final inspection.

u. Correction of punch list from Government's pre-final inspection.

v. Final inspection.

3.3.5 Government Activities

Show Government and other agency activities that could impact progress. These activities include, but are not limited to: approvals, environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

3.3.6 Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11. This exact structure is mandatory. All Activity Codes shall be developed and assigned to activities as detailed herein. A template SDEF compatible schedule backup file is available on the QCS web site: http://rms.usace.army.mil.

The SDEF format is as follows:

Field	Activity Code	Length	Description
1	WRKP	3	Workers per day
2	RESP	4	Responsible party
3	AREA	4	Area of work
4	MODF	6	Modification Number
5	BIDI	6	Bid Item (CLIN)
6	PHAS	2	Phase of work
7	CATW	1	Category of work
8	FOW	20	Feature of work*
*Some systems require that FEATURE OF WORK values be placed in several activity code fields. The notation shown is for Primavera P6. Refer to the specific software guidelines with respect to the FEATURE OF WORK field requirements.			

3.3.6.1 Workers Per Day (WRKP)

Assign Workers per Day for all field construction or direct work activities, if directed by the Contracting Officer. Workers per day shall be the average number of workers expected each day to perform a task for the duration of that activity.

3.3.6.2 Responsible Party Coding (RESP)

Assign responsibility code for all activities to the Prime Contractor, Subcontractor(s) or Government agency(ies) responsible for performing the activity.

a. Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government design reviews, environmental permit approvals by State regulators, Government Furnished Property/Equipment (GFP) and Notice to Proceed (NTP) for phasing requirements.

b. Activities cannot have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for USACE).

3.3.6.3 Area of Work Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a

building, and different buildings within a complex of buildings. Activities cannot have more than one Work Area Code.

Not all activities are required to be Work Area coded. A lack of Work Area coding indicates the activity is not resource or space constrained.

3.3.6.4 Modification Number (MODF)

Assign a Modification Number Code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by Contracting Officer. Key all Code values to the Government's modification numbering system. An activity can have only one Modification Number Code.

3.3.6.5 Bid Item Coding (BIDI)

Assign a Bid Item Code to all activities using the Contract Line Item Schedule (CLIN) to which the activity belongs, even when an activity is not cost loaded. An activity can have only one BIDI Code.

3.3.6.6 Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities. Examples of phase of work are procurement phase and construction phase. Each activity can have only one Phase of Work code.

a. Code proposed fast track design and construction phases proposed to allow filtering and organizing the schedule by fast track design and construction packages.

b. If the contract specifies phasing with separately defined performance periods, identify a Phase Code to allow filtering and organizing the schedule accordingly.

3.3.6.7 Category of Work Coding (CATW)

Assign a Category of Work Code to all activities. Category of Work Codes include, but are not limited to construction submittal, procurement, fabrication, weather sensitive installation, non-weather sensitive installation, start-up, and testing activities. Each activity can have no more than one Category of Work Code.

3.3.6.8 Feature of Work Coding (FOW)

Assign a Feature of Work Code to appropriate activities based on the Definable Feature of Work to which the activity belongs based on the approved QC plan.

Definable Feature of Work is defined in Section 01 45 00 QUALITY CONTROL. An activity can have only one Feature of Work Code.

3.3.7 Contract Milestones and Constraints

Milestone activities are to be used for significant project events including, but not limited to, project phasing, project start and end activities, or interim completion dates. The use of artificial float constraints such as "zero free float" or "zero total float" are prohibited.

Mandatory constraints that ignore or effect network logic are prohibited.

No constrained dates are allowed in the schedule other than those specified herein. Submit additional constraints to the Contracting Officer for approval on a case by case basis.

3.3.7.1 Project Start Date Milestone and Constraint

The first activity in the project schedule must be a start milestone titled "NTP Acknowledged," which must have a "Start On" constraint date equal to the date that the NTP is acknowledged.

3.3.7.2 End Project Finish Milestone and Constraint

The last activity in the schedule shall be a finish milestone titled "End Project."

The project schedule must be constrained to the Contract Completion Date in such a way that if the schedule calculates an early finish, then the float calculation for "End Project" milestone reflects positive float on the longest path. If the project schedule calculates a late finish, then the "End Project" milestone float calculation reflects negative float on the longest path. The Government is under no obligation to accelerate Government activities to support a Contractor's early completion.

3.3.7.3 Interim Completion Dates and Constraints

Constrain contractually specified interim completion dates to show negative float when the calculated late finish date of the last activity in that phase is later than the specified interim completion date.

3.3.7.3.1 Start Phase

Use a start milestone as the first activity for a project phase. The start milestone shall be called "Start Phase X" where "X" refers to the phase of work.

3.3.7.3.2 End Phase

Use a finish milestone as the last activity for a project phase. Call the finish milestone "End Phase X" where "X" refers to the phase of work.

3.3.8 Calendars

Schedule activities on a Calendar to which the activity logically belongs. Develop calendars to accommodate any contract defined work period such as a 7-day calendar for Government Acceptance activities, concrete cure times, etc. Develop the default Calendar to match the physical work plan with non-work periods identified including weekends and holidays. Develop sSeasonal Calendar(s) and assign to seasonally affected activities as applicable.

If an activity is weather sensitive it should be assigned to a calendar showing non-work days on a monthly basis, with the non-work days selected at random across the weeks of the calendar, using the anticipated days provided in the contract clause TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. The assignment of the non-work days should be over a seven-day week since weather records are compiled on seven-day weeks, which will cause some of the weather related non-work days to fall on weekends.

3.3.9 Open Ended Logic

Only two open ended activities are allowed: the first activity "NTP Acknowledged" must have no predecessor logic, and the last activity -"End Project" must have no successor logic.

Predecessor open ended logic may be allowed in a time impact analyses upon the Contracting Officer's approval.

3.3.10 Default Progress Data Disallowed

Actual Start and Finish dates must not automatically update with default mechanisms included in the scheduling software. Updating of the percent complete and the remaining duration of any activity must be independent functions. Disable program features that calculate one of these parameters from the other. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process must match those dates provided in the Contractor Quality Control Reports. Failure to document the AS and AF dates in the Daily Quality Control report will result in disapproval of the Contractor's schedule.

3.3.11 Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Contracting Officer. Propose logic corrections to eliminate out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Address out of sequence progress or logic changes in the Narrative Report and in the periodic schedule update meetings.

3.3.12 Added and Deleted Activities

Do not delete activities from the project schedule or add new activities to the schedule without approval from the Contracting Officer. Activity ID and description changes are considered new activities and cannot be changed without Contracting Officer approval.

3.3.13 Original Durations

Activity Original Durations (OD) must be reasonable to perform the work item. OD changes are prohibited unless justification is provided and approved by the Contracting Officer.

3.3.14 Leads, Lags, and Start to Finish Relationships

Lags must be reasonable as determined by the Government and not used in place of realistic original durations, must not be in place to artificially absorb float, or to replace proper schedule logic.

a. Leads (negative lags) are prohibited.

b. Start to Finish (SF) relationships are prohibited.

3.3.15 Retained Logic

Schedule calculations must retain the logic between predecessors and successors ("retained logic" mode) even when the successor activity(s) starts and the predecessor activity(s) has not finished (out-of-sequence

progress). Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") are not be allowed.

3.3.16 Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be declared 100 percent complete to allow for proper schedule management.

3.3.17 Remaining Duration

Update the remaining duration for each activity based on the number of estimated work days it will take to complete the activity. Remaining duration may not mathematically correlate with percentage found under paragraph entitled Percent Complete.

3.3.18 Cost Loading of Closeout Activities

Cost load the "Correction of punch list from Government pre-final inspection" activity(ies) not less than 1 percent of the present contract value. Activity(ies) may be declared 100 percent complete upon the Government's verification of completion and correction of all punch list work identified during Government pre-final inspection(s).

3.3.18.1 As-Built Drawings

If there is no separate contract line item (CLIN) for as-built drawings, cost load the "Submission and approval of as-built drawings" activity not less than $35,000 or 1 percent of the present contract value, which ever is greater, up to $200,000. Activity will be declared 100 percent complete upon the Government's approval.

3.3.18.2 O & M Manuals

Cost load the "Submission and approval of O & M manuals" activity not less than $20,000. Activity will be declared 100 percent complete upon the Government's approval of all O & M manuals.

3.3.19 Anticipated Adverse Weather

Paragraph applicable to contracts with clause entitled TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. Reflect the number of anticipated adverse weather delays allocated to a weather sensitive activity in the activity's calendar.

3.3.20 Early Completion Schedule and the Right to Finish Early

An Early Completion Schedule is an Initial Project Schedule (IPS) that indicates all scope of the required contract work will be completed before the contractually required completion date.

a. No IPS indicating an Early Completion will be accepted without being fully resource-loaded (including crew sizes and manhours) and the Government agreeing that the schedule is reasonable and achievable.

b. The Government is under no obligation to accelerate work items it is

responsible for to ensure that the early completion is met nor is it responsible to modify incremental funding (if applicable) for the project to meet the contractor's accelerated work.

3.4 PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD/DVD, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS. If the Contractor fails or refuses to furnish the information and schedule updates as set forth herein, then the Contractor will be deemed not to have provided an estimate upon which a progress payment can be made.

Review comments made by the Government on the schedule(s) do not relieve the Contractor from compliance with requirements of the Contract Documents.

3.4.1 Preliminary Project Schedule Submission

Within 15 calendar days after the NTP is acknowledged submit the Preliminary Project Schedule defining the planned operations detailed for the first 90 calendar days for approval. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. The Preliminary Project Schedule may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required plan and program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, planned submissions of all early design packages, permitting activities, design review conference activities, and other non-construction activities intended to occur within the first 90 calendar days. Government acceptance of the associated design package(s) and all other specified Program and Plan approvals must occur prior to any planned construction activities. Activity code any activities that are summary in nature after the first 90 calendar days with Bid Item (CLIN) code (BIDI), Responsibility Code (RESP) and Feature of Work code (FOW).

3.4.2 Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after notice to proceed is issued. The schedule must demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. No payment will be made for work items not fully detailed in the Project Schedule.

3.4.3 Periodic Schedule Updates

Update the Project Schedule on a regular basis, monthly at a minimum. Provide a draft Periodic Schedule Update for review at the schedule update meetings as prescribed in the paragraph PERIODIC SCHEDULE UPDATE MEETINGS. These updates will enable the Government to assess Contractor's progress.

a. Update information including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD), and Percent Complete is subject to the approval of the Government at the meeting.

b. AS and AF dates must match the date(s) reported on the Contractor's Quality Control Report for an activity start or finish.

3.5 SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1 Data CD/DVDs

Provide two sets of data CD/DVDs containing the current project schedule and all previously submitted schedules in the format of the scheduling software (e.g. .xer). Also include on the data CD/DVDs the Narrative Report and all required Schedule Reports. Label each CD/DVD indicating the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file name. Each schedule must have a unique file name and use project specific settings.

3.5.2 Narrative Report

Provide a Narrative Report with each schedule submission. The Narrative Report is expected to communicate to the Government the thorough analysis of the schedule output and the plans to compensate for any problems, either current or potential, which are revealed through that analysis. Include the following information as minimum in the Narrative Report:

a. Identify and discuss the work scheduled to start in the next update period.

b. A description of activities along the two most critical paths where the total float is less than or equal to 20 work days.

c. A description of current and anticipated problem areas or delaying factors and their impact and an explanation of corrective actions taken or required to be taken.

d. Identify and explain why activities based on their calculated late dates should have either started or finished during the update period but did not.

e. Identify and discuss all schedule changes by activity ID and activity name including what specifically was changed and why the change was needed. This should include at a minimum new and deleted activities, logic changes, duration changes, calendar changes, lag changes, resource changes, and actual start and finish date changes.

f. Identify and discuss out-of-sequence work.

3.5.3 Schedule Reports

The format, filtering, organizing and sorting for each schedule report must be as directed by the Contracting Officer. Typically, reports shall contain Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. Provide the reports electronically in .pdf format. Provide two sets of hardcopy reports. The following lists typical reports that will be requested:

3.5.3.1 Activity Report

List of all activities sorted according to activity number.

3.5.3.2 Logic Report

List of detailed predecessor and successor activities for every activity in ascending order by activity number.

3.5.3.3 Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.3.4 Earnings Report by CLIN

A compilation of the Total Earnings on the project from the NTP to the data date. This report must reflect the earnings of activities based on the agreements made in the schedule update meeting defined herein. Provided a complete schedule update has been furnished, this report serves as the basis of determining progress payments. Group activities by CLIN number and sort by activity number. This report must also provide a total CLIN percent earned value, CLIN percent complete, and project percent complete. The printed report must contain the following for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Earnings to Date, Earnings this period, Total Quantity, Quantity to Date, and Percent Complete (based on cost).

3.5.3.5 Schedule Log

Provide a Scheduling/Leveling Report generated from the current project schedule being submitted.

3.5.4 Network Diagram

The Network Diagram is required for the Preliminary, Initial and Periodic Updates. Depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.4.1 Continuous Flow

Show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.4.2 Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.4.3 Critical Path

Show all activities on the critical path. The critical path is defined as the longest path.

3.5.4.4 Banding

Organize activities using the WBS or as otherwise directed to assist in the understanding of the activity sequence. Typically, this flow will group activities by major elements of work, category of work, work area and/or responsibility.

3.5.4.5 Cash Flow / Schedule Variance Control (SVC) Diagram

With each schedule submission, provide a SVC diagram showing 1) Cash Flow S-Curves indicating planned project cost based on projected early and late activity finish dates, and 2) Earned Value to-date.

3.6 PERIODIC SCHEDULE UPDATE

3.6.1 Periodic Schedule Update Meetings

Conduct periodic schedule update meetings for the purpose of reviewing the proposed Periodic Schedule Update, Narrative Report, Schedule Reports, and progress payment. Conduct meetings at least monthly within five days of the proposed schedule data date. Provide a computer with the scheduling software loaded and a projector which allows all meeting participants to view the proposed schedule during the meeting. The Contractor's authorized scheduler must organize, group, sort, filter, perform schedule revisions as needed and review functions as requested by the Contractor and/or Government. The meeting is a working interactive exchange which allows the Government and Contractor the opportunity to review the updated schedule on a real time and interactive basis. The meeting will last no longer than 8 hours. Provide a draft of the proposed narrative report and schedule data file to the Government a minimum of two workdays in advance of the meeting. The Contractor's Project Manager and scheduler must attend the meeting with the authorized representative of the Contracting Officer. Superintendents, foremen and major subcontractors must attend the meeting as required to discuss the project schedule and work. Following the periodic schedule update meeting, make corrections to the draft submission. Include only those changes approved by the Government in the submission and invoice for payment.

3.6.2 Update Submission Following Progress Meeting

Submit the complete Periodic Schedule Update of the Project Schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 work days after the periodic schedule update meeting.

3.7 WEEKLY PROGRESS MEETINGS

Conduct a weekly meeting with the Government (or as otherwise mutually agreed to) between the meetings described in paragraph entitled PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. Use the current approved schedule update for the purposes of this meeting and for the production and review of reports. At the weekly progress meeting, address the status of RFIs, RFPs and Submittals.

3.8 REQUESTS FOR TIME EXTENSIONS

Provide a justification of delay to the Contracting Officer in accordance

with the contract provisions and clauses for approval within 10 days of a delay occurring. Also prepare a time impact analysis for each Government request for proposal (RFP) to justify time extensions.

3.8.1 Justification of Delay

Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify all schedule activities impacted. Show that the event that caused the delay/impact was the responsibility of the Government. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion date(s). Multiple impacts must be evaluated chronologically; each with its own justification of delay. With multiple impacts consider any concurrency of delay. A time extension and the schedule fragnet becomes part of the project schedule and all future schedule updates upon approval by the Contracting Officer.

3.8.2 Time Impact Analysis (Prospective Analysis)

Prepare a time impact analysis for approval by the Contracting Officer based on industry standard AACE 52R-06. Utilize a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis. If Contracting Officer determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis. Unless approved by the Contracting Officer, no other changes will be incorporated into the schedule being used to justify the time impact.

3.8.3 Forensic Schedule Analysis (Retrospective Analysis)

Prepare an analysis for approval by the Contracting Officer based on industry standard AACE 29R-03.

3.8.4 Fragmentary Network (Fragnet)

Prepare a proposed fragnet for time impact analysis. The proposed fragnet must consist of a sequence of new activities that are proposed to be added to the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates. Clearly show how the proposed fragnet is to be tied into the project schedule including all predecessors and successors to the fragnet activities. The proposed fragnet must be approved by the Contracting Officer prior to incorporation into the project schedule.

3.8.5 Time Extension

The Contracting Officer must approve the Justification of Delay including the time impact analysis before a time extension will be granted. No time extension will be granted unless the delay consumes all available Project Float and extends the projected finish date ("End Project" milestone) beyond the Contract Completion Date. The time extension will be in calendar days.

Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.8.6 Impact to Early Completion Schedule

No extended overhead will be paid for delay prior to the original Contract Completion Date for an Early Completion IPS unless the Contractor actually performed work in accordance with that Early Completion Schedule. The Contractor must show that an early completion was achievable had it not been for the impact.

3.9 FAILURE TO ACHIEVE PROGRESS

Should the progress fall behind the approved project schedule for reasons other than those that are excusable within the terms of the contract, the Contracting Officer may require provision of a written recovery plan for approval. The plan must detail how progress will be made-up to include which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.

3.9.1 Artificially Improving Progress

Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited. Indicate assumptions made and the basis for any logic, constraint, duration and calendar changes used in the creation of the recovery plan. Any additional resources, manpower, or daily and weekly work hour changes proposed in the recovery plan must be evident at the work site and documented in the daily report along with the Schedule Narrative Report.

3.9.2 Failure to Perform

Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and/or may result in corrective action directed by the Contracting Officer pursuant to FAR 52.236-15 Schedules for Construction Contracts, FAR 52.249-10 Default (Fixed-Price Construction), and other contract provisions.

3.9.3 Recovery Schedule

Should the Contracting Officer find it necessary, submit a recovery schedule pursuant to FAR 52.236-15 Schedules for Construction Contracts.

3.10 OWNERSHIP OF FLOAT

Except for the provision given in the paragraph IMPACT TO EARLY COMPLETION SCHEDULE, float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor including activity and/or project float. Activity float is the number of work days that an activity can be delayed without causing a delay to the "End Project" finish milestone. Project float (if applicable) is the number of work days between the projected early finish and the contract completion date milestone.

3.11 TRANSFER OF SCHEDULE DATA INTO RMS/QCS

Import the schedule data into the Quality Control System (QCS) and export the QCS data to the Government. This data is considered to be additional supporting data in a form and detail required by the Contracting Officer

pursuant to FAR 52.232-5 - Payments under Fixed-Price Construction Contracts. The receipt of a proper payment request pursuant to FAR 52.232-27 - Prompt Payment for Construction Contracts is contingent upon the Government receiving both acceptable and approvable hard copies and matching electronic export from QCS of the application for progress payment.

3.12 PRIMAVERA P6 MANDATORY REQUIREMENTS

If Primavera P6 is being used, request a backup file template (.xer) from the Government, if one is available, prior to building the schedule. The following settings are mandatory and required in all schedule submissions to the Government:

a. Activity Codes must be Project Level, not Global or EPS level.

b. Calendars must be Project Level, not Global or Resource level.

c. Activity Duration Types must be set to "Fixed Duration & Units".

d. Percent Complete Types must be set to "Physical".

e. Time Period Admin Preferences must remain the default "8.0 hr/day, 40 hr/week, 172 hr/month, 2000 hr/year". Set Calendar Work Hours/Day to 8.0 Hour days.

f. Set Schedule Option for defining Critical Activities to "Longest Path".

g. Set Schedule Option for defining progressed activities to "Retained Logic".

h. Set up cost loading using a single lump sum labor resource. The Price/Unit must be $1/hr, Default Units/Time must be "8h/d", and settings "Auto Compute Actuals" and "Calculate costs from units" selected.

i. Activity ID's must not exceed 10 characters.

j. Activity Names must have the most defining and detailed description within the first 30 characters.

-- End of Section --

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.

Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Contractor's Quality Control (CQC) System Manager to check and approve all items prior to submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

Submittals requiring Government approval are to be scheduled and made prior to the acquisition of the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.2 DEFINITIONS

1.2.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to start of construction (work) or the start of the next major phase of the construction on a multi-phase contract, includes schedules, tabular list of data, or tabular list including location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

Certificates of insurance

Surety bonds

List of proposed Subcontractors

List of proposed products

Construction Progress Schedule

Network Analysis Schedule (NAS)

Submittal register

Schedule of prices

Accident Prevention Plan

Work plan

Quality Control(QC) plan

Environmental protection plan

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within two years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after

installation.

Investigation reports.

Daily logs and checklists.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements shall be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor, the purpose of which is to further qualify the orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (MSDS)concerning impedances, hazards and safety precautions.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel, including manufacturer's help and product line documentation necessary to maintain and install equipment. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

This data is intended to be incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.2.2 Approving Authority

Office or designated person authorized to approve submittal.

1.2.3 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, except those SD-01 Pre-Construction Submittals noted above, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal Register; G, RO

1.4 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4.1 Government Approved (G)

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled, "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.4.1.1 Approval Codes

a. Construction/Operations Division {"AO" (Area Office), "RO" (Resident Office), or "PO" (Project Office) Reviewer}: An "AO", "RO", or "PO" in column "f" indicates that the submittal review action is by New England District Construction/Operations Division. Send all such submittals to the project Resident or Area Engineer, as applicable.

b. Engineering/Planning Division {"DO" (District Office) Reviewer): A "DO" on the attached submittal register, column "f" indicates that the submittal review action is by the New England District, Engineering/Planning Division, or other organization in the District Office. Send all such submittals to the project Resident or Area Engineer for distribution to the appropriate approving authority.

c. Architect-Engineer Firm {"AE" reviewer): An "AE" on the attached submittal register, column "f" indicates that the submittal review action is by the Architect-Engineer firm asscociated with the project.

1.4.2 Information Only

Submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.5 PREPARATION

1.5.1 Transmittal Form

Use the attached sample transmittal form (ENG Form 4025) for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor and are included in the QCS software that the Contractor is required to use for this contract. Properly complete this

form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and sheet number of the contract drawings pertinent to the data submitted for each item.

1.6 QUANTITY OF SUBMITTALS

Submit one electronic PDF copy of all submittals (except samples) and paper copies as indicated below.

1.6.1 Number of Copies of SD-02 Shop Drawings

Submit one copy of submittals of shop drawings requiring review and approval only by QC organization and one copies of shop drawings requiring review and approval by Contracting Officer.

1.6.2 Number of Copies of SD-03 Product Data and SD-08 Manufacturer's Instructions

Submit in compliance with quantity requirements specified for shop drawings.

1.6.3 Number of Samples SD-04 Samples

a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of non-solid materials.

1.6.4 Number of Copies SD-05 Design Data and SD-07 Certificates

Submit in compliance with quantity requirements specified for shop drawings.

1.6.5 Number of Copies SD-06 Test Reports and SD-09 Manufacturer's Field Reports

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

1.6.6 Number of Copies of SD-10 Operation and Maintenance Data

Submit one copy of O&M Data to the Contracting Officer for review and approval.

1.6.7 Number of Copies of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

Unless otherwise specified, submit one set of administrative submittals.

1.7 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals.

The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications, will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work, and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.8 VARIATIONS

Variations from contract requirements require both Designer of Record (DOR) and Government approval pursuant to contract Clause FAR 52.236-21 and will be considered where advantageous to Government.

1.8.1 Considering Variations

Discussion with Contracting Officer prior to submission, after consulting with the DOR, will help ensure functional and quality requirements are met and minimize rejections and re-submittals. When contemplating a variation that results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the Government requiring rejection and removal of such work at no additional cost to the Government.

1.8.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government, including the DOR's written analysis and approval. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

Check the column "variation" of ENG Form 4025 for submittals that include proposed deviations requested by the Contractor. Set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.8.3 Warranting That Variations Are Compatible

When delivering a variation for approval, Contractor, including its Designer(s) of Record, warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.8.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.9 SUBMITTAL REGISTER

Prepare and maintain submittal register, as the work progresses. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by Government; retain data which is output in columns (a), (g), (h), and (i) as approved. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. This list may not be all inclusive and additional submittals may be required. Maintain a submittal register for the project in accordance with Section 01 45 01 QUALITY CONTROL SYSTEM (QCS). The Government will provide the initial submittal register in electronic format with the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the Government.

1.9.1 Use of Submittal Register

Submit submittal register. Submit with QC plan and project schedule. Verify that all submittals required for project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.9.2 Contractor Use of Submittal Register

Update the following fields with each submittal throughout contract.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

1.9.3 Approving Authority Use of Submittal Register

Update the following fields.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (l) List date of submittal receipt.

Column (m) through (p) List Date related to review actions.

Column (q) List date returned to Contractor.

1.9.4 Copies Delivered to the Government

Deliver one copy of submittal register updated by Contractor to Government with each invoice request.

1.10 SCHEDULING

Schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential resubmittal of requirements.

b. Submittals called for by the contract documents will be listed on the register. If a submittal is called for but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer does not relieve the Contractor of supplying submittals required by the contract documents but which have been omitted from the register or marked "N/A".

c. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.

d. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register".

1.11 GOVERNMENT APPROVING AUTHORITY

When approving authority is Contracting Officer, the Government will:

a. Note date on which submittal was received.

b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in

paragraph entitled, "Review Notations," of this section and with markings appropriate for action indicated.

Upon completion of review of submittals requiring Government approval, stamp and date approved submittals. Two copies of the approved submittal will be retained by the Contracting Officer and five copies of the submittal will be returned to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

1.11.1 Review Notations

Contracting Officer review will be completed within 30 calendar days after date of submission. Submittals will be returned to the Contractor with the following notations:

a. Submittals marked "approved" or "accepted" authorize the Contractor to proceed with the work covered.

b. Submittals marked "approved as noted" "or approved except as noted, resubmittal not required," authorize the Contractor to proceed with the work covered provided he takes no exception to the corrections.

c. Submittals marked "not approved" or "disapproved," or "revise and resubmit," indicate noncompliance with the contract requirements or design concept, or that submittal is incomplete. Resubmit with appropriate changes. No work shall proceed for this item until resubmittal is approved.

d. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

1.12 DISAPPROVED SUBMITTALS

Contractor shall make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice as required under the clause entitled, "Changes," is to be given to the Contracting Officer. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the Government requiring rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved. Submittals requiring resubmittal shall be resubmitted within 14 calendar days unless additional time is granted by the Government.

1.13 APPROVED SUBMITTALS

The Contracting Officer's approval or acceptance of submittals is not to be construed as a complete check, and indicates only that the general method

of construction, materials, detailing and other information are satisfactory.

Approval or acceptance will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work.

After submittals have been approved or accepted by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.14 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. Government reserves the right to disapprove any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. Contractor to replace such materials or equipment to meet contract requirements.

Approval of the Contractor's samples by the Contracting Officer does not relieve the Contractor of his responsibilities under the contract.

1.15 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.16 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements is to be similar to the following:

CONTRACTOR

(Firm Name)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheets(s)

SIGNATURE: _____

TITLE: _____

DATE: _____

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

Construct Water Line, Durham Meadows, Durham, Connecticut

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 11 00	SD-01 Preconstruction Submittals															
			Maintenance and Plan of	1.4	G	RO												
			Operation (MAPO)															
			Two-Week Schedule of Work	1.9.4.2														
			Activities															
			Progress Report	1.12	G	RO												
			Quality Assurance Project Plan	1.3	G	DO												
			(QAPP)															
			Public Relations Liaison	1.7	G	DO												
			Green Remediation Practices	1.25.1														
			SD-07 Certificates															
			Request Application	1.9.1	G	RO												
			SD-11 Closeout Submittals															
			CT DPH Certificate	1.28														
		01 22 00	SD-05 Design Data															
			Quantity Surveys															
		01 32 01	SD-01 Preconstruction Submittals															
			Project Scheduler Qualifications	1.3	G	RO												
			Preliminary Project Schedule	3.4.1	G	RO												
			Initial Project Schedule	3.4.2	G	RO												
			Periodic Schedule Update	3.6.2	G	RO												
		01 33 00	SD-01 Preconstruction Submittals															
			Submittal Register	1.9	G	RO												
		01 33 29	SD-01 Preconstruction Submittals															
			Documentation Requirements	1.5	G	RO												
		01 35 26	SD-01 Preconstruction Submittals															

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Construct Water Line, Durham Meadows, Durham, Connecticut

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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		(q)	(r)
		01 35 26	Accident Prevention Plan (APP)	1.11.5	G	RO													
			SD-02 Shop Drawings																
			Work Zones	1.19.1	G	RO													
			Decontamination Facilities	1.19.1	G	RO													
			SD-03 Product Data																
			Amendments to the APP/SSHP	1.8															
			Exposure Monitoring/Air	1.14															
			Sampling Program																
			Site Control Log	1.20															
			Employee Certificates	1.13.4															
			Certificate of Worker/Visitor																
			Acknowledgement																
			SSHO's Daily Inspection Logs																
			Safety and Health Phase-Out																
			Report																
			SD-06 Test Reports																
			Monthly Exposure Reports	1.5															
			Notifications and Reports	1.28															
			Accident Reports	1.28.2	G	RO													
			LHE Inspection Reports	1.28.3															
			SD-07 Certificates																
			Crane Operators/Riggers	1.9.1.8															
			Standard Lift Plan	1.11.1	G	RO													
			Critical Lift Plan	1.11.2	G	RO													
			Activity Hazard Analysis (AHA)	1.24															
			Hot Work Permit	1.25.1															

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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		(q)	(r)
		01 35 26	Certificate of Compliance	1.28.4															
			License Certificates																
		01 39 00	SD-02 Shop Drawings																
			Qualification Data		G	RO													
			Field Reports		G	RO													
			Key Plan		G	RO													
			Digital Photographs		G	RO													
			Video Recordings		G	RO													
			Transcript		G	RO													
		01 41 00	SD-01 Preconstruction Submittals																
			Sampling and Analysis Plan		G	RO													
			SD-06 Test Reports																
			Test Reports		G	RO													
			Field Notes		G	RO													
		01 45 00	SD-01 Preconstruction Submittals																
			Contractor Quality Control (CQC)	3.2	G	RO													
			Plan																
		01 50 00	SD-01 Preconstruction Submittals																
			Construction Site Plan	1.4	G	RO													
			Temporary Electrical System	3.10.6	G	RO													
			Traffic Control Plan	3.6	G	RO													
			SD-03 Product Data																
			Barricades	2.2															
			Safety Fence	2.2															
		01 57 20	SD-01 Preconstruction Submittals																
			Environmental Protection Plan	1.7	G	RO													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Construct Water Line, Durham Meadows, Durham, Connecticut

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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 57 20	Wood Turtle Protection Plan	3.4.5	G	RO												
			Encroachment Permit	3.1	G	RO												
			CT DEEP General Permit	3.1	G	RO												
			Self-Verification Notification Form	3.2	G	RO												
		01 57 23	SD-07 Certificates															
			Mill Certificate or Affidavit	2.1.3														
		01 71 23	SD-07 Certificates															
			Qualifications	1.3														
		01 74 19	SD-01 Preconstruction Submittals															
			Waste Management Plan	1.5	G	RO												
		01 78 00	SD-03 Product Data															
			As-Built Record of Equipment	1.5.2														
			and Materials															
			Warranty Management Plan	1.6.1														
			Spare Parts Data															
			Warranty Tags	1.6.5														
			SD-08 Manufacturer's Instructions															
			Instructions	1.6.1														
			SD-11 Closeout Submittals															
			Record Drawings	1.5.1														
			Interim Form DD1354	1.8	G	RO												
			Checklist for Form DD1354	1.8	G	RO												
			Construction Completion Report	1.3	G	RO												
			Remedial Action Report (RAR)	1.4	G	RO												
		01 78 23	SD-10 Operation and Maintenance															
			Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Construct Water Line, Durham Meadows, Durham, Connecticut

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAG# RAPH	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		(q)	(r)
		01 78 23	O&M Database	1.3	G	RO													
			Training Plan	3.1.1	G	RO													
			Training Outline	3.1.3	G	RO													
			Training Content	3.1.2	G	RO													
			SD-11 Closeout Submittals																
			Training Video Recording		G	RO													
			Validation of Training Completion	3.1.5	G	RO													

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE For use of this form, see ER 415-1-10; the proponent agency is CECW-CE.	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (*This section will be initiated by the contractor*)

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____

SPECIFICATION SEC. NO. (*Cover only one section with each transmittal*)	PROJECT TITLE AND LOCATION	THIS TRANSMITTAL IS FOR: (*Check one*) ☐ FIO ☐ GA ☐ DA ☐ CR ☐ DA/CR ☐ DA/GA

ITEM NO. (*See Note 3*) a.	DESCRIPTION OF SUBMITTAL ITEM (*Type size, model number/etc.*) b.	SUBMITTAL TYPE CODE (*See Note 8*) c.	NO. OF COPIES d.	CONTRACT DOCUMENT REFERENCE SPEC. PARA. NO. e.	CONTRACT DOCUMENT REFERENCE DRAWING SHEET NO. f.	CONTRACTOR REVIEW CODE g.	VARIATION Enter "Y" if requesting a variation (*See Note 6*) h.	USACE ACTION CODE (*Note 9*) i.

REMARKS	I certify that the above submitted items had been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.	
	NAME OF CONTRACTOR	SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED (*List by item No.*)	NAME AND TITLE OF APPROVING AUTHORITY	SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each Transmittal shall be numbered consecutively. The Transmittal Number typically includes two parts separated by a dash (-). The first part is the specification section number. The second part is a sequential number for the submittals under that spec section. If the Transmittal is a resubmittal, then add a decimal point to the end of the original Transmittal Number and begin numbering the resubmittal packages sequentially after the decimal.

3. The "Item No." for each entry on this form will be the same "Item No." as indicated on ENG FORM 4288-R.

4. Submittals requiring expeditious handling will be submitted on a separate ENG Form 4025-R.

5. Items transmitted on each transmittal form will be from the same specification section. Do not combine submittal information from different specification sections in a single transmittal.

6. If the data submitted are intentionally in variance with the contract requirements, indicate a variation in column h, and enter a statement in the Remarks block describing he detailed reason for the variation.

7. ENG Form 4025-R is self-transmitting - a letter of transmittal is not required.

8. When submittal items are transmitted, indicate the "Submittal Type" (*SD-01 through SD-11*) in column c of Section I.
   Submittal types are the following:
   SD-01 - Preconstruction SD-02 - Shop Drawings SD-03 - Product Data SD-04 - Samples SD-05 - Design Data SD-06 - Test Reports
   SD-07 - Certificates SD-08 - Manufacturer's Instructions SD-09 - Manufacturer's Field Reports SD-10 - O&M Data SD-11 - Closeout

9. For each submittal item, the Contractor will assign Submittal Action Codes in column g of Section I. The U.S. Army Corps of Engineers approving authority will assign Submittal Action Codes in column i of Section I. The Submittal Action Codes are:

   A -- Approved as submitted.
   B -- Approved, except as noted on drawings. Resubmission not required.
   C -- Approved, except as noted on drawings. Refer to attached comments. Resubmission required.
   D -- Will be returned by separate correspondence.
   E -- Disapproved. Refer to attached comments.
   F -- Receipt acknowledged.
   X -- Receipt acknowledged, does not comply with contract requirements, as noted.
   G -- Other action required *(Specify)*
   K -- Government concurs with intermediate design. (*For D-B contracts*)
   R -- Design submittal is acceptable for release for construction. (*For D-B contracts*)

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract.

