Bid Documents
&
Specifications

Replacement of Bridge No. 04805
Forge Hill Road over Pachaug River
Town of Voluntown, Connecticut

State Project No. 0147-0062

October 2025

Town Hall

115 Main Street

Voluntown, CT 06384

Town of Voluntown

LEGAL NOTICE

Notice to Contractors:

Sealed bids for the construction of Project No. 0147-0062 will be received by the Town of Voluntown at the First Selectman's Office, Town Hall, 115 Main Street, Voluntown, Connecticut 06384 until 10:00 A.M., Monday, November 24, 2025 after which time no further bids will be accepted. NO EXCEPTIONS. The bids will be publicly opened and read at the Voluntown Town Hall, 115 Main Street, Voluntown, Connecticut 06384.

FEDERAL PROJECT

F.A.P. # 6147(003) CN Town of Voluntown
State Project No. 0147-0062 Town Project No. N/A
Replacement of Bridge No. 04805
Forge Hill Road over Pachaug River

The Town of Voluntown (Municipality) hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises will be afforded full opportunity to submit bids in response to this invitation and that they will not be discriminated against on the grounds of race, color, national origin, sex, sexual orientation, mental retardation or physical disability, including but not limited to blindness, in consideration for an award.

"Bid Proposal Form", "Schedule of Prices", "Bid Bond", "Non-Collusion Affidavit" and "Bidder's Prequalification" approval letter signed by the CTDOT Contracts Manager must be completed and returned with the submitted bid. Failure to properly execute and include any one of these five documents in the bid submission will result in the bid not being read and the subsequent rejection of the bid.

Plans and Specifications for the above project may be examined and/or obtained at Advanced Reprographics, 50 Corporate Avenue, Plainville, CT 06062, (860) 410-1020 and by going to the Advanced Reprographics website www.advancedrepro.net. Prospective bidders should access the "Planroom" on the website and go to the "Public Jobs" area, no log in information is necessary. Plans and specifications may be picked up at the Advanced Reprographics office. Plans and specifications may also be ordered by calling the Advanced Reprographics number listed above. Bidders are responsible for all printing costs and shipping costs, as applicable.

Form 819 Standard Specifications may be obtained via the Connecticut Department of Transportation's website: https://portal.ct.gov/dot/business/manuals?language=en_US. All Proposals must be on the form furnished by the Municipality and must be requested for the above-named project.

NOTE: Prospective bidders must have a current sworn Statement (CON-16) on file with the Connecticut Department of Transportation and be prequalified to perform Group No. 8 (Minor Bridges) work. The Bidder's Prequalification approval letter signed by the CTDOT Contracts Manager shall be included as part of the bid package submitted to the Municipality.

NOTE: Any Contractor or Subcontractor engaged in surface preparation and/or coating application must be certified by the Steel Structures Painting Council.

NOTE: A Surety Company Bond, on the form furnished by the Municipality, for at least 30 percent of the amount of the bid must accompany each proposal. A certified check will not be accepted. The Municipality reserves the right to reject any and all bids.

NOTE: There will be a non-mandatory Pre-Bid Meeting held at the Bridge on Wednesday, November 5, 2025, at 11:00 A.M. All prospective bidders are encouraged to meet at Bridge No. 04805 located on Forge Hill Road just south of the intersection with Wylie School Road and North Shore Road.

CONTRACTORS that find discrepancies and/or errors in or between plans, specifications, quantities, and other matters must immediately notify Tracey Hanson, First Selectman, Voluntown Town Hall, 115 Main Street, Voluntown, Connecticut 06384; THanson@voluntown.gov in writing not less than ten days before the scheduled bid opening.

Date: October 27, 2025 Town of Voluntown

BID PROPOSAL DOCUMENTS

CONTRACTOR'S FEDERAL
IDENTIFICATION NUMBER

_____

TOWN/CITY OF _____

B I D
PROPOSAL FORM

Proposal of .....
(Name)
.....
(Address)
to furnish all labor, materials, tools and appliances, required to complete the construction of the Project described elsewhere herein.

Proposals will be received at the office of .....
.....
until the hour and date set in the "Advertisement for Proposals".

To the .....
..... , Connecticut.

Sir:
In accordance with the advertisement of the City/Town of ..... ,
inviting proposals for the construction of the Project hereinafter names, and in conformity with the plans and specifications on file in the office of .....
.....

I/We certify that I am/we are the only person or persons interested in this proposal as principals, that it is made without collusion with any person, firm, or corporation; that an examination has been made of the Specifications and Contract Form, including the "Special Provisions" contained herein, also of the plans and of the Site of Work, and I/we propose to furnish all necessary machinery, equipment, tools, labor and other means of construction, and to furnish all materials specified in the manner and at the time prescribed, all in accordance with the Contract and Specifications and in conformity with Plans and the requirements of the City/Town of .....

I/We agree to accept the prices set forth herein for any additions or deductions caused by variations in quantities due to more accurate measurements, or by any changes or alterations in the plans or specifications during the progress of the work.

I/We further proposed to execute the form of contract and begin work within ten days from the day of the "Notice to Proceed" and to prosecute said work so as to complete the project and its appurtenances within the time limit stipulated; and to furnish a Performance Contract Bond in the required amount as security for the construction and completion of the Project and its appurtenances in accordance with Plans, Specifications and Contract, and a Payment Bond for the payment for all materials or labor, used or employed in the execution of the Contract.

Accompanying this proposal is (Surety Co. Bond) in the amount of .....
..... ($ .....),
as a proposal guarantee which it is understood will be forfeited in the event the Form of Contract is not executed if awarded to the undersigned.

Signed .....
(Legal name of person, firm or corporation)

Address .....
(Street, City State and Zip Code)

IMPORTANT – INSTRUCTIONS FOR SIGNATURE

1. If this BID PROPOSAL FORM is executed by an individual, it must be signed by the individual.
2. If executed by a Corporation, it must have the signature of a duly authorized officer or representative thereof, with his title, and the Corporate Seal, if any, must be affixed.
3. If executed by a partnership, the partnership name, if any, will be signed and each partner will sign as a co-partner, unless a power of attorney is attached authorizing one partner to execute the contract for all the partners.
4. If executed by an individual doing business under a trade name, it shall be signed by this individual doing a business as (as trade name)

TOWN OF VOLUNTOWN, CT
SCHEDULE OF PRICES
FOR THE CONSTRUCTION OF

STATE PROJECT NO. 0147-0062, FAP # 6147(003) CN
REPLACEMENT OF BRIDGE NO. 04805
FORGE HILL ROAD OVER MASHAMOQUET BROOK
IN THE TOWN OF VOLUNTOWN

DATE OF BID OPENING **November 24, 2025** TIME: **10:00 A.M.** **NO BIDS WILL BE ACCEPTED AFTER 10:00 A.M. "NO EXCEPTIONS"**

Note: The bidder shall fill in, under the column "Unit Prices Bid," the unit prices, written in words and in numbers, for which he proposes to perform the various items of work called for, and under the column headed "Amount," the amount of each of the items at the unit price bid. After the proposal is opened and read, the quantities will be extended and totaled in accordance with the written bid prices and the bid will be verified or corrected.

Item Number	Items	Unit	Approximate Quantities	Unit Prices Bid		Amount (Figures)
				Figures	Writing	
0020903A	LEAD COMPLIANCE FOR MISCELLANEOUS EXTERIOR TASKS	LS	1			
0101000A	ENVIRONMENTAL HEALTH AND SAFETY	LS	1			
0201001	CLEARING AND GRUBBING	LS	1			
0201020A	REMOVE AND RESET WOOD FENCE	l.f.	70			
0202000	EARTH EXCAVATION	c.y.	800			
0202200	CHANNEL EXCAVATION-EARTH	c.y.	55			
0202216A	EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL	c.y.	200			
0202217A	SUPPLEMENTAL STREAMBED CHANNEL MATERIAL	est.	3,000	$ 3,000.00	THREE THOUSAND DOLLARS AND ZERO CENTS	$ 3,000.00
0202218A	WASHING-IN SUPPLEMENTAL STREAMBED MATERIAL	est.	10,000	$10,000.00	TEN THOUSAND DOLLARS AND ZERO CENTS	$ 10,000.00
0202315A	DISPOSAL OF CONTROLLED MATERIALS	ton	3,123			
0202529	CUT BITUMINOUS CONCRETE PAVEMENT	l.f.	270			
0203202	STRUCTURE EXCAVATION-EARTH (EXCLUDING COFFERDAM AND DEWATERING)	c.y.	655			
0203304	STRUCTURE EXCAVATION - ROCK (EXCLUDING COFFERDAM AND DEWATERING)	c.y.	35			
0204001	COFFERDAM AND DEWATERING	l.f.	480			
0204151A	HANDLING WATER	LS	1			
0209001	FORMATION OF SUBGRADE	s.y.	1,720			
0213100	GRANULAR FILL	c.y.	10			
0214100	COMPACTED GRANULAR FILL	c.y.	180			
0216000	PERVIOUS STRUCTURE BACKFILL	c.y.	290			
0219001	SEDIMENTATION CONTROL SYSTEM	l.f.	220			
0219011A	SEDIMENT CONTROL SYSTEM AT CATCH BASIN	ea.	7			
0304002	PROCESSED AGGREGATE BASE	c.y.	470			
0305000	PROCESSED AGGREGATE	ton	70			
0406170	HMA S1	ton	305			
0406171	HMA S0.5	ton	360			
0406173	HMA S0.25	ton	11			
0406236	MATERIAL FOR TACK COAT	gal	135			
0406238	NON-TRACKING ASPHALT TACK COAT	gal	20			
0406303A	SAWING AND SEALING JOINTS	l.f.	90			
0406312A	GUTTER LINE SEALING FOR BRIDGES	l.f.	75			
0406600	MATERIAL TRANSFER VEHICLE	ton	325			
0406999A	ASPHALT ADJUSTMENT COST (ESTIMATED COST)	est.	600	$ 600.00	SIX HUNDRED DOLLARS AND ZERO CENTS	$ 600.00
0502195A	TEMPORARY BRIDGE	LS	1			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _ _
It is understood that the unit prices shall govern in case of discrepancy between the unit-prices and this amount.
This bid includes addenda no.: __ __ __ __ __

