Volume 1 of 1
Project Manual

Henry Abbott Technical High School
New Garage Building
21 Hayestown Avenue
Danbury, CT
Project No.: BI-RT-888

Prepared By:
Clohessy Harris & Kaiser, LLC
573 Hopmeadow Street, PO Box 95
Simsbury, CT
06070

Melody A. Currey – Commissioner

State of Connecticut
Department of Administrative Services
Construction Services
Office of Legal Affairs, Policy, and Procurement
450 Columbus Boulevard, Suite 1302
Hartford, CT 06103

Project Manual Date: August 21, 2018

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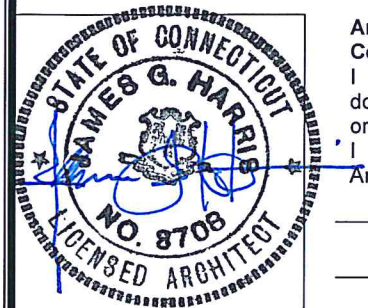
Project Title:	Henry Abbott Technical High School – New Garage Building
Project Location:	Danbury, CT
Project Number:	BI-RT-888
Architect/Engineer:	Clohessy Harris & Kaiser, LLC, 570 Hopmeadow Street, Simsbury, CT 06070

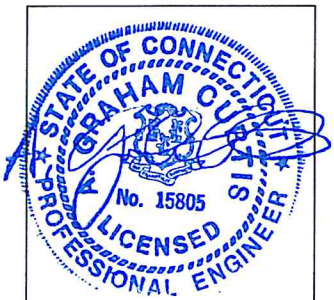
SEALS, SIGNATURES, AND DATES OF DESIGN PROFESSIONALS OF RECORD



(Seal and Signature)

Architect Professional Certification:
I hereby certify that these documents were prepared or approved by me and that I am a duly registered Architect.

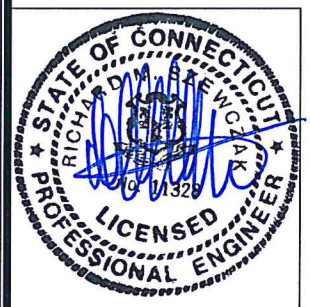
James G. Harris, AIA
(Print Consultant Name)
ARI.0003708
License No.
7/31/2018
Expiration Date



(Seal and Signature)

Civil Engineer Professional Certification:
I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.

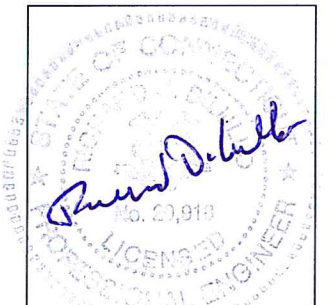
A.Graham Curtis, PE
(Print Consultant Name)
PE # 15805
License No.
01/31/2019
Expiration Date



(Seal and Signature)

Structural Engineer Professional Certification:
I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.

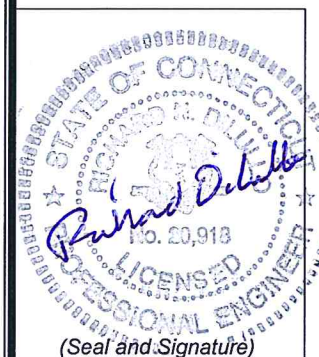
Richard M. Szewczak, PE
(Print Consultant Name)
PE # 11328
License No.
1/31/2019
Expiration Date



(Seal and Signature)

Electrical Engineer Professional Certification:
I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.

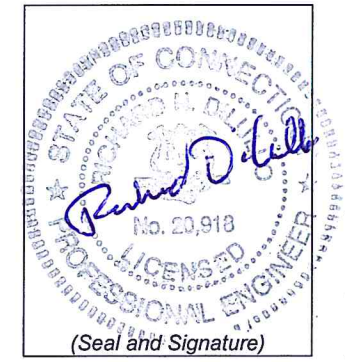
Richard N. DiLullo, PE
(Print Consultant Name)
PE # 20918
License No.
1/31/2019
Expiration Date



(Seal and Signature)

Mechanical Engineer Professional Certification:
I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.

Richard N. DiLullo, PE
(Print Consultant Name)
PE # 20918
License No.
1/31/2019
Expiration Date



(Seal and Signature)

Fire-Protection Engineer Professional Certification:
I hereby certify that these documents were prepared or approved by me and that I am a duly registered Professional Engineer.

Richard N. DiLullo, PE
(Print Consultant Name)
PE # 20918
License No.
1/31/2019
Expiration Date

End of Section
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DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

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(continued)

DIVISION 01 GENERAL REQUIREMENTS

VOLUME 1 of 1
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End of Section
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Advertisement No.:	19-01-I	Advertisement Date:	December 7, 2018

INVITATION TO BID

Connecticut Department of Administrative Services (DAS) Construction Services (CS)
Office of Legal Affairs, Policy and Procurement
450 Columbus Blvd, Suite 1302, Hartford, CT 06103-1835

Find Invitations to Bid on the State Contracting Portal:	Go to the **DAS website** www.ct.gov/das Click on **"State Contracting Portal";** Select **"Administrative Services, Construction Services";** Select the appropriate **Invitation to Bid**.
Instructions for On-Line Bidding:	Follow the instructions in 6001 Construction On-line Bidding Instructions. (http://portal.ct.gov/-/media/DAS/Construction-Services/DAS-CS-Library/6000-Series/6001-Construction-On-Line-Bidding-Instructions.pdf) For questions, call 860-713-5794.

Date and Time of Bid Opening:	**January** *(Month)*	**23** *(Day)*	**2019** *(Year)*	**Time:** **1:00** *(ET)* **PM**

This Invitation to Bid is for the following Project:

Construction Costs:	Less Than or Equal To $500,000
Bidding Limited To:	Current DAS Certified Set-Aside Contractors Only
Threshold Limits: (C.G.S. §29-276b)	This Project DOES NOT exceed Threshold Limits.
Project Title:	Henry Abbott Technical High School New Garage Building
Project Location:	Danbury, CT
Project Number:	BI-RT-888
Project Description:	Construction of a new stand-alone pre-engineered storage building of approximately 1,792 gross square feet with 3 bay door openings and one exit door. The structure shall consist of pre-engineered structural framing with metal panel exterior wall, and aluminum standing seam roof construction. Foundations shall consist of structural concrete. Interior finishes include painted surfaces. Flooring will be sealed concrete.
Work Includes But Is Not Limited To The Following:	Site Construction, Landscaping, Site Utilities, Cast-In-Place Concrete, Structural Steel, Miscellaneous Metals, Rough Carpentry, Finish Carpentry, Waterproofing, Roofing, Sheet Metal, and Joint Sealants, Doors, and Frames, Overhead Doors, Aluminum Windows, Hardware, Drywall and Painting, Fire Extinguishers, Plumbing, HVAC, and Controls, Electrical and Fire Alarm Systems and Special Equipment
Date DAS Began Planning Project:	09-27-17
Special Requirements:	N/A
Cost Estimate Range:	**$** 168,055. **To $** 185,745.
Date Plans & Specs Ready:	December 12, 2018
Plans and Specs Download:	Plans and Specs are available for electronic download on the DAS State Contracting Portal.

Advertisement No.:	**19-01-I**	**Advertisement Date:**	**December 7, 2018**

Invitation to Bid (continued)

Contract Time Allowed:	**Calendar Days:**	155	
Liquidated Damages:	**$** 728.00	Per Calendar Day Beyond Substantial Completion.	
	$ 706.00	Per Calendar Day Beyond 90 days After Substantial Completion	
Pre-Bid Meeting Date:	December 13, 2018		
	☐	Bidders are ***strongly encouraged*** to attend the Pre-Bid Meeting.	
	☒	Bidders are ***required*** to attend a **MANDATORY** Pre-Bid Meeting.	
Pre-Bid Meeting Time:	10:00	☒ **AM**	☐ **PM**
Pre-Bid Meeting Location:	Henry Abbott Technical High School, 21 Hayestown Ave., Danbury, CT – Meet at the Main Entrance Lobby (for security check-in)		
Pre-Bid Meeting Contact:	**DAS/CS Project Manager:**	Steven Longo	
	Phone No.:	860-713-5751	
Pre-Bid Meeting Registration:	At the Pre-Bid Meeting, all prospective bidders shall *sign* his or her name on the **official roster** and *list* the name and address of the company he or she represents. For **MANDATORY** Pre-Bid Meetings, this shall be done no later than the designated **start time** of the Pre-Bid Meeting. **No** attendee will be allowed to register *after* the advertised start time. **Bids** submitted by contractors who have *not properly* registered and attended the **MANDATORY** Pre-Bid Meeting *shall be rejected* as **non-responsive**. See **Section 00 25 13 Pre-Bid Meeting Agenda** for additional details.		
Subcontractor and/or Supplier Small Business Enterprise (SBE) & Minority Business Enterprise (MBE) Set-Aside Requirements:	**See 00 41 00 Bid Proposal Form**		
Bid Proposal Submission and Other Bid Submittal Requirements:	See **Sections 00 21 13 Instructions to Bidders, 00 41 00 Bid Proposal Form**, and **00 41 10 Bid Package Submittal Requirements** for Bid Proposal submission requirements, including requirements for Affidavits, Certifications, Addenda, Pre-Bid Equals and Substitution Requests, and other bidding documents.		
Bid Upload and Bid Opening:	Bids can be uploaded and edited electronically in BizNet **UNTIL 1:00 p.m.** on the **Bid Opening Date** and thereafter shall be locked down and publicly opened in the State Contracting Portal**.**		
Bid Results:	Within approximately two (2) days after the Bid Opening Date, the Bid Results will be posted on the State Contracting Portal.		
Guide to the Code of Ethics For Current or Potential State Contractors (for contracts greater than $500,000):	Anyone seeking a contract with a value of more than $500,000 shall electronically download the **"Guide to the Code of Ethics For Current or Potential State Contractors"** from the of Office of State Ethics (OSE) website www.ct.gov/ethics, then click on the **"Publications"** link:		
Prevailing Wage Rates:	Prevailing wages are required on this project, in accordance with the schedule provided in the bid documents, pursuant to Connecticut General Statutes Section 31-53 (a) through (h), as amended. Each contractor who is awarded a contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-55a concerning annual adjustments to prevailing wages. Wage Rates will be posted each July 1st on the Department of Labor website www.ctdol.state.ct.us. Such prevailing wage adjustment shall not be considered a matter for any contract amendment.		
To access Executive Orders:	Go to www.ct.gov > Governor Dannel P. Malloy > Press Room > Executive Orders.		

Advertisement No.:	19-01-I	Advertisement Date:	December 7, 2018

Invitation to Bid (continued)

Important Notices:

UPDATED DOCUMENTS:

Many **Division 00** and **Division 01** documents have been updated. Read all of the contents of the Project Manual c*arefully!*

All Contractors are cautioned that any modifications or alterations made to either the Project Manual or any of the forms and documents contained herein may be just cause to ***reject the bid!***

NEW PROCESS FOR CONSTRUCTION STORMWATER GENERAL PERMIT:

See Section 01 50 00 Temporary Facilities and Controls.

For all DAS/CS construction projects disturbing ***one or more*** **total acres of land area** on a site regardless of project phasing, the **Architect/Engineer** shall be responsible for filing a Department of Energy and Environmental Protection (DEEP) *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015)* registration and Stormwater Pollution Control Plan (SPCP) through the online DEEP ezFile Portal ***prior*** to bidding.

Once the **Contractor** is under contract with DAS/CS, and ***prior*** to the commencement of any construction activities, the Contractor (and all other contractors and subcontractors listed on the SPCP) shall assume responsibility for storm water pollution control and conform to the general permit obligations and requirements by **signing** the SPCP "Contractor Certification Statement" and License Transfer Form as directed by the Architect/Engineer.

At completion of the project, the Contractor shall file a Notice of Termination (DEP-PED-NOT-015) with the DEEP in order to terminate the Construction Stormwater General Permit. A project shall ***only*** be considered complete after all **post-construction** measures are installed, cleaned, and functioning and the site has been stabilized for at least **three (3) months** following the cessation of construction activities.

IMPORTANT NOTE: *The Commissioner of the CT Department of Administrative Services reserves the right to do any of the following without liability, including but not limited to: (a) waive technical defects in the bid proposal as he or she deems best for the interest of the State; (b) negotiate with a contractor in accordance with Connecticut General Statutes Section 4b-91;(c) reject any or all bids; (d) cancel the award or execution of any contract prior to the issuance of the "Notice To Proceed;" and, (e) advertise for new bids.*

All Project Questions, Bid Questions, and Pre-Bid Equals and Substitution Requests must be submitted **fourteen (14)** Calendar Days **prior** to the **Bid Due Date.**

All **Project Questions** and Pre-Bid **Equals and Substitution Requests** must be emailed (not phoned) to the **Architect/Engineer** with a **copy** to the **Construction Administrator** and **the DAS/CS Project Manager** listed below.

Architect/Engineer:	Clohessy Harris & Kaiser, LLC	**Email:**	ronm@chkarch.com
Construction Administrator:	TBD	**Email:**	TBD
DAS/CS Project Manager:	Steven Longo	**Email:**	Steven.longo@ct.gov

All **Bid Questions** must be emailed to the **DAS/CS Associate Fiscal Administrative Officer** listed below.

DAS/CS Associate Fiscal Administrative Officer:	Mellanee Walton	**Email:**	Mellanee.walton@ct.gov

Instructions to Bidders

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

1.0 General Bid Proposal Information

1.1 On-Line Bidding:

1.1.1 The Department of Administrative Services (DAS) Construction Services (CS) has streamlined the Bid process by allowing contractors to submit their **Bid Package Documents on line** through the **State Contracting Portal** and **BizNet**. Rather than submitting paper Bid Package Documents, contractors simply respond to an **Invitation to Bid** on the **State Contracting Portal** by retrieving and uploading their documents electronically through their **BizNet** account. Once completed, the Bid Proposal must be **electronically signed prior** to the date and time of the **Bid Opening**. See **Page 1** of the **Invitation to Bid** for the **Date and Time of the Bid Opening**.

1.1.2 All Bidders shall **electronically** upload their **Bid Package Documents** to BizNet following the **instructions** in the DAS/CS publication, 6001 Construction On-line Bidding Instructions, available for download here: Go to the DAS Homepage (www.ct.gov/DAS), Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series > **6001 Construction On Line Bidding Instructions**. For questions, call 860-713-5794 or 860-713-5783.

1.2 Bid Opening:

All Bids shall be publicly opened in BizNet by the awarding authority as stated in **Section 00 11 16 Invitation to Bid.**

1.3 Withdrawal of Bid:

Any **Bid** once uploaded into BizNet cannot be deleted. A Bid may only be **withdrawn** by uploading a written **Letter of Withdrawal** to BizNet using the "**Other Solicitation Document**" link ***prior*** to the date and time of the Bid Opening.

1.4 Disqualification from Bidding:

Any contractor who violates any provision of **Connecticut General Statutes (C.G.S.) § 4b-95**, as revised, shall be **disqualified** from bidding on other contracts for a period not to exceed **twenty-four (24) months**, commencing from the date on which the violation is discovered, for each violation.

1.5 Waive Minor Irregularities:

1.5.1 The awarding authority **shall** be authorized to **waive minor irregularities** which he or she considers in the best interest of the State, provided the reasons for any such waiver are stated in writing by the awarding authority and made a part of the contract file.

1.5.2 **No** such bid shall be rejected because of the failure to submit prices for, or information relating to, any item or items for which no specific space is provided in the bid form furnished by the awarding authority, but this sentence shall not be applicable to any failure to furnish prices or information required by **C.G.S. § 4b-95,** as revised, to be furnished in the bid form provided by the awarding authority.

1.6 Minimum Percentage of Work:

The awarding authority ***may*** require in the **Bid Proposal Form** that the contractor agree to perform a stated, minimum percentage of work with its **own forces**, in accordance with **C.G.S. § 4b-95(b).**

1.7 Set-Aside Contracts:

The awarding authority ***may*** **also** require the contractor to set aside a portion of the contract for subcontractors who are eligible for **set-aside contracts**.

1.8 Connecticut Sales And Use Taxes:

1.8.1 **All Bidders *shall*** familiarize themselves with the current statutes and regulations of the **Connecticut Department of Revenue Services (DRS),** including the Regulations of Connecticut State Agencies (R.C.S.A.) §12-426-18 and all relevant state statutes. The tax on materials or supplies exempted by such statutes and regulations shall not be included as part of a bid; see the **Contractor's Exempt Purchase Certificate (CERT-134),** available for download from the DRS website (www.ct.gov/drs).

1.8.2 The State of Connecticut construction contract has the following tax exemptions: (1) Purchasing of materials which will be physically incorporated and become a permanent part of the project; and (2) Services that are resold by the contractor. For example, if a General Contractor hires a plumber, carpenter or electrician, a resale certificate may be issued to the subcontractor because these services are considered to be integral and inseparable component parts of the building contract.

1.8.3 The following items are **not** exempt from taxes when used to fulfill a State of Connecticut construction contract: Tools, supplies and equipment used in fulfilling the construction contract.

1.9 Union Labor:

Attention is called to the fact that there may or could be construction work carried on at the site by union labor. This fact must be kept in mind by all Bidders.

1.10 Rejection of Bids:

The awarding authority ***shall reject*** every such **Bid Proposal**, including but not limited to, the following reasons:

1.10.1 A **Bid Proposal Form** that does ***not*** contain the signature of the bidder or its authorized representative.

1.10.2 A **Bid Proposal Form** that is ***not*** accompanied by the following documents in BizNet:

- **.1** **Section 00 43 16 Standard Bid Bond,** completed for *either* the **Bid Bond** option *or* **Certified Check** option;
- **.2** A **Certified Check** (if applicable) delivered to the DAS/CS Office of Legal Affairs, Policy, and Procurement ***prior*** to the date and time of the Bid Opening;
- **.3** **Section 00 45 14 General Contractor Bidder's Qualification Statement**
- **.4** A **DAS Contractor Prequalification Certificate** for the Bidder for Projects ***greater*** than **$500,000**;
- **.5** A **DAS Update (Bid) Statement** for the Bidder for Projects ***greater*** than **$500,000**;
- **.6** A **Gift and Campaign Contribution Certification – Office of Policy and Management (OPM) Ethics Form 1**;
- **.7** A **Consulting Agreement Affidavit – OPM Ethics Form 5**. **NOTE: If the Bidder fails to submit or upload** the **Consulting Agreement Affidavit** required under C.G.S. § 4a-81, such bidder shall be *disqualified* and the award shall be made to the next lowest responsible qualified bidder or new bids or proposals shall be sought;
- **.8** An **Ethics Affidavit (Regarding State Ethics) – OPM Ethics Form 6**;
- **.9** An **Iran Certification – OPM Ethics Form 7.**

1.10.3 A **Bid Proposal Form** that:

- **.1** Fails **to acknowledge** all **Addenda** in the space provided in the **Bid Proposal Form;**
- **.2** Fails **to correctly list** the **Named Subcontractors** on the **Bid Proposal Form;**
- **.3** Fails **to correctly state** a **Named Subcontractor's price** on the **Bid Proposal Form;** and
- **.4** Fails **to list Named Subcontractors** who are **DAS Prequalified at the time of the bid.**

1.10.4 **A Bid Proposal Form** that is ***not*** submitted on the **forms furnished** for the specific project. **NOTE:** In ***no*** event will bids or changes in bids be made by telephone, telegraph, facsimile or other communication technology except through BizNet. ***All*** pages of the **Bid Proposal Form *must*** be uploaded to BizNet prior to the date and time of the Bid Opening.

1.10.5 A **Bid Proposal Form** that has omitted items, omitted pages, added items not called for, altered the form, contains conditional bids, contains alternative bids, or contains obscure bids.

1.10.6 A *paper* **Bid Package** sent to the DAS/CS Office of Legal Affairs, Policy, and Procurement. Such bids will be returned to the bidder unopened.

1.10.7 **Any Bidder** that does *not* make all required **pre-award submittals** *within* the designated time period. DAS/CS *may* reject such bids as **non-responsive**.

1.11 Pre-Bid Meeting:

1.11.1 See **Section 00 11 16 Invitation to Bid** and **Section 00 25 13 Pre-Bid Meeting Agenda** for details.

1.11.2 When a **Pre-Bid Meeting** is **"strongly encouraged"**, all attendees shall sign his or her name to the official roster and list the name and address of the company he or she represents.

1.11.3 When a **Pre-Bid Meeting** is **MANDATORY**, all attendees will be required to register. **Proper registration** means that the attendee has signed his or her name to the official roster and listed the name and address of the company he or she represents on the official roster no later than the designated start time of the **MANDATORY Pre-Bid Meeting**. Bidders are advised to register early as **no** attendee will be allowed to register *after* the advertised start time of the **MANDATORY Pre-Bid Meeting.**

All bids submitted by all contractors who have ***not*** properly registered and attended the **MANDATORY Pre-Bid Meeting shall be rejected as non-responsive.**

1.11.4 **All Bidders Attending a Pre-Bid Meeting at a Connecticut Department of Corrections (DOC) Facility: Prior to the Pre-Bid Meeting,** download the **"Security Background Questionnaire"** from the **CT DOC website (**www.ct.gov/doc under "**Forms**"), complete and submit the form as directed, and obtain approval, otherwise admission to the Pre-Bid Meeting **will be denied**. It is recommended that the approved form be brought as evidence of approval to attend the Pre-Bid Meeting.

1.12 Pre-Bid Equals and Substitution Requests Procedures:

1.12.1 All submissions requesting "Equals and/or Substitutions" shall be made by the **Bidder** in accordance with **Section 01 25 00 Substitution Procedures** of the **Division 01 General Requirements and Article 15, Materials: Standards** of **Section 00 72 13 General Conditions**. Every submission shall contain all the information necessary for DAS/CS to evaluate the submission and the request. Failure to submit sufficient information to make a proper evaluation, including submittal of data for the first manufacturer listed as well as the data for the **"Equals and/or Substitutions"** proposed, shall result in a **rejection** of the submission and request. Upon receipt of the submission and request, DAS/CS shall notify the **Bidder** that the request has been received and as soon as possible shall render a decision on such submission and request.

1.12.2 **Pre-Bid-Opening Substitution of Materials and Equipment:** The Owner will consider requests for equals or substitutions *if* received **fourteen (14) Calendar Days** *prior* to the **Bid Opening Due Date,** as stated in the **Invitation To Bid.** The **Equal or Substitute Product Request (Form 7001)** must be used to submit requests. Download **Form 7001** from the DAS Homepage (www.ct.gov/DAS) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 7000 Series.

1.12.3 **Equals and/or Substitutions Requests Submittal:** Requests for Equals or Substitutions shall be submitted to the **DAS/CS Project Manager, Architect / Engineer, and Construction Administrator**.

1.12.4 **Substitution Request Deadline:** Any substitution request not complying with requirements will be denied. Substitution requests sent **after** the **Deadline** will be denied.

1.12.5 **Addendum:** An Addendum shall be issued to inform all prospective bidder of any accepted substitution in accordance with our addenda procedures.

1.12.6 **Time Extensions:** No extensions of time will be allowed for the time period required for consideration of any Substitution or Equal.

1.12.7 **Post Contract Award Substitution of Materials and Equipment:** All requests for "Equals and Substitutions" **after** the Award of the Contract shall be made **only** by the **Prime Contractor** for materials or systems specified that are no longer available. The requests will not be considered if the product was not purchased in a reasonable time after award, in accordance with **Article 15, Materials: Standards** of **Section 00 72 13 General Conditions**.

1.13 Joint Ventures:

1.13.1 **Each entity** in a Joint Venture shall submit with the Venture's bid a **letter** on their respective company letterheads stating:

- Their **agreement to bid** as a Joint Venture with the other named Joint Venture, and set forth the **name and address** of the other Joint Venture(s).
- The **respective percentage of the project work** that would be the responsibility of each of the Joint Ventures.

1.13.2 **Prequalification: Each entity** in a Joint Venture shall submit its **Prequalification Certificate** and **Update (Bid) Statement**. **Each entity** in a Joint Venture shall be **prequalified** at the time of the bid and during the entire project construction. **Each entity** in a Joint Venture shall have the **prequalification single project limit**, and **remaining aggregate capacity balance** to meet the value of its respective percentage of the joint proposed bid.

1.13.3 **Each entity** in a Joint Venture shall submit **Section 00 45 14 General Contractor Bidder's Qualification Statement**.

1.13.4 **Bonding:** The Joint Venture shall obtain the required **bonding** from a surety for the **total amount** of the contract price.

1.13.5 **Insurance: Each entity** in a Joint Venture shall have the **required insurance coverages and limits** to meet the insurance requirements of the contract. The Joint Venture shall provide **Builder's Risk insurance**.

1.13.6 **Bid Submission and Contract Signing:** If a Joint Venture submits a bid proposal, it shall be considered to be a proposal by **each** of the Joint Ventures, jointly and severally, for the performance of the entire contract as a Joint Venture in accordance with the terms and conditions of the contract. **Each entity** in a Joint Venture is required to **sign the contract** acknowledging that each Joint Venture shall be jointly and severally liable for the performance of the entire contract.

1.13.7 **Certificate of Legal Existence: Each entity** in a Joint Venture shall obtain a **Certificate of Legal Existence** and submit it with the contract documents.

1.14 Procedure for Alleged Violation(s) of Part II Chapter 60 of C.G.S. Bidding and Contracts:

1.14.1 The Regulations of Connecticut State Agencies establishes a procedure for promptly hearing and ruling on claims alleging a violation or violations of the contract bidding provisions of Part II of Chapter 60 of the Connecticut General Statutes (hereinafter "Chapter 60"). In view of the fact that time is normally of the essence in awarding construction contracts under Chapter 60, the grievance procedures are intended to be quick, informal and conclusive so as to avoid delays which can increase costs and jeopardize the very ability of the State to proceed with needed public works projects.

1.14.2 Download **"6510 Procedure for Alleged Violation(s)"** and **"6505 Petition for Alleged Violation(s)"** from the DAS Homepage (www.ct.gov/DAS) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series > Scroll down to locate documents.

1.15 Labor Market Area:

1.15.1 **All Bidders *shall*** have read **C.G.S. §§ 31-52** and **31-52a**, as revised. These sections relate to the **preference of State citizens** and the **preference of residents of the labor market area** in which the work under the contract is to be done and the **penalties for violations** thereof.

1.15.2 In order to avoid violations by the contractor and to cooperate with and assist the State in the implementation of the statutory mandates, any bidder awarded a contract with the State **shall** be required to provide the State with the following information:

- **.1** The names and addresses of employees utilized by the contractor and by its subcontractors and how long each such employee has resided in Connecticut.
- **.2** How long each employee has resided in the labor market area, as established by the State Labor Commissioner, in which the work under the contract is to be done. Labor market areas are indicated on the end of this section.
- **.3** Within thirty (30) days after the start of work, the contractor **shall** submit a signed statement setting forth the procedures the contractor and its subcontractors have taken to assure that they have sought out qualified residents of the labor market area. Also, the statement **shall** include information as to how many persons were considered for employment and how many were actually hired. Such procedures will include, but not be limited to, obtaining names of available persons from area Employment Security Offices.
- **.4** In the same manner as **Subsection 3.9.2.3** above, the statement **shall** indicate the steps taken to assure that the contractor and its subcontractors have sought out qualified residents of this State.

1.15.3 The contractor **shall** cooperate with and provide information to the DAS/CS Project Manager or their designee assigned to collect and verify the information required. The State may request that all such information be updated during the term of the contract at reasonable times.

1.15.4 All such information gathered and compiled by the State **shall** be forwarded to the Labor Commissioner.

1.15.5 **Pursuant to C.G.S. § 31-52b, as revised:**

> "The provisions of C.G.S. § 31-52 and 31-52a **shall not** apply where the State or any subdivision thereof may suffer the loss of revenue granted or to be granted from any agency or department of the federal government as a result of said sections or regulative procedures pursuant thereto."

However, no exception shall be determined to be applicable unless stated in writing by the Commissioner of the Department of Administrative Services.

1.15.6 **Website Link:** For guidance on the CT DOL Labor Market Areas (LMA) go to the CT DOL website http://www.ctdol.state.ct.us/, under "Program Services", click on "Labor Market information".

1.16 Executive Orders:

1.16.1 All Executive Orders of which are incorporated into and are made a part of the Contract as if they had been fully set forth in it. The Contract is subject to the provisions of the following**:**

- **.1** **Executive Order No. 3:** Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices;
- **.2** **Executive Order No. 17:** Governor Thomas J. Meskill promulgated February 15, 1973, concerning the listing of employment openings;
- **.3** **Executive Order No. 16:** Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace;
- **.4** **Executive Order No. 14:** Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services; and
- **.5** **Executive Order No. 49:** Governor Dannel P. Malloy, promulgated May 22, 2015, concerning the requirement for certain state contractors to disclosure campaign contributions to candidates for statewide public office or The General Assembly and to ensure convenient public access to information related to gifts and campaign contribution disclosure affidavits by state contractors.

1.16.2 All Executive Orders are available for download from the State of Connecticut website. Go to www.ct.gov, click on "Governor Dannel P. Malloy", click on "Press Room", and click on "Executive Orders".

1.17 Retaliation For Disclosure of Information:

1.17.1 Each contract between a state or quasi-public agency and a large state contractor shall provide that, if an officer, employee, or appointing authority of a large state contractor takes or threatens to take any personnel action against any employee of the contractor in **retaliation** for such employee's **disclosure** of information to the Auditors of Public Accounts or the Attorney General under the provisions of **C.G.S. § 4-61dd (a)**, the contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of the contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The executive head of the state or quasi-public agency may request the Attorney General to bring a civil action in the Superior Court for the judicial district of Hartford to seek imposition and recovery of such civil penalty.

1.17.2 Each large state contractor shall post a **notice** of the provisions of **C.G.S. § 4-61dd** relating to large state contractors in a conspicuous place that is readily available for viewing by the employees of the contractor.

1.18 Laws of the State of Connecticut:

Forum and Choice of Law. The Bidder agrees that in the event it is awarded a Contract, the Bidder and the State deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Bidder waives any objection which it may now have or will have to the laying of venue of any claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

1.19 State's Sovereign Immunity:

Nothing in this Agreement shall be construed as a waiver or limitation upon the **State's sovereign immunity**. To the extent this Section is found to be inconsistent with any other part of this Agreement, this Section shall control. This Section of the Agreement shall survive the completion and/or termination of this Agreement.

2.0 Bid Proposal Form Instructions:

2.1 Bid Proposal Form:

2.1.1 **All Bidders** shall upload **ALL** pages of **Section 00 41 00 Bid Proposal Form** to BizNet, prior to the date and time of the Bid Opening.

2.2 Threshold Projects:

2.2.1 See **page 1** of the **Bid Proposal Form** to determine if this Project exceeds the **Threshold Limits**.

2.2.2 If this Project exceeds Threshold Limits, ***all*** **Bidders** shall list their Firm's **Major Contractor Registration License Number** in the **Bid Proposal Form.**

2.2.3 The **Apparent Low Bidder** shall also provide the Subcontractor(s) **Major Contractor Registration License** number(s) to the DAS/CS Office of Legal Affairs, Policy, and Procurement within **ten (10) business days <u>after</u>** receipt of the Letter of Intent from DAS/CS.

2.2.4 **Summary of Registration Requirements for Major Contractors:** Any person engaged in the business of construction, structural repair, structural alteration, dismantling or demolition of a structure or addition that exceeds the threshold limits provided in **C.G.S §29-276b**, or any person who, under the direction of a general contractor, performs or offers to perform any work that impacts upon the structural integrity of a structure or addition, including repair, alteration, dismantling or demolition of a structure or addition that exceeds the threshold limits shall engage in or offer to perform the work of a Major Contractor unless such person has first obtained a license or certificate of registration from the Connecticut Department of Consumer Protection (DCP). Individuals must be licensed under the requirements of **C.G.S §20-341gg "Registration of Major Contractors"**. DCP shall issue a certificate of registration to any person who is prequalified pursuant to section 4a-100 who applies for registration in accordance with this section.

2.2.5 The Bidder and all Subcontractors that engage in work that impacts upon the structural integrity of a structure or addition must register as a **Major Contractor** with DCP and obtain a **Major Contractor License** issued by DCP **PRIOR** to the date and time of the Bid Opening for this Project.

2.2.6 For further information go to the DCP Website: http://www.ct.gov/dcp

2.3 Proposed Lump Sum Base Bid, Allowances, and Contingent Work:

2.3.1 The proposed **Lump Sum Base Bid** shall be set forth in the space **provided on Section 00 41 00 Bid Proposal Form.**

2.3.2 The **Proposed Lump Sum Base Bid** shall *include* all **Allowances**, all work indicated on the drawings and/or described in the specifications *except* for **Contingent Work.** See the **Bid Proposal Form, Section 01 20 00 Contract Considerations, and Section 01 23 13 Supplemental Bids** of Division 01 General Requirements for details regarding **Contingent Work**.

2.3.3 "**Contingent Work**" includes **Unit Prices** (for Earth and Rock Excavation, Environmental Remediation, and/or Hazardous Building Materials Abatement) and **Supplemental Bids**. See **Section 01 20 00 Contract Considerations** and **Section 01 23 13 Supplemental Bids,** respectively, for applicability.

2.3.4 The **Proposed Lump Sum Base Bid** shall be shown in *both* **numerical figures** and **"printed" words dollar amount**. In the event of any discrepancy the **"printed" words dollar amount** shall govern.

2.4 Addenda and Interpretations:

2.4.1 The **Number of Addenda** issued by the State of Connecticut shall be set forth in the space provided on the **Bid Proposal Form**. It shall be the Bidder's responsibility to make inquiry as to, and to obtain, the Addenda issued, if any.

2.4.2 **Addenda,** *if* issued, will be posted on the State Contracting Portal.

2.4.3 **Failure to acknowledge** all **Addenda** in the space provided in the Bid Proposal Form **shall** be cause for **rejection** of the bid.

2.4.4 Attaching **Addenda** to the **Bid Proposal Form** does **not** constitute an acknowledgement of all Addenda and does not relieve the Bidder from the requirement for the Bidder to acknowledge all Addenda in the space provided on the Bid Proposal Form.

2.4.5 **No interpretations** of the meaning of the plans, specifications or other contract documents will be made ***orally*** at any time. Every **request** for such interpretation ***shall*** be in **writing** to the awarding authority and to be given consideration ***shall*** be received at least **fourteen (14)** Calendar Days *prior* to the date fixed for the opening of bids. Any and all such **interpretations** and any **supplemental instructions** will be in the form of written **Addenda** to the specifications which, *if* issued, will be posted on the State Contracting Portal.

2.4.6 Contractors who have subscribed through BizNet to receive daily e-mail alert notices when new Bids/RFPs are issued will be notified via a daily CT DAS "**Connecticut Procurement Portal Daily Notice**".

2.5 Bidder's Qualification Statement and Objective Criteria for Evaluating Bidders:

2.5.1 **All Bidders** shall download, complete, and upload **Section 00 45 14 General Contractor Bidder's Qualification Statement** to BizNet prior to the date and time of the Bid Opening. See BizNet for a template. This information shall be considered as part of the **Bid Proposal Form.** Failure of a Bidder to answer any question or provide required information **may** be grounds for the awarding authority to **disqualify** and **reject** the bid.

2.5.2 **All Bidders** shall comply with **Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders.** The **Objective Criteria Established for Evaluating Qualifications of Bidders** are to assure that the State of Connecticut will secure the "lowest responsible and qualified bidder" who has the ability and capacity to successfully complete the Bid Proposal Form and the Work. Failure to comply with any portion of this requirement **may** cause **rejection** of the bid. **Note:** Individual Specification Sections **may** contain General Contractor and/or Subcontractor Qualification requirements that *exceed* those in **Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders**.

2.6 Bidder's Prequalification Requirements for Projects exceeding $500,000:

2.6.1 **All Bidders** for Projects **with estimated Construction Costs greater than $500,000** shall upload a current copy of their **"DAS Prequalification Certificate"** and **"DAS Update (Bid) Statement"** for the applicable **Class of Work** on **page 1** of **Section 00 11 16 Invitation to Bid** to Biznet ***prior*** to the date and time of the Bid Opening.

2.6.2 Pursuant to **C.G.S § 4b-91(a)(2)** and **C.G.S. §4a-100,** as revised, every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or any other public work by the state that is **estimated** to exceed **five hundred thousand dollars ($500,000)** shall be awarded ***only*** to the lowest responsible and qualified Bidder who is **"prequalified"** by DAS in the **Class of Work for this Project,** as specified in **Section 00 11 16 Invitation to Bid**. No person who's **Contract or Subcontract** exceeds **$500,000** in value may perform work as a Contractor or Subcontractor, unless the person is **prequalified***, at the time of bid submission*, in accordance with **C.G.S. § 4a-100**, as amended, **C.G.S § 4b-91(a)(2),** and **C.G.S. §4b-91 (j)**. "Prequalified" includes the contractor's or substantial subcontractor's prequalification classifications, aggregate work capacity ratings and single project limits.

2.6.3 Failure to upload either the "**DAS Prequalification Certificate"** or **"DAS Update (Bid) Statement"** to Biznet prior to the date and time of the Bid Opening **shall** cause **rejection** of the bid and shall not be considered a minor irregularity under **C.G.S. § 4b-95**.

2.6.4 See **Section 00 40 15 CT DAS Prequalification Forms** for instructions on preparing and/or downloading your Firm's **"DAS Contractor Prequalification Certificate"** and **"DAS Update (Bid) Statement".**

2.6.5 **Bidder's Certification:** Within **ten (10) business days *after*** receipt of the Letter of Intent from DAS/CS, the **Apparent Low Bidder shall** submit a **Bidder's Certification** certifying that the information in the bid is true, that there has been no substantial change in the Bidder's financial position or corporate structure since its most recent **DAS Prequalification Certificate** and **DAS Update (Bid) Statement** and that the bid was made without fraud or collusion with any person. See **Section 00 92 10 Additional Forms** of this Project Manual for a sample form.

2.7 Named Subcontractor Requirements:

2.7.1 All Bid Proposals **shall** be for the complete work as specified and **shall** include the names of any Subcontractors for the **four (4) Classes of Work** specified in **C.G.S. § 4b-93(a)**, as revised, and for each other class of work for which the awarding authority has required a separate section pursuant to said subsection, together with the dollar amounts of their subcontracts. The contractor shall be selected on the basis of such bids.

2.7.2 The **Named Subcontractor Bid Price** shall be the price set forth in the space provided on the **Bid Proposal Form**.

2.7.3 No bid shall be rejected because of an error in setting forth the Name of a Subcontractor as long as the Subcontractor or Subcontractors designated are clearly identifiable.

2.7.4 No bid shall be rejected because the **Named Subcontractor's** plans and specifications do not accompany the bid or are not submitted with the bid.

2.7.5 Failure to correctly state a **Named Subcontractor's price** on the Bid Proposal Form ***shall*** be cause for **rejection** of the Bid.

2.7.6 **Named Subcontractor Replacement:** The awarding authority may require the **Bidder** to replace a **Named Subcontractor** whenever the awarding authority determines in their sole discretion that such **replacement** is in the **best interest of the State.**

2.7.7 **Named Subcontractor Substitution:**

.1 The awarding authority ***shall not*** permit **substitution** of a subcontractor for one **Named** in accordance with the provisions of **C.G.S. § 4b-95**, as revised, ***except*** for **"Good Cause"**.

.2 The awarding authority ***shall not*** permit **substitution** of a subcontractor for any designated sub-trade work bid to be performed by the Bidder's own forces in accordance with the provisions of **C.G.S. § 4b-95 *except*** for **"Good Cause"**.

.3 **"Good Cause":** The term "good cause" includes but is not limited to, a subcontractor's or, **where appropriate, a Bidder's**: (1) death or physical disability, if the listed subcontractor is an individual; (2) dissolution, if a corporation or partnership; (3) bankruptcy; (4) inability to furnish any performance and payment bond shown on the bid form; (5) inability to obtain, or loss of, a license necessary for the performance of the particular category of work; (6) failure or inability to comply with a requirement of law applicable to contractors, subcontractors, or construction, alteration, or repair projects; and (7) failure to perform its agreement to execute a subcontract under C.G.S. § 4b-96, as revised.

2.7.8 **Named Subcontractor DAS Prequalification Requirement for Subcontracts exceeding $500,000:**

.1 The **Three (3) Apparent Lowest Bidders** shall receive *VIA EMAIL* a "Set-Aside Contractor Schedule Request" ("Request") from the DAS/CS Office of Legal Affairs, Policy, and Procurement. For **Subcontracts greater than $500,000,** the **Three (3) Apparent Lowest Bidders** shall submit within **ten (10) Calendar Days** after receipt of the Request current **DAS Prequalification Certificate(s) and Update (Bid) Statement(s) f**or **each Named Subcontractor** in **Table 2.7** of the **Bid Proposal Form, to the extent the Class of Work for the Named Subcontractor is a Prequalification Classification.** This information shall be considered as part of the **Bid Proposal Form** and failure to comply with any portion of this requirement **may** cause **rejection** of the bid.

.2 Instructions for downloading **"DAS Contractor Prequalification Certificates"** and **"DAS Update (Bid) Statement"** can be found in **Section 00 40 15 CT DAS Prequalification Forms.**

.3 **In accordance C.G.S. §4b-91 (j),** no person whose subcontract *exceeds* five hundred thousand dollars in value may perform work as a subcontractor on a project, which project is estimated to cost more than five hundred thousand dollars and is paid for, in whole or in part, with state funds, *unless, at the time of bid submission*, the person is prequalified in accordance with **C.G.S. §4a-100**, as amended. "Prequalified" includes the contractor's or substantial subcontractor's prequalification classifications, aggregate work capacity ratings and single project limits.

For **Subcontracts** estimated to **exceed $500,000,** the **Named Subcontractor *must*** be **"prequalified"** by DAS in the **Class of Work** specified in **Table 2.7** of **Section 00 41 00 Bid Proposal Form** *at the time of bid submission*, pursuant to **C.G.S. §4b-91(j)** and **C.G.S. § 4a-100,** as amended**.** This requirement also applies to the Bidder, if the Bidder is a Named Subcontractor.

2.7.9 **Named Subcontractor Bidder's Qualification Statements (Section 00 45 17)**

.1 The **Three (3) Apparent Lowest Bidders** shall receive *VIA EMAIL* a "Set-Aside Contractor Schedule Request" ("Request") from the DAS/CS Office of Legal Affairs, Policy, and Procurement. For Projects with **estimated Construction Costs greater than $500,000**, the **Three (3) Apparent Lowest Bidders** shall submit within **ten (10) Calendar Days** after receipt of the Request completed **Section 00 45 17 Named Subcontractor Bidder's Qualification Statement(s)** of this Project Manual for ***each* Named Subcontractor** in **Table 2.7** of the **Bid Proposal Form.** This information shall be considered as part of the **Bid Proposal Form** and failure to comply with any portion of this requirement **may** cause **rejection** of the bid.

.2 **Important Note:** Individual Technical Specification Sections **may** contain qualification requirements that ***exceed*** those from **Section 00 45 17 Named Subcontractor Bidder's Qualification Statement.**

2.7 Named Subcontractor Requirements (continued):

2.7.10 Bidder Performing Work as Named Subcontractor:

.1 In accordance with **C.G.S. § 4b-95(c)**, it shall be presumed that the **Bidder** intends to perform**,** with its own employees, all work in such **four (4) Classes of Work** and such other classes, for which ***no*** Subcontractor is named in **Table 2.7 of the Bid Proposal Form.** In accordance with **C.G.S. § 4b-92**, as revised, the **Bidder's** qualifications for performing such work shall be subject to review.

.2 If the Bidder has listed itself as a **Named Subcontractor(s)** for a **Class(es) of Work** in **Table 2.7** of the **Bid Proposal Form** and the proposed dollar value of the Subcontract(s) is greater than $500,000, then **to the extent the Class(es) of Work is a Prequalification Classification,** the Bidder shall provide a current **DAS Prequalification Certificate** and **Update (Bid) Statement** for **each** of the applicable **Class(es) of Work** within ten (10) Calendar Days after receipt of the "Set-Aside Contractor Schedule Request" from DAS/CS.

2.8 Set-Aside Requirements:

2.8.1 **Bidder's DAS Set-Aside Certificate: All Small Business Enterprise (SBE) / Minority Business Enterprise (MBE) Bidders** shall upload a copy of their Firm's current **"DAS Set-Aside Certificate"** to BizNet prior to the date and time of the Bid Opening.

2.8.2 **Bidder Contract Compliance Monitoring Report For Projects With Construction Costs Estimated To Be Less Than $500,000:** All Firm's shall upload a completed copy of the CHRO Employment Information Form, **"Bidder Contract Compliance Monitoring Report**" ***with*** their **Bid Proposal Form** prior to the date and time of the Bid Opening. The report is posted on the **CHRO** *Webpage* (http://www.ct.gov/chro/cwp/view.asp?a=2525&Q=315900&chroPNavCtr=|#45679).

2.8.3 **All Bidders shall be required** to award not less than the percentage(s) stated on **page 1 of Section 00 41 00 Bid Proposal Form** to Subcontractors who are currently certified and eligible to participate under the State of Connecticut Set-Aside Program for **SBE and/or MBE** contractors, in accordance with C.G.S.§ 4a-60g. **Failure** to meet these requirements ***shall*** cause **rejection** of the bid. The MBE participation ***does*** count as part of the SBE participation.

2.8.4 **Set-Aside Contractor Schedule Request:** The SBE/MBE participation requirement *must be met* even if the Bidder is *certified* and *eligible* to participate in the **Small Business Set-Aside Program**. To facilitate compliance with this requirement for set-aside subcontractors, the **Three (3) Apparent Lowest Bidders** shall receive ***VIA EMAIL*** a "Set-Aside Contractor Schedule Request" ("Request") from the DAS/CS Office of Legal Affairs, Policy, and Procurement. As directed in the Request, the **Three (3) Apparent Lowest Bidders** shall submit within **ten (10) Calendar Days** after receipt of the Request, a **list of certified set-aside contractors** to be used on this project along with the **dollar amounts** to be paid to each. (See Section 00 73 27 Set-Aside Contractor Schedule for a sample Request.)

A copy of the **current DAS Set-Aside Certificate** for ***each*** **Subcontracted SBE and/or MBE firm(s)** listed in the **"Set-Aside Contractor Schedule"** must be attached to the Request.

This information will be considered as part of your Bid Proposal Form and **failure** to comply with any portion of this requirement within the ten (10) days, including but not limited to **failure** to list or meet the necessary dollar amount or percentage of the bid price, will be cause to **reject** your bid.

2.8.5 **Percentage of Work Performed by SBE/MBE Contractors and Subcontractors:** The percentage of the work performed by the SBE/MBE Contractors and Subcontractors on this project shall not be less than the percentage noted in **Subsection 5.1 Amount of Work Required to Be Done by "Set-Aside" Contractors** of **Section 00 73 38 Commission on Human Rights (CHRO) Contract Compliance Regulations**.

2.8.6 **To view and/or download a Set-Aside Certificate:** Go to the DAS Homepage (www.ct.gov/DAS) > Small and Minority Businesses > Apply for Small Business Enterprise or Minority Business Enterprise Certification (SBE or MBE) > View/Search SBE/MBE Directory.

2.9 Insurance Coverages:

2.9.1 The Insurance coverages required for this project shall be those listed in **Article 35 Contractors Insurance** of **Section 00 73 13 General Conditions** of this Project Manual. See **Section 00 41 00 Bid Proposal Form** and **Section 00 62 16 Certificate of Insurance** of this Project Manual for additional details.

2.9.2 The **Apparent Low Bidder *shall*** submit the Firm's **Certificate of Liability Insurance Acord® form** within **ten (10) business days *after*** receipt of the Letter of Intent from DAS/CS.

3.0 All Other Required Bid Documents, Affidavits, and Certifications:

3.1 Affidavits and Certifications:

3.1.1 Gift and Campaign Contribution Certification – OPM Ethics Form 1: All Bidders

.1 **All Bidders:** In accordance with Executive Order No. 49, and pursuant to C.G.S. §§ 4-250, 4-252(c) and 9-612(f)(2), as revised, any principal or key personnel of the person, firm or corporation submitting a bid or proposal for a contract that has a value of **$50,000** or more, shall be required to upload to BizNet a **Gift and Campaign Contribution Certification** prior to the date and time of the Bid Opening.

.2 Any bidder or proposer that **does not** upload the **Gift and Campaign Contribution Certification** to BizNet prior to the date and time of the Bid Opening as required under this section shall be ***disqualified*** and DAS shall award the contract to the next highest ranked proposer or the next lowest responsible qualified bidder or seek new bids or proposals. Failure to upload this form to BizNet **prior** to the date and time of the Bid Opening shall not be considered a minor irregularity under CGS 4b-95.

.3 Once uploaded, an updated **Gift and Campaign Contribution Certification** shall be uploaded within **30 days** of any changes to the submitted information.

.4 **Annually**, on *or* within **two (2)** weeks of the **anniversary** date of the execution of this contract, the Contractor shall upload a completed **Annual Certification** with authorizing resolution. For the purposes of this paragraph, the execution date of the contract will be the date the DAS Commissioner signs the contract.

3.1.2 Consulting Agreement Affidavit – OPM Ethics Form 5: All Bidders

.1 **All Bidders:** Pursuant to C.G.S. §§ 4a -81a and 4a -81b, as revised**,** a **Consulting Agreement Affidavit** must be completed and uploaded to BizNet prior to the date and time of the Bid Opening for contracts with a value of **$50,000** or more.

.2 In the event that a Bidder or vendor fails or refuses to upload the **Consulting Agreement Affidavit** to BizNet prior to the date and time of the Bid Opening, as required under C.G.S. § 4a-81, such bidder shall be ***disqualified*** and the award shall be made to the next lowest responsible qualified bidder or new bids or proposals shall be sought. Failure to upload this form to BizNet **prior** to the date and time of the Bid Opening shall not be considered a minor irregularity under CGS 4b-95.

.3 Once uploaded, an updated **Consulting Agreement Affidavit *shall*** be amended and uploaded not later than (1) **thirty (30) days** after the effective date of any such change or (2) upon the submittal of any new bid or proposal, whichever is earlier. For the purposes of this paragraph, the **execution date** of the contract will be the date the DAS Commissioner signs the contract.

.4 Other Contributions by Individuals. Principals of Investment Services Firms, State Contractors, Principals Of State Contractors, Prospective State Contractors Or Principals Of Prospective State Contractors. Lists. Subcontracts Study. State Officials or Employees: All acquisitions, agreements and contracts are subject to the provisions of the C.G.S. § 9-612 regarding **Campaign Contribution or Contributions**.

3.1.3 Ethics Affidavit – OPM Ethics Form 6: All Bidders *and* Apparent Low Bidder

.1 **All Bidders:** Pursuant to C.G.S. §§ 1-101mm and 1-101qq, as revised**,** when DAS/CS is seeking a contract for a large state construction or procurement contract having a cost of more than **$500,000**, DAS shall inform all potential consultant and contractor firms of the summary of state ethics laws developed by the Office of State Ethics (OSE) pursuant to C.G.S. § 1-81b. "Large State Contract" means an agreement or a combination or series of agreements between a state agency and a person, firm or corporation, having a total value of more than **$500,000** in a calendar or fiscal year a project for the construction, alteration or repair of any public building or public work. For a **Guide to the Code of Ethics For Current or Potential State Contractors** go to the Office of State Ethics (OSE) website (www.ct.gov/ethics), then click on the **"Publications"** link.

.2 **All Bidders:** Pursuant to C.G.S. § 1-101qq, as revised**,** DAS is also required to notify all potential consultant and contractor firms or a large state construction or procurement contract that they must upload an **Affirmation of Receipt of State Ethics Laws Summary** to BizNet prior to the date and time of the Bid Opening affirming that their key employees have read and understand the summary and agree to comply with the provisions of state ethics law.

.3 Failure to upload this affidavit to BizNet prior to the date and time of the Bid Opening ***shall*** result in **rejection** of the bid and shall not be considered a minor irregularity under CGS 4b-95.

.4 **Apparent Low Bidder:** Furthermore, the **Apparent Low Bidder** shall provide the **Summary of the State Ethics Laws** to each **Named Subcontractor** and any other **Subcontractor** or **Subconsultant** with a contract valued over **$500,000** and obtain a **Subcontractor and Subconsultant State Ethics Affidavit** stating that the key personnel of the subcontractor have read, understand, and agree to comply with provisions of the state ethics laws. The **Apparent Low Bidder shall** submit such subcontractor(s) affidavits to the DAS/CS Office of Legal Affairs, Policy, and Procurement within **ten (10) business days after** receipt of the Letter of Intent from DAS/CS.

3.1 Affidavits and Certifications Forms (continued):

3.1.4 Iran Certification – OPM Ethics Form 7: All Bidders

.1 **All Bidders:** Pursuant to C.G.S. § 4-252a, when DAS/CS is seeking a contract for a large state construction or procurement contract having a cost of more than **$500,000**, an **Iran Certification** must be completed and uploaded to BizNet ***prior to the date and time of the Bid Opening*.**

.2 Pursuant to C.G.S. § 4-252a, *"This form must always be submitted with the bid or proposal, or if there was no bid process, with the resulting contract, regardless of where the principal place of business is located. Entities whose principal place of business is located outside of the United States are required to complete the entire form, including the certification portion of the form. United States subsidiaries of foreign corporations are exempt from having to complete the certification portion of the form. Those entities whose principal place of business is located inside of the United States must also fill out the form, but do not have to complete the certification portion of the form."*

3.1.5 Nondiscrimination Certification – Form A, B, C, D, or E: All Bidders

.1 **All Bidders:** Pursuant to C.G.S. §§ 4a-60 and 4a-60a, as amended, a contractor must provide an awarding State agency with written representation or documentation that certifies the contractor complies with the State's nondiscrimination agreements and warranties prior to the award of any contract with the State. A **Nondiscrimination Certification** is required for all State contracts, regardless of type, term, cost or value. The **appropriate form** must be uploaded to BizNet prior to the date and time of the Bid Opening.

.2 Once uploaded, an updated **Nondiscrimination Certification** shall be uploaded within **30 days** of any changes to the submitted information.

.3 **Annually**, on *or* within **two (2)** weeks of the **anniversary** date of the execution of this contract, the Contractor shall upload a completed **Annual Certification** with authorizing resolution. For the purposes of this paragraph, the execution date of the contract will be the date the DAS Commissioner signs the contract.

3.1.6 For instructions on how to electronically download *and* upload **Affidavits and Non-Discrimination Forms**, go to the DAS Homepage (www.ct.gov/DAS) > Doing Business with the State > Create a BizNet Account for Doing Business with the State > Documents/Forms > Vendor Guide to Uploading Affidavits and Nondiscrimination Forms Online.

3.2 Security For Faithful Performance:

3.2.1 Certified Check or Bid Bond: All Bidders

.1 **All Bidders for bids in excess of $50,000** shall **submit** *either* a **Certified Check** *or* a **Bid Bond**, in the form required by the awarding authority. See **Section 00 43 16 Standard Bid Bond** in BizNet for a template and important instructions regarding submitting the Bid Bond or Certified Check. Complete and upload **Section 00 43 16 Standard Bid Bond** to Biznet **prior** to the date and time of the Bid Opening for **either** the Bid Bond option **or** the Certified Check option.

.2 **Certified Check Option:** The **Certified Check** shall be drawn to the order of "**Treasurer, State of Connecticut**", in which it is understood shall be cashed and the proceeds thereof used so far as may be necessary to reimburse the State of Connecticut for losses and damages arising by virtue of the Bidder's failure to file the required Bonds and execute the required contract if this proposal is accepted by the Awarding Authority.

.3 **Bid Bond Option:** The **Bid Bond** shall be in the form required by the awarding authority, having as **surety** thereto such surety company or companies acceptable to the DAS Commissioner and as are authorized to do business in this State, for an amount not less than 10 percent of the bid.

.4 **Return of Certified Check:** All **checks** submitted by **unsuccessful** Bidders shall be returned to them *after* the contract has been awarded.

.5 Failure to submit the Bid Bond **or** Certified Check **prior** to the date and time of the Bid Opening **shall** cause **rejection** of the bid and shall not be considered a minor irregularity under CGS 4b-95.

.6 **Forfeiture of Certified Check or Bid Bond: Failure** of the successful bidder to execute a contract awarded as specified and bid shall result in the **forfeiture** of the certified check or bid bond.

3.2.2 **Performance Bond: Apparent Low Bidder:** Within **ten (10) business days *after*** receipt of the Letter of Intent from DAS/CS, the **Apparent Low Bidder shall** substitute for the **certified check** or **bid bond** accompanying its bid an executed **performance bond**, in the amount not less than 100 percent of the contract price, conditioned upon the faithful performance of the contract, and having as surety thereto such surety company or companies satisfactory to the Commissioner and as are authorized to transact business in this State. This bond is to be furnished pursuant to **C.G.S. § 49-41**, as revised. See **Section 00 92 10 Additional Forms** of this Project Manual for a template.

3.2.3 **Labor and Material Bond: Apparent Low Bidder:** Within **ten (10) business days *after*** receipt of the Letter of Intent from DAS/CS, the **Apparent Low Bidder shall** submit a labor and material bond in the amount not less than 100 percent of the contract price which **shall** be binding upon the award of the contract to such bidder, with surety or sureties satisfactory to the Commissioner and as are authorized to transact business in this State, for the protection of persons supplying labor or materials in the prosecution of the work provided for in the contract for the use of each such person. Any such bond furnished **shall** have as principal the name of the successful Bidder. This bond is to be furnished pursuant to **C.G.S. § 49-41**, as revised. See **Section 00 92 10 Additional Forms** of this Project Manual for a template.

3.2 Security For Faithful Performance (continued):

3.2.4 **The following section of the General Statutes of Connecticut, as revised, is inserted as information concerning this bond and will be incorporated into the Contract for the Work:**

C.G.S. § 49-41a. Enforcement of payment by general contractor to subcontractor and by subcontractor to his subcontractors. (a) When any public work is awarded by a contract for which a payment bond is required by section 49-41, the contract for the public work shall contain the following provisions: (1) A requirement that the general contractor, within thirty days after payment to the contractor by the State or a municipality, pay any amounts due any subcontractor, whether for labor performed or materials furnished, when the labor or materials have been included in a requisition submitted by the contractor and paid by the State or a municipality; (2) a requirement that the general contractor shall include in each of its **subcontracts** a **provision** requiring each **subcontractor** to pay any amounts due any of its subcontractors, whether for labor performed or materials furnished, within thirty days after such subcontractor receives a payment from the general contractor which encompasses labor or materials furnished by such subcontractor.

(b) If payment is not made by the general contractor or any of its subcontractors in accordance with such requirements, the subcontractor shall set forth his claim against the general contractor and the subcontractor of a subcontractor shall set forth its claim against the subcontractor through notice by registered or certified mail. Ten days after the receipt of that notice, the general contractor shall be liable to its subcontractor, and the subcontractor shall be liable to its subcontractor, for interest on the amount due and owing at the rate of one percent per month. In addition, the general contractor, upon written demand of its subcontractor, or the subcontractor, upon written demand of its subcontractor, shall be required to place funds in the amount of the claim, plus interest of one per cent, in an interest-bearing escrow account in a bank in this State, provided the general contractor or subcontractor may refuse to place the funds in escrow on the grounds that the subcontractor has not substantially performed the work according to the terms of his or its employment. In the event that such general contractor or subcontractor refuses to place such funds in escrow, and the party making a claim against it under this section is found to have substantially performed its work in accordance with the terms of its employment in any arbitration or litigation to determine the validity of such claim, then such general contractor or subcontractor shall pay the attorney's fees of such party.

(c) No payment may be withheld from a subcontractor for work performed because of a dispute between the general contractor and another contractor or subcontractor.

(d) This section shall not be construed to prohibit progress payments prior to final payment of the contract and is applicable to all subcontractors for material or labor whether they have contracted directly with the general contractor or with some other subcontractor on the work.

3.2.5 **Surety Sheet: Apparent Low Bidder:** Within **ten (10) business days *after*** receipt of the Letter of Intent from DAS/CS, the **Apparent Low Bidder shall** submit a Surety Sheet that provides information regarding the Surety Company and Agent. See **Section 00 92 10 Additional Forms** of this Project Manual for a template.

3.3 Certificate (of Authority):

3.3.1 **All Bidders for bids in excess of $50,000** shall upload a signed and scanned **Section 00 40 14 Certificate (of Authority)** to BizNet prior to the date and time of the Bid Opening. See BizNet for a template.

3.3.2 The **Apparent Low Bidder** shall submit a ***second* Certificate (of Authority)** within **ten (10) business days *after*** receipt of the Letter of Intent from DAS/CS.

3.4 Security Requirements for CT Department of Correction (CT DOC) Facilities:

3.4.1 **All Bidders for Projects at a CT DOC Facility** shall read and comply with **Section 00 73 63 CT DOC Security Requirements** for Contract Forces on CT DOC Facilities.

3.4.2 ***NEW:*** **All Bidders for Projects at a CT DOC Facility: Prior to the Pre-Bid Meeting, all Bidders** shall download the **"Security Background Questionnaire"** from the CT DOC website (www.ct.gov/doc , under "Forms"), complete and submit the form as directed, and obtain approval, otherwise admission to the Pre-Bid Meeting **will be denied**. It is recommended that the approved form be brought as evidence of approval to attend the Pre-Bid Meeting.

3.5 Affirmative Action Plan & Employment Information Form (DAS-45): Apparent Low Bidder

3.5.1 For Projects greater than $500,000 and/or Firms with 50 or more employees, the **Apparent Low Bidder shall** submit the Firm's **Affirmative Action Plan** and **Employment Information Form (DAS-45)** to **CHRO** within **fifteen (15) calendar days after** receipt of the "Request for the *Affirmative Action Plan* and *Employment Information Form* Letter" from DAS/CS. See **Section 00 73 38 Commission on Human Rights and Opportunities/ Contract Compliance Regulations.**

3.5.2 The Apparent Low Bidder ***shall*** submit a copy of the Transmittal Letter to the DAS/CS Office of Legal Affairs, Policy, and Procurement within **fifteen (15) calendar days after** receipt of the "Request for the *Affirmative Action Plan* and *Employment Information Form* Letter" from DAS/CS.

3.6 Prevailing Wage: Apparent Low Bidder

3.6.1 The **Apparent Low Bidder shall** submit the **"Contractor's Wage Certification Form"** to CT Department of Labor (CT DOL) within **fifteen (15) calendar days *after*** receipt of the "Request for the *Affirmative Action Plan* and *Employment Information Form* Letter" from DAS/CS. See **Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification** of this Project Manual.

3.6.2 Each contractor who is awarded a contract on or after October 1, 2002 shall be subject to provisions of **C.G.S. § 31-53**, **as revised.** See **Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification** of this Project Manual.

3.6.3 **Annual Adjustment Of Prevailing Wage Rates:** In determining bid price, consideration should be given to **C.G.S. § 31-53 and 31-55a**, as revised, regarding **annual adjustment of prevailing wage rates.** Annual adjustments of prevailing wage rates will ***not*** be considered a matter for a contract amendment.

3.7 *NEW PROCESS:* General Permit for the Discharge of Stormwater & Dewatering Wastewaters from Construction Activities: Apparent Low Bidder

3.7.1 All DAS/CS construction projects disturbing ***one or more*** **total acres of land area** on a site **regardless of project phasing** must file a Department of Energy and Environmental Protection (DEEP) *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015)* ("Construction Stormwater General Permit") registration and Stormwater Pollution Control Plan (SPCP) with the DEEP. **The DAS/CS Architect/Engineer (A/E) shall be responsible for registering the Construction Stormwater General Permit and SPCP through the online DEEP ezFile Portal prior to bidding.**

3.7.2 Once the Apparent Low Bidder is under contract with DAS/CS, and prior to the commencement of any construction activities, the Apparent Low Bidder ("Contractor") shall be required to provide the necessary information from all applicable contractors and/or subcontractors working on the Project to the DAS/CS A/E in order to finalize the SPCP and transfer the Construction Stormwater General Permit obligations to the Contractor.

3.7.3 All Contractors and Subcontractors listed on the SPCP shall be required to sign the SPCP "Contractor Certification Statement" and License Transfer Form ***prior*** to commencement of any construction activity.

3.8 Section 00 52 73 Subcontract Agreement Forms: Apparent Low Bidder

3.8.1 The **Apparent Low Bidder shall** submit a completed **Section 00 52 73 Subcontract Agreement Form** of this Project Manual for ***each*** Named Subcontractor within **ten (10) Business Days** after receipt of the "Letter of Intent" from DAS/CS. This information ***shall*** be considered as part of the **Bid Proposal Form** and failure to comply with any portion of this requirement **may** cause **rejection** of the bid.

3.8.2 Each **Named Subcontractor** shall be the matter of a **Subcontract** as required by **C.G.S. § 4b-96.**

3.9 Non-Resident Contractors and Taxation: Apparent Low Bidder

3.9.1 **Nonresident contractors** must comply with the **provisions C.G.S. § 12-430 (7)**, **Procedures for Nonresident Contractors**, and the regulations established pursuant to that section. See **Section 00 92 30 Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors** of this Project Manual for additional details.

3.9.2 **Apparent Low Bidder who is a Nonresident Contractor:** Within **ten (10) business days *after*** receipt of the **"Letter of Intent"** from DAS/CS, a certificate(s) from DRS must be provided which evidences that C.G.S. §12-430 for non-resident contractors has been met. As described in Section 00 92 30 "Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors", **Verified Nonresident** General/Prime Contractors must submit a copy of their **"Notice of Verified Status"** (Verification Letter) from DRS. **Unverified Nonresiden**t General/Prime Contractors must submit a copy of **Form AU-965 "Acceptance of Surety Bond"** from DRS.

3.10 Certificate of Legal Existence: Apparent Low Bidder

3.10.1 A **corporation** that is awarded the contract must comply with the laws of this State regarding the procurement of a certificate of authority to transact business in this State from the **Secretary of the State**. A **"Certificate of Legal Existence"** which is not older than **ninety (90) calendar days** from the date of the contract signing must be filed with the DAS/CS Office of Legal Affairs, Policy, and Procurement within **ten (10) business days *after*** receipt of the "Letter of Intent" from DAS/CS.

3.11 State Election Enforcement Commission (SEEC) Form 10: Apparent Low Bidder

3.11.1 The **Apparent Low Bidder** shall submit a **State Election Enforcement Commission's (SEEC) Form 10** "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations" within **ten (10) business days *after*** receipt of the "Letter of Intent" from DAS/CS for contracts with a value of $50,000 or more.

3.11.2 Pursuant to C.G.S. § 9-612, as revised**,** a State Contract means an agreement or contract with the state or any state agency or any quasi-public agency having a value in a calendar year of **$50,000** or more, or a combination or series of such **agreements** or **contracts** having a value of **$100,000** or more, the **authorized signatory** to this **submission** in response to the State's solicitation expressly **acknowledges receipt** of, and must submit **in writing**, the **SEEC Form 10 notice** advising prospective state contractors of the state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the **notice**.

3.11.3 For instructions on how to download "**SEEC Form 10**", go to the SEEC Homepage (www.ct.gov/seec); click on "Forms" at the top of the page; click on "Contractor Reporting Forms"; click on "SEEC Form 10" and follow the directions.

3.12 OSHA Training Course: Successful Bidder

3.12.1 Pursuant to **C.G.S. §**. **31-53b (a),** as revised, each contract entered into for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public building project by the state or any of its agents, or by any political subdivision of the state or any of its agents, where the total cost of all work to be performed by all contractors and subcontractors in connection with the contract is at least **one hundred thousand dollars ($100,000),** shall contain a provision requiring that, not later than **thirty (30) days** after the date such contract is awarded**, each contractor furnish proof to the Labor Commissioner** that all employees performing manual labor on or in such public building, pursuant to such contract, have completed a **course** of at **least ten (10) hours** in duration in **construction safety and health** approved by the federal Occupational Safety and Health Administration or, in the case of telecommunications employees, have completed at **least ten (10) hours** of training in accordance with 29 CFR 1910.268.

4.0 Nondiscrimination and Affirmative Action

This contract is subject to Federal and state laws, including Title VII of the 1964 Civil Rights Act, 42 U.S.C. § 2000e-2(a)(1), and the Connecticut Fair Employment Practices Act, C.G.S. §46a-60 et seq., prohibit various forms of discrimination and illegal harassment in employment.

4.1 Nondiscrimination and Affirmative Action Provisions:

4.1.1 **This section is inserted in connection with C.G.S. § 4a-60, as revised.**

4.1.2 References in this section to "contract" **shall** mean this Contract and references to "contractor" **shall** mean the Contractor/Bidder.

4.1.3 **C.G.S. § 4a-60, as revised:**

(a) Every contract to which the state or any political subdivision of the state other than a municipality is a party shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the commission;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the commission advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e and 46a-68f; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56.

(b) If the contract is a public works contract, the contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project.

(c) (1) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at less than fifty thousand dollars for each year of the contract shall provide the state or such political subdivision of the state with a written or electronic representation that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section, provided if there is any change in such representation, the contractor shall provide the updated representation to the state or such political subdivision not later than thirty days after such change.

(2) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at fifty thousand dollars or more for any year of the contract shall provide the state or such political subdivision of the state with any one of the following:

(A) Documentation in the form of a company or corporate policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of such contractor that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section;

(B) Documentation in the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (i) the prior resolution is certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and (ii) the head of the agency of the state or such political subdivision, or a designee, certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section; or

4.1.3 - C.G.S. § 4a-60, as revised: (continued)

(C) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section and is in effect on the date the affidavit is signed.

(3) Neither the state nor any political subdivision shall award a contract to a contractor who has not provided the representation or documentation required under subdivisions (1) and (2) of this subsection, as applicable. After the initial submission of such representation or documentation, the contractor shall not be required to resubmit such representation or documentation unless there is a change in the information contained in such representation or documentation. If there is any change in the information contained in the most recently filed representation or updated documentation, the contractor shall submit an updated representation or documentation, as applicable, either (A) not later than thirty days after the effective date of such change, or (B) upon the execution of a new contract with the state or a political subdivision of the state, whichever is earlier. Such contractor shall also certify, in accordance with subparagraph (B) or (C) of subdivision (2) of this subsection, to the state or political subdivision, not later than fourteen days after the twelve-month anniversary of the most recently filed representation, documentation or updated representation or documentation, that the representation on file with the state or political subdivision is current and accurate.

(d) For the purposes of this section, "contract" includes any extension or modification of the contract, "contractor" includes any successors or assigns of the contractor, "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced, and "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders. For the purposes of this section, "contract" does not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in section 1-120, (3) any other state, as defined in section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in subparagraph (1), (2), (3), (4) or (5) of this subsection.

(e) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of section 32-9n; and "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.

(f) Determination of the contractor's good faith efforts shall include but shall not be limited to the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(g) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the commission, of its good faith efforts.

(h) The contractor shall include the provisions of subsections (a) and (b) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. The contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with section 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

4.2 Nondiscrimination Provisions Regarding Sexual Orientation:

4.2.1 This section is inserted in connection with C.G.S. § 4a-60a, as revised.

4.2.2 References in this section to "contract" **shall** mean this Contract and references to "contractor" **shall** mean the Contractor/Bidder.

4.2.3 C.G.S. § 4a-60a, as revised:

(a) Every contract to which the state or any political subdivision of the state other than a municipality is a party shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

(2) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(3) The contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56; and

(4) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56.

(b) (1) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at less than fifty thousand dollars for each year of the contract shall provide the state or such political subdivision of the state with a written representation that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section.

(2) Any contractor who has one or more contracts with the state or a political subdivision of the state that is valued at fifty thousand dollars or more for any year of the contract shall provide the state or such political subdivision of the state with any of the following:

(A) Documentation in the form of a company or corporate policy adopted by resolution of the board of directors, shareholders, managers, members or other governing body of such contractor that complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section;

(B) Documentation in the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (i) the prior resolution is certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and (ii) the head of the agency of the state or such political subdivision, or a designee, certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section; or

(C) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (1) of subsection (a) of this section and is in effect on the date the affidavit is signed.

(3) Neither the state nor any political subdivision shall award a contract to a contractor who has not provided the representation or documentation required under subdivisions (1) and (2) of this subsection, as applicable. After the initial submission of such representation or documentation, the contractor shall not be required to resubmit such representation or documentation unless there is a change in the information contained in such representation or documentation. If there is any change in the information contained in the most recently filed representation or updated documentation, the contractor shall submit an updated representation or documentation, as applicable, either (A) not later than thirty days after the effective date of such change, or (B) upon the execution of a new contract with the state or a political subdivision of the state, whichever is earlier.

Such contractor shall also certify, in accordance with subparagraph (B) or (C) of subdivision (2) of this subsection, to the state or political subdivision, not later than fourteen days after the twelve-month anniversary of the most recently filed representation, documentation or updated representation or documentation, that the representation on file with the state or political subdivision is current and accurate.

4) For the purposes of this section, "contract" includes any extension or modification of the contract, and "contractor" includes any successors or assigns of the contractor. For the purposes of this section, "contract" does not include a contract where each contractor is (A) a political subdivision of the state, including, but not limited to, a municipality, (B) a quasi-public agency, as defined in section 1-120, (C) any other state, as defined in section 1-267, (D) the federal government, (E) a foreign government, or (F) an agency of a subdivision, agency, state or government described in subparagraph (A), (B), (C), (D) or (E) of this subdivision.

(c) The contractor shall include the provisions of subsection (a) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. The contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with section 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

End of Section
00 21 13 Instructions to Bidders

Pre-Bid Meeting Agenda:

DAS ● Construction Services ● Office of Legal Affairs, Policy, and Procurement

1.0 Pre-Bid Meeting:

1.1	**The Department of Administrative Services Construction Services (DAS/CS) will conduct a Pre-Bid Meeting.** **For the Pre-Bid Meeting Date, Time, and Location see Section 00 11 16 Invitation To Bid for this Specific Bid.**

1.2	**Attendance:**		
	1.2.1	**General Contractor:**	Attendance at the Pre-Bid Meeting is **mandatory.** At the Pre-Bid Meeting, all prospective bidders shall *sign* his or her name on the **official roster** and *list* the name and address of the company he or she represents.
	1.2.2	**Subcontractors:**	Attendance at the Pre-Bid Meeting is recommended.
	1.2.3	**Pre-Bid Meeting Sign-in Sheet:**	All attendees will sign the **Pre-Bid Meeting Sign-in Sheet.**

1.3	**Site/Facility Visit or Walkthrough:** Please **do not** make any Site/Facility Visits without notifying the DAS/CS Project Manager prior to your visit.	
1.3.1	☒	**A Site/Facility Visit or Walkthrough is scheduled for the Pre-Bid Meeting**
1.3.2	☐	**A Site/Facility Visit or Walkthrough is NOT scheduled for the Pre-Bid Meeting**

1.4	**Bidder Questions:**	
1.4.1	Submit **written** questions to be discussed at the **Pre-Bid Meeting** a **minimum of two (2) Calendar Days prior** to **Pre-Bid Meeting date**. See the **Invitation to Bid** for instructions on submitting questions. **IMPORTANT NOTE:** In accordance with DAS Regulations, **no** participants in any Selection, Proposal, or Bidding process, including User Agency representative(s), shall communicate with any potential Offeror prior to, during, or upon conclusion of the entire Selection, Proposal, or Bidding procedure, with the exception of information necessary to complete the administrative steps of the Selection process.	

2.0 Pre-Bid Meeting Agenda:

The Pre-Bid Meeting Agenda will include a review of topics, **as applicable to the Project**, which may affect proper preparation and submittal of bids, including, but not limited to, the following:

2.1	**Introduction of Participants:**
2.1.1	**Architect/Engineer:** Clohessy, Harris & Kaiser, LLC
2.1.2	**CA:** N/A
2.1.3	**DAS Represenative:** Steven Longo, DCS Project Manager
2.1.4	**Agency Representative:** SDE – TECS & David Sheehan- Henry Abbott THS

2.0 Pre-Bid Meeting Agenda (continued):

2.2 Project Summary:

2.2.1	**Summary of Work:** See General Requirements Section 01 11 00
2.2.2	**Temporary Facilities and Controls:** See General Requirements Section 01 50 00
2.2.3	**Work Sequence:** See General Requirements Section 01 11 00
2.2.4	**Contractor Use of Premises:** See General Requirements Section 01 11 00
2.2.5	**Project Schedule – *construction start Spring 2019***
2.2.6	**Contract Time – *155 calendar days***
2.2.7	**Liquidated Damages:** See General Conditions Section 00 73 13, Articles 1 and 8, and 00 41 00 Bid Proposal Form. ***($728****/day to Substantial Completion and* ***$706****/day to Final Acceptance*)

2.3 Procurement and Contracting Requirements:

2.3.1	**Section 00 11 16 – Invitation to Bid**
2.3.2	**Section 00 21 13 – Instructions to Bidders**
2.3.3	**Section 00 41 00 – Bid Proposal Form**
2.3.4	**Section 00 41 10 – Bid Package Submittal Requirements**
2.3.5	**Section 00 30 00 – General Statements for Available information**
2.3.6	**Division 50 – Project-Specific Available Information**
2.3.7	**Bonding**
2.3.8	**Insurance**
2.3.9	**Bid Security**
2.3.10	**Notice of Award**

2.4 Communication During Bidding Period:

2.4.1	**Obtaining Bid Documents**
2.4.2	**Access to DAS Website, BizNet, and State Contracting Portal**
2.4.3	**Bidder's Requests for Information:** See General Requirements Sections 01 26 00
2.4.4	**Substitution Procedures (Prior to Bid):** See General Requirements Section 01 25 00 & General Conditions Section 00 73 13, Article 15. The Owner will consider Pre-Bid Equals or Substitutions Requests, if made **fourteen (14)** Calendar Days **prior** to the **Bid Due Date.** The information on all materials shall be consistent with the information herein.
2.4.5	**Substitutions following Contract Award:** See General Requirements Section 01 25 00 & General Conditions Section 00 73 13, Article 15. Subject to the Architect or Engineer's determination, if the material or equipment is Equal to the one specified or pre-qualified and the DAS/CS Project Manager's approval of such determination, Substitution of Material or Equipment may be allowed after the Letter of Award is issued, as specified in the Conditions Section 00 73 13, Article 15.
2.4.6	**Addenda Procedures:** See Item No. 2.7 of this form

2.0 Pre-Bid Meeting Agenda (continued):

2.5 Contract Considerations:

2.5.1	**Allowances:** See General Requirements Section 01 20 00
2.5.2	**Unit Prices:** See General Requirements Section 01 20 00
2.5.3	**Supplemental Bid:** See General Requirements Section 01 23 13 and 00 41 00 Bid Proposal Form.

2.6 Separate Contracts:

2.6.1	**Work by Owner**
2.6.2	**Work of Other Contracts**

2.7 Post Pre-Bid Meeting Addendum:

2.7.1	**No Interpretations** of the meaning of the plans, specifications or other contract documents will be made orally at any time. Every bidder **request** for such interpretation ***shall*** be in writing to the awarding authority and to be given consideration ***shall*** be received at least **fourteen (14)** Calendar Days ***prior*** to the Bid Due Date. Any and all such **interpretations** and any **supplemental instructions** will be in the form of written **addenda** to the specifications which, *if* issued, will be posted on the State Contracting Portal.
2.7.2	**Other Bidder Questions**

2.8 Other Agenda Topics and Notes:

2.8.1	***TBD***

3.0 Pre-Bid Meeting Minutes:

3.1 Recording and Distribution of Pre-Bid Meeting Minutes:

3.1.1	The **DAS/CS** is responsible for conducting the Pre-Bid Meeting and will record and distribute meeting minutes.

3.2 Pre-Bid Meeting Minutes as "Available Information"

3.2.1	Minutes of the Pre-Bid Meeting are issued as "Available Information" and **do not** constitute a modification to the Procurement and Contracting Documents. **Modifications to the Procurement and Contracting Documents are issued by written Addendum only.**

3.3 Pre-Bid Meeting Sign-in Sheet:

3.3.1	Minutes will include the list of meeting attendees.

3.4 List of Plan Holders:

3.4.1	Minutes will include the list of plan holders.

00 25 13 Pre-Bid Meeting Agenda

00 30 00 GENERAL STATEMENTS FOR AVAILABLE INFORMATION NOT USED ☐

A. **Summary:** This Section is **not** a Bidding Document, but directs Bidders to **Division 50 00 00 Project-Specific Available Information** that provides project-specific information available for review by Bidders.

B. **Bidder Responsibility:** The Bidder is responsible for information, including but not limited to, any interpretations and opinions of information contained in any plans, reports, evaluations, and logs, or shown on any drawings, or indicated on any drawings. **Division 50 00 00 Project-Specific Available Information** is provided to Bidders for their use in the preparation of a Bid.

C. **Measurement:** **Division 50 00 00 Project-Specific Available Information shall** be utilized for determination of payment for the Work during construction of the project.

D. **Payment:** **No** separate payment will be made for **any** Work under **Division 50 00 00 Project-Specific Available Information**.

E. **Related Sections:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. **See Division 50 00 00 Project-Specific Available Information** for information that is available for this Project.

F. Please read the following **General Statement(s)** that describe the type of project-specific information that is available in **Division 50 00 00 Project-Specific Available Information:**

00 30 00	General Statements For Available Information Table Of Contents	Not Used
00 30 10	General Statement for Existing Conditions Survey	☒
00 30 20	General Statement for Environmental Assessment Information	☐
00 30 30	General Statement for Hazardous Building Materials Inspection and Inventory	☒
00 30 40	General Statement for Subsurface Geotechnical Report	☒
00 30 50	General Statement for Elevator Agreement	☒
00 30 60	General Statement for FM Global Checklist for Roofing Systems	☒
00 30 70	General Statement for "Statement of Special Inspections"	☐
00 30 80	General Statement for Additional Information	☒

00 30 10 GENERAL STATEMENT FOR EXISTING CONDITIONS SURVEY Not Used ☒

00 30 20 GENERAL STATEMENT FOR ENVIRONMENTAL ASSESSMENT INFORMATION Not Used ☐

A. **Related Documents:**

Section 01 20 00 Contract Considerations

Section 01 35 16 Alteration Project Procedures

Section 01 50 00 Temporary Facilities and Controls

Section 31 10 00 Site Clearing

Section 31 20 00 Site Earth Moving

Section 31 20 01 Building Excavation and Backfill

Division 50 00 00 Project-Specific Additional Information

B. Definitions:

1. Clean Fill: Either (1) natural soil or (2) rock, brick, ceramics, concrete, and asphalt paving fragments which are virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard.
2. Contaminated Soil: Treated or untreated soil and/or sediment affected by a known or suspected release and determined, or reasonably expected to contain substances exceeding Residential Direct Exposure Criteria or GA Pollutant Mobility Criteria, as these terms are defined in the Remediation Standard Regulations (RCSA Section 22a-133k-1).
3. Hazardous Soil: Soil that is classified as a hazardous waste. Soil is classified as hazardous waste if it exhibits a hazardous waste characteristic or if it contains RCRA-listed hazardous constituents above Connecticut's RCRA "Contained-In" Policy dated May 2002.
4. Natural Soil: Soil in which all substances naturally occurring therein are present in concentrations not exceeding the concentrations of such substance occurring naturally in the environment and in which soil no other substance is analytically detectable.
5. Polluted Soil: Soil affected by a release of a substance at a concentration above the analytical detection limit for such substance in accordance with RCSA 22a-133k-1(a)(45) or for naturally occurring substance at a concentration that exceeds concentrations that naturally occur in the environment.
6. Regulated Soil: Includes Polluted Soil, Contaminated Soil, and Hazardous Soil.
7. Groundwater Remediation Wastewater: Wastewater generated in connection with investigating pollution or remediating polluted groundwater or soil. Groundwater remediation wastewater includes without limitation groundwater withdrawn from a groundwater recovery well; groundwater which collects in an excavation or foundation drain or other subsurface facility or structure; groundwater contaminated runoff and stormwater impacted by on-site pollutants from any construction activity; condensate resulting from construction or maintenance of a soil vapor extraction system; and wastewater generated by developing, testing, sampling, or purging a well.

C. Description of Work:

1. Soil Contamination Report:

1.1 If a **Soil Contamination Report** has been prepared for this Project it is located in **Division 50 00 00 Project-Specific Available Information, Section 50 20 00 Environmental Assessment Information** at the end of the Technical Specification Sections.

1.2 If the Contractor should encounter any material suspected or known to contain Regulated Soils **that was not previously identified, characterized, and assigned as the Contractor's responsibility,** he should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within **four (4) Calendar Days** after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. **If necessary, the Contractor will remediate and dispose of all additional Regulated Soils within a reasonable time period after the Owner's issuance of a Change Order for the additional remediation work.**

1.2.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for** the **remediation and disposal of all Regulated Soils,** then the compensation to the Contractor by Owner for the Work shall be determined by the **"Unit Prices"** stated in **Section 01 20 00 Contract Considerations.**

2. Groundwater Contamination Report:

2.1 If a **Groundwater Contamination Report** has been prepared for this Project it is located in **Division 50 00 00 Project-Specific Available Information, Section 50 20**

00 Environmental Assessment Information at the end of the Technical Specification Sections.

2.2 If the Contractor should encounter any Groundwater Remediation Wastewater **that was not previously identified, characterized, permitted, and assigned as the Contractor's responsibility,** he should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the groundwater tested and abated (if necessary). The Owner will respond within **four (4) Calendar Days** after receiving the Contractor's written request to the Construction Administrator for testing the suspect groundwater. **[If necessary, the Contractor shall arrange for the permitting and disposal of the Groundwater Remediation Wastewater within a reasonable time period after the Owner's issuance of a Change Order for the additional remediation work.] [The Owner shall arrange for the permitting and disposal of the Groundwater Remediation Wastewater if necessary) within a reasonable time period, i.e. within ten (10) calendar days.]**

00 30 30	**GENERAL STATEMENT FOR HAZARDOUS BUILDING MATERIALS INSPECTION AND INVENTORY**	**Not Used ☒**

00 30 40	**GENERAL STATEMENT FOR SUBSURFACE GEOTECHNICAL REPORT**	**Not Used ☒**

00 30 50	**GENERAL STATEMENT FOR ELEVATOR AGREEMENT**	**Not Used ☒**

00 30 60	**GENERAL STATEMENT FOR FM GLOBAL CHECKLIST FOR ROOFING SYSTEMS**	**Not Used ☒**

00 30 70	**GENERAL STATEMENT FOR "STATEMENT OF SPECIAL INSPECTIONS**	**Not Used ☐**

A. The "Statement of Special Inspections" for this project is located in **Division 50 00 00 Project-Specific Available Information, Section 50 70 00 Statement of Special Inspections** at the end of the Technical Specification Sections.

00 30 80	**GENERAL STATEMENT FOR ADDITIONAL INFORMATION**	**Not Used ☒**

End of Section
00 30 00 General Statements for Available Information

Certificate (of Authority)

DAS Construction Services Project No.: _____

I _____ , _____
(Signer's Name)[1] *(Signer's Title)*

of _____ , an entity lawfully organized and existing under the laws
(Name of Entity)

of _____ , do hereby certify that the following is a true and correct
(Name of State or Commonwealth)

copy of a resolution adopted on the _____ day of _____ , 20 _____ by the governing body of
(Day)[2] *(Month)*[2] *(Year)*[2]

_____ , in accordance with all of its documents of governance and
(Name Of Entity)

management and the laws of _____ and further certify that such resolution has not
(Name of State or Commonwealth)

been modified, rescinded or revoked, and is at present in full force and effect.

RESOLVED: that _____ , _____
(Name of Signer of Contract Documents)[3] *(Title of Signer of Contract Documents)*[3]

of _____ is empowered and authorized, on behalf of the entity,
(Name of Entity)

to execute and deliver contracts and amendments thereto, and all documents required by the Governor, the Connecticut Department of Administrative Services, the Connecticut State Properties Review Board and the Office of the Attorney General associated with such contracts and amendments.

IN WITNESS WHEREOF, the undersigned has executed this certificate this _____ day of _____ , 20 _____ .
(Day)[4] *(Month)*[4] *(Year)*[4]

_____
(Signature)

_____ _____
(Print Name) *(Title)*

Reference Notes:

1 The signer of this certificate must be someone *other than* the signer of the contract documents *except for* a sole managing member of an LLC or the sole officer or sole principal of a corporation. *If* the signer is a sole managing member of an LLC, *then* along with this certificate the signer must provide a letter on company letterhead that indicates the signer is a sole member and managing member. If the signer is the sole officer or sole principal of a corporation, then the signer must provide with the certificate a letter on company letterhead setting forth this fact.

2 This date must be on or before the **date of signing** of the Bid Proposal (or Contract).

3 This person shall sign the Contract and other required documents.

4 This date must be on or after the **date of signing** of the Bid Proposal (or Contract).

For Your Information:

Certificate (of Authority)

All Bidders:
Complete page 1, **print, sign, and scan** to **PDF**. Upload the **PDF** form to BizNet.

What the **Certificate** is saying is that the organization authorized the signatory to sign the pertinent **documents other than** the Certificate (of Authority) and that, as of the date of **execution** of the CERTIFICATE (i.e., the date set forth in the "In Witness Whereof" blanks) there has been no change in that authorization.

Instructions For Completing The Certificate (of Authority)

The Certificate (of Authority) to Accompany the Bid Proposal Form:

1. **1st Paragraph:**
   - **1.1** First, enter the name and title of the individual signing the Certificate (of Authority).
   - **1.2** Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).
   - **1.3** Third, enter the name of the state or commonwealth the entity is registered in.
   - **1.4** Fourth, enter the **date** the **resolution** was adopted by the governing body. This **date** is **on** or **before** the date the **Bid Proposal** is signed.
   - **1.5** Fifth, enter the name of the state or commonwealth the entity is registered in.
2. **2nd Paragraph:**
   - **2.1** First, enter the name and title of the individual signing bid documents for the entity.
   - **2.2** Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).
3. **Last Paragraph:**
   - **3.1** Enter the **Witness Date**[1]. This date will likely be the date of execution of the **Bid Proposal form**.

[1] ***This* Witness *Date Should Not Be Before The Date Of Execution Of The Bid Proposal***.

The Certificate (of Authority) to Accompany the Contract:

1. **1st Paragraph:**
   - **1.1** First, enter the name and title of the individual signing the Certificate (of Authority).
   - **1.2** Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).
   - **1.3** Third, enter the name of the state or commonwealth the entity is registered in.
   - **1.4** Fourth, enter the **date** the **resolution** was adopted by the governing body. This **date** is **on** or **before** the date the **Contract** is signed.
   - **1.5** Fifth, enter the name of the state or commonwealth the entity is registered in.
2. **2nd Paragraph:**
   - **2.1** First, enter the name and title of the individual signing contract documents for the entity.
   - **2.2** Second, enter the legal name of the entity (exactly as it is shown on the Secretary of State registry).
3. **Last Paragraph:**
   - **3.1** Enter the **Witness Date**[1]. This date will likely be the date of execution of the **Contract**.

[1] ***This Witness Date Should Not Be Before The Date Of Execution Of The Contract***.

End of Section 00 40 14 Certificate (of Authority)

Bid Proposal Form

DAS ● Construction Services ● Office of Legal Affairs, Policy, and Procurement
450 Columbus Boulevard, Suite 1302 ● Hartford, CT 06103

Date and Time of Bid Opening:	**See page 1 of Section 00 11 16 Invitation To Bid.**
Instructions for On-Line Bidding:	Follow the instructions in 6001 Construction On-line Bidding Instructions, available for download from the DAS/CS Library (http://portal.ct.gov/DASCSLibrary) > 6000 Series – Bid Phase Forms. For questions, call 860-713-5794 or 860-713-5783.

Instructions for Completing This Bid Proposal Form:

- **Download** and **save** the Bid Proposal Form to your computer. Close the form. Open your *saved* Bid Proposal Form and type required information in blue boxes. (Remember to keep saving to your computer.)
- On your Word Toolbar, **click "View" then "Edit Document" or "Print Layout"** in order to edit the form.
- When your Bid Proposal Form is complete, perform a final "save" to your computer! **Print *ALL*** pages **and sign** your Bid Proposal Form. **Scan *ALL*** pages of your Bid Proposal Form to **PDF**. Upload the **PDF** Bid Proposal Form to BizNet.
- **Duly Authorized Signature:** A duly authorized representative of the Bidder or Bidder's partnership, firm, corporation or business organization must sign the Bid Proposal Form.
- **No Facsimile Signature** is permitted. **All information below** is to be filled in by the **Bidder.**
- *If* an Addendum is issued that **changes** the **Bid Proposal Form** *then* the **Revised Bid Proposal Form** (issued with the Addendum) **must** be uploaded instead.
- Upload to BizNet ***only*** the additional **Bid Package Documents** as described in **Table 1** of **Section 00 41 10 Bid Package Submittal Requirements**.
- A signed and scanned ***Certificate (of Authority)*, Section 00 40 14, *must*** be uploaded to Biznet ***prior*** to the date and time of the Bid Opening.
- *Any* **Bid Proposal Form** that has omitted or added items, altered the form, contains conditional, alternative, or obscure bids, or is submitted *without* the signature of the bidder or its authorized representative, ***will be rejected***.
- See **Section 00 21 13 Instructions to Bidders** for additional information.

1.0 General Bid Proposal Information:

Construction Costs:	Less Than or Equal To $500,000
Bidding Limited To :	Current DAS Certified Set-Aside Contractors Only
Threshold Limits: (C.G.S. §29-276b)	This Project DOES NOT exceed Threshold Limits.
Set Aside Requirements:	SBE Subcontractors and/or Suppliers: None Required; MBE Subcontractors and/or Suppliers: Good Faith Effort
Project Title:	Henry Abbott Technical High School New Garage Building
Project Location:	21 Hayestown Avenue Danbury, CT
Project Number:	**BI-RT-888**
Pre-Bid Meeting:	See **Section 00 11 16 Invitation to Bid** and **Section 00 25 13 Pre-Bid Meeting**.
Plans and Specifications prepared by A/E:	Clohessy Harris & Kaiser, LLC, 573 Hopmeadow Street, P.O. Box 95, Simsbury, CT

1.1 Commencement and Acceptance: (See Section 00 73 13 General Conditions, Article 4 - Commencement and Progress of Work and Article 1 - Definitions)

The Selected Bidder shall commence Work within **fourteen (14) Calendar Days *after*** receiving a **"Construction Start Date and Notice to Proceed"** by the Commissioner or authorized representative and continue for **155** **Calendar Days** for **"Substantial Completion"** of the project; **and** then continue **90** **Calendar Days** for **"Acceptance"** of the Work**.**

1.2 Liquidated Damages: (See Section 00 73 13 General Conditions, Article 8 – Damages & Article 1 - Definitions)

1.2.1 Liquidated Damages – Substantial Completion:

The Selected Bidder shall be assessed **$** **728.00** per **Calendar Day *beyond*** the date established for Substantial Completion of the Contract according to the **Contract Time** as defined in **Article 1.28** of **Section 00 73 13 General Conditions,** and not otherwise excused or waived pursuant to the Contract Documents, as defined in **Article 1.23** of **Section 00 73 13 General Conditions**.

1.2.2 Liquidated Damages – Acceptance:

The Selected Bidder shall be assessed **$** **706.00** per **Calendar Day *beyond ninety (90) days after*** the date of said Substantial Completion that the Selected Bidder fails to achieve **Acceptance**, as defined in **Article 1.1** of **Section 00 73 13 General Conditions** and not otherwise excused or waived as described above.

1.3 Bid Proposal Statements and Conditions: This **Bid Proposal Form** shall be submitted according to, and in compliance with, the foregoing and following statements, conditions, and/or information:

1.3.1 This Bid Proposal Form is submitted in accordance with Chapter 60 Construction And Alterations Of State Buildings, Part II Bidding And Contracts of the Connecticut General Statutes (C.G.S.), as amended, particularly C.G.S. § 4b-91(a)(5)(A) – (C), and pursuant to, and in compliance with, the **Invitation to Bid** (Section 00 11 16), the **Instructions to Bidders** (Section 00 21 13), the **Bid Package Submittal Requirements** (Section 00 41 10), and the **Contract** (Section 00 52 03).

1.3.2 The Bidder proposes to furnish the labor and/or materials, installed as required for the Project named and numbered on this **Bid Proposal Form**, submitted herein, furnishing all necessary equipment, machinery, tools, labor and other means of construction, and all materials specified in the manner and at the time prescribed strictly in accordance with the provisions of the **Contract** including, but not limited to, the specifications and/or drawings together with all **Addenda** issued by the Awarding Authority and received by the Bidder, prior to the scheduled **Date and Time of the Bid Opening** as stated on **page 1** of the **Invitation To Bid**, and in conformity with requirements of the Awarding Authority and any laws or Departmental regulations of the State of Connecticut or of the United States which may affect the same, for and in consideration of the price(s) stated on this **Bid Proposal Form**, hereof.

1.3.3 The Bidder acknowledges that the **Proposed Lump Sum Base Bid** submitted on this **Bid Proposal Form** includes all work indicated on the drawings and/or described in the specifications, **except** for the **Contingent Work** described in **Subsection 2.4**.

1.3.4 The Bidder acknowledges and agrees to furnish all labor and materials required for this **Project**, in accordance with the accompanying **Plans and Specifications** prepared by the **Architect/Engineer** listed on **page 1** of this Bid Proposal Form, for the **Contract Sum** specified in the **Proposed Lump Sum Base Bid** in **Subsection 2.1** of this Bid Proposal Form, subject to **additions** and **deductions** according to the terms of the specifications, and including the number of **Addenda** stated in **Subsection 2.2** of this Bid Proposal Form.

1.4 Award:

1.4.1 All Bid Proposals shall be subject to the provisions of **Section 00 21 13 Instructions to Bidders** and for purpose of award, consideration shall be given only to Bid Proposals submitted by qualified and responsible Bidders.

1.4.2 The award shall be made on the **lowest Lump Sum Bid** and any or all **Supplemental Bid(s)** as stated in **Subsection 2.4.2** of this **Bid Proposal Form**, taken sequentially, as applicable, provided funds are available.

1.4.4 In the event of any **discrepancy** between the amount written in words and the amount written in numerical figures, the amount written in words shall be controlling.

2.0 Bid Proposal Requirements:

Bidder Information:

Bid Uploaded On: _____ (Month) _____ (Day) _____ (Year)

Proposal Of: _____
(Complete Bidder's Legal Company Name As Registered With the CT Secretary of State)

Firm Address: _____ (Avenue / Street) , _____ (Town / City) , _____ (State) _____ (Zip Code)

Contact Person: _____ (Name) _____ (Title)

Contact Information: _____ (Phone Number) _____ (Fax Number) _____ (Email Address)

Threshold Project: **Major Contractor Registration License No.:** _____

All Bidders for Projects that exceed Threshold Limits (see page 1 of this Bid Proposal Form): Insert your Firm's **Major Contractor Registration License Number** in the space provided above. **NOTE:** If this Project does **NOT** exceed Threshold Limits, insert **"Not Applicable"** in the blue box above. Delete this note by **pressing the spacebar.**

2.1 Proposed Lump Sum Base Bid:

2.1.1 **All Bidders:** Insert the **Proposed Lump Sum Base Bid** in the spaces provided below, including **both numerical figures** and **"printed words" dollar amount**. The **Proposed Lump Sum Base Bid** shall *include* all **Allowances**, all work indicated on the drawings and/or described in the specifications *except* for **Contingent Work**.

2.1.2 The **Proposed Lump Sum Base Bid** shall be shown in **both numerical figures** and **"printed words" dollar amount**. In the event of any discrepancy the **"printed" words dollar amount** shall govern.

2.1.3 The **Proposed Lump Sum Base Bid** is:

$ _____
(Place Numerical Figures in the Box Above)

_____ **Dollars**
(Insert "Printed Words" Dollar Amount in the Box Above)

2.2 Number of Addenda:

2.2.1 **All Bidders:** Insert the **Number of Addenda** issued by the State of Connecticut in the space provided below.

2.2.2 Failure to acknowledge the **correct number** of all **Addenda** in **the box below** in this **Bid Proposal Form shall** cause **rejection** of the bid.

2.2.3 The Bidder acknowledges that their **Proposed Lump Sum Base Bid Proposal includes:**

_____ **Number of Addenda. If none, enter "0".**

2.3 Allowances:

See Section 01 20 00 Contract Considerations in Division 01 General Requirements for Allowances for applicability.

2.4 Contingent Work:

2.4.1 **Base Bid Quantities and Defined Unit Prices:** See **Section 01 20 00 Contract Considerations** in Division 01 General Requirements **for applicability** regarding Base Bid Quantities and Defined Unit Prices for Earth and Rock Excavation, Miscellaneous Items, Alterations Items, Environmental Remediation, and/or Hazardous Building Materials Abatement.

2.4.2 **Supplemental Bids:**

.1 See **Section 01 23 13 Supplemental Bids** in Division 01 General Requirements **for applicability.**

.2 **All Bidders: If Supplemental Bids are applicable** to this Project, insert the **Supplemental Bids** in the spaces provided below. Any **Supplemental Bids** listed below, *if* accepted by the Owner, will be taken cumulatively and in numerical order as scheduled. No Supplemental Bid will be skipped or taken out of numerical order as scheduled.

Supplemental Bid No. 1: Enter information in blue boxes below:

ADD: $ _____ _____ **Dollars**

(Insert Numerical Figures) *(Insert "Printed Words" Dollar Amount)*

Supplemental Bid No. 2: NOT APPLICABLE

ADD: $ _____ _____ **Dollars**

(Insert Numerical Figures) *(Insert "Printed Words" Dollar Amount)*

Supplemental Bid No. 3: NOT APPLICABLE

ADD: $ _____ _____ **Dollars**

(Insert Numerical Figures) *(Insert "Printed Words" Dollar Amount)*

Supplemental Bid No. 4: NOT APPLICABLE

ADD: $ _____ _____ **Dollars**

(Insert Numerical Figures) *(Insert "Printed Words" Dollar Amount)*

2.5 Bidder's Qualification Statement and Objective Criteria for Evaluating Bidders:

2.5.1 **All Bidders:** Download **Section 00 45 14 General Contractor Bidder's Qualification Statement** from BizNet for a template and instructions. Complete and upload **Section 00 45 14 General Contractor Bidder's Qualification Statement** to Biznet ***prior*** to the date and time of the Bid Opening. Information with regards to the **General Contractor's Bidder's Qualification Statement** is submitted and is made part of this **Bid Proposal Form**. Failure of a Bidder to answer any question or provide required information ***shall*** be grounds for the awarding authority to **disqualify** and **reject** the bid, pursuant to Connecticut General Statutes §4b-92.

2.5.2 **All Bidders** shall comply with **Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders. Note:** Individual Specification Sections may contain General Contractor and/or Subcontractor Qualification requirements that exceed those in **Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders.**

2.6 Bidder's Prequalification Requirements for Projects Exceeding $500,000:

All Bidders for Projects with estimated Construction Costs <u>greater</u> than $500,000: Upload to BizNet a current copy of your Firm's **"DAS Contractor Prequalification Certificate"** *and* **"Update (Bid) Statement"** for the applicable **Class of Work** on **page 1** of this **Bid Proposal Form** ***prior*** to the date and time of the Bid Opening. Failure to comply with this requirement **shall** cause rejection of the bid and shall not be considered a minor irregularity under **C.G.S. § 4b-95**. See **Section 00 40 15 CT DAS Prequalification Forms** for instructions on preparing and/or downloading your Firm's **"DAS Contractor Prequalification Certificate"** and **"DAS Update (Bid) Statement".**

2.7 Named Subcontractors and Classes of Work:

2.7.1 All Bidders for Projects with one or more Classes of Work checked in Table 2.7 below: Complete **Table 2.7** according to the instructions below. Failure to properly provide **all** of the **required information** in **Table 2.7** may cause **rejection** of the bid.

Table 2.7: Named Subcontractors and Classes of Work:

☐	**Electrical Work: NOT APPLICABLE**	
	Complete Subcontractor Name:	
	Proposed Dollar Value of Subcontract: **$**	
☐	**HVAC Work: NOT APPLICABLE**	
	Complete Subcontractor Name:	
	Proposed Dollar Value of Subcontract: **$**	
☐	**Masonry Work: NOT APPLICABLE**	
	Complete Subcontractor Name:	
	Proposed Dollar Value of Subcontract: **$**	
☐	**Plumbing Work: NOT APPLICABLE**	
	Complete Subcontractor Name:	
	Proposed Dollar Value of Subcontract: **$**	
☐	**Environmental Remediation: NOT APPLICABLE**	
	Complete Subcontractor Name:	
	Proposed Dollar Value of Subcontract: **$**	
☐	**Hazardous Materials Abatement: NOT APPLICABLE**	
	Complete Subcontractor Name:	
	Proposed Dollar Value of Subcontract: **$**	

2.7.2 Instructions For Table 2.7:

.1 Each **Class of Work** set forth in a separate section of the specifications pursuant to this Section shall be a **subtrade** designated in **Table 2.7** of this **Bid Proposal Form** and shall be the matter of a **subcontract**.

.2 When a box is checked in **Table 2.7,** the Bidder shall insert the name of the Subcontractor with the **largest** proposed Subcontract Value; this is known as the **"Named Subcontractor".** The Bidder shall provide **all** of the information for each ***checked* Class of Work.**

.3 *If* a **Bidder** intends to use a **Subcontractor** to perform ***any portion*** of the Named **Classes of Work**, including circumstances where the Subcontractor is a Small Business Enterprise (SBE) or a Minority Business Enterprise (MBE), *then* it must list the Subcontractor or SBE/MBE Subcontractor as the case may be, for such Class of Work. A **Bidder** may **not** substitute itself for any of the Named Classes of Work. The Bidder **should not list itself** as the **Named Subcontractor** if it intends to use a **Subcontractor** to perform any portion of the Classes of Work listed in **Table 2.7**. The Bidder should name the Subcontractor.

.4 For each **Class of Work** specified in **Table 2.7**, the Bidder shall list the **Subcontractor** with the ***largest* Proposed Dollar Value of Subcontract** for each Class of Work as the **Named Subcontractor** and the **Proposed Dollar Value** of its Subcontract. If the Bidder intends to use **more than one** Subcontractor to perform a Class of Work, then it shall indicate the Subcontractor Name and Subcontract Value for the ***largest*** single Named Subcontractor.

.5 If a Bidder customarily performs any of the specified Classes of Work and is Prequalified by DAS for the Class of Work *at the time of the Bid Opening Date* ***if*** the work is greater than $500,000, the Bidder may list **itself** as a Subcontractor together with its **price** in the space provided in **Table 2.7**. Failure to properly provide **all** of the **required information** in **Table 2.7** ***shall*** cause **rejection** of the bid.

.6 If the Bidder does **not** name **itself** or a **Subcontractor** for a specified Class of Work, it shall be presumed that the Bidder intends to perform with its own employees **all work** in such specified classes. The Bidder shall be required to perform with its own employees **all** of the work of the specified class. Subcontracting any portion of such specified class of work subsequently, will be considered a violation of **C.G.S. § 4b-95** and subject the Bidder to disqualification under **C.G.S. § 4b-95(e).**

.7 In the event the Bidder either lists itself or is presumed to perform with its own employees all work in a specified class, no such sub-bid by a Bidder shall be considered unless the Bidder can show to the satisfaction of the awarding authority, based on objective criteria established for such purpose, that it customarily performs such subtrade work and is qualified to do the character of work required by the applicable section of the specifications.

2.8 Set Aside Requirements: (see Section 00 73 38 "CHRO Contract Compliance Regulations")

2.8.1 **For Projects Less Than $500,000:** Submit a current copy of your Firm's **"DAS Set-Aside Certificate"** ***with*** your **Bid Proposal Form** *prior* to the date and time of the Bid Opening.

2.8.2 **For Projects Less Than $500,000:** Upload a completed copy of the CHRO Employment Information Form, **"Bidder Contract Compliance Monitoring Report**" ***with*** your **Bid Proposal Form** *prior* to the date and time of the Bid Opening. The report is on the **CHRO** Webpage (http://www.ct.gov/chro/cwp/view.asp?a=2525&Q=315900&chroPNavCtr=|#45679).

2.8.3 **All Bidders shall be required** to award not less than the percentage(s) stated on **page 1 of this Bid Proposal Form** to Subcontractors who are currently certified and eligible to participate under the State of Connecticut Set-Aside Program for **SBE and/or MBE** contractors, in accordance with C.G.S.§ 4a-60g. **Failure** to meet these requirements ***shall*** cause **rejection** of the bid.

2.9 Insurance Coverages: The **limits of liability** for the Insurance required for this project shall be those listed in **Article 35 Contractors Insurance** of **Section 00 73 13 General Conditions**. Also see Section 00 62 16 Certificate of Insurance.

2.9.1 **Special Hazards Insurance:**

☒ None is Required.

☐ "X-C-U" Coverage (explosion, collapse, and underground damage) **shall be required** in accordance with **Article 35 Contractors Insurance** of **Section 00 73 13 General Conditions**.

☐ **Asbestos Abatement Insurance** is required.

2.9.2 **Builders Risk Insurance:**

☐ None is Required.

☒ The Bidder **shall be required to maintain Builder's Risk Insurance** providing coverage for the entire Work at the project site, portions of the Work located away from the site but intended for use at the site, and portions of the Work in transit. Coverage shall be written on an All-Risk, Replacement Cost, and completed Value Form basis in an amount at least equal to the projected completed value of the Work and the policy shall state that the State of Connecticut shall be named as a loss payee not as an additional insured for these coverages.

2.9.3 **Commercial General Liability Insurance:**

NOTE: There is a new requirement regarding **commercial general liability (CGL) insurance:** All selected firms are required to provide an endorsement to the CGL insurance stating that the State of Connecticut is an additional insured. Please be advised that a blanket endorsement **may not** be acceptable.

2.9.4 **Owners and Contractors Protective Liability Insurance:**

The Bidder shall maintain **Owner's and Contractor's Protective Liability** insurance providing a total limit of **$1,000,000** for all damages arising out of bodily injury or death of persons in any one accident or occurrence and for all damages arising out of injury or destruction of property in any one accident or occurrence and subject to a total (aggregate) limit of **$2,000,000** for all damages arising out of bodily injury to or death of persons in all accidents or occurrences and out of injury to or destruction of property during the policy period. This coverage shall be for and in the name of the State of Connecticut.

2.9.5 **Umbrella Liability Insurance:**

This project requires **Umbrella Liability Insurance.** The Bidder shall provide an endorsement to the Umbrella Liability Insurance stating that the State of Connecticut is an additional insured. Select the correct **Umbrella Limit** for this **Project's Contract Value** using the **"**Umbrella Liability Insurance Table" below.