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 33 29

SUSTAINABILITY REPORTING

PART 1 GENERAL

1.1 REFERENCES
1.2 1.3 SUBMITTALS
1.3 SUMMARY
1.4 LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK
1.5 DOCUMENTATION REQUIREMENTS
1.5.1 Landfill Disposal
1.5.2 Energy Efficient Equipment
1.5.3 Recycled Content
1.5.4 Bio-Based Products

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 SUSTAINABILITY COORDINATION

-- End of Section Table of Contents --

SECTION 01 33 29

SUSTAINABILITY REPORTING

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. DEPARTMENT OF ENERGY (DOE)

ISWG Guiding Principles	(2008) High Performance and Sustainable Buildings Guidance

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Materials
48 CFR 23	Environment, Energy and Water Efficiency, Renewable Energy Technologies, Occupational Safety, and Drug-Free Workplace

1.2 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Documentation Requirements; G, RO

Submit documentation that proves compliance with the listed requirement of this section.

1.3 SUMMARY

This specification includes general requirements and procedures for this project to be constructed and documented per the federally mandated "Guiding Principles" (GP) and other requirements identified in this specification.

1.4 LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

Many products listed in 40 CFR 247 and 48 CFR 23 have been designated or proposed by EPA and USDA to include recycled, recovered and biobased materials that may be used by the Contractor in performing the work but will not be incorporated into the work. These products include office

products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled, recovered and biobased materials and that these products be recycled when no longer needed.

1.5 DOCUMENTATION REQUIREMENTS

Incorporate the following ISWG Guiding Principles Requirement into project construction and provide documentation that proves compliance with the listed requirement. The item below is organized according to the ISWG Guiding Principles.

1.5.1 Landfill Disposal

Divert construction debris from landfill disposal in accordance with Section 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT. Provide the following documentation:

a. Documentation showing total amount of construction debris diverted from landfill as a percentage of all construction debris on the project.

b. Include project's Construction Waste Management Plan (see Section 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT) and all dumpster haul tickets.

1.5.2 Energy Efficient Equipment

Provide only energy-using equipment that is Energy Star rated, or has the Federal Energy Management Program (FEMP) recommended efficiency. Where Energy Star or FEMP recommendations have not been established, provide most efficient equipment available. Provide only energy using equipment that meets FEMP requirements for low standby power consumption. Energy efficient equipment can be found at: http://www1.eere.energy.gov/femp/ and http://www.energystar.gov/. Provide the following documentation:

Proof that equipment is labeled energy efficient and complies with the cited requirements.

1.5.3 Recycled Content

Provide materials on this project with aggregated total recycled content equal to or greater than 10 percent. In addition, comply with 40 CFR 247. Refer to for assistance identifying products cited in 40 CFR 247. Provide the following documentation:

a. Total amount of recycled content contained in building materials as a percentage of total cost of all building materials on the project (mechanical, electrical, and plumbing components, fire protection equipment and transportation are excluded).

b. Manufacturers documents stating the recycled content by material, or written justification for claiming one of the exceptions allowed under RCRA 6002.

c. Substitutions: Contractor may submit for Government approval, proposed alternative products or systems that provide equivalent performance and appearance and have greater contribution to project recycled content requirements. For all such proposed substitutions,

submit with the Sustainability Action Plan accompanied by product data demonstrating equivalence.

1.5.4 Bio-Based Products

Utilize products and material made from biobased materials to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user. Use only supplies and materials of a type and quality that conform to applicable specifications and standards.

Biobased products that are designated for preferred procurement under the USDA BioPreferred Program must meet the required minimum biobased content. Refer to http://www.biopreferred.gov for the product categories and BioPreferred Catalog. Provide the following documentation:

a. For biobased products used on this project, provide biobased product content percentage and biobased source of material. Indicate name of the manufacturer, cost of each product and the use of each product on this project.

b. For products that meet USDA Biopreferred Program, provide documentation of USDA Biopreferred label.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 SUSTAINABILITY COORDINATION

Provide sustainability focus and coordination at the following meetings to achieve sustainability goals. Contractor's designated sustainability professional responsible for GP documentation shall participate in the following meetings to coordinate documentation completion.

a. Pre-Construction Conference: Discuss the following: sustainability actions and documentation requirements, construction submittal requirements and schedule, and individuals responsible for achieving each Guiding Principle Requirement.

b. Construction Progress Meetings: Review GP sustainability requirements with project team including contractor and sub-contractor representatives.

-- End of Section --

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GOVERNMENTAL SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN PETROLEUM INSTITUTE (API)

API RP 2219	(2005; R 2012) Safe Operation of Vacuum Trucks in Petroleum Service

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.34	(2001; R 2012) Protection of the Public on or Adjacent to Construction Sites
ASSE/SAFE A10.44	(2014) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ASSE/SAFE Z244.1	(2003; R 2014) Control of Hazardous Energy Lockout/Tagout and Alternative Methods
ASSE/SAFE Z359.0	(2012) Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ASSE/SAFE Z359.1	(2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ASSE/SAFE Z359.11	(2014) Safety Requirements for Full Body Harnesses
ASSE/SAFE Z359.12	(2009) Connecting Components for Personal Fall Arrest Systems
ASSE/SAFE Z359.13	(2013) Personal Energy Absorbers and Energy Absorbing Lanyards
ASSE/SAFE Z359.14	(2014) Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
ASSE/SAFE Z359.15	(2014) Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems
ASSE/SAFE Z359.2	(2007) Minimum Requirements for a Comprehensive Managed Fall Protection Program

ASSE/SAFE Z359.3	(2007) Safety Requirements for Positioning and Travel Restraint Systems
ASSE/SAFE Z359.4	(2013) Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ASSE/SAFE Z359.6	(2009) Specifications and Design Requirements for Active Fall Protection Systems
ASSE/SAFE Z359.7	(2011) Qualification and Verification Testing of Fall Protection Products

ASME INTERNATIONAL (ASME)

ASME B30.20	(2013; INT Oct 2010 - May 2012) Below-the-Hook Lifting Devices
ASME B30.22	(2010) Articulating Boom Cranes
ASME B30.26	(2015; INT Jun 2010 - Jun 2014) Rigging Hardware
ASME B30.3	(2012) Tower Cranes
ASME B30.5	(2014) Mobile and Locomotive Cranes
ASME B30.8	(2010) Floating Cranes and Floating Derricks
ASME B30.9	(2014; INT Feb 2011 - Nov 2013) Slings

ASTM INTERNATIONAL (ASTM)

ASTM F855	(2015) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2003) Guide for Protective Grounding of Power Lines
IEEE C2	(2012; Errata 2012; INT 1-4 2012; INT 5-7 2013; INT 8-10 2014; INT 11 2015) National Electrical Safety Code

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2013) Standard for Portable Fire Extinguishers
NFPA 241	(2013; Errata 2015) Standard for Safeguarding Construction, Alteration, and Demolition Operations

NFPA 51B	(2014) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2014; AMD 1 2013; Errata 1 2013; AMD 2 2013; Errata 2 2013; AMD 3 2014; Errata 3-4 2014; AMD 4-6 2014) National Electrical Code
NFPA 70E	(2015; ERTA 1 2015) Standard for Electrical Safety in the Workplace

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH 85-115	(1985) Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
29 CFR 1910.147	Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1910.333	Selection and Use of Work Practices
29 CFR 1915.89	Control of Hazardous Energy (Lockout/Tags-Plus)
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.1400	Cranes and Derricks in Construction
29 CFR 1926.16	Rules of Construction
29 CFR 1926.450	Scaffolds
29 CFR 1926.500	Fall Protection
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

1.2 DEFINITIONS

1.2.1 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are dangerous to personnel, and who has authorization to take prompt corrective measures with regards to such hazards.

1.2.2 Competent Person, Confined Space

The CP, Confined Space, is a person meeting the competent person requirements as defined EM 385-1-1 Appendix Q, with thorough knowledge of OSHA's Confined Space Standard, 29 CFR 1910.146, and designated in writing to be responsible for the immediate supervision, implementation and monitoring of the confined space program, who through training, knowledge and experience in confined space entry is capable of identifying, evaluating and addressing existing and potential confined space hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.3 Competent Person, Cranes and Rigging

The CP, Cranes and Rigging, as defined in EM 385-1-1 Appendix Q, is a person meeting the competent person, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the Crane and Rigging Program, who through training, knowledge and experience in crane and rigging is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.4 Competent Person, Excavation/Trenching

A CP, Excavation/Trenching, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and 29 CFR 1926, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the excavation/trenching program, who through training, knowledge and experience in excavation/trenching is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.5 Competent Person, Fall Protection

The CP, Fall Protection, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and in accordance with ASSE/SAFE Z359.0, who has been designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the fall protection program, who through training, knowledge and experience in fall protection and rescue systems and equipment, is capable of identifying, evaluating and addressing existing and potential fall hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.6 Competent Person, Scaffolding

The CP, Scaffolding is a person meeting the competent person requirements in EM 385-1-1 Appendix Q, and designated in writing by the employer to be

responsible for immediate supervising, implementing and monitoring of the scaffolding program. The CP for Scaffolding has enough training, knowledge and experience in scaffolding to correctly identify, evaluate and address existing and potential hazards and also has the authority to take prompt corrective measures with regard to these hazards. CP qualifications must be documented and include experience on the specific scaffolding systems/types being used, assessment of the base material that the scaffold will be erected upon, load calculations for materials and personnel, and erection and dismantling. The CP for scaffolding must have a documented, minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g. mast-climbing, adjustable, tubular frame), in accordance with EM 385-1-1 Section 22.B.02.

1.2.7 Competent Person (CP) Trainer

A competent person trainer as defined in EM 385-1-1 Appendix Q, who is qualified in the material presented, and who possesses a working knowledge of applicable technical regulations, standards, equipment and systems related to the subject matter on which they are training Competent Persons. A competent person trainer must be familiar with the typical hazards and the equipment used in the industry they are instructing. The training provided by the competent person trainer must be appropriate to that specific industry. The competent person trainer must evaluate the knowledge and skills of the competent persons as part of the training process.

1.2.8 High Risk Activities

High Risk Activities are activities that involve work at heights, crane and rigging, excavations and trenching, scaffolding, electrical work, and confined space entry.

1.2.9 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility.

1.2.10 Load Handling Equipment (LHE)

LHE is a term used to describe cranes, hoists and all other hoisting equipment (hoisting equipment means equipment, including crane, derricks, hoists and power operated equipment used with rigging to raise, lower or horizontally move a load).

1.2.11 Medical Treatment

Medical Treatment is treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

1.2.12 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle).

1.2.13 Operating Envelope

The Operating Envelope is the area surrounding any crane or load handling equipment. Inside this "envelope" is the crane, the operator, riggers and crane walkers, other personnel involved in the operation, rigging gear between the hook, the load, the crane's supporting structure (i.e. ground or rail), the load's rigging path, the lift and rigging procedure.

1.2.14 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.2.15 Qualified Person, Fall Protection (QP for FP)

A QP for FP is a person meeting the requirements of EM 385-1-1 Appendix Q, and ASSE/SAFE Z359.0, with a recognized degree or professional certificate and with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, and evaluating and specifying fall protection and rescue systems.

1.2.16 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

b. Days away from work (any time lost after day of injury/illness onset);

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

g. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (a) through (f) above.

1.2.17 USACE Property and Equipment

Interpret "USACE" property and equipment specified in USACE EM 385-1-1 as Government property and equipment.

1.2.18 Load Handling Equipment (LHE) Accident or Load Handling Equipment Mishap

A LHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment;

two-blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents, even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, or roll over). Document any mishap that meets the criteria described in the Contractor Significant Incident Report (CSIR) using the Crane High Hazard working group mishap reporting form.

1.3 1.3 DESCRIPTION OF WORK

Most of the work under this contract will occur within public roadways or other areas outside of the Durham Meadows Superfund Site source areas. However, installation of a water service connection to the Durham Manufacturing Company located at 201 and 203 Main Street will involve trenching in an area of known soil and groundwater contamination. The known site soil and groundwater contaminants in the work area are shown on Contract Drawing C-21 and include volatile organic compounds (VOCs), particularly TCE, PCE, methylene chloride. Well abandonment work throughout the project area will also involve potential contact with groundwater contaminated with VOCs. A summary of Site contamination is included in Appendix D "Historic Site Data" at the end of the specifications.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G, RO

SD-02 Shop Drawings

Work Zones; G, RO

Decontamination Facilities; G, RO

SD-03 Product Data

Amendments to the APP/SSHP

Exposure Monitoring/Air Sampling Program

Site Control Log

Employee Certificates

Certificate of Worker/Visitor Acknowledgement

SSHO's Daily Inspection Logs

Safety and Health Phase-Out Report

SD-06 Test Reports

Monthly Exposure Reports

Notifications and Reports

Accident Reports; G, RO

LHE Inspection Reports

SD-07 Certificates

Crane Operators/Riggers

Standard Lift Plan; G, RO

Critical Lift Plan ; G, RO

Activity Hazard Analysis (AHA)

Hot Work Permit

Certificate of Compliance

License Certificates

1.5 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report and attach to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the voucher.

1.6 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, comply with the most recent edition of USACE EM 385-1-1 OSHA requirements in 29 CFR 1910 and 29 CFR 1926. OSHA Standards 29 CFR 1926.65 and 29 CFR 1910.120 state specific OSHA requirements here applicable. Submit matters of interpretation of standards to the appropriate administrative agency or Contracting Officer for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.7 PRECONSTRUCTION SAFETY CONFERENCE

Conduct a preconstruction safety conference prior to the start of site activities and after submission of the Contractor's APP/SSHP. The objective of the meeting will be to discuss health and safety concerns related to the impending work, discuss project health and safety organization and expectations, review and answer comments and concerns regarding the APP/SSHP or other health and safety concerns the Contractor may have. Ensure that those individuals responsible for health and safety at the project level are available and attend this meeting.

1.8 ACCIDENT PREVENTION PLAN/SITE SAFETY AND HEALTH PLAN (APP/SSHP)

The contractor's qualified person must prepare and implement a written

site-specific APP including a Site Safety and Health Plan to be attached to the APP as an appendix. Prepare the APP/SSHP in accordance with the format and requirements of EM 385-1-1, Appendix A, and Section 33.B.02. Cover all paragraph and subparagraph elements. There are overlapping elements in Section 33.B.02 and Appendix A of EM 385-1-1. SSHP appendix elements that overlap with APP elements need not be duplicated in the APP/SSHP provided each SOH issue receives adequate attention and is documented in the APP/SSHP.

The APP/SSHP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP/SSHP must interface with the Contractor's overall safety and health program. The APP/SSHP is a dynamic document, subject to change as project operations/execution change. The APP/SSHP will require modification to address changing and previously unidentified health and safety conditions. It is the Contractor's responsibility to ensure that the APP/SSHP is updated accordingly. Submit amendments to the APP/SSHP to the COR as the APP/SSHP is updated.

The APP/SSHP shall describe methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP/SSHP must be signed by an officer of the firm (Prime Contractor senior person), the individual preparing the APP/SSHP, the on-site superintendent, the designated SSHO, the Contractor Quality Control Manager, and any designated Certified Safety Professional (CSP) or Certified Health Physicist (CIH). The SSHO must provide and maintain the APP/SSHP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP/SSHP, and make the APP/SSHP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP/SSHP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP/SSHP. Once reviewed and accepted by the Contracting Officer, the APP/SSHP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP/SSHP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP/SSHP, as necessary, throughout the life of the contract. Changes to the accepted APP/SSHP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control Manager.

Incorporate unusual or high-hazard activities not identified in the original APP/SSHP as they are discovered. Should any severe hazard exposure (i.e. imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer immediately of such a discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite

personnel, visitors, the public (as defined by ASSE/SAFE A10.34), and the environment.

It is the Contractor's responsibility to evaluate occupational safety and health hazards as the work progresses and to adjust the PPE and onsite operations, if necessary, so that the work is performed safely and in compliance with occupational safety and health regulations.

1.8.1 1.8.1 Acceptance and Modifications

Prior to submittal, the APP/SSHP must be signed and dated by the Safety and Health Manager and the Site Superintendent. Submit for review 14 days prior to the Preconstruction Safety Conference. Deficiencies in the APP/SSHP will be discussed at the preconstruction safety conference, and be revised to correct the deficiencies and resubmitted for acceptance. Onsite work must not begin until the plan has been accepted. Maintain a copy of the written APP/SSHP onsite. Changes and modifications to must be made with the knowledge and concurrence of the Safety and Health Manager, the Site Superintendent, and the Contracting Officer. Bring to the attention of the Safety and Health Manager, the Site Superintendent, and the Contracting Officer any unforeseen hazard that becomes evident during the performance of the work, through the Site Safety and Health Officer (SSHO) for resolution as soon as possible. In the interim, take necessary action to re-establish and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Disregard for the provisions of this specification or the accepted APP/SSHP will be cause for stopping work until the matter has been rectified.

1.8.2 Names and Qualifications

Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance.

1.8.3 Availability

Make available the APP/SSHP in accordance with 29 CFR 1910.120, (b)(1)(v) and 29 CFR 1926.65, (b)(1)(v).

1.9 SITE QUALIFICATIONS AND DUTIES

1.9.1 Personnel Qualifications

1.9.1.1 Safety and Health Manager

Safety and Health Manager must be an Industrial Hygienist certified by the

American Board of Industrial Hygiene or a safety professional certified by the Board of Certified Safety Professionals and have the following additional qualifications:

a. A minimum of 3 years experience in developing and implementing safety and health programs at hazardous waste sites.

b. Documented experience in supervising professional and technician level personnel.

c. Documented experience in developing worker exposure assessment programs and air monitoring programs and techniques.

d. Documented experience in managing personal protective equipment programs and conducting PPE hazard evaluations for the types of activities and hazards likely to be encountered on the project.

e. Working knowledge of state and Federal occupational safety and health regulations.

1.9.1.2 Site Safety and Health Officer (SSHO)

The SSHO must meet the requirements of EM 385-1-1, Section 1. The SSHO must ensure that the requirements of 29 CFR 1926.16 are met for the project. Provide a Safety oversight team that includes a minimum of one (1) person at each project site to function as the Site Safety and Health Officer (SSHO). The SSHO or an equally-qualified Alternate SSHO must be at the work site at all times to implement and administer the Contractor's safety program and government-accepted APP/SSHP. The SSHO and Alternate SSHO must have the required training, experience, and qualifications in accordance with EM 385-1-1 Section 01.A.17, and all associated sub-paragraphs. The SSHO shall have no other duties.

1.9.1.3 Contractor Quality Control (QC) Manager

The Contractor Quality Control (QC) person cannot be the SSHO on this project, even though the QC has safety inspection responsibilities as part of the QC duties.

1.9.1.4 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing, and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan, must be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Contracting Officer for information in consultation with the Safety Office.

1.9.1.5 Competent Person for Scaffolding

Provide a Competent Person for Scaffolding who meets the requirements of EM 385-1-1, Section 22.B.02 and herein.

1.9.1.6 Competent Person for Fall Protection

Provide a Competent Person for Fall Protection who meets the requirements of EM 385-1-1, Section 21.C.04 and herein.

1.9.1.7 Qualified Trainer Requirements

Individuals qualified to instruct the 40 hour contract safety awareness course, or portions thereof, must meet the definition of a Competent Person Trainer, and, at a minimum, possess a working knowledge of the following subject areas: EM 385-1-1, Electrical Standards,Lockout/Tagout, Fall Protection, Confined Space Entry for Construction; Excavation, Trenching and Soil Mechanics, and Scaffolds in accordance with 29 CFR 1926.450, Subpart L.

Instructors are required to:

a. Prepare class presentations that cover construction-related safety requirements. Ensure that all attendees attend all sessions by using a class roster signed daily by each attendee. Maintain copies of the roster for at least five (5) years. This is a certification class and must be attended 100 percent. In cases of emergency where an attendee cannot make it to a session, the attendee can make it up in another class session for the same subject.

b. Update training course materials whenever an update of the EM 385-1-1 becomes available.

c. Provide a written exam of at least 50 questions. Students are required to answer 80 percent correctly to pass.

1.9.1.8 Crane Operators/Riggers

Provide Operators meeting the requirements in EM 385-1-1, Section 15.B for Riggers and Section 16.B for Crane Operators. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacities of 50,000 pounds or greater, designate crane operators qualified by a source that qualifies crane operators (i.e., union, a government agency, or an organization that tests and qualifies crane operators). Provide proof of current qualification.

1.9.2 Personnel Duties

1.9.2.1 Duties of the Safety and Health Manager

a. Be responsible for the development, implementation, oversight, and enforcement of the APP/SSHP.

b. Sign and date the APP/SSHP prior to submittal.

c. Conduct initial site-specific training.

d. Be present onsite during the first 3 days of activities and at the startup of each new major phase of work.

e. Visit the site as needed and at least once per month for the duration of activities, to audit the effectiveness of the APP/SSHP.

f. Be available for emergencies.

g. Provide onsite consultation as needed to ensure the APP/SSHP is fully implemented.

h. Coordinate any modifications to the APP/SSHP with the Site Superintendent, the SSHO, and the Contracting Officer.

i. Provide continued support for upgrading/downgrading of the level of personal protection.

j. Be responsible for evaluating air monitoring data and recommending changes to engineering controls, work practices, and PPE.

k. Review accident reports and results of daily inspections.

l. Serve as a member of the Contractor's quality control staff.

1.9.2.2 Duties of the Site Safety and Health Officer (SSHO)

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety inspection logs to the Contractors' daily production report.

b. Conduct mishap investigations and complete required accident reports. Report mishaps and near misses.

c. Use OSHA's Form 300 to log work-related injuries and illnesses occurring on the project site for Prime Contractors and subcontractors. Post and maintain the Form 300 on the site Safety Bulletin Board.

d. Maintain applicable safety reference material on the job site.

e. Attend the pre-construction conference, pre-work meetings including preparatory meetings, and periodic in-progress meetings.

f. Review the APP and AHAs for compliance with EM 385-1-1, and approve, sign, implement and enforce them.

g. Establish a Safety and Occupational Health (SOH) Deficiency Tracking System that lists and monitors outstanding deficiencies until resolution.

h. Ensure subcontractor compliance with safety and health requirements.

i. Maintain a list of hazardous chemicals on site and their material Safety Data Sheets (SDS).

j. Provide and keep a record of site safety orientation and indoctrination for Contractor employees, subcontractor employees, and site visitors.

k. Maintain a weekly list of high hazard activities involving energy, equipment, excavation, entry into confined space, and elevation, and be prepared to discuss details during QC Meetings

Superintendent, QC Manager, and SSHO are subject to dismissal if the above

duties are not being effectively carried out. If Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.9.3 Meetings

1.9.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction conference. This includes the project superintendent, Site Safety and Occupational Health officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin work until an APP is established that is acceptable to the Contracting Officer.

1.9.3.2 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors on the project location. The SSHO, supervisors, foremen, or CDSOs must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance. A copy of a suggested weekly safety meeting form is attached at the end of this section.

1.10 TRAINING

Meet the following requirements in the Contractor's training program for workers who will be exposed to contaminants.

1.10.1 General Hazardous Waste Operations Training

All Personnel performing duties with potential for exposure to onsite contaminants must meet and maintain the following 29 CFR 1910.120/ 29 CFR 1926.65 (e) training requirements:

a. 40 hours of off-site hazardous waste instruction.

b. 3 days actual field experience under the direct supervision of a trained, experienced supervisor.

c. 8 hours refresher training annually.

Onsite supervisors must have an additional 8 hours management and supervisor training specified in 29 CFR 1910.120/29 CFR 1926.65 (e) (4).

1.10.2 Pre-entry Briefing

Prior to commencement of onsite field activities, all site employees, including those assigned only to the Support Zone, must attend a site-specific safety and health training session. This session will be conducted by the Safety and Health Manager and the Site Safety and Health Officer to ensure that all personnel are familiar with requirements and responsibilities for maintaining a safe and healthful work environment. Thoroughly discuss procedures and contents of the accepted APP/SSHP and Sections 01.B.02 and 28.D.03 of EM 385-1-1. Each employee must sign a training log to acknowledge attendance and understanding of the training. Notify the Contracting Officer at least 5 days prior to the initial site-specific training session so government personnel involved in the project may attend.

1.10.3 Periodic Sessions

Conduct periodic onsite training by the SSHO at least weekly for personnel assigned to work at the site during the following week. Address safety and health procedures, work practices, any changes in the APP/SSHP, activity hazard analyses, work tasks, or schedule; results of previous week's air monitoring, review of safety discrepancies and accidents. Convene a meeting prior to implementation of the change must be convened should an operational change affecting onsite field work be made, to explain safety and health procedures. Conduct a site-specific training sessions for new personnel, visitors, and suppliers by the SSHO using the training curriculum outlines developed by the Safety and Health Manager. Each employee must sign a training log to acknowledge attendance and understanding of the training

1.11 PLANS

Provide plans in the APP in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

1.11.1 Standard Lift Plan (SLP)

Plan lifts to avoid situations where the operator cannot maintain safe control of the lift. Prepare a written SLP in accordance with EM 385-1-1, Section 16.A.03, using Form 16-2 for every lift or series of lifts (if duty cycle or routine lifts are being performed). The SLP must be developed, reviewed and accepted by all personnel involved in the lift in conjunction with the associated AHA. Signature on the AHA constitutes acceptance of the plan. Maintain the SLP on the LHE for the current lift(s) being made. Maintain historical SLPs for a minimum of 3 months.

1.11.2 Critical Lift Plan - Crane or Load Handling Equipment

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01,

using Form 16-3. Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the Contracting Officer 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

In addition to the requirements of EM 385-1-1, Section 16.H.02, the critical lift plan must include the following:

1.11.2.1 lifts of Personnel

For lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400 and EM 385-1-1, Section 16.T.

1.11.2.2 Loads Suspended by Rigging Gear

Multi-purpose machines, material handling equipment, and construction equipment used to lift loads that are suspended by rigging gear, require proof of authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. Demonstrate that the operator is properly trained and that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.11.3 Fall Protection and Prevention (FP&P) Plan

The plan must comply with the requirements of EM 385-1-1, Section 21.D and ASSE/SAFE Z359.2, be site specific, and address all fall hazards in the work place and during different phases of construction. Include Fall Protection and Prevention Plan documentation in the APP/SSHP. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A competent person or qualified person for fall protection must prepare and sign the plan documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of work, roles and responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Review and revise, as necessary, the Fall Protection and Prevention Plan documentation as conditions change, but at a minimum every six months, for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Plan documentation at the job site for the duration of the project.

1.11.4 Rescue and Evacuation Plan

Provide a Rescue and Evacuation Plan in accordance with EM 385-1-1 Section 21.N and ASSE/SAFE Z359.2, and include in the FP&P Plan and as part of the APP. Include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility.

1.11.5 Hazardous Energy Control Program (HECP)

Develop a HECP in accordance with EM 385-1-1 Section 12, 29 CFR 1910.147, 29 CFR 1910.333, 29 CFR 1915.89, ASSE/SAFE Z244.1, and ASSE/SAFE A10.44. Submit this HECP as part of the Accident Prevention Plan (APP). Conduct a preparatory meeting and inspection with all effected personnel to coordinate all HECP activities. Document this meeting and inspection in accordance with EM 385-1-1, Section 12.A.02. Ensure that each employee is

familiar with and complies with these procedures.

1.11.6 Excavation Plan

Identify the safety and health aspects of excavation, and provide and prepare the plan in accordance with EM 385-1-1 and the appropriate technical specification sections.

1.11.7 Site Safety and Health Plan

Identify the safety and health aspects, and prepare in accordance with EM 385-1-1, Section 33.B.02.

1.12 PERSONAL PROTECTIVE EQUIPMENT

1.12.1 Site Specific PPE Program

Provide onsite personnel exposed to contaminants with appropriate personal protective equipment. Components of levels of protection (B, C, D and modifications) must be relevant to site-specific conditions, including heat and cold stress potential and safety hazards. Use only respirators approved by NIOSH. Keep protective equipment and clothing clean and well maintained. Include site-specific procedures to determine PPE program effectiveness and for onsite fit-testing of respirators, cleaning, maintenance, inspection, and storage of PPE within the PPE section of the APP/SSHP.

1.12.2 Levels of Protection

The Safety and Health Manager must establish and evaluate as the work progresses the levels of protection for each work activity. Also establish action levels for upgrade or downgrade in levels of PPE. Describe in the SSHP the protocols and the communication network for changing the level of protection. Address air monitoring results, potential for exposure, changes in site conditions, work phases, job tasks, weather, temperature extremes, individual medical considerations, etc. within the PPE evaluation protocol.

1.12.2.1 Initial PPE Components

Initial minimum protective clothing and equipment shall conform to Level D.

1.13 MEDICAL SURVEILLANCE PROGRAM

Meet 29 CFR 1910.120/29 CFR 1926.65 (f) and the following requirements for medical surveillance program for workers performing cleanup operations and who will be exposed to contaminants. Assure the Occupational Physician or the physician's designee performs the physical examinations and reviews examination results. Participation in the medical surveillance program will be without cost to the employee, without loss of pay and at a reasonable time and place.

1.13.1 Frequency of Examinations

Medical surveillance program participants must receive medical examinations and consultations on the following schedule:

a. Every 12 months

b. If and when the participant develops signs and symptoms indicating a possible overexposure due to an uncontrolled release of a hazardous substance on the project.

c. Upon termination or reassignment to a job where medical surveillance program participation is not required, unless his/her previous annual examination/consultation was less than 6 months prior to reassignment or termination.

d. On a schedule specified by the occupational physician.

1.13.2 Content of Physical Examinations/Consultation

Verify the following information about medical surveillance program participants:

a. Baseline health conditions and exposure history.

b. Allergies/sensitivity/susceptibility to hazardous substances exposure.

c. Ability to wear personal protective equipment inclusive of NIOSH certified respirators under extreme temperature conditions.

d. Fitness to perform assigned duties.

Provide the occupational physician with the following information for each medical surveillance program participant:

a. Information on the employee's anticipated or measured exposure.

b. A description of any PPE used or to be used.

c. A description of the employee's duties as they relate to the employee's exposures (including physical demands on the employee and heat/cold stress).

d. A copy of 29 CFR 1910.120, or 29 CFR 1926.65.

e. Information from previous examinations not readily available to the examining physician.

f. A copy of Section 5.0 of NIOSH 85-115.

g. Information required by 29 CFR 1910 Section .134.

1.13.3 Physician's Written Opinion

Obtain and furnish to the Safety and Health Manager; and the employee before work begins, a copy of the physician's written opinion for each employee. Address the employee's ability to perform hazardous waste site remediation work and containing the following:

a. The physician's verification of the employee's fitness to perform duties as well as recommended limitations upon the employee's assigned work and/or PPE usage.

b. The physician's opinion about increased risk to the employee's health resulting from work; and

c. A statement that the employee has been informed and advised about the results of the examination.

1.13.4 Employee Certificates

Provided on employee certificates for each worker performing cleanup operations with potential for contaminant-related occupational exposure signed by the safety and health manager and the occupational physician indicating the workers meet the training and medical surveillance requirements of this contract.

1.14 EXPOSURE MONITORING/AIR SAMPLING PROGRAM

Prepare and implement by the Safety and Health Manager an exposure monitoring/air sampling program to identify and quantify safety and health hazards and airborne levels of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment for affected site personnel. Include action levels for upgrading/downgrading PPE in the program. Submit personnel exposure monitoring/sampling results.

1.15 HEAT STRESS MONITORING AND MANAGEMENT

Document in the APP/SSHP and implement the procedures and practices in section 06.J. in EM 385-1-1 to monitor and manage heat stress.

1.16 SPILL AND DISCHARGE CONTROL

Develop and implement written spill and discharge containment/control procedures. Address radioactive wastes, shock sensitive wastes, laboratory waste packs, material handling equipment, as well as drum and container handling, opening, sampling, shipping and transport. Describe prevention measures, such as building berms or dikes; spill control measures and material to be used (e.g. booms, vermiculite); location of the spill control material; personal protective equipment required to cleanup spills; disposal of contaminated material; and who is responsible to report the spill. Storage of contaminated material or hazardous materials must be appropriately bermed, diked and/or contained to prevent any spillage of material on uncontaminated soil. If the spill or discharge is reportable, and/or human health or the environment are threatened, the National Response Center, the state, and the Contracting Officer must be notified as soon as possible.

1.17 MATERIALS TRANSFER SAFETY

Remove liquids and residues from the tanks using explosion-proof or air-driven pumps. Bond to the tank and ground pump motors and suction hoses to prevent electrostatic ignition hazards. Use of a hand pump will be permitted to remove the last of the liquid from the bottom of the tanks. If a vacuum truck is used for removal of liquids or residues, the area of operation for the vacuum truck must be vapor free. locate the truck upwind from the tank and outside the path of probable vapor travel. Discharge the vacuum pump exhaust gases through a hose of adequate size and length downwind of the truck and tank area. Vacuum truck operating and safety practices must conform to API RP 2219. Collect tank residues in drums, tanks, or tank trucks labeled according to 49 CFR 171 and 49 CFR 172 and disposed of as specified. Disconnect and drain fittings and lines of their contents after the materials have been transferred and the tanks have

been exposed. Do not spill contents into the environment during cutting or disconnecting of tank fittings. Transfer materials drained into DOT-approved drums for storage and/or transportation. Only non-sparking or non-heat producing tools shall be used to disconnect and drain or to cut through tank fittings. Electrical equipment (e.g., pumps, portable hand tools, etc.) used for tank preparation must be explosion-proof. Following cutting or disconnecting of the fittings, plug openings leading to the tanks.

1.18 HOT WORK

Hot work will not be permitted on or within the tanks or anywhere else not previously specified as a hot work area, except as outlined herein. Prior to conducting hot work, a hot work permit must be prepared by the person to be conducting the hot work and reviewed and signed off by the Contractor's qualified person. An additional hot work permit may need to be obtained from local authorities or in the case of military or other federal installations, the fire marshal. An example format for a hot work permit must be included in the AAPP/SSHP. Describe compliance with the following procedures. After tank interiors have been decontaminated, hot work may be conducted only when the tank is inerted, and to the extent necessary to begin dismantling the tanks. After decontamination of tank interiors, hot work must not be performed unless monitoring indicates atmospheres within and immediately surrounding the tanks are less than 8 percent oxygen inside the tank and less than 10 percent of the LFL outside the tank; continuous monitoring must continue until the hot work is completed. The hot work prohibition includes welding, cutting, grinding, sawing, or other similar operations which could be expected to potentially generate combustion-producing temperatures or sparks, or which could produce potentially hazardous fumes or vapors. Designate an individual at each hot work site as a fire watch. This person's sole responsibility is to monitor the hot work and have immediate access to the fire extinguisher located at each hot work site. A new permit must be obtained at the start of each work shift during which hot work will be conducted.