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Item Number	Items	Unit	Approximate Quantities	Unit Prices Bid		Amount (Figures)
				Figures	Writing	
0503001	REMOVAL OF SUPERSTRUCTURE	LS	1			
0505001	STRAIGHT ENDWALL	c.y.	5			
0505004	D-G ENDWALL	c.y.	3			
0513003	1-1/2" POLYVINYL CHLORIDE PLASTIC PIPE	l.f.	9			
0514232A	PRESTRESSED DECK UNITS (4'-0" X 1'-6")MODIFIED	l.f.	215			
0521021A	STEEL-LAMINATED ELASTOMERIC BEARINGS	c.i.	4,610			
0586002.10	TYPE 'C' CATCH BASIN (4'SUMP) - 0' - 10' DEEP	ea.	2			
0586041.10	TYPE 'C-L' CATCH BASIN (4' SUMP) - 0' - 10' DEEP	ea.	4			
0601062	FOOTING CONCRETE	c.y.	108			
0601064	ABUTMENT AND WALL CONCRETE	c.y.	92			
0601088A	CONCRETE FORM LINERS	s.f.	482			
0601118	BRIDGE DECK CONCRETE	c.y.	16			
0601121	PARAPET CONCRETE	l.f.	50			
0601122	BRIDGE SIDEWALK CONCRETE	c.y.	16			
0601123	APPROACH SLAB CONCRETE	c.y.	44			
0601504	1" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES	s.f.	275			
0602030	DEFORMED STEEL BARS - GALVANIZED	lb.	24,500			
0603474A	METALLIZING STRUCTURAL STEEL (SITE NO. 1)	LS	1			
0686000.15	15" R.C. PIPE - 0' - 10' DEEP	l.f.	90			
0686000.18	18" R.C. PIPE - 0' - 10' DEEP	l.f.	5			
0686002.15	15" R.C. PIPE (CLASS V) - 0' - 10' DEEP	l.f.	56			
0686002.18	18" R.C. PIPE (CLASS V) - 0' - 10' DEEP	l.f.	18			
0703012	MODIFIED RIPRAP	c.y.	35			
0706001	MICROPILES	ea.	57			
0706002	VERIFICATION TEST FOR MICROPILES	ea.	1			
0706003	PROOF TEST FOR MICROPILES	ea.	3			
0706004	MICROPILE LENGTH ADJUSTMENT	l.f.	125			
0707009A	MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	s.y.	180			
0707200A	GEOGRID	s.y.	2,170			
0708001	DAMPPROOFING	s.y.	94			
0755014	GEOTEXTILE (SEPARATION - HIGH SURVIVABILITY)	s.y.	60			
0815001	BITUMINOUS CONCRETE LIP CURBING	l.f.	180			
0819002A	PENETRATING SEALER PROTECTIVE COMPOUND	s.y.	56			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _ _
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Item Number	Items	Unit	Approximate Quantities	Unit Prices Bid		Amount (Figures)
				Figures	Writing	
0822100.01	TEMPORARY TRAFFIC BARRIER	l.f.	200			
0822101.01	RELOCATED TEMPORARY TRAFFIC BARRIER	l.f.	230			
0904051A	3 TUBE CURB MOUNTED BRIDGE RAIL	l.f.	72			
0905019A	REMOVE AND REBUILD EXISTING STONE WALL	LS	1			
0906003A	REMOVE AND RESET WIRE FENCE WITH WOOD POSTS	l.f.	10			
0910023	R-B TERMINAL SECTION	ea.	2			
0910137	17'-0in CURVED GUIDERAIL TREATMENT	ea.	1			
0910170	METAL BEAM RAIL (TYPE R-B 350)	l.f.	120			
0910173	R-B 350 BRIDGE ATTACHMENT - VERTICAL SHAPED PARAPET	ea.	3			
0910190	CONVERT METAL BEAM RAIL (TYPE R-I) TO (TYPE R-B 350)	l.f.	40			
0910300	METAL BEAM RAIL (R-B MASH)	l.f.	240			
0911924	R-B END ANCHORAGE-TYPE II	ea.	4			
0912503	REMOVE METAL BEAM RAIL	l.f.	263			
0921005	CONCRETE SIDEWALK RAMP	s.f.	95			
0922501	BITUMINOUS CONCRETE DRIVEWAY	s.y.	220			
0930001	OBJECT MARKER	ea.	6			
0949000	WOOD CHIP MULCH	s.y.	240			
0949145	QUERCUS RUBRA, NORTHERN RED OAK, 1 3/4in - 2in CAL. B.B.	ea.	3			
0949228	ILEX VERTICILLATA COMMON WINTERBERRY 3'-4' HT. B.B.	ea.	15			
0949381	ARCTOSTAPHYLOS UVA-URSI, BEARBERRY NO. 1 CONTAINER	ea.	95			
0949628	PINUS STROBUS EASTERN WHITE PINE 4'-5' HT. B.B.	ea.	3			
0949915	RHODODENDRON VISCOSUM, SWAMP AZALEA 24in - 36in HT. B.B.	ea.	20			
0949921	GERANIUM SANGUINEUM, CRANESBILL GERANIUM, 1 GAL. CONTAINER	ea.	220			
0949926	VACCINIUM CORYMBOSUM, HIGHBUSH BLUEBERRY, 24in - 36in HT. B.B.	ea.	20			
0950019A	TURF ESTABLISHMENT - LAWN	s.y.	440			
0950039	EROSION CONTROL MATTING TYPE D	s.y.	100			
0950040A	CONSERVATION SEEDING FOR SLOPES	s.y.	770			
0950043A	WETLAND GRASS ESTABLISHMENT	s.f.	480			
0952051A	CONTROL AND REMOVAL OF INVASIVE VEGETATION	s.y.	1,180			
0969060A	CONSTRUCTION FIELD OFFICE, SMALL	mo.	16			
0971001A	MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1			
0974001	REMOVAL OF EXISTING MASONRY	c.y.	96			
0975004	MOBILIZATION AND PROJECT CLOSEOUT	LS	1			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _
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				Figures	Writing	
0976002	BARRICADE WARNING LIGHTS - HIGH INTENSITY	day	4,800			
0979003	CONSTRUCTION BARRICADE TYPE III	ea.	5			
0980020	CONSTRUCTION SURVEYING	LS	1			
1111201A	TEMPORARY DETECTION (SITE NO. 1)	LS	1			
1118051A	TEMPORARY SIGNALIZATION (SITE NO. 1)	LS	1			
1206023A	REMOVAL AND RELOCATION OF EXISTING SIGNS	LS	1			
1208931A	SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)	s.f.	45			
1208937A	SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)	s.f.	114			
1209124	HOT-APPLIED PAINTED PAVEMENT MARKINGS 4" WHITE	l.f.	1,110			
1209129	HOT-APPLIED PAINTED PAVEMENT MARKINGS 12" WHITE	l.f.	35			
1210102	4in YELLOW EPOXY RESIN PAVEMENT MARKINGS	l.f.	700			
1210106	12in WHITE EPOXY RESIN PAVEMENT MARKINGS	l.f.	35			
1220027A	CONSTRUCTION SIGNS	s.f.	885			
1802210.07	TEMPORARY SAND BARREL (700 lb.)	ea.	5			
1802210.14	TEMPORARY SAND BARREL (1400 lb.)	ea.	20			
1802210.21	TEMPORARY SAND BARREL (2100 lb.)	ea.	10			
1802211.07	RELOCATION OF TEMPORARY SAND BARREL (700 lb.)	ea.	5			
1802211.14	RELOCATION OF TEMPORARY SAND BARREL (1400 lb.)	ea.	20			
1802211.21	RELOCATION OF TEMPORARY SAND BARREL (2100 lb.)	ea.	10			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _ _
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This bid includes addenda no.: __ __ __ __ __

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Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _ _
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CONTRACT TIME AND LIQUIDATED DAMAGES

1. For this contract, an assessment per day for liquidated damages, at a rate of One Thousand, Two Hundred Dollars ($1,200) per day shall be applied to each calendar day the work runs in excess of the Three Hundred Ninety-three (393) allowed calendar days for the contract.

Note: PRIME CONTRACTOR'S REQUIREMENTS:

A. Proposal Guaranty (Bid Bond): Except when otherwise specified, no proposal will be considered unless accompanied by a proposal guaranty in the form of a bond furnished by a surety company, satisfactory to the Engineer, in an amount equal to at least 30% of the amount of the bid, or unless the bidder has on file in the Town, an annual bid bond in the proper amount.

   The surety must be a corporate surety licensed to sign surety bonds in the State of Connecticut.

B. The low bidder is required to submit to the Town, both a Certificate of Insurance and a Workers' Compensation Certificate on or before the signing of the Contract.

C. Statement of Bidder's Qualifications: Each bidder is required to submit to the Town a recent sworn statement of the bidder's qualifications the form furnished by the Town for this purpose.

D. Contracts will not be awarded until the above requirements have been submitted and approved.

E. Please be aware that the Town, prior to the awarding of the Contract, may require further financial and other information from any applicant who becomes the low bidder for that Contract.

NAME OF PRINCIPAL

(Contractor, Second Party, Etc.):

TOWN/CITY OF _____ _____

Project or Contract Identification

STANDARD BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That We, ...,
of .....,
hereinafter called the "Principal", as Principal, and .....
.....
a corporation organized and existing under the laws of the State of .....,
and duly authorized to transact a surety business in the State of Connecticut, hereinafter called the "Surety," as Surety, are held and firmly bound unto the Town/City of ....., as "Obligee," in the penal sum of **THIRTY PERCENT (30%) OF THE AMOUNT OF THE ATTACHED BID** in lawful money of the United States of America, for the payment of which, well and truly to be made to the Obligee, we bind ourselves, our heirs, 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 the said Principal has herewith submitted, his bid dated ..... 20___, for ……
.....
.....,
.....,
.....,
.....,
.....,

NOW, THEREFORE, if the Principal shall not withdraw its bid within sixty (60) days after the opening of the same, and if said bid shall be accepted and the contract awarded to said Principal, and the Principal shall, when required by the ....., or his authorized agent, execute and agreement in writing for the work bid upon, and deliver such surety bonds as shall be acceptable to said ..... for the performance of the work according to said written agreement and for the protection of person supplying labor or materials in the prosecution of said work, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void; otherwise the Principal and Surety hereto agree to pay unto the Obligee the difference between the amount of the bid of said Principal, submitted herewith, and the amount for which the Obligee may contract with another party to perform the work covered by the said bid of the Principal.

The Surety executing this Instrument hereby agrees that its obligation shall not be impaired by any extension(s) of the time for acceptance of the bid that the Principal may grant to the Obligee, notice of which extension(s) the Surety being hereby waived; provided that such waiver of notice shall apply only with respect to extensions aggregating not more than sixty (60) calendar days in addition to the period originally allowed for acceptance of the bid.

IN TESTIMONY WHEREOF, the said ..... .
.....
have caused these presents to be signed by their duly authorized representatives and their name and corporate seal to be hereunto affixed, the day and year first written.

SURETY	**PRINCIPAL**
_____	_____
Print Name	Print Name
_____	_____
Agent's Signature and date enclose valid Power of Attorney	Signature and date of Authorized Representative

NON COLLUSION AFFIDAVIT

This Affidavit must be completed, notarized and attached to your Bid Proposal. Failure to do so will result in the rejection of your Bid. A separate Affidavit must be submitted by each principal of a Joint Venture.

State Project No. _____
F.A. # _____
City/Town _____
Description of Project _____
_____

I, _____ , acting in behalf of _____
(Name of Party Signing Affidavit)

_____ of which
(person, firm, association, corporation or organization)
I am the _____ , submitting a bid for the above project, certify
(Title of Person)
and affirm in accordance with Section 112(c) of Title 23, U.S. Code Highways that the _____
_____
(person, firm, association, corporation or organization)
has neither directly or indirectly entered into any agreements, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with such bid. False statements made herein may be the subject of criminal prosecution.

_____
Name of Corporation or Firm

_____
Signature and Title of Official
Making the Affidavit

Subscribed and sworn to before me, this _____ day of _____20__.

_____
Notary Public/Commissioner of the Superior Court
My Commission Expires_____

CERTIFICATE OF CORPORATION

I, _____ , certify that I am the _____
_____ Secretary of the Corporation named in the foregoing instrument: that I have been duly authorized to affix the seal of the Corporation to such papers as require the seal; that_____ , who signed said instrument on behalf of the Corporation, was then _____ of said Corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporate powers.

_____
(Corporate Seal) Signature of Person Certifying

Department _____
_____
_____Compliance Officer
Date_____

☐ APPROVED

☐ DISAPPROVED

☐ PENDING INVESTIGATION

☐ INVESTIGATION REQUESTED

STATE OF CONNECTICUT LABOR DEPARTMENT

EMPLOYER REPORT OF PERMANENT COMPLIANCE STAFFING

The following report is submitted as part consideration of the proposed contract dated_____ between the undersigned and the City/Town of _____

Name of Contracting Firm

_____

Address (No. and Street) (City) (State)

Type of Report

Prime Contractor

Subcontractor

EMPLOYEE INFORMATION

Total Employed	White	Black	Spanish Surname	Other (specify)

Does your firm have a collective bargaining agreement or other Contract or understanding with a labor organization or employment agency for the recruitment of labor?

YES ☐

If yes, list the name and address of the agency or organization.

Name Address (No. and Street, City, State)

NO ☐

If no, indicate the usual methods of recruitment.

☐ Connecticut State Employment Service
☐ Private Employment Agency
☐ Newspaper Advertisement
☐ Walk-in
☐ Other (specify)

The signer certifies that its practices and policies, including but not limited to matters concerning personnel, training, apprenticeship, membership, grievance and representation, and upgrading, do not discriminate on grounds of race, color, religious creed, age, sex, or national origin, or ancestry of any individual, and that the signer agrees it will affirmatively cooperate in the implementation of the policy and provisions of Executive Order Number Three, and consent and agreement is made that recruitment, employment and the terms and conditions of employment under the contract shall be in accordance with the purposes and provisions of Executive Order Number Three.