Umbrella Liability Insurance Table:

Contract Value			Umbrella Limit
$1.00	to	$500,000.00	$1,000,000.00
$500,000.01	to	$1,000,000.00	$2,000,000.00
$1,000,000.01	to	$10,000,000	$5,000,000.00
$10,000,000.01	to	$30,000,000	$10,000,000.00
$30,000,000.01	to	$80,000,000	$15,000,000.00
$80,000,000.01	to	$150,000,000	$20,000,000.00
$150,000,000.01	to	$300,000,000	$25,000,000.00

3.0 Bid Proposal Acknowledgements:

The Bidder *acknowledges* and *agrees* to the following:

3.1 To Upload to BizNet Submit the Bid Proposal Form (all pages), All Other Bid Documents, Affidavits, and Certifications:

3.1.1 The Bidder acknowledges and agrees to electronically upload to DAS BizNet **all pages** of the **Bid Proposal Form,** and all other **Bid Documents, Affidavits, and Certifications** as directed in **Section 00 11 16 Invitation to Bid, Section 00 21 13 Instructions to Bidders,** and **Section 00 41 10 Bid Package Submittal Requirements.**

3.1.2 The State may waive minor irregularities which it considers in the best interest of the State and, when applicable, are corrected by the Bidder within seven (7) Calendar Days after the Bid Due Date. Failure to properly complete, sign and upload any of the items marked with an asterisk (*) in **Table 1** of **Section 00 41 10 Bid Package Submittal Requirements *shall*** cause rejection of the bid and ***shall not*** be considered a minor irregularity under **C.G.S. § 4b-95.**

3.1.3 If there are any delays in the receipt of other documents then the Bid shall remain valid for the same additional number of days. For example, if the documents are submitted four (4) Calendar Days later; then the bid shall remain valid for ninety-four (94) Calendar Days.

3.1.4 Failure to submit the documents before the stated deadline **may** result in rejection of the bid at the sole discretion of the Commissioner of Administrative Services.

3.2 To Hold Bid Price:

The Bidder acknowledges and agrees to hold the **Proposed Lump Sum Base Bid** in **Subsection 2.1** of this Bid Proposal Form for **ninety (90) Calendar Days** and any extensions caused by the Bidder's delays in required submissions. The Bidder and the State may mutually agree to extend this period. The agreement to extend the **ninety (90) Calendar Day** period may occur after the expiration of the original **ninety (90) Calendar Day** period.

3.3 To Use and Accept Allowances:

When applicable to this Project, the Bidder **acknowledges and agrees** to accept and use the **Allowances** as shown in **Section 01 20 00 Contract Considerations** of Division 01 General Requirements as part of the **Proposed Lump Sum Base Bid** listed in **Subsection 2.1** of this Bid Proposal Form.

3.4 To Use and Accept the Following Contingent Work:

3.4.1 **Unit Prices:** When applicable to this Project, the Bidder **acknowledges and agrees** to accept and use the **Units, Add Unit Prices, and Deduct Unit Prices** as shown in **Section 01 20 00 Contract Considerations** of Division 01 General Requirements in evaluating either additions to or deductions from the Work.

3.4.2 **Supplemental Bid:** When applicable to this Project and if accepted by the Owner, the Bidder **acknowledges and agrees** to provide all labor, material and equipment to complete the Work in accordance with the **Supplemental Bid** described in **Section 01 23 13 Supplemental Bids** of Division 01 General Requirements and provided by the **Bidder** in **Subsection 2.4.2** of this Bid Proposal Form.

3.5 To Use the Named Subcontractors Listed in Table 2.7:

The Bidder **agrees** that each of the **Named Subcontractors** stated in **Table 2.7** of this Bid Proposal Form will be used for the **Class of Work** indicated, for **the Proposed Total Subcontract Value dollar amount stated**, **unless** a **substitution** is permitted by the awarding authority as provided for in and in accordance with C.G.S. § 4b-96, as amended.

3.6 To Make Good Faith Efforts to Employ MBEs:

The Bidder acknowledges and agrees to make **good faith efforts** to employ **Minority Business Enterprises (MBEs)** as **Subcontractors** and **Suppliers** of materials under such Contract.

3.7 To Submit a Certified Check or Bid Bond (if required):

The Bidder acknowledges and agrees to submit a **Certified Check** or **Standard Bid Bond *prior*** to the due date and time of the Bid Opening (if required). Download **Section 00 43 16 Standard Bid Bond** from BizNet for a template and instructions.

3.0 Bid Proposal Acknowledgements (continued):

3.8 To Accept the Current Prevailing Wage Rate Schedule:

The U. S. Secretary of Labor's latest decision and the State of Connecticut Department of Labor (DOL) Prevailing Wage Rate Schedule are all incorporated in the documents. The higher rate (Federal or State) for any given occupation shall prevail. At the time of bidding, the Bidder agrees to accept the current Prevailing Wage Rate Schedule, as well as the annual adjustment to the prevailing wage rate that is in effect each July 1st, as provided by DOL. See **Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification.** Annual adjustments of prevailing wage rates will ***not*** be considered a matter for a contract amendment with DAS/CS.

3.9 To Comply With CHRO Requirements:

If applicable, the Apparent Low Bidder acknowledges and agrees to provide the Commission on Human Rights and Opportunities with such information as is requested by the Commission concerning their **employment practices and procedures** as they relate to the current provisions of the Connecticut General Statutes governing Contract requirements within **fifteen (15) calendar days *after*** receipt of the "Request for the *Affirmative Action Plan* and *Employment Information Form* Letter" from the DAS/CS Office of Legal Affairs, Policy, and Procurement.

3.10 To Ensure Executive Order No. 11246 for Equal Employment Opportunity & Non-Segregated Facilities Has Been Met:

The Apparent Low Bidder acknowledges and agrees to ensure that Executive Order No. 11246 for Equal Employment Opportunity & Non-Segregated Facilities has been met for their firm and their Subcontractors. The Apparent Low Bidder also agrees to certify (if required) to the compliance of non-segregated facilities.

3.11 To Obtain and Maintain Required Insurance Coverages:

The Bidder acknowledges and agrees to obtain and maintain the required Insurance Coverages and submit the Firm's **"Certificate of Liability Insurance Acord® form"** within **ten (10) business days *after*** receipt of the "Letter of Intent" from the DAS/CS Office of Legal Affairs, Policy, and Procurement, as discussed in **Section 00 62 16 Certificate of Insurance** and **Article 35, "Contractors Insurance"** in **Section 00 73 13 General Conditions**.

3.12 To Comply With Security Requirements for CT Department of Correction Facilities:

When applicable to this Project, the Bidder acknowledges and agrees to comply with **Section 00 73 63 CT Department of Correction (CT DOC) Security Requirements** for Contract Forces on CT DOC Facilities.

3.13 To Ensure C.G.S. § 12-430 for Non-Resident Contractors Has Been Met:

If applicable, the Apparent Low Bidder acknowledges and agrees to provide either a copy of the **"Notice of Verified Status"** (Verification Letter) from the Connecticut Department of Revenue Services (DRS) (for **Verified Nonresident** General/Prime Contractors) or a copy of **Form AU-965 "Acceptance of Surety Bond"** from DRS (for **Unverified Nonresiden**t General/Prime Contractors) within **ten (10) business days *after*** receipt of the "Letter of Intent" from the DAS/CS Office of Legal Affairs, Policy, and Procurement which evidences that **C.G.S. § 12-430** for non-resident contractors has been met, as described in **Section 00 92 30 Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors.**

3.14 To Execute Contract:

If selected as the Prime Contractor, the Bidder acknowledges and agrees to **execute a Contract** in accordance with the terms of this **Bid Proposal Form** and the **Contract** within **ten (10) Calendar Days** (legal State holidays excluded) ***after*** notification thereof by the awarding authority. See **Section 00 52 03 Contract** for a sample.

4.0 Confidentiality of Documents:

4.1	The **undersigned** agrees that if not selected as the Prime Contractor for this project, all plans and specifications in their possession for the project shall be destroyed.
4.2	The **undersigned** agrees that if selected as the Prime Contractor for this project:
4.2.1	The **plans and specifications** shall not be disseminated to anyone except for construction of this project.
4.2.2	The **following provision** shall be included in all of its contracts with subcontractors and sub-consultants:

"Any and all drawings, specifications, maps, reports, records or other documents associated with the contract shall only be utilized to the extent necessary for the performance of the work and duties under this contract. Said drawings, specifications, maps, reports, records and other documents may not be released to any other entity or person except for the sole purpose of the work described in this contract. No other disclosure shall be permitted without the prior written consent of DAS Construction Services. When any such drawings, specifications, maps, reports, records or other documents are no longer needed, they shall be destroyed."

4.2.3	Upon completion of the construction and the issuance of a certificate of occupancy, the plans and specifications shall be returned to DAS Construction Services, or destroyed, or retained in a secure location and not released to anyone without first obtaining the permission of DAS Construction Services.

5.0 Bid Proposal Declarations:

I (we), the undersigned, hereby declare that I am (we are) the only person(s) interested in the Bid Proposal and that it is made without any connection with any other person making any Bid Proposal for the same work. No person acting for, or employed by, the State of Connecticut is directly or indirectly interested in this Bid Proposal, or in any Contract which may be made under it, or in expected profits to arise therefrom. This Bid Proposal is made without directly or indirectly influencing or attempting to influence any other person or corporation to bid or refrain from bidding or to influence the amount of the Bid Proposal of any other person or corporation. This Bid Proposal is made in good faith without collusion or connection with any other person bidding for the same work and this proposal is made with distinct reference and relation to the plans and specifications prepared for this Contract. I (we) further declare that in regard to the conditions affecting the Work to be done and the labor and materials needed, this Bid Proposal is based solely on my (our) own investigation and research and not in reliance upon any representations of any employee, officer or agent of the State.

6.0 Duly Authorized Signature:

Type of Business: *(Check Applicable Box)*

☐ **Limited Liability Corporation (LLC)**

☐ **Partnership**

☐ **Sole Proprietor**

☐ **Doing Business As (d/b/a)**

(If d/b/a box is checked provide complete name below)

(Doing Business As Name)

☐ **Corporation** *(If Checked, Provide Corporate Seal Below)*

(Provide exact corporate name from corporate seal below)

(Name On Corporate Seal)

Signed: *(Month)* *(Day)* *(Year)*

Bidder's Signature: *(Duly Authorized)* *(Title)*

(Print Named) *(Date)*

Bid Package Submittal Requirements:

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

450 Columbus Boulevard, Suite 1302 | Hartford, CT 06103

1.1 On-Line Bidding:

1.1.1 All Bidders shall **electronically** upload their **Bid Package Documents** to BizNet following the **instructions** in the DAS/CS publication, 6001 Construction On-line Bidding Instructions, available for download here: Go to the DAS Homepage (www.ct.gov/DAS) > Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 6000 Series > **6001 Construction On Line Bidding Instructions**.

1.1.2 For questions, call 860-713-5794.

1.2 Bid Package Submittal Requirements:

All Bidders are required to **electronically upload Bid Package Documents** to BizNet ***prior*** to the date and time of the Bid Opening. Additional documents must be either **electronically uploaded** to BizNet **or** submitted as **paper copies** to the **appropriate Agency**. See Tables 1, 2, and 3 for specific submittal requirements.

1.2.1 **All Bidders:** See Table 1. ***All Documents* in Table 1 must be *electronically uploaded* to BizNet.**

1.2.2 **Three (3) Apparent Lowest Bidders:** See Table 2.

1.2.3 **Apparent Low Bidder:** See Table 3.

1.3 Deadlines for Receipt of Bid Package Documents:

1.3.1 **Table 1:** Bid Package Documents must be uploaded to BizNet ***prior*** to the date and time of the Bid Opening. Failure to upload to BizNet any of the items **marked with an asterisk (*)** prior to the Bid Opening **shall** cause rejection of the bid and shall not be considered a minor irregularity under Connecticut General Statutes (C.G.S.) 4b-95.

1.3.2 **Tables 2 and 3:** See the tables for additional deadlines. Failure to submit the documents before the stated deadlines **may** result in rejection of the bid at the sole discretion of the Commissioner of Administrative Services.

1.4 Delays in Receipt of Supportive Documents from the Three Apparent Lowest Bidders:

1.4.1 If there are any delays in the receipt of the supportive documents specified in Tables 2 and 3, then the Bids shall remain valid for the same additional number of days.

.1 For example, since the **Three (3) Apparent Lowest Bidders** are required to **Hold The Bid Price** for **ninety (90) calendar days**, if supportive documents are submitted **four (4) calendar days later**, then the bid shall remain valid for **ninety-four (94) calendar days.**

1.4.2 Failure to submit the documents before the stated deadline **may** result in rejection of the bid at the sole discretion of the Commissioner of Administrative Services.

TABLE 1 ALL BIDDERS			
Construction Costs:		The Bid Proposal Form, Other Bid Package Documents, Affidavits, and Certifications shall be electronically uploaded to BizNet by *all* Bidders prior to the Date and Time of the Bid Opening.	Form Location
Less Than $500,000	Greater Than $500,000		
Bid Proposal Form and Other Bid Package Documents			
☒	☒	* Section 00 41 00 Bid Proposal Form	BizNet
☒	☒	* Section 00 43 16 Standard Bid Bond or Certified Check	BizNet
☒	☒	* Section 00 45 14 General Contractor Bidder's Qualification Statement	BizNet
	☒	* DAS Prequalification Certificate	BizNet
	☒	* DAS Update (Bid) Statement	BizNet
☒	☒	Section 00 40 14 Certificate (of authority)	BizNet
☒		DAS Set-Aside Certificate	BizNet
☒		Bidder Contract Compliance Monitoring Report	CHRO Website
Affidavits and Certifications			
☒	☒	* Gift and Campaign Contribution Certification – OPM Ethics Form 1	BizNet
☒	☒	* Consulting Agreement Affidavit – OPM Ethics Form 5	BizNet
☒	☒	* Ethics Affidavit (Regarding State Ethics) – OPM Ethics Form 6	BizNet
☒	☒	* Iran Certification – OPM Ethics Form 7	BizNet
☒	☒	Nondiscrimination Certification – Form A, B, C, D, or E	BizNet

*** NOTE:** Failure to electronically upload any of the items marked above with an asterisk (*****) prior to the date and time of the Bid Opening **shall** cause rejection of the bid and shall not be considered a minor irregularity under CGS 4b-95.

TABLE 2
THREE (3) APPARENT LOWEST BIDDERS

Construction Costs:		WHEN APPLICABLE: Submit within **ten (10) Calendar Days *after*** receipt of the **"Set-Aside Contractor Schedule Request"** from the DAS/CS Procurement Unit:	Form Location
Less Than $500,000	**Greater Than $500,000**		
	☒	**Set-Aside Contractor Schedule** for each subcontracted SBE and/or MBE firm(s) (See Section 00 73 27 Set-Aside Contractor Schedule for a sample Request.)	**Email From DAS/CS Procurement Unit**
	☒	**DAS Set-Aside Certificate(s)** for each subcontracted SBE and/or MBE firm(s) listed in the Set-Aside Contractor Schedule.	**Download from BizNet**
	☒	**Section 00 45 17 Named Subcontractor Bidder's Qualification Statements** for each Named Subcontractor listed in the Bid Proposal Form.	**Copy from Project Manual**
	☒	**DAS Prequalification Certificate(s) and Update (Bid) Statement(s)** for each Named Subcontractor listed in the Bid Proposal Form **with Subcontracts greater than $500,000.**	**Download from BizNet**

TABLE 3
APPARENT LOW BIDDER

Construction Costs:		When Applicable, submit the following documents as noted:	Form Location
Less Than $500,000	**Greater Than $500,000**		
Submit within **fifteen (15) calendar days *after*** receipt of the **"Request for the *Affirmative Action Plan* and *Employment Information Form* Letter"** from the DAS/CS Procurement Unit:			
☒	☒	**If Contractor has 50 or more employees and/or the Project is equal to or greater than $500,000, submit to CHRO:** Affirmative Action Plan and Employment Information Form (DAS-45).	**CHRO Website & BizNet**
☒	☒	**Submit to DAS/CS Procurement Unit:** Copy of Transmittal Letter to confirm the Affirmative Action Plan was filed with CHRO.	**(copy of transmittal letter)**
☒	☒	**Submit to CT Department of Labor:** Contractors Wage Certification Form. See Section 00 73 44 Prevailing Wage Rates/Contractor's Wage Certification/Payroll Certification.	**Copy from Project Manual**

TABLE 3
APPARENT LOW BIDDER
(continued)

Construction Costs:		Submit within **ten (10) business days *after*** receipt of the **"Letter of Intent"** from the DAS/CS Procurement Unit:		Form Location
Less Than $500,000	**Greater Than $500,000**			
☒	☒	**Section 00 40 14 Certificate (of authority)**		**Email From DAS/CS Procurement Unit**
☒	☒	**Section 00 52 03 Contract**		**Email From DAS/CS Procurement Unit**
	☒	**Section 00 52 73 Subcontract Agreement Form (Named & Listed)**		**Email From DAS/CS Procurement Unit**
☒	☒	**Certificate of Liability Insurance Acord® form** (See Section 00 62 16 Insurance Certificate Form for details)		**Email From DAS/CS Procurement Unit**
☒	☒	**Certificate of Asbestos Abatement Liability Insurance** (for asbestos abatement only) (See Section 00 62 16.1 Asbestos Abatement Liability Insurance for details)		**Email From DAS/CS Procurement Unit**
☒	☒	**Section 00 92 10: Additional Forms**	**Performance Bond**	**Email From DAS/CS Procurement Unit**
☒	☒		**Labor & Material Bond**	
☒	☒		**Surety Sheet**	
☒	☒		**Bidder's Certification: Financial Position & Corporate Structure**	
☒	☒	**Power of Attorney from the Surety Company**		**Surety Company**
☒	☒	**Nonresident (Out of State) Contractors:** Verified Nonresident General/Prime Contractors must submit a copy of their **"Notice of Verified Status"** (Verification Letter) from the CT Department of Revenue Services (DRS). Unverified Nonresident General/Prime Contractors must submit a copy of **Form AU-965 "Acceptance of Surety Bond"** from the DRS. (See Section 00 92 30 Procedures Regarding Taxation for Nonresident General/Prime Contractor and Subcontractors for additional details.)		**CT Department of Revenue Services**
☒	☒	***NEW:*** **General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities:** For projects disturbing **one or more total acres of land area**, submit a copy of the signed **Stormwater Pollution Control Plan "Contractor Certification Statement"** and **License Transfer Form**, as directed by the DAS/CS Architect/Engineer, prior to commencement of any construction activities.		**DAS/CS Architect/Engineer**
	☒	**Ethics Affidavit (Regarding State Ethics) OPM Ethics Form 6** for each Named Subcontractor		**BizNet**
☒	☒	**Threshold Projects Only:** Submit **Major Contractor Registration License Number(s)** for Subcontractors		**CT Department of Consumer Protection**
☒	☒	**SEEC Form 10**		**SEEC Website**
☒	☒	**Certificate of Legal Existence from Corporations**		**Secretary of the State**

End of Section
00 41 10 Bid Package Submittal Requirements

INSTRUCTIONS FOR CERTIFIED CHECK OR BID BOND (*select one*):

All Bidders:

Edit this page, **print, sign, and scan** to **PDF**. Upload the **PDF** form to BizNet.

☐	**CERTIFIED CHECK OPTION:** ***Prior*** to the Date and Time of the Bid Opening: (1) Check the box for "Certified Check Option"; (2) Print, scan to PDF, and upload the PDF form to Biznet; and (3) Deliver the Certified Check, made payable to "Treasurer, State of Connecticut", to the following address: State of Connecticut Department of Administrative Services, Construction Services Office of Legal Affairs, Policy, and Procurement 450 Columbus Boulevard, North Tower, Suite 1302 Hartford, CT 06103-1835
☐	**BID BOND OPTION** (see template below)**:** ***Prior*** to the Date and Time of the Bid Opening: (1) Check the box for "Bid Bond Option"; (2) Complete the **Standard Bid Bond** (below), print, sign, scan to PDF, and upload the PDF Bid Bond to Biznet.

Standard Bid Bond

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

KNOW ALL MEN BY THESE PRESENTS, That we, _____

_____ **, hereinafter called the Principal,**

of _____ **, as Principal,**

and _____ **,hereinafter called the Surety, a corporation organized and existing under the laws of the State of** _____ **, and duly authorized to transact a surety business in the State of Connecticut, as Surety, are held and firmly bound unto the State of Connecticut, as Obligee, in the penal sum of ten (10) percent of the amount of the bid set forth in a proposal hereinafter mentioned,** _____

_____ **,**

lawful money of the United States of America, for the payment of which, well and truly to be made to the Obligee, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, That, whereas the Principal has submitted or is about to submit a proposal to the Obligee related to a contract for Project No.: _____

NOW, THEREFORE, if the said contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the said contract in writing with the State of Connecticut and give the required bonds, with surety acceptable to the Obligee, or if the Principal shall fail to do so, pay to the Obligee the damages which the Obligee may suffer by reason of such failure not exceeding the penalty of this bond, then this obligation shall be void, otherwise to remain in full force and effect.

SIGNED, SEALED AND DELIVERED this _____ **day of** _____ **, 20** _____

_____	_____
(Principal's Signature)	**Surety**
_____	**by** _____
(Print Name)	**Its attorney in fact Signature**
_____	_____
Company Name	***(Print Name)***

General Contractor
Bidder's Qualification Statement

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

Instructions:

- All Bidders are **required** to **upload this form to BizNet**, properly completed, ***prior* to the date and time of the Bid Opening**.
- Failure of a Bidder to answer any question or provide required information ***shall*** be grounds for the awarding authority to disqualify and reject the bid, pursuant to Connecticut General Statutes §4b-92.
- If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable).
- Attach additional information on 8 ½" x 11" sheets with your letterhead as necessary and reference specific section and subsection numbers.
- **NOTE:** The Department reserves the right to request any additional or supplemental information necessary to complete its evaluation of a Bidder's qualification.

1.0 Project Information:

1.1	**DAS/CS Project Number:**	
1.2	**Project Name:**	
1.3	**Project Location:**	

2.0 Projects with Construction Costs Estimated To Be Greater than $500,000:

- Select the applicable **Class of Work** as stated in the **00 11 16 Invitation to Bid**.
- Select **YES** if your Firm has the applicable the **DAS Prequalification Certificate** and **Update (Bid) Statement** or **NO** if it does not.
- If **YES**, upload the applicable **DAS Prequalification Certificate** and **Update (Bid) Statement** to BizNet ***prior*** to the date and time of the Bid Opening.

☐ **Not Applicable - Construction Costs Less than $500,000**

		Class of Work:	Does your Firm have the applicable DAS Prequalification Certificate and Update (Bid) Statement?	
2.1	☐	**General Building Construction (Group A):**	**YES** ☐	**NO** ☐
2.2	☐	**General Building Construction (Group B):**	**YES** ☐	**NO** ☐
2.3	☐	**General Building Construction (Group C):**	**YES** ☐	**NO** ☐
2.4	☐	**General Trades (Interior Work Only):**	**YES** ☐	**NO** ☐
2.5	☐	**CPS Projects ONLY:** Insert Class of Work	**YES** ☐	**NO** ☐

3.0 **Firm's Present Legal Name:** (the *complete* **legal name** *exactly* as it appears with the **Secretary of State registry**. The appropriate **title** must be used throughout the documents, for example: General Partner, Member, Manager, Sole Member, etc.)

Name:

4.0 How many years has your Firm been in business under its **Present Legal Name**?

Years:

5.0 How many years has your Firm been in business as a General Contractor?

Years:

6.0 Indicate **all** other **names** by which your Firm has been known and the **length of time** known by each name:

		Years	Months
6.1			
6.2			
6.3			

7.0 This Firm's **Certification** with the CT Secretary of State:

Check Box	Type of Business Entity:	Certification Year
☐	**Corporation**	
☐	**Partnership**	
☐	**Sole Proprietorship**	
☐	**Limited Liability Company (LLC)**	
☐	**Other:**	

8.0 Attach resumes of all **supervisory personnel**, such as **Principals, Project Managers, and Superintendents**, who will be directly involved with the project on which you are now a bidder. Indicate their construction related training, certifications and licenses and the number of years of actual construction experience. Indicate the number of years of this actual construction experience which were in a Supervisory capacity.

9.0 Named Subcontractor – Bidder Intends to Self-Perform:

Check **YES** or **NO** for each "Named Subcontractor" **Class of Work** which your firm intends to perform with its own employees for this Contract; see **Section 2.7** of **Section 00 41 00 Bid Proposal Form.**

NOTE: For Projects with Construction Costs estimated to be greater than $500,000, complete **Section 00 45 17 Named Subcontractor Bidder's Qualification Statement** for each **Named Subcontractor Class of Work** checked **YES** and submit within ten (10) calendar days ***after*** receipt of the "Set-Aside Contractor Schedule Request" from DAS/CS Office of Legal Affairs, Policy, and Procurement.

☐	**Not Applicable – No Named Subcontractors &/or Not Self-Performing**

	Named Subcontractor Class of Work	Does your Firm intend to self-perform this Named Subcontractor Class of Work?	
9.1	Electrical:	YES ☐	NO ☐
9.2	HVAC:	YES ☐	NO ☐
9.3	Masonry:	YES ☐	NO ☐
9.4	Plumbing:	YES ☐	NO ☐
9.5	Environmental Remediation:	YES ☐	NO ☐
9.6	Hazardous Materials Abatement:	YES ☐	NO ☐

10.0 Named Subcontractor - Class of Work Greater than $500,000 and Self-Performing:

- Select the applicable **Named Subcontractor Class of Work** which your firm intends to perform with its own employees for this Contract.
- Select **YES** if your Firm has the applicable the **DAS Prequalification Certificate** and **Update (Bid) Statement** or **NO** if it does not.
- If **YES**, submit the applicable **DAS Prequalification Certificate** and **Update (Bid) Statement** within ten (10) calendar days ***after*** receipt of the "Set-Aside Contractor Schedule Request" from DAS/CS Office of Legal Affairs, Policy, and Procurement.

☐	**Not Applicable – No Class of Work Greater $500,000 &/or Not Self-Performing**

		Named Subcontractor Class of Work Greater Than $500,000	Does your Firm have the applicable DAS Prequalification Certificate and Update (Bid) Statement?	
10.1	☐	Electrical:	YES ☐	NO ☐
10.2	☐	HVAC:	YES ☐	NO ☐
10.3	☐	Masonry:	YES ☐	NO ☐
10.4	☐	Plumbing:	YES ☐	NO ☐

11.0 **List all** construction projects your Firm has completed in the **past five (5) years.** Provide **all** of the information listed below. DAS/CS *may* reject a bid as **non-responsive** if the bidder does not make **all** required pre-award submittals within the designated time period. Attach additional sheets as necessary **using the following format**:

IMPORTANT NOTE: **Two (2)** of the construction projects completed in the past five (5) years shall be (1) single project contracts that have reached substantial completion, not aggregate projects; (2) of commercial and/or institutional construction work (this includes compliance with general requirements); (3) within the Cost Estimate Range stated in Section 00 11 16 Invitation to Bid for this project; and (4) of the size and complexity of this Project. Failure to identify to ***two*** such projects ***shall*** result in rejection of the bid.

11.1	**Project Title:**	
11.2	**Project Location:**	
11.3	**Construction Start Date:**	
11.4	**Construction Finish Date:**	
11.5	**Describe the Scope of Work your Firm performed:**	
11.6	**Original Contract Amount:**	
11.7	**Final Contract Amount:**	
11.8	**Original Contract Duration** (Calendar Days)**:**	
11.9	**Final Contract Duration** (Calendar Days)**:**	
11.10	**Owner:**	
11.11	**Owner's Representative:**	*(Name)* / *(Phone Number)*
11.12	**Design Firm:**	
11.13	**Design Firm's Representative:**	*(Name)* / *(Phone Number)*

12.0 **References:**

Furnish references from **architects, engineers or owners** indicating that your Firm has satisfactorily completed in a timely manner contract work for projects within the cost estimate range, size and complexity of this project. Provide explanations where delays have occurred. This information should cover work done over the past five years.

13.0 **Construction Scheduler:**

For Projects greater than $5 Million: Submit the **name, resume and references** of the **Construction Scheduler** in accordance with the requirements called for in Section **01 32 16.13 Critical Path Method Schedules** of the General Requirements.

☐ Not Applicable – Project Less Than $5 Million

14.0 List and explain if your Firm has ever failed to complete a contract or if any officer or partner of your Firm has ever been an officer or partner of another organization that failed to complete a contract. Indicate below the circumstances leading to the project failure and the name of the company which provided the bonding for the failed contract(s):

☐ Not Applicable

15.0 List and explain if your Firm has ever had a contract terminated, indicating the circumstances leading to the project termination of contract(s):

☐ Not Applicable

16.0 List and explain all legal or administrative proceedings against your Firm or any officers, principals, partners, members, or employees of the organization currently pending or concluded adversely within the last five years, and any judicial or administrative sanctions that are still in effect against such organization, and any of its officers, principals, partners, members, or employees. (Exclude Occupational Safety and Health Act [OSHA] violations which are called for elsewhere in this statement). Add attachments as necessary.

☐ Not Applicable

17.0 List and explain any disbarments or suspensions that have been imposed on your Firm in the past five years or that were still in effect during the five year period or that are still in effect. Such list must include disbarments and suspensions of officers, principals, partners, members, and employees of your Firm:

☐ Not Applicable

18.0 List and explain any other reason(s) that precludes your Firm or any officer, principal, partner, member, or employees thereof from bidding on a contract in Connecticut or any other jurisdiction:

☐ Not Applicable

19.0 List and explain all willful or serious violations your Firm has had of any OSHA or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the bid, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act or Occupational Safety and Health Act of 1970. Indicate whether these were abated within the time fixed by the citation or whether the citation was appealed. If appealed what is the status or disposition. Add attachments as necessary.

☐ Not Applicable

20.0 List and explain any criminal convictions your Firm has had related to the injury or death of any employee in the three-year period preceding the bid: Add attachments as necessary.

☐ Not Applicable

21.0 List and explain any changes in your Firm's financial condition or business organization, which might affect your Firm's ability to successfully complete this contract:

☐ Not Applicable

22.0 ***NEW:*** List and explain if your Firm has ever failed to submit an Affirmative Action Plan to the Commission on Human Rights and Opportunities (CHRO). Indicate below the circumstances leading to the failure to submit the Affirmative Action Plan to CHRO:

☐ Not Applicable

23.0 ***NEW:*** List and explain if your Firm's Affirmative Action Plan has ever been disapproved by CHRO or determined to be noncompliant. Indicate below the circumstances leading to the disapproval or finding of noncompliance of your Affirmative Action Plan by CHRO:

☐ Not Applicable

24. Signature

Dated at _____

Signed this _____ **day of** _____ **,** **20** _____

Name of Firm: _____

Firm Address: _____

_____

Signature: _____

Print or Type Name: _____

Title: _____

25. Notary Statement

Mr./Mrs./Ms. _____ **being duly sworn**

deposes and says that he/she is the _____ **of**

(Position or Title)

_____ **, and that the answers to the foregoing**

(Firm Name)

questions and all statements therein contained are true and correct.

Subscribed and sworn before me this _____ **day of** _____ **, 20** _____

Notary Public _____

My Commission Expires _____ **, 20** _____

End of Section
00 45 14 General Contractor Bidder's Qualification Statement

Objective Criteria Established for Evaluating Qualifications of Bidders:

CT DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

The following items are established pursuant to Sections 4b-92, 4b-94 and 4b-95a of the Connecticut General Statutes (C.G.S.) as amended.

The **Objective Criteria Established for Evaluating Qualifications of Bidders** (Section 00 45 15) are to assure that the State of Connecticut will secure the "lowest responsible and qualified bidder" who has the ability and capacity to successfully complete the Bid Proposal Form and the Work. Failure to comply with any portion of this requirement **may** cause **rejection** of the bid. **Note:** Individual Specification Sections **may** contain General Contractor and/or Subcontractor Qualification requirements that *exceed* those in **Section 00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders.**

THE BIDDER MUST HAVE OR HAVE COMPLETED THE FOLLOWING:

1.1 DAS Prequalification Requirements:

For Projects with Construction Costs greater than $500,000, **all Bidders** shall upload to BizNet a valid Department of Administrative Services (DAS) **Prequalification Certificate** and **Update (Bid) Statement *prior*** to the date and time of the Bid Opening.

1.2 Evaluation:

1.2.1	**All Bidders** shall upload to BizNet **Section 00 45 14 General Contractor's Bidder Qualifications Statement *prior*** to the date and time of the Bid Opening.
1.2.2	If applicable, the **Three (3) Lowest Bidders** shall submit **Section 00 45 17 Named Subcontractor's Bidder Qualification Statement(s)** to DAS Construction Services (DAS/CS) Office of Legal Affairs, Policy, and Procurement within **ten (10)** calendar days ***after*** receipt of the "Set-Aside Contractor Schedule Request" ***from*** DAS/CS.
1.2.3	The Bidder must demonstrate that the Bidder and, if applicable, its Named Subcontractors, meet the **objective criteria** for this specific project.
1.2.4	The **responses** to the Statement(s) must identify two (2) **projects completed** – single project contracts that have reached substantial completion, not aggregate projects – of commercial and/or institutional construction work (this includes compliance with general requirements) during the past five (5) years within the Cost Estimate Range stated in Section 00 11 16 **Invitation to Bid** for this project, and of the size and complexity of this project. The failure to identify to such projects shall result in rejection of the bid.
1.2.5	If the Bidder identifies two projects that meet the above criteria, the **State's evaluation** shall be based on the **performance record** of the prospective Bidder as a general, prime contractor and its named subcontractors during the course of the two (2) comparable projects, and not just the end result. The state will conduct the evaluation based on its interpretation of its objective criteria. **Evaluation criteria** shall include: Faithful and efficient performance; fulfilment of contract obligations; financial, managerial and technical abilities; and integrity and the absence of any conflicts of interest. Any one or all of the factors noted in this paragraph as well as in the other criteria set forth in this **Section 00 45 15** may be grounds for the determination by the State, in its sole discretion, of the Bidder's responsibility and qualifications necessary for the faithful performance of the work required of this project.

1.3 References:

Furnished **references from architects, engineers or owners** indicating that it has satisfactorily completed in a timely manner contract work for projects and provide explanations where delays have occurred. This information should cover work done over the **past five years**. Review of DAS/CS projects shall be included in the evaluation of the bidder's qualifications and anticipated future performance.

1.4 Qualified Personnel:

1.4.1 Shown that it customarily employs or has on its payroll **supervisory personnel**, **qualified** to perform the work required for this project and to coordinate the work called for in the Bid Specifications.

1.4.2 If the project is for $5 Million or more, submit the **name**, **resume** and **references** of the **Construction Scheduler** in accordance with the requirements called for in **Section 01 32 16.13 Critical Path Method Schedules** of the General Requirements.

1.5 Past Performance:

Demonstrated a good track record of **past performance** on State or other projects relative to quantity, quality, timeliness, cost, cooperation and harmonious working relationships with subcontractors, suppliers and client agencies. DAS/CS will review the Bidders past performance ratings prepared by DAS/CS or prepared as part of the DAS Contractor Prequalification Program. This review may focus on the comments relative to: Quality of Supervision, Adherence to Contract Documents, On Time Project Completion, Subcontractor performance, and the handling of Change Orders. Unacceptable ratings for several criteria shall be sufficient cause to deem a bidder not responsible.

1.6 Financial Responsibility:

Shown that it is **financially responsible** to perform the work as bid. If requested, additional financial information shall be provided. Prompt and proper payments to its subcontractors and material suppliers is a critical factor to be considered by DAS/CS.

1.7 [Left Blank]

1.8 Equipment Requirements:

Shown that it owns or possesses, rented, or leased **equipment** of the type customarily required by contractors in the performance of contract work and that such equipment, if needed, is available for this project.

1.9 Materials and Suppliers:

Purchased **materials** over the past three years from suppliers who customarily sell such materials in quantity to contractors.

1.10 Physical Facilities:

Control of adequate **physical facilities** from which the work can be performed.

1.11 Compliance with Subcontractor Requirements:

Demonstrated that on **previous state projects** the bidder complied in good faith with the requirements of listing subcontractors as outlined in C.G.S. Sections 4b-93 and 4b-95.

1.12 Threshold Building and Major Contractor Requirements:

Demonstrated that **all major subcontractors** are in compliance with the provisions of C.G.S. Section 20-341gg, as revised, concerning licensure requirements to perform work on any structure that exceeds the threshold limits contained in C.G.S. Section 29-276b, as revised.

1.13 OSHA Requirements:

Proven that the Bidder has not been found to be in violation of three or more willful or serious violations of Occupational Safety and Health Administration (OSHA) regulations in the past three years.

1.14	**Criminal Convictions and Injuries or Death of Employees:**
	Not received a **criminal conviction** related to the injury or death of any employee in the three-year period preceding the bid.
1.15	**Legal or Administrative Proceedings:**
	Listed all **legal** (court and/or arbitration) or **administrative proceedings** currently pending as well as any legal (court and/or arbitration) or administrative proceeding related to procurement or performance of any public or private construction contracts which has concluded adversely within the last three years.
1.16	**Contract Performance and Surety:**
	Identified any situations where: (1) the bidder failed to complete a construction contract; or (2) bonds were called during the past three years. If applicable, attach a sheet providing explanation including date(s) and location(s).
1.17	**State Tax Requirements:**
	Not been found to be in violation of any **state tax** requirements of the Connecticut Department of Revenue Services in the five (5)-year period preceding the bid.
1.18	**State and Federal Labor Requirements:**
	Not been found to be in violation of any State or Federal **labor laws** as required through the Department of Labor including violations of prevailing wage laws in the five (5)-year period preceding the bid.
1.19	**Change Order Pricing and State Ethics:**
	Been found to be in compliance with all statutory and regulatory requirements. This Item shall include, but not be limited to, any DAS/CS determinations related to improper Change Order pricing relative to C.G.S. Section 1-101nn of The State Ethics Statutes.
1.20	**Internal Revenue Services (IRS) Requirements:**
	Not been found in violation of any of the **Internal Revenue Service Tax Requirements** regarding classification of employees and independent contractors in the five (5)-year period preceding the bid.
1.21	**Workers Compensation and Insurance Requirements:**
	Not been found to be in any violation of C.G.S. Section 31-288 relating to employee classification for purposes of Workers' Compensation insurance premiums in the five (5)-year period preceding the bid.

NOTE: The foregoing Item Numbers **1.13** and **1.14** are meant to comport with C.G.S. Section 31-57b.

End of Section
00 45 15 Objective Criteria Established for Evaluating Qualifications of Bidders

Contract

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

Contract For:	

Dated as of _____ by and between the **State of Connecticut** (herein called the
(Month, Day, Year)
"State") acting herein by its Commissioner, Department of Administrative Services under the provisions of the Connecticut General Statutes (C.G.S.) Sections 4-8, 4a-1, 4a-1a, 4a-2, 4b-1, and 4b-3, as revised, and _____ (herein called the "Contractor").
(Print Name of Contractor)

WITNESSETH, that the State and the Contractor in consideration of the hereinafter contained mutual promises and covenants, do hereby agree as follows:

1. CONTRACT AND CONTRACT DOCUMENTS:

The **Invitation for Bids**, the enumerated **Plans**, the **Specifications** and **Amendments** thereto, the **Addenda**, the **Bid Proposal** as accepted by the Commissioner, Department of Administrative Services, **Order of Award**, which Order is made a part of this **Contract**, the **General Conditions**, the **General Requirements**, the **Contract** and the **Bonds** shall form part of this **Contract** and the **provisions** thereof shall be as binding upon the parties as if they were fully set forth herein. The tables of contents, titles, headings, running headlines and marginal notes contained herein and in said Documents, are solely to facilitate to various provisions of the Contract Documents and in no way affect, limit, or cast light upon the interpretations of the provisions to which they refer. Whenever the term "Contract Documents" is used, it shall mean and include this **Contract**, the **Invitation for Bids**, the enumerated **Plans**, **Specifications** and **Amendments** thereto, the **Addenda**, the **Bid Proposal** as accepted by the Commissioner, Department of Administrative Services, the **General Conditions**, the **General Requirements**, the **Bonds**, the **Notice to Bidders**, the **Wage Scales**, the **Supplementary Conditions**, and the **Insurance Certificates**.

2. SCOPE OF THE WORK:

The Contractor shall furnish all plant, labor, materials, supplies, equipment, and other facilities and things necessary or proper for or incidental to the work contemplated by this Contract as required by and in strict accordance with applicable Plans, Specifications and Amendments thereto, and Addenda (hereinafter enumerated), and as required by and in strict accordance with such changes as are ordered and approved pursuant to this Contract, and will perform all other obligations imposed on him by this Contract.

3. ENUMERATION OF PLANS, SPECIFICATIONS AND ADDENDA:

The following is an enumeration of the Plans, Specifications, and Addenda:

Prepared By:	
	(Print Name of Architect/Engineer Firm)
Plans and Specifications:	
Addenda:	

4. COMPENSATION TO BE PAID THE CONTRACTOR

The State will pay and the Contractor will accept in full consideration for the performance of the Contractor's obligation hereunder the sum of:

Dollars and 00/100 ($ **)**

5. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

For all State contracts as defined in the **C.G.S. §9-612(f)(1)(C),** having a value in a calendar year of $50,000 or more or a combination or series of such agreements or contracts having a value of $100,000 or more, the authorized signatory to this Agreement expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See **SEEC Form 10**.

Contractor hereby irrevocably assigns to the State of Connecticut all rights, title and interest in and to all **Claims* associated with this Contract** that Contractor now has or may or will have and that arise under the antitrust laws of the United States, **15 USC Section 1, *et seq.*** and the antitrust laws of the State of Connecticut, **C.G.S. §35-24, *et seq.*,** including but not limited to any and all Claims for overcharges. This assignment shall become valid and effective immediately upon the accrual of a Claim without any further action or acknowledgment by the parties.

***Definition of Claims associated with this Contract**: "All actions, suits, claims, demands, investigations and proceedings of any kind, open, pending or threatened, whether mature, unmatured, contingent, known or unknown, at law or in equity, in any forum."

IN WITNESS WHEREOF, the Commissioner, Department of Administrative Services for and on behalf of the State of Connecticut, and the Contractor have executed this contract on the day and year first written.

Attested By:

WITNESS: _____
(Signature)

Print Name: _____

WITNESS: _____
(Signature)

Print Name: _____

WITNESS: _____
(Signature)

Print Name: _____

WITNESS: _____
(Signature)

Print Name: _____

State Of Connecticut

By: _____
(Signature)

Print Name: Melody A. Currey

Its: Commissioner

Department of Administrative Services

Date Signed: _____

SEAL

Contractor: _____

By: _____
(Signature)

Its: _____ , **Duly Authorized**

Print Name: _____

Date Signed: _____

End of Section
00 52 03 Contract

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
	INSURER(S) AFFORDING COVERAGE / NAIC #
INSURED Contractor's Legal Name and Address	INSURER A:
	INSURER B:
	INSURER C:
	INSURER D:
	INSURER E:
	INSURER F:

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY ☑ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☑ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☑ PRO-JECT ☐ LOC			Policy Number must be provided	Policy Effective Date must be provded	Policy Expiration Date must be provided	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
	AUTOMOBILE LIABILITY ☑ ANY AUTO ALL OWNED AUTOS HIRED AUTOS SCHEDULED AUTOS NON-OWNED AUTOS			Policy Number must be provided	Policy Effective Date must be provded	Policy Expiration Date must be provided	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000
	☐ UMBRELLA LIAB ☐ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☐ RETENTION $						EACH OCCURRENCE AGGREGATE	
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N ☐ (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		Policy Number must be provided	Policy Effective Date must be provided	Policy Expiration Date must be provided	☑ WC STATU-TORY LIMITS ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 100,000 $ 100,000 $ 500,000
	Owner's and Contractor's Protective Liability Builder's Risk (include here when applicable)						Bodily Injury or Death (per occ.) Total Property Damages Total (aggregate)	$ 1,000,000 $ 2,000,000 Completed Value

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Indicate Project Number and Title here

The State of Connecticut is an Additional Insured with respect to General Liability and Umbrella/Excess Liability Insurance coverage.

If Builder's Risk and or Inland Marine/Transit Insurance is required then the State is endorsed as a Loss Payee.

CERTIFICATE HOLDER	CANCELLATION
State of Connecticut Department of Administrative Services, Construction Services Office of Legal Affairs, Policy and Procurement 450 Columbus Boulevard, Suite 1302 Hartford, CT 06103-1838	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Agent of Producer

End of Section
00 62 16 Certificate of Insurance

General Conditions of the Contract for Construction
For Design-Bid-Build
Department of Construction Services
State of Connecticut
TABLE OF CONTENTS

ARTICLE 1
DEFINITIONS

WHENEVER THE FOLLOWING TERMS, OR PRONOUNS IN PLACE OF THEM, ARE USED THE INTENT AND MEANING SHALL BE AS FOLLOWS:

1.1 ACCEPTANCE: The Owner's acknowledgement of the Work from the Contractor upon certification by the Construction Administrator and Architect or Engineer that all Work has been completed.

1.2 ADDITIONAL OR DELETED WORK: Work required by the Department that, in the judgment of the Com-missioner, involves any addition to, deduction from, or modification of the Work required by the Contract Documents.

1.3 AGENCY: The (User) Agency of the State of Connecticut having administrative authority of the facility in which the Work is being performed.

1.4 APPLICATION FOR PAYMENT, PARTIAL PAYMENT OR REQUISITION: Contractor's certified request for payment for completed portions of the Work and, if the Contract so provides, for materials or equipment suitably stored pending their incorporation into the Work.

1.5 ARCHITECT OR ENGINEER: A sole proprietor, partnership, firm, corporation or other business organization under Contract with the Owner, commissioned to prepare Contract Drawings and Specifications, to advise the Owner and in certain cases, to perform regular inspections during construction and when authorized to perform the duties of the Construction Administrator.

1.6 AS-BUILT DRAWINGS: Construction Drawings revised by the Contractor to show all significant Modifications made during the construction process.

1.7 BASE BID: Monetary value stated in the Bid Proposal Form as the sum for which the Bidder offers to perform the Work described in the Bidding Documents, exclusive of adjustments for Supplemental Bids.

1.8 BID BOND: Form of Bid Security executed by the Bidder as Principal and by a Surety to guarantee that the Bidder will enter into a Contract within a specified time and furnish any required bond as mandated by Connecticut General Statute Section 4b-92.

1.9 BIDDER: A sole proprietor, partnership, firm, corporation or other business organization submitting a Bid on the Bid Proposal Form for the Work contemplated.

1.10 BIDDING DOCUMENTS: Collectively, the Bidding Requirements and the proposed Contract Documents, including any addenda issued prior to receipt of Bids.

1.11 BID OR BID PROPOSAL FORM: A complete and duly signed proposal to perform Work (or a designated portion thereof) for a stipulated sum submitted in accordance with the Bidding Documents.

1.12 BID SECURITY: Certified check or Bid Bond submitted with Bid Proposal Form, which provides that the Bidder, if awarded the Contract, will execute such Contract in accordance with the requirements of the Bidding Documents.

1.13 BUILDER'S RISK INSURANCE: A specialized form of property insurance which provides coverage for loss or damage to the Work pursuant to the Contract Documents.

1.14 CASH ALLOWANCE: An amount established in the Contract Documents for inclusion in the Contract Sum to cover the cost of prescribed items not specified in detail, and as shown in the Allowance Schedule.

1.15 CERTIFICATE OF ACCEPTANCE: A document issued by the Owner to the Contractor stating that all Work specified in the Certificate of Acceptance has been completed and accepted by the Owner.

1.16 CERTIFICATE OF COMPLIANCE: A document stating that for the portion of the Project completed, either the design portion or the construction portion, has been performed in substantial compliance with all applicable building codes.

1.17 CERTIFICATE OF OCCUPANCY: Document is-sued by the authority having jurisdiction certifying that all or a designated portion of a building is approved for its designated use.

1.18 CERTIFICATE OF SUBSTANTIAL COMPLE-TION: A document prepared by the Architect or Engineer and approved by the Owner on the basis of an inspection stating:

- **1.18.1** that the Work, or a designated portion thereof, is determined to be Substantially Complete;
- **1.18.2** the date of Substantial Completion;
- **1.18.3** the responsibilities of the Owner and the Contractor for security maintenance, heat, utilities, damage to the Work and insurance; and
- **1.18.4** the time within which the Contractor shall complete the remaining Work.

1.19 CHANGE ORDER: Written authorization signed by the Owner, authorizing a modification in the Work, an adjustment in the Contract Sum, or an adjustment in the Con-tract Time.

1.20 COMMISSIONER: The State of Connecticut, Department of Construction Services (CT DCS) Commissioner acting directly or through specifically authorized CT DCS personnel or agent(s) having authority to perform duties defined in Article 25.

1.21 COMMISSIONING AGENT (CxA): An independent entity under contract directly with the Owner or Owner's Representative responsible for performing the specified commissioning procedures.

1.22 CONSTRUCTION ADMINISTRATOR: A sole proprietor, partnership, firm, corporation or other business organization, under Contract or employed by the Owner commissioned and/or authorized to oversee the fulfillment of all requirements

of the Contract Documents. The authorized Construction Administrator may be a Department of Construction Services Assistant Project Manager, Department of Construction Services Project Manager, a Clerk of the Works, an Architect, a Consulting Architect, a Consulting Construction Administrator, a Consulting Engineer etc. or any other designee as authorized and identified by the Owner.

1.23 CONSTRUCTION CHANGE DIRECTIVE: A written authorization signed by the Owner, directing a modification in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum, Contract Time or both. Any Construction Change Directive effecting an adjustment to the Contract Sum or Contract Time shall result in a Change Order.

1.24 CONTRACT DOCUMENTS OR CONTRACT: The Agreement between Owner and Contractor, Conditions of the Contract (General Conditions, Supplementary Conditions, General Requirements and other Conditions), Drawings, Specifications, and Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract, all of which shall constitute the Contract.

1.25 CONTRACTOR OR GENERAL CONTRACTOR: A sole proprietor, partnership, firm or Corporation, under direct Contract with the Department of Construction Services, responsible for performing the Work under the Contract Documents. Whenever the words "Contractor" or "General Contractor" are used it shall be understood to mean Contractor.

1.26 CONTRACTOR'S LIABILITY INSURANCE: Insurance purchased and maintained by the Contractor that insures the Contractor for claims for property damage, bodily injury or death.

1.27 CONTRACT START DATE OR DATE OF COMMENCEMENT OF THE WORK: The date, specified by the Owner in the Notice to Proceed, on which the Contractor is required to start the Work.

1.28 CONTRACT SUM: The sum stated in the Contract, which is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

1.29 CONTRACT TIME: The period of time allotted in the Contract Documents for Substantial Completion of the Work, including authorized adjustments thereto. The Contract Time is the sum of all Working Days and Non-Working Days as further defined herein and specified in the Contract Documents.

1.30 DAY: Whenever the word Day is used it shall be understood to mean calendar day stated on the Bidding Documents, unless stated otherwise.

1.31 DEPARTMENT OF CONSTRUCTION SERVICES (CT DCS) PROJECT MANAGER: The individual employed by the Owner, designated and authorized by the Commissioner, to be responsible for the overall management and oversight of the Project, and to represent the (User) Agency.

1.32 DIESEL VEHICLE EMMISSIONS CONTROL: The reduction of air pollution emissions from diesel powered vehicles through the use of diesel engine emission control technologies.

1.33 EQUAL(S): Any deviation from the Specification which is defined as follows: A replacement for the specified material, device, procedure, equipment, etc., which is recognized and accepted as substantially equal to the first listed manufacturer or first listed procedure specified after review by the Architect/Engineer, and may be rejected or approved at the sole discretion of the Owner. All equals must be substantially equivalent to the first manufacturer or first procedure listed in the Specifications with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, rating, and cost. The equal does not constitute a modification in the scope of Work, the Schedule, or Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

1.34 FINAL INSPECTION: Review of the Work by the Architect or Engineer and Owner to determine whether Acceptance has been achieved.

1.35 FINAL PAYMENT: The last payment made by the Owner to the Contractor, made after notice of the Acceptance. Payment shall include the entire unpaid balance of the Contract Sum as adjusted by modifications.

1.36 GENERAL CONDITIONS: The General Conditions of the Contract for Construction, part of Division 00 of the Specifications.

1.37 GENERAL REQUIREMENTS: That part of the Contract Documents entitled General Requirements, which is Division 01 of the Specifications.

1.38 GUARANTEE: See Warranty.

1.39 LIQUIDATED DAMAGES: A sum established in a Contract, usually as a fixed sum per Day, as the predetermined measure of damages to be paid to the Owner due to the Contractor's failure to complete the Work within the Contract Time.

1.40 LUMP SUM: An item or category priced as a whole rather than broken down into its elements.

1.41 MOBILE SOURCE: A source designed or constructed to move from one location to another during normal operation except portable equipment and includes, but is not limited to, automobiles, buses, trucks, tractors, earth moving equipment, hoists, cranes, aircraft, locomotives operating on rails, vessels for transportation on water, lawnmowers, and other small home appliances.

1.42 NON-WORKING DAYS: All Saturdays, Sundays, Legal State Holidays (12), and any other Days identified in the

Contract Documents that the Contractor is not permitted to execute the Work. The restriction of Non-Working Days may be suspended upon the approval or direction of the Commissioner.

1.43 NOTICE TO BIDDER: A notice contained in the Bidding Document informing prospective Bidders of the opportunity to submit Bids on a Project.

1.44 NOTICE TO PROCEED: Written notice, issued by the Commissioner or the Commissioner's authorized representative, to the Contractor authorizing the Contractor to proceed with the Work and establishing the date for commencement of the Contract Time.

1.45 OWNER OR DEPARTMENT: The State of Connecticut, Department of Construction Services acting through its Commissioner or specifically authorized Department personnel or agent.

1.46 OVERHEAD: Indirect costs including: supervision (any position over the foreman), field and home office expense, insurance, and small tools and consumables.

1.47 PAYMENT, BOND, LABOR BOND OR MATERIAL BOND: A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Contractor will pay for labor and materials furnished for use in the performance of the Contract, as required by Connecticut General Statutes Section 49-41.

1.48 PERFORMANCE BOND OR SURETY BOND: A bond in which the Contractor and the Contractor's surety guarantee to the Owner that the Work will be performed in accordance with the Contract Documents, as required by Connecticut General Statutes Section 49-41.

1.49 PERFORMANCE SPECIFICATION: A description of the desired results or performance of a product, material, assembly, procedure, or a piece of equipment with criteria for identifying the standard.

1.50 PLANS OR DRAWINGS: All Drawings or reproductions of Drawings pertaining to the construction of the Work contemplated and its appurtenances.

1.51 PROJECT: The total construction of which the Work performed under the Contract Documents may be the whole or a part.

1.52 PROJECT MANUAL: The set of documents assembled for the Work which includes, but is not limited to, Contract Documents, Bidding Requirements, Sample Forms, General Conditions of the Contract for Construction, General Requirements, and the Specifications.

1.53 PROPRIETARY SPECIFICATION: A specification that describes a product, procedure, function, material, assembly, or piece of equipment by trade name and/or by naming the manufacturer(s) or manufacturer's procedure, exact model number, item, etc., of those products acceptable to the Owner.

1.54 RETAINAGE: A percentage of each Application for Payment and a percentage of the total Contract Sum retained by the Owner.

1.55 SCHEDULE: A Critical Path Method (CPM) or Construction Schedule as required by the Contract Documents which shall be a diagram, graph or other pictorial or written Schedule showing all events expected to occur and operations to be performed and indicating the Contract Time, start dates, durations and finish dates as well as Substantial Completion and Acceptance of the Work, rendered in a form permitting determination of the optimum sequence and duration of each operation.

1.56 SCHEDULE OF VALUES: A document furnished by the Contractor to the Architect or Engineer and Owner stating the portions of the Contract Sum allocated to the various portions of the Work, which is to be used for reviewing the Contractor's Applications for Payment.

1.57 SECONDARY SUBCONTRACTOR: A sole proprietor, partnership, firm or Corporation under direct Contract with the Subcontractor to the General Contractor.

1.58 SENSITIVE RECEPTOR SITES: Areas where concentrations of diesel emissions may be harmful to sensitive populations, including, but not limited to, hospitals, school and university buildings being occupied during a student semester, residential structures, daycare facilities, elderly housing, and convalescent facilities.

1.59 SHOP DRAWINGS: Drawings provided to Architect or Engineer and Owner by a Contractor that illustrate construction, materials, dimensions, installation, and other pertinent information for the incorporation of an element or item into the construction as detailed Contract Documents.

1.60 SPECIFICATIONS: The description, provisions and other requirements pertaining to the method and manner of performing the Work and/or to the quantities and quality of materials to be furnished under the Contract.

1.61 SUBCONTRACTOR: A sole proprietor, partnership, corporation or other business organization under direct Contract with the Contractor supplying labor and/or materials for the Work at the site of the Project.

1.62 SUBMITTALS: Documents including, but not limited to, samples, manufacturer's data, Shop Drawing, or other such items submitted to the Owner and Architect or Engineer by the Contractor for the purpose of approval or other action, as required by the Contract Documents.

1.63 SUBSTANTIAL COMPLETION: The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents.

1.64 SUBSTITUTION: Any deviation from the specified requirements, which is defined as follows: A replacement for

the specified material, device, procedure, equipment, etc., which is not recognized or accepted as equal to the first manufacturer or procedure listed in the Specification after review by the Architect/Engineer, and may be rejected or approved by the Owner. The Substitution is not equal to the specified requirement in comparison to the first manufacturer or first procedure listed in the Specifications in one or more of the following areas: the substance and function considering quality, workmanship, economy of operation, durability, and suitability for purposes intended; size, cost, and rating. The Substitution constitutes a modification in the scope of Work, the Schedule, or the Architect/Engineer's design intent of the specified material, device, procedure, equipment, etc.

1.65 SUPERINTENDENT: The Contractor's representative at the site who is responsible for continuous field supervision, coordination, in, completion of the Work, and, unless another person is designated in writing by the Contractor to the Owner and the Construction Administrator, for the prevention of accidents.

1.66 SUPPLEMENTAL BID: The monetary value stated in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

1.67 SUPPLEMENTARY CONDITIONS: An extension in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted.

1.68 THRESHOLD LIMIT BUILDING: Any proposed (new) structures or additions as defined by the Connecticut General Statutes Section 29-276b.

1.69 UNIT PRICE: The monetary value stated by the Owner or the Contractor, as a price per unit of measurement for materials or services as described in the Contract Documents and/or Bidding Documents.

1.70 WARRANTY: A written, legally enforceable assurance of specified quality or performance of a product or Work or of the duration of satisfactory performance.

1.71 WORK: The construction and services required by the Contract Documents, and including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

ARTICLE 2
CONDITIONS OF WORK

2.1 The Contractor shall carefully examine and study the conditions under which the Work is to be performed and the site of the Work, and compare the Contract Documents with each other and to information furnished by the Owner including but not limited to the Plans and Specifications, the form of the Contract, General Conditions, Supplementary Conditions, General Requirements, Bonds and all other Contract Documents associated with the Work.

2.2 The Contractor shall report to the Construction Administrator all errors, inconsistencies or omissions discovered. The Contractor shall not be liable to the Owner for damage resulting from errors, inconsistencies or omissions in the Contract Documents unless the Contractor recognized such errors, inconsistencies or omission and failed to report it to the Construction Administrator. If the Contractor performs any actions or construction activity knowing it involves an error, inconsistency or omission in the Contract Documents without notice to the Construction Administrator, the Contractor shall assume responsibility for such performance and related costs for the correction and shall not be allowed to submit any claim related to error, inconsistencies or omission.

2.3 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Construction Administrator at once; and it will be assumed that the Contractor has been satisfied as to all requirements of the Contract Documents. Any deterrent conditions at the site of the Work which are obvious and apparent upon examination of the site but are not indicated on the Plans shall be corrected by the Contractor without additional compensation.

2.4 In performing the Work, the Contractor must employ such methods or means as will not cause any interruption of or interference with the Work of any other Contractor, nor any inordinate disruption with the normal routine of the Owner, institution or Agency operating at the site.

2.5 No claims for additional compensation will be considered when additional costs result from conditions made known to, discovered by, or which should have been discovered by, the Contractor prior to Contract signing.

2.6 All Communications from the Contractor concerning proposed changes to the Contract Sum, Contract Time, or Work shall be in writing.

2.7 The Contractor shall perform the Work in accordance with the Contract Documents and approved Submittals pursuant to Article 5.

ARTICLE 3
CORRELATION OF CONTRACT DOCUMENTS

3.1 The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. Where discrepancies or conflict occur in the Contract Documents the following order of precedence shall be utilized:

3.1.1 Amendments and addenda shall take precedence over previously issued Contract Documents.
3.1.2 The Supplementary Conditions take precedence over the General Conditions.
3.1.3 The General Conditions take precedence over the General Requirements.

3.1.4 The Specifications shall take precedence over the Plans.
3.1.5 Stated dimensions shall take precedence over scaled dimensions.
3.1.6 Large-scale detail Drawings shall take precedence over small-scale Drawings.
3.1.7 The Schedules contained in the Contract Documents shall take precedence over other data on the Plans.

3.2 Neither party to the Contract shall take advantage of any obvious error or apparent discrepancy in the Contract Documents. The Contractor shall give immediate written notification of any error or discrepancy discovered to the Construction Administrator, who shall take the necessary actions to obtain such corrections and interpretations as may be deemed necessary for the completion of the Work in a satisfactory and acceptable manner. The Contractor shall then promptly proceed under the direction of the Owner and the provisions of Article 13. The Contractor's failure to provide immediate notice shall mean the Contractor will not be entitled to any additional compensation, either monetary or Contract Time adjustment, with respect to any discrepancy.

3.3 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

3.4 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings, shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

3.5 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

ARTICLE 4
COMMENCEMENT AND PROGRESS OF WORK

4.1 The Work shall start upon the date given in the Notice to Proceed. The Contractor shall complete all the Work necessary for Final Payment, including but not limited to Substantial Completion, Contract close-out, testing and demonstration of all systems as required for Acceptance, punchlist Work, training and submission of Record Documents, manuals, Guarantees and Warranties as stated in the Contract Document.

4.2 Time is of the essence with respect to the Contract Time. By executing the Contract, the Contractor confirms and agrees that the Contract Time is a reasonable period to perform the Work. The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor may, at his discretion, plan to complete the Work and achieve Substantial Completion in less time than the Contract Time.

4.3 The Contractor's early completion Schedule notwithstanding, the Owner reserves the right to order Modifications to the Work in accordance with Article 13 at any time during the Contract Time.

4.4 The Contractor shall not be entitled to costs for delay due to Owner ordered Modifications or any other circumstances for the period of time between the Contractor's elected early completion and the end of the Contract Time. Such costs include, but are not limited to, extended home office costs, field office costs, or supervisory and management costs incurred in performance of the Work. Early completion of the Work shall not merit additional compensation.

4.5 If the Contractor is delayed at any time in the progress of Work by acts of God, such as fire or flood or any action, injunction or stop order issued by any court, judge or officer of the court or any other court action beyond the Owner's control, then the Contract Time may be extended by Change Order for such reasonable time as demonstrated by the Contractor's Schedule and as the Owner may determine that such event has delayed the Work. In any event, the granting of an extension of time shall be solely within the discretion of the Owner.

4.6 Except as otherwise may be provided herein, extensions of time shall be the Contractor's sole remedy for such delay. No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance in the orderly progress of Work caused by the aforesaid causes.

4.7 The Contractor acknowledges that the Contract amount includes and anticipates any and all delays, whether avoidable or unavoidable, from said orders, which may issue from any court, judge, court officer, or act of God, and that such delays shall not, under any circumstances, be construed as compensable delays.

4.8 Any extension of the Contract Time shall be by Change Order pursuant to Article 13.

4.9 The Contractor shall employ a competent project manager who shall represent the Contractor. Communications given to the project manager shall be binding as if given to the Contractor. The project manager will be employed full time on the Project and be located and assigned to the Project site during and for the duration of the Work.

4.10 The Contractor shall employ a competent Superintendent and necessary assistants who will be in attendance at the project site during the performance of the Work.

4.11 Upon execution of the Contract, materials may be purchased. No material escalation costs will be valid or compensable unless the Owner directs, in writing, a delay in the procurement.

ARTICLE 5
SUBMITTALS, PRODUCT DATA, SHOP DRAWINGS AND SAMPLES

5.1 Contractor shall review, approve, and submit to the Construction Administrator all Submittals including but not limited to, product data, Shop Drawings, and samples, with such promptness as to cause no delay in the Work.

5.2 Correction or approval of such Submittals, Shop Drawings, product data and samples will be made with reasonable promptness by the Architect or Engineer. Approval will be general only and shall not relieve the Contractor from responsibility for errors in dimensions, for construction and field coordination of the Work or for any departure from the Contract Documents, unless such departure has received the Owner's written approval.

5.3 No Work governed by such Shop Drawings, Schedules or samples shall be fabricated, delivered or installed until approved by the Architect or Engineer.

5.4 No damages for delays or time extensions will be granted, even if approvals deviate from the approved Schedule.

ARTICLE 6
SEPARATE CONTRACTS

6.1 The Owner reserves the right to perform Work in connection with the Contract with the Owner's own forces, or to let separate contracts relating to the Contract (Project) site or in connection with Work on adjoining sites. In such cases, the Contractor shall afford such parties reasonable opportunity for storage of materials and equipment and coordinate and connect the Work with the work on adjoining sites or other Projects, and shall fully cooperate with such parties in the matter required under Article 7 herein.

6.2 Contractors working in the same vicinity shall cooperate with one another and, in case of dispute, decision of the Owner shall be final and binding to all Contractors involved, including Contractors under separate Contracts.

6.3 The Contractor shall assume all liability, financial or otherwise, in connection with this Contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience or delay which the Contractor may cause other Contractors. If the Contractor experiences a loss because of the presence and operations of other Contractors working adjacent to or within the limits of the same Project, then as between the Owner and the Contractor, the Contractor shall bear such loss.

6.4 Insofar as possible, the Contractor shall arrange the Work and shall place and dispose of the materials being used so as not to interfere with the operations of other Contractors adjacent to or within the limits of the same Project. The Contractor shall join its Work with that of others in an acceptable manner, and perform the Work in proper accordance with that of the others.

6.5 In no event shall the Owner be responsible for any claim or damages that are the result of the Contractor's failure to coordinate the Work with any other Contractor or Subcontractor.

ARTICLE 7
COOPERATION OF TRADES

7.1 he Contractor shall be responsible for and shall control all activities of their Subcontractors. The Subcontractors shall consult and cooperate with one another. Each Subcontractor shall furnish all necessary information to other Subcontractors and shall lay out and install their own Work so as to avoid any delays or interference with the Work of others.

7.2 Any cost or changes, cutting and/or repairing, made necessary by the failure to observe the above requirements shall be borne by the party or parties responsible for such failure or neglect or their faulty Work installed.

ARTICLE 8
DAMAGES

8.1 The Liquidated Damages, provided in the Bidding Documents, will be assessed at two distinct times, as follows:

8.1.1 Liquidated Damages – Substantial Completion:
If the Contractor fails to achieve Substantial Completion of the Work by the Substantial Completion Date, and such delay is not otherwise excused under this Contract, then the Contractor agrees to pay to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for this Project, for each Day beyond Substantial Completion that the Contractor fails to achieve Substantial Completion. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the neglect, failure, or refusal of the Contractor to substantially complete the Project by the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

.1 the parties do not intend to set a price for the privilege not to perform;

.2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and

3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

8.1.2 Liquidated Damages – Acceptance:
If the Contractor fails to complete all of the Work required for Acceptance of the Work within ninety (90) Days of Substantial Completion then the Contractor agrees to pay

to the Owner Liquidated Damages for the dollar amount specified in the Bid Proposal Form for each Day in excess of ninety (90) Days beyond the Substantial Completion Date that the Contractor fails achieve Acceptance. The parties to this Contract acknowledge and agree that the actual damages that are to be anticipated as a result of the failure of the Contractor to complete all of the Work required for Acceptance within ninety (90) Days of the established Substantial Completion Date are uncertain in amount or extremely difficult to determine. Accordingly, the parties to this Contract do intend and in fact now agree to liquidate damages in advance and stipulate that the amount set forth in this subparagraph is reasonable and an appropriate remedy and is intended to constitute compensatory damages and does not constitute a penalty of any kind. The parties understand and agree that, by including a provision for Liquidated Damages in this Contract, or in pursuing any relief pursuant to such provision:

.1 the parties do not intend to set a price for the privilege not to perform;

.2 the availability of Liquidated Damages may not be relied upon as a basis for argument that the Owner has an adequate remedy at law; and

.3 the remedies available to the Owner under this Agreement are cumulative and not exclusive.

8.2 The Liquidated Damages or any portion thereof may be waived at the sole discretion of the Commissioner.

8.3 No payment by the Owner, either partial or final, shall be construed to waive the Owner's right to seek Liquidated Damages.

8.4 In the event a court determines that the Contract herein is null and void for any reason, Contractor agrees that Contractor will not seek or pursue any lawsuit or claim for damages, including, but not limited to, claims for loss of Overhead or anticipated profits, against the Owner and the Owner shall not be liable for any damages which Contractor may incur as a result of such decision. In addition, if the court enjoins the Owner from entering into or proceeding with the Contract herein, the Owner shall not be liable for any damages arising out of or relating to the award of such Contract which Contractor may have incurred as a result of the injunction.

ARTICLE 9
MINIMUM WAGE RATES

9.1 In accordance with the provisions of the Connecticut General Statutes Section 31-53, the following applies:

"The wages paid on an hourly basis to any person performing the work of any mechanic, laborer, or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (h) of this section, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each payday."

9.2 Each Contractor who is awarded a Contract on or after October 1, 2002 shall be subject to provisions of the Connecticut General Statutes, Section 31-53 as amended by Public Act 02-69, "An Act Concerning Annual Adjustments to Prevailing Wages."

No wage adjustment will be made to the Contract for any wage increase under this Article.

ARTICLE 10
POSTING MINIMUM WAGE RATES

10.1 The Contractor shall post at conspicuous points on the site of the Contract a Schedule showing all determined wage rates for all trades and all authorized deductions, if any, from wages to be paid.

10.2 The Contractor shall provide weekly certified payrolls to the Owner for all persons working on the site.

ARTICLE 11
CONSTRUCTION SCHEDULES

11.1 Unless otherwise specified in the Contract Documents, within twenty-one (21) Days from the Contract Start Date, the Contractor shall submit the following to the Owner for approval:

11.1.1 A comprehensive Schedule of Submittals required by the Specifications. Said Schedule shall include Submittal dates, required approval dates and date material must be on site.

11.1.2 The Contractor shall allow a minimum of 14 Days for the Owner and its agents' review of Submittals. No extension of the Contract Time shall be granted for revisions and resubmission. Further, the Contractor shall allow a minimum of eight weeks for testing and Acceptance of the Work by the Owner.

11.1.3 When the Contract Documents specify a "CPM Schedule" a detailed Critical Path Method Schedule is required using software approved by the Owner and/or Construction Administrator with as many activities as necessary to make the Schedule an effective tool for planning and monitoring the progress of the Work. The Contractor shall show all pertinent activities requiring coordination between trades.

11.1.4 When the Contract Documents specify a "Construction Schedule" a detailed Construction Schedule is required using software approved by the Owner as a horizontal bar chart with a separate bar for each major portion of the Work or operation to make the Schedule an effective

tool for planning and monitoring the progress of the Work.

11.2 Unless otherwise specified under the Contract Documents, the Contractor shall provide a monthly update of the CPM Schedule or Construction Schedule in the format required by the Owner as well as a disk of the updated Schedule and program. If, in the opinion of the Owner, the Work is falling behind Schedule, the Contractor shall submit a revised Schedule demonstrating a recovery plan to ensure Substantial Completion of the Work within the Contract Time.

11.3 Overtime, increased manpower, and additional shifts: If ordered by the Owner in writing, the Contractor shall work overtime, and/or add additional manpower and/or shifts:

11.3.1 If the Contractor is not behind Schedule, the Owner will pay the Contractor the actual additional premium portion of the wages for overtime or additional shift work not included in the Contract price, but the Contractor shall not be entitled to Overhead and Profit.

11.3.2 If the Contractor, through its sole or partial fault or neglect is behind Schedule, the Owner may order the Contractor, at the Contractor's expense, to increase its manpower or to work any overtime or additional shifts or take other action necessary to expedite the Work to meet the Project Schedule.

11.3.3 If the Schedule is shown to be more than 21 Days behind in any critical activity, overtime, increase manpower and/or additional shifts shall be implemented immediately regardless of who is at fault. A disagreement over the cause of the impact will not relieve the Contractor from the obligation of complying with this Article. Once liability for the impact is determined, compensation will be determined in accordance with 11.3.1 or 11.3.2.

11.3.4 The Owner reserves the right to suspend activity under Paragraph 11.3. Suspension shall be in writing and at the sole discretion of the Commissioner.

11.4 Requisitions for partial payment will not be processed until the Contractor has complied with this requirement.

ARTICLE 12
PREFERENCE IN EMPLOYMENT

12.1 Should this Contract be for the construction or repair of any building, then in the employment of labor to perform the Work specified herein, preference shall be given to citizens of the United States, who are, and continuously for at least three (3) months prior to the date hereof, have been residents of the labor market area, as established by the State of Connecticut Labor Commissioner, in which such Work is to be done, and if no such qualified person is available, then to citizens who have continuously resided in the county in which the Work is to be performed for at least three (3) months prior to the date hereof, and then to citizens of the state who have continuously resided in the State at least three months prior to the date hereof.

12. Should this Contract be for a Construction Services Project other than for the construction, remodeling or repairing of public buildings covered by Connecticut General Statutes 31-52, then in the employment of mechanics, laborers or workmen to perform the Work specified herein, preference will be given to residents of the state who are, and continuously for at least six (6) months prior to the date hereof have been residents of this State, and if no such person is available then to residents of other states.

12.3 The provisions of this Article shall not apply where the state or any subdivision thereof may suffer the loss of revenue granted or to be granted from any Agency or Department of the federal government as a result of this Article or regulations related thereto.

ARTICLE 13
COMPENSATION FOR CHANGES IN THE WORK

13.1 At any time, without invalidating the Contract and by a written order and without notice to the sureties, the Owner, through the Construction Administrator, may order modifications in the Work consisting of additions, deletions or other revisions. Upon request, the Contractor shall supply the Construction Administrator promptly with a detailed proposal for the same, showing quantities of and Unit Prices for the Work and that of any Subcontractor involved.

13.2 Modifications to the Work will be authorized by a written Change Order, or if necessary to expedite the Work, a written Construction Change Directive, issued by the Owner as provided for in Article 25. Change Orders and Construction Change Directives shall be processed in accordance with the terms of the Contract Documents. Upon receipt of the written Change Order, the Contractor shall proceed with the Work when and as directed.

13.3 If a Change Order makes the Work less expensive for the Contractor, the proper deductions shall be made from the Contract Sum, said deductions to be computed in accordance with the provisions listed in this Article 13.

13.4 The Contractor shall not be entitled to an extension of time if in the opinion of the Owner the Additional Work in conjunction with the Work can be performed without impact on the Contract Time.

13.5 The Contractor may request, and the Owner may grant additional Contract Time when, in the opinion of the Owner, the Contractor has demonstrated that the Additional Work cannot be performed in conjunction with the Work without impact on the original Substantial Completion and/or Acceptance (if applicable) date.

13.6 The amount of compensation to be paid to the Contractor for any Additional or Deleted Work that results in a Change Order shall be determined in one of the following manners:

13.6.1 AMOUNT OF COMPENSATION FOR CHANGE ORDER COSTS: LABOR, EQUIPMENT, BENEFITS AND MATERIAL:

13.6.1.1 Unit Price: As stated in the Contract Documents.

13.6.1.2 Unit Price: As subsequently agreed upon by the Contractor and Owner

13.6.1.3 Lump Sum: Agreed upon sum by the Owner and the Contractor. The Owner may rely on costs, prices, and documentation provided by the Contractor or Subcontractor in agreeing to a Lump Sum. If the Owner believes that additional information is necessary to substantiate the accuracy of the cost, the Owner reserves the right to request and receive additional information from the Contractor. The Lump Sum must be based upon the following itemized costs:

13.6.1.3.1 Labor: (Contractor's or Subcontractor's own forces) No Change Order Proposal shall be negotiated if the request is solely for the increased labor rate over those originally carried by the Contractor in its original bid. Additional foreman hours shall not be included unless additional crews are added and/or a compensable time extension is granted. Project Executive time shall not be included as a direct cost as it is part of the overhead mark-up allowed. Project manager hours shall not be included unless a compensable time extension is granted.

13.6.1.3.2 Material: (Actual cost to the Contractor or Subcontractor) Cost shall not be based upon list pricing unless it reflects the actual prices being paid and no discounts or other offsets are being received by the Contractor or Subcontractor. No Change Order Proposal shall be negotiated if the request is solely for the escalation of material prices over those originally carried by the Contractor in its original bid.

13.6.1.3.3 Benefits: (The established rates of the following benefit costs inherent to the particular labor involved):

13.6.1.3.3.1 Workers Compensation.

13.6.1.3.3.2 Federal Social Security.

13.6.1.3.3.3 Connecticut Unemployment Compensation.

13.6.1.3.3.4 Fringe Benefits.

13.6.1.4 Rented Equipment: (Used directly on the Work and by the Contractor's or Subcontractor's own forces).

13.6.1.5 Owned Equipment: (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate as identified by a nationally recognized construction cost estimating guide or service.

13.6.1.6 Small Tools:
Include items such as shovels, picks, rakes, ladders, and power tools which are expected to be utilized on a project. Trade related equipment, hand tools, and power tools normally supplied with the labor or are normally expected to be owned in the performance of the typical work for a trade are not compensable. These costs shall not be approved as part of the Direct Cost of a Change Order as they are included in the Contractor's overhead mark-up percentage.

13.6.2 OVERHEAD AND PROFIT PERCENTAGES: (Maximum allowable percentages applied to labor, equipment, and material)

13.6.2.1 Contractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
$0 to $ 5,000	20%
$5,001 to $15,000	17%
$15,001 to $25,000	15%
$25,000 and greater	12%

13.6.3 OVERHEAD AND PROFIT PERCENTAGES: (Maximum allowable percentages applied to labor, equipment, benefits and material)

13.6.3.1 Contractor's mark-up for Work performed by its Subcontractor's forces and not allowable for any subsidiary in which the Contractor has a majority ownership:

Change Order Amount	Overhead and Profit
$0 and greater	6%

13.6.4 OVERHEAD AND PROFIT PERCENTAGES: (Maximum allowable percentages applied to labor, equipment, benefits and material) Subcontractor's mark-up for Work performed by its own forces:

Change Order Amount	Overhead and Profit
$0 to $ 5,000	20%
$5,001 to $15,000	17%
$15,001 to $25,000	15%
$25,000 and greater	12%

13.6.5 OVERHEAD AND PROFIT PERCENTAGES: (Maximum allowable percentages applied to labor, equipment, benefits and material)

13.6.5.1 Subcontractor's mark-up for Work performed by its Secondary Subcontractor's forces. Limited to one level (tier) below the Subcontractor and not allowable for any subsidiary in which the Subcontractor has a majority ownership.

Change Order Amount	Overhead and Profit
$0 and greater	6%

13.7 BOND COSTS

13.7.1 Actual additional bonding costs associated with the value of the Change Order will be compensable only when supported by written documentation by the bonding company that the Change Order requires an increase to the original Performance, Payment, Labor or Material Bond.

13.7.2 The Contractor shall notify the bonding company at each $500,000 increase to the contract value as the cumulative result of change orders. A copy of the Consent of Surety must be provided to the Owner prior to the execution of any change order which exceeds each cumulative $500,000.

13.8 Trade discounts, rebates, and amounts received from the sales by the Contractor of surplus materials and equipment shall accrue to the Owner.

13.9 If the parties cannot agree upon a Lump Sum, then the Commissioner, through the Project Manager, may at the option of the Commissioner take the following action(s):

13.9.1 Issue a Construction Change Directive for the Additional or Deleted Work. The amount of compensation shall be computed by the actual net costs to the Contractor determined by time and material or Unit Prices based upon the same information required in Subparagraphs 13.6.1.3.3.1 through 13.6.1.5:

13.9.1.1 **Labor:** (Contractor's or Subcontractor's own forces).

13.9.1.2 **Material:** (Used by Contractor's or Subcontractor's own forces).

13.9.1.3 **Benefits:** (The established rates of the following benefit costs inherent to the particular labor involved):

13.9.1.3.1 Workers Compensation.

13.9.1.3.2 Federal Social Security.

13.9.1.3.3 Connecticut Unemployment Compensation.

13.9.1.3.4 Fringe Benefits.

13.9.1.4 **Rented Equipment: (**Used directly on the Work and by the Contractor's or Subcontractor's own forces).

13.9.1.5 **Owned Equipment**: (Used directly on the Work and by the Contractor's or Subcontractor's own forces). Daily rate is not to exceed 3% of the monthly rental rate that can be identified by a nationally recognized construction cost estimating guide or service.

13.9.2 Issue a Change Order adjusting the Contract Sum in the amount as determined by the Commissioner.

13.10 For any Change Order or Construction Change Directive the Contractor shall, when requested, promptly furnish in a form satisfactory to the Construction Administrator and the Owner a complete detailed accounting of all costs relating to the Additional Work, including but not limited to certified payrolls and copies of accounts, bills and vouchers to substantiate actual costs. Further, the Owner reserves the right to access and make copies of the Contractor's records at any time upon written request from the Commissioner.

13.11 Failure of the Contractor to negotiate in good faith issues of time and costs or failure to provide requested documentation within fourteen (14) Days, or a time period accepted by the Commissioner, shall constitute a waiver by the Contractor of any claim. In such cases the Owner may elect to issue a unilateral Change Order in an amount deemed to be fair and equitable by the Commissioner. The provisions hereof shall not affect the power of the Contractor to act in case of emergency, threatened injury to persons, or damage to Work on any adjoining property. In this case the Commissioner, through the Project Manager, shall issue a Change Order for such amount as the Commissioner finds to be reasonable cost of such Work.

ARTICLE 14
DELETED WORK

14.1 Without invalidating any of the terms of the Contract, the Commissioner may order deleted from the Contract any items or portions of the Work deemed necessary by the Commissioner.

14.2 The compensation to be deducted from the Contract Sum for such deletions shall be determined in the manner provided for under the provisions of Article 13 or in the event none of the provisions of Article 13 are applicable then by the value as estimated by the Owner.

ARTICLE 15
MATERIALS: STANDARDS

15.1 Unless otherwise specifically provided for in the Specifications, all equipment, materials and articles incorporated in the Work are to be new and of the best grade of their respective kinds for the purposes. Wherever in the Contract Documents a particular brand, make of material, device, or equipment is shown or specified, the first manufacturer listed in the specification section is to be regarded as the standard. When the specification is proprietary and only one manufacturer is listed, the Contractor shall use the named manufacturer and no Substitutions or Equals will be allowed.

15.2 Any other brand, make of material, device, equipment, procedure, etc. which is a deviation from the specified requirement is prohibited from use, but may be considered by the Owner for approval as an Equal or Substitution. The Contractor is to adhere to the specific requirements of the Contract Documents. Substitutions are discouraged and are only approved by the Commissioner as an exception.

15.3 Submittals – Equals and Substitution Requests:

15.3.1 Substitution of Materials and Equipment before Bid Opening. The Owner will consider requests for Equals or Substitutions, if made prior to the receipt of the Bid. The information on all materials shall be consistent with the information herein.

15.3.1.1 Statement of Variances – a statement of variances must list all features of the proposed Substitution which differ from the Drawings, Specifications and/or product(s) specified and must further certify that the Substitution has no other variant features. A request will be denied if submitted without sufficient evidence.

15.3.1.2 Substitution Denial – any Substitution request not complying with the above requirements will be denied. Substitution request sent after the deadline established in the Notice to Bidder will be denied.

15.3.1.3 An addendum shall be issued to inform all prospective Bidders of any accepted Substitution in accordance with Owner's addenda procedures.

15.3.2 Substitution of Materials and Equipment After Bid Opening: Subject to the Architect or Engineer's determination, if the material or equipment is Equal to the

one specified or pre-qualified and the CT DCS Project Manager's approval of such determination, Substitution of Material or Equipment may be allowed after the Letter of Award is issued only:

15.3.2.1 If the specified or pre-qualified item is delayed by unforeseeable contingencies beyond the control of the Contractor which would cause a delay in the Project completion;

15.3.2.2 If any specified or pre-qualified item is found to be unusable or unavailable due to a change by the manufacturer or other circumstances; or

15.3.2.3 If the Contractor desires to provide a more recently developed material, equipment, or manufactured model from the same named manufacturer than the one specified or pre-qualified; or

15.3.2.4 If the specified material and/or equipment inadvertently lists only a single manufacturer.

15.4 Contractor shall submit each request for Equal or Substitution to the Architect or Engineer who shall review each request and make the following recommendations to the Owner:

15.4.1 Acceptance or non-acceptance of the adequacy of the submission and required back-up,

15.4.2 Determination of the category of the request for Substitution or Equal, and

15.4.3 Overall recommendation for approval or rejection of the Substitution or Equal. The determination of the category as a Substitution may be grounds for an immediate rejection by the Owner.

15.5 Approval of the Owner for each Equal or Substitution shall be obtained before the Contractor proceeds with the Work. The decision of the Commissioner, in this regard, shall be final and binding on the Contractor.

15.6 No extension of time will be allowed for the time period required for consideration of any Substitution or Equal. No extension of time will be allowed and no responsibility will be assumed by the Owner when a Contractor submits a request for Substitution or Equal, whether such request be approved or denied, and the Contractor shall not be entitled to any claim for damages for delay.

15.7 If the Contractor submits any request for an Equal or a Substitution, he shall bear the burden of proof that such requested Equal or Substitution meets the requirements of the Plans and Specifications.

15.8 The Contractor shall purchase no materials or supplies for the Work which is subject to any chattel mortgage or which are under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that the Contractor has good title to all materials and supplies used by him in the Work.

15.9 All products and systems supplied to the State as a result of a purchase by a Contractor shall be certified that, to the best of the supplier's knowledge, there are no materials that are classified as hazardous materials being used within the assembly. Hazardous materials include, but are not limited to, products such as asbestos, lead, and other materials that have proven to cause a health risk by their presence.

ARTICLE 16
INSPECTION AND TESTS

16.1 The purpose of the inspections will be to assure that the Work is performed in accordance with the Contract Documents. These inspections shall include, but not be limited to, all inspections and testing as required by the Owner, and any authorities have jurisdiction.

16.2 All material and workmanship, if not otherwise designated by the Specifications, shall be subject to inspection, examination and test by the Commissioner at any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction is carried on. The Contract Documents additionally identify the parties responsible for performing and paying for the required testing and inspections. All required tests performed in a laboratory will be obtained and paid for by the Owner, except when the tests show the Work to be defective. The Contractor shall pay for all the costs associated with re-tests and re-inspections for all tests and inspections which fail. The Owner will issue a deduct Change Order to recover said retesting costs from the Contractor. All other tests, unless otherwise specified, shall be made at the Contractor's expense. Notice of the time of all tests to be made at the site shall be given to all interested parties, including the Owner.

16.3 Without additional cost to the Owner, the Contractor shall promptly furnish facilities, labor and materials necessary to coordinate and perform operational tests and checkout of the Work. The Contractor shall furnish promptly all reasonable facilities, labor, and materials necessary to make all such testing safe and convenient.

16.4 If, at any time before final payment and Acceptance of the Work, the Commissioner considers it necessary or advisable to examine of any portion of the Work already completed by removing or tearing out the same, the Contractor shall, upon request, furnish promptly all necessary facilities, labor, and materials. If such Work is found to be defective in any material respect, as determined by the Owner, because of a fault of the Contractor or any of the Contractor's Subcontractors, or if any Work shall have been covered without the approval or consent of the Commissioner (whether or not it is found to be defective), the Contractor shall be liable for testing costs and all costs of correction, including removal and/or demolition of the defective Work, including labor, material, and testing, including labor, material, re-testing or re-inspecting, services of required consultants, additional supervision, the Commissioner's and the Construction Administrator's administrative costs, and other costs for services of other consultants.

16.5 Cost of Systems Commissioning Retesting: The cost to retest a pre-functional or functional test, if the Contractor is responsible for the deficiency, shall be the Contractor's. If the Contractor is not responsible, any cost

recovery for retesting costs shall be negotiated with the Contractor.

16.5.1 For a deficiency identified, not related to any pre-functional checklist or start-up fault, the following shall apply: The Commissioning Agent (CxA) and Construction Administrator will direct the retesting of the equipment once at no "charge" to the Contractor for their time. However, the Commissioning Agent's and Construction Administrator's time for additional testing will be charged to the Contractor.

16.5.2 The time for the Systems Commissioning Agent and Construction Administrator to direct any retesting required because a specific pre-functional checklist or start-up test item, reported to have been successfully completed, but determined during functional testing to be faulty, will be back charged to the Contractor.

16.5.3 Any required retesting by any Subcontractor shall not be considered a justified reason for a claim of delay or for a time extension by the Contractor.

ARTICLE 17
ROYALTIES AND PATENTS

17.1 If the Contractor desires to use any design, device, material or process covered by a patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the holder of said patent or copyright. The Contractor shall furnish a copy of this legal agreement to the Owner.

17.2 The Contractor shall indemnify and hold harmless the Owner and Construction Administrator for any costs, expenses and damage which it may be obliged to pay by reason of any infringement of a patent or a copyright, at any time during the prosecution or after the Final payment of the Work.

ARTICLE 18
SURVEYS, PERMITS AND REGULATIONS

18.1 Unless otherwise provided for, the Contractor shall furnish surveys necessary for the execution of the Work. The Owner will furnish the Contractor with two base lines and a benchmark.

18.2 The Contractor shall obtain and pay for permits and licenses necessary for the execution of the Work and the occupancy and use of the completed Work.

18.3 The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations including building and fire safety codes relating to the performance of the Work.

18.4 If underground utilities may be involved in part of the Work the Contractor is required to request "Call-Before-You-Dig" to verify the location of underground utilities at least (3) Working Days, as further defined under Paragraph 1.71 herein, prior to the start of any excavation. The Contractor shall also notify the Owner and Agency at least (3) Working Days prior to the start of any excavation. If "Call-Before-You-Dig" fails or refuses to respond to the Contractor's request, then the Contractor shall obtain the services of a qualified underground utility locating firm, at no additional cost to the Owner, to verify locations of underground utilities prior to the start of any excavation. The Contractor shall be held responsible for providing safety, protecting the Work and protecting workmen as necessary to perform the Work. The Contractor shall be responsible for maintaining and protecting all original utility mark-out at no additional cost to the Owner.

ARTICLE 19
PROTECTION OF THE WORK, PERSONS AND PROPERTY

19.1 The Contractor shall continuously and adequately protect the Work against damage from any cause, and shall protect materials and supplies furnished by the Contractor or Subcontractors, whether or not incorporated in the Work, and shall make good any damage unless it be due directly to errors in the Contract Documents or is caused by agents or employees of the Owner.

19.2 To the extent required by law, by public authority, or made necessary in order to safeguard the health and welfare of the personnel or occupants of any of the state institutions, the Contractor shall adequately protect adjacent property and persons, and provide and maintain all facilities, including but not limited, to passageways, guard fences, lights, and barricades necessary for such protection.

19.3 The Contractor shall take all necessary precautions for the safety of employees on the Work and shall comply with applicable provisions of federal and state safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. The Contractor shall also comply with the applicable provisions of the Associated General Contractors' "Manual of Accident Prevention in Construction", the standards of the Connecticut Labor Department and Occupational Safety and Hazard Association (OSHA).

19.4 The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of employees of the State and the public, and shall post danger signs warning against any dangerous condition or hazard created by such things as protruding nails, well holes, elevator hatchways, scaffolding, window openings, excavations, tripping hazards or slipping, stairways and falling materials.

19.5 The Contractor shall designate a qualified and responsible on-site staff person, whose duty shall be the prevention of accidents. The name and position of the designated person shall be reported to the Owner by the Contractor at the commencement of the Contract.

19.6 The Contractor shall at all times protect excavations, trenches, buildings, and all items of Work from damage by rain, water from melted snow or ice, surface water run off and subsurface water usual for the vicinity at the time of operations; and provide all pumps and equipment and enclosures to insure such protection.

19.7 The Contractor shall construct and maintain all necessary temporary drainage and provide all pumping necessary to keep excavation, basements, footings and foundations free of water.

19.8 The Contractor shall remove all snow and ice as may be required for access to the site and proper protection and prosecution of the Work.

19.9 The Contractor shall install bracing, shoring, sheathing, sheet piling, caissons and any other underground facilities as required for safety and proper execution of the Work, and shall remove this portion of the Work when no longer necessary.

19.10 During cold weather the Contractor shall protect all Work from damage. If low temperature makes it impossible to continue operations safely in spite of cold weather precautions, the Contractor may cease Work upon the written approval of the Commissioner.

ARTICLE 20
TEMPORARY UTILITIES

20.1 Unless expressly provided for otherwise in the Contract Documents, the Contractor shall include in the proposed contract bid price as stated on the Bid Proposal Form, the costs of all temporary utilities required for Project completion and protection of the Work. Said temporary utilities include, but are not limited to, lighting, heating, cooling, electrical power, water, telephone, sanitary facilities, and potable water.

ARTICLE 21
CORRECTION OF WORK

21.1 The Contractor shall promptly and without expense to the Owner remove from the premises all materials rejected by or unacceptable to the Commissioner as failing to conform to the Contract Documents, whether incorporated in the Work or not.

21.2 The Contractor shall promptly and without expense to the Owner replace any such materials, which do not conform to the Contract Documents, and shall bear the expense of making good all Work of other Contractors or Subcontractors destroyed or damaged by such removal or replacement.

21.3 If the Contractor, after receipt of notice from the Owner, shall fail to remove such rejected or unacceptable materials within a reasonable time as fixed in said notice, the Owner may remove and store such materials at the expense of the Contractor.

21.4 Such action shall not affect the obligation of the Contractor to replace and complete assembly and installation of the Work and to bear the expenses referred to above. Prior to the correction of rejected or unacceptable Work or if the Commissioner deems it inexpedient or undesirable to correct any portion of the Work which was rejected, deemed unacceptable, or not done in accordance with the Contract Documents, the Contract Sum shall be reduced by such amount as, in the judgment of the Commissioner, shall be equitable.

21.5 No extension of time will be given to the Contractor for correction of rejected or unacceptable Work. All significant punchlist Work shall be completed before Substantial Completion is determined. The remaining minor punchlist Work, as determined by the Commissioner, shall be completed within ninety (90) Days of established Substantial Completion date.

21.6 Final Payment shall not relieve the Contractor of responsibility for the defects in material or workmanship.

21.7 Unless expressly provided for otherwise in the Contract Documents, the Contractor shall remedy any rejected or unacceptable Work, and any Work found to be not conforming to the Contract Documents which is discovered within 18 Months after the date of Substantial Completion. The Contractor shall pay for any damage to other Work caused by such nonconforming Work or any damage created in correcting the nonconforming Work.

ARTICLE 22
GUARANTEES and WARRANTIES

22.1 Unless expressly provided for otherwise in the Contract Documents, the Contractor shall provide a Warranty on the Work for an 18-Month period from the date of Substantial Completion. The Contractor shall warrant that the equipment, materials and workmanship are of good quality and new, unless permitted elsewhere by the Contract Documents, and that the Work shall be free from defects not inherent in the quality required or permitted and that the Work conforms to the Contract Documents.

22.2 Disclaimers and limitations from manufactures, Subcontractors, suppliers or installers to the Contractor shall not relieve the Contractor of the Warranty on the Work. The Contract Documents detail the related damages, reinstatement of Warranty, replacement cost and Owner's recourse.

ARTICLE 23
CUTTING, FITTING, PATCHING, AND DIGGING

23.1 The Contractor will perform or will cause the Subcontractors to perform all cutting, fitting, or patching of the portion(s) of the Work that may be required to make the several parts thereof joined and coordinated in a manner satisfactory to the Commissioner and in accordance with the Plans and Specifications.

23.2 The responsibility for defective or ill-timed Work shall be with the Contractor, but such responsibility shall not in any way relieve the Subcontractor who performed such Work. Except with the consent of the Commissioner, neither the Contractor nor any of its Subcontractors shall cut or alter the Work of any other Contractor or Subcontractor.

ARTICLE 24
CLEANING UP

24.1 The Contractor shall, on a daily basis, keep the premises free from accumulations of waste material or rubbish.

24.2 Prior to Acceptance of the Work, the Contractor shall remove from and about the site of the Work, all rubbish, all temporary structures, tools, scaffolding, and surplus materials, supplies, and equipment which may have been used in the performance of the Work. If the Commissioner in his sole discretion determines that the Contractor has failed to clean the work site, the Owner may remove the rubbish and charge the cost of such removal to the Contractor. A deduct Change Order will be issued by the Owner to recover such cost.

ARTICLE 25
ALL WORK SUBJECT TO CONTROL OF THE COMMISSIONER

25.1 The Commissioner hereby declares that the CT DCS Project Manager is the Commissioner's only authorized representative to act in matters involving the Owner's, and/or Architect's or Engineer's, ability to revoke, alter, enlarge or relax any requirement of the Contract Documents; to settle disputes between the Contractor and the Construction Administrator; and act on behalf of the Commissioner. In all such matters, the provisions of Articles 13 and 14 herein shall guide the CT DCS Project Manager.

25.2 In no event may the Contractor act on any instruction of the Agency without written consent of the Owner. In the event the Contractor acts without such consent, he does so at his own risk and at his own expense, not only for the Work performed, but for the removal of such Work as determined necessary by the Commissioner.

25.3 In the performance of the Work, The Contractor shall abide by all orders, directions, and requirements of the Commissioner at such time and places and by such methods and in such manner and sequence as the Commissioner may require.

25.4 The Commissioner shall determine the amount, quality, acceptability and fitness of all parts of the Work, shall interpret the plans, Specifications, Contract Documents and extra work orders and shall decide all other questions in connection with the Work.

25.5 The Contractor shall employ no plant, equipment, materials, methods, or persons to which the Commissioner objects and shall remove no plant materials, equipment, or other facilities from the site of the Work without the permission of the Commissioner. Upon request, the Commissioner shall confirm in writing any oral order, direction, requirement or determination.

25.6 In accordance with Section 4b-24 of the Connecticut General Statutes, the public auditors of the State of Connecticut and the auditors or accountants of the Commissioner of Construction Services shall have the right to audit and make copies *of* the books of any Contractor employed by the Commissioner.

ARTICLE 26
AUTHORITY OF THE CONSTRUCTION ADMINISTRATOR

26.1 The Construction Administrator employed by the Commissioner is authorized to inspect all Work for conformance to the Contract Documents. The Construction Administrator is authorized to reject all Work found to be defective, unacceptable and nonconforming to the Contract Documents. Such inspections and rejections may extend to all or any part of the Work, and to the preparation or manufacture of the material to be used.

26.2 The Construction Administrator is not empowered to revoke, alter, enlarge, or relax any requirements of the Contract Documents, or to issue instructions contrary to the Contract Documents. The Construction Administrator shall in no case act as foreman or perform other duties for the Contractor, nor shall the Construction Administrator interfere with the management of the Work by the Contractor. Any advice, which the Construction Administrator may give the Contractor, shall in no way be construed as binding the Commissioner or Owner in any way, nor releasing the Contractor from the fulfillment of the terms of the Contract.

26.3 In any dispute arising between the Contractor and the Construction Administrator with reference to inspection and rejection of the Work, the Construction Administrator may suspend Work on the non-compliant portion of the Work until the dispute can be referred to and decided by the Commissioner.

ARTICLE 27
SCHEDULE OF VALUES, APPLICATION FOR PAYMENT

27.1 Immediately after the signing of the Contract, the Contractor shall furnish for the use of the Commissioner, as a basis for estimating partial payments, a certified Schedule of Values, totaling the Contract Sum and broken down into quantities and unit costs, as outlined in the Contract Documents and as directed by the Owner. The Schedule of Values must reflect true costs and be in sufficient detail to be an effective tool for monitoring the progress of the Work Upon request of the Commissioner; the Contractor shall supply copies of signed Contracts, vendor quotations, etc. as back up to the Schedule of Values.

27.2 Approval of the Schedule of Values by the Commissioner is required prior to any payment by the Owner.

27.3 The Schedule of Values shall include a breakdown of the Contractor's general condition costs.

27.3.1 Non-recurring costs, (i.e. Mobilization costs, utility hook-ups, temporary heat) will be paid at the time of occurrence.

27.3.2 Reoccurring costs will be paid in proportion to the percent of completion of the Project.
27.3.3 Further detail can be found in the General Requirements 01.29.76; paragraphs 1.3.B.4 for this project.

27.4 The Schedule of Values shall include a breakdown of Contract closeout costs including systems certification testing and acceptance, training, Warranties, Guarantees, As-Built Drawings and attic stock**.**

27.5 The Contractor shall make periodic applications for payment, which shall be subdivided into categories corresponding with the approved Schedule of Values and shall be in such numbers of copies as may be designated by the Commissioner.

ARTICLE 28
PARTIAL PAYMENTS

28.1 Commissioner will examine the Contractor's Applications For Payments to determine, in the opinion of the Commissioner, the amounts that properly represent the value of the Work completed and the materials suitably stored on the site.

28.2 In making such Application For Payment for the Work, there shall be deducted **seven** and **one-half** percent (7.5%) of the amount of each Application for Payment to be retained by the Owner as Retainage until Final Completion.

28.2.1 The Commissioner has the sole discretion in the determination of reduction in Retainage. At fifty percent (50%) completion of the Work the Owner shall issue a "Contractor's Performance Evaluation". If the Contractor receives a performance evaluation score of "Good" or better, then the Retainage withheld may be reduced to five percent (5%). All subsequent Applications for Payment shall be subject to five percent (5%) Retainage. Upon Substantial Completion, the Retainage may be reduced at the request of the Contractor and recommendation of the CT DCS Project Manager. In the event of a reduction in Retainage to below five percent (5%), the minimum Retainage withheld shall not be less than the CT DCS Project Manager's estimate of the remaining Work or two and one-half percent (2.5%), which ever is greater. All requests for Retainage Reduction shall be done on CT DCS Form 7048 General Contractor Retainage Reduction Request, which can be found at the end of the General Conditions.

28.2.2 Subsequent to Substantial Completion, in limited circumstances, at the sole discretion of the Commissioner, a reduction of Retainage below Two and one-half percent (2.5%) may be considered.

28.2.3 A "Good" Contractor's Performance Evaluation score shall be defined as a minimum total score of sixty percent (60%).

28.3 The decision of the Commissioner to reduce the Retainage rate will be based upon the Contractor's Performance Evaluation score for completed portions of the Work as set out above and other factors that the Commissioner may find appropriate as follows:

28.3.1 The Contractor's timely submission of an appropriate and complete CPM Schedule or Construction Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate basis for progress of the Work.

28.3.2 The Contractor's timely and proper submission of all Contract Document required submissions: including, but not limited to, Shop Drawings, material certificates and material samples and the prompt resolution of the Owners and/or Architect's or Engineer's comments on the submitted material, resulting in an appropriate progress of the Work.

28.3.3 The Contractor's provision of proper and adequate supervision and home office support of the Project.

28.3.4 The Work completed to date has been installed or finished in a manner acceptable to the Owner.

28.3.5 The progress of the Work is consistent with the approved CPM Schedule or Construction Schedule.

28.3.6 All approved credit change orders have been invoiced.

28.3.7 All Change Order requests for pricing are current.

28.3.8 The Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.

28.3.9 All Subcontractor payments are current at the time of reduction request.

28.3.10 Contractor is compliant with set-aside provisions of the contract.

28.3.2.11 Pursuant to C.G.S. Sec. 4a-101, the General Contractor shall compile evaluation information during the performance of the contract on each of its subcontractors who are performing work with a value in excess of five hundred thousand dollars ($500,000.00). The General Contractor shall complete and submit to the State of Connecticut Department of Construction Services (CT DCS) evaluations of each such subcontractor upon fifty percent (50%) completion of the project and upon Substantial Completion of the project. The General Contractor acknowledges that its failure to complete and submit these evaluations in a timely manner may, by statute; result in a delay in project funding and, consequently, payment to the General Contractor.

28.4 No payments will be made for improperly stored or protected materials or unacceptable Work.

28.5 At his or her sole discretion, the Commissioner may allow to be included in the monthly requisitions payment requests for materials and equipment stored off the site.

28.5.1 In the event the Commissioner allows the Contractor to include in its requisitions payment requests for materials and equipment stored off the site, the Contractor shall also submit any additional bonds and/or insurance certificates relating to off-site stored materials

and equipment, and follow such other procedures as may be required by the State to obtain the Commissioner's approval of such requests.

28.5.2 The Architect or Engineer, or Construction Administrator shall have inspected said materials and equipment and recommended payment therefore. The Contractor shall pay for the cost of the Architect's or Engineer's, or Construction Administrator's time and expense in performing these inspection services.

ARTICLE 29
DELIVERY OF STATEMENT SHOWING AMOUNTS DUE FOR WAGES, MATERIALS, AND SUPPLIES

29.1 For each Application for Payment under this Contract, the Owner reserves the right to require the Contractor and every Subcontractor to submit a written verified statement, in a form satisfactory to the Owner, showing in detail all amounts then due and unpaid by such Contractor or Subcontractor for daily or weekly wages to all laborers employed by it for the performance of the Work or to other persons for materials, equipment or supplies delivered at the site.

29.2 The term “laborers” as used herein shall include workmen, workwomen, and mechanics.

29.3 Failure to comply with this requirement may result in the Owner withholding the Application for Payment pursuant to Article 28.

ARTICLE 30
SUBSTANTIAL COMPLETION AND ACCEPTANCE

30.1 Substantial Completion:

30.1.1 When the Contractor considers that the Work or a portion thereof is Substantially Complete, the Contractor shall request an inspection of said Work in writing to the Construction Administrator. The request shall certify that the Contractor has completed its own inspection prior to the request and that the Contractor is compliant with all requirements of Section 01 77 00 of the General Requirements. The request must also include a statement that a principal or senior executive of the Contractor is ready, willing and able to attend a walk through inspection with the Architect or Engineer.

30.1.2 Upon receipt of the request, the Architect or Engineer, Construction Administrator and Owner, will make an inspection to determine if the Work or designated portion thereof is Substantially Complete. A principal or senior executive of the Contractor shall accompany the Architect or Engineer during each inspection/re-inspection. If the inspection discloses any item, whether or not included on the inspection list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item.

30.1.3 The Contractor shall then submit a request for another inspection. The determination of Substantial Completion is solely within the discretion of the Owner. Any costs for re-inspection beyond one, shall be at the expense of the Contractor and such costs will be recovered by issuance of a credit Change Order. When the Work or designated portion thereof is determined to be Substantially Complete, the Contractor will be provided a Certificate of Substantial Completion from the Owner. The Certificate of Substantial Completion shall establish the date when the responsibilities of the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, are transferred to the Owner and shall fix the time within which the Contractor shall finish all items on the inspection list accompanying the Certificate. If the punch list is not complete in 90 Days, the Owner reserves the right to complete the outstanding punch list items with their own forces or by awarding separate contracts and to deduct the cost thereof from the amounts remaining due to the Contractor.

30.1.4 The Certificate of Substantial Completion shall be signed by the Construction Administrator, Owner, and Architect or Engineer. Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Construction Administrator and Architect or Engineer, the Owner shall make payment reflecting adjustment in Retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

30.2 Acceptance:

30.2.1 Upon completion of the Work, the Contractor shall forward to the Construction Administrator a written notice that the Work is ready for inspection and Acceptance.

30.2.2 When the Work has been completed in accordance with terms and conditions of the Contract Document as determined by the Owner a Certificate of Acceptance shall be issued by the Owner.

ARTICLE 31
FINAL PAYMENT

31.1 The Owner reserves the right to retain for a period of thirty (30) Days after filing of the Certificate of Acceptance the amount therein stated less all prior payments and advances whatsoever to or for the account of the Contractor.

31.2 All prior estimates and payments, including those relating to extra or additional Work, shall be subject to correction by the Final Payment.

31.3 No Application for Payment, Final or Partial, shall act as a release to the Contractor or the Contractor’s sureties from any obligations under this Contract.

31.4 The Architect or Engineer and Construction Administrator will promptly issue the Certificate for Payment, stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Payment is due and payable.

31.5 Final Payment shall not be released until a Certificate of Acceptance and a Certificate of Compliance have been issued.

31.6 Neither Final Payment nor any Retainage shall become due until the Contractor submits to the Owner the following:

31.6.1 An affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied.

31.6.2 A certificate evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be canceled or allowed to expire without at least 30 Days prior written notice to the Owner.

31.6.3 A written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents.

31.6.4 Written consent of surety, if any, to Final Payment.

31.6.5 If required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

ARTICLE 32
OWNER'S RIGHT TO WITHHOLD PAYMENTS

32.1 The Commissioner may withhold a portion of any Payment due the Contractor that may, in the judgment of the Commissioner, be necessary:

32.1.1 To assure the payment of just claims then due and unpaid to any persons supplying labor or materials for the Work.

32.1.2 To protect Owner from loss due to defective, unacceptable or non-conforming Work not remedied by the Contractor.

32.1 To protect the Owner from loss due to injury to persons or damage to the Work or property of other Contractors, Subcontractors, or others caused by the act or neglect of the Contractor or any of its Subcontractors.

32.2 The Owner shall have the right to apply any amount withheld under this Article as the Owner may deem proper to satisfy protection from claims. The amount withheld shall be considered a payment to the Contractor.

32.3 The Owner has the right to withhold payment if the Contractor fails to provide accurate submissions of Submittals, up date the status including but not limited to the following: As-Built Drawings, request for information (RFI) log, Schedule, submittal log, Change Order log, certified payrolls and daily reports and all other requirement of the Contract Documents.

32.4 If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

ARTICLE 33
OWNER'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

33.1 The Commissioner shall have the authority to suspend the Work wholly or in part, for such period or periods as the Commissioner considers being in the best interests of the State, or in the interests of public necessity, convenience or safety. During such periods the Contractor shall store all materials and equipment, in such a manner to prevent the materials and equipment from being damaged in any way, and the Contractor shall take precautions to protect the Work from damage.

33.1.1 If the Commissioner, in writing, orders the performance of all or any portion of the Work to be suspended or delayed for an unreasonable period of time (i.e. not originally anticipated, customary, or inherent in the construction industry) and the Contractor believes that additional compensation and/or Contract Time is due as a result of such suspension or delay, the Contractor shall submit to the Commissioner in writing a request for a Contract adjustment within 7 Days of receipt of the notice to resume Work. The request shall set forth the specific reasons and support for said adjustment.

33.1.2 The Commissioner shall evaluate any such requests received. If the Commissioner agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and that the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors, and was not caused by weather, then the Commissioner will make a reasonable adjustment, excluding profit, of the Contract terms. The Commissioner will notify the Contractor of the determination as to what adjustments of the Contract, if any, that the Commissioner deems warranted.

33.1.3 No Contract adjustment will be made unless the Contractor has submitted the request for adjustment within the time prescribed.

33.1.4 No Contract adjustment will be made under this Article to the extent that performance would have been suspended or delayed by any other cause within the Contractor's control or by any factor for which the Contractor is responsible under the Contract; or that such an adjustment is provided for or excluded under other term or condition of this Contract.