1.19 SITE CONTROL MEASURES

1.19.1 Work Zones

Initial anticipated work zone boundaries (exclusion zone, contamination reduction zone, support zone, all access points and decontamination areas) are to be clearly delineated on the site drawings. Base delineation of work zone boundaries on the contamination characterization data and the hazard/risk analysis to be performed as described in paragraph: HAZARD/RISK ANALYSIS. As work progresses and field conditions are monitored, work zone boundaries may be modified (and site drawings modified) with approval of the Contracting Officer. Clearly identify work zones and marked in the field (using fences, tape, signs, etc.). Submit and post a site map, showing work zone boundaries and locations of decontamination facilities in the onsite office. Work zones must consist of the following:

1.19.1.1 Exclusion Zone (EZ)

The exclusion zone is the area where hazardous contamination is either known or expected to occur and the greatest potential for exposure exists. Control entry into this area and exit may only be made through the CRZ.

1.19.1.2 Contamination Reduction Zone (CRZ)

The CRZ is the transition area between the Exclusion Zone and the Support Zone. The personnel and equipment decontamination areas must be separate and unique areas located in the CRZ.

1.19.1.3 Support Zone (SZ)

The Support Zone is defined as areas of the site, other than exclusion zones and contamination reduction zones, where workers do not have the potential to be exposed to hazardous substances or dangerous conditions resulting from hazardous waste operations. Secure the Support Zone against active or passive contamination. Site offices, parking areas, and other support facilities must be located in the Support Zone.

1.20 SITE CONTROL LOG

A log of personnel visiting, entering, or working on the site must be maintained. Include the following: date, name, agency or company, time entering and exiting site, time entering and exiting the exclusion zone (if applicable). Before visitors are allowed to enter the Contamination Reduction Zone or Exclusion Zone, they must show proof of current training, medical surveillance and respirator fit testing (if respirators are required for the tasks to be performed) and fill out a Certificate of Worker or Visitor Acknowledgment. Record this visitor information, including date, in the log.

1.21 COMMUNICATION

Provide and install an employee alarm system that has adequate means of on and off site communication in accordance with 29 CFR 1910 Section .165. The means of communication must be able to be perceived above ambient noise or light levels by employees in the affected portions of the workplace. The signals must be distinctive and recognizable as messages to evacuate or to perform critical operations.

1.22 SITE SECURITY

Print signs in bold large letters on contrasting backgrounds. Signs must be visible from all points where entry might occur and at such distances from the restricted area that employees may read the signs and take necessary protective steps before entering.

1.23 PERSONAL HYGIENE AND DECONTAMINATION

Personnel entering the Exclusion or Contamination Reduction Zones or otherwise exposed to hazardous chemical vapors, gases, liquids, or contaminated solids must decontaminate themselves and their equipment prior to exiting the contamination reduction zone (CRZ) and entering the support zone. Consult Chapter 10.0 of NIOSH 85-115 when preparing decontamination procedures. Submit a detailed discussion of personal hygiene and decontamination facilities and procedures to be followed by site workers as part of the APP/SSHP. Train employees in the procedures and enforce the procedures throughout site operations.

1.23.1 Decontamination Facilities

Submit drawings showing the layout of the personnel and equipment decontamination areas.

1.23.2 Personnel Decontamination

Initially set up a decontamination line in the CRZ. Employees must exit the exclusion zone through the CRZ and implement the following decontamination procedures and techniques: hand and face wash. Showers, if needed, must comply with 29 CFR 1910, Section.141 and EM 385-1-1, 02 C, Washing Facilities. It is the Site Safety and Health Officer's responsibility to recommend techniques to improve personnel decontamination procedures, if necessary.

1.23.3 Equipment Decontamination

Decontaminate the vehicles and equipment used in the EZ shall be decontaminated in the CRZ prior to leaving the site.

1.23.3.1 Procedures

Procedures for equipment decontamination must be developed and utilized to prevent the spread of contamination into the SZ and offsite areas. These procedures must address disposal of contaminated products and spent materials used on the site, including containers, fluids, oils, etc. Assume any item taken into the EZ to be contaminated and perform an inspection and decontaminate. Vehicles, equipment, and materials must be cleaned and decontaminated prior to leaving the site. Handle construction material in such a way as to minimize the potential for contaminants being spread and/or carried offsite. Prior to exiting the site, vehicles and equipment must be monitored to ensure the adequacy of decontamination.

1.24 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1, Section 1 or as directed by the Contracting Officer. Submit the AHA for review at least 15 working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.24.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.24.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.25 DISPLAY OF SAFETY INFORMATION

1.25.1 Safety Bulletin Board

Within one calendar day after commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section 01.A.06. Additional items required to be posted include: Hot work permit

1.25.2 Safety and Occupational Health (SOH) Deficiency Tracking System

Establish a SOH deficiency tracking system that lists and monitors the status of SOH deficiencies in chronological order. Use the tracking system to evaluate the effectiveness of the APP. A monthly evaluation of the data must be discussed in the QC or SOH meeting with everyone on the project. The list must be posted on the project bulletin board and updated daily, and provide the following information:

a. Date deficiency identified;

b. Description of deficiency;

c. Name of person responsible for correcting deficiency;

d. Projected resolution date;

e. Date actually resolved.

1.26 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.27 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.28 NOTIFICATIONS and REPORTS

1.28.1 Mishap Notification

Notify the Contracting Officer as soon as practical, but no more than four hours, after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury,

illness, load handling equipment (LHE) or rigging mishaps, or any property damage. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any mishap.

1.28.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. Complete the applicable USACE Accident Report Form 3394, and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

b. Conduct an accident investigation for any load handling equipment accident (including rigging gear accidents) to establish the root cause(s) of the accident. Complete the Accident Report form and provide the report to the Contracting Officer within TEN calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer.

1.28.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.28.4 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

Provide a FORM 16-1 Certificate of Compliance for LHE entering an activity under this contract and in accordance with EM 385-1-1. Post certifications on the crane.

Develop a Standard Lift Plan (SLP) in accordance with EM 385-1-1, Section 16.H.03 using Form 16-2 Standard Pre-Lift Crane Plan/Checklist for each lift planned. Submit SLP to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

1.29 HOT WORK

1.29.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e. welding or cutting) or operating other flame-producing/spark producing devices, from the local fire department. A permit is required from the Explosives Safety Office for work in and around where explosives are processed, stored, or handled. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of one hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency local fire department phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE LOCAL FIRE DEPARTMENT IMMEDIATELY.

1.30 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Long Pants

b. Appropriate Safety Shoes

c. Hard Hat

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. An employee check-in/check-out communication procedure must be developed to ensure employee safety.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.3 Unforeseen Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e. 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during construction operations, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to FAR 52.243-4, "Changes" and FAR 52.236-2, "Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Apply for utility outages at least 14 days in advance. As a minimum, the request must include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, attend a pre-outage coordination meeting with the Contracting Officer to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1 Section 12, 29 CFR 1910.333, 29 CFR 1915.89, and paragraph

HAZARDOUS ENERGY CONTROL PROGRAM (HECP).

3.4 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with ASSE/SAFE Z359.2 and EM 385-1-1, Sections 21.A and 21.D.

3.4.1 Training

Institute a fall protection training program. As part of the Fall Protection Program, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection in accordance with EM 385-1-1, Section 21.C. Document training and practical application of the competent person in accordance with EM 385-1-1, Section 21.C.04 and ASSE/SAFE Z359.2 in the AHA.

3.4.2 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 Section 21.I, 29 CFR 1926.500 Subpart M,ASSE/SAFE Z359.0, ASSE/SAFE Z359.1, ASSE/SAFE Z359.2, ASSE/SAFE Z359.3, ASSE/SAFE Z359.4, ASSE/SAFE Z359.6, ASSE/SAFE Z359.7, ASSE/SAFE Z359.11, ASSE/SAFE Z359.12, ASSE/SAFE Z359.13, ASSE/SAFE Z359.14, and ASSE/SAFE Z359.15.

3.4.2.1 Additional Personal Fall Protection

In addition to the required fall protection systems, other protection such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1, Sections 21.O through 21.O.06. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

3.4.2.2 Personal Fall Protection Harnesses

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabiners must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps,

and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. All full body harnesses must be equipped with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1, Section 21.I.06.

3.4.3 Horizontal Lifelines (HLL)

Provide HLL in accordance with EM 385-1-1, Section 21.I.08.d.2. Commercially manufactured horizontal lifelines (HLL) must be designed, installed, certified and used, under the supervision of a qualified person, for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500). The competent person for fall protection may (if deemed appropriate by the qualified person) supervise the assembly, disassembly, use and inspection of the HLL system under the direction of the qualified person. Locally manufactured HLLs are not acceptable unless they are custom designed for limited or site specific applications by a Registered Professional Engineer who is qualified in designing HLL systems.

3.4.4 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1, Section 21.F.01 and 29 CFR 1926 Subpart M.

3.4.5 Rescue and Evacuation Plan and Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue or assisted-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP). The plan must comply with the requirements of EM 385-1-1, ASSE/SAFE Z359.2, and ASSE/SAFE Z359.4.

3.5 WORK PLATFORMS

3.5.1 Scaffolding

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Comply with the following requirements:

a. Scaffold platforms greater than 20 feet in height must be accessed by use of a scaffold stair system.

b. Ladders commonly provided by scaffold system manufacturers are prohibited for accessing scaffold platforms greater than 20 feet maximum in height.

c. An adequate gate is required.

d. Employees performing scaffold erection and dismantling must be qualified.

e. Scaffold must be capable of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan.

f. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

g. Special care must be given to ensure scaffold systems are not overloaded.

h. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited. The first tie-in must be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

i. Scaffolding other than suspended types must bear on base plates upon wood mudsills (2 in x 10 in x 8 in minimum) or other adequate firm foundation.

j. Scaffold or work platform erectors must have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet.

k. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.5.2 Elevated Aerial Work Platforms (AWPs)

Workers must be anchored to the basket or bucket in accordance with manufacturer's specifications and instructions (anchoring to the boom may only be used when allowed by the manufacturer and permitted by the CP). Lanyards used must be sufficiently short to prohibit worker from climbing out of basket. The climbing of rails is prohibited. Lanyards with built-in shock absorbers are acceptable. Self-retracting devices are not acceptable. Tying off to an adjacent pole or structure is not permitted unless a safe device for 100 percent tie-off is used for the transfer.

Use of AWPs must be operated, inspected, and maintained as specified in the operating manual for the equipment and delineated in the AHA. Operators of AWPs must be designated as qualified operators by the Prime Contractor. Maintain proof of qualifications on site for review and include in the AHA.

3.6 EQUIPMENT

3.6.1 Material Handling Equipment (MHE)

a. Material handling equipment such as forklifts must not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions. Material handling equipment fitted with personnel work platform attachments are prohibited from traveling or positioning while personnel are working on the platform.

b. The use of hooks on equipment for lifting of material must be in

accordance with manufacturer's printed instructions. Material Handling Equipment Operators must be trained in accordance with OSHA 29 CFR 1910, Subpart N.

c. Operators of forklifts or power industrial trucks must be licensed in accordance with OSHA.

3.6.2 Load Handling Equipment (LHE)

a. Equip cranes and derricks as specified in EM 385-1-1, Section 16.

b. Notify the Contracting Officer 15 working days in advance of any LHE entering the activity, in accordance with EM 385-1-1, Section 16.A.02, so that necessary quality assurance spot checks can be coordinated.Contractor's operator must remain with the crane during the spot check. Rigging gear must comply with OSHA, ASME B30.9 Standards safety standards.

c. Comply with the LHE manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, ASME B30.8 for floating cranes and floating derricks, ASME B30.9 for slings, ASME B30.20 for below the hook lifting devices and ASME B30.26 for rigging hardware.

e. Under no circumstance must a Contractor make a lift at or above 90 percent of the cranes rated capacity in any configuration.

f. When operating in the vicinity of overhead transmission lines, operators and riggers must be alert to this special hazard and follow the requirements of EM 385-1-1 Section 11, and ASME B30.5 or ASME B30.22 as applicable.

g. Do not use crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane. Additionally, submit a specific AHA for this work to the Contracting Officer. Ensure the activity and AHA are thoroughly reviewed by all involved personnel.

h. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

i. All employees must keep clear of loads about to be lifted and of suspended loads.

j. Use cribbing when performing lifts on outriggers.

k. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

l. A physical barricade must be positioned to prevent personnel access where accessible areas of the LHE's rotating superstructure poses a risk of striking, pinching or crushing personnel.

m. Maintain inspection records in accordance by EM 385-1-1, Section 16.D, including shift, monthly, and annual inspections, the signature of the person performing the inspection, and the serial number or other identifier of the LHE that was inspected. Records must be available for review by the Contracting Officer.

n. Maintain written reports of operational and load testing in accordance with EM 385-1-1, Section 16.F, listing the load test procedures used along with any repairs or alterations performed on the LHE. Reports must be available for review by the Contracting Officer.

o. Certify that all LHE operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

p. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. At wind speeds greater than 20 mph, the operator, rigger and lift supervisor must cease all crane operations, evaluate conditions and determine if the lift may proceed. Base the determination to proceed or not on wind calculations per the manufacturer and a reduction in LHE rated capacity if applicable. Include this maximum wind speed determination as part of the activity hazard analysis plan for that operation.

3.6.3 Machinery and Mechanized Equipment

a. Proof of qualifications for operator must be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment must be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

3.6.4 USE OF EXPLOSIVES

Explosives shall not be used.

3.7 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.7.1 Utility Locations

Provide a third party, independent, private utility locating company to positively identify underground utilities in the work area in addition to any station locating service and coordinated with the station utility department.

3.7.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system.

3.7.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company must locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the Contractor from meeting this requirement.

3.8 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1, Appendix A, Sections 11 and 12.

3.8.1 Conduct of Electrical Work

As delineated in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases obtain an energized work permit from the Contracting Officer. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147.

3.8.2 Qualifications

Electrical work must be performed by QP personnel with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local requirements applicable to where work is being performed.

3.8.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.8.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 and IEEE C2 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

Check grounding circuits to ensure that the circuit between the ground and a grounded power conductor has a resistance low enough to permit sufficient current flow to allow the fuse or circuit breaker to interrupt the current.

3.8.5 Testing

Temporary electrical distribution systems and devices must be inspected,

tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system, and signed by the electrical CP or QP.

WEEKLY SAFETY MEETING

CENAE Date Held _____
Time_____

SUBJECT: CONTRACT NO. _____ - WEEKLY SAFETY MEETING

CONTRACTOR _____

Date and Time Held: _____

Conducted By: _____

PERSONNEL PRESENT		
Contr.	Sub.	Govt.

All persons attending the meeting must sign the bottom or back of this form.

Subjects discussed (Note, delete, or add):
EM 385-1-1, Section:_____

Accident Prevention Plan	___	Individual Protective Equipment	___
Prevention of Falls	___	Back Injury/Safe Lifting Techniques	___
Fire Prevention	___	Sanitation, First Aid, Waste Disposal	___
Tripping Hazards	___	Clean-up - trash, nails in lumber	___

Staging, Ladders, Concrete Forms, Safety Nets ___

Hand Tools, Power Tools, Machinery, Chain Saws ___

Equipment Inspection & Maintenance (Zero Defects) ___

Hoisting Equipment, Winch and Crane Safety ___

Ropes, Hooks, Chains and Slings ___

Vehicle Operation Safety ___

Electrical Grounding, Temporary Wiring, GFCI ___

Lockouts/Safe clearance procedures
(electrical, pressure, moving parts) ___

Welding, Cutting	___	Excavation Hazard/Rescue	___
Loose Rock/Steep Slopes	___	Explosives	___
Water Safety	___	Boat Safety	___

HAZMAT, Toxic hazards, MSDS, respiratory, ventilation ___

Other Items of concern specific to this contract:

CQC Rep. Signature_____ CE Inspector _____

CF:

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 39 00

PRE- AND POST-CONSTRUCTION SURVEYS

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PART 3 EXECUTION

3.1 PRE- AND POST-CONSTRUCTION SURVEYS

-- End of Section Table of Contents --

SECTION 01 39 00

PRE- AND POST-CONSTRUCTION SURVEYS

PART 1 GENERAL

1.1 DESCRIPTION

A. Provide pre- and post-construction surveys and construction photographs as indicated and specified.

B. Section includes administrative and procedural requirements for the following:

1. Pre-construction photographs.

2. Final completion construction photographs.

3. Pre-construction video recordings.

4. Certified topographic field surveys performed by a registered land surveyor to determine first floor elevations, etc,. as specified herein.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Qualification Data; G, RO

Samples of work by proposed photographer on construction photography ofsimilar nature to the work under this Contract.

Field Reports; G, RO

Four copies of each draft and final Pre-Construction Survey reports. Four copies of each draft and final Post-Construction Survey reports.

Key Plan; G, RO

Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

Digital Photographs; G, RO

Submit image files within (3) days of taking photographs.

1. Digital Camera: Minimum sensor resolution of (8)

megapixels.

2. Format: Minimum (3200 by 2400) pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.

3. Identification: Provide the following information with each image description in file metadata tag:
a. Name of Project.
b. Name and contact information for photographer.
c. Name of Contractor.
d. Date photograph was taken.
e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
f. Unique sequential identifier keyed to accompanying key plan.

Video Recordings; G, RO

Submit video recordings within seven (7) days of recording.

1. Submit video recordings in digital video disc format acceptable to Contracting Officer.

2. Identification: With each submittal, provide the following information:
a. Name of Project.
b. Name and address of photographer.
c. Name of Contractor.
d. Date video recording was recorded.
e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
f. Weather conditions at time of recording.

Transcript; G, RO

Prepared on 8-1/2-by-11-inch paper, punched and bound in heavyduty, three-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as corresponding video recording. Include name of Project and date of video recording on each page.

1.3 QUALITY CONTROL

A. Comply with the requirements specified in Section 01 45 00 QUALITY CONTROL.

B. Photographer to use techniques, material and equipment capable of producing photographs with a minimum of six megapixels.

C. Dates for photography at site to be coordinated with the Property Owner. The Owner must be present during photographic periods at site.

D. Photographer to make and retain all photographs and digital files.

E. The topographic survey shall be performed by or under the supervision of and certified by a Connecticut Registered Land Surveyor.

1.4 USAGE RIGHTS

Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

1.5 SEQUENCING AND SCHEDULING

Dates for Pre- and Post-Construction Survey at the site shall be coordinated with the Contracting Officer.

PART 2 PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of (8) megapixels, and at an image resolution of not less than (3200 by 2400) pixels.

B. Digital Video Recordings: Provide high-resolution, digital video disc in format acceptable to the Contracting Officer.

2.2 PRINTS

A. Type: Color prints.

B. Finish: Smooth glossy surface.

C. Size: 4-inch x 6-inch.

D. Paper weight: Single weight.

E. Number of prints: Two of each photograph.

2.3 PRINT IDENTIFICATION

A. Each print to carry identification and information without interfering with exposure nprinted.

B. Each photograph shall have permanently written on it an identification number for reference and a legible description indicating name of Project, title of contract, number of contract, building, structure or road, owner, date taken, location identification, description data, and Contractor’s name.

C. Back of Print:

1. Project name, photographer’s numbered identification of exposure, time and date of exposure, name of photographer making exposure, detailed description of view including point from which exposure made, compass direction of view, vertical declination of view (horizontal, looking up, looking down, etc.) identification of main features in view and information pertinent to the purpose and identification of the exposure.

2. Weather conditions under which exposure made.

2.4 PRINT MOUNTING

A. Each print to be inserted in a clear plastic envelope intended for the purpose:

1. Envelope material or fabrication shall be acid free.

2. Envelope shall be sealed to prevent print from accidentally slipping out of the envelope.

3. Front and back of print shall be visible through the plastic envelope.

4. Envelope shall be resealable for removal and insertion of print.

5. Envelope shall have a reinforced binding edge for binder specified herein.

2.5 PRINT FILING BINDER

A. Furnish binders for filing as specified in this section.

1. Furnish 2 binders for filing prints. Prints shall be inserted into binders.

2. All binders to be identical.

B. Binders:

1. Intended for long term filing of prints.

2. Provisions for labeling front cover and binding face.

3. Have back and front cover hinges.

4. Of size appropriate for filing mounted prints.

5. Permit removal and insertion of mounted prints.

2.6 PHOTO-CD

Provide photographic compact disc (photo-CD) for digital image at the time of development of each print.

2.7 TOPOGRAPHIC SURVEYS

A. Provide first floor elevations, the corners of buildings and structures foundations both front and rear.

B. Provide elevations of sidewalks, driveways, edge of roadway, retaining walls, fence, garages, sheds, etc.

C. The location of each elevation shall be described in detail in words and located on the plan. The cotour interval shall be 1-foot.

PART 3 EXECUTION

3.1 PRE- AND POST-CONSTRUCTION SURVEYS

Provide construction surveys for existing (pre-construction) and final (post-construction conditions in accordance with the following:

1. Notify the Owner a minimum of 48 hours prior to each survey.

2. The Contractor shall obtain permission, by registered mail, from the Property Owner a minimum of 7 days prior to conducting each interview and survey.

3. If the Contractor is unable, after two repeated attempts, to obtain permission from the Property Owners, then the Contractor shall immediately notify the Contracting Officer so that appropriate measure may be taken.

4. Obtain the age of each facility, known permit modification and foundation information from local building departments.

5. Detailed examination shall include a visual internal and external survey of the building or structure; digital video and color photographs showing visually evident internal and external structural cracks and damage.

6. For the Pre-Construction Survey, interview Property Owner regarding existing conditions and structural faults, and determine dates and extent of recent repairs.

7. Color photographs shall be taken to indicate conditions. The Contractor shall furnish (two) prints of each photograph and photographic compact disk(s).

8. The report shall include location and description of site; results of visual inspection; color photographs; digital video recordings; sketches; results of property owner or tenant interviews. Description of existing facility foundation. Points where deterioration has occurred shall be noted and color photographs and digital video recording taken on all sides of the buildings and structures to show existing condition and any deterioration or other deficiencies. The absence of deficiencies shall also be recorded. The Contracting Officer shall examine said draft reports and may indicate additional information that is required. The final report copies shall be given to the Contracting Officer and the Property Owner.

-- End of Section --

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SECTION 01 41 00

SAMPLING PROCEDURES AND LABORATORY SERVICES

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Sampling and analysis requirements related to the following:

1. Testing of soil from areas of known contamination (see drawings) or contaminated soil encountered during the course of the work to meet the requirements for disposal of materials.

2. Testing of construction water treatment system effluent prior to discharge.

1.2 RELATED SECTIONS

A. Section 01 33 00 SUBMITTAL PROCEDURES

B. Section 02053 EXCAVATED MATERIAL MANAGEMENT PLAN

C. Section 02241 CONSTRUCTION WATER MANAGEMENT

D. Section 02210 EARTH EXCAVATION, BACKFILL, FILL, AND GRADING

1.3 DEFINITIONS

AA	Atomic Absorption
CD	Personal computer compatible compact disc
CLP	USEPA Contract Laboratory Program
CTDEEP	Connecticut Department of Energy and Environmental Protection
CY	Cubic yard
DEC	Connecticut Residential Direct Exposure Criteria
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
EPA-NE	EPA New England (Region I)
CT-ETPH	Connecticut Extractable Total Petroleum Hydrocarbons
GC/ECD	gas chromatograph/electron capture detector
GC/FID	gas chromatograph/flame ionization detector
GC/MS	gas chromatograph/mass spectrometer
GWPC	Connecticut Groundwater Protection Criteria
ICP	Inductively coupled plasma
ICP-AES	Inductively coupled plasma/atomic emission spectrometer
ICP/MS	Inductively coupled plasma/mass spectrometer
LQMM	Laboratory Quality Management Manual
MCL	Drinking Water Maximum Contaminant Level
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NELAC	National Environmental Accreditation Conference
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PDF	Adobe Portable Document Format
PMC	Connecticut Pollutant Mobility Criteria
QA	Quality Assurance

QC Quality Control
RCRA Resource Conservation and Recovery Act
RCRA8+Cu arsenic, cadmium, chromium, lead, mercury, barium, selenium, silver, and copper
RSR Connecticut Remediation Standard Regulations
SAP Sampling and Analysis Plan
SOP Standard Operating Procedure
SPLP Synthetic Precipitation Leaching Procedure, EPA Method SW846-1312
TCLP Toxicity Characteristic Leaching Procedure, EPA Method SW846-1311
VOC Volatile Organic Compound

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Sampling and Analysis Plan; G, RO

1. Submit for approval a Sampling and Analysis Plan (SAP) developed in accordance with EPA Guidance for Quality Assurance Project Plans. The SAP must be submitted for approval at least 30 calendar days prior to any sampling activities. Table 01410-1 summarizes the requirements for the analyses to be included in the SAP.

TABLE 01 41 00-1 SAMPLING AND ANLYSIS SUMMARY

MATRIX	TESTING FREQUENCY	ANALYSES	DATA USE
Soil Disposal	As required by disposal facility	As required by disposal facility	Classify excavated material for disposal facility acceptance
Treated Construction Water Discharge	1 per batch treated	VOC's, or as required by the CT DEEP General Permit for Discharge, or other applicable discharge criteria	Document water meets discharge criteria

Table 01 41 00-1 Notes; See Subpart 1.4 for Definition of Terms

2. Prior to the start of Work, the Contractor shall provide a Laboratory Quality Management Manual (LQMM) for each laboratory to be used. The LQMM shall provide the chemical quality control procedures necessary for those chemical analyses to be performed by each contracted laboratory. This submittal may be in the form of a laboratory off-the-shelf Quality Management Manual, provided that all relevant quality assurance (QA)/quality control (QC) procedures are present. The plan(s) shall be submitted by the

Contractor upon selection of laboratories, at least 30 calendar days prior to any sampling activities. The LQMM(s) shall be included as an appendix to the SAP. Each laboratory identified is subject to an audit (either on-site or via document review) by the Contracting Officer.

3. Prior to start of Work, the Contractor shall provide documentation of project organization and quality management responsibilities. This information must be provided in the SAP.

SD-06 Test Reports

Test Reports; G, RO

For analyses without an EPA Contract Laboratory Program (CLP) equivalent, CLP-like deliverables includes summary forms and data as specified by the method's Connecticut Reasonable Confidence Protocol (CT RCP) criteria.

1. Waste Characterization

a. Analytical results shall be submitted to the Contracting Officer at least two business days prior to material being taken off-site and include comparison to the Contractor's designated soil disposal facility limits. Data submittals shall include the results of all analyses, including duplicate sample analyses. Results should also include any unusual observations such as the presence of interferences, etc. Details on the report contents and laboratory turnaround times must be provided in the SAP. It is the responsibility of the Contractor to collect and submit any samples and analytical results required by their disposal facilities directly to those facilities.

b. The analytical results shall be submitted to the Contracting Officer in the form of a Microsoft Excel spreadsheet and in PDF format on a CD or via electronic mail, and also in hard copy form. Field QC sample results (trip blanks, field duplicates, equipment blanks, MS/MSDs) shall be included and clearly identified.

c. Submission of raw data and calculations by the laboratories is required in the format of a digital deliverable, such as a CD for archiving purposes. The CD shall contain full CLP-like deliverables including all raw data.

2. Construction Water Discharge

a. Preliminary analytical results shall be submitted to the Contracting Officer at least 8 business hours prior to discharge of treated water and include comparison to the discharge criteria specified in Section 02240. Final analytical results shall be submitted to the Engineer within 21 calendar days of sample collection. Data submittals shall include the results of all analyses, including duplicate sample analyses. Results should also include any unusual observations such as the presence of interferences, etc. Details on the report contents and laboratory turnaround times must be provided in the SAP.

b. The analytical results shall be submitted to the

Contracting Officer in the form of a Microsoft Excel spreadsheet and in PDF format on a CD or via electronic mail, and also in hard copy form. Field QC sample results (trip blanks, field duplicates, equipment blanks, MS/MSDs) shall be included and clearly identified. After the data evaluation has been performed by the Contractor, the results shall be submitted to the Contracting Officer with the appropriate qualifiers in the same formats and include comparison to the discharge criteria specified in Section 02240.

c. Submission of raw data and calculations by the laboratories is required in the format of a digital deliverable, such as a CD for archiving purposes. The CD shall contain full CLP-like deliverables including all raw data.

Field Notes; G, RO

Copies of field logbook entries, all sample collection forms, and detailed sample location information for all sample collection shall be submitted with the test reports required above. Results of all field measurements performed must be included in these notes and/or summarized in spreadsheet format, as described above.

1.5 CONTRACTOR REQUIREMENTS

A. Laboratory Services

1. The Contractor shall provide and coordinate the services of an environmental chemical laboratory to perform analyses. Laboratory capabilities must be provided for the duration of the work. Laboratories are subject to audit by the Contracting Officer, both on-site or via document review, at any time.

a. Data Quality Requirements

1) The Contractor must adhere to the requirements detailed in their SAP for the project (as required in part 1.5B of this specification.) The purpose of the SAP is to ensure that the Contractor adequately addresses all chemical quality management requirements associated with this project. The Contractor shall ensure that all technical data generated are accurate, precise, and representative. The types and quality of the sampling procedures and analytical testing shall be based on the requirements set forth in these specifications and the SAP. Each contracted laboratory shall submit a LQMM for review and approval by the Contracting Officer.

2) Quality data shall be generated by the Contractor from the following sampling and analysis programs:

(a) Characterization of excavated material for disposal purposes.

(b) Testing of treated construction water, consisting of groundwater from well abandonment activities and equipment decontamination water.

b. Quality Control/Assurance Policy

1) The Contractor shall adhere to the requirements detailed in their approved SAP. The SAP will include consideration of the technical specification requirements and contains provisions to assure identification and compliance with requirements of EPA and Connecticut Department of Environmental Protection (CTDEEP) regulations (.

c. Responsibilities

1) The Contractor's Quality Management Program shall provide assurance that activities affecting chemical quality are documented and accomplished in accordance with written instructions, drawings, and procedures. Provisions shall be established for communicating to all responsible individuals in the Contractor's organization that Quality Assurance policies, plans, and procedures are mandatory requirements which shall be implemented.

2) Activities affecting quality shall be accomplished under controlled conditions. Controlled conditions include the use of appropriate procedures and equipment; suitable environmental conditions for accomplishing the activity, such as adequate cleanliness; documentation that specified decontamination procedures were followed; adequate off-site laboratory facilities; and assurance that all prerequisites for the given activity have been satisfied.

d. Quality Management Organization

1) The Contractor shall execute the SAP which will clearly define the organizational structure within which the SAP is to be implemented and executed. The Contractor shall detail the names, qualifications, authorities, and responsibilities of all QA/QC personnel as well as the relationship and/or interrelationship with the overall project organization. The authority and responsibility of persons performing quality management activities shall be stated in writing. The Quality Management organization shall document the functional lines of authority within the Quality organization.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROJECT ORGANIZATION

A. The Contractor shall provide details relative to the project organization and quality management responsibilities for the Contractor and any Subcontractors to be involved in the completion of the proposed work. This information must be included in the SAP and shall clearly define the project management assignments by name and their responsibilities to ensure compliance with QA/QC protocols.

B. Overall Project Organization

1. Overall project organization shall include schematic diagrams indicating key QA/QC individuals by name for the prime Contractor and

any Subcontractor and showing all Contractor-Subcontractor interactions and responsibilities.

C. List of Key Individuals

1. A listing of key individuals and descriptions of qualifications and experience relative to toxic or hazardous materials/wastes sampling and analyses shall be provided.

D. Sampling Program Organization

1. The Contractor shall clearly specify the sampling program organization to be utilized during all field sampling efforts. The Contractor shall clearly identify whether individual Subcontractors will be responsible for specific sampling programs. The Contractor shall identify all Subcontractors responsible for chain-ofcustody transfer between sample collection and receipt by the laboratories.

E. Contractor Quality Control Supervisor

1. The Contractor’s Quality Control Supervisor shall be responsible for overall management of the Chemical QA/QC System and have the authority to act in all QA/QC matters for the Contractor. The QC Supervisor for this contract shall have the ultimate responsibility to ensure compliance with the approved SAP as well as be in charge of the Contractor’s Quality Control Program for the overall project specifications. The name of this person and/or authorized assistants shall be provided by the Contractor along with a summary of their prior experience which shall demonstrate their ability to perform correctly the duties required to the satisfaction of the Contracting Officer. All of the Contractor’s submittals for approval shall be reviewed and modified or corrected as needed by him or his authorized assistants and approved prior to forwarding of such submittals to the Contracting Officer.

2. The Contractor’s Quality Control Supervisor may designate some of his
responsibilities to another qualified person who shall be approved in advance by the Contracting Officer in the following situations:

a. When the Contractor’s Quality Control Supervisor does not personally have the requisite skills.

b. When the Contractor’s Quality Control Supervisor is unable to be physically present when tasks involving chemical sampling and analysis activities are being conducted on Site.

c. When deemed necessary by the Contracting Officer.

F. Laboratory Certification

1. The Contractor shall show evidence of the prequalification auditing of the certified laboratories. The prequalification shall include a description of the facilities, analytical instrumentation, and personnel responsible for the performance of all laboratory analyses, including supervisors, chemists and technicians. These persons shall be identified together with a corresponding description of experience and qualifications. An on-site audit of the laboratory is not required by the Contractor.

3.2 LABORATORY APPROVAL REQUIREMENTS

A. General

1. The Contractor shall provide and coordinate the services of an analytical laboratory to perform analyses certified by the EPA's National Environmental Laboratory Accreditation Conference (NELAC) within the required turnaround time. The laboratory shall be certified by NELAC for the EPA analytical methodologies required under this program. The SAP must detail the matrices and methods which need to be documented as NELAC accredited. The laboratory is subject to inspection (auditing) and prior approval by the Contracting Officer. In addition, individual laboratories will be required to submit the necessary documentation demonstrating the NELAC certification for the EPA analytical methodologies required under this program.

2. Laboratories shall possess NELAC certification for each environmental matrix and each specific analytical method to be employed. The Contractor must show documentation of prequalification and auditing of all selected laboratories having NELAC certification for all of the analytes and matrices specific to the project. The documentation must show that the laboratories were chosen not only for the low price but for their qualifications. The laboratories' QA plan, resumes, Standard Operating Procedures (SOPs) and Statement of Qualifications which includes lists of laboratory instrumentation, facility description, and experience/references should be available for review by the Contracting Officer. If the laboratory was audited by the Contractor, a record of the results of that audit must be available to the Contracting Officer. All of the above information must show relevance to the project.

B. Inspection and Approval

1. The Contractor's laboratory and organization must be approved by the Contracting Officer prior to receiving Site samples for analysis. Satisfactory completion of the entire laboratory certification process and approval of the individual Laboratory LQMM in accordance with this section must be made before sampling and analysis of any samples may be performed.