☐ Yes ☐ No Is firm in minority ownership? (51% of assets in control of minorities)

I certify that the above is correct to the best of my knowledge.

Employer_____ Date
Business Name

By _____
Signature Title

STATEMENT OF BIDDER'S QUALIFICATIONS

CITY/TOWN_____ PROJECT NO._____

All bidders are required to file this form, properly completed, WITH THEIR PROPOSAL. Failure of a bidder to answer any question or provide required information may be grounds for the awarding authority to disqualify and reject their bid. If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable). Use additional 8½" x 11" sheets with your letterhead as necessary.

1. Indicate exactly the name by which this organization is known:

   Name _____

2. How many years has this organization been in business under its present business name?

   Years_____

3. How many years has this organization been in business as a General Contractor?

   Years_____

4. If this organization has not always been a General Contractor, list the trade(s) that your firm customarily performed prior to the time that you became a General Contractor:

   1._____

   2._____

   3._____

5. Indicate all other names by which this organization has been known and the length of time known by each name:

   1._____

   2._____

   3._____

6. This firm is a _____Corporation _____Partnership _____Sole Proprietorship

   _____Joint Venture _____Other.

7. Attach resumes of all supervisory personnel, such as Principals, Project Managers, and Superintendents, who will be directly involved with projects on which you are now a bidder. Indicate the number of years of construction experience and number of years of which they were in a supervisory capacity.

8. List all sub-trades which your firm customarily performs with own employees.

   1. _____

   2. _____

   3. _____

9. Trade References: Names, addresses and telephone numbers of several firms with whom your organization has regular business dealings.

(Attach separate sheet)

10. All Construction Projects Your Organization has in Process:

TITLE & LOCATION	CONTR. AMOUNT	PRIME* OR SUB-CONTRACTOR	OWNER	DESIGNER	START DATE	FINISH DATE	ANY COMPLAINT AS TO QUALITY OR MANAGEMENT	NAME & PHONE OF OWNER'S REP	NAME & PHONE OF DESIGNER REP

Please attach a separate sheet explaining any negative entry in these three columns

Notes: Indicate "Prime" only if your organization performed 51% or greater of the total contract amount.

11. All Construction Projects Your Organization has completed in the past five years or the twenty projects most recently completed:

TITLE & LOCATION	CONTR. AMOUNT	PRIME* OR SUB-CONTRACTOR	OWNER	DESIGNER	START DATE	FINISH DATE	ANY COMPLAINT AS TO QUALITY OR MANAGEMENT	NAME & PHONE OF OWNER'S REP	NAME & PHONE OF DESIGNER REP

Please attach a separate sheet explaining any negative entry in these three columns

Notes: Indicate "Prime" only if your organization performed 51% or greater of the total contract amount.

12. Has your organization ever failed, or has any officer or partner of your organization ever been an officer or partner of another organization that failed to complete a contract in any jurisdiction. If so, indicate the circumstances leading to the project failure.

_____

_____

_____

13. List all legal or administrative proceedings currently pending or concluded adversely within the last five years which relate to procurement or performance of any public or private construction contracts in any jurisdiction.

1. _____ Attached 2. _____ N/A

Dated at _____

this _____ day of _____ 20_____.

Name of Organization:

_____

Signature _____(Seal)

(Print Name) _____

Title _____

Notary Statement:

Mr./Mrs./Ms. _____ being duly

sworn deposes and says that he/she is the _____
(Position or Title)

of _____, and that the answers to the foregoing questions and all statements therein
(Firm Name)

contained are true and correct.

Subscribed and sworn before me this _____ day of _____

_____ 20_____.

Notary Public: _____

My Commission Expires _____ 20 _____

DESIGN STATEMENT

FEDERAL AID PROJECT NO: 6147(003) CN

STATE PROJECT NO: 0147-0062

TOWN: Voluntown

BRIDGE NO: 04805

LOCATION: Forge Hill Road over Pachaug River

DISTRICT NO: 2

PROPOSED WORK: Replacement of Bridge No. 04805

FINAL MAINTENANCE RESPONSIBILITY: To be maintained by the Town of Voluntown

PUBLIC UTILITIES:
The Connecticut Light and Power Company dba Eversource Energy – Electric
The Southern New England Telephone Company dba Frontier Communications – Communication
Comcast – Communication

SALVAGE: None

PERMITS AND AGREEMENTS:
Town of Voluntown Inland Wetlands and Watercourses – Approval received June 17, 2025
Flood Management Certification - MOU –Approval Pending
US Army Corps of Engineers Self-Verification – Approval Pending

MAINTENANCE AND PROTECTION OF TRAFFIC:
A temporary bridge carrying one-way, alternating traffic will carry vehicles over Pachaug River during removal and construction of the new bridge. Due to tight turning radii, trucks will be detoured via Forge Hill Road, Beach Pond Road (State Route 165), Ekonk Hill Road (State Route 49), and Wylie School Road during construction.

SPECIAL CONSIDERATIONS:
Time of Year Tree clearing restricted to November 1 to April 14
Time of Year Cofferdam Installation/Removal Restrictions – See NTC
Best Management Practices for Eastern Hog Nose Snake

CALENDAR DAYS: 393

WINTER SHUTDOWN: Yes

DBE % (Construction): N/A

PLAN DISTRIBUTION: Town of Voluntown via Advanced Reprographics

Consultant Design Engineer: **Alfred Benesch & Company, Inc.**
Consultant Liaison Engineer: **CHA CONSULTING, INC.**

Federal Project No. 6147(003) CN
State Project No. 0147-0062
Municipality: Voluntown

INDEX TO SPECIAL PROVISIONS

Note: This index has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this index shall not be considered part of the contract.

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Municipality: Voluntown

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Task 710 Environmental Report
Geotechnical Report
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DATE: October 27, 2025
FEDERAL PROJECT NO. 6147(003) CN
STATE PROJECT NO. 0147-0062

REPLACEMENT OF BRIDGE NO. 04805
FORGE HILL ROAD OVER PACHAUG RIVER
TOWN OF VOLUNTOWN

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 819, 2024, as revised by the Supplemental Specifications dated January 2025 (otherwise referred to collectively as "CTDOT Form 819") is hereby made part of this contract, as modified by the Special Provisions contained herein. CTDOT Form 819 with Supplemental Specifications dated January 2025 is available at the following DOT website link:

https://portal.ct.gov/dot/-/media/dot/aec/form_819-with-january-2025.pdf?rev=3bd1e067b9cf4007b799bd8ffd29a41d.

The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual") is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available at the following DOT website link:

https://portal.ct.gov/dot/-/media/dot/contracts/constructioncontractbidding-awardmanual.pdf?rev=148e4dfd33234f0da93b0315c20e8ad8

The Special Provisions relate in particular to the Replacement of Bridge No. 04805 in the Town of Voluntown.

CONTRACT TIME AND LIQUIDATED DAMAGES

Three Hundred and Ninety-Three (393) calendar days will be allowed for completion of all work as described in the contract documents for Federal Project No. 6147(003), State Project No. 0147-0062. For this contract, an assessment per day for liquidated damages at a rate of One Thousand Two Hundred Dollars ($1,200) per calendar day shall be applied to each calendar day the work runs in excess of the Three Hundred and Ninety-Three (393) allowed calendar days for the contract.

NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS (DAVIS BACON ACT)

The following Federal Wage Determinations are applicable to this Federal-Aid contract and are hereby incorporated by reference. During the bid advertisement period, it is the bidder's responsibility to obtain the latest Federal wage rates from the US Department of Labor website, as may be revised 10 days prior to bid opening. Any revisions posted 10 days prior to the bid opening shall be the wage determinations assigned to this contract.

Check Applicable WD# (DOT Use Only)	WD#	Construction Type	Counties
	CT1	Highway	Fairfield, Litchfield, Middlesex, New Haven, Tolland, Windham
X	CT2	Highway	New London
	CT3	Highway	Hartford
	CT5	Heavy Dredging (Hopper Dredging)	Fairfield, Middlesex, New Haven, New London
	CT6	Heavy Dredging	Statewide
	CT13	Heavy	Fairfield
	CT14	Heavy	Hartford
	CT15	Heavy	Middlesex, Tolland
	CT16	Heavy	New Haven
X	CT17	Heavy	New London
	CT26	Heavy	Litchfield, Windham
	CT18	Building	Litchfield
	CT19	Building	Windham
	CT20	Building	Fairfield
	CT21	Building	Hartford
	CT22	Building	Middlesex
	CT23	Building	New Haven
	CT24	Building	New London
	CT25	Building	Tolland
	CT4	Residential	Litchfield, Windham
	CT7	Residential	Fairfield
	CT8	Residential	Hartford
	CT9	Residential	Middlesex
	CT10	Residential	New Haven
	CT11	Residential	New London
	CT12	Residential	Tolland

The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (SAM.gov | Wage Determinations) as may be revised 10 days prior to bid opening. The Department will no longer physically include

revised Federal wage rates in the bid documents or as part of addenda documents. These applicable Federal wage rates will be incorporated in the final contract document executed by both parties.

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

To obtain the latest Federal wage rates, go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose "Selecting DBA WDs" and follow the instruction to search the latest wage rates for the State, County and Construction Type.

NOTICE TO CONTRACTOR – AWARD AND EXECUTION OF CONTRACT

Bridge No. 04805 is anticipated to have a Notice to Proceed to Construction of April 1, 2026. Upon Award of the construction contract, the Contractor shall proceed with the development of shop drawings and working drawings, procurement of materials, utility coordination and all other submittals required to complete the work, in accordance with Article 1.03.09 Contractor Readiness and the contract documents. However, in no case shall the Contractor begin with on-site work until all permit approvals have been acquired and a Notice to Proceed to Construction has been granted.

NOTICE TO CONTRACTOR – STANDARD DRAWINGS

Bidders are hereby notified that the standard drawings (if any) referenced on the plans for this Project are available on the State of Connecticut Department of Transportation's website.

NOTICE TO CONTRACTOR – CONTRACT DURATION

The Contractor is hereby notified that this is not to be considered an ordinary project by any means and that due to the inconvenience to the traveling public that it causes, extra manpower, equipment, and work shifts may be required to complete the work in accordance with the specified contract time.

NOTICE TO CONTRACTOR – PREQUALIFICATION REQUIREMENT

Prospective bidders must have a current sworn Statement (CON-16) on file with the Connecticut Department of Transportation and be prequalified to perform Group No. 8 (Minor Bridges) work. **The Contractor's current CTDOT "Prequalification Approval letter stating the Firm's approved work classifications and signed by the CTDOT Contracts Manager" (see sample below) shall be included as part of the bid package submitted to the Municipality.**

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

Phone: 860-594-3128

October 26, 2018

ABC Construction
Mr. Doe
123 Main St.
Santa Clara, Connecticut 06000

Re: Contractor's Prequalification
Statement (CON-16)

Dear Mr. Doe;

This is to notify you that your Firm's subject statement has been found to be satisfactory by this Department.

It will expire August 31, 2021

Your Maximum Capacity Rating is $60,000,000.00

Your Construction Classification is:

Group No. 1 Earthwork: Site Work
Group No. 2 Earthwork: Utility Work
Group No. 3 Concrete Restoration
Group No. 4 Specialized Concrete Repair
Group No. 5 Paving and Associated Construction
Group No. 6 Road Construction and Rehabilitation: Local Roads & Streets and non-freeways.
Group No. 7 Road Construction and Rehabilitation: Limited Access Highways, freeways, and major reconstruction of non-freeway state routes.
Group No. 8 Minor Bridges
Group No. 9 Intermediate Bridges
Group No. 10 Major Bridges
Group No. 11 Bridge Painting
Group No. 12 Marine repairs, Marine Construction or Salvaging
Group No. 13 Traffic Control & Illumination/Electrical
Group No. 14 Signing Delineation

Sample

Group No. 15 Intelligent Transportation Systems(ITS)
Group No. 16 Pavement Markings
Group No. 17 Incidental Construction: Fencing
Group No. 18 Incidental Construction: Guide Rail
Group No. 19 Incidental Construction: Bridge Joints & Membranes
Group No. 20 Incidental Construction: Temporary Traffic Control
Group No. 21 Railroad Construction
Group No. 22 Railroad Construction Electrical
Group No. 23 Landscaping/Environmental Improvements
Group No. 24 Environmental
Group No. 25A Vertical Construction
Group No. 25B Vertical Construction Includes Group 25 A
Group No. 25C Vertical Construction Includes Groups 25 A & B

A Proposal Request (Part "C") can be obtained via this link:
http://www.ct.gov/dot/lib/dot/documents/dcontractdev/partc.xls

No bidders that have mutual financial interests, or common ownership, directors, officers or principal shareholders (i.e., shareholders holding at least five percent [5%] of either the common or the preferred shares of the company's stock) may bid for the same Department contract. Such proscribed bidders shall include, but not be limited to, affiliates and subsidiaries of each other.