33.2 Notwithstanding any provision or language in the

Contract to the contrary, the State may terminate the Contract whenever the Commissioner determines at his sole discretion that such termination is in the best interests of the State. Any such termination shall be effected by delivery to the Contractor of a written Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination shall be effective.

33.2.1 In the event of such termination, the Contractor shall be entitled to reasonable compensation as determined by the Commissioner, however, no claim for lost Overhead or profits shall be allowed.

33.2.2 All Work and materials obtained by the Contractor for the Work, that have been incorporated into the Work, inspected, tested as required, accepted by the Commissioner, and paid for by the State, shall become the property of the State.

33.2.3 Materials obtained by the Contractor for the Work that have been inspected, tested as required, and accepted by the Commissioner, and that are not incorporated into the Work, shall, at the option of the Commissioner, be purchased from the Contractor at actual cost as shown by receipted bills. To this cost shall be added all actual costs for delivery at such points of delivery as may be designated by the Commissioner, as shown by actual cost records.

33.2.4 Termination of the Contract shall not relieve the Contractor or its Surety of their responsibilities for the completed Work, nor shall it relieve the Contractor's Surety of its obligations to ensure completion of the Work and to pay legitimate claims arising out of Work.

ARTICLE 34
SUBLETTING OR ASSIGNING OF CONTRACT

34.1 The Contract or any portion thereof, or the Work provided for therein, or the right, title, or interest of the Contractor therein may not be sublet, sold, transferred, assigned, or otherwise disposed of to any person, firm, or corporation without the written consent of the Commissioner.

34.2 No person, firm, or corporation other than the Contractor to whom the Contract was awarded shall be permitted to commence Work at the site of the Contract until such consent has been granted.

ARTICLE 35
CONTRACTOR'S INSURANCE

35.1 The Contractor shall not start Work under the Contract until they have obtained insurance as stated in SECTIONS 00 62 16 CERTIFICATE OF INSURANCE and 00 40 13 BID PROPOSAL FORM, subsections 4.4.2 and 4.4.3, of the Project Manual and until the insurance has been approved by the Owner. The Contractor shall not allow any Subcontractor to start Work until the same insurance has been obtained by the Subcontractor and approved by the Owner or the Contractor's insurance provides coverage on behalf of the Subcontractor. The Contractor shall send Certificates of Liability Insurance to the Bidding and Contracts Unit, Department of Construction Services, 165 Capitol Avenue, Room G-35, Hartford, CT 06106 unless otherwise directed in writing. Presented below is a narrative summary of the insurance required.

35.1.1 Commercial General Liability Insurance including contractual liability, products/completed operations, broad form property damage and independent Contractors. The limits shall be no less than $1,000,000 each occurrence and $2,000,000 annual aggregate. Coverage for hazards of explosion, collapse and underground (X-C-U) and for asbestos abatement when applicable to this Contract, must also be included when applicable to the Work to be performed. The State of Connecticut, the Department of Construction Services, and their respective officers, agents, and employees shall be named as an Additional Insured. This coverage shall be provided on a primary basis.

35.1.2 Owner's and Contractor's Protective Liability insurance providing a total limit of $1,000,000 for all damages arising out of bodily injury or death of persons in any one accident or occurrence and for all damages arising out of injury or destruction of property in any one accident or occurrence and subject to a total (aggregate) limit of $2,000,000 for all damages arising out of bodily injury to or death of persons in all accidents or occurrences and out of injury to or destruction of property during the policy period. This coverage shall be for and in the name of the State of Connecticut.

35.1.3 Automobile Liability The operation of all motor vehicles including those owned, non-owned and hired or used in connection with the Contract shall be covered by Automobile Liability insurance providing for a total limit of $1,000,000 for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence and for all damages arising out of injury to or destruction of property in any one accident or occurrence. In cases where an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least $2,000,000. This coverage shall be provided on a primary basis. Should the Contractor not own any automobiles, the automobile & liability requirement shall be amended to allow the Contractor to maintain only hired and non-owned liability coverage.

35.1.4 Excess Liability (Other than Umbrella Form) insurance in the amount of $5,000,000 for bids of $1,000,000 - $10,000,000 and in the amount of $10,000,000 for bids of $10,000,001 - $20,000,000. Refer to Section 00 92 00 Amendments of the Project Manual for Excess Liability insurance requirements for bids exceeding $20,000,000.

35.1.5 Workers' Compensation and Employer's Liability as required by Connecticut Law and **Employers' Liability** with a limit of not less than $100,000 per occurrence, $500,000 disease policy limit and $100,000 disease each employee. When Work is on or contiguous to navigable bodies of waterways and ways adjoining, the Contractor shall include the Federal Act endorsement for the U.S. Longshoremen's and Harbor Workers Act.

35.1.6 Special Hazards Insurance, if required, will be stated in SECTION 00 40 13 BID PROPOSAL FORM, subsection 4.4.2 of this Project Manual. This includes coverage for explosion, collapse or underground damage and for asbestos abatement when applicable to this Contract and shall be no less than $1,000,000 each occurrence.

35.1.7 Builder's Risk Insurance, if required, will be stated in Section 00 40 13 Bid Proposal Form, subsection 4.4.3 of this Project Manual.

35.1.8 Inland Marine/Transit Insurance: With respect to property with values in excess of $100,000 which is rigged, hauled or situated at the site pending installation, the Contractor shall maintain inland marine/transit insurance provided the coverage is not afforded by a Builder's Risk policy.

35.1.9 When required to be maintained, the Builder's Risk and/or Inland Marine/Transit Insurance policy shall endorse the State of Connecticut as a Loss Payee and the policy shall state it is for the benefit of and payable to the State of Connecticut.

35.2 Satisfying Limits Under an Umbrella Policy: If necessary, the Contractor may satisfy the minimum limits required above for either Commercial General Liability, Automobile Liability, and Employer's Liability coverage under an Umbrella or Excess Liability policy. The underlying limits may be set at the minimum amounts required by the Umbrella or Excess Liability policy provided the combined limits meet at least the minimum limit for each required policy. The Umbrella or Excess Liability policy shall have an Annual Aggregate at a limit not less than two (2) times the highest per occurrence minimum limit required above for any of the required coverages. The State of Connecticut shall be specifically endorsed as an Additional Insured on the Umbrella or Excess Liability policy, unless the Umbrella or Excess Liability policy provides continuous coverage to the underlying policies on a complete "Follow-Form" basis.

35.3 The Contractor shall, at its sole expense, maintain in full force and effect at all times during the life of the Contract or the performance of Work hereunder, insurance coverage as described herein. Certificates shall include a minimum thirty (30)-day endeavor to notify requirement to the Owner prior to any cancellation or non-renewal.

35.4 The Contractor shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, coinsurance penalty, or self-insured retention, including any loss not covered because of the operation of such deductible, coinsurance penalty, or self-insured retention.

35.5 The requirement contained herein as to types and limits of insurance coverage to be maintained by the Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor.

35.6 Hold Harmless Provisions: The Contractor shall at all times indemnify and save harmless the State of Connecticut, the Department of Construction Services, and their respective officers, agents, and employees, on account of any and all claims, damages, losses, litigation, expenses, counsel fees and compensation arising out of injuries (including death) sustained by or alleged to have been sustained by the officers, agents, and employees of said State or Department, or of the Contractor, his Subcontractor, or materialmen and from injuries (including death) sustained by or alleged to have been sustained by the public, any or all persons on or near the Work, or by any other person or property, real or personal (including property of said State or Department) caused in whole or in part by the acts, omissions, or neglect or the Contractor including, but not limited to, any neglect in safeguarding the Work or through the use of unacceptable materials in constructing the Work of the Contractor, any Subcontractor, materialman, or anyone directly employed by them or any of them while engaged in the performance of the Contract, including the entire elapsed time from the date of the Notice to Proceed or the actual Commencement Of The Work whichever occurs first until its completion as certified by the Department of Construction Services.

ARTICLE 36
FOREIGN MATERIALS

36.1 Preference shall be given to articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)); and the products shall meet all of the referenced standards and Specifications for conditions of performance, quality, and price with duty being equal.

36.2 Only articles or materials manufactured or produced in the United States, Canada, and Mexico, (the members of the North American Free Trade Agreement (NAFTA)), will be allowed. The foregoing provisions shall not apply to foreign articles or materials required by the Contract Documents.

ARTICLE 37
HOURS OF WORK

37.1 No person shall be employed to work or be permitted to work more than eight (8) hours in any Day or more than forty (40) hours in any week for any Work provided in the Contract, in accordance with Connecticut General Statute Section 31-57.

37.2 The operation of such limitation of hours of work may be suspended during an emergency, upon the approval of the Commissioner, in accordance with Connecticut General Statute Section 31-57.

ARTICLE 38
CLAIMS

38.1 General: When filing a formal claim under Section 4-61 (referred to as "Section 4-61" below) of the Connecticut

General Statutes (as revised), either as a lawsuit in the Superior Court or as a demand for arbitration, the Contractor must follow the procedures and comply with the requirements set forth in this Article. This Section does not, unless so specified, govern informal claims for additional compensation which the Contractor may bring before the Department. The Contractor should understand, however, that the Department may need, before the Department can resolve such a claim, the same kinds of documentation and other substantiation that it requires under this Article. It is the intent of the Department to compensate the Contractor for actual increased costs caused by or arising from acts or omissions on the part of the Department that violate legal or contractual duties owed to the Contractor by the Department.

38.2 Notice of Claim: Whenever the Contractor intends to file a formal claim against the Department under Section 4-61, seeking compensation for additional costs, the Contractor shall notify the Commissioner in writing (in strict compliance with Section 4-61) of the details of said claim. Such written notice shall contain all pertinent information described in Paragraph 38.5 below.

Once formal notice of a claim under Section 4-61(b) (as revised) has been given to the Commissioner, the claimant may not change the claim in any way, in either concept or monetary amount, (1) without filing a new notice of claim and demand for arbitration to reflect any such change, and (2) without the minimum period of six months after filing of the new demand commencing again and running before any hearing on the merits of the claim may be held. The only exception to this limitation will be for damages that continue to accrue after submission of the notice, in ways described and anticipated in the notice.

38.3 Record Keeping: The Contractor shall keep daily records of all costs incurred in connection with its Work on behalf of the Department. The daily records shall identify each aspect of the Project affected by matters related to any claim for additional compensation that the Contractor has filed, intends to file, or has reason to believe that it may file against the Department; the specific Project locations where Project work has been so affected; the number of people working on the affected aspects of the Project at the pertinent time(s); and the types and number of pieces of equipment on the Project site at the pertinent time(s). Any potential or anticipated effect on the Project's progress or Schedule which may result in a claim by the Contractor shall be noted contemporaneously with the cause of the effect, or as soon thereafter as possible.

38.4 Claim Compensation: The payment of any claim, or any portion thereof, that is deemed valid by the Department shall be made in accordance with the following provisions of this Article:

38.4.1 Compensable Items: The liability of the Department for claims will be limited to the following specifically identified items of cost, insofar as they have not otherwise been paid for by the Department, and insofar as they were caused solely by the actions or omissions of the Department or its agents (except that with regard to payment for extra work, the Department will pay to the Contractor the Overhead and profit percentages provided for in Article 13.):

38.4.1.1 Additional Project-site labor expenses.
38.4.1.2 Additional costs for materials.
38.4.1.3 Additional, unabsorbed Project-site Overhead (e.g., for mobilization and demobilization).
38.4.1.4 Additional costs for active equipment.
38.4.1.5 For each Day of Project delay or suspension caused solely by actions or omissions of the Department either:

38.4.1.5.1 an additional ten percent (10%) of the total amount of the costs identified in Subparagraphs 38.4.1.1 through 38.4.1.4 above; except that if the delay or suspension period prevented the Contractor from incurring enough Project costs under Subparagraphs 38.4.1.1 through 38.4.1.4 during that period to require a payment by the Department that would be greater than the payment described in Subparagraph 38.4.1.5.2 below, then the payment for affected home office Overhead and profit shall instead be made in the following *per diem* amount :

38.4.1.5.2 six percent (6%) of the original total Contract amount divided by the original number of Days of Contract Time. Payment under either 38.4.1.5.1 or 38.4.1.5.2 hereof shall be deemed to be complete and mutually satisfactory compensation for any unabsorbed home office overhead and any profit related to the period of delay or suspension.

38.4.1.6 Additional equipment costs. Only actual equipment costs shall be used in the calculation of any compensation to be made in response to claims for additional Project compensation. Actual equipment costs shall be based upon records kept in the normal course of business and in accordance with generally accepted accounting principles. Under no circumstances shall Blue Book or other guide or rental rates be used for this purpose (unless the Contractor had to rent the equipment from an unrelated party, in which case the actual rental charges paid by the Contractor, so long as they are reasonable, shall be used). Idle equipment, for instance, shall be paid for based only on its actual cost to the Contractor.

38.4.1.7 Subcontractor costs limited to, and determined in accordance with, Subparagraphs 38.4.1.1 through 38.4.1.5 above and applicable statutory and case law. Such Subcontractor costs may be paid for by the Department only: (a) in the context of an informal claims settlement; or (b) if the Contractor has itself paid or legally assumed, present unconditional liability for those Subcontractor costs.

38.4.2 Excusable But Not Compensable Items: The Contractor may be allowed Days but the Department will have no liability for the following non-compensable items:

38.4.2.1 Abnormal or unusually severe weather
38.4.2.2 Acts of God
38.4.2.3 Force Majeure
38.4.2.4 Concurrent Delay

38.4.3 Non-Compensable Items: The Department will have no liability for the following specifically-identified non-compensable items:

38.4.3.1 Profit, in excess of that provided for herein.
38.4.3.2 Loss of anticipated profit.
38.4.3.3 Loss of bidding opportunities.
38.4.3.4 Reduction of bidding capacity.
38.4.3.5 Home office overhead in excess of that provided for in Subparagraph 38.4.1.5 hereof.
38.4.3.6 Attorneys fees, claims preparation expenses, or other costs of claims proceedings or resolution.
38.4.3.7 Subcontractor failure to perform
38.4.3.8 Any other consequential or indirect expenses or costs, such as tort damages, or any other form of expense or damages not provided for in these specifications or elsewhere in the Contract.

38.5 Required Claim Documentation: All claims shall be submitted in writing to the Commissioner, and shall be sufficient in detail to enable the Department to ascertain the basis and the amount of each claim, and to investigate and evaluate each claim in detail. As a minimum, the Contractor must provide the following information for each and every claim and sub-claim asserted:

38.5.1 detailed factual statement of the claim, with all dates, locations and items of Work pertinent to the claim.
38.5.2 A statement of whether each requested additional amount of compensation or extension of time is based on provisions of the Contract or on an alleged breach of the Contract. Each supporting or breached Contract provision and a statement of the reasons why each such provision supports the claim must be specifically identified or explained.
38.5.3 Excerpts from manuals or other texts which are standard in the industry, if available, that support the Contractor's claim.
38.5.4 The details of the circumstances that gave rise to the claim.
38.5.5 The date(s) on which any and all events resulting in the claim occurred, and the date(s) on which conditions resulting in the claim first became evident to the Contractor.
38.5.6 Specific identification of any pertinent document, and detailed description of the substance of any material oral communication, relating to the substance of such claim.
38.5.7 If an extension of time is sought, the specific dates and number of Days for which it is sought, and the basis or bases for the extension sought. A critical path method, bar chart, or other type of graphical schedule that supports the extension must be submitted.
38.5.8 When submitting any claim over $50,000, the Contractor shall certify in writing, under oath and in accordance with the formalities required by the contract, as to the following:

38.5.8.1 That supporting data is accurate and complete to the Contractor's best knowledge and belief;
38.5.8.2 That the amount of the dispute and the dispute itself accurately reflects what the Contractor in good faith believes to be the Department's liability;
38.5.8.3 The certification shall be executed by:

38.5.8.3.1 If the Contractor is an individual, the certification shall be executed by that individual.
38.5.8.3.2 If the Contractor is not an individual, the certification shall be executed by a senior company official in charge at the Contractor's plant or location involved or an officer or general partner of the Con-tractor having overall responsibility for the conduct of the Contractor's affairs.

38.6 Auditing of Claims: All claims filed against the Department shall be subject to audit by the Department or its agents at any time following the filing of such claim. The Contractor and its Subcontractors and suppliers shall cooperate fully with the Department's auditors. Failure of the Contractor**,** its Subcontractors, or its suppliers to maintain and retain sufficient records to allow the Department or its agents to fully evaluate the claim shall constitute a waiver of any portion of such claim that cannot be verified by specific, adequate, contemporaneous records, and shall bar recovery on any claim or any portion of a claim for which such verification is not produced. Without limiting the foregoing requirements, and as a minimum, the Contractor shall make available to the Department and its agents the following documents in connection with any claim that the Contractor submits:

38.6.1 Daily time sheets and foreman's daily reports.
38.6.2 Union agreements, if any.
38.6.3 Insurance, welfare, and benefits records.
38.6.4 Payroll register.
38.6.5 Earnings records.
38.6.6 Payroll tax returns.
38.6.7 Records of property tax payments.
38.6.8 Material invoices, purchase orders, and all material and supply acquisition contracts.
38.6.9 Materials cost distribution worksheets.
38.6.10 Equipment records (list of company equipment, rates, etc.).
38.6.11 Vendor rental agreements.
38.6.12 Subcontractor invoices to the Contractor, and the Contractor's certificates of payments to Subcontractors.
38.6.13 Subcontractor payment certificates.
38.6.14 Canceled checks (payroll and vendors).
38.6.15 Job cost reports.
38.6.16 Job payroll ledger.
38.6.17 General ledger, general journal (if used), and all subsidiary ledgers and journals**,** together with all supporting documentation pertinent to entries made in these ledgers and journals.
38.6.18 Cash disbursements journals.

38.6.19 Financial statements for all years reflecting the operations on the Project.
38.6.20 Income tax returns for all years reflecting the operations on the Project.
38.6.21 Depreciation records on all company equipment**,** whether such records are maintained by the company involved, its accountant, or others.
38.6.22 If a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents.
38.6.23 All documents which reflect the Contractor's actual profit and overhead during the years that the Project was being performed**,** and for each of the five years prior to the commencement of the Project.
38.6.24 All documents related to the preparation of the Contractor's bid**,** including the final calculations on which the total proposed Contract bid price as stated in the Bid Proposal Form was based.
38.6.25 All documents which relate to the claim or to any sub-claim, together with all documents that support the amount of damages as to each claim or sub-claim.

38.6.26 Worksheets used to prepare the claim, which indicate the cost components of each item of the claim, including but not limited to the pertinent costs of labor, benefits and insurance, materials, equipment, and Subcontractors' damages, as well as all documents which establish the relevant time periods, individuals involved, and the Project hours and the rates for the individuals.
38.6.27 The name, function, and pertinent activity of each Contractor's or Subcontractor's official, or employee, in volved in or knowledgeable about events that give rise to, or facts that relate to, the claim.
38.6.28 The amount(s) of additional compensation sought and a break-down of the amount(s) into the categories specified as payable under Paragraph 38.4 above.
38.6.29 The name, function, and pertinent activity of each Department official, employee, or agent involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

ARTICLE 39
DIESEL VEHICLE EMISSIONS CONTROL

39.1 The Contractor shall be responsible for compliance with the following provisions:

39.1.1 All Contractor and Subcontractor diesel powered non-road construction equipment with engine horsepower (HP) ratings of 60 HP and above, that are on the Project or are assigned to the Contract for a period in excess of 30 consecutive Days, shall be retrofitted with emission control devices in order to reduce diesel emissions. In addition, all motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

39.1.2 Retrofit emission control devices shall consist of oxidation catalysts, or similar retrofit equipment control technology that is:

39.1.2.1 Included on the U.S. Environmental Protection Agency (EPA) "Verified Technology List," as may be amended from time to time http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm and

39.1.2. Verified by EPA to provide a minimum emissions reduction of 20% particulate matter (PM_{10}), 40% carbon monoxide (CO), and 50% hydrocarbons (HC).

39.1.3 Construction shall not proceed until all diesel powered non-road construction equipment meeting the criteria in provision 39.1.1 have been retrofitted, unless the Commissioner grants a waiver under provision 39.2.
39.1.4 The Contractor shall at least monthly, assess which diesel powered non-road construction equipment are subject to these provisions. The Contractor shall notify the CT DCS Project Manager of any violations of these provisions.
39.1.5 Idling of delivery and/or dump trucks, or other diesel powered equipment shall be limited to three (3) minutes during non-active use in accordance with the Regulations of Connecticut State Agencies Section 22a-74-18(b)(3)(C), which states, in part:

"[N]o person shall cause or allow a Mobile Source to operate for more than three (3) consecutive minutes when such Mobile Source is not in motion, except as follows:

When a Mobile Source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,

When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,

When it is necessary to operate auxiliary equipment that is located in or on the Mobile Source to accomplish the intended use of the Mobile Source,(To bring the Mobile Source to the manufacturer's recommended)

When a Mobile Source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation."

39.1.6 All Work shall be conducted to ensure that no harmful effects are caused to adjacent Sensitive Receptor Sites. Diesel powered engines shall be located away from fresh air intakes, air conditioners, and windows.
39.1.7 If any diesel powered non-road construction equipment is found to be in non-compliance with these provisions by the CT DCS Project Manager, the Contractor will be issued a Non-Conformance Notice and given a 24 hour period in which to bring the equipment into compliance or remove it from the Project. The Contractor's failure to comply with these provisions shall be reason to withhold payment as described in Article 33.
39.1.8 Any costs associated with these provisions shall be included in the general cost of the contract. In addition, there shall be no time granted to the Contractor for compliance with these provisions. The Contractor's compliance with these provisions and any associated regulations shall not be grounds for a Change Order.

39.2 The Commissioner reserves the right to waive all or portions of these provisions at his/her discretion. The Contractor may request a waiver to all or portions of these provisions with written justification to the Commissioner as to why the Contractor cannot comply with these provisions. A waiver, to be effective, must be granted in writing by the Commissioner.

END

Appendix 1

Connecticut

Department of
Construction Services

7048
General Contractor
Retainage Reduction Request
(SAMPLE)

To: Allen V. Herring, P.E., CT DCS Chief Engineer
Room 265, 165 Capitol Avenue, Hartford, CT 06106

From: (**Insert GC's Name**), General Contractor

Subject: Project No. ( ) Reduction of Retainage at ( )% project completion

In accordance with the General Conditions, Article 28 Progress Payments, (**insert GC's name**) hereby requests a reduction of retainage to an amount of **insert written percent** Percent (**insert numerical percent**%). The following list of items required under the General Conditions is in compliance with the terms of the contract and has been verified by the General Contractor.

☐ DAS Contractor Performance Evaluation Score is a minimum of **Sixty (60%) Percent.**

☐ Timely submission of an appropriate and complete CPM Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate basis for progress of the Work.

☐ Timely and proper submission of all Contract Document required submissions: including but not limited to Shop Drawings, material certificates and material samples and the prompt resolution of the Owner's and/or Architect's or Engineer's comments on the submitted material resulting in an appropriate progress of the Work.

☐ Proper and adequate supervision and home office support of the Project.

☐ The Work completed to date has been installed or finished in a manner acceptable to the Owner.

☐ The progress of the Work is consistent with the approved CPM Schedule.

☐ All approved credit Change Orders have been invoiced.

☐ All Change Order requests for pricing are current.

☐ The General Contractor has and is maintaining a clean worksite in accordance with the Contract Documents.

☐ All Subcontractor payments are current at the time of reduction request.

☐ General Contractor is compliant with set-aside provisions of the contract.

General Contractor Certification:	*(Written Name)*	*(Signature)*	*(Date)*
Project Manager Recommendation:	*(Written Name)*	*(Signature)*	*(Date)*

Approved:
Allen V. Herring, P.E.
CT DCS Chief Engineer

(Signature) *(Date)*

Supplementary Conditions of the Contract for Construction
For Design - Bid - Build
Department of Administrative Services ● Construction Services
State of Connecticut

1.0 Supplementary Conditions:

1.1 These Supplementary Conditions modify the State of Connecticut, Department of Construction Services, Section 00 72 13 General Conditions of the Contract for Construction for Design – Bid- Build (Rev. 03.26.12), and other provisions of the Contract Documents as indicated below. All provisions which are not so modified remain in full force and effect.

1.2 The terms used in these Supplementary Conditions which are defined in the Section 00 72 13 General Conditions of the Contract for Construction for Design – Bid- Build (Rev. 03.26.12), have the meanings assigned to them in the General Conditions.

2.0 Section 00 72 13 General Conditions Of The Contract For Construction For Design - Bid – Build:

2.1 **ADD:** Subsection **3.6** to **ARTICLE 3, CORRELATION OF CONTRACT DOCUMENTS,** as follows:

3.6 In accordance with Public Act No. 13-247 (Effective June 19, 2013), wherever the term "Commissioner of Construction Services" is used in the "Bidding Documents" or "Project Manual" the term "Commissioner of Administrative Services" shall be substituted in lieu thereof; and wherever the term "Department of Construction Services" is used in "Bidding Documents" or "Project Manual", the term "Department of Administrative Services" shall be substituted in lieu thereof.

2.2 **DELETE:** Subsection **28.2** in its entirety from **ARTICLE 28, PARTIAL PAYMENTS**.

ADD: Subsection **28.2** to **ARTICLE 28, PARTIAL PAYMENTS**, as follows:

28.2 In making such Application For Payment for the Work, there shall not be more than **seven** and **one-half percent (7.5%)** deducted from the amount of each Application for Payment to be retained by the Owner as Retainage until Final Completion.

28.2.1 At **fifty percent (50%)** completion of the Work the Retainage shall be reduced to **five percent (5%).** All subsequent Applications for Payment shall be subject to **five percent (5%) Retainage.** Upon Substantial Completion, and in the Commissioner's sole discretion and based upon the factors set forth in **Section 28.3**, the Retainage may be reduced upon the request of the Contractor and recommendation of the CT DAS Project Manager. In the event of a reduction in Retainage to below **five percent (5%)**, the minimum Retainage withheld shall not be less than the CT DAS Project Manager's estimate of the remaining Work or t**wo and one-half percent (2.5%)**, whichever is greater. All requests for Retainage Reduction shall be done on **CT DAS Form 7048 General Contractor Retainage Reduction Request,** which can be found at the end of the General Conditions.

28.2.2 Subsequent to Substantial Completion, in limited circumstances, at the sole discretion of the Commissioner and based upon factors set forth in **subsection 28.3**, a reduction of Retainage below t**wo and one-half percent (2.5%)** may be considered.

28.2.3 A "Good" Contractor's Performance Evaluation score shall be defined as a minimum total score of sixty percent (60%).

2.3 **ADD** Subsections **Definitions** to **ARTICLE 1 DEFINITIONS**, as follows:

2.3.1 **DELETE: 1.71** in its entirety from **ARTICLE 1 DEFINITIONS**.

ADD: Subsection **1.71** to **ARTICLE 1 PARTIAL DEFINITIONS**, as follows:

1.71 **WORK:** The construction and services required by the Contract Documents, and including all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project and "Work Phase".

ADD: Subsection **1.72** to **ARTICLE 1 DEFINITIONS**, as follows:

1.72 **WORK PHASE:** Construction of the Project by sequence or time intervals, which may include but not be limited to separate Construction Start Dates, Substantial Completion Dates, Application for Payments, Change Orders, Liquidated Damages**,** Retainage, and Subcontractors for each Work Phase.

2.4 **DELETE: Appendix 1** from Section **00 72 13.1** in its entirety.
ADD: New **Appendix 1** to Section **00 72 13.1** as follows:

7048
General Contractor (GC)
Retainage Reduction Request
(Sample)

Page 2 of 1

To: **Department of Administrative Services (DAS) Construction Services**
Office of Legal Affairs, Policy and Procurement
450 Columbus Blvd, Suite 1302 – North Tower
Hartford, CT 06103

From: GC's Name **General Contractor (GC)**

Subject: **DAS Project Number:** DAS Project Number

Reduction of Retainage at: Written Percent **Percent (** ##.# **%)**

Date: Click or tap to enter a date.

In accordance with the General Conditions, Article 28 Progress Payments,

GC's Name ,

hereby requests a reduction of retainage to an amount of Written Percent Percent (##.# %)

The following list of items required under the General Conditions is in compliance with the terms of the contract and has been verified by the General Contractor (GC).

- ☐ DAS Construction Services Contractor Performance Evaluation Score is a minimum of **Sixty (60%) Percent.**
- ☐ Timely submission of an appropriate and complete CPM Schedule and Schedule of Values, in compliance with the Contract requirements and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate basis for progress of the Work
- ☐ Timely and proper submission of all required Contract Document submissions including but not limited to Shop Drawings, material certificates, material samples and the prompt resolution of the Owner's and/or A/E's comments on the submitted material resulting in an appropriate progress of the Work.
- ☐ Proper and adequate supervision and home office support of the Project.
- ☐ The Work completed to date has been installed or finished in a manner acceptable to the Owner.
- ☐ The progress of the Work is consistent with the approved CPM Schedule.
- ☐ All approved credit Change Orders have been invoiced.
- ☐ All Change Order requests for pricing are current.
- ☐ The GC has and is maintaining a clean worksite in accordance with the Contract Documents.
- ☐ All Subcontractor payments are current at the time of reduction request.
- ☐ GC is compliant with set-aside provisions of the contract.

	(Written Name)	(Signature)	(Date)
General Contractor Certification:			
Project Manager Recommendation:			
DAS Chief Engineer or Authorized Representative:			

END

CT DAS – 7048 (Rev. 05.22.17) **7000 – Construction Phase Forms**

END OF SECTION

Set-Aside Contractor Schedule [SAMPLE ONLY]

VIA EMAIL

Contractor Name
Contractor Address
City, State, Zip Code

BID OPENING DATE

Re: DAS Project Description
DAS Project Number

Date:

Dear Contractor:

Section 00 45 17 Named Subcontractor Bidders Qualification Statement(s) is / (are) required for this **project, only** for your **Named Subcontractors listed** in **Table 2.7** of your **Section 00 41 00 Bid Proposal Form.**

No person whose subcontract *exceeds* five hundred thousand dollars in value may perform work as a subcontractor on a project, which project is estimated to cost more than five hundred thousand dollars and is paid for, in whole or in part, with state funds, *unless, at the time of bid submission*, the person is prequalified in accordance with the Connecticut General Statutes Section 4a-100, as amended. This includes the contractor's or substantial subcontractor's prequalification classifications, aggregate work capacity ratings and single project limits.

In accordance with **Subsection 2.9 "Set-Aside Requirements" of Section 00 21 13 Instructions to Bidders**, you are required to *list* below the names of each *currently certified* **set-aside contractor** to be used for this project, along with the dollar *amount* to be paid each set-aside contractor.

The **responsibility** for listing a qualified and certified set-aside contractor rests solely with the **bidder** and not the State. **Listing a set-aside contractor who does not qualify may be considered the same as not listing one at all and the bid may be considered non-responsive and subject to rejection.**

Name	Address	* Amount	Indicate Whether: Subcontractor, Or Supplier, Or Both	** Class of Work
SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE

***Amount:** The total dollar amount to be paid to the set aside contractors must not be less than the percentage(s) stated in the Bid Proposal Form.

****Class of Work:** Means the name of the trade work to be provided by the Subcontractor or Supplier.

ATTACHMENTS:

For Each of the Named Subcontractors:
- **Attach their Section 00 45 17 Named Subcontractor Bidders Qualification Statement(s)**

For Each of the Named Set-Aside SBE/MBE Contractors:
- **Attach their DAS Set-Aside Certificate of Eligibility (SBE and/or MBE)**

For Each of the Named Subcontractors With Subcontracts Greater Than $500,000:
- **Attach their DAS Prequalification Certificate and Update (Bid) Statement for the Class of Work**

_____ _____
Contractor Authorized Signature & Title Date

This Form Must Be Received No Later Than _____ At:

State of Connecticut
Department of Administrative Services, Construction Services
Office of Legal Affairs, Policy, and Procurement
450 Columbus Boulevard, Suite 1302
Hartford, CT 06103

Attn:

State Of Connecticut
Department of Administrative Services
Construction Services

March 26, 2015

To: All Department of Administrative Services, Construction Services Contractors

Subject: Set-Aside Contract Laws

Dear Sir/Madam:

The administration of Governor Dannel P. Malloy is committed to supporting the subject programs by encouraging all contractors on State projects to improve their efforts in these areas.

State law requires contractors doing business with the State to demonstrate non-discrimination by making "good faith efforts" in both hiring and in sub-contracting practices General Statute Section (C.G.S. §) 4a-60.

What does "good faith efforts" mean? It means that you, as contractors, must act affirmatively. It is not good enough to say you can't find minorities and women. You must seek them out. That is the law, and the Department of Administrative Services (DAS) / Construction Services (CS) is committed to enforcing the law. At the same time, we are ready to assist you in making "good faith efforts."

DAS is required by C.G.S. § 4a-60g (b) and (c) to set aside projects (amounting to **twenty-five percent (25%)** of its annual contract awards) for small business and **twenty-five percent (25%)** of that amount for minority business enterprises. DAS may require any general contractor to set aside a portion of the contract for subcontractors who are small businesses or minority business enterprises in lieu of setting aside a project or in addition to setting aside a project.

Therefore, unless otherwise specified in the **Bid Proposal Form**, DAS will require contractors to subcontract **twenty-five percent (25%)** of the total contract value to small businesses certified by DAS and further will require contractors to subcontract 25% of that 25% to minority and women small contractors certified as minority business enterprises by DAS. These statutory goals represent the minimum values expected to be achieved by this program.

Together, we can meet the challenge of providing equal opportunity for minority and women-owned businesses and workers in our State. We expect superior results in the areas of affirmative action, equal employment opportunity, and set-aside contracts. The DAS standard in these areas is not just minimal effort. Our goal is to uphold the letter and the spirit of the law.

For more information on Non-Discrimination and Affirmative Action Provisions for State Contracts please visit the Commission on Human Rights and Opportunities **(CHRO)** Website at www.ct.gov/chro.

Sincerely yours,

Melody A. Currey
Commissioner

PB:pb

Non-Discrimination and Affirmative Action Provisions for State Contracts

Section 1	CHRO – Contract Compliance Regulations Notification to Bidders:

1.1 The contract to be awarded is subject to contract compliance requirements mandated by:

1.1.1 The **Connecticut General Statutes (C.G.S.) § 4a-60** and **4a-60a**;

1.1.2 **C.G.S. § 46a-71(d)** and **46a-81i (d)** when the awarding agency is the State; and

1.1.3 The **Contract Compliance Regulations** codified in the **Regulations of Connecticut State Agencies (RSCA) §46a-68j-21 through 43,** which establish a procedure for awarding all contracts covered by **C.G.S. §4a-60** and **46a-71(d).**

1.2 According to the **Contract Compliance Regulations §46a-68j-30(9),** every agency awarding a contract subject to the contract compliance requirements has an obligation to "aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials."

"Minority business enterprise" is defined in **C.G.S §4a-60**-as a small contractor or supplier of materials fifty-one **(51%)** percent or more of the capital stock or assets of which is owned by a person or persons:

1.2.1 who are active in the daily affairs of the enterprise;

1.2.2 who have the power to direct the management and policies of the enterprise; and

1.2.3 who are members of a minority, as such term is defined in subsection (a) of **C.G.S. §32-9n."**

1.3 **"Minority"** groups are defined in **C.G.S. §32-9n** as:

1.3.1 Black Americans, including all persons having origins in any of the Black African racial groups not of Hispanic origin;

1.3.2 Hispanic Americans, including all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;

1.3.3 Persons who have origins in the Iberian Peninsula, including Portugal, regardless of race**;**

1.3.4 Women;

1.3.5 Asian Pacific Americans and Pacific Islanders; or

1.3.6 American Indians and persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

1.3.7 **"Individuals with a disability"** is also a minority business enterprise as provided by C.G.S. § 4a-60g (4).

1.4 The above **"Minority business enterprise"** definitions apply to the contract compliance requirements by virtue of **Contract Compliance** Regulations §46a-68j-21(11).

The awarding agency will consider the following factors when reviewing the bidder's qualifications under the contract compliance requirements:

1.4.1 the bidder's success in implementing an affirmative action plan;

1.4.2 the bidder's success in developing an apprenticeship program complying with **RSCA §46a-68-1 to 46a-68-17**, inclusive;

1.4.3 the bidder's promise to develop and implement a successful affirmative action plan;

1.4.4 the bidder's submission of employment statistics contained in the "Employment Information Form", indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and

1.4.5 the bidder's promise to set aside a portion of the contract for legitimate minority business enterprises. See **Contract Compliance Regulations § 46a-68j-30(10) (E).**

Note: The Commission on Human Rights and Opportunities **(CHRO)** "Employment Information Form" shall be submitted to the DAS/CS Office of Legal Affairs, Policy, and Procurement on behalf of the awarding agency, the Department of Administrative Services (DAS).

Section 2	**Non-Discrimination and other Contract Compliance Requirements:**

Pursuant to **C.G.S. § 4a-60** and **§4a-60a** and the **RSCA §46a-68j-21 to 46a-68j-43**, a contractor agrees to the following:

2.1 Not to discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, sexual orientation, mental retardation, or physical disability including, but not limited to, blindness (unless it is shown that such disability prevents performance of the work involved) in the performance of a contract, in any manner prohibited by the federal and Connecticut anti-discrimination and contract compliance laws;

2.2 To undertake affirmative action which will insure that applicants with job-related qualifications are employed and that employees are treated, when employed, without regard to whether they belong to any of the groups identified in Paragraph # 1) above;

2.3 To include a statement that the contractor is an "affirmative action-equal opportunity employer", in all solicitations or advertisements for employees placed by or on behalf of the contractor;

2.4 To provide each labor union or representative of workers with which such contractor has a collective bargaining agreement and each vendor with which such contractor has a contract, a notice advising them of the contractor's commitments under **C.G.S. § 4a-60** and **§4a-60a**. The notice is available by contacting **CHRO**;

2.5 To post copies of the notice referred to in item 4) in conspicuous places available to employees and applicants;

2.6 To provide **CHRO** with such information requested by said agency, permit access to pertinent books, records, and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of **C.G.S. §4a-60, §4a-60a** and **§46a-56** and, cooperate fully with **CHRO**; and,

2.7 To include the language of **C.G.S. § 4a-60 (a)** and **§4a-60a (a)** in every subcontract or purchase order executed to fulfill any obligation of the contract with DAS.

Section 3	**Affirmative Action Requirements for Certain Public Works Contracts for Construction:**

Pursuant to **C.G.S. § 46a-68c** and **§46a-68d** and, the **RSCA § 46a-68j-21 to 46a-68j-29**, the following must file an affirmative action plan with the Commission:

3.1 A successful bidder on a [1] **"public works contract"** with a value of **$500,000** or more. The plan must be filed within **thirty (30)** days after a bid has been accepted by an awarding agency but before a contract is awarded. A plan may be filed in advance of or, at the same time as a bid is submitted.

3.2 A contractor with **fifty (50)** or more employees who has been awarded a **"public works contract"** in excess of **$50,000** in any fiscal year. A plan must be filed within t**hirty (30) day**s of the date a contract is awarded.

CHRO must review a plan within **sixty (60) days** of receipt and must either approve or reject a plan. Should **CHRO** approve an affirmative action plan, **CHRO** will issue a certificate of compliance. This certificate of compliance shall be proof of a successful bidder's or a contractor's eligibility to bid or be awarded contracts for a period of **two (2)** years from the date of the certificate. This certificate does not excuse a successful bidder or contractor from being monitored by the **CHRO** for implementation of its affirmative action plan or, from its reporting requirements under C.G.S. 46a-68e and § 46a-68f. (Refer to Section 6) Also, **CHRO** may revoke the certificate if a successful bidder or contractor does not implement its affirmative action plan.

Should **CHRO** opt to disapprove an affirmative action plan, **CHRO** must notify the successful bidder or contractor in writing within **ten (10) days** of the disapproval. The notice will state the reason for disapproval and may provide necessary proposals to bring the plan into compliance. The successful bidder or contractor must then submit a new or amended plan, within **thirty (30) days** of the date the notice of disapproval is mailed by **CHRO**.

Section 3	(Continued)**:**

In addition, **CHRO** may conditionally approve an affirmative action plan for a successful bidder on a public works contract valued at **$500,000** or more. **CHRO** must notify the successful bidder in writing within **ten (10) days** of the conditional disapproval and state the reason for conditional approval and, may provide necessary proposals to bring the plan into compliance. The successful bidder must then submit a new or amended plan or, provide written assurances that it will amend its plan to conform to affirmative action requirements, within **thirty (30) days** of the date the notice is mailed by **CHRO**.

Note: The awarding agency (DAS) will provide a successful bidder or contractor with a copy of **CHRO**'s Affirmative Action Plan format. All sections of this Affirmative Action Plan format must be completed by the successful bidder or contractor and forwarded to **CHRO**. Also, the awarding agency (DAS) shall withhold **2%** of the total contract price per month from any payment made to a contractor until such time as the contractor has developed an affirmative action plan, which has been approved by **CHRO**.

[1] **"public works contract"** *means any agreement between any individual, firm or corporation and the state or any political subdivision of the state other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.*-**C.G.S.** ***§ 46a-68b****.*

Section 4	**"Good Faith Efforts" to Include Minority Business Enterprises as Subcontractors":**

In addition to, or in the absence of, any other subcontractor requirements included in this project, contractors are required to make [2] **"good faith efforts"** to include minority business enterprises in the work of this project as subcontractors (for services and/or material suppliers). For the purpose of identifying minority business enterprises, a minority business enterprise shall be a subcontractor which has a valid certification as such from DAS and/or a subcontractor for which an affidavit has been submitted by the contractor attesting that the subcontractor named as a minority business enterprise meets the minority business enterprise criteria set out in. **C.G.S. § 4a-60(b)**.

[2] **"Good faith efforts"** *means "that* ***degree of diligence*** *which a reasonable person would exercise in the performance of legal duties and obligations" and includes, but is not limited to, the following* ***factors****: the contractor's employment and subcontracting policies and practices; affirmative advertising, recruitment, training, technical assistance activities and such other reasonable activities or efforts as* ***CHRO*** *may recommend to ensure the participation of minority business enterprises in state project*s.

Section 5	Set-Aside Program:

This contract may be subject to the provisions the **Set-Aside Program for Small Contractors** found at **C.G.S. § 4a-60g** and may be awarded only to a contractor certified as a small and/or minority business enterprise by DAS. The notification as to this special provision will be found in the **Bid Proposal Form** for this contract. The listing of eligible "Set-Aside" contractors is found on the DAS Website for SBE or MBE Certification. In the event that the **Set-Aside Program for Small Contractors** applies to this contract, the following special provisions will also apply:

5.1 Amount of Work Required to Be Done by "Set-Aside" Contractors

A contractor awarded a contract on a project pursuant to the provisions of **C.G.S. § 4a-60g,** as amended, shall be required to perform not less than **thirty (30)** per cent of the work with his/her own forces and shall ensure that not less than **fifty (50)** per cent of the work be performed by contractors or subcontractors who are certified as small contractors or minority business enterprises pursuant to **C.G.S. § 4a-60g**.

The primary product/service performed by contractors working on a contract awarded under **C.G.S. § 4a-60g** must be the same as the primary product/service described for the contractors on their "Certificate of Eligibility" which is provided to them by DAS.

5.2 Alternate Bonding Available to "Set Aside" Contractors

In lieu of a performance, bid, labor and materials or other required bond, a contractor or subcontractor awarded a contract under **C.G.S. § 4a-60g** may provide to the awarding authority (DAS) and the awarding authority shall accept a "Letter of Credit". Any such "Letter of Credit" shall be in an amount equal to **ten per cent (10%)** of the contract for any contract that is less than **one hundred thousand ($100,000) dollars**, and in the amount of **twenty-five per cent (25%)** for any contract that is **one hundred thousand ($100,000) dollars** or more.

5.3 Procedures to Follow Regarding Substitution of Named Project "Set-Aside" Subcontractors.

The awarding authority (DAS) may also require the contractor to set aside a portion of the contract for subcontractors who are eligible for set aside contracts. The awarding authority shall not permit substitution of a subcontractor for one named in accordance with the provisions of **C.G.S. § 4b-95** or substitution of a subcontractor for any designated sub-trade work bid to be performed by the contractor's own forces, except for good cause.

Pursuant to **C.G.S. § 4b-95**, the term **"good cause"** includes but is not limited to a subcontractor's or, where appropriate, a general contractor's:

5.3.1 Death or physical disability, if the listed subcontractor is an individual;

5.3.2 Dissolution, if a corporation or partnership;

5.3.3 Bankruptcy;

5.3.4 Inability to furnish any performance and payment bond shown on the bid form;

5.3.5 Inability to obtain, or loss of, a license necessary for the performance of the particular category of work;

5.3.6 Failure or inability to comply with a requirement of law applicable to contractors and subcontractors, or to subcontracts for construction, alteration, or repair projects;

5.3.7 Failure to perform his/her agreement to execute a subcontract under **C.G.S. § 4b-96.**

Any general contractor who violates any provision of **C.G.S. § 4b-95** shall be disqualified from bidding on other contracts that are subject to the provisions of **Chapter 60 - Construction and Alterations of State Buildings of the C.G.S**, for a period **not to exceed twenty-four (24) months**, commencing from the date on which the violation is discovered, for each violation.

Section 6	**Contract Monitoring and Reporting:**

6.1 **CHRO** has the authority to monitor state contractors pursuant to **C.G.S. § 46a-68e** and **46a-68f** and **RSCA §46a-68j-23(3)**. In addition, under the **RSCA** §46a-68j-25(e) and 46a-68j-26 (g), **CHRO** has the authority to monitor the implementation of an affirmative action plan regarding:

6.1.1 a successful bidder who has been awarded a public works contract valued at **$500,000 or more** and;

6.1.2 a contractor with **fifty (50)** or more employees who has been awarded a public works contract **in excess of $50,000 in any fiscal year**.

6.2 In order to monitor the implementation of these plans **CHRO** requires that the following contract monitoring reports be compiled and submitted:

6.2.1 **Monthly Employment Utilization Report** (**Form CHRO: 257**): A contractor, on behalf of itself and all subcontractors who perform work on the project during a given month, is required to report on the work hour participation of minority male and female workers in each trade category on the project. The report must be submitted to the contract awarding agency **(DAS)** and to the Commission by the 15th day following the end of each calendar month during the term of the on-site construction work of the project.

Website page: http://www.ct.gov/chro, then click on **Forms,** then click on **Contract Compliance Forms and Reports.**

6.2.2 **Quarterly Small Contractor and Minority Business Enterprise Payment Status Report (Form CHRO: 258)**. A contractor is required to report on the participation of small contractors or minority business enterprises identified to participate on the project. The report must be submitted to the contract awarding agency (DAS) and to the Commission by the 15th day following the end of each calendar quarter during the term of the on-site construction work of the project.

Website page: http://www.ct.gov/chro, then click on **Forms,** then click on **Contract Compliance Forms and Reports.**

6.2.3 In addition, the Commission expects that a contractor will designate an Equal Opportunity/Contract Compliance Officer for its public works project who will compile the above monthly and quarterly reports, as well as, undertake the following responsibilities for implementation of its project Affirmative Action Plan (AAP):

.1 Maintain a project Equal Employment Opportunity (EEO) file to include all records, correspondence and other documentation relate to the project AAP.

.2 Communicate to and inform all project subcontractors, regardless of tier, and labor referral organizations (if applicable) about project equal employment and AAP commitments and performance requirements.

.3 Participate in project job meetings to inform project subcontractors about project equal employment and AAP performance requirements.

.4 Track the use of employment recruitment sources identified in the project AAP regarding all employment opportunities with all subcontractors on the project. Also, maintain documentation of all contacts with these recruitment sources and their responses.

The Commission will forward a copy of the monthly and quarterly report to each contractor on a public works project.

NOTES:	Bidders and state contractors may review the full text of the before referenced Connecticut General Statutes by accessing either the State Law Library's web site (http://www.cslib.org/psaindex.htm) or the State Legislatures' web site (http://www.cga.ct.gov).
	The full text of the RSCA 46a-68j-21 through 46a-68j-43 may be reviewed by accessing the Commission's web site: (http://www.ct.gov/chro/cwp/view.asp?a=2525&Q=315900&chroPNavCtr=|#45679) In the alternative, bidders or state contractors may request a copy of these state statutes and regulations by contacting the Commission at (860) 541-3400 (in Hartford) or 1 (800) 477-5737.

Section 7	CHRO Contract Compliance Forms:

The following CHRO Contract Compliance Forms are available on the CHRO Website:

7.1 Monthly Employment Utilization Report *(Form CHRO–257 and CHRO–257a):*

- http://www.ct.gov/chro/lib/chro/257s.pdf

7.2 Cumulative Utilization Report *(Form CHRO–257b:*

- http://www.ct.gov/chro/lib/chro/257b.pdf

7.3 Monthly Small Contractor & MBE Payment Status Report *(Form CHRO–258a)* *and* Quarterly Small Contractor & MBE Payment Status Report *(Form CHRO–258)*:

- http://www.ct.gov/chro/lib/chro/258s.pdf

End of Section
00 73 38 CHRO / Contract Compliance Regulations

Minimum Rates and Classifications
for Building Construction

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following pages are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or sub-contractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his hourly wage.

Project Number:	**BI-RT-888**	**Project Town:**	**Danbury, CT**
Project:	**Henry Abbott Technical High School** **New Garage Building** **21 Hayestown Avenue** **Danbury, CT**		

The following pages contain:

Contractors Wage Certification Form	1 page
Notice to all Mason Contractors reference Section 31-53 of C.GS. (Prevailing Wages)	1 page
Prevailing Wage Rates - English	15 pages
Informational Bulletin - **Occupational Classifications**	6 pages
Informational Bulletin – **The 10-Hour OSHA Construction Safety and Health Course**	2 pages
Footnotes	2 pages
Special Notice re: Wage Rate Adjustments	1 pages
Weekly Payroll Certification Form (WWS-CP1)	1 page
Fringe Benefits Explanation (P)	1 page
Weekly Payroll Certification Form (WWS-CP2)	1 page

As of: **December 7, 2018**

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

Construction Manager at Risk/General Contractor/Prime Contractor

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

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

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

Minimum Rates and Classifications for Building Construction

ID# : B 25448

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: BI-RT-888
Project Town: Danbury
State#:
FAP#:

Project: Henry Abbott Technical High School New Garage Building

CLASSIFICATION	Hourly Rate	Benefits
1a) Asbestos Worker/Insulator (Includes application of insulating materials, protective coverings, coatings, & finishes to all types of mechanical systems; application of firestopping material for wall openings & penetrations in walls, floors, ceilings	38.25	27.96
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	40.21	29.30

As of: **Friday, December 07, 2018**

Project: Henry Abbott Technical High School New Garage Building

2) Boilermaker	38.34	26.01
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	33.48	32.06 + a
3b) Tile Setter	34.90	25.87
3c) Terrazzo Mechanics and Marble Setters	31.69	22.35
3d) Tile, Marble & Terrazzo Finishers	26.70	21.75
3e) Plasterer	33.48	32.06

As of: **Friday, December 07, 2018**

Project: Henry Abbott Technical High School New Garage Building

------LABORERS------

4) Group 1: Laborers (common or general), acetylene burners, carpenter tenders, concrete specialists, wrecking laborers, fire watchers.	30.05	20.10
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofer/mixer/nozzleman (Person running mixer and spraying fireproof only).	30.30	20.10
4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	30.55	20.10
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections) P6 and P7 rate is $26.80.	30.55	20.10
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	30.55	20.10

4e) Group 6: Blasters, nuclear and toxic waste removal.	31.80	20.10
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	31.05	20.10
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	28.38	20.10
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	27.86	20.10
4i) Group 10: Traffic Control Signalman	16.00	20.10
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	32.60	25.34

As of: **Friday, December 07, 2018**

5a) Millwrights	33.14	25.74
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	38.82	26.25+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	51.71	32.645+a+b
-----LINE CONSTRUCTION----		
Groundman	26.50	6.5% + 9.00
Linemen/Cable Splicer	48.19	6.5% + 22.00

As of: **Friday, December 07, 2018**

8) Glazier (Trade License required: FG-1,2)	37.18	21.05 + a
9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + a
----OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer 2 drums or over, front end loader (7 cubic yards or over), work boat 26 ft. and over and Tunnel Boring Machines. (Trade License Required)	39.55	24.05 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	39.23	24.05 + a
Group 3: Excavator; Backhoe/Excavator under 2 cubic yards; Cranes (under 100 ton rated capacity), Grader/Blade; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	38.49	24.05 + a

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper).	38.10	24.05 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	37.51	24.05 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine.	37.51	24.05 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.05 + a
Group 7: Asphalt roller, concrete saws and cutters (ride on types), vermeer concrete cutter, Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrell).	36.86	24.05 + a
Group 8: Mechanic, grease truck operator, hydroblaster; barrier mover; power stone spreader; welding; work boat under 26 ft.; transfer machine.	36.46	24.05 + a

Group 9: Front end loader (under 3 cubic yards), skid steer loader regardless of attachments, (Bobcat or Similar): forklift, power chipper; landscape equipment (including Hydroseeder).	36.03	24.05 + a
Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	33.99	24.05 + a
Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	33.99	24.05 + a
Group 12: Wellpoint operator.	33.93	24.05 + a
Group 13: Compressor battery operator.	33.35	24.05 + a
Group 14: Elevator operator; tow motor operator (solid tire no rough terrain).	32.21	24.05 + a

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	31.80	24.05 + a
Group 16: Maintenance Engineer/Oiler.	31.15	24.05 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.05 + a
Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	33.04	24.05 + a
------PAINTERS (Including Drywall Finishing)------		
10a) Brush and Roller	33.62	21.05

As of: **Friday, December 07, 2018**

10b) Taping Only/Drywall Finishing	34.37	21.05
10c) Paperhanger and Red Label	34.12	21.05
10e) Blast and Spray	36.62	21.05
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	42.62	31.21
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
Roofer: Cole Tar Pitch	41.50	17.00 + a

As of: **Friday, December 07, 2018**

Roofer: Slate, Tile, Composition, Shingles, Singly Ply and Damp/Waterproofing	40.00	17.00 + a
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	43.70	42.40
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	42.62	31.21
------TRUCK DRIVERS------		
17a) 2 Axle	29.13	23.33 + a
17b) 3 Axle, 2 Axle Ready Mix	29.23	23.33 + a

As of: **Friday, December 07, 2018**

17c) 3 Axle Ready Mix	29.28	23.33 + a
17d) 4 Axle, Heavy Duty Trailer up to 40 tons	29.33	23.33 + a
17e) 4 Axle Ready Mix	29.38	23.33 + a
17f) Heavy Duty Trailer (40 Tons and Over)	29.58	23.33 + a
17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	29.38	23.33 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	43.92	15.84 + a

19) Theatrical Stage Journeyman	25.76	7.34

Project: Henry Abbott Technical High School New Garage Building

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

As of: **Friday, December 07, 2018**

Project: Henry Abbott Technical High School New Garage Building

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: **Friday, December 07, 2018**

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.

- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:	SUBCONTRACTOR NAME & ADDRESS	WORKER'S COMPENSATION INSURANCE CARRIER
		POLICY #
		EFFECTIVE DATE: EXPIRATION DATE:

PAYROLL NUMBER	Week-Ending Date	PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY								$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____ _____ _____

(Signature) (Title) Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE HOURS WORKED EACH DAY S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

12/9/2013
WWS-CP2

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

Additional Forms to Be Submitted After Bond Commission Funding Approval

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

PERFORMANCE BOND
Know All Men by These Presents

THAT _____ of the

Town of _____, County _____ and

State of _____, as Principal (hereinafter called the Principal),

and _____, _____

(Insert place of Business)

(a surety company authorized to transact business in the State Of Connecticut) as Surety(ies) (hereinafter called the Surety) are held and firmly bound unto the State of Connecticut (hereinafter called the Obligee) in the full penal sum of

_____

($ _____) Dollars, lawful money of the United States, to be paid to said State of Connecticut, to the which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety (ies) binds itself, its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this _____ day of _____ 20 _____ .

THE CONDITION OF THIS OBLIGATION IS SUCH THAT

WHEREAS said Principal will enter into a certain written contract with said Obligee, to be dated the

_____ day of _____ 20 _____, which written , as amended, contract shall provide for the following:

Project Title: _____

Project Location: _____

Contract Number: _____

Project Number: _____

which contract, including any hereafter made extension, modification or alteration thereof, together with all plans and specifications now made or which may hereafter be made in extension, modification or alteration thereof, is hereby referred to, incorporated in, and made a part of this bond as though herein fully set forth.

NOW, THEREFORE, if the said Principal shall well and truly keep, perform and execute all the undertaking, covenants, terms, conditions, and agreements of said contract, as it may be extended, modified or altered, and during the *period* of any guaranty required under the contract, according to its provisions on his or its part to be kept and performed or shall indemnify and reimburse the Obligee for any loss that it may suffer through the failure of the Principal to faithfully observe and perform each and every obligation and duty imposed upon the Principal by the said contract, as it may be extended, modified or altered, at the time and in the manner therein specified, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal, one to the other, shall not in any way release the Principal, and/or the Surety(ies) or either of them, their representatives, heirs, executors, administrators, successors or assigns from liability hereunder, and notice to the Surety(ies) of any such alteration, modification, extension or forbearance is hereby specifically and absolutely waived.

In the event that the Surety(ies) assumes the contract or obtains a bid or bids for completion of the contract, the Surety(ies) shall ensure that the contractor chosen to complete the contract is prequalified pursuant to section 4a-100 of the Connecticut General Statutes, in the requisite classification and has the aggregate work capacity rating and single project limit necessary to complete the contract.

IN TESTIMONY WHEREOF, the said Principal has hereunto set his / its hand and seal, and the said Surety(ies) has/have caused this instrument to be signed by its/their attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

Witness as to Principle **SEAL**

_____

_____ _____ **, Its** _____ **Duly Authorized**
(Print Name)

_____

_____
(Print Name)

Witness as to Surety **SEAL**

_____

_____ **by** _____
(Print Name) **Its attorney in fact**

_____

_____
(Print Name)

Note: *If more than one surety, add additional lines for additional surety name and address, person signing and title, and two witnesses. Obtain Power of Attorney for each surety.*

End Performance Bond

LABOR AND MATERIAL BOND
Know All Men by These Presents

THAT _____ of the

Town of _____, County _____ and

State of _____, as Principal (hereinafter called the Principal),

and _____, _____

(Insert place of Business)

(a surety company authorized to transact business in the State Of Connecticut) as Surety(ies) (hereinafter called the Surety) are held and firmly bound unto the State of Connecticut (hereinafter called the Obligee) in the full penal sum of

_____

($ _____) Dollars, lawful money of the United States, to be paid to said State of Connecticut, to the which payment well and truly to be made and done, the said Principal binds himself, his heirs, executors, administrators and assigns (or itself, its successors and assigns), and the said Surety (ies) binds itself, its successors and assigns jointly and severally firmly by these presents.

Signed, sealed and delivered this _____ day of _____ 20 _____ .

THE CONDITION OF THIS OBLIGATION IS SUCH THAT

WHEREAS said Principal will enter into a certain written contract with said Obligee, to be dated the

_____ day of _____ 20 _____, which written, as amended, contract shall provide for the following:

Project Title: _____

Project Location: _____

Contract Number: _____

Project Number: _____

which contract, including any hereafter made extension, modification or alteration thereof, together with all plans and specifications now made or which may hereafter be made in extension, modification or alteration thereof, is hereby referred to, incorporated in, and made a part of this bond as though herein fully set forth.

NOW, THEREFORE, if the said Principal shall promptly pay for all materials furnished and labor supplied or performed in the prosecution of the work included in and under the aforesaid contract, as it may be extended, modified or altered, and/or required by the General Statutes of Connecticut, as amended, whether or not the material or labor enters into and becomes a component part of the real asset, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect. This bond is provided pursuant to Section 49-41 et seq. of the General Statutes of Connecticut and shall be governed thereby.

Any party, whether a subcontractor or otherwise, who furnishes materials or supplies or performs labor or services in the prosecution of the work under said contract, as it may be extended, modified or altered, and who is not paid therefor, may bring a suit on this bond in the name of the person suing and prosecute the same to final execution and judgment for such sum or sums as may be justly due.

Any alterations which may be made in the terms of the contract, or in the work done or to be done under it, or the giving by the Obligee of any extension of time for the performance of the contract or any other forbearance on the part of either the Obligee or the Principal, one to the other, shall not in any way release the Principal, and/or the Surety(ies) or either of them, their representatives, heirs, executors, administrators, successors or assigns from liability hereunder, and notice to the Surety(ies) of any such alteration, modification, extension or forbearance is hereby specifically and absolutely waived.

In the event that the Surety(ies) assumes the contract or obtains a bid or bids for completion of the contract, the Surety(ies) shall ensure that the contractor chosen to complete the contract is prequalified pursuant to section 4a-100 of the Connecticut General Statutes, in the requisite classification and has the aggregate work capacity rating and single project limit necessary to complete the contract.

IN TESTIMONY WHEREOF, the said Principal has hereunto set his / its hand and seal, and the said Surety(ies) has/have caused this instrument to be signed by its/their attorney in fact and its corporate seal to be hereunto affixed, the day and year first written.

Witness as to Principle **SEAL**

_____

_____ _____ **, Its** _____ **Duly Authorized**

(Print Name)

_____

_____

(Print Name)

Witness as to Surety **SEAL**

_____

_____ **by** _____

(Print Name) **Its attorney in fact**

_____

_____

(Print Name)

Note: *If more than one surety, add additional lines for additional surety name and address, person signing and title, and two witnesses. Obtain Power of Attorney for each surety.*

End Labor and Material Bond

Surety Sheet

State Of Connecticut
Department of Administrative Services, Construction Services
Office of Legal Affairs, Policy, and Procurement
450 Columbus Boulevard, Suite 1302
Hartford, CT 06103

1. Surety Company

Name of Surety Co.:

Address of Home Office:

Telephone Number:

2. Agent

Name of Surety Co.:

Address of Agency:

Telephone Number:

Attorney-In-Fact:

Telephone Number:

DAS Project Number:

Contractor's Name:

End Surety Sheet

Bidder's Certification:
Financial Position and Corporate Structure

(*Your Name*)

(*Name Of Company*)

The bidder for this contract (hereinafter "bidder"), certifies under penalty of false statement that the information in the bid is true, that there has been no substantial change in the bidder's financial position or corporate structure since its most recent prequalification certificate was issued or renewed pursuant to CGS § 4b-91, as amended, other than those changes noted in the update statement, and that the bid was made without fraud or collusion with any person.

(*Signature*)

(*Print Name*)

(*Date*)

(DAS Project Number)

End Bidder's Certification: Financial Position and Corporate Structure

End of Section
00 92 10 Additional Forms To Be Submitted After Bond Commission Funding Approval

Procedures Regarding Taxation For Nonresident General / Prime Contractor and Subcontractors

DAS | Construction Services | Office of Legal Affairs, Policy, and Procurement

According to Connecticut General Statutes § 12-430(7), there are two types of Nonresident Contractors and Subcontractors (*Verified* or *Unverified*) who are required to furnish security for Connecticut taxes arising from jobs performed in Connecticut.

Detailed information can be found by visiting the Connecticut Department of Revenue Services (DRS) website at www.ct.gov/drs:

- Under the "**For Businesses**" title, click on "**Withholding Tax**"";
- Click on "**Registering**";
- Click on "**5. What tax types do I need to register for with DRS";**
- Read the information for **"Out-of-State"** contractors.
- Click on "**SN 2012(2)**" for the "Procedure Governing Nonresident Contractors".

Forms can be downloaded from the DRS website (www.ct.gov/drs) as follows:

- Click on "**Forms**" at the top of the page;
- Under "**Current Year Forms**":
  - Click on "**Miscellaneous Tax Forms**";
  - Click on "**Bond Forms**"
- Download the appropriate form.

For questions regarding the nonresident contractor bond law, call **DRS** at **860-541-7538**.

1.0 Verified Nonresident Contractors and Subcontractors

Verified Nonresident Contractors are treated just like Resident Contractors. A Verified Nonresident General or Prime Contractor is not required to file a surety bond with DRS. A Verified Nonresident Subcontractor is not required for the General or Prime Contractor to hold back a portion of the amount owed the Subcontractor under the contract.

1.1 Verification Procedure for General/Prime Contractors and Subcontractors:

1.1.1	**Register with DRS** via REG-1 for all appropriate taxes.
1.1.2	Submit **Form AU-960 "Nonresident Contractor Request for Verified Contractor Status" to DRS.** If you have a 3 year filing history with DRS and no delinquencies, then just complete **Part I** & **Part I**, otherwise go to **Part III**.
1.1.3	Submit **Form AU-961 "Verification Bond" to DRS**.
1.1.4	If Verified by DRS, submit **"Notice of Verified Status"** (Verification Letter issued by DRS) to the Connecticut Department of Administrative Services / Construction Services (DAS/CS) Office of Legal Affairs, Policy, and Procurement as specified in Section 00 41 00 Bid Proposal Form.

2.0 Unverified Nonresident Contractors and Subcontractors (for Contracts Greater Than $250,000):

The requirements for Unverified Nonresident Contractors and Unverified Nonresident Subcontractors (for Contracts greater than $250,000) are different for General/Prime Contractors and their Subcontractors:

2.1 Unverified Nonresident General or Prime Contractors:

2.1.1	Submit **Form AU-964 "Surety Bond and Release" to DRS**. The Unverified Nonresident General/Prime Contractor is required to file a good and valid surety bond with DRS using Form AU-964 "Surety Bond and Release" for 5% of the contract price to secure payment of required taxes by both the General/Prime Contractor and its Subcontractors.
2.1.2	The General/Prime Contractor must provide proof to DAS/CS that they have posted a good and valid surety bond with DRS by providing a copy of **Form AU-965 "Acceptance of Surety Bond"** that verifies acceptance of the bond by DRS*****.

2.2 Unverified Nonresident Subcontractors:

2.2.1	The Resident or Verified or Unverified Nonresident General/Prime Contractor is required to hold back 5% of its payments to the Unverified Nonresident Subcontractor. The General/Prime Contractor must keep the hold-backs in a special fund in trust for the state.
2.2.2	The Unverified Nonresident Subcontractor can request that the money be released from the General/Prime Contractor by submitting **Form AU-967 "Request for Certificate of Compliance" to DRS**. It must be signed by the General/Prime Contractor and the Nonresident Subcontractor and submitted **to DRS within 90 days of the completion date**.
2.2.3	If **Form AU-968 "Certificate of Compliance"** is issued by DRS, DRS will instruct the General/Prime Contractor holding back the 5% to release the withheld amount to the Nonresident Subcontractor. If the "Certificate of Compliance" is denied or not requested within **90 days of the completion date of the contract**, the General/Prime Contractor holding back the 5% will remit the withheld amount on their own Sales & Use tax returns.
2.2.4	The 5% holdback does not take the place of any tax returns due from the Unverified Nonresident Contractor.
2.2.5	The General/Prime Contractor must give the Unverified Nonresident Subcontractor written notice of the hold-back requirements by the time the Subcontractor begins work under the contract.

***Document(s) must be submitted to the DAS/CS Office of Legal Affairs, Policy, and Procurement as specified in Section 00 41 00 "Bid Proposal Form".**

End of Section

00 92 30 Procedures Regarding Taxation
For Nonresident General/Prime Contractor & Subcontractors

PART 1 – GENERAL

1.1 DEFINITIONS:

A. Contractor:
Whenever the term **"Contractor"** is used in these Division 01 General Requirements and the Contract Documents, it may be understood to mean either the **Design-Bid-Build (D-B-B) "General Contractor"** or the **Construction Manager at Risk ("CMR")** as applicable to the specific Project.

B. Contract:
Whenever the term **"Contract"** is used in these Division 01 General Requirements and the Contract Documents, it may be understood to mean either the **D-B-B General Contractor's Contract Sum** as stated in their Contract or the **CMR's Contract Sum** as stated in their CMR Agreement, as applicable to the specific Project.

1.2 RELATED DOCUMENTS:

A. The Contract Documents are defined in the D-B-B and CMR Division 00 General Conditions, as applicable to the specific Project.

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

1.3 WORK COVERED BY CONTRACT DOCUMENTS:

A. Project Delivery Method:

1. **X** Design-Bid-Build (DBB);

2. ☐ Construction Manager at Risk (CMR)

B. Project Number: BI-RT-888

C. Project Title: The New Garage Building

D. Project Location: Henry Abbott Technical High School, located at 21 Hayestown Avenue, Danbury, Connecticut.

E. The Project Description:

1. Construction of a building of approximately 1,792 gross square feet.

2. The building is new and shall be constructed of materials that include but are not limited to the following: The structure shall consist of Pre-Engineered Structural Framing. Exterior wall construction shall consist of Metal Panel System. Metal Roof construction shall consist of Aluminum Standing Seam Roof Construction. Foundations shall consist of Structural Concrete System. Interior finishes include Paint. Floor coverings include Sealed Concrete. Ceilings shall be N/A.

3. The Authorities Having Jurisdiction as defined by the Connecticut Department of Administrative Services (DAS) / Construction Services (CS) Office of State Building Inspector (OSBI) and Office of State Fire Marshal (OSFM).

F. Owner:

1. **Owner's Name:** The Owner is the State of Connecticut, Department of Administrative Services.

2. **Authorized Representative for the Owner: DAS/CS Project Manager Name:** Steven J. Longo.

a. **DAS/CS Project Manager's Location:** The DAS/CS Project Manager is located at 450 Columbus Blvd, Suite 1201, Hartford, CT, 06103.

b. **Phone:** 860-713-5751.

c. **Fax:** 959-200-4861.

d. **Email(s): steven.longo@ct.gov**

3. **Authority:** The DAS/CS Project Manager is the only authorized representative for the Department of Administrative Services Commissioner to act in matters involving revoking, altering, enlarging or relaxing any requirement of the Contract Documents.

a. **Related Section: Article 25, All Work Subject To Control of the Commissioner**, Division 00 General Conditions of the Contract for Construction.

G. **Agency:**

1. **Agency Name:** The Connecticut State (User) Agency is Technical Education and Career System (TECS).

2. **Agency Representative Name and Title:** Al Richmond, The Agency Representative's Title is Education Consultant, Building & Facilities.

a. **Agency Representative Location**: The Agency Representative is located at 39 Woodland Street, Hartford, CT 06105.

b. **Phone**: 860-807-2181

c. **Fax:** 860-807-2196

d. **Email(**s): Al.Richmond@ct.gov

3. **Authority:** The Agency Representative has the administrative authority for the facility and or site where the work is being performed but does not have the authority to change the Contract Documents or direct the Contractor.

H. **Architect and Engineer (A/E):**

1. **Architect's Name:** The Architect representing the firm for this project is Clohessy Harris & Kaiser, LLC.

a. **Architect's Location:** The Architect is located at **573 Hopmeadow Street, PO Box 95, Simsbury, CT 06070.**

b. **Phone:** 860-651-3777

c. **Fax:** 860-651-7316

d. **Email(s): jimh@chkarch.com**

2. The Architect and Engineer (A/E) or their accredited representative is referred to in the Contract Documents as "Architect" or "Architects" or "Engineer" or "Engineers" or by pronouns which imply them. As information for the Contractor, the Architect's or Engineer's status is defined as follows:

a. The Architect and Engineer will not make interpretations or decisions directly to the Contractor. All interpretations or decisions will be conveyed through the Construction Administrator to the DAS/CS Project Manager.

b. As the authorized representative of the Department of Administrative Services Commissioner, the Architect and Engineer is responsible for review of shop drawings, materials, and equipment intended for the work, in accordance with the Division 00 "General Conditions" and "Supplementary Conditions".

3. Wherever the Architect or Engineer is mentioned in the documents in connection with an administrative function, it shall include the Construction Administrator in that function except for shop drawings.

I. **Construction Administrator (CA):**

1. **Construction Administrator Name:** TBD

a. **Construction Administrator Location:** The Construction Administrator is located at Pending

b. **Phone:** Pending

c. **Fax: Pending**

d. **Email(s):** Pending

2. **Authority:** As information to the Contractor, the Construction Administrator's status is defined as follows:

a. The Construction Administrator (CA) is referred to in the Contract Documents as "Construction Administrator" or by pronouns which imply it. All communications concerning the project will be directed through the Construction Administrator or a designated representative(s).

b. The Construction Administrator is the Owner's Agent who will, among other things, monitor and analyze the Contractor's performance, scheduling and construction, process shop drawings, material, and equipment submittals, review and process periodic billings, review, analyze, and recommend cost changes.

c. **Related Section: Article 26 "Authority of the Construction Administrator"** of Division 00 "General Conditions of the Contract for Construction".

3. The Construction Administrator will process all requests for information, interpretations and decisions regarding the meaning and intent of the Contract Documents, consulting with appropriate parties prior to rendering the interpretations or decisions for the Project Manager to the Contractor. All such requests and replies shall be in writing.

J. **Work:** The Work Includes but is not limited to the following:

1 Site Construction, Landscaping, Site Utilities;

2 Cast-in-Place Concrete;

3 Structural Steel, Miscellaneous Metals;

4 Rough Carpentry, Finish Carpentry;

5 Waterproofing, Roofing, Sheet metal, and Joint Sealants;

6 Doors and Frames, Overhead Doors, Aluminum Windows, Hardware;

7 Drywall and Painting;

8 Fire Extinguishers;

9 Plumbing, HVAC, and Controls;

10 Electrical and Fire Alarm Systems; and

11 Special Equipment.

K. The Contractor will include in their bid, all items required in order to carry out the intent of the Work as described, shown and implied in the Contract Documents.

L. It shall be the Contractor's responsibility upon discovery to immediately notify the Construction Administrator, in writing, of errors, omissions, discrepancies, and instances of noncompliance with applicable codes and regulations within the documents, and of any work which will not fit or properly function if installed as indicated on the Contract Documents. Any additional costs arising from the Contractor's failure to provide such notification shall be borne by the Contractor.

M. The Work will be constructed under the Contractor's Contract as applicable to this Project.

1.4 WORK SEQUENCE (PHASES)

A. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Site Phasing Plan is shown on Drawing Sheet No. C.01 and C.02.

C. The entire Project shall be constructed in one (1) Phase. Work of this Phase shall be substantially complete, ready for occupancy within 155 Calendar Days of commencement of the Work (the "Contract Time")

D. Phase one shall include the following portions of work, including all labor and material, shown on the drawings and/or as specified hereinafter. Work of this Phase shall be substantially complete, ready for occupancy within 155 Calendar Days of commencement of the Work. The intent of Phase one is to complete work defined in the construction documents and includes but is no limited to the following:

1. All work shown and specified for The New Garage Building.

2. All Division 03 Concrete work

3. All Division 06 Rough Carpentry

4. All Division 08 Openings

5. All Division 09 Finishes

6. All Division 13 Special Construction

7. All Division 26 Electrical

8. All Division 31 Earthwork

9. All Division 32 Exterior Improvements

10. All Division 33 Utilities

1.5 CONTRACTOR'S USE OF PREMISES:

A. **General:** During the construction period the Contractor shall have full use of the newly constructed premises for construction operations, including use of the site. The Contractor's use of the premises is limited only by the Owner's right to perform work or to retain other contractors on portions of the Project.

B. **Use of the Site:** Limit use of the premises to work in areas indicated. Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. **Owner Occupancy:** Allow for Owner occupancy and use by the public of the existing facility.

2. The Contractor shall confine his operations including storage of materials, supplies, equipment, and apparatus to the areas bounded by the contract limits indicated and as directed in the Contract Documents.

3. Existing roads, drives, walks, and parking areas which are not within the contract limit line are to be kept free and clear at all times. All deliveries for the project are to enter the Pending property from Pending .The Contractor shall check all Pending roadways for accessibility and clearances for deliveries of all large material and equipment. The Contractor shall inform the Construction Administrator at least seventy-two (72) hours in advance of these deliveries so they can be coordinated with the Agency so appropriate traffic control, etc. can be provided. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

4. The Contractor shall be responsible for keeping the premises clean and shall pick up rubbish and debris and promptly remove from site.

5. Parking for the Contractor's employees will be limited to an area designated by the Construction Administrator, and the Contractor may be required to provide identification stickers for all employees' cars.

6. Special precautions shall be taken to protect all wetland areas designated to remain. Prevent any and all sediment, debris, or other materials from getting into these areas. Should any sediment, debris, or other materials get into these areas or if any damage occurs to the vegetation therein, the Contractor shall immediately contact the Construction Administrator for direction.

7. The Contractor shall comply with local working hour restrictions, unless specifically approved otherwise in writing by the Owner.

8. No signs, other than those approved by the Construction Administrator, will be visible on the premises.

C. **Use of the Existing Building:** Maintain the existing building in a weather-tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period. Note: Check with Agency special types of conditions. Contractor personnel are not allowed to use the Cafeteria or vending machines within the existing buildings unless authorized in writing by the agency.

1.6 OCCUPANCY REQUIREMENTS:

A. **Full Agency Occupancy During Construction:** The Owner reserves the right to allow the Agency to occupy the site and existing building during the entire construction period. Cooperate with the Agency during construction operations to minimize conflicts and facilitate Agency usage. Perform the Work so as not to interfere with the Agency's operations.

1. Provide adequate building and fire code egress from the buildings during the renovation process and/or as indicated on the Contract Documents. The Contractor will be responsible to maintain and protect egress ways during the construction sequence as required and/or indicated in the Contract documents. The Contractor shall be responsible for preparing egress plans for Owner approval and for DAS/CS Office of State Building Official and Office of State Fire Marshal for approval if required.

B. **Partial Agency Occupancy:** The Owner reserves the right to allow the Agency to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.

1. Should it become necessary or advisable, as the work nears final completion, for the Agency to occupy a portion of the building prior to final acceptance, the Contractor shall cooperate in completing such areas and making same accessible.

2. The Construction Administrator will determine whether such occupancy or use is possible and, if so, will make arrangements for holding a job inspection with the DAS/CS Project Manager, Agency Representative, and Contractor.

3. A comprehensive list of items to be completed or corrected as issued by the Contractor, together with the status of completion and terms of occupancy, will be forwarded to the DAS/CS Project Manager by the Construction Administrator. A letter will be issued by the DAS/CS Project Manager and Contractor to Construction Administrator granting such occupancy and will state the terms and conditions of occupancy.

4. Prior to partial Agency occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Agency will operate and maintain mechanical and electrical systems serving occupied portions of the building.

5. The Architect will prepare a “Certificate of Substantial Completion” for each specific portion of the Work to be occupied prior to Agency occupancy. Use the “Certificate of Substantial Completion” form as required by the Owner and forward the Certificate to the DAS/CS Office of State Building Inspector for a Certificate of Occupancy and obtain the same after his review and approval.

6. The DAS/CS Project Manager will request a signed “Certificate of Compliance” from the Architect and Contractor, and forward the Certificate to the Office of State Building Inspector for a Certificate of Occupancy and obtain the same after his review and approval.

7. A letter from the DAS/CS Project Manager to the Agency Representative with copy to the Contractor granting occupancy will state the terms and conditions of occupancy and that fire insurance coverage has been requested, the effective date of which will indicate to the Contractor that they may cancel fire insurance coverage for that portion of the project.

8. Upon occupancy, the Agency will assume responsibility for maintenance and custodial service for occupied portions of the building.

9. **Work after Partial Agency Occupancy:**

9.1 For all work to complete the area occupied, warranty work, the balancing and Commissioning (Cx) of systems, repair of latent defects and adjustments after partial occupancy, the Contractor is responsible for all costs associated with working in occupied buildings.

C. **Agency Occupancy:**

1. The Construction Administrator will determine whether such occupancy is possible and, if so, will make arrangements for holding a job inspection with the DAS/CS Project Manager, Agency Representative, and Contractor.

2. A comprehensive list of items to be completed or corrected as issued by the Contractor, together with the status of completion and terms of occupancy, will be forwarded to the DAS/CS Project Manager and the Contractor by the Construction Administrator. A letter will be issued by the DAS/CS Project Manager and Contractor to Construction Administrator granting such occupancy and will state the terms and conditions of occupancy.

3. Prior to Agency occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Agency will operate and maintain mechanical and electrical systems serving occupied portions of the building.

4. The Architect will prepare a **“**Certificate of Substantial Completion” for the Work to be occupied prior to Agency occupancy. Use the “Certificate of Substantial Completion” form as required by the Owner.

5. The DAS/CS Project Manager will request a signed “Certificate of Compliance” from Commissioner of the Department of Administrative Services, Architect, and Contractor, if required.

6. A letter from the DAS/CS Project Manager to the Agency Representative with copy to the Contractor granting occupancy will state the terms and conditions of occupancy and that fire insurance coverage has been requested, the effective date of which will indicate to the Contractor that they may cancel fire insurance coverage for the project.

7. Upon occupancy, the Agency will assume responsibility for maintenance and custodial service for occupied portions of the building.

8. Work after Agency Occupancy:

8.1 For all work to complete the occupied building, warranty work, the balancing and commissioning of systems, repair of latent defects and adjustments after occupancy, the Contractor is responsible for all costs associated with working in occupied buildings.

D. No Occupancy: Agency will not occupy the building or any completed portions thereof prior to Substantial Completion of the Work.

1.7 MISCELLANEOUS PROVISIONS:

A. Examination of Site:

1. It is not the intent of the Documents to show all existing conditions. All Contractors and Subcontractors are advised to attend the Pre-Bid Meeting prior to submitting their Bid Proposals. This is the only official opportunity to visit and examine the site with the Owner, Agency, Architect, Engineer and Construction Administrator.

2. The Contractor should investigate and satisfy himself as to the conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, uncertainties of weather, roads or similar physical conditions of the ground, the character of equipment, and facilities needed preliminary to and during the prosecution of the Work. The Contractor should further satisfy himself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, as well as from information presented by the Contract Documents. Any failure by the Contractor to acquaint himself with the available information shall not relieve him from the responsibility for estimating properly the difficulty and cost of successfully performing the Work.

3. No attempt has been made to locate hazardous material associated with existing site utilities, though it is presumed that at least some asbestos may be discovered associated with underground piping during the course of site and site utilities work. If and when such materials appear, the Contractor shall notify the Owner, who shall direct additional work outside of this Contract to assist in cutting up and disposing of same. The Contractor shall assist the hazardous materials contractor(s) with excavating, heavy lifting, and the like at no additional cost to the Owner.

B. Pre-Bid Meeting:

1. A Pre-Bid Meeting and tour of the site will be conducted as scheduled in Division 00 Section 00 11 16 “Invitation to Bid”. This scheduled meeting is the only official opportunity for the bidders to tour the site with the Owner, Architect, Engineer, Construction Administrator, and Agency.

C. Project Documents:

1. The Specifications and Drawings are intended to describe and illustrate the materials and labor necessary for the work of this Project.

2. Throughout the Technical Specifications, the Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction Form 816, current edition including any interim and supplemental specifications are referenced. Where so referenced the requirements set forth therein are applicable and made a part hereof. Copies of Form 816 are available from the Connecticut Department of Transportation at a nominal charge.

D. Site Logistics Plan(s): Site Logistics Plan(s) for this Project are in the Contract Documents. The Site Logistics Plan(s) describe in detail the proposed use of the Site and Building, both inside and outside the Contract Limit Area.

1. Related Section: Section 01 31 00 “Project Management and Coordination”, 1.5 Submittals, A, (4).

2. The **Site Logistics Plan(s)** include, but are not be limited to the following information:
- **a**. proposed vehicle and equipment access routes;
- **b.** locations of proposed staging/lay-down and storage areas, utility connections;
- **c.** delivery access of materials, handicap access;
- **d.** building egress, proposed pedestrian traffic flows in the interior and exterior of the building;
- **e.** temporary access-ways;
- **f.** office trailer and dumpster locations;
- **g.** location of perimeter construction fencing and gates;
- **h.** other protection measures around and in the building(s);
- **i.** temporary partitions, proposed pedestrian traffic flows around and in each building;
- **j.** proposed building access points;
- **k.** proposed protection measures for trees, shrubs and plantings, interior access-ways;
- **l.** coordination of activities that relate to building occupants and other field applied measure to
- **m.** protect and coordinate the work including any relocation of utilities.

E. **Scope Review:**

1. Prior to signing a Contract with the State, DAS/CS will conduct a full scope review with the apparent Low Bidder to ensure that all of the requirements have been included within the bid. This scope review will highlight all of the specific requirements of the project, a review of the DAS/CS procedures and all of the Technical sections of the contract documents.

2. This process will ensure that all of the scope of work included in the contract documents has indeed been included.

F. **Specifications, Drawings, and Electronic Data Storage Devices Furnished:**

1. The Contractor shall receive Pending sets of the Contract Documents on or about the time of execution of the Contract, free of charge. If additional copies are wanted, they will be available at the direct additional cost of their reproduction, to the Contractor.

2. The Contractor shall receive one (1) set of AutoCAD compatible (latest version) Floor Plans on Electronic Data Storage Devices at no cost on or about the time of execution of the Contract from the Architect. Additional sets of AutoCAD compatible (latest version) Floor Plans on Electronic Data Storage Devices from the Architect shall be available at the cost of their reproduction, to the Contractor.

G. **Construction Responsibility:**

1. The Contractor shall be responsible for his construction means, methods, techniques, sequences, and procedures employed in the performance of his work and shall have full responsibility for his failure to carry out any part of his work in accordance with the Contract Documents.

H. The Contractor shall request approval from the Owner to work overtime. Said request shall be made forty eight (48) hours in advance. All costs for overtime are included in the Contract Sum as stated in Division 00 Section 00 41 00 "Bid Proposal Form."

I. **PMWeb Project Management:**

1. DAS/CS is using PMWeb as the project management collaborative software tool for this project.

2. The Contractor is required to utilize PMWeb for the duration of this project and shall provide all project information via this program management software. This includes, but is not limited to contracts, applications for payment, change orders, change order proposals, requests for information, etc.

3. The DAS/CS Project Manager or the Construction Administrator (CA) shall arrange for training. This training is for the Contractor's Staff, the DAS/CS Project Manager, the Construction Administrator, the A/E, and their representatives.

4. DAS/CS will be establishing a project specific email "file" address for this project. The Contractor shall send an electronic "file" copy of all project documents to this email address, to include but not limited to all project correspondence, project emails, forms, etc.

5. The Contractor is required to scan all documents that contain wet (ink) signatures and send a copy of those documents electronically to the DAS/CS Project Manager and the project specific email "file" address. The hard copy of the wet signature documents shall be transmitted as directed by the DAS/CS Project Manager. This includes, but is not limited to all contracts, change orders, applications for payment, closeout documentation, etc.

J. Pursuant to C.G.S. Sec. 4a-101, the Contractor shall compile evaluation information during the performance of the contract on each of its subcontractors who are performing work with a value in excess of five hundred thousand dollars ($500,000.00). The Contractor shall complete and submit to DAS/CS evaluations of each such subcontractor upon fifty percent (50%) completion of the project and upon Substantial Completion of the project. The Contractor acknowledges that its failure to complete and submit these evaluations in a timely manner may, by statute, result in a delay in project funding and, consequently, payment to the Contractor. The Contractor agrees to indemnify and hold the State harmless from any loss, damage, or expense that results from or is caused by the Contractor's failure to complete and submit the evaluations to DAS/CS in accordance with this provision.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 11 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Contract Documents and general provisions of the Contract, including General and Supplementary Conditions, other Division 01 Specification Sections, and Section 00 41 00 "Bid Proposal Form" apply to this Section.

1.2 SUMMARY:

A. This Section includes the following:
- **1.** Allowances.
- **2.** Unit Prices.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

Section 01 23 13 Supplemental Bids

Section 01 26 00 Contract Modification Procedures

Section 01 29 76 Progress Payment Procedures

Section 01 35 16 Alteration Project Procedures

Section 01 77 00 Closeout Procedures

Section 31 10 00 Site Clearing

Section 31 20 00 Site Earth Moving

Section 31 23 14 Structural Excavation

Section 31 23 24 Structural Fill

1.3 ALLOWANCES:

A. This Section includes administrative and procedural requirements for Allowances.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

C. **Cash Allowances:**

1. The Contractor's costs for unloading and handling, labor, installation costs, storage, insurance, overhead and profit and other expense related to the Allowance item shall be included in the Lump Sum Bid Amount and not in the Allowance unless stated otherwise in the Allowance Schedule of this section.

2. **Architect/Engineer Responsibilities:**
- **a.** Consult with Contractor for consideration of Products, suppliers and installers.
- **b.** Select Products in consultation with the DAS/CS Project Manager and Agency Representatives and transmit decision to Construction Administrator.
- **c.** Prepare Change Order.

3. **Construction Administrator Responsibilities:**
- **a.** Consult with Architect/Engineer, Contractor, DAS/CS Project Manager and Agency Representatives for consideration of Products, suppliers and installers.
- **b.** Select Products in consultation with Architect/Engineer, DAS/CS Project Manager and Agency Representatives and transmit decision to Contractor.
- **c.** Prepare Change Order.

4. Contractor Responsibilities:
- a. Assist Architect/Engineer and Construction Administrator in selection of Products and Suppliers.
- b. Obtain proposals from Suppliers and offer recommendations.
- c. On notification of selection by Construction Administrator execute purchase agreement with designated supplier.
- d. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.

e. If the actual cost of an Allowance item is more or less than the given amount, the Contract Sum will be adjusted by Change Order.

1.4 UNIT PRICES – GENERAL:

A. This Section includes administrative and procedural requirements for unit prices.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:
1. Division 01 Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
2. Division 01 Section 01 29 76 "Progress Payment Procedures" for procedures for submitting Application for Payments.

C. **Definition - Unit Price:** Amount the Contractor acknowledges in the Bid Proposal Form as a price per unit of measurement for materials or services as described in the Bidding Documents or in the Contract Documents.

D. **Procedures:**
1. Unit Prices included in the Contract Documents are to be used for determining compensation to the Contractor or Owner for changes to the scope of the work indicated in the Contract Documents, and included in the Lump Sum Contract Price. Special Unit Prices are for items complete, in place, and shall be inclusive of furnishing and installing of all material, labor, trucking, overhead, profit, equipment, hoisting, excavation, stockpiling, loading, engineering, scaffolding, power hookups, protection, shop drawings, taxes, permits, appliances, delivery, disposal, insurance, supervision, cost of bond, etc. and shall remain in effect until completion of the Contract.
2. **Unit Price:** Is identified by the Owner as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if the estimated quantities of Work required by the Contract Documents are increased or decreased.
3. **Increases or Decreases:** Should the amount of the Work required be increased or decreased because of changes in the work ordered in writing by the DAS/CS Project Manager, the Contractor agrees that the following supplemental UNIT PRICES will be decreased 10% for a reduction of work. Each Unit Price shall include all equipment, tools, labor, permits, fees, etc., incidental to the completion of the work involved. All items marked with an asterisk (*****) in the unit price schedules shall include the completion of the excavation, formation and compaction of sub-grade and the disposal of surplus or unsuitable materials in accordance with the Plans and Specifications or as directed by the Construction Administrator.
4. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this work measured, at the Owner's expense, by an independent surveyor acceptable to the Contractor.
5. **Defect Assessment:** Replace the Work, or portions of the Work, not conforming to the specified requirements. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the work the Architect/Engineer will direct an appropriate remedy or adjust the payment.
6. **Unit Price Schedule:** A "Unit Price Schedule" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials described under each unit price.

1.5 UNIT PRICE SCHEDULES:

A. **Unit Price Schedule - Earth and Rock Excavation:** This Section includes administrative and procedural requirements for the following unit prices and provisions are to be included in and become part of this Contract to be used in evaluating additions to or deductions from the work called for in the specifications and/or plans.
1. Unless otherwise specified elsewhere in these documents, Contractors are to assume that all excavation is earth; however, if unspecified rock is encountered, it will be paid for at the given unit prices listed in Paragraph "C". Rock prices are net in that allowances for reduced quantities of earth are also included in the unit prices. The prices given include all costs for overhead, profit and rock surveys.

2. Wherever rock to be excavated is encountered, the Contractor shall strip or expose the rock to such an extent that in the Owner's opinion the necessary measurements can be taken. The Contractor shall provide the Owner with a survey by a licensed land surveyor indicating top of rock elevations at points of intersection on a rectilinear grid with lines spaced sufficiently close to show accurately the rock surface contours. At the Owner's option, an additional survey may be furnished by the Owner from a licensed surveyor.

3. If the conditions of the excavation work indicated are clearly of a special nature, the Contractor may ask the Owner for reconsideration of the established unit prices and if granted, the unit prices will not apply, and prices will be negotiated in accordance with Article 13 of the General Conditions.

B. **Definitions:**

1. **"EARTH"** - is defined as excavation shall include removal of all materials other than 'water' and 'rock'.

2. **"ROCK"** - is defined as a boulder of one cubic yard or more in volume (1/2 cubic yard for a boulder in trenches), and rock in definite ledge formation and masonry structures of one cubic yard or more in volume, the removal of which requires the use of mechanical equipment or the use of explosives. Rock removed by scarification or ripping method is considered as a separate classification under Paragraph 4.c.(1).

3. **"ORIGINAL GRADE"** - is defined as being the grade which exists at the time of Contract Award.

4. **"ROUGH GRADE"** - is defined as being the completed surface of required excavations greater than 13' in width.

5. **"MASS"** - excavation is to be considered as an open area whose minimum horizontal dimensions exceed 13'.

6. **"TRENCH**" - is defined as excavation is defined as the removal of material from areas 13 feet or less in its minimal horizontal dimensions and below the elevation of rough grade or original grade, whichever is lower.

C. **Procedures:**

1. **Rock Excavation in Trenches:** Basis for Horizontal Measurement:

a. **Horizontal Measurements:** Will be taken between the vertical planes as defined below.

b. **The Minimum Width of Trenches in Rock:** Will be taken as 3' 0".

c. **Excavation For Walls Or Piers With Footings:** The measurements will be taken parallel to and one foot outside of the edges of the concrete footings as called for in the plans (i.e. for 4' 0" footing, rock will be taken as 6' 0" in width).

d. **Excavation For Walls Or Piers Without Footings:** The limits of the excavation will be 1' 6" outside of the line of concrete at bottom as shown or called for in the plans (i.e. for a wall with a bottom thickness of 1' 0", the width of the trench will be considered to be 4' 0"). (Caissons are excluded from these measurements).

e. **Excavation for Pipe Lines:** Will be measured at 2' 0" more than the nominal inside diameter of **the pipe but in no case less than 3' 0" wide.**

f. **Excavation For Tanks, Vaults, Manholes, Pits, Etc.:** Will be measured as 2' 0" greater in both length and width or diameter than the actual exterior dimensions of the structures and this excavation is considered to be trench only if any measured horizontal dimensions is 13' or less.

g. No allowance will be made for rock removed beyond the above limits.

2. **Rock Excavation in Trenches - Basis for Vertical Measurement:**

To determine depth of trench, vertical measurements will be taken from original grade or rough grade, (whichever is applicable), to the bottom of required excavation. These measurements will define the maximum depths for payments.

To determine quantity of rock in trench, vertical measurements will be taken from the top of rock as encountered in the trench to 12" below the bottom of required rock excavation. Any over excavation below the required elevation shall be filled with concrete or other material as specified at no cost to the Owner.

No allowance will be made for rock removed beyond the above limits.

3. **Earth Excavation in Trenches - Basis of Measurement: (Horizontal & Vertica**l): The basis of measurements and allowance limit for earth excavation in trenches is identical to that indicated for rock excavation in trenches, except that there will be no allowance for 12" below the required elevation. In addition the following will prevail:

a. Maximum allowable widths for earth excavation in trenches without shoring:

Trench Depth - Classification	Add To Nominal ID Of Pipe Or To Footing Width
0 ft. - 6 ft.	3 ft.
Over 6 ft. - 10 ft.	5 ft.
Over 10 ft. - 15 ft.	7 ft.
Below 15 ft. deep the width of the trench shall be based on the individual case. The final depth of trench will determine the actual width for payment.	

b. If shoring is required the measurement shall be taken between the exterior walls of the shoring not to exceed 4' plus the I.D. of the pipe (for all depths).

c. To determine quantity of earth in trench, vertical measurements will be taken from the original or rough grade to actual bottom of earth excavation required.

4. Unit Prices - Earth and Rock Excavation (Basis for Payment): Prices include backfill with excavated material if it is suitable. Prices also include all excavation and disposal of all surplus or unsuitable material. Where replacement with the excavated material is prohibited or a particular backfill material is specified, the cost of the delivered replacement material in a volume equal to the above excavation pay limits minus the volume of the items installed in the trench shall be paid for a prior negotiated price. Prices do not include costs of shoring and de-watering but do include sloping for sides of excavation. Payment and credit amounts shall be determined in the following manner: Widths and depths of trench excavation as indicated. The total quantity of earth or rock excavation encountered in each depth payment category shall be paid for at its respective unit price as shown below. For example, in a 15' trench the first 6' will be paid for at the 0' - 6' price; the next 4' will be paid for at the over 6' - 10' price and the next 5' will be paid for at the over 10' - 15' price. Thus three different price brackets will prevail.

a.	**EARTH EXCAVATION - HAND**			**UNIT**	**$ ADD**	**$ DEDUCT**
	(1)	In Trenches - 0'. - 6'.		C.Y.	36.00	28.80
	(2)	In Trenches Below 6' Deep,		Prices Must Be Negotiated Before Work Is Started.		
b.	**EARTH EXCAVATION - MACHINE**			**UNIT**	**$ ADD**	**$ DEDUCT**
	(1)	Open Area	All Depths	C.Y.	18.81	15.05
	(2)	In trenches	0' - 4' deep	C.Y.	14.27	11.40
		Over	0' - 10' deep	C.Y.	19.71	15.75
		Over	0' - 15' deep	C.Y.	35.00	28.00
		Over	0 - 20' deep	C.Y.	75.00	60.00
c.	**ROCK EXCAVATION**			**UNIT**	**$ ADD**	**$ DEDUCT**
	(1)	Open Areas, Rock Removed By Ripping (Any Amount),				
		Net Rock		C.Y.	103.50	82.80
	(2)	Open Areas, With Explosives -				
		Net Rock -	Total Quantity Up To 100	C.Y.	126.00	100.80
			Total Quantity Up To 1,000	C.Y.	60.00	48.00
			Total Quantity Up To 1,000 or more	C.Y.	28.00	22.40
	(3)	In Trenches, Boulders, Remove By Machine		C.Y.	45.00	36.00
	(4)	In Trenches, Ripping Of Rock By Machine		C.Y.	105.00	84.00
	(5)	In trenches, with explosives				
		Net Rock	0' - 4' Deep	C.Y.	95.60	76.50
	(6)	In trenches, with explosives				
		Net Rock	0' - 10' Deep	C.Y.	125.00	100.00
c.	**ROCK EXCAVATION (cont.)**			**UNIT**	**$ ADD**	**$ DEDUCT**
	(7)	In trenches, with explosives				
		Net Rock	0 - 15' Deep	C.Y.	150.00	120.00
	(8)	In trenches, with explosives				
		Net Rock	Over 15' - 10' Deep	C.Y.	200.00	160.00
	(9)	In trenches, with explosives -				
		Net Rock	0 - 20' Deep,	Prices Must Be Negotiated Before Start Of Work.		

	(10)	Jack Holes (For Hydraulic Lift/Elevators)	L.F.	95.00	76.00
	(11)	Open Or Mass Areas - If Explosives Are Prohibited			
		Net Rock	C.Y.	125.00	100.00
	(12)	Trench Excavation - If Explosives Are Prohibited			
		Net Rock/With Rock Splitters And Jack Hammer or Hoe Ram	C.Y.	150.00	120.00

D. Unit Price Schedule - Miscellaneous:

1. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

2. **Unit Price Schedule – Miscellaneous:**

1.	MISCELLANEOUS Items		UNIT	$ ADD	$ DEDUCT
	a.	Structural fill	[CY]	$60.00	$50.00
	b.	Footing forms, contact area	[SF]	$.30	$.25
	c.	Footing concrete, in place	[CY]	$300.00	$250.00
	d.	Wall forms, contact area	[SF]	$.30	$25
	e.	Wall concrete, in place	[CY]	$350.00	$280.00
	f.	Reinforcing steel bars, in place	[Lb]	$1.00	$.80
	g.	Structural steel, in place	[Lb]	$1.75	$1.40

2. Unit Prices shall be negotiated if there is a change in scope of work.

E. Unit Price Schedule - Alterations:

1. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

2. **Unit Price Schedule – Alterations:**

1.	ALTERATION ITEMS		UNIT	$ ADD	$ DEDUCT
	a.	Roof Blocking	[N/A]	[N/A]	[N/A]
	b.	Roof Planking	[N/A]	[N/A]	[N/A]
	c.	Flashing	[N/A]	[N/A]	[N/A]
	d.	Roof Sheathing	[N/A]	[N/A]	[N/A]
	e.	Roof Flashing	[N/A]	[N/A]	[N/A]
	f.	Structural Deck	[N/A]	[N/A]	[N/A]
	g.	Roof Drain Assemblies	[N/A]	[N/A]	[N/A]

2. Unit prices shall be negotiated if there is a change in scope of work.

F. Unit Price Schedule – Environmental Remediation:

1. **Related Documents:** Drawings and general provisions of the Contract, including General and Supplementary Conditions, other Division 01 Specification Sections, and Technical Specifications apply to this Section.

2. **Unit Price Schedule – Environmental Remediation:**

a.	ENVIRONMENTAL REMEDIATION		UNIT	$ ADD/ DEDUCT
	ER-01	Removal of Hazardous Soil/Fill Material (per 1 ton) – Excavate, Stockpile, Load Out, Transport, and Dispose	TON	$380
	ER-02	Removal of Contaminated Soil/Fill Material (per 1 ton) – Excavate, Stockpile, Load Out, Transport, and Dispose	TON	$120
	ER-03	Removal of Polluted Soil/Fill Material (per 1 ton) – Excavate, Stockpile, Load Out, Transport, and Dispose	TON	$60

G. Unit Price Schedule – Hazardous Building Materials Abatement:

1. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions, other Division 01 Specification Sections, and Technical Specifications apply to this Section.

2. Unit Price Schedule – Hazardous Building Materials Abatement:

a.	ASBESTOS ABATEMENT		UNIT	$ ADD/ DEDUCT
	AR-001	CLEAN-UP OF ACM DEBRIS BY HEPA VACUUMING	SF	$0.23
	AR-002	REMOVAL OF PIPE INSULATION INCLUDING FITTINGS (FULL CONTAINMENT - < 6" DIA)	LF	$1.63
	AR-003	REMOVAL OF PIPE INSULATION INCLUDING FITTINGS(FULL CONTAINMENT - 6" - 12" DIA)	LF	$2.68
	AR-004	REMOVAL OF PIPE INSULATION INCLUDING FITTINGS(FULL CONTAINMENT - >12" DIA)	LF	$3.65
	AR-005	GLOVE BAG REMOVAL OF PIPE OR FITTING INSULATION (MINI-CONTAINMENT - FIRST 25)	EA	$26.05
	AR-006	GLOVE BAG REMOVAL OF PIPE OR FITTING INSULATION (MINI-CONTAINMENT - QUANTITY BETWEEN 25-50)	EA	$20.56
	AR-007	GLOVE BAG REMOVAL OF PIPE OR FITTING INSULATION (MINI-CONTAINMENT - QUANTITY IN EXCESS OF 50)	EA	$18.30
	AR-008	REMOVAL OF EQUIPMENT INSULATION	SF	$3.81
	AR-009	REMOVAL OF HVAC DUCT INSULATION	SF	$3.81
	AR-010	REMOVAL OF HVAC DUCT SYSTEM FLEXIBLE CONNECTOR	SF	$2.77
	AR-011	REMOVAL OF RESILIENT FLOORING INCLUDING MASTIC	SF	$1.05
	AR-012	REMOVAL OF RESILIENT FLOORING (NO MASTIC)	SF	$0.67
	AR-013	REMOVAL OF SPRAYED ON FIREPROOFING	SF	$2.61
	AR-014	REMOVAL OF PLASTER CEILING SYSTEM (INCLUDING BLACK IRON AND METAL LATH)	SF	$2.68
	AR-015	REMOVAL OF ACOUSTIC OR METAL PAN CEILING SYSTEM (INCLUDING GRID)	SF	$1.74
	AR-016	REMOVAL OF ACOUSTIC CEILING PANELS (CLEAN GRID FOR REUSE)	SF	$1.45
	AR-017	REMOVAL OF ACOUSTIC PLASTER FINISH MATERIAL (SCRAPE)	SF	$2.45
	AR-018	PATCH AND/OR SEAL DAMAGED INSULATION	SF	$1.05
	AR-019	REMOVAL OF CONTAMINATED SOIL (2" DEPTH)	SF	$1.69
	AR-020	REMOVAL OF TRANSITE MATERIAL	SF	$0.92
	AR-021	REMOVAL OF ROOFING OR ROOF FLASHING MATERIAL	SF	$1.34
	AR-022	REMOVAL OF UNDERGROUND PIPE OR PIPE INSULATION (INCLUDING HAND EXCAVATION)	LF	$10.75
	AR-023	REMOVAL OF CARPET OVER RESILIENT FLOORING	SF	$0.83
	AR-024	REMOVAL OF WALL BASE AND MASTIC	LF	$0.95
	AR-025	REMOVAL OF DRYWALL PARTITION (INCLUDING WALL FRAMING)	SF	$0.90
	AR-026	REMOVAL OF CMU WALL	SF	$1.82
	AR-027	PREP WORK AREA	SF	$1.09
	AR-028	SOLID BARRIERS OR ACCESS TUNNELS (2"x4"@16", 1/2" PLYWOOD)	SFSA	$1.26
	AR-029	SELECTIVE DEMOLITION TO ACCESS CONCEALED ACM	SF	$1.11
	AR-030	REMOVAL OF FLOOR LEVELING MATERIAL	SF	$0.79

b.	LEAD-BASED PAINT ABATEMENT		UNIT	$ ADD/ DEDUCT
	SP-001	REMOVE LOOSE PAINT FROM WALLS OR CEILINGS (WET SCRAPING OR BRUSHING)	SF	$0.89
	SP-002	STRIP PAINT FROM FLAT SURFACES	SF	$2.93
	SP-003	STRIP PAINT FROM COLUMNS AND STRUCTURAL FRAMING MEMBERS	SF	$3.68
	SP-004	STRIP PAINT FROM STAIR TREADS, RISERS AND STRINGERS	SF	$5.08
	SP-005	STRIP PAINT FROM TRIM	LF	$2.82
	SP-006	STRIP PAINT FROM DOORS (DOOR OPENING SIZE)	SF	$4.54
	SP-007	STRIP PAINT FROM WINDOW (WINDOW SIZE)	SF	$7.08
	SP-008	STRIP PAINT FROM RADIATOR	SF	$8.75

	SP-009	STRIP PAINT FROM HANDRAIL	LF	$7.35
	SP-010	STRIP PAINT FROM PIPING	SF	$6.30
	SP-011	CLEAN-UP OF MATERIALS CONTAINING LEAD (DIRT, BUILDING DEBRIS, ETC.)	CF	$3.43
	SP-012	HEPA VACUUMING AND WASHING SURFACE (SMOOTH SURFACE)	SF	$0.63
	SP-013	HEPA VACUUMING AND WASHING SURFACE (POROUS SURFACE)	SF	$1.05
	SP-014	REMOVE EXTERIOR SOIL (6" DEPTH)	SF	$4.50

c.	PCBS IN BUILDING MATERIAL ABATEMENT		UNIT	$ ADD/ DEDUCT
	HM-001	REMOVE LOOSE PCB CONTAMINATED CAULK (WET SCRAPING OR BRUSHING)	LF	$6.20
	HM-002	REMOVE PCB CONTAMINATED CAULK AND 6 INCHES OF BUILDING MATERIALS	LF	$28.00
	HM-003	REMOVE PCB CONTAMINATED CAULK AND 12 INCHES OF BUILDING MATERIALS	LF	$37.00
	HM-004	REMOVE INTACT PCB CONTAMINATED CAULK WITH NO REMOVAL OF BUILDING MATERIALS	LF	$8.50
	HM-005	STRIP PAINT FROM FLAT SURFACES	SF	$2.94
	HM-006	HEPA VACUUMING AND WASHING SURFACE (SMOOTH SURFACE)	SF	$0.60
	HM-007	HEPA VACUUMING AND WASHING SURFACE (POROUS SURFACE)	SF	$1.05
	HM-008	REMOVE EXTERIOR SOIL (6" DEPTH)	SF	$4.88
	Hm-009	EXCAVATE, TRANSPORT, AND DISPOSE OF PCB CONTAMINATED SOIL (1 TON)	TON	$400

d.	MOLD ABATEMENT		UNIT	$ ADD/ DEDUCT
	IAQ-001	CLEANING AND HEPA VACUUMING OF CONTAMINATED COMPONENTS OR MATERIALS	SF	$0.61
	IAQ-002	REMOVAL OF CONTAMINATED PIPE INSULATION	LF	$0.61
	IAQ-003	REMOVAL OF CONTAMINATED BUILDING INSULATION	SF	$0.61
	IAQ-004	REMOVAL OF CONTAMINATED HVAC DUCT OR EQUIPMENT INSULATION	SF	$0.61
	IAQ-005	REMOVAL OF CONTAMINATED CARPET	SF	$0.88
	IAQ-006	REMOVAL OF CONTAMINATED DRYWALL PARTITION (INCLUDING WALL FRAMING)	SF	$1.05
	IAQ-007	REMOVAL OF CONTAMINATED PLASTER	SF	$1.87
	IAQ-008	REMOVAL OF CONTAMINATED SUSPENDED CEILING PANELS	SF	$0.59
	IAQ-009	PREP WORK AREA	SF	$0.99
	IAQ-010	SOLID BARRIERS OR ACCESS TUNNELS (2"x4"@16", 1/2" PLYWOOD)	SFSA	$2.09
	IAQ-011	SELECTIVE DEMOLITION TO ACCESS CONTAMINATED COMPONENTS OR MATERIALS	SF	$1.15

e.	REWORK ITEMS DURING ABATEMENT ACTIVITIES		UNIT	$ ADD/ DEDUCT
	RW-001	REINSULATE PIPE 1" THICK FIBERGLAS ASJ	SF	$2.83
	RW-002	REINSULATE PIPE 1 1/2" THICK FIBERGLAS ASJ	SF	$3.62
	RW-003	REINSULATE PIPE 2" THICK FIBERGLAS ASJ	SF	$4.30
	RW-004	REINSULATE PIPE FITTING 1" THICK FIBERGLAS ASJ	EA	$4.37
	RW-005	REINSULATE PIPE FITTING 1 1/2" THICK FIBERGLAS ASJ	EA	$5.34
	RW-006	REINSULATE PIPE FITTING 2" THICK FIBERGLAS ASJ	EA	$6.50
	RW-007	REINSULATE MECHANICAL EQUIPMENT 3 PCF, 2" THICK	SF	$3.50
	RW-008	REINSULATE HVAC DUCT SYSTEM (FLEXIBLE DUCT WRAP) 0.75 PCF, 1 1/2" THICK	SF	$2.25
	RW-009	REINSULATE HVAC DUCT SYSTEM (RIGID BOARD) 3 PCF, 1 1/2" THICK	SF	$6.00
	RW-010	REPLACE HVAC DUCT SYSTEM FLEXIBLE CONNECTOR	SF	$7.83
	RW-011	REPLACE TRIM COMPONENT (WOOD CASING, JAMB, APRON, ETC.)	LF	$1.26

	RW-012	REPLACE INTERIOR DOOR (SOLID CORE FLUSH OR 6-PANEL PINE)	EA	$207.50
	RW-013	REPLACE WINDOW (SASH ONLY)	EA	$207.50
	RW-014	REPLACE WINDOW (COMPLETE UNIT INCLUDING FRAME)	EA	$375.00
	RW-015	PAINT FLAT SURFACES (PRIMER + FINISH COAT)	SF	$0.27
	RW-016	PAINT COLUMNS AND STRUCTURAL FRAMING MEMBERS (PRIMER + FINISH COAT)	SF	$2.89
	RW-017	PAINT STAIR TREADS, RISERS AND STRINGERS (PRIMER + FINISH COAT)	SF	$2.89
	RW-018	PAINT HANDRAIL (PRIMER + FINISH COAT)	LF	$0.27
	RW-019	PAINT TRIM COMPONENT (CASING, JAMB, APRON, ETC., PRIMER + FINISH COAT)	LF	$0.83
	RW-020	PAINT DOORS (DOOR OPENING SIZE - INCLUDES BOTH FACES PRIMER + FINISH COAT)	SF	$1.67
	RW-021	PAINT WINDOW (INCLUDES INTERIOR & EXTERIOR PRIMER + FINISH COAT)	SF	$1.97
	RW-022	PAINT RADIATOR (PRIMER + FINISH COAT)	SF	$2.97
	RW-023	PAINT PIPING (PRIMER + FINISH COAT)	LF	$0.29
	RW-024	REPLACE EXTERIOR SOIL (6" LOAM AND SEED)	SF	$7.19
	RW-025	ASPHALT PAVING	SF	$3.43

f.	MISCELLANEOUS ABATEMENT ITEMS		UNIT	$ ADD/ DEDUCT
	MI-001	MOBILIZATION (1 PER WORK AREA)	EA	$262.50
	MI-002	WORKER DECON (1 PER WORK AREA)	EA	$262.50
	MI-003	CONTAINMENT BARRIERS TO SEPARATE THE WORK AREA (SOFT BARRIER)	SF	$1.02
	MI-004	CONTAINMENT BARRIERS TO SEPARATE THE WORK AREA (HARD BARRIER)	SF	$2.55
	MI-005	TEMP ELECTRICAL CONNECTION (LICENSED ELECTRICIAN)	EA	$450.00
	MI-006	TEMP ELECTRICAL GENERATOR	DY	$375.00
	MI-007	DISPOSAL OF ACM WASTE (INCLUDES TRANSPORTATION)	CY	$60.00
	MI-008	DISPOSAL OF HAZARDOUS WASTE MATERIAL (INCLUDES TRANSPORTATION)	TON	$380.00
	MI-009	DISPOSAL OF CONSTRUCTION DEBRIS (INCLUDES TRANSPORTATION)	TON	$30.00
	MI-010	ABATEMENT SUPERVISOR (LICENSED)	HR	$81.00
	MI-011	STAND-BY ABATEMENT PERSONNEL (EACH LICENSED WORKER)	HR	$74.00
	MI-012	ENCAPSULATION UTILIZING LIQUID COATING SYSTEM	SF	$0.69
	MI-013	ENCAPSULATION UTILIZING HEAVY BODIED REINFORCED COATING SYSTEM	SF	$1.03
	MI-014	FIXED SCAFFOLDING	SF	$16.00
	MI-015	EXCAVATION TO EXPOSE UNDERGROUND PIPE	CY	$25.00
	MI-016	PROJECT NOTIFICATION AND FEES	EA	$0.00
	MI-017	PROJECT BOND (3% OF CONTRACT)	EA	$0.00

g.	COMPONENT REPLACEMENT DURING ABATEMENT ACTIVITIES		UNIT	$ ADD/ DEDUCT
	CR-001	REMOVE TRIM COMPONENT (CASING, BASE, APRON, ETC.)	LF	$0.49
	CR-002	REMOVE DOOR (DOOR ONLY)	SF	$0.27
	CR-003	REMOVE DOOR (INCLUDING JAMB, NO TRIM)	SF	$0.61
	CR-004	REMOVE WINDOW (SASH ONLY)	SF	$0.40
	CR-005	REMOVE WINDOW (COMPLETE UNIT INCLUDING FRAME)	SF	$0.92
	CR-006	REMOVE RADIATOR	SF	$0.77
	CR-007	REMOVE MISCELLANEOUS ITEM	CF	$7.56

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 20 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements governing Supplemental Bids.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 00 Section 00 41 00 Bid Proposal Form
2. Division 01 Section 01 20 00 Contract Considerations
3. Division 01 Section 01 33 00 Submittal Procedures
4. Division 01 Section 01 60 00 Product Requirements

1.3 DEFINITIONS:

A. **Definition**: "The monetary value stated in the Bid to be added to the amount of the Base Bid if the corresponding Work, as described in the Bidding Documents, is accepted." A Supplemental Bid is an amount proposed by bidders and stated on the Bid Proposal Form for certain work defined in the Bidding Documents that may be added to the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost for each supplemental bid is the net addition to the Contract Sum to incorporate the Supplemental Bid into the Work. Supplemental Bids are only accepted in the numerical order that they are listed on the Bid Proposal Form and never accepted out of numerical sequence. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES:

A. **Coordination:** Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.

1. Include as part of each Supplemental Bid, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Supplemental Bid.
2. Consider all work that must be accomplished for complete incorporation of the Supplemental Bids including modifications to Base Bid items.
3. Include in lump sum prices for Supplemental Bids all costs of labor, materials, equipment, permits, fees, insurance, bonds, overhead, and profit.
4. Immediately after award of Contract, advise all necessary subcontractors, vendors, and suppliers as to which Supplemental Bids have been selected by Owner. Use all means necessary to alert those subcontractors, vendors, and suppliers involved as to all changes in the work caused by Owner's selection or rejection of Supplemental Bids.
5. Coordinate related work and modify surrounding work to integrate work of each Supplemental Bid.