C. Laboratory Personnel

1. General

a. The Contractor's laboratory or subcontracted laboratory shall be experienced in the type of testing to be performed. A representative of the laboratory shall coordinate sampling and testing to control the quality of the work. The laboratory personnel will be evaluated and approved with reference to their education and related professional experience in the performance of specified analytical and QA/QC activities. At a minimum, the laboratory personnel shall consist of the following:

2. Organic Laboratory Supervisor

a. An Organic Laboratory Supervisor shall have a minimum of a bachelor's degree in chemistry or any physical science and at least three years of laboratory experience, including at least one

year of supervisory experience.

3. GC/MS Operator

a. A gas chromatograph/mass spectrometer (GC/MS) Operator shall have a minimum of a bachelor's degree in chemistry or any physical science and one year of experience in operating and maintaining GC/MS systems. This applies to operators of low resolution and high resolution GC/MS systems.

4. GC/ECD Operator

a. A gas chromatograph/electron capture detector (GC/ECD) Operator shall have a minimum of a bachelor's degree in chemistry or any physical science and one year of experience in operating and maintaining GC/ECD systems.

5. GC/FID Operator

a. A gas chromatograph/flame ionization detector (GC/FID) Operator shall have a minimum of a bachelor's degree in chemistry or any physical science and one year of experience in operating and maintaining GC/FID systems.

6. Mass Spectral Interpretations Specialist

a. A Mass Spectral Interpretations Specialist shall have a minimum of a bachelor's degree in chemistry or any physical science, a training course(s) in mass spectral interpretation and a minimum of two years' experience.

7. Organic Sample Preparation Specialist

a. An organic sample preparation specialist shall have a minimum of a high school diploma and a college level course in general chemistry or equivalent, and a minimum of six months experience in an analytical laboratory.

8. Back-Up Technician

a. The laboratory shall have a minimum of one (1) chemist available at any one time of operation as a back-up technical person with a minimum of a bachelor's degree in chemistry or any physical science and a minimum of one year experience in each of the following areas: GC/MS operation and maintenance for volatile and semivolatile analyses; mass spectral interpretation; sample extraction and preparation; and GC/ECD operation and maintenance for pesticide/PCB analyses.

9. Inorganics Laboratory Supervisor

a. An Inorganics Laboratory Supervisor shall have a minimum of a bachelor's degree in chemistry or any scientific/engineering discipline and a minimum of three years of laboratory experience, including at least one year in a supervisory position.

10. ICP/AES and/or ICP/MS Spectroscopist

a. An Inductively coupled plasma/atomic emission spectrometer

(ICP/AES) and/or ICP/mass spectrometer (MS) Spectroscopist shall have a minimum of a bachelor's degree in chemistry or any scientific/engineering discipline, a specialized training in ICP/AES and/or ICP/MS Spectroscopy and a minimum of two years of applied experience with ICP/AES and/or ICP/MS analysis of environmental samples.

11. ICP/AES Operator

a. An ICP/AES Operator shall have a minimum of a bachelor's degree in chemistry or any scientific/engineering discipline, a minimum of one year of experience in operating and maintaining ICP/AES instrumentation, in conjunction with the educational requirements; or, in lieu of educational requirements, three additional years of operating and maintaining ICP/AES instrumentation.

12. Atomic Absorption Operator

a. An Atomic Absorption (AA) Operator shall have a minimum of a bachelor's degree in chemistry or any scientific/engineering discipline, a minimum of one year of experience in operating and maintaining AA instrumentation for whichever of the following AA techniques will be utilized during this program: (a) flame, (b) graphite furnace, and (c) cold vapor, in conjunction with the educational requirements; or, in lieu of educational requirements, three additional years of operating and maintaining AA instrumentation, including flame, graphite furnace, and cold vapor techniques.

13. Inorganic Sample Preparation Specialist

a. An Inorganic Sample Preparation Specialist shall have a minimum of a high school diploma and a college level course in general chemistry or equivalent, and a minimum of six months of experience in an analytical laboratory.

14. Spectrophotometric and/or Titration Specialist

a. A Spectrophotometric and/or Titration Specialist (based on which procedure is used for cyanide analysis) shall have a minimum of a high school diploma and a college level course in general chemistry or equivalent, and a minimum of six months of experience in an analytical laboratory.

15. Training

a. The laboratory must provide documentation of all training. This will include the time of training, curriculum of material taught, the qualification of the trainers, and a testing procedure or method of documenting the learning process.

D. Laboratory Facilities

1. Certain basic facilities are necessary for the safe, accurate, and timely analysis of the required samples. At a minimum, the laboratory facilities shall include the following:

2. Sample Receipt Area

a. A sample receipt area providing adequate, contamination-free, well-ventilated work space with chemical resistant bench tops for receipt and safe handling of samples.

3. Storage Area

a. A Storage Area with sufficient refrigerator space to maintain unused sample volume for 60 days after data submission and sample extracts for 365 days after data submission. NOTE: Volatile samples, extractable organic samples, sample extracts, and standards must each be stored separately.

4. Sample Preparation Area

a. A Sample Preparation Area shall have adequate, contamination-free, wellventilated work space provided with: benches with chemical resistant tops, fume hoods, laboratory ovens, desiccators, a vacuum source (Note: Standards must be prepared in a separated hood or isolated area), source of distilled or demineralized organic-free water and analytical balance(s) located away from drafts and rapid changes in temperature.

E. Laboratory Instrumentation

1. At a minimum, the laboratory shall have the following instruments in operation at the time of the post-award laboratory evaluation. The instruments must be committed for the full duration of the contract. The instruments must be capable of achieving the required reporting limits specified in the SAP.

2. Volatile Analysis

a. For volatile analysis, a GC/MS system with a purge and trap device shall be provided.

3. Semivolatile Analysis

a. For semivolatile analysis, a GC/MS system with an autosampler/injector shall be provided.

4. Backup for Organic Instrumentation

a. As a backup for organic instrumentation, the laboratory shall provide, at a minimum, one (1) GC/MS system and one (1) purge and trap device. In addition, the laboratory shall have an in-house stock of instrument parts and circuit boards or maintain manufacturer instrument service contracts for each instrument to ensure continuous operation to meet contract-specified holding times and turnaround times.

5. Metals Analysis (excluding mercury)

a. For the analysis of metals, an ICP/AES and/or an ICP/MS shall be provided. The choice of instruments used will be dependent upon the laboratory and the required reporting limits for metals. The instrument chosen must meet the required reporting limits for metals presented in the SAP. If required reporting limits cannot

be met by ICP/AES and an ICP/MS is unavailable to the laboratory, an atomic absorption spectrophotometer may be used, as specified in this section.

b. If an ICP/MS is unavailable to the laboratory, an AA Metals Analysis spectrophotometer with a graphite furnace shall be provided.

6. Mercury Analysis

a. For mercury analysis, a mercury cold vapor AA analyzer or AA instrument modified for cold vapor analysis shall be provided.

7. Cyanide Analysis

a. For cyanide analysis, a spectrophotometer suitable for measurements between 570 and 580 nanometers shall be provided.

8. Backup for Inorganic Instrumentation

a. As a backup for inorganic instrumentation, the Contractor laboratory shall provide the following: one graphite furnace equipped atomic absorption spectrometer and one mercury cold vapor atomic absorption system. In addition, the Contractor laboratory shall have an in-house stock of circuit boards and instrument parts or maintain manufacturer instrument service contracts for each piece of equipment to ensure continuous operation to meet contract specified turnaround times.

F. Laboratory Management Capability

1. The Contractor laboratory must have an organization with well-defined responsibilities for each individual in the management system to ensure sufficient resources for this contract and to maintain a successful operation. To establish this capability, the Contractor laboratory shall designate personnel to carry out the following responsibilities for the contract. Functions include, but are not limited to, the following:

2. Project Manager

a. Project Manager shall be responsible for overall aspects of the contract (from sample receipt through data delivery) and shall be the primary contact.

3. Sample Custodian

a. Sample Custodian shall be responsible for receiving the samples (logging,
handling and storage).

4. Quality Assurance Officer

a. Quality Assurance Officer shall be responsible for overseeing the quality assurance aspects of the data, ensuring corrective action procedures are implemented when necessary and shall report directly to upper management.

5. Data Reporting and Delivery Officer

a. Data Reporting and Delivery Officer shall be responsible for all aspects of data deliverables organization, packaging, copying, and delivery.

3.3 SAMPLING PROCEDURES

A. Sampling Plan Overview

1. The SAP must include a sampling plan for each matrix to be sampled. Each plan clearly addresses procedures to obtain representative data. The SAP must contain descriptions of sampling equipment and sample sizes. The SAP must contain descriptions of sample containers, sample preservation, sample shipment and handling and sampling program organization. SOPs for sampling, if available, shall be provided by the Contractor and included as an Appendix of the SAP.

2. Sampling and sample custody procedures shall be consistent with EPA guidelines unless otherwise specified.

3. Specific sampling and analytical procedures must be identified in the SAP including related extraction procedures and analytical methodologies for appropriate chemical analyses. Detailed procedures must be provided in the SAP for analytical methodologies requiring special modifications.

4. The Contracting Officer shall have the right to direct modifications to the sampling methodology or SOPs to ensure representative sampling.

5. The SAP shall identify the proposed disposal facilities and describe the analytical and sample frequency requirements of each proposed disposal facility.

6. The SAP shall describe, for all soil disposal characterization samples (including those for delineating TCLP lead exceedances) and excavation control samples:

a. Sample depth interval

b. Rationale and method for creation of composite samples (if used) from grab samples

B. Sampling and Analysis Requirements

1. Sampling and analysis requirements for each matrix must be summarized in the SAP. Requirements are further described in Section 02053 - Excavated Material Management Plan, Section 02241 - Construction Water Management and Section 02210 – Earth Excavation, Backfill, Fill, and Grading. Sampling rationale, frequency requirements associated with each matrix, associated target compounds, required reporting limits, chemical analyses and required QC analyses must be detailed in the SAP.

C. Decontamination Procedures

1. The Contractor shall follow the decontamination procedure that must be provided in the SAP for the decontamination of sampling equipment. Sampling methods and equipment shall be chosen to minimize

decontamination requirements and the possibility of cross contamination. Any sampling equipment used must be decontaminated before use and between sampling locations.

D. Sample Handling

1. Sample Containers and Preservation

a. Containers for all samples and coolers shall be supplied by the laboratory. All sample containers utilized by the Contractor shall be provided from an EPAapproved supplier utilizing pre-cleaned containers.

b. The Contractor shall employ the sample preservation methods that must be detailed in the SAP following sample collection. The SAP must include all chemical preservatives to be used, required physical conditions of storage and shipment, and required holding times.

2. Chain of Custody

a. Each sample container shall be clearly identified with the name of the project, the field sample number, date and time of sampling and the name of the sampling personnel. Field information shall be written in indelible ink and the label shall be affixed in such a manner to ensure that is does not become separated from its respective container.

b. The Contractor shall follow the sample custody procedures detailed in the SAP which will assure that any sample which is analyzed will yield results representative of the sample’s condition at the time of sampling. The procedures provided are in conformance with the appropriate EPA guidelines.

c. The Contractor shall follow the chain-of-custody procedures detailed in the SAP and shall adequately record, for evidence, at a minimum, the following information:

1) Sample type, sample number, date and time of collection and signatures of the collector.

2) Signatures of persons involved in sample chain of custody.

3) Inclusive dates of possession of all individuals involved in sample possession.

4) Additional remarks the sample handler may have to transcribe onto the chain of custody form.

5) Analytical parameters required (name and method number).

6) Name of the project.

7) Name and telephone number of the point of contact to call for any questions on the sample shipment.

d. The Contractor shall refer to the SAP for the methods by which written chain-of-custody information shall be stored for future

use.

3. Sample Packaging and Shipping

a. The Contractor shall follow the sample packaging and shipping procedures detailed in the SAP.

b. The Contractor shall be responsible for compliance with all appropriate EPA and United States Department of Transportation (DOT) regulations regarding sample shipment.

E. Documentation

1. The Contractor shall refer to the SAP for the sample documentation program. The Contractor shall provide the Contracting Officer access to the field logbook at all times and shall turn it over to the Contracting Officer in good condition at the conclusion of the project.

3.4 QUALITY CONTROL SAMPLES

A. General

1. The Contractor shall be responsible for collecting field QC samples. The QC samples to be collected shall be identified in the SAP. The QC samples are a check on the Contractor’s laboratory’s overall quality.

B. Contractor Quality Control

1. To assure analytical accuracy and consistency, the system of laboratory internal quality control checks specified in the SAP shall be followed.

3.5 ANALYTICAL METHODS

A. The proposed contracted laboratory(ies) must be identified in the SAP and must be approved by the Contracting Officer. The laboratory must be, at a minimum, capable of performing the analyses cited in the SAP.

B. The SAP must provide a summary of the required analytical methods. The quantitation limits for each of the sample parameters must be comparable to published quantitation limits in SW-846 and referenced methods. The required analytical methods are presented in Table 01410-2. In addition, the quantitation limits must be sensitive enough to monitor compliance with the discharge criteria specified in the SAP.

Table 01 41 00-2 Analytical Method Requirements

Parameter	**Method Reference**	**Analyte List**[1]
VOC's	SW846-8260	Per CT RCP for method
PAH's	SW846-8270	PAH compounds listed in CT RCP for method
PCB's	SW846-8082	Per CT RCP for method

Parameter	**Method Reference**	**Analyte List**[1]
CT ETPH	CT ETPH CT RCP Method ETPH	Per CT RCP for method
Metals	SW846-6010 or SW846-6020 or SW846-7000	Per CT RCP for method
Mercury	SW846-7470 or SW846-7471	Per CT RCP for method
TCLP Extraction	SW846-1311	Per CT RCP
SPLP Extraction	SW846-1312	Per CT RCP
Waste Characteristics	SW846-9000 series	As required by disposal facility
Chlorine	SM4500	

Table 01 41 00-02 Notes:
See Section 1.4 for Definition of Terms

[1] Or as required by disposal facility for waste characterization

C. Analytical Instrumentation

1. The apparatus and instrumentation to be used for all analyses shall be identified as part of the Laboratory(ies) LQMM:

a. Specific field and laboratory instrumentation including manufacturer and model number.

b. Operating parameters.

c. Laboratory chemicals necessary to perform the analyses.

d. Standards including those for calibration.

D. Corrective Action

1. The Contractor shall refer to the SAP for the protocol describing the corrective actions to be taken by the Contractor should any analytical data fall outside of acceptable control limits during review.

E. Data Analysis and Reporting

1. The Contractor shall refer to the SAP for the specific system to be used in handling the raw data from the time of analysis to the time of reporting to the time of archival storage.

2. At a minimum, the Contractor shall conform to EPA SW-846 and shall have procedures in place to address the following items for each analytical method and major measurement parameter.

a. The laboratory data management system including:

1) The date collected from the Chain of Custody and field manuals

2) Field manual notes

3) The raw data collection system

4) The final calculated results

5) The data storage system in its entirety including provisions for security and prevention of data loss

6) Data quality assurance documentation including copies of the methodspecified forms presented in SW-846

7) Identification system for all data collected

8) Identification of individuals involved in data management and reporting

9) Identification of schedule for reporting QC analytical data to the Contracting Officer and EPA

b. The data analysis system including units and equations required to convert instrument response into chemical concentrations.

c. Plans for testing questionable or incorrect data or inaccurate programming
sequences.

3. The Contractor shall determine the required laboratory turnaround times for each matrix, noting the following:

a. Effluent water from the construction water treatment system cannot be discharged until sample results are received and demonstrate the achievement of the discharge criteria.

4. Electronic data deliverable requirements are outlined in Section 1.5 (c) and in the SAP.

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SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization (e.g. ASTM B564 Standard Specification for Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AACE INTERNATIONAL (AACE)
1265 Suncrest Towne Centre Drive
Morgantown, WV 26505-1876 USA
Ph: 304-296-8444
Fax: 304-291-5728
E-mail: info@aacei.org
Internet: http://www.aacei.org

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aashto.org
Internet: http://www.aashto.org

AMERICAN PETROLEUM INSTITUTE (API)
Internet: http://www.api.org

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)
1800 East Oakton Street
Des Plaines, IL 60018
Ph: 847-699-2929
Internet: http://www.asse.org

ASME INTERNATIONAL (ASME)
Two Park Avenue, M/S 10E
New York, NY 10016-5990
Ph: 800-843-2763
Fax: 973-882-1717

E-mail: customercare@asme.org
Internet: http://www.asme.org

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 877-909-2786
Internet: http://www.astm.org

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 and 501 Hoes Lane
Piscataway, NJ 08854-4141
Ph: 732-981-0060 or 800-701-4333
Fax: 732-562-9667
E-mail: onlinesupport@ieee.org
Internet: http://www.ieee.org

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471
Ph: 617-770-3000
Fax: 617-770-0700
Internet: http://www.nfpa.org

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)
395 E Street, S.W.
Suite 9200
Patriots Plaza Building
Washington, DC 20201
Ph: 800-232-4636
Fax: 513-533-8347
E-mail: nioshdocket@cdc.gov
Internet: http://www.cdc.gov/niosh/

U.S. ARMY (DA)
U.S. Army Publishing Directorate
Ph: 703-614-3634
Internet: http://www.apd.army.mil

U.S. ARMY CORPS OF ENGINEERS (USACE)
CRD-C DOCUMENTS available on Internet:
http://www.wbdg.org/ccb/browse_cat.php?c=68
Order Other Documents from:
USACE Publications Depot
Attn: CEHEC-IM-PD
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-394-0081
Fax: 301-394-0084
E-mail: pubs-army@usace.army.mil
Internet: http://www.publications.usace.army.mil/
or
http://www.hnc.usace.army.mil/Missions/Engineering/TECHINFO.aspx

U.S. DEPARTMENT OF DEFENSE (DOD)
Order DOD Documents from:
Room 3A750-The Pentagon
1400 Defense Pentagon
Washington, DC 20301-1400

Ph: 703-571-3343
FAX: 215-697-1462
E-mail: customerservice@ntis.gov
Internet: http://www.ntis.gov
Obtain Military Specifications, Standards and Related Publications from:
Acquisition Streamlining and Standardization Information System (ASSIST)
Department of Defense Single Stock Point (DODSSP)
Document Automation and Production Service (DAPS)
Building 4/D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Ph: 215-697-6396 - for account/password issues
Internet: http://assist.daps.dla.mil/online/start/; account registration required
Obtain Unified Facilities Criteria (UFC) from:
Whole Building Design Guide (WBDG)
National Institute of Building Sciences (NIBS)
1090 Vermont Avenue NW, Suite 700
Washington, CD 20005
Ph: 202-289-7800
Fax: 202-289-1092
Internet: http://www.wbdg.org/references/docs_refs.php

U.S. DEPARTMENT OF ENERGY (DOE)
1000 Independence Avenue Southwest
Washington, D.C. 20585
Internet: www.eere.energy.gov

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)
FHWA, Office of Safety
1200 New Jersey Ave., SE
Washington, DC 20590
Ph: 202-366-4000
Internet: http://www.fhwa.dot.gov
Order from:
Superintendent of Documents
U. S. Government Printing Office (GPO)
710 North Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800
Fax: 202-512-2104
E-mail: contactcenter@gpo.gov
Internet: http://www.gpoaccess.gov

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
8601 Adelphi Road
College Park, MD 20740-6001
Ph: 866-272-6272
Fax: 301-837-0483
Internet: http://www.archives.gov
Order documents from:
Superintendent of Documents
U.S.Government Printing Office (GPO)
710 North Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800
Fax: 202-512-2104

E-mail: contactcenter@gpo.gov
Internet: http://www.gpoaccess.gov

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

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SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.1 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all associated costs will be included in the applicable Bid Schedule unit or lump-sum prices.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Quality Control (CQC) Plan; G, RO

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Establish and maintain an effective quality control (QC) system in compliance with the Contract Clause titled "Inspection of Construction". QC consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. Cover all construction operations, both onsite and offsite, and be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. In this context the highest level manager responsible for the overall construction activities at the site, including quality and production is the project superintendent. The project superintendent must maintain a physical presence at the site at all times and is responsible for all construction and related activities at the site, except as otherwise acceptable to the Contracting Officer.

3.2 CONTRACTOR QUALITY CONTROL (CQC) PLAN

Submit no later than 15 days after receipt of Notice to Proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction". The Government will consider an interim plan for the first 14 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the

particular feature of work to be started. Work outside of the accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional work.

3.2.1 Content of the CQC Plan

Include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff will implement the three phase control system for all aspects of the work specified. Include a CQC System Manager who reports to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. Letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities will be issued by the CQC System Manager. Copies of these letters must be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures must be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved by the Contracting Officer must be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. Establish verification procedures that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. Submit the CQC Plan a minimum of 14 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the Government, signed by both the Contractor and the Contracting Officer and will become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager must report directly to a senior project (or corporate) official independent from the CQC System Manager. The Safety and Health Manager will also serve as a member of the CQC Staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff must maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff will be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

Identify as CQC System Manager an individual within the onsite work organization who is responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of five years in related work. This CQC System Manager must be on the site at all times during construction and be employed by the prime Contractor. The CQC System Manager shall have no duties other than Quality Control. The CQC Manager may not serve as Project Superintendent. Identify in the plan an alternate to serve in the event of the CQC System Manager's absence. The requirements for the alternate are the same as the CQC System Manager.

3.4.3 Organizational Changes

Maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.4.4 Additional Requirement

In addition to the above experience requirements, the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors". This course is periodically offered at the U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, must comply with the requirements in Section 01 33 00 SUBMITTAL PROCEDURES. The CQC organization is responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control must be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase is performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase includes:

a. A review of each paragraph of applicable specifications, reference codes, and standards. Make available during the preparatory inspection a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field. Maintain and make available in the field for use by Government personnel until final acceptance of the work.

b. Review of the contract drawings.

c. Check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. Examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. Review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. Check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government must be notified at least 24 hours in advance of beginning the preparatory control phase. Include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attach to the daily CQC report. Instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase is accomplished at the beginning of a definable feature of work. Accomplish the following:

a. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government must be notified at least 24 hours in advance of beginning the initial phase. Prepare separate minutes of this phase by the CQC System Manager and attach to the daily CQC report. Indicate the exact location of initial phase for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. Record the checks in the CQC documentation. Conduct final follow-up checks and correct all deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. Procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. Perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Record results of all tests taken, both passing and failing on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Conduct an inspection of the work by the CQC Manager near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications. Prepare and include in the CQC documentation a punch list of items which do not conform to the approved drawings and specifications, as required by paragraph DOCUMENTATION. Include within the list of deficiencies the estimated date by which the deficiencies will be corrected. Make a second inspection the CQC System Manager or staff to ascertain that all deficiencies have been corrected. Once this is accomplished, notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. Ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Correct any items noted on the Pre-Final inspection in a timely manner. These inspections and any deficiency corrections required by this paragraph must be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative must be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notify the Contracting Officer at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

Maintain current records providing factual evidence that required quality control activities and/or tests have been performed. Include in these records the work of subcontractors and suppliers on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for

repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. Identify the control phase (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

k. Contractor's verification statement.

Indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. Cover both conforming and deficient features and include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Furnish the original and one copy of these records in report form to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, prepare and submit one report for every 7 days of no work and on the last day of a no work period. All calendar days must be accounted for throughout the life of the contract. The first report following a day of no work will be for that day only. Reports must be signed and dated by the CQC System Manager. Include copies of test reports and copies of reports prepared by all subordinate quality control personnel within the CQC System Manager Report.

3.10 SAMPLE FORMS

A sample blank "Daily Construction Quality Control Report" generated from the USACE Quality Control System (QCS) software package is attached at the end of this section. This form should be completed daily in QCS as required by Section 01 45 01 RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE (RMS CM) of these specifications.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work

until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

CONTRACTORS QUALITY CONTROL REPORT (QCR)
DAILY LOG OF CONSTRUCTION - CIVIL

REPORT NUMBER

DATE

PROJECT

CONTRACT NUMBER

CONTRACTOR

WEATHER

QC NARRATIVES

WORK PERFORMED TODAY

PREP/INITIAL DATES (Preparatory and initial dates held and advance notice)

ACTIVITY START/FINISH

QC REQUIREMENTS

QA/QC PUNCH LIST (Describe QC Punch List items issued, Report QC and QA Punch List items corrected)

CONTRACTORS ON SITE (Report first and/or last day contractors were on site)

No contractors had their first or last day on site today

LABOR HOURS

The following labor hours were Reported today:

Employer	Labor Classification	Number of Employees	Hours Worked
	Total		

Total hours worked to date:

EQUIPMENT HOURS

The following equipment hours were Reported today:

Serial Number	Description	Standby Hours	Operating Hours
	Total		

Total operating hours to date:

ACCIDENT REPORTING (Describe accidents)

No accidents reported today

CONTRACTOR CERTIFICATION **On behalf of the contractor, I certify that this Report is complete and correct and all equipment and material used and work performed during this Reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as noted above.**

QC REPRESENTATIVE'S SIGNATURE	DATE	SUPERINTENDENT'S INITIALS	DATE

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SECTION 01 45 01

RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE(RMS CM)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

1.2 Contract Administration

The Government will use the Resident Management System (RMS) to assist in its monitoring and administration of this contract. The Contractor uses the Government-furnished Construction Contractor Mode of RMS, referred to as RMS CS, to record, maintain, and submit various information throughout the contract period. The Contractor mode user manuals, updates, and training information can be downloaded from the RMS web site (http://rms.usace.army.mil). The joint Government-Contractor use of RMS facilitates electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

Administration
Finances
Quality Control
Submittal Monitoring
Scheduling
Import/Export of Data

1.2.1 Correspondence and Electronic Communications

For ease and speed of communications, exchange correspondence and other documents in electronic format to the maximum extent feasible between the Government and Contractor. Correspondence, pay requests and other documents comprising the official contract record are also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.2.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01 32 01 PROJECT SCHEDULE, Section 01 33 00 SUBMITTAL PROCEDURES, and Section 01 45 00 QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through RMS. Also, there is no separate payment for establishing and maintaining the RMS database; costs associated will be

included in the contract pricing for the work.

1.3 RMS SOFTWARE

RMS is a Windows-based program that can be run on a Windows based PC meeting the requirements as specified in Section 1.3. The Government will make available the RMS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor will be responsible to download, install and use the latest version of the RMS software from the Government's RMS Internet Website. Any program updates of RMS will be made available to the Contractor via the Government RMS Website as the updates become available.

1.3.1 RMS CONTRACTOR'S MODE (CM)

RMS Contractor's Mode or RMS CM is the replacement for Quality Control System or QCS. The database remains the same. References to RMS in this specification includes RMS CM.

1.4 SYSTEM REQUIREMENTS

The following is the minimum system configuration required to run RMS and Contractor Mode:

Minimum RMS System Requirements	
Hardware	
Windows-based PC	1.5 GHz 2 core or higher processor
RAM	8 GB
Hard drive disk	200 GB space for sole use by the QCS system
Monitor	Screen resolution 1366 x 768
Mouse or other pointing device	
Windows compatible printer	Laser printer must have 4 MB+ of RAM
Connection to the Internet	minimum 4 Mbs per user
Software	
MS Windows	Windows 7 x 64 bit (RMS requires 64 bit O/S) or newer
Word Processing software	Viewer for MS Word 2013, MS Excel 2013, or newer

Minimum RMS System Requirements	
Microsoft.NET Framework	Coordinate with Government QA Representative for free version required
Email	MAPI compatible
Virus protection software	Regularly upgraded with all issued manufacturer's updates and is able to detect most zero day viruses.

1.5 RELATED INFORMATION

1.5.1 RMS User Guide

After contract award, download instructions for the installation and use of RMS from the Government RMS Internet Website.

1.6 CONTRACT DATABASE

Prior to the pre-construction conference, the Government will provide the Contractor with basic contract award data to use for RMS. The Government will provide data updates to the Contractor as needed. These updates will generally consist of submittal reviews, correspondence status, Quality Assurance(QA) comments, and other administrative and QA data.

1.7 DATABASE MAINTENANCE

Establish, maintain, and update data in the RMS database throughout the duration of the contract at the Contractor's site office. Submit data updates to the Government (e.g., daily reports, submittals, RFI's, schedule updates, payment requests) using RMS. The RMS database typically includes current data on the following items:

1.7.1 Administration

1.7.1.1 Contractor Information

Contain within the database the Contractor's name, address, telephone numbers, management staff, and other required items. Within 7 calendar days of receipt of RMS software from the Government, deliver Contractor administrative data in electronic format in RMS.

1.7.1.2 Subcontractor Information

Contain within the database the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor is listed separately for each trade to be performed. Assign each subcontractor/trade a unique Responsibility Code, provided in RMS. Within 7 calendar days of receipt of RMS software from the Government, deliver subcontractor administrative data in electronic format.

1.7.1.3 Correspondence

Identify all Contractor correspondence to the Government with a serial number. Prefix correspondence initiated by the Contractor's site office with "S". Prefix letters initiated by the Contractor's home (main) office with "H". Letters are numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.7.1.4 Equipment

Contain within the Contractor's RMS database a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.7.1.5 Management Reporting

RMS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of RMS. Among these reports are: Progress Payment Request worksheet, Quality Assurance/Quality Control (QA/QC) comments, Submittal Register Status, Three-Phase Control checklists.

1.7.1.6 Request For Information (RFI)

Exchange all Requests For Information (RFI) using the Built-in RFI generator and tracker in RMS. The Government has up to 14 calendar days to respond to routine RFIs and up to 21 calendar days for more complex RFI's.

1.7.2 Finances

1.7.2.1 Pay Activity Data

Include within the RMS database a list of pay activities that the Contractor develops in conjunction with the construction schedule. The sum of pay activities equals the total contract amount, including modifications. Each pay activity must be assigned to a Contract Line Item Number (CLIN). The sum of the activities equals the amount of each CLIN. The sum of all CLINs equals the contract amount.

1.7.2.2 Payment Requests

Prepare all progress payment requests using RMS. Complete the payment request worksheet, prompt payment certification, and payment invoice in RMS. Update the work completed under the contract, measured as percent or as specific quantities, at least monthly. After the update, generate a payment request report using RMS. Submit the payment request, prompt payment certification, and payment invoice with supporting data using RMS CM. If permitted by the Contracting Officer, email or a optical disc may be used. A signed paper copy of the approved payment request is also required and will govern in the event of discrepancy with the electronic version.

1.7.3 Quality Control (QC)

RMS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other Contractor QC requirements. Maintain

this data on a daily basis. Entered data will automatically output to the RMS generated daily report. Provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01 45 00 QUALITY CONTROL. Within seven calendar days of Government acceptance, submit a RMS update reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.7.3.1 Daily Contractor Quality Control (CQC) Reports.

RMS includes the means to produce the Daily CQC Report. The Contractor can use other formats to record basic Quality Control(QC) data. However, the Daily CQC Report generated by RMS must be the Contractor's official report. Summarize data from any supplemental reports by the Contractor and consolidate onto the RMS-generated Daily CQC Report. Submit daily CQC Reports as required by Section 01 45 00 QUALITY CONTROL. Electronically submit reports to the Government within 24 hours after the date covered by the report. Also provide the Government a signed, printed copy of the daily CQC report.

1.7.3.2 Deficiency Tracking.

Use RMS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using its Quality Control (QC) punch list items. Maintain a current log of its QC punch list items in the RMS database. The Government will log the deficiencies it has identified using its Quality Assurance (QA) punch list items. The Government's QA punch list items will be included in its export file to the Contractor. Regularly update the correction status of both QC and QA punch list items.

1.7.3.3 QC Requirements

Develop and maintain a complete list of QC testing and required structural and life safety special inspections required by the International Code Council (ICC), transferred and installed property, and user training requirements in RMS. Update data on these QC requirements as work progresses, and promptly provide the information to the Government via RMS.

1.7.3.4 Three-Phase Control Meetings

Maintain scheduled and actual dates and times of preparatory and initial control meetings in RMS.

1.7.3.5 Labor and Equipment Hours

Log labor and equipment exposure hours on a daily basis. The labor and equipment exposure data will be rolled up into a monthly exposure report.

1.7.3.6 Accident/Safety Reporting

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be provided via RMS CM. Regularly update the correction status of the safety comments. In addition, utilize RMS to advise the Government of any accidents occurring on the jobsite. A brief supplemental entry of an accident is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 300.

1.7.3.7 Features of Work

Include a complete list of the features of work in the RMS database. A feature of work is associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.7.3.8 Hazard Analysis

Use RMS CM to develop a hazard analysis for each feature of work included in the CQC Plan. The Activity Hazard Analysis will include information required by EM 385-1-1, paragraph 01.A.13.

1.7.4 Submittal Management

The Government will provide the initial submittal register in electronic format. Thereafter, maintain a complete list of submittals, including completion of data columns. Dates when submittals are received and returned by the Government will be included. Use RMS CM to track and transmit submittals. ENG Form 4025, submittal transmittal form, and the submittal register update is produced using RMS. RMS will be used to update, store and exchange submittal registers and transmittals. In addition to requirements stated in specification 01 33 00, actual submittals are to be stored in RMS CM, with hard copies also provided. Exception will be where the Contracting Officer specifies only hard copies required, where size of document cannot be saved in RMS CM, and where samples, spare parts, color boards, and full size drawings are to be provided.

1.7.5 Schedule

Develop a construction schedule consisting of pay activities, in accordance with Section 01 32 01 PROJECT SCHEDULE. Input and maintain in the RMS database the schedule either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01 32 01 PROJECT SCHEDULE). Include with each pay request the updated schedule. Provide electronic copies of transmittals.

1.7.6 Import/Export of Data

RMS includes the ability to import schedule data using SDEF.

1.8 IMPLEMENTATION

Use of RMS CM as described in the preceding paragraphs is mandatory. Ensure that sufficient resources are available to maintain contract data within the RMS CM system. RMS CM is an integral part of the Contractor's management of quality control.

1.9 MONTHLY COORDINATION MEETING

Update the RMS CM database each workday. At least monthly, generate and submit a schedule update. At least one week prior to submittal, meet with the Government representative to review the planned progress payment data submission for errors and omissions.

Make required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will not be accepted. The Government will not

process progress payments until all required corrections are processed.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of notification.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

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SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component of, each section of the specifications.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	(2013; Errata 2015) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2014; AMD 1 2013; Errata 1 2013; AMD 2 2013; Errata 2 2013; AMD 3 2014; Errata 3-4 2014; AMD 4-6 2014) National Electrical Code
NFPA 70E	(2015; ERTA 1 2015) Standard for Electrical Safety in the Workplace

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION

CTTRAFFIC	Traffic Control During Maintenance Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD	(2009, Rev 2017) Manual of Uniform Traffic Control Devices

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submitted the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Site Plan; G, RO

Temporary Electrical System; G, RO

Traffic Control Plan; G, RO

SD-03 Product Data

Barricades

Safety Fence

1.4 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities including layouts and details, equipment and material storage areas both onsite and offsite, access and haul routes, avenues of ingress/egress, and the number of trailers to be used. Identify any areas which may have to be graveled to prevent the tracking of mud. Show locations of safety fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas. The plan shall also show where temporary utility hook-ups are to be located, if required, and how grounding of equipment and trailers will be achieved.