If any non-bidding party has an ownership interest in more than one bidder that is bidding for a given contract, either directly or through the former's ownership interests in another company, no matter how high up or far removed in a vertical or horizontal chain of ownership that party might be from the bidders, the bids of those bidders shall not be accepted.

In addition, with respect to any given Department contract that is advertised for bidding, no bidder owned by, or in the chain of ownership of, a company which provides surety bonds may bid against a bidder for whom a bond has been or will be provided by that company for the given contract bidding. All bids proscribed by the terms of this paragraph will be rejected by the Commissioner.

Please be aware that the Department, prior to the awarding of any contract, may require further financial and other information from any applicant who becomes the low bidder for that contract.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Gregory D. Straka

Gregory D. Straka
Contracts Manager
Division of Contracts Administration

Sample

NOTICE TO CONTRACTOR – BID REJECTION

Bidders are hereby notified that until the award of the Contract, the Municipality reserves the right to reject any or all bids for any reason whatsoever, and to waive technicalities as deemed to be in the best interests of the Municipality.

NOTICE TO CONTRACTOR – POTENTIAL MODIFIED AWARD SCHEDULE

The Contractor is hereby given notice that this Contract may not be awarded until all State and Federal funding approvals have been received. If funding approvals are not received, this Contract award may be delayed or the Contract may be withdrawn and re-advertised at the discretion of the Municipality, in consultation with CTDOT, per section XIII of the Construction Contract Bidding and Award Manual. Any delay to the Contract award or failure to award shall not be the basis for any claims by any bidder.

NOTICE TO CONTRACTOR – PRE-AWARD DOCUMENTS/ NON-RESPONSIVE BIDDER

Bidders are hereby notified that all other required pre-award submittals, properly executed on the forms provided by the Municipality shall be furnished to the Municipality NO LATER THAN FOURTEEN (14) calendar days after the bid opening. These documents include but are not limited to: Contractor's Proposed Progress Chart; Anticipated Source of Materials; Statement of Bidders Qualifications.

The Municipality may reject a bid as non-responsive if the bidder does not make all required pre-award submittals within the herein stipulated calendar days.

NOTICE TO CONTRACTOR – INSURANCE

The insurance industry's standard ACORD Certificate of Liability Insurance will replace the CON-32 Form. All required levels ($) of insurance coverage governed by the Connecticut DOT's Standard Specifications (Form 819) Section 1.03.07, or as amended by special provision, shall be identified on the ACORD Form.

The ACORD Form shall identify the Municipality, with its official address, as the certificate holder. The project description together with the State Project number shall be included under "Description of Operations". The Municipality and the State shall be named as additional insured, as required in Section 1.03.07.

NOTICE TO CONTRACTOR – SUPERVISION AND INSPECTION

This project will be supervised and inspected by the Municipality or its authorized agent. The "Notice to Proceed", stipulating the date on which the Contractor will begin the construction and from which date the contract time will be charged, will be issued by the Municipality.

NOTICE TO CONTRACTOR – ANTICIPATED CONSTRUCTION SCHEDULE

It is anticipated that this project will require two construction seasons with a winter shutdown period. Construction stages referenced below are as shown in the Contract Plans. The construction operations are anticipated to follow the following schedule:

1) **Construction Season 1 – 4/1/26 TO 11/30/26**
    a. Anticipated acquisition of ROW – April 1, 2026 (the following work cannot proceed without ROW acquisitions)
    b. Contractor to initiate preparation of shop drawings, working drawings, procurement of materials, utility coordination and all other submittals required to complete the work upon Award.
    c. Remove trees (See NTC for TOY Restrictions). Temporarily relocate overhead utilities.

Phase 1A

a. Install the temporary roadway on the north side of the intersection of Wylie School Road and North Shore Road in accordance with MPT Phase 1A utilizing alternating one-way traffic with temporary signals.

Phase 1B

a. Install MPT Phase 1B utilizing alternating one-way traffic with temporary signals, signage and traffic barriers.
b. Clear, grub, and install the sedimentation control system. Install Phase 1B cofferdam, temporary barricades and dewatering for construction of temporary bridge abutments.
c. Construct temporary bridge.
d. Construct temporary bypass road west of the existing bridge.
e. Modify the intersection at Wylie School Road, North Shore Road and Forge Hill Road to allow for one-way alternating traffic during Phases 2A, 2B and 2C
f. Remove cofferdam not required for Phase 2A construction.

Phase 2A

a. Install MPT Phase 2 utilizing alternating one-way traffic with temporary signals, signage, and temporary traffic barrier. Re-route traffic onto temporary bypass road.
b. Install temporary debris shield for removal of existing superstructure.
c. Remove existing bridge superstructure. When bridge superstructure removal is complete, remove debris shield.
d. Install Phase 2A cofferdams. Remove existing bridge substructures.
e. Excavate inside cofferdams to approximate bottom of new substructures. Stockpile natural streambed material (in upland area).

f. Install micropiles for proposed substructures.
g. Construct footings, abutments, and wingwalls for the proposed bridge structure.
h. Re-grade proposed channel within the cofferdams. Partially install washed-in natural streambed material over riprap, and natural streambed material.
i. Backfill and grade slopes around abutments and wingwalls.
j. Remove cofferdam and dewatering basin installed in Phase 2A that is not required for Phase 2B construction.

Phase 2B

a. Maintain traffic over temporary bypass road.
b. Install water handling cofferdam for Phase 2B.
c. Re-grade proposed channel within water handling cofferdam. Finish installation of streambed material and washed-in streambed material over riprap. Partially install riprap for splashpads west of proposed Abutments 1 and 2.
d. Remove cofferdam and water handling cofferdam that is not required for Phase 2C construction.

Phase 2C

a. Maintain traffic over temporary bypass road.
b. Install prestressed solid deck beams.
c. Tie rebar, form closure joints, and place closure joints between deck beams.
d. Construct approach slabs.
e. Tie rebar, form and pour concrete sidewalk and curb.
f. Install membrane waterproofing and 1" HMA and S0.25 on bridge and approach slab.

2) **Winter Shutdown – 12/01/2026 TO 04/01/2027**

a. Maintain signalized alternating one way traffic over temporary roadway and bridge site and detour route for truck traffic.

3) **Construction Season 2 – 04/01/2027 To Completion of Calendar Days**

Phase 2C (Continued)

a. Install 3-tube curb mounted bridge rail.
b. Install catch basin at STA. 14+18R and a portion of R.C.P. as allowed without disrupting temporary roadway.
c. Install proposed roadway subbase (used as a temporary driving surface) and temporary transition onto approach slabs.

Phase 3

a. Remove MPT for Phases 2A, 2B, and 2C, signage, and barriers not required for Phase 3. Re-route two-way traffic onto newly constructed bridge and partially constructed proposed approach roadway. Using CTDOT approved temporary MPT plans as necessary, remove temporary bypass road and temporary bridge connecting Forge Hill Road to Wylie School Road. Remove temporary roadway north of the intersection of Wylie School Road and North Shore Road. Remove temporary traffic barriers.
b. Complete installation of roadway drainage, and install remainder of riprap splashpads west of Abutments 1 and 2. Remove remaining cofferdam.

c. Install roadway guiderails and pave roadway using CTDOT approved temporary traffic control methods.
d. Install plantings and turf establishment.
e. Remove sedimentation control systems upon permanent stabilization.

NOTICE TO CONTRACTOR – MUNICIPAL PROJECT/FIELD OFFICE

Bidders are hereby notified that this is a Municipal project. As such, the construction field office requires the approval of the Municipality's electrical inspector instead of the State's CTDOT electrical inspector. Additionally, the installation of a data communication circuit between the field office and the CTDOT Data Communications Center in Newington will not be required.

NOTICE TO CONTRACTOR – APPROVALS AND INSPECTION BY THE STATE

The Contractor is hereby notified that pursuant to an Agreement between the State and the Municipality for the construction, inspection and maintenance of this project, the Municipality is required to obtain written approvals from the State of Connecticut Department of Transportation for the following contract administration matters prior to the Municipality giving its approval to the Contractor:

- Award and Execution of Contract
- Changes in Scope of Work including Extra Work and Value Engineering Proposals
- Extensions of Contract Time

The Contractor is also hereby notified that pursuant to the aforementioned Agreement, the Department will provide certain services, including, but not limited to, materials testing, periodic construction inspection, and liaison services with other governmental agencies to ensure satisfactory adherence to state and federal requirements for this project.

NOTICE TO CONTRACTOR – VERIFICATION OF EXISTING CONDITIONS

Included in this contract is the modification, alteration and/or addition to existing structures. Contractors are cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features, as actual conditions may differ from information shown on the plans or contained elsewhere in the specifications.

NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS AND FIELD MEASUREMENTS

The Contractor is responsible for verifying all dimensions before any work is begun. Dimensions of the existing structures shown on the plans are for general reference only; they are not

guaranteed. The Contractor shall take all field measurements necessary to assure proper fit of the finished work and shall assume full responsibility for their accuracy. When shop drawings and/or working drawings based on field measurements are submitted for approval and/or review, the field measurements shall also be submitted for reference by the reviewer.

In the field, the Contractor shall examine and verify all existing and given conditions and dimensions with those shown on the plans. If field conditions and dimensions differ from those shown on the plans, the Contractor shall use the field conditions and dimensions and make the appropriate changes to those shown on the plans as approved by the Engineer. All field conditions and dimensions shall be so noted on the drawings submitted for approval.

There shall be no claim made against the Town of Voluntown for work pertaining to modifications required by any difference between actual field conditions and those shown by the details and dimensions on the contract plans. The Contractor will be paid at the unit price bid for the actual quantities of materials used or for the work performed, as indicated by the various items in the contract.

NOTICE TO CONTRACTOR – UTILITY COORDINATION

Overhead utility lines may be in conflict with required temporary or permanent construction or the equipment necessary to perform this required construction. While efforts will be made by the Town and utility owners to minimize conflicts, the contractor is advised to plan his construction methods for work adjacent to, above or underneath existing or relocated utilities. Unless otherwise and specifically noted on the plans or separate utility plans that are included with the contract drawings, the contractor should have no expectation that any utility will be relocated either temporarily or permanently outside the work area or to accommodate the contractor's construction schedule or methods of operations.

The coordination and planning of actual utility relocations, either permanent or temporary, are the joint responsibility of the contractor and individual utility owners. If relocation of utilities is required to accommodate the contractor's construction operations, the contractor is required to coordinate the location and timing of all utility relocations with the individual utility owners, and to plan and phase his construction operations accordingly. In addition to field meetings and correspondence, this coordination may include (but is not limited to) coordination with utility owners regarding what relocations can be made, adjustments of planned construction operations and techniques, staking of locations, excavation and temporary grading, providing access to existing and future utility poles and/or conduit locations, or other physical work as required to allow for utility relocation work. The contractor shall engage in the necessary coordination of utility relocations and associated work at no additional cost to the project or owner and shall have no right to additional compensation for costs associated with relocation of utilities, working in close proximity to existing or relocated utilities, staging and phasing of his work or for delays as a result of utility relocation work.

The Contractor is hereby notified of the following utilities that are affected by the project. This notice does not relieve the Contractor of their responsibility to locate and safely work adjacent to all utilities located within the project limits.