B. Execute accepted Supplemental Bids under the same conditions as other Work of this Contract.

C. **Schedule:** A "Schedule of Supplemental Bids" is included at the end of this Section. It contains all of Specification Sections, and applicable portions of Drawings and Details that govern the scope, quality, and execution of work that is referenced in the Schedule and contain all of the requirements necessary to achieve the Work described under each Supplemental Bid.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF SUPPLEMENTAL BIDS:

A. **Supplemental Bid No. 1:** Requires the add alternate to provide supplemental storm drainage design described on site drawing sheet number C.01.

END OF SECTION 01 23 13

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for handling requests for equals and substitutions made after award of the Contract.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submitting the Contractor's Construction Schedule and the Submittal Schedule.
2. Division 01 Section 01 42 20 "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.
3. Division 01 Section 01 60 00 "Product Requirements" specifies requirements governing the Contractor's selection of products and product options.

1.3 DEFINITIONS:

A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

B. Equals or Substitutions General: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract.

1.4 SUBMITTALS:

A. **Equals and Substitution Request Submittals:** The Owner will consider requests for equals or substitutions if made prior to the Receipt of the Competitive Bid. The information on all materials shall be consistent with the information herein. After the contract award, substitutions will be considered for materials or systems specified that are no longer available. It will not be considered if the product was not purchased in a reasonable time after award. The Contractor shall submit all equal and substitutions requests on the **"Equal or Substitute Product Request (Form 7001)"**, an example of which is shown at the end of this Section. The Form is available from the Construction Administrator (CA). See Article 15 in the General Conditions for further refinement and information.

B. The Contractor is required to prepare and submit three (3) copies of the required data for the first manufacturer listed or procedure listed in the specifications section with reference to all of the following areas: the substance and function considering quality, workmanship, economy of operation, durability and suitability for purposes intended including the size, rating performance, LEED® compliance, and cost. All submissions must include all the required data for the first listed manufacturer or procedure as specified, as well as the required data for the proposed Equal or Substitution. This will enable the Owner and Architect to determine that the proposed Equal or Substitution is or is not substantially equal to the first listed manufacturer or procedure.

1. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.

2. Provide complete documentation showing compliance with the requirements for equals or substitutions, and the following information, as appropriate:

a. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors that will be necessary to accommodate the proposed Equal or Substitution.

b. A detailed comparison chart of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.

c. Product Data, including Shop Drawings and descriptions of products and fabrication and installation procedures.

d. Samples, where applicable or requested.

e. A statement indicating the effect on the Contractor's Construction Schedule or CPM Schedule compared to the schedule without approval of the Equal or Substitution. Indicate the effect on overall Contract Time.

f. Cost information, broken down, including a proposal of the net change, if any in the Contract Sum.

g. The Contractor's certification that the proposed Equal or Substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.

h. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the Equal or Substitution to perform adequately.

3. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within seven (7) days of receipt of the original request for equal or substitution request. The Architect will notify the Construction Administrator who will notify the Owner of recommended acceptance or rejection of the proposed equal or substitution, within fourteen (14) days of receipt of the request, or seven (7) days of receipt of additional information or documentation, whichever is later. The Construction Administrator will give final acceptance or rejection by the Owner not less than seven (7) days after notification.

a. Any request deemed an "Equal" and accepted by the Construction Administrator, Architect, Owner, and Agency will result in written notification to the Contractor and will not be in the form of a change order for an "Equal".

b. Any request deemed a "Substitution" and rejected or approved by Construction Administrator, Architect, and Owner may result in written notification to the Contractor and may be in the form of a change order if the "Substitution" is approved.

PART 2 - PRODUCTS

2.1 EQUAL OR SUBSTITUTIONS:

A. Conditions: The Architect will consider the Contractor's request for Equal or Substitution of a product or method of construction when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests to the Construction Administrator without action except to record noncompliance with these requirements.

1. The proposed request does not require extensive revisions to the Contract Documents.

2. The proposed request is in accordance with the general intent of the Contract Documents.

3. The proposed request is timely, fully documented, and/or properly submitted.

4. The proposed request can be provided within the Contract Time. However, the Architect will not consider the proposed request if it is a result of the Contractor's failure to pursue the Work promptly or coordinate activities properly.

5. The proposed request will offer the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. However, if the proposed request requires the Owner to incur additional responsibilities, including but not limited to, additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or similar considerations, then the Owner will have just cause to reject the request for Equal or Substitution.

6. The proposed request can receive the necessary approvals, in a timely manner, required by governing authorities having jurisdiction.

7. The proposed request can be provided in a manner that is compatible with the Work as certified by the Contractor.

8. The proposed request can be coordinated with the Work as certified by the Contractor.

9. The proposed request can uphold the warranties required by the Contract Documents as certified by the Contractor.

B. The Contractor's submission and the Architect's review of Submittals, including but not limited to, Samples, Manufacturer's Data, Shop Drawings, or other such items, which are not clearly identified as a request for an Equal or Substitution, will not be considered or accepted as a valid request for an Equal or Substitution, nor does it constitute an approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 25 00

7001
Equal or Substitute Product Request

Page 1 of 2

Request Phase: **Pre-Bid** ☐ **Post Bid** ☐ *(See Article 15 Materials: Standards, General Conditions)*

(If Pre-bid only) Current Bid Due Date: | **Request No.:** | **Dated:**

To: State of Connecticut
Department of Administrative Services,
Construction Services

DAS Project No.:

Project Name / Location:

References: Specification(s): Section(s): Paragraph(s):

Drawing(s): Drawing(s) No(s): Detail(s) No(s):

Contractually Specified Product:

Contractor Proposed Product:

Proposed Product is: Equal: ☐ Substitute: ☐ Model No.:

IMPORTANT:
See Attached Data For Both Specified And Proposed Products
As Required By Article 15 General Conditions.

Data attached: Drawings: ☐ Product Data: ☐ Reports: ☐ Samples: ☐

Tests: ☐ Other:

Reason(s) for not providing the Specified Product:

Similar Installation:
Project Name: **Architect's Name:**

Project Location: **Owner's Name:**

Date Installed:

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7001
Equal or Substitute Product Request

Page 2 of 2

Will proposed substitution impact other parts of the Work? No ☐ Yes ☐ *If Yes Attach An Explanation.*

Will proposed substitution increase Contract Time? No ☐ Yes ☐ *By Number Of Calendar Days* ____

Actual Dollar Savings to the State of Connecticut if substitution is accepted: $ ____

The Undersigned Certifies:
That The Proposed Request For An Equal Or Substitute Product Conforms To All Of The Requirements Of Division 01 General Requirements, Section 01 25 00 Substitution Procedures.

Request Submitted By General Contractor / CMR: ____
(Firm's Typed Name)

By: ____ ____ ____ ____
(Typed Name) *(Title)* *(Signature)* *(Date)*

Contractor / CMR Send copies to : DAS PM: ☐ CA: ☐

Consultant's Request Received on (Date): ____

Consultant's Review – This Substitution Request is:

☐ Approved: *(Submittal(s) in accordance with Div. 01 General Requirements, Section 01 33 00 Submittal Procedures.)*
☐ Approved as Noted: *(Submittals in accordance with Div. 01 General Requirements, Section 01 33 00 Submittal Procedures.)*
☐ Rejected: Use Specified Materials.
☐ Rejected: Request Not Received Within Specified Time Period - Use Specified Materials.

Reviewed Issued By:
Name: ____
(Typed Name)
Title: ____
Signature: ____ ____
(Signature) *(Date)*

CONSULTANT Send copies to: DAS PM ☐ CA ☐ Chief Architect ☐ Chief Engineer ☐

If Approved: As noted by Consultant,
DAS Chief Architect: ____ ____
(Signature) *(Date)*

Copies: Project File Red R2

END

CT DAS – 7001 (Rev: 12.22.16) 7000 – Construction Phase Forms

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 20 00 "Contract Considerations" for administrative requirements governing use of Unit Prices.
2. Division 01 Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.
3. Division 01 Section 01 29 76 "Progress Payment Procedures" for administrative procedures governing Applications for Payment.
4. **Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.**
5. Division 01 Section 01 33 00 "Submittal Procedures" for requirements for submittal of the Construction Progress Schedule or CPM Schedule.
6. General Conditions “Article 13 - Compensation for Changes in the Work”.

C. All Forms referenced in this Section are available for download from the DAS website (www.ct.gov/DAS)> Doing Business With The State > State Building Construction > Publications and Forms > DAS Construction Services Library > 7000 Series - Construction Phase Forms.

1.3 REQUESTS FOR INFORMATION:

A. In the event that the Contractor or subcontractor, at any tier, determines that some portion of the drawings, specifications, or other contract documents requires clarification or interpretation by the Architect, the Contractor shall submit a "Request for Information" in writing to the Architect via the Construction Administrator. "Requests for Information" may only be submitted by the Contractor and shall only be submitted on the "Request for Information" forms as required by the Owner.

1. In the "Request for Information", the Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed from the Architect.
2. In the "Request for Information", the Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached.
3. The Owner acknowledges that this is a complex project. Based upon the owner’s past experience with projects of similar complexity, the Owner anticipates that there will probably be some "Requests for Information" on this project.
4. The Architect will review all "Requests for Information" to determine whether they are valid "Requests for Information". If it is determined that the document is not a valid "Request for Information", it will be returned to the Contractor, unreviewed as to content, for resubmittal on the proper form and in the proper manner.
5. A "Request for Information Response" shall be issued within seven (7) days of receipt of the request from the Contractor unless the Owner determines that a longer time is necessary to provide an adequate response. If a longer time is determined necessary by the Owner, the Owner will, within seven (7) days of receipt of the request, notify the Contractor of the anticipated response time. If the Contractor submits a "Request for Information" on an activity with seven (7) days or less of float on the current project schedule, the Contractor shall not be entitled to any time extension due to the time it takes the Architect to respond to the request provided that the Architect responds within the seven (7) days set forth above.

6. A "Request for Information Response" from Architect will not change any requirement of the Contract Documents. In the event the Contractor believes that the "Request for Information Response" will cause a change to the requirements of the Contract Documents, the Contractor shall within five (5) days give written notice to the Construction Administrator stating that the Contractor believes the "Request for Information Response" will result in a "Change Order" and the Contractor intends to submit a "Change Order Proposal" request. Failure to give such written notice within five (5) days shall waive the Contractor's right to seek additional time or cost under the requirement these Requirements.

1.4 MINOR CHANGES IN THE WORK:

A. The Architect, through the Construction Administrator, will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on the "Supplemental Instructions" form as required by the Owner.

1.5 PROPOSAL REQUEST:

A. Architect/Owner-Initiated Requests For Proposals: The Architect or Owner will issue a detailed description of proposed changes in the Work via the Construction Administrator that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. Such requests shall be on a "Proposal Request" form as required by the Owner.

1. "Proposal Request" is issued for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
2. Within (14) days of receipt of a "Proposal Request", submit a "Change Order Proposal" with the required information necessary to execute the change to the Construction Administrator for the Architect's/Owner's review.
    a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
    b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
    c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
    d. The Agency is tax exempt. All Contractor and Subcontractor services provided under your Contract with the State of Connecticut may not be exempt from taxes. The Department of Revenue Services can guide you as to which services are exempt and which are not. Please contact the State of Connecticut, Department of Revenue Services at 1-800-382-9463 or 860-541-3280.
    e. Dollar values shown on the Schedule of Values shall not be the governing (or deciding) final amounts for change orders involving either additional charges or deletions.

1.6 CHANGE ORDER PROPOSAL:

A. When either a "Request for Information" from the Contractor or a "Proposal Request" from the Architect or Owner results in conditions that may require modifications to the Contract, the Contractor may propose changes by submitting a request for a "Change Order Proposal" to the Architect via the Construction Administrator on forms as required by the Owner. These forms shall also include "Change Order Proposal Workbook(s)" as required by the Owner.

1. Include statements outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities as directed by Article 13 of the General Conditions of the Contract for Construction.
3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.

4. Comply with requirements in Division 01 Section 01 25 00 "Substitution Procedures" if the proposed change requires an equal or substitution of one product or system for a product or system specified.

5. The State of Connecticut construction contract has the following tax exemptions:

   a. Purchasing of materials which will be physically incorporated and become a permanent part of the project.

   b. Tools, supplies and equipment used in fulfilling the construction contract are not exempt.

   c. Services that are resold by the Contractor are exempt, i.e. if a Contractor hires a plumber, carpenter or electrician, a resale certificate may be issued to the subcontractor because these services are considered to be integral and inseparable component parts of the building contract

B. "Change Order Request" Forms: Use "Change Order Proposal" and "Change Order Proposal Worksheets" forms as required by Owner.

C. A "Change Order Proposal" cannot be submitted without either prior submission of a "Request for Information" from the Contractor or as a response to a "Proposal Request" submitted by the Architect or Owner.

D. Any "Change Order Request" submitted without a prior submittal of a "Request for Information" or as a response to a "Proposal Request" will be immediately rejected and returned to the Contractor.

1.7 CONSTRUCTION CHANGE DIRECTIVE:

A. "Construction Change Directive":

When the Owner and the Contractor disagree on the terms of a "Change Order Proposal" resulting from either a "Request for Information" or "Proposal Request", then the Architect through the Construction Administrator may issue a "Construction Change Directive" on a "Construction Change Directive" form as authorized by the Owner. The "Construction Change Directive" instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a "Change Order".

1. The "Construction Change Directive" contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.

2. Contractor must proceed with the Work once a "Construction Change Directive" is issued.

3. The change in the Contract Sum and Contract Time resulting from the issuance of a "Construction Change Directive" will be based on "Time & Material" or "Unit Prices".

4. Issuance of "Construction Change Directive" does not guarantee payment for the Work described in the "Construction Change Directive".

B. Documentation: The Contractor shall maintain detailed records on a time and material basis of work required by the "Construction Change Directive".

1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

2. The final value shall be negotiated based on the supporting data to determine the value of the work.

1.8 CHANGE ORDER PROCEDURES:

A. Upon the Owner's approval of a Contractor's "Change Order Proposal", the Construction Administrator will issue a "Change Order" for signatures of the Architect, Owner and the Contractor on a "Change Order" form as required by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 26 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section specifies procedures for preparation and submittal of the Contractor's Applications for Payment.

B. Related Sections: The following Sections contain requirements that relate to this Section.

1. Notice to Bidders: Article 10

2. General Conditions: Articles: 27 "Schedule of Values, Application for Payment"; 28 "Partial Payments"; 31 "Final Payment"; and 32 "Owner's Right to Withhold Payments".

3. Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.

4. Division 01 Section 01 33 00 "Submittal Procedures".

5. Division 01 Section 01 77 00 "Closeout Procedures" for requirements for Final Payment.

1.3 SCHEDULE OF VALUES:

A. **Coordination:** Coordinate preparation of the "Schedule of Values" with preparation of the CPM Schedule or Construction Schedule. Use "Schedule of Values" form as required by the Owner

1. Submit the "Schedule of Values" to the Construction Administrator at the earliest possible date but no later than **twenty-one (21)** days after Contract Start Date.

2. **Sub-schedules:** Where Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. **Format and Content:** Use the Project Manual Table of Contents as a guide to establish the format for the "Schedule of Values". Provide at least one line item for each Specification Section on electronic media printout.

1. **Identification:** Project identification on the Schedule of Values shall include, but not be limited to, the following:

a. Owner

b. Project Number

c. Project Name

d. Project Location

e. Contractor's name and address.

2. Arrange the "Schedule of Values" in tabular format as required by the Owner, containing separate columns including, but not limited to, the following Items:

a. Item Number.

b. Description of Work with Related Specification Section or Division Number.

c. Scheduled Values broken down by description number, type material, units of each material.

1) Include break down of General Condition requirements, i.e. bonds, insurance premiums, taxes, job mobilization, temporary facilities, field supervision and layout, operation and maintenance manuals, punch list activities, project record documents, demonstration and training, overhead, and profit as separate line items.

d. Name of subcontractor.

e. Name of manufacturer or fabricator.

f. Name of supplier.

g. Retainage.

h. Contract sum in sufficient detail.

3. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

4. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual Table of Contents. Break principal subcontract amounts down into several line items. In addition, the following items listed below must be included.

a. **Site Logistics Plan (01 31 00):** a lump sum at 1/20 of one percent of the base bid total project cost at the time of submission of this plan.

b. **Coordination Drawings (01 31 00):** a lump sum of this cost for payment at the submittal of this product a minimum cost of 1/10th of one percent of the base bid total project cost or $5,000 whichever is greater.

c. **Photographic Documentation (01 32 33):** a monthly cost of $1,000 per month to be paid each month upon receipt of the photographs or forfeit of that month's payment.

d. **Submittal Schedule (01 33 00):** a lump sum payment calculated at 1/20th of 1% of the base bid total project cost upon receipt of the schedule

e. **Waste Collection & Cleaning (01 50 00):** a monthly cost. A minimum payment of $1,000 to $3,000 (based on size & complexity of the project) with forfeit of that monthly payment if not done.

f. **As-Built Updates (01 31 00):** a monthly cost, a minimum payment of $1,000 with forfeit of that monthly payment if not done.

g. **Start-up and Adjusting (01 75 00):** a lump sum cost upon completion. (to be determined by the DAS/CS Project Manager (PM) with Architect/Engineer and Construction Administrator (CA) advice)

h. Schedule (01 32 16): For the Base Schedule a lump sum payment or 40% of the total schedule budget, with the remainder paid on an even payment over the duration of the project.

5. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.

6. **Unit-Cost Allowances:** Show the line-item value of unit-cost allowances, as a product of the unit cost, multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents.

7. **General Conditions:** Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.

1.4 APPLICATIONS FOR PAYMENT:

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and Construction Administrator and paid for by the Owner.

1. The initial "Application for Payment", the "Application for Payment" at time of "Substantial Completion", and the final "Application for Payment", involve additional requirements.

B. **Payment-Application Terms:** The Owner will process monthly progress payments. The Contractor may submit applications for payment on a monthly basis.

C. **Payment-Application Forms:** Use the "Application for Payment" form as required by the Owner. Present the required information on electronic media printout or Owner approved form; multiple pages should be used if required.

1. For each item, provide a column including but not limited to the following items:

a. Item Number.

b. Description of Work and Related Specification Section or Division.

c. Scheduled Value, break down by units of material and units of labor.

d. Work Completed from previous application.

e. Work Completed this period.

f. Materials presently stored.

g. Total Completed and stored to date of application.

h. Percentage of Completion.

i. Balance to Finish.

j. Retainage.

D. **Application Preparation:** Complete every entry on the Application form. At the time of Final Payment only, include an executed Application form by a person authorized to sign legal documents on behalf of the Contractor. The Construction Administrator will return incomplete Applications without action.

1. Entries shall match data on the "Schedule of Values".

2. Include amounts of Change Orders issued prior to the last day of the construction period covered by the application.

E. **Transmittal**: Except for final payment, submit to the Construction Administrator by a method ensuring receipt within forty-eight (48) hours. One (1) complete, signed and notarized original of each Application for Payment, including lien waivers and similar attachments when required, along with six (6) copies. For Final Payment, nine (9) complete, signed and notarized copies shall be submitted.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.

F. **Applications for Payment**: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment and all subsequent Application for Payments including, but not limited to, the following items:

1. List of subcontractors and suppliers' name, FEIN/Social Security numbers, and Connecticut Tax Registration Numbers.

2. List of principal suppliers and fabricators.

3. Schedule of Values.

4. Contractor's Construction Schedule (preliminary if not final).

5. Schedule of principal products.

6. Submittal Schedule (preliminary if not final).

7. List of Contractor's staff assignments.

8. List of Contractor's principal consultants.

9. Copies of all applicable permits.

10. Copies of authorizations and licenses from governing authorities for performance of the Work.

11. Proof that subcontractors have been paid amounts included on the Contractor's Application for Payment within thirty (30) days after the Owner has paid the Contractor for the particular Application for Payment in accordance with Connecticut General Statute § 49-41a (a)(1).

12. Releases of Lien from subcontractors with amounts included on the Contractor's Application for Payment when Contractor has been paid by the Owner for the particular Application for Payment but the subcontractors have not been paid.

13. Proof that as-built documents are updated as required by Section 01 77 00 "Closeout Procedures.

14. Initial as-built survey and damage report, if required.

15. Update the "Contractor's Master Subcontract Agreement List" and submit copies all recently executed Subcontract Agreements in accordance with CGS § 4b-96.

15.1. The "Contractor's Master Subcontract Agreement List" shall list all Subcontract Agreements in order of Contract Sum magnitude (from high to low) in the following format:

Contractor's Master Subcontract Agreement List				
Subcontractor Name	**Minority Or Small Business Designation**	**Trade**	**Address**	**Contract Sum**

16. In accordance with CGS § 42-158j (b):
Each payment requisition submitted shall include a statement showing the status of all pending construction change orders, other pending change directives and approved changes to the original contract or subcontract. Such statement shall identify the pending construction change orders and other pending change directives, and shall include the date such change orders and directives were initiated, the costs associated with their performance and a description of any work completed. As used in this section, "pending construction change order" or "other pending change directive" **means an authorized directive for extra work that has been issued to a contractor or a subcontractor and identified by an official Change Order Number or Construction Change Directive Number assigned by the State of Connecticut.**

G. **Application for Payment at Substantial Completion:** Following issuance of the Certificate of Substantial Completion submit an Application for Payment form; use the form as required by the Owner. Present the required information on electronic media printout as applicable that include, but are not limited, to the following:

1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

2. Administrative actions and submittals that shall precede or coincide with this application include, but are not limited to, the following:

2.1 Occupancy permits and similar approvals.

2.2 Warranties (guarantees) and maintenance agreements.

2.3 Test/adjust/balance records.

2.4 Maintenance instructions.

2.5 Meter readings.

2.6 Startup performance reports.

2.7 Changeover information related to Owner's occupancy, use, operation, and maintenance.

2.8 Final cleaning.

2.9 Application for reduction of retainage and consent of surety.

2.10 Advice on shifting insurance coverage.
2.11 Final progress photographs.
2.12 List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

H. **Final Payment Application:** Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include, but are not limited, to the following:

1. Completion of Project Closeout requirements.

2. Completion of list of items remaining to be completed as indicated on the attachment to the Certificate of Substantial Completion.

3. Ensure that unsettled claims will be settled.

4. Ensure that incomplete Work is not accepted and will be completed in accordance with a schedule prepared by the Contractor which is acceptable to the Owner.

5. Transmittal of required Project construction records to the Owner (including as-built documents specified in Section 01 77 00 "Closeout Procedures").

6. Certified property survey.

7. Proof that taxes, fees, and similar obligations were paid.

8. Removal of temporary facilities and services.

9. Removal of surplus materials, rubbish, and similar elements (Reference Section 01 74 19 "Construction Waste Management & Disposal").

10. Change of door locks to Owner's access.

11. The requirements of the General Conditions and Supplementary Conditions for Final Acceptance, Final Completion, Final Inspection, and Final Payment.

12. Asbestos, lead or other hazardous material manifests.

13. Completion of "Building Contractor Reporting Form" as supplied by Department of Construction Services, for all Contractors, Subcontractors, Vendors, Suppliers, etc. who work on the Contract. The form includes the following information:

a. Contractor/Subcontractor name.

b. FEIN/Social Security Numbers

c. Connecticut Tax Registration Numbers

d. Type of work

e. Name of business and address

f. Remittance address.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 29 76

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:

1. General project coordination procedures.

2. Conservation.

3. Coordination Drawings, including Site Logistics Plans.

4. Administrative and supervisory personnel.

5. Cleaning and protection.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 29 76 “Progress Payment Procedures” for Schedule of Values items

2. Division 01 Section 01 31 19 "Project Meetings" for progress meetings, coordination meetings, and pre-installation conferences.

3. **Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.**

4. Division 01 Section 01 50 00 "Temporary Facilities and Controls".

5. Division 01 Section 01 60 00 "Product Requirements" for coordinating general installation.

6. Division 01 Section 01 71 23 "Field Engineering" specifies procedures for field engineering services, including establishment of benchmarks and control points.

7. Division 01 Section 01 77 00 "Closeout Procedures" for coordinating contract closeout.

8. Division 01 Section 01 91 00 "Commissioning" defines the commissioning process.

1.3 CONSTRUCTION ADMINISTRATOR:

A. **Construction Administrator:**

1. The Construction Administrator is identified in Division 01 Section 01 11 00 "Summary of Work".

2. **Construction Mobilization:**

a. Cooperate with the Construction Administrator in the allocation of mobilization areas of the site, for field offices and sheds, for agency facility access, traffic, and parking facilities.

b. During Construction, coordinate use of site and facilities through the Construction Administrator.

c. Comply with Construction Administrator’s procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

d. Comply with instructions of the Construction Administrator for use of temporary utilities and construction facilities.

e. Coordinate field engineering layout as specified in Division 01 Section 01 71 23 "Field Engineering" for work under the instructions of the Construction Administrator.

1.4 COORDINATION:

A. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

3. Make provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Construction Administrator, Owner and separate contractors where coordination of their work is required.

C. **Administrative Procedures:** Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.

2. Installation and removal of temporary facilities.

3. Delivery and processing of submittals.

4. Progress meetings.

5. Project closeout activities.

6. As-Builts - coordinate monthly meetings to assure up-dates being performed.

1.5 SUBMITTALS:

A. **Coordination Drawings:** Prepare coordination drawings to complete detailed coordination of systems and components and to integrate information about fabrication and installation.

1. Thoroughly prepare coordination drawings, as further stipulated in Part 3 "Execution", reviewing all contract documents and consulting with all entities contributing to or involved with each portion of the work under consideration.

a. Show the relationship of all components shown on any separate Shop Drawings.

b. Indicate required desired installation sequences.

c. Comply with requirements contained in Division 01 Section 01 33 00 "Submittal Procedures".

2. Prepare coordination drawings for installation of all products and materials fabricated by separate entities.

3. **Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components, including but not limited to: all site-utility entry points; all electrical, telecommunications and mechanical rooms and data; and all such other conditions required to coordinate the work.**

4. **Prepare a Site Logistics Plan(s) showing:** The entire project area and limits; all routes into and out of site; all staging and stockpiling and lay-down areas; all aspects of phasing/staging; all parking, paving and fencing; and all specific provisions to satisfy requirements of Division 01 Sections, including but not limited to Field Engineering and Temporary Facilities and Controls. The Site Logistics Plan shall coincide with and complement the general staging plans and site plans outlined in the contract bidding documents. It is intended that the Contractor shall present this refined plan for approval by the Construction Administrator. The fencing shown on this plan is required for all phases. Exact placement and timing of installations and removals will be reviewed and approved by the Construction Administrator prior to implementation. An additional allotment of various fencing is specified in Division 32, which the Contractor shall provide, install, and relocate at various intervals, for installation and removal by the Contractor per the direction of the project's Construction Administrator. This staging and logistics plan will require refinement and change for each phase/stage of the project. The Site Logistics Plan(s) shall be drawn at a scale no smaller than 1"=40' and shall be submitted as stipulated in Division 01 Section 01 29 76 "Progress Payment Procedures", but in no case later than (30) days after Notice to Proceed.

5. Prepare coordination drawings showing locations of surface recesses and voids, as well as offsets and breaks, requiring filling and/or feathering, both those initially visible and those discovered during the course of work. Review with Owner and Architect to obtain direction for filling and feathering. Revise drawing(s) to record directions for same for field and record purposes.

B. **Staff Names:** Prior to the contract start date, submit a list of the Contractor's principal staff assignments, including the superintendent, project safety officer, and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers.

1. Post copies of the list in the Project meeting room, the temporary field office, and at each temporary telephone.

2. Provide resumes of each staff member proposed for the Project. This shall include the Project Manager, Project Superintendent and Safety Officer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL COORDINATION PROVISIONS:

A. **Inspection of Conditions:** The Contractor shall require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed and coordinate such inspections with the Construction Administrator and authorities having jurisdictions. If unsatisfactory conditions exist notify the Construction Administrator immediately. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. The Contractor shall coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

C. **Coordination Drawings:** Before construction work can begin, the Contractor shall submit to the Architect coordination drawings in the form of (a) reproducible (vellum) transparencies at not less than 1/4-inch scale and (b) CAD files of the coordination drawings on CDROM. Such drawings will be required throughout all areas for trades as described below. These drawings shall show resolutions of trade conflicts in congested areas. The Architect will supply base drawings (with the title blocks removed), including floor plans, reflected ceiling plans, and structural framing plans, in the form of electronic CAD files on CDROM, using the AutoCAD release edition specified with the files, to the Contractor for distribution to the trades for use in developing the coordination drawings. Each trade contractor shall create separate layers within the CAD files to show the work of their trade. Prepare coordination drawings as follows:

1. The HVAC subcontractor shall initiate 1/4-inch scale drawings done on AutoCAD (latest version) showing ducts and piping in plan and section. Sheet metal shop drawings must be approved prior to starting coordination drawings.

2. The Sprinkler subcontractor shall then add layers to superimpose his piping layout on the coordination drawings.

3. The Electrical subcontractor shall then add layers to superimpose all the electrical information on the coordination drawings. Said information is to include but not necessarily be limited to cable trays, equipment, lighting, conduits, bus duct, etc. Show space allowances reserved for work under other contracts, such as audio-visual wiring and equipment.

4. The Plumbing subcontractor shall then add layers to complete the coordination drawing by drawing his piping (including pitch) on the coordination drawings.

5. Subcontractors for specialties, furnishings, equipment and special construction shall add layers to show their work to assure full coordination of all systems.

6. The Construction Administrator shall review the completed coordination drawings for general compliance and then submit them to the Architect for his review. All subcontractors shall rework the drawings until all systems are properly coordinated.

7. The Ceiling subcontractor shall utilize the drawings to prepare acoustic panel ceiling drawings and any other suspended ceiling drawings, and shall indicate areas of conflict with the work of other trades by drafting the location of grids, panels and tiles.

8. The Contractor shall indicate Architectural/Structural conflicts or obstacles and coordinate to suit the overall construction schedule. The Contractor shall locate all precut and prefabricated holes and openings in structural steel on the CAD coordination drawing files as required for HVAC, plumbing, fire protection and electrical work. The Contractor shall coordinate these holes and openings with the structural steel fabricator during the structural steel shop drawing development phase. Coordination to take place on schedule so as to permit shop fabrication of all structural steel holes and openings. The Owner will not be held responsible for the costs associated with field fabrication of structural openings resulting from the lack of timely and thorough coordination.

9. The Contractor shall expedite all drawing work and coordinate to suit the construction schedule. The Contractor shall then review these drawings and compare them with the Architectural, Structural, Equipment, and other drawings and determine that all of the work can be installed without undue interference. Prior to the submittal to the Architect, areas of potential conflict shall be brought to the attention of the Contractor who shall convene a coordination meeting of all parties involved, for the purpose of resolving all utility conflicts. The Contractor shall supervise and direct corrective measures and have all trades sign acceptance of the drawings. Submit four (4) hard copies of each drawing to the Architect and two (2) copies to the Construction Administrator for the record, and only after all conflicts have been accommodated.

10. If the coordination meeting fails to resolve coordination conflicts, the Contractor shall indicate the nature of such conflicts in a detailed RFI, proposing the most economical solution.

11. The Contractor shall not permit work by trades to proceed in a given bay or area until all trade foremen agree on the exact arrangements for each room or area. If a given trade proceeds prior to trades approval, then if necessary, that trade shall revise their work, if necessary, at no extra cost, in order to permit other trades to proceed.

12. Submit all coordination drawings on CD-ROM, in addition to hard copy.

D. The Construction Administrator will meet with the Contractor on all major items of coordination.

3.2 CLEANING AND PROTECTION:

A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering, where required, to assure protection from damage or deterioration.

B. Clean and provide maintenance on completed construction as construction per manufacturers requirements through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.

2. Excessive internal or external pressures.

3. Excessively high or low temperatures.

4. Thermal shock.

5. Excessively high or low humidity.

6. Air contamination or pollution.

7. Water or ice.

8. Solvents.

9. Chemicals.

10. Light.

11. Radiation.

12. Puncture.

13. Abrasion.

14. Heavy traffic.

15. Soiling, staining, and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High-speed operation.
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:

1. Start Date meeting (establishes start date)
2. Pre-construction conferences.
3. Progress meetings.
4. Safety

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating project meetings with other construction activities.

2. **Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.**

3. Division 01 Section 01 33 00 "Submittal Procedures" for submitting the Construction Schedule or CPM Schedule.

4. Division 01 Section 01 35 26 “Government Safety Requirements specifies the requirements for safety plans, reports, and investigation submittals.

1.3 PRE-CONSTRUCTION CONFERENCE:

A. The Contractor will attend a pre-construction conference before starting construction, as scheduled by the Construction Administrator convenient to the Owner, the Construction Administrator, Architect, and Contractor. This meeting will take place at least fourteen (14) days prior to official Start Date. Hold the conference at the Project Site or another convenient location as directed by the Construction Administrator. The Construction Administrator shall conduct the Pre-construction Conference to review the Contractor and Subcontractor responsibilities and personnel assignments.

B. **Attendees:** Authorized representatives of the Construction Administrator, Owner, Architect, and their consultants; the Contractor and its superintendent; major subcontractors; agency; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. **Agenda:** Discuss items of significance that could affect progress, including the following:

1. Tentative construction schedule.
2. Critical work sequencing.
3. Progress meeting schedule.
4. Designation of responsible personnel.
5. Procedures for processing field decisions and Change Orders.
6. Procedures for processing Applications for Payment.
7. Distribution of Contract Documents.
8. Submittal of Shop Drawings, Product Data, and Samples.
9. Preparation of record documents.
10. Use of the premises.
11. Parking availability.
12. Office, work, and storage areas.
13. Equipment deliveries and priorities.

14. Safety procedures.
15. First aid.
16. Security.
17. Housekeeping.
18. Working hours.
19. Coordination with Audio Visual and Telecommunications.

1.4 PRE-INSTALLATION/CONSTRUCTION CONFERENCES:

A. The Contractor will schedule a pre-installation conference(s) at the Project Site before each construction activity that requires coordination with other construction. The Contractor shall be responsible to notify in writing the Construction Administrator and the appropriate Subcontractor(s), etc., of the date and time of all Pre-installation/Construction Conferences. Notification shall be at least seven (7) days, prior to the Conference. The Contractor shall be responsible for coordination and attendance of all Subcontractors, etc., involved in or affected by the installation for all Pre-installation/Construction Conferences.

B. **Attendees:** The Construction Administrator, Contractor, Subcontractors, Owner and Architect, the installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. The Contractor shall advise all attendees of the scheduled Pre-installation/Construction Conferences dates.

C. **Agenda:** Review the progress of other construction activities and preparations for the particular activity under consideration at each Pre-installation/Construction Conference, including but not limited to the following requirements:

1. Contract Documents.
2. Options.
3. Related Change Orders.
4. Purchases.
5. Deliveries.
6. Shop Drawings, Product Data, and quality-control samples.
7. Review of mockups.
8. Possible conflicts.
9. Compatibility problems.
10. Time schedules.
11. Weather limitations.
12. Manufacturer's recommendations.
13. Warranty requirements.
14. Compatibility of materials.
15. Acceptability of substrates.
16. Temporary facilities.
17. Space and access limitations.
18. Governing regulations.
19. Safety.
20. Inspecting and testing requirements.
21. Required performance results.
22. Recording requirements.
23. Protection.

D. The Construction Administrator will record significant discussions and agreements and disagreements of each Pre-installation/Construction Conference, and the approved schedule. The Construction Administrator will promptly distribute the record of the Pre-installation/Construction Conference to all attendees.

E. The Contractor shall not proceed with the installation/construction if the conference cannot be successfully concluded. The Contractor shall be responsible to initiate whatever actions are necessary to resolve impediments to performance of Work and schedule and reconvene another Pre-installation/Construction Conference at the earliest feasible date. Failure of the contractor to resolve impediments to the performance of the work will not result in an extension of days.

1.5 PROGRESS MEETINGS:

A. The Construction Administrator will conduct progress meetings, bi-weekly, at the Project Site or at regular intervals as agreed upon at the Pre-construction Conference. The Construction Administrator will notify the Owner, the Architect, and the Contractor of the scheduled Progress Meeting dates. Coordinate dates of Progress Meetings with preparation of Application for Payment requests.

B. **Attendees:** In addition to representatives of the Contractor, Construction Administrator, Owner and the Architect, subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities may be requested to attend these meetings on an as needed basis. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work. The Contractor shall include the site superintendent as a minimum.

C. **Agenda:** Progress Meetings shall review and correct or approve minutes of the previous Progress Meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

1. **Construction Schedule:** Review progress since the last Progress Meeting. Determine where each activity is in relation to the required Contractor's "Construction Schedule" or "CPM Schedule" and whether each activity is on time or ahead or behind Schedule. Determine how Work that is behind Schedule will be expedited; secure commitments from parties involved to do so. Discuss whether Schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including the following:

a. Interface requirements.
b. Time.
c. Sequences.
d. Status of submittals.
e. Deliveries.
f. Off-site fabrication problems.
g. Access.
h. Site utilization.
i. Temporary facilities and services.
j. Hours of work.
k. Hazards and risks.
l. Housekeeping.
m. Quality and work standards.
n. Change Orders.
o. Documentation of information for payment requests.

D. **Reporting:** The Construction Administrator will distribute minutes of the meeting to each party present, promptly and before the next scheduled meeting, and to parties who should have been present.

1.6 SUBCONTRACTOR/COORDINATION/SAFETY MEETINGS:

A. The Contractor shall conduct Subcontractor/coordination meetings.

B. The Contractor shall conduct a separate safety meeting after the safety plan is submitted. The Contractor shall take meeting minutes. These minutes shall be made available upon request. The Contractor shall notify the Construction Administrator of the times and dates of these meetings, who may elect to attend these meetings as an observer when necessary. A minimum of one safety meeting will be held per month.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 19

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for the preparation, submittal, and updating of the Contractor's construction schedules and reporting progress of the Work.

1. Refer to the General Conditions and the Agreement for definitions and specific dates of Contract Time.

B. This Section includes the following:

1. Format.

2. Content.

3. Revisions to schedules.

4. Submittals.

5. Distribution.

C. **Related Sections**: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 29 76 "Progress Payment Procedures" specifies requirements for submitting Schedule of Values and Application for Payments.

2. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submitting and distributing meeting and conference minutes.

3. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submitting the Submittal Schedule.

4. Division 01 Section 01 45 00 "Quality Control" specifies requirements for submitting inspection and test reports.

5. Division 01 Section 01 60 00 "Product Requirements" specifies requirements for submitting the list of products.

1.3 DEFINITIONS:

A. **Construction Schedule:** A method of planning and scheduling a construction project utilizing a horizontal bar chart with a separate bar for each major portion of the Work or operation to make the schedule an effective tool for planning and monitoring the progress of the work.

1.4 QUALITY ASSURANCE:

A. **The Contractor's Consultant:** Retain a consultant to provide planning, evaluating, and reporting by CPM scheduling.

1. **In-House Option:** The Owner may waive the requirement to retain a consultant if the Contractor can demonstrate that:

a. The Contractor has the computer equipment required to produce construction schedules.

b. The Contractor employs skilled personnel with experience in construction scheduling and reporting techniques.

2. **Program:** Use Microsoft Project latest version.

3. **Standards:** Comply with procedures contained in AGC's "Construction Planning & Scheduling."

1.5 PRELIMINARY SCHEDULE:

A. Preliminary Gantt schedule is to be prepared by the Contractor and submitted to the Construction Administrator within **seven (7)** days of award of contract. This schedule is to cover all items of Work from the start of the project up to the completion of the project. This schedule must be revised when the actual schedule of significant items varies more than one week from the proposed schedule.

1.6 CONSTRUCTION SCHEDULE FORMAT:

1. **Format:** Utilize a horizontal bar chart (Gantt) with a separate bar for each major portion of the Work or operation, identifying first work day of each week.

2. **Program:** Use Microsoft Project, latest version.

3. **Sequence of Listings:** Utilize the Table of Contents of this Project Manual and the chronological order **of the start of each item of work.**

4. **Scale and Spacing:** Provide space for notations and revisions.

5. **Sheet Size:** To be coordinated with Construction Administrator.

6. **Weather Days Allowance:** The Contractor shall include as a separate identifiable activity on the Critical Path of the Construction Schedule, and activity labeled "Weather Days Allowance." Insert this activity immediately prior to the substantial completion milestone.

6.1 The Contractor shall be fully responsible for determining the number of weather delay days to be included in the Construction Schedule. This determination shall be based on the normal anticipated weather for the project location and the nature of the project work. The Construction Schedule shall be based on the contractor's determined weather delay allowance. The weather delay activity shall be included in the construction schedule immediately prior to the Substantial Completion milestone.

6.2 The minimal allowed duration of the Weather Days Allowance shall be calculated as follows (decimals rounded to nearest whole number):

$$\frac{\textbf{Contract Time } \textit{(Calendar Days)}}{\textbf{365}} \textbf{ multiplied by } \textbf{7} \textbf{ equals } \textbf{Weather Days Allowance } \textit{(Calendar Days)}$$

6.3 The Contractor shall insert an activity in the Critical Path of the Construction Schedule to reflect weather day occurrences when weather days are experienced and accepted by the Owner. Identify this activity as a weather delay.

6.4 The Contractor shall reduce duration of Weather Days Allowance activity as weather delays are experienced and inserted into the schedule. Remaining weather days in Weather Day Allowance at completion of project is considered float. Weather delay, when justified, are considered allowable, non compensable.

1.7 CONTENT:

A. Show complete sequence of construction by activity, with dates beginning and completion of each element of construction.

B. Identify each item by specification section numbers.

C. Identify work of separate phases and other logically grouped activities.

D. Show accumulated percentages of completion of each item, and total percentage of Work completed, as of the first day of each month.

E. Provide separate schedule of submittal dates for shop drawings, product data, and samples, Owner/Agency furnished products and any products identified as under Allowances, and dates reviewed submittals will be required from Architect/Engineer. Indicate decision dates for selection of finishes.

F. Indicate delivery dates for Owner/Agency furnished products and any products identified as under Allowances.

G. Indicate critical path with original baseline indicated.

H. Coordinate content with Schedule of Values specified in Section 01 29 76 "Progress Payment Procedures."

1.8 SUBMITTALS AND REVISIONS TO SCHEDULES:

A. An initial bar graph schedule is to be prepared by the Contractor and submitted to the Construction Administrator. Refer to Article 1.5.

B. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

C. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

D. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

E. Schedules must be revised monthly and when the actual schedule of significant items varies more than seven (7) days from the proposed schedule.

F. Submit revised Construction Schedules for each Application for Payment.

G. Submit four (4) copies of the Construction Schedule to the Construction Administrator.

1.9 DISTRIBUTION:

A. Distribute copies of the Construction Schedules to Construction Administrator, Architect, Owner, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problem anticipated by projections indicated in schedules.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 32 16

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the preparation, submittal, and maintenance of the Contractor's computerized progress schedule, reporting progress of the Work, and Contract time adjustments, including the following:

1. Preliminary schedule.

2. Baseline schedule.

3. Two (2) week look ahead schedules.

4. Schedule revisions.

5. Recovery schedules.

6. Narratives.

7. Schedule time extensions.

B. The above listed Project schedules shall be used for evaluating all issues related to time for this Contract. The Project schedules shall be updated in accordance with the requirements of this Section to reflect the actual progress of the Work and the Contractor's current plan for the timely completion of the Work. The Project schedules shall be used by the Owner and Contractor for the following purposes as well as any other purpose where the issue of time is relevant:

1. To communicate to the Owner the Contractor's current plan for carrying out the Work;

2. To identify work paths that are critical to the timely completion of the Work;

3. To identify upcoming activities on the Critical Path(s);

4. To evaluate the best course of action for mitigating the impact of unforeseen events;

5. As the basis for analyzing the time impact of changes in the Work;

6. As a reference in determining the cost associated with increases or decreases in the Work;

7. To identify when submittals will be submitted to the Owner;

8. To prioritize the Owner's review of submittals;

9. To document the actual progress of the Work;

10. To evaluate resource requirements of the Contractor and the Owner;

11. To integrate the Work with the operational requirements of the Owner's facilities;

12. To facilitate efforts to complete the Work in a timely manner.

13. To document the history of the Work.

C. Refer to the General Conditions and the Agreement for definitions and specific dates of Contract Time.

D. **Related Sections**: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 11 00 "Summary of Work" specifies the scope of work for the various phases, requirements regarding the Contractor's use of premises, occupancy requirements, products ordered in advance, and Owner furnished products.

2. Division 01 Section 01 25 00 "Substitution Procedures" specifies requirements for handling requests for equals and substitutions.

3. Division 01 Section 01 26 00 "Contract Modification Procedures" specifies requirements for handling and processing contract modifications.

4. Division 01 Section 01 29 76 "Progress Payment Procedures" specifies requirements for submitting Schedule of Values and Application for Payments.

5. Division 01 Section 01 31 00 "Project Management and Coordination" specifies requirements for coordinating construction operations.

6. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submitting and distributing meeting and conference minutes.

7. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submitting the monthly computerized progress schedule.

8. Division 01 Section 01 45 00 "Quality Control" specifies requirements for submitting inspection and test reports.

9. Division 01 Section 01 50 00 "Temporary Facilities and Controls" specifies requirements for temporary utilities, support facilities, and security protection.

10. Division 01 Section 01 60 00 "Product Requirements" specifies requirements for submitting the list of products.

11. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for Contract closeout.

1.3 DEFINITIONS

A. Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.

B. Critical Path: The longest continuous chain of activities through the network at a given data date for the Schedule to a Contract Milestone or Contract Completion. Where the path to a specific Milestone has become negative, the Critical Path shall be the longest continuous chain of activities with the greatest amount of negative float.

C. Near Critical Path: Any continuous series of activities through the network to the Contract Milestone or the Contract Completion Date where the Total Float of the activity at the data date along that path is within fifteen (15) days of the Total Float possessed by the activity at the data date along the Critical Path.

D. Network Diagram: A graphic diagram of a network schedule, showing the activities and activity relationships.

E. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path.
2. Predecessor activity is an activity that must be completed before a given activity can be started.

F. Event: An event is the starting or ending point of an activity.

G. Milestone: A key or critical point in time for reference or measurement.

H. Float: Is the measure of leeway in activity performance. Accumulative float time belongs to the Owner.

1. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.

2. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.

I. Total Float: The number of days from the late finish date (LF) to the early finish date (EF) of an activity at a given data date for the Schedule. When the LF is later than the EF, the Total Float shall be positive. When the LF and the EF are the same, the Total Float shall be zero. When the LF is earlier than the EF, the Total Float shall be negative. Unless otherwise specified all references to "float" shall mean "Total Float."

J. Fragnet: The sequence of new activities and/or activity revisions, logic or resource changes that are proposed to be added to the existing schedule to demonstrate the influence of impacts to the schedule. The Fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities.

1.4 QUALITY ASSURANCE

A. Construction Scheduler:

1. The Contractor is required to employ or retain the services of an individual skilled in construction scheduling ("Construction Scheduler"). For projects with a Contract value greater than five (5) million dollars, the Construction Scheduler shall have at least five (5) years of verifiable experience as the person primarily responsible for preparing and maintaining detailed project schedules on projects of the same or similar size and nature as this project. The Construction Scheduler is required to attend meetings pertaining to scheduling and progress of the work including all progress meetings.

2. Within five (5) days after the Notice of Award, the Contractor shall provide a statement to the Owner with the following:

a. Identification, qualifications, and experience of the Contractor's Construction Scheduler and all other members of the Contractor's scheduling staff.

b. References of not less than two (2) previous projects on which the Contractor's Construction Scheduler has utilized CPM scheduling.

3. The Owner reserves the right to disapprove any Construction Scheduler candidate proposed for the project and/or remove, without rights to work on the project, any member of the Contractor's scheduling staff that is, in the Owner's opinion, not qualified. In case of disapproval, the Contractor shall resubmit the qualifications and references of the proposed alternate Construction Scheduler within ten (10) days. The Contractor must have its Construction Scheduler approved prior to the issuance of the Notice to Proceed and the submission of any schedule.

4. Should the Construction Scheduler leave the employ of the Contractor or be re-assigned or relieved of his/her responsibilities as the Construction Scheduler on the project, the Contractor will be required to submit the qualifications of the proposed replacement Construction Scheduler within **10 days** after the date the former Construction Scheduler is no longer responsible for his/her duties on this Project.

B. Scheduling Software:

1. For Contracts greater than **five (5) million** dollars, the Contractor shall use the latest version of Primavera Project Planner as the scheduling software system for use on this Project.

2. The Contractor shall provide one (1) licensed copy of the scheduling software to the Owner's CA for their use, registered in the Owner's name, complete with the entire manufacturer's manual, within **five (5)** days after the Contract award. The software manuals and license shall become the permanent property of the Owner.

1.5 CPM SCHEDULE FORMAT/CONTENT

A. Format: All Schedules required by this section shall be computer generated, critical path method (CPM) networks utilizing the precedence diagram method of scheduling.

B. Electronic Schedule Naming: The Contractor shall not submit any two (2) schedule files with the same file name. File names shall be in accordance with the following requirements:

1. Proposed/Final Preliminary Schedules shall be named P001, P002, P003, etc.

2. Proposed/Final Baseline Schedules shall be named B001, B002, B003, etc.

3. Final Updated Schedules shall be named U001, U002, U003, etc. Any revisions that are required at a particular update on a data date shall be numbered UA01, UB01, UC01, etc.

C. Activity Identification: Each activity in the Project schedules shall have an activity Identifier (activity ID). The Contractor is encouraged to utilize the activity ID to contain a structure enabling easy identification of work type, location, subcontractor, etc. The activity ID of an existing activity shall not be modified or assigned to another activity.

D. Activity Description: The activity description shall identify the scope of the activity and shall include a verb or work function (i.e. form, pour, execute, etc.), an object (i.e. slab, footing, wall, etc.), and location (i.e., first floor, roof, etc.). There shall not be any two activities with the same activity description. It shall not be necessary to investigate activity code assignments or logic relationships to identify the scope of an activity. For example, the description "Pour Footing" will not be acceptable. The description "Pour Footing West Wall, Section 2" will be acceptable. The terms "Miscellaneous," "Misc." and other vague adjectives shall not be used in an activity description. The Contractor shall standardize the use of terms and their spelling in all activity descriptions. Abbreviation used in activity descriptions shall be consistent with the abbreviations used throughout the Contract Documents and summarized on the Contract Drawings.

E. Work Activities: The Contractor shall include activities for work in the following list:

1. Mobilization.

2. All required submittals and submittal review.

3. Equipment and materials procurement/fabrication/delivery.

4. Installing/operating temporary heat and utilities.

5. Preliminary testing of equipment, instrumentation and controls.

6. Final testing, including preparation time.

7. Substantial Completion: Substantial completion activity shall meet all requirements set forth in Division 01 Section 01 77 00 "Closeout Procedures".

8. Punch list work.

9. Operation and maintenance training.

10. Demobilization.

11. Final cleaning.

12. Issuance of Certificate of Occupancy.

13. Project Specific Issues (If Warranted).

F. Maximum Activity Durations: The Contractor shall prepare schedule utilizing activity durations in terms of days. Do not exceed twenty-one (21) day duration on activities except concrete curing, submittal review and equipment fabrication and deliveries. Where duration of continuous work exceeds twenty-one (21) days, subdivide activities by location or other sub-element of the work. At the request of the Owner, the Contractor shall substantiate the need for specific activities having longer durations than stated herein. If the Contractor fails to substantiate this need, then the Contractor shall modify activity durations and the corresponding work scope of the activities to the satisfaction of the Owner.

G. Activity Dates: Early and late start and finish dates of activities shall be calculated for each activity based upon the schedule data date, actual dates, schedule logic, schedule constraints, calendars and original duration or remaining duration, in accordance with the software to calculate incorrect early and late, start and finish dates, the Contractor shall be responsible to identify all such errors and to determine correct dates consistent with the parameters specified in this Section.

H. Activity Predecessors and Successors: Every activity shall have logically assigned predecessors and successors in conformance with the requirements of this Section. Unless otherwise specified, Notice to Proceed shall be the only activity in the Project Schedules without a predecessor. Unless otherwise specified, Acceptance and each Contract Milestone(s) shall be the only activity in the Project Schedules without a successor.

I. Activity Constraints: Activity Constraints can affect activity float calculations and shall not be used unless accepted by the Owner. The imposition of a date constraint on any activity shall only be permitted when the Contractor demonstrates the need for such a constraint to the satisfaction of the Owner.

J. Imposed Project Finish Date: The imposed project finish date shall be the Contract Completion date, or if the Contractor plans an early completion date, the date it plans to complete the Work.

K. Negative Float: Negative float is calculated when the user imposes a finish date or other constraint on the schedule and when an activity can only finish after its late finish date. The Contractor shall remove the imposed finish date and/or constraint causing the negative float when directed to do so by the Owner.

L. Activity Codes: The schedules shall contain activity code classifications and code values. The coding structure shall, at a minimum, include code fields for the following: Phase, Area, Location, Type of Work, Submittal/Procurement, Construction, Responsibility, Original/Extra Work, and **Division. All activities in the schedule must have non-blank values for the required codes.**

M. Calendars: The planning unit for the Work shall be days. The global calendar shall contain all union holidays. The Contractor shall coordinate holidays to be observed with the Owner and incorporate them into the schedule as non-working days. This Calendar shall be a **5-day** work week, Monday through Friday. Every activity shall be assigned a working day calendar based on when the activity is planned to occur and when it is contractually permitted to occur. The Contractor shall define and submit additional working day calendars for acceptance by the Owner that are necessary for completion of work in accordance with the requirements of the Contract Documents. Only Owner defined or Owner accepted working day calendars shall be utilized in the Project Schedules.

N. Logic: The Contractor shall be responsible for developing the logic of the Preliminary, Baseline and Recovery Schedules and for updating that logic each month to accurately reflect the progress of the Work to-date and the Contractor's current plan for the timely completion of the Work.

1. The following criteria shall form the basis for assembly of the schedule logic:

a. Which activity must be completed before a subsequent activity can be started?

b. Which activities can be done concurrently?

c. Which activities must be started immediately following a completed activity?

d. What major economic facility or manpower restrictions are required for sequencing these activities?

2. All paths through the Project schedules shall proceed in the direction representing the progression of time. Activity lag duration shall not have a negative value unless the Contractor substantiates to the satisfaction of the Owner that this is the best representation of reality. The use of activity lags shall be kept to a minimum. The Contractor shall eliminate lags by creating new activities, when the creation of new activities will perform the same function of the lag and when requested to do so by the Owner.

3. Redundant ties to preceding activities in a sequential series of activities will not be permitted. For example, if activity C is the successor in a finish-start relationship to activity B, and activity B is the successor in a finish-start relationship to activity A, then activity A shall not have a redundant finish-start relationship to activity C. A tie representing a different constraint will not be considered redundant. For example, a logic tie showing that the completion of the work scope of a predecessor is required before the successor can start is different from a logic tie representing a resource limitation and will not be considered redundant.

4. The Contractor is required to use manpower and equipment restraints, separately noted, to optimize and level manpower and equipment requirements. Such resource leveling shall reflect a reasonable plan for accomplishing the Work. The individual activities involved may be sequenced within the limits of the available Total Float. However, when this leveling technique is used in establishing the initial schedule, it shall be reflected in the logic with restraints identified as "restraint for manpower or equipment leveling purposes only." Critical or near Critical Paths resulting from the use of manpower restraints shall be kept to a minimum.

5. All activities with resource restraints shall be supplemented with resource loading information as noted in Paragraph G.

6. The Contractor shall correct all incorrect logic relationships in the Schedule Updates to eliminate any out-of-sequenced logic. The Contractor shall make all changes in the logic or other adjustments found to be incorrect by the Owner.

O. Progress Data: Actual start and finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software systems. The primary source of actual starts and finishes and period percentage completes shall be by field verification. The Contractor is to insure that progress is based of a current estimate of remaining duration to complete the Work and not the activity percent complete which calculates the remaining duration based on the original estimated duration.

P. Submittals:

1. Each submission that is required by the Contract Documents shall have a corresponding activity, for the preparation and review and approval at the submission. When the Contractor plans on making a submission in parts, each part of the submission shall have corresponding preparation and review and approval activities.

2. The timing, sequencing and duration of all submitted review and approval activities shall be in accordance with the Contract Documents.

3. All submissions designated "Revise and Resubmit" shall require that the Contractor insert new submittal preparation and review and approved activities with appropriate logic into the schedule.

4. When submittal receives a partial approval and the partial approval is sufficient to enable the commencement of a successor activity, then the original submittal activity shall be broken down into multiple activities as necessary to accurately reflect the logic of the Contractor's current plan.

5. When multiple items are included in a single submittal, the "Review and Approve" activity for the submittal shall be a predecessor to every activity representing the fabrication and delivery of any of the materials.

Q. Delivery Activities: The schedules shall include activities for all fabrication and delivery work except for short lead time items. "Short lead time" shall be defined as a period of fourteen (14) days or less from placement of order to delivery of material to the project site. Activities representing the delivery of materials or equipment for more than one (1) installation activity will permitted in accordance with the following conditions.

1. The material delivery activity shall be a predecessor to the first activity representing the installation of the material in each area.

2. When partial deliveries are received and those deliveries are adequate to enable the commencement of some, but not all, successor activities, then the original delivery activity shall be broken down into multiple activities as necessary to accurately reflect the logic of the Contractor's current plan.

R. Inspections/Testing: The Contractor shall include an activity for each inspection and test required by the various officials and agencies, including the Building Inspector, and Fire Marshall. The Contractor shall schedule these activities in accordance with the availability of the corresponding agency/official.

S. Progress Override/Retained Logic: The Contractor shall use retained logic to calculate all schedules required by this section. The use of progress override is not allowed without prior approval of the Owner.

T. Weather Days Allowance: The Contractor shall include as a separate identifiable activity on the Critical Path, and activity labeled "Weather Days Allowance." Insert this activity immediately prior to the substantial completion milestone.

1. The Contractor shall be fully responsible for determining the number of weather delay days to be included in the CPM Schedule. This determination shall be based on the normal anticipated weather for the project location and the nature of the project work. The CPM Schedule shall be based on the contractor's determined weather delay allowance, immediately prior to the Substantial Completion milestone.

2. The minimal allowed duration of the Weather Days Allowance shall be calculated as follows (decimals rounded to nearest whole number):

$$\frac{\textbf{Contract Time } \textit{(Calendar Days)}}{\textbf{365}} \textbf{ multiplied by } \textbf{7} \textbf{ equals } \textbf{Weather Days Allowance } \textit{(Calendar Days)}$$

3. The Contractor shall insert an activity in the Critical Path to reflect weather day occurrences when weather days are experienced and accepted by the Owner. Identify this activity as a weather delay.

4. The Contractor shall reduce duration of Weather Days Allowance activity as weather delays are experienced and inserted into the schedule. Remaining weather days in Weather Day Allowance at completion of project is considered float. Weather delay, when justified, are considered allowable, non compensable.

U. Regulatory/Third Party Approvals: The Contractor shall include activities in its schedule for all approvals required by regulatory agencies or other third parties.

V. Resource Loading: The Contractor shall resource load the schedules when required by this Specification and/or if requested to do so by the Owner. When required, the schedules shall be resource loaded for both the Contractor and all of its subcontractors as detailed below or as otherwise directed by the Owner. The Contractor may propose additional or alternative resource loading for the Owner review and acceptance. Defining a resource shall consist of identifying the resource name, resource description, unit of measure, and calendar assignment.

1. Labor Resources: Labor shall refer to all craft labor including foreman. Labor shall be measured in person-days. The labor resource definitions shall be consistent with the subcontractor work scope.

2. Construction Equipment Resources: The planned use of equipment requiring a licensed operator shall be reflected in equipment resource assignments to activities.

3. Limits on Resources: The Contractor shall indicate in its Narrative the expected amount of resource and shall define the normal or expected usage along with a maximum limit available to the Contractor. Resource limits may vary for different stages of the work. Resource limits shall be revised to reflect the Contractor's current plan for the timely completion of the work.

W. Activity Logs:

1. Activities that are modified or added by change order shall be identified in the activity log. The change order number, as issued by the Owner, and the date the activity was modified or added shall be clearly recorded.

2. Activities affected by logic changes, resource changes, duration changes and calendar changes shall be identified in the activity log. The date the activity was modified, the nature of the change and the reason for the change shall be clearly recorded.

1.6 PRELIMINARY SCHEDULE AND PRELIMINARY SCHEDULE UPDATES

A. For projects with a construction cost estimate over five (5) million dollars, the Contractor shall submit a Preliminary Schedule and Preliminary Schedule Updates. The Notice to Proceed will not be issued and the Contractor will not be allowed to start work at the Project site until the Preliminary Schedule has been submitted and accepted.

B. The Preliminary Schedule shall contain a detailed plan of operations for the first 90 days of Work after receipt of the Notice to Proceed.

C. The Construction Administrator and Contractor shall meet after receipt of Preliminary Schedule to review and make necessary adjustments. Contractor shall submit a revise Preliminary Schedule incorporating the adjustments with five (5) days after meeting.

D. All Work contemplated beyond the first ninety (90) days shall be shown in sufficient detail such that the Critical Path and all Contract Milestones may be identified.

E. The Preliminary Schedule shall be updated monthly during first ninety (90) days after issuance of the Notice to Proceed. The first update of the Preliminary Schedule shall show the progress on the actual Notice to Proceed date and shall be submitted to the Construction Administrator within five (5) days after the issuance of the Notice to Proceed. Subsequent updates shall show the progress through the last day of the month and shall be submitted to the Construction Administrator by the fifth business day of each month.

F. Preliminary Schedule Update revisions that are required as a result of review comments by the Construction Administrator shall be submitted within five (5) days of the Contractor's receipt of the Construction Administrator's comments. The data date of the revised Preliminary Schedule Update shall remain on the first day of the month.

G. The Contractor shall not be permitted to make any schedule revisions (besides progress) to the Preliminary Schedule Update unless approved by the Construction Administrator. When schedule revisions are required, the Contractor shall submit a Schedule Revision per Article 1.11.

1.7 BASELINE SCHEDULE

A. For projects with a construction cost estimate over five (5) million dollars, the Contractor shall submit the proposed Baseline Schedule to the Construction Administrator for all the work of the project within forty-five (45) days after issuance of the Notice to Proceed. The Accepted Preliminary Schedule shall be incorporated unchanged, as first ninety (90) days activity in the Contractor's Baseline Schedule.

B. The proposed Baseline Schedule shall show sequence and interdependence of all activities required for complete performance of all Work, beginning with date of Notice to Proceed and concluding with date of final completion of the Contract. The Baseline Schedule shall depict the work as bid and as planned as of the Notice to Proceed. The data date shall be the actual date of the Notice to Proceed.

C. The Construction Administrator and the Contractor shall meet after the Construction Administrator's receipt of the Baseline Schedule to review and make necessary adjustments. Should adjustments be required, the Contractor shall submit a revised Baseline Schedule within five (5) days after the meeting and receipt of the Construction Administrator's comments. Subsequent follow-up meetings and resubmissions may continue until the Construction Administrator accepts the Baseline Schedule.

D. The Contractor shall require each major Trade Contractor and major supplier to submit in writing a statement certifying that the major Trade Contractor or major supplier has concurred with the Contractor's Baseline Schedule, the major Trade Contractor's or major supplier's related schedule has been incorporated accurately, including the duration of activities and crew allocations. The definition of a "major Trade Contractor" is **one (1)** that provides services valued in excess of **five (5) percent** of the Contract value. The definition of "major supplier" is **one (1)** that provides material(s) or services valued in excess of **one (1) percent** of the Contract value. Failure of the Contractor to provide the required information will delay the approval of the Baseline Schedule.

1.8 SCHEDULE UPDATES

A. The Contractor shall update and progress the CPM Schedule through the last day of each month (the Data Date is the first day of the month). Updating and progressing the CPM Schedule shall be completed and submitted by the fifth business day each month. Except as otherwise authorized by the Construction Administrator, monthly submissions received after the due date are considered late.

B. The first update will consist of the approved Baseline Schedule updated as of the first day of the first month which starts after thirty (30) days from the Notice to Proceed. Subsequent monthly Schedule Updates will be the previous month's approved Schedule Update or approved Revision Schedule updated to reflect progress over the last month. Schedule revisions, apart from updating the status of the remaining durations and percent completes of the various work activities will not be permitted in the Schedule Update.

C. The Contractor shall create a copy of the previous month Schedule Update for the purpose of updating and progressing it. The schedule shall be updated to show the work actually accomplished during the preceding month, the actual time consumed for each activity, and the estimated time remaining for any activity that has been started but not completed. The updating of the percent complete and the remaining duration of any activity shall be independent functions; program features that calculate one of these parameters from the other shall be disabled.

D. The Contractor shall make the necessary adjustments to the Schedule Update in accordance with the Construction Administrator's Schedule Update review comments and shall re-submit the Schedule Update within five (5) days after receipt of those comments.

E. The Contractor shall prepare the monthly Schedule Updates every month starting on the month described above through the actual substantial completion date.

1.9 TWO-WEEK LOOK AHEAD SCHEDULES

A. The Contractor shall be required to produce and submit to the Construction Administrator a Two-Week Look Ahead Schedule, to be updated and submitted the first day of each week. Except as otherwise authorized by the Owner, submissions received after the due date are considered late.

B. The Two-Week Look Ahead Schedule may be a CPM schedule or a bar chart; it shall be consistent with the previously approved Schedule Update or approved Schedule Revision.

1.10 SCHEDULE REVISIONS

A. If, at any time, the Contractor alters its logic, original durations, or descriptions, adds activities or activity codes, or in any way modifies the accepted Preliminary Schedule, accepted Preliminary Schedule Update, Baseline Schedule or Schedule Update, the Contractor must notify the Construction Administrator of the change(s), in writing and submit a Revision Schedule to the Construction Administrator for review.

B. The preparation and submission of Revision Schedules will also be required to reflect any Contract Modifications that were approved and Construction Change Directives that were issued during the preceding period and any extra or changed work that the Contractor has started during the preceding period.

C. With each Revision Schedule, the Contractor shall submit a written narrative explaining the nature of the change(s), the schedule, the reason for the change(s) and the impact on the schedule as a result of the change(s).

D. All changes (i.e. duration changes, logic changes, new logic, new or modified activities changes in work sequence, etc.) shall be recorded and a note added to the activity log. The record shall include at a minimum, the date and the reason for the change, and description of the change.

E. The required Revisions Schedules and Narratives are in addition to the regular Schedule Update. They shall be separate submittals and shall be noted as Schedule Revisions.

F. Proposed Revision Schedules shall be submitted by the fifth day of the month and shall reflect status as of the first day of the month.

G. The Construction Administrator and Contractor shall meet after the Construction Administrator's receipt of the Revision Schedule and Narrative to review and make necessary adjustments. Should adjustments be required, the Contractor shall submit a revised Revision Schedule to the Construction Administrator within five (5) days after the meeting and receipt of the Construction Administrator Comments. Subsequent follow-up meetings and resubmissions may continue until after the Construction Administrator accepts the Revision Schedule.

H. Only upon acceptance of a revision to the Schedule by the Construction Administrator shall the revision be reflected in the next Schedule Update and Two-Week Look-Ahead Schedule.

I. The Construction Administrator reserves the right to accept or reject any schedule revisions proposed by the Contractor.

1.11 RECOVERY SCHEDULES

A. If, in opinion of the Owner, a Schedule Update indicates that the Contractor has fallen behind schedule, or that a revision in sequence or operations may be necessary for any other reason, the Contractor shall within seven (7) days of receiving a written request to perform "Recovery" from the Construction Administrator, immediately institute all necessary steps to improve his progress and shall submit such revised network diagrams, tabulations, operational plans and any supplementary information, as may be deemed necessary by the Owner, to demonstrate the manner in which an acceptance rate of progress will be regained.

B. Should the Contractor's "Recovery" efforts not demonstrate an ability to regain an acceptable rate of progress, the Construction Administrator may require the development of a "Recovery Schedule" and the Contractor shall submit the Recovery Schedule within ten (10) days of receiving a written request for the Recovery Schedule from the Construction Administrator. The Recovery Schedule is to be supplemented with resource allocations for every task activity and include time-scaled resource histograms. The resource allocations shall be shown to a level of detail that facilitates report generations based on labor crafts and equipment classes for the Contractor and Trade Contractors. The Contractor shall use average composite crews to display the labor loading of onsite construction activities. The Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the Work of the Contract and to assure that resources are not over allocated in multiple concurrent activities. The time-scaled resource histograms shall show labor crafts and equipment classes to be utilized on the Contract.

C. In addition to required submittals, the "Recovery Schedule" submission will also include a Narrative as detailed herein, a time-scaled resource histogram and a Monthly Resources Loading Summary Report (tabular) indicating the peak number of resources required for each activity.

D. The Construction Administrator shall be the sole judge as to whether the Recovery Schedule is sufficiently detailed. Upon acceptance of this Recovery Schedule, it shall form the basis of the new Monthly Schedule Updates going forward.

E. No additional compensation will be allowed for Recovery Schedules required to overcome delays caused in whole or in part by the Contractor.

1.12 NARRATIVES

A. The Contractor shall prepare and submit a Narrative to accompany the Baseline Schedule, Preliminary Schedule and each Preliminary Schedule Update and Monthly Schedule Update. The Narratives shall include:

1. Identification of the update period, the data date and the schedule file name.

2. A description of the current Critical and Near Critical Paths activities that are supposed to start or to be worked on over the coming month.

3. Changes to the Critical Path, intermediate and completion Milestones

4. Description of problem areas.

5. Current or anticipated delays:

a. Cause of delay.

b. Impact of delay on other activities, Milestones, and completion dates.

c. Corrective action and schedule adjustments to correct the delay.

6. A discussion of work completed during the period.

7. A comparison of the planned versus schedule progress early on and near Critical Path activities that were to have been worked on over the last month.

8. A description of any interdependencies between the Contractor's Schedule and any work by other contractors, third parties, and/or the Owner and its representatives.

9. A description of the current status of float created by any previous or ongoing compensable or excusable delays, whether or not the Contractor has utilized any of this float over the last period by purposefully slowing down (pacing) and any request to utilize this float over the coming period.

10. An explanation of how adverse weather has been addressed in Schedule and an accounting of the Weather Day Allowance delineating the activities incorporated into the Schedule to account of work days lost due to weather and the resultant decrease in the duration of the Weather Day Allowance.

11. A description of planned labor resources to be utilized to complete critical and near Critical Path work as requested by the Construction Administrator.

12. A description of actual and potential equipment resource limitations.

1.13 NETWORK FILES, GRAPHICAL OUTPUT AND REPORTS

A. With each Preliminary Schedule, Preliminary Schedule Update, Baseline Schedule, Schedule Update, Revision Schedule and Recovery Schedule required by these specifications, the Contractor shall submit to the Construction Administrator the following schedule reports/graphics/files:

1. Three (3) compact disc sets that each include:

a. A compressed back up of the entire schedule.

b. Gantt charts in Adobe Acrobat PDF file format, formatted to fit ANSI Size D paper (610mm x 914mm) (24" x 36"), and showing the Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Early Start and Finish Dates, and Calendar ID. Types of Gantt Charts to be included are:

i. The project critical (longest) path.

ii. The Project near Critical Path (excluding Critical Path activities).

iii. All uncompleted work activities as of the data date.

2. Reports in Adobe Acrobat PDF file format, formatted to fit 216mm x 279mm (8½" x 11") size paper, to include:

a. A listing of all activities, by activity code, with early & late starts and Total Float.

b. A Claim Digger Report that details all changes between the current schedule submittal and the previous month's update submittal.

c. Detailed Predecessor/Successor Report which included a listing of all activities that immediately precede and immediately succeed that activity in the schedule logic.

3. Three (3) paper copies of each Gantt Charts in color and report on the paper size specified above.

B. Schedule submittals will only be considered complete when all materials have been submitted.

1.14 FLOAT/CRITICAL PATH

A. With the exception of the Float described in Paragraphs B and C, Float is not for the exclusive use or benefit of either the Construction Administrator or the Contractor but is an expiring resource available to all parties acting in good faith as needed to meet any Contract Milestone(s).

B. As float is an expiring resource, if the Work is delayed on the Critical Path due to an excusable delay (either compensable or non-compensable) or by any delay for which responsibility has not yet been agreed upon, the Contractor may not use any float created by such delay on any other path without the express written approval of the Construction Administrator or unless at the time of the float consumption a time extension had been issued for the delay that created the float being consumed. Use of such float on any parallel path without the approval of the Construction Administrator shall be construed as a concurrent inexcusable delay to any delay caused by the Construction Administrator.

C. It is acknowledged and agreed by the Contractor that Construction Administrator caused delays on the project may be offset by Construction Administrator caused time savings (including, but not limited to: Critical Path submittals returned in less time than allowed for in the Contract, approval of substitution requests which result in a savings of time along the Critical Path for the Contractor, etc.). In such an event, the Contractor shall not be entitled to receive an extension of time or delay damages until the Construction Administrator caused time savings are exceeded and the Contract completion date also exceeded.

1.15 EARLY COMPLETION

A. Should Contractor submit a Preliminary Schedule, Baseline Schedule, Schedule Update or Schedule Revision showing Project Completion more than twenty-eight (28) days prior to Contract Completion Date, the Construction Administrator may issue a Change Order, at no cost to Owner, revising the time of performance of Work and Contract completion date to match Contractor's schedule. Contract Milestone dates, if any, shall be adjusted accordingly. The assessment of liquidated damages shall be measured based on the new Milestone and Contract completion dates.

B. Should any monthly Schedule Update show the project completion earlier than current Contract completion date, the Contractor shall show early completion time as schedule activity, identified as "Project Float." This float shall be available for use by either party as per the provisions of Article 1.14. The Owner shall not liable for any damages as a result of utilizing this float.

1.16 CONTRACT TIME EXTENSIONS

A. Mitigation of Delays:

1. The Contractor shall be responsible to develop mitigation measures for all delays regardless of responsibility for the delays and to identify all time and cost impacts to the work associated with those mitigation measures. Unless circumstances otherwise require, the Contractor shall not pursue mitigation action for which it expects the Owner to be liable prior to notifying the Owner and receiving Construction Administrator authorization to proceed with the mitigation action. Any action taken by the Contractor prior to receiving approval from the Construction Administrator shall be at the Contractor's risk.

2. When the need for mitigation arises to ensure timely completion, the Contractor shall review all uncompleted activities on the Critical and Near Critical Paths to the Contract Completion Date for errors in scope, duration, and logic and for the feasibility of performing in parallel work currently scheduled sequentially.

3. Whenever it is possible for the Contractor to mitigate delay without added cost, the Contractor shall do so. The Contractor shall mitigate all delays as efficiently and economically as possible, with the objective of minimizing both the time and cost impact of the delay regardless of responsibility for the delay. The Owner will not be liable for damages which the Contractor could have avoided by reasonable means such as prudent scheduling of the work and judicious handling of forces, equipment or plant. The Owner will not be liable for damages incurred by the Contractor during any period of time when the Contractor has

failed to provide notification of delay in accordance with the Contract requirements when having the notification at the specified time could have influenced the Owner's decision or actions.

B. Time Impact Analysis:

1. If the Contractor believes that a proposed change will impact the Project Completion Date or interim Milestones, the Contractor shall submit an analysis with its Change Order Proposal demonstrating the delay to the Critical Path. This analysis shall be in the form of a Time Impact Analysis (TIA).

2. The Time Impact Analysis shall consist of: 1) a Fragnet of the portion of the schedule that will be affected by the incorporation of the change, which shall include the new activities, revised logic and durations associated with the proposal change; 2) a narrative explanation of how the proposed change would impact the schedule; 3) an impact schedule which shall be developed by incorporating the Fragnet and required changes, including any delay mitigation measures, into the most recent accepted schedule update and; 4) electronic copies of the Fragnet and impact schedule.

3. The Contractor shall submit its TIA in sufficient time to allow it to be incorporated into a Revision Schedule prior to the change order work proceeding, allowing the Owner thirty (30) days after receipt of the TIA and all the supporting information required with the Change Order Proposal to approve or reject the analysis.

4. Upon agreement on the schedule impact due to the proposed change and the issuance of a time extension, the Contractor shall incorporate the agreed upon Fragnet/schedule revisions in the next monthly update.

5. The Owner reserves the right to have the Contractor proceed with the change order related work without agreeing on the time associated with it and to measure the actual schedule impact via Contemporaneous Period Analysis.

6. In cases where the Contractor has not submitted a TIA with its Change Order Proposal for a particular proposed change, the Contractor agrees that the particular proposed change has no impact on the Contract Completion Date or interim Milestones and no time extension is required.

C. Contemporaneous Period Analysis:

1. When an accepted Schedule Update indicates the project has been delayed beyond the current Contract Completion Date and the Contractor believes it is entitled to an extension of time, the Contractor shall prepare and submit to the Owner a Contemporaneous Period Analysis (CPA) demonstrating the delay(s) to the Critical Path at the time of the delay, mitigation measures taken or proposed by the Contractor and request an extension of time.

2. The Contractor's CPA and time extension request shall be submitted prior to the submission of the next Schedule Update.

3. The request shall indicate the amount of time requested, the period when the delay was experienced and an explanation as to the cause of the delay.

4. The CPA shall quantify the delay by comparing the completion dates and Milestone dates on an update by update basis, starting with the update just prior to the delaying event and ending with the update just after the conclusion of the delaying event. Only the accepted schedules/Schedule Updates shall be used in the CPA. The CPA shall determine the cause of the delay by correlating slippage with various unforeseen events.

5. The CPA will consist of: 1) an update by update accounting of all delay(s) during the period in question; 2) an update by update narrative explanation of how the delay(s) affected the completion date or would have affected the completion date but for other concurrent delay(s); 3) chronologies of the issues affecting the schedule period in question; and 4) a day by day accounting and description of the unanticipated work/work stoppage on the Critical Path and/or path in question; 5) a Gantt chart comparing the as-planned schedule just prior to the start of the delay to the actual as-built for the path(s) in question.

D. The Owner may require the Contractor to correct errors in its TIA or CPA at anytime, whether or not the schedules have been accepted and/or time extension issued and agreed upon. Should the errors affect the outcome of the TIA or CPA, the Owner reserves the right to adjust the time extension accordingly. Generally, a schedule will be found to be in error if it does not properly reflect the sequencing, timing and durations of all the work and required events as well as mitigation efforts contemplated or which should have been contemplated at the time of the data date of the schedule.

E. Time Extensions will be granted only to the extent that equitable adjustments for the activity or activities affected exceed or exceeded the total or remaining float along the Critical path or activities at the time of the actual delay. Actual delays in activities which do not affect the Critical Path work or which do not move the Contractor's planned completion date beyond the Contract completion date or current completion date as

affected by previous delays, will not be the basis for an adjustment to the Contract time. Time Extensions shall not be granted until a delay occurs that is:

1. Beyond control of and without fault of or negligence of the Contractor and the major Trade Contractors or Suppliers at any time.

2. Extends the actual performance of the work beyond the Contract completion date or other specified Interim Milestones.

F. Should a non-compensable excusable delay be concurrent with one or more compensable delays, the Contractor and Owner agree that the net result is a non-compensable, excusable delay to the extent the delay is caused by the non-compensable event.

G. The Contractor shall have no claim for damages of any kind, or extensions or increase to the Contract time(s) or Contract Milestone(s), or adjustments of Contract Price on account of any delay, interruption or suspension of the Work or any portion thereof (herein after collectively referred to as "Delay"), due to whatever cause unless the prerequisites of this Subsection are met. The requirements of this Subsection are in addition to and not in lieu of the requirements of any other applicable subsection.

1.17 REVIEW AND ACCEPTANCE OF PROJECT SCHEDULE SUBMITTALS

A. The Construction Administrator shall review schedule submittals for conformance with the requirements of the Contract Documents. Schedule review comments by the Construction Administrator may address whether items of Work are omitted, activity durations are reasonable or that the level of labor, materials, and equipment, the means, methods, timing, and sequencing of the Work are practicable. The planning, scheduling or execution of the Work and the accuracy of any Project Schedule shall remain the sole responsibility of the Contractor.

B. During the review of any of the submissions required by this section, if any of the following conditions are discovered the submittal shall be returned by the Construction Administrator without further review for correction and re-submittal:

1. The submittal is incomplete.

2. The submittal does not comply with the specified format.

3. A component of the submittal has not been prepared in accordance with all of the requirements of this section.

4. The quality of the submittal indicates that the Contractor has failed to perform an internal quality control review prior to submission.

5. There is an inconsistency between electronic files and printed material.

C. It is the Contractor's responsibility to ensure that all Project Schedules are in compliance with all of the requirements of the Contract Documents. The Construction Administrator's failure to return a submittal shall not be construed to mean that the submittal is in compliance with the requirements of the Contract Documents. The Construction Administrator, at its discretion, may choose to complete a submittal review even though the submittal fails to meet one of more of the conditions for rejection stated herein.

D. The acceptance of any Project Schedule by the Construction Administrator does not constitute acceptance or approval of any change to the requirements of the Contract Documents including but not limited to any mandated construction sequences. The Construction Administrator is not responsible for any erroneous assumptions or information in any Project Schedules regardless of origin.

E. The Contractor shall be responsible for all delays due to its failure to submit complete submittals in accordance with the requirements of the Contract Documents.

F. The Schedule submitted will not be considered acceptable until all of the Construction Administrator's comments are incorporated into the schedule to the Construction Administrator's satisfaction.

G. Errors in any Project Schedule accepted by the Construction Administrator, including but not limited to activity durations, relationships between activities, resource allocation or other float suppression techniques that do not accurately reflect the work may be identified at any time and once identified shall be corrected by the Contractor.

H. Construction Administrator's acceptance of a Schedule Update shall not constitute the approval of a time extension should the Project Completion Date or Contract Milestone(s) be shown as delayed.

I. Notwithstanding any review, review comments, acceptance, scheduling assistance or direction to change an/or revise any schedule by the Construction Administrator, the schedules shall at all times be the Contractor's schedule for performing the Work and not be considered as any Construction Administrator

direction constituting a change unless the Contractor gives appropriate notice and the other Contract provisions for determining merit and entitlement are met.

1.18 PAYMENT

A. When the Contractor submits its schedule of values in accordance with the General Conditions, it shall include an amount for the scheduling work associated with this section, this cost to be paid in accordance with section (01 29 76).

B. Failure of the Contractor to submit a Baseline Schedule or Revised Baseline Schedule for any portion of the work in accordance with this specification may result in the withholding all Contract payment until the schedule is submitted to, and accepted for compliance with the specification and reasonableness, by the Construction Administrator.

C. In the event the project extends beyond the original completion date by more than 30 days, and a time extension is granted to the Contractor, the Construction Administrator may require additional CPM updates which will be paid at the per month cost for the Scheduling Update services.

1.19 DISTRIBUTION

A. Distribute copies of the computer generated schedules to Construction Administrator, Architect, Owner, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problem anticipated by projections indicated in schedules.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 32 16.13

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for construction photographs.

B. **Related Sections:** The following Section contains requirements that relate to construction photographs:

1. Division 01 Section 01 33 00 "Submittal Procedures" specifies general requirements for submitting digital construction photographs.

1.3 SUBMITTALS

A. **Photographs:** Provide a digital camera to take fifteen (15) or more photos each time (monthly). Deliver two (2) sets of photo files on one (1) CD-ROM and one (1) set of prints (8x10) to the Construction Administrator for the Department.

B. **Extra Sets**: When requested by the Owner, the photographer shall prepare extra sets of prints or CD-ROM. The photographer shall distribute these directly to the designated parties who will pay the costs for the extra sets directly to the photographer.

1.4 QUALITY ASSURANCE

A. Engage a qualified commercial photographer to take photographs during construction.

B. **Photographer's Qualifications:** Photographer shall be an individual of established reputation who has been regularly engaged as a professional photographer for not less than three (3) years.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC COPIES

A. On the date the work is begun and every thirty (30) days thereafter (until the work is at least 95 percent complete), the Contractor shall have digital photographs of the construction taken by a professional photographer.

B. **Identification:** Label each CD-ROM with project name and date the photographs were taken. With each submittal provide an applied label, rubber-stamped or index sheet with the following information:

1. Henry Abbott Technical High School New Garage Building.

2. Name and address of the photographer.

3. Clohessy Harris & Kaiser, LLC

4. Name of the Contractor.

5. Date the photographs were taken.

6. Vantage Point: Description of vantage point, in terms of location, direction (by compass point), and elevation or story of construction.

PART 3 – EXECUTION

3.1 PRECONSTRUCTION PHOTOGRAPHS

A. Before starting construction, take digital photos of the site and surrounding properties from different points of view, as selected by the Construction Administrator.

1. Take digital photos in sufficient number to show existing site conditions before starting Work.

2. Take digital photos of adjacent existing buildings either on or adjoining the property in sufficient detail to record accurately the physical conditions at the start of construction.

3.2 PHOTOGRAPHIC REQUIREMENTS

A. Take fifteen (15) or more digital photographs monthly, coinciding with the cutoff date associated with each Application for Payment. The Construction Administrator shall select the vantage points for each shot to best show the status of construction and progress since the last photos were taken.

B. As the digital photographs are a record of the work progress, they shall be taken each month, whether or not they show work done during the preceding month. Deliver the CD-ROMs and prints within ten (10) days of their taking.

C. Provide and coordinate the use of photographic software to assure that the photos are viewable by all interested parties.

D. PART 2 - PRODUCTS (Not Applicable)

E. PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 32 33

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including but not limited to the following:

1. Submittal schedule.
2. Shop Drawings.
3. Product Data.
4. Samples.
5. Quality assurance submittals.
6. Proposed "Substitutions/Equals".
7. Warrantee samples.
8. Coordination Drawings.
9. O & M Manuals

B. Administrative Submittals: Refer to other Division 01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Permits.
2. Applications for Payment.
3. Performance and payment bonds.
4. Contractor's construction schedule.
5. Daily construction reports.
6. Construction Photographs.
7. Insurance certificates.
8. List of subcontractors.
9. Subcontractors/Suppliers FEIN number's and Connecticut tax registration number.

C. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 25 00 "Substitution Procedures" specifies requirements for submittal of requests for equals and substitutions.

2. Division 01 Section 01 29 76 "Progress Payment Procedures" specifies requirements for submittal of the Schedule of Values.

3. Division 01 Section 01 31 00 "Project Management and Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.

4. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.

5. **Division 01 Section 01 32 16 "Construction Progress Schedules" for requirements for construction scheduling and reporting progress of work.**

6. Division 01 Section 01 32 33 "Photographic Documentation" specifies requirements for submittal of periodic construction photographs.

7. Division 01 Section 01 35 26 "Government Safety Requirements specifies the requirements for safety plans, reports, and investigation submittals.

8. Division 01 Section 01 45 00 "Quality Control" specifies requirements for submittal of inspection and test reports and mockups.

9. Division 01 Section 01 45 23.13 "Testing for Indoor Air Quality (IAQ), Baseline IAQ, and Materials" specifies requirements for submittal of documentation required to support LEED or Green Globes certification.

10. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

11. Division 01 Section 01 78 30 "Warranties and Bonds".

12. Division 01 Section 01 81 13 "Sustainable Design Requirements" specifies requirements for submittal of documentation required to support LEED or Green Globes certification.

13. Division 01 Section 01 91 00 "Commissioning" specifies requirements for submittal of quality assurance documentation related to commissioning.

1.3 DEFINITIONS:

A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended and as identified in the Specification Divisions 02 through 49.

1. Preparation of Coordination Drawings is specified in Division 01 Section 01 31 00 "Project Management and Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.

B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.4 SUBMITTAL PROCEDURES:

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

b. The Architect reserves the right to reject incomplete submitted packages.

3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals.

a. Allow fourteen (14) days for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.

b. If an intermediate submittal is necessary, process the same as the initial submittal.

c. Allow fourteen (14) days for reprocessing each submittal.

d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

B. **Submittal Preparation:** Place a permanent label, title block or 8-1/2 inches x 11 inches cover page approved by the Architect, on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. The minimum number of copies required for each submittal shall be seven (7) or as determined otherwise at the pre-construction conference or by the Construction Administrator.

2. Provide a space approximately 4 inches by 5 inches on the label, beside the title block or on the cover page on Shop Drawings to record the Contractor's review and approval markings and the action taken.

3. Include the following information on the label for processing and recording action taken.

a. Project Name and State of Connecticut Project Number.

b. Date.

c. Name and address of the Architect, Construction Administrator, and Owner Representative.

d. Name and address of the Contractor.

e. Name and address of the subcontractor.

f. Name and address of the supplier.

g. Name of the manufacturer.

h. Number and title of appropriate Specification Section.

i. Drawing number and detail references, as appropriate.

j. Indicate either initial or resubmittal.

k. Indicate deviations from Contract Documents.

l. Indicate if "equal" or "substitution".

C. **Submittal Transmittal:** Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. Copy the Construction Administrator on the transmittal. The Architect will return all submittals to the Contractor after action is taken with a complete copy of the submittal package and one complete copy of the submittal package. The Architect will not accept submittals received from sources other than the Contractor.

1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

1.5 SUBMITTAL SCHEDULE:

A. After development and review by the Owner and Architect acceptance of the Contractor's Construction or CPM schedule prepare a complete schedule of submittals. Submit the schedule to the Construction Administrator within thirty (30) days of Contract Award.

1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor’s Construction or CPM Schedule.

2. Prepare the schedule in chronological order. Provide the following information:

a. Schedule date for the initial submittal.

b. Related section number.

c. Submittal category (Shop Drawings, Product Data, or Samples).

d. Name of Subcontractor.

e. Description of the part of Work covered.

f. Scheduled date for resubmittal.

g. Scheduled date for the Architect’s final release of approval.

B. **Submittal Schedule:** Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's Contractor’s Construction or CPM Schedule.

2. **Initial Submittal:** Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. **Final Submittal:** Submit concurrently with the first complete submittal of Contractor's construction schedule.

a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

C. **Coordination:** Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each specification section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same specification section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

D. **Processing Time:** Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. **Initial Review:** Allow fifteen 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination with related submittals not yet received. Additional time will be required if processing must be delayed to permit review of related subsequent submittals.
2 **Intermediate Review:** If intermediate submittal is necessary, process it in same manner as initial submittal.
3. **Resubmittal Review:** Allow fifteen 15 days for review of each resubmittal.
4. **Mass Submittals:** Six (6) or more submittals in one (1) day or twenty (20) or more submittals in one (1) week. If “Mass Submittals” are received, Architect’s review time stated above may be extended as necessary to perform proper review. Architect will review “Mass Submittals based upon priority determined by Architect after consultation with Owner and Contractor.

E. **Distribution:** Following response to the initial submittal, print and distribute copies to the Construction Administrator, Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

F. **Schedule Updating:** Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.6 DAILY CONSTRUCTION REPORTS:

A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Construction Administrator at weekly intervals:

1. List of subcontractors at the site.
2. Approximate count of personnel at the site.
3. High and low temperatures, general weather conditions.
4. Accidents and unusual events.
5. Meetings and significant decisions.
6. Stoppages, delays, shortages, and losses.
7. Meter readings and similar recordings.
8. List of equipment on site and identify if idle or in use.
9. Orders and requests of governing authorities.
10. Change Orders received, start and end dates.
11. Services connected, disconnected.
12. Equipment or system tests and startups.

13. Partial Completion's, occupancies.
14. Substantial Completion's authorized.
15. Equals or Substitutions approved or rejected.

1.7 SHOP DRAWINGS:

A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.

B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:

1. Dimensions.

2. Identification of products and materials included by sheet and detail number.

3. Compliance with specified standards.

4. Notation of coordination requirements.

5. Notation of dimensions established by field measurement.

6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.

7. Submit one (1) reproducible media and seven (7) prints as directed by the Construction Administrator. The Contractor's submittal shall identify the specification section and/or drawing number applicable to the submittal.

8. Details shall be large scale and/or full size.

C. The Contractor shall review the Shop Drawings, stamp with this approval, and submit them with reasonable promptness and in orderly sequence so as to cause no delay in his Work or in the Work of any subcontractor. Shop Drawings shall be properly identified as specified for item, material, workmanship, and project number. At the submission, the Contractor shall inform the Architect, in writing of any deviation in the shop drawings from the requirements of the Contract Documents.

D. The Architect will review and comment on shop drawings with reasonable promptness so as to cause no delay, but only for conformance with the design concept of the project and with the information given in the Contract Documents. Refer to Article 5 of the General Conditions. Shop Drawings received by the Architect that indicate insufficient study of drawings and specifications, illegible portions or gross errors, will be rejected outright. Such rejections shall not constitute an acceptable reason for granting the Contractor additional time to perform the work.

E. The Contractor shall make any corrections required by the Architect and shall resubmit the required number of corrected copies of Shop Drawings until fully reviewed.

F. Upon final review submit four (4) additional prints, same as submitted, for use by the Construction Administrator.

G. The Architect's review and comments on Shop Drawings shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents.

H. Only final reviewed Shop Drawings are to be used on the Project site.

I. The Work installed shall be reviewed in accordance with the Shop Drawings and the drawings and specifications. Final Review of the Shop Drawings by the Architect shall constitute acceptance by the State and the Architect of a variation or departure that is **clearly identified**. If the contractor believes notations made by the A/E increases the value or scope of the CD's, the contractor must provide written notice to the CA within seven (7) days of this issue. Final reviewed Shop Drawings shall not replace or be used as a vehicle to issue or incorporate change orders or substitutions. Substitutions shall be submitted in accordance with Division 01 Section 01 25 00 "Substitution Procedures".

1.8 SHOP DRAWINGS FOR FIRE PROTECTION SYSTEMS:

A. Shop drawings for fire protection systems shall comply with all of the requirements in the section above "Shop Drawings". In addition Sprinkler system shop drawings and hydraulic calculations must be stamped by a professional engineer licensed in the state of Connecticut and must include the DAS/CS project number. **Two (2)** sets of information [as noted in this Section 01 33 00 "Submittal Procedures"] shall be submitted to the State's Insurance Carrier (SIC), and **one (1)** set shall be submitted to the Office of the State Fire Marshal (OSFM):

1. Office of State Fire Marshal:
CT Department of Administrative Services
Construction Services
Office of State Fire Marshal
450 Columbus Boulevard, Suite 1304
Hartford, Connecticut 06103
Phone: (860) 713-5750

2. State Insurance Carrier (SIC):
FM Global Boston Operations
Plan Review
1175 Boston-Providence Turnpike
PO Box 9102
Norwood, MA 02062
Tel: (781) 440-8241 or FAX (781) 440-8742
bostonleadengineer@fmglobal.com

B. Before the shop drawings are submitted to SIC or OSFM, the A/E's fire protection consultant must review the sprinkler design for compliance with the code, OSFM, and FM Global requirements.

C. The State Insurance Carrier requires two (2) weeks prior notice of a sprinkler system acceptance test.

1.9 SHOP DRAWINGS FOR ROOFING SYSTEMS:

A. **Construction Phase Requirements:** During product submittals and shop drawing review for Roofing Systems the Consultant shall verify FM Global requirements are satisfied for all relevant components. The DAS/CS PM and Construction Administer for the Project shall submit the Contractor's roofing systems product information and shop drawings to the Consultant and FM Global. Shop drawings for roofing systems shall comply with all of the requirements in the section above "Shop Drawings". **Two (2)** sets of information [as noted in this Section 01 33 00 "Submittal Procedures"] shall be submitted to the State's Insurance Carrier (SIC):

1. State Insurance Carrier (SIC):
FM Global Boston Operations
Plan Review
1175 Boston-Providence Turnpike
PO Box 9102
Norwood, MA 02062
Tel: (781) 440-8241 or FAX (781) 440-8742
bostonleadengineer@fmglobal.com

B. The State Insurance Carrier requires **two (2)** weeks prior notice of roofing system shop drawing reviews.

C. See Section **00 30 60 General Statement For FM Global Checklist For Roofing Systems** and **Section 50 60 00 FM Global Checklist for Roofing Systems.**

1.10 PRODUCT DATA:

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, schedules, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:

a. Manufacturer's printed recommendations.

b. Compliance with trade association standards.

c. Compliance with recognized testing agency standards.

d. Application of testing agency labels and seals.

e. Notation of dimensions verified by field measurement.

f. Notation of coordination requirements.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

3. **Preliminary Submittal:** Submit a preliminary single copy of Product Data where selection of options is required.

4. **Submittals:** Submit seven (7) copies of each required submittal; submit five (5) copies where required for maintenance manuals. The Architect will retain one (1) and will return the other marked with action taken and corrections or modifications required.

a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

5. **Distribution:** Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

a. Do not proceed with installation until a copy of Product Data is in the Installer's possession.

b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.11 SAMPLES:

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.

1. Store, mount or display Samples on site in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:

a. Specification Section number and reference.

b. Generic description of the Sample.

c. Sample source.

d. Product name or name of the manufacturer.

e. Compliance with recognized standards.

f. Availability and delivery time.

2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least three (3) multiple units that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.

3. **Preliminary Submittals:** Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices, unless otherwise noted in specification section.

a. The Architect will review and return preliminary submittals with the Architects notation, indicating selection and other action.

4. **Submittals:** Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit three (3) sets. The Architect will return one (1) set marked with the action taken.

5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.

a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. **Distribution of Samples:** Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.

a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.12 QUALITY ASSURANCE SUBMITTALS:

A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.

B. **Certifications:** Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

1. **Signature:** Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.

C. **Inspection and Test Reports:** Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 01 Section 01 45 00 "Quality Control."

1.13 ARCHITECT'S ACTION:

A. Except for submittals for the record or information, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. **Action Stamp:** The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:

1. **No Exception Taken:** Means that fabrication, manufacture or construction may proceed, providing submittal complies with Contract Documents. Contractor assumes sole responsibility for the required compliance. No response is required of the Contractor. Final payment depends on that compliance.

2. **Make Corrections Noted:** Means that fabrication, manufacture or construction may proceed, provided submittal is amended and resubmitted to comply with Architect’s notations and the Contract Documents, or the Contractor confirms in writing that he will do so. If for any reason, Contractor cannot confirm compliance with notations, Contractor shall resubmit as described for submittal stamped Rejected. Submit corrected copies for record. Final payment depends on that compliance.

3. **Rejected:** Means that submittals does not comply with Contract Documents, and that fabrication, manufacture, purchasing, delivery or construction as submitted must not proceed under any circumstances. Submittals stamped Rejected are not permitted on job site. **a.** Do not use, or allow others to use, submittals marked "Rejected" at the Project Site or elsewhere where Work is in progress.
4. **Revise and Resubmit:** Means that fabrication, manufacture, purchasing, delivery or construction may not proceed until submittal is amended and resubmitted to comply with Architects notations and the Contract Documents. Repeat if necessary to obtain different action mark. Submittals stamped Revise and Resubmit are not permitted on job site
5. **Other Action**: Where a submittal is for information or record purposes or special processing or other activity, the Architect will return the submittal marked "Action Not Required."

C. **Unsolicited Submittals:** The Architect will discard unsolicited submittals without action.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 33 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 00 General Conditions of the Contract for Construction for Design-Bid-Build and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for performing alteration and renovation Work.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating cutting and patching with other construction activities.

3. Division 01 Section 01 73 29 "Cutting and Patching" for procedures for cutting and patching.

4. Division 01 Section 01 74 19 "Construction Waste Management & Disposal" for the requirements for waste management goals, waste management plan and waste management plan implementation.

5. Refer to other Sections for specific requirements and limitations applicable to performing alteration Work with individual parts of the Work.

C. Definitions:

1. Clean Fill: Either (1) natural soil or (2) rock, brick, ceramics, concrete, and asphalt paving fragments which are virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard.

2. Contaminated Soil: Treated or untreated soil and/or sediment affected by a known or suspected release and determined, or reasonably expected to contain substances exceeding Residential Direct Exposure Criteria or GA Pollutant Mobility Criteria, as these terms are defined in the Remediation Standard Regulations (RCSA Section 22a-133k-1).

3. Hazardous Soil: Soil that is classified as a hazardous waste. Soil is classified as hazardous waste if it exhibits a hazardous waste characteristic or if it contains RCRA-listed hazardous constituents above Connecticut's RCRA "Contained-In" Policy dated May 2002.

4. Natural Soil: Soil in which all substances naturally occurring therein are present in concentrations not exceeding the concentrations of such substance occurring naturally in the environment and in which soil no other substance is analytically detectable.

5. Polluted Soil: Soil affected by a release of a substance at a concentration above the analytical detection limit for such substance in accordance with RCSA 22a-133k-1(a)(45) or for naturally occurring substance at a concentration that exceeds concentrations that naturally occur in the environment.

6. Regulated Soil: Includes Polluted Soil, Contaminated Soil, and Hazardous Soil.

7. Groundwater Remediation Wastewater: Wastewater generated in connection with investigating pollution or remediating polluted groundwater or soil. Groundwater remediation wastewater includes without limitation groundwater withdrawn from a groundwater recovery well; groundwater which collects in an excavation or foundation drain or other subsurface facility or structure; groundwater contaminated runoff and stormwater impacted by on-site pollutants from any construction activity; condensate resulting from construction or maintenance of a soil vapor extraction system; and wastewater generated by developing, testing, sampling, or purging a well.

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New materials: As specified in product sections; match existing Products and Work for patching and extending Work.

B. Type and Quality of Existing Products: Determine by inspecting and testing Products where necessary, referring to existing Work as a standard.

2.2 SALVAGEABLE MATERIALS

A. The Contractor shall coordinate with Owner any salvageable items prior to removing from premises and transporting said items.

B. The Contractor shall notify the Construction Administrator in writing seven (7) days prior to removing all coordinated salvageable items from the existing alteration project location and unloading all salvageable items at project site and store items in the appropriate location as directed by Construction Administrator (DAS) personnel.

PART 3 - EXECUTION

3.1 INSPECTION

A. General:

1. Observe all existing conditions prior to submitting a bid. Include in the bid, existing conditions and their impact, particularly to cost and health and safety of workers and occupants, and proper function and operation of the facility. Be aware of other work being performed. Failure to visit the site shall in no way provide relief from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the Contract Documents without additional cost to the Owner. All site visits shall be scheduled with the Owner.

2. The quantities, locations and the extent of work indicated are best estimates, which are limited by the physical constraints imposed by occupancy of the facility. Consider all aspects of the substrates within the identified plan area. Material information and quantities were obtained from site surveys. Accordingly, variations (plus or minus 10 percent) in quantities within the limits of the work area are considered as having no impact on contract sum and contract performance period. Where additional abatement work is required beyond the above variations, the contract sum and contract performance period shall be adjusted under provisions of Division 01 of the Specifications.

3. Verify that demolition is complete and areas are ready for installation of new Work.

4. Beginning of restoration Work means acceptance of existing conditions.

B. Project Procedures for Work Involving Asbestos Containing Material (ACM):

1. The Owner is responsible for abating all **Asbestos Containing Material (ACM)** that is visible and accessible. This is to be accomplished through a separate project prior to the start of the renovation project.

2. In **demolition projects**, **every attempt** should be made by the Owner to **remove all ACM**.

3. If testing for asbestos has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair, then the results of the asbestos testing are summarized in Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of asbestos. The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

4. If the Contractor should encounter any material suspected or known to contain asbestos **not previously identified and assigned as the Contractor's responsibility**, then the Contractor should immediately notify the Construction Administrator **in writing** of same. It is the Owner's responsibility to have the material tested and abated (if necessary). The Owner will respond within twenty four (24) hours after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. The Owner will abate ACM (if necessary) within a reasonable time period, i.e. within seven (7) calendar days.

4.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for** the **abatement and disposal of the ACM**, then the compensation to the Contractor by Owner for the Work shall be determined by the **"Unit Prices"** stated in **Section 01 20 00 Contract Considerations.**

5. No attempt has been made to locate hazardous material associated with existing site utilities, though it is presumed that at least some asbestos may be discovered associated with underground piping during the course of site and site utilities work. If and when such materials appear, the Contractor shall notify the Owner, who shall direct additional work outside of this Agreement to assist in cutting up and disposing of

same. The Contractor shall assist the hazardous materials contractor(s) with excavating, heavy lifting, and the like at no additional cost to the Owner.

C. Project Procedures for Work Involving Lead-Based Paint (LBP):

1. The Owner is responsible for abating all **Lead-Based Paint (LBP)** prior to the start of any Work involving renovation, demolition, reconstruction, alteration, remodeling, or repair (if necessary), unless noted differently below or specified differently elsewhere.

2. The Owner shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations as specified in this **Section 01 35 16 Alteration Project Procedures**.

3. If testing for LBP has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair, then the results of the LBP testing are summarized in Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of LBP. The Contractor shall be responsible for verification of all field conditions affecting performance of the Work.

4. If the Contractor should encounter any material suspected or known to contain **LBP that was not previously identified and assigned as the Contractor's responsibility,** then the Contractor should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within four (4) Calendar Days after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. The Owner will abate LBP (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.