PART 2 PRODUCTS

2.1 PROJECT SIGNS

A. Project Sign(s) shall be provided as required by funding and regulatory agencies and at a minimum shall include the following information.

1. Project title, as indicated on Contract Documents

2. Names and titles of authorities

3. Name of prime Contractor

B. Project sign(s) shall be located as approved by the Contracting Officer and be constructed to meet the following requirements:

1. Construction materials and erection supports to resist wind loads and all weather related impacts for the duration of the project.

2. Comply with CT DOT standards as approved by the Contracting Officer.

2.2 TEMPORARY CONCRETE BARRICADES andSAFETY FENCE

The Contractor shall erect and maintain temporary concrete barricades and/or temporary safety fencing to limit public access to hazardous areas. Temporary barricades and safety fencing need not be new but shall be in overall good condition.

2.2.1 Temporary Concrete Barricades

Concrete barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Concrete barricades shall be

securely placed and clearly visible. All barricades shall be provided with a flashing light (amber yellow, 5 candelas effective intensity, 55-75 flashes per minute). All barricades must be anchored or of sufficient mass to retain an established position where they are placed. Continuous burning lights shall have an effective intensity of 10 candelas. Place barricades at 10 foot maximum intervals and use dual markers and lights at corners and ends. Flashing lights shall be maintained to operate nightly during construction with adequate illumination to provide sufficient visual warning of the hazard during both day and night. The Contractor shall check each flashing light for operation every night before leaving the project area.

2.2.2 Temporary Safety Fencing

Temporary safety fencing shall be used to limit access to active construction areas. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers.

PART 3 EXECUTION

3.1 EMPLOYEE PARKING

Contractor employees shall park privately owned vehicles on the project site as determined at the Preconstruction Conference, or in an area obtained by the Contractor.

3.2 AVAILABILITY AND USE OF UTILITY SERVICES

Water and electricity required in the prosecution of the work shall be furnished by the Contractor at his own expense. The Government will not supply water and electricity.

3.2.1 Water

Make connections to the nearest municipal water supply, where available, and or provide an alternate source of water, and use this supply for construction purposes. Any portions which are to become a part of the permanent system shall conform to the applicable sections of these specifications.

Furnish and maintain and subsequently provide the water meters and backflow preventers at each location. Furnish all extensions required. Provide drinking water, satisfactorily cooled.

3.2.2 Temporary Electrical Equipment and Connections

The Contractor, at his own expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines. All required temporary electrical equipment and lines shall be furnished, installed, connected, and maintained by the Contractor according to EM 385-1-1, Section 11.E, NFPA 241, and NFPA 70, Article 305-6(b), "Assured Equipment Grounding Conductor Program". All temporary equipment and lines shall be removed prior to final acceptance of the work. Materials and equipment need not be new, but must be in good repair and serviceable condition. Periodic inspections of systems and devices shall be made by the Contractor at intervals not to exceed one week.

Arrange for, furnish, and maintain all expenses for all electricity required for proper lighting, the use of power tools, for temporary heat for construction operations and for field offices up to the time of final acceptance of the project.

Furnish all wiring, fixtures, lamps and other accessories required for his or his subcontractors' work, and for proper lighting, the use of power tools and for temporary heat for construction operations up to the time of final acceptance. Power shall be obtained directly from power company lines or from portable, gasoline driven generator sets.

Use of solar-powered generators, or similar, shall be employed. Alternately, the Contractor shall participate in Northeast Clean Power when purchasing power from the local utility company.

3.3 SANITATION FACILITIES

In accordance with Section 2 of EM 385-1-1, provide, maintain, and make available to all workers provisions for sanitation. Maintain these provisions at all times without nuisance. Upon completion of the work, all sanitary provisions and facilities shall be removed from the premises by the Contractor, leaving the premises clean and free from nuisance.

In accordance with Section 2, Subpart 02.C of EM 385-1-1, provide, maintain, and make available to all workers an adequate supply of potable water for both drinking and personal cleansing. During hot weather, provide cool drinking water.

In accordance with Section 2, Subpart 02.E of EM 385-1-1, provide, maintain, and make available to all workers, inspectors, subcontractors and visitors adequate minimum field-type portable toilets. Portable toilets shall be properly secluded from public observation in such a manner as required or approved by the Contracting Officer. Periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Include provisions for pest control and elimination of odors. Any penalties and/or fines associated with improper discharge of wastewater shall be the responsibility of the Contractor. Government toilet facilities will not be provided.

3.4 TELECOMMUNICATIONS (VOICE/DATA)

Make arrangements, provide, and maintain telecommunication (voice and data) services desired.

3.5 FIRE PROTECTION

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials daily to minimize potential hazards.

3.6 TRAFFIC PROVISIONS AND TRAFFIC CONTROL PLAN

As this project involves a utility installation activity which will affect the movement of traffic and traffic safety, the Contractor shall submit a Traffic Control Plan for review and approval and utilize traffic control devises as necessary to ensure the safe and expeditious movement of traffic through the work zone and to enhance the safety of the workers within the work zone. All construction operations shall be planned to keep traffic

interference to a minimum. All work shall be planned so that closure of intersecting streets, road approaches, or other access points is held to a minimum. The following restrictions shall be incorporated into the Traffic Control Plan:

During rush hour (Monday through Friday, 7am to 9am and 2pm to 6pm) the Contractor shall maintain two-way traffic on Route 17. The Contractor may use detours only with written permission of the Contracting Officer.

Minimum lane width shall be 11 feet.

The traffic Control Plan and traffic control devicess used for this project shall conform to the State of Connecticut Department of Transportation guidelines of CTTRAFFIC (including Plan 13 of this document,) and the standards set forth in the current edition of MUTCD.

Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, direction signs, and other requirements, shall be as required CTTRAFFIC and MUTCD. The traveling public shall be protected from damage to person and property.

The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

See Sheet G-3, Note 15 of the contract drawings for additional information.

3.7 USE OF STEEL PLATES IN STATE HIGHWAY RIGHTS OF WAY

The use of steel plates in State Highway rights of way shall be in accordance with the requirements of CTTRAFFIC.

3.8 PUBLIC CONVENIENCE AND SAFETY

All equipment, materials, equipment or material storage areas shall be placed, located, and used in ways that do not create a hazard to people or property, especially in areas open to public pedestrian or vehicular traffic. All materials shall be placed or stored in such a way and in such locations as will not create a hazard to the traveling public. In an area unprotected by barriers or other means, equipment and materials shall not be stored within 30 feet of any traveled way.

3.9 TEMPORARY SAFETY FENCING

The temporary safety fencing shall be installed as soon as practicable, but not later than 15 days after the date established for commencement of work. The Contractor shall furnish and erect temporary project safety fencing at the work site to limit access to active construction areas and along the construction site, and at other areas as needed to control access by unauthorized people or vehicles. The safety fencing shall be maintained by the Contractor during the life of the contract, adjusted and moved as appropriate to the progress of the work and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site. This requirement is in addition to the chain link fence around storage areas and trailers.

3.10 CONTRACTOR'S TEMPORARY FACILITIES

3.10.1 Safety

Protect the integrity of any installed safety systems or personnel safety devices. If entrance into systems serving safety devices is required, the Contractor shall obtain prior approval from the Contracting Officer. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or equipment and obtain approval from the Contracting Officer.

3.10.2 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within a storage and staging area provided by the Contractor at his expense. Field Office/Trailers utilized by the Contractor for administrative or material storage purposes must present a clean and neat exterior appearance and be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on Government property.

3.10.3 Storage Area

There is no Government provided storage and staging area for use by the Contractor.

3.10.4 Storage of Hazardous Materials

Hazardous materials shall be stored using a secondary containment system at least 50 feet from any drainage inlets, waterbodies (rivers, streams, lakes), environmentally sensitive areas (wetlands, vernal pools).

3.10.5 Usage of Fuels and Lubricants

Refer to Section 01 57 20 ENVIRONMENTAL PROTECTION, subpart "Chemical Materials Management and Waste Disposal", subparagraph "Fuel and Lubricants".

3.10.6 Temporary Electrical System

a. Provide a temporary electrical distribution system for temporary power and lighting, to include equipment and connections, in accordance with EM 385-1-1, NFPA 70, and NFPA 70E. The Contractor, or his delegated subcontractor, shall enforce all the safety requirements of electrical extensions for the work of all subcontractors. All work shall be accomplished by skilled electrical tradesmen in a workmanlike manner, as approved by the Contracting Officer.

b. Temporary lighting circuits shall be separate from electrical tool circuits. Receptacle circuits shall be dedicated to either temporary lighting or electric tools and shall be labeled "LIGHTS ONLY" or "TOOLS ONLY," as acceptable.

c. A sketch of the proposed temporary electrical system shall be submitted and accepted by the Contracting Officer before temporary power and lighting is installed. The sketch shall indicate the location, voltages, and means of protection of all circuits, including receptacles, disconnecting means,

grounding, GFCIs, and lighting circuits.

3.10.6.1 Temporary Wiring

Provide temporary wiring in accordance with NFPA 241 and NFPA 70, Article 305-6(b), Assured Equipment Grounding Conductor Program. Include frequent inspection of all equipment and apparatus.

3.10.6.2 Construction Equipment

In addition to the requirements of EM 385-1-1, all temporary wiring conductors installed for operation of construction tools and equipment shall be either Type TW or THW contained in metal raceways, or may be multiconductor cord. Temporary wiring shall be secured above the ground or floor in a workmanlike manner and shall not present an obstacle to persons or equipment. Open wiring may only be used outside of buildings, and then only in strict accordance with the provisions of the National Electrical Code.

3.10.6.3 Circuit Protection

In addition to the requirements in EM 385-1-1 and NFPA 70, all 15 and 20-ampere receptacle outlets used for obtaining power during construction shall have ground fault circuit interrupters (GFCI) for personnel protection. All generator-powered 15- and 20-ampere, 60 Hertz receptacle outlets shall have GFCI'S, and shall be properly grounded. A testing means shall be provided which will impose a measured fault of 5 milliamperes, plus or minus 1 milliamperes, and result in tripping the GFCI unit.

3.10.7 Weather Protection of Stored Equipment and Materials

Take necessary precautions to ensure that stored equipment and materials, and openings and other critical openings in the temporary storage area are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the temporary facilities from damage.

3.10.7.1 Building and Site Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby Government property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby Government property.

3.10.8 Stormwater Pollution Prevention

To prevent sediment laden runoff from entering any resource areas such as lakes, ponds, rivers, or wetlands, provide erosion prevention and sediment controls (such as entrenched staked straw bales and sediment (silt) fence) in areas where land disturbance has resulted from the installation temporary facilities and use of storage areas. See Section 01 57 20 ENVIRONMENTAL PROTECTION.

3.10.9 Dust Control

Dust control methods and procedures must be approved by the Contracting Officer. Treat dust abatement on access roads with applications of calcium chloride, water sprinklers, or similar methods or treatment.

3.11 GOVERNMENT FIELD OFFICE

3.11.1 Resident Engineer's Office

Provide the Government with an office, consisting of a double-wide trailer of approximately 720 square feet in floor area, with at least two windows, located where directed and providing space heat, air conditioning, electric light and power, and toilet facilities consisting of one lavatory and one water closet complete with connections to water and sewer services, if available. If connection to a water service is not available, the Contractor shall provide a five gallon water dispenser for drinking water for duration of the project. If connection to a sewer service is not available, the Contractor shall provide an inside water closet connected to a holding tank exterior to the office trailer. The Contractor is responsible for service to the holding tank and emptying it on a regular basis. Provide a mail slot in the door or a lockable mail box mounted on the surface of the door, and provide six sets of office keys. Include office furniture for four persons, consisting of a desk, chair, four drawer filing cabinet, telephone, telephone service, and high speed internet service for each person. Provide a plan rack and two plan tables of sufficient size to lay open plans (approximately 2.5 feet by, 6 feet), one conference area table with chairs for eight persons, and a conference telephone and telephone service. Provide a full-size refrigerator, microwave, bottled water and weekly cleaning service. Provide a plain paper fax machine, with dedicated fax telephone line, plain paper, and high speed copier. Used furniture and equipment is acceptable provided items are in good condition and fully functional to the satisfaction of the Contracting Officer. The Contractor shall be responsible for snow removal, and mud and dust control of parking areas adjacent to the office. At completion of the project, the office will remain the property of the Contractor and be removed from the site. Utilities will be connected and disconnected in accordance with local codes and to the satisfaction of the Contracting Officer.

3.11.2 Trailer-Type Mobile Office

The Contractor may, at its option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. Securely anchor the trailer to the ground at all four corners to guard against movement during high winds.

3.12 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices and made available for use by Government personnel.

3.13 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto

paved or surfaced roadways shall be cleaned away on a daily basis. Materials resulting from demolition activities which are salvageable shall be stored within the storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

3.13.1 Dumpster

Provide dumpsters for the collection of trash and debris. Equip dumpsters with a secure cover. Keep cover closed at all times, except when being loaded with trash and debris. Locate dumpsters behind the construction fence or out of the public view. Empty site dumpsters at least once a week or as needed to keep the site free of trash and debris. For large demolitions, large dumpsters without lids are acceptable but should not have trash and debris higher than the sides before emptying.

3.13.2 Burning

Burning of brush, trash, or debris will not be permitted on the project site nor Government property.

3.14 RESTORATION OF WORK AREAS

Upon completion of the project remove barricades, temporary utilities, sanitation facilities, construction vehicles, materials and equipment, and any other temporary equipment, materials, or products from within and around the work areas. Clean and repair damage caused by installation or removal of temporary materials, equipment, or utilities. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition, including pavement repair, or top soil and seeding as necessary. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

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SECTION 01 57 20

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M144	(2014) Calcium Chloride

ASTM INTERNATIONAL (ASTM)

ASTM D98	(2015) Calcium Chloride

U.S. ARMY (DA)

DA AR 200-1	(2007) Environmental Protection and Enhancement

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual
WETLANDS DELINEATION MANUAL	(1987) Corps of Engineers Wetlands Delineation Manual
WDM Supplement	(2012) Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: North central

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

33 CFR 328	Definitions of Waters of the United States
40 CFR 150 - 189	Pesticide Programs
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 279	Standards for the Management of Used Oil
40 CFR 302	Designation, Reportable Quantities, and Notification

40 CFR 355	Emergency Planning and Notification
40 CFR 68	Chemical Accident Prevention Provisions
49 CFR 171 - 178	Hazardous Materials Regulations

1.2 DEFINITIONS

1.2.1 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

1.2.2 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.3 Contractor Generated Hazardous Waste

Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners, excess paints, excess solvents, waste solvents, and excess pesticides, and contaminated pesticide equipment rinse water.

1.2.4 Project Pesticide Coordinator

The Project Pesticide Coordinator (PPC) is an individual that is responsible for oversight of pesticide application on Project grounds.

1.2.5 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" shall occur. Land Application shall be in compliance with all applicable Federal, State, and local laws and regulations.

1.2.6 Pesticide

Pesticide is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant or desiccant.

1.2.7 Pests

The term "pests" means arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

1.2.8 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "waters of the United States" and would require a permit to discharge water from the governing agency.

1.2.9 Waters of the United States

All waters which are under the jurisdiction of the Clean Water Act, as defined in 33 CFR 328.

1.2.10 Wetlands

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs. Official determination of whether or not an area is classified as a wetland shall be done in accordance with WETLANDS DELINEATION MANUAL and WDM Supplement.

1.2.11 Dewatering Water

A. Dewatering Water is defined as shallow groundwater or runoff removing during trenching activities. Contamination other than sediment is not anticipated.

B. Construction Water shall be defined as water that may be impacted with contaminants from the Durham Superfund Site, and is defined as the following:

1. Water that is collected from water supply wells that are being abandoned.

2. Water removing during trenching activities in designated areas on the Durham Manufacturing Company property.

3. Liquids generated during decontamination activities associated with the above activities.

1.3 GENERAL REQUIREMENTS

Minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. Comply with all applicable environmental Federal, State, and local laws and regulations. Any delays resulting from failure to comply with environmental laws and

regulations will be the Contractor's responsibility.

1.4 SUBCONTRACTORS

Ensure compliance with this section by subcontractors.

1.5 PAYMENT

No separate payment will be made for work covered under this section. Payment of fees associated with environmental permits, application, and/or notices obtained by the Contractor, and payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations are the Contractor's responsibility. All costs associated with this section shall be included in the contract price.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G, RO

Wood Turtle Protection Plan; G, RO

Encroachment Permit; G, RO

CT DEEP General Permit; G, RO

Self-Verification Notification Form; G, RO

1.7 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, submit an Environmental Protection Plan for review and approval by the Contracting Officer. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor shall address during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. Address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but are considered necessary, shall be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, meet with the Contracting Officer for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. The Environmental Protection Plan shall be current and maintained onsite by the Contractor.

1.7.1 Compliance

No requirement in this Section will relieve the Contractor of any applicable Federal, State, and local environmental protection laws and

regulations. During Construction, the Contractor will be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

1.7.2 Contents

Include in the environmental protection plan, but not limit it to, the following:

a. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.

b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.

c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.

d. Description of the Contractor's environmental protection personnel training program.

e. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan. See Section 01 57 23 TEMPORARY STORM WATER POLLUTION CONTROL for additional requirements. All phases of sedimentation and erosion control shall comply with and be subject to the approval of the Connecticut Department of Energy and Environmental Protection and the local Conservation Commission. In addition, the Contractor shall comply with the City of Middletown Erosion and Sedimentation Control Guidelines. These guidelines are available at the following location: http://www.middletownplanning.com

The Contractor shall sign and submit with the Environmental Protection Plan the "City of Middletown Erosion and Sedimentation Control Compliance Agreement" Form attached at the end of the specification.

f. Drawings showing locations of proposed temporary material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to contain materials on the site.

g. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

h. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan shall include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.

i. Include in the Spill Control plan the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. The Spill Control Plan

supplements the requirements of EM 385-1-1. Include in this plan, as a minimum:

(1) The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual will immediately notify the Contracting Officer and Facility Environmental Office in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. Include in the plan a list of the required reporting channels and telephone numbers.

(2) The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup.

(3) Training requirements for Contractor's personnel and methods of accomplishing the training.

(4) A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

(5) The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

(6) The methods and procedures to be used for expeditious contaminant cleanup.

j. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal. Coordinate with the requirements of Section 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.

(1) Identify any subcontractors responsible for the transportation and disposal of solid waste. Submit licenses or permits for solid waste disposal sites that are not a commercial operating facility.

(2) Evidence of the disposal facility's acceptance of the solid waste shall be attached to this plan during the construction. Attach a copy of each of the Non-hazardous Solid Waste Diversion Reports to the disposal plan. Submit the report for the previous quarter on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted (e.g. the first working day of January, April, July, and October).

(3) Indicate in the report the total amount of waste generated and total amount of waste diverted in cubic yards or tons along with the percent that was diverted.

(4) A recycling and solid waste minimization plan with a list of measures to reduce consumption of energy and natural resources. Detail in the plan the Contractor's actions to comply with and to participate in Federal, State, Regional, and local government sponsored recycling programs to reduce the volume of solid waste at the source.

k. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.

l. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the intended actions to prevent introduction of such materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of these materials. In accordance with EM 385-1-1, a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be onsite at any given time shall be included in the contaminant prevention plan. Update the plan as new hazardous materials are brought onsite or removed from the site.

m. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as clean-up water. If a settling/retention pond is required, the plan shall include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, the plan shall include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented. If surface discharge will be the method of disposal, include a copy of the permit and associated documents as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

n. A historical resources, archaeological resources, cultural resources, biological resource,s and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, and biological resources and wetlands known to be on the project site: and/or identifies procedures to be followed if historical archaeological, cultural,and biological resources and wetlands not previously known to be onsite or in the area are discovered during construction. Include in the plan methods to assure the protection of known or discovered resources, identifying lines of communication between Contractor personnel and the Contracting Officer.

o. Include and update a pesticide treatment plan, if pesticide treatment becomes necessary, as information becomes available. Include in the plan: sequence of treatment, dates, times, locations, pesticide trade name, EPA registration numbers, authorized uses, chemical composition, formulation, original and applied concentration, application rates of active ingredient (i.e. pounds of active ingredient applied), equipment used for application and calibration of equipment. Federal, State, Regional and Local pest management record keeping and reporting requirements as well as any additional Installation Project Office specific requirements are the Contractor's responsibility in conformance with DA AR 200-1 Chapter 5--Pest Management, Section 5-4 "Program requirements" for data required to be reported to the Installation.

1.7.3 Appendix

Attach to the Environmental Protection Plan, as an appendix, copies of all

environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents.

1.8 EMERGENCY RESPONSE AND REPORTING

If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site and that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, the Contractor shall: (1) immediately take all appropriate action to prevent, abate, or minimize such release or threat of release; (2) immediately notify the Contracting Officer orally; and (3) take such actions in consultation with the Owner and the Contracting Officer in accordance with all applicable provisions of the Health and Safety Plan, the Emergency Response Plan, and any other deliverable approved under the contract.

Upon the occurrence of any event during performance of the Work that Contractor is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), 42 U.S.C. § 11004, contractor shall immediately notify the Contracting Officer orally. The contractor shall: (1) within 14 days after the onset of such event, submit a report to Contracting Officer describing the actions or events that occurred and the measures taken, and to be taken, in response thereto; and (2) within 30 days after the conclusion of such event, submit a report to Contracting Officer describing all actions taken in response to such event. These reporting requirements are in addition to the reporting required by CERCLA § 103 or EPCRA § 304.

1.9 PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any onsite construction activities, the Contractor and the Contracting Officer will make a joint condition survey. Immediately following the survey, the Contractor will prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. This survey report will be signed by both the the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the work under the contract.

1.10 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations from the drawings and specifications, requested by the Contractor and which may have an environmental impact, will be subject to approval by the Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.11 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. After receipt of such notice, the Contractor will inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or equitable adjustments allowed for any such suspensions. This is in addition to any other actions the Contracting Officer may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 ENVIRONMENTAL PERMITS AND COMMITMENTS

This Article supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has received:

1. an Inland Wetland Permit issued by the City of Middletown, CT Inland Wetlands Commission

2. a permit issued by the Connecticut Department of Public Health for water main and storage tank work

3. a City of Middletown Site Plan Review

4. a Request for Reauthorization Under the General Permit for the Diversion of Water for Consumptive Use issued by the Connecticut Department of Energy and Environmental Protection (CT DEEP)

These permits are attached at the end of the specification, for reference only. The Contractor shall comply with permit terms and conditions that are applicable to this contract. Such applicable terms and conditions are specified in the various sections of these specifications and on the contract drawings. The above referenced documents shall not be relied on for contract requirements. In the event a discrepancy is discovered between the reference document and these specifications or the contract drawings, the Contractor shall notify the Contracting Officer for clarification. The Contracting Officer will rely on permit requirements and conditions to resolve perceived conflicts.

The Contractor is responsible for obtaining a Connecticut Department of Transportation (CTDOT) Encroachment Permit, District I. This permit allows the use of a State highway for something other than travel (for this project, a water main). The encroachment permit will be issued to the Contractor, however, the CTDOT will perform an informal review of the plans to be submitted for the permit prior to the Contractor applying for the permit. The plans must show erosion and sedimentation (E&S) controls and mitigation measures. A copy of the application is included at the end of the specifications. A completed permit shall be submitted.

The Contractor is also responsible for obtaining CT DEEP General Permit for the discharge of hydrostatic pressure testing wastewater. This general permit applies to all discharges of waters used to test the structural integrity of new tanks and pipelines and tanks and pipelines which have been used to hold or transfer drinking water, sewage, or natural gas. Registration is required to be submitted to the CT DEEP in order for the discharges to be authorized by this general permit. A copy of the application is included at the end of the specifications. A completed permit shall be submitted.

The Contractor shall be responsible for renewing required permits that expire prior to completion of the work.

Obtaining all other permits and complying with all environmental permits and commitments required by Federal, State, Regional, and local environmental laws and regulations is the Contractor's responsibility.

To perform excavation work in the City of Middletown, CT, the Contractor is required to obtain a permit from the City. To receive the permit, the Contractor is required to have insurance coverage as listed in the attachment at the end of the specifications.

3.2 SELF-VERIFICATION NOTIFICATION FORM

Before work commences on this project, the Contractor shall fill out all fields of the "Self-Verification Notification Form" attached at the end of the specifications, attach the project plans, and all State or local approval(s), and send to the U.S. Army Corps of Engineers, New England District, Permits and Enforcement Branch, and the CT DEEP, Inland Water Resources Division.

3.3 PROTECTION OF NATURAL RESOURCES

The Contractor shall minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitat. The Contractor shall be responsible for the protection of threatened and endangered animal and plant species, including their habitat, in accordance with Federal, State, Regional, and local laws and regulations.

3.4 LAND RESOURCES

Confine all activities to areas defined by the drawings and specifications. Identify any land resources to be preserved within the work area prior to the beginning of any construction. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. Ropes, cables, or guys will not be fastened to or attached to any trees for anchorage unless specifically authorized. Provide effective protection for land and vegetation resources at all times, as defined in the following subparagraphs.

3.4.1 Work Area Limits

Mark the areas that need not be disturbed under this contract prior to commencing construction activities. Mark or fence isolated areas within the general work area which are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, any markers must be visible

in the dark. The Contractor's personnel must be knowledgeable of the purpose for marking and/or protecting particular objects.

3.4.2 Landscape

The Contractor shall make every effort not to damage existing plant materials to remain. The Contractor is required to install fencing to protect aboveground plant material and the critical root zone of trees. The Critical Root Zone (CRZ) is three feet outside the perimeter of the leaf canopy of the tree to be protected. This area shall not be disturbed during construction operations. Protection of vegetation shall remain in place and be maintained in working condition by the Contractor until directed for removal by the Contracting Officer. All protection devices shall be removed from the site by the Contractor as directed by the Contracting Officer. Restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

Existing trees and shrubs to be saved or protected within or outside the contract limits which, in the opinion of the Contracting Officer, become damaged shall be repaired or replaced as recommended and approved by the Contracting Officer. Repair is preferred if long-term survival and growth of the plant is likely as determined by the Contracting Officer. Repairs may include wound treatments, cabling, bracing, pruning, fertilizing, watering, aeration, alleviation of compacted soil, other soil practices, insect and disease treatments, and other measures to assure long term survival and growth of the affected plant. If the plant is damaged beyond repair it shall be removed and replaced. Removal shall include removal and off-site disposal of aboveground vegetation and stumps, restoration of the ground surface, and seeding. Tree replacement shall include installation of the largest caliper diameter specimen obtainable for the species from a New England region nursery. Two shrubs shall be planted for each shrub damaged beyond repair. Trees greater than 6" in diameter that lie in the path of planned construction shall be evaluated by the Contracting Officer and Contractor prior to the work to determine if rerouting of the work is feasible. The replacement trees shall be planted on-site or at off-site locations approved by the Contracting Officer. All costs associated with the repair, removal and replacement of damaged trees and shrubs shall be borne by the Contractor without additional cost to the Government. These costs include but ae not limited to the cost of repairs and monitoring, removal of vegetation,replanting, and maintenance of planted material during an establishment and guarantee period.

3.4.3 Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities will be made only when approved. Erosion and sediment controls must be provided for onsite borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

3.4.4 Erosion and Sediment Controls

The Contractor shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare

soil exposed at any one time by construction operations should be kept to a minimum. The Contractor shall construct or install temporary and permanent erosion and sediment control best management practices (BMPs) as indicated on the contract drawings and as specified in Section 01 57 23 TEMPORARY STORM WATER POLLUTION CONTROL. BMPs may include, but not be limited to, vegetation cover, slope stabilization, silt fences, sediment traps, and inlet and outfall protection. Any temporary measures shall be removed after the area has been stabilized.

3.4.5 Wood Turtle

A special concern species (Wood Turtle, Glyptemys insculpta) is present in the area of the access driveway to the Cherry Hill Tank off Talcott Ridge Drive, the Meter Vault at the intersection with SR-17 and Acorn Drive, and areas near the Allyn Brook and Hersig Brook crossings. In addition, several wetland dependent species were noted in the vicinity of the proposed Allyn Brook crossings, included Slimy Sculpin (Cottus cognatus). The Contractor shall consult a certified wetland biologist and follow best management practices to perform the work to protect these species to the extent possible. A detailed Wood Turtle Protection Plan addressing schedules and approaches shall be submitted to the Contracting Officer for review and approval before start of work in these areas. The Plan and work shall adhere to the following to the extent possible:

1. The stream crossings shall not be constructed during the months of late August through September or from Mid-March through May, as these are the times that amphibians and reptiles are most active near wetlands.

2. If possible, stream crossings will be constructed in November when stream flows are low and amphibian activity has slowed.

3. Silt fencing shall be installed around work areas prior to construction where applicable, and the use of erosion control products that are embedded with netting shall not be used as these can be fatal to wildlife.

4. To protect wood turtles, silt fencing shall be used around stockpiles of dirt to exclude them from nesting. Nesting season is in early spring and late summer.

5. Vehicles and machinery shall not be parked in turtle habitat. Turtle habitat includes wetlands and undisturbed forest floor.

6. Construction contractor shall be apprised of the possible presence of turtles and their description. Any turtles discovered shall be moved to an appropriate area as outlined in the CT DEEP, Wildlife Division information in Attachment.

7. A subsequent NDDB request should be submitted if construction has not begun on this project by July 28, 2019.

8. Work conducted during early morning and evening hours will occur with special care not to harm basking or foraging individuals.

3.5 WATER RESOURCES

Monitor all water areas affected by construction activities to prevent pollution of surface and ground waters. Do not apply toxic or hazardous

chemicals to soil or vegetation. Paints, oils, and other chemical and hazardous materials shall be stored as far as possible from any drainage inlets, waterbodies (rivers, streams, lakes), environmentally sensitive areas (wetlands, vernal pools), but in no case shall the distance be less than 50 feet.

3.5.1 Wetlands

Do not enter, disturb, or destroy, wetlands, except as required in work areas shown on the contract drawings. Do not allow discharge of contaminants into any wetlands.

Construction equipment will not be allowed to enter wetland areas except for the proposed brook crossings at Durham Fairgrounds and Pickett Lane where the alignment shall be installed off-road. All construction activities that require limited work within the wetlands shall be performed under the supervision of a wetland scientist. Appropriate construction mats shall be employed for construction equipment to operate from.

3.6 AIR RESOURCES

Equipment operation, activities, or processes will be in accordance with all Federal and State air emission and performance laws and standards.

3.6.1 Particulates

Dust particles, aerosols and gaseous by-products from construction activities and processing and preparation of materials shall be controlled at all times including weekends, holidays, and hours when work is not in progress. Maintain work and storage areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Comply with all State and local visibility regulations.

Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the Contractor must have sufficient competent equipment on the job to accomplish this if sprinkling is used. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, as determined by the Contracting Officer.

Perform dust control operations whenever necessary or when directed even though other work on the project may be suspended. Dust control on exposed soil in trenches or rights of way shall be generally accomplished by the use of water. Calcium chloride may be used when necessary to control dust nuisance on paved surfaces or sidewalks.

Calcium Chloride: Calcium chloride shall conform to the requirements of AASHTO M144, Type I or Type II and ASTM D98. The calcium chloride shall be packaged in moisture-proof bags or airtight drums marked with the manufacturerâ€™s name, name of product, date of manufacture, net weight and percentage of calcium chloride guaranteed by the manufacturer, all legibly marked on each container. Calcium chloride failing to meet the requirements of the aforementioned specifications, or that which has become caked or sticky in shipment, etc., may be subject to rejection at the discretion of the Contracting Officer.

Water: Water shall be reasonably clean, shall not be salty or brackish, and shall be free from petroleum products, acids, injurious alkalis and

vegetable matter or other deleterious material. The water shall be tested in accordance with AASHTO Method T26 (except if water originates from the municipalitiesâ€™ water mains). Where a water supply system is available, the Contractor may utilize water from said supply system for controlling dust; however, prior to the use of such water, the Contractor shall make the necessary arrangements with the respective water department.

3.6.2 Odors

Odors from construction activities shall be controlled at all times. The odors shall be in compliance with State regulations and/or local ordinances and may not constitute a health hazard.

3.6.3 Sound Intrusions

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the State of Connecticut rules. The Contractor shall also be bound by local regulations governing noise limitations. Contractor shall pay particular attention to these regulations and obtain pertinent approvals (as necessary) during excavation operations. Equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with State and Federal (OSHA) regulations.

3.6.4 Burning

Burning is prohibited on the project site.

3.6.5 BMPs

The Contractor shall employ BMPs to minimize, and when possible eliminate, the production of Green House Gas (GHGs) emissions. Requirements include use of solarpower generators; selection of lower GHG emitting fuel sources (e.g., biodiesel) for small equipment and trucks. Restrict idling whenever possible. Employ energy conservation and efficiency approaches, including use of Energy Star equipment and renewable forms of energy to the maximum extent possible. Obtain materials, including backfill, and from local sources to the maximum extent possible. Choose suppliers with production and distribution centers near the work area to minimize fuel consumption associated with delivery.

3.7 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

Disposal of wastes will be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

3.7.1 Solid Wastes

Place solid wastes in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with solid waste. Transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill will be the minimum acceptable offsite solid waste disposal option. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. See Section 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT for additional requirements.

3.7.2 Ash Wood

Ash wood shall be disposed pursuant to CT DEEP regulations intended to prevent the spread of the Emerald Ash Borer.

3.7.3 Chemicals and Chemical Wastes

Dispense chemicals ensuring no spillage to the ground or water. Perform and document periodic inspections of dispensing areas to identify leakage and initiate corrective action. This documentation will be periodically reviewed by the Government. Collect chemical waste in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within six inches of the top. Wastes will be classified, managed, stored, and disposed of in accordance with Federal, State, and local laws and regulations.

3.7.4 Contractor Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable State and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. At a minimum, manage and store hazardous waste in compliance with 40 CFR 262. Take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. Segregate hazardous waste from other materials and wastes, protect it from the weather by placing it in a safe covered location, and take precautionary measures such as berming or other appropriate measures against accidental spillage. Storage, describing, packaging, labeling, marking, and placarding of hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, State, and local laws and regulations is the Contractor's responsibility. Transport Contractor generated hazardous waste off Government property within 60 days in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. Dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Spills of hazardous or toxic materials shall be immediately reported to the Contracting Officer and the Facility Environmental Office. Cleanup and cleanup costs due to spills are the Contractor's responsibility. The disposition of Contractor generated hazardous waste and excess hazardous materials are the Contractor's responsibility.

3.7.5 Fuel and Lubricants

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Manage and store fuel, lubricants and oil in accordance with all Federal, State, Regional, and local laws and regulations. Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations. Storage of fuel on the project site is not allowed. Fuel shall be brought to the project site each day that work is performed. Storage and usage of lubricants and daily fueling of machinery and equipment shall occur at least 50 feet from any drainage inlets, waterbodies (rivers, streams, lakes), environmentally sensitive areas (wetlands, vernal pools).