- Existing utility poles, owned by Eversource are present at the project site. The utility conduits associated with these poles include, but are not limited to, Eversource, Frontier Communications of Connecticut, and Comcast. Other utilities may be present that were not identified in the field. The Contractor is responsible for identification and coordination with each utility.
- The proposed aerial utility relocations, to be performed by the respective utility companies, have been shown on the contract drawings. It is anticipated that the utility companies will temporarily and permanently relocate overhead utilities as shown on the drawings.
- The Contractor is herein notified that the existing location of the aerial facilities is located within the 10-foot clearance envelope for the installation and removal of bridge elements at the bridge site. Prior to Construction, Eversource will install a temporary pole on the west side of Forge Hill Road and a temporary pole on the north side of Wiley School Road for a temporary relocation of Eversource, Frontier, and Comcast utilities and maintain the necessary clearance envelope for construction. Subsequent to bridge construction, Eversource, Frontier, and Comcast will permanently relocate overhead utilities utilizing existing poles. The temporarily installed utility poles will be removed.
- Call Before You Dig must be contacted by the Contractor prior to performing any work.

NOTICE TO CONTRACTOR – PUBLIC UTILITIES

The actual location of the utilities shall be determined by the Contractor. The information shown on the Contract Plans is for the informational use only and is in no way warranted to be complete or indicate the true conditions, most data being furnished by others. In all cases, the Owner accepts no responsibility for the existence or location of underground and overhead utilities and, if shown, said locations are to be considered approximate.

The Contractor shall inquire of the utility companies well in advance of actual construction as to the location of their mains, conduits, services, and service laterals in and adjacent to the area under construction and request location markings. The cost for obtaining such locations, and any other costs for connections or disconnections, shall be paid by the Contractor, unless otherwise specified.

Protection of Existing Utilities

The Contractor's attention is directed to the need for the protection of the existing overhead and underground utilities, during the construction of the proposed structure.

The contractor shall maintain proper clearances in accordance with OSHA regulations when working adjacent to these overhead utilities.

Representatives of the various utility companies shall be allowed access to the work.

All utilities shall be maintained during construction except as specifically stated herein and/or noted on the plans and as coordinated with the utilities. Construction work within the vicinity of

utilities shall be performed in accordance with current safety regulations. All construction activities shall be accomplished in such a manner that all utility facilities are not damaged.

The Contractor shall be liable for all damages or claims received or sustained by any persons, corporations or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor. Any damage to any existing utility shall be repaired including all materials, labor, etc., to the Engineer's satisfaction at no cost to the Town including all materials, labor, etc., required to complete the repairs.

The Contractor's attention is directed to the requirements of Article 1.07.13 – Contractor's Responsibility for Adjacent Property and Services. Prior to installing guiderail systems and end anchorages, efforts shall be made to determine whether underground installations, i.e., sewer, fuel, electric lines, etc., will be encountered and, if so, where such underground installations are located. When the work approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper support shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

In order to notify utility companies, the number 1-800-922-4455 (Call Before You Dig) must be called at least forty-eight (48) hours prior to the start of any excavation, including milling, reclamation, trenching, and guide rail installation. This notification will enable the utility companies to mark out their facilities in the field.

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

The attached project specific utility work schedules were provided to the Connecticut Department of Transportation (CTDOT) by the utility companies regarding their identified work on this project.

The utility scheduling information is provided to assist the Contractor in scheduling its activities. However, CTDOT does not ensure its accuracy and Section 1.05.06 of the Standard Specifications still is in force.

The utility scheduling information shall be incorporated into the Contractor's pre-award schedule in accordance with CTDOT's Bidding and Award Manual and Section 1.05.08 of the Contract.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to CTDOT in accordance with Section 1.05.08 of the Contract.

The Contractor shall incorporate the contemporaneous utility scheduling information into its baseline schedule submittal. The baseline schedule shall include Contractor predecessor and successor activities to the utility work in such detail as acceptable to the Engineer.

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number:	147-62	Town:	Voluntown
Project Description:	Bridge 04805 over Pachaug River		
CTDOT Utilities Engineer:	Rachelle Clark		
Phone:	(860) 241-5521	Email:	RachelleClark@chasolutions.com
Utility Company:	Eversource Energy		
Prepared By:	Rick Arremony	Date Prepared:	1/29/2025
Phone:	860-779-4628	Email:	ichard.arremony@eversource.co

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

Stage 1 - TEMP - Relocate ES OH Lines from Poles 275 to 228 to Temp Poles West of Bridge to allow replacement of bidge.
STATE 2 - PERM Relocate ES OH Lines to Perm loacations

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

1. Eversource will schedule its construction as it's workload permits, the State and/or assigned contractor will schedule other utilities attached to the pole line (Frontier, CATV, etc... and all State or Municipal owned cables and fixtures). This UWS has been completed using only Preliminary Design Plans. No mark out of edge of road, or construction limits provided and may be subject to change.

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 147-62

Utility Company: Eversource Energy

Prepared By: Rick Arremony Total Working Days: 5

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
	STAGE 1		
		State written permit to proceed 8 weeks noticed required	
		Tree removal & clearing are completed by State's Contractor	
	Eversource & Frontier to review pole staked locations and stake anchors	Temp Pole 1 & Temp Pole 2 are staked by State's Contractor per Relocation Plan	1
	Eversource to install poles and anchors	Poles delivered. CBUD is completed	2
	Eversource to shift OH Facilities to new poles	Poles & Anchors Installed	2

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number:

Utility Company:

Prepared By: Total Working Days: 5

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
	STAGE 2		
	Eversource and Frontier to stake pole & anchors for permanent locations.	State Notification that bridge work is completed	1
	Eversource to install poles and anchors	Poles delivered. CBUD is completed	2
	Eversource to shift OH Facilities to new poles	Poles & Anchors Installed	2

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number:	147-062	Town:	Voluntown
Project Description:	Bridge 04805 over Pachaug River		
CTDOT Utilities Engineer:	Rachelle Clark		
Phone:	(860) 241-5521	Email:	RachelleClark@chasolutions.com
Utility Company:	Frontier Communications		
Prepared By:	John Plikus	Date Prepared:	3/10/2025
Phone:	860.455.6030	Email:	john.m.plikus@ftr.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

TEMPORARY RELOCATION - Relocate Aerial OSP from Pole Nos. 275 to 228.
PERMANENT RELOCATION - Restore Aerial OSP from Pole Nos. 275 to 228.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

1.Prior to any temporary/permanent relocation work, Town of Volutown to secure all required ROW and Tree Trimming in order to proceed.
2. Frontier Communications will schedule its construction as it's workload permits, the Town of Volutown will schedule other utilities attached to the pole line (Power Co., CATV, etc... and all State or Municipal owned cables and fixtures). This UWS has been completed using only Preliminary Design Plans. No mark out of edge of road, or construction limits provided and may be subject to change.

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 147-062

Utility Company: Frontier Communications

Prepared By: John Plikus Total Working Days: 4

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
Pole Nos. 275 to 228	Relocate Aerial OSP	All Other Utilities Have Completed All Required Relocations.	4

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 147-062

Utility Company: Frontier Communications

Prepared By: John Plikus Total Working Days: 4

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
Pole Nos. 275 to 228	Restore Aerial OSP	All Other Utilities Have Completed All Required Relocations.	4

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number:	0147-0062	Town:	Voluntown
Project Description:	Replacement of bridge 04805		
CTDOT Utilities Engineer:	Dionys Quezada		
Phone:	860.595.3390	Email:	dquezada@chasolutions.com
Utility Company:	Comcast		
Prepared By:	Anjin Luzuriaga	Date Prepared:	10/8/2025
Phone:	203.535.8421	Email:	anjin_luzuriaga@comcast.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

Temporary Pole Line - run new aerial from p228 to p276, splice and activate. Wreck out existing plant along old pole lines.

Permanent Pole Line – run new aerial from p228 to p276, splice and activate. Wreck out plant along temp pole lines.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

Confidential (C)

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 0147-0062

Utility Company: Comcast

Prepared By: Anjin Luzuriaga Total Working Days: 2

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
p228-276	Run new aerial plant along temp pole line, splice and activate	Temp poles in place	1
p228-276	Wreck out existing plant	New plant spliced and active	1

Confidential (C)

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 0147-0062

Utility Company: Comcast

Prepared By: Anjin Luzuriaga Total Working Days: 2

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
p228-276	Restore/run new aerial plant along new perm pole line. Splice and activate.	Perm poles in place	1
p228-276	Wreck out aerial plant along temp pole line	new plant sliced and active	1

Confidential (C)

NOTICE TO CONTRACTOR – RIGHTS OF WAY RESTRICTIONS

The Contractor is hereby advised that at the time of advertising for bids not all the property may be acquired by the State, certain residences and/or business establishments had not been vacated, and asbestos removal by others from buildings to be disposed of had not been completed. A complete listing of the affected properties and the anticipated dates that they will become available is hereinafter provided. The Contractor is further advised that limitations, as enumerated herein below, are imposed which may interfere with the physical construction of the project. Following are statements which will set forth the restrictions on the right of entrance to property and conditions governing construction of the project.

1) The Contractor shall not occupy properties that are unacquired, perform any work thereon, or inhibit access thereto until the properties have been acquired and right of possession has been obtained. If the Contractor is allowed to proceed with the physical construction of the project, no action will be taken that will result in unnecessary inconvenience such as the discontinuance of utilities, the prevention of ingress and egress to the property, or will result in disproportionate injury or any action coercive in nature to occupants of residences (businesses, farms, or non-profit organization) who have not yet moved from the right-of-way.

2) It should be anticipated that each of the properties listed herein may be considered to have an effect upon construction operations.

3) The Contractor shall be aware that extensions of time will be granted, if necessary, for delays in construction operations caused by continued occupancy of residences, properties being unacquired or asbestos abatement concluding beyond the estimated time period.

4) The following is a complete listing of properties which have not been acquired, vacated and asbestos abated as of September 3, 2025, with the anticipated dates such properties will be acquired and/or vacated and abated.

Serial No.	Type	Name	Location
0147-0062-001	Partial Take/ Easement	Robert B. Reddy et al (Title Estimate by April 1, 2026)	Between Stations 12+77 and 24+22 Left of Baseline
0147-0062-002	Easement	Beach Pond Cabins, LLC (Title Estimate by April 1, 2026)	Between Stations 12+09 and 14+25 Right of Baseline
0147-0062-004	Easement	James R. Nettleton et al (Title Estimate by April 1, 2026)	Between Stations 23+25 and 25+23 Left of Baseline
0147-0062-005	Easement	Suzanne G. Barber (Title Estimate by April 1, 2026)	Between Stations 23+10 and 23+30 Left of Baseline

NOTICE TO CONTRACTOR – TIME OF YEAR RESTRICTIONS

The Contractor is hereby notified of the following time of year restrictions:

In-Water Work

The Contractor is hereby alerted to the time of year restrictions imposed by the Environmental Permits contained elsewhere in this contract. Unconfined in-water work will only be allowed between June 1st and September 30th.

Confinement of a work area by cofferdam techniques using sandbag placement, sheet pile installation (vibratory method only), portadam, or similar confinement devices is allowed any time of the year. The removal of such confinement devices is allowed any time of the year. Once a work area has been confined, in-water work within the confined area is allowed any time of the year. The confinement technique used shall completely isolate and protect the confined area from all flowing water. The use of silt boom/curtain or similar techniques as a means for confinement is prohibited.

Sheet piling installation using impact, or any method involving excavation within the streambed is only allowed during the period June 1 through September 30, unless specifically restricted otherwise in a permit condition.

Tree Trimming and Clearing

The Contractor is hereby alerted to the time of year restrictions imposed by the Environmental Permits contained elsewhere in this contract. Cutting and trimming of trees with a Diameter at Breast Height (DBH) of 3” or greater is prohibited from April 15 to October 31, inclusive.

NOTICE TO CONTRACTOR – TREE CLEARING

The Contractor is hereby notified that mobilization for tree clearing activities shall be required immediately following the issuance of the Notice to Proceed, with an anticipated start date of April 1, 2026. This mobilization shall facilitate the trimming and cutting of trees with a diameter of 3 inches or greater at breast height or above.

The Contractor shall ensure that all necessary personnel and equipment are available and prepared to perform the required tree clearing work during the period from April 1, 2026, through April 14, 2026.