4.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of the LBP**, then the compensation to the Contractor by Owner for the Work shall be determined by the **"Unit Prices"** stated in **Section 01 20 00 Contract Considerations.**

5. Exposure levels for lead in the construction industry are regulated by 29 CFR 1926.62. Construction activities disturbing surfaces containing lead-based paint (LBP) which are likely to be employed, such as sanding, grinding, welding, cutting and burning, have been known to expose workers to levels of lead in excess of the Permissible Exposure Limit (PEL). Conduct demolition and removal Work specified in the technical sections of this specification in conformance with these regulations. In addition, construction debris/waste may be classified as hazardous waste. Disposal of hazardous waste material shall be in accordance with 40 CFR Parts 260 through 271 and Connecticut Hazardous Waste Management Regulations Section 22a-209-1; 22a-209-8(c); 22a-449(c)-11; and 22a-449(c)-100 through 110.

6. The Contractor's Work shall be based on a child under the age of six (6) years in residence; the Work shall also be in accordance with Connecticut Regulations Section 19a-111-1 through 11.

7. If this facility was constructed **prior to 1978** it is likely to have painted surfaces containing lead-based paint.

8. In accordance with the United States Environmental Protection Agency's (EPA) Lead-Based Paint Renovation, Repair, and Painting Program (RRP) issued by the EPA on April 22, 2008, as amended, and regulated by 40 CFR 745, contractors performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities, and schools built before 1978 must be certified and must follow specific work practices to prevent lead contamination. EPA requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in pre-1978 homes, child care facilities and schools be certified by EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices. The Contractor must be a Renovation Firm that has completed an EPA Lead-Safe Certification Program and be certified to conduct lead-based paint activities and renovations under the RRP rule. The Contractor shall have at least one "Certified Renovator" assigned to jobs where LBP is disturbed.

D. Project Procedures for Work Involving Polychlorinated Biphenyls (PCBs) in Building Materials:

1. If this facility was constructed between 1950 and 1978, it is likely to have caulk and/or glazing containing PCBs.

2. The Owner is responsible for abating all **Polychlorinated Biphenyls (PCBs) in Building Materials** prior to the start of any Work involving construction, renovation or demolition (if necessary), unless noted differently below or specified differently elsewhere.

3. The Owner shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations as specified in Section 01 35 16 Alteration Project Procedures.

4. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for PCBs in Building Materials such as caulk and glazing or other types of material, then the results are located in Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory at the end of the Technical Specification Sections; otherwise the Owner assumes such materials do not warrant testing. It is the Owner's responsibility to have the material tested, not the Contractor, subcontractors or anyone working on behalf of the Contractor.

5. In the case where the Owner has a survey of locations with results and if the Contractor should encounter new areas of the subject material already identified by the survey, then he should immediately notify the Construction Administrator in writing of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within four (4) Calendar Days after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. The Owner will abate PCBs in Building Materials (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.

5.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of the PCBs in Building Materials,** then the compensation to the Contractor by Owner for the Work shall be determined by the **"Unit Prices"** stated in **Section 01 20 00 Contract Considerations.**

6. The work shall be performed by persons who are knowledgeable, qualified, and trained in the removal, treatment, handling, and disposal of PCB contaminated wastes and the subsequent cleaning of the affected environment. These Specifications govern all work activities that disturb PCB-containing caulk and glazing and associated building material. All activities shall be performed in accordance with, but not limited to, OSHA Regulation 29 CFR 1926, the United States Environmental Protection Agency's PCB Regulation 40 CFR Part 761, Connecticut General Statutes 22a-463 through -469 inclusive, and the PCB Site Remedial Plan where applicable.

E. Project Procedures for Work Involving Mold:

1. The Owner is responsible for abating all Mold (any form of fungi, including mold or mildew, and myotoxins, spores, scents or by-products produced or released by fungi) prior to the start of any Work involving renovation, demolition, reconstruction, alteration, remodeling, or repair (if necessary), unless noted differently below or specified differently elsewhere.

2. The Owner shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations as specified in Section 01 35 16 Alteration Project Procedures.

3. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for Mold, then the results are located in Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of Mold. It is the Contractor's responsibility to verify all materials and field conditions prior to renovation, demolition, reconstruction, alteration, remodeling, or repair that may affect the performance of their Work.

4. If the Contractor should encounter any material suspected or known to contain **Mold that was not previously identified and assigned as the Contractor's responsibility,** he should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within four (4) Calendar Days after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. The Owner will abate Mold (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.

4.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the abatement and disposal of Mold,** then the compensation to the Contractor by Owner for the Work shall be determined by the **"Unit Prices"** stated in **Section 01 20 00 Contract Considerations.**

5. Disposal of all hazardous materials shall be in accordance with but not limited to applicable provisions of 40 CFR Parts 761 Subpart K, 761, and 761.65 and the Connecticut General Hazardous Waste Statute Sec. 22a-454.

F. Project Procedures for Work Involving Hazardous Materials, Wastes, and Items and Universal Wastes (Including Products Containing Persistent Bioaccumulative Toxic Chemicals" (PBTs) such as Polychlorinated Biphenols (PCBs), Di-2-ethylhexyl Phthalate (DEHP), and Mercury):

1. The Owner is responsible for abating all **Hazardous Materials, Wastes, and Items and Universal Wastes** including products containing Persistent Bioaccumulative Toxic Chemicals" (PBTs) such as Polychlorinated Biphenols (PCBs), Di-2-ethylhexyl Phthalate (DEHP), and Mercury prior to the start of any Work involving renovation, demolition, reconstruction, alteration, remodeling, or repair (if necessary), unless noted differently below or specified differently elsewhere.

2. If a Hazardous Materials, Wastes, and Items and Universal Wastes Inventory has been conducted at the facility scheduled for renovation, demolition, reconstruction, alteration, remodeling, or repair, then the results of the inventory are summarized in Division 50 00 00 Project-Specific Available Information, Section 50 30 00 Hazardous Building Materials Inspection and Inventory at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of Hazardous Materials, Wastes, and Items and Universal Wastes. The Contractor shall be responsible for verification of all field conditions affecting performance of the Work

3. If the Contractor should encounter any Hazardous Materials, Wastes, and Items and Universal Wastes **that were not previously identified and assigned as the Contractor's responsibility,** then the Contractor should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the material tested and abated (if necessary). The Owner will respond within four (4) Calendar Days after receiving the Contractor's written request to the Construction Administrator for testing the suspect material. The Owner will abate Hazardous Materials, Wastes, and Items and Universal Wastes (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.

4. Exposure Levels for PBTs such as PCBs, DEHP, and mercury in the construction industry are regulated by 29 CFR 1910.1200 and 29 CFR 1926.28 et. al. Demolition and removal work may expose workers in excess of the respective Permissible Exposure Limit (PEL). Conduct demolition and removal work specified in the technical sections of these specifications in conformance with these regulations.

5. Examples of Hazardous Materials, Wastes, and Items and Universal Wastes include, but are not limited to, fluorescent light fixtures and exit signs, ballasts, high-intensity discharge (HID) lamps, certain types of construction products containing vinyl, mercury containing electrical switches, gauges, and thermostats; PCB Capacitors, refrigerants, pressurized cylinders, smoke/carbon dioxide detectors, used electronics, batteries, transformer/hydraulic fluids/oils, and miscellaneous household hazardous waste.

6. For the purposes of this paragraph, **PCB's in building material such as caulk and glazing or any other type of material not listed above is not applicable to this paragraph**.

7. Construction debris/waste may be classified as hazardous waste. Disposal of all hazardous materials shall be in accordance with but not limited to applicable provisions of 40 CFR Parts 761 Subpart K, 761, and 761.65 and the Connecticut General Hazardous Waste Statute Sec. 22a-454.

G. Project Procedures for Work Involving Regulated Soils:

1. The Owner is responsible for the excavation, staging, loading, transportation, and disposal of all Regulated Soils prior to the start of any Work involving renovation, demolition, reconstruction, alteration, remodeling, or repair (if necessary), unless noted differently below or specified differently elsewhere.

2. The Owner shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations and as specified in Section 01 35 16 Alteration Project Procedures and Section 01 20 00 Contract Considerations, Section 01 35 29 Environmental Health and Safety, Section 01 50 00 Temporary Facilities and Controls, Section 31 10 00 Site Clearing, Section 31 20 00 Site Earth Moving, Section 31 23 14 Structural Excavation and Backfill, Section 50 00 00 Project-Specific Additional Information.

3. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for Regulated Soils, then the results are located in Division 50 00 00 Project-Specific Available Information, Section 50 20 00 Environmental Assessment Information at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of Regulated Soil. It is the Contractor's responsibility to verify

all materials and field conditions prior to renovation, demolition, reconstruction, alteration, remodeling, or repair that may affect the performance of their Work.

4. If the Contractor should encounter any **Regulated Soil that was not previously identified and assigned as the Contractor's responsibility,** he should immediately notify the Construction Administrator **in writing** of same. It is the State's responsibility to have the soil tested and remediated (if necessary). The Owner will respond within four (4) Calendar Days after receiving the Contractor's written request to the Construction Administrator for testing the suspect soil. The Owner will remediate and dispose of the regulated soil (if necessary) within a reasonable time period, i.e. within ten (10) calendar days.

4.1 When the **Owner** requests the **Contractor** undertake the responsibilities **for the remediation and disposal of all Regulated Soils,** then the compensation to the Contractor by Owner for the Work shall be determined by the **"Unit Prices"** stated in **Section 01 20 00 Contract Considerations.**

5. Disposal of all hazardous materials shall be in accordance with but not limited to applicable provisions of 40 CFR Parts 761 Subpart K, 761, and 761.65 and the Connecticut General Hazardous Waste Statute Sec. 22a-454.

H. Project Procedures for Work Involving Contaminated Groundwater:

1. The Owner is responsible for the permitting and disposal of Contaminated Groundwater prior to the start of any Work involving renovation, demolition, reconstruction, alteration, remodeling, or repair (if necessary), unless noted differently below or specified differently elsewhere.

2. The Owner shall conduct all demolition and removal Work, specified in the Technical Specifications Sections of this Project Manual, in conformance with the regulations and as specified in Section 01 35 16 Alteration Project Procedures and Section 01 50 00 Temporary Facilities and Controls.

3. If the Owner has tested the facility scheduled for renovation, demolition, reconstruction alteration, remodeling or repair for Contaminated Groundwater, then the results are located in Division 50 00 00 Project-Specific Available Information, Section 50 20 00 Environmental Assessment Information at the end of the Technical Specification Sections. Under no circumstance shall this information be the sole means used by the Contractor for determining the extent of Contaminated Groundwater. It is the Contractor's responsibility to verify all materials and field conditions prior to renovation, demolition, reconstruction, alteration, remodeling, or repair that may affect the performance of their Work.

4. If the Contractor should encounter any Contaminated Groundwater that was not previously identified, characterized, permitted, and assigned as the Contractor's responsibility, he should immediately notify the Construction Administrator in writing of same. It is the State's responsibility to have the groundwater tested and abated (if necessary). The Owner will respond within four (4) Calendar Days after receiving the Contractor's written request to the Construction Administrator for testing the suspect groundwater. The Owner shall arrange for the permitting and disposal of the Contaminated Groundwater if necessary) within a reasonable time period, i.e. within ten (10) calendar days.

I. See also **General Conditions Article 23 "Cutting, Fitting, Patching and Digging".**

3.2 PREPARATION

A. Cut, move, or remove items as are necessary for access to alteration and renovation Work. Replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.

E. Close openings in exterior surfaces to protect existing Work and salvageable items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.3 INSTALLATION

A. Coordinate alteration and renovation Work to expedite completion, and if required sequence Work to accommodate Owner occupancy.

B. Remove, cut and patch Work in a manner to minimize damage and to provide restoring products and finishes to original and or specified condition in accordance with **Section 01 73 29 "Cutting and Patching".**

C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with neat transition to adjacent finishes in accordance with **Section 01 73 29 "Cutting and Patching".**

D. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

E. Recover and refinish Work that exposes mechanical and electrical Work exposed accidentally during the Work.

F. Install products as specified in individual specification sections.

3.4 TRANSITIONS

A. Where new Work abuts or aligns with existing, perform a smooth and even transition. Patch work to match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.

3.5 ADJUSTMENTS

A. Where removal of partitions or walls result in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

B. Where a change of plane of 1/4-inch in (12) inches or more occurs, request recommendation from Architect/Engineer for providing a smooth transition.

C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.

D. Fit Work at penetrations of surfaces as specified in **Section 01 73 29 "Cutting and Patching".**

3.6 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing imperfections.

B. Repair substrate prior to patching finishes.

3.7 FINISHES

A. Finish surfaces as specified in individual product specification sections.

B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.8 CLEANING

A. In addition to cleaning specified in **Section 01 50 00 "Temporary Facilities and Controls",** clean Agency occupied areas of Work.

END OF SECTION 01 35 16

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PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This guide specification covers construction safety requirements and requirements for the protection of people, property, and resources. It is intended for use in construction, renovation, and demolition projects for the State of Connecticut Department of Administrative Services (DAS) / Construction Services (CS).

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 33 00 Submittal Procedures specifies the requirements for submittal requirements;
2. Division 01 Section 01 31 19 "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.

1.3 REFERENCES

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

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE) www.asse.org/publications/	
ASSE/SAFE A10.32	(2004) Fall Protection
ASSE/SAFE A10.34	(2001; R 2005) Protection of the Public on or Adjacent to Construction Sites
ASSE/SAFE Z359.1	(2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) www.asme.org/Codes/	
ASME B30.22	(2005) Articulating Boom Cranes
ASME B30.3	(2004) Construction Tower Cranes
ASME B30.5	(2004) Mobile and Locomotive Cranes
ASME B30.8	(2004) Floating Cranes and Floating Derricks
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) www.nfpa.org/	
NFPA 10	(2007) Portable Fire Extinguishers
NFPA 51B	(2009) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 241	(2004) Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2008) National Electrical Code
NFPA 70E	Standard for Electrical Safety in the Workplace
CODE OF FEDERAL REGULATIONS (CFR) www.archives.gov/federal-register/cfr/	
10 CFR	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.28	Safety Requirements For Scaffolding.
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	Control Of Hazardous Energy (Lockout/Tagout)
29 CFR 1910.178	Powered industrial trucks.
29 CFR 1915	Confined and Enclosed Spaces and Other
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection
29 CFR 1926.550	Cranes and Derricks
US Army Core of Engineers (USACE)	

www.iwr.usace.army.mil	
EM 385-1-1	Safety, and Health Requirements Manual (2008),

1.4 SUBMITTALS

A. An "O" followed by "A" indicates that the Owner acceptance; submittals not having an "O" designation are for Contractor Quality Control approval.

B. Submittal Procedures:

1. Preconstruction Submittals:
   a. Accident Prevention Plan (APP): “O, A”;
   b. Activity Hazard Analysis (AHA); “O, A”;
   c. Crane Critical Lift Plan; “O, A”;
   d. Proof of qualification for Crane Operators; O, A.
2. Test Reports: Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."
   a. Accident Reports;
   b. Monthly Exposure Reports;
   c. Crane Reports;
   d. Regulatory Citations and Violations;
   e. Gas Protection.
3. Certificates:
   a. Confined Space Entry Permit;
   b. Hot work permit;
   c. License Certificates.
   d. Certificate of Compliance – Crane

1.5 DEFINITIONS

A. Competent Person. A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

B. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

C. Confined Space: A space which by design has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include, but are not limited to storage tanks, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.

D. High Visibility Accident: Any mishap which may generate publicity and/or high visibility.

E. Medical Treatment; Medical treatment includes 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.

F. Operating Envelope: The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers and crane walkers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).

G. Qualified Person for Fall Protection: A person with a recognized degree or professional certificate and with extensive knowledge, training and experience in the field of fall protection; who is capable of performing design, analysis, and evaluation of fall protection systems and equipment.

H. Recordable Injuries or Illnesses: Any work-related injury or illness that results in:
1. Death, regardless of the time between the injury and death, or the length of the illness;
2. Days away from work (any time lost after day of injury/illness onset);
3. Restricted work;
4. Transfer to another job;

5. Medical treatment beyond first aid;
6. Loss of consciousness; or
7. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

I. Weight Handling Equipment (WHE) Accident: A WHE accident occurs when any one or more of the six 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; and/or collision, including unplanned contact between the load, crane, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered an accident 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, roll over, etc.).]

1.6 REGULATORY REQUIREMENTS

A. In addition to the detailed requirements included in the provisions of this Section see, **Division 01, Section 01 42 20 "Reference Standards and Definitions"** for other state laws, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, regulations, and referenced documents vary, the most stringent requirements govern.

1.7 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

A. Personnel Qualifications:

B. Site Safety and Health Officer (SSHO):

1. Provide a Site Safety and Health Officer (SSHO) at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can be the SSHO on this project, if meets all the qualifications for each position and meet the following requirements within the SSHO:

Level 1: Worked on similar projects. 10-hour OSHA construction safety class or equivalent within last three (3) years. Competent person training as needed.

C. Crane Operators:

Meet the Crane Operators and Crane Operation requirements of the Connecticut Bureau of License and Permits – Cranes, Department of Administrative Services, Office of State Fire Marshal pursuant to C.G.S § 29-221 through 29-230. Provide proof of current license and qualification. For more information visit the DAS website (www.ct.gov/DAS) > Licensing, Certification, Permitting and Codes > Cranes, or call **(860) 713-5580 or (860) 713-5529**.

D. Personnel Duties:

1. 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 quality control report.
b. Conduct mishap investigations and complete required reports. Maintain the **OSHA Form 300 and Daily Production** reports for prime and sub-contractors. For more information visit the OSHA website at **www.osha.gov** > Employers > Recordkeeping Requirements and Forms.
c. Maintain applicable safety reference material on the job site.
d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
e. Implement and enforce accepted APPS and AHAs.
f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. Post a list of unresolved safety and health deficiencies on the safety bulletin board.
g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

E. Meetings:

1. Preconstruction Conference:

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the **Accident Prevention Plan** (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 Owner's Representative(s) as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.

c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP.

2. Safety Meetings:

Safety meetings shall be conducted 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 health training and motivation.

a. Meetings shall be conducted at least once a month for all supervisors on the project location and at least once a week for all workers by supervisors or foremen.

b. Meetings shall be documented, including the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Documentation shall be maintained and copies furnished to the Construction Administrator (CA) on request.

c. The Construction Administrator (CA) shall be informed of all scheduled meetings in advance and be invited to attend.

1.8 ACCIDENT PREVENTION PLAN (APP):

A. Use a qualified person to prepare the written site-specific APP.

1. Prepare the APP in accordance with the format and requirements of **US Army Core of Engineers (USACE), Safety, and Health Requirements Manual, EM 385-1-1,** or as approved by the CA and as supplemented herein. Cover all paragraphs and subparagraph elements in **USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan"** or as approved by the CA. The USACE Safety, and Health Requirements Manual, EM 385-1-1 is available at the USACE Website **www.iwr.usace.army.mil.**

2. Specific requirements for some of the APP elements are described in **"B"** below. The APP shall be job-specific and address any unusual or unique aspects of the project or activity for which it is written.

B. The APP shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and made site-specific. The Owner considers the Prime General 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 shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated Certified Safety Professional (CSP) and/or Certified Industrial Hygienist (CIH).

C. Submit the APP to the DAS/CS Project Manager and Construction Administrator fourteen (14) Calendar Days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once accepted by the DAS/CS Project Manager and Construction Administrator, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the DAS/CS Project Manager and Construction Administrator, until the matter has been rectified. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the DAS/CS Project Manager and Construction Administrator, project superintendent, Site Safety and Health Officer **(**SSHO) and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the DAS/CS Project Manager and Construction Administrator within

Twenty-four (24) hours of discovery. Eliminate/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 **American Society of Safety Engineers**, **ASSE/SAFE A10.34 - Protection of the Public on or Adjacent to Construction Sites, see www.asse.org**) and the environment.

Copies of the accepted plan will be maintained at the Construction Administrator's office at the job site. Continuously reviewed and amended the APP, as necessary, throughout the life of the contract. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered.

D. APP Contents:
The contents of the Accident Prevention Plan (APP) shall be in accordance with **Appendix A** of the US Army Corps of Engineers, **EM 385-1-1 Safety and Health Requirements Manual**, Appendix A, Minimum Basic Outline for Accident Prevention Plans or as approved by the CA. For more information visit the USACE Website at **www.usace.army.mil/Library.**

1.9 ACTIVITY HAZARD ANALYSIS (AHA): Activity Hazard Analyses (AHAs) define the activities being performed and identify the sequences of work, the specific hazards anticipated, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk. The Activity Hazard Analysis (AHA) format shall be in accordance with US Army Corps of Engineers, **EM 385-1-1 Safety and Health Requirements Manual** or as approved by the CA.

A. Submittals:

1. Submit initial AHA to CA for review at least Fifteen (15**)** **Calendar Days** prior to the start of each phase. Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

2. The AHA list will be reviewed monthly at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change. Develop the activity hazard analyses using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the CA.

1.10 DISPLAY OF SAFETY INFORMATION

Within two (2) **Calendar Days** after commencement of work, erect a safety bulletin board at the job site. Include and maintain information on safety bulletin board as required by US Army Corps of Engineers, **EM 385-1-1 Safety and Health Requirements Manual**, Section 01.A.06 or as approved by the CA. Additional items required to be posted include:

A. Confined space entry permit.

B. Hot work permit.

1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.12 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. The Owner has no responsibility to provide emergency medical treatment.

1.13 REPORTS

A. Accident Reports

1. Conduct an accident investigation for recordable injuries and illnesses, and property damage accidents resulting in at least Two Thousand Dollars ($2,000) in damages, to establish the root cause(s) of the accident, complete "Accident Report Form" approved by the CA. Provide the report to the CA within five (5) Calendar Days of the accident.

B. Accident Notification

Notify the CA as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident.

1. Within notification include the following:

a. contractor name;

b. contract title;
c. type of contract;
d. name of activity,
e. installation or location where accident occurred;
f. date and time of accident;
g. names of personnel injured**;**
h. extent of property damage, if any; extent of injury, if known, and brief description of accident to include type of construction equipment used, Personal Protective Equipment (PPE) used, etc. Preserve the conditions and evidence on the accident site until the U.S. Department of Labor, Occupational Safety and Health Administration (USDOL-OSHA) investigation team arrives on-site and USDOL-OSHA investigation is conducted.

C. Monthly Exposure Reports

Monthly exposure reporting to the CA is required to be attached to the monthly Application for Payment request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. Provide on a form approved by the CA.

D. Crane Reports

Submit crane inspection reports on a form approved by the CA and as specified herein with Daily Reports of Inspections.

E. HOT WORK

Hot Work shall only be performed in accordance with the requirements of **NFPA 51B "Fire Prevention During Welding, Cutting and Other Hot Work Standard.**

1. Definitions:

a. Hot Work: Work involving burning, welding, or a similar operation that is capable of initiating fires or explosions. Examples listed by NFPA include arc welding, oxygen- fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.

b. Permit Authorizing Individual (PAI). Means the individual designated by the General Contractor to authorize hot work. The PAI is permitted to be, among others, the General Contractor's project executive, supervisor, foreperson, or designated safety administrator. The PAI CANNOT be the hot work operator, except as permitted in **NFPA 51B**. The PAI is aware of the fire hazards involved and is familiar with the provisions of this standard.

2. Permit: Submit and obtain a written permit from the PAI prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, from the PAI. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The General Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal.

3. Fire Watch: It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with **NFPA 51B Standard for Fire Prevention During Welding, Cutting, and Other Hot Work** and remain on-site for a minimum of 30 minutes 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 local fire department emergency phone number(s). ANY FIRE, NO MATTER HOW SMALL, SHAL BE REPORTED TO THE LOCAL FIRE DEPARTMENT, GENERAL CONTRACTOR'S AUTHORIZED REPRESENTATIVE, AND OWNER'S CA IMMEDIATELY.

1.14 FACILITY OCCUPANCY CLOSURE

Streets, walks, and other facilities occupied and used by the state User Agency shall not be closed or obstructed without written permission from the CA.

1.15 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/OR OTHER WORK

Comply with the Connecticut State Building and Fire Safety Codes, OSHA regulations, and other references regulations. The most stringent standard prevails.

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 **USACE 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-isocynates, lead-based paint are prohibited. The CA, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

3.1.3 UNFORESEEN HAZARDOUS MATERIAL

A. Related Section: Division 01, Section 01 35 16, Alteration Project Procedures.

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least five (5) **Calendar Days** in advance. As a minimum, the request should 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 CA, User Agency Representative, and Public Utilities representative 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 SAFETY LOCKOUT/TAGOUT PROCEDURES

A. The General Contractor shall ensure that each employee is familiar with and complies with these procedures and **OSHA 29 CFR 1910.147 Control Of Hazardous Energy (Lockout/Tagout).**

1. The General Contractor's "Authorized Employee" shall apply lockout/tagout tags and take other actions that, because of experience and knowledge, are known to be necessary to make the particular equipment safe to work on.
2. No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tagout tag attached to it, nor shall such tag be removed except as provided in this section.
3. No person shall work on any equipment that requires a lockout/tagout tag unless he, his immediate supervisor, project leader, or a subordinate has in his possession the stubs of the required lockout/tagout tags. Only qualified personnel shall perform work on electrical circuits.
4. A supervisor who is required to enter an area protected by a lockout/tagout tag will be considered a member of the protected group provided he notifies the holder of the tag stub each time he enters and departs from the protected area.
5. Identification markings on building light and power distribution circuits shall not be relied on for established safe work conditions.
6. Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks. Pressurized or vacuum systems shall be vented to relieve differential pressure completely. Vent valves shall be tagged open during the course of the work. Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, system or areas shall be purged, ventilated, or otherwise made safe prior to entry.

B. Tag Placement

Lockout/tagout tags shall be completed in accordance with the regulations printed on the back thereof and attached to any device which, if operated, could cause an unsafe condition to exist. If more than one group is to work on any circuit or equipment, the employee in charge of each group shall have a separate set of lockout/tagout tags completed and properly attached. When it is required that certain equipment be tagged, the State of Connecticut Authority Having Jurisdiction will review the characteristics of the various systems involved that affect the safety of the operations and the work to be done; take the necessary actions, including voltage and pressure checks, grounding, and venting, to make the system and

equipment safe to work on; and apply such lockout/tagout tags to those switches, valves, vents, or other mechanical devices needed to preserve the safety provided. This operation is referred to as "Providing Safety Clearance."

C. Tag Removal

When any individual or group has completed its part of the work and is clear of the circuits or equipment, the supervisor, project leader, or individual for whom the equipment was tagged shall turn in his signed lockout/tagout tag stub to the Contractor. That group's or individual's lockout/tagout tags on equipment may then be removed on authorization by the Contractor.

3.4 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

Establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify 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.

A. Training

Institute a fall protection training program. As part of the Fall Hazard Protection and Prevention 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 **USACE EM 385-1-1**, Section 21.A.16.

B. Fall Protection Equipment and Systems

Enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in **USACE EM 385-1-1, section 21.** In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with **USACE EM 385-1-1, paragraphs 05.H. and 05.I**. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with **OSHA 29 CFR 1926.500, Fall Protection, Subpart M, and ASSE/SAFE A10.32, Fall Protection.**

1. Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet **ASSE/SAFE Z359.1, Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.** Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall 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. Only locking snap
hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m 6 feet. The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken

2. Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(i) For work within 6 feet (6 feet (1.8 m) of an edge, on low-slope roofs, Protect personnel from falling by use of personal fall arrest systems, guardrails, or safety nets.

(ii) For work greater than (6 feet (1.8 m) from an edge, erect and install warning lines in accordance with **OSHA 29 CFR 1926.500, Fall Protection**.

b. Steep-Sloped Roofs: Work on steep-sloped roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3. Existing Anchorage
Certified (or re-certified) by a qualified person for fall protection existing anchorages, to be used for attachment of personal fall arrest equipment in accordance with **ASSE/SAFE Z359.1, Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.** Exiting horizontal lifeline anchorages must be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

4. Horizontal Lifelines
Design, install, certify and use under the supervision of a qualified person horizontal lifelines for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 **(OSHA 29 CFR 1926.500 Fall Protection).**

5. Guardrails and Safety Nets
Design, install and use guardrails and safety nets in accordance with **29 CFR 1926, Safety and Health Regulations for Construction Subpart M.**

6. Rescue and Evacuation Procedures
When personal fall arrest systems are used, the contractor must 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; 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).

3.5 SCAFFOLDING

A. The Contractor shall provide all employees with a safe means of access to the work area on the scaffold in accordance with **OSHA 29 CFR 1910.28 Safety Requirements For Scaffolding** and as contained in this section.

1. Climbing of any scaffold braces or supports not specifically designed for access is prohibited.

2. Access scaffold platforms greater than 20 feet (6 m) maximum in height by use of a scaffold stair system.

3. Do not use vertical ladders commonly provided by scaffold system manufacturers for accessing scaffold platforms greater than 20 feet (6 m) maximum in height.

4. The use of an adequate gate is required.

5. Ensure that employees are qualified to perform scaffold erection and dismantling.

6. Do not use scaffold without the capability 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.

7. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

8. Give special care to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited.

9. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Place work platforms on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. 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.

B. Stilts
The use of stilts for gaining additional height in construction, renovation, repair or maintenance work is **PROHIBITED**.

3.6 EQUIPMENT

A. Material Handling Equipment

Material Handling Equipment shall be in accordance with **OSHA 29 CFR 1910.178 Powered Industrial Trucks** and as contained in this section**.**

1. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

2. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

3. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

B. Weight Handling Equipment

1. Equip cranes and derricks as specified in **ASME B30.5** or **ASME B30.22** or **ASME B30.8** as applicable.

2. Comply with the crane 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.

3. Comply with **ASME B30.5** for mobile and locomotive cranes, **ASME B30.22** for articulating boom cranes, ASME B30.3 for construction tower cranes, and **ASME B30.8** for floating cranes and floating derricks.

4. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

5. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and follow the requirements of **ASME B30.5** or **ASME B30.22** as applicable.

6. Do not 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.

7. Inspect, maintain, and recharge portable fire extinguishers as specified in **NFPA 10, Standard for Portable Fire Extinguishers.**

8. All employees must keep clear of loads about to be lifted and of suspended loads.

9. Use cribbing when performing lifts on outriggers.

10. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

11. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

12. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by CA.

13. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by CA.

14. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

C. USE OF EXPLOSIVES

Explosives shall not be used or brought to the project site without prior written approval from the CA. Such approval shall not relieve the Contractor of responsibility for injury to persons or for damage to property

due to blasting operations. Storage of explosives, when permitted on State property, shall be only where directed and in approved storage facilities. These facilities shall be kept locked at all times except for inspection, delivery, and withdrawal of explosives. Explosive work shall be performed in accordance with the requirements of C.G.S. § 29-343 through 29-355 and as required by the Office of State Fire Marshal, CT Department of Construction Services.

3.7 EXCAVATIONS

A. Perform soil classification by a competent person in accordance with **29 CFR 1926 Safety and Health Regulations for Construction.**

1. Utility Locations

All underground utilities in the work area must be positively identified by and coordinated in accordance with **Division 00, General Conditions, Article 18 Surveys, Permits, And Regulations.** All underground utilities in the work area must be positively identified by a private utility locating service and coordinated with the public utility company. Any markings made during the utility investigation must be maintained by the General Contractor throughout the contract.

2. Utility Location Verification

The Contractor must physically verify underground utility locations 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. Digging within Two (2) feet (610 mm) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility expose the utility by hand digging every 100 feet (30.5 m) if parallel within Five (5) feet (1.5 m) of the excavation.

3. Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding must have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

4. Trenching Machinery

Operate trenching machines with digging chain drives only when the spotters/laborers are in plain view of the operator. Provide operator and spotters/laborers training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Keep documentation of the training on file at the project site.

3.8 UTILITIES WITHIN CONCRETE SLABS

A. Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with utility company in addition to a private locating service. 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.

3.9 ELECTRICAL

A. Conduct of Electrical Work

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. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the CA and utility company for identification. The CA will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. 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 will be 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 will be permitted to enter. When work requires Contractor to work near energized circuits as defined by the **NFPA 70**, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide 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.

B. Portable Extension Cords

Size portable extension cords in accordance with manufacturer ratings for the tool to be powered and protected from damage. Immediately remove from service all damaged extension cords. Portable extension cords shall meet the requirements of **NFPA 70.**

3.10 WORK IN CONFINED SPACES

A. Comply with the requirements in **OSHA 29 CFR 1910.146** and **OSHA 29 CFR 1926.21(b) (6).** Any potential for a hazard in the confined space requires a permit system to be used.

1. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

2. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.

3. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

END OF SECTION 01 35 26

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 DEFINITIONS:

A. **General:** Basic contract definitions are included in the General Conditions of the Contract for Construction.

B. **"Indicated":** The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, or other paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the reader locate the reference. Location is not limited to this term.

C. **"Directed":** Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by the Architect, requested by the Architect, and similar phrases.

D. **"Approved":** The term "approved," when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. **"Regulations":** The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

F. **"Furnish":** The term "furnish" means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. **"Install":** The term "install" describes operations at the Project Site including the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. **"Provide":** The term "provide" means to furnish and install, complete and ready for the intended use.

I. **"Installer":** An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term **"experienced,"** when used with the term **"installer,"** means having a minimum of **five (5)** previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of authorities having jurisdiction.

2. **Trades:** Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

3. **Assigning Specialists:** Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.

a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.

J. **"Project Site"** is the space available to the Contractor for performing construction activities, either exclusively or in conjunction, with others performing other Work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

K. **"Testing Agencies":** A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION:

A. **Specification Format:** These Specifications are organized into Divisions and Sections based on CSI's "MasterFormat" 49-Division format and numbering system.

B. **Specification Content:** This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. **Abbreviated Language:** Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be interpolated, as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.

2. **Streamlined Language:** The Specifications generally use the imperative mood and streamlined language. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.

a. The words **"shall be"** are implied where a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS:

A. **Applicability of Standards:** Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. **Publication Dates:** Comply with the standards in effect as of the date of the Contract Documents unless a specific date is indicated in the Contract Documents or the governing regulations cited herein.

C. **Conflicting Requirements:** Where compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent and highest quality requirement. Request a decision from the Architect before proceeding on requirements that are different but apparently equal, and where it is uncertain which requirement is the most stringent.

1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum acceptable. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Request a clarification from the Architect regarding uncertainties before proceeding.

D. **Copies of Standards:** Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.

E. **Abbreviations and Names:** Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Thompson Gale's "Encyclopedia of Associations," available in most libraries.

1.5 GOVERNING REGULATIONS AND AUTHORITIES:

A. **Copies of Regulations:** Obtain copies of the **"latest applicable State Codes"** and the following regulations and retain at the Project Site to be available for reference by parties who have a reasonable need during submittals, planning, and progress of the Work, until Substantial Completion.

1. Connecticut State Building Code - 2016.

1.1 CT Supplement – n/a.

1.2 CT Amendments – n/a.

1.3 International Building Code - 2012.

1.4 International Existing Building Code - 2012.

1.5 International Mechanical Code - 2012.

1.6 International Plumbing Code - 2012.

1.7 International Energy Conservation Code - 2012.

1.8 National Electric Code (NFPA 70) - 2014.

1.9 ICC/ANSI A117.1-Accessible and Usable Buildings and Facilities - 2003.

2. Connecticut Fire Safety Code - 2016.

2.1 CT Supplement – n/a.

2.2 CT Amendments – n/a.

2.3 International Fire Safety Code - 2012.

2.4 NFPA 101 - 2012.

3. Connecticut Fire Prevention Code -2015.

3.1 NFPA 1 – 2015.

4. Occupational Safety and Health Administration (OSHA)

4.1 OSHA 29 CFR Part 1910 Occupational Safety and Health Regulations – July 6, 2017.

4.2 OSHA 29 CFR Part 1926 Occupational Safety and Health Regulations for Construction – July 26, 2016.

B. The **"latest applicable State Codes"** are available for download from the DAS website (www.ct.gov/das) > Doing Business With The State > State Building Construction > Publications and Forms > Office of State Building Inspector *and* Office of State Fire Marshal. Also visit the www.ctdol.state.ct.us Connecticut Department of Labor website.

1.6 SUBMITTALS:

A. **Permits, Licenses, and Certificates:** For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01 42 20

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for quality-control services.

B. Quality-Control services include fire alarm acceptance testing, inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by the Owner.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.

3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

E. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for development of a schedule of required tests and inspections.

2. Division 01 Section 01 73 29 "Cutting and Patching" specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.

3. Division 01 Section 01 77 00 "Closeout Procedures", specific requirements for contract closeout procedures.

4. Division 28 Section 28 31 00 "Fire Detection and Alarm" specifies field quality control for the Alarm System.

1.3 RESPONSIBILITIES:

A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, the Owner, through the Construction Administrator, shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. All tests required by the individual specification sections are required to be scheduled and notification given to the Construction Administrator 24 hours in advance of the test/inspection as applicable. Costs for these services are not included in the Contract Sum.

1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.

2. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.

a. Such services include Special Inspections as required by the latest edition of the "Connecticut State Building Code".

b. Where the Owner has engaged a testing agency for testing and inspecting part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner. The Owner will engage the services of a qualified Special Inspector for this project. The

Special Inspector, as a representative of the Owner, shall document and confirm compliance with the provisions of the Connecticut State Building Code for Special Inspections.

c. Materials and assemblies for this project will be tested and construction operations inspected as the work progresses. Failure to detect any defective work or material shall not in any way prevent later rejection when such defect is discovered nor shall it obligate the State for final acceptance.

d. The Owner's use of testing and inspection services shall in no way relieve the Contractor of the responsibility to furnish materials and finished construction in full compliance with the Contract Documents and the Connecticut State Building Code.

B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.

1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated non-compliance with Contract Document requirements.

2. The Owner will issue a credit change order to cover all costs incurred related to all re-tests/re-inspections due to non-compliance to the Contract Documents, including but not limited to the Owner's costs and the Consultant's costs.

C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the Agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:

1. Provide access to the Work.

2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.

3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.

4. Provide facilities for storage and curing of test samples.

5. Deliver samples to testing laboratories.

6. Provide an approved design mix proposed for use for material mixes that require control by the testing agency.

7. Provide security and protection of samples and test equipment at the Project Site.

D. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Construction Administrator, Architect and the Contractor in performance of the testing agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.

1. The testing agency shall notify the Construction Administrator and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The testing agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

3. The testing agency shall not perform any duties of the Contractor.

E. Owner will pay for the services of an independent testing agency laboratory to perform inspections, tests and other services required by the Specifications except as noted below, listed for which the Owner will issue a deduct change order to cover the cost associated with these tests:

1. When the Contractor notifies the Construction Administrator and/or Testing Agency less than 24 hours before the expected time of testing.

2. When the Contractor requires testing for his own convenience.

3. When the Contractor schedules a test and is not ready for the required test.

F. Submit reports of tests that are part of the submittal requirements which indicate compliance or non-compliance with the specified standard.

G. See also General Conditions Article 16 "Inspections & Tests".

H. Fire Alarm/Acceptance Testing Procedures:

1. For ***all*** buildings (exceeding the threshold limit and not exceeding the threshold limit), the fire alarm testing shall be as the authority having jurisdiction shall dictate. This will be as determined by the Office of the State Fire Marshal (OSFM), and shall include, but not be limited to, the requirements as set below:

   a. Protective Signaling Systems: All protective signaling systems shall meet with acceptance testing requirements of the applicable standards listed in Section 9.6, NFPA 101/2012 and NFPA 13/2010.

   b. Prior Test Notification: At least five (5) working days prior to testing, the Fire Alarm Contractor shall notify (in writing) the following people of the proposed date the acceptance tests are to be performed (Also, see Part 2 of Certificate of Compliance).

   - Department of Administrative Services – OSFM Representative
   - General Contractor
   - Engineer of Record
   - Equipment Supplier Representative
   - Sprinkler Contractor

   c. Certificates of Compliance:

   1) A Fire Alarm System Inspection and Testing Certification and Description form shall be prepared for each system (See NFPA 72/2010 Chapter 14 and Figure 14.6.2.4).

   2) Parts 1 and 3 through 9, shall be completed after the system is installed and the installation of the wiring has been checked. Every alarm device must also be pre-tested to ensure proper operation and correct annunciation at each remote annunciator and control panel. Part 1 of the form (Certification of System Installation) shall be signed by the fire alarm contractor. The signed and completed preliminary copies of the Certification form shall be forwarded to all parties along with the Prior Test Notification.

   3) Part 2, of each applicable form, shall be completed after the operational tests have been completed.

   4) After the completion of the operational acceptance tests and sign-off of test witness (with stipulations noted), final copies of the Certificates shall be forwarded to the Department of Construction Services Representatives.

   d. Tests:

   1) All tests shall be conducted in accordance with the Manufacturer's Testing Recommendations.

   2) All testing equipment, apparatus (i.e. sound level decibel meter, 2-way radio communication, test devices, ladders, tools, lighting, etc.) and personnel shall be supplied by the Fire Alarm Contractor and Sprinkler Contractor.

   e. **System Documentation:** Every system shall include the following documentation, which shall be delivered to the Department of Construction Services Representatives upon final acceptance of the system. An owner's manual or manufacturer's installation instructions covering all system equipment, including the following:

   1) A detailed narrative description of the system inputs, evacuation signaling, ancillary functions, annunciation, intended sequence of operations, expansion capability, application considerations, and limitations.

   2) Operator's instructions for basic systems operations including alarm acknowledgment, system reset, interpreting system output (LED's CRT display, and printout), operation of manual evacuation signaling and ancillary function controls, changing printer paper, etc.

3) A detailed description of routine maintenance and testing as required and recommended and as would be provided under a maintenance contract, including testing and maintenance instructions for each type of device installed. This information should include:

(a) A listing of individual system components that require periodic testing and maintenance.

(b) Step by step instructions detailing the requisite testing and maintenance procedures and the intervals at which those procedures should be performed.

(c) A schedule that correlates the testing and maintenance procedures required by paragraph (2) above and with the listing required by paragraph (1) above.

4) Detailed troubleshooting instructions for each type of trouble condition recognized by the system, including opens, grounds, parity errors, "loop failures," etc. These instructions should include a list of all trouble signals, and step by step instructions describing how to isolate those problems and correct them (or call for service as appropriate).

5) A service directory, including a list of names and telephone numbers for those who should be called to service the system.

f. As-Built Drawings:

1) The Contractor will produce two (2) sets of as-built drawings and specifications for the fire alarm system, indicating the location (and programmed address, if applicable) of all devices and appliances, the wiring sequences, wiring methods, connection of the components, and sequence of operation of the protective signaling system as installed, shall be given to the Department of Construction Services representatives. This shall be in Accordance with NFPA (2010]. Refer also to Section 01 77 00 "Closeout Procedures".

1.4 SUBMITTALS:

A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Construction Administrator. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:

a. Date of issue.

b. Project title and number.

c. Name, address, and telephone number of testing agency.

d. Dates and locations of samples and tests or inspections.

e. Names of individuals making the inspection or test.

f. Designation of the Work and test method.

g. Identification of product and Specification Section.

h. Complete inspection or test data.

i. Test results and an interpretation of test results.

j. Ambient conditions at the time of sample taking and testing.

k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.

l. Name and signature of laboratory inspector.

m. Recommendations on re-testing.

1.5 QUALITY ASSURANCE:

A. **Qualifications for Service Agencies:** Engage inspection and testing service agencies, including independent testing laboratories, that are pre-qualified as complying with the National Voluntary Laboratory Accreditation Program and that specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

B. **Mockups:** Provide full-size, physical assemblies that are constructed on-site. Mockups will be used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not samples. Approved mockups establish the standard by which the Work will be judged.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 MOCKUPS:

A. Build site-assembled mockups using installers who will perform same tasks for project.

B. Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect **or** Construction Administrator.

2. Notify Architect and Construction Administrator seven (7) days in advance of dates and times when mockups will be constructed.

3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Architect's and Construction Administrator's approval of mockups before starting work, fabrication, or construction.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

6. Demolish and remove mockups when directed, unless otherwise indicated.

3.2 REPAIR AND PROTECTION:

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 01 Section 01 73 29 "Cutting and Patching."

B. Protect constructions exposed by or for quality-control service activities, and protect repaired construction.

C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION 01 45 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 00 General Conditions of the Contract for Construction for Design-Bid-Build and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for identification badges, parking stickers, construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.

B. Temporary utilities include, but are not limited to, the following:

1. Temporary water service and distribution.

2. Temporary electric power and lighting services.

3. Temporary heating, cooling and ventilation

4. Temporary telephone service and data.

5. Temporary sanitary facilities, including drinking water.

6. Storm and sanitary sewer.

7. Storm water pollution control.

C. Support facilities include, but are not limited to, the following:

1. Field offices – Contractor, Subcontractor, Owner, and Construction Administrator.
2. Storage and fabrication sheds.
3. Temporary roads and paving.
4. Dewatering facilities and drains.
5. Temporary enclosures.
6. Temporary lifts, hoists and elevator use.
7. Temporary exterior lighting.
8. Collection and disposal of waste and cleaning.
9. Temporary Environmental Controls.
10. Stairs.

D. Security and protection facilities include, but are not limited to, the following:

1. Temporary fire protection.
2. Permanent fire protection.
3. Security for site and Agency.
4. Barricades, warning signs, and lights.
5. Enclosure fence.
6. Security enclosure and lockup.
7. Protection.
8. Environmental protection.
9. Traffic ways.
10. Identification badges for Contractor’s personnel & parking stickers.

1.3 RELATED SECTIONS

A. Division 01 Section 01 57 30 "Indoor Environmental Control" for additional provisions governing temporary heating, ventilating and air conditioning.

1.4 SUBMITTALS

A. **Temporary Utilities:** Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

B. **Implementation and Termination Schedule:** Within seven (7) days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.

1.5 QUALITY ASSURANCE

A. **Regulations:** Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:

1. Building and fire code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, fire department, and rescue squad rules.
5. Environmental protection regulations.
6. Americans with Disabilities Act.

B. **Standards:** OSHA. Comply with NFPA 241 "Standard for Safeguarding Construction, Alteration, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA 200 "Recommended Practice for Installing and Maintaining Temporary Electric Power at Construction Sites."

1. **Electrical Service:** Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."

C. **Inspections:** Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. **Temporary Utilities:** Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, the Construction Administrator will direct the change over from use of temporary service to use of permanent service.

B. **Conditions of Use:** Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. **General:** Provide new materials. If acceptable to the Architect, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.

B. **Lumber and Plywood:** Comply with requirements in Division 06 Section 06 10 00 "Rough Carpentry."

1. **Vision Barriers:** Provide minimum 1/2-inch thick exterior plywood.

2. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch thick exterior plywood.

C. **Tarpaulins:** Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.

D. **Water:** Provide potable water approved by local health authorities.

E. **Enclosure Fencing:** Provide 0.120-inch thick, galvanized 2-inch chain link fabric fencing six (6) feet high galvanized steel pipe posts, 1-1/2 inches knuckle both bottom and top I.D. for line posts and 2-1/2 inches I.D. for corner posts.

2.2 EQUIPMENT

A. **General:** Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.

1. The Contractor shall furnish tools, apparatus and appliances, hoists and/or cranes and power for same, scaffolding, runways, ladders, temporary supports and bracing and similar work or material necessary to insure convenience and safety in the execution of the Contract except where this is otherwise specified in any Specification Section. All such items shall meet the approval of the Owner but responsibility for design, strength and safety shall remain with the Contractor. All such items shall comply with Federal OSHA regulations and applicable codes, statutes, rules and regulations, including compliance with the requirements of the current edition of the "Manual of Accident Prevention in Construction" published by the Associated Contractors (AGC) and the standards of the State Labor Department.

2. Staging, exterior and interior, required for the execution of this Contract, shall be furnished, erected, relocated if necessary and removed by the Contractor. Staging shall be maintained in a safe condition without charge to and for the use of all trades as needed.

B. **Water Hoses:** Provide 3/4-inch, heavy-duty, abrasion-resistant, flexible rubber hoses with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge and backflow preventers.

C. **Electrical Outlets:** Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.

D. **Electrical Power Cords:** Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

E. **Lamps and Light Fixtures:** Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. **Heating Units:** Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.

G. **Temporary Field Offices:** Provide prefabricated or mobile units with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

H. **Temporary Toilet Units:** The Agency will not allow the toilet use located in the building for Contractor use. Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

I. **Fire Extinguishers:** Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. **General:** Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.

1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.

4. **Use Charges:** If cost or use charges for temporary facilities are specified by this section to be borne by the Owner the cost or use charges for temporary facilities will be borne not longer than thirty (30) days after final acceptance of the project.

B. **Temporary Water Service and Distribution:**

1. Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.

a. **Sterilization:** Sterilize temporary water piping prior to use.

2. Connect to existing facilities, through an approved backflow prevention device; extend branch piping with outlets so that water is available by use of hoses. Owner will pay for water used. The Contractor shall not waste water or use faulty equipment. The Contractor shall provide, at his own expense, all connections, extensions and other apparatus required for use of such services. Upon completion of the Contract, the Contractor shall disconnect temporary extensions and return utility to its original condition.

C. **Temporary Electric Power and Lighting Services:**

1. Power and lighting may be taken from the existing facility, coordinate with owner/ DAS.

2. Provide service required for construction with branch wiring and distribution boxes located to provide power and lighting by construction-type extension cords.

3. **Power Distribution System:** Where permitted Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.

4. **Temporary Lighting:** When overhead floor or roof deck has been installed, provide temporary lighting with local switching. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.

C. **Temporary Heating, Cooling and Ventilating:**

1. Provide temporary heat required by construction activities for curing or drying of completed installations or for protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

a. **Heating Facilities:** Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas or fuel oil heaters with individual space thermostatic control.

b. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.

2. Provide temporary heat during construction for interior areas included in the Contract to counteract low temperatures or excessive dampness. Maintain during said period or periods until final completion of the Contract, unless otherwise approved by the Owner in writing. Windows, doors, ventilators and similar openings shall be temporarily closed. Provide heat and

ventilation to maintain specified conditions for construction operations and to protect materials and finishes from damage by temperature or humidity. The permanent heating system is not to be used for temporary heating unless approved, in writing, by the Owner. If approved, use of the permanent heating system by the Contractor does not constitute beneficial use by the Owner. The warrantee for said system will not commence until Substantial Completion is granted. Costs shall be paid by the Contractor. See individual Sections for temperature/humidity limits. Temporary heating methods shall comply with OSHA regulations and other applicable codes, statutes, rules and regulations and shall be approved by the Architect/Engineer and Owner.

3. Permanent air handling equipment, when used for temporary heating, shall be equipped with disposable "construction" filters. The construction filters shall have an average efficiency at least equal to the filters specified under Division 23, but not less than 30 percent when tested in accordance with ASHRAE 52.2 "Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size." The filters shall have an average arrestance of not less than 90 percent efficiency on one (1) micron size particles. Before turning over the system for final acceptance, the contractor shall remove and dispose of the construction filters; clean the ductwork; spray clean the heating and cooling coils, and drain pans to "like new" condition; and install the filters specified in Division 23 Section 23 40 00 "HVAC Air Cleaning Devices."

4. The Contractor may use the existing heating system with temporary extensions, radiators or unit heaters, but such use is subject to the Owner's approval. Coordinate use of existing facilities with Owner. Provide additional, temporary extensions and units to satisfy the criteria given in the preceding paragraph. Owner will pay cost of energy used. Take measures to conserve energy. At the termination of construction, return the facilities to their original condition. Before operation of permanent facilities, verify that installation is approved for operation and that filters are in place.

D. **Temporary Telephone Service and Data:** Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities. Contractor shall provide telephone service in his office. It is preferred that the Contractor use a cellular phone. Basic service and local calls will be paid for by the Contractor. Toll calls will be paid for by the respective users.

1. At each telephone, post a list of important telephone numbers.

E. **Temporary Sanitary Facilities, Including Drinking Water:** Temporary sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

1. Provide toilet tissue, wash basins with water, soap and paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material. The Contractor shall maintain the facilities in a sanitary condition.

2. **Toilets:** The Contractor shall install self-contained chemical toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. Provide separate facilities for male and female personnel.

3. **Water Coolers:** Where power is accessible, provide electric hot/cold water coolers to maintain dispensed cold water temperature at 45 to 55 degrees F. Provide bottled water service and cup supplies and maintain in a clean sanitary condition.

F. **Storm and Sanitary Sewer:** Coordinate with Owner/ DAS the use of storm and sanitary sewer serve as needed to remove effluent that can be discharged lawfully.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.

G. **Storm Water Pollution Control:** Provide earthen embankments and similar barriers in and around excavations and sub-grade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.3 SUPPORT FACILITIES INSTALLATION

A. **General:** Locate field offices, storage sheds, and other temporary construction and support facilities in designated area as shown on the Contract Documents. The location of the trailers on the Drawings is diagrammatic in nature. Final placement of the trailers is to be approved by the Construction Administrator.

1. Maintain support facilities until Final Completion. Remove prior to Final Completion with permission from the Owner.

B. **Field Offices:** Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel at the Project Site. Keep all offices clean and orderly, sweep weekly and remove rubbish on a daily basis. Furnish and equip offices as follows:

1. The Contractor shall provide an office for their own use and a method to contact them by e-mail and telephone at any point and time.

2. **State User Agency Provided Field Offices:** The State User Agency will furnish, without charge, one (1) room for the Contractor's use as an office in an existing building. The Owner and Construction Administrator will share space with the Contractor. The Contractor shall provide and install a 5-lb ABC fire extinguisher and an approved first aid kit. The Contractor shall be responsible for furniture and shall keep this area clean and return it to its original condition after use.

C. **Dewatering Facilities and Drains:** For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 31 Sections. Where feasible, utilize the same facilities. Maintain the site, excavations, and construction free of water.

D. **Temporary Enclosures**: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25-sq ft or less with plywood or similar materials.

3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.

4. Where temporary enclosure exceeds 100-sq ft in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.

E. **Temporary Lifts and Hoists:**

1. Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

1. **Temporary Project Identification Signs:** Temporary project identification signs are not required for this project.

F. **Collection and Disposal of Waste and Cleaning:**

1. Collect waste within the contract limit line from construction areas daily. Provide separate containers for proper waste recycling. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven (7) days during normal weather or three (3) days when the temperature is expected to rise above 80 degrees F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

2. Maintain areas under Contractor's control free of waste materials, debris and rubbish. Maintain in a clean and orderly condition.

3. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces before closing the space.

4. Periodically clean interior areas before start of surface finishing and continue cleaning on an as-needed basis.

5. Control cleaning operations so that dust and other particulates will not adhere to wet or newly coated surfaces.

G. **Temporary Environmental Controls:** Contractor is to provide the following controls.

1. Rodent and Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be free of pests and their residues at materials.

2. Dust Control (construction and demolition).

3. Noise Control.

4. Erosion and Sediment Control.

5. Pollution Control.

6. Traffic Control.

H. **Stairs:** Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION (listed in Paragraph 1.2 D)

A. **Security for Site and Agency:**

1. Provide security program and facilities to protect work, existing facilities and the Owner and Agency's operations from unauthorized entry, vandalism and theft. Coordinate with the Owner's and Agency's security program.

2. The Contractor shall be solely responsible for damage, loss or liability due to theft or vandalism.

B. **Barricades, Warning Signs, and Lights:** Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.

1. Provide covered walkways as required by governing authorities for public rights-of-way and for public access to existing buildings.

2. Provide temporary, insulated, weathertight closures at openings to the exterior to provide acceptable working conditions and protection for materials, to allow for temporary heating and to prevent entry of unauthorized persons. Provide doors with self-closing hardware and locks.

3. Barriers and enclosures shall be in conformance with code requirements. Do not block egress from occupied buildings unless necessary to further the work of the Contract. In this case, secure the Owners approval of an alternate egress plan.

4. See also General Conditions Article 19, "Protection of the Work, Persons and Property".

C. **Enclosure Fences:** Before excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated on the Construction Documents, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.

1. Provide chain link construction fencing with posts set in a compacted mixture of gravel and earth. Use existing fence to the extent possible.

D. **Security Enclosure and Lockup:** Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Provide keys to the Construction Administrator.

1. **Storage:** Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

E. **Protection:**

1. Protect buildings, equipment, furnishings, grounds and plantings from damage. Any damage shall be repaired or otherwise made good at no expense to the Owner.

2. Provide protective coverings and barricades to prevent damage. The Contractor shall be held responsible for, and must make good at his own expense, any water or other type of damage due to improper coverings. Protect the public and building personnel from injury.

3. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.

4. Provide protective coverings for walls, projections, jambs, sills and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects and storage. Prohibit traffic and storage on waterproofed and roofed surfaces and on lawn and landscaped areas.

5. Provide temporary partitions and ceilings to separate work areas from Agency-occupied areas to prevent penetration of dust and moisture into Agency-occupied areas and equipment. Erect framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces.

6. See also General Conditions Article 19, "Protection of the Work, Persons and Property".

F. **Environmental Protection:** Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result.

G. **Traffic Ways:**

1. The Contractor may use on-site paved roads and parking areas but shall not encumber same or their access. Public highways shall not be blocked by standing trucks, parked cars, material storage, construction operations or in any other manner.

2. Public roads and existing paved roads, drives and parking areas on Owner's property shall be kept free from scrap or debris due to construction operations and any damage to their surface caused by the Contractor shall be repaired by him at his own expense.

3. If the work of the Contract affects public use of any street, road, highway or thoroughfare, the Contractor shall confer with the police authority having jurisdiction to determine if and how many police are needed for public safety in addition to any barriers and signals that may be needed. The Contractor will be responsible for payment of any needed police services.

4. Access to the two main entrance off Hayestown Avenue located on east side of Henry Abbott THS main parking area will not be used during time periods when the school children are arriving and being dismissed. No access to the Gate will be allowed:

Monday – Friday	**7:30**	**a.m.**	**–**	**9:00**	**a.m.**
Monday – Friday	**2:30**	**p.m.**	**–**	**3:30**	**p.m.**

This time period is subject to change at the discretion of the Construction Administrator to coincide with the school Schedule.

H. **Identification Badges for Contractor's Personnel, Visitors & Parking Stickers:**

1. The Contractor will provide each person working or visiting at the site with an identification badge, bearing the name of the Contractor and a number. As badges are assigned, a record shall be kept by the Contractor and given to the Construction Administrator and Agency Administrator. Update and correct the records of all badges issued on a semi-monthly basis.

2. Badges are to be worn on outer garment where visible at all times while at the construction site, return them to the Contractor's field office at the end of each day and pick them up there each morning.

3. All vehicles parking in the Contractor's parking lot and those used around the site require an ID sticker. They will be issued by the Agency. Each contractor shall apply for parking stickers through the Construction Administrator no more than semi-monthly and shall keep record of all stickers issued.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. **Supervision:** Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. **Maintenance:** Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. **Termination and Removal:** Unless the Architect/CA requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or

no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the Contractor's property. The Owner reserves the right to take possession of project identification signs.

2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances, as required by the governing authority.

3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:

a. Replace air filters and clean inside of ductwork and housings.

b. Replace significantly worn parts and parts subject to unusual operating conditions.

c. Replace lamps burned out or noticeably dimmed by hours of use.

END OF SECTION 01 50 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 25 00 "Substitution Procedures" specifies administrative procedures for handling requests for substitutions made after award of the Contract.
2. Division 01 Section 01 33 00 "Submittal Procedures" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.
3. Division 01 Section 01 42 20 "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.

1.3 DEFINITIONS:

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
    a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, which is current as of the date of the Contract Documents.
2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 QUALITY ASSURANCE:

A. **Source Limitations:** To the fullest extent possible, provide products of the same kind from a single source.

B. **Compatibility of Options:** When the Contractor is given the option of selecting between two (2) or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. **Nameplates:** Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
    a. Name of product and manufacturer.
    b. Model and serial number.
    c. Capacity.

d. Speed.

e. Ratings.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING:

A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Store products in accordance with manufacturers' instructions and maintain within temperature and humidity range required by manufacturer.
4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation.
8. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
9. Store loose granular material on solid surfaces in a well-drained area; prevent mixing with foreign matter.
10. Arrange storage to provide access for inspection. Periodically inspect to insure products are undamaged and are maintained under required conditions. Keep log showing date, time and problems, if any.
11. Stone, masonry units and similar materials shall be stored on platforms or dry skids and shall be adequately covered and protected against damage.
12. Materials and equipment shall be delivered, stored and handled to prevent intrusion of foreign matter and damage by weather or breakage. Packaged materials shall be delivered and stored in original, unbroken packages.
13. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct and products are undamaged.
14. Packages, materials and equipment showing evidence of damage will be rejected and replaced at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION:

A. **General Product Requirements:** Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.

1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. **Product Selection Procedures:** The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:

1. Semi-proprietary Specification Requirements: Where Specifications name two (2) or more products or manufacturers, provide one (1) of the products indicated. Comply with the requirements of Division 01 Section 01 25 00 "Substitution Procedures."
2. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
3. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
4. Visual Selection: Where specified product requirements include the phrase *"...as selected from manufacturer's standard colors, patterns, textures..."* or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern, and texture from the product line selected.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS:

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 60 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. General: This Section specifies administrative and procedural requirements for field engineering services including, but not limited to, the following:

1. Land survey work.
2. Civil Engineering services.
3. Damage surveys.
4. Geotechnical monitoring.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 01 Section 01 33 00 "Submittal Procedures" for submitting Project record surveys.
3. Division 01 Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents and recording of Owner-accepted deviations from indicated lines and levels.

1.3 SUBMITTALS

A. Certificates: Submit a certificate from the Land Surveyor stating that the control information furnished by the Owner is accurate or identify inaccuracies, if they exist. The Contractor shall not take advantage of errors, which may be included in the control information. Stakes and markings shall be preserved.

B. Final Property Survey: Prepare and submit 10 copies of the final property survey.

C. Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of "Submittals" and "Project Closeout" Sections.

1.4 QUALITY ASSURANCE

A. Provide field engineering services to establish and record grades, lines and elevations.

B. The Contractor shall retain a Land Surveyor registered by the State of Connecticut to confirm State furnished base lines and benchmarks, lay out the building, underground utility lines and other site work from the information furnished by the Owner and to establish and record the necessary elevations, at no additional cost to the State.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Identification: The Owner will identify two (2) base lines on the Contract Drawings.

B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks. Notify the Construction Administrator of any discrepancies immediately in writing before proceeding to lay out the Work. Locate and protect existing benchmarks and base line. Preserve permanent reference points during construction.

1. Do not change or relocate benchmarks or base line without prior written approval. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.
2. Promptly replace lost or destroyed Project baseline benchmarks. Base replacements on the original survey control points.

C. Establish and maintain a sufficient quantity of (minimum of 2) permanent benchmarks on the site, referenced to data established by Owner supplied information.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

D. **Existing Utilities and Equipment:** The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.

1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping. Notify the Construction Administrator of any discrepancies prior to proceeding.

3.2 PERFORMANCE

A. Work from lines and levels established by the property survey. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

1. Advise entities engaged in construction activities of benchmarks and control points for their use.
2. As construction proceeds, check every major element for line, level, and plumb.

B. **Surveyor's Log:** Maintain a surveyor's log of control and other survey work. Make this log available for reference.

1. Record deviations from required lines and levels, and advise the Construction Administrator when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.
2. On completion of foundation walls, major site improvements, underground utilities, and other Work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, elevations of construction, as-built locations and site work.

C. **Site Improvements:** Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes, and invert elevations.

D. **Building Lines and Levels:** Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels, and control lines and levels required for mechanical and electrical work.

E. **Existing Utilities:** Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances located in or affected by construction. Coordinate with local authorities having jurisdiction.

F. **Final Property Survey:** Prepare a final property survey showing significant features (real property) for the Project. Include on the survey a certification, signed by the surveyor, that principal metes, bounds, lines, and levels of the Project are accurately positioned as shown on the survey.

END OF SECTION 01 71 23

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for cutting and patching.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 31 00 "Project Management and Coordination" for procedures for coordinating cutting and patching with other construction activities.

2. Division 01 Section 01 35 16 "Alteration Project Procedures" for procedures for coordinating cutting and patching with other construction activities.

3. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

a. Requirements of this Section apply to mechanical and electrical installations. Refer to Division 22, 23, and 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 SUBMITTALS:

A. **Cutting and Patching Proposal:** Submit a proposal to the Construction Administrator describing procedures well in advance of the time cutting and patching will be performed and if the Owner's Representative and/or Architect/Engineer requires approval of these procedures before proceeding. Request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.

2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.

3. Describe affects to integrity of weather exposed or moisture resistant element.

4. Describe affects to efficiency, maintenance, or safety of any operational element.

5. Describe affects to Work of Owner or separate contractor.

6. List products to be used and firms or entities that will perform Work.

7. Indicate dates when cutting and patching will be performed.

8. **Utilities:** List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.

9. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations sealed by an Engineer registered in the State of Connecticut showing integration of reinforcement with the original structure.

10. Approval by the Construction Administrator to proceed with cutting and patching does not waive the Architect/Engineer of Record's rights to later require complete removal and replacement of unsatisfactory Work.

1.4 QUALITY ASSURANCE:

A. **Requirements for Structural Work:** Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. Obtain approval from the Architect/Engineer of the cutting and patching proposal before cutting and patching the following structural elements:

a. Foundation construction.

b. Bearing and retaining walls.

c. Structural concrete.

d. Structural steel.

e. Lintels.

f. Structural decking.

g. Miscellaneous structural metals.

h. Exterior curtain-wall construction.

i. Equipment supports.

j. Piping, ductwork, vessels, and equipment.

k. Structural systems of special construction in Division 13 Sections.

B. **Operational Limitations:** Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

1. Obtain Architect/Engineer's approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Primary operational systems and equipment.

b. Air or smoke barriers.

c. Water, moisture, or vapor barriers.

d. Membranes and flashings.

e. Fire protection systems.

f. Noise and vibration control elements and systems.

g. Control systems.

h. Communication systems.

i. Conveying systems.

j. Electrical wiring systems.

k. Operating systems of special construction in Division 13 Sections.

C. **Visual Requirements:** Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace construction cut and patched in a visually unsatisfactory manner.

1.5 WARRANTY:

A. **Existing Warranties:** Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL:

A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.

B. The Contractor shall install sleeves, inserts and hangers furnished by the trades needing same.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, notify the Construction Administrator and Architect, before proceeding with corrective action.

B. Openings and chases may not be shown on the Drawings. It is the responsibility of the Contractor to examine the Architectural, Electrical, Heating, Cooling, Ventilating and Plumbing Drawings and to provide chases, channels or openings where needed.

1. After installing Work into openings, channels and/or chases, the Contractor shall close same. If finishes are to be restored, the new Work shall match the original and shall be done by the trade customarily responsible for the particular kind of Work.

C. The Contractor shall verify dimensions for built-in Work and/or Work adjoining that of other trades before ordering any material or doing any Work. Discrepancies shall be submitted to the Construction Administrator before proceeding with the Work.

D. See also General Conditions Article 23 "Cutting, Fitting, Patching & Digging".

3.2 PREPARATION:

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Work that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Avoid cutting existing pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE:

A. **General:** Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

2. DO perform cutting and patching to integrate elements of Work. Provide penetrations of existing surfaces. Provide samples for testing. Seal penetrations through floors, walls, ceilings and roofs, as applicable; restore or preserve fire-rated and smoke-barrier construction. Construction and finishes shall match original Work.

B. **Cutting:** Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.

1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.

4. Comply with requirements of applicable Division 32 Sections where cutting and patching requires excavating and backfilling.

5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. **Patching:** Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.

4. Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.4 CLEANING:

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for waste management goals, waste management plan and waste management plan implementation.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 11 00 "Summary of Work".

2. Division 01 Section 01 20 00 "Price and Payment Procedures".

3. Division 01 Section 01 25 00 "Substitution Procedures".

4. Division 01 Section 01 31 19 "Project Meetings".

5. Division 01 Section 01 33 00 "Submittal Procedures".

6. Division 01 Section 01 45 00 "Quality Control".

7. Division 01 Section 01 50 00 "Temporary Facilities and Controls".

8. Division 01 Section 01 60 00 "Product Requirements".

9. Division 01 Section 01 77 00 "Closeout Procedures".

10. Division 01 Section 01 81 13 "Sustainable Design Requirements".

1.3 DEFINITIONS

A. Construction Waste: Solid wastes such as building materials, packaging and rubble resulting from construction, paving and infrastructure.

B. Demolition Waste: Solid wastes such as concrete, wood, brick, plaster, roofing materials, wallboard, metals, carpeting, insulation, and clean fill resulting from demolition or selective demolition of structures.

C. Recyclable Materials: Products and materials that can be recovered and remanufactured into a new product. Recyclable materials include, but are not limited to, the following:

1. Metals (ferrous and non-ferrous), including banding, metal studs, ductwork, and piping.

2. Asphaltic concrete paving.

3. Portland cement concrete.

4. Gypsum products.

5. Paper and cardboard.

6. Wood products, including structural, finish, crates, and pallets.

7. Brick and masonry.

8. Carpet and padding.

9. Plastics.

10. Copper wiring.

D. Recycling Facility: A business that specializes in collecting, handling, processing, distributing, or remanufacturing waste materials generated by new construction projects, into products or materials that can be used for this project or by others.

E. Salvage and Reuse: Existing usable product or material that can be saved and reused in some manner on the project site. Materials for reuse must be approved by the Architect. Materials that can be salvaged and reused must comply with applicable technical specifications and include, but are not limited to, the following:

1. Dimensional lumber and other wood products.

2. Structural steel.

3. Soil.

4. Masonry products.

5. Plants.

F. Salvage for Resale: Existing usable product that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.

1.4 WASTE MANAGEMENT GOALS

A. The Owner has established that this Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.

B. The Contractor shall use all means available to divert the greatest extent practical and economically feasible, construction waste from landfills and incinerators.

C. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

D. Recycle and/or salvage a minimum of 50 percent of non-hazardous construction and demolition waste by weight of the total solid waste generated by the Project.

E. With regard to these goals the Contractor shall develop, for the Architect's review, a Waste Management Plan for this Project.

F. Take a pro-active, responsible role in management of construction waste and require all subcontractors, vendors, and suppliers to participate in the effort. Establish a construction waste management program that includes the following categories:

1. Minimizing packaging waste.

2. Salvage and reuse.

3. Salvage for resale or donation.

4. Recycling.

5. Disposal.

1.5 SUBMITTALS

A. Draft Waste Management Plan: Within 30 days after receipt of Notice of Award of Bid, or prior to any waste removal, whichever occurs sooner, the Contractor shall submit three (3) copies of a Draft Waste Management Plan to the Construction Administrator.

B. Final Waste Management Plan: Once the Owner has determined which of the recycling options addressed in the Draft Waste Management Plan are acceptable, the Contractor shall submit within 10 days three (3) copies of a Final Waste Management Plan.

C. Progress Reports: Submit three (3) copies of monthly progress reports, at the same time as the Application for Payment, documenting the following:

1. Material category.

2. Point of waste generation.

3. Total quantity of waste in tons.

4. Quantity of waste salvaged, in tons.

5. Quantity of waste recycled, in tons.

6. Total quantity of waste recovered (salvaged plus recycled) in tons.

7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

D. Calculations: Submit three (3) copies of calculations indicating the end-of-project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Project prior to Substantial Completion.

E. Record Submittals:

1. Donations: Indicate which salvageable materials were donated, who they were donated to, and whether the recipient is tax exempt. Submit documentation indicating receipt of donations.

2. Sales: Indicate which salvageable materials were sold, who they were sold to, and whether the recipient is tax exempt. Submit documentation indicating receipt of materials.

3. Recycling: Indicate which materials were recycled and the name of the facility licensed to accept them. Submit documentation such as manifests, weight tickets, receipts, and invoices.

4. **Waste Disposal:** Indicate which materials were accepted as waste by landfills and incinerator facilities licensed to accept them. Submit documentation indicating receipt of materials.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with regulations of State of Connecticut Department of Environment Protection, Waste Management Bureau Recycling Program.

B. Waste Management Conference: Review and discuss the waste management plan, requirements for documenting quantities of each type of waste and its disposition, procedures for materials separation, procedures for periodic collection and transportation to recycling and disposal facilities. Review waste management requirements for each trade. Verify availability of containers and bins needed to avoid delays.

1.7 WASTE MANAGEMENT PLAN

A. Draft Waste Management Plan: Include the following in the Draft Plan:

1. Analysis of the proposed jobsite waste to be generated, including types and quantities.
2. **Landfill Options:** The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all Project waste in the landfill(s).
3. **Alternatives to Landfilling:** A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed local market for each material, and the estimated net cost savings or additional costs resulting from separating and recycling (versus landfilling) each material. "Net" means that the following have been subtracted from the cost of separating and recycling:
   - **a.** Revenue from the sale of recycled or salvaged materials and
   - **b.** Landfill tipping fees saved due to diversion of materials from the landfill. The list of these materials is to include, at a minimum, the following materials:
     - **i)** Cardboard.
     - **ii)** Clean dimensional wood.
     - **iii)** Beverage containers.
     - **iv)** Land clearing debris.
     - **v)** Concrete.
     - **vi)** Bricks.
     - **vii)** Concrete Masonry Units (CMU).
     - **viii)** Asphalt.
     - **ix)** Metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.

B. Resources for Development of Waste Management Plan: The following sources may be useful in developing the Draft Waste Management Plan:

1. **Recycling Haulers and Markets:** Local haulers and markets for recyclable materials. For more information, contact the State of Connecticut Department of Environmental Protection, Waste Management Bureau Recycling Program, (860) 424-3365,

   www.dep.state.ct.us/wst/recycle/ctrecycle.htm.

C. Final Waste Management Plan: The Final Waste Management Plan shall contain the following:

1. Analysis of the proposed jobsite waste to be generated, including types and quantities.
2. **Landfill Options:** The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all Project waste in the landfill(s).
3. **Alternatives to Landfilling:** A list of the waste materials from the Project that will be separated for reuse, salvage, or recycling.
4. **Meetings:** A description of the regular meetings to be held to address waste management. Refer to Section 01 31 19 "Project Meetings".
5. **Materials Handling Procedures:** A description of the means by which any waste materials identified in item (3) above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.

6. **Transportation:** A 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) and destination of materials.

1.8 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project.

B. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Architect.

C. Instruction: The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project.

D. Separation Facilities: The Contractor shall lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.

E. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.

F. Application for Progress Payments: The Contractor shall submit with each Application for Progress Payment a Summary of Waste Generated by the Project. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall be submitted on a form acceptable to the Owner and shall contain the following information:

1. The amount (in tons or cubic yards) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid at the landfill, and the total disposal cost. Include manifests, weight tickets, receipt, and invoices.
2. For each material recycled, reused, or salvaged from the Project: the amount (in tons or cubic yards), the date removed from the jobsite, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling of each material shall be indicated. Attach manifests, weight tickets, receipts, and invoices.

PART 2 – PRODUCTS

(Not Applicable)

PART 3 – EXECUTION

3.1 PLAN IMPLEMENTATION

A. Implement the waste management plan as approved by Owner, Construction Administrator (DAS).

B. Provide training of workers, contractors, subcontractors, and suppliers on proper waste management procedures.

1. Distribute waste management plan to all parties involved in the Project within three (3) days of submittal return.
2. Distribute plan to parties when they first begin working on the Project site. Review plan procedures and locations established for salvage, recycling, and disposal.

3.2 SEPARATION OF RECYCLABLE WASTE MATERIALS

A. Provide the necessary containers and bins, to facilitate the waste management program, that are clearly and appropriately marked. Prevent contamination of recyclable materials from incompatible products and materials. Separate construction waste at the project site by one of the following methods:

1. **Source Separated Method:** Waste products and materials, that are recyclable, are separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Trash is transported to a landfill or incinerator.
2. **Co-Mingled Method:** All construction waste is placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed and the remaining trash is transported to a landfill or incinerator.

3. Other methods proposed by the Contractor and approved by the Owner, Construction Administrator (DAS).

END OF SECTION 01 74 19

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for handling requests for building system start up and system demonstration and includes the following:

1. Starting Systems.
2. Demonstration and instructions.
3. Testing, adjusting, and balancing.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 45 00 "Quality Control" specifies quality assurance and inspecting services.
2. Division 01 Section 01 77 00 "Closeout Procedures" specifies requirements for contract close out requirements for system operation and maintenance data and extra materials.
3. Division 01, Section 01 91 00 "Commissioning" specifies process requirements for system commissioning.
4. Division 23, Section 23 08 00 "Commissioning of HVAC" specifies requirements HVAC&R system commissioning.

1.3 STARTING SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Provide written notification to the Construction Administrator 15 days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, and control sequence for other conditions that may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components are complete and tested.

F. Execute the start-up under supervision of manufacturer's representative, in accordance with manufacturer's instructions.

G. When referenced in individual specification sections, require manufacturer to provide an authorized representative to be present at the site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report in accordance with Division 01 Section 01 45 00 "Quality Control" that the equipment or system has been properly installed and is functioning properly.

1.4 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner and Agency Personnel fourteen (14) days prior to substantial completion.

B. Demonstrate Project equipment and instruct in a classroom environment at location designated by the Construction Administrator and instructed by a qualified manufacturer's representative who is knowledgeable about the Project.

C. For equipment or systems requiring seasonal operation perform demonstration for season within six (6) months.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner and Agency Personnel in detail to explain all aspects of operation and maintenance.

E. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, and maintenance, and shutdown of each item at agreed upon scheduled time and at equipment or designated location.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during demonstration.

G. Starting and adjusting equipment does not constitute acceptance by the owner since commissioning is a requirement of this contract. Additionally, the warrantee does not begin until substantial completion has been granted for that specific item.

1.5 TESTING, ADJUSTING, AND BALANCING

A. The Contractor will employ and pay for the testing services of an independent consultant to verify the testing, adjusting, and balancing.

1. Comply with the requirements of Division 01 Section 01 91 00 "Commissioning" as they relate to the Work of this Section.

B. Reports will be submitted by the independent testing consultant to the Construction Administrator indicating observations and results of tests and indicating compliance or non-compliance with the requirements of the Contract Documents.

C. The Owner may employ and pay for the services of an independent consultant to verify testing, adjusting, and balancing which was performed by the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 75 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

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

1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:

1. Inspection procedures.

2. Project record document submittal.

3. Operation and maintenance manual submittal.

4. Submittal of warranties.

5. Final cleaning.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 11 00 "Summary of Work".

2. Division 01 Section 01 29 76 "Progress Payment Procedures".

C. Closeout requirements for specific construction activities may be included in the appropriate Sections in Divisions 02 through 49.

1.3 SUBSTANTIAL COMPLETION:

A. **General:** Basic contract definitions are included in Article 1 of the General Conditions of the Contract for Construction.

B. **Preliminary Procedures:** Before requesting inspection for Certification of Substantial Completion, complete the following. List exceptions in the request.

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.

   a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

   b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

2. Advise the Owner of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, certificates of compliance, operating certificates, and similar releases.

5. Submit record drawings, maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra stock, and similar items.

7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.

8. Demonstrate, thru operation and testing, the functions of all systems and/or equipment to the satisfaction of the Owner for compliance to the Contract. Complete testing of systems and instruction of the Owner's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements.

9. Complete final cleanup requirements.

10. Certify that required training of personnel is complete.

C. **Inspection Procedures:** The Contractor shall be ready and prepared when they request a Substantial Completion inspection. If the inspection reveals that the work is not complete, that there are extensive punchlist items that will take more than **ninety (90)** days to complete and as the items listed in Article 1.3 above are not complete, the Construction Administrator, Architect, and Owner will determine the inspection has failed.

D. The Contractor is responsible for all costs to re-inspect due to a failed inspection. The Owner will issue a deduct change order to cover all costs for re-inspection.

1. The Architect will repeat inspection when requested and assured that the Work is substantially complete.
2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.4 ACCEPTANCE:

A. **Preliminary Procedures:** Before requesting final inspection for "Certificate of Acceptance" and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the Work.
5. Submit consent of surety to Final Payment.
6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
7. Touch up and otherwise repair and restore marred, exposed finishes, including touchup painting.

B. **Re-inspection Procedure:** The Inspection Group will re-inspect the Work upon receipt of notice from the Construction Administrator that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Owner.

1. Upon completion of re-inspection, the Construction Administrator will prepare a Certificate of Acceptance. If the Work is incomplete, the Construction Administrator will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

1.5 AS-BUILT DOCUMENT SUBMITTALS:

A. **General:** The Contractor shall not use As-built Drawings for construction purposes. Protect contractor As-built Drawings from deterioration and loss in a secure, fire-resistant location. Provide access to As-built Drawings for the Architect's reference during normal working hours. Keep documents current; do not permanently conceal any work until required information has been recorded. **IMPORTANT NOTE: Failure to keep As-built Documents current is sufficient cause to withhold progress payments.**

1. The Contractor shall also hire the services of a Surveyor registered in the State of Connecticut to conduct a final survey to determine the location of exterior underground utility lines and to record the results, and update existing electronic media.
2. The record of exterior underground utilities shall be made at the time of installation on Mylar film drawing and AutoCAD (latest version) compatible disks. The drawing shall bear the seal of the Land Surveyor and a statement of accuracy.

B. **As-built Drawings:** The Contractor shall maintain **one (1)** clean, complete undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Update As-built Drawings on a monthly basis coincident with the submittal of the Application for Payment.

1. Mark record sets with erasable pencil to distinguish between variations in separate categories of the Work.
2. Mark all new information that is not shown on Contract Drawings.
3. Note related change-order numbers where applicable.
4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
5. Upon completion of the work, the Contractor shall submit Record Drawings to the Construction Administrator for the Owner's Records who will pass them on to the Architect or Engineer for transferring the changes to the Record Drawing Mylar Tracings.
6. Submit electronic format data of all Coordination Drawings as required by the Owner, at no additional cost.
7. Refer to Section 01 45 00 "Quality Control" Article 1.3 for required as-built drawings and specifications for fire alarm systems.

C. **Record Specifications:** The Contractor shall maintain one (1) complete copy of the Project Manual, including Addenda. Include with the Project Manual one (1) copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.

1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
2. Give particular attention to equals and substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
3. Note related record drawing information and Product Data.
4. Upon completion of the Work, submit Record Specifications to the Construction Administrator for the Owner's records.

D. **Record Product Data:** The Contractor shall maintain one (1) copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.

1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
3. Upon completion of markup, submit complete set of Record Product Data to the Construction Administrator for the Owner's records.

E. **Record Sample Submitted:** Immediately prior to Substantial Completion, the Contractor shall meet with the Construction Administrator, Architect and the Owner's personnel at the Project Site to determine which Samples are to be transmitted to the Owner for record purposes. Comply with the Owner's instructions regarding delivery to the Owner's Sample storage area.

F. **Miscellaneous Record Submittals:** Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order. Identify miscellaneous records properly and bind or file, ready for continued use and reference. Submit to the Construction Administrator for the Owner's records.

G. **Maintenance Manuals:** Organize operation and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch, 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder according to Division 01 Section 01 78 23 "Operation & Maintenance Data". Included but not limited to the following types of information:

1. Emergency instructions.
2. Spare parts list.
3. Copies of warranties.
4. Wiring diagrams.
5. Recommended "turn-around" cycles.
6. Inspection procedures.
7. Shop Drawings and Product Data.
8. Fixture lamping schedule.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. **Operation and Maintenance Instructions:** Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Tools.
5. Lubricants.
6. Fuels.
7. Identification systems.
8. Control sequences.
9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Startup.
2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

3.2 FINAL CLEANING:

A. **General:** The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 01 Section 01 50 00 "Temporary Facilities and Controls."

B. **Cleaning:** Employ professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion and Certification of Occupancy.

2. Interior:

   a. Remove labels that are not permanent labels.

   b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Remove paint spots; wash and polish glass.

   c. Clean exposed interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

   d. Wash washable surfaces of mechanical, electrical equipment and fixtures and replace filters, clean strainers on mechanical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

   e. Clean and polish finish hardware.

   f. Clean and polish tile and other glazed surfaces.

   g. Clean floors; wax and buff resilient tile. Clean vinyl or rubber base.

   h. Vacuum and/or dust walls, ceilings, lighting fixtures, ceiling diffusers and other wall and ceiling items.

   i. Remove defacements, streaks, fingerprints and erection marks.

3. Exterior:

   a. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth, even-textured surface.

   b. Clean exposed exterior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances.

   c. Clean roofs, gutters and downspouts.

   d. Remove waste and surplus materials, rubbish and construction equipment and facilities from the site, and deposit it legally elsewhere.

   e. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Remove paint spots; wash and polish glass.

C. **Pest Control:** Engage an experienced, licensed exterminator to make a final inspection and rid the work of rodents, insects, and other pests. Provide results of final inspection in writing.

D. **Removal of Protection:** Remove temporary protection and facilities installed for protection of the Work during construction.

E. **Compliance:** Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Construction Administrator.

2. Leave building clean and ready for occupancy. If the Contractor fails to clean up, the Owner may do so, with the cost charged to the Contractor. The Owner will issue a credit change order to cover the costs.

END OF SECTION 01 77 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 00 General Conditions and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for operation and maintenance manuals, including the following:

1. Preparing and submitting operation and maintenance manuals for building operating systems and equipment.

2. Preparing and submitting instruction manuals covering the care, preservation, and maintenance of architectural products and finishes.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 33 00 "Submittal Procedures" specifies preparation of Shop Drawings and Product Data.

2. Division 01 Section 01 75 00 "Starting and Adjusting" specifies instruction of the Owner and Agency operating personnel in the operation and maintenance of building systems and equipment and the general requirements for starting-up equipment and systems.

3. Division 01 Section 01 77 00 "Closeout Procedures" specifies general closeout requirements.

4. Division 01 Section 01 78 30 "Warranties and Bonds" specifies requirements for submittal of warranties and bonds.

5. Division 01 Section 01 81 13 "Sustainable Design Requirements" specifies requirements for submittals related to green building certification.

6. Division 01 Section 01 91 00 “Commissioning” specifies requirements for submittals related Commissioning.

7. Appropriate Sections of Divisions 02 through 49 specify special operation and maintenance data requirements for specific pieces of equipment or building operating systems.

1.3 QUALITY ASSURANCE

A. Maintenance Manual Preparation: In preparation of maintenance manuals, use personnel thoroughly trained and experienced in operation and maintenance of equipment or system involved.

1. Where maintenance manuals require written instructions, use personnel skilled in technical writing where necessary for communication of essential data.

2. Where maintenance manuals require drawings or diagrams, use draftsmen capable of preparing drawings clearly in an understandable format.

B. Instructions for the Owner and Agency Personnel: The Construction Manager must use experienced instructors thoroughly trained and experienced in operation and maintenance of equipment or system involved, to instruct the Owner's operation and maintenance personnel.

C. Commissioning (Cx) Coordination: The Commissioning process requires detailed O&M documentation. The Contractor must submit O&M manuals to the Construction Administrator for review and approval by Commissioning Agent (CxA).

1.4 SUBMITTALS

A. Submittal Schedule: Comply with the following schedule for submitting operation and maintenance manuals:

1. Before Substantial Completion, when each installation that requires operation and maintenance manuals is nominally complete, submit four (4) draft copies of each manual to the Owner’s Representative, Commissioning Agent (CxA), Agency Representative, and Architect for review. Include a complete index or table of contents of each manual.

a. The Owner’s Representative will return one (1) copy of the draft with comments within twenty - one (21) calendar days of receipt.

b. Submit four (4) copies of data in final form at least twenty-one (21) calendar days before final inspection. The Owner's Representative will return one (1) copy within twenty-one (21) calendar after final inspection, with comments.

2. After final inspection, make corrections or modifications to comply with the Commissioning Agent's (CxA), Architect's, and Agency Representative's comments. Submit final copies to the Owner's Representative within twenty-one (21) calendar days of receipt of the Commissioning Agent's (CxA), Architect's, and Agency Representative's comments.

B. Form of Submittal: Prepare operation and maintenance manuals in the form of an instructional manual for use by the Owner's operating personnel. Organize into suitable sets of manageable size. Where possible, assemble instructions for similar equipment into a single binder.

1. Binders: For each manual, provide heavy-duty, commercial-quality, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to receive 8-1/2-by-11- inch paper. Provide a clear plastic sleeve on the spine to hold labels describing contents. Provide pockets in the covers to receive folded sheets.

a. Where two (2) or more binders are necessary to accommodate data, correlate data in each binder into related groupings according to the Project Manual table of contents. Cross-reference other binders where necessary to provide essential information for proper operation or maintenance of the piece of equipment or system.

b. Identify each binder on front and spine, with the printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter covered. Indicate volume number for multiple volume sets of manuals.

2. Dividers: Provide heavy paper dividers with celluloid-covered tabs for each separate section. Mark each tab to indicate contents. Provide a typed description of the product and major parts of equipment included in the section on each divider.

3. Protective Plastic Jackets: Provide protective, transparent, plastic jackets designed to enclose diagnostic software for computerized electronic equipment.

4. Text Material: Where maintenance manuals require written material, use the manufacturer's standard printed material. If manufacturer's standard printed material is not available, provide specially prepared data, neatly typewritten, on 8-1/2-by-11-inch, 20-lb/sq ft white bond paper.

5. Drawings: Where maintenance manuals require drawings or diagrams, provide reinforced, punched binder tabs on drawings and bind in with text.

a. Where oversize drawings are necessary, fold drawings to the same size as text pages and use as a foldout.

b. If drawings are too large to be used practically as a foldout, place the drawing, neatly folded, in front or rear pocket of binder. Insert a typewritten page indicating drawing title, description of contents, and drawing location at the appropriate location in the manual.

1.5 MANUAL CONTENT

A. In each manual include information specified in the individual Specification Section and the following information for each major component of building equipment and its controls:

1. General system or equipment description.
2. Design factors and assumptions.
3. Copies of applicable shop drawings and product data.
4. System or equipment identification, including:
   a. Name of manufacturer.
   b. Model number.
   c. Serial number of each component.
5. Operating instructions.
6. Emergency instructions.
7. Wiring diagrams.
8. Inspection and test procedures.
9. Maintenance procedures and schedules.

10. Precautions against improper use and maintenance.
11. Copies of warranties.
12. Repair instructions including spare parts listing.
13. Sources of required maintenance materials and related services.
14. Manual index.

B. Organize each manual into separate sections for each piece of related equipment. As a minimum, each manual shall contain a title page; a table of contents; copies of product data, supplemented by drawings and written text; and copies of each warranty, bond, and service contract issued.

1. Title Page: Provide a title page in a transparent, plastic envelope as the first sheet of each manual. Provide the following information:

a. Subject matter covered by the manual.

b. Name and address of the Project.

c. Date of submittal.

d. Name, address, and telephone number of the Construction Manager.

e. Name and address of the Architect and Owner's Representative.

f. Cross-reference to related systems in other operation and maintenance manuals.

2. Table of Contents: After title page, include a typewritten table of contents for each volume, arranged systematically according to the Project Manual format. Include a list of each product included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.

a. Where a system requires more than one volume to accommodate data, provide a comprehensive table of contents for all volumes in each volume of the set.

3. Provide a general information section immediately following table of contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the subcontractor or Installer and the maintenance subcontractor. Clearly delineate the extent of responsibility of each of these entities. Include a local source for replacement parts and equipment.

4. Product Data: Where the manuals include manufacturer's standard printed data, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where the Project includes more than one (1) item in a tabular format, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation, and delete references to information that is not applicable.

5. Written Text: Prepare written text to provide necessary information where manufacturer's standard printed data is not available, and the information is necessary for proper operation and maintenance of equipment or systems. Prepare written text where it is necessary to provide additional information or to supplement data included in the manual. Organize text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operation or maintenance procedure.

6. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to assure correct illustration of the completed installation.

a. Do not use original Record Documents as part of operation and maintenance manuals.

7. Warranties and/or Bonds: Provide a copy of each warranty and/or bond in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to follow in the event of product failure. List circumstances and conditions that would affect validity of warranty or bond.

1.6 MATERIAL AND FINISHES MAINTENANCE MANUAL

A. Submit four (4) copies of each manual, in final form, on material and finishes to the Owner's Representative for distribution. Provide **one (1)** section for architectural products, including applied materials and finishes. Provide a second section for products designed for moisture protection and products exposed to the weather.

1. Refer to individual Specification Sections for additional requirements on care and maintenance of materials and finishes.

B. Architectural Products: Provide manufacturer's data and instructions on care and maintenance of architectural products, including applied materials and finishes.

1. Manufacturer's Data: Provide complete information on architectural products, including the following, as applicable:

a. Manufacturer's catalog number.

b. Size.

c. Material composition.

d. Color.

e. Texture.

f. Reordering information for specially manufactured products.

2. Care and Maintenance Instructions: Provide information on care and maintenance, including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information on cleaning agents and methods that could prove detrimental to the product. Include manufacturer's recommended schedule for cleaning and maintenance.

C. Moisture Protection and Products Exposed to the Weather: Provide complete manufacturer's data with instructions on inspection, maintenance, and repair of products exposed to the weather or designed for moisture-protection purposes.

1. Manufacturer's Data: Provide manufacturer's data giving detailed information, including the following, as applicable:

a. Applicable standards.

b. Chemical composition.

c. Installation details.

d. Inspection procedures.

e. Maintenance information.

f. Repair procedures.

1.7 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL

A. Submit four (4) copies of each manual, in final form, on equipment and systems to the Owner's Representative for distribution. Provide separate manuals for each unit of equipment, each operating system, and each electric and electronic system.

1. Refer to individual Specification Sections for additional requirements on operation and maintenance of the various pieces of equipment and operating systems.

B. Equipment and Systems: Provide the following information for each piece of equipment, each building operating system, and each electric or electronic system.

1. Description: Provide a complete description of each unit and related component parts, including the following:

a. Equipment or system function.

b. Operating characteristics.

c. Limiting conditions.

d. Performance curves.

e. Engineering data and tests.

f. Complete nomenclature and number of replacement parts.

2. Manufacturer's Information: For each manufacturer of a component part or piece of equipment, provide the following:

a. Printed operation and maintenance instructions.

b. Assembly drawings and diagrams required for maintenance.

c. List of items recommended to be stocked as spare parts.

3. Maintenance Procedures: Provide information detailing essential maintenance procedures, including the following:

4. **Operating Procedures:** Provide information on equipment and system operating procedures, including the following:
   a. Startup procedures.
   b. Equipment or system break-in.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Instructions on stopping.
   f. Shutdown and emergency instructions.
   g. Summer and winter operating instructions.
   h. Required sequences for electric or electronic systems.
   i. Special operating instructions.
5. **Servicing Schedule:** Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for equipment with moving parts.
6. **Controls:** Provide a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
7. **Identification Drawings:** Provide each Subcontractor's Identification Drawings.
   a. Provide as-installed, color-coded, piping diagrams, where required for identification.
8. **Valve Tags**: Provide charts of valve-tag numbers, with the location and function of each valve.
9. **Circuit Directories:** For electric and electronic systems, provide complete circuit directories of panel boards, including the following:
   a. Controls.
   b. Communication.

C. Electronic Media:

1. For equipment which requires maintenance by operational personnel, provide a professionally developed DVD for the use of maintenance training for the facility. Each DVD will be accompanied by a written index which can be utilized to find any specific item of information by time or place on the DVD.
2. The Construction Manager is responsible for this production. This DVD will be provided to the Owner's Representative at the same time as the delivery of the other maintenance material.
3. The DVD must be able to be edited for future changes to the equipment and modifications as they occur.

1.8 COMMISSIONING RECORD AND TESTING DATA MANUAL

The Contractor shall cooperate with Commissioning Agent (CxA) in the preparation of a separate Manual dedicated to documenting the Commissioning process which will include all certifications and testing data and some repeating of O&M data. Description of this Manual is found in Section 01 91 00 Commissioning and shall be prepared by the Commissioning Agent (CxA).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 78 23

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PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

B. **Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 33 00 "Submittal Procedures" specifies procedures for submitting warranties.
2. Division 01 Section 01 77 00 "Closeout Procedures" specifies contract closeout procedures.
3. Division 01 Section 01 78 23 "Operation and Maintenance Data" specifies required operation and maintenance data.
4. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.
5. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

C. **Disclaimers and Limitations:** Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 WARRANTY REQUIREMENTS

A. **Related Damages and Losses:** When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

B. **Reinstatement of Warranty:** When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. **Replacement Cost:** Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. **Owner's Recourse:** Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

F. The Contractor shall guarantee all materials and workmanship for a period of **eighteen (18)** months from the date of Substantial Completion of the Work. In addition, the Contractor shall furnish the warranties listed below. Submit four (4) copies of each to the Construction Administrator in the supplier's standard form or in the form given below if there is no standard form available.

G. Specification/Warranty Table: The General Contractor shall provide for all warranties as shown in the Specification/Warranty table:

Specification / Warranty Table			
Item No.	**Section No.**		**Specification Product/Warranty**
1.	**03**	N/A	**Floor hardener:** 5 year, material and workmanship.
2.	**05**	N/A	Expansion Joint Covers: 5 year material & workmanship.
3.	**07**	N/A	Single-Ply Membrane Roofing, Base Flashing and Insulation: 25 year unlimited, materials and installation [the manufacturer's no dollar limit (NDL) warranty], and; 2 year General Contractor's warranty for installation.
4.	**07**	N/A	Built Up Roofing (BUR) and Modified Asphalt Roofing, Base Flashing, and Insulation: 20 year unlimited materials and Installation [the manufacturer's no dollar limit (NDL) warranty], and; 2 Contractor's warranty for installation.
5.	**13**	34 19	Metal Roofing and Siding: (Metal Buildings) 20 year against rupture, cracks or perforation due to corrosion, and; 20 year for fluorocarbon finish (if used) against peeling, blistering, fading and chalking as limited by industry standards, and; 10 year weathertightness warranty by General Contractor's installer.
6.	**07**	N/A	Copper Roofing: 10 year against rupture, cracks or perforation due to corrosion and including materials and workmanship.
7.	**07**	N/A	Vents and Hatches: 5 year product and installation, including weathertightness.
8.	**07**	N/A	Waterproofing: 5 year material and workmanship.
9.	**07**	N/A	Water Repellent: The term offered for the Specific product.
10.	**07**	N/A	Exterior Expansion Joint Covers: 5 year material and workmanship, including weathertightness.
11.	**07**	N/A	Wood Shingles (roofing, siding): 10 year for material and workmanship.
12.	**07**	N/A	Exterior - Interior Caulking and Sealants: 5 year, material and workmanship.
13.	**07**	N/A	Metal Flashing and Sheet Metal: 3 year, material and workmanship.
14.	**07**	N/A	Asphalt Roof Shingles: 25 year, material pro-rated.
15.	**07**	N/A	Asphalt Roof Shingles Installation: 15 year, workmanship, pro-rated.
16.	**08**	N/A	Solid Wood Core and Mineral Core doors: Lifetime for interior doors. 5 year for exterior doors.
17.	**08**	36 13	Overhead Doors (coiling or sectional): 5 year material and workmanship.
18.	**08**	N/A	Skylights: 5 Year product and installation, including weathertightness.
19.	**08**	70 00	**Closers, Locksets, Exit Bolts:** Longest term offered by manufacturer for grade/class of particular item, material and workmanship.

Specification / Warranty Table (Continued)			
Item No.	**Section No.**		**Specification Product/Warranty**
20.	**08**	81 00	Insulating glass: 10 year against failure of hermetic seal, interpane dusting, or misting including replacement of unit.
21.	**08**	N/A	Windows: 5 year material and workmanship including weathertightness.
22.	**08**	N/A	Laminated Glass: 10 year against delamination.
23.	**08**	N/A	Storefront/Curtain Wall: 5 year material and workmanship (insulating glass separate). Air and water infiltration and strength to specified AAMA designation.
24.	**09**	N/A	Carpet: 10 year wear and color fastness, and; 3 year installation.
25.	**10**	N/A	Operable Partitions: 5 Years, material, and workmanship.
26.	**10**	N/A	Mirrors: 15 years against silver spoilage.
27.	**14**	N/A	Elevators and Wheelchair Lifts: 18 months for material, workmanship, and installation.
28	**22**	N/A	Electric Heating Cable: 10 years, material, and installation.
29	**22**	N/A	Water Softener: 10 years, material, and installation.
30	**22**	N/A	Instantaneous Heat Exchangers: 1 year, material, and installation.
31	**23**	N/A	Fuel Storage Tank: 30 years, material, and installation.
32	**23**	N/A	Compressors and Pumps: 5 years, material and installation,
33	**26**	N/A	Dimming Controls: 8 years, material and installation,
34	**26**	20 10	Switchboards and Panels: 5 years, material and installation,
35	**26**	N/A	Engine Generators: 10 years, material and installation,
36	**26**	N/A	Uninterruptable Power Supply: 3 years, material and installation,
37	**26**	01 00	Emergency Lighting Batteries: 10 years, material and installation,
38	**26**	N/A	Lighting Ballasts: 5 years, material and installation,
39	**32**	N/A	Plant Material, Turf and Grasses: 24 months, material and installation, and growth.

H. Submit certification that finish materials are fire rated as specified.

J. Form of Warranty: Warranties shall be submitted in following format:

Warranty

Commissioner: Melody A. Currey
Department of Administrative Services
DAS Commissioner's Office
450 Columbus Boulevard, Suite 1501
Hartford, CT 06103

Project Number: BI-RT-888
Project Title: New Garage Building

I (We) hereby warranty

the _____ work on the referenced project for a period of _____ years

from _____ , 20 _____ against failures of workmanship and materials in accordance

with the requirements of Section _____ , Page _____ , Paragraph _____ , of the Specifications.

Installer ☐ | ***Subcontractor*** ☐ | ***Vendor/Suppliers*** ☐ | ***Manufacturer*** ☐

Installer or Subcontractor or Vendor/Suppliers or Manufacturer Name: _____

Installer or Subcontractor or Vendor/Suppliers or Manufacturer Signature: _____

General Contractor's Name _____

General Contractor's Signature: _____

or

General Contractor's Authorized Agent Signature: _____

K. Bonds shall be by approved Surety Companies, made out to the Commissioner, Department of Administrative Services on companies' standard form.

L. Warranties, Guarantees, or bonds supplied by the General Contractor's Subcontractors or Vendors/Suppliers or Manufacturers shall reference the project name, number, and location and be certified by the General Contractor to be for the product and installation on the project and must be countersigned by the General Contractor.

M. Bonds shall be by approved Surety Companies, made out to the Commissioner, Department of Administrative Services, on company's standard form.

N. Guarantees, warranties or bonds supplied by Subcontractors, Suppliers or Manufacturers shall reference the project name, number, and location and be certified by the Contractor to be for the product and installation on the project and must be countersigned by the Contractor.

1.4 SUBMITTALS

A. Submit written warranties prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.

B. Forms for special warranties are included in this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Submit a draft to the Owner, through the Construction Administrator, for approval prior to final execution.

1. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Form of Submittal: At Final Completion compile two (2) copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION 01 78 30

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including the General and Supplementary Conditions, apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

A. Furnish all labor, supervision, materials, tools and equipment necessary for, or incidental to the completion of the formwork for cast-in-place concrete as shown on the Contract Drawings and/or as specified.

B. Built-In Inserts

1. Install built-in anchors, anchor bolts, inserts, sleeves, angles, bolts, etc, as required under other Divisions shall be furnished by such trades.

1.3 RELATED WORK

A. Section 03 20 04 - Concrete Reinforcement
B. Section 03 30 04 - Cast-in-Place Concrete

1.4 QUALITY ASSURANCE

A. Design Criteria

1. Design of formwork shall conform to ACI 318 Chapter 6 and ACI 347, Chapter 2. The design and engineering of the formwork, as well as the construction, shall be the responsibility of the Contractor. Formwork shall be designed to support gravity and wind loads as specified by the State Building Code. Allowable stresses shall meet applicable requirements of the State Building Code.

2. Formwork shall be mortar tight, sufficiently rigid and strong to prevent sagging or springing between supports and to maintain true position and shape during and after placing of concrete, without waves, bulges, or other defects in finished concrete surfaces.

3. Erection and removal of formwork shall conform to the requirements of ACI 301, Section 2, except as modified herein.

B. Allowable Tolerances

1. Erect and maintain concrete forms so as to insure completed work within the tolerance limits of ACI-117, unless otherwise noted in the Contract Documents.

1.5 SUBMITTALS

A. Contractor shall submit shop drawing to the Engineer for review of temporary shoring locations and locations of any construction, control or expansion joints to be used in all walls and slabs, as outlined in Section 03 20 04 Concrete Reinforcement.

B. The Contractor shall submit fully detailed shop drawings for all permanent metal forms to the Engineer for review. Shop drawings shall include form thicknesses, physical dimensions, accessories, coatings and method of attachment to supporting structure.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Conform with ACI 347, Chapter 3.

B. Unexposed surfaces may be formed with dressed matched lumber, free from loose knots or major defects.

C. Exposed concrete surfaces shall be formed with three-quarter (3/4") inch thick sound plywood without patches, A.P.A. Plyform Ext. B-B, using a minimum of pieces and placed symmetrically.

D. Chamfer strips shall be new half-inch (1/2") 45 degree wood strips, nailed six (6") inches on center, and installed in inside corners of forms.

E. Form releasing agent shall be a clear, non-staining material the approved equal of Nox-Crete.

PART 3 - EXECUTION

3.1 INSPECTION

A. The Contractor shall notify the Engineer twenty-four (24) hours prior to placing foundation forms for examination of soil bearing material.

3.2 PREPARATION OF WOOD FORM SURFACES

A. All forms shall be coated with a non-staining form release agent compound before the reinforcement is placed.

B. Forms shall be thoroughly cleaned and recoated with form release agent before re-use.

3.3 INSTALLATION OF TEMPORARY FORMS

A. Construct forms to shape, grade and dimensions shown, sufficiently tight to prevent leakage. Joints shall be placed on true vertical and horizontal axis.

B. Side forms shall be used for footings and grade beams.

C. Erect formwork and adequately support, brace and maintain so as to safely support construction loads and to remain in correct position during and after placing concrete without displacement.

D. Forms for external corners of exposed members shall be accurately fitted and securely fastened. Install beveled chamfer strips nailed at six (6") inches on center, in corners of all exposed members to provide a three-quarter (3/4") inch chamfer, measured at the diagonal face.

E. Forms shall be recessed to receive anchor bolts and bearing plates.

F. Formwork shall be pitched as required to meet finished slab elevations as shown on the Contract Drawings, to maintain the depth of any slab or beam. Camber formwork as shown on Contract Drawings to meet tolerances.

G. Attach to formwork as required items such as preformed reglets, and any other anchors, inserts, bolts, or sleeves. Coordinate with requirements of all other Divisions' work for proper lines and spacing.

H. Provide cleanout panels at bottom of walls and columns for cleaning and inspection.

I. Keys shown shall be two (2) inches deep by one-third (1/3) the total thickness, and beveled unless otherwise noted.

3.4 WALL CONSTRUCTION JOINTS

A. Unless otherwise shown on the Drawings, foundation walls shall have vertical construction joints located no

more than sixty-five (65') feet apart. No vertical construction joint shall be within four feet zero inches (4'-0") of any column pier, corner or footing joint.

B. See Section 03 30 04 for Slab Construction Joint Requirements.

3.5 TIES

A. Where vertical surfaces are exposed in either exterior or interior areas, use wood cone snap ties with one and one-half (1 1/2") inch break back.

B. Locate form ties for exposed concrete in horizontal rows and vertical tiers. Drill forms to suit ties used. Do not splinter forms by driving ties through improperly prepared holes.

3.6 SHORING OF METAL FORMS

A. Shore metal deck forms at all locations as recommended by metal form supplier and in accordance to the Steel Deck Institute recommendation. Shores shall be supported on the same structural members which support the metal deck and not from the floor below, and shall be designed so that deflection of shore at any point is not more than 1/360th of the deck span being shored. Note: Metal deck forms will generally not require shoring; however, some areas with long spans and/or thicker concrete slabs may require shoring.

3.7 REMOVAL OF FORMWORK

A. The Contractor shall be solely responsible for construction during and after form removal.

B. Formwork for footings may be removed twenty-four (24) hours after placing of concrete.

C. Formwork not supporting the weight of concrete, such as sides of beams, walls, columns and similar parts of the work, may not be removed in less than seventy-two (72) hours after placing the concrete, and provided that curing and protection operations are maintained.

D. Formwork supporting the weight of concrete, such as beam soffits, joists, slabs and other structural elements of work, may not be removed in less than fourteen (14) days or until the concrete has attained a minimum strength to carry its own weight and any approved superimposed load, which at no time shall exceed the design live load of that floor.

E. No construction loads exceeding the dead load plus live load shall be supported on any unshored portion of the structure under construction. No construction loads shall be supported on, nor any shoring removed from, any part of the structure under construction except when that portion of the structure in combination with the remaining forming and shoring system has sufficient strength to support safely its weight and the loads placed thereon.

F. Exercise care in form removal to prevent chipping of corners or other damage to concrete. Any damage to concrete shall be patched as per Section 03 30 04 Cast-in-Place Concrete.

END OF SECTION 03 10 04

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including the General and Supplementary Conditions, apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

A. Furnish all labor, supervision, materials, tools and equipment necessary for, or incidental to completion of the concrete reinforcement for cast-in-place concrete as shown on the Contract Drawings and/or specified.

1.3 RELATED WORK

A. Section 03 10 04 - Concrete Formwork
B. Section 03 30 04 - Cast-in-Place Concrete

1.4 QUALITY ASSURANCE

A. Allowable tolerances: Fabricating and placing tolerances as outlined in ACI 301, Section 3, except as modified by these specifications.

1.5 SUBMITTALS

A. Shop Drawings

1. The Contractor shall submit detailed drawings which clearly show location, splicing, cover, sizes, and spacing of all reinforcing and wire fabric. Schedules and diagrams shall indicate bends, sizes, and lengths of reinforcing members. All reinforcement in concrete walls and grade beams shall be shown in elevation one eighth inch equals one foot zero inch (1/8" = 1'-0") scale. All construction joints, as required on the Contract Drawings or requested by the Contractor, shall be shown with any additional reinforcement required. Show and locate all concrete openings, including those required for other Divisions. Any drawings submitted without showing construction joints and openings will be rejected and will not be reviewed.

B. No reinforcing shall be cut, fabricated, shipped on the job site or placed before shop drawings are reviewed. Only shop drawings bearing the Engineer's stamp marked "Furnish as Submitted" or "Furnish as Corrected" shall be used in the field.

C. Certificate

1. The manufacturer shall submit to the Engineer certified test results stating that the reinforcing steel and welded wire fabric conform to the chemical composition and tensile and bending requirements as outlined in ASTM A615 and ASTM A185.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver reinforcement to the project site in bundles, marked with metal tags indicating bar size, grade and length.

B. Store reinforcing on skids or other supports above ground and protect from any damage or surface contamination, which would impair its bonding qualities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All reinforcing bars shall conform to the requirements of ASTM A615, Grade 60.

B. Welded wire fabric shall conform to the requirements of ASTM A185.

C. Metal Accessories

1. Provide all spacers, chairs, ties, clips and other devices required for proper placement.

D. Epoxy adhesive shall be HIT HY 200 as furnished by Hilti, Inc., Tulsa, Oklahoma.

2.2 FABRICATION

A. Bar reinforcing shall be fabricated cold to dimensions given on the Contract Drawings. Conform to ACI standards 318 and 315 for forming hooks and bends and for detailing, fabricating, and erecting reinforcement.