3.7.6 Waste Water

Waste water from construction activities, such as onsite material processing, clean-up water, etc., will not be allowed to enter water ways

or to be discharged prior to being treated to remove pollutants. Dispose of the construction related waste water off of the project site in accordance with all Federal, State, Regional and Local laws and regulations.

3.8 RECYCLING AND WASTE MINIMIZATION

The Contractor shall participate in State and local government sponsored recycling programs. The Contractor is further encouraged to minimize solid waste generation throughout the duration of the project.

3.9 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

A Phase 1A Archaeological Assessment was completed to determine the potential for encountering National Register-eligible archaeological resources in areas where subsurface disturbance will occur as a result of project actions. The report concluded that the project will have No Effect on NRHP-eligible archaeological resources. If previously unidentified items that may be Cultural Resources are discovered during the Work, the Contractor shall immediately notify the Contracting Officer, and the Contracting Officer shall immediately notify the EPA. The EPA, in consultation with the Contracting Officer and CTDEEP, shall determine whether the Work may reasonably be expected to adversely affect the discovered Cultural Resources. If EPA determines that the Work is reasonably expected to have an adverse effect on the discovered Cultural Resources, (a) Work on that portion of the Site will stop immediately, except as may be required for emergency response, or as deemed necessary by the Contracting Officer and the EPA, in consultation with CTDEEP, to protect public health, safety, or the environment, and (b) no further Work may proceed in the area in question until the EPA determines that the Work is not reasonably expected to adversely affect the discovered Cultural Resources. In the event that EPA determines that the Work will not likely have an adverse effect on discovered Cultural Resources, the Work may continue.

3.10 BIOLOGICAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitat. The protection of threatened and endangered animal and plant species, including their habitat, is the Contractor's responsibility in accordance with Federal, State, Regional, and local laws and regulations.

3.11 INTEGRATED PEST MANAGEMENT

In order to minimize impacts to existing fauna and flora, the Contractor, through the Contracting Officer, shall coordinate with the Project Pesticide Coordinator (PPC) at the earliest possible time prior to pesticide application, if pesticide treatment becomes necessary. Discuss integrated pest management strategies with the PPC and receive concurrence from the PPC through the Contracting Officer prior to the application of any pesticide associated with these specifications. Installation Project Office Pest Management personnel will be given the opportunity to be present at all meetings concerning treatment measures for pest or disease control and during application of the pesticide. The use and management of pesticides are regulated under 40 CFR 150 - 189.

3.11.1 Pesticide Delivery and Storage

Deliver pesticides to the site in the original, unopened containers bearing

legible labels indicating the EPA registration number and the manufacturer's registered uses. Store pesticides according to manufacturer's instructions and under lock and key when unattended.

3.11.2 Qualifications

For the application of pesticides, use the services of a subcontractor whose principal business is pest control. The subcontractor shall be licensed and certified in the state where the work is to be performed.

3.11.3 Pesticide Handling Requirements

Formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions and use the clothing and personal protective equipment specified on the labeling for use during all phases of the application. Furnish Material Safety Data Sheets (MSDS) for all pesticide products.

3.11.4 Application

Apply pesticides using a State Certified Pesticide Applicator in accordance with EPA label restrictions and recommendation. The Certified Applicator shall wear clothing and personal protective equipment as specified on the pesticide label. The Contracting Officer will designate locations for water used in formulating. Do not allow the equipment to overflow. All equipment shall be inspected for leaks, clogging, wear, or damage and repaired prior to application of pesticide.

3.12 PREVIOUSLY USED EQUIPMENT

Clean all previously used construction equipment prior to bringing it onto the project site. Ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the USDA jurisdictional office for additional cleaning requirements.

3.13 MAINTENANCE OF POLLUTION FACILITIES

Maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.14 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection and pollution control. Conduct environmental protection/pollution control meetings for all personnel prior to commencing construction activities. Additional meetings shall be conducted for new personnel and when site conditions change. Include in the training and meeting agenda: methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.15 POST CONSTRUCTION CLEANUP

The Contractor will clean up all areas used for construction in accordance with Contract Clause "Cleaning Up". Unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

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SECTION 01 57 23

TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D4439	(2014) Geosynthetics
ASTM D4491	(1999a; R 2014; E 2014) Water Permeability of Geotextiles by Permittivity
ASTM D4533/D4533M	(2015) Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D4632/D4632M	(2015) Grab Breaking Load and Elongation of Geotextiles
ASTM D4751	(2012) Determining Apparent Opening Size of a Geotextile
ASTM D4873	(2015) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

1.2 GENERAL

The Contractor shall implement the storm water pollution prevention measures specified in this section in a manner which will meet the requirements of Section 01 57 20 ENVIRONMENTAL PROTECTION.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-07 Certificates

Mill Certificate or Affidavit.

Certificate attesting that the Contractor has met all specified requirements.

1.4 EROSION AND SEDIMENT CONTROLS

The controls and measures required by the Contractor are described below.

1.4.1 Stabilization Practices

The stabilization practices to be implemented shall include silt fences, staked hay bale barriers, silt socks, temporary seeding, mulching, geotextiles, protection of trees, preservation of mature vegetation, or other appropriate measures chosen by the Contractor. On his daily CQC Report, the Contractor shall record the dates when the major earth-moving activities occur, (e.g., excavation, placing fill, etc.); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, stabilization practices shall be initiated as soon as practicable, but no more than 14 days after activities have temporarily or permanently ceased, in any portion of the site.

1.4.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.4.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

1.4.2 Structural Practices

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include silt fences, straw bale barriers, silt socks, or other approved devices as chosen by the Contractor. Location and details of installation and construction shall be as required by the Contractor's construction methods and as shown on the contract drawings to limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall include the following devices (silt fences, straw bale barriers, silt socks), and may be required to be used independently or in conjunction as the conditions of the site require.

1.4.2.1 Silt Fences

The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g., tree and stump removal, excavation, etc.). Silt fences shall be installed as required by the Contractor's construction methods. Final removal of silt fence barriers shall be upon approval by the Contracting Officer.

1.4.2.2 Straw Bales

The Contractor shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g., tree and stump removal, grading, excavation, etc.), and in each independent runoff area. Bales shall be placed as work progresses and shall be removed/replaced/relocated as needed for work to progress in the drainage area. Straw bales shall be installed as required by the Contractor's construction methods. Final removal of straw bale barriers shall be upon approval by the Contracting Officer. Rows of bales of straw shall be provided as follows:

a. Along the downhill perimeter edge of all areas disturbed.

b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.

c. Along the toe of all cut slopes and fill slopes of the construction areas.

d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc., that traverse disturbed areas or carry runoff from disturbed areas.

e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales.

f. At the entrance to culverts that receive runoff from disturbed areas.

1.4.3 Silt Socks

The Contractor shall provide silt socks as a temporary structural practice to minimize erosion and sediment runoff. Silt socks shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g., tree and stump removal, excavation, etc.). Silt socks shall be installed as required by the Contractor's construction methods. Final removal of silt sock barriers shall be upon approval by the Contracting Officer.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

The geotextile shall comply with the requirements of ASTM D4439, and shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the

following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile Elongation (%)	ASTM D4632/D4632M	100 lbs. min. 30 % max.
Trapezoid Tear	ASTM D4533/D4533M	55 lbs. min.
Permittivity	ASTM D4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D4751	20-100

2.1.2 Silt Fence Stakes and Posts

The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction shall have a minimum cross section of 2 inches by 2 inches when oak is used and 4 inches by 4 inches when pine is used, and shall have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 5 feet.

2.1.3 Mill Certificate or Affidavit

A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit shall specify the actual Minimum Average Roll Values and shall identify the fabric supplied by roll identification numbers. The Contractor shall submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.1.4 Identification Storage and Handling

Filter fabric shall be identified, stored and handled in accordance with ASTM D4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. The bales shall have a standard cross section of 14 inches by 18 inches. All bales shall be either wire-bound or string-tied. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 2 inches x 2 inches in cross section and shall have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 3 feet.

2.3 SILT SOCKS

Silt socks shall be made from biodegradable materials and filled with wood chip compost. The Contractor may use either wooden stakes or steel posts to secure to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 2 inches x 2 inches in cross section and shall

have a minimum length of 3 feet. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 3 feet.

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Silt fences shall extend a minimum of 16 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6 inch overlap, and securely sealed.

In non-wetlands areas, a trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4-inch by 4-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Contracting Officer.

In wetlands areas, silt fences shall not be installed in trenches. The lower portion of the silt fence shall be anchored with stakes or other approved methods.

3.2 INSTALLATION OF STRAW BALES

Straw bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings.

In non-wetland areas, the barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked (gaps filled by wedging with straw), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

In wetlands areas, the barrier shall not be installed in trenches. The bales shall be anchored with just stakes as described below, or other approved methods.

Loose straw shall be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Each bale shall be securely anchored by at least two stakes driven through the bale, more if trenching is not used. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven a minimum 18 inches deep into the ground to securely anchor the bales.

3.3 INSTALLATION OF SILT SOCKS

Silt socks shall be placed lengthwise on the contour. Silt socks shall be securely anchored as recommended by the manufacturer.

3.4 MAINTENANCE

The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.4.1 Silt Fence Maintenance

Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded.

3.4.2 Straw Bale Maintenance

Straw bale barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded.

3.4.3 Silt Sock Maintenance

Silt socks shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damages. Necessary repairs to shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the installed sock. Silt sock runs used to retain sediment shall be turned uphill at each end of each run. When a silt sock is no longer required, it shall be removed. The immediate area occupied by the sock and any sediment deposits shall be shaped to an acceptable grade. The areas disturbed by this shaping shall be seeded.

3.5 INSPECTIONS

3.5.1 General

The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least

once every month.

3.5.2 Inspections Details

Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan (see Section 01 57 20 ENVIRONMENTAL PROTECTION, subpart "Environmental Protection Plan") shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.5.3 Inspection Reports

For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site.

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SECTION 01 71 23

FIELD ENGINEERING

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Engineering Services

The Contractor shall provide and pay for field engineering services required for the project, including the following:

a. Survey work required in execution of the project and for determining quantities of work performed and for submission of progress payment requisitions. All survey work shall be performed by a Land Surveyor registered in the State of Connecticut.

b. Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods. Record drawings shall be signed by Professional Engineer licensed in the State of Connecticut.

1.1.2 Existing Control Points

Control points are indicated on the contract drawings. The Contractor's registered land surveyor shall establish the control points in the field for the work of this project. Prior to the placement or removal of any material, the registered land surveyor shall establish construction control markers clearly visible and understandable to workmen placing material.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-07 Certificates

Qualifications

Name and address of the Surveyor and Professional Engineer and proof of registration.

1.3 QUALIFICATIONS

1.3.1 Registered Land Surveyor

Registered land surveyor licensed in the State of Connecticut and approved by the Contracting Officer.

1.3.2 Professional Engineer

Professional Engineer licensed in the State of Connecticut and approved by

the Contracting Officer.

1.4 LAYOUT OF WORK

a. The Government has indicated control points for the work of this project which are described on the contract drawings.

b. From these control points the Contractor's surveyor shall lay out the work by establishing all lines and grades at the site necessary to control the work and shall be responsible for all measurements that may be required for the execution of the work to the location and limit marks prescribed in the specifications or on the contract drawings. The Contractor shall establish and maintain at the site of the work such stakes and markers as are necessary for control and guidance of his construction operations. All survey data shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings and computations made by the Contractor in establishing above horizontal and vertical control points shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his duly authorized representative.

c. The Contractor shall furnish, at his own expense, all such stakes, spikes, steel pins, templates, platforms, equipment, tools and material and all labor as may be required in laying out any part of the work from the control points established by the Government. It shall be the responsibility of the Contractor to maintain and preserve all stakes and other markers established by him until authorized to remove them. If any of the control points established at the site by the Government are destroyed by or through the negligence of the Contractor prior to their authorized removal, they may be replaced by the Contracting Officer, and the expense of replacement will be deducted from any amount due or which may become due the Contractor. The Contracting Officer may require that work be suspended at any time when horizontal and vertical control points established at the site by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon proper replacement of the control points.

d. During the layout of the work, the Contractor shall notify the Government of any inconsistencies or conflicts which arise due to the supplied control points or features of the project.

PART 2 PRODUCTS (Not Used)

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

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SECTION 01 74 19

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SECTION 01 74 19

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

PART 1 GENERAL

1.1 GOVERNMENT POLICY

Government policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

1.2 MANAGEMENT

Develop and implement a waste management program. Take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor is responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling accrue to the Contractor. Appropriately permit firms and facilities used for recycling, reuse, and disposal for the intended use to the extent required by federal, state, and local regulations. Also, provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Waste Management Plan; G, RO

The Contractor shall develop a Waste Management Plan in accordance with the requirements of this section.

1.4 MEETINGS

Conduct Construction Waste Management meetings. After award of the

Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed Waste Management Plan and to develop a mutual understanding relative to the details of waste management. The requirements for this meeting may be fulfilled during the coordination and mutual understanding meeting outlined in Section 01 45 00 QUALITY CONTROL. At a minimum, environmental and waste management goals and issues shall be discussed at the following additional meetings:

a. Preconstruction meeting.

b. Regular QC meetings.

c. Work safety meetings.

1.5 WASTE MANAGEMENT PLAN

A waste management plan shall be submitted within 15 days after Notice to Proceed and not less than 10 days before the preconstruction meeting. The plan shall demonstrate how the project waste diversion goal shall be met and shall include the following:

a. Name of individuals on the Contractor's staff responsible for waste prevention and management.

b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

c. Description of the regular meetings to be held to address waste management.

d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of wastes.

e. Characterization, including estimated types and quantities, of the waste to be generated.

f. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.

g. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity. Include the name, location, and phone number for each reuse facility to be used, and provide a copy of the permit or license for each facility.

h. List of specific waste materials that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Recycling facilities that will be used shall be identified by name, location, and phone number, including a copy of the permit or license for each facility.

i. Identification of materials that cannot be recycled/reused with an explanation or justification, to be approved by the Contracting Officer.

j. Description of the means by which any waste materials identified in item (h) above will be protected from contamination.

k. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

l. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

Revise and resubmit the Waste Management Plan as required by the Contracting Officer. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Distribute copies of the Waste Management Plan to each subcontractor, the Quality Control Manager, and the Contracting Officer.

1.6 COLLECTION

Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in a manner that maximizes recyclability and salvagability of identified materials. Provide the necessary containers, bins and storage areas to facilitate effective waste management and clearly and appropriately identify them. Provide materials for barriers and enclosures around recyclable material storage areas which are nonhazardous and recyclable or reusable. Locate out of the way of construction traffic. Provide adequate space for pick-up and delivery and convenience to subcontractors. Recycling and waste bin areas are to be kept neat and clean, and recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials. Clean contaminated materials prior to placing in collection containers. Use cleaning materials that are nonhazardous and biodegradable. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 20 ENVIRONMENTAL PROTECTION. Separate materials by one of the following methods:

1.6.1 Source Separated Method

Waste products and materials that are recyclable shall be separated from trash and sorted as described below into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the following category types as appropriate to the project waste and to the available recycling and reuse programs in the project area:

a. Land clearing debris.

b. Asphalt.

c. Concrete and masonry.

d. Metal (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper,

zinc, lead brass, bronze).

(1) Ferrous.

(2) Non-ferrous.

e. Wood (nails and staples allowed).

f. Debris.

g. Glass (colored glass allowed).

h. Paper.

(1) Bond.

(2) Newsprint.

(3) Cardboard and paper packaging materials.

i. Plastic.

(1) Type 1: Polyethylene Terephthalate (PET, PETE).

(2) Type 2: High Density Polyethylene (HDPE).

(3) Type 3: Vinyl (Polyvinyl Chloride or PVC).

(4) Type 4: Low Density Polyethylene (LDPE).

(5) Type 5: Polypropylene (PP).

(6) Type 6: Polystyrene (PS).

(7) Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.

j. Gypsum.

k. Non-hazardous paint and paint cans.

l. Carpet.

m. Ceiling tiles.

n. Insulation.

o. Beverage containers.

1.6.2 Co-Mingled Method

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.

1.6.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.7 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures. Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

1.7.1 Reuse

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered.

1.7.2 Recycle

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling. All fluorescent lamps, HID lamps, and mercury-containing thermostats removed from the site shall be recycled. Arrange for timely pickups from the site or deliveries to recycling facilities in order to prevent contamination of recyclable materials.

1.7.3 Waste

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

1.7.4 Return

Set aside and protect misdelivered and substandard products and materials and return to supplier for credit.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used. -- End of Section --

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SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-300-08	(2009, with Change 2) Criteria for Transfer and Acceptance of DoD Real Property

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

As-Built Record of Equipment and Materials

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

Warranty Management Plan

One set of the warranty information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

Spare Parts Data

Two copies of list that indicates manufacturer's name, part number, nomenclature, and stock level recommended for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

Warranty Tags

SD-08 Manufacturer's Instructions

Instructions

Posted instructions.

SD-11 Closeout Submittals

Record Drawings

Interim Form DD1354; G, RO

Checklist for Form DD1354; G, RO

Construction Completion Report; G, RO

Remedial Action Report (RAR); G, RO

1.3 CONSTRUCTION COMPLETION REPORT

The Contractor shall prepare a Construction Completion Report.

1. The Construction Completion Report shall contain: 1) all project documentation identified in the specifications, including but not limited to as-built plans, test results, weight slips, material disposal documentation, and photo/video documentation; 2) a summary of all work performed with sufficient detail to provide an unfamiliar person a good understanding of the completed work.

2. The Construction Completion Report shall be submitted in draft form to the Contracting Officer for review.

3. Upon receipt of comments, the Construction Completion Report shall be submitted in final form.

1.4 REMEDIAL ACTION REPORT (RAR)

Upon approval of the Construction Completion Report, the Contractor shall prepare a Remedial Action Report (RAR), in accordance with EPA's Close Out Procedures for NPL Sites guidance (May 2011):

http://www.epa.gov/superfund/programs/npl_hrs/closeout/pdf/2011guidance.pdf

The RAR shall: (1) include statements by a registered professional engineer and by the contractor that construction of the system is complete and that the system is functioning properly and as designed; (2) include a demonstration, and supporting documentation, that construction of the system is complete and that the system is functioning properly and as designed; (3) include as-built drawings signed and stamped by a registered professional engineer licensed in the State of Connecticut; and (4) be prepared in accordance with Chapter 2 (Remedial Action Completion) of EPA's Close Out Procedures for NPL Sites guidance (May 2011).

1.5 PROJECT RECORD DOCUMENTS

1.5.1 Record Drawings

Drawings showing final as-built conditions of the project. This paragraph covers record drawings complete, as a requirement of the contract. The terms "drawings", "contract drawings", "drawing files", "working record drawings", and "final record drawings" refer to contract drawings which are revised to be used for final record drawings showing as-built conditions. The final CAD record drawings shall consist of one set of electronic CAD

drawing files in the specified format, two sets of prints, and one set of the approved working Record drawings.

1.5.1.1 Working Record and Final Record Drawings

Revise two sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. Keep these working as-built marked drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Prepare final record (as-built) drawings after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked prints and final record (as-built) drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final record drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. Show on the working and final record drawings, but not limited to, the following information, as appropriate for the project:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.

b. The location and dimensions of any changes within the building structure.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, show only the option selected for construction on the final as-built prints.

h. If borrow material for this project is from sources on Government

property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.

i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures.

(1) Follow directions in the modification for posting descriptive changes.

(2) Place a Modification Circle at the location of each deletion.

(3) For new details or sections which are added to a drawing, place a Modification Circle by the detail or section title.

(4) For minor changes, place a Modification Circle by the area changed on the drawing (each location).

(5) For major changes to a drawing, place a Modification Circle by the title of the affected plan, section, or detail at each location.

(6) For changes to schedules or drawings, place a Modification Circle either by the schedule heading or by the change in the schedule.

(7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.5.1.2 Drawing Preparation

Modify the record drawings as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints must be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.

1.5.1.3 Computer Aided Design and Drafting (CADD) Drawings

Only employ personnel proficient in the preparation of CADD drawings to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, prepare them using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final record drawings shall be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CADD files. The Contractor shall produce "as-designed" drawings in

AutoCAD format compatible with a Windows XP and Windows 7 operating system. The Contractor shall be responsible for providing all software and hardware necessary to prepare final record drawings in AutoCAD. The Contracting Officer will review final record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

a. Provide CADD "base" colors of red, green, and blue. Color code for changes as follows:

(1) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(2) Additions (Green) - Added items, lettering in notes and leaders.

(3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

b. Rename the Contract Drawing files in a manner related to the contract number (i.e., 98-C-10.DGN) as instructed in the Pre-Construction conference. Use only those renamed files for the Marked-up changes. All changes shall be made on the layer/level as the original item.

c. When final revisions have been completed, show the wording "RECORD DRAWINGS / AS-BUILT CONDITIONS" followed by the name of the Contractor in letters at least 3/16 inch high on the cover sheet drawing. Mark all other contract drawings either "Record" drawing denoting no revisions on the sheet or "Revised Record" denoting one or more revisions. Date original contract drawings in the revision block.

d. Within 10 days after Government approval of all of the working record drawings for a phase of work, prepare the final CADD record drawings for that phase of work and submit two sets of blue-lined prints of these drawings for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 7 days revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 10 days of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit one set of electronic files on compact disc, read-only memory (CD-ROM), one set of mylars, two sets of blue-line prints and one set of the approved working record drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record drawing files and marked prints as specified will be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final record drawings shall be accomplished before final payment is made to the Contractor.

1.5.1.4 Payment

No separate payment will be made for record drawings required under this

contract, and all costs accrued in connection with such drawings are considered a subsidiary obligation of the Contractor.

1.5.2 As-Built Record of Equipment and Materials

Furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned two days after final inspection with Government comments. Submit two sets of final record of equipment and materials 10 days after final inspection. Key the designations to the related area depicted on the contract drawings. List the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA				
Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used

1.5.3 Final Approved Shop Drawings

Furnish final approved project shop drawings 30 days after transfer of the completed facility.

1.5.4 Construction Contract Specifications

Furnish final record (as-built) construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

1.6 WARRANTY MANAGEMENT

All manufacturer's warranties for installed plant, equipment and materials shall be allocated to either the Towns of Middletown or Durham, CT as appropriate.

1.6.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to the clause Warranty of Construction. At least 30 days before the planned pre-warranty conference, submit one set of the warranty management plan. Include within the warranty management plan all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan must be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below must include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase must be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period will begin on the date of project acceptance and continue for the full product warranty period. A joint 4 month and 9 month warranty inspection will be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Include within the warranty management plan, but not limited to, the following:

a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subContractors, manufacturers or suppliers involved.

b. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

c. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

d. A list for each warranted equipment, item, feature of construction or system indicating:

(1) Name of item.
(2) Model and serial numbers.
(3) Location where installed.
(4) Name and phone numbers of manufacturers or suppliers.
(5) Names, addresses and telephone numbers of sources of spare parts.
(6) Warranties and terms of warranty. Include one-year overall warranty of construction, including the starting date of warranty of construction. Items which have extended warranties must be indicated with separate warranty expiration dates.
(7) Cross-reference to warranty certificates as applicable.
(8) Starting point and duration of warranty period.
(9) Summary of maintenance procedures required to continue the warranty in force.
(10) Cross-reference to specific pertinent Operation and Maintenance manuals.
(11) Organization, names and phone numbers of persons to call for warranty service.
(12) Typical response time and repair time expected for various warranted equipment.

e. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

f. Procedure and status of tagging of all equipment covered by extended warranties.

g. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

Provide sufficient copies of warranties to distribute to the Contracting Officer, the EPA, the CT DEEP, the City of Middletown, and the Town of Durham. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.6.2 Performance Bond

The Contractor's Performance Bond must remain effective throughout the construction period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have

the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.6.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty will be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, be continuously available, and be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.6.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. Submit a report on any warranty item that has been repaired during the warranty period. Include within the report the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and backcharge the construction warranty payment item established.

a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

d. The "Construction Warranty Service Priority List" is as follows:

Code 1-Life Safety Systems
(1) Fire suppression systems.
(2) Fire alarm system(s) in place in the building.

Code 1-Air Conditioning Systems
(1) Recreational support.
(2) Air conditioning leak in part of building, if causing damage.
(3) Air conditioning system not cooling properly.

Code 1-Doors
(1) Overhead doors not operational, causing a security, fire, or safety problem.
(2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

Code 3-Doors
(1) Overhead doors not operational.
(2) Interior/exterior personnel doors or hardware not functioning properly.

Code 1-Electrical
(1) Power failure (entire area or any building operational after 1600 hours).
(2) Security lights
(3) Smoke detectors

Code 2-Electrical
(1) Power failure (no power to a room or part of building).
(2) Receptacle and lights (in a room or part of building).

Code 3-Electrical
Street lights.

Code 1-Gas
(1) Leaks and breaks.
(2) No gas to family housing unit or cantonment area.

Code 1-Heat
(1) Area power failure affecting heat.
(2) Heater in unit not working.

Code 2-Kitchen Equipment
(1) Dishwasher not operating properly.
(2) All other equipment hampering preparation of a meal.

Code 1-Plumbing
(1) Hot water heater failure.
(2) Leaking water supply pipes.

Code 2-Plumbing
(1) Flush valves not operating properly.
(2) Fixture drain, supply line to commode, or any water pipe leaking.
(3) Commode leaking at base.

Code 3 -Plumbing
Leaky faucets.

Code 3-Interior
(1) Floors damaged.
(2) Paint chipping or peeling.
(3) Casework.

Code 1-Roof Leaks
Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks
Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)
No water to facility.

Code 2-Water (Hot)
No hot water in portion of building listed.

Code 3-All other work not listed above.

1.6.5 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit two record copies of the warranty tags showing the layout and design. The date of acceptance and the QC signature must remain blank until the project is accepted for beneficial occupancy. Show the following information on the tag, as appropriate.

Type of product/material	
Model number	
Serial number	
Contract number	
Warranty period from/to	
Inspector's signature	
Construction Contractor	
Address	
Telephone number	
Warranty contact	
Address	
Telephone number	
Warranty response time priority code	

WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.7 CLEANUP

Leave premises "broom clean". As appropriate for the project, clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site.

1.8 REAL PROPERTY RECORD

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete and submit an accounting of all installed property with Interim Form DD1354 "Transfer and Acceptance of Military Real Property". Include any additional assets/improvements/alterations from the Draft DD Form 1354. Contact the Contracting Officer for any project specific information necessary to complete the DD Form 1354. Refer to UFC 1-300-08 for instruction on completing the DD Form 1354. For information purposes, a blank DD Form 1354 (fill-able) in ADOBE (PDF) may be obtained at the following web site:
http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd1354.pdf

Submit the completed Checklist for Form DD1354 of Installed Building Equipment items. Attach this list to the updated DD Form 1354.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

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SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

O&M Database; G, RO

Training Plan; G, RO

Training Outline; G, RO

Training Content; G, RO

SD-11 Closeout Submittals

Training Video Recording; G, RO

Validation of Training Completion; G, RO

1.2 OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data for the provided equipment, product, or system, defining the importance of system interactions, troubleshooting, and long-term preventive operation and maintenance. Compile, prepare, and aggregate O&M data to include clarifying and updating the original sequences of operation to as-built conditions. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01 33 00 SUBMITTAL PROCEDURES.

1.2.1 Package Quality

Documents must be fully legible. Operation and Maintenance data must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions.

1.2.2 Package Content

Provide data package content in accordance with paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES. Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission, except as follows. Use Data Package 3 for commissioned items without a specified data package

requirement in the individual technical sections. Provide a Data Package 3 instead of Data Package 1 or 2, as specified in the individual technical section, for items that are commissioned.

1.2.3 Changes to Submittals

Provide manufacturer-originated changes or revisions to submitted data if a component of an item is so affected subsequent to acceptance of the O&M Data. Submit changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data within 30 calendar days of the notification of this change requirement.

1.3 O&M DATABASE

Develop an editable, electronic spreadsheet based on the equipment in the Operation and Maintenance Manuals that contains the information required to start a preventive maintenance program. As a minimum, provide list of system equipment, location installed, warranty expiration date, manufacturer, model, and serial number.

1.4 OPERATION AND MAINTENANCE MANUAL FILE FORMAT

Assemble data packages into electronic Operation and Maintenance Manuals. Assemble each manual into a composite electronically indexed file using the most current version of Adobe Acrobat or similar software capable of producing PDF file format. Provide compact disks (CD) or data digital versatile disk (DVD) as appropriate, so that each one contains operation, maintenance and record files, project record documents, and training videos. Include a complete electronically linked operation and maintenance directory.

1.4.1 Organization

Bookmark Product and Drawing Information documents using the current version of CSI Masterformat numbering system, and arrange submittals using the specification sections as a structure. Use CSI Masterformat and UFGS numbers along with descriptive bookmarked titles that explain the content of the information that is being bookmarked.

1.4.2 CD or DVD Label and Disk Holder or Case

Provide the following information on the disk label and disk holder or case:

a. Building Number

b. Project Title

c. Activity and Location

d. Construction Contract Number

e. Prepared For: (Contracting Agency)

f. Prepared By: (Name, title, phone number and email address)

g. Include the disk content on the disk label

h. Date

i. Virus scanning program used

1.5 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

The following are a detailed description of the data package items listed in paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES.

1.5.1 Operating Instructions

Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.5.1.1 Safety Precautions and Hazards

List personnel hazards and equipment or product safety precautions for operating conditions. List all residual hazards identified in the Activity Hazard Analysis provided under Section 01 35 26 GOVERNMENT SAFETY REQUIREMENTS. Provide recommended safeguards for each identified hazard.

1.5.1.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.5.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.5.1.4 Normal Operations

Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.5.1.5 Emergency Operations

Provide Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Provide Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.5.1.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.5.1.7 Environmental Conditions

Provide a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.5.1.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.5.2 Preventive Maintenance

Provide the following information for preventive and scheduled maintenance to minimize repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.5.2.1 Lubrication Data

Include the following preventive maintenance lubrication data, in addition to instructions for lubrication required under paragraph OPERATOR SERVICE REQUIREMENTS:

a. A table showing recommended lubricants for specific temperature ranges and applications.

b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.

c. A Lubrication Schedule showing service interval frequency.

1.5.2.2 Preventive Maintenance Plan, Schedule, and Procedures

Provide manufacturer's schedule for routine preventive maintenance, inspections, condition monitoring (predictive tests) and adjustments required to ensure proper and economical operation and to minimize repairs. Provide instructions stating when the systems should be retested. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

a. Define the anticipated time required to perform each of each test (work-hours), test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventive maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize repairs.

b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

1.5.3 Repair

Provide manufacturer's recommended procedures and instructions for correcting problems and making repairs.

1.5.3.1 Troubleshooting Guides and Diagnostic Techniques

Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.5.3.2 Wiring Diagrams and Control Diagrams

Provide point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.5.3.3 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.5.3.4 Removal and Replacement Instructions

Provide step-by-step procedures and a list of required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Use a combination of text and illustrations.

1.5.3.5 Spare Parts and Supply Lists

Provide lists of spare parts and supplies required for repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.5.3.6 Repair Work-Hours

Provide manufacturer's projection of repair work-hours including requirements by type of craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

1.5.4 Real Property Equipment

Provide a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. In the "EQUIPMENT-IN-PLACE LIST" include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. Submit the final list 30 days after completion of the project.

Key the designations to the related area depicted on the contract drawings. List the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA				
Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used

1.5.5 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.5.5.1 Product Submittal Data

Provide a copy of SD-03 Product Data submittals documented with the required approval.

1.5.5.2 Manufacturer's Instructions

Provide a copy of SD-08 Manufacturer's Instructions submittals documented with the required approval.

1.5.5.3 O&M Submittal Data

Provide a copy of SD-10 Operation and Maintenance Data submittals documented with the required approval.

1.5.5.4 Parts Identification

Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing must show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Group the parts shown in the listings by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.

1.5.5.5 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary componentsof the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.5.5.6 Extended Warranty Information

List all warranties for products, equipment, components, and sub-components whose duration exceeds one year. For each warranty listed, indicate the applicable specification section, duration, start date, end date, and the point of contact for warranty fulfillment. Also, list or reference the specific operation and maintenance procedures that must be performed to keep the warranty valid. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.5.5.7 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.5.5.8 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.

1.5.5.9 Testing and Performance Data

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.

1.5.5.10 Field Test Reports

Provide a copy of Field Test Reports (SD-06) submittals documented with the required approval.

1.5.5.11 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.6 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Provide the O&M data packages specified in individual technical sections. The information required in each type of data package follows:

1.6.1 Data Package 1

a. Safety precautions and hazards

b. Cleaning recommendations

c. Maintenance and repair procedures

d. Warranty information

e. Extended warranty information

f. Contractor information

g. Spare parts and supply list

1.6.2 Data Package 2

a. Safety precautions and hazards

b. Normal operations

c. Environmental conditions

d. Lubrication data

e. Preventive maintenance plan, schedule, and procedures

f. Cleaning recommendations

g. Maintenance and repair procedures

h. Removal and replacement instructions

i. Spare parts and supply list

j. Parts identification

k. Warranty information

l. Extended warranty information

m. Contractor information

1.6.3 Data Package 3

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Environmental conditions

g. Operating log

h. Lubrication data

i. Preventive maintenance plan, schedule, and procedures

j. Cleaning recommendations

k. Troubleshooting guides and diagnostic techniques

l. Wiring diagrams and control diagrams

m. Maintenance and repair procedures

n. Removal and replacement instructions

o. Spare parts and supply list

p. Product submittal data

q. O&M submittal data

r. Parts identification

s. Warranty information

t. Extended warranty information

u. Testing equipment and special tool information

v. Testing and performance data

w. Contractor information

x. Field test reports

1.6.4 Data Package 4

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Operator service requirements

g. Environmental conditions

h. Operating log

i. Lubrication data

j. Preventive maintenance plan, schedule, and procedures

k. Cleaning recommendations

l. Troubleshooting guides and diagnostic techniques

m. Wiring diagrams and control diagrams

n. Repair procedures

o. Removal and replacement instructions

p. Spare parts and supply list

q. Repair work-hours

r. Product submittal data

s. O&M submittal data

t. Parts identification

u. Warranty information

v. Extended warranty information

w. Personnel training requirements

x. Testing equipment and special tool information

y. Testing and performance data

z. Contractor information

aa. Field test reports

1.6.5 Data Package 5

a. Safety precautions and hazards

b. Operator prestart

c. Start-up, shutdown, and post-shutdown procedures

d. Normal operations

e. Environmental conditions

f. Preventive maintenance plan, schedule, and procedures

g. Troubleshooting guides and diagnostic techniques

h. Wiring and control diagrams

i. Maintenance and repair procedures

j. Removal and replacement instructions

k. Spare parts and supply list

l. Product submittal data

m. Manufacturer's instructions

n. O&M submittal data

o. Parts identification

p. Testing equipment and special tool information

q. Warranty information

r. Extended warranty information

s. Testing and performance data

t. Contractor information

u. Field test reports

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 TRAINING

Prior to acceptance of the facility by the Contracting Officer, provide comprehensive training for the systems and equipment specified in the technical specifications. Instructors must be well-versed in the particular systems that they are presenting. Training must include classroom or field lectures based on the system operating requirements. The location of classroom training requires approval by the Contracting Officer.