All tree trimming and clearing activities associated with construction shall be conducted within the project limits and must comply with the Time of Year (TOY) restriction, which prohibits such activities from April 15 through October 31, inclusive. No exceptions will be granted to this restriction. Additionally, no contract time extensions will be approved for construction delays resulting from the inability to perform tree clearing or trimming due to the TOY restriction.

NOTICE TO CONTRACTOR – COFFERDAM AND TEMPORARY WATER HANDLING COFFERDAM (WHC) ELEVATIONS

The Contractor is hereby notified that the downstream temporary water surface is anticipated to be at elevation 274.7 for the 5-Year design storm event. It is recommended that cofferdams and temporary WHC for temporary bridge construction be set 1 foot higher at minimum elevation 275.7 to protect excavation work areas from temporary design storm events. However, the plans call for the top of cofferdam and temporary WHC to be set at lower elevation 274.75 assuming a temporary bridge minimum low chord elevation of 275.0 based on the temporary roadway set to elevation 278.0 at north abutment and assuming a temporary superstructure depth of 3 feet (measured from top of roadway to low chord). These assumptions result in approximately 0.25 feet clearance between the low chord and cofferdam (to avoid interference between the temporary bridge superstructure and cofferdam) and 0.3 feet underclearance between the low chord and the temporary water surface elevation. If the Contractor's proposed temporary bridge superstructure has a higher low chord (greater than elevation 275.0) based on a superstructure depth shallower than 3 feet, it is acceptable to raise the top of the cofferdam and temporary WHC to provide an additional measure of protection of the excavation work area from temporary design storm events.

NOTICE TO CONTRACTOR – PERMITS/PERMIT APPLICATIONS

The Contractor is hereby notified that all permit approvals and permit applications (contained elsewhere in these specifications) shall be made a part of this Contract, and that the Contractor shall be bound to comply with all requirements of such permits and permit applications as though the Contractor were the permittee. If at the time the permit is received its contents differ from that which is outlined in the application, the permit shall govern.

Should the permit be received after the receipt of bids and the permit requirements significantly change the character of the work, adjustment will be made to the contract in accordance with the appropriate articles in Section 1.04. The requirements and conditions set forth in the permit and permit application shall be binding on the Contractor just as any other specification would be. In the case of a conflict between a provision of the environmental permit or permit application and another provision in the contract documents, the former shall govern.

NOTICE TO CONTRACTOR – EASTERN HOG-NOSE SNAKE

The Contractor is hereby notified that the State listed species of Special Concern Eastern hog-nosed snake (Heterodon platyrhinos), is present within the Project limits. See Section 1.10 for further information.

NOTICE TO CONTRACTOR – INLAND, WETLANDS AND WATERCOURSES PERMIT CONDITIONS

The Contractor is hereby notified that in accordance with the permit issued by the Town of Voluntown for Inland, Wetlands and Watercourses Commission, the following are conditions of the approval:

1. The Wetlands Agent shall be immediately notified upon commencement of work and upon its completion. If the authorized activity is not completed on or before the Permit expiration date stated above, all activity shall cease and, if not revoked or specifically renewed or extended by the Commission, or its agent, this Permit shall become null and void.

2. All work and all regulated activity conducted pursuant to this authorization shall be consistent with the terms and conditions of this Permit. Any structures, evacuation, fill, obstructions, encroachments, or regulated activities not specifically identified and authorized herein shall constitute a violation of the permit and may result in its modification, suspension or revocation.

3. This authorization is not transferable or assignable without written consent of the Voluntown Inland Wetlands and Watercourses Commission. In evaluating this application, the Commission relied on information provided by the applicant. If such information is subsequently proven to be false, incomplete, or misleading this permit may be modified, suspended, or revoked and the permittee may be subject to any remedies or penalties provided by law.

4. The permittee shall employ the best management practices consistent with the terms and conditions of this permit, to control storm water discharges and to prevent erosion and sedimentation and to otherwise prevent pollution of the wetlands or watercourses. The permittee shall immediately inform the Commission of any problems involving wetlands or watercourses that have developed in the course of or that are caused by the authorized work. No equipment or material including without limitation, fill, construction materials, or debris, shall be deposited, placed, or stored in any wetland or watercourse or regulated area on or off site unless specifically authorized by this Permit.

5. In conducting and maintaining any activities authorized herein, the permittee may not cause pollution, impairment, alteration, or destruction of any inland wetlands or watercourses in the Town of Voluntown. The permittee shall maintain sediment and erosion controls at the site, which will be established at the start of the activity, in such operable condition as to prevent the pollution of wetlands and watercourses. Said controls are to be inspected by the permittee for deficiencies at least once per week and immediately after any rainfall. The permittee shall correct any such deficiencies within 24 hours of said deficiencies being found. The permittee shall maintain such control measures until all areas of disturbed soils at the site are stabilized.

6. A pre-construction meeting will be held with the Wetlands Agent and Contractors prior to any work starting.

NOTICE TO CONTRACTOR – FLOOD CONTINGENCY PLAN REQUIREMENTS

The Contractor is hereby made aware that under "Article 1.10.03 – Water Pollution Control" of Form 819, as amended by the Supplemental Specifications, the Contractor is required to submit a contingency plan for flood events, in writing, to the Municipality or its authorized agent for approval. The contingency plan must be submitted by the Contractor and approved by the Municipality or its authorized agent prior to the commencement of any Project construction in the waterway.

NOTICE TO CONTRACTOR – NO STORAGE OR STAGING OF MATERIALS WITHIN FLOODPLAIN WITHOUT REVIEW AND WRITTEN APPROVAL

The Contractor is hereby made aware that, in conformance with the environmental permits and with the Best Management Practices outlined under Section 1.10 – Environmental Compliance of Form 819, as amended by the Supplemental Specifications, the contractor shall not store or stage any materials or equipment within the Floodplain without prior review and written approval by the Engineer.

The Contractor shall submit a written plan detailing the materials and/or equipment to be stored or staged from within the floodplain, including such details as the presence of any materials that are potentially hazardous, buoyant, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal, or plant life. No materials or equipment shall be stored or staged from within the Floodplain until the plan described above has been reviewed and approved by the Engineer. Any temporary equipment or material stored in the 100-year floodplain must be able to be removed a minimum of 12 hours prior to a flood event from the site in case of a flood warning.

NOTICE TO CONTRACTOR – TRANSMITTAL OF APPROVED DRAWINGS

The Contractor is hereby notified that, upon receipt of any and all approved shop drawings, and working drawings for permanent construction, the Contractor shall transmit one set of such approved drawings and product data to the Municipality, the oversight Construction District and Ms. Eliana V. Carlson, Connecticut Department of Transportation, Office of Research and Materials, Division of Materials Testing, 280 West Street, Rocky Hill, Connecticut 06067, telephone (860) 258-0312.

NOTICE TO CONTRACTOR – MINIMUM COMPRESSIVE STRENGTH

The concrete strength or allowable design stress specified in the General Notes is for design purposes only. The minimum compressive strength of concrete in constructed components shall comply with the requirements of Section 6.01 Concrete for Structures.

NOTICE TO CONTRACTOR – ELECTRONIC ENGINEERING DATA (EED)

The EED is an assembly of engineering data files that were used to produce the Contract plans.

Electronic Engineering Data (EED) is provided for information purposes only. In case of conflict between the EED and the Contract plans and specifications, the contract plans and specifications shall govern. The EED has been reviewed by the Department for quality control purposes, but it is the Contractor's responsibility to build the Project per the contract plans and specifications.

The EED is being provided to the Engineer for GPS/RTS inspection. The Contractor may use the EED to assist in bidding, layout, and Automated Machine Control/Guidance.

The EED includes geospatially correct 2D CAD files and may include horizontal and vertical alignment data files, 3D surface model files (break-line features and triangles) and a preference file. The data is being provided in one of the MicroStation versions, consisting of native and converted formats:

MICROSTATION CONNECT (OPENROADS)

- Native Format
  - Bentley CONNECT MicroStation CAD files (dgn – contains CAD graphics, OpenRoads alignments and terrain models)
- Converted Format (for use in GPS/RTS Site equipment)
  - AutoCAD CAD files (dxf)
  - Alignment files (xml – exported from CONNECT MicroStation CAD file)
  - Surface Models (xml – exported from CONNECT MicroStation CAD file)

For a complete list of EED files, see the EED file manifest (PDF) located in the EED_0147-0062.zip file which can be found in the project COMPASS page in the *Contract Documents/100_Contract_Plans (PDF)* folder.

NOTICE TO CONTRACTOR – MANDATED USE OF AASHTOWARE PROJECT CONSTRUCTION MANAGEMENT SOFTWARE (CONSTRUCTION)

The Contractor shall use *AASHTOWare Project*® software as outlined in the specifications noted below. This will require that the Contractor and all subcontractor(s) designate and dedicate staff within 10 days after the execution of the Contract or approval to sublet as appropriate. It will also require the Contractor and all subcontractors to provide internet access, computing devices suitable for this work, training, and other related work as outlined in the specifications noted below.

All costs for these requirements shall be included in the general cost of the work.

The following special provisions are pertinent to, and detail the requirements for, this work:

SECTION 1.05 - CONTROL OF THE WORK

Article 1.05.12 – Payrolls

This Article outlines the requirements for submission of payrolls.

Article 1.05.25 –Use of AASHTOWare Project® Software

This Article outlines the overall requirements for the use of the AASHTOWare Project® Software.

SECTION 1.08 – PROSECUTION AND PROGRESS

Article 1.08.01—Transfer of Work or Contract

This Article outlines the requirements for subcontractor payment and payment verifications.

NOTICE TO CONTRACTOR – CDMS SUBMITTALS

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through the Department's Construction Document Management System (CDMS). The CDMS that the Department is currently using is COMPASS.

Contractor submittals including Shop Drawings, Working Drawings, Product Data, RFIs, and RFCs shall be generated and delivered by the Contractor in accordance with the Department's Contractor's User Manual. The administering District office will inform the Contractor of other deliverables required to be similarly submitted.

Access credentials will be provided free of charge to the Contractor.

The Department shall not be held responsible for delays, lack of processing or responses to submittals that do not follow the specified guidelines in the Contractor's User Manual.

NOTICE TO CONTRACTOR – MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)

The Contractor is hereby notified that changes have been made to the referenced Membrane Waterproofing special provision and that the Contractor shall comply with all requirements of such specification.

The major changes include the following:

- Addition of language to clarify the definition of a Manufacturer is as described in Article 1.06.01 of the Standard Specifications,

- Allowance for single pass application of 80 mil membrane thickness by hand application provided a demonstration on a test section shows the Applicator is able to meet the specified tolerances and is acceptable to the Engineer. Similar test section allowance requirements will apply to mechanical applicator systems,

- Addition of requirements for taking measurements of ambient air and dew point temperatures and that no primer or membrane applications shall be allowed if the difference between these two temperatures is 5º F or less, and

- Addition of language clarifying that all components shall be from the same batch as identified on original packaging (barrels, etc), or be discarded – no mixing of like material from different batches shall be allowed.

NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS INVESTIGATIONS

A limited hazardous materials site investigation has been conducted for the replacement of Bridge No. 04805, Forge Hill Road over Pachaug River, Voluntown, CT. The scope of inspection was limited to the representative components projected for impact.

Results of the survey identified/presumed lead paint on the metal railings/railing support components. TCLP waste stream sampling and analysis for leachable lead from the paint on the railings/railing support components characterized the paint waste streams at Bridge No. 04805 as **CTDEEP/RCRA hazardous waste**. No detectable amounts of lead were identified in the tan paint associated with the parapet concrete walls, therefore any paint waste generated would be characterized as non-hazardous, non-RCRA lead bulky waste.

All steel and metal generated from work tasks (painted or not) shall be segregated and recycled as scrap metal at a scrap metal recycling facility. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

Suspect asbestos-containing tar on the roadway of the bridge was sampled and determined to contain no asbestos.

No bird/pigeon guano, bloodborne pathogens (BBP) concerns, or other hazmat/regulated items were identified in accessible areas of Bridge No. 04805**.**

The Contractor is hereby notified that these hazardous materials requiring special management or disposal procedures will be encountered during various construction activities conducted within the project limits. The Contractor will be required to implement appropriate health and safety measures for all construction activities impacting these materials. These measures shall include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Town, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of hazardous materials.