B. Reinforcing shall be accurately formed to dimensions on drawings, details and schedules within the following tolerances:

Sheared Length .....±1 inch
Stirrups, Ties and Spirals.....±1/2 inch
All Other Bends.....±1/2 inch

C. Reinforcing shall be bent cold and shall not be straightened or bent in a manner that will injure the materials.

PART 3 - EXECUTION

3.1 INSPECTION

A. The Contractor shall notify the Engineer twenty-four (24) hours prior to placing concrete to inspect secured reinforcing. No concrete shall be placed until reinforcing has been inspected.

3.2 INSTALLATION

A. Placement

1. Reinforcement shall be free of paint, dirt, oil, or excessive scale or rust that might reduce its bond strength with concrete.

2. Reinforcement shall be accurately placed and secured against displacement before and during the placing of concrete. Provide metal chairs, supports, and spacers to secure steel in correct horizontal and vertical position. Conform to "Recommended Practice for Placing Reinforcing Bars" (CRSI) in spacing of bolsters for slab and beam bottom reinforcing and in spacing of support bars on continuous high chairs for top slab reinforcement. The use of individual high chairs is prohibited.

3. No welding of bars will be allowed.

4. For exposed concrete in soffits or ceilings, bar supports shall be stainless steel, plastic, or have plastic ends of an approved type in contact with forms.

5. Reinforcement shall stop at expansion joints and continue through construction joints.

6. All reinforcing bars shall be supported and wired together to prevent displacement by construction loads

or the placing of concrete beyond the tolerances specified below. On ground, solid concrete blocks, made of 3000 psi concrete, shall be used to support any reinforcing bars in slabs. Surfaces of blocks shall be sufficiently rough to insure proper bond with cast-in-place concrete. Reinforcement shall be secured against displacement with annealed iron wire ties or suitable clips at all intersections, except reinforcing for footings may be wired at alternate intersections.

B. Cast-in-Place Concrete Reinforcing Cover

1. Footing and grade beams cast against and permanently exposed to earth .....3"

2. Walls, #6 bars and larger.....2"

3. Piers, #5 bars, 5/8 in., wire and smaller.....1 1/2"

4. Structural Slabs:

   a. Not exposed to weather or in contact with the ground.....3/4"
   b. Exposed to weather or in contact with the ground .....1"

5. Beams, girders, columns: Principal reinforcement, ties, stirrups or spirals .....1 1/2"

C. Reinforcing Placing Tolerances

1. Place reinforcing as shown on drawings and schedules within the following tolerances:

   Cast-in-Place Concrete Cover
   to Formed Surfaces ..... + 1/4 inch

   Depth to Steel Reinforcing of:
   24" or Less..... + 1/4 inch
   More than 24" ..... + 1/2 inch

   Longitudinal Location of Bends
   and Ends of Bars, Except at
   Ends of Members..... + 2 inches

D. Splicing

1. Lap splices - tie securely with wire to prevent displacement during placement of concrete.

2. Splice bars only at the locations and to the lengths shown on the Contract Drawings or as accepted on the Shop Drawings.

E. Welded Wire Fabric

1. Fabric shall be shipped in flat sheets.

2. Wire fabric end and side laps shall be even multiple of wiring spacing and shall be not less than six (6") inches.

3. Wire fabric reinforcement for structural slabs shall be supported on continuous high chairs at all slab support member locations.

4. Wire fabric reinforcement for slabs on grade shall be placed in the upper third of slab depth.

5. Wire fabric for slabs on grade shall be supported on masonry blocks or other suitable supports at a

spacing not to exceed four feet zero inch (4'-0") on center.

6. All exterior slabs on grade shall contain welded wire fabric unless otherwise noted.

END OF SECTION 03 20 04

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including the General and Supplementary Conditions, apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

A. Furnish all labor, supervision, materials, tools and equipment necessary for or reasonably incidental to completion of all cast-in-place concrete as shown on the Contract Drawings and/or specified herein.

B. Work shall include all footings, piers, walls, slabs on grade, retaining walls, grade beams, structural slabs, concrete stairs and platforms and beams shown on the Contract Drawings.

C. Pads and miscellaneous concrete as required for Mechanical and Electrical Divisions.

D. Set anchor bolts and leveling plates specified in Division 5, Structural Steel.

E. Place all anchors, inserts, dovetail slots, hangers, sleeves and etc. which must be encased in concrete for other Divisions.

1.3 RELATED WORK

A. Section 03 10 04 – Concrete Formwork
B. Section 03 20 04 – Concrete Reinforcement

1.4 QUALITY ASSURANCE

A. Standards

1. Concrete work shall conform to all requirements of ACI-301 “Specifications for Structural Concrete” latest edition.

2. Design of concrete shall conform to all requirements of ACI-318 “Building Code Requirements for Structural Concrete” latest edition.

B. Testing Agency

1. The Owner will engage and pay for an independent commercial testing laboratory to test concrete used on this project.

2. Testing required under Section 2.02, Proportions, shall be by an independent commercial laboratory as approved by the Engineer, and at the Contractor's expense.

C. Quality Control

1. Compression Tests

a. Tests shall be made in conformance with ASTM C39. Each test shall consist of four (4) cylinders made and tested by the laboratory during the progress of the project, testing as follows:

i. One (1) - after curing seven (7) days in the field.
ii. Three (3) - after curing twenty-eight (28) days in the laboratory.

b. At least one (1) test shall be made every one hundred (100 cy) cubic yards of concrete or fraction thereof, placed in any one concreting operation on any given day.

c. Concrete for each set of cylinders shall be from any one (1) sample, representative of the entire batch.

d. Specimens shall be made, cured and tested in accordance with ASTM C31.

e. When concrete is pumped, test cylinders shall be made from concrete taken at the discharge end of the pumping train.

2. Additional tests as follows shall be made from the concrete taken to mold the cylinders.

a. Slump test - in accordance with ASM C143.

b. Air-entrainment test - in accordance with ASTM C173 or ASTM C231.

3. The Contractor shall notify the Engineer and the testing laboratory twenty-four (24) hours before concrete placement and shall cooperate in making of cylinders by the testing laboratory.

1.5 SUBMITTALS

A. Test Reports

1. Report of tests shall be submitted to the Engineer and shall include: name of job, date and location of placement, class of concrete, mix data, and slump, air content, compressive strength, age and condition of test cylinders, weight of each cylinder tested for 7 day break, type of fracture, and method of curing.

2. One (1) copy of all test reports shall be promptly forwarded by the testing laboratory to the Engineer, plus one (1) copy each to the Architect, Contractor and Concrete Supplier.

B. Test Results

1. The average of the tests for any portion of the structure shall equal or exceed the specified twenty-eight (28) day compressive strength (fc).

2. No single strength test shall have a value less than 90% of the specified compressive strength (fc).

3. Where the concrete does not comply with these requirements, the Engineer may require other tests, such as cored cylinders (in conformance with ASTM C42) or load tests, all at the Contractor's expense. Should the concrete fail to pass such tests, it shall be removed and replaced at no additional cost to the Owner. In addition, the Contractor may be required to remove and replace sound portions of structure as necessary to insure safety, appearance, and durability of the structure. Additional load tests strengthening or removal and replacement of parts of structure and any costs associated with delay of projects shall be at Contractor's expense.

C. Concrete Proportions

1. See Section 2.02A thru 2.02J for additional requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cement: domestic portland cement conforming to ASTM C150, Type I or Type II.

B. Fine aggregate: natural sand conforming to ASTM C33.

C. Coarse aggregate: crushed stone or crushed washed gravel conforming to ASTM C33.

D. Water: clean, potable.

E. Admixtures: Each admixture shall be approved by the Engineer. No admixtures containing calcium chloride or other water soluble chlorides will be allowed. Each manufacturer shall submit a written notarized statement to the Engineer of the chloride content of each admixture. Formulate admixtures to avoid an increase in water-cement ratio or loss of strength.

1. Air entraining agent: ASTM C-260.

2. Retarder - Densifier: ASTM C-494, Type D.

3. Accelerator: ASTM C-494 Type C.

4. Water-reducing agent: ASTM C-494, Type A.

F. Non-shrink non-metallic grout: CE CRD C-621.

G. Curing and sealing compound: Fed. Spec. TT-C-800A Type I, ASTM C-309.

H. Polyethylene film: white opaque, reinforced six (6) mils thick.

I. Curing paper shall be the approved equal of Sisalkraft Paper "Orange Label" that conforms with ASTM C171, Type I.

J. Premolded joint filler shall be a preformed bituminous expansion type that conforms to ASTM D-994. Joint material thickness shall be one-half (1/2") inch thick, except as otherwise indicated on the drawings.

2.2 PROPORTIONS

A. Concrete mix proportions shall be selected to produce an average compressive strength exceeding the required twenty-eight (28) day compressive strength (fc) in accordance with ACI 318 Chapter 5.3, proportioning on basis of field experience, or trial mixtures, or both. The Contractor shall submit to the Engineer the concrete strength to which the materials were proportioned, and copies of any records that the concrete supplier may have showing standard deviations in previous mixes.

B. Mix proportions shall be as outlined in ACI 301Section 4 by the testing laboratory.

C. Where a concrete production facility has a record, based on at least thirty (30) consecutive strength tests that represent similar materials and conditions to those expected, required average compressive strength used as the basis for selecting concrete proportions shall exceed required fc at designated test age by at least:

400 psi if standard deviation is less than 300 psi
550 psi if standard deviation is 300 to 400 psi
700 psi if standard deviation is 400 to 500 psi
900 psi if standard deviation is 500 to 600 psi

1. If standard deviation exceeds 600 psi, concrete proportions shall be selected to produce an average strength at least 1200 psi greater than required fc.

D. Strength test data for determining standard deviation shall be considered to comply with Section 2.02C, if data represents either a group of at least thirty (30) consecutive tests or a statistical average for two (2) groups totaling thirty (30) or more tests.

E. Strength tests used to establish standard deviation shall represent concrete produced to meet a specified strength or strengths within 1000 psi of that specified for the proposed work.

F. Changes in materials and proportions within the population of background tests used to establish standard deviation shall not have been more closely restricted than for the proposed work.

G. After sufficient experience and test data become available from the job, using ACI 211 methods of evaluation, the standard deviation may be reduced when the probable frequency of tests more than 500 psi below required compressive strength will not exceed one in one-hundred (1 in 100), and that probable frequency of an average of three (3) consecutive tests below required compressive strength will not exceed one in one hundred (1 in 100).

H. If it is intended to place any concrete by pumping, a corresponding mix shall be designed for such placement and so designated.

I. No concrete shall be placed until tests of design mixes show a twenty-eight (28) day average compressive strength at least equal to the specified design compressive strength or until the concrete design mix proportions have been accepted by the Engineer.

J. Contractor shall submit the following data:

1. Fine aggregate - organic content, sieve analysis, fineness modulus and specific gravity.

2. Coarse aggregate - sieve analysis and average weight loss in accordance with ASTM C-33.

3. Mix design, including cement brand, proportions of aggregate by weight, slump, water-cement ratio, percentage of air.

4. Thirty (30) twenty-eight (28) day compressive test results on proposed mix that comply with Section 2.02C.

5. Admixture-types, brand and quantity.

2.3 SPECIFIC REQUIREMENTS

A. Concrete for all the parts of the work shall be 3,000 psi at twenty-eight (28) days and meet the values shown in the following Table:

Min. compressive strength @ 28 days (psi)	3,000
Slump (inches)	2 1/2 - 4
Max. size coarse aggregate (inches)	1 1/2
Max. size coarse aggregate for suspended slabs and pumped concrete (inches)	3/4
Max. size coarse aggregate for minimum 5 inch thick slab on grade (inches)	1 1/2
Min. cement factor (sacks per cy)	5 1/2

1. Water content shall include surface water in aggregates.

B. Concrete for Interior Slabs shall also conform to the following requirements:

Min. compressive strength @ 28 days (psi)	3,000
Maximum water cement ratio shall be	0.48
Min. cement factor (sacks per C.Y.)	5 1/2

1. Mix shall include a mid-range water reducer such as Polyheed 997 as manufactured by Master Builders, Inc. or equivalent.

2. Mix shall be proportioned to provide a maximum 5" slump at point of discharge.

3. Interior concrete slabs-on-grade shall not be air entrained.

C. Concrete for exterior flatwork shall be 4,000 psi at twenty-eight (28) days and meet the values shown in the following Table:

Min. compressive strength @ 28 days (psi)	4,000

Slump (inches)	2 1/2 - 4
Max. size coarse aggregate (inches)	1 1/2
Max. size coarse aggregate for suspended slabs and pumped concrete (inches)	1
Max. size coarse aggregate for minimum 5 inch thick slab on grade (inches)	1 1/2
Min. cement factor (sacks per cy)	6 1/2

1. Water content shall include surface water in aggregates.

D. All concrete exposed to the weather, including site work, shall be air-entrained as follows:

Maximum Size Aggregate	Air Content % by Volume
1 1/2 inch	4 - 7
1 inch	4.5 - 7.5
3/4 inch	4.5 - 7.5
1/2 inch	5.5 - 8.5
3/8 inch	6 – 9

E. Variations of proportions may be permitted to produce more workable materials on approval by the Engineer.

PART 3 - EXECUTION

3.1 PRIOR TO PLACING CONCRETE

A. Soil bottoms for footings and slabs shall be accepted by the Engineer before placing concrete. The subgrade shall be free of frost before concrete placing begins.

B. All debris, sawdust, ice, etc., is to be cleaned from place of deposit before concrete is placed.

C. All water is to be removed from place of deposit before concrete is placed. Provide drainage or pumping as required to maintain dry excavation until concrete has taken initial set.

D. All conduits and piping are to be dug into subgrade sufficiently so as to provide uniform slab thickness.

E. Prior to placing any concrete, the Contractor shall notify the Engineer twenty-four (24) hours in advance so that formwork and reinforcing may be inspected. Do not place concrete until inspection has been made or waived.

F. All dowels, anchor bolts, sleeves, inserts and other embedded items shall be set with the aid of templates and shall be securely positioned in place prior to the placement of concrete.

3.2 MIXING

A. Concrete shall be ready-mixed in conformance with the requirements of ASTM C94 for measurement of materials, batching, mixing and delivery, and shall be discharged within one and one-half (1 1/2) hours after water is first added to the mix, except that in unusually hot weather, this maximum time may be reduced.

B. Mixing and conveying equipment shall be thoroughly clean and free from hardened concrete and foreign materials before concrete operation is started.

C. All materials including water shall be added to ready-mixed concrete at the batching plant. Water shall not be added to the mix on the project site. Mixing shall be continued for at least one and one-half (1 1/2) minutes prior to its use.

D. Mixer shall produce thoroughly mixed, uniform mass, and discharge mixture without segregation. Entire batch shall be discharged before mixer is recharged.

E. Partially hardened concrete shall not be retempered or used.

F. Delivery Tickets

1. One (1) copy of all concrete delivery tickets shall be furnished to the Engineer on request. Contractor shall note on tickets location of placement. Delivery tickets shall provide the following information:

   a. Date and truck number
   b. Name of ready-mix batch plant
   c. Contractor and job location
   d. Cement brand, type mix number and weight in pounds
   e. Fine aggregate weight in pounds
   f. Maximum size of aggregate
   g. Coarse aggregate weight in pounds
   h. Water in gallons
   i. Admixture, name and amount in concrete, if any
   j. Amount of concrete in cubic yards
   k. Time mix left plant

3.3 DEPOSITING CONCRETE

A. Depositing of all concrete shall be in accordance with ACI 304.

B. Concreting shall conform to the requirements of ACI 305 or ACI 306 in hot or cold weather as required. See Section 3.07.

C. All Contractors whose work is related to the concrete or must be supported by it shall be given ample notice and opportunity to introduce and/or furnish embedded items before the concrete is placed.

D. Unless adequate protection is provided, and approved by the Engineer, concrete shall not be placed during rain, sleet, or snow.

E. Concrete shall be conveyed from the mixer to the place of final deposit in a practically continuous flow by methods which will prevent the separation or loss of the ingredients. It shall be placed in the forms or on grade as nearly as practicable to its final position and shall be thoroughly vibrated around all reinforcing bars and mesh to assure complete absence of voids. Under no circumstances shall partially hardened concrete be placed in the work. Concrete shall be prohibited from free-falling in excess of four (4) feet.

F. Concrete may be pumped. Use of aluminum alloys in the pumping train is prohibited.

G. Concrete shall be thoroughly compacted and worked into the forms and around the reinforcing by means of suitable mechanical vibrators. Sufficient vibrators shall be on hand to allow for breakdowns. Vibrators shall be run deep into the concrete and shall remain in one position until the concrete is thoroughly compacted, but not long enough to cause segregation of the aggregates.

H. Vertical lifts shall not exceed eighteen (18") inches. Vibrate through successive lifts to avoid pour lines. Vibrate first lift thoroughly until top of lift glistens to avoid stone pockets, honeycomb, and segregation.

I. Concrete shall be deposited continuously, and in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness within section. If section cannot be placed continuously between planned construction joints, as specified, field joint and additional reinforcement shall be introduced so as to preserve structural continuity. Engineer shall be notified in any such case.

J. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed in daylight on the same day.

K. Cold joints, particularly in exposed concrete, including "honeycomb", are unacceptable. If they occur in concrete surfaces exposed to view, Engineer may require that entire section in which blemish occurs be removed and replaced with new materials at Contractor's expense.

3.4 CONSTRUCTION AND CONTROL JOINTS

A. Walls, Columns, Beams, and Slab on Grade, and Structural Slab

1. No additional construction joints, except those shown on the Contract Drawings, accepted on the shop drawings, or accepted by the Engineer will be allowed.

2. The surface of the concrete at all joints shall be hard and thoroughly cleaned prior to placing adjoining concrete.

3. The cured or partially cured concrete of construction joints, except at locations noted below, shall be dampened (but not saturated) immediately prior to the placing of fresh concrete.

4. The face of hardened concrete joints in exposed work and joints in the middle of beams, girders and slabs shall be dampened (but not saturated) and then thoroughly covered with a coat of neat cement grout of similar proportions to the mortar in the concrete. The grout shall be as thick as possible on vertical surfaces and at least one-quarter (1/4") inch thick on horizontal surfaces. The fresh concrete shall be placed before the grout has attained its initial set.

5. Construction joints shall be constructed with reinforcing continuous through joint unless otherwise shown. All key bulkhead joints shall be constructed with a key depth of one-third (1/3) the total thickness unless otherwise shown.

6. Sawcut control joints in slabs shall be saw cut within twenty-four (24) hours of concrete placement. Control joint shall be sawed to depth of one-quarter (1/4) of the slab thickness.

7. Unless otherwise shown on the Drawings, slabs on grade shall be broken down into sections with control and/or construction joints that do not exceed six hundred fifty (650 sf) square feet area and whose dimensions do not exceed a one and one-half to one (1 1/2 to 1) ratio.

3.5 FINISHED CONCRETE SURFACES

A. Walls

1. It is the intent of this Specification that forming operations be performed in a manner which will produce sound concrete surfaces, free of bulges and offsets, with a minimum of fins, blemishes due to form defects and honeycomb areas.

2. Any exposed concrete which is not formed as shown on the Plans, or for any reason is out of alignment or level beyond tolerance specified, or shows a defective surface, shall be considered as not conforming with the intent of these Specifications; and shall be removed from the job by the Contractor, at his expense, unless the Engineer grants permission to patch the defective area.

3. Immediately after removing forms, all concrete surfaces shall be inspected and any pour joints, voids, pockets, or other surface defects shall be repaired at once, before the concrete is thoroughly dry.

4. Cut out surface defects which do not impair structural strength to 1 inch depth and refill with fresh concrete. Thoroughly wet cuts immediately prior to filling with stiff concrete of approximately the same mix as the adjoining work. After a partial set, compress and rub to produce a finish similar in texture and color to adjoining work.

5. Clean all exposed surfaces, concrete and adjoining work stained by the leakage of concrete.

6. Remove wood cones remaining after the rods are snapped off, and fill holes with a concrete mortar finished to the same color and texture of surrounding concrete.

7. All surfaces on both the interior and exterior, which are exposed or are within six (6) inches of being exposed in the completed building, shall have a "rubbed finish" (i.e., smooth rubbed finish, or grout

cleaned finish). Parging will not be accepted. Finish all rubbed concrete surfaces in accordance with ACI 301, Section 5.3.3.4.

8. Do not clean, rub or patch in freezing temperatures, or when frost is on concrete surface.

9. Permission to patch does not imply waiver of Engineer's right to require complete removal and replacement of said work if, in Engineer's opinion, said patching does not satisfactorily restore quality and appearance of work.

B. Slabs Finishing

1. All interior concrete slabs shall be finished by screeding, floating, floated finish, and steel troweled to a smooth even surface in accordance with ACI 301, Section 5.3.4, unless otherwise noted.

2. All exterior steps and slabs and interior slab scheduled for toppings shall be finished by screed floating, floated finish and broom finish in accordance with ACI 301, Section 5.3.4.

3. Any slab surface finish not specified shall be finished in accordance with ACI 301, Section 5.3.4.2.j.

4. No dry cement or other materials shall be applied to surface of any concrete slab to absorb moisture prior to finishing.

5. Provide a positive pitch to all floor drains as shown. Pitch exterior slabs away from the building as shown on the Drawings.

6. Provide one-eighth (1/8) inch radius tooled edging at all exposed slabs and/or sidewalk edges.

7. Provide proper depression in concrete to accept specified finish floor materials.

C. Stairs

1. Stair treads, landing slabs, and platforms shall be floated and given a troweled finish, as outlined above.

3.6 CURING

A. All concrete shall be kept constantly moist and protected against any drying action for not less than seven (7) days after placing of the concrete, and shall be accomplished in the following manner:

1. Walls, Beams and Columns

a. Formwork shall not be removed for a minimum of three (3) days.
b. For the remainder of the curing period, the concrete shall be kept moist by the application of absorptive mats or other moisture retaining covering as accepted by the Engineer, kept continuously wet or curing compounds. Application of curing compound is to follow immediately behind form removal to prevent surface from drying out.

2. All slabs, either slab on grade or suspended slabs, shall be cured using curing paper.

3. Where concrete is cured by curing paper, cover surface immediately after finishing. Joints shall be lapped five (5") inches, and squeegee curing paper to remove wrinkles. Repair all rips and tears until end of curing period.

4. The use of curing compounds on exterior slab on grade construction (sidewalks) is not permitted.

3.7 CONCRETING PRECAUTION FOR WEATHER EXTREME

A. Cold weather: Precautions shall be taken when the temperature is at or below 40 degrees F, or at 45 degrees F and falling, in accordance with "Guide to Cold Weather Concreting", ACI 306.

1. Set up a proper enclosure and heat to 50 degrees F for at least four (4) hours before starting any pour.

2. Use a water-reducing admixture with an accelerated set, but do not use or rely upon any materials as an "antifreeze".

3. Use vented heaters with blowers so placed that they do not produce localized hot spots which may dry out the concrete.

4. Maintain the temperature of the concrete at not less than 50 degrees F for seventy-two (72) hours and at above freezing for an additional seven (7) days. The temperature shall then be allowed to drop gradually to the exterior air temperature before the enclosure is removed at the rate of not more than 5 degrees F per hour nor 50 degrees F in any twenty-four (24) hour period before discontinuing.

5. All frozen concrete shall be removed from the job and replaced.

B. Hot weather: Precautions shall be taken when the temperature is at or above 75 degrees F, or at 70 degrees F and rising, in accordance with "Guide to Hot Weather Concreting", ACI 305. No concrete shall be placed when the air temperature is above 90 degrees F, unless the air is still and relative humidity is above eighty (80%) percent.

1. Set up proper windbreakers for concrete surfaces wherever the relative humidity is less than 70% for slight air motion or 80% for light breezes.

2. Provide shade for placements otherwise exposed to the sun.

3. Concrete is to be at a temperature of 80 degrees F, or less when placed. If necessary, the batching plant shall cool the aggregate by spraying or by using chilled water or ice. All such water shall be accounted for as part of the mixing water.

4. Use an admixture with a retarded set.

5. All forms shall be thoroughly wetted at least daily, and more often when the relative humidity is low.

6. For slabs, maintain the required materials for curing at hand so they may be placed immediately upon steel troweling. When the concrete temperature of any slab goes above 100 degrees F, place a layer of sand on it and keep it continuously wet until the temperature is below 90 degrees F.

3.8 CONCRETE MOUNTS FOR MECHANICAL EQUIPMENT

A. Furnish and place all concrete platforms, curbs, piers, etc., required for mechanical equipment as called for in the Mechanical Drawings. Set all anchor bolts, etc., as required.

3.9 GROUTING

A. Install non-shrink grout under all structural steel column base plates, leveling plates and bearing plates.

B. Non-shrink grout shall be mixed in accordance with the manufacturer's printed instructions. Bedding grout shall be placed solidly between the bearing surface and base or plate to ensure that no voids remain. Finish edges at 45 degree bevel and properly cure grout.

END OF SECTION 03 30 04

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PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the Work of this Section.

1.2 DESCRIPTION OF WORK:

A. The Work of this Section includes, but is not limited to:
1. Temporary Work/Enclosures
2. Concealed blocking, grounds and nailers. (Preservative Treated.).
3. Backing panels at utility closets (Fire Retardant Treated).
4. Interior Wood Blocking (fire retardant treated).

1.3 RELATED WORK:

A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that relate directly to Work of this Section include, but are not limited to:
1. Section 09 21 16, Gypsum Board Assemblies
2. Section 06 40 00, Architectural Woodwork

1.4 REFERENCES:

A. Standards: Comply with the following unless otherwise specified or indicated on the Drawings:
1. Lumber: American Softwood Lumber Standard PS 20 by the U.S. Department of Commerce. Comply with applicable provisions for each indicated use.
2. Plywood: Product Standard PS 1 for Softwood Plywood, Construction and Industrial by the U.S. Department of Commerce.
3. Plywood Installation: APA Design/Construction Guide, Residential & Commercial by the American Plywood Association (APA).
4. Grading Rules:
   a. Douglas Fir, Hem-Fir, Idaho White Pine, and other Western Woods: Western Wood Products Association (WWPA) or West Coast Lumber Inspection Bureau (WCLIB).
   b. Southern Pine: Southern Pine Inspection Bureau (SPIB).
   c. Redwood: Redwood Inspection Service (RIS).
   d. Spruce-Pine-Fir: National Lumber Grades Authority (NLGA).
5. Preservative Treatment: American Wood Preservers' Association (AWPA) and American Wood Preservers Bureau (AWPB) Standards, quality control methods, and inspection requirements.
6. Fire-Retardant Treatment: American Wood Preservers' Association (AWPA) Standards.
7. Framing Installation: American Forest and Paper Association (AFPA).

1.5 SUBMITTALS:

A. Product Data: Submit manufacturer's product data, installation instructions, use limitations and recommendations for each material used. Provide certifications stating that materials comply with requirements.

B. Treatment Data: For each type of treatment required provide manufacturer's certification stating chemicals and process used, quantities of chemicals retained, conformance with applicable standards, and certification that moisture content after treatment was reduced to maximum specified.

1.6 QUALITY ASSURANCE:

A. Mill and Producers Mark: Each piece of lumber and plywood shall be gradestamped indicating type, grade, mill, and grading agency certified by the Board of Review of the American Lumber Standards Committee. Mark shall appear on unfinished surface, or ends of pieces with finished surfaces.

1. Pressure Preservative Treated Material: Accredited agency quality mark, on each piece of wood, indicating treatment.
2. Fire-Retardant Treated Material: Accredited testing agency mark, on each piece of wood, indicating compliance with the fire hazard classification.

1.7 DELIVERY, STORAGE, AND HANDLING:

A. Keep materials dry. Make provision for air circulation around and between stacks of wood products.

B. Schedule deliveries to avoid delays, but minimize on-site storage.

1.8 PROJECT CONDITIONS:

A. Coordinate work of this section with work of other sections to ensure proper location and attachment of other work. Scribe and trim work to provide accurate fit.

PART 2 - PRODUCTS

2.1 LUMBER:

A. General: Furnish seasoned dimension lumber dressed to nominal sizes indicated with 19 percent maximum moisture content at time of dressing, marked “S-DRY”. Comply with dry size requirements of PS 20.
1. Dress: Surfaced 4 sides (S4S) unless otherwise indicated.

B. Framing Lumber: Species: Douglas Fir or Hem-Fir (WWPA or WCLIB), or Southern Pine (SPIB), or Spruce-Pine-Fir (NGLA) unless otherwise indicated.
1. Light Framing; 2 inches through 4 inches thick, less than 6 inches wide: Standard and Better grade, except Stud grade for stud framing.
2. Structural Framing; 2 inches through 4 inches thick, 6 inches wide and wider: No. 2 grade.

C. Board Lumber; less than 2 inches thick:
1. Exposed Board Lumber, for Paint Finish: Southern Pine No. 1 (SPIB), Douglas Fir 2 Common (WWPA), Select Merchantable (WCLIB), or Spruce-Pine-Fir Appearance (NGLA).
2. Concealed Board Lumber: Southern Pine No. 3 (SPIB), any species No. 4 (WWPA), any species Standard (WCLIB), or Spruce-Pine-Fir No. 1 / No. 2 (NGLA).

D. Miscellaneous Lumber: Standard grade, No. 3 grade, or better grade of the following species unless otherwise indicated:
1. Nailers and Blocking: Douglas Fir, Hem-Fir, Idaho White Pine, Southern Pine, or Spruce-Pine-Fir.
2. Furring: Spruce, Hem-Fir, or Spruce-Pine-Fir except Douglas Fir or Southern Pine for furring required to receive preservative treatment.

2.2 PLYWOOD:

A. For backing panels at utility closets, provide APA trademarked, UL labeled, fire-retardant treated, C-D Plugged Exposure 2 panels 3/4" thick unless noted otherwise, and complying with PS 1. Provide treatment that yields a flame spread rating of not more than 25 when tested according to ASTM E84. Kiln dry after treatment to maximum moisture content of 19%. Do not use fire-retardant treatments containing ammonium phosphates or salts.

2.3 PRESERVATIVE TREATMENT:

A. Treat lumber and plywood where indicated and as specified. Comply with applicable AWPA and AWPB Standards and quality control and inspection requirements.

B. Complete fabrication of items to be treated to the greatest extent possible prior to treatment. Where items must be cut after treatment, coat cut surfaces with heavy brush coat of the same chemical used for treatment or other solution recommended by AWPA Standards for the treatment.

C. Pressure Treatment (Above Ground Use): Treat the following wood items with waterbourne preservatives for above ground use, complying with AWPB LP-2. Redry wood to a maximum moisture content of 19 percent after treatment.
1. Nailers, blocking, cants, shim stock, and similar members used in conjunction with roofing (including related flashings, trim and vapor barrier) and coping.
2. Nailers, blocking, furring, stripping, and similar concealed members in contact with exterior masonry and concrete (including interior wythe of exterior walls).
3. Wood items indicated or scheduled on the Drawings to be preservative treated.

D. Pressure Treatment (Ground Contact Use): Treat the following wood items with waterbourne preservatives for below ground use, complying with AWPB LP-22:
1. Wood members placed in the ground.
2. Wood members immersed in fresh water.
3. Wood members encased in concrete.

2.4 FIRE-RETARDANT TREATMENT:

A. Furnish "FR-S" wood and lumber for all concealed blocking within the building, complying with AWPA Standards for pressure impregnation with fire-retardant chemicals to achieve a flamespread rating of 25 or less, when tested in accordance with UL Test 723, ASTM E 84 or NFPA Test 255.
1. Where treated items are indicated to receive a transparent or paint finish, use a fire-retardant treatment which will not bleed through or adversely affect bond of finish.
2. Provide UL label or identifying mark on each piece of fire-retardant lumber.
3. Redry treated items to a maximum moisture content of 19 percent after treatment.
4. Do not use fire retardant treatments containing ammonium phosphate or salts.

2.5 FASTENERS AND ANCHORING DEVICES:

A. Select and furnish items of type, size, style, grade, and class as required for secure installation of the Work. Items shall be galvanized in accordance with ASTM A153 for exterior locations, high humidity locations, and for use with treated wood. Unless shown or specified otherwise, comply with the following:
1. Nails and Staples: FS FF-N-105.
2. Wood Screws: FS FF-S-111.
3. Bolts and Studs: FS FF-B-575.
4. Nuts: FS FF-N-836.
5. Washers: FS FF-W-92.
6. Lag Bolts or Lag Screws: FS FF-B-561.
7. Toggle Bolts: FS FF-B-588.
8. Bar or Strap Anchors: ASTM A575 carbon steel bars.
9. Wall Plugs: Corrugated type, galvanized steel, 24 USS gage min, not less than 2 inches wide x 2-1/2 inches deep.
10. Metal Hangers and Framing Anchors: Size and type for intended use, galvanized finish, manufacturer's recommended fasteners.

PART 3 - EXECUTION

3.1 INSPECTION:

A. The Installer/Erector shall examine substrates, supports, and conditions under which this work is to be performed and notify Contractor, in writing, of conditions detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Beginning work means Installer accepts substrates and conditions.

3.2 INSTALLATION:

A. Wood Framing: Install in accordance with applicable provisions of the AFPA "Manual for Wood Frame Construction", unless otherwise indicated. Choose pieces carefully to eliminate split, warped and twisted members.

B. Plywood:
1. Install in accordance with APA Design/Construction Guide, Residential & Commercial, unless otherwise indicated.
2. Fasten in accordance with APA recommendations.

C. Nailers and Blocking: Attach to substrate as required to support applied loading.

D. Wood Framing: Install true to lines within a tolerance of 1/8 inch in 10 feet.

E. Treated Wood: Brush-coat field cut surfaces with same treatment material.

END OF SECTION 06 10 00

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. All of the Contract Documents, including General and Supplementary Conditions and General Requirements, apply to the Work of this Section.

1.2 DESCRIPTION OF WORK:

A. The Work of this Section includes, but is not limited to, the following:
   1. Interior and exterior flush metal doors.
   2. Interior and exterior metal frames.

1.3 RELATED WORK:

A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that relate directly to work of this Section include, but are not limited to:
   1. Section 07 92 00, Joint Sealants.
   2. Section 08 70 00, Hardware
   3. Section 08 81 00, Glass Glazing
   4. Section 09 91 23, Interior Painting

1.4 SUBMITTALS:

A. Shop Drawings: Show details of each frame type, elevation and construction for each door type, conditions at openings, location and installation requirements for finish hardware including cutouts and reinforcements, details of connections, and anchorage and accessory items.
   1. Include a schedule of doors and frames using the same reference numbers for details and openings as those shown on the Contract Drawings.

B. Product Data: Manufacturer's catalog sheets, specifications, and installation instructions.

1.5 QUALITY ASSURANCE:

A. Fire Rated Assemblies: Wherever a fire resistance classification is shown or scheduled for steel doors and frames; provide fire rated units that have been tested as fire door assemblies, and comply with National Fire Protection Association (NFPA) Standard No. 80 and these specifications. Identify each door and frame with a metal UL, FM, or WHI label. Indicate the applicable fire class on the door label. Rivet or weld labels on the hinge edge of door and jamb rabbet of frame. If continuous hinges are specified, rivet or weld labels on the header rabbet of frame and on top exposed edge of door. Locate labels as close to hinge edge as possible.
   1. Oversize Assemblies: Whenever fire rated assemblies are larger than size limitations established by NFPA; provide the manufacturer's certification that they have been constructed with materials and methods equivalent to requirements for labeled construction.

B. Source: Provide products of one manufacturer for each type of door and frame required for the work of this section. Provide secondary materials and products which are acceptable to the door and frame manufacturers.

C. Reference Standards: Provide doors and frames that comply with Steel Door Institute SDI-100, Recommended Specifications for Standard Steel Doors and Frames. Install doors in strict compliance with SDI-105, Recommended Erection Instructions for Steel Frames, and Door Hardware Institute, The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver doors and frames in heavy paper cartons or other protective packaging.

B. Store doors and frames on raised platforms in vertical position with blocking between units to allow air circulation.

C. Strictly comply with Steel Door Institute recommendations and protect from all possible damage.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Subject to compliance with requirements, provide products of one of the following manufacturers or approved equal.
   1. E.H. Friedrich
   2. Curries
   3. Galaxy Metal Products
   4. Republic

2.2 MATERIALS:

A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568 and free of scale, pitting or surface defects.

B. Cold-Rolled Steel Sheets: Commercial quality carbon steel complying with ASTM A 366 and ASTM A 568 and suitable for exposed applications.

C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality complying with ASTM A 526, with A 60 zinc coating, mill phosphatized, complying with ASTM A 525.

D. Anchors and Supports: Fabricate of not less than 16 gage sheet steel unless otherwise indicated.
   1. Galvanized Units: Galvanize anchors and supports to be used with galvanized frames, complying with ASTM A 153, Class B.

E. Anchorage Devices, Bolts, and Other Fasteners: Manufacturer's standard units unless otherwise indicated.
   1. Galvanized Units: Galvanize items to be used with galvanized frames complying with ASTM A 153, Class C or D as applicable.

2.3 STEEL DOORS:

A. General:
   1. Design and Thickness: Flush design doors, seamless, hollow construction, 1-3/4 inches thick, unless otherwise noted.
   2. Sound Deadening (ASTM E 90): Minimum Sound Transmission Class (STC) of 25.
   3. Door Edges: Bevel lock stile edge of single acting hinged doors 1/8 inch in 2 inches. Double acting doors shall have rounded edges, approximately 2-1/4 inch radius. Meeting stiles of pairs of single acting doors shall be "V" beveled, unless otherwise specified or shown.
   4. Glazing Stops and Beads: Fixed steel stops, formed integral with door on the outside of exterior doors and on the secure side of interior doors. Removable steel beads, of not less than 20 gage formed sheet or solid bar stock, on the other side of doors secured with counter sunk machine screws; form corners with butted hairline joints. Coordinate width of rabbet between fixed stop and removable bead and depth of rabbet with type of glass and glazing required.
   5. Astragals: Steel, attached with machine screws unless shown otherwise.

B. Interior Doors: SD1, Level 2, Heavy Duty (Extra Heavy Duty at Elevator Machine Room and stairs.
   1. Fabricate interior doors with 2 outer stretcher-leveled, cold-rolled steel sheets not less than 16 gage (Extra Heavy Duty), or 18 gage (Heavy Duty). Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges, except around glass and louver panels. Continuously MIG, ARC or laser weld and ground smooth vertical edges to achieve a seamless edge.
      a. Fabricate interior doors with 2 outer galvanized steel sheets in high humidity spaces where shown.
   2. Reinforce inside of doors with one of the following:
      a. Vertical, full door height, channel-shaped or hat-shaped or interlocking z-shaped sheet steel sections of not less than 20 gage thickness. Space the reinforcing sections on not more than 6 inch centers and spot weld on 4 inch centers to both face sheets.

b. Roll-formed 18 gage sheet steel reinforcing, 4 vertical and a minimum of 8 horizontal members, double projection welded to both face sheets on not more than 6 inch centers.
c. Continuous truss-form inner core of 28 gage sheet steel reinforcing. Spot weld on 3 inch centers, vertically and horizontally, to both face sheets.
d. Phenolic resin impregnated kraft paper, single piece core of one inch hexagonal cells, securely bonded to both face sheets with waterproof adhesive.

3. Reinforce top and bottom of doors with not less than 18 gage horizontal steel channel welded to the outer sheets.
   a. Close top and bottom edges with flush steel cap. Cap may be an integral part of door construction, or formed by addition of another steel channel or filler plate welded to the door.

2.4 FRAMES:

A. General:
1. Furnish steel frames for doors, transoms, sidelites, borrowed lites, and other openings wherever shown, of size and profile as specified or shown.
2. Construction: Full-welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise specified or shown. Knock-down type frames will not be accepted.
   a. Fixed Stops: Integral 5/8 inch stop unless otherwise shown, extend to bottom of frame.
   b. Removable Beads: Removable steel beads secured with machine counter sunk screws. Form corners with butted hairline joints.
   c. Prepare door frames for silencers as required (3 for single door, 2 for double doors).

B. Interior Frames: Form interior frames of either hot-rolled or cold-rolled steel sheets, not less than 16 gage for openings up to 4 feet wide, and not less than 14 gage for larger openings.
1. Form interior frames of galvanized steel sheets in high humidity spaces where shown.

C. Mullions and Transom Bars:
1. Furnish closed or tubular mullions and transom bars where shown. Fasten mullions and transom bars at crossings and to jambs by butt welding. Reinforce joints between frame members with concealed clip angles or sleeves of same metal and thickness as frame.
2. Furnish false head member to receive lower ceiling where frames extend to finish ceilings of different heights.
3. Where installed in masonry, leave vertical mullions in frames open at the top so they can be filled with grout.

D. Wall Anchors: Unless otherwise specified or shown, formed of not less than 16 gage steel, and galvanized when used with galvanized frames.
1. Masonry Construction: Adjustable, corrugated or perforated T-shaped to suit frame size with leg not less than 2 inches wide by 10 inches long. Furnish at least 3 anchors per jamb up to 7'-6" jamb height; 4 anchors per jamb to 8 foot jamb height; one additional anchor per jamb for each 24 inches or fraction thereof over 8 feet high.
2. Steel Stud Construction: Weld-in type welded to back of frame unless otherwise indicated or approved. Furnish at least 4 anchors per jamb up to 7'-6" jamb height; 5 anchors per jamb to 8 foot jamb height; one additional anchor per jamb for each 24 inches or fraction thereof over 8 feet high.

E. Floor Anchors: Furnish floor anchor for each jamb and mullion which extends to floor, formed of not less than 14 gage steel, with 2 holes to receive fasteners, welded to bottom of jamb or mullion, and galvanized if used with galvanized frames.

F. Head Anchors: Furnish 2 anchors at head of frames exceeding 42 inches wide for frames mounted in steel stud walls. Frame manufacturer's standard head anchor unless otherwise shown.

G. Structural Reinforcing Members: Furnish structural reinforcing members, as a part of frame assembly at mullions, transoms, and other locations as indicated in "Finish Hardware Preparation".

H. Shipping Bars: Removable spreader bar across bottom of frames, tack welded to jambs and mullions.

I. Mortar Guards: 26 gage steel mortar or plaster guards, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation.

2. 5 PANELS:

A. Furnish panel units as indicated.
1. Fabricate exterior panels same as specified for exterior doors.
2. Fabricate interior panels same as specified for interior doors.

2.6 LOUVERS:

A. Except for fire rated louvers, fabricate louvers to mount flush into doors without overlapping moldings on surface of door-facing sheets. Provide internal support as recommended by louver manufacturer.

B. Interior Louvers: Sightproof, stationary type, constructed of inverted "Y" shaped blades formed of 18 gage cold-rolled steel. Space blades to provide not less than 30 percent free air opening.

C. Fire Rated Louvers: Listed, fusible link, self-closing fire door type.

2.7 FABRICATION:

A. Fabricate steel door and frame units to be rigid, neat in appearance, and free from warp, buckle and other defects. Accurately form metal to required sizes and profiles. Weld exposed joints, and make smooth, flush and invisible by filling or grinding and dressing. Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify items that cannot be permanently factory-assembled before shipment, to assure proper assembly at the project site.

B. Exposed Fasteners: Countersunk, flat or oval Phillips head for exposed screws and bolts. Unless otherwise specified or shown, locate fasteners 2 inches from each end of members and not more than 12 inches apart.

C. Finish Hardware Preparation:
1. Prepare doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, in accordance with Finish Hardware Schedule and templates furnished by hardware manufacturer.
2. Reinforce doors and frames to receive surface applied hardware. Drilling and tapping for this hardware shall be done at the project site.
3. Locate finish hardware as specified elsewhere or as shown on the hardware manufacturer's templates. If not shown locate as indicated in "Recommended Locations for Builders Hardware" published by Door and Hardware Institute.
4. Weld 14 gage steel tongues, 1-1/2 inches high, inside lock mortise to keep lock body centered in door. If not shown, locate as indicated in "Recommended Locations for Builders Hardware" published by Door and Hardware Institute.
5. Install 7 gage reinforcement for hinges and pivots, except hinge reinforcement in door edge may be a one-piece 12 gage channel full door height with extruded hinge screw holes having an average minimum thread pull-out strength of 1600 pounds per hole. Install 12 gage reinforcement for all other hardware.
6. Reinforce doors not mortised for concealed door closers for surface door closer application, and all frames for closer arm application, whether or not closers are specified.
7. Coordinate with Division 16, Electrical for door contacts and other security devices.

E. Clearances: Fabricate doors for their respective frames within the following clearances:
1. Jambs and Head: 3/32 to 1/8 inch.
2. Meeting Edges of Pairs: 1/8 to 1/4 inch.
3. Bottom (no threshold or carpet): 3/4 inch, maximum to finished surface.
4. Bottom (at threshold or carpet): 3/8 inch, maximum to top of threshold or carpet.
5. Fire Rated Doors: Comply with clearances specified in NFPA Standard No. 80.
6. Non-Rated Doors: Comply with above listed tolerances or those specified in SDI-100.

F. Shop Painting:
1. Chemically wash, rinse, and dry exposed and concealed surfaces of fabricated units.
2. Apply oven baked rust inhibiting primer to all surfaces with a min 1.0 mil dry film thickness.
3. Bituminous Coating: After priming, provide 1/16" thick coating of asphalt emulsion on concealed surfaces inside door frames for all frames installed in an exterior or in contact with concrete or with masonry mortar.
4. Units shall be capable of passing the following tests:
   a. Salt Spray Test complying with ASTM B 117 for 120 continuous hours.
   b. Water Fog Test complying with ASTM D 1735 for 240 continuous hours.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Verification of Conditions: Examine the substrate and conditions under which the frames are to be installed for defects that will adversely affect the execution and quality of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION:

A. Install steel doors, frames, and accessories in accordance with the referenced standards and with the manufacturer's printed instructions, except as otherwise specified or shown.

B. Frame Installation: Place frames accurately in position; plumb, align, and brace securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreader bars, leaving surfaces smooth and undamaged.
1. Floor anchors may be set with powder-actuated fasteners instead of anchorage devices and machine screws, if so approved on final shop drawings.
2. Place fire rated frames in accordance with NFPA Standard No. 80.
3. Make necessary field splices in frames as detailed on final shop drawings, welded and finished to match factory fabrication.

C. Door Installation:
1. Install doors accurately in their respective frames within the clearances specified in Part 2.
2. Place fire rated doors with clearances as specified in NFPA Standard No. 80.

D. Drill and tap doors and frames to receive surface applied hardware.

E. Doors shall swing freely without binding or scraping and shall remain motionless at any location when released unless affected by installation of closer.

3.3 ADJUSTING AND TOUCH UP:

A. Prime Coat Touch-up: Immediately after installation, sand smooth and clean rusted and damaged areas of shop prime coat and apply touch-up of compatible air-drying primer.

B. Final Adjustments: Check and readjust operating finish hardware items just prior to final inspection. Leave Work in complete and proper operating condition. Doors shall not rub frame, nor bind in any way.

3.4 CLEANING:

A. Clean doors, frames, and accessories free of dirt and other foreign materials after completion of installation.

END OF SECTION 08 11 13

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PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. Extent of sectional overhead doors is shown on drawings.

1.3 QUALITY ASSURANCE;

A. Provide each sectional overhead door as a complete unit produced by one manufacturer, including frames, sections, brackets, guides, tracks, counter balance mechanisms, hardware, operators and installation accessories, to suit openings and head room allowable.

B. Unless otherwise acceptable to Architect, furnish sectional overhead door units by one manufacturer for entire project.

C. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into Masonry for installation of units. Provide setting drawings, templates, and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

D. See Concrete and Masonry Sections of these Specifications for installation of inserts and anchorage devices.

E. Wind Loading: Design and reinforce sectional overhead doors to withstand a 40 lb. per sq. ft. wind loading pressure.

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer's product data, roughing-in diagrams, and installation instructions for each type and size of overhead door. Include manufacturer's operating instructions and maintenance data.

B. Submit Shop Drawings for Architect's approval prior to fabrication. Field verify existing conditions prior to producing Shop Drawings and notify the Architect of conditions that would adversely impact the installation. Include detailed plans, elevations, details of framing members, required clearances, anchors, and accessories.

C. Shop Drawings: Submit Shop Drawings for special components and installations which are not fully dimensioned or detailed in manufacturer's data. Include relationships with adjacent materials.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Acceptable Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com, or approved equal.
1. Overhead Door Corp.
2. Clopay Building Products
3. Garaga

B. Insulated Steel Sectional Overhead Doors: Thermacore Model 591 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
1. Door Assembly: Metal/foam/metal sandwich panel construction, with PVC thermal break and patents pending weather-tight Dual Barrier tongue-in-groove meeting joints.
   a. Panel Thickness: 1 5/8 inches (41 mm).
   b. Exterior Surface: Ribbed, textured.
   c. Exterior Steel: .015 inch (.38 mm), hot-dipped galvanized.

d. End Stiles: 16 gauge single end stiles provided on doors up to and including 16 feet 2 inches wide; 16 gauge double end stiles provided on doors greater than 16 feet 2 inches wide up to and including 26 feet 2 inches; 14 gauge double end stiles provided on doors greater than 26 feet 2 inches wide. Provide with thermal break to prevent heat/cold transfer.
e. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
1) Standard cycle spring: 10,000 cycles.
f. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
g. Thermal Values: Calculated R-value of 14.86; U-value of 0.07.
h. Air Infiltration: .08 cfm at 15 mph.
i. Partial Glazing of Steel Panels:
1) Standard with black frame:
(a) 1/2 inch (12.5 mm) Insulated.

2. Finish and Color:
a. Two coat baked-on polyester:
1) Interior color, white.
2) Exterior color: TBD
3. Windload Design: Provide to meet the Design/Performance requirements specified.
4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
a. Interior mounted slide lock.
5. Weatherstripping:
a. PVC retainer with dual durometer PVC bulb seal.
b. Factory installed Flexible Header seal.
c. Optional EPDM bulb seal. Recommended for extreme weather conditions.
d. Optional Exclusive Advanced Performance Jamb seals recommended for extreme weather conditions.
6. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
a. Size:
1) 2 inch.
b. Type:
1) High lift/lift clearance..
7. Manual Operation: Pull rope.

2.2 STEEL SECTIONS:

A. Shall be roll-formed hot dipped galvanized steel exterior no less than .016". Sections will have a nominal thickness of 1-3/4" and will incorporate a thermal break to prevent heat or cold conductivity.

B. Door Finish: Corrosion Resistant Clear Anodized 204R-

2.3 TRACKS, SUPPORTS AND ACCESSORIES:

A. Tracks: Provide manufacturer's standard galvanized steel track system, sized for door size and weight, and designed for clearances shown. Provide complete track assembly including brackets, bracing and reinforcing for rigid support of ball bearing roller guides, for required door type and size. Slot vertical sections of track at 2" o.c. for door drop safety device. Slope tracks at proper angle from vertical, or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.

B. Track Reinforcement and Supports: Provide galvanized steel track reinforcement and support members. Secure, reinforce and support tracks as required for size and weight of door to provide strength and rigidity, and to ensure against sag, sway, and detrimental vibration during opening and closing of doors.

C. Support and attach tracks to opening jambs with continuous angle welded to tracks and attached to wall. Support horizontal (ceiling tracks) with continuous angle welded to track and support by laterally-braced attachments to overhead structural members at curve and end of tracks.

D. Weather Seals: Provide continuous rubber, neoprene, or flexible vinyl adjustable weather-strip gasket at tops and compressible astragal on bottoms of each overhead door.

E. In addition, provide continuous flexible seals at door jamb edges for a fully weather tight installation.

2.4 HARDWARE:

A. Provide heavy-duty, rust-resistant hardware, with galvanized or cadmium-plated or stainless steel fasteners, to suit type of door.

B. Hinges: Provide heavy steel hinges at each end stile and at each intermediate stile, per manufacturer's recommendations for size of door. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners only where access to nuts is not possible. Provide double-end hinges, where required, for doors exceeding 16'-0" in width, unless otherwise recommended by door manufacturer.

C. Rollers: Provide heavy-duty rollers, with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide roller tires to suit size of track (3" diameter for 3" track; 2" diameter for 2" track) and as follows:
1. Case-hardened steel tires, for normal installations.

D. Pull Handles, Locks and Latches: For all doors, furnish lifting handles, lock, and locking devices.

2.5 COUNTERBALANCING MECHANISMS:

A. Torsion Spring Counterbalance: Oil Tempered, heavy duty helical wound 100,000 cycle torsion spring for each door with a heavy duty cast flange head plate and solid steel shaft.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

B. Install door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hangers and equipment supports in accordance with final shop drawings, manufacturer's instructions and as herein specified.

C. Fasten vertical track assembly to framing at not less than 24" o.c. Hang horizontal track from structural overhead framing with angle or channel hangars, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing, and reinforcing as required for rigid installation of track and door operating equipment.

D. Upon completion of installation, including work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weather tight for entire perimeter.

END OF SECTION 08 36 13

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PART 1 – GENERAL

1.01 RELATED DOCUMENTS:

A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK:

A. This section specifies finish hardware for interior and exterior doors to provide correct functions for intended use. Provide related items and services, as indicated on Drawings and as specified. Furnish hardware schedules and templates as required for fabrication of doors and frames under other Sections. Provide hardware that complies with applicable codes and requirements of authorities that have jurisdiction.
   1. Coordinate Work of this Section with requirements of building security system.

1.03 RELATED WORK:

A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that relate directly to work of this Section include, but are not limited to:
   1. Section 08 11 13, Hollow Metal Doors and Frames

1.04 SUBMITTALS:

A. Hardware Schedule: Provide six copies of final hardware and keying schedule prepared by a DHI certified hardware consultant or distributor. List each door opening using same designations indicated on Architect's Drawings.

B. Installation Templates: Provide installation templates for work installed or prepared for installation by others.

C. Product Data: Submit manufacturer's product data, catalog cuts, descriptive data, UL listings, and other pertinent technical data for each hardware item used. Submit certifications of fire-ratings for hardware items located in rated assemblies.

D. Samples: Submit samples of each finish to be exposed. Show full range of color and finish variations expected.
   1. Submit actual finished items of hardware when directed by Architect. Acceptable items may be used in the completed work.

1.05 QUALITY ASSURANCE:

A. Source: For each type of hardware required for the work of this Section, provide products of a single manufacturer.

B. Consultant: Provide the services of a certified hardware consultant, acceptable to the Architect, to prepare hardware and keying schedules and to certify that the work of this Section meets or exceeds requirements of authorities having jurisdiction.

C. Comply with American with Disabilities Act Accessibility Guidelines (ADAAG) and applicable local requirements.

1.06 TESTS:

A. Fire-Resistance Ratings: When fire-resistance ratings are indicated or required by authorities having jurisdiction, provide hardware items identical to those which have been tested and labeled for fire-rated use by independent testing agencies acceptable to Architect.

1.07 DELIVERY, STORAGE AND HANDLING:

A. Packaging: Package and label each hardware item separately with all screws, bolts and accessories required for a complete and proper installation. Coordinate the labeling of packages with hardware set numbers.

B. Store hardware items in locked spaces. Replace all hardware items lost or damaged. Provide copies of supplier receipts for hardware items delivered to the Project.

PART 2 - PRODUCTS

2.01 BUILDERS HARDWARE - GENERAL REQUIREMENTS:

A. Provide the specified hardware item, or an equal product from one of the other named manufacturers which meet or exceed the standard as judged by the Architect.

B. Provide the proper hardware which permits the swing and hand of each door as indicated on the Drawings.

C. Manufacturer's names or trademarks displayed in a visible location will not be permitted on any piece of hardware.

D. Base Metal: Provide plated brass or bronze with the exception of stainless steel and aluminum items.

E Fasteners: Provide concealed fasteners to the greatest extent possible. Do not use through-bolts unless otherwise acceptable to the Architect.

F. Coordinate items to be provided by the owner’s security vendor prior to generating the hardware schedule.

2.02 HARDWARE FINISHES:

A. Provide US32D.

B. Closer Covers: Provide plated metal closer covers matching lock and latch finishes.

2.03 KEY CONTROL SYSTEM:

A. Provide key control system consisting of labels, tags, card index, and metal wall mounted cabinet. Set up control system, label and identify each key, type index cards, and deliver to Owner complete and ready for use.

2.04 LOCKSETS AND LATCHSETS:

A. Mortise Locksets and Latchsets: Except where scheduled otherwise, provide latchsets and locks with lever and rose as selected by Architect by one of the manufacturers listed below. Provide cylinders and keyway to Owner's requirements.
1. Corbin Russwin
2. Sargent
3. Yale

B. Locksets shall be lever handle type heavy duty cylindrical. Function of lockset shall be as noted in the Schedule.
1. Corbin Russwin
CL3300 Series
Handle – Newport

2. Sargent
7900 Series
Handle – BL Lever

3. Yale
   8800 Series
   Handle – August (AUSL)

C. Throws: Provide ½" minimum. Comply with UL requirements for fire rated hardware.

D. Strikes: Provide manufacturer's standard box strike with extended curved lip. Finish strikes and lips to match lock or latch. Provide custom strikes where required.

E. Metals: Provide cylinders and keys from brass matching type and finish of metal for hardware.

2.05 HINGES AND BUTTS:

A. Provide products of one of the following manufacturers that meet or exceed the requirements of these specifications:
1. Stanley - #FBB 191 4-1/2"
2. Hager
3. McKinney

B. Butt Hinges shall be Stanley full mortise, five knuckle type, four ball bearing #FBB 191 4 ½" high, as required by size of door.

C. Size of Hinges shall be as follows:
1. Height 5" for doors over 7'6" in height.
2. Height 4 ½" for interior doors under 7'6" in height.

D. Hinge Width: Consultant shall determine proper hinge width based upon door thickness and trim conditions. Provide minimum 4-1/2 in. wide hinges.

E. Hinge Quantity: Provide three (1 ½ pair) hinges for doors up to 7 ft.-6 in. high, and four (2 pair) hinges for doors over 7'-6" high. Provide one additional hinge for doors over 3 ft.-6 in. wide.

F. Pins: Provide flat button pins matching hinges in finish and material. Provide non-removable pins on outswinging exterior and corridor doors. Provide non-rising pins for all other hinges.

2.06 FLUSH BOLTS:

A. Provide products of one of the following manufacturers that meet or exceed the requirements specified:
1. Ives
2. Glynn-Johnson
3. Rixson/Firemark

B. Flush-Bolt for Rated Doors: Ives 358 (wood doors) or 458 (metal doors).

C. Flush-Bolt for Non-Rated Doors: Ives 258.

D. Strikes: Provide dust-proof strikes for foot bolts and standard strikes for head bolts.

2.07 LATCH PROTECTOR:

A. Provide products of one of the following manufacturers that meet or exceed the requirements specified:
1. Don-Jo Mfg, Inc.

B. Latch Protector:
1. PLP 111 3" x 11"
   12 Ga. Stainless Steel
   Finish: US32D

2.08 WEATHERSTRIPPING AND THRESHOLDS:

A. Provide products of one of the following manufacturers that meet or exceed the requirements

specified:

1. Reese
2. Pemko
3. Zero

B. Thresholds for General Applications: Refer to schedule for material.

C. Weather-stripping: Provide neoprene concealed gasket-type weather-stripping at exterior doors. Weather-stripped doors are required to provide a continuous seal at the entire perimeter of door with no cracks.

2.09 MISCELLANEOUS HARDWARE:

A. Silencers: For interior hollow metal frames, provide gray resilient silencers to suit frame type. Provide three silencers for single doors, and two silencers for doors hinged in pairs

2.10 FINISH:

A. Provide the following finish for all hardware or match building standard: Finish US32D.

PART 3 – EXECUTION

3.01 INSPECTION:

A. Examine doors, frames and conditions under which the work of this Section will be performed. Notify Contractor in writing of conditions detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Commencing work means Installer accepts substrates and conditions.

3.02. INSTALLATION:

A. Comply with manufacturers' instructions and recommendations, except where more restrictive requirements are specified in this Section.

B. Install hardware on doors and frames at locations conforming to ANSI and NAHM standards, and DHI mounting heights, except where specifically indicated otherwise or required by authorities having jurisdiction.

C. Set hardware plumb, level, and in exact alignment and location. Conceal and countersink fasteners wherever possible.

D. Set exterior thresholds in bed of sealant provided under Section 07 92 00, Joint Sealants.

3.03 ADJUSTING, CLEANING, AND PROTECTION:

A. Adjust hardware items to work smoothly, easily, and correctly.

B. Clean exposed surfaces using non-abrasive materials and methods recommended by manufacturer of hardware being cleaned. Remove and replace work which cannot be successfully cleaned, as judged solely by the Architect.

C. Provide temporary protection to ensure work being without damage or deterioration at time of final acceptance. Remove protections and reclean as necessary immediately prior to final acceptance.
   1. Cover knobs, levers, pulls, and push plates with heavy cloth to protect against damage until Final Acceptance of the Project.

3.04 COMPLETION AND CONTINUED MAINTENANCE:

A. Before completion of work of this Section, inspect work with Architect and adjust and correct work to leave operating parts in perfect operating condition, jointing to adjacent material tight, surfaces without blemishes or stains, work properly executed and complete, and defects and damaged work replaced or corrected.

B. Provide services of hardware supplier's representative to inspect hardware six months after Final

Acceptance of Project. Readjust and restore hardware.

3.05 HARDWARE SETS:

A. The Hardware sets listed indicate the items of hardware required for one opening, single door or pair of doors. This information is furnished for use as a guide only. It is the hardware supplier's responsibility to furnish the proper quantities, functions, weights, and sizes as required by the specifications and as recommended by the manufacturer's catalogue information.

1 Refer to Door Schedule for Hardware sets.

END OF SECTION 08 70 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the Work of this Section.

1.2 DESCRIPTION OF WORK:

A. The Work of this Section includes, but is not limited to the following:
   1. Glass and glazing for doors and partitions.

1.3 RELATED WORK:

A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections/Divisions that relate directly to Work of this Section include, but are not limited to:
   1. Section 07 92 00, Joint Sealants
   2. Section 08 11 13, Hollow Metal Doors and Frames

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer's product data, installation instructions, use limitations and recommendations for each material used. Provide certifications stating that materials comply with requirements.
   1. Warranties: Submit example copies of manufacturer's warranties before ordering materials.

B. Schedule: Provide a schedule of what type of glass will be used in each location. Include locations of safety glass.

C. Samples: Submit representative samples of each glass and glazing material that is to be exposed in the finished work, showing the full range of color and finish variations expected. Provide glass samples having minimum area of 144 square inches and 12" long samples of sealant and glazing materials. Samples of single thickness, non-fabricated clear glass are not required.

D. Test Reports: Submit certified reports for tests required.

1.5 PERFORMANCE REQUIREMENTS:

A. Work of this Section shall withstand normal impact without failure, breakage of glass or seals, or other defects.
   1. Laminated Glass: Laminated glass shall be free from delamination, edge separation, visual discoloration, and other damage throughout the warranty period.

1.6 QUALITY ASSURANCE:

A. Source: For each type of glass and glazing material required for the work of this section, provide primary materials which are the products of one manufacturer. Provide secondary materials which are acceptable to the manufacturers of the primary materials. All glass of each type shall exactly match.

B. Mock-ups: Before beginning primary work of this section, provide mock-ups at locations acceptable to Architect and obtain Architect's acceptance of visual qualities. Protect and maintain acceptable mock-ups throughout the work of this section to serve as criteria for acceptance of this work. Provide full size mock-ups of the following types of glass in sizes typically used on the project
   1. Tempered glass.
   2. Textured glass.

C. Glass Thickness: Determine exact sizes and thicknesses of glass products and certify that the work of this section meets or exceeds the performance requirements specified in this section. Provide proper thicknesses, edge clearances and tolerances to comply with the recommendations of the glass manufacturer. Provide thicknesses required for application indicated.

D. General Standards: Comply with recommendations of Flat Glass Marketing Association Glazing Manual and Sealant Manual.

E. Safety Glass Standards: Provide safety glass which complies with ANSI Z97.1 and requirements of 16 CFR Part 1201 for Category II materials and is permanently marked with certification label of Safety Glass Certification Council.

1.7 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials and products in labeled, protective packages. Store and handle in strict compliance with manufacturer's instructions and recommendations and FGMA 1980 Handbook.
1. Protect from all possible damage.
2. Keep shipping containers closed when not in use.
3. Protect materials during storage from moisture, sunlight, excess hear, sparks and flame.
4. Carefully store materials to avoid overloading any building component or structure.
5. Provide adequate ventilation to prevent build-up of dangerous solvent concentrations.
6. Use clean gloves and tools when handling materials. Avoid contamination.
7. Use rolling blocks and suction cups to move glass units not in shipping crates.
8. Sequence deliveries to avoid delays, but minimize on-site storage.

1.8 PROJECT CONDITIONS:

A. Weather: Perform work only when existing and forecasted weather conditions are within the limits established by manufacturers of the materials and products used.

B. Temperature Limits: Install sealants only when temperatures are within the recommended range established by sealant manufacturer and never below 40°F.

1.9 WARRANTIES:

A. Provide written warranties signed by manufacturer, agreeing to repair or replace work which exhibits defects in materials or workmanship. "Defects" is defined to include, but is not limited to, abnormal aging or deterioration, edge separation or delamination of laminated glass, peeling, cracking, crazing or other failure of metallic coatings in coated glass, and failure to meet requirements of Contract Documents. Provide warranty periods standard with manufacturer.

1.10 ATTIC STOCK:

A. Provide packaged, wrapped and labeled maintenance stock item for each different type and size of glass used on the project, except single pane clear glass which is not heat treated or laminated. Provide one unit for each type.

PART 2 – PRODUCTS

2.1 GLASS MATERIALS AND PRODUCTS:

A. Clear Float Glass: ASTM C 1036, Type I – Transparent, Flat, Class 1-Clear, Quality q3.

B. Clear Heat Strengthened Glass: ASTM C 1048, Condition A-Uncoated, Type I-Transparent, Flat, Class 1-Clear, Quality q3, Kind HS.

C. Clear Tempered Glass: ASTM C 1048, Condition A-Uncoated, Type I-Transparent, Flat, Class 1 –Clear, Quality q3, Kind FT.

2.2 GLAZING MATERIALS AND PRODUCTS:

A. General Glazing Requirements: Provide sealants and gaskets which have performance characteristics suitable for applications intended. Make sure that glazing sealants are compatible with sealants used with surfaces to be in contact.
1. Colors: Provide colors of sealants and gaskets as selected by Architect from manufacturer's standards.

B. General Glazing: Provide sealant compatible with all substrates and materials and having maximum Shore A hardness of 50. Provide one of the following products if they meet or exceed the requirements of these specifications:
   1. Dow Corning 795
   2. General Electric Silglaze N 2500, Gesil N, or Contractors SCS-1000.
   3. Tremco Tremsil 200 or Spectrum 2

C. Preformed Glazing Tape: Provide butyl-polyisobutylene rubber with 100% solids content in extruded tape roll form and complying with AAMA 804.1. Provide one of the following products if they meet or exceed the requirements of these specifications.
   1. Protective Treatments 303 0r 606
   2. Tremco Polyshim II
   3. Woodmont Chem-Tape 40

D. Setting Blocks: Provide dense extruded neoprene or. silicone with a hardness of 85 ±5 Shore A Durometer hardness, a minimum length of 4" and a minimum width equal to the glass thickness. Provide materials as recommended and approved by glass and sealant manufacturers. Provide products certified by their manufacturers to be "silicone compatible".
   1. Shims: Used with setting blocks shall be the same material, hardness, length and width as setting blocks.

E. Side Blocks: Provide dense extruded neoprene or silicone with a hardness of 55 ±5 Shore A Durometer hardness. Provide block with sufficient length to prevent point loading on the glass. Provide materials as recommended and approved by glass and sealant manufacturers. Provide products certified by their manufacturers to be “silicone compatible.”

F. Sealant Backer Rods: Provide flexible, resilient polyethylene foam, urethane foam or extruded silicone as recommended and approved by sealant and glass manufacturers.

G. Primers: Provide cleaners, primers and sealers as recommended by glass and sealant manufacturers.

PART 3 – EXECUTION

3.1 INSPECTION:

A. The Installer/Glazier shall examine substrates, supports, and conditions under which this work is to be performed and notify Contractor, in writing, of conditions detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Beginning work means Installer accepts substrates and conditions.

3.2 PREPARATION AND GLAZING:

A. Strictly comply with manufacturer's instructions and recommendations, except where more restrictive requirements are specified in this section. Comply with FGMA Glazing Manual. Do not glaze when ambient temperature is below 40°F.
   1. Inspect all glass before installation. Do not install defective glass.
   2. Check glass for correct size and squareness. Adjust frame or glass size to correct as necessary.
   3. Protect glass from edge damage. Use roller blocks. Replace all damaged or weakened glass.
   4. Thoroughly clean glazing channels and pockets immediately before glazing and keep them dry.
   5. Remove coatings which are not firmly bonded to substrates. Remove lacquer, if any.
   6. Center glass in opening and provide minimum 1/2" glass bite and 1/8" minimum edge clearances.
   7. Place setting blocks at quarter points and side blocks at upper half of each side.
   8. Securely set setting blocks and side blocks in position to prevent displacement.
   9. Glaze in a manner to permit simple replacement of glass without dismantling frames.
   10. Place glass with uniform pattern, draw, bow and similar visual characteristics.
   11. Miter and seal tapes and gaskets at corners and seal at joints. Do not overlap at corners.

12. Install tapes and gaskets to prevent pulling away from corners.
13. Replace stops and clean and prime stops, framing, and glass on both sides.
14. Clean, prime and mask for liquid sealants immediately before sealant application.
15. Apply wet sealant in continuous motion and tool thoroughly to "wet" contact surfaces uniformly.
16. Defer glazing of openings needed for construction operations until directed.

3.3 CURE, CLEANING AND PROTECTION:

A. Cure glazing materials in accordance with manufacturer's printed instructions and recommendations, to obtain high early bond strength, internal cohesive strength, and surface durability.

B. Mark glazed openings immediately upon installation of glass by attaching crossed streamers to framing. Do no apply markers of any type to surfaces of glass.

C. Maintain glass in a reasonably clean condition until date of physical completion.
   1. Clean and trim excess glazing material from the glass and stops or frames promptly after installation.

D. Clean exposed surfaces using materials and methods recommended by manufacturer of material or product being cleaned. Remove and replace work that cannot be successfully cleaned. Clean frequently, if necessary, to remove build-up of potentially harmful construction contaminants. Re-clean all glass within one week of final acceptance of the project.

E. Provide temporary protection to ensure installed work will be without damage or deterioration at time of final acceptance. Do not apply markers to surfaces of glass. Remove protections and reclean as necessary immediately before final acceptance.

F. Remove and replace all broken, chipped, cracked, scratched or otherwise damaged glass from whatever cause.

END OF SECTION 08 81 00

PART 1 – GENERAL

1.1 RELATED DOCUMENTS: NOT USED

1.2 DESCRIPTION OF WORK:

A. Extent of painting work is shown on drawings and as herein specified.

B. The work includes painting and finishing of interior exposed items and surfaces throughout project limits, except as otherwise indicated.

C. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other Sections of Work.

D. "Paint" as used herein means all coating systems materials including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

E. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint same as adjacent similar materials or areas. If color or finish is not designated, Architect will select these from standard colors available for materials systems specified.

1.3 PAINTING NOT INCLUDED:

A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, miscellaneous metal, hollow metal work, and similar items. Also, for fabricated components such as architectural woodwork, wood casework, and shop-fabricated or factory-built mechanical and electrical equipment or accessories.

B. Mechanical and Electrical Work: Painting of mechanical and electrical work is specified in Division 23 and 26, respectively except as noted in this Section.

C. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) pre-finished partition systems, acoustic materials, architectural woodwork and casework, finished mechanical and electrical equipment including light fixtures, switchgear and distribution cabinets.

D. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas.

E. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting, unless otherwise indicated.

F. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting, unless otherwise indicated.

G. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

1.4 QUALITY ASSURANCE:

A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

B. Coordination of work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

C. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

1.5 SUBMITTALS:

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

B. Samples: Prior to beginning work, Architect will furnish color chips for surfaces to be painted. Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

1.6 DELIVERY AND STORAGE:

A. Deliver all materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and the following information:
Name or Title of Material
Federal Specification Number, if Applicable
Manufacturer's Stock Number and Date of Manufacturer
Manufacturer's Name
Contents by Volume, for Major Pigment and Vehicle Constituents
Thinning Instructions
Application Instructions
Color Name and Number.

1.7 JOB CONDITIONS:

A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C), unless otherwise permitted by paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C, unless otherwise permitted by paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist; or when relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.

D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Manufacturer: Drawings and Specifications are based upon paint products as manufactured by Benjamin Moore. Products by manufacturers listed below will be accepted.
1. Benjamin Moore
2. Sherwin Williams
3. PPG

2.2 MATERIALS:

A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

B. Lead content in pigment, if any, is limited to contain not more than 0.5% lead, as lead metal based on the total non-volatile (dry-film) of paint by weight.

C. This limitation is extended to interior surfaces and those exterior surfaces, such as stairs, decks, porches, railing, windows, and doors which are readily accessible to children under seven years of age.

2.3 INTERIOR PAINT SYSTEMS:

A. Provide following paint systems for various substrates, as indicated.

B. Ferrous Metal L (Semi-Gloss)
1st Coat: C163 Benjamin Moore Ironclad
2nd Coat:538 Aura Waterborne Interior Paint Semi-Gloss
3rd Coat: 538 Aura Waterborne Interior Paint Semi-Gloss

C. Gypsum Drywall and Dry Plaster (Satin)
1st Coat: 372 Benjamin Moore Eco Spec WB Latex Zero VOC Primer
2nd Coat:526 Aura Waterborne Interior Paint Satin
3rd Coat: 526 Aura Waterborne Interior Paint Satin

D. Gypsum Drywall (Matte) Ceilings, Soffits and Textured Wall
1st Coat: 372 Benjamin Moore Eco Spec WB Latex Zero VOC Primer
2nd Coat:522 Aura Waterborne Interior Paint Matte
3rd Coat: 522 Aura Waterborne Interior Paint Matte

E. Gypsum Drywall (Eggshell) Ceilings, Soffits and Textured Wall
1st Coat: 372 Benjamin Moore Eco Spec WB Latex Zero VOC Primer
2nd Coat:522 Aura Waterborne Interior Paint Eggshell
3rd Coat: 522 Aura Waterborne Interior Paint Eggshell

F. Ferrous Metal (Handrails) (High Gloss)
1st Coat: P06 Benjamin Moore Supero Spec Alkyd Metal Primer
2nd Coat:P22 Benjamin Moore High Gloss Urethane
3rd Coat: P22 Benjamin Moore High Gloss Urethane

G. Gypsum Drywall and Dry Plaster (Special Gloss)
1st Coat: Benjamin Moore – Studio Finish White Pearlescent
2nd Coat:Benjamin Moore – Studio Finish White Pearlecent

H. Wood Transparent Finish (Wood doors and trim)
1. AWI System – Cab and Water Acrylic Lacquer
2. Follow AWI Instructions for the finish of all doors, standing and running trim to match architects sample.
3. Finish: Satin

PART 3 - EXECUTION

3.1 INSPECTION:

A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.

B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION:

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

B. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items by workman skilled in the trade involved.

C. Clean surfaces to be painted before applying paint or surface treatments. Sand existing walls scheduled for re-finishing if the existing finish has a low luster/eggshell type finish to remove any sheen prior to applying new finish. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaced.

D. Wood:
1. Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

E. Ferrous Metals:
1. Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
2. Radiators: Plumbing contractor to remove radiators from wall to enable painting preparation of radiator and the wall behind it.

F. Touch up shop applied prime coats wherever damaged or bare, where required by other sections of these Specifications. Clean and touch-up with the same type shop primer.

3.3 MATERIALS PREPARATION:

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.4 APPLICATION:

A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

C. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

3.5 SCHEDULE PAINTING:

A. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

B. Allow sufficient time between successive coating to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting of loss of adhesion of the undercoat.

3.6 MINIMUM COATING THICKNESS:

A. Apply each material at not less than the manufacturer's recommended spreading area, to establish a total dry film thickness as indicated or, if not indicated, as recommended by the coating manufacturer.

3.7 PRIME COATS:

A. Apply a prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

B. Re-coat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.

3.8 PIGMENTED (OPAQUE) FINISHES:

A. Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

3.9 CLEAN UP AND PROTECTION:

A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.

B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

D. Provide "Wet Paint" Signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

E. At the completion of work of other trades, touch-up and restore all damaged or defaced surfaces.

END OF SECTION 09 91 23

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PART 1 – GENERAL

1.1 SECTION INCLUDES:

A. Metal Building System:
   1. Structural steel framing system.
   2. Metal roof system.
   3. Metal wall system.
   4. Roof and wall insulation systems.

1.2 RELATED REQUIREMENTS:

A. Section 03 20 00 – Concrete Reinforcing
B. Section 03 30 00 - Cast-In-Place Concrete

1.3 REFERENCE STANDARDS:

A. American Institute of Steel Construction (AISC):
   1. AISC Specification for Structural Steel Buildings.
   2. AISC Serviceability Design Considerations for Low-Rise Buildings.

B. American Welding Society (AWS):
   1. AWS D1.1 / D1.1M – Structural Welding Code – Steel.
   2. AWS D1.3 / D1.3M – Structural Welding Code – Sheet Steel.

C. Association for Iron & Steel Technology (AISE):
   1. AISE 13 – Specifications for Design and Construction of Mill Buildings.

D. ASTM International (ASTM):
   1. ASTM A 325 – Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.

E. ASTM A 653 / A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

F. ASTM C 518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

G. ASTM C 1363 – Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.

H. ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.

I. ASTM D 523 – Standard Test Method for Specular Gloss.

J. ASTM D 968 – Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.

K. ASTM D 1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.

L. ASTM D 2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.

M. ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

N. ASTM D 2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

O. ASTM D 3361 – Standard Practice for Unfiltered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.

P. ASTM D 4214 – Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.

Q. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

R. ASTM E 96 / E 96M – Standard Test Methods for Water Vapor Transmission of Materials.

S. ASTM E 1592 – Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.

T. ASTM G 87 – Standard Practice for Conducting Moist SO2 Tests.

U. FM Global:
1. FMRC Standard 4471 – Approval Standard for Class 1 Roofs for Hail Damage Resistance, Combustibility, and Wind Uplift Resistance.

V. Metal Building Manufacturers Association (MBMA):
1. MBMA Metal Building Systems Manual.

W. North American Insulation Manufacturers Association (NAIMA):
1. NAIMA 202 – Standard For Flexible Fiber Glass Insulation to be Laminated for Use in Metal Buildings.

X. The Society for Protective Coatings (SSPC):
1. SSPC-Paint 15 - Primer for Use Over Hand Cleaned Steel performs to SSPC-Paint 15 standards.
2. SSPC-SP2 – Hand Tool Cleaning.

Y. Underwriters Laboratories (UL):
1. UL 580 – Standard for Tests for Uplift Resistance of Roof Assemblies.
2. UL 723 – Standard for Test for Surface Burning Characteristics of Building Materials.

Z. All pre-engineered building structural assemblies are to comply with the requirements of the building code.

AA. All pre-engineered building thermal insulation assemblies are to comply with the requirements of the 2009 IECC.

1.4 PREINSTALLATION MEETINGS:

A. Convene preinstallation meeting 2 weeks before start of installation of metal building system.

B. Require attendance of parties directly affecting work of this section, including Contractor, Architect, Engineer, installer, and metal building system manufacturer's representative.

C. Review materials, installation, protection, and coordination with other work.

1.5 SUBMITTALS:

A. Comply with Section 01 33 00 – Submittal Procedures.

B. Product Data: Submit metal building system manufacturer's product information, specifications, and installation instructions for building components and accessories.

C. Erection Drawings: Submit metal building system manufacturer's erection drawings, including plans, elevations, sections, and details, indicating roof framing, transverse cross-sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components.

D. Certification: Submit written "Certificate of design and manufacturing conformance" prepared and signed by a Professional Engineer, registered to practice in Connecticut verifying that the metal building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction.
1. Certification shall reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end-use categories, governing code bodies, including year, and load applications.
2. Submit certification 1 week before bid date on the metal building system manufacturer's letterhead.

E. Submit certification verifying that the metal roof system has been tested and approved by Underwriter's Laboratory as Class 90.

F. Submit certification verifying that the metal roof system has been tested and approved by Factory Mutual as Class 1.

G. Submit certification verifying that the metal standing seam roof system has been tested in accordance with ASTM E 1592 test protocols.

H. Dealer Certification: Submit certification 1 week before bid date that the metal building system supplier or metal roof system supplier is a manufacturer's authorized and franchised dealer of the system to be furnished.
1. Certification shall state date on which authorization was granted.

I. Installer Certification: Submit certification 1 week before bid date that the metal building system or roof system installer has been regularly engaged in the installation of building systems of the same or equal construction to the system specified.

J. Warranty Documentation: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE:

A. Manufacturer's Qualifications:
1. Manufacturer regularly engaged, for past 10 years, in manufacture of metal building systems of similar type to that specified.
2. Accredited based on IAS Accreditation Criteria AC472 and requirements in International Building Code (IBC), Chapter 17.

B. Installer's Qualifications:
1. Installer regularly engaged, for past 5 years, in installation of metal building systems of similar type to that specified.
2. Employ persons trained for installation of metal building systems.

C. Certificate of design and manufacturing conformance:
1. Metal building system manufacturer shall submit written certification prepared and signed by a Professional Engineer, registered to practice in the State of Connecticut verifying that building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction.
2. Certification shall reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end-use categories, governing code bodies, including year, and load applications.
3. Certificate shall be on metal building system manufacturer's letterhead.
4. Refer to Submittals article of this specification section.

D. Material Testing:
   1. In addition to material certifications of structural steel, metal building system manufacturer shall provide, upon request at time of order, evidence of compliance with specifications through testing.
   2. This quality assurance testing shall include testing of structural bolts, nuts, screw fasteners, mastics, and metal coatings (primers, metallic coated products, and painted coil products).

1.7 DELIVERY, STORAGE, AND HANDLING:

A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:
   1. Store and handle materials in accordance with manufacturer's instructions.
   2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
   3. Do not store materials directly on ground.
   4. Store materials on flat, level surface, raised above ground, with adequate support to prevent sagging.
   5. Protect materials and finish during storage, handling, and installation to prevent damage.

1.8 WARRANTY:

A. Metal building system manufacturer shall provide a written weathertightness warranty for a maximum of 25 years against leaks in roof panels, arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions.
   1. Warranty shall be signed by both the metal roof system manufacturer and the metal roof system installer.
   2. Maximum liability of warranty shall be no less than $0.70 per square foot of roof area.

B. Metal building system manufacturer shall provide a written warranty for 25 years against perforation of metal roof panels due to corrosion under normal weather and atmospheric conditions.
   1. Warranty shall be signed by metal roof system manufacturer.

C. Metal building system manufacturer shall provide a paint film written warranty for 25 years against cracking, peeling, chalking, and fading of exterior coating on painted roof and wall panels.
   1. Warranty shall be signed by metal building system or roof system manufacturer and state that the coating contains 70 percent "Kynar 500" or "Hylar 5000" resin.
   2. Metal building system manufacturer shall warrant that the coating shall not peel, crack, or chip for 25 years.
   3. For a period of 25 years, chalking shall not exceed ASTM D 4214, #8 rating and shall not fade more than 5 color difference units in accordance with ASTM D 2244.

D. Metal Building System Manufacturer's Certification: Metal building system manufacturer shall submit a signed written Certification 1 week before bid date, stating that the metal roof system manufacturer or approved representative will provide warranties and Inspection and Report Service specified in this specification section.
   1. Warranty terms shall be submitted with bid.

PART 2 – PRODUCTS

2.1 MANUFACTURER:

A. Metal Building System Manufacturer: Butler Manufacturing, Varco Pruden, American Building Company or approved equal.

2.2 BUILDING DESCRIPTION:

A. Building Dimensions: Indicated on the Drawings.
   1. Horizontal Dimensions: Measure to inside face of wall sheets.
   2. Eave Height: Measure from top of finished floor to intersection of insides of roof and sidewall sheets.
   3. Clear Height Between Finished Floor and Bottom of Roof Steel: Indicated on the Drawings.

B. Primary Structural Members:
   1. Primary Framing System: Butler Manufacturing Co or approved equal framing system as specified in this specification section.
   2. Frames: Welded-up plate section columns and roof beams, complete with necessary splice plates for bolted field assembly as specified in this specification section.
   3. Bolts for Field Assembly of Primary Steel: High-strength bolts as indicated on erection drawings of metal building system manufacturer.
   4. Beam and Post Endwall Frames: Endwall corner posts, endwall roof beams, and endwall posts as required by design criteria
   5. Exterior Columns: Welded-up "H" sections or cold-formed “C” sections.
   6. Interior Columns: “H” sections or tube columns.
   7. Connection of Primary Structural Members: ASTM A 325 bolts through factory-punched holes.
   8. Primary Structural Members: Paint with metal building system manufacturer's standard primer with surface preparation as specified in this specification section.

C. Secondary Structural Members:
   1. Secondary Framing System: framing system as specified in this specification section.
   2. C/Z Purlins and Girts: Acrylic-coated G30 galvanized finish.

D. Metal Roof System: metal roof system as specified in this specification section.

E. Metal Wall System: metal wall system as specified in this specification section.

F. Where metal panels are required to be painted, use coating system as specified in this specification section.

G. Gutter and rain leader: provide integrated gutter and rain leaders at each end of the rear side of the building. See architectural drawings for gutter detail and see site drawing for leader to drain connection. Gutter and leader shall be properly sized for the total roof area.

2.3 DESIGN LOADS:

A. Governing Design Code:
   1. Structural design for the building structural system shall be provided by the metal building system manufacturer for the following design criteria:
      a. Governing Building Code: The 2016 IBC, see code sheet.
      b. Occupancy Category: as noted on Drawings.

B. Roof Live Load:
   1. Roof live loads are loads produced during the life of the structure by moveable objects.
   2. Wind, snow, seismic, or dead loads are not live loads.
   3. Roof live load: 20 psf.

C. Roof Snow Load:
   1. Roof snow load used for designing the structure shall not be reduced and shall be the product of the following criteria:
      a. Snow Load Coefficient (Ce): 1.0.
      b. Thermal Factor (C_t): 1.0.

c. Snow Importance Factor (I): 1.0.
d. Ground Snow Load (Pg): Per code.
e. Roof Snow Load (Pf): 40 psf.

2. Design snow load shall include the effects of minimum flat roof load limits, rain on snow, drifting snow, and unbalanced snow load as defined in the governing building code specified above.

D. Wind Load:

1. Wind load used for designing the structure shall be the product of the following criteria:
   a. Wind Exposure Category: C.
   b. Wind Velocity Pressure Exposure Coefficient (K_z): 1.0.
   c. Wind Topographic Factor (K_{zt}): 1.0.
   d. Wind Directionality Factor (K_d): 0.85.
   e. Wind Velocity (V), miles per hour: 95 mph.
   f. Wind Importance Factor (I_w): 1.15.
   g. Building Wind Load (q_z): Per code.
2. Wind Pressure Coefficients and the design pressures shall be applied in accordance with the governing code.

E. Seismic Load:

1. Seismic load used for designing the structure shall be based on the following criteria:
   a. Spectral response acceleration for short periods (S_s): 23.5% g.
   b. Spectral response acceleration for 1-sec. period (S_1): 6.5 % g.
   c. Site Class: D.
   d. Seismic Importance Factor (I): 1.0.
2. Seismic loads shall be applied in accordance with the governing code.

F. Dead Load: Dead load shall consist of the weight of building system construction, such as roof, framing, and covering members.

G. Collateral Load:

1. Collateral load of 10 pounds per square foot shall be applied to the entire structure to account for the weight of additional permanent materials other than the building system, such as sprinklers, mechanical systems, electrical systems, hung partitions, and ceilings.
2. This allowance does not include the weight of hung equipment weighing 50 pounds or more.
3. Equipment loads of 50 pounds or more shall be indicated on the Drawings and the structure shall be strengthened as required.
4. Architect will provide the metal building system manufacturer with the magnitude and approximate location of concentrated loads greater than 50 pounds before design of the building starts.

H. Auxiliary Loads: Auxiliary loads shall include dynamic loads, such as cranes and material handling systems, and will be defined in the Contract Documents.

I. Load Combinations: Load combinations used to design primary and secondary structural members shall be in accordance with the governing code.

2.4 DEFLECTIONS:

A. Structural Members:

1. Maximum deflection of main framing members shall not exceed L/90 of their respective spans.
2. Maximum deflection due to snow load in roof panels and purlins shall not exceed L/90of their respective spans.
3. Maximum deflection due to wind load in wall panels and girts shall not exceed L/90 of their respective spans.

B. Lateral deflections, or drift, at the roof level of the structure in relation to the floor or slab on grade, caused by deflection of horizontal force resisting elements, shall not exceed H/60.

C. Calculations for deflections shall be done using only the bare frame method.
1. Reductions based on engineering judgment using the assumed composite stiffness of the building envelope shall not be allowed.
2. Drift shall be in accordance with AISC Serviceability Design Considerations for Low-Rise Buildings.
3. Use of composite stiffness for deflection calculations is permitted only when actual calculations for the stiffness are included with the design for the specific project.
4. When maximum deflections are specified, calculations shall be included in the design data.

2.5 STRUCTURAL STEEL FRAMING SYSTEM:

A. General:
1. Design of Structural System: Clear or multi-span rigid frame with tapered or straight columns and roof beams, with gable or single-slope roof.
2. Actual Building Length:
   a. Structural line to structural line.
   b. Same as nominal; i.e., number of bays times length of bays.
   c. Structural Line: Defined as inside face of wall sheets.
3. Actual Building Width:
   a. Structural line to structural line.
   b. Nominal building width.
4. Roof Slope: Refer to drawings.
5. Components and Parts of Structural System:
   a. Indicated on the Drawings or the Specifications.
   b. Clearly marked.
   c. Erection Drawings: Supply for identification and assembly of parts.
   d. Drawings: Carry stamp of a registered professional engineer licensed to practice in the State of Connecticut.
6. Foundations:
   a. Foundations, Including Anchor Bolt Embedment Length: Properly designed by qualified engineer, retained by other than metal building system manufacturer, in accordance with specific soil conditions for building site.
   b. Reactions for Proper Design of Foundations: Supplied by metal building system manufacturer.
   c. Anchor Bolts:
   d. Anchor Bolt Diameter: Indicated on anchor bolt layout drawings furnished by metal building system manufacturer.
   e. Anchor Bolts: Supplied by Contractor, not metal building system manufacturer.
   f. Anchor Bolts on Moment-Resisting Column Bases: Nuts above and below base plates.

B. Structural Steel Design:
1. Structural Mill Sections or Welded-up Plate Sections: Design in accordance with AISC Specification for Structural Steel Buildings.
2. Cold-Formed Steel Structural Members: Design in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
3. Structural System: Design in accordance with specified building code (Refer to Design Loads and Building Codes).

C. Primary Framing:
1. Rigid Frames:
   a. Frames: Welded-up plate section columns and roof beams, complete with necessary splice plates for bolted field assembly.

b. Base Plates, Cap Plates, Compression Splice Plates, and Stiffener Plates: Factory welded into place and connection holes factory fabricated.
c. Columns and Roof Beams: Fabricated complete with holes in webs and flanges for attachment of secondary structural members and bracing, except for fieldwork as noted on erection drawings furnished by metal building system manufacturer.
d. Bolts for Field Assembly of Frame Members: ASTM A 325 high-strength bolts as indicated on erection drawings furnished by metal building system manufacturer.

2. Endwall Structural Members: Cold-formed channel members designed in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members or welded-up plate sections designed in accordance with AISC Specification for Structural Steel Buildings.
a. Endwall Frames: Endwall corner posts, endwall roof beams, and endwall posts as required by design criteria.
b. Splice Plates and Base Clips: Shop fabricated complete with bolt connection holes.
c. Base Plates, Cap Plates, Compression Splice Plates, and Stiffener Plates: Factory welded into place and connection holes shop fabricated.
d. Beams and Posts: Factory fabricated complete with holes for attachment of secondary structural members, except for field work as noted on erection drawings furnished by metal building system manufacturer.
e. Intermediate Frames: Substituted for end-wall roof beams, when specified.
f. Factory fabricate necessary endwall posts and holes for connection to intermediate frame used in endwall.

D. Secondary Structural Members:
1. Purlins:
a. Purlins:
1) "Z"-shaped, precision-roll-formed, acrylic-coated G30 galvanized steel in different gauges to meet specified loading conditions. 2) 7-inch, 8-1/2-inch, 10-inch, or 11-1/2-inch-deep "Z" sections.
b. Outer Flange of Purlins: Factory-punched holes for panel connections.
c. Attach purlins to main frames and endwalls with 1/2-inch-diameter bolts.
d. Brace purlins at intervals indicated on erection drawings furnished by metal building system manufacturer.
e. Concentrated Loads: Hung at purlin panel points.
2. Eave Members:
a. Eave Struts: Factory punched 7-inch, 8-1/2-inch, 10-inch, or 11-1/2-inch-deep "C" sections, precision-roll-formed, acrylic-coated G30 galvanized steel in different gauges to meet specified loading conditions.
3. Girts:
a. "Z" or “C”-shaped, precision-roll-formed, acrylic-coated G30 galvanized steel in different gauges to meet specified loading conditions.
b. 7-inch, 8-1/2-inch, 10-inch, or 11-1/2-inch-deep "Z" or “C” sections.
c. Outer Flange of Girts: Factory-punched holes for panel connections.
4. Bracing:
a. Locate bracing as indicated on the Drawings.
b. Diagonal Bracing:
c. Hot-rolled rods of sizes indicated on the Drawings.
d. Attach to columns and roof beams as indicated on the Drawings.
e. Optional fixed-base wind posts or pinned-base portal frames may be substituted for wall rod bracing on buildings as required.
f. Flange Braces and Purlin Braces: Cold formed and installed as indicated on the Drawings.

E. Welding:
1. Welding Procedures, Operator Qualifications, and Welding Quality Standards: AWS D1.1 - Structural Welding Code – Steel and AWS D1.3 - Structural Welding Code – Sheet Steel.
2. Welding inspection, other than visual inspection as defined by AWS D1.1, paragraph 6.9, shall be identified and negotiated before bidding.

3. Certification of Welder Qualification: Supply when requested.

F. Painting of Structural Steel Framing System:
   1. General:
      a. Structural Steel: Prime paint as temporary protection against ordinary atmospheric conditions.
      b. Perform subsequent finish painting, if required, in field as specified in the painting section.
      c. Before painting, clean steel of loose rust, loose mill scale, dirt, and other foreign materials.
      d. Steel Fabricator: Not required to sand blast, flame clean, or pickle steel before painting, unless otherwise specified.
   2. Primary Frames:
      a. Clean steel in accordance with SSPC-SP2.
      b. Factory cover steel with 1 coat of gray water-reducible alkyd primer paint formulated to equal or exceed performance requirements SSPC-Paint 15.
      c. Minimum Coating Thickness: 1.0 mil.
   3. Secondary Structural Members – Roll-Formed:
      a. Hot-dipped zinc coating, ASTM A 653, G30; followed by 1 coat of clear acrylic finish.
      b. Acrylic-Coated G30 Galvanized Steel: Equal or exceed performance requirements of SSPC Paint-15.

2.6 METAL ROOF SYSTEM:

A. Metal Roof System: Products by manufacturers listed below will be accepted:
   1. Butler Manufacturing "MR-24®" roof system.
   2. Varco Pruden
   3. American Building Company

B. Roof System Design:
   1. Design roof panels in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
   2. Design roof paneling system for a minimum roof slope of 1/4 inch in 12 inches.
   3. Design roof paneling system to support design live, snow, and wind loads.
   4. Endwall Trim and Roof Transition Flashings: Allow roof panels to move relative to wall panels and/or parapets as roof expands and contracts with temperature changes.

C. Roof System Performance Testing:
   1. UL Wind Uplift Classification Rating, UL 580: Class 90.
   2. Structural Performance Under Uniform Static Air Pressure Difference: Test roof system in accordance with ASTM E 1592.
   3. Roof system has been tested in accordance with U.S. Army Corps of Engineers Unified Facilities Guide Specification Section 07 61 13.
   4. FM Global (Factory Mutual):
      a. Roof system has been tested in accordance with FMRC Standard 4471 and approved as a Class 1 Panel Roof.
      b. Metal Building System Manufacturer: Provide specific assemblies to meet required wind rating in accordance with FM Global.
      c. Installation modifications or substitutions can invalidate FM Global approval.

D. Roof Panels:
   1. Factory roll-formed, 24 inches wide, with 2 major corrugations, 2 inches high (2-3/4 inches including seam), 24 inches on center.
   2. Flat of the Panel: Cross flutes 6 inches on center, perpendicular to major corrugations in entire length of panel to reduce wind noise.
   3. Variable Width Panels:

a. For roof lengths not evenly divisible by the 2'-0" panel width, factory-manufactured variable-width (9-inch, 12-inch, 15-inch, 18-inch, and 21-inch-wide) panels shall be used to ensure modular, weathertight roof installation.
b. Minimum Length: 15 feet.
c. Supply maximum possible panel lengths.

4. Panel Material and Finish:
   a. 24-gauge galvanized steel, G90 coating, ASTM A 653, G90.
   b. Paint with exterior colors of "Butler-Cote™" finish system, full-strength, 70 percent "Kynar 500" or "Hylar 5000" fluoropolymer (PVDF) coating.
   c. PVDF Coating Warranty: Metal building system manufacturer shall warrant coating for 25 years for the following.
      i. Not to peel, crack, or chip.
      ii. Chalking: Not to exceed ASTM D 4214, #8 rating.
      iii. Fading: Not more than 5 color-difference units, ASTM D 2244.
      iv. Panel Material and Finish: Special materials, gauges, or colors as applicable for custom designs.
5. Use panels of maximum possible lengths to minimize end laps.
6. Extend eave panels beyond structural line of sidewalls.
7. Factory punch panels at panel end to match factory-punched holes in eave structural member.
8. Panel End Splices: Factory punched and factory notched.
9. Panel End Laps: Locate directly over, but not fastened to, a supporting secondary roof structural member and be staggered, to avoid 4-panel lap-splice condition.
10. End Laps: Floating. Allows roof panels to expand and contract with roof panel temperature changes.
11. Self-Drilling Fasteners: Not permitted.
12. Ridge Assembly:
    a. Design ridge assembly to allow roof panels to move lengthwise with expansion and contraction as roof panel temperature changes.
    b. Factory punch parts for correct field assembly.
    c. Install panel closures and interior reinforcing straps to seal panel ends at ridge.
    d. Do not expose attachment fasteners on weather side.
    e. Use lock seam plug to seal lock seam portion of panel.
    f. High-Tensile Steel Ridge Cover: Span from panel closure to panel closure and flex as roof system expands and contracts.

E. Provision for Expansion and Contraction:
1. Provision for Thermal Expansion Movement of Roof Panels: Clips with movable tab.
   a. Stainless Steel Tabs: Factory centered on roof clip when installed to ensure full movement in either direction.
   b. Maximum Force of 8 Pounds: Required to initiate tab movement.
   c. Each Clip: Accommodates a minimum of 1.25-inch movement in either direction.
2. Roof: Provide for thermal expansion and contraction without detrimental effects on roof panels, with plus or minus 100-degree F temperature difference between interior structural framework of building and of roof panels.

F. Fasteners:
1. Make connections of roof panels to structural members, except at eaves, with clips with movable stainless steel tabs, seamed into standing seam side lap.
2. Fasten panel clips to structural members with "Scrubolt™" fasteners in accordance with erection drawings furnished by metal building system manufacturer, using factory-punched holes in structural members.
   a. Fasteners: Metal-backed rubber washer to serve as torque indicator.
3. Exposed fasteners penetrating metal roof membrane at the following locations do not exceed the frequency listed:
   a. Basic Panel System: 0 per square foot.
   b. High Eave Trim, No Parapet: 2 per linear foot.

c. Exterior Eave Gutter: 2 per linear foot.
d. Panel Splices: 2 per linear foot.
e. Gable Trim: 0 per linear foot.
f. High Eave with Parapet: 0 per linear foot.
g. Ridge: 0 per linear foot.
h. Low Eave Structural: 1.5 per linear foot.

G. Accessories:
1. Accessories (i.e., ventilators, skylights, gutters, fascia): Standard with metal building system manufacturer, unless otherwise noted and furnished as specified.
2. Exterior Metal Coating on Gutters, Downspouts, Gable Trim, and Eave Trim: "Butler-Cote™ " finish system, full-strength, 70 percent "Kynar 500" or "Hylar 5000" fluoropolymer (PVDF) coating.
3. Location of Standard Accessories: Indicated on erection drawings furnished by metal building system manufacturer.
4. Material used in flashing and transition parts and furnished as standard by metal building system manufacturer may or may not match roof panel material.
   a. Parts: Compatible and not cause corrosive condition.
   b. Copper and Lead Materials: Do not use with Galvalume panels.

H. Energy Conservation:
1. Insulate purlins (optional) to eliminate "thermal short circuits" between purlins and roof panels.
2. Minimize heat loss (thermal short circuit) caused by compression of blanket insulation between structural members and roof panels by use of thermal block at each purlin location.

2.7 METAL WALL SYSTEM

A. Exterior Metal Wall System: Products by manufacturers listed below will be accepted:
1. Butler Manufacturing™ "Shadowall™" wall system.
2. Varco Pruden
3. American Building Company

B. Wall System Design: Design wall panels in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.

C. Wall Panels:
1. Roll-formed panels, 3 feet wide with 4 major corrugations, 1-7/16 inches high, 12 inches on center, with 2 minor corrugations between each of the major corrugations entire length of panel.
2. One piece from base to building eave.
3. Each Panel Corrugation: Fastener alignment groove to center fastener within corrugation.
4. Exposed Panel Side Laps: Hemmed to eliminate raw cut panel edge.
5. Upper End of Panels: Fabricate with panels square cut for roof panels and slopes.
6. Factory punch wall panels at panel ends and match field-drilled holes in structural members for proper alignment.
7. Panel Material and Finish:
   a. 26-gauge painted Galvalume aluminum-zinc alloy (approximately 55 percent aluminum, 45 percent zinc), ASTM A 792.
   b. Paint with exterior colors, full-strength, 70 percent "Kynar 500" or "Hylar 5000" fluoropolymer (PVDF) coating.
   c. PVDF Coating Warranty: Metal building system manufacturer shall warrant coating for 25 years for the following.
      1) Not to peel, crack, or chip.
      2) Chalking: Not to exceed ASTM D 4214, #8 rating.
      3) Fading: Not more than 5 color-difference units, ASTM D 2244. D. Fasteners:

8. Wall Panel-to-Structural Connections: Torx-head "Scrubolt™" or Torx-head self-drilling screws.
9. Wall Panel-to-Panel Connections: Torx-head self-drilling screws.
10. Fastener Locations: Indicated on erection drawings furnished by metal building system manufacturer.
11. Exposed Fasteners: Factory painted to match wall color.

E. Accessories:
1. Accessories (i.e., doors, windows): Design to fit wall panel system and furnish as standard by metal building system manufacturer, unless otherwise noted.
2. Location of Standard Accessories: Indicated on erection drawings furnished by metal building system manufacturer.

2.8 INTERIOR METAL LINER PANEL:

A. Interior Metal Liner Panel: Products by manufacturers listed below will be accepted:
1. Butler Manufacturing™ "Butlerib® II"
2. Varco Pruden
3. American Building Company

B. Wall System Design: Design wall panels in accordance with AISI North American Specification for the Design of Cold-Formed Steel Structural Members.

C. Wall Panels:
1. Roll-formed panels, 3 feet wide with 4 major corrugations, 1-1/2 inches high, 12 inches on center, with 2 minor corrugations between each of the major corrugations entire length of panel.
2. One piece from base to height indicated on the drawings.
3. Factory punch or field drill wall panels at panel ends and match factory-punched or field-drilled holes in structural members for proper alignment.
4. Panel Material and Finish:
   a. 26-gauge painted Galvalume aluminum-zinc alloy (approximately 55 percent aluminum, 45 percent zinc), ASTM A 792.
   b. Paint with exterior colors of "Butler-Cote™" finish system, full-strength, 70 percent "Kynar 500" or "Hylar 5000" fluoropolymer (PVDF) coating.
   c. PVDF Coating Warranty: Metal building system manufacturer shall warrant coating for 25 years for the following.
      i. Not to peel, crack, or chip.
      ii. Chalking: Not to exceed ASTM D 4214, #8 rating.
      iii. Fading: Not more than 5 color-difference units, ASTM D 2244.
5. Panel Material and Finish: Special materials, gauges, or colors as applicable for custom designs.

D. Fasteners:
1. Wall Panel-to-Structural Connections: Torx-head "Scrubolt™" fasteners.
2. Wall Panel-to-Panel Connections: Torx-head self-drilling screws.
3. Fastener Locations: Indicated on erection drawings furnished by metal building system manufacturer.
4. Exposed Fasteners: Factory painted to match wall color.

2.9 INSULATION:

A. Laminated Fiberglass: Owens-Corning Fiberglas, NAIMA 202, "Certified R" metal building insulation.
1. TIMA Insignia and Insulation Thickness: Ink-jet printed on fiberglass.

B. Back-Fill Insulation: Owens-Corning Fiberglas unfaced "Pink Metal Building Insulation Plus".

C. Roof Insulation:
1. Nominal Thickness: 6” inches.
2. Certified R-Value: R-19.

D. Wall Insulation:
1. Nominal Thickness: 6” inches.
2. Certified R-Value: R-19.

E. Roof and Wall Insulation Facing: WMP-50 polypropylene scrim by Lamtec Corp.
1. 0.0015-inch-thick, UV-stabilized, white polypropylene film laminated to 30-pound Kraft paper/metalized polyester, reinforced with glass-fiber and polyester scrim.
2. Adhere facing to Owens-Corning Fiberglas “Certified R”, NAIMA 202, fiberglass blanket.
3. Assembly of Insulation Blanket and Facing:
   a. Flame Spread Rating: Less than 25.
   b. UL Label: Submit as specified in Submittals article of this section.
   c. Perm Rating: 0.02.

2.10 METAL COATING SYSTEM:

A. Metal Coating System: Products by manufacturers listed below will be accepted:
1. Butler Manufacturing™ “Butler-Cote™” finish system a factory-applied, exterior metal coating system
2. Varco Pruden
3. American Building Company

B. Substrate Preparation:
1. G90 Hot-Dipped Galvanized Steel or AZ50 Galvalume: Factory-controlled chemicalconversion treatment.

C. Coating:
1. Material: “Fluropon”. Full-strength, 70 percent, “Kynar 500” or “Hylar 5000” fluoropolymer (PVDF) color coating.
2. After steel preparation, coat exterior exposed surface with primer and “Fluropon”.
   a. Nominal Total Dry Film Thickness: 1.0 mil.
3. Interior Exposed Surfaces: Coat with polyester color coat.
4. Apply coatings to entire material dimensions of steel sheets before forming of panels.

D. Physical Characteristics of Exterior Coating:
1. Resistance to failure through cracking, checking, peeling, and loss of adhesion.
2. Measure by the following laboratory weather-simulating tests to obtain test results justifying metal building system manufacturer's 25-year warranty:
   a. Humidity resistance at 100 degrees F and 100 percent relative humidity, ASTM D 2247.
   b. Salt-spray resistance at 5 percent salt fog, ASTM B 117.
   c. Reverse impact resistance, ASTM D 2794.
   d. Resistance to accelerated weathering, Atlas Model XW-R Dew Cycle Weather-OMeter, ASTM D 3361.
   e. Resistance to dry heat.
   f. Abrasion resistance, ASTM D 968.
   g. Chemical/acid/pollution resistance, ASTM D 1308 and G 87.
   h. Maintain gloss of finish evenly over entire surface, ASTM D 523

PART 3 – EXECUTION

3.1 EXAMINATION:

A. Examine area to receive metal building system.

B. Notify Architect of conditions that would adversely affect installation or subsequent use.
   1. Do not begin installation until unacceptable conditions are corrected.

3.2 ERECTION – STRUCTURAL STEEL FRAMING SYSTEM:

A. Erect structural steel framing system in accordance with the Drawings and metal building system manufacturer's erection drawings.

B. Field Modifications:
   1. Require approval of metal building system manufacturer.
   2. Responsibility of building erector.
      a. Field Modifications to Truss Purlins: Not allowed, unless indicated on erection drawings furnished by metal building system manufacturer.

C. Fixed Column Bases: Grout flush with floor line after structural steel erection is complete.

3.3 INSTALLATION - METAL ROOF SYSTEM:

A. Metal Roof System Installation: Products by manufacturers listed below will be accepted:
   a. Butler Manufacturing™ "MR-24®" roof system.
   b. Varco Pruden
   c. American Building Company.
   1. Install roof system in accordance with metal building system manufacturer's instructions at locations indicated on the Drawings.
   2. Install roof system weathertight.
   3. Position panel clips by matching hole in clip with factory-punched holes in secondary structural members.
   4. Position and properly align panels by matching factory-punched holes in panel end with factory-punched holes in eave structural member and by aligning panel with panel clip.
   5. Field seam panel side laps by self-propelled and portable electrical lock-seaming machine.
      a. Machine field forms the final 180 degrees of a 360-degree Pittsburgh double-lock standing seam.
      b. Factory apply side lap sealant.
   6. Panel End Laps: Minimum of 6 inches, sealed with sealant (weather sealing compound), and fastened together by clamping plates.
      a. Sealants: Contain hard nylon beads, which prevent mastic from flowing out due to clamping actions.
      b. Join panel laps by 2-piece clamped connection consisting of a bottom reinforcing plate and a top panel strap.
      c. Locate panel end laps directly over, but not fastened to, supporting secondary roof structural member and stagger, to avoid 4-panel lap-splice condition.
   7. Minimum Blanket Insulation Thickness: 2 inches.

3.4 INSTALLATION - METAL ROOF SYSTEM:

A. Metal Wall System Installation: Products by manufacturers listed below will be accepted:
   a. Butler Manufacturing™ "Butlerib® II" wall system.
   b. Varco Pruden
   c. American Building Company
   1. Install wall system in accordance with metal building system manufacturer's instructions at locations indicated on the Drawings.
   2. Install wall system weathertight.
   3. Verify structural system is plumb before wall panels are attached.
   4. Align and attach wall panels in accordance with erection drawings furnished by metal building system manufacturer.
   5. Install side laps with minimum of 1 full corrugation.

6. Seal wall panels at base with metal trim.
7. Exterior Trim: Apply same finish as exterior color of wall panels, except the following:
   a. Gutters, Downspouts, Eave Trim, Gable Trim, Door-Side Flashings, and Header Flashings: Paint with exterior colors of "Butler-Cote™" finish system, full-strength, 70 percent "Kynar 500" or "Hylar 5000" fluoropolymer (PVDF) coating in standard color of metal building system manufacturer.
   b. Windows: Factory paint aluminum extrusions (thermally broken).
8. Flashings, Trim, Closures, and Similar Items: Install as indicated on erection drawings furnished by metal building system manufacturer.