3.1.1 Training Plan

Submit a written training plan to the Contracting Officer for approval at least 60 calendar days prior to the scheduled training. Training plan must be approved by the Quality Control Manager (QC) prior to forwarding to the Contracting Officer. Also, coordinate the training schedule with the Contracting Officer and QC. Include within the plan the following elements:

a. Equipment included in training

b. Intended audience

c. Location of training

d. Dates of training

e. Objectives

f. Outline of the information to be presented and subjects covered including description

g. Start and finish times and duration of training on each subject

h. Methods (e.g. classroom lecture, video, site walk-through, actual operational demonstrations, written handouts)

i. Instructor names and instructor qualifications for each subject

j. List of texts and other materials to be furnished by the Contractor that are required to support training

k. Description of proposed software to be used for video recording of training sessions.

3.1.2 Training Content

The core of this training must be based on manufacturer's recommendations

and the operation and maintenance information. The QC is responsible for overseeing and approving the content and adequacy of the training. Spend 95 percent of the instruction time during the presentation on the OPERATION AND MAINTENANCE DATA. Include the following for each system training presentation:

a. Start-up, normal operation, shutdown, unoccupied operation, seasonal changeover, manual operation, controls set-up and programming, troubleshooting, and alarms.

b. Relevant health and safety issues.

c. Discussion of how the feature or system is environmentally responsive. Advise adjustments and optimizing methods for energy conservation.

d. Design intent.

e. Use of O&M Manual Files.

f. Review of control drawings and schematics.

g. Interactions with other systems.

h. Special maintenance and replacement sources.

i. Tenant interaction issues.

3.1.3 Training Outline

Provide a written course outline listing the major and minor topics to be discussed by the instructor on each day of the course to each trainee in the course. Provide the course outline 14 calendar days prior to the training.

3.1.4 Unresolved Questions from Attendees

If, at the end of the training course, there are questions from attendees that remain unresolved, the instructor must send the answers, in writing, to the Contracting Officer for transmittal to the attendees.

3.1.5 Validation of Training Completion

Ensure that each attendee at each training session signs a class roster daily to confirm Government participation in the training. At the completion of training, submit a signed validation letter that includes a sample record of training for reporting what systems were included in the training, who provided the training, when and where the training was performed, and copies of the signed class rosters. Provide two copies of the validation to the Contracting Officer, and one copy to the Operation and Maintenance Manual Preparer for inclusion into the Manual's documentation.

3.1.6 Quality Control Coordination

Coordinate this training with the QC in accordance with Section 01 45 00 QUALITY CONTROL.

-- End of Section --

State of Connecticut
Department of Transportation
Bureau of Highways, District 3
140 Pond Lily Avenue
New Haven, CT 06515-0111

ISSUANCE OF PERMIT - Surety Bond Requirements

Prior to the issuance of a Permit, the applicant shall submit a completed Permit Bond (Connecticut Department of Transportation Form CLA-5) in the amount specified by the State Department of Transportation Permit Agent.

The amount of the Surety Bond will be established separately for each permit so that the State will be protected against loss in the event of the failure of the permit holder to complete the work or make required repairs or restorations and from claims arising from accidents or damage involving the work or encroachment authorized by the permit.

A continuing blanket Surety Bond, acceptable to the Department, may be deposited to avoid the inconvenience and expense of obtaining individual bonds for each permit requested.

It is emphasized that the required surety information must be submitted on a **Fully Completed Original Copy** of the Connecticut Department of Transportation Permit Bond Form CLA-5. Incomplete CLA-5 Forms, Photo Copies and/or Bonding Company Forms are not acceptable.

The Bond shall remain in effect for a minimum period of one year after the completion of construction to insure the repair of any work done under the permit which has settled, eroded, or deteriorated. The Bond may be released after the waiting period upon request, in writing, of the permittee's bonding company.

THIS FORM TO BE USED IN CONNECTION WITH EACH PERMIT, FOR WHICH A BOND IS REQUIRED FOR THE PERFORMANCE OF ALL THE TERMS, CONDITIONS, OF SAID PERMIT.	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION BUREAU OF ENGINEERING & HIGHWAY OPERATIONS CLA-5 REV. 8/00 (302-06-0087) **PERMIT BOND**	**NAME OF PERMIT HOLDER** Form Field 1 **BOND NUMBER** Form Field 2

Know all Men by these Presents,

That we, Form Field 3 **(Permittee)** **of the Town of** Form Field 4 **, County of** Form Field 5 **, and State of Connecticut, as Principal, and** Form Field 6 **(Bonding Company)**, **of the State of** Form Field 7 **having an office and place of business at** Form Field 8 Form Field 9 **, as surety, are held and firmly bound unto the State of Connecticut, in the sum of** Form Field 10 **DOLLARS, lawful money of the United States, to be paid to assure completion of all work for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators and assigns, jointly and severally by these presents, the said bond and surety to continue to be holden to the State of Connecticut until consent to the cancellation thereof is given in writing by the Commissioner of Transportation of Connecticut or his authorized agent**

The condition of this obligation is such, that

WHEREAS, the above named Principal has received, or may, upon his application, receive a permit or permits from the State of Connecticut to perform work on, about or adjacent to a highway or for the use of the state highway right of way, on, over, or below, within said State of Connecticut as is or may be particularly specified in said permit or permits, to which permit or permits reference is hereby made and are made a part hereof; and

WHEREAS, the said Principal has undertaken and does hereby agree to comply with all the rules, regulations and restrictions of said State of Connecticut in regard to said permit or permits.

NOW THEREFORE, if the said Principal fails to complete the required work described in the permit, it will be the responsibility of the bonding company to arrange for the completion of all necessary work as required, to the satisfaction of the State and, if the said Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements specified in said permit or permits, and shall well and truly save harmless and indemnify the said State of Connecticut and the Commissioner of Transportation of said State, or either of them, from damages and costs that the State of Connecticut of the Commissioner of Transportation may suffer, be liable for, or be compelled to pay, or in fact does pay, for any injuries or damages which may be caused by any action or work being carried on either by the said Principal, his servants, agents or employees, under any permit or permits issued or which may be issued by said State of Connecticut or its authorized agent, or by reason of negligence or violation of any law on the part of said Principal, his servants, agents, or employees, and, further, idemnify said State of Connecticut for any expenses that said State of Connecticut or the Commissioner of Transportation may suffer, be liable for, or be compelled to pay, or in fact does pay for any required adjustments to the highway and its facilities to a comparable condition, including but not limited to refilling openings or excavations, removing cable guide railings, removing trees, tree stumps and other obstructions, replacing drainage involving driveways and restoring pavements open or excavated, satisfactory to the State, as existed prior to the initiation of the work by said principal, his servants, agents or employees, then his obligation shall be void; otherwise to remain in full force and effect.

All of the provisions of the foregoing are to be subject to the present statute laws of the State of Connecticut and to any change, alteration or repeal of any existing laws as may be enacted by any future session of the Legislature of the State of Connecticut.

IN WITNESS WHEREOF, we have hereunto set our hands and seals the Form Field 11 **day of** Form Field 12 **, in the year two-thousand** Form Field 13

Witness to Permittee's Signature

.... **L. S.**

Permittee's Signature

Form Field 14 **L. S.**

Bond Company Name

Form Field 15

Bond Company Address

..... **L. S.**

Agent Representing Bond Company

Department of Transportation
Bureau of Highways, District 3 - Unit 1810
140 Pond Lily Avenue
New Haven, CT 06515

ISSUANCE OF PERMIT - INSURANCE REQUIREMENTS

Insurance coverage requirements shall be waived in regard to permits issued to municipalities and church groups provided that the above-mentioned groups actually perform the work covered by the permit. However, when the work is to be performed by a contractor, a joint permit shall be issued to include one of the above-mentioned groups and its contractors. A certificate of insurance which covers one or both of the joint permittees will be acceptable.

A joint permit may be issued to a property owner, or applicant and his contractor when work, under permit, is to be performed by the contractor. In such cases, a certificate of insurance which covers one or both of the permittees will be acceptable.

Applicants shall provide the following coverage's on our Form No. CON 32 in instances where an individual property owner will actually perform all of the work in connection with minor projects such as driveways or other work along the right of way abutting his property.

Minimum coverage's of $1,000,000 and $2,000,000 Bodily Injury Liability and Property Damage Liability in connection with the following hazard:

A. Owners and Contractors Protective Liability for and in the name of the State of Connecticut.

Prior to issuance of permits to any firm or corporation (except as indicated above), other than public utility companies, and Bureau shall require the submittal of a certificate of insurance (Form No. CON 32) indicating minimum coverage's for public liability of $1,000,000 Bodily Injury (each accident or occurrence), $2,000,000 Property Damage Liability (aggregate) in conjunction with the following hazards:

A - Owners and Contractor's Protective Liability for and in the name of the State of Connecticut.

B - Commercial General Liability (1) - (2)

I - Worker's Compensation - By Statute

Note: Hazard "C" - blasting, explosion collapses or underground damage liability. (Any excavating within Bureau of Highway Property).

Minimum coverage's for public liability of $1,000,000 and $2,000,000 property damage shall be required for the suspension of Christmas Tree Lights and Ornaments over Bureau of Highway under permit.

CON-32 REV.7/02
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CERTIFICATE OF INSURANCE

This is to certify that the Insurance Company named herein has issued to the named insured the policies listed below, that these policies are written in accordance with the Insurance Company's standard policies and endorsements, except as indicated below or as noted in the attachments hereto, which policies and endorsements will be made available to the Department of Transportation upon request, that they provide coverages and limits of liability shown with respect to the hazards indicated, that they are in force on this date, and that this Certificate is furnished in accordance with and for the purpose of satisfying the requirements of the Department of Transportation in connection with the award and the performance of any contract or agreement, or the issuance of any permit or authorization by the Transportation Commissioner or duly authorized agent. The Insurance Company agrees to investigate and defend the insured against all claims for damages, even if groundless.

NAME OF INSURED _____

ADDRESS _____ CITY _____ STATE _____

	HAZARDS	POLICY NUMBER	EFFECTIVE DATE	EXPIRATION DATE	COVERAGES AND LIMITS OF LIABILITY BODILY INJURY LIABILITY AND PROPERTY DAMAGE LIABILITY	
					ALL PERSONS / ALL DAMAGES EACH ACCIDENT or OCCURRENCE	AGGREGATE
A	OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY FOR AND IN THE NAME OF THE STATE OF CONN. (1)(2) SEE BELOW					
*B	COMMERCIAL GENERAL LIABILITY (1) SEE BELOW					
*C	EXPLOSION, COLLAPSE, OR UNDERGROUND DAMAGE LIABILITY(1) SEE BELOW					
*D	AUTOMOBILE LIABILITY OWNED AUTOMOBILES HIRED AUTOMOBILES NON-OWNED AUTOMOBILES (1) SEE BELOW					
*E	RAILROAD PROTECTIVE LIABILITY (1) (2) SEE BELOW					
*F	EXCESS/UMBRELLA LIABILITY (1) SEE BELOW					
G	VALUABLE PAPERS and RECORDS	XXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	POSSESSION	ALL OTHER
	VALUABLE PAPERS and RECORDS					
H	BLASTING (1) SEE BELOW					
I	** WORKERS' COMPENSATION				STATUTORY COVERAGES AND LIMITS	
J						

* State of Connecticut Is Named as Additional Insured.

** Compensation Commissioner's Certificate shall be supplied herewith by self-insured party.

Note: If Excess/Umbrella Liability Insurance is needed to meet the Agreement/Contract, etc. minimum requirements, complete Section F above.

Check This Certificate is issued in accordance with the terms of:

☐ Construction Contracts ☐ Lease Agreement Rights of Way ☐ Demolition Contracts

☐ Permit Work No. _____ ☐ Agree No. _____

☐ Engineering ☐ Project No. _____ ☐ Other Specify & including all operations incidental thereto.

PARTY FOR NOTICE Bureau: *Unit:* *Name:*

(1) It is agreed that the herein named Insurance Company will not use the defense of sovereign immunity in the adjustment of claims or in the defense of any suit brought against the State unless the Connecticut Department of Transportation Commissioner consents in writing to do so.

(2) It is agreed that the Insurance Company will bill premiums and audit charges earned under the protective liability policy(ies) to the above named insured; however, if named insured is different from the vendor, consultant, contractor or party of record, the vendor, consultant, contractor or party of record will be billed.

IN THE EVENT OF ANY RESTRICTIVE AMENDMENT TO, ANY CHANGE IN, CANCELLATION OF OR FAILURE TO RENEW ANY ONE OR MORE OF SAID POLICIES THE _____ SHALL GIVE NOT LESS
(INSURANCE COMPANY)

THAN THIRTY DAYS WRITTEN NOTICE TO THE PARTY FOR NOTICE TO WHOM THIS CERTIFICATE IS ISSUED OF SUCH AMENDMENT, CHANGE, CANCELLATION, OR FAILURE TO RENEW.

DATED THIS _____ DAY OF _____ _____

_____
(Insurance Company)

_____
(Address)

_____
(Agency)

_____
(Address)

_____
(Authorized Agent's Name & Signature)

ISSUED TO: CONNECTICUT DEPARTMENT OF TRANSPORTATION
CONTRACT ADMINISTRATION
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

Printed on recycled or recovered paper.

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

Date:	PMT-1 Rev. 5/91 State of Connecticut Department of Transportation **APPLICATION FOR PERMIT**	Application form must be filled in completely and mailed or delivered to the Bureau of Engineering and Highway Operations District Office
Fee: (for DOT use)		

LOCATION OF PROPOSED WORK:
(a) Town _____ (b) Route _____ (c) Street Name & No. _____

(d) (Circle One) N. S. E. W. side of Highway (e) Located Between Utility Poles No. _____ & No. _____

(f) Distance and direction from nearest intersecting road. _____ Miles (N. S. E. W.) of _____ (St/Rd)

Application is hereby made to: (Describe fully & include sketch or attach plans) _____

PERMIT FEE can be paid only by check or money order payable to Treasurer - State of Conn.

Name of Surety Company & amount of Bond _____

Party whom Bond is issued:

Print Name _____

Signed _____ Phone _____

Party to whom Insurance is issued:

Print Name _____

Signed

Approximate Time Required _____ Desired Starting Date _____

Complete Plans and Specifications must be submitted for major encroachment permits. On other work a careful sketch shall be shown on space above or on back side of application.

Permit to be issued to:

Name _____

& _____

Address _____

Town _____ ZIP _____

The owner of the property for whom this work is being performed agrees to accept all future maintenance responsibility for the work specified in the permit.

Print Owner's Name _____

Address _____

Signed _____ Phone _____

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Raul Pino, M.D., M.P.H.
Commissioner

Dannel P. Malloy
Governor

Nancy Wyman
Lt. Governor

Drinking Water Section

APPROVAL FOR CONSTRUCTION OR INSTALLATION OF WATER AND TREATMENT WORKS

February 15, 2018

Contact Name: **Mr. Joe Fazzino**
Address: **82 Berlin Street**
Middletown, CT 06457

Public Water System: **Middletown Water Department**
PWS ID: **CT0830011**
DPH Project #: **2016-0084**
DWSRF ID #: N/A **PURA Docket #:** N/A

Project Name: **Durham Water Line- 100% Design (Tank, Booster Station And Water Main to serve contaminated area in Durham)**
Project Location: **Middletown, CT**

Date(s) of Project Submission: **February 5, 2018**

Project Description: This is a Re-Approval of a project originally approved in 2016. The project has since been modified for several reasons including addressing concerns of neighbors in the vicinity of the tank site. The following is a summary of modifications to the project:

- Cherry Hill Tank – the tank height was reduced by six feet via the use of a low rise dome and additional modifications. The right-of-way for the access driveway was also re-aligned to minimize cutting of trees since the existing driveway was built outside the right-of-way. Tank mixing and venting remains as originally proposed.
- Talcott Ridge Booster Station: To respond to property owners' concerns, all proposed in-house booster pumps were removed and replaced with a separate booster station to serve the 23 affected homeowners. The booster station was provided with redundant VFD booster pumps each capable of separately being able to meet demand (2 pumps at 45 gpm each). The station has suitable sampling taps. The booster station feeds a separate water line.
- A new meter vault will be constructed near the Durham/Middletown Line within the Middletown city limits. The new meter structure will be partially above grade with walkout access and safer parking for Middletown personnel.

Keeping Connecticut Healthy
DPH
Connecticut Department of Public Health

Phone: (860) 509-7333 • Fax: (860) 509-7359 • VP: (860) 899-1611
410 Capitol Avenue, P.O. Box 340308, MS#51WAT
Hartford, Connecticut 06134-0308
www.ct.gov/dph/publicdrinkingwater

The following is the original project description with some updates and is not inclusive of all project components.

The water line from Middletown to Durham will be constructed to resolve a public health issue in the involving trichloroethylene and other contaminants caused by Durham Manufacturing and the now defunct Merriam Manufacturing. There are currently over 50 wells with Granular Activated Carbon filters in Durham. Because a buffer zone around the contaminated area is being included the extension of the water line will result in the connection of over 100 properties (including abandonment of their respective wells as part of the proposed ordinance). The Durham Center Water System (CT0380021), the Region 13 Consolidated Campus (CT0380472, Strong Middle School-previously CT0380462, Korn Elementary School- previously CT0389073 and Coginchaug High School- PWSID number retained for consolidated water system since the currently active wells are at the high school) and several Transient Non-Community Public Water Systems will also be connected to the water line. The project includes a tank with a mixing system and Trihalomethane removal, booster station upgrades and re-chlorination.

Ductile Iron Water Main and Service lines:
20-inch DI pipe- 740 linear feet
16-inch DI pipe - 4,370 linear feet
12-inch DI pipe- 10,400 linear feet
8-inch DI pipe- 2,706 linear feet
20-inch Restrained Joint DI pipe -640 linear feet
16-inch Restrained Joint DI pipe- 8,660 linear feet
12-inch Restrained Joint DI pipe- 4,250 linear feet
8-inch Restrained Joint DI pipe – 1,200 linear feet
6-inch Restrained Joint DI pipe- 200 linear feet
Water Service 1-inch curb stops 1- 194 units
Water Service 1-inch copper pipe- 17,000 linear feet

Cherry Hill Water Storage Tank (Pre-stressed Concrete)
Acceptable Tank Contractors:
(1) DN Tank (formerly Natgun), Wakefield, MA;
(2) Preload Inc., Hauppauge, NY;
(3) Approved equal

Tank Volumes and Specifications:

Design Criteria	Tank
Nominal Tank Volume (gallons):	797,000
Internal Tank Diameter (feet)	22.5
Floor Level at Perimeter (feet, NAVD88):	441 feet
Maximum Operating Water Level (feet, NAVD88):	508.0
Maximum Overflow Level (feet, NAVD88):	509.0
Finish Grade at Tank Perimeter (feet, NAVD88): (refer to site plan)	442.0
Inlet/Outlet Pipe Diameter (inches):	16
Maximum Overflow Rate (gallons per minute)	1,550
Vent Capacity (cubic feet per minute)	1,000
Roof Type:	Low Rise Dome
Floor Type:	Concrete membrane
Seismic Information:	
ASCE 7 Risk Category (Table 1.5-1)	IV
ANSI/AWWA D110 Importance Factor (Table 2)	1.5
ANSI/AWWA D110 Structural Response Coefficients (Tanks with an anchored flexible base) (Table 3)	
R_I	3.5
R_C	1.0
Ω_0	2.0
ANSI/AWWA D110 Soil Site Class Definition (Table 4)	C
Ground Snow Load (pounds per square foot):	30
MCE Spectral Accelerations (%g)	
S_S	0.180
S_1	0.063
Ultimate Design Wind Speeds, V_{ult} (mph)	
Risk Cat III-IV	135
Nominal Design Wind Speeds, V_{asd} (mph)	
Risk Cat III-IV	105

- Two 48-inch dome hatches, curbed and gasketed
- Aluminum vent cap with 24 mesh stainless steel screen
- 12-inch overflow pipe fitted with Series 35 Check Valve by Tideflex with 24-mesh screens between flanges
- 8-inch tank drain terminating at a head wall with a duckbill valve

The Long Hill Pump Station will be modified to fill the Cherry Hill tank. Initially the estimated average flow rate will be 92,000 gallons per day with a maximum flow rate of 234,000 gallons per day and a maximum fill rate estimatedat 750 gallons per minute from the Long Hill pump station in Middletown.

Booster chlorination at Long Hill pump station

The proposed booster chlorinator will be of the following or approved equivalent- the City of Middletown has indicated that this equipment is acceptable:

	Accu-Tab PowerPro (Axiall)	TC90 (IPM)
Footprint (L x W x H)	29" x 58" x 26"	22" x 29" x 58" (Booster Pump & Platform will require additional space as depicted on the Drawings)
Chemical	Calcium Hypochlorite	TriChlor (proprietary but widely available)
Chemical Yield	65% available chlorine	90% available chlorine
Chemical Storage Life	~1 year	2+ years
Tablet Tank Capacity	75 lbs	200 lbs
Inlet & Outlet Size	1"	½"
Ventilation	Not part of package, but requires 2 AC/Day in the room to prevent buildup of fumes	Air Circulation System part of standard package; vent pipe to outside provided by Contractor
Controls	Able to receive 4-20mA signal from Chlorine Analyzer and Pump Station flow meter for Compound Loop Control	Able to receive 4-20mA signal from Chlorine Analyzer for Residual Control
Accessories Recommended in Addition to Standard Package	Pressure Regulator, Weight Scale with Low Tablet Alarm, Installed Spare Booster Pump	Pressure Regulator, Booster Pump and Installed Spare, Solution Injector Assembly

Mechanical mixing system

- Mixing system to be Tideflex Mixing System
- System to include recirculation pump as shown on drawings located inside Altitude Valve Vault and include all required piping and appurtenances to operate fully.

THM Removal System with the Following Components:

Quantity	Equipment	Equipment Tag	Voltage	Horsepower
One	Floating Spray Nozzle Equipment (Surface Aerator): Medora SN5 Model or Equal.	SN.P-1	240VAC, 60Hz	5 HP
One	Submersible Mixer: Medora GS-12 Model or Equal.	MIX-1	120VAC, 60Hz	0.5 HP
One	Forced Air Injection Blower: for 750 CFM at 8 w.c. inches, Spenser Single Stage Scroll Blower (as provided by Medora) or Equal.	BLW-1	240VAC, 60 Hz	2 HP

Pressure Reducing Valve

Located at on Main Street between intersections with Middlefield Road and Haddam Quarter Road.

☐

This project is approved for construction or installation in accordance with the following terms:

1) This project is approved for construction based on the project being constructed in accordance with the plans and specifications dated January 2018 and the Department of Public Health's (DPH) terms stated herein. Any substantial deviation from the approved design must be reviewed and approved by the DPH in accordance with Section 19-13-B102(d)(2) of the Regulations of Connecticut State Agencies (RCSA). Failure to do so may result in an enforcement action and possible reconstruction of the project to conform to the DPH's approved design.

2) This project approval is void 12 months after the date of this project approval if construction has not started. If no construction is started, the DPH must be notified and re-approval from the DPH must be sought and obtained.

3) All work implemented for this project must be effectively disinfected pursuant to Section 19-13-B47 of the RCSA. Upon completion of the project and prior to placing into active use, the water must be sampled and tested for at least total coliform bacteria to verify that the work completed was effectively disinfected. Additionally, since the project includes a paint system or installation of components that may release organic chemicals, testing for organic chemicals is also being required. This project includes a tank, water main and booster station. All test results must be in compliance of Section 19-13-B102(e) of the RCSA, indicate the water is safe for consumption and be submitted to the DPH.

4) After construction/installation is completed for this project and prior to placing the project into active use, a *Certification of Completed Water or Treatment Works Construction/Installation* form, which can be found on the DPH's website, must be completed and submitted to the DPH along with water test results.

5) The DPH must be contacted to make arrangements for an inspection prior to active use upon submission of the *Certification of Completed Water or Treatment Works Construction/Installation* form.

6) The project should not be placed into active service until an Acknowledgement of Project Completion letter is received from DPH.

7) This approval only covers DPH's regulations and guidelines as may be applicable for a drinking water project. The approval does not cover approvals or permits which may be necessary by other state or local agencies.

8) All penetrations thorough tank dome, hatches or walls must be properly protected and exclude rain water and be screened if applicable.

9) The tanks (one atmospheric tank and two hydropneumatic tanks) along with any unnecessary unused/deadend piping must be disconnected with the Durham Center (Fairgrounds) Pump Station. This office understands that the tanks will be de-watered and that blind flanges will be installed. The same requirement would apply for the Consolidated campus water system.

10) In accordance with proposed ordinance all wells for properties that are connected to the water system must be disconnected and abandoned (unless they remain as monitoring wells).

11) Middletown Water Department must provide verification that chlorine product to be used for the booster chlorination station is certified to ANSI/NSF standard prior to activation.

12) The supply line for the chlorinator must be fitted with appropriate backflow prevention.

Recommendations and Comments:

1. This office recommends that sampling locations for Total Trihalomethames and Haloacetic Acids be re-evaluated in conjunction with our data management group once the project is constructed.

2. The following additional permits are needed from this office:

    a. Sale of Excess Water Permit- this permit (#2016-03R) was issued on July 11, 2016 and expires on 7-11-2026.
    b. Source Abandonment Permit for public water systems connecting to the water line including Durham Center and the school campus.

Sincerely,

Vicky Carrier, P.E.
Sanitary Engineer 3
Drinking Water Section
TCTC

cc: Ms. Aimee Eberly, Director of Health, Durham Health Department
Mr. Bill Milardo, Sanitarian
Mr. Chris Funk, Durham Center Certified Operator
Ms. Laura L. Francis, Town of Durham
Mr. Patrick Bowe, CT DEEP
Mr. Ed Hathaway, EPA

CITY OF MIDDLETOWN
Department of Planning, Conservation, and Development
http://www.middletownplanning.com

PO Box 1300
245 deKoven Drive
Middletown, CT 06457-1300
(860) 344-3425

Erosion & Sedimentation Control Compliance Agreement

I, (*PRINT NAME*)_____ hereby agree that any tree cutting, land clearing, earth excavation, earth filling or any other construction activity associated with an approved permit at:

(*PROPERTY ADDRESS*) _____
_____

shall be in compliance with a approved plot/site plan as well and the City of Middletown Erosion & Sedimentation Control Guidelines.

I understand that failure to comply with the City of Middletown Erosion & Sedimentation Control Guidelines shall be deemed a violation and shall result in an enforcement action that may include a $150 per day municipal citation fine and shall preclude zoning approval required for the issuance of a Certificate of Occupancy.

The City of Middletown reserves the right to implement corrective action for Erosion & Sedimentation Control violations, and in such cases will seek reimbursement for expenses related to any corrective action deemed necessary by the City.

Signed:_____
Date:_____

For Office Use Only

*SPR#*_____

City of Middletown
PUBLIC WORKS DEPARTMENT
245 DeKoven Drive, P.O. Box 1300 Middletown, CT 06457
TEL: (860) 344-3407 RECYCLING: (860) 344-3526 FAX: (860) 344-3590
TDD: (860) 344-3521

EXCAVATION PERMIT REQUIREMENTS

Anyone who performs excavation activities within a City of Middletown roadway or Right-of-Way is required to obtain an Excavation Permit from the Public Works Department. Below are the requirements for applying for an Excavation Permit.

- **Insurance Certificate**

No permit for excavation in any highway shall be granted until the applicant files with the Department of Public Works a Certificate of Insurance evidencing Comprehensive Broad Form Liability Insurance including but not limited to contractual, premises and operations, product/completed operations, independent contractors, broad form property damage and bodily injury liability insurance in the minimum amount of $1,000,000.00 combined single limits, Special Risk insurance covering underground explosion and collapse hazard in the minimum amount of $1,000,000.00, automobile liability insurance in the minimum amount of $1,000,000.00 combined single limit, Workers' Compensation Insurance to meet the minimum statutory requirements and Employer's Liability Insurance in the minimum amounts of $100,000.00 each accident; $100,000.00 disease-each employee; and $500,000.00 disease-policy limit. With the exception of Workers' Compensation and Employer's Liability Insurance, said Certificate of Insurance shall name the City of Middletown, its officer, agents, servants and employees as additional insureds. (Ordinance Sec. 262-29, Par. A)

- **Permit Bond**

The applicant shall further file with the Department of Public Works a permit bond in the amount of Ten Thousand Dollars ($10,000.00) for Five (5) minor excavations which excavations shall be limited to utility lateral connections. Said bond shall expire upon the date indicated on the bond document or upon five (5) minor excavations being completed, whichever occurs sooner. For any extension of a utility into an existing accepted City road, the Director of the Department of Public Works or his duly authorized designee is authorized to set the amount of the permit bond, which bond shall be based upon the estimated amount of the proposed excavations. The permit bond shall be conditioned upon the applicant filling all excavation and restoring the highway in the manner set forth and prescribed in Sec. 262-27 of the Middletown Code of Ordinances. (Ordinance Sec. 262-29, Par. B)

- **Indemnification Agreement**

The applicant shall further execute a hold harmless and indemnification agreement indemnifying The City of Middletown, its officers, agents, servants and employees from any and all liability (including death), damages and costs that result by reason of or in connection with the negligence of the applicant, his/her or it subcontractors, independent contractors, officers, servants, employees, or agents, in the excavation and/or restoration of said highway. (Ordinance Sec. 262-29, Par. C)

- **Document Filing Period**

All such bonds and insurance coverages required by this section shall be in force during the period the permit is in effect. Any renewals shall be filed with the Department of Public works. (Ordinance Sec. 262-29, Par. D)

- **Call-Before-You-Dig**

By State Statute, an active Call-Before-You-Dig Location Request Number is required before a municipality can issue an Excavation Permit. A Location Request Number can be obtained by calling the Call-Before-You-Dig central clearinghouse at 1-800-922-4455. You will be requested to give the clearinghouse information about the exact location of the proposed excavation site.

- **Permit Fee**

The fee for an Excavation permit is $20.00 per excavation site. Cash or Check, made out to The City of Middletown is acceptable. Registered public utilities and excavations pertaining to City of Middletown projects may have this fee waived upon prior approval.

- **Inspections and When/Where to Apply for a Permit**

Contact the Conformance Inspector, Rick Romano, at 860-344-3532 for information and/or inspections required in conjunction with an Excavation Permit. Generally, permits are issued Monday through Friday, between 8:30 – 9:00 A.M. and 4:00 -4:30 P.M. excluding holidays. The application for an Excavation permit will be made in the Engineering Division Office of the Public Works Department, Room 210, Municipal Building, 245 DeKoven Drive, Middletown, CT 06457.

- **Additional Information**

Please contact the Engineering Department at 860-344-3412 for questions pertaining to the Excavation Permit. Applicants should be familiar with the Middletown Code of Ordinances, specifically Chapter 262, as it applies to the application and issuance of an Excavation Permit.

_____ _____

William J. Russo, Director of Public Works Date

APPLICATION FOR PERMIT TO MAKE EXCAVATION IN STREET

Date:

To The Department of Public Works:

The undersigned hereby applies for permission to make excavation in _____

_____Street at _____

_____ for the purpose of _____

_____

The undersigned agrees to conform to all Ordinances, Rules and Regulations concerning excavations in any street or highway in the City of Middletown and to execute the work under the supervision of the Department of Public Works and to become responsible to the City of Middletown for any and all damages that may result to any person or property for which the City of Middletown would be liable, by reason of the construction or existence of said excavation; also, if from any cause the Department of Public Works, or its agents, deem it necessary to do any work in restoring the filling, street surface or any portion of the excavation, at any tie, before the repaving is finally done and accepted, to pay the cost of such work within thirty days.

Permit No. _____ _____

Applicant

C.B.U.D Auth. # _____ _____

Applicant Phone #

INDEMNIFICATION AGREEMENT

Pursuant to Sec 25-28 Bonds and Insurance Required Prior to Issuance of Permit, Chapter 25

of the Middletown Code of Ordinances, _____
Contractor

Herein after referred to as the CONTRACTOR, its officers, agents, servants and employees to the fullest extent permitted by law, agrees to indemnify and hold harmless the City of Middletown, its officers, agents, servants and employees against any and all liability(including death) judgments, damages, costs, expenses, attorney's fees and other loss, and against all claims or actions based upon or arising out of damage or injury (including death) to persons or property that result by reason of or in connection with the negligence of the CONTRACTOR, its subcontractors, independent contractors, officers, agents, servants, employees or agents in the excavation and/or restoration of the City of Middletown highway.

IN WITNESS WHEREOF, I have hereunto set my hand and seal.

Signed, Sealed and Delivered in the Presence of:

_____
Witness

_____
Signature

_____
Witness

_____
Print Name

It's Duly Authorized _____
Position in Company

Date _____

Subscribed and Sworn to before me, the undersigned officer, this _____

day of _____, 20 ___.

_____
Commissioner of the Superior Court
Notary Public
My Commission Expires:

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Middletown Water & Sewer Department
82 Berlin Street
Middletown, CT 06457

Attn: Robert Young

Town of Durham
30 Town House Road
Durham, CT 06422

Attn: Laura Francis

Re: Authorization Under the General Permit for Diversion of Water for Consumptive Use: Reauthorization Categories

Application No.:	DIVC-201702168GP
Eligible Category:	Interconnection and Transfer of up to 1,000,000 gpd
Town:	Middletown, Middlefield, Durham
Waters:	J.S. Roth Wellfield (source), Allen Brook (crossing)

Dear Ms. Francis and Mr. Young:

Your *Request for Reauthorization Under the General Permit for Diversion of Water for Consumptive Use* dated February 7, 2017 and filed with this department on March 1, 2017 is hereby approved. The purpose of the diversion is for the transfer of water between Middletown Water & Sewer Department and the Town of Durham to serve residences that have experienced contaminated water supplies. Your request for reauthorization is approved pursuant to the provisions of the General Permit for Diversion of Water for Consumptive Use: Reauthorization Categories (DEEP-WPMD-GP-001) (the "General Permit") issued January 17, 2017 pursuant to Section 22a-378a of the General Statutes. This authorization supersedes your previous approval under the General Permit for Diversion of Water for Consumptive Use (GPDIV-201606558) that expired on March 15, 2017. *Please read the following permit conditions carefully, as they may have been revised since your previous approval.*

Please be advised that Section 22a-379 of the General Statutes requires the holder of a water diversion permit authorizing a consumptive use of waters of the state to pay an annual fee to the Commissioner of Environmental Protection. The annual fee requirement applies to holders of individual permits and general permit authorizations. Currently, the annual for such permits is $940 with a 50% discount for municipalities. Each year, the department mails an invoice for payment to each permit holder. Payment of the invoice is due by July 1st.