The Sections which shall be reviewed by the Contractor include, but are not limited to, the following:

- Item No. 0020903A – Lead Compliance for Miscellaneous Exterior Tasks

The Contractor is alerted to the fact that a town environmental consultant may be on site for abatement and related activities, to collect environmental samples (if necessary), and to observe site conditions for the Municipality.

Information pertaining to the results of the limited hazardous materials investigation discussed can be found in the document listed below. This document shall be available for review electronically.

- HazMat Inspection Letter, Replacement of Bridge No. 04805, Forge Hill Road over Pachaug River, Voluntown, TRC Environmental Corporation, March 04, 2025.

NOTICE TO CONTRACTOR - ENVIRONMENTAL INVESTIGATIONS

Environmental site investigations were not conducted within the proposed construction limits for State Project No. 0147-0062 Replacement of Bridge No. 04805, Forge Hill Road over Pachaug River in Voluntown, Connecticut. While no specific pre-characterization investigations have been conducted, it is anticipated that excavated soils may contain low levels of various constituents above laboratory reporting limits and reflective of a typical incidental public roadway release. Actual levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed of as non-hazardous in at one or more of the disposal facilities listed in Item No. 0202315A - Disposal of Controlled Materials.

Therefore, whenever possible, excavated soil shall be reused on the Project unless deemed unsuitable by the Engineer due to physical indications of contamination or the geotechnical characteristics of the material. Excavated material that is suitable for reuse shall be managed at the point of origin for use as backfill. In instances where such material cannot be reused directly at the point of origin or within several days of excavation, the surplus material excluding existing pavement structure (asphalt and subbase), rock, ledge, and concrete, shall be relocated to a suitable, centralized Project stockpile location and managed as typical construction material with appropriate erosion and sedimentation control measures. The contractor shall effectively manage the soil to reuse as much as possible to minimize the need for offsite disposal. Soil remaining at the end of the project shall be disposed of in accordance with Item No. 0202315A – Disposal of Controlled Materials. **The contractor is hereby notified that transportation of excess soil to the temporary stockpile location shall be paid for under Section 2.02, Earth Excavation.**

The DEEP groundwater classification beneath the site is GA. In the event groundwater is encountered during construction, any dewatering associated with the construction shall be performed in accordance with the CTDEEP's "*General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.*"

The Contractor is hereby notified that controlled materials requiring special management or disposal procedures may be encountered during construction activities conducted within the project limits. Therefore, the Contractor will be required to implement appropriate health and safety measures for all construction activities to be performed associated within the project. These measures shall include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Sections which shall be reviewed by the Contractor include, but are not limited to, the following:

- Item No. 0101000A - Environmental Health and Safety
- Item No. 0202315A - Disposal of Controlled Materials

The Contractor is alerted to the fact that an environmental consultant will be on site for excavation activities within the project, to collect soil and groundwater (if required) samples and to observe site conditions for the Municipality. The temporary stockpiling of excess excavated materials within the project limits at the temporary stockpile area is anticipated. **The temporary stockpile location for this project will be located at Voluntown/Sterling Transfer Station (514 Brown Road, Voluntown, CT). The Contractor shall coordinate with the Municipality for access.**

NOTICE TO CONTRACTOR – CONSTRUCTION SIGNS

The Contractor shall furnish, install, and maintain Bipartisan Infrastructure Law project signs for the duration of the Contract. The Contractor shall also remove the signs upon completion of the work under the project. A special provision for these signs has been added to the Contract for Item No. 1220027A - Construction Signs.

SECTION 1.01
DEFINITIONS OF TERMS AND PERMISSIBLE ABBREVIATIONS

1.01.01—Definitions: is amended and supplemented as follows:

Substitute the word "Municipality" or "Municipal" for "Department" wherever "Department" appears in the definitions for each of the following terms: Award, Contract, Highway, Plans, and Project.

Substitute the word "Engineer" for "Commissioner" wherever "Commissioner" appears in the definitions for each of the following terms: Subcontractor and Sub-subcontractor.

Engineer: Delete the definition in its entirety and replace with the following:

The Municipality's First Selectman acting directly or through a duly authorized representative.

Add the following:

Municipal: Of or relating to the Municipality.

Municipal Liaison: That individual identified by the Municipality to act as liaison with the State of Connecticut, Department of Transportation.

Municipality: Town of Voluntown, Connecticut

SECTION 1.02
PROPOSAL REQUIREMENTS AND CONDITIONS

Section 1.02 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Engineer" for "Commissioner" and for "Division of Contracts."
Substitute "Municipality" or "Municipal" for "Department" and for "Contract Section".

1.02.01—Contract Bidding and Award: is amended as follows:

Add the following two (2) paragraphs to the end of the first paragraph:

Should the Municipality NOT allow electronically submitted bids, then each paper bid proposal must be submitted in a sealed envelope large enough to hold the proposal documents (recommended size 10-1/2 x 13). **The envelope must clearly state the name and address of the firm submitting the bid, the name of the Town and Project Number for the bid.** The envelope must be delivered to the Municipality on or before the hour and date, and to the location, set forth in the bid advertisement for the opening of proposals, unless the bidder is otherwise directed.

On the date and at the time and place designated in the bid advertisement and in the related Notice to Contractors or addendum notice, the sealed paper bid proposals shall be publicly opened and read out loud. At the time that paper bid proposal is opened, it shall be checked for "responsiveness" in various respects, to determine if it complies with applicable statutes, regulations, and the Municipality's Specifications, including Connecticut DOT's Standard Specifications. Each bidder is required to include with its paper bid proposal the following documents: the completed paper bid proposal form (incl. the schedule of prices), the required bid bond, a non-collusion affidavit, and any other information required by the bid documents or by the bid advertisement. Each paper bid proposal shall be governed by the terms and conditions, as applicable that are stipulated in the Connecticut DOT's Construction Bidding and Award Manual, for electronically submitted bids.

After the first sentence of the third paragraph, add the Following:

In accordance with the provisions of the Construction Contract Bidding and Award Manual, bidders must be prequalified for **Group 8 – Minor Bridges**, to be eligible to bid on this project. Bidders that are not prequalified for this work classification will not be approved to bid on this project.

Add the sentence below following the end of the last paragraph:

Prequalification by the State of Connecticut Department of Transportation is required for this project.

1.02.03—Examination of Contract Documents and Work Site:

Delete the last paragraph and replace with the following:

Bidders must inform the Municipality, at the earliest opportunity, in writing, of any and all omissions, errors, and/or discrepancies that the bidder discovers within or among the plans, specifications, and bidding documents. Information and inquiries concerning such matters, and any other information or inquiry concerning the conditions of bidding or award or the interpretation of contract documents must be transmitted in writing to:

Mr. John P. Guszkowski
Planning Director/Interim Zoning Officer
Voluntown Town Hall
115 Main Street
Voluntown, CT 06384
Tel: (860) 376-4089
Email: Planner@Voluntown.gov

The Municipality cannot ensure a response to inquiries received later than ten (10) days prior to the scheduled bid opening of the related bid. When deemed warranted by the Municipality, responses to such inquiries that relate to changes in, or interpretations of, the Project documents (plans and specifications) will be issued to all bidders in the form of addenda and made a part of the Contract. Bidders are responsible for ensuring that they are aware of all addenda. Failure by the Municipality, or postal or other courier services to deliver addenda or other information regarding a Contract being bid does not release the bidder from any obligations under said addenda or the conditions of the bid.

SECTION 1.03
AWARD AND EXECUTION OF CONTRACT

Section 1.03 is supplemented and amended as follows:

Throughout this Section, except for Article 1.03.07, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Engineer" for "Commissioner," for "Manager of Contracts" and for "Transportation Manager of Contracts".

Substitute "Municipality" for "Department" and "State".

1.03.07—Insurance: is amended as follows:

Substitute "State and Municipality" for "Department" and "State".

It is the intent of this Article to designate the State and Municipality as additional insured, as applicable.

SECTION 1.04
SCOPE OF WORK

Section 1.04 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Engineer" for "Department's Assistant District Engineer".
Substitute "Municipality" for "Department" and for "State".

1.04.05 – Extra Work: is amended as follows:

Add the following at the end of second paragraph:

Bonding costs shall not be included in the contractor's compensation request. However, if the contractor incurs or will incur increased bonding costs related to the extra work, the contractor shall request separate compensation for such costs. The contractor's request shall be itemized and include a certified statement from the bonding company stating that the value of the work will require an increase in bonding coverage and shall detail the additional costs (within allowable contract amount limitations). If satisfactory substantiation is provided, a new item for increased bonding costs will be incorporated into the contract by means of a construction order.

Insert the following immediately following "Department's Assistant District Engineer" in the third paragraph: "and/or the Municipality's authorized representative".

SECTION 1.05
CONTROL OF THE WORK

Section 1.05 is supplemented and amended as follows:

Substitute "Municipality" for "Department" and/or "State" and "Engineer" for "Department's Assistant District Engineer".

1.05.02-1. Plans: Substitute "Municipality" for "Department.

Add the following sentence to the end of the Subarticle:

The Working Drawings, Shop Drawings and Product Data shall be submitted to the Designer as hereinafter noted; copies of transmittal letters shall be sent to the oversight District and the Municipality.

Designer

Mr. Steven J. Drechsler, P.E., V.M.A.
Connecticut Division Manager
Alfred Benesch and Company, Inc.
200 Glastonbury Blvd., Suite 201
Tel: (475) 494-4113
Email: sdrechsler@benesch.com

Oversight District

Mr. Henry Fredericks, P.E.
Assistant District Engineer
District 2 Construction
171 Salem Turnpike
Norwich, CT 06360
Tel: (860) 823-3249
Email: henry.fredericks@ct.gov

Municipality

Mr. John P. Guszkowski
Planning Director/Interim Zoning Officer
Voluntown Town Hall
115 Main Street
Voluntown, CT 06384
Tel: (860) 376-4089
Email: Planner@Voluntown.gov

1.05.02-2. Working Drawings: Substitute "Municipality" for "Assistant District Engineer".

1.05.02-5. Submittal Preparation and Processing – Review Timeframes: Substitute "Designer" for "Department".

Add the following paragraphs:

Prior to the submission of any working, shop or erection drawings, the Contractor shall prepare and submit to the Engineer, for approval, a schedule for all proposed working and shop drawings. This initial schedule should be submitted within thirty (30) days of contract award and must be submitted before the Notice to Proceed. The Contractor shall coordinate, schedule and control all submittals of working and shop drawings including those of his various subcontractors, suppliers and engineers to provide for an orderly and balanced distribution of the work.

Each Shop Drawing shall include the name and telephone number of the fabricator's contact person who is familiar with the drawing and who will be available to answer questions by the Engineer or Designer should any arise during the review process.

It is incumbent upon the Contractor to submit his shop drawings in accordance with the approved working and shop drawing schedule to facilitate expeditious review. Voluminous submittals of shop drawings at one time are discouraged and may result in increased review time. In no case will the Municipality accept liability for resulting delays, added costs and related damages when the time required for approval extends beyond the approximate times shown herein when the shop drawings are not submitted in conformance with the approved schedule.

1.05.02-5(a). Submissions: Substitute "oversight" for "administering" when citing the Construction District and add "and Municipality" to the end of the sentence.

1.05.02-5(b). Submissions: Substitute "Designer" for "Assistant District Engineer of the administering Construction District".

1.05.02-5(c). Submissions: Substitute "Designer" for "administering Construction District".

1.05.06 – Cooperation with Utilities (including railroads):

Add the following:

Within the project, there may be public utility structures; and, notwithstanding any other clause or clauses of this Contract, the Contractor cannot proceed with his work until he has made diligent inquiry with the utility companies, municipal authorities or other utility owners to determine their exact location, and until he has notified "Call Before You Dig". The Contractor shall notify, in writing, the utility companies, municipalities or other owners involved, of the nature and scope of the project and of his operations that may affect their facilities or property. Copies of such notices shall be sent to the Engineer.