3.5 INSTALLATION – INSULATION:

A. Insulation Installation: Install insulation in accordance with metal building system manufacturer's instructions at locations indicated on the Drawings.

3.6 PROTECTION:

A. Protect installed metal building system to ensure that, except for normal weathering, metal building system will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 13 34 19

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Division 1, is part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work.

1.2 DESCRIPTION OF WORK

A. The work required under this Division shall include all materials, labor and auxiliaries required to install a complete and properly operating electrical system.

B. The **Contractor** shall furnish, perform, or provide all labor including planning, purchasing, transporting, storing, installing, testing, cutting and patching, trenching, excavating, backfilling, coordination, field verification, equipment (installation and safety), supplies, and materials necessary for the correct installation of complete electrical systems (as described or implied by these specifications and the applicable drawings) in strict accordance with applicable codes, which may not be repeated in these specifications, but are expected to be common knowledge of qualified Bidders.

C. The Division 26 Contract Documents refer to work required in addition to (or above) the minimum requirements of the N.E.C. and applicable local codes. All work shall comply with all applicable codes as a minimum and with the additional requirements called for in these Contract Documents.

D. Only trained, and licensed personnel shall be used by the **Contractor** to perform work. The **Contractor** shall not perform work which violates applicable Codes, even if called for in the Contract Documents. The **Contractor's** Bid shall include work necessary to completely install the electrical systems indicated by the Contract Documents in accordance with applicable Codes.

E. Connections of all items using electric power shall be included under this division of the specifications, including necessary wire, conduit, circuit protection, disconnects and accessories. Securing of roughing-in drawings and connection information for equipment involved shall also be included under this division. See other divisions for specifications for electrically operated equipment.

1.3 WORK SEQUENCE

A. Install work in stages and/or phases to accommodate **Owner's** occupancy requirements. Coordinate electrical schedule and operations with **Owner** and **Architect/Engineer**.

1.4 CODES, FEES, AND STANDARDS

A. Conform to all applicable requirements of the REFERENCE STANDARDS AND REGULATORY REQUIREMENTS - SECTION 26 01 12.

B. Material shall be new and free of defects with U.L. listing or be listed with an approved, nationally recognized Electrical Testing Agency if and only if U.L. Listing is not available for material.

1.5 PROJECT/SITE CONDITIONS

A. Install Work in locations shown or described in the Contract Documents, unless prevented by Project conditions.

B. The **Contractor** shall install all equipment so that all Code required and Manufacturer recommended servicing clearances are maintained. Contractor shall be responsible for the proper arrangement and installation of all equipment within any designated space. Should the **Contractor** determine that a departure from the Contract Documents is necessary, he shall submit to the **A/E,** for approval, detailed drawings of his proposed changes with his written reasons for the changes. No changes shall be

implemented by the **Contractor** without the issuance of the required drawings, clarifications, and/or change orders.

C. The **Contractor** shall verify finish dimensions at the project site in preference to using dimensions noted on Contract Documents.

1.6 INVESTIGATION OF SITE

A. Check site and existing conditions thoroughly before bidding. Advise **A/E** of discrepancies or questions noted.

B. Each Bidder shall visit the site and shall thoroughly familiarize himself with existing field conditions and the proposed work as described or implied by the Contract Documents. During the course of his site visit, the electrical bidder shall verify every aspect of the proposed work and the existing field conditions in the areas of construction and demolition which will affect his work. The **Contractor** will receive no compensation or reimbursement for additional expenses he incurs due to failure to make a thorough investigation of the existing facilities. This shall include rerouting around existing obstructions.

C. Submission of a proposal will be construed as evidence that such examination has been made and later claims for labor, equipment or materials required because of difficulties encountered will not be recognized.

D. Existing conditions and utilities indicated are taken from existing construction documents, surveys, and field investigations. Unforeseen conditions probably exist and existing conditions shown on drawings may differ from the actual existing installation with the result being that new work may not be field located exactly as shown on the drawings. **Contractor** shall field verify dimensions of all site utilities, conduit routing, boxes, etc., prior to bidding and include any deviations in the contract. Notify **A/E** if deviations are found.

E. All existing electrical is not shown. The **Contractor** shall become familiar with all existing conditions prior to bidding, and include in his bid the removal of all electrical equipment, wire, conduit, devices, fixtures, etc. that is not being reused, back to it's originating point.

F. The **Contractor** shall locate all existing utilities and protect them from damage. The **Contractor** shall pay for repair or replacement of utilities or other property damaged by operations in conjunction with the completion of this work.

G. Remove existing power, lighting, systems, material and equipment which are made obsolete or which interfere with the construction of the project. Reinstall power, lighting, systems, materials and equipment which are required to remain active for the facility to be fully functional.

H. All items removed and not re-used shall be immediately turned over to Owner as they are made available by renovation. Remove items from job site and deliver to Owner's storage location(s) as directed by project manager. Discard complete items which Owner elects to refuse.

I. Investigate site thoroughly and reroute all conduit and wiring in area of construction in order to maintain continuity of existing circuitry. Existing conduits indicated in Contract Documents indicate approximate locations only. **Contractor** shall verify and coordinate existing site conduits and pipes prior to any excavation on site. Bids shall include hand digging at existing utility locations and all required rerouting in areas of existing conduits or pipes.

J. Work is in connection with existing buildings which must remain in operation while work is being performed. Work shall be in accordance with the schedule required by the Contract. Schedule work for a minimum outage to Owner. Notify Owner 72 hours in advance of any shut-down of existing systems. Perform work during school] operating hours unless otherwise approved by Owner. Protect existing buildings and equipment during construction.

K. Bid shall include all removal and relocation of all piping, fixtures or other items required for completion of alterations and new construction.

L. See Specification Section 26 01 14 for additional requirements due to existing conditions.

1.7 CONTRACT DOCUMENTS

A. These specifications and applicable drawings shall be considered supplementary, one to the other and are considered Contract Documents. These specifications are not intended to delineate or limit required work by sections or divisions, and shall be considered as one document from cover to cover, front to back, including all other applicable specification sections and general conditions. All workmanship, methods, and/or material described or implied by one and not described or implied by the other shall be furnished, performed, or otherwise provided just as if it had appeared in both sets of documents.

B. Where a discrepancy or conflict is found between these specifications and any applicable drawing, the **Contractor** shall notify the **A/E** in written form. In the event that a discrepancy exists herein or between specifications and any applicable drawing, the most stringent requirement shall govern unless the discrepancy conflicts with applicable codes wherein the code shall govern.

C. The drawings are diagrammatic and are not intended to include every detail of construction, materials, methods, and equipment. They indicate the result to be achieved by an assemblage of various systems. Coordinate equipment locations with Architectural and Structural drawings. Layout equipment before installation so that all trades may install equipment in spaces available. Coordinate installation in a neat and workmanlike manner.

D. Wiring arrangements for equipment shown on the drawings are intended to be diagrammatic and do not show all required conductors and functional connections. All wiring and appurtenances required for the proper operation of all equipment to be connected shall be provided.

E. Specifications require the **Contractor** to provide shop drawings which shall indicate the fabrication, assembly, installation, and erection of a particular system's components. Drawings that are part of the Contract Documents shall not be considered a substitute for required shop drawings, field installation drawings, Code requirements, or applicable standards.

F. Locations indicated for outlets, switches, and equipment are approximate and shall be verified by instructions in specifications and notes on the drawings. Where instructions or notes are insufficient to locate the item, notify the **A/E**.

G. The **Contractor** shall take finish dimensions at the project site in preference to scaling dimensions on the drawings.

H. Where the requirements of another Division, section, or part of these specifications exceed the requirements of this Division those requirements shall govern.

1.8 MATERIALS AND EQUIPMENT

A. Material shall be new (except where specifically noted, shown or specified as "Reused") and shall be U.L. listed and bear U.L. label. Where no U.L. label listing is available for a particular product, material shall be listed with an approved, nationally recognized Electrical Testing Agency. Where no labeling or listing service is available for certain types of equipment, test data shall be submitted to prove to the **Engineer** that equipment meets or exceeds available standards.

B. Where Contract Documents list design selection or manufacturer, type, this model shall set the standard of quality and performance required. Where no brand name is specified, the source and quality shall be subject to **A/E's** review and approval. Where Contract Documents list approved substitutions, these items shall comply with Section 26 01 11 and requirements in this Division of the Specifications for substitutions.

C. When a product is specified to be in accordance with a trade association or government standard and at the request of **A/E** the **Contractor** shall furnish a certificate that the product complies with the referenced standard and supporting test data to substantiate compliance.

D. Where multiple items of the same equipment or materials are required, they shall be the product of a single Manufacturer.

E. Where the Contract Documents require materials and/or equipment installed, pulled, or otherwise worked on, the materials and/or equipment shall be furnished and installed by the **Contractor** responsible for Division 26, 27 and 28 methods and materials unless specifically noted otherwise.

F. Where the contract documents refer to the terms "furnish," "install," or "provide," the materials and/or equipment shall be supplied and delivered to the project including all labor, unloading, unpacking, assembly, erection, anchoring, protecting supplies and materials necessary for the correct installation of complete system unless specifically noted otherwise.

G. Before the **Contractor** orders equipment, the physical size of specified equipment shall be checked to fit spaces allotted on the drawings, with NEC working clearances provided. Internal access for proposed equipment substitutions shall be provided.

H. Electrical equipment shall be protected from the weather, during shipment, storage, and construction per manufacturer's recommendations for storage and protection. Should any apparatus be subjected to possible damage by water, it shall be thoroughly dried and put through a dielectric test, at the expense of the **Contractor**, to ascertain the suitability of the apparatus, or it shall be replaced without additional cost to the **Owner**.

I. Inspect all electrical equipment and materials prior to installation. Damaged equipment and materials shall not be installed or placed in service. Replace or repair and test damaged equipment in compliance with industry standards at no additional cost to the **Owner**. Equipment required for the test shall be provided by the **Contractor**.

J. Material and equipment shall be provided complete and shall function up to the specified capacity/function. Should any material and/or equipment as a part or as a whole fail to meet performance requirements, replacements shall be made to bring performance up to specified requirements. Damages to finish by such replacements, alterations, or repairs shall be restored to prior conditions, at no additional cost to the **Owner**.

K. Materials installed in environmental air plenum s shall be UL Plenum Listed and bear the appropriate UL markings.

L. Where tamperproof screws are specified or required, Phillips head or Allen head devices shall not be accepted. For each type used, provide **Owner** with three tools. **Owner** will designate the specific hardware design to correspond with existing devices elsewhere in the building, to limit special tool requirements.

1.9 SUPERVISION OF THE WORK

A. The **Contractor** shall provide experienced, qualified, and responsible supervision for work. A competent foreman shall be in charge of the work in progress at all times. If, in the judgement of the **A/E**, the foreman is not performing his duties satisfactorily, the **Contractor** shall immediately replace him upon receipt of a letter of request from the **A/E**. Once a satisfactory foreman has been assigned to the work, he shall not be withdrawn by the **Contractor** without the written consent of the **A/E**.

B. Provide field superintendent who has had a minimum of four (4) years previous successful experience on projects of comparable size and complexity. Superintendent shall be on the site at all times during construction and must have an active Journeymans Electrical License.

C. Superintendent shall be employed by a State certified electrical contractor.

D. Maintain at all times the appropriate Journeyman to apprentice ratio as defined by the State Of Connecticut.

1.10 COORDINATION

A. Provide all required coordination and supervision where work connects to or is affected by work of others, and comply with all requirements affecting this Division. Work required under other divisions, specifications or drawings to be performed by this Division shall be coordinated with the **Contractor** and such work performed at no additional cost to **Owner** including work required for:

1. Door Hardware
2. Mechanical Division of the Specifications
3. Interior design drawings
4. Millwork design drawings and shop drawings
5. Owner furnished equipment
6. Network and premise systems

B. **Contractor** shall obtain set of contract documents from **Owner** or **Contractor** for all areas of work noted above and include all electrical work in bid whether included in Division 26, 27 and 28 Contract Documents or not.

C. Installation studies shall be made to coordinate the electrical work with other trades. Work shall be preplanned. Unresolved conflicts shall be referred to the **A/E** prior to installation of the equipment.

D. For locations where several elements of electrical or combined mechanical and electrical work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings at 1/4" scale showing the actual physical dimension required for the installation to assure proper integration of equipment with building systems and NEC required clearances. Coordination drawings shall be provided for all areas determined by the A/E.

E. Secure approved shop drawings from all required disciplines and verify final electrical characteristics before roughing power feeds to any equipment. When electrical data on approved shop drawings differs from that shown or called for in Construction Documents, make adjustments to the wiring, disconnects, and branch circuit protection to match that required for the equipment installed.

F. Damage from interference caused by inadequate coordination shall be corrected at no additional cost to the **Owner**.

G. The **Contractor** shall maintain an up-to-date set of Contract Documents and Specifications of all trades on project, including Architectural, Structural, Mechanical, Electrical and, where provided Interior Design.

H. It is the responsibility of this **Contractor** to coordinate the exact required location of floor outlets, floor ducts, floor stub-ups, etc. with **Owner** and **Architect** (and receive their approval) prior to rough-in. Locations indicated in Contract Documents are only approximate locations.

I. The Contract Documents describe specific sizes of switches, breakers, fuses, conduits, conductors, motor starters and other items of wiring equipment. These sizes are based on specific items of power consuming equipment (heaters, lights, motors for fans, compressors, pumps, etc.). The **Contractor** shall coordinate the requirements of each load with each load's respective circuitry shown and with each load's requirements as noted on its nameplate data and manufacturer's published electrical criteria. The **Contractor** shall adjust circuit breaker, fuse, conduit, and conductor sizes to meet the actual requirements of the equipment being provided and installed and change from single point to multiple points of connection (or vice versa) to meet equipment requirements. Changes shall be made at no additional cost to the **Owner**.

1.11 PROVISION FOR OPENINGS

A. Locate openings required for work. Provide sleeves, guards or other approved methods to allow passage of items installed.

1.12 SURFACE MOUNTED EQUIPMENT

A. Surface mounted fixtures, outlets, cabinets, conduit, panels, etc. shall have finish or shall be painted as directed by **Engineer**. Paint shall be in accordance with other applicable sections of these specifications.

1.13 CUTTING AND PATCHING

A. New Construction:

1. Reference Division 1 - General Requirements.

2. Cutting of work in place shall be cut, drilled, patched and refinished by trade responsible for initial installation.

3. The **Contractor** shall be responsible for backfilling and matching new grades with adjacent undisturbed surface.

1.14 INSTALLATION

A. Erect equipment to minimize interference and delays in execution of the work.

B. Take care in erection and installation of equipment and materials to avoid marring finishes or surfaces. Any damage shall be repaired or replaced as determined by the A/E at no additional cost to the **Owner**.

C. Equipment requiring electrical service shall not be energized or placed in service until **A/E** is notified and is present or have waived their right to be present. Where equipment to be placed in service involves service or connection from another **Contractor** or the **Owner**, the **Contractor** shall notify the **Owner** in writing when the equipment will be ready. The **Owner** shall be notified as far in advance as possible of the date the various items of equipment will be complete.

D. Equipment furnished by other divisions of work requiring electrical service or connection by this Contractor shall not be energized until the equipment has been certified by the provider and/or manufactures representative and is present at time of energizing. Voltage shall be checked prior to energizing to ensure compatibility.

E. Equipment supports shall be secured and supported from structural members except as field approved by the **A/E**.

F. Plywood material shall not be used as a backboard for mounting panel boards, disconnects, motor starters, and dry type transformers. Provide "cast in place" type inserts or install expansion type anchor bolts. Electrical equipment shall not be mounted directly to dry wall for support without additional channels as anchors. Channels shall be anchored to the floor and structure above. Panelboards and terminal cabinets shall be provided with structural framing located within drywall partitions.

G. The **Contractor** shall keep the construction site clean of waste materials and rubbish. Upon completion of the work, the **Contractor** shall remove from the site debris, waste, unused materials, and equipment.

H. Inserts, pipe sleeves, supports, and anchorage of electrical equipment shall be provided. Where items are to be set or embedded in concrete or masonry, the items shall be furnished and layout made for setting or embedment thereof so as to cause no delay.

1.15 PROGRESS AND RECORD DRAWINGS

A. Keep two sets of blueline prints including shop drawings on the job, and neatly mark up design drawings each day as components are installed. Different colored pencils shall be used to differentiate each system of electrical work. All items on Progress Drawings shall be shown in actual location installed. Change the equipment schedules to agree with items actually furnished. Cross out all electrical no longer applicable and/or shown redirected. **Contractor** shall include all existing conduit, routing, circuitry, etc. effected/modified/reworked by renovation (if applicable). Panelboard schedules, equipment schedules, systems shop drawing floor plans, and riser diagrams shall also be included as part of a complete as-built set of drawings.

B. Prior to request for substantial completion inspection, furnish a set of neatly marked prints showing "as-installed" (as-built) condition of all electrical installed under this Division of the specifications. Marked up prints are to reflect all changes in work including change orders, field directives, request for information, addenda, etc. from bid set of Contract Documents. Marked up set of prints are to show:

1. All raceways 1-1/2" and above, exactly as installed.

2. Any combining of circuits or change in homerun outlet box shall be made on as-builts.

3. Any circuit number changes on plan shall be indicated on as-builts.

4. Any panelboard schedule changes shall be indicated on as-builts.

C. Marked up prints as noted above are to be submitted to A/E for approval. Contractor shall review submitted "as-builts" with Engineer in the field at time of substantial completion. Contractor shall verify every aspect for accuracy. Items installed and/or modified from time of substantial completion and final shall be incorporated accordingly. All A/E review comments shall be incorporated and re-submitted.

D. Marked up prints as noted above are to be submitted to A/E for approval.

E. Where the **Contractor** has failed to produce representative "as-built" drawings in accordance with requirements specified herein, the **Contractor** shall reimburse **Engineer** all costs to produce a set of "as-built" drawings to the **Architect/Owner** satisfaction. The A/E shall be reimbursed cost to review re-submittal as-builts subsequent to the second submittal. Cost will be billed to contractor at engineer's standard $90.00 hourly rate.

F. Where the contractor has failed to produce representative "as-built" drawings as specified herein, to the satisfaction of the A/E /Owner, shall be cause for disallowing request for payments.

1.16 "OBSERVATION OF WORK" REPORT

A. Items noted by **A/E** or his **representative** during construction and before final acceptance which do not comply with the Contract Documents will be listed in a "Observation of Work" report which will be sent to the **Contractor** for action. The **Contractor** shall correct all deficiencies in a prompt concise manner. After completion of the outstanding items, provide a written confirmation report for each item. The report shall indicate each item noted, and method of correction. Enter the date on which the item was corrected, and return the signed reports so items can be rechecked. Failure to correct the deficiencies in a prompt concise manner or failure to return the signed reports shall be cause for disallowing request for payments.

B. Items noted after acceptance during one-year guarantee period shall be checked by the **Contractor** in the same manner as above. The signed reports are to be returned by him when the items have been corrected.

1.19 SYSTEMS WARRANTY

A. The work shall include a one-year warranty. This warranty shall be by the **Contractor** to the **Owner** for

any defective workmanship or material which has been furnished at no cost to the **Owner** for a period of one year from the date of substantial completion of System. Warranty shall not include light bulbs in service after one month from date of substantial completion of the System. Explain the provisions of warranty to the **Owner** at the "Demonstration of Completed System" meeting to be scheduled with the **Owner** upon project completion.

B. Where items of equipment or materials carry a manufacturer's warranty for any period in excess of twelve (12) months, then the manufacturer's warranty shall apply for that particular piece of equipment or material.

C. Where extended Guarantees are called for herein, furnish three copies to be inserted in Operation and Maintenance Manuals.

D. All preventative maintenance and normal service will be performed by the **Owner's** maintenance personnel after final acceptance of the work which shall not alter the **Contractor's** warranty.

1.20 WASTE MATERIALS DISPOSAL

A. Contractor shall include in his bid the transport and disposal or recycling of all waste materials generated by this project in accordance with all rules, regulations and guidelines applicable. Contractor shall comply fully with State and Federal Statutes regarding mercury containing devices and lamps. Lamps, ballasts and other materials shall be transported and disposed of in accordance with all DEP and EPA guidelines applicable at time of disposal. Contractor shall provide owner with written certification of approved disposal.

1.21 OBSERVATION OF WORK/SUBSTANTIAL COMPLETION

A. The **Contractor** shall be fully responsible for contacting all applicable parties (A/E and OAR) to schedule required observation of work reviews throughout the construction/renovation period. A minimum of 72 hours notice shall be given for all required inspections, and minimum of 120 hours for substantial inspection. Time and date shall be agreed on by all applicable parties.

B. Work shall be complete as required by authorities having jurisdiction and the general conditions of the contract prior to request for substantial completion inspection. Work must be deemed substantially complete by **A/E** to fulfill requirements.

C. When the Contractor considers that the work, or portion thereof which the owner/architect agrees to accept separately, is substantially complete, the Contractor shall prepare and submit a list to the A/E a comprehensive list of items to be completed or corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete work in accordance with the Contract Documents. The A/E will review the list to determine if work appears to be substantially complete, if so determined, base on the list submitted, will perform a substantial completion walk-thru.

D. The **Contractor** shall have the electrical project superintendent present at all required observation of work reviews as project progresses. The **Contractor** shall provide the **A/E** adequate ladders, staging, etc, for access and review of all work in place, as well as adequate forces fully familiar with all aspects of the work. The **Contractor** shall provide access to all electrical components for review by **A/E** as directed by **A/E** (i.e., junction boxes, panelboards, switchboards, devices, fixtures, etc.).

E. Prior to start of substantial completion walk-thru the **Contractor** shall provide access to and prepare all electrical equipment and related components complete and readily for review by **A/E** including but not limited to the following (where applicable):

1. All panelboard covers removed
2. Terminal cabinet covers open or removed.
3. Wireway covers open or removed

4. Access to all grounding/bonding terminations
5. Access to rated wall and through floor fire stopping
6. Access to all control systems (i.e. CCTV, Voice, Data, Fire Alarm, Sound/Paging, etc)
7. Access to mechanical equipment, electrical connection points, and control devices
8. Access to all raceways crossing structural expansion/deflection joints.
9. Access to all components of the fire alarm control system including control devices, dampers, Etc.
10. Removal of access panels
11. Each and every item deemed necessary by A/E to perform a comprehensive review of the work as installed relative to the contract documents.

F. Where the **Contractor** has failed to perform work in accordance with requirements of the contract documents and has not identified items to be completed or corrected as stated above, and the **A/E** finds numerous items to be completed or corrected, the substantial completion walk-thru will be concealed. The **Contractor** shall reimburse **A/E** all costs to perform exhausting review(s) of the installation and produce a lengthily list of deficiencies observed, where the **Owner** elects that a report to be generated by **A/E** at that time. The **A/E** shall also be reimbursed cost to perform continues ongoing project site visits, meeting, reports, etc resulting from the **Contractors** failure to perform work in accordance with the requirements of the Contract Documents. Cost will be billed to the contractor at engineer's standard $90.00 hourly rate for each engineering representative involved.

1.22 PROHIBITION OF ASBESTOS AND PCB

A. The use of any process involving asbestos or PCB, and the installation of any product, insulation, compound of material containing or incorporating asbestos or PCB, is prohibited. The requirements of this specification for complete and operating electrical systems shall be met without the use of asbestos or PCB.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 26 01 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Division 1 is a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work.

1.2 REFERENCES

A. The following references may or may not be referenced within these specifications:

1. ADA Americans with Disabilities Act

2. AHERA Asbestos Hazard Emergency Response Act

3. AIA American Institute of Architects
1735 New York Avenue, N.W. Washington, DC 20006

4. ANSI American National Standards Institute
1430 Broadway, New York, NY 10018

5. ASCE American Society of Civil Engineers

6. ASHRAE American Society of Heating, Refrigerating and Air Conditioning Engineers
1791 Tullie Circle, N.E., Atlanta, GA 30329

7. ASME American Society of Mechanical Engineers
345 East 47th Street, New York, NY 10017

8. ASTM American Society for Testing and Materials
1916 Race Street, Philadelphia, PA 19103

9. CBBCS Connecticut Basic Building Code Supplements

10. CFSC Connecticut State Fire Safety Code: 2016 Edition

11. CLSC Connecticut Life Safety Code / supplements

12. CPHC Connecticut Public Health Code

13. CRSI Concrete Reinforcing Steel Institute
933 Plum Grove Road, Schaumburg, IL 60195

14. DER Rule 17-761 Department of Environmental Regulation
Chapter 17-761 on Underground Storage Tank Systems

15. DER Rule 17-762 Department of Environmental Regulation
Chapter 17-762 on Above Ground Storage Tank Systems.

16. EIA/TIA Electronics Industries Association/Telecommunications

Industry Association, 2001 Pennsylvania Avenue, N.W.,
Washington, DC 20006

17. EJCDC Engineers' Joint Contract Documents Committee
American Consulting Engineers Council
1015 15th Street, N.W., Washington, DC 20005

18. FCC Federal Communications Commission

19. FEMA Federal Emergency Management Agency

20. FM Factory Mutual System
1151 Boston-Providence Turnpike
P.O. Box 688, Norwood, MA 02062

21. FPC Fire Protection Code

22. IBC International Building Code 2012

23. IEEE Institute of Electrical and Electronics
Engineers
345 East 47th Street, New York, NY 10017

24. IES Illumination Engineering Society

25. IEBC International Existing Building Code 2012

26. IFC International Fire Code 2012

27. IPCEA International Power Cable Engineer's Association

28. LPCR Local Power Company Requirements

29. LPI Lightning Protection Institute

30. LTCR Local Telephone Company Requirements

31. NFPA 70 National Electrical Code: 2014 Edition

32. NECPA National Energy Conservation Policy Act

33. NESC National Electrical Safety Code (ANSI C2)

34. NEMA National Electrical Manufacturers' Association
2101 'L' Street, N.W., Washington, DC 20037

35. NFPA 72 National Fire Alarm Code, 2012 Edition

36. OSHA The Occupational Safety and Health Act

37. UL Underwriters' Laboratories, Inc.

333 Pfingston Road, Northbrook, IL 60062

38. UFAS Uniform Federal Accessibility Standards

1.3 REGULATORY REQUIREMENTS

A. Conform to all the applicable requirements of the following codes, standards, guidelines, etc.. If there should be conflicting requirements between these codes, standards, guidelines, etc., the more or most stringent requirement shall apply that does not violate any codes or laws.

1. Standards and Miscellaneous Codes/Requirements (Comply with latest edition or notice available unless otherwise adopted by Authority having Jurisdiction):

a) American with Disabilities Act (ADA)

b) American National Standards Institute (ANSI)

c) American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

d) American Society of Mechanical Engineers (ASME)

e) American Society for Testing and Materials (ASTM)

f) Connecticut Fire Safety Code (CFSC)

g) Connecticut Life Safety Code and Supplements (CLSC)

h) Connecticut Public Health Code (CPHC)

i) Connecticut Basic Building Code Supplements (CBBCS)

j) Electronics Industries Association/ Telecommunications Industry Association (EIA/TIA)

k) Institute of Electrical and Electronics Engineers (IEEE)

l) Illumination Engineering Society (IES)

m) Local Power Company Requirements (LPCR)

n) Lightning Protection Institute (LPI)

o) Local Telephone Company Requirements (LTCR)

p) National Energy Conservation Policy Act (NECPA)

q) National Electrical Safety Code (NESC)

r) National Electrical Manufacturers' Association (NEMA)

s) National Fire Protection Association (NFPA) Codes and Standards as adopted

by Authority having Jurisdiction including the National Electrical Code (NEC)

t) The Occupational Safety and Health Act (OSHA)

u) Occupational Safety and Health Act (OSHA)

v) Sheet Metal and Air Conditioning Contractors (SMACNA)

w) Underwriter's Laboratories, Inc. (UL)

x) Uniform Federal Accessibility Standards (UFAS)

y) All Federal, State, Local Codes, Laws and regulations

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 26 01 12

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Division 1 is part of this Section and shall be binding on the Contractor and/or Subcontractor

B. Basic Electrical Requirements specifically applicable to Division 26 Sections.

1.2 DESCRIPTION OF SYSTEM

A. Provide and install all equipment, labor, material, accessories, and mounting hardware for a complete and operating system for the following:

1. Rigid Metallic Conduit (RMC).
2. Intermediate Metal Conduit (IMC).
3. Electrical metallic tubing (EMT).
4. Flexible metal cables(MC/HCF)
5. Fittings and conduit bodies.

B. Raceways and conduits shall begin at an acceptable enclosure and terminate only in another such enclosure except conduit/raceway stub-outs.

C. A raceway shall be provided for all electrical power and lighting, and electrical systems unless specifically specified otherwise.

D. Where the contract documents refer to the terms "raceway," or "conduit" the materials shall be as listed above in conjunction with NEC article 100, definition of "raceway". MC and HCF flexible metal cables shall not be considered a substitute for raceway or conduit. The use of above products shall be limited to that specified by "Part-3 Execution".

1.3 REFERENCES

A. ANSI C80.1/Fed.Spec. WWC-581 - Rigid Steel Conduit, Hot-dipped galvanized with chromate finish.

B. ANSI C80.3/Fed.Spec. WWC-563 - Electrical Metallic Tubing, Hot-dipped galvanized steel.

C. ANSI C80.5/Fed.spec. WWC-581/U.L.1242 - Intermediate Metal Conduit, Hot dipped galvanized with chromate finish.

D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

E. ANSI/NFPA 70 - National Electrical Code.

F. NECA "Standard of Installation."

G. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.

H. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).

I. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

J. ANSI/Fed. Spec. J-C-30B - Flexible Metal Cables, Galvanized steel jacket.

1.4 DESIGN REQUIREMENTS

A. Conduit Size: ANSI/NFPA 70. (see drawings and this and other sections of these specifications for additional requirements).

1.5 SUBMITTALS

A. Submit catalog cut sheet showing brand of conduit to be used and showing that conduit is U.L. listed and labeled, and manufactured in the United States.

B. Submit catalog cut sheet on all types of conduit bodies, and fittings.

C. Product data shall be submitted for approval on:

1. Conduits.
2. Conduit straps, hangers and fittings.
3. Cables.
4. Expansion/deflection fittings.

D. Submit U.L. listed fire and smoke stopping assemblies for each applicable application.

E. Product data shall prove compliance with Specifications, National Electric Code, National Board of Fire Underwriters, manufacturer's specifications and written installation data.

1.6 PROJECT RECORD DOCUMENTS

A. Submit record documents to accurately record actual routing of conduits larger than 1.25 inches.

1.7 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products to site.

B. Accept conduit on site. Inspect for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

1.9 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

PART 2 - PRODUCTS

2.1 GENERAL

A. All conduits shall bear U.L. label or seal and shall be manufactured in the United States.

B. Conduit systems and all related fittings, boxes, supports, and hangers must meet all the requirements of

national, state, local, and other Federal codes where applicable.

2.2 MINIMUM TRADE SIZE

A. Rigid conduit - 3/4".

B. E.M.T. - 3/4" .

C. E.M.T.:
1. Homeruns - 3/4".
2. Branches - 1/2".

2.3 RIGID METALLIC CONDUIT

A. Comply with:

1. ANSI C80.1
2. U.L. Spec - No. 6
3. N.E.C. 346
4. Fed. Specification WW-C-581.

B. Conduit material:

1. hot-dipped galvanized steel.

C. Fittings:

1. Threaded.

2. Insulated bushings shall be used on all rigid steel conduits terminating in boxes, wire gutters, or cabinets, and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame and shall be 90 degree rated.

3. Insulated grounding bushing shall be used on all rigid steel conduits terminating in panelboards, distrubution boards, switchboards and motor control centers and shall be Hot-dipped galvanized malleable iron or steel.

D. Conduit Bodies:

1. Comply with ANSI/NEMA FB 1.
2. Threaded hubs.
3. Hot-dipped galvanized malleable iron.

2.4 INTERMEDIATE METAL CONDUIT

A. Comply with:

1. U.L Standard 1242.
2. ANSI C80.5
3. N.E.C. 345.
4. Fed. Specification WW-C-581.

B. Conduit material: Zinc coated steel.

C. Fittings:

1. Threaded.

2. Zinc plated malleable iron.

3. Insulated bushings shall be used on all rigid steel conduits terminating in boxes, wire gutters, or cabinets, and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame and shall be 90 degree rated.

4. Insulated grounding bushing shall be used on all rigid steel conduits terminating in panelboards, distrubution boards, switchboards and motor control centers.

    a) Hot-dipped galvanized malleable iron or steel.

D. Conduit bodies:

1. Comply with ANSI/NEMA FB 1.
2. Threaded hubs.
3. Hot-dipped galvanized malleable iron.

2.5 ELECTRICAL METAL CONDUIT

A. Comply with:

1. U.L 797
2. ANSI C80.3
3. N.E.C.
4. ANSI/UL797
5. Fed. Specification WWC-563

B. Conduit material: Hot dipped Galvanized steel tubing.

C. Fittings:

1. ANSI/NEMA FB 1
2. Set screw
3. Steel.
4. Concrete tight.
5. T&B Series 5031/5030.

6. Insulated bushings shall be used on all liquid-tight conduits size 1-1/4” or larger terminating in boxes, wire gutters, cabinets, panels, etc. and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame.

7. Insulated grounding bushing shall be used on all rigid steel conduits terminating in panelboards, distrubution boards, switchboards and motor control centers.

    a) Hot-dipped galvanized malleable iron or steel.

2.6 FLEXIBLE METAL CLAD CABLE(MC)

A. Comply with:

1. N.E.C.
2. ANSI/UL 1
3. Fed. Specification J-C-30B

B. Cable material:

1. Jacket material: Galvanized Steel, interlocked.

2. Core covering: High dielectric strength assembly tape.

3. Conductor Material:

a) Copper, Solid THHN
b) Minimum #12 gauge
c) Maximum #8 gauge
d) 90 degree C, 600 volt.
e) Full size insulted grounding conductor, green.
f) Conductor color coding to match system voltage

C. Fittings:

1. ANSI/NEMA FB 1

2. ANSI/UL 514B

3. Zinc plated Malleable iron, or steel.

4. Threaded rigid and IMC conduit to flexible conduit coupling.

5. Direct flexible conduit bearing set screw type not acceptable.

6. T&B 3100 series

7. Install insulated bushings or equivalent protection (i.e. Anti-short) between core conductors and outer jacket.

2.7 NONMETALLIC CONDUITS AND FITTINGS

A. Products of all manufacturers are acceptable provided they are sunlight resistant and UL listed and labeled as defined in NFPA 70 and marked for intended location and application. Conduit and fittings shall be obtained from the same manufacturer.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

D. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 LOCATION/INSTALLATION REQUIREMENTS

A. Interior Dry Locations:

1. Concealed:

a) Use rigid galvanized steel conduit, intermediate metal conduit, and electrical metallic tubing. Rigid non-metallic conduit (PVC) is not permitted for use above grade unless written permission is granted by A/E and owners authorized representative.

2. Exposed: Use rigid galvanized steel conduit, intermediate metal conduit, and electrical metallic tubing. EMT may only be used where not subject to damage which is interpreted by this specification to be above 90" AFF, with exception to electrical and mechanical equipment rooms where conduit exits from top of panelboards, motor controllers, MCC's, etc.

3. Concealed or exposed flexible conduit:

   a) Concealed: Use flexible steel conduit or liquid-tight flexible steel conduit in lengths not longer than six (6) feet in length with a ground conductor installed in the conduit.

   b) Exposed: Use liquid-tight flexible steel conduit shall not exceed three(3) feet in length (unless written authorization by A/E for specific conditions is granted) with a ground conductor installed in the conduit, for final connections to vibrating equipment only (i.e. motors, air-handler units, etc).

B. Interior Wet and Damp Locations:

1. Use rigid galvanized steel or intermediate metal conduit.

2. Wet location: All fittings, supports, mounting hardware, etc. shall be hot dipped galvanized steel or stainless steel.

3. Use liquid-tight flexible steel conduit as specified above, for final connections to vibrating equipment.

C. Underground Locations:

1. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased as indicated.

3.2 ADDITIONAL REQUIREMENTS FOR RIGID STEEL CONDUIT

A. Rigid steel conduit shall be cut and threaded with tools approved for the purpose and by qualified personnel.

1. Approved pipe vise.

2. Roller/bade type cutter or band saw.

3. Reamer capable of completely removing al ridges or burrs left by the cutter. Reaming with pliers is not acceptable.

B. Hangers shall be installed 8 ft. apart.

C. Conduits stubbed through floor slabs, above grade and not contained inside walls, shall be rigid galvanized metallic conduit.

D. One hole pipe straps shall be malleable iron. Wet location applications shall include malleable iron back clamp spacers.

3.3 ADDITIONAL REQUIREMENTS FOR EMT

A. Electric metallic tubing (thin wall) may be installed inside buildings above ground floor where not subject to mechanical injury, unless specifically noted otherwise.

B. All cuts shall be reamed smooth and free of sharp and abrasive areas by use of an approved reamer.

C. Cut conduit square using approved hacksaw with 32 tooth per inch blade; de-burr cut ends. Roller/blade

type pipe cutter is not acceptable.

D. One hole pipe straps shall be heavy duty type.

3.4 ADDITIONAL REQUIREMENTS FOR METAL CLAD CABLES

A. Metal Clad Cables may be used only as specified elsewhere in this document, as specified herein, where permitted by NEC, and if approved by the Local Inspecting Authority having Jurisdiction.

3.5 SUPPORTS

A. Arrange supports to prevent misalignment during wiring installation.

B. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

C. Group related conduits; support using conduit rack. Construct rack using steel channel; (minimum 24", increase distance as required) provide space on each for 25 percent additional conduits.

D. Fasten conduit supports to building structure and surfaces under provisions of Section 26 01 16.

E. Do not support conduit with wire, metal banding material, or perforated pipe straps. Remove wire used for temporary supports.

F. Do not attach conduit, cables, or boxes to ceiling support wires, dedicated wires, or grid channel.

G. Conduits, cables, or boxes shall not be supported from ceiling grid supports, plumbing pipes, duct systems, heating or air conditioning pipes, or other building systems.

H. Do not support conduit to other conduits.

I. All raceways run within building shall be supported from superstructure above by means of threaded rod hangers and kind orf racking, etc. Quantity of conduit rack shall be kept to a minimum. Above ceiling raceways ran from outlet box to outlet box shall run via racking system. Install all conduits and racking at similar elevation.

J. Hangers shall be of galvanized steel and installed minimum of every 10 ft. the entire length of the system.

K. Conduit hangers used exterior or in wet locations shall be hot dipped galvanized malleable iron of stainless steel.

L. Mounting hardware used exterior or in wet locations shall be stainless steel.

M. Supporting conduit and boxes with wire is not approved. All raceways except those from surface-mounted switches, outlet boxes or panels shall be supported with clamp fasteners with toggle bolt on hollow walls, and with lead expansion shields on masonry.

N. Free-air cable, where specified and permitted elsewhere, shall be supported directly from the superstructure with UL Listed devices intended for such use. Ty-Rap cable ties in conjunction with UL Listed devices shall be UL plenum rated within plenum air environments.

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3.6 EXPANSION/DEFLECTION FITTINGS

A. Provide suitable fittings to accommodate expansion and deflection where conduit crosses, control and expansion joints.

B. Expansion fittings shall be installed in the following cases:

1. In each conduit run wherever it crosses an expansion/deflection joint in the concrete structure

2. On one side of expansion/deflection joint with its sliding sleeve end flush with joint, and with a length of bonding jumper in expansion equal to at least three times the normal width of joints

3. In each conduit run which mechanically attached to separate structures to relieve strain caused by shift on one structure in relation to the other

4. In conduit runs above ground which is more than one hundred feet in length, and interval between expansion/deflection fittings in such runs shall not be greater than 100 feet.

3.7 GROUNDING

A. All raceways shall have a copper system ground conductor throughout the entire length of circuit installed within conduit in strict accordance with NEC codes.

B. Grounding conductor shall be included in total conduit fill determining conduit sizes, even though not included or shown on drawings. Increase conduit size shown as required.

C. Grounding conductors run with exterior/ underground feeders shall be bare only.

D. Grounding conductors run with feeders shall be bonded to portions of conduit that are metal by approved ground bushings.

E. See other sections of these specifications for additional requirements.

F. Grounding conductors (including lightning protection down conductors) run in metal conduit shall be bonded to metal conduit at both ends.

3.8 CONDUITS PENETRATING 2 OR 4 HOUR WALLS SHALL BE AS FOLLOWS

A. Conduits with conductors penetrating the wall shall have blow out patches on each side of the wall.

B. Multiple conduits run through rated walls side by side shall have blow out patches on each side of the wall.

C. Data or telephone conductors run exposed and penetrating a rated wall 2 hour fire, smoke or smoke/fire shall be sleeved with steel conduits 30" each side of the wall and conduit ends packed with approved fire sealant.

3.9 FIRE AND SMOKE STOPPING

A. Contractor is to provide fire stopping and/or smoke stopping for all penetrations of (new and existing) fire or smoke barrier walls, chases, floors, etc. as required to maintain rating of floor, wall, chase, etc.

B. Install conduit to preserve fire resistance rating of partitions and other elements.

C. Install fire proofing material to maintain existing rating of floor, beams, etc. damaged or removed by renovation.

D. Fire and smoke stopping material: A two-part silicone foam or a one-part putty, UL classified and FM approved with flame spread of 0 and smoke development not to exceed 50 in accord with ASTM E84. Material shall be suitable for penetration seals through fire-rated floors and walls when tested in accord with ASTM E119. Material shall not melt or soften at high temperatures, shall be suitable for direct outdoor and ultraviolet exposures, shall cure to give a tight compression fit, and shall not produce toxic fumes. Material, when heated, shall expand to fill and hold penetration closed where burn out of cable

insulation or ATC tubing occurs. Comply with above and/or supplemental general conditions, whichever is more stringent.

E. All penetrations shall be sealed/fire stopped in strict accordance with UL Fire Directory, latest addition. Submit applicable details for acceptance. Prepare and install exactly as delineated by UL detail(s).

F. Comply with UL Fire Directory "F" and "T" ratings respectfully.

3.10 VERTICAL RACEWAYS

A. Cables in vertical raceways shall be supported as per NEC Article 300-19. Provide and install supporting devices for cables, including any necessary accessible pullbox as required regardless if shown on drawings or not. Provide and install access panels as required. Coordinate location of pull box and access panel with architect prior to installation. This includes empty raceways for future use.

3.11 SLEEVES AND INSERTS

A. Sleeves through outside wall shall be cast iron with intermediate, integral flange.

B. Sleeves through concrete floors and interior masonry walls shall be schedule 40 black steel pipe or GRC.

C. Sleeves through interior partitions shall be minimum 22-gauge galvanized steel.

3.12 GENERAL

A. Install conduit in accordance with NECA "Standard of Installation." Contractor shall layout all work prior to rough-in.

B. Install nonmetallic conduit in accordance with manufacturer's instructions.

C. Arrange conduit to maintain headroom and present neat appearance.

D. Route conduit installed above accessible ceilings or exposed to view parallel or perpendicular to walls. Do not run from point to point.

E. Route conduit in and under slab from point-to-point.

F. Do not cross conduits in slab.

G. Maintain adequate clearance between conduit and piping.

H. Maintain 12 inch (300 mm) clearance between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C).

I. Bring conduit to shoulder of fittings; fasten securely.

J. Use threaded conduit hubs to fasten conduit and flexible conduit to sheet metal boxes, disconnects switches, panelboards, equipment control panels, etc., in damp and wet locations.

K. Boxes in damp and wet locations shall be furnished with threaded hubs cast into box.

L. Install no more than equivalent of three 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.

M. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.

N. Provide and install pullboxes, junction boxes, fire barrier at fire rated walls etc., as required by NEC Article

300, whether shown on drawings or not.

O. Provide continuous fiber polyline 1000 lb. minimum tensile strength pull string in each empty conduit except sleeves and nipples. This includes all raceways which do not have conductors furnished under this Division of the specifications. Pullcord must be fastened to prevent accidental removal. A phenolic or brass nameplate shall be attached to each end indicating the location of both ends of conduit as follows: THIS END = "LOCATION," OTHER END = "LOCATION."

P. Use suitable caps to protect installed conduit against entrance of dirt and moisture.

Q. Ground and bond conduit under provisions of Section 26 05 26.

R. Identify conduit under provisions of Section 26 05 22.

S. Install all conduits concealed from view unless specifically shown otherwise on drawings.

T. Rigid steel box connections shall be made with double locknuts and bushings.

U. All raceways shall be kept clear of plumbing fixtures to facilitate future repair or replacement of said fixtures without disturbing wiring. Except where it is necessary for control purposes, all raceways shall be kept away from items producing heat.

V. All raceway runs in masonry shall be installed at the same time as the masonry so that no face cutting is required, except to accommodate boxes.

W. All raceways shall be run from outlet to outlet as shown on the drawings. Deviations from the drawings shall be marked on field set of drawings as previously specified.

X. Circuit consolidation beyond that shown on the drawings is prohibited. Circuit consolidation shall be limited to three “current carrying phase conductors” per raceway.

Y. Spare conduit stubs shall be capped and location and use marked with concrete marker set flush with finish grade. Marker shall be 6" round x 6" deep with appropriate symbol embedded into top to indicate use. Also, tag conduits in panels where originating.

Z. All conduit stubbed above floor shall be strapped to Kindorf channel supported by conduit driven into ground or tied to steel. Spare conduit stubs shall be capped with a U.L. listed and approved cap or plug for the specific intended use and identified with ink markers as to source and labeled "Spare".

AA. All connections to motors or other vibrating equipment including dry type transformers or at other locations where required shall be made with not less than 12" and not more than 36” of liquid-tight conduit. Use angle connectors wherever necessary to relieve angle strain. Liquid-tight conduit terminations shall be provided with kellems strain relief grips.

BB. Provide conduit seal-offs wherever conduit crosses obvious temperature changes (i.e. from inside to outside of coolers, freezers, etc.).

CC. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation specified under other Sections of these specifications.

DD. All raceways shall be run in neat and workmanlike manner and shall be properly in accordance with latest edition of NEC with approved conduit clamps, hanger rods and structural fasteners.

EE. All raceway runs, whether terminated in boxes or not, shall be capped during the course of construction and until wires are pulled in, and covers are in place. No conductors shall be pulled into raceways until construction work which might damage the raceways has been completed.

FF. Electrical raceways shall be supported independently of all other systems and supports, and shall in

every case avoid proximity to other systems which might cause confusion with such systems or might provide a chance of electrolytic actions, contact with live parts or excessive induced heat.

GG. Electrical nonmetallic tubing (ENT) is not permitted.

END OF 26 05 10

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PART 1 - GENERAL

1.1 DESCRIPTION OF SYSTEM

A. Division 1 is a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work.

B. Provide all equipment, labor, material, accessories, and mounting hardware to properly install all conductors and cables rated 600 volts and less for a complete and operating system for the following:

1. Building wire and cable.
2. Wiring connectors and connections.
3. No aluminum wire is not permitted unless specifically noted otherwise.

C. All sizes shall be given in American Wire Gauge (AWG) or in thousand circular mils (MCM).

1.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

A. Product Data: Submit catalog cut sheet showing, type and U.L. listing of each type of conductor, connector and termination.

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years experience.

1.5 REGULATORY REQUIREMENTS

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.6 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. All conductors are copper unless specifically noted otherwise.

C. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.

D. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

E. Where wire and cable sizes is not shown, size for load/equipment served in accordance with NEC, including voltage drop.

1.7 COORDINATION

A. Determine required separation between cable and other work.

B. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.1 BUILDING WIRE AND CABLE

A. Description: Single conductor insulated wire.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation: ANSI/NFPA 70, Type THHN/THWN and XHHW.

2.2 ALUMINUM CONDUCTORS

A. Aluminum conductors are not permitted unless specifically noted and/or specified on drawings.

PART 3 - EXECUTION

3.1 GENERAL

A. Install products in accordance with manufacturers instructions.

B. Conductors #10 AWG or #12 AWG shall be 600 volt type THWN/THHN unless noted otherwise, rated 90 degrees C. dry.

C. Use solid conductor for feeders and branch circuits 10 AWG and smaller (except for control circuits).

D. Use conductor not smaller than 12 AWG for power and lighting circuits.

E. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet (23 m).

F. Neatly train and lace wiring inside boxes, equipment, and panelboards.

G. All conductors shall be installed in raceway.

H. Conductor sizes indicated on circuit homeruns or in schedules shall be installed over the entire length of the circuit unless noted otherwise on the drawings or in these specifications.

I. Before installing raceways and pulling wire to any mechanical equipment, verify electrical characteristics with final submittal on equipment to assure proper number and AWG of conductors. (As for multiple speed motors, different motor starter arrangements, etc.).

3.2 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that mechanical work likely to damage wire has been completed.

3.3 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.4 WIRING METHODS

A. Use only building wire, Type THHN/THWN insulation, in raceway unless noted otherwise.

B. Wiring in vicinity of heat producing equipment: Use only XHHW insulation, in raceway.

C. Conductors installed within fluorescent fixture channels shall be Type THHN or XHHW, rated 90 degrees C dry. Conductors for all other light fixtures shall have temperature ratings as required to meet the U.L. listing of the fixture; however, in no case shall the temperature rating be less than 90 degrees Centigrade. Remove incorrect insulation types in new work.

3.5 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of the General Requirements of the Contract Documents.

B. Inspect wire for physical damage and proper connection.

C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

D. Verify continuity of each branch circuit conductor.

3.6 VERTICAL RISERS

A. Provide vertical cable riser supports per Article 300-19 in NFPA 70. Cable supports shall be O-Z/Gedney Type "S" or equal. These shall be located in accessible pullboxes of adequate size. Provide for adequate structural connection of cable supports to pullbox, which will transfer cable weight to building.

3.7 PULLING

A. No wire shall be pulled until the conduit system is complete from pull point to pull point and major equipment terminating conduits have been fixed in position.

B. Mechanical pulling devices shall not be used on conductors sized #8 and smaller. Pulling means which might damage the raceway shall not be used.

C. Use only powdered soapstone or other pulling lubricant acceptable to the A/E. Compound or lubricant shall not cause the conductor or insulation to deteriorate.

D. All conductors to be installed in a common raceway shall be pulled together. The manufacturer's recommended pulling tensions shall not be exceeded.

E. Bending radius of insulated wire or cable shall not be less than the minimum recommended by the manufacturer.

3.8 CONTROL AND SIGNAL CIRCUITS

A. For control and signal circuits above 50 VAC, conductors shall be #14 AWG minimum size, Type XHHW or THWN-THHN as permitted by NFPA 70, within voltage drop limits, increased to #12 AWG as necessary for proper operation.

B. For control and signal circuits 50 VAC and below, conductors, at the Contractor's option, may be #16 AWG, 300 volt rated, PVC insulated, except where specifically noted otherwise in the contract documents.

C. Install circuit conductors in conduit.

D. Circuit conductors to be stranded.

3.9 COLOR CODING

A. All power feeders and branch circuits No. 6 and smaller shall be wired with color-coded wire with the same color used for a system throughout the building. Power feeders above No. 6 shall either be fully color-coded or shall have black insulation and be similarly color-coded with tape or paint in all junction boxes and panels. Tape or paint shall completely cover the full length of conductor insulation within the box or panel.

B. Unless otherwise approved or required by A/E color-code shall be as follows: Neutrals to be white for 120/208V system, natural grey for 277/480V system; ground wire green, bare, isolated ground wire green with yellow strips. 120/208V, Phase A - black; Phase B - red; Phase C - blue. 480/277V, Phase A brown; Phase B - orange; Phase C - yellow. All switchlegs, other voltage system wiring, control and interlock wiring shall be color-coded other than those above.

3.10 TAPS/SPLICES/CONNECTORS/TERMINATIONS

A. Taps and splices are not acceptable unless specifically noted otherwise on drawings or special written approval is granted by engineer.

B. Clean conductor surfaces before installing lugs and connectors.

C. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

D. Power and lighting conductors shall be continuous and unspliced where located within conduit. Splices shall occur within troughs, wireways, outlet boxes, or equipment enclosures where sufficient additional room is provided for all splices. No splices shall be made in in-ground pull boxes (without written approval of engineer).

E. Splices in lighting and power outlet boxes, wireway, and troughs shall be kept to a minimum, pull conductors through to equipment, terminal cabinets, and devices.

F. No splices shall be made in junction box, and outlet boxes (wire No. 8 and larger) without written approval of Engineer.

G. No splices shall be made in communications outlet boxes, pull boxes or wireways (i.e., fire alarm, computer, telephone, intercom, sound system, etc.) without written approval of Engineer. Pull cables through to equipment cabinets, terminal cabinets and devices.

H. Allow adequate conductor lengths in all junction boxes, pull boxes and terminal cabinets. All termination of conductors in which conductor is in tension will be rejected and shall be replaced with conductors of adequate length. This requirement shall include the providing by the Contractor of sleeve type vertical cable supports in vertical raceway installations provided in pullboxes at proper vertical spacings.

I. A calibrated torque wrench shall be used for all bolt tightening, torque to manufactures recommendations.

J. Interior Locations:

1. All (non-electronic systems) copper taps and splices in No. 8 or smaller shall be fastened together by means of "spring type" connectors. All taps and splices in wire larger than No. 8 shall be made with compression type connectors and taped to provide insulation equal to wire.

K. Exterior Locations:

1. Make splices, taps and terminations above grade in splice or termination cabinets. Do not splice any cable in ground or below finished grade.

2. All taps and splices shall be made with compression type connectors and covered with Raychem

heavywall cable sleeves (type CRSM-CT, WCSM or MCK) with type "S" sealant coating with sleeve kits as per manufacturer's installation instructions or be terminated/connected to terminal strips in above grade terminal boxes suitable for use.

3. Provide and install above grade termination cabinets sized to meet applicable codes and standards, where required for splicing.

3.11 ALUMINUM CONDUCTORS Aluminum conductors are not permitted.

END OF SECTION 26 05 14

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Division 1 is a part of this Section and shall be binding on the Contractor and/or Subcontractor

B. Basic Electrical Requirements specifically applicable to Division 26 Sections.

1.2 DESCRIPTION OF WORK

A. Provide all labor, materials, and equipment necessary to properly and completely install panelboards as scheduled on the drawings and as required by this section.

1.3 REFERENCES

A. NECA (National Electrical Contractors Association) "Standard of Installation."

B. NEMA AB 1 - Molded Case Circuit Breakers.

C. NEMA PB 1 - Panelboards.

D. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

E. NFPA 70 - National Electrical Code.

1.4 SUBMITTALS

A. Product data shall be submitted on:

1. Panel
2. Cabinet
3. Bus
4. Construction
5. Dimensions

B. Shop drawing shall be submitted for each and every panel for this project, each and every panel drawing shall clearly indicate the following information:

1. U.L. Label
2. Each circuit breaker amperage rating, circuit number and position/location in panel
3. Electrical characteristics of panel
4. Mains rating
5. Main device rating
6. Mounting
7. Dimension, width, depth, height
8. Bus material
9. Interrupting capacity of minimum rated breaker
10. Panel type
11. Series AIC rating with upstream breakers.

1.5 PROJECT RECORD DOCUMENTS

A. Submit record documents to record actual locations of Products; indicate actual branch circuit arrangement.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit Maintenance Data: Include spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.7 QUALITY ASSURANCE

A. Perform Work in accordance with NECA Standard of Installation.

B. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum ten years experience.

1.8 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Furnish products listed and classified by UL as suitable for purpose specified and indicated.

1.9 FIELD MEASUREMENTS

A. Verify that field measurements are as instructed by manufacturer.

1.10 MAINTENANCE MATERIALS

A. Provide two of each panelboard key.

1.11 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Handle panelboards and enclosures carefully to prevent damage.

B. Store equipment indoors and protect from weather.

C. Deliver tubs and internal assemblies sufficiently in advance of installation period as necessary to prevent delay of work. This time, shall be established by a CPM provided by the Contractor, and approved by the supervising authorities.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Eaton.
B. Siemens
C. Square D Co.

2.2 GENERAL

A. Lighting and Appliance Branch Circuit Panelboards: NEMA PB1, circuit breaker type, dead front.

B. Panelboard Bus: Copper ratings as indicated. Provide copper ground bus in each panelboard.

Provide isolated full size neutral bus where neutral is applicable. Provide non-linear load panelboards as specified on drawings. Non-linear panelboards shall have 200 percent rated neutral busbar.

C. Minimum integrated short circuit rating: 10,000 amperes rms symmetrical for 240 volt panelboards. Bus shall be braced for minimum capacity equal to or greater than the lowest breaker symmetrical interrupting capacity. Minimum short circuit rating shall be increased to meet the following requirements:

1. Individual C.B. AIC Rating shown on panel schedules indicate lowest AIC rating allowed for individual circuit breaker in panel.

2. Panel Series AIC rating shown is the required rating of panel and its circuit breakers based on series rating of individual panel circuit breakers with panel main circuit breaker or upstream feeder breaker.

3. Circuit breaker types are not shown or called for. The contractor must provide breakers in panel or feeder breakers in upstream breakers to comply with the required AIC ratings given including providing current limiting breakers where required to achieve all ratings given.

D. Enclosure: NEMA PB 1,

1. Type 1 - Interior dry locations, unless noted on drawings.

E. Cabinet box: 6 inches (153 mm) deep; width: 20 inches (508 mm). Constructed of code gauge steel, galvanized or bonderized to prevent rust.

F. Cabinet Front:

1. Flush or surface (as indicated on drawings) cabinet front with concealed trim clamps, concealed hinge, and flush lock all keyed alike.

2. Finish in manufacturer's standard baked enamel finish for interior panels.

3. Cover shall be door-in-door construction.

4. Panels and breakers shall be rated for voltage and class of service to which applied.

G. Spaces:

1. Space provisions or spaces for future breakers shall be located at the bottom of the panel and be fully bussed complete with all necessary mounting hardware less the breaker.

H. Panelboards backboxes/trim covers mounted adjacent to each other (i.e. multi-section panels, etc) installed in finished areas be of same size.

2.3 MAINS

A. Provide main lug only (MLO) or main circuit breaker (MCB) as noted on drawings either by riser diagram or by schedule. Where conflict exists, provide MCB.

B. Regardless of what is shown on drawings provide the following minimum requirements.

1. Main circuit breaker on each panel serving building main if required by applicable codes.

C. Provide lugs as required for conductors being connected to panelboard lugs, circuit breakers, etc.

2.4 CIRCUIT BREAKERS

A. General

1. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type for 250V or less, bolt-on type for over 250V, thermal magnetic trip circuit breakers, with common trip handle for all poles. Provide circuit breakers UL listed as Type SWD for lighting circuits. Provide UL Class A ground fault interrupter circuit breakers where scheduled. Do not use tandem circuit breakers.

2. Current Limiting Molded Case Circuit Breakers: NEMA AB 1. Provide circuit breakers with integral thermal and instantaneous magnetic trip in each pole, coordinated with automatically reseting current limiting elements in each pole. Interrupting rating 100,000 symmetrical amperes, let-through current and energy level less than permitted for same size Class RK-5 fuse.

B. Main Breakers:

1. Main breakers shall be individually mounted separate from branch breakers.

2. Covered by a metal plate, except for operating handle.

3. Connection from the load's side to the panel bus shall be bus bar. Insulated wire not permitted.

C. Branch Breakers:

1. Thermal-magnetic, molded case, with inverse time-current overload and instantaneous magnetic tripping, unless otherwise shown. Breakers shall be calibrated for 40 degrees C or shall be ambient compensating.

2. Quick-make, quick-break, with tripped indication clearly shown by breaker handle taking a position between ON and OFF.

3. Multi-pole breakers shall have common internal trip. No handle ties between single pole breakers are acceptable for this Project.

4. Single pole 15 and 20 ampere circuit breakers shall be rated for switching duty and shall be labeled as "SWD".

5. Ground Fault Circuit Interrupters (GFI):

a) Provide UL Class (5 milliamp sensitivity) ground fault circuit protection on 120 VAC branch circuits for exterior location receptacles and for interior locations where required by NEC. (These may not be indicated on Panel Schedule.) This

protection shall be an integral part of the branch circuit breaker which also provides overload and short circuit protection for branch circuit wiring. Tripping of a branch circuit breaker containing ground fault circuit interruption shall not disturb the feeder circuit to the panelboard. Provide separate neutral for circuits on GFI breakers whether indicated on drawings or otherwise.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install panelboards in accordance with NEMA PB 1.1. Install all panelboards and panelboard enclosures in accordance with the manufacturer's written instructions, NECA's "Standard of Installation", the applicable requirements of the National Electrical Code, and recognized industry practices.

B. Install panelboards plumb. Install recessed panelboards flush with wall finishes. Provide supports in accordance with Section 26 05 09 Supporting Devices.

C. Height: 6 ft (2 M) to top of panelboard; install panelboards taller than 6 ft (2 M) with bottom no more than 4 inches (10 cm) above housekeeping curb.

D. Provide filler plates for unused spaces in panelboards.

E. Provide typed circuit directory for each branch circuit panelboard. Mount a typewritten directory showing the actual circuit numbers, type of load and room names on inside of door. Room names shall be actual names or numbers used, not necessarily shown on the drawings. Progress Drawings shall show same arrangements as the Directory. Revise directory to reflect circuiting changes required to balance phase loads.

F. Provide engraved plastic nameplates under the provisions of Section 26 05 22, Electrical Identification.

G. Provide spare conduits out of each recessed panelboard to an accessible location above ceiling. Minimum spare conduits: 4 empty 1 inch. Identify each as SPARE.

H. Proper working clearances shall be maintained at every panelboard location. The working space in front of a panelboard shall be as a minimum, 30 inches wide extending 3 feet, 3.5 feet, or 4 feet (per NEC Article 110-16) out perpendicular to the panelboard.

I. All enclosures shall be firmly anchored to walls and supporting structures (where used) using appropriate hardware. Provide supporting (unistrut type) channels on walls constructed of gypsum board, in damp and wet locations, or where otherwise necessary to provide a mechanically secure and permanent installation. Enclosures shall be installed so that the top is 6'-6" above finished floor. Where the size of the enclosure is such that the top cannot be installed at 6'-6", the top of the enclosure shall be kept as low as possible. Enclosures shall be neatly aligned at tops wherever possible. Maintain minimum of 3" between floor and enclosure for wall mounted types.

J. Clean the interior of each panelboard before installing conductors. At all times, keep the interior trim and exterior surfaces of the panelboard free of rust and debris. Repaint finishes if necessary.

K. Coordinate all raceways and conductors with their respective panelboards so that all

connections and conductors routing present an orderly appearance. Conductors in the panelboards shall be laced and arranged in orderly manner.

L. Collect all keys upon delivery of panelboard. Store keys on one ring to be kept by project superintendent. Forward key ring with keys to Owner upon substantial completion.

M. Provide a separate neutral conductor for each GFI breaker. These shall not be combined to serve more than 1 circuit, even where on different phases. Increase plan indications of conductors for neutral wires required, as necessary.

3.2 IDENTIFICATION

A. Each series rated panelboard shall be provided with permanent identification, interior of cover to calculated interrupting capacity, series rating, type of branch breaker to be installed, type of upstream series devices, etc. Standard manufacturer reference to published literature is not suitable.

3.3 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed.

B. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 10 percent of each other. Maintain proper phasing for multi-wire branch circuits.

C. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.

D. Feeder conductors shall be checked by approved means to establish the absence of shorts to ground; insulation value etc. and the result recorded and submitted to the Engineer.

E. All circuits shall be operated to establish a good working order and checked for shorts.

F. All panel directory circuit numbers shall be checked to verify accuracy of the number.

G. Where and when requested by engineer provide:

1. Inspection of equipment by authorized equipment manufacturer technician complete with submittal of statement of findings by technician, and providing any adjustments deemed necessary for a complete and operating system.

2. Ground, voltage, and/or load readings complete with submittal on legible form with applicable data.

END OF SECTION 26 20 10

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities.

1.3 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

C. Burning: Burning is NOT permitted.

1.7 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Utility Locator Service: Notify Call Before You Dig (CBYD) for area where Project is located before site clearing. Contractor shall hire a private utility location company to make areas not serviced by CBYD.

D. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

E. Tree- and Plant-Protection Zones: Protect according to requirements noted on the project plans.

F. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site by installing a tree protection zone where indicated on plan

1. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.

2. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

3. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

4. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

B. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Landscape Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.
4. Soil Aeration: Where directed by Landscape Architect, aerate surface soil compacted during construction

3.4 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.
2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Do not proceed with utility interruptions without Landscape Architect's written permission.

E. Excavate for and remove underground utilities indicated to be removed.

F. Removal of underground utilities is included in earthwork sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

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

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches.
2. Do not stockpile topsoil within protection zones.
3. Surplus topsoil remains property of the Owner and shall no leave the site. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Burning tree, shrub, and other vegetation waste is NOT permitted. Burning of other waste and debris is also prohibited.

C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

End
Section 31 10 00

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SECTION 31 20 00 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses
3. Subbase course for concrete pads, walks, and pavements.
4. Subbase course and base course for asphalt paving.
5. Subsurface drainage backfill for walls and trenches.
6. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Related Requirements:
1. Section 311000 "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
2. Section 315000 "Excavation Support and Protection" for shoring, bracing, and sheet piling of excavations.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Contaminated Soil: Treated or untreated soil and/or sediment that is not otherwise a Hazardous Soil; is affected by a known or suspected release; and determined, or reasonably expected to contain, substances exceeding Residential Direct Exposure Criteria or GA Pollutant Mobility Criteria, as these terms are defined in the Remediation Standard Regulations (RCSA Section 22a-133k-1). NOTE: Contaminated Soil is not expected to be encountered at the Site.

F. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

G. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

H. Fill: Soil materials used to raise existing grades.

I. Hazardous Soil: Soil that is classified as a hazardous waste. Soil is classified as hazardous waste if it exhibits a hazardous waste characteristic or if it contains RCRA-listed hazardous constituents above Connecticut's RCRA "Contained-In" Policy dated May 2002. NOTE: Hazardous Soil is not expected to be encountered at the Site

J. Polluted Soil: Soil affected by a release of a substance at a concentration above the analytical detection limit for such substance in accordance with RCSA 22a-133k-1(a)(45) or for naturally occurring substance at a concentration that exceeds concentrations that naturally occur in the environment

K. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Equipment for Footing, Trench, and Pit Excavation: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch- maximum-width, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,700 lbf and stick-crowd force of not less than 18,400 lbf with extra-long reach boom.
2. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket.

L. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

M. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

N. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

O. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

P. Reclaim in place: In place recycling of an existing pavement.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Controlled low-strength material, including design mixture.
3. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.
2. Warning Tape: 12 inches long; of each color.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. CONNDOT Certification, classification according to ASTM D 2487, and laboratory compaction curve according to ASTM D 1557: For each soil material proposed for fill and backfill as follows:

1. Borrow
2. Processed Aggregate / Processed Coarse Aggregate
3. Subbase
4. Bedding Material / Bedding Course / Select Backfill
5. Controlled / Engineered / Granular fill
6. No. 8 Stone
7. No. 6 Stone Bedding Material
8. No. 4 Stone
9. No. 3 Stone
10. ASTM C-33 Sand

C. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

D. Test Reports: Submit approriate reports in accordance with the following criteria directly from the testing services to the Engineer, with copy to the Contractor:

1. Laboratory collection and analysis of each soil material/source proposed from all on-site and borrow sources.
2. Verification of suitability of subgrade material, in accordance with specified requirements.
3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.
4. **Soil Sampling: Prior to placement of any soil material on site, representative samples shall be collected and analyzed to verify the fill material meets the Connecticut Department of Environmental Protection (CTDEP) and Remediation Standard Regulations (RSRs) requirements. Samples shall be collected from the source area of the proposed material prior to excavation and delivery to or movement on the site. Sample analysis frequency will be equal to or greater than 1 sample per 1,000 cubic yards of soil.**
5. **If more than one source of fill will be used, at least one (1) fill sample shall be collected and laboratory analyzed from each source (even if less than 1,000 cubic yards of material is obtained from the source).**
6. Samples being collected for analysis of Volatile Organic Compounds (VOCs) will not be composited or mixed.

a. **Offsite Fill samples** will be analyzed by a Connecticut Department of Public Health certified laboratory for the following constituents:
   1) VOCs per EPA Method 8260B;
   2) Extractable Total Petroleum Hydrocarbons (ETPH) per CTDEP approved method;
   3) Polynuclear aromatic hydrocarbon (PAHs) compounds per EPA Method 8270C;
   4) Mass and Synthetic Precipitation Leaching Procedure (SPLP) 8 RCRA metals per EPA Methods 6010 and 7471; and
   5) Polychlorinated biphenyls (PCBs) per EPA Method 8082.

b. The analyses of the **offsite fill samples** will be evaluated by the Engineer and the fill will not be transported to the site or used on site unless the results demonstrate compliance with the applicable RSR criteria for the site, which are the Residentail Direct Exposure Criteria (DEC) and the GA Pollutant Mobility Criteria (PMC). The material must be approved by the Engineer prior to delivery to the site.

7. Testing reports must be submitted to DAS DCS within seven calendar days of collection.

E. Construction Staging Plan for Site Grading Activities

F. Construction schedule for earth moving activities

1.6 QUALITY ASSURANCE

A. Blasting: Blasting is NOT permitted.

B. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

C. Employ and pay for a State Licensed environmental analytical laboratory to collect samples and perform all testing of the borrow material.

1. Borrow material shall be tested at the rate of once per 500 cubic yards and representatives samples shall be collected at the source prior to initiation of work. Samples shall be collected, stored, and transported in accordance with laboratory recommendations.

1.7 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Engineer.

C. Utility Locator Service: Notify "Call Before You Dig for area where Project is located before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 015000 "Temporary Facilities and Controls" and Section 311000 "Site Clearing" are in place.

E. Do not commence earth-moving operations until plant-protection measures specified on the soil erosion and sediment control plan are in place.

F. The following practices are prohibited within tree protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards tree protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near tree protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Imported material shall comply with Article M.02.02 of the Standard Specifications. Reclaimed aggregate shall satisfy resistance to abrasion and soundness requirements set forth in Article M.02.06 of the Standard Specification.

E. Base Course: Material shall comply with Article M.05.01 Processed Aggregate Base of the Standard Specifications except as modified below:

US STANDARD SIEVE SIZE	PERCENT FINER BY WEIGHT
1.25”	100
1”	90-100
3/4 ”	75-100
1/4 ”	25-60
NO. 40	10-35
NO. 100	3-12
NO. 200	0-5

F. Controlled / Engineered / Structural / Granular Fill: Material shall comply with Article M.02.01 Granular Fill of the Standard Specifications except as modified below:

US STANDARD SIEVE SIZE	PERCENT FINER BY WEIGHT
4”	100
3/4”	50-100
NO. 4	20-100
NO.40	5-50
NO. 200	0-8

Material shall consist of sandy gravel, gravelly sand, free of organic matter, snow, ice or other unsuitable materials. Reclaimed aggregate shall satisfy resistance to abrasion and soundness requirements set forth in Article M.02.06 of the Standard Specification. Reclaimed aggregate shall not be used under building footprints.

G. Bedding Course and Select Backfill: Materials shall comply with Section M.08.01-21 of the Standard Specifications for bedding material.

H. No. 3, No. 4, No. 6 and No. 8 Stone: Materials shall comply with Section M.01.01 of the Standard Specifications respectively.

I. Sand: ASTM C 33/C 33M; fine aggregate.

J. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

K. Reclaim in place: Reclaim in place: Recycled Bituminous Pavement conforming to the specifications set forth in section 4.03.02 Cold Reclaimed Asphalt Pavement” of the Standard Specifications

2.2 GEOTEXTILES

A. All products must be listed on CONNDOT Qualified product list with can be obtained at http://www.ct.gov/dot/LIB/dot/documents/dresearch/conndot_qpl.pdf.

B. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Survivability: As follows:

    a. Grab Tensile Strength: 157 lbf; ASTM D 4632.
    b. Sewn Seam Strength: 142 lbf; ASTM D 4632.
    c. Tear Strength: 56 lbf; ASTM D 4533.
    d. Puncture Strength: 56 lbf; ASTM D 4833.

3. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
4. Permittivity: 0.2 per second, minimum; ASTM D 4491.
5. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

C. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Survivability: As follows:

    a. Grab Tensile Strength: 247 lbf; ASTM D 4632.
    b. Sewn Seam Strength: 222 lbf; ASTM D 4632.
    c. Tear Strength: 90 lbf; ASTM D 4533.

d. Puncture Strength: 90 lbf; ASTM D 4833.

3. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
4. Permittivity: 0.02 per second, minimum; ASTM D 4491.
5. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

D. Geotextile for use in Trench: Shall be Mirafi 140N or Supac 5NP Filter Fabric or approved equal.

2.3 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. **Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. Payment will be made in accordance with the Unit Prices as stated in Section 01 20 00 Contract Considerations, 1.5 Unit Price Schedules – Earth and Rock Excavation.**

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Rock Excavation:

1. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

   a. 24 inches outside of concrete forms other than at footings.
   b. 12 inches outside of concrete forms at footings.
   c. 6 inches outside of minimum required dimensions of concrete cast against grade.
   d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
   e. 6 inches beneath bottom of concrete slabs-on-grade.
   f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide with vertical walls.

2. Wherever rock to be excavated is encountered, the Contractor shall strip or expose the rock to such an extent that in the Owner's opinion the necessary measurements can be taken. The Contractor shall provide the Owner with a survey by a licensed land surveyor indicating top of rock elevations at points of intersection on a rectilinear grid with lines spaced sufficiently close to show accurately the rock surface contours. At the Owner's option, an additional survey may be furnished by the Owner from a licensed surveyor. The volume of material conforming to the above limits derived from this survey data will be the basis of payment of this item. Quantity shall be calculated by the contractor and provided to the engineer for review and verification
3. Rock excavation is to be paid at the unit prices established below (Basis For Payment): Prices include backfill with on-site excavated material if it is suitable. Prices also include all excavation and disposal of all surplus or unsuitable material. Prices include costs of shoring, de-watering, and sloping for sides of excavation as necessary. Payment and credit amounts shall be determined based on the limits identified above. The total quantity of earth or rock excavation encountered in each depth payment category shall be paid for at its respective unit price as shown below. For example, in a 15' trench the first 6' will be paid for at the 0' - 6' price; the next 4' will be paid for at the over 6' - 10' price and the next 5' will be paid for at the over 10' - 15' price. Thus three different price brackets will prevail.
4. If the conditions of the excavation work indicated are clearly of a special nature as identified by the Contractor and confirmed by the Engineer, the Contractor may ask the Owner for reconsideration of the established unit prices and if granted, the unit prices will not apply, and prices will be negotiated in accordance with Article 13 "Compensations for Changes in the Work" of the General Conditions.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Pile Foundations: Stop excavations 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.

3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.

4. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3.8 SUBGRADE INSPECTION

A. Notify Engineer when excavations have reached required subgrade.

B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Engineer.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 GENERAL BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches of bottom of footings with controlled fill; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 033000 "Cast-in-Place Concrete."

D. Trenches under Roadways: Provide 4-inch thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course. Concrete is specified in Section 033000 "Cast-in-Place Concrete."

E. Backfill voids with satisfactory soil while removing shoring and bracing.

F. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

    a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

G. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

H. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 92 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 SUBSURFACE DRAINAGE

A. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a 6-inch course of filter material on subsurface drainage geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of 12 inches of filter material, placed in compacted layers 6 inches thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least 6 inches.

1. Compact each filter material layer to 85 percent of maximum dry unit weight according to ASTM D 698.

B. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within 12 inches of final subgrade, in compacted layers 6 inches thick. Overlay drainage backfill with one layer of subsurface drainage geotextile, overlapping sides and ends at least 6 inches.

1. Compact each filter material layer to 85 percent of maximum dry unit weight according to ASTM D 698.
2. Place and compact impervious fill over drainage backfill in 6-inch- thick compacted layers to final subgrade.

3.18 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:
1. Place base course material over subbase course under hot-mix asphalt pavement.
2. Shape subbase course and base course to required crown elevations and cross-slope grades.
3. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.
4. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
5. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

C. Pavement Shoulders: Place shoulders along edges of subbase course and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.19 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.20 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material classification and maximum lift thickness comply with requirements.

3. Determine, during placement and compaction that in-place density of compacted fill complies with requirements.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.
2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length but no fewer than two tests.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.21 RECLAIM IN PLACE

Recycled Bituminous Pavement conforming to the specifications set forth in section 4.03.03 Cold Reclaimed Asphalt Pavement" of the Standard Specifications

3.22 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.23 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. If the Contractor locates material that is believed to be contaminated on the project, he shall immediately contact the Construction Administrator. If the Construction Administrator cannot be contacted, the Contractor shall contact the DAS Project Manager

B. Surplus excavated materials not needed shall be hauled away and disposed of by the Contractor, at his expense, at appropriate locations and in accordance with arrangements made by him and in accordance with all federal, state and local regulations. Excavated soil may not be removed from the site prior to sampling, analysis and written approval. Contractor must provide certified letter indicating disposal of surplus excavated material at approved location.

C. For the purposes of the Proposed Lump Sum Base Bid, assume all surplus excavated soils are polluted and require disposal at Massachusetts lined or unlined landfills. Polluted soils may also be reused on other sites approved by the Connecticut Department of Energy and Environmental Protection to accept such soils (if available at the time of construction)

End
Section 31 20 00
EARTH MOVING

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PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The General Provisions of the Contract, including the General and Supplementary Conditions, apply to the work specified in this Section.

1.02 SCOPE OF WORK

A. The work under this Section includes all labor, supervision, materials and equipment necessary for the completion of all building structure excavation within the building and excavation five (5') feet outside the building for structures and utility lines, as shown on the Drawings and as specified.

B. Work shall include, but not be limited to, the following:

1. Building excavation, including pits and trenches for utilities within the building
2. Protection of utilities
3. Stockpiling of reusable materials
4. Removal of unsuitable materials
5. Rock excavation

1.03 RELATED WORK

A. Section 31 50 04 - Earthwork Protection
B. Section 31 23 24 - Structural Fill and Foundation Drains

1.04 TEST BORINGS

A. Subsurface investigations have been made at the site. This data was obtained for use in designing foundations, and is made available to all bidders solely for their information. Interpretation of subsurface data for purposes of construction is the responsibility of the Contractor.

B. There is no guarantee of the accuracy of this information, and the Owner or the Architect or the Structural Engineer shall not be responsible for any differences between the data given and the actual subsurface conditions or subsurface materials.

PART 2 - PRODUCTS - Not applicable

PART 3 - EXECUTION

3.01 EXCAVATION

A. Excavate all areas as required to perform work shown on Drawings and to conform to new finish grades. Excavations shall be to proper depth and width to allow for slabs, gravel bases and other subsequent construction.

B. Excavate to depth and lineal dimensions required to permit subsequent formwork and concrete operations to proceed without hindrance. Excavation for footings, walls, piers, grade beams, etc., must be sufficiently wide to compact all fill by mechanical means. In general, excavation shall be cut to a line eighteen (18") inches outside of the face of footings, with no undercutting permitted.

C. Surfaces of excavations shall be suitably dressed to grade noted to receive subsequent construction. Bottoms shall be substantially level, with no large projections, and free of loose material. Material at bottoms of excavation shall be undisturbed. The Engineer shall be immediately notified if material unsatisfactory for foundation bearing is encountered, for further instructions, before proceeding with work.

D. Trenches and excavations shall be of sufficient width and depth at all points to allow all pipes to be laid, joints to be formed, and structures and appurtenant construction to be built in most thorough and workmanlike

manner, and to allow for sheeting and shoring, pumping and draining. Trenches and excavations shall be at least eighteen (18") inches wider than outside dimension of structures they are to contain. Trenches for pipes must not be unnecessarily wide so as to materially increase load on pipe resulting from backfill. Bottoms of trenches and other excavations shall be carried to lines and shapes satisfactory to Engineer.

E. Completely remove all abandoned subsurface utilities, structures and existing foundations within the lines of the new building construction. Plug abandoned utility lines at least five (5') feet outside of new construction.

F. If footing bottoms are disturbed, allowed to freeze, or if excavations for footings are carried below indicated elevations shown on the Drawings, the Contractor shall notify the Engineer for instructions prior to proceeding.

3.02 PROTECTION OF UTILITIES

A. Protect existing utilities and relocate only as shown on Plans or in Specifications.

B. Notify utility companies to shut off services when required.

C. Any damage to existing drainage and utility structures to be retained shall be repaired at the Contractor's expense.

D. Maintain drainage of site and adjacent areas to prevent damage and erosion. When necessary to interrupt drainage of existing facilities, provide temporary facilities until permanent installations have been completed.

3.03 REMOVAL OF UNSUITABLE MATERIALS

A. Remove all debris subject to termite attack, rot or corrosion and all other deleterious materials from areas to be filled.

B. Remove from the interior of the building all unsuitable materials such as topsoil, loam or other organic materials.

C. Remove from site, all excavated materials not required for fill.

3.04 STOCKPILES

A. Approved excavated material suitable for fill or structural fill (i.e., clean granular material) shall be stockpiled.

3.05 ROCK EXCAVATION

A. Definition: Rock is defined as ledge, stone or hard shale, concrete, or masonry structures which require drilling or blasting for removal, and boulders larger than one (1 cy) cubic yard in volume within the building excavation and one-half (1/2 cy) cubic yard in volume encountered in trench excavations.

B. Measurement: Rock shall be stripped for measurement before proceeding, and no rock excavated or loosened before measurement will be allowed or paid for as rock. Measurement and payment therefore shall be by the number of cubic yards required to bring the excavation to the required surface or grade shown on the Drawings. In making rock excavation, eighteen (18") inches will be allowed outside the footing lines, in vertical planes; twenty-four (24") inches will be allowed outside walls without footings and outside footings where drains are required. Submit cross-sections and certification of quantities by a Connecticut Registered Land Surveyor or Professional Engineer.

C. Blasting: When explosives are used, work shall be executed by experienced powdermen or persons who are licensed or otherwise authorized to use explosives. Explosives shall be stored, handled and used in accordance with local regulations and the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Incorporated. Structural Engineer shall be notified of scheduled blasting. Any damage to existing or new construction caused by the use of explosives shall be corrected at the Contractor's expense.

D. Shelving: If rock surfaces supporting footings should be encountered, such surfaces shall be leveled off to a slope not exceeding one inch per foot (1"/ft) unless otherwise indicated on the plans.

E. Payment: It is anticipated that no rock, as above defined, will be encountered in the construction. However, if it should be encountered, payment will be made in accordance with the Unit Prices as stated in **Section 01 20 00 Contract Considerations, 1.5 UNIT PRICE SCHEDULES, Unit Price Schedule – Earth & Rock Excavation**.

END OF SECTION 32 23 14

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including the General and Supplementary Conditions, apply to the work specified in this Section.

1.2 SCOPE OF WORK

A. The work under this Section includes all labor, supervision, materials and equipment necessary for the completion of all structural fill.

B. Work shall include, but not be limited to the following:

1. Structural Fill
2. Compaction
3. Testing

1.3 RELATED WORK

A. Section 31 23 14 - Structural Excavation
B. Section 31 50 04 - Earthwork Protection

1.4 SUBMITTALS

A. The Contractor shall submit for approval to the Engineer prior to commencing operations a sieve analysis, a modified proctor density test of proposed structural fill material, and drainage filter material. The tests shall be prepared by an approved testing laboratory at the Contractor's expense.

B. A sample of each approved material shall be kept at the Construction Site Field Office for comparison purposes during this phase of work.

C. Any material which does not reasonably conform to the approved sieve analysis shall be subject to removal.

1.5 FIELD INSPECTION AND TESTING

A. The Owner shall retain and pay for an independent soils laboratory to perform inspection and/or testing of structural backfill. The laboratory will have an inspector on the site during backfilling operations and will make tests required for fill and backfill placed.

B. The following field tests shall be performed:

1. One modified Proctor Density Test for each source of fill material performed in accordance with ASTM D1557.

2. Standard field density tests, each of an accuracy of plus or minus one (1%) percent.

C. Field density tests shall be at the rate of one (1) per two hundred (200 cy) cubic yards of fill, or at the discretion of the inspector. The tests shall be made at a maximum height differential of sixteen (16") inches throughout the fill.

D. It shall be the Contractor's responsibility to notify the Engineer and Testing Laboratory when each layer of fill is to be in place and ready for testing. The Contractor shall allow ample time for testing. If any fill is placed in excess of sixteen (16") inches without testing, it shall be subject to removal.

E. All required compaction and retesting due to unsatisfactory compaction shall be at the Contractor's expense.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Structural fill shall be clean gravel, free from foreign substances, lumps of clay, silt, loam or vegetable matter. The gravel shall be sound, tough, durable and free from thin elongated pieces. The material shall meet the following gradation requirements:

1.	Sieve Size	3 1/2"	1/4"	No. 10	No. 40	No. 100
2.	Percent Passing	100	30-65	20-55	5-30	0-5

2.2 LOCATION OF MATERIALS

A. Structural fill shall be used for all backfill under all slabs on grade, under all footings required to achieve footing base elevations for all backfill against exterior basement and retaining walls, to extend a distance of five (5') feet beyond the face, including that backfill required for structural or utility excavation and trenches within the limits of the outermost foundation walls of the building.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. Structural fill shall be deposited in eight (8") inch layers and compacted to the following percent optimum density (ASTM D1557):

1. Ninety-five (95%) percent under footings and under all slabs on grade, trenches, sidewalks, driveways and paved areas, against interior face of foundation walls and retaining walls.

2. Ninety (90%) percent against exterior face of foundation walls and retaining walls.

B. No material shall be compacted when its moisture content is greater than optimum.

C. The excavation must be sufficiently dry to permit complete inspection of the excavation and to permit use of compaction machinery on the initial layers of fill. The excavation must be kept sufficiently dry to carry out placement of fill and compaction thereof as specified below.

D. It shall be the responsibility of the General Contractor to notify the laboratory when excavation is complete so that inspection of conditions before filling may be made.

E. Compacting equipment shall not be of a nature so as to cause unstable conditions in the underlying natural soil.

F. No backfilling will be permitted against foundation walls until floor slabs at both top and bottom of walls have been placed and cured, or unless walls have been adequately braced. Where backfill occurs on both sides of a wall, levels of backfill on each side shall be kept approximately equal at all times.

G. Do not place structural fill or backfill on frozen material. Do not place frozen fill material.

H. If grade freezes or excavation bottom freezes, remove frozen material to extent of freezing prior to placing new structural fill or backfill material.

END OF SECTION 31 23 24

SECTION 31 50 00 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. Section includes temporary excavation support and protection systems.

B. Related Requirements:

1. Section 312000 "Earth Moving" for excavating and backfilling and for controlling surface-water runoff and ponding.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
1. Review existing utilities and subsurface conditions.
2. Review coordination for interruption, shutoff, capping, and continuation of utility services.
3. Review proposed excavations.
4. Review proposed equipment.
5. Review monitoring of excavation support and protection system.
6. Review coordination with waterproofing.
7. Review abandonment or removal of excavation support and protection system.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, performance properties, and dimensions of individual components and profiles, and calculations for excavation support and protection system.

B. Shop Drawings: For excavation support and protection system, prepared by or under the supervision of a qualified professional engineer licensed in the State of Connecticut.

1. Include plans, elevations, sections, and details.
2. Show arrangement, locations, and details of soldier piles, piling, lagging, tiebacks, bracing, and other components of excavation support and protection system according to engineering design.
3. Indicate type and location of waterproofing.
4. Include a written plan for excavation support and protection, including sequence of construction of support and protection coordinated with progress of excavation.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor and professional engineer.

B. Contractor Calculations: For excavation support and protection system. Include analysis data signed and sealed by the qualified professional engineer licensed in the State of Connecticut responsible for their preparation.

C. Existing Conditions: Using photographs or video recordings, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by inadequate performance of excavation support and protection systems. Submit before Work begins.

D. Record Drawings: Identify locations and depths of capped utilities, abandoned-in-place support and protection systems, and other subsurface structural, electrical, or mechanical conditions.

1.6 FIELD CONDITIONS

A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:

1. Do not proceed with interruption of utility without Owner's written permission.

B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.

1. Make additional test borings and conduct other exploratory operations necessary for excavation support and protection according to the performance requirements.
2. The geotechnical report is included elsewhere in Project Manual.

C. Survey Work: Engage a qualified land surveyor licensed in the State of Connecticut to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Provide, design, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting earth and hydrostatic pressures and superimposed and construction loads.

1. Contractor Design: Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer licensed in the State of Connecticut.
2. Prevent surface water from entering excavations by grading, dikes, or other means.
3. Install excavation support and protection systems without damaging existing buildings, structures, and site improvements adjacent to excavation.
4. Continuously monitor vibrations, settlements, and movements to ensure stability of excavations and constructed slopes and to ensure that damage to permanent structures is prevented.

2.2 MATERIALS

A. General: Provide materials that are either new or in serviceable condition.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

1. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Locate excavation support and protection systems clear of permanent construction so that construction and finishing of other work is not impeded.

3.2 FIELD QUALITY CONTROL

A. Survey-Work Benchmarks: Resurvey benchmarks weekly during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Engineer if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

B. Promptly correct detected bulges, breakage, or other evidence of movement to ensure that excavation support and protection system remains stable.

C. Promptly repair damages to adjacent facilities caused by installation or faulty performance of excavation support and protection systems.

3.3 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities.

1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlying construction and abandon remainder.
2. Fill voids immediately with approved backfill compacted to density specified in Section 312000 "Earth Moving."
3. Repair or replace, as approved by Engineer, adjacent work damaged or displaced by removing excavation support and protection systems.

End
Section 31 50 00
EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including the General and Supplementary Conditions, apply to the work specified in this Section.

1.2 SCOPE OF WORK

A. The work under this Section includes all labor, supervision, materials and equipment necessary for the completion of earthwork protection as specified.

B. Work shall include, but not be limited to, the following:

1. Protection of work and property
2. Stability of sides
3. Shoring and bracing
4. Drainage and pumping

1.3 RELATED WORK

A. Section 31 23 14 - Structural Excavation
B. Section 31 23 24 - Structural Fill

PART 2 - PRODUCTS - Not applicable

PART 3 - EXECUTION

3.1 PROTECTION OF WORK AND PROPERTY

A. Protect structures, utilities, sidewalks, pavements and other facilities immediately adjacent to structure excavation from damage caused by settlement, lateral movement, undermining, washout and other hazards.

B. Take precautions and provide necessary bracing and shoring to guard against movement or settlement of existing improvements or new construction. The Contractor is solely responsible for the strength and adequacy of bracing and shoring; and for the safety and support of construction from damage or injury caused by the lack thereof, of movement and/or settlement.

C. Protect excavation, trenches and all items of subsurface construction from damage by rain, water from melted snow, surface water and subsurface water. Provide all pumps, equipment, and enclosures necessary to ensure such protection.

D. Protect exposed earth and foundations in excavation areas when the atmospheric temperature is less than 35 degrees F by covering with dry insulating materials of sufficient depth to prevent frost penetration of soil.

3.2 STABILITY OF SLOPES

A. Slope the sides of excavations over five (5') feet to the angle of repose of the material excavated; otherwise, shore and brace where sloping is not possible either because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling by benching, shelving or bracing.

B. Take precautions to prevent slides or cave-ins when excavations are made in locations adjacent to backfilled excavations, and when sides of excavations are subjected to vibrations from vehicular traffic or the operation of machinery or any other source.

3.3 SHORING, SHEETING AND BRACING

A. Contractor shall furnish, install in place, and maintain such sheeting, shoring, and bracing as may be required to support sides of excavations and to prevent any movement which could in anyway injure work, diminish necessary width of trench or other excavations, or otherwise delay work or endanger adjacent structures.

Sheeting shall be driven and excavation work conducted in such a manner as to prevent material in back of sheeting from running under sheeting and into trench.

B. Provide steel or timber materials for sheeting, shoring and bracing, such as sheet piling, uprights, stringers, rangers and cross-braces, in good serviceable condition. Use timbers that are sound and free of large or loose knots. Maintain shoring and bracing in excavations, regardless of the time period excavations will be open. Carry down shoring and bracing as the excavation progresses.

C. Provide trench shoring and bracing to comply with the provisions of ANSI A10.2 "Safety Code for Building Construction", and with requirements of the local codes and authorities having jurisdiction.

D. The Contractor shall, prior to driving sheeting, determine the presence and extent of underground structures as may affect the driving of sheeting.

E. Care shall be taken to prevent voids outside of sheeting; but if voids are formed, they shall be immediately filled and well rammed. Sheeting shall not be carried to such depth at manholes that it will bear upon pipe. Special precautions, by using sheeting, shoring and bracing shall be taken to guard against any damage to or settlement of buildings, walls or other structures which are adjacent to work.

F. Sheeting shall not unnecessarily be driven below structures and thereby necessitate its being left permanently in place.

G. Bracing, rangers and sheeting shall be securely fastened in place so that they cannot loosen up and fall from position. Sheeting, shoring, bracing, etc., or parts thereof, shall be removed after completion of work.

3.4 DRAINAGE AND PUMPING

A. Perform excavation in a manner to prevent surface water from flowing into the excavations, and to prevent water from flooding the project site and surrounding area. Do not allow water to accumulate in excavations. Remove water from excavations using dewatering methods which will prevent softening of foundation bottoms, undercutting of footings, and soil changes detrimental to the stability of subgrades and foundations.

B. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components necessary to convey the water away from excavations. Convey water removed from excavations and rain water to runoff areas. Provide and maintain temporary drainage ditches and other diversions outside the excavation limits for each structure. Do not use trench excavations for site utilities as temporary drainage ditches.

END OF SECTION 31 50 04

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. Section Includes:
1. Hot-mix asphalt patching.
2. Hot-mix asphalt paving.

B. Related Requirements:

1. Section 312000 "Earth Moving" for subgrade preparation, fill material, unbound-aggregate subbase and base courses, and aggregate pavement shoulders.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:

a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
1. Job-Mix Designs: Certification, by the Connecticut Department of Transportation, of approval of each job mix proposed for the Work. Certification shall include name of project covered under these specifications.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and testing agency.

B. Material Certificates: For each paving material. Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.

C. Material Test Reports: For each paving material, by a qualified testing agency.

D. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by the Connecticut Department of Transportation.

B. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.

C. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the Connecticut Department of Transportation for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
1. Tack Coat: Minimum air and surface temperature of 40 deg F.
2. Asphalt Base Course: Minimum air and surface temperature of 40 deg F and rising at time of placement.
3. Asphalt Surface Course: Minimum air and surface temperature of 40 deg F and rising at time of placement.

PART 2 - PRODUCTS

MIXES

Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by the Connecticut Department of Transportation and complying with the following requirements:

1. Comply with Form 817 Section M.04– Bituminous Concrete Materials.
2. Base Course: Form 817 Section M.04 “HMA S0.5 – Design Level 2”.
3. Surface Course: Form 817 Section M.04 “HMA S0.375 – Design Level 2”.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to begin paving.

B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction. Limit vehicle speed to 3 mph.
2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 COLD MILLING

A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

1. Mill to a depth of 2 inches.
2. Mill to a uniform finished surface free of excessive gouges, grooves, and ridges.
3. Control rate of milling to prevent tearing of existing asphalt course.
4. Repair or replace curbs, manholes, and other construction damaged during cold milling.
5. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt.
6. Patch surface depressions deeper than 1 inch after milling, before wearing course is laid.
7. Keep milled pavement surface free of loose material and dust.
8. Do not allow milled materials to accumulate on-site.

3.3 PATCHING

A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.07 gal./sq. yd..

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Placing Patch Material: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.4 REPAIRS

A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.

1. Clean cracks and joints in existing hot-mix asphalt pavement.
2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3.5 SURFACE PREPARATION

B. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.03 to 0.05 gal./sq. yd. for a non-milled surface and 0.05 to 0.07 gal./sq. yd. for a milled surface.

1. The material for tack coat shall not be heated in excess of 160 deg F and shall not be further diluted.
2. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
3. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.6 PLACING HOT-MIX ASPHALT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Place hot-mix asphalt surface course in single lift.
3. Spread mix at a minimum temperature of 265 deg F (min. 300 deg F. after October 15).
4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
2. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.7 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

3.8 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Density: All material placed in a lift shall be compacted to the degree specified in Tables 4.06-9 and 4.06-10 of the Standard Specifications. The density of each core will be determined using the production lot's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the plant.
2. Density testing shall comply with 4.06.03 paragraphs 10 through 13.
3. No adjustment to the contract sum will be made for positive density values in Tables 4.06-9 and 4.06-10 of the Standard Specifications. Negative density values on Tables 4.06-9 and 4.06-10 of the Standard Specifications will result in pavement removal and replacement.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.9 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. HMA S1: Plus or minus 3/8 inch.
2. HMA S0.25, S0.375, S0.5: Plus or minus 1/4 inch.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 3/8 inch.
2. Surface Course (each lift): 1/4 inch.
   Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. In-Place Density: Core samples as required in Section 4.06.03 of the Standard Specifications.

1. All material placed in a lift shall be compacted to the degree specified in Tables 4.06-9 and 4.06-10 of the Standard Specifications. The density of each core will be determined using the production lot's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the plant.
2. Density testing shall comply with 4.06.03 paragraphs 10 through 13.
3. No adjustment to the contract sum will be made for positive density values in Tables 4.06-9 and 4.06-10 of the Standard Specifications. Negative density values on Tables 4.06-9 and 4.06-10 of the Standard Specifications will result in pavement removal and replacement.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

END

SECTION 321216

ASPHALT PAVING

SECTION 32 13 13 CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. Section Includes Concrete Paving Including the Following:

1. Pads

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to concrete paving, including but not limited to, the following:

a. Concrete mixture design.
b. Quality control of concrete materials and concrete paving construction practices.

2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:

a. Contractor's superintendent.

b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete paving Subcontractor.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.

C. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer of stamped detectable warnings, ready-mix concrete manufacturer and testing agency.

B. Material Certificates: For the following, from manufacturer:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Admixtures.
4. Curing compounds.
5. Applied finish materials.
6. Bonding agent or epoxy adhesive.
7. Joint fillers.

C. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

1.9 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from steel wire into flat sheets.

B. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60 deformed bars; assembled with clips.

E. Plain-Steel Wire: ASTM A 1064/A 1064M.

F. Deformed-Steel Wire: ASTM A 1064/A 1064M.

G. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.

H. Tie Bars: ASTM A 615/A 615M, Grade 60; deformed.

I. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

J. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2.4 CONCRETE MATERIALS

A. Comply with Section M.03 of the Standard Specifications. Mix composition shall comply with Class “F”.

B. Water: Potable and complying with ASTM C 94/C 94M.

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.6 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

B. Epoxy-Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:

1. Types I and II, nonload bearing, Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

C. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.

2.7 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

B. Concrete: Proportion mixtures to provide normal-weight concrete with the following properties:
1. Compressive Strength (28 Days): Class “F” per the Standard Specifications unless otherwise noted.
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.53
3. Slump Limit: 4 inches, plus or minus 1 inch.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

1. Air Content: 5-7 percent.

D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase in one direction. Limit vehicle speed to 3 mph.
2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
2. Provide tie bars at sides of paving strips where indicated.
3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 15 feet unless otherwise indicated.
2. Extend joint fillers full width and depth of joint.
3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows, to match jointing of existing adjacent concrete paving:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes

a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.

    a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.

3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.

B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.

H. Screed paving surface with a straightedge and strike off.

I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.

3.8 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-feet- long; unleveled straightedge not to exceed 1/2 inch.
4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
5. Lateral Alignment and Spacing of Dowels: 1 inch.
6. Vertical Alignment of Dowels: 1/4 inch.

7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231/C 231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.

    a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.

C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.

G. Concrete paving will be considered defective if it does not pass tests and inspections.

H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

I. Prepare test and inspection reports.

3.11 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.

B. Drill test cores, where directed by Engineer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

End
Section 32 13 13
CONCRETE PAVING

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SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Turf establishment

1.3 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329400 "Topsoil" and drawing designations for planting soils.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.

C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years experience in turf installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:

    a. Landscape Industry Certified Technician - Exterior.
    b. Landscape Industry Certified Lawncare Manager.
    c. Landscape Industry Certified Lawncare Technician.

5. Pesticide Applicator: State licensed, commercial.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.9 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting: April 15th – June 15th.
2. Fall Planting: September 15th – October 15th.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: State-certified seed of grass species as listed below for solar exposure.
2. Quality: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5percent weed seed:
3. Sun and Partial Shade: Proportioned by weight as follows:

    a. 50 percent Kentucky bluegrass (Poa pratensis).
    b. 30 percent chewings red fescue (Festuca rubra variety).
    c. 10 percent perennial ryegrass (Lolium perenne).
    d. 10 percent redtop (Agrostis alba).

4. Shade: Proportioned by weight as follows:

    a. 50 percent chewings red fescue (Festuca rubra variety).
    b. 35 percent rough bluegrass (Poa trivialis).
    c. 15 percent redtop (Agrostis alba).

2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60percent of dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

C. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.4 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.

2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329400 "Topsoil".

B. Placing Planting Soil: Place manufactured planting soil over exposed subgrade and blend planting soil in place.

1. Reduce elevation of planting soil to allow for soil thickness of sod.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 HYDROSEEDING

A. Hydroseeding: Mix specified seed, slow-release fertilizer and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with non-asphaltic fiber-mulch per manufacturer's recommendation.
2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

3.5 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow Kentucky bluegrass, ryegrass and chewings red fescue > to a height of 1-1/2 to 2 inches.

D. Turf Postfertilization: Apply slow-release fertilizer after initial mowing and when grass is dry.

1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

3.6 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Landscape Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.7 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.8 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

D. Remove nondegradable erosion-control measures after grass establishment period.

3.9 MAINTENANCE SERVICE

A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. Seeded Turf: 60 days from date of Substantial Completion

a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

END OF SECTION 329200

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SECTION 32 94 00 - TOPSOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. This Section includes the following:

1. Testing, amending, placing and finish grading all stockpiled and borrow topsoil.
2. Provide all borrow topsoil necessary to properly complete all lawn and planting operations.

B. Related Sections include the following:

1. Division 31 Section “Site Clearing” for topsoil stripping.
2. Division 31 Section “Earth Moving” for site earthwork.
3. Division 32 Section “Plants”.

1.3 QUALITY ASSURANCE

A. Topsoil:

1. Source: The sources and use of the topsoil prior to stripping shall be known and documented. Pesticide use on the site shall be documented and provided to the Owner. Soils with a known use of residual (preemergence) herbicide within two years of stripping are not acceptable.

1. Testing: Representative samples of borrow topsoil and stockpiled topsoil shall be completely analyzed/tested to determine:

a. Nutrient analysis using the Modified Morgan extractant for soil available P, K, Ca, and Mg.
b. Soil pH.
c. Organic content – determined by loss of weight on ignition.
d. Particle size analysis – sand, silt, and clay – analysis shall be determined using the hydrometer method of particle size analysis with size fractions based upon size limits established by USDA.

3. Before delivery of any borrow topsoil, furnish the Landscape Architect with a 5 gallon sample of material.

4. Topsoil testing costs shall be borne by the Contractor. At least 3 tests shall be taken from each source, and from onsite materials. Provide a minimum of 3 tests per 1,000 cy delivered/amended at site.

5. Testing laboratory shall be approved by the Owner and Landscape Architect, whose costs shall be borne by the Contractor.

B. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.

C. Qualification Data: For landscape installer. Installer qualifications: A qualified landscape installer, having completed similar projects in the last 10 years.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

D. Soil-Testing Fields Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

E. Fill Sampling: Prior to placement of fill material on site, representative samples will be collected and analyzed to verify the fill material meets the Connecticut Department of Environmental Protection (CTDEP) and Remediation Standard Regulations (RSRs) requirements. Samples shall be collected from the source area of the proposed fill prior to excavation and delivery of the fill. Sample analysis frequency will be equal to or greater than 1 sample per 5,000 cubic yards of fill.

F. If more than one source of fill will be used, at least one (1) fill sample shall be collected and laboratory analyzed from each source (even if less than 5,000 cubic yards of material is obtained from the source).

G. Samples being collected for analysis of Volatile Organic Compounds (VOCs) will not be composited or mixed.

a) Fill samples will be analyzed by a Connecticut Department of Public Health certified laboratory for the following constituents:

- VOCs per EPA Method 8260B;
- Extractable Total Petroleum Hydrocarbons (ETPH) per CTDEP approved method;
- Polynuclear aromatic hydrocarbon (PAHs) compounds per EPA Method 8270C;
- Mass and Synthetic Precipitation Leaching Procedure (SPLP) 8 RCRA metals per EPA Methods 6010 and 7471; and
- Polychlorinated biphenyls (PCBs) per EPA Method 8082.

b) The analyses of the fill samples will be evaluated by the Landscape Architect and the fill will not be transported to the site or used on site unless the results demonstrate compliance with the applicable RSR criteria for the site, which are the Residential Direct Exposure Criteria (DEC) and the GA Pollutant Mobility Criteria (PMC). The material must be approved by the Landscape Architect prior to delivery to the site.

1.4 SUBMITTALS

A. Submit topsoil test results to the Landscape Architect for review. The Landscape Architect will be the sole judge of acceptability.

1.5 PRODUCT HANDLING

A. Coordinate delivery of borrow topsoil such that it is placed as delivered and no stockpiling is required.

PART 2 – PRODUCTS

2.1 BORROW TOPSOIL FOR GENERAL PLANTING AND LOAM AND SEED AREAS

A. Texture

1. Shall be a sandy loam as per USDA Soil Classification as determined by laboratory particle size analysis, with the following additional particle size limits:

   Sand – minimum 60 % by weight, minimum 70%.
   Silt – between 10 and 30 %.
   Clay – between 5 and 15 % by weight.

2. Topsoil shall not contain materials harmful to plant life, to be clean, fertile, friable, and well draining. All topsoil to be free of any subsoil earth clods, sods, stones over ¾" in any dimension, sticks, roots, weeds, litter and other deleterious material.

3. Coarse Fragments: Topsoil must pass through a 1"-inch mesh and be free of stones and other foreign materials that are retained by the screen. Gravel between 2 mm and 9.5 mm (1") shall not exceed 5 percent by weight.

4. Topsoil Source: Obtain topsoil displaced from naturally well-drained sites where topsoil occurs at least 4 inches deep; do not obtain from bogs or marshes.

5. Nutrient levels shall be achieved by the Contractor's addition of amendments to the topsoil to meet the optimum nutrient levels specified in the testing laboratory report.

B. Permeability:
1. The finished topsoil product must possess a permeability of between 0.5 and 3 inches per hour when compacted to 80% of maximum as determined by a standard Proctor test. Testing results shall be provided for review.

C. Organic Matter
1. Topsoil shall be uniform in quality and texture and contain organic matter and mineral elements necessary for sustaining healthy plant growth.

2. Topsoil shall have the following optimum ranges unless otherwise approved by the Landscape Architect.
   Organic Matter Content 6-8%

D. Soil Reaction: pH 6 -7

E. Organic Amendments

1. Acceptable organic materials to achieve the organic matter range include commercially prepared compost with the following characteristics.

   a. Minimum organic matter content: 85%
   b. Minimum fiber as retained by a 150 mm sieve: 60%
   c. Maximum mineral content: 15%
   d. Commercial Compost
   e. Minimum organic matter content: 50%
   f. Carbon-nitrogen ration: 20 to 30
   g. Particle size: <3/8"
   h. Metals: Not to exceed state standards for biosolids

F. Metals: Metals shall not exceed state standards for agricultural soils.

G. Sand Amendments

1. Sand required to achieve the specified permeability for topsoil should meet ASTM Standard C33, Concrete Sand, and possess a Coefficient of Uniformity less than 4 and a Fineness Modulus between 2.7 and 3.2

2.2 STOCKPILED TOPSOIL FOR GENERAL PLANTING AND LOAM AND SEED AREAS

A. Topsoil shall meet requirements of paragraph 2.1 above shall be screened to remove all foreign matter and debris.

B. Material must be approved for use prior to installation.

C. Provide all amendments as noted in 2.1 above (sand, organics, composts, etc.) to stockpiled topsoil if needed to bring topsoil in conformance with project requirements. Test after application of amendments.

2.4 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

1. Class: Class T, with a minimum 99 percent passing through No. 8 sieve and a minimum 75 percent passing through No. 60 sieve.

2. Provide lime in form of ground limestone.

B. Perlite: Horticultural perlite, soil amendment grade.

1. Agricultural Gypsum: Finely ground, containing a minimum of 90 percent calcium sulfate.

2.5 PLANTING SOIL MIX

A. Planting Soil Mix: Mix topsoil with the following soil amendments and fertilizers in the following quantities.

1. Ratio of Loose Compost to Topsoil by Volume: as per testing laboratory results

2. Ratio of Loose Peat to Topsoil by Volume: as per testing laboratory results

3. Weight of Lime per 1000 Sq. Ft: as per testing laboratory results

4. Weight of Aluminum Sulfate per 1000 Sq. Ft.: as per testing laboratory results

5. Weight of Agricultural Gypsum per 1000 Sq. Ft. as per testing laboratory results

6. Volume of Sand Plus 10 Percent per 1000 Sq. Ft. as per testing laboratory results

7. Weight of Commercial Fertilizer per 1000 Sq. Ft. as per testing laboratory results.

PART 3 – EXECUTION

3.1 SHAPING AND GRADING OF SUBSOIL AT ALL LAWN AREAS

A. After rough grading has been completed, shape and grade lawn subgrade areas to lines and levels as noted on the drawings and as required based on total amounts of approved topsoil to allow placement of uniform depth of topsoil. Adjustments may be necessary due to field conditions. Provide all shaping adjustments at no additional cost to the Owner.

B. Harrow or otherwise loosen the subgrade soil to 12" depth if required to correct for over compaction. Scarify subgrade prior to installation of topsoil.

C. After shaping of lawn subgrades remove all sticks, stones, or foreign material two (2) inches or greater in dimension. Remove debris and stone off-site.

3.2 TOPSOIL SPREADING

A. Once approved, no vehicular traffic will be allowed on finish subgrade. Topsoil will not be permitted to be spread until topsoil test reports have been submitted and approved. Topsoil shall not be delivered or worked in a frozen or muddy condition.

B. All topsoil, onsite or offsite, shall be screened to assure appropriate size distribution and mixing of amendment materials such as organics or sand.

1. Other mixing methodologies shall be reviewed with the Landscape Architect.

C. Uniformly distribute and spread topsoil over all graded lawn areas to conform smoothly to the lines, grades, and elevations shown or otherwise required. All lawn areas to have a minimum of six (6) inches of topsoil after finished installation. All approved stockpiled topsoil is to be spread unless otherwise directed by the Landscape Architect. Maintain consistent depths of material throughout the project area.

1. Manually supply topsoil around all trees to remain. Avoid damage to root systems.
2. Uniform topsoil layer is critical.

D. Re-supply and place topsoil to eroded, settled or damaged areas until all lawn areas are stabilized. Care shall be taken not to damage grass or pavement areas in the replacement to topsoil.