If you have not already done so, you should contact your local Inland Wetlands Agency and the U.S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751 or call (978) 318-8335.

If you have any questions concerning this authorization, please contact staff in the Water Planning and Management Division at (860) 424-3704.

Authorized Activity:

The Town of Durham and the Middletown Water & Sewer Department (the "permittee") is authorized to divert the waters of the state by transferring a maximum of 330,000 gallons of water per day from the Middletown Water & Sewer Department system to the Town of Durham system through the interconnection along Route 17 in accordance with plans entitled "EPA contract No. EP-S1-06-06 Town of Durham," dated November 2014, prepared by AECOM Inc., and documentation submitted as a part of its request for authorization. This authorization is subject to the conditions described below.

Permittee's failure to comply with the terms and conditions of this authorization and those of the general permit shall subject permittee and permittee's contractor(s) to enforcement actions and penalties as provided by law.

Any permittee authorized for a diversion of water under this general permit shall assure that activities authorized by the general permit are conducted in accordance with the following conditions:

A. SPECIAL CONDITIONS

1. **In-Stream Work**. Any unconfined in-stream work within Allyn Brook should be restricted to the period from June 1 to September 30th, inclusive.

2. **Stream Restoration**. The permittee must restore the stream to pre-disturbed conditions, including restoring the channel thawleg to ensure continued upstream fish passage.

3. **Protection of Wood Turtles.** If work is to be done between April 1st and September 30th the permittee shall adhere to the following precautionary measures to protect turtles in the vicinity:

- install silt fencing around the work area prior to construction,
- conduct a sweep of the work area after silt fencing is installed and prior to construction,
- the work crew must be apprised of the species description and possible presence and that the area be searched for turtles each day prior to construction,
- any turtles that are discovered should be moved, unharmed, to an area immediately outside of the fenced area in the same direction that it was walking,
- work conducted during the early morning (5am-10am) and evening hours (after 5pm) should occur with special care not to harm basking or foraging individuals,
- no heavy machinery or vehicles should be parked in any turtle habitat, and
- all silt fencing shall be removed after soils are stable so that reptile and amphibian movement between uplands and wetlands is not restricted.

Conditions of the General Permit:

B. OPERATING CONDITIONS

(1) Diversion Metering

Unless otherwise specified, the permittee shall install a flow meter(s) to measure the total volume of diversion authorized herein, and shall for the duration of the authorization continuously operate and maintain such meter(s) in good working order. In the event of meter malfunction or breakage, the permittee shall repair or replace such meter within 72 hours. In the case of a back-up well as described in Section 3(a)(4) of the general permit the primary well shall also be metered pursuant to this subsection.

(2) Meter Calibration

The permittee shall test each meter referenced in Condition B(1) every other year, and calibrate to within two percent accuracy as shown through a post-calibration test. The permittee shall maintain a record of the accuracy and calibration tests along with supporting documentation and certifications. The permittee shall make a copy of said

records available to the commissioner or the commissioner's designee immediately upon request.

(3) Inspections

The permittee shall conduct routine inspections of all equipment associated with the diversions authorized by the general permit. Inspections shall be conducted as necessary to insure proper operation of all equipment. A log shall be maintained on-site documenting the date of inspection, inspector's name, verification of operation or critical equipment, and a summary of any work or change in equipment associated with the diversions authorized by the general permit.

(4) Daily Diversion Recording

The permittee shall record on a daily basis the quantity of water that is diverted or transferred, and is metered, pursuant to the general permit. Water diversions shall be recorded and reported in gallons or thousands of gallons. The daily record shall include all other pertinent data such as but not limited to the volume of water diverted, exact hours of operation for all non-water company diverters, *typical* hours of operation for all water company diverters, the time each day that the meter was read and recorded, and denotation and explanation of any instances in which the diversion of water exceeded the authorized withdrawal limitation(s) specified above. Such record shall be on a form as prescribed by the commissioner. A copy of the daily record of withdrawals shall be included in the Annual Report to the commissioner as required by Condition C(3)(a) below.

(5) Long-range Water Conservation Plan

Each permittee that is a water company, as defined in section 25-32a of the Connecticut General Statutes, and is required by section 25-32d of the Connecticut General Statutes to submit a water supply plan to the Commissioner of Public Health, shall implement its water conservation component of said plan and any subsequent amendments or updates as approved by section 25-32d of the Connecticut General Statutes. The permittee shall maintain a summary of all actions taken each year pursuant to the Long-range Water Conservation Plan and, where practical, a description of the estimated or actual water savings achieved. A copy of this summary shall be included in the Annual Report to the commissioner as required by Condition C(3)(c) below.

(6) Water Audit

Each water company authorized to divert or transfer herein shall triennially conduct a water audit of their water distribution system. The water audit shall follow standards and

criteria contained within American Water Works Association's (AWWA) Manual M36 as may be amended or revised. A copy of all actions taken pursuant to the water audit shall be included in the Annual Report to the commissioner as required by Condition C(3)(d) below.

(7) Leak Detection

At any time that the unaccounted-for water, as calculated pursuant to Section 5(a)(6) of the general permit remains above 15% of total system input, the permittee shall, in the subsequent year conduct a system-wide, comprehensive leak detection survey of the water distribution system and repair any leaks found. The leak detection survey shall follow standards and criteria contained within the AWWA Manual M36 as may be amended or revised. The permittee shall maintain a record of all actions taken pursuant to the leak detection survey, including the number of miles of water main surveyed, the survey techniques and methodology utilized, the number of leaks detected, and the actual repairs made. A copy of this record shall be included in the Annual Report to the commissioner as required by Condition C(3)(e) below.

(8) Pollution Prevention / Best Management Practices

The permittee shall not cause or allow the authorized diversion, including any construction associated therewith, to result in pollution or other environmental damage and shall employ best management practices to prevent such damage. The permittee shall, in addition to employing any other best management practices necessary to prevent such damage, do the following:

(A) Control Erosion

The permittee shall install and maintain in optimal condition erosion and sedimentation controls to prevent erosion and discharge of material into any waters of the state, including wetlands, as a result such diversion or any construction associated therewith. Such controls shall be installed and maintained in conformity with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, as amended, published by the Connecticut Council on Soil and Water Conservation pursuant to section 22a-328 of the General Statutes.

(B) Golf Courses

For diversions authorized under the general permit, involving the irrigation of golf courses, the permittee shall, where applicable, conform with the document entitled *Best Management Practices for Golf Course Water Use*, as amended, available from the Department at http://www.ct.gov/dep.\

(9) Alteration of Authorized Diversion

In operating the authorized diversion, the permittee shall not make any alteration, except a de minimis alteration, to such diversion and shall not make any de minimis alteration without first obtaining the written approval from the commissioner of such alteration. For the purposes of the general permit, a de minimis alteration means a change in the design or operation of the authorized diversion that does not increase its adverse environmental or other impacts and does not significantly change the quantity or location of water withdrawn.

(10) Notice to Commissioner of Any Changes in Permittee Contact Information

The permittee shall give written notice of any changes in permittee contact information to the commissioner within two weeks of any such change or modification.

(11) Notice to Commissioner upon Permanent Discontinuance of Diversion

Within two weeks after permanently discontinuing the authorized diversion, the permittee shall give written notice of same to the commissioner.

(12) Restrictions

The DEP shall have the right to restrict the diversion authorized in this permit at any time the commissioner determines:

(A) a declared local, regional or state-wide drought advisory, watch, warning or emergency necessitates curtailment of non-essential water uses, or

(B) the continuation of the diversion would have an adverse effect on wetlands and watercourses, water quality, fisheries resources, aquatic habitat, or any public or private water supply well.

C. Reporting and Record Keeping Requirements

Except as provided in Section 5(b)(3) of the general permit, or as otherwise specified in writing by the commissioner, all information required under the general permit shall be retained by the permittee and be readily available on request.

(1) The permittee shall maintain a copy of the general permit authorization on site at all times.

(2) The permittee shall retain copies of all records and reports required by the general permit, and records of all data used to compile these reports for a period of at least fifteen years from the date such data was generated or report was created whichever is later.

(3) Annual Report

The permittee shall submit by January 30 of each year, for the duration of their authorization, an Annual Report for the preceding calendar year. Such report shall be certified in accordance with Condition E(4) below and shall contain the following:

(a) A copy of the withdrawal records of daily withdrawals, and daily transfers as required by Condition B(4) above;

(b) In the case of a back-up well as described in Section 3(a)(4) of the general permit, a copy of the withdrawal records of daily withdrawals for the primary well;

(c) Summary report of any actions taken pursuant to the Long-Range Water Conservation Plan and Water Conservation Plan and description of actual or estimated water savings achieved as may be required by Condition C(5) above;

(d) A copy of any Water Audit Report as may be required by Condition C(6) above;

(e) A copy of any Leak Detection Report as may be required by Condition C(7) above; and

(f) A copy of any violation report as required by Condition D(1) below.

D. Recording and Reporting Violations

(1) Immediately upon learning of a violation of a condition of this authorization or of any of the requirements for authorization of Section 3(b) of the general permit, the permittee shall immediately take all reasonable action to determine the cause of such violation, correct such violation and mitigate its results, prevent further such violation, and report in writing such violation and such corrective action to the commissioner within five (5) calendar days of the permittee learning of such violation. Such report shall include but not be limited to the following information:

(a) the provision(s) of this authorization that has been violated;

(b) the date and time the violation(s) was first discovered and by whom;

(c) the cause of the violation(s), if known;

(d) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and time(s) it was corrected;

(e) if the violation(s) has not ceased, the anticipated date when it will be corrected;

(f) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;

(g) the signatures and signed certification statements of the permittee and of the individual(s) responsible for actually preparing such report.

A copy of this report shall be included in the Annual Report to the commissioner required by Section 5(b)(3) of the general permit.

E. General Conditions

(1) Reliance on Request for Reauthorization

In evaluating the request for reauthorization, the commissioner has relied on information provided by the requester. If such information proves to be false or incomplete, the authorization issued under the general permit may be suspended or revoked in accordance with law, and the commissioner may take any other legal action provided by law.

(2) Duty to Correct and Report Violations

Upon learning of a violation of a condition of this authorization, a permittee shall immediately take all reasonable action to determine the cause of such violation, correct such violation and mitigate its results, prevent further such violation, and report in writing such violation and such corrective action to the commissioner within five (5) days of the permittee's learning of such violation, pursuant to Section 5(c) of the general permit. Such report shall be certified in accordance with Section 6(d) of the general permit.

(3) Duty to Provide Information

If the commissioner requests any information pertinent to the authorized activity or to determine compliance with the general permit, the permittee shall provide such information in writing within thirty (30) days of such request. Such information shall be certified in accordance with Section 6(d) of the general permit.

(4) Certification of Documents

Any document, including but not limited to any notice, which is submitted to the commissioner under the general permit shall be signed by, as applicable, the registrant or the permittee in accordance with section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

(5) Date of Filing

For purposes of the general permit the date of filing with the commissioner or with any municipal agency or commission of any document is the date such document is received by the commissioner, municipal agency or commission, respectively. The word "day" as used in the general permit means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day thereafter.

(6) False Statements

Any false statement in any information submitted pursuant to the general permit may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

(7) Correction of Inaccuracies

Within fifteen (15) days after the date a permittee becomes aware of a change in any of the information submitted pursuant to the general permit, becomes aware that any such information is inaccurate or misleading, or that any relevant information has been omitted, such permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the commissioner. Such information shall be certified in accordance with Section 6(d) of the general permit. The provisions of this subsection shall apply both while a request for authorization is pending and after the commissioner has approved such request.

(8) Transfer of Authorization

An authorization under the general permit is transferable only in accordance with the provisions of section 22a-6o of the General Statutes and upon payment of a transfer fee of $750. A transfer of authorization shall not be deemed authorized unless the transfer fee has been paid in full.

(9) Other Applicable Law

Nothing in the general permit shall relieve the permittee of the obligation to comply with any other applicable federal, state and local law, including the obligation to obtain any other lawfully required authorization to construct or maintain the authorized diversion.

(10) Other Rights

The general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges, and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any activity authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state. The issuance of the general permit shall not create any presumption that the general permit should or will be renewed.

This authorization shall expire on January 17, 2027.

March 22, 2017
Date

Denise Ruzicka
Director
Water Planning and Management Division

Connecticut DEEP

Application for General Permit

For

Hydrostatic Pressure Testing Wastewater

State of Connecticut
Department of Envitonmental Protection
Geneal Permit for the Discharge of Hydrostatic Pressure Testing Wastewater

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GENERAL PERMIT FOR THE DISCHARGE OF HYDROSTATIC PRESSURE TESTING WASTEWATERS

PART I. AUTHORITY

This general permit is issued under the authority of Section 22a-430b of the Connecticut General Statutes, as amended by Public Act 91-263.

PART II. DEFINITIONS

The definitions of terms used in this general permit shall be the same as the definitions contained in section 22a-423 of the Connecticut General Statutes and section 22a-430-3(a) of the Regulations of Connecticut State Agencies. In addition, the following definitions shall apply:

"Registrant" means a person who or municipality which submits a complete registration in accordance with Part V of this general permit.

"Permittee" means any person who or municipality which initiates, creates, originates or maintains a discharge to the waters of the state which discharge is covered under this general permit in accordance with Part IV of this general permit.

"Site" means the same or geographically contiguous property which may be divided by public or private right(s)-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along, the right(s)-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which the person controls and to which the public does not have access, is also considered the same site.

"Hydrostatic pressure testing" means to till a pipeline or tank with water and to monitor the pipeline or tank for the purpose of testing structural integrity. Testing may be carried out with or without the application of external pressure to the water in the pipeline or tank.

"Hydrostatic pressure testing wastewater" means waters used to test the structural integrity of new tanks and pipelines, and tanks and pipelines which have been used to hold or transfer drinking water, sewage, or natural gas.

"Maximum Instantaneous Flow" means the maximum flow at any time as measured in gallons per minute.

PART III. FEES

A. The following fees shall be paid with the registration required by Part V of this general permit. Where registration by submission of a Notice of Coverage is required, the fee shall be $625.00 for any person and $312.50 for any municipality. Where registration by submission of a Notice of Intent is required, the fee shall be $1250.00 for any person and $625.00 for any municipality. On and after January 1, 1993, registration and annual fees shall be paid in accordance with applicable regulations, including but not limited to Sections 22a-430-6 and 22a-430-7 of the Regulations of Connecticut State Agencies.

B. The fee shall be nonrefundable and shall be paid by certified or bank check payable to the Department of Environmental Protection. The check shall state on its face, "Water Management Permit Fee."

PART IV. COVERAGE UNDER THIS GENERAL PERMIT

A. Conditions for Eligibility. This general permit covers only discharges comprised solely of hydrostatic pressure testing wastewaters as defined above, provided that the following conditions are met prior to coverage under this general permit.

1. The discharge is not covered by a valid individual permit issued under section 22a-430 of the Connecticut General Statutes.

2. All discharges of hydrostatic pressure testing wastewaters used to test pipelines or tanks which have most recently been used to hold domestic sewage are discharged to a POTW.

3. Each permittee shall remove the maximum extent of all solid and liquid substances, including scale, soil and any residues from materials previously contained in the tank or pipeline, prior to any hydrostatic pressure testing, using the following practices at a minimum:

   a. for all pipelines: cleaning with either compressed air, high pressure water spray, or both;

   b. for natural gas pipelines: cleaning with compressed air and with cleaning pigs designed for such pipelines;

   c. for all used tanks: cleaning with compressed air, high pressure water spray, or both.

4. No chemicals are added after it enters the site, to any water used for hydrostatic pressure testing or to the tanks or pipelines which are being tested.

5. No effluent limitation, standard or guideline adopted by the U.S. Environmental Protection Agency under the Federal Clean Water Act is applicable to the discharge.

6. A registration has been submitted in accordance with the provisions of Part V of this general permit and includes all information specified therein, and for all discharges resulting from the hydrostatic pressure testing of natural gas pipelines, the Commissioner has notified the registrant that coverage under this general permit has been approved.

7. All required fees have been paid to the Commissioner.

8. For discharges within the coastal boundary as defined in Section 22a-94 of the Connecticut General Statutes, the discharge does not involve construction that has not previously been determined by the Commissioner to be consistent with all applicable goals and policies in Section 22a-92 of the Connecticut General Statutes.

Any discharge of water, substance or material into the waters of the State other than one specified in the foregoing is not authorized by this general permit, and any person who or municipality which initiates, creates, originates or maintains such a discharge must apply for and obtain an individual permit under Section 22a-430 of the General Statutes.

B. **Geographic Area.**

This permit covers all areas of the State of Connecticut.

C. **Effective Date and Expiration Date**

This permit is effective on the date it is issued by the commissioner and shall expire five years from such date.

D. **Effective Date of Coverage**

For those persons and municipalities required to submit a Notice of Coverage under Part V of this general permit, the effective date of coverage for a particular registrant under this general permit is the date a registration which meets the requirements of Part V below is received by the Commissioner. For those required to submit a Notice of Intent to be Covered, the effective date of coverage for a particular registrant under this general permit is the date established by the Commissioner in any approval of the registration submitted under Part V below.

E. **Effect of Disapproval of Registration**

Any disapproval of a registration by Notice of Intent to be Covered submitted pursuant to this general permit shall constitute notice to the registrant that an individual permit must be applied for and obtained under Section 22a-430 of the General Statutes prior to the initiation, creation, origination or maintenance of the discharge which was the subject of the disapproval.

F. **Issuance of an Individual Permit**

Under Section 22a-430b of the General Statutes, when an individual permit is issued to a person or municipality otherwise covered by this permit, the applicability of this general permit as it applies to the individual permittee is automatically terminated on the effective date of the individual permit.

PART V. REGISTRATION REQUIREMENTS

A. **Duty to Register**

Any person who or municipality which initiates, creates, originates or maintains a discharge described in paragraph IV.A of this general permit shall register for coverage under this general permit by submitting a Notice of Coverage except for those discharging from hydrostatic pressure testing of natural gas pipelines, who shall submit a Notice of Intent to be Covered. If the facility or activity for which a registration is submitted under this general permit is owned by one person or municipality but is leased or in some other way the legal responsibility of another person or municipality (the operator), the operator is responsible for submitting the registration required by this general permit. The permittee is responsible for compliance with all conditions of this general permit.

B. **Scope of Registration**

A registrant may only include on a registration those discharges which are operated by such registrant on one site. A registrant may not submit more than one registration per site under this permit.

C. Contents of Registration

The Notice of Coverage and Notice of Intent to be Covered shall be submitted on forms prescribed by the Commissioner and shall include but not necessarily be limited to the following information.

1. Location address, if any, of the discharge(s) for which the registration is submitted.

2. Name, address, and telephone number of the person who or municipality which initiates, creates, originates or maintains the discharge and of the person or municipality which owns the facility. If such person(s) is a corporation transacting business in Connecticut, include the exact name as registered with the Connecticut Secretary of the State.

3. The name of the category of discharge for which the registration is submitted.

4. The total volume, maximum daily flow (gallons per day), maximum instantaneous flow (gallons per minute) and the duration of each discharge of hydrostatic pressure testing wastewaters to be discharged at the site addresses listed under paragraph C.1. above, or, if no site address is listed above, at the location identified under paragraph C.5. below.

5. For discharges to surface waters or to ground waters, an 8 1/2"xll" copy of the applicable section of the United States Geological Survey quadrangle map, with a scale of 1:24,000, showing the exact location of the discharge, and including the name of the USGS map.

6. The method of determining the receiving water's ambient flow rate at the time of discharge, including but not limited to identification of the source(s) of all information used in such determination.

7. The following certification, signed by an independent professional engineer not in the regular employ of the registrant or permittee, licensed to practice in Connecticut:

   "I certify that in my professional judgement, proper operation and maintenance of any systems installed to treat the discharge(s) which are the subject of this registration will insure that all effluent limitations and other conditions in the general permit for hydrostatic pressure testing wastewaters are met, or, if there is no treatment system for such discharge(s), that the discharges(s) will meet all effluent limitations and conditions of this general permit without treatment. This certification is based on my review of engineering reports and plans and specifications describing (1) the proposed activities and (2) any proposed treatment facilities for the wastewaters to be discharged. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."

   For discharges to surface waters, the professional engineer shall also certify as follows: "I further certify that in my professional judgement, the erosion controls to be included on the project that is the subject of this registration are adequate to prevent erosion and discoloration of the receiving water body in accordance with the provisions of this general permit.

D. Signature of Registrant

Any person who or municipality which submits a registration under this general permit shall sign the registration and shall make the following certification:

"I certify under penalty of law that I have read and understand all conditions of the general permit for hydrostatic pressure testing wastewater discharges , and that all conditions for elibility for coverage under this general permit are met. This document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained in this registration is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly making false statements."

E. **Where to submit a Registration**

Persons who or municipalities which submit a registration under this general permit shall submit such registration to the Department of Environmental Protection at the following address:

Department of Environmental Protection
Central Permit Processing Unit
79 Elm Street, Hartford, CT 06106-5 127

For any discharge to a POTW, a copy of each registration shall be sent to the POTW which will receive the discharge.

F. Transfer of Coverage

Any coverage under this general permit shall be non-transferrable.

G. Failure to Register

Any person or municipality who fails to submit a registration, and who initiates, creates, originates or maintains a discharge of hydrostatic pressure testing wastewater to the waters of the State without coverage under this general permit, except those covered by an individual permit issued under Section 22a-430 of the Connecticut General Statutes, is in violation of the Connecticut General Statutes, and is subject to injunction and penalties of up to $25,000 per day per violation under Chapter 446k of the Connecticut General Statutes.

PART VI. TREATMENT AND CONTROL REQUIREMENTS; BMPs; OTHER SPECIAL CONDITIONS

A. Discharges to a Surface Water Body

1. All hydrostatic pressure testing wastewater discharging directly to a surface water body shall be provided with controls to prevent erosion and discoloration of the receiving water body and to dissipate energy prior to discharge.

2. In the case of flowing surface waters, the maximum instantaneous flow shall not exceed 10% of the surface water's ambient flow rate. For all other surface waters, the total volume of discharge of hydrostatic pressure testing wastewater to surface waters, shall not exceed 1% of the total volume of the receiving water body.

3. The discharge shall not cause visible discoloration or foaming in the receiving waters.

4. The discharge shall not contain a visible oil sheen or floating solids.

5. When surface waters are used for test water, the intake point of the pipe used to draw the test water from the surface water shall be located at a depth no greater than one-half the total depth of the water column.

B. Discharges to a POTW via a Sanitary Sewerage System.

All discharges of hydrostatic pressure testing wastewater to a POTW shall comply with the flow rate limitation established by the receiving municipality, and be discharged during the hours required of the discharger by the receiving municipality. In any case, the discharge shall not exceed one per cent of the design flow of the POTW.

PART VII. EFFLUENT LIMITATIONS

1. Pollutants in discharges of hydrostatic pressure testing wastewaters shall not exceed the maximum concentrations listed below except in the case of discharges into the same water body from which the test water is drawn, in which case the concentration in the source water shall not be increased by more than such values.

Parameter	Discharge to a Sanitary Sewer	Discharge to a Surface Water Body
Chlorine, Total Residual	no limit	0.05 mg/l
Oil and Grease, Total	50.0 mg/l	10.0 mg/l
Suspended Solids, Total	100.0 mg/l	45.0 mg/l

2. The pH of the discharge shall not be less than 6.0 or greater than 9.0 at any time, unless the discharge is into the same water body from which the test water is drawn, and the pH of the source water is less than 6.0 or greater than 9.0, in which case the pH of the discharge shall be no more than 0.5 standard pH units greater or less than the source water.

PART VIII. MONITORING AND REPORTING REQUIREMENTS

A. Monitoring Parameters

Hydrostatic pressure testing wastewaters shall be analyzed for Chemical Oxygen Demand, total daily flow, maximum instantaneous flow, total iron, and all parameters listed under Part VII above, including pH. In addition, discharges of hydrostatic pressure testing wastewaters from pipelines and tanks which have been used to transport or hold natural gas shall be analyzed for polynuclear aromatic hydrocarbons.

B. Monitoring Location

All wastewater samples shall be comprised only of hydrostatic pressure testing wastewater, and shall be taken prior to combination with wastewaters of any other type. All samples taken shall be representative of the discharge during standard operating conditions.

C. Monitoring Frequency

1. Each time hydrostatic pressure testing wastewaters are discharged, at least two grab samples shall be taken. One grab sample shall be taken during the first 10% of the time the discharge is expected to continue, and one grab sample shall be taken during the last 10% of the time the discharge is expected to continue.

2. Each time hydrostatic pressure testing wastewaters are discharged, a grab sample for the purpose of monitoring pH shall be taken when the discharge commences and every four hours thereafter until the discharge ends.

D. Record Retention

Except as provided below, or as otherwise specified by the Commissioner, all analytical results required under this general permit shall not be required to be submitted to the Commissioner but instead shall be retained at the facility as required by Regulations of Connecticut State Agencies Section 22a-430-3(j)(9)(B), and shall be made available to the Commissioner immediately upon request.

PART IX. RECORDING AND REPORTING OF VIOLATIONS

A. If any analytical results or monitoring data collected under this general permit, or any other information, indicate that a violation of an effluent limitation or any other condition of this general permit has occurred, such violation shall be recorded within twenty-four hours in a log which contains at least the following information:

1. the condition(s) or effluent limitation(s) violated;

2. the analytical results and information demonstrating such violation(s);

3. the cause of the violation(s);

4. period of noncompliance including exact dates and times;

5. if the noncompliance has not been corrected, the anticipated time it is expected to continue, and, upon correction, the date and time of correction;

6. steps taken and planned to reduce, eliminate and prevent a reccurrence of the noncompliance, and the dates such steps are executed;

7. the name and title of the person recording the information and the date and time of such recording.

B. The permittee shall comply with both of the following requirements if analytical results, monitoring data or other information indicate (1) three simultaneous or consecutive violations of the same or

different conditions of this general permit (e.g. three effluent limitation violations involving the same or different effluent limitations, or one effluent limitation violation, one flow violation, and one recording violation), (2) four violations of the same or different conditions of this general permit in any consecutive twelve month period, or (3) the exceedance of any effluent limitation, other than that for pH, by more than one standard unit:

1. Within 20 days after the third simultaneous or consecutive, or fourth annual violation, as applicable, or within 20 days after the exceedance of any effluent limitation, other than that for pH, by more than two hundred per cent, and for pH by more than one standard unit, the permittee shall submit to the Commissioner a report prepared by an independent professional engineer not in the regular employ of the registrant or permittee, licensed to practice in Connecticut. Such report shall contain at least the information required to be recorded under paragraph A of this Part for each of the violations which led to the requirement for such report, and for each subsequent violation which occurred prior to the date the report was completed.

2. Within 60 days after the deadline for submitting the report specified in the preceding paragraph, the permittee shall submit to the Commissioner the following certification signed by an independent professional engineer not in the regular employ of the registrant or permittee, licensed to practice in Connecticut:

   "I certify that in my professional judgement all discharge(s) which are maintained at the facility referenced herein and which are covered under the general permit for hydrostatic pressure testing wastewaters comply with all conditions of said general permit, including
   but not limited to all effluent limitations in Part VII of said general permit, and proper operation and maintenance of any systems installed to treat such discharge(s) will insure that all effluent limitations and other conditions in said general permit are met, or if there is no treatment system for such discharge(s), that the discharge(s) will meet all effluent limitations and conditions of said general permit without treatment. This certification is based in part on my review of analyses of a minimum of three effluent samples collected, preserved, handled and analyzed in accordance with 40 CFR Part 136, which samples were representative of the discharge during standard operating conditions, were taken in the previous year, at least one week apart, and were of the type(s) specified in Part VIII.C. of said general permit, and were analyzed for the parameters specified in Part VIII.A. of said general permit. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statement."

3. For any discharge to a POTW, a copy of any report required to be submitted under this section, shall also be sent to the POTW which receives the discharge.

PART X. GENERAL CONDITIONS

A. The permittee shall comply with the following Regulations of Connecticut State Agencies which are hereby incorporated into this general permit, as if fully set forth herein:

1. Section 22a-430-3 :

   Subsection (b) General - subparagraph (l)(D) and subdivisions (2), (3), (4) and (5)
   Subsection (c) Inspection and Entry.
   Subsection (d) Effect of a Permit - subdivisions (1) and (4)

Subsection (e) Duty to Comply
Subsection (f) Proper Operation and Maintenance
Subsection (g) Sludge Disposal
Subsection (h) Duty to Mitigate.
Subsection (i) Facility Modifications, Notification - subdivisions (1) and (4)
Subsection (j) Monitoring, Records and Reporting Requirements - subdivisions (l), (6), (7), (8), (9) and (11) (except subparagraphs (9)(A)(2)) and (9)(C)
Subsection (k) Bypass
Subsection (m) Effluent Limitation Violations
Subsection (n) Enforcement.
Subsection (o) Resource conservation
Subsection (p) Spill prevention and control
Subsection (q) Instrumentation, Alarms, Flow Recorders
Subsection (r) Equalization

2. Section 22a-430-4

Subsection (t) - Prohibitions
Subsection (p) - Revocation, Denial, Modification
Appendices

B. The permittee shall comply with the following additional terms and conditions:

1. The general permittee is authorized to discharge (A) pollutants in quantities and concentrations as specified in this general permit; and (B) any substances resulting from the processes or activities covered by this general permit in concentrations and quantities which the commissioner determines cannot reasonably be expected to cause pollution and will not adversely affect the operation of a POTW. However, the commissioner may seek an injunction or issue an order to prevent or abate pollution, and may seek criminal penalties against a general permittee who willfully or with criminal negligence causes or threatens pollution.

2. Discharge of any substance which does not result from the processes or activities covered by this general permit shall be considered a violation of this general permit unless it is authorized by an

D. Within fifteen days after the date the registrant of a change in any information submitted to the Commissioner in a registration or pursuant to this general permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the registrant or permittee shall submit the correct or omitted information in writing to the Commissioner.

E. Nothing in this general permit shall relieve the registrant or permittee of other obligations under applicable federal, state and local law.

F. Any document, including but not limited to any notice, which is submitted to the commissioner under this general permit shall be signed by, as applicable, the registrant or the permittee in accordance with section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

G. Any false statement in any information submitted pursuant to this general permit may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

Issued Date: March 30, 2010

AMEY W. MARRELLA

Commissioner

This is a true and accurate copy of the general permit executed on March 30, 2010 by the Commissioner of the Department of Environmental Protection.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

DEP USE ONLY

APP# _____

PERMIT # _____

FAC. ID.

REGISTRATION UNDER A GENERAL PERMIT
SECTION 22a-430b CGS
for
HYDROSTATIC PRESSURE TESTING WASTEWATER
NOTICE OF COVERAGE

Type or print neatly

Must submit original and (2) copies

1. Location Address of Discharge Site _____

2. Operator Name _____

Address _____

Telephone Number (____) _____

3. Owner Name _____

Address _____

Telephone Number (____) _____

4. Total Volume of Discharge gallons _____ Maximum Daily Flow _____ gallons per day
Maximum Instantaneous Flow _____ gallons per minute. Duration of discharge _____ Hours

5. Complete a) or b) below:

a) For discharge to a sanitary sewer

Name of POTW Receiving discharge described above _____

* Mail a copy of this registration to the receiving POTW

b) For discharges to a surface water

Name of receiving water _____

Water Quality Classification (Existing/Goal) _____

(Obtained from DEP Publication of Connecticut Water Quality Standards and Classifications)

Ambient flow rate of receiving water _____ (cfs)(gpd) _____

Method of detf _____

mbient flow value _____

(Enclose an 8 1/2" by 11" copy of the applicable section of the United States Geological Survey quadrangle map, with a scale of 1:24,000, showing exact location of discharge and including name of USGS map)

6. Was this discharge previously covered under an individual permit? _____ Permit # (CT)(SP) _____

REGISTRANT CERTIFICATION

"I certify under penalty of law that I have read and understand all conditions of the General Permit for Hydrostatic Pressure Testing Wastewater discharges, that all conditions for eligibility for coverage under this general permit are met, and all terms and conditions of this general permit are being met for all discharges which have been initiated and are the subject of this Registration. This document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained in this registration is, to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false informaion, including the possibility of fine and imprisonment for knowingly making false statements."

Print or Type Name _____ *Title* _____

Signature _____ *Date* _____

PROFESSIONAL ENGINEER CERTIFICATION

Complete a), and b) below, if applicable:

a) For all discharges of Hydrostatic Pressure Testing Wastewater:

"I certify that in my professional judgement proper operation and maintenance of any systems installed to treat the discharge(s) which are the subject of this registration will insure that all effluent limitations and other conditions in the General Permit for Hydrostatic Pressure Testing Wastewater are met, or, if there is no treatment system for such discharge(s) will meet all effluent limitations and conditions of this general permit without treatment. This certification is based on my review of engineering reports and plans and specifications describing (1) the proposed activities *and (2) any proposed treatment facilities for the wastewaters to be discharged. I am aware that there are significant penalties for false statements in this certification. including the possibility of fine and imprisonment for knowing& making false statements."*

Print or Type Name_____

Signature_____

P.E.Number_____ Date_____

Address _____

Affix P.E. Stamp Here

b) For discharges to surface waters:

"I further certify that in my professional judgement, the erosion controls to be included on the project that is the subject of this registration are adequate to prevent erosion and discoloration of the receiving water body in accordance with the provisions of the general permit."

Print or Type Name _____

Signature_____

P.E.Number_____Date_____

Address_____

Affix P.E. Stamp Here

A fee of $625.00 for any person and $312.50 for any municipality must be submitted with this registration.

This registration and applicable fee should be mailed to the:

CENTRAL PERMIT PROCESSING UNIT
Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106 - 5127

US Army Corps of Engineers ®
New England District

Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751
or cenae-r@usace.army.mil

and

CT DEEP
Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

****

State or local Permit Number: _____
Date of State or local Permit: _____
State/local Project Manager: _____

Permittee: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Contractor: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Wetland/Soil Scientist Consultant: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Project Location (provide detailed description & locus map): _____
_____
Address, City, State & Zip: _____
Latitude/Longitude Coordinates: _____
Waterway Name: _____
Project Purpose (include all aspects of the project including those not within Corps jurisdiction):
_____
_____
Work Description:_____
_____
_____
_____

Work will be done under the following GP(s) (check all that have associated impacts):

_____**GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 5 - Boat ramps/marine railways**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 6 - Utility line activities (include calculations for each single & complete crossing – attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 9 - Shoreline and bank stabilization projects**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 12 - Oil Spill and Hazardous material cleanup**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 13 - Cleanup of hazardous and toxic waste**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 14 - Scientific measurements devices**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 15 - Survey activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 17 - New/expanded developments & recreational facilities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

_____**GP. 21 - Temporary fill not associated with any other GP activities**
Area of total wetland impacts: temporary _____SF permanent _____SF
Area of total waterway impacts: temporary _____SF permanent_____SF

Does your project include any secondary effects? Yes _____ No _____
(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: _____
_____
_____
_____

Proposed Work Dates: Start: _____ Finish: _____

Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.

_____ _____
Signature of Permittee **Date**