3.3 PROTECTION

A. Remove weeds prior to lawn development operations. No weeds shall be allowed to go to seed.

B. Keep heavy equipment, trucks, etc. off topsoil areas at all times.

C. If compaction occurs, scarify to the full depth of the topsoil and regrade topsoil.

D. Utilize only low bearing equipment for field work.

E. Equipment is not permitted on the field when the field is wet or damp.

3.4 EXCESS TOPSOIL

A. Material approved for reuse but not required to be installed remains the property of the Owner and shall be deposited at a location designated by the Owner.

B. Material not approved for reuse remains the property of the Contractor and is to be removed from the site.

End
Section 32 94 00
TOPSOIL

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SECTION 33 41 00 - STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. References to the Standard Specifications for this section shall mean the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 817 supplemented and amended through the date of this project bid.

C. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, DEP Bulletin 34 or as amended through the date of this project bid.

D. 2016 Connecticut State Building Code which includes 2012 International Building Code, 2016 Connecticut Supplement.

E. 2010 ADA Standards for Accessible Design by the Department of Justice dated September 15, 2010 or as amended through the date of this project bid.

1.2 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Nonpressure transition couplings.
3. Yard Drains.
4. Catch Basins.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:

1. Manholes: Include plans, elevations, sections, details, frames, and covers.
2. Catch basins. Include plans, elevations, sections, details, frames, covers, and grates.
3. Yard Drains: Include plans, elevations, sections, details, frames, covers, and grates

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Show pipe sizes, locations, and elevations. Show other piping in same trench and from storm drainage system piping. Indicate interface and spatial relationship between manholes, piping, and proximate structures.

B. Field quality-control reports.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle catch basins according to manufacturer's written rigging instructions.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Do not proceed with interruption of service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PE PIPE AND FITTINGS

A. Corrugated PE Drainage Pipe and Fittings NPS 3 to NPS 10: AASHTO M 252M, Type S, with smooth waterway for coupling joints.

1. Watertight Couplings: AASHTO M 252M, corrugated, matching tube and fittings.

B. Corrugated PE Drainage Pipe and Fittings NPS 3 to NPS 10: AASHTO M 252M, Type SP, with smooth waterway for coupling joints. Perforated for underdrain as indicated on plans.

1. Soiltight Couplings: AASHTO M 252M, corrugated, matching tube and fittings.

C. Corrugated PE Pipe and Fittings NPS 12 to NPS 60: AASHTO M 294M, Type S, with smooth waterway for coupling joints.

1. Watertight Couplings: AASHTO M 294M, corrugated, matching pipe and fittings.

D. Corrugated PE Pipe and Fittings NPS 12 to NPS 60: AASHTO M 294M, Type SP, with smooth waterway for coupling joints. Perforated for infiltration as indicated on plans.

1. Soiltight Couplings: AASHTO M 294M, corrugated, matching pipe and fittings.

2.2 CATCH BASINS

1. ConnDOT standard ‘C’ or ‘C-L’ as indicated on the project plans and details. Type C shall match curb shape indicated on plans and details.

2.3 YARD DRAINS

1. Yard drains shall be circular and constructed of heavy duty PVC materials capable of supporting H-20 loading. Pipe connections shall be factory fabricated with soiltight joints.

2. Frame and cover shall of be of ductile iron material capable of supporting H-20 loading. Cover shall be a minimum of 18” standard slotted grate.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

D. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

E. Install gravity-flow, nonpressure drainage piping according to the following:

1. Install piping pitched down in direction of flow.
2. Install piping with 36-inch minimum cover unless otherwise noted on the plans.
3. Install PE corrugated sewer piping according to ASTM D 2321.

3.3 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure drainage piping according to the following:
1. Join corrugated PE piping according to ASTM D 3212 for push-on joints.
2. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
3. Join dissimilar pipe materials with nonpressure-type flexible couplings.

3.4 CATCH BASIN INSTALLATION

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

3.5 YARD DRAIN INSTALLATION

A. Construct yard drains to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

C. Installation shall be in accordance with manufacturers recommendations

3.6 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318.

3.7 STORMWATER DISPOSAL SYSTEM INSTALLATION

A. Piping Systems: Excavate trenches of width and depth, and install piping system, filter fabric, and backfill, according to piping manufacturer's written instructions.

3.8 CONNECTIONS

A. Make connections to existing piping and underground manholes.

1. Protect existing piping, manholes, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

B. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use nonpressure-type flexible couplings where required to join gravity-flow, nonpressure sewer piping unless otherwise indicated.

a. Shielded flexible couplings for same or minor difference OD pipes.
b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

2. Use pressure-type pipe couplings for force-main joints.

3.9 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with at least 8-inch thick, brick masonry bulkheads.
2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Abandoned Manholes and Structures: Excavate around manholes and structures as required and use one procedure below:

1. Remove manhole or structure and close open ends of remaining piping.
2. Remove top of manhole or structure down to at least 36 inches below final grade. Fill to within 12 inches of top with stone, rubble, gravel, or compacted dirt. Fill to top with concrete.

C. Backfill to grade according to Section 312000 "Earth Moving."

3.10 IDENTIFICATION

A. Materials and their installation are specified in Section 312000 "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

1. Use warning tape or detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.11 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:

    a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
    c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
    d. Infiltration: Water leakage into piping.
    e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:

    a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
    b. Option: Test plastic piping according to ASTM F 1417.
    c. Option: Test concrete piping according to ASTM C 924.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.12 CLEANING

Clean interior of piping of dirt and superfluous materials Flush with water.

End
Section 33 41 00
STORM UTILITY DRAINAGE PIPING

July 17, 2018

Ms. Rebecca Cutler
Environmental Analyst III
State of Connecticut
Department of Administrative Services, Construction Services
Environmental Planning and GIS Unit
450 Columbus Boulevard, Suite 1305
Hartford, Connecticut 06103

RE: Summary of Results
DAS Project Number BI-RT-888
Soil Pre-Characterization Investigation
Henry Abbott Technical High School
Danbury, Connecticut

Dear Ms. Cutler:

WSP USA (WSP) has prepared the following letter to document work conducted in accordance with our proposal to the Connecticut Department of Administrative Services (DAS) dated March 23, 2018 and subsequent purchase order number DASM1-0000014817. The work was conducted in April and May 2018.

Background

The project location is currently developed as Henry Abbott Technical High School. The proposed construction project will involve excavation, site preparation and construction of an approximately 1,800 square foot (footprint) garage building, as shown on plans prepared by Clohessy Harris & Kaiser, LLC, dated February 28, 2018. The scope of services consisted of tasks necessary to obtain and analyze soil samples and evaluate soil quality relative to disposal or reuse.

Site Visit and Site Markout

WSP conducted a site visit with a utility markout subcontractor (Underground Surveying of Brookfield, Connecticut) on April 26, 2018. The focus of the survey was three proposed boring locations that were selected to represent the proposed foundation excavation (borings B1, B2, and B3, figure 1) and near the proposed storm-sewer excavation (boring B3). Possible underground interference was noted approximately 10 feet to the west of the final B1 location, so the boring location was adjusted to the position shown on the attached figure 1.

After the boring locations were cleared and marked, the remainder of the proposed building footprint was surveyed using ground-penetrating radar. The only utility noted in the area was the stormwater drainage pipe below the proposed building area, consistent with the site plans. An electric line runs from the southeast corner of the garage to the electric light pole to the south of the building area. This line was significantly distant from the subject area. A small unknown linear feature was found in the area between B-3 and the stormwater drain. No additional consistent-depth, linear detections were noted. Strong reflections were noted at some locations, but due to the variable nature and non-linear alignment, the detections were interpreted to be either boulders or debris in the fill.

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Pre-Characterization Soil Sampling

Borings were drilled at the cleared locations on May 9, 2018 by Seaboard Drilling of Chicopee, Massachusetts. Each boring was drilled to a depth of 5 feet below grade (ft bg) using the direct-push drilling method. Soil samples were screened in the field with a photoionization detector (PID) and soil descriptions were logged. Four soil samples were collected, placed into laboratory-supplied glassware, labelled and placed on ice in the field. The samples were hand-delivered to Phoenix Environmental Laboratory of Manchester, Connecticut on the date of collection. Samples were collected and submitted for laboratory analysis, as noted below, and the 1 to 5 ft bg sample from B-2 was submitted to the laboratory and placed on hold for possible future analysis.

Boring Number	Sample Depth (ft bg)	Laboratory Analyses
B1	1.4	VOC
B1	1-5	SVOC, PCB, RCRA 8 metals, ETPH, herbicides, pesticides
B2	1-5	on hold; no analyses requested
B3	2.3	VOC
B3	1-5	SVOC, PCB, RCRA 8 metals, ETPH, herbicides, pesticides, waste-characterization parameters
B3	0.5	VOC
B1-3*	0-1	SVOC, PCB, RCRA 8 metals, ETPH, herbicides, pesticides

Ft bg feet below grade
VOC volatile organic compounds by Method 8260
SVOC semi-volatile organic compounds by Method 8270
PCB polychlorinated biphenyls by Method 8082, Soxhlet extraction
RCRA 8 metals – arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver
ETPH Connecticut extractable total petroleum hydrocarbons
Herbicides by Method 8151
Pesticides by Method 8081
* sample is a composite from 0 to 1 ft bg at borings B-1, B-2 and B-3
Waste-characterization parameters include corrosivity/pH, ignitability/flashpoint, reactivity, Paint Filter Test

Samples were analyzed as noted above using Connecticut Reasonable Confidence Protocol methods, where appropriate. The approximate boring locations (triangulated in the field from fixed points) are shown on figure 1.

Sample Analytical Data

The borings encountered topsoil overlying sand ranging in grain size from fine to coarse with gravel in some places. There were no odors, stains or positive PID readings noted. Boring logs are included in Appendix I.

The analytical results for the soil samples are summarized on the attached table 1 and the laboratory report is provided in Appendix II. In general, there was little, if any, indication of contamination. VOCs, SVOCs, ETPH, herbicides and PCBs were not detected in any samples. The concentrations of metals were all less than the residential DEC[1] and at typical background levels.

The pesticide 4,4-DDT was the only constituent detected, the presence of which could be considered evidence of contamination. 4,4-DDT is a pesticide, the use of which was banned in the United States in 1972, however, it is common in former agricultural soils due to its persistence. Criteria for 4,4-

[1] From the Remediation Standard Regulations, Regulations of Connecticut State Agencies, Section 22a-133k-1 through 3.

DDT are not established in Connecticut's Remediation Standard Regulations (RSRs). However, CTDEEP has published 'recommended' criteria for the total concentration of 4,4-DDT and its metabolites, DDD and DDE. 4,4-DDT was reported at a trace concentration (2.2 milligrams per kilogram, ug/kg), less than the CTDEEP-recommended Direct Exposure Criteria (DEC) and GA Pollutant Mobility Criteria of 1,800 ug/kg and 3 ug/kg, respectively, in one composite sample, B1-3(0-1.0). Note that B1-3 (0-1.0) was a composite sample of the upper approximately 1 foot of soil at the three boring locations, so it is possible that the DDT concentrations in the individual subsamples may be different than the composite sample result.

Sample B-3(1.0-5.0) was also analyzed for waste-characterization parameters consistent with the Resource Conservation and Recovery Act (RCRA) to determine if the soil, if generated as a waste, would be a characteristic hazardous waste (ignitable, corrosive or reactive) under RCRA. This testing also included the Paint Filter Test for free liquids, which is also often required for approval of non-hazardous wastes at disposal facilities. The testing confirmed that the soil would not meet the definition of a RCRA characteristic hazardous waste (ignitable, corrosive or reactive) and there were no free liquids.

Soil Reuse and Disposal Options

Soil such as this would be expected to be accepted at most landfills and disposal facilities. One exception might be facilities such as Clean Earth of Connecticut (formerly Phoenix Soils, LLC) which accepts only hydrocarbon-contaminated soil.

Soil reuse would be governed by the definitions of "clean fill" and "natural soil" in Connecticut's solid waste regulations (Regulations of Connecticut State Agencies, RCSA, Section 22a-209-1)[2]. The presence of even a trace concentration of DDT may necessitate additional sampling to permit unrestricted reuse or soils may be suitable for on-site reuse under the conditions referenced in the definition of "clean fill" in the solid waste regulations and as described in RCSA Section 22a-133k-2(h)(3)[3].

---

[2] RCSA Section 22a-209-1: "'Clean fill" means (1) natural soil (2) rock, brick, ceramics, concrete, and asphalt paving fragments which are virtually inert and pose neither a pollution threat to ground or surface waters nor a fire hazard and (3) polluted soil as defined in subdivision (45) of subsection (a) of section 22a-133k-1 of the Regulations of Connecticut State Agencies which soil has been treated to reduce the concentration of pollutants to levels which do not exceed the applicable pollutant mobility criteria and direct exposure criteria established in sections 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies and which soil is reused in accordance with R.C.S.A. Subdivision (3) of Subsection (h) of Section 22a-133k-2 of such regulations."

" "Natural soil" means soil in which all substances naturally occurring therein are present in concentrations not exceeding the concentrations of such substance occurring naturally in the environment and in which soil no other substance is analytically detectable. For the purpose of this definition, substance shall have the same meaning as in Section 22a-133k-1 of the Regulations of Connecticut State Agencies."

[3](3) Polluted soil.

Polluted soil from a release area may be treated to achieve concentrations of substances that do not exceed either the applicable direct exposure criteria or pollutant mobility criteria. After such treatment, such soil may be reused on the parcel from which it was excavated or on another parcel approved by the Commissioner, provided that such reuse is consistent with all other provisions of Sections 22a-133k-1 through 22a-133k-3, inclusive, of the Regulations of Connecticut State Agencies and:

(A) Prior to reuse, a map showing the location and depth of proposed placement of such soil is submitted to the Commissioner;

(B) Such soil is not placed below the water table;

(C) Such soil is not placed in an area subject to erosion; and

(D) Any such soil in which the concentration of any substance exceeds the pollutant mobility criteria applicable to a GA area is not placed over soil and ground water which have not been affected by a release at the parcel at which placement is proposed; and

(E) For soils polluted with PCB, the Commissioner has issued a written approval in accordance with by Section 22a-467 of the General Statutes.

Estimate of Soil Quantities

The building will be constructed on a concrete foundation on spread footings with a concrete floor, as shown on the plans. In addition, a storm sewer will be relocated to outside the north and northeast sides of the proposed building. WSP estimated the quantity of soil that might be excavated during construction activities as follows:

Foundation

Accounting strictly for the foundation walls, insulation, spread footings, piers and gravel base material, the minimum excess soil volume is estimated at 40 cubic yards (cy), assuming reuse of all excavated material, where possible. Assuming a 24-inch-wide and 4-foot-deep excavation (average) over a total length of 178 lineal feet, and allowing 20% for the piers and associated footings, the volume is estimated at approximately 60 cy.

Floor Slab and Subbase

Assuming a floor area of 1,740 sf and a thickness of 11 inches for the floor (8 inches of concrete plus 3 inches of insulation) and 6 inches for the subbase, the total volume is approximately 90 cy. This does not account for the pitch of the floor or the final floor elevation relative to surrounding grade level, so this is expected to be an over estimate. Offsetting that is the additional excavation required to anchor the edges of the slab at the six overhead door aprons.

Storm Sewer

Approximately 70 lineal feet of storm sewer pipe and three catch basins will be installed. The 12-inch diameter pipe will be at least 4.5 ft bg and will be surrounded by 12 inches of crushed stone backfill; in areas that will be paved, it is assumed that imported structural fill will be used as backfill instead of the native material. The volume of excess soil is estimated at 50 cy.

The total of the above estimated volumes is approximately 180 to 200 cy. Not included in the above calculations is excess soil associated with the following: installation of buried utility services to the building; fire hydrant relocation; changes in grade; and installation of additional asphalt or the dumpster pad.

Thank you for the opportunity to provide these services. Please contact Michael Susca or William Beckman at 860-678-0404 if you have any questions.

Kind Regards,

WSP USA

Michael Susca, CPG, LEP
Supervising Hydrogeologist

Reviewed by:

William K. Beckman, PE, LEP
Senior Supervising Engineer

H:\CT DAS\Henry Abbott Technical High School\Rpt\Draft Summary report.docx

TABLE

TABLE 1

CONNECTICUT DEPARTMENT OF ADMINISTRATIVE SERVICES - CONSTRUCTION SERVICES
HENRY ABBOTT TECHNICAL HIGH SCHOOL
DANBURY, CONNECTICUT

Summary of Laboratory Analytical Results - Soil Samples

Sample ID	VOC by Method 8260	SVOC by Method 8270C	PCB by Method 8082 (Soxhlet extr.) (mg/kg)	Metals (mg/kg)								ETPH (mg/kg)	Pesticides by Method 8081	Herbicides by Method 8151	Waste Characterization Parameters							
				Silver	Arsenic	Barium	Cadmium	Total Chromium	Mercury	Lead	Selenium		4,4-DDT (total) (ug/kg)		Corrosivity	pH (pH units)	Ignitability	Flashpoint (degrees Fahrenheit)	Reactivity	Reactive Cyanide (mg/kg)	Reactive Sulfides (mg/kg)	Paint Filter Test
Residential Direct Exposure Criteria	*	*	1 (total PCB)	340	10	4,700	34	100 (as Cr^{+6})	20	400	340	500	NE/1,800	*	NA	NA	NA	NA	NA	NA	NA	NA
Industrial/Commercial Direct Exposure Criteria	*	*	**	10,000	10	140,000	1,000	100 (as Cr^{+6})	610	1,000	10,000	2,500	NE/17,000	*	NA	NA	NA	NA	NA	NA	NA	NA
GA Pollutant Mobility Criteria	*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	500	NE/3	*	NA	NA	NA	NA	NA	NA	NA	NA
B1 (1.4)	ND	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B1 (1.0-5.0)	–	ND	ND<0.35^	<0.34	1.8	88.1	<0.34	16.3	0.06	4.05	<1.4	<52	ND<1.4	ND	–	–	–	–	–	–	–	–
B3 (2.3)	ND	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B3 (1.0-5.0)	–	ND	ND<0.34^	<0.33	2.17	59.7	<0.33	11	<0.03	3.94	<1.3	<52	ND<1.4	ND	Negative	9.92	Pass	>200	Negative	<5	<20	Pass
B3 (0.50)	ND	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B1-3 (0-1.0)	–	ND	ND<0.36^	<0.38	1.62	43.4	<0.38	16.4	0.06	13.3	<1.5	<53	2.2	ND	–	–	–	–	–	–	–	–

VOC	Volatile organic compounds
SVOC	Semi-volatile organic compounds
PCB	Polychlorinated biphenyls
ETPH	Connecticut extractable total petroleum hydrocarbons
ND	Not detected; reporting limits may vary with individual compound, none were detected
ND<	Not detected above reporting limit indicated
–	Sample was not analyzed for this constituent
mg/kg	milligrams per kilogram
ug/kg	micrograms per kilogram
*	Criteria vary by compound
**	The industrial/commercial Direct Exposure Criterion for PCB of 10 mg/kg applies only under limited conditions that are not met at this site.
NA	Criteria do not apply the results of this analysis.
^	Reporting limit is for individual aroclors; none were detected
NE/xxx	Criterion for this analyte is not established (NE) in the Remediation Standard Regulations (RSRs). Criteria from CTDEEP's "Technical Support Document: Recommended Numerical Criteria for Common Additional Polluting Substances and Certain Alternative Criteria," December 10, 2015 (revised January 27, 2017) are provided where criteria are not established in the 2013 RSRs, as these criteria are useful for comparison purposes in data evaluation. At this time, these criteria appear to be CTDEEP's default criteria, but use of these criteria are subject to site-specific approval. Criteria applies to all forms of 4,4,-DDT including DDD and DDE.

FIGURE

PROPOSED RELOCATED STORM DRAIN AND CATCH BASINS

PROPOSED NEW DUMPSTER PAD (8x10)

PROPOSED RELOCATED HYDRANT

B2

B3

PROPOSED NEW PAVEMENT

EXISTING HYDRANT LINE

PROPOSED GARAGE

EXISTING STORM DRAIN AND CATCH BASINS

PROPOSED NEW PAVEMENT

B1

EXISTING GARAGE

0 10

SCALE IN FEET

LEGEND

B1 APPROXIMATE BORING LOCATION

SOURCES:
1. O&G INDUSTRIES, INC. "GENERAL LOCATION SURVEY" SHEET NO. 1.
2. CLOHESSY HARRIS & KAISER, LLC "SITE PLAN AND DETAILS" DRAWING NO. C.01, REVISION DATE 2/28/18.

CONNECTICUT DEPARTMENT OF ADMINISTRATIVE SERVICES
HENRY ABBOTT TECHNICAL HIGH SCHOOL
DANBURY, CONNECTICUT

BORING LOCATION MAP

DATE	REVISED

PREPARED BY:
WSP USA
6 Executive Drive
Suite 109
Farmington, Connecticut 06032
(860) 678-0404

DRAWN:	RAC	CHECKED:	MS	DATE:	06/08/18	FIGURE:	1

APPENDIX I

BORING LOGS

GEOLOGIC LOG
WSP USA
FARMINGTON, CONNECTICUT

OWNER: CT DAS

BORING NO: B-1

PAGE 1 **OF** 1 **PAGE**

SITE LOCATION: Henry Abbott Technical High School
Danbury, CT

SCREEN SIZE & TYPE: -- **SLOT NO:** --
SETTING: --

DATE COMPLETED: May 9, 2018

SAND PACK SIZE & TYPE: --
SETTING: --

DRILLING COMPANY: Seaboard Drilling
Chicopee, MA

CASING SIZE & TYPE: --
SETTING: --

DRILLING METHOD: Direct Push (Geoprobe)

SAMPLING METHOD: Macrocore (MC)

SEAL TYPE: --
SETTING: --

OBSERVER: Ashley Espinoza

REFERENCE POINT (RP): Grade

BACKFILL TYPE: Native soil/sand

ELEVATION OF RP: ---

STATIC WATER LEVEL: --

STICK-UP:

DEVELOPMENT METHOD: --

SURFACE COMPLETION: Backfilled to grade

DURATION: -- **YIELD:** --

REMARKS: Vials collected from 1.4 ft bg at 0940. Sample from 1-5 ft bg at 0945.

GPS COORDINATES:

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID READING (PPM)	DESCRIPTION
0	5	MC	--	2.7	0	0-0.5 ft: SAND, fine; organic material, brown, dry.
						0.5-0.8 ft: GRAVEL, medium, angular; trace silt; white, dry.
						0.8-2.0 ft: SAND, fine to medium; little gravel, brown, dry.
						2.0-2.2 ft: SAND, fine; some gravel; angular to subangular; gray; dry.
						2.2-2.5 ft: SAND, fine; little cobbles; brown, dry.
						2.5-2.7 ft: SAND, fine to medium; some gravel; brown, dry.
						End of boring at 5 ft bg.

GEOLOGIC LOG
WSP USA
FARMINGTON, CONNECTICUT

OWNER: CT DAS

BORING NO: B-2

PAGE 1 **OF** 1 **PAGE**

SITE LOCATION: Henry Abbott Technical High School Danbury, CT	**SCREEN SIZE & TYPE:** -- **SLOT NO:** -- **SETTING:** --
DATE COMPLETED: May 9, 2018	**SAND PACK SIZE & TYPE:** --
DRILLING COMPANY: Seaboard Drilling Chicopee, MA	**SETTING:** -- **CASING SIZE & TYPE:** --
DRILLING METHOD: Direct Push (Geoprobe)	**SETTING:** --
SAMPLING METHOD: Macrocore (MC)	**SEAL TYPE:** --
OBSERVER: Ashley Espinoza	**SETTING:** --
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Native -
ELEVATION OF RP: ---	**STATIC WATER LEVEL:** --
STICK-UP:	**DEVELOPMENT METHOD:** --
SURFACE COMPLETION: Backfilled	**DURATION:** -- **YIELD:** --
REMARKS: Vials collected from 1.2 ft bg at 1005.	
GPS COORDINATES:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID READING (PPM)	DESCRIPTION
0	5	MC	--	2.2	0.0	0-0.75 ft: SAND, fine rounded gravel; organic material, dry.
						0.75-1.0 ft: GRAVEL, coarse, angular to subangular; white, dry.
						1.0-1.3 ft: SAND, coarse; some subangular gravel; brown, dry.
						1.3-1.6 ft: GRAVEL, angular to subangular; white, dry.
						1.6-2.1 ft: SAND, coarse; coarse gravel, brown, dry.
						2.1-2.3 ft: SAND, fine; some gravel, angular to subangular; brown, dry.
						End of boring at 5 ft bg.

GEOLOGIC LOG
WSP USA
FARMINGTON, CONNECTICUT

OWNER: CT DAS

BORING NO: B-3

PAGE 1 **OF** 1 **PAGE**

SITE LOCATION: Henry Abbott Technical High School Danbury, CT	**SCREEN SIZE & TYPE:** -- **SLOT NO:** -- **SETTING:** --
DATE COMPLETED: May 9, 2018	**SAND PACK SIZE & TYPE:** --
DRILLING COMPANY: Seaboard Drilling Chicopee, MA	**SETTING:** --
	CASING SIZE & TYPE: --
DRILLING METHOD: Direct Push (Geoprobe)	**SETTING:** --
SAMPLING METHOD: Macrocore (MC)	**SEAL TYPE:** --
OBSERVER: Ashley Espinoza	**SETTING:** --
REFERENCE POINT (RP): Grade	**BACKFILL TYPE:** Native
ELEVATION OF RP: ---	**STATIC WATER LEVEL:** --
STICK-UP:	**DEVELOPMENT METHOD:** --
SURFACE COMPLETION: Backfilled	**DURATION:** -- **YIELD:** --
REMARKS: Vials collected from 2.3 ft bg at 1030, Samples 1-5 ft bg at 1035.	
GPS COORDINATES:	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET) FROM	DEPTH (FEET) TO	SAMPLE TYPE	BLOW COUNT	REC. (FEET)	PID READING (PPM)	DESCRIPTION
0	5	MC	--	2.55	0	0-0.8 ft: SAND, coarse; little subangular gravel; brown, dry.
						0.8-1.05 ft: GRAVEL, angular to subangular; trace silt; white, dry.
						1.05-2.5 ft: SAND, fine to coarse; some angular to subangular gravel; brown, dry.
						End of boring at 5 ft bg.

APPENDIX II

LABORATORY REPORT

APPENDIX II

CONNECTICUT DEPARTMENT OF ADMINISTRATIVE SERVICES - CONSTRUCTION SERVICES
HENRY ABBOTT TECHNICAL HIGH SCHOOL
DANBURY, CONNECTICUT

Laboratory Analytical Data Quality/Usability Evaluation Summary Table

Laboratory Report Number	Sample Numbers	Date Collected	Analyses Requested	Holding Times Met?	Temperature Acceptable on Receipt	COC Form Complete	Duplicate Performance	Conditions with "No" on Certification Form	Significant Quality Assurance Issues Noted by Laboratory in Narrative	Data Usability Evaluation
GCA44525	B1(1.4), B1(1.0-5.0), B3(2.3), B3(1.0-5.0), B3(0.50), B1-3(0-1)	5/9/2018	VOC M8260, SVOC M8270, PCB M8082, Pesticides M8081, herbicides M8051, metals (RCRA), CTETPH, corrosivity, ignitability, reactivity, paint filter test	Y	Y	Y	NA	4, 6	Cyanide: no issues **ETPH: RPD for MS/MSD exceeds criteria for a surrogate, so there may be variability in the result (non-directional bias).** Herbicides: no issues Mercury: no issues PCB: no issues Pesticides: no issues **SVOCs: Low bias possible for pyridine, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, benzoic acid due to poor recoveries in QC samples or LCS/LCSD. Non-directional bias possible for 2,4-dinitrolphenol, 4,6-dinitro-2-methylphenol, benzoic acic, bis(2-chloroisopropyl) ether, hexachlorocyclopentadiene, pentachlorophenol) due to MS/MSD and/or LCS/LCSD RPD exceeding method criteria.** **VOCs: Low bias is possible for acetone due to low LCS and/or LCSD recovery.** Metals: no issues	QC issues cited by lab are for compounds that were not detected, so non-directional bias is not regarded as an issue. Low bias could be a potential issue, but none of the listed compounds were detected at any concentration in any sample, sothe data are still considered usable.

COC = chain of custody form
RCP = Reasonable Confidence Protocols
RCP Laboratory Certification Form - notes for "no" responses
1A - method specific preservation and/or holding time requirement was not met
4 - all QA/QC performance criteria were not achieved
5A - reporting limits were not specified on chain of custody form
5B - reporting limits specified were not met
6 - results were not reported for all constituents on method-specific analyte lists
7 - site-specific matrix spikes and duplicates were not included
NA = not applicable; field duplicate sample not collected

RPD = relative percent difference
LCS/LCSD = laboratory control sample/laboratory control sample duplicate
MS/MSD = matrix spike/matrix spike duplicate
ETPH = Connecticut extractable total petroleum hydrocarbons
VOCs = volatile organic compounds, Method 8260
PAH = polynuclear aromatic hydrocarbons
SPLP = Synthetic Precipitation Leaching Procedure
ND = not detected, none detected
RL = reporting limit

PHOENIX
Environmental Laboratories, Inc.

Thursday, May 17, 2018

Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Project ID: HATHS
Sample ID#s: CA44525 - CA44526, CA44529 - CA44532

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

SDG Comments

May 17, 2018

SDG I.D.: GCA44525

Metals Analysis:
The client requested a site specific list of elements which is shorter than the 6010 RCP list.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 17, 2018

FOR: Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		05/09/18	9:40
Location Code:	WSP-DAS	Received by:	CP	05/10/18	12:44
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCA44525
Phoenix ID: CA44525

Project ID: HATHS
Client ID: B1 (1.4)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	94	1	%		05/10/18	AP	SW846-%Solid
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,1-Trichloroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,2-Trichloroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloroethene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloropropene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,3-Trichloropropane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dibromoethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichlorobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichloroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichloropropane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,3-Dichlorobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,3-Dichloropropane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
1,4-Dichlorobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
2,2-Dichloropropane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
2-Chlorotoluene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
2-Hexanone	ND	24	ug/Kg	1	05/11/18	JLI	SW8260C
2-Isopropyltoluene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
4-Chlorotoluene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C

Project ID: HATHS
Client ID: B1 (1.4)

Phoenix I.D.: CA44525

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
4-Methyl-2-pentanone	ND	24	ug/Kg	1	05/11/18	JLI	SW8260C
Acetone	ND	240	ug/Kg	1	05/11/18	JLI	SW8260C
Acrylonitrile	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Benzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Bromobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Bromochloromethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Bromodichloromethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Bromoform	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Bromomethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Carbon Disulfide	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Carbon tetrachloride	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Chlorobenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Chloroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Chloroform	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Chloromethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
cis-1,2-Dichloroethene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
cis-1,3-Dichloropropene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Dibromochloromethane	ND	2.9	ug/Kg	1	05/11/18	JLI	SW8260C
Dibromomethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Dichlorodifluoromethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Ethylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Hexachlorobutadiene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Isopropylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
m&p-Xylene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Methyl Ethyl Ketone	ND	29	ug/Kg	1	05/11/18	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	9.8	ug/Kg	1	05/11/18	JLI	SW8260C
Methylene chloride	ND	9.8	ug/Kg	1	05/11/18	JLI	SW8260C
Naphthalene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
n-Butylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
n-Propylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
o-Xylene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
p-Isopropyltoluene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
sec-Butylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Styrene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
tert-Butylbenzene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Tetrachloroethene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Tetrahydrofuran (THF)	ND	9.8	ug/Kg	1	05/11/18	JLI	SW8260C
Toluene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Total Xylenes	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,2-Dichloroethene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,3-Dichloropropene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	9.8	ug/Kg	1	05/11/18	JLI	SW8260C
Trichloroethene	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Trichlorofluoromethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Trichlorotrifluoroethane	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
Vinyl chloride	ND	4.9	ug/Kg	1	05/11/18	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	95		%	1	05/11/18	JLI	70 - 130 %
% Bromofluorobenzene	97		%	1	05/11/18	JLI	70 - 130 %

Project ID: HATHS
Client ID: B1 (1.4)

Phoenix I.D.: CA44525

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Dibromofluoromethane	108		%	1	05/11/18	JLI	70 - 130 %
% Toluene-d8	88		%	1	05/11/18	JLI	70 - 130 %
Field Extraction	Completed				05/09/18		SW5035A

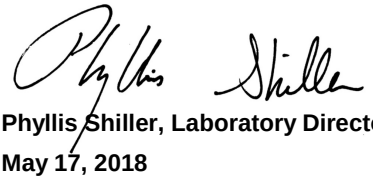
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
May 17, 2018
Reviewed and Released by: Maryam Taylor, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 17, 2018

FOR: Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		05/09/18	9:45
Location Code:	WSP-DAS	Received by:	CP	05/10/18	12:44
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCA44525
Phoenix ID: CA44526

Project ID: HATHS
Client ID: B1 (1.0-5.0)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.34	0.34	mg/Kg	1	05/11/18	MA	SW6010C
Arsenic	1.80	0.68	mg/Kg	1	05/11/18	MA	SW6010C
Barium	88.1	0.34	mg/Kg	1	05/11/18	MA	SW6010C
Cadmium	< 0.34	0.34	mg/Kg	1	05/11/18	MA	SW6010C
Chromium	16.3	0.34	mg/Kg	1	05/11/18	MA	SW6010C
Mercury	0.06	0.03	mg/Kg	1	05/14/18	RS	SW7471B
Lead	4.05	0.34	mg/Kg	1	05/11/18	MA	SW6010C
Selenium	< 1.4	1.4	mg/Kg	1	05/11/18	MA	SW6010C
Percent Solid	94		%		05/10/18	AP	SW846-%Solid
Soil Extraction for Pesticide	Completed				05/10/18	JA/V	SW3545A
Soil Extraction for SVOA	Completed				05/10/18	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				05/10/18	BC/VCK	SW3545A
Mercury Digestion	Completed				05/14/18	I/W	SW7471B
Soil Extraction for Herbicide	Completed				05/10/18	S/D	SW8151A
Extraction for PCB	Completed				05/10/18	X/OR/KL	SW3540C
Total Metals Digest	Completed				05/10/18	CK/AG	SW3050B
Chlorinated Herbicides							
2,4,5-T	ND	88	ug/Kg	10	05/14/18	CW	SW8151A
2,4,5-TP (Silvex)	ND	88	ug/Kg	10	05/14/18	CW	SW8151A
2,4-D	ND	180	ug/Kg	10	05/14/18	CW	SW8151A
2,4-DB	ND	1800	ug/Kg	10	05/14/18	CW	SW8151A
Dalapon	ND	88	ug/Kg	10	05/14/18	CW	SW8151A
Dicamba	ND	88	ug/Kg	10	05/14/18	CW	SW8151A
Dichloroprop	ND	180	ug/Kg	10	05/14/18	CW	SW8151A
Dinoseb	ND	180	ug/Kg	10	05/14/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	63		%	10	05/14/18	CW	30 - 150 %

Ver 1

Project ID: HATHS
Client ID: B1 (1.0-5.0)

Phoenix I.D.: CA44526

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	52	mg/Kg	1	05/11/18	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	05/11/18	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	78		%	1	05/11/18	JRB	50 - 150 %
PCB (Soxhlet SW3540C)							
PCB-1016	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1221	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1232	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1242	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1248	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1254	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1260	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1262	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1268	ND	350	ug/Kg	10	05/11/18	AW	SW8082A
QA/QC Surrogates							
% DCBP	65		%	10	05/11/18	AW	30 - 150 %
% TCMX	68		%	10	05/11/18	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
4,4' -DDE	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
4,4' -DDT	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
a-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Alachlor	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Aldrin	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
b-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Chlordane	ND	35	ug/Kg	2	05/11/18	CW	SW8081B
d-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Dieldrin	ND	3.5	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan I	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan II	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan sulfate	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endrin	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endrin aldehyde	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endrin ketone	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
g-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Heptachlor	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Heptachlor epoxide	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Methoxychlor	ND	35	ug/Kg	2	05/11/18	CW	SW8081B
Toxaphene	ND	140	ug/Kg	2	05/11/18	CW	SW8081B
QA/QC Surrogates							
% DCBP	68		%	2	05/11/18	CW	30 - 150 %
% TCMX	65		%	2	05/11/18	CW	30 - 150 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	100	ug/Kg	1	05/10/18	DD	SW8270D
1,2,4-Trichlorobenzene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D

Project ID: HATHS
Client ID: B1 (1.0-5.0)

Phoenix I.D.: CA44526

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
1,2-Diphenylhydrazine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
1,3-Dichlorobenzene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
1,4-Dichlorobenzene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2,4,5-Trichlorophenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2,4,6-Trichlorophenol	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
2,4-Dichlorophenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2,4-Dimethylphenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2,4-Dinitrophenol	ND	300	ug/Kg	1	05/10/18	DD	SW8270D
2,4-Dinitrotoluene	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
2,6-Dinitrotoluene	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
2-Chloronaphthalene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2-Chlorophenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2-Methylnaphthalene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2-Methylphenol (o-cresol)	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
2-Nitroaniline	ND	300	ug/Kg	1	05/10/18	DD	SW8270D
2-Nitrophenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	350	ug/Kg	1	05/10/18	DD	SW8270D
3,3'-Dichlorobenzidine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
3-Nitroaniline	ND	300	ug/Kg	1	05/10/18	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	300	ug/Kg	1	05/10/18	DD	SW8270D
4-Bromophenyl phenyl ether	ND	350	ug/Kg	1	05/10/18	DD	SW8270D
4-Chloro-3-methylphenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
4-Chloroaniline	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
4-Nitroaniline	ND	300	ug/Kg	1	05/10/18	DD	SW8270D
4-Nitrophenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Acenaphthene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Acenaphthylene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Acetophenone	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Aniline	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
Anthracene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Benz(a)anthracene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Benzidine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
Benzo(a)pyrene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Benzo(b)fluoranthene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Benzo(ghi)perylene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Benzo(k)fluoranthene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Benzoic acid	ND	700	ug/Kg	1	05/10/18	DD	SW8270D
Benzyl butyl phthalate	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Bis(2-chloroethyl)ether	ND	350	ug/Kg	1	05/10/18	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Carbazole	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
Chrysene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Dibenz(a,h)anthracene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Dibenzofuran	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
Diethyl phthalate	ND	250	ug/Kg	1	05/10/18	DD	SW8270D

Project ID: HATHS
Client ID: B1 (1.0-5.0)

Phoenix I.D.: CA44526

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dimethylphthalate	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Di-n-butylphthalate	ND	700	ug/Kg	1	05/10/18	DD	SW8270D
Di-n-octylphthalate	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Fluoranthene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Fluorene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Hexachlorobenzene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Hexachlorobutadiene	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
Hexachlorocyclopentadiene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Hexachloroethane	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Isophorone	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Naphthalene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Nitrobenzene	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
N-Nitrosodimethylamine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
N-Nitrosodiphenylamine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
Pentachloronitrobenzene	ND	140	ug/Kg	1	05/10/18	DD	SW8270D
Pentachlorophenol	ND	350	ug/Kg	1	05/10/18	DD	SW8270D
Phenanthrene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Phenol	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Pyrene	ND	250	ug/Kg	1	05/10/18	DD	SW8270D
Pyridine	ND	200	ug/Kg	1	05/10/18	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	74		%	1	05/10/18	DD	30 - 130 %
% 2-Fluorobiphenyl	79		%	1	05/10/18	DD	30 - 130 %
% 2-Fluorophenol	73		%	1	05/10/18	DD	30 - 130 %
% Nitrobenzene-d5	69		%	1	05/10/18	DD	30 - 130 %
% Phenol-d5	80		%	1	05/10/18	DD	30 - 130 %
% Terphenyl-d14	83		%	1	05/10/18	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Semi-Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
May 17, 2018
Reviewed and Released by: Maryam Taylor, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 17, 2018

FOR: Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		05/09/18	10:30
Location Code:	WSP-DAS	Received by:	CP	05/10/18	12:44
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCA44525
Phoenix ID: CA44529

Project ID: HATHS
Client ID: B3 (2.3)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,1-Trichloroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.8	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,2-Trichloroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloroethene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloropropene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,3-Trichloropropane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dibromoethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichlorobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichloroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichloropropane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,3-Dichlorobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,3-Dichloropropane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
1,4-Dichlorobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
2,2-Dichloropropane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
2-Chlorotoluene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
2-Hexanone	ND	23	ug/Kg	1	05/11/18	JLI	SW8260C
2-Isopropyltoluene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
4-Chlorotoluene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
4-Methyl-2-pentanone	ND	23	ug/Kg	1	05/11/18	JLI	SW8260C

Project ID: HATHS
Client ID: B3 (2.3)

Phoenix I.D.: CA44529

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	230	ug/Kg	1	05/11/18	JLI	SW8260C
Acrylonitrile	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Benzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Bromobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Bromochloromethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Bromodichloromethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Bromoform	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Bromomethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Carbon Disulfide	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Carbon tetrachloride	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Chlorobenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Chloroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Chloroform	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Chloromethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
cis-1,2-Dichloroethene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
cis-1,3-Dichloropropene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Dibromochloromethane	ND	2.8	ug/Kg	1	05/11/18	JLI	SW8260C
Dibromomethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Dichlorodifluoromethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Ethylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Hexachlorobutadiene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Isopropylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
m&p-Xylene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Methyl Ethyl Ketone	ND	28	ug/Kg	1	05/11/18	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	9.3	ug/Kg	1	05/11/18	JLI	SW8260C
Methylene chloride	ND	9.3	ug/Kg	1	05/11/18	JLI	SW8260C
Naphthalene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
n-Butylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
n-Propylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
o-Xylene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
p-Isopropyltoluene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
sec-Butylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Styrene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
tert-Butylbenzene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Tetrachloroethene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Tetrahydrofuran (THF)	ND	9.3	ug/Kg	1	05/11/18	JLI	SW8260C
Toluene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Total Xylenes	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,2-Dichloroethene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,3-Dichloropropene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	9.3	ug/Kg	1	05/11/18	JLI	SW8260C
Trichloroethene	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Trichlorofluoromethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Trichlorotrifluoroethane	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
Vinyl chloride	ND	4.7	ug/Kg	1	05/11/18	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	96		%	1	05/11/18	JLI	70 - 130 %
% Bromofluorobenzene	98		%	1	05/11/18	JLI	70 - 130 %
% Dibromofluoromethane	107		%	1	05/11/18	JLI	70 - 130 %

Project ID: HATHS
Client ID: B3 (2.3)

Phoenix I.D.: CA44529

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	90		%	1	05/11/18	JLI	70 - 130 %
Field Extraction	Completed				05/09/18		SW5035A

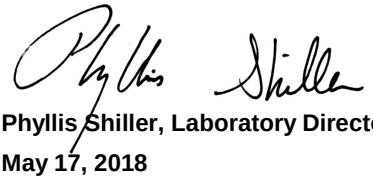
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
May 17, 2018
Reviewed and Released by: Maryam Taylor, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 17, 2018

FOR: Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		05/09/18	10:35
Location Code:	WSP-DAS	Received by:	CP	05/10/18	12:44
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCA44525
Phoenix ID: CA44530

Project ID: HATHS
Client ID: B3 (1.0-5.0)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.33	0.33	mg/Kg	1	05/11/18	MA	SW6010C
Arsenic	2.17	0.67	mg/Kg	1	05/11/18	MA	SW6010C
Barium	59.7	0.33	mg/Kg	1	05/11/18	MA	SW6010C
Cadmium	< 0.33	0.33	mg/Kg	1	05/11/18	MA	SW6010C
Chromium	11.0	0.33	mg/Kg	1	05/11/18	MA	SW6010C
Mercury	< 0.03	0.03	mg/Kg	1	05/14/18	RS	SW7471B
Lead	3.94	0.33	mg/Kg	1	05/11/18	MA	SW6010C
Selenium	< 1.3	1.3	mg/Kg	1	05/11/18	MA	SW6010C
Percent Solid	95		%		05/10/18	AP	SW846-%Solid
Corrosivity	Negative		Pos/Neg	1	05/10/18	O	SW846-Corr
Flash Point	>200	200	Degree F	1	05/11/18	Y	SW1010A
Ignitability	Passed	140	degree F	1	05/11/18	Y	SW846-Ignit
pH at 25C - Soil	9.92	1.00	pH Units	1	05/10/18 19:55	O	SW9045
Reactivity Cyanide	< 5	5	mg/Kg	1	05/15/18	Q/GD	SW846-ReactCyn
Reactivity Sulfide	< 20	20	mg/Kg	1	05/15/18	Q/GD	SW-7.3
Reactivity	Negative		Pos/Neg	1	05/15/18	Q/GD	SW846-React
Soil Extraction for Pesticide	Completed				05/10/18	JA/V	SW3545A
Soil Extraction for SVOA	Completed				05/10/18	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				05/10/18	BC/VCK	SW3545A
Mercury Digestion	Completed				05/14/18	I/W	SW7471B
Paint Filter Test	Passed		PASS/FAIL		05/10/18	J	SW9095B
Soil Extraction for Herbicide	Completed				05/10/18	S/D	SW8151A
Extraction for PCB	Completed				05/10/18	X/OR/KL	SW3540C
Total Metals Digest	Completed				05/10/18	CK/AG	SW3050B
Chlorinated Herbicides							
2,4,5-T	ND	87	ug/Kg	10	05/14/18	CW	SW8151A
2,4,5-TP (Silvex)	ND	87	ug/Kg	10	05/14/18	CW	SW8151A

Ver 1

Project ID: HATHS
Client ID: B3 (1.0-5.0)

Phoenix I.D.: CA44530

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4-D	ND	170	ug/Kg	10	05/14/18	CW	SW8151A
2,4-DB	ND	1700	ug/Kg	10	05/14/18	CW	SW8151A
Dalapon	ND	87	ug/Kg	10	05/14/18	CW	SW8151A
Dicamba	ND	87	ug/Kg	10	05/14/18	CW	SW8151A
Dichloroprop	ND	170	ug/Kg	10	05/14/18	CW	SW8151A
Dinoseb	ND	170	ug/Kg	10	05/14/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	59		%	10	05/14/18	CW	30 - 150 %
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	52	mg/Kg	1	05/11/18	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	05/11/18	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	71		%	1	05/11/18	JRB	50 - 150 %
PCB (Soxhlet SW3540C)							
PCB-1016	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1221	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1232	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1242	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1248	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1254	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1260	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1262	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1268	ND	340	ug/Kg	10	05/11/18	AW	SW8082A
QA/QC Surrogates							
% DCBP	78		%	10	05/11/18	AW	30 - 150 %
% TCMX	87		%	10	05/11/18	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
4,4' -DDE	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
4,4' -DDT	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
a-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Alachlor	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Aldrin	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
b-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Chlordane	ND	35	ug/Kg	2	05/11/18	CW	SW8081B
d-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Dieldrin	ND	3.5	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan I	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan II	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan sulfate	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endrin	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endrin aldehyde	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Endrin ketone	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
g-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Heptachlor	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Heptachlor epoxide	ND	7.0	ug/Kg	2	05/11/18	CW	SW8081B
Methoxychlor	ND	35	ug/Kg	2	05/11/18	CW	SW8081B

Project ID: HATHS
Client ID: B3 (1.0-5.0)

Phoenix I.D.: CA44530

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toxaphene	ND	140	ug/Kg	2	05/11/18	CW	SW8081B
QA/QC Surrogates							
% DCBP	82		%	2	05/11/18	CW	30 - 150 %
% TCMX	76		%	2	05/11/18	CW	30 - 150 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	100	ug/Kg	1	05/11/18	DD	SW8270D
1,2,4-Trichlorobenzene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
1,2-Dichlorobenzene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
1,2-Diphenylhydrazine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
1,3-Dichlorobenzene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
1,4-Dichlorobenzene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2,4,5-Trichlorophenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2,4,6-Trichlorophenol	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dichlorophenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dimethylphenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dinitrophenol	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dinitrotoluene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
2,6-Dinitrotoluene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
2-Chloronaphthalene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2-Chlorophenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2-Methylnaphthalene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2-Methylphenol (o-cresol)	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
2-Nitroaniline	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
2-Nitrophenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	340	ug/Kg	1	05/11/18	DD	SW8270D
3,3'-Dichlorobenzidine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
3-Nitroaniline	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
4-Bromophenyl phenyl ether	ND	340	ug/Kg	1	05/11/18	DD	SW8270D
4-Chloro-3-methylphenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
4-Chloroaniline	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
4-Nitroaniline	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
4-Nitrophenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Acenaphthene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Acenaphthylene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Acetophenone	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Aniline	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Anthracene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Benz(a)anthracene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Benzidine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(a)pyrene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(b)fluoranthene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(ghi)perylene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(k)fluoranthene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Benzoic acid	ND	690	ug/Kg	1	05/11/18	DD	SW8270D
Benzyl butyl phthalate	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-chloroethyl)ether	ND	340	ug/Kg	1	05/11/18	DD	SW8270D

Project ID: HATHS
Client ID: B3 (1.0-5.0)

Phoenix I.D.: CA44530

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bis(2-chloroisopropyl)ether	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Carbazole	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Chrysene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Dibenz(a,h)anthracene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Dibenzofuran	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Diethyl phthalate	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Dimethylphthalate	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Di-n-butylphthalate	ND	690	ug/Kg	1	05/11/18	DD	SW8270D
Di-n-octylphthalate	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Fluoranthene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Fluorene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Hexachlorobenzene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Hexachlorobutadiene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Hexachlorocyclopentadiene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Hexachloroethane	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Isophorone	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Naphthalene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Nitrobenzene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
N-Nitrosodimethylamine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
N-Nitrosodiphenylamine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Pentachloronitrobenzene	ND	140	ug/Kg	1	05/11/18	DD	SW8270D
Pentachlorophenol	ND	340	ug/Kg	1	05/11/18	DD	SW8270D
Phenanthrene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Phenol	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Pyrene	ND	240	ug/Kg	1	05/11/18	DD	SW8270D
Pyridine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	70		%	1	05/11/18	DD	30 - 130 %
% 2-Fluorobiphenyl	72		%	1	05/11/18	DD	30 - 130 %
% 2-Fluorophenol	65		%	1	05/11/18	DD	30 - 130 %
% Nitrobenzene-d5	64		%	1	05/11/18	DD	30 - 130 %
% Phenol-d5	72		%	1	05/11/18	DD	30 - 130 %
% Terphenyl-d14	80		%	1	05/11/18	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Corrosivity is based solely on the pH analysis performed above.

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Cyanide.This method is no longer listed in the current version of SW-846.

The reactivity, reported above, is based only on the EPA Interim Guidance for Reactive Sulfide. This method is no longer listed in the current version of SW-846.

Semi-Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director

May 17, 2018

Reviewed and Released by: Maryam Taylor, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 17, 2018

FOR: Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		05/09/18	10:40
Location Code:	WSP-DAS	Received by:	CP	05/10/18	12:44
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCA44525
Phoenix ID: CA44531

Project ID: HATHS
Client ID: B3 (0.50)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,1-Trichloroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.6	ug/Kg	1	05/11/18	JLI	SW8260C
1,1,2-Trichloroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloroethene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,1-Dichloropropene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,3-Trichloropropane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dibromoethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichlorobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichloroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,2-Dichloropropane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,3-Dichlorobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,3-Dichloropropane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
1,4-Dichlorobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
2,2-Dichloropropane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
2-Chlorotoluene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
2-Hexanone	ND	21	ug/Kg	1	05/11/18	JLI	SW8260C
2-Isopropyltoluene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
4-Chlorotoluene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
4-Methyl-2-pentanone	ND	21	ug/Kg	1	05/11/18	JLI	SW8260C

Project ID: HATHS
Client ID: B3 (0.50)

Phoenix I.D.: CA44531

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	210	ug/Kg	1	05/11/18	JLI	SW8260C
Acrylonitrile	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Benzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Bromobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Bromochloromethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Bromodichloromethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Bromoform	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Bromomethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Carbon Disulfide	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Carbon tetrachloride	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Chlorobenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Chloroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Chloroform	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Chloromethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
cis-1,2-Dichloroethene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
cis-1,3-Dichloropropene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Dibromochloromethane	ND	2.6	ug/Kg	1	05/11/18	JLI	SW8260C
Dibromomethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Dichlorodifluoromethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Ethylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Hexachlorobutadiene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Isopropylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
m&p-Xylene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Methyl Ethyl Ketone	ND	26	ug/Kg	1	05/11/18	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	8.5	ug/Kg	1	05/11/18	JLI	SW8260C
Methylene chloride	ND	8.5	ug/Kg	1	05/11/18	JLI	SW8260C
Naphthalene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
n-Butylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
n-Propylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
o-Xylene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
p-Isopropyltoluene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
sec-Butylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Styrene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
tert-Butylbenzene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Tetrachloroethene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Tetrahydrofuran (THF)	ND	8.5	ug/Kg	1	05/11/18	JLI	SW8260C
Toluene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Total Xylenes	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,2-Dichloroethene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,3-Dichloropropene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	8.5	ug/Kg	1	05/11/18	JLI	SW8260C
Trichloroethene	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Trichlorofluoromethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Trichlorotrifluoroethane	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
Vinyl chloride	ND	4.3	ug/Kg	1	05/11/18	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	99		%	1	05/11/18	JLI	70 - 130 %
% Bromofluorobenzene	86		%	1	05/11/18	JLI	70 - 130 %
% Dibromofluoromethane	98		%	1	05/11/18	JLI	70 - 130 %

Project ID: HATHS
Client ID: B3 (0.50)

Phoenix I.D.: CA44531

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	98		%	1	05/11/18	JLI	70 - 130 %
Field Extraction	Completed				05/09/18		SW5035A

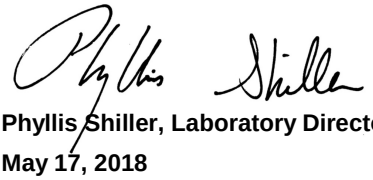
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
May 17, 2018
Reviewed and Released by: Maryam Taylor, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

May 17, 2018

FOR: Attn: Mike Susca
WSP USA
4 Research Dr Suite 204
Shelton, CT 06484

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:		05/09/18	10:50
Location Code:	WSP-DAS	Received by:	CP	05/10/18	12:44
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCA44525
Phoenix ID: CA44532

Project ID: HATHS
Client ID: B1-3 (0-1)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.38	0.38	mg/Kg	1	05/11/18	MA	SW6010C
Arsenic	1.62	0.77	mg/Kg	1	05/11/18	MA	SW6010C
Barium	43.4	0.38	mg/Kg	1	05/11/18	MA	SW6010C
Cadmium	< 0.38	0.38	mg/Kg	1	05/11/18	MA	SW6010C
Chromium	16.4	0.38	mg/Kg	1	05/11/18	MA	SW6010C
Mercury	0.06	0.03	mg/Kg	1	05/14/18	RS	SW7471B
Lead	13.3	0.38	mg/Kg	1	05/11/18	MA	SW6010C
Selenium	< 1.5	1.5	mg/Kg	1	05/11/18	MA	SW6010C
Percent Solid	92		%		05/10/18	AP	SW846-%Solid
Soil Extraction for Pesticide	Completed				05/10/18	JA/V	SW3545A
Soil Extraction for SVOA	Completed				05/10/18	JJ/CKV	SW3545A
Extraction of CT ETPH	Completed				05/10/18	BC/VCK	SW3545A
Mercury Digestion	Completed				05/14/18	I/W	SW7471B
Soil Extraction for Herbicide	Completed				05/10/18	S/D	SW8151A
Extraction for PCB	Completed				05/10/18	X/OR/KL	SW3540C
Total Metals Digest	Completed				05/10/18	CK/AG	SW3050B
Chlorinated Herbicides							
2,4,5-T	ND	89	ug/Kg	10	05/14/18	CW	SW8151A
2,4,5-TP (Silvex)	ND	89	ug/Kg	10	05/14/18	CW	SW8151A
2,4-D	ND	180	ug/Kg	10	05/14/18	CW	SW8151A
2,4-DB	ND	1800	ug/Kg	10	05/14/18	CW	SW8151A
Dalapon	ND	89	ug/Kg	10	05/14/18	CW	SW8151A
Dicamba	ND	89	ug/Kg	10	05/14/18	CW	SW8151A
Dichloroprop	ND	180	ug/Kg	10	05/14/18	CW	SW8151A
Dinoseb	ND	180	ug/Kg	10	05/14/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	62		%	10	05/14/18	CW	30 - 150 %

Ver 1

Project ID: HATHS
Client ID: B1-3 (0-1)

Phoenix I.D.: CA44532

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
TPH by GC (Extractable Products)							
Ext. Petroleum H.C. (C9-C36)	ND	53	mg/Kg	1	05/11/18	JRB	CTETPH 8015D
Identification	ND		mg/Kg	1	05/11/18	JRB	CTETPH 8015D
QA/QC Surrogates							
% n-Pentacosane	76		%	1	05/11/18	JRB	50 - 150 %
PCB (Soxhlet SW3540C)							
PCB-1016	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1221	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1232	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1242	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1248	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1254	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1260	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1262	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
PCB-1268	ND	360	ug/Kg	10	05/11/18	AW	SW8082A
QA/QC Surrogates							
% DCBP	69		%	10	05/11/18	AW	30 - 150 %
% TCMX	74		%	10	05/11/18	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
4,4' -DDE	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
4,4' -DDT	2.2	1.4	ug/Kg	2	05/11/18	CW	SW8081B
a-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Alachlor	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Aldrin	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
b-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Chlordane	ND	35	ug/Kg	2	05/11/18	CW	SW8081B
d-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Dieldrin	ND	3.5	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan I	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan II	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Endosulfan sulfate	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Endrin	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Endrin aldehyde	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Endrin ketone	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
g-BHC	ND	1.4	ug/Kg	2	05/11/18	CW	SW8081B
Heptachlor	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Heptachlor epoxide	ND	7.1	ug/Kg	2	05/11/18	CW	SW8081B
Methoxychlor	ND	35	ug/Kg	2	05/11/18	CW	SW8081B
Toxaphene	ND	140	ug/Kg	2	05/11/18	CW	SW8081B
QA/QC Surrogates							
% DCBP	93		%	2	05/11/18	CW	30 - 150 %
% TCMX	78		%	2	05/11/18	CW	30 - 150 %
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	100	ug/Kg	1	05/11/18	DD	SW8270D
1,2,4-Trichlorobenzene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D

Project ID: HATHS
Client ID: B1-3 (0-1)

Phoenix I.D.: CA44532

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
1,2-Diphenylhydrazine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
1,3-Dichlorobenzene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
1,4-Dichlorobenzene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2,4,5-Trichlorophenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2,4,6-Trichlorophenol	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dichlorophenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dimethylphenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dinitrophenol	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
2,4-Dinitrotoluene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
2,6-Dinitrotoluene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
2-Chloronaphthalene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2-Chlorophenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2-Methylnaphthalene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2-Methylphenol (o-cresol)	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
2-Nitroaniline	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
2-Nitrophenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	360	ug/Kg	1	05/11/18	DD	SW8270D
3,3'-Dichlorobenzidine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
3-Nitroaniline	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
4,6-Dinitro-2-methylphenol	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
4-Bromophenyl phenyl ether	ND	360	ug/Kg	1	05/11/18	DD	SW8270D
4-Chloro-3-methylphenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
4-Chloroaniline	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
4-Chlorophenyl phenyl ether	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
4-Nitroaniline	ND	300	ug/Kg	1	05/11/18	DD	SW8270D
4-Nitrophenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Acenaphthene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Acenaphthylene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Acetophenone	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Aniline	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Anthracene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Benz(a)anthracene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Benzidine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(a)pyrene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(b)fluoranthene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(ghi)perylene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Benzo(k)fluoranthene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Benzoic acid	ND	710	ug/Kg	1	05/11/18	DD	SW8270D
Benzyl butyl phthalate	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-chloroethoxy)methane	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-chloroethyl)ether	ND	360	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-chloroisopropyl)ether	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Bis(2-ethylhexyl)phthalate	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Carbazole	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Chrysene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Dibenz(a,h)anthracene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Dibenzofuran	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Diethyl phthalate	ND	250	ug/Kg	1	05/11/18	DD	SW8270D

Project ID: HATHS
Client ID: B1-3 (0-1)

Phoenix I.D.: CA44532

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Dimethylphthalate	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Di-n-butylphthalate	ND	710	ug/Kg	1	05/11/18	DD	SW8270D
Di-n-octylphthalate	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Fluoranthene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Fluorene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Hexachlorobenzene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Hexachlorobutadiene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Hexachlorocyclopentadiene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Hexachloroethane	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Indeno(1,2,3-cd)pyrene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Isophorone	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Naphthalene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Nitrobenzene	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
N-Nitrosodimethylamine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
N-Nitrosodi-n-propylamine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
N-Nitrosodiphenylamine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
Pentachloronitrobenzene	ND	140	ug/Kg	1	05/11/18	DD	SW8270D
Pentachlorophenol	ND	360	ug/Kg	1	05/11/18	DD	SW8270D
Phenanthrene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Phenol	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Pyrene	ND	250	ug/Kg	1	05/11/18	DD	SW8270D
Pyridine	ND	200	ug/Kg	1	05/11/18	DD	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	80		%	1	05/11/18	DD	30 - 130 %
% 2-Fluorobiphenyl	79		%	1	05/11/18	DD	30 - 130 %
% 2-Fluorophenol	74		%	1	05/11/18	DD	30 - 130 %
% Nitrobenzene-d5	72		%	1	05/11/18	DD	30 - 130 %
% Phenol-d5	83		%	1	05/11/18	DD	30 - 130 %
% Terphenyl-d14	85		%	1	05/11/18	DD	30 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

Semi-Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
May 17, 2018
Reviewed and Released by: Maryam Taylor, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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QA/QC Report

May 17, 2018

QA/QC Data

SDG I.D.: GCA44525

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 430071 (mg/kg), QC Sample No: CA43363 (CA44526, CA44530, CA44532)													
Mercury - Soil	BRL	0.03	<0.03	<0.03	NC	91.3	89.5	2.0	104			70 - 130	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.													
QA/QC Batch 429956 (mg/kg), QC Sample No: CA44763 (CA44526, CA44530, CA44532)													
ICP Metals - Soil													
Arsenic	BRL	0.67	1.77	1.83	NC	100			81.4			75 - 125	30
Barium	BRL	0.33	49.6	52.2	5.10	82.3			90.0			75 - 125	30
Cadmium	BRL	0.33	<0.39	0.40	NC	96.7			81.4			75 - 125	30
Chromium	BRL	0.33	26.3	32.4	20.8	95.7			88.7			75 - 125	30
Lead	BRL	0.33	5.3	7.10	29.0	100			83.3			75 - 125	30
Selenium	BRL	1.3	<1.5	<1.5	NC	98.8			89.3			75 - 125	30
Silver	BRL	0.33	<0.39	<0.37	NC	89.6			87.4			75 - 125	30

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QA/QC Report

May 17, 2018

QA/QC Data

SDG I.D.: GCA44525

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 430129 (Degree F), QC Sample No: CA44459 (CA44530)													
Flash Point			>200	>200	NC	100						75 - 125	30
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 430035 (PH), QC Sample No: CA44530 (CA44530)													
pH at 25C - Soil			9.92	9.91	0.10	100						85 - 115	20
QA/QC Batch 430277 (mg/Kg), QC Sample No: CA44530 5X (CA44530)													
Reactivity Cyanide	BRL	0.05	<5	<5.3	NC	94.6						85 - 115	30

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QA/QC Report

May 17, 2018

QA/QC Data

SDG I.D.: GCA44525

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 429962 (ug/Kg), QC Sample No: CA44526 2X (CA44526, CA44530, CA44532)											
Pesticides - Soil											
4,4' -DDD	ND	1.7	82	84	2.4	78	93	17.5	40 - 140	30	
4,4' -DDE	ND	1.7	80	81	1.2	76	87	13.5	40 - 140	30	
4,4' -DDT	ND	1.7	83	84	1.2	79	92	15.2	40 - 140	30	
a-BHC	ND	1.0	80	80	0.0	72	85	16.6	40 - 140	30	
Alachlor	ND	3.3	NA	NA	NC	NA	NA	NC	40 - 140	30	
Aldrin	ND	1.0	79	79	0.0	70	82	15.8	40 - 140	30	
b-BHC	ND	1.0	91	92	1.1	84	98	15.4	40 - 140	30	
Chlordane	ND	33	74	75	1.3	72	82	13.0	40 - 140	30	
d-BHC	ND	3.3	78	79	1.3	73	85	15.2	40 - 140	30	
Dieldrin	ND	1.0	78	80	2.5	75	87	14.8	40 - 140	30	
Endosulfan I	ND	3.3	81	82	1.2	79	89	11.9	40 - 140	30	
Endosulfan II	ND	3.3	84	86	2.4	81	93	13.8	40 - 140	30	
Endosulfan sulfate	ND	3.3	83	85	2.4	102	94	8.2	40 - 140	30	
Endrin	ND	3.3	77	78	1.3	75	88	16.0	40 - 140	30	
Endrin aldehyde	ND	3.3	82	83	1.2	68	79	15.0	40 - 140	30	
Endrin ketone	ND	3.3	86	85	1.2	81	95	15.9	40 - 140	30	
g-BHC	ND	1.0	82	83	1.2	78	89	13.2	40 - 140	30	
Heptachlor	ND	3.3	76	76	0.0	71	82	14.4	40 - 140	30	
Heptachlor epoxide	ND	3.3	81	82	1.2	77	87	12.2	40 - 140	30	
Methoxychlor	ND	3.3	80	81	1.2	84	87	3.5	40 - 140	30	
Toxaphene	ND	130	NA	NA	NC	NA	NA	NC	40 - 140	30	
% DCBP	81	%	84	89	5.8	85	91	6.8	30 - 150	30	
% TCMX	86	%	84	85	1.2	77	86	11.0	30 - 150	30	
QA/QC Batch 429969 (ug/Kg), QC Sample No: CA44526 10X (CA44526, CA44530, CA44532)											
Polychlorinated Biphenyls - Soil											
PCB-1016	ND	170	89	83	7.0	74	81	9.0	40 - 140	30	
PCB-1221	ND	170							40 - 140	30	
PCB-1232	ND	170							40 - 140	30	
PCB-1242	ND	170							40 - 140	30	
PCB-1248	ND	170							40 - 140	30	
PCB-1254	ND	170							40 - 140	30	
PCB-1260	ND	170	98	88	10.8	77	88	13.3	40 - 140	30	
PCB-1262	ND	170							40 - 140	30	
PCB-1268	ND	170							40 - 140	30	
% DCBP (Surrogate Rec)	102	%	115	102	12.0	91	100	9.4	30 - 150	30	
% TCMX (Surrogate Rec)	91	%	98	88	10.8	78	85	8.6	30 - 150	30	
QA/QC Batch 430041 (mg/Kg), QC Sample No: CA44526 (CA44526, CA44530, CA44532)											
TPH by GC (Extractable Products) - Soil											
Ext. Petroleum H.C. (C9-C36)	ND	50	82	78	5.0	91	84	8.0	60 - 120	30	
% n-Pentacosane	72	%	71	68	4.3	72	157	74.2	50 - 150	30	m,r

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Comment:											
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.											
QA/QC Batch 429958 (ug/kg), QC Sample No: CA44526 (CA44526, CA44530, CA44532)											
Semivolatiles - Soil											
1,2,4,5-Tetrachlorobenzene	ND	230	61	67	9.4	54	43	22.7	30 - 130	30	
1,2,4-Trichlorobenzene	ND	230	60	64	6.5	53	43	20.8	30 - 130	30	
1,2-Dichlorobenzene	ND	180	56	60	6.9	50	40	22.2	30 - 130	30	
1,2-Diphenylhydrazine	ND	230	64	68	6.1	51	41	21.7	30 - 130	30	
1,3-Dichlorobenzene	ND	230	54	57	5.4	49	38	25.3	30 - 130	30	
1,4-Dichlorobenzene	ND	230	55	59	7.0	48	38	23.3	30 - 130	30	
2,4,5-Trichlorophenol	ND	230	68	74	8.5	54	43	22.7	30 - 130	30	
2,4,6-Trichlorophenol	ND	130	67	74	9.9	54	43	22.7	30 - 130	30	
2,4-Dichlorophenol	ND	130	64	69	7.5	57	46	21.4	30 - 130	30	
2,4-Dimethylphenol	ND	230	67	72	7.2	61	49	21.8	30 - 130	30	
2,4-Dinitrophenol	ND	230	15	10	40.0	21	11	62.5	30 - 130	30	l,m,r
2,4-Dinitrotoluene	ND	130	73	80	9.2	59	49	18.5	30 - 130	30	
2,6-Dinitrotoluene	ND	130	72	77	6.7	61	46	28.0	30 - 130	30	
2-Chloronaphthalene	ND	230	65	70	7.4	56	44	24.0	30 - 130	30	
2-Chlorophenol	ND	230	60	68	12.5	55	43	24.5	30 - 130	30	
2-Methylnaphthalene	ND	230	62	66	6.3	54	44	20.4	30 - 130	30	
2-Methylphenol (o-cresol)	ND	230	64	71	10.4	62	46	29.6	30 - 130	30	
2-Nitroaniline	ND	330	76	82	7.6	62	51	19.5	30 - 130	30	
2-Nitrophenol	ND	230	51	54	5.7	45	36	22.2	30 - 130	30	
3&4-Methylphenol (m&p-cresol)	ND	230	64	73	13.1	59	46	24.8	30 - 130	30	
3,3'-Dichlorobenzidine	ND	130	74	80	7.8	74	60	20.9	30 - 130	30	
3-Nitroaniline	ND	330	79	88	10.8	66	53	21.8	30 - 130	30	
4,6-Dinitro-2-methylphenol	ND	230	38	28	30.3	38	26	37.5	30 - 130	30	l,m,r
4-Bromophenyl phenyl ether	ND	230	68	77	12.4	59	48	20.6	30 - 130	30	
4-Chloro-3-methylphenol	ND	230	68	75	9.8	60	47	24.3	30 - 130	30	
4-Chloroaniline	ND	230	61	63	3.2	55	43	24.5	30 - 130	30	
4-Chlorophenyl phenyl ether	ND	230	66	72	8.7	54	45	18.2	30 - 130	30	
4-Nitroaniline	ND	230	63	70	10.5	54	44	20.4	30 - 130	30	
4-Nitrophenol	ND	230	67	70	4.4	53	41	25.5	30 - 130	30	
Acenaphthene	ND	230	69	76	9.7	60	48	22.2	30 - 130	30	
Acenaphthylene	ND	130	63	69	9.1	53	43	20.8	30 - 130	30	
Acetophenone	ND	230	57	64	11.6	51	41	21.7	30 - 130	30	
Aniline	ND	330	57	61	6.8	52	42	21.3	30 - 130	30	
Anthracene	ND	230	69	77	11.0	58	48	18.9	30 - 130	30	
Benz(a)anthracene	ND	230	66	74	11.4	58	47	21.0	30 - 130	30	
Benzidine	ND	330	59	55	7.0	47	37	23.8	30 - 130	30	
Benzo(a)pyrene	ND	130	65	72	10.2	55	46	17.8	30 - 130	30	
Benzo(b)fluoranthene	ND	160	67	76	12.6	57	49	15.1	30 - 130	30	
Benzo(ghi)perylene	ND	230	69	77	11.0	61	50	19.8	30 - 130	30	
Benzo(k)fluoranthene	ND	230	74	78	5.3	61	50	19.8	30 - 130	30	
Benzoic Acid	ND	330	<10	<10	NC	24	11	74.3	30 - 130	30	l,m,r
Benzyl butyl phthalate	ND	230	65	73	11.6	55	44	22.2	30 - 130	30	
Bis(2-chloroethoxy)methane	ND	230	63	67	6.2	54	43	22.7	30 - 130	30	
Bis(2-chloroethyl)ether	ND	130	51	56	9.3	45	34	27.8	30 - 130	30	
Bis(2-chloroisopropyl)ether	ND	230	56	66	16.4	56	40	33.3	30 - 130	30	r
Bis(2-ethylhexyl)phthalate	ND	230	68	77	12.4	57	47	19.2	30 - 130	30	
Carbazole	ND	230	73	79	7.9	61	49	21.8	30 - 130	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Chrysene	ND	230	67	76	12.6	60	49	20.2	30 - 130	30	
Dibenz(a,h)anthracene	ND	130	72	79	9.3	60	50	18.2	30 - 130	30	
Dibenzofuran	ND	230	66	71	7.3	55	43	24.5	30 - 130	30	
Diethyl phthalate	ND	230	69	75	8.3	55	45	20.0	30 - 130	30	
Dimethylphthalate	ND	230	67	74	9.9	56	44	24.0	30 - 130	30	
Di-n-butylphthalate	ND	670	71	80	11.9	60	48	22.2	30 - 130	30	
Di-n-octylphthalate	ND	230	73	83	12.8	62	51	19.5	30 - 130	30	
Fluoranthene	ND	230	70	78	10.8	58	45	25.2	30 - 130	30	
Fluorene	ND	230	69	74	7.0	57	46	21.4	30 - 130	30	
Hexachlorobenzene	ND	130	62	69	10.7	52	42	21.3	30 - 130	30	
Hexachlorobutadiene	ND	230	59	61	3.3	52	43	18.9	30 - 130	30	
Hexachlorocyclopentadiene	ND	230	60	63	4.9	49	36	30.6	30 - 130	30	r
Hexachloroethane	ND	130	50	54	7.7	46	36	24.4	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	230	70	78	10.8	62	51	19.5	30 - 130	30	
Isophorone	ND	130	56	61	8.5	49	39	22.7	30 - 130	30	
Naphthalene	ND	230	63	70	10.5	57	45	23.5	30 - 130	30	
Nitrobenzene	ND	130	54	61	12.2	50	39	24.7	30 - 130	30	
N-Nitrosodimethylamine	ND	230	53	59	10.7	49	37	27.9	30 - 130	30	
N-Nitrosodi-n-propylamine	ND	130	57	65	13.1	52	39	28.6	30 - 130	30	
N-Nitrosodiphenylamine	ND	130	70	74	5.6	56	46	19.6	30 - 130	30	
Pentachloronitrobenzene	ND	230	65	72	10.2	56	47	17.5	30 - 130	30	
Pentachlorophenol	ND	230	60	69	14.0	46	31	39.0	30 - 130	30	r
Phenanthrene	ND	130	66	75	12.8	59	47	22.6	30 - 130	30	
Phenol	ND	230	65	73	11.6	58	45	25.2	30 - 130	30	
Pyrene	ND	230	75	82	8.9	60	49	20.2	30 - 130	30	
Pyridine	ND	230	41	42	2.4	36	27	28.6	30 - 130	30	m
% 2,4,6-Tribromophenol	63	%	64	67	4.6	44	39	12.0	30 - 130	30	
% 2-Fluorobiphenyl	65	%	67	69	2.9	51	41	21.7	30 - 130	30	
% 2-Fluorophenol	59	%	60	67	11.0	49	37	27.9	30 - 130	30	
% Nitrobenzene-d5	54	%	56	61	8.5	44	35	22.8	30 - 130	30	
% Phenol-d5	62	%	64	73	13.1	52	41	23.7	30 - 130	30	
% Terphenyl-d14	79	%	77	82	6.3	56	45	21.8	30 - 130	30	

Comment:

Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

QA/QC Batch 430337 (ug/kg), QC Sample No: CA44753 (CA44525, CA44529)

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0	109	112	2.7	106	106	0.0	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	99	102	3.0	99	99	0.0	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	96	98	2.1	57	46	21.4	70 - 130	30	m
1,1,2-Trichloroethane	ND	5.0	99	100	1.0	95	97	2.1	70 - 130	30	
1,1-Dichloroethane	ND	5.0	93	96	3.2	93	92	1.1	70 - 130	30	
1,1-Dichloroethene	ND	5.0	102	105	2.9	100	100	0.0	70 - 130	30	
1,1-Dichloropropene	ND	5.0	98	99	1.0	92	93	1.1	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	109	110	0.9	69	65	6.0	70 - 130	30	m
1,2,3-Trichloropropane	ND	5.0	92	94	2.2	99	96	3.1	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	102	104	1.9	71	67	5.8	70 - 130	30	m
1,2,4-Trimethylbenzene	ND	1.0	94	97	3.1	86	83	3.6	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	116	117	0.9	107	107	0.0	70 - 130	30	
1,2-Dibromoethane	ND	5.0	101	104	2.9	97	97	0.0	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	101	103	2.0	89	89	0.0	70 - 130	30	
1,2-Dichloroethane	ND	5.0	103	104	1.0	101	101	0.0	70 - 130	30	

QA/QC Data

SDG I.D.: GCA44525

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,2-Dichloropropane	ND	5.0	94	95	1.1	92	94	2.2	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	94	97	3.1	90	87	3.4	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	96	97	1.0	86	84	2.4	70 - 130	30	
1,3-Dichloropropane	ND	5.0	92	95	3.2	93	91	2.2	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	100	101	1.0	87	85	2.3	70 - 130	30	
2,2-Dichloropropane	ND	5.0	97	101	4.0	96	97	1.0	70 - 130	30	
2-Chlorotoluene	ND	5.0	95	96	1.0	92	92	0.0	70 - 130	30	
2-Hexanone	ND	25	78	78	0.0	69	69	0.0	70 - 130	30	m
2-Isopropyltoluene	ND	5.0	102	105	2.9	92	90	2.2	70 - 130	30	
4-Chlorotoluene	ND	5.0	94	96	2.1	89	85	4.6	70 - 130	30	
4-Methyl-2-pentanone	ND	25	86	87	1.2	81	82	1.2	70 - 130	30	
Acetone	ND	10	70	70	0.0	85	81	4.8	70 - 130	30	
Acrylonitrile	ND	5.0	96	94	2.1	93	92	1.1	70 - 130	30	
Benzene	ND	1.0	93	95	2.1	91	93	2.2	70 - 130	30	
Bromobenzene	ND	5.0	104	107	2.8	101	98	3.0	70 - 130	30	
Bromochloromethane	ND	5.0	99	100	1.0	98	98	0.0	70 - 130	30	
Bromodichloromethane	ND	5.0	108	110	1.8	105	107	1.9	70 - 130	30	
Bromoform	ND	5.0	121	122	0.8	113	112	0.9	70 - 130	30	
Bromomethane	ND	5.0	101	108	6.7	105	99	5.9	70 - 130	30	
Carbon Disulfide	ND	5.0	109	112	2.7	94	94	0.0	70 - 130	30	
Carbon tetrachloride	ND	5.0	105	107	1.9	102	104	1.9	70 - 130	30	
Chlorobenzene	ND	5.0	100	104	3.9	94	93	1.1	70 - 130	30	
Chloroethane	ND	5.0	104	108	3.8	104	105	1.0	70 - 130	30	
Chloroform	ND	5.0	93	96	3.2	95	95	0.0	70 - 130	30	
Chloromethane	ND	5.0	89	92	3.3	89	91	2.2	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	95	98	3.1	93	93	0.0	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	99	101	2.0	92	95	3.2	70 - 130	30	
Dibromochloromethane	ND	3.0	117	122	4.2	116	115	0.9	70 - 130	30	
Dibromomethane	ND	5.0	101	104	2.9	98	97	1.0	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	109	112	2.7	106	108	1.9	70 - 130	30	
Ethylbenzene	ND	1.0	98	101	3.0	93	92	1.1	70 - 130	30	
Hexachlorobutadiene	ND	5.0	111	116	4.4	59	54	8.8	70 - 130	30	m
Isopropylbenzene	ND	1.0	94	98	4.2	92	90	2.2	70 - 130	30	
m&p-Xylene	ND	2.0	95	98	3.1	88	86	2.3	70 - 130	30	
Methyl ethyl ketone	ND	5.0	78	75	3.9	73	73	0.0	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	103	106	2.9	100	101	1.0	70 - 130	30	
Methylene chloride	ND	5.0	86	88	2.3	>200	>200	NC	70 - 130	30	m
Naphthalene	ND	5.0	106	107	0.9	72	67	7.2	70 - 130	30	m
n-Butylbenzene	ND	1.0	96	99	3.1	73	69	5.6	70 - 130	30	m
n-Propylbenzene	ND	1.0	96	97	1.0	90	88	2.2	70 - 130	30	
o-Xylene	ND	2.0	96	99	3.1	91	88	3.4	70 - 130	30	
p-Isopropyltoluene	ND	1.0	97	112	14.4	84	81	3.6	70 - 130	30	
sec-Butylbenzene	ND	1.0	95	98	3.1	82	79	3.7	70 - 130	30	
Styrene	ND	5.0	96	97	1.0	85	85	0.0	70 - 130	30	
tert-Butylbenzene	ND	1.0	95	97	2.1	89	87	2.3	70 - 130	30	
Tetrachloroethene	ND	5.0	111	111	0.0	102	101	1.0	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	91	90	1.1	88	87	1.1	70 - 130	30	
Toluene	ND	1.0	100	103	3.0	96	98	2.1	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	105	107	1.9	92	93	1.1	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	101	102	1.0	92	93	1.1	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	109	111	1.8	106	103	2.9	70 - 130	30	
Trichloroethene	ND	5.0	103	107	3.8	136	141	3.6	70 - 130	30	m
Trichlorofluoromethane	ND	5.0	104	105	1.0	102	104	1.9	70 - 130	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Trichlorotrifluoroethane	ND	5.0	116	120	3.4	112	114	1.8	70 - 130	30	
Vinyl chloride	ND	5.0	92	95	3.2	91	92	1.1	70 - 130	30	
% 1,2-dichlorobenzene-d4	95	%	103	103	0.0	103	103	0.0	70 - 130	30	
% Bromofluorobenzene	100	%	99	99	0.0	96	97	1.0	70 - 130	30	
% Dibromofluoromethane	110	%	104	105	1.0	108	109	0.9	70 - 130	30	
% Toluene-d8	90	%	103	101	2.0	101	103	2.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 430376 (ug/kg), QC Sample No: CA45041 (CA44531)

Volatiles - Soil

1,1,1,2-Tetrachloroethane	ND	5.0	91	92	1.1	87	87	0.0	70 - 130	30	
1,1,1-Trichloroethane	ND	5.0	84	85	1.2	79	81	2.5	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	3.0	104	107	2.8	112	113	0.9	70 - 130	30	
1,1,2-Trichloroethane	ND	5.0	94	94	0.0	94	94	0.0	70 - 130	30	
1,1-Dichloroethane	ND	5.0	101	102	1.0	90	92	2.2	70 - 130	30	
1,1-Dichloroethene	ND	5.0	97	96	1.0	77	76	1.3	70 - 130	30	
1,1-Dichloropropene	ND	5.0	93	95	2.1	94	94	0.0	70 - 130	30	
1,2,3-Trichlorobenzene	ND	5.0	98	100	2.0	100	101	1.0	70 - 130	30	
1,2,3-Trichloropropane	ND	5.0	96	96	0.0	98	98	0.0	70 - 130	30	
1,2,4-Trichlorobenzene	ND	5.0	98	101	3.0	100	102	2.0	70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	99	101	2.0	99	100	1.0	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	5.0	97	97	0.0	91	88	3.4	70 - 130	30	
1,2-Dibromoethane	ND	5.0	95	96	1.0	94	94	0.0	70 - 130	30	
1,2-Dichlorobenzene	ND	5.0	97	99	2.0	99	100	1.0	70 - 130	30	
1,2-Dichloroethane	ND	5.0	77	78	1.3	78	78	0.0	70 - 130	30	
1,2-Dichloropropane	ND	5.0	94	96	2.1	95	96	1.0	70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	98	101	3.0	99	100	1.0	70 - 130	30	
1,3-Dichlorobenzene	ND	5.0	99	101	2.0	100	101	1.0	70 - 130	30	
1,3-Dichloropropane	ND	5.0	96	95	1.0	97	97	0.0	70 - 130	30	
1,4-Dichlorobenzene	ND	5.0	97	99	2.0	99	101	2.0	70 - 130	30	
2,2-Dichloropropane	ND	5.0	90	91	1.1	81	83	2.4	70 - 130	30	
2-Chlorotoluene	ND	5.0	103	104	1.0	102	103	1.0	70 - 130	30	
2-Hexanone	ND	25	80	78	2.5	80	79	1.3	70 - 130	30	
2-Isopropyltoluene	ND	5.0	103	105	1.9	103	105	1.9	70 - 130	30	
4-Chlorotoluene	ND	5.0	100	103	3.0	101	103	2.0	70 - 130	30	
4-Methyl-2-pentanone	ND	25	82	81	1.2	82	81	1.2	70 - 130	30	
Acetone	ND	10	70	68	2.9	66	60	9.5	70 - 130	30	l,m
Acrylonitrile	ND	5.0	98	96	2.1	100	98	2.0	70 - 130	30	
Benzene	ND	1.0	98	100	2.0	100	100	0.0	70 - 130	30	
Bromobenzene	ND	5.0	98	100	2.0	100	99	1.0	70 - 130	30	
Bromochloromethane	ND	5.0	97	98	1.0	97	97	0.0	70 - 130	30	
Bromodichloromethane	ND	5.0	85	85	0.0	82	80	2.5	70 - 130	30	
Bromoform	ND	5.0	85	86	1.2	76	76	0.0	70 - 130	30	
Bromomethane	ND	5.0	91	89	2.2	56	59	5.2	70 - 130	30	m
Carbon Disulfide	ND	5.0	107	108	0.9	83	83	0.0	70 - 130	30	
Carbon tetrachloride	ND	5.0	82	84	2.4	71	75	5.5	70 - 130	30	
Chlorobenzene	ND	5.0	96	97	1.0	98	98	0.0	70 - 130	30	
Chloroethane	ND	5.0	92	92	0.0	31	29	6.7	70 - 130	30	m
Chloroform	ND	5.0	87	87	0.0	86	87	1.2	70 - 130	30	
Chloromethane	ND	5.0	81	81	0.0	81	81	0.0	70 - 130	30	
cis-1,2-Dichloroethene	ND	5.0	100	100	0.0	98	99	1.0	70 - 130	30	
cis-1,3-Dichloropropene	ND	5.0	93	94	1.1	88	88	0.0	70 - 130	30	

QA/QC Data

SDG I.D.: GCA44525

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Dibromochloromethane	ND	3.0	92	92	0.0	84	84	0.0	70 - 130	30	
Dibromomethane	ND	5.0	90	88	2.2	89	89	0.0	70 - 130	30	
Dichlorodifluoromethane	ND	5.0	88	89	1.1	84	85	1.2	70 - 130	30	
Ethylbenzene	ND	1.0	98	100	2.0	100	101	1.0	70 - 130	30	
Hexachlorobutadiene	ND	5.0	91	94	3.2	93	94	1.1	70 - 130	30	
Isopropylbenzene	ND	1.0	103	105	1.9	103	104	1.0	70 - 130	30	
m&p-Xylene	ND	2.0	98	99	1.0	100	100	0.0	70 - 130	30	
Methyl ethyl ketone	ND	5.0	80	79	1.3	82	79	3.7	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	1.0	91	91	0.0	91	92	1.1	70 - 130	30	
Methylene chloride	ND	5.0	93	92	1.1	94	94	0.0	70 - 130	30	
Naphthalene	ND	5.0	105	105	0.0	103	106	2.9	70 - 130	30	
n-Butylbenzene	ND	1.0	104	107	2.8	104	106	1.9	70 - 130	30	
n-Propylbenzene	ND	1.0	102	105	2.9	102	102	0.0	70 - 130	30	
o-Xylene	ND	2.0	101	101	0.0	102	102	0.0	70 - 130	30	
p-Isopropyltoluene	ND	1.0	101	103	2.0	101	103	2.0	70 - 130	30	
sec-Butylbenzene	ND	1.0	105	107	1.9	105	107	1.9	70 - 130	30	
Styrene	ND	5.0	98	98	0.0	99	99	0.0	70 - 130	30	
tert-Butylbenzene	ND	1.0	99	101	2.0	99	100	1.0	70 - 130	30	
Tetrachloroethene	ND	5.0	91	93	2.2	91	92	1.1	70 - 130	30	
Tetrahydrofuran (THF)	ND	5.0	88	87	1.1	90	87	3.4	70 - 130	30	
Toluene	ND	1.0	97	98	1.0	98	99	1.0	70 - 130	30	
trans-1,2-Dichloroethene	ND	5.0	97	98	1.0	95	97	2.1	70 - 130	30	
trans-1,3-Dichloropropene	ND	5.0	85	87	2.3	79	81	2.5	70 - 130	30	
trans-1,4-dichloro-2-butene	ND	5.0	112	114	1.8	102	104	1.9	70 - 130	30	
Trichloroethene	ND	5.0	97	96	1.0	93	95	2.1	70 - 130	30	
Trichlorofluoromethane	ND	5.0	77	76	1.3	25	24	4.1	70 - 130	30	m
Trichlorotrifluoroethane	ND	5.0	94	95	1.1	77	77	0.0	70 - 130	30	
Vinyl chloride	ND	5.0	90	91	1.1	94	35	91.5	70 - 130	30	m,r
% 1,2-dichlorobenzene-d4	99	%	101	100	1.0	100	100	0.0	70 - 130	30	
% Bromofluorobenzene	92	%	94	93	1.1	94	94	0.0	70 - 130	30	
% Dibromofluoromethane	97	%	97	97	0.0	93	95	2.1	70 - 130	30	
% Toluene-d8	99	%	99	99	0.0	99	100	1.0	70 - 130	30	

Comment:

Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

QA/QC Batch 429993 (ug/Kg), QC Sample No: CA45245 10X (CA44526, CA44530, CA44532)

Chlorinated Herbicides - Soil

2,4,5-T	ND	83	63	67	6.2	73	63	14.7	40 - 140	30	
2,4,5-TP (Silvex)	ND	83	63	68	7.6	59	62	5.0	40 - 140	30	
2,4-D	ND	170	61	73	17.9	66	65	1.5	40 - 140	30	
2,4-DB	ND	1700	75	81	7.7	65	69	6.0	40 - 140	30	
Dalapon	ND	83	52	55	5.6	41	38	7.6	40 - 140	30	
Dicamba	ND	83	66	69	4.4	72	71	1.4	40 - 140	30	
Dichloroprop	ND	170	74	79	6.5	72	75	4.1	40 - 140	30	
Dinoseb	ND	170	47	59	22.6	61	63	3.2	40 - 140	30	
% DCAA (Surrogate Rec)	49	%	49	53	7.8	56	57	1.8	30 - 150	30	

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

QA/QC Data

SDG I.D.: GCA44525

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
May 17, 2018

Thursday, May 17, 2018

Criteria: CT: GAM, RC

State: CT

Sample Criteria Exceedances Report

GCA44525 - WSP-DAS

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

REASONABLE CONFIDENCE PROTOCOL
LABORATORY ANALYSIS QA/QC CERTIFICATION FORM

Laboratory Name: Phoenix Environmental Labs, Inc. ***Client:*** WSP USA

Project Location: HATHS ***Project Number:***

Laboratory Sample ID(s): CA44525, CA44526, CA44529-CA44532 ***Sampling Date(s):*** 5/9/2018

List RCP Methods Used (e.g., 8260, 8270, et cetera) 6010, 7470/7471, 8081, 8082, 8151, 8260, 8270, ETPH

1	**For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the CT DEP method-specific Reasonable Confidence Protocol documents?**	☑ Yes ☐ No
1A	**Were the method specified preservation and holding time requirements met?**	☑ Yes ☐ No
1B	***VPH and EPH methods only:*** **Was the VPH or EPH method conducted without significant modifications (see section 11.3 of respective RCP methods)**	☐ Yes ☐ No ☑ NA
2	**Were all samples received by the laboratory in a condition consistent with that described on the associated Chain-of-Custody document(s)?**	☑ Yes ☐ No
3	**Were samples received at an appropriate temperature (< 6 Degrees C)?**	☑ Yes ☐ No ☐ NA
4	**Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents acheived? See Sections: ETPH Narration, SVOA Narration, VOA Narration.**	☐ Yes ☑ No
5	**a) Were reporting limits specified or referenced on the chain-of-custody?** **b) Were these reporting limits met?**	☑ Yes ☐ No ☑ Yes ☐ No
6	**For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the Reasonable Confidence Protocol documents?**	☐ Yes ☑ No
7	**Are project-specific matrix spikes and laboratory duplicates included in the data set?**	☑ Yes ☐ No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1A or 1B is "No", the data package does not meet the requirements for "Reasonable Confidence". This form may not be altered and all questions must be answered.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete.

Authorized Signature: MaTaylor **Position:** Project Manager

Printed Name: Maryam Taylor **Date:** Thursday, May 17, 2018

Name of Laboratory Phoenix Environmental Labs, Inc.

This certification form is to be used for RCP methods only.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

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RCP Certification Report

May 17, 2018

SDG I.D.: GCA44525

Cyanide Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

LACHAT 05/15/18-1 Julliannie Cerda, Greg Danielewski, Chemist 05/15/18

CA44530

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

QC (Batch Specific):

Batch 430277 (CA44530)

CA44530

All LCS recoveries were within 80 - 120 with the following exceptions: None.
Additional: LCS acceptance range is 80-120% for soils MS acceptance range 75-125% for soils

ETPH Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 430041 (Samples: CA44526, CA44530, CA44532): -----

One or more surrogates is outside of criteria. (% n-Pentacosane)

The MS/MSD RPD exceeds the method criteria for one or more surrogates, therefore there may be variability in the reported result. (% n-Pentacosane)

Instrument:

AU-FID21 05/11/18-1 Jeff Bucko, Chemist 05/11/18

CA44526, CA44530, CA44532

The initial calibration (ETPH425I) RSD for the compound list was less than 30% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 30% except for the following compounds:None.

QC (Site Specific):

Batch 430041 (CA44526)

CA44526, CA44530, CA44532

All LCS recoveries were within 60 - 120 with the following exceptions: None.
All LCSD recoveries were within 60 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 50 - 150 with the following exceptions: None.
All MSD recoveries were within 50 - 150 with the following exceptions: % n-Pentacosane(157%)

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ETPH Narration

All MS/MSD RPDs were less than 30% with the following exceptions: % n-Pentacosane(74.2%)
A matrix effect is suspected when a MS/MSD recovery is outside of criteria. No further action is required if LCS/LCSD compounds are within criteria.
Additional surrogate criteria: LCS acceptance range is 60-120% MS acceptance range 50-150%. The ETPH/DRO LCS has been normalized based on the alkane calibration.

Herbicide Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD2 05/14/18-1 Carol Wohlmuth, Chemist 05/14/18

CA44526, CA44530, CA44532

The initial calibration (HRB508AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (HRB508BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 429993 (CA45245)

CA44526, CA44530, CA44532

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 05/14/18 08:03 Rick Schweitzer, Chemist 05/14/18

CA44526, CA44530, CA44532

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 430071 (CA43363)

CA44526, CA44530, CA44532

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

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Mercury Narration

Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

ARCOS 05/10/18 09:56 Mike Arsenault, Chemist 05/10/18

CA44526, CA44530, CA44532

Additional criteria for CCV and ICSAB:
Sodium and Potassium are poor performing elements, the laboratory's in-house limits are 85-115% (CCV) and 70-130% (ICSAB).The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 429956 (CA44763)

CA44526, CA44530, CA44532

All LCS recoveries were within 75 - 125 with the following exceptions: None.

PCB Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD8 05/11/18-1 Adam Werner, Chemist 05/11/18

CA44526, CA44530, CA44532

The initial calibration (PC423AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC423BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Site Specific):

Batch 429969 (CA44526)

CA44526, CA44530, CA44532

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 40 - 140 with the following exceptions: None.
All MSD recoveries were within 40 - 140 with the following exceptions: None.
All MS/MSD RPDs were less than 30% with the following exceptions: None.

PEST Narration

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RCP Certification Report

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SDG I.D.: GCA44525

PEST Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? Yes.

Instrument:

AU-ECD7 05/11/18-1 Carol Wohlmuth, Chemist 05/11/18

CA44526, CA44530, CA44532

The initial calibration (PS508AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PS508BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

QC (Site Specific):

Batch 429962 (CA44526)

CA44526, CA44530, CA44532

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
All MS recoveries were within 30 - 150 with the following exceptions: None.
All MSD recoveries were within 30 - 150 with the following exceptions: None.
All MS/MSD RPDs were less than 30% with the following exceptions: None.

SVOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 429958 (Samples: CA44526, CA44530, CA44532): -----

The LCS/LCSD recovery is acceptable. One or more analytes in the site specific matrix spike recovery is below the method criteria, therefore a low bias is likely. (Pyridine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (2,4-Dinitrophenol)

The MS/MSD RPD exceeds the method criteria for one or more analytes, therefore there may be variability in the reported result. (2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Benzoic Acid, Bis(2-chloroisopropyl)ether, Hexachlorocyclopentadiene, Pentachlorophenol)

The QC recoveries for one or more analytes is below the method criteria. A slight low bias is likely. (2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Benzoic Acid)

Instrument:

CHEM19 05/10/18-1 Damien Drobinski, Chemist 05/10/18

CA44526, CA44530, CA44532

The DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.

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SVOA Narration

Initial Calibration Verification (CHEM19/SPLIT_0503):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: 2,4-Dinitrophenol 32% (20%)
The following compounds did not meet recommended response factors: Bis(2-chloroethyl)ether 0.523 (0.7), Hexachlorobenzene 0.072 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM19/0510_04-SPLIT_0503):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
98% of target compounds met criteria.
The following compounds did not meet % deviation criteria: 2-Nitroaniline 41%L (30%)
The following compounds did not meet maximum % deviations: 2-Nitroaniline 41%L (40%)
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.087 (0.1), Bis(2-chloroethyl)ether 0.513 (0.7), Hexachlorobenzene 0.067 (0.1)
The following compounds did not meet minimum response factors: None.

QC (Site Specific):

Batch 429958 (CA44526)

CA44526, CA44530, CA44532

All LCS recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(15%), Benzoic Acid(<10%)
All LCSD recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(10%), 4,6-Dinitro-2-methylphenol(28%), Benzoic Acid(<10%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: 2,4-Dinitrophenol(40.0%)
All MS recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(21%), Benzoic Acid(24%)
All MSD recoveries were within 30 - 130 with the following exceptions: 2,4-Dinitrophenol(11%), 4,6-Dinitro-2-methylphenol(26%), Benzoic Acid(11%), Pyridine(27%)
All MS/MSD RPDs were less than 30% with the following exceptions: 2,4-Dinitrophenol(62.5%), 4,6-Dinitro-2-methylphenol(37.5%), Benzoic Acid(74.3%), Bis(2-chloroisopropyl)ether(33.3%), Hexachlorocyclopentadiene(30.6%), Pentachlorophenol(39.0%)
A matrix effect is suspected when a MS/MSD recovery is outside of criteria. No further action is required if LCS/LCSD compounds are within criteria.
Additional 8270 criteria: 20% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 15-110%, for soils 30-130%)

VOA Narration

Were all QA/QC performance criteria specified in the Reasonable Confidence Protocol documents achieved? No.

QC Batch 430376 (Samples: CA44531): -----

The LCS and/or LCSD recovery for one or more analytes is below range. A low bias for these analytes is possible. (Acetone)

Instrument:

CHEM18 05/11/18-1 Jane Li, Chemist 05/11/18

CA44525, CA44529

Initial Calibration Verification (CHEM18/VT-M0418):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: 1,2-Dibromo-3-chloropropane 28% (20%), Chloroethane 21% (20%)

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NY # 11301

RCP Certification Report

May 17, 2018

SDG I.D.: GCA44525

VOA Narration

The following compounds did not meet recommended response factors: Bromoform 0.099 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM18/0511M02-VT-M0418):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM26 05/11/18-1 Jane Li, Chemist 05/11/18

CA44531

Initial Calibration Verification (CHEM26/VT-0429):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM26/0511_02-VT-0429):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 430337 (CA44753)

CA44525, CA44529

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Batch 430376 (CA45041)

CA44531

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: Acetone(68%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8260 criteria: 10% of LCS/LCSD compounds can be outside of acceptance criteria as long as recovery is 40-160%.

Temperature Narration

The samples were received at 5.6C with cooling initiated.
(Note acceptance criteria for relevant matrices is above freezing up to 6°C)

Cooler: Yes ☑ No ☐
Coolant: IPK ☑ ICE ☐ No ☐

Temp 3.6 °C Pg 1 of 1

CHAIN OF CUSTODY RECORD

PHOENIX *Environmental Laboratories, Inc.*

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Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
☒ Fax: (860) - 674 - 0606
☒ Phone: (860) 674 - 0404
☒ Email: michael.susca@wsp.com

Customer: WSP USA
Address: 6 Executive Drive, Suite 109, Farmington, CT 06040

Project: HATHS
Report to: Michael Susca
Invoice to: "

Project P.O.:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 5/9/18

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe OIL=Oil
B=Bulk L=Liquid

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	VOC M8260B	SVOCs M8270C	PCBs M8082, Soxhlet	RCRA 8 Metals, Total	CT ETPH	Pesticides M8081	Herbicides M8151	Corrosivity (pH) SW846 9040	Ignitability/Flashpoint 1030	Reactive Cyanide; Reactive Sulfide; Paint Filter Test 9095A	~~GL Amber 8 oz w/HNO3~~	Soil VOA Vials (1) methanol (2) H2O	GL Soil container (8) oz	GL Soil container (4) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
44525	B1 (1.4)	S	5.9.18	940	X											3										
44526	B1 (1.0-5.0)	|	|	945		X	X	X	X	X	X						2									
44527	B2 (1.2)	|	|	1005												3										Hold
44528	B3 (1.0-5.0)	|	|	1010													2									Hold
44529	B3 (2.3)	|	|	1030	X											3										
44530	B3 (1.0-5.0)	|	|	1035		X	X	X	X	X	X	X	X	X		·	3	1								
44531	B3 (0.50)	|	|	1040	X											3		1								
44532	B1-3 (0-1)	↓	↓	1050		X	X	X	X	X	X						2									

Relinquished by:	Accepted by:	Date:	Time:
[signature]	WSP fridge	5/9/18	1603
[signature]	[signature]	5/10/18	11:3?
[signature]	[signature]	5/10/18	12:44

Comments, Special Requirements or Regulations:
CT DAS Rates (work is for State of CT)
Client is tax exempt
Please see attachment!
Froze Voas on 5.9.18

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other
* SURCHARGE APPLIES

RI
☐ Direct Exposure (Residential)
☐ GW
☐ Other

CT
☒ RCP Cert
☐ GW Protection
☐ SW Protection
☒ GA Mobility
☐ GB Mobility
☒ Residential DEC
☐ I/C DEC
☐ Other

MA
☐ MCP Certification
☐ GW-1
☐ GW-2
☐ GW-3
☐ S-1
☐ S-2
☐ S-3
☐ MWRA eSMART
☐ Other

Data Format
☐ Excel
☒ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist
☐ Full Data Package*
☐ Phoenix Std Report
☐ Other
* SURCHARGE APPLIES

State where samples were collected: CT

GCA 44525

Shannon Wilhelm

To: Susca, Michael
Subject: RE: HATHS

From: Susca, Michael [mailto:Michael.Susca@wsp.com]
Sent: Thursday, May 10, 2018 3:16 PM
To: Shannon Wilhelm
Subject: RE: HATHS

Shannon:

Method 1010 will suffice. Thanks.

Michael Susca, CPG, LEP
Supervising Hydrogeologist

Phone: +1 475 882 1736
Email: Michael.susca@wsp.com
Please note I have a new email address

WSP USA
6 Executive Drive
Farmington, Connecticut 06032

wsp.com

From: Shannon Wilhelm [mailto:shannon@phoenixlabs.com]
Sent: Thursday, May 10, 2018 1:39 PM
To: Susca, Michael <Michael.Susca@wsp.com>
Subject: HATHS
Importance: High

Good Afternoon,
We received samples today for the above referenced project and you are requesting Ignit/Flash by method 1030 which we do not do here. We run method 1010 here. Please confirm you need method 1030. We can sub it out if you do need method 1030 but just want to double check. Please let me know. Thank you.

Shannon Wilhelm
Client Services Representative
Phoenix Environmental Laboratories
587 East Middle Turnpike
Manchester CT 06040
860-645-1102

Statement of Special Inspections

Project: *Project # BI-RT-888 Henry Abbott Technical High School – Storage Building Foundation*

Location: *21 Hayestown Avenue – Danbury, Connecticut*

Owner: *State of Connecticut – Department of Education*

Design Professional in Responsible Charge: *Szewczak Associates Consulting Engineers - Foundations*

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code. It includes a schedule of Special Inspection services applicable to this project as well as the name of the Special Inspection Coordinator and the identity of other approved agencies to be retained for conducting these inspections and tests. This *Statement of Special Inspections* encompass the following disciplines:

☒ Structural ☐ Mechanical/Electrical/Plumbing

☐ Architectural ☐ Other: _____

The Special Inspection Coordinator shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

Interim reports shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge.

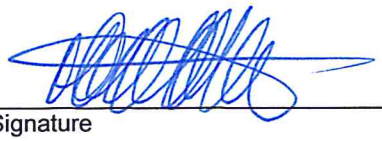
A *Final Report of Special Inspections* documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

Job site safety and means and methods of construction are solely the responsibility of the Contractor.

Interim Report Frequency: *Report to be issued for each day of inspection.* or ☐ per attached schedule.

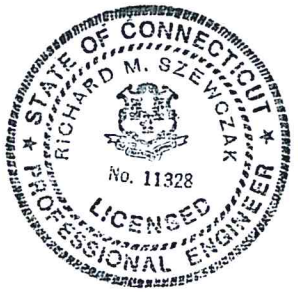
Prepared by:

Richard M. Szewczak, P.E.
(type or print name)



Signature

2/9/18
Date



Design Professional Seal

Owner's Authorization:

Signature Date

Building Official's Acceptance:

Signature Date

Schedule of Inspection and Testing Agencies

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- ☒ Soils and Foundations
- ☒ Cast-in-Place Concrete
- ☐ Precast Concrete
- ☐ Masonry
- ☐ Structural Steel
- ☐ Cold-Formed Steel Framing
- ☐ Spray Fire Resistant Material
- ☐ Wood Construction
- ☐ Exterior Insulation and Finish System
- ☐ Mechanical & Electrical Systems
- ☐ Architectural Systems
- ☐ Special Cases

Special Inspection Agencies	Firm	Address, Telephone, e-mail
1. **Special Inspection Coordinator**	*To be Determined*	
2. Testing Agency		
3. Other Geotechnical Engineer		
4. Other		
5. Other		
6. Other		

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency Number* on the Schedule.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Exterior Design Institute (EDI) Certification

EDI-EIFS	EIFS Third Party Inspector

Other

_____ _____

Soils and Foundations

Item	Agency # (Qualif.)	Scope
1. Shallow Foundations IBC 2012	*2*	*Observe preparation of existing subgrade. Verify compliance with requirements of the Contract Documents.*
	2	*Inspect final footing subgrades and bearing surfaces to confirm adequate bearing capacity and compliance with the Contract Documents.*
	2	*Observe removal of unsuitable material and preparation of subgrade prior to placement of controlled fill.*
2. Controlled Structural Fill IBC 2012 1705.6	*2*	*Perform sieve tests (ASTM D422 & D1140) and modified proctor tests (ASTM D1557) of each source of fill material.*
	2	*Inspect placement, lift thickness and compaction of controlled fill.*
	2	*Test density of fill by nuclear methods (ASTM D2922).*
	2	*Verify extent and slope of fill placement.*
3. Deep Foundations		
4. Load Testing		
4. Special Inspection Coordination	*1* *PE*	*Observe work and inspections. Verify that the assigned inspection agencies are conducting the inspections required. Verify inspection agent qualifications.*

Item	Agency # (Qualif.)	Scope
1. Reinforcement Installation (Including rebar, tendons, and post-tensioning ducts) IBC 2012 Table 1705.3 Item 1	*2 ACI-CCI*	*Inspect size, spacing, cover, and positioning of reinforcing steel in accordance with the requirements of the Contract Documents and reviewed Shop Drawings.*
	2 ACI-CCI	*Verify that reinforcement is accurately placed and adequately supported before concrete is placed, and is secured against displacement within tolerances listed above. (ACI 318 Sect. 7.5.1)*
	2 ACI-CCI	*Verify that reinforcing bars are free from mud, oil, concrete from previous placements, or other deleterious materials. (ACI 318 Sect. 7.4.1 and 7.4.2)*
	2 ACI-CCI	*Verify that bar lap splice dimensions and mechanical splices have been provided in accordance with the requirements of the Contract Documents and reviewed Shop Drawings.*
2. Reinforcing Steel Welding IBC 2012 Table 1705.3 Item 2	-	*(Not applicable)*
3. Anchor Rods and Other Embedments IBC 2012 Table 1705.3 Item 3&4	*2 ACI-CCI*	*Inspect size, positioning, and quantity of embedments. Observe concrete placement and verify proper consolidation around embedments.*
4. Use of Approved Concrete Mix Design IBC 2012 Table 1705.3Item 5	*2 ACI-CCI*	*Review concrete batch tickets and verify compliance with approved mix design.* *1. Verify that water added at the site does not exceed that allowed by the approved mix design.* *2. Review admixtures on concrete batch tickets and verify compliance with approved mix design. Verify that quantities added do not exceed that allowed by the approved mix design.*
5. Sampling and Testing of Concrete and Shotcrete IBC 2012 Table 1705.3 Item 6		*Samples for strength tests shall be taken in accordance with ASTM C172 (ACI 318 Sect. 5.6.3.1) at frequency noted in Project Specifications.*
	2 ACI-CFTT	*Test concrete slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064) each time that concrete is sampled for strength tests.*
	2 ACI-STT	*Test concrete compressive strength (ASTM C31 & C39).*

Cast-in-Place Concrete (continued)

Item	Agency # (Qualif.)	Scope
6. Concrete and Shotcrete Placement IBC 2012 Table 1705.3 Item 7	*2* *ACI-CCI*	*Verify that concrete is conveyed and deposited in accordance with ace 318-11 Section 5.9, 5.10, and Project Specifications.*
7. Curing and Protection IBC 2012 Table 1705.3 Item 8	*2* *ACI-CCI*	*Concrete:* *Verify that concrete is cured and temperature maintained in accordance with Project Specifications and ACI 318:5.11-5.13*
8. Prestressed Concrete IBC 2012 Table 1705.3 Item 9	-	*(Not applicable)*
9. Structural Precast Concrete IBC 2012 Table 1705.3 Item 10	-	*(Not applicable)*
10. In-situ Concrete Strength IBC 2012 Table 1705.3 Item 11	-	*(Not applicable.)*
11. Formwork Geometry IBC 2012 Table 1705.3 Item 12	*2* *ACI-CFTT*	*Verify that forms conform to shapes, lines and dimensions of the members as required by the Contract Documents.*
12 Non-Shrink Grout	*2* *ACI-CFTT*	*Tests: Test non-shrink grout specimens in accordance with the following:* *1. ASTM C 1107-02 Article 12.1 Consistency* *2. ASTM C 1107-02 Article 12.5 Compressive Strength:* *a. Test three cubes for compressive strength at each age (1, 3, 7 and 28 days).*
13 Special Inspection Coordination	*1* *PE*	*Periodically observe work. Verify that the assigned inspection agencies are conducting the inspections required. Independently verify the items specified in this Statement of Special Inspections during site observations.* *Verify inspection agent qualifications.*