Add the following to the beginning of the first paragraph of Article 1.05.12:

1.05.12—Payrolls: The Contractor and all subcontractors shall use ***AASHTOWare Project®*** software in accordance with Article 1.05.25, with a Department-provided template, or by other means previously accepted by the Department, to electronically upload all Project payrolls, as directed herein.

Add the following to the end of Article 1.05.12:

These requirements shall be included in all subcontracts for this Project.

All costs for these requirements shall be included in the general cost of the work.

Add the following new Article 1.05.25:

1.05.25—Use of *AASHTOWare Project*® Software: The Contractor and all subcontractor(s) shall use the ***AASHTOWare Project®*** software for electronic submittal of all payrolls as outlined in the Department's AASHTOWare Contractor's User Manual, found at the Department's AASHTOWare Training webpage, and as stated in the specifications.

The Contractor and all subcontractor(s) shall use the ***AASHTOWare Project®*** software for monthly verification of project payments at all tiers, as outlined in the Department's AASHTOWare Contractor's User Manual, found at the Department's AASHTOWare Training webpage, and as stated in the specifications. The Department will inform the Contractor of other deliverables to be similarly submitted, as required.

Within 10 days of execution of the Contract, the Contractor shall submit the name(s) of the ***AASHTOWare Software Project Liaison*** and required staff that will be using the Department's software for this work. Similarly, within 10 days after the Contractor (or a subcontractor) enters into a subcontractor agreement to sublet any work, they shall submit the name(s) of their ***AASHTOWare Software Project Liaison*** and required staff that will be using the Department's software for this work. The Contractor and subcontractors shall immediately notify the Department of any change in Project staff authorized to access the AASHTOWare system or of a need to revise the Project Liaison.

Training materials, such as videos and written guides are available on the Department website for Contractor use. The Contractor and all subcontractors shall be responsible to train their staff.

This ***AASHTOWare Project®*** software will require that the Contractor and all subcontractor(s) provide their staff with access to the internet, using devices suitable for this work, at their own

expense, throughout the duration of the Project. The Department has obtained licensing that allows the Contractor and subcontractors to access (from the internet) and use of the ***AASHTOWare Project***® software. The Department will provide the Contractor and subcontractors with usernames and passwords to access the ***AASHTOWare Project***® software, at no cost.

The Department shall not be held responsible for delays, lack of processing, or responses to submittals that do not follow the specified guidelines in the Department's AASHTOWare Contractor's User Manual, found at the Department's AASHTOWare Training webpage.

These requirements shall be included in all subcontracts for this Project.

All costs for these requirements shall be included in the general cost of the work.

SECTION 1.06
CONTROL OF MATERIALS

Section 1.06 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Department/Municipality" or "Municipal" for "Department".

SECTION 1.07
LEGAL RELATIONS AND RESPONSIBILITIES

1.07.01—Laws to be Observed: *is amended as follows:*

In the second sentence of the first paragraph, after the word "State" add the words "and Municipality".

1.07.03—Proprietary Devices, Materials and Processes: *is amended as follows:*

After the word "State" add the words "and Municipality" throughout this Article.

1.07.04—Restoration of Surfaces Opened Pursuant to Permit or Contract: *is amended as follows:*

Replace the word "Department" with "Municipality" throughout this Article.

1.07.07—Safety and Public Convenience*: is amended as follows:*

In the penultimate paragraph, after the word "State," add the words "or Municipality".

1.07.09—Protection and Restoration of Property: *is supplemented and amended as follows:*

Add the words "or Municipality" after the word "State" wherever the word "State" appears in this Article.

Add the phrase "or Municipality, as applicable" after the word "Department" wherever the word "Department" appears in this Article.

Add the following:

> The Contractor shall notify the Tree Warden of the Municipality, in which the bridge project is located, five (5) days prior to flagging so that the Tree Warden may be present during the flagging.
>
> All trees scheduled to be removed outside of the proposed gutter or curb lines of the highway shall be visibly marked or flagged by the Contractor at least five (5) days prior to cutting of such trees.
>
> The Engineer will inspect the identified trees and verify the limits of tree removal prior to the Contractor proceeding with his cutting operation, should such an operation be required elsewhere in this contract.

1.07.10—Contractor's Duty to Indemnify the State Against Claims for Injury or Damage: *is amended as follows:*

Revise the title of this Article to read "Contractor's Duty to Indemnify the State and/or Municipality Against Claims for Injury or Damage."

In the first sentence, delete the words "the Department".

Replace the word "State" with "State and/or Municipality" throughout this Article.

Replace the word "Commissioner" with "Engineer" throughout this Article.

1.07.11—Opening of Section of Project to Traffic or Occupancy: is amended as follows:

Replace the word "State" with "Municipality" or "Municipal" throughout this Article.

1.07.13—Contractor's Responsibility for Adjacent Property and Services: is supplemented with the following:

The Contractor's attention is directed to the fact that there are utilities within the limits of the existing bridge: overhead utilities (including utility poles, pole guys and overhead wires), underground utilities (including the water main).

The Contractor shall be liable for all damages and claims received or sustained by any persons, corporations or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor.

The following companies and their representatives shall be contacted by the Contractor to coordinate the protection of their utilities on the construction site two (2) weeks prior to the start of any work on the project involving their utilities, except as amended by the Supplemental Specifications:

The Southern New England Telephone Company dba Frontier Communications of Connecticut
Robert D. Recupero
Outside Network Engineering
robert.d.recupero@ftr.com
1441 North Colony Road
Meriden, CT 06450-4101
203-378-9022(o)
203-360-4004(c)

The Connecticut Light & Power Company dba Eversource Energy - Electric Distribution
John E. Socci
Field Engineering Design
Design Specialist
john.socci@eversource.com
9 Tindall Ave.
Norwalk, Ct. 06851
(203) 845-3432

Comcast
Anjin Luzuriaga
Construction Specialist
Anjin_Luzuriaga@comcast.com
401 Gold Star Highway
Groton, CT 06340
(203) 535-8421

All work shall be in conformance with Rules and Regulations of Public Utility Regulatory Authority (PURA) concerning Traffic Signals attached to Public Service Company Poles.

1.07.14—Personal Liability of Representatives of the State: is amended as follows:

Add the words "and Municipality" after the word "State".

1.07.15—No Waiver of Legal Rights: is amended as follows:

Replace the words "Commissioner" and "Department" with "Municipality" or "Municipal" throughout this Article.

1.07.16—Unauthorized Use of Area(s) within the Project Site: is amended as follows:

Replace the words "Commissioner" and "State" with "Municipality" throughout this Article.

Add the following new Subarticle:

1.07.19—Personal Liability of Representatives of the Municipality

In carrying out any of the provisions of these specifications, or in exercising any power or authority granted to them by or within the scope of the Contract, the Engineer and his authorized representatives, including consultant engineering firms and their employees, shall be subject to no liability, either personally or as officials of the Municipality, it being understood that in all such matters they act solely as agents and representatives of the Municipality.

SECTION 1.08
PROSECUTION AND PROGRESS

Add the following to the beginning of the first paragraph of Article 1.08.01:

1.08.01—Transfer of Work or Contract: The Contractor and all subcontractors shall use the *AASHTOWare Project*® software in accordance with Article 1.05.25, for monthly verification of project payments at all tiers, in accordance with the Department's AASHTOWare Contractor's User Manual, found at the Department's AASHTOWare Training webpage, and as stated in the specifications.

Add the following to the end of Article 1.08.01:

All costs for the requirements of this Article shall be included in the general cost of the work.

Article 1.08.03 - Prosecution of Work:

When all apparent conflicts have been identified and resolved, and written commitments have been received from suppliers that all equipment and materials will be received within 30 days, the Contractor may request that the construction phase begin. Forge Hill Road will be closed to Trucks for the duration of construction and will be detoured via Forge Hill Road, Beach Pond Road (State Route 165), Ekonk Hill Road (State Route 49), and Wylie School Road. A temporary bridge carrying one-way, alternating traffic will carry all other vehicles over Pachaug River during removal and construction of the new bridge.

Suggested sequence of construction:

Perform tree clearing. Install Phase 1A MPT, utilize alternating one-way traffic with temporary signals and truck detour. Construct temporary roadway on the north side of the intersection of Wylie School Road and North Shore Road.

Implement Phase 1B MPT utilizing signalized alternating one-way traffic. Install sedimentation and erosion control. Install cofferdam, temporary barricades, and dewatering for construction of temporary bridge. Construct temporary bridge. Construct temporary bypass road west of the existing bridge. Modify Wiley School Road and North Shore Road intersection to allow for alternating one-way traffic over the temporary bridge.

Implement Phase 2A MPT utilizing signalized alternating one-way traffic over temporary bridge. Install debris shield and remove existing superstructure. Remove temporary debris shield. Construct cofferdams at north and south abutments, maintaining stream flow been cofferdams. Excavate, demolish and remove the existing wingwalls, abutments, and footings.

Excavate inside cofferdams to approximate bottom of footing of new substructures. Install micropiles. Install cast-in-place pile caps, footings, wingwalls, and abutments.

Regrade channel within cofferdams and install riprap and/or natural streambed material. Backfill and grade slopes around abutments and wingwalls. Remove cofferdam not required for next phase.

Install water handling cofferdam. Grade channel within water handling cofferdam, and partially install riprap for splash pads west of proposed abutments 1 and 2. Remove cofferdam and water handling cofferdam not required for next phase.

Install prestressed concrete solid deck beams. Tie rebar, form, and pour cast-in-place concrete closure pours, sidewalks, concrete curbs, and concrete end blocks. Construct approach slabs. Install membrane waterproofing and HMA 0.25.

Install bridge rail. Install catch basin at Station 14+18R.

Remove Phase 2A MPT signage and barriers not required for next phase. Remove truck detour signs. Re-route two-way traffic onto newly constructed roadway. Using CTDOT approved temporary MPT plans, remove temporary bypass road and temporary bridge. Remove temporary roadway north of the intersection of Wylie School Road and north Shore Road.

Complete installation of roadway drainage and install remainder of riprap splash pads. Remove remaining cofferdam.

Install roadway guiderails. Pave roadway and complete roadway work. Install plantings, seeding, and turf establishment. Remove sedimentation control systems upon permanent stabilization.

Article 1.08.04 - Limitation of Operations - *Add the following:*

To provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

Forge Hill Road, North Shore Road, and Wylie School Road

On the following State observed Legal Holidays:

New Year’s Day
Good Friday, Easter
Memorial Day
Independence Day
Labor Day
Juneteenth
Columbus Day
Veterans Day

Thanksgiving Day
Christmas Day

The Contractor will be required to coordinate with the Town of Voluntown for any construction activities that fall on any Town-specific Holidays or other Special Events that are not listed as part of the State observed Legal Holidays.

During all other times:

The Contractor will be allowed to perform work daily as follows:

Monday through Friday between 7:30 a.m. and 4:30 p.m.

The Contractor shall notify the Engineer and the Town of Voluntown prior to performing any work on Saturday. Written approval from the Town of Voluntown is required prior to commencing any work on Saturday. The Contractor will not be allowed to work on Sunday.

The Contractor will not be allowed to perform any work that will interfere with existing traffic operations on:

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

Additional Restrictions:

A. The Contractor shall be allowed to close Forge Hill Road to trucks only, within the project limits, and detour trucks for the duration of the project, as specified in the contract.
B. The Contractor will be allowed to maintain temporary signal-controlled alternating one-way traffic during the project duration. The Contractor shall notify the Town of Voluntown at least 14 days in advance of the implementation of alternating one-way traffic at the work zone and the implementation of the Truck Detour in order to provide enough time for the Municipalities to notify the Emergency Services and all other Municipal Departments and Services that will be affected by the new traffic patterns.
C. During allowable period, the Contractor will be allowed to halt traffic on Forge Hill Road, Wylie School Road, and North Shore Road for a period not to exceed 10 minutes to perform necessary work for minor items and/or moving barriers, relocation of utilities, erection of beams as approved by the Engineer, between 9:00 a.m. and 3:00 p.m. Monday through Friday.
D. During allowable period, the Contractor will be allowed to maintain a Stop-Controlled alternating one-way traffic operation on Forge Hill Road in the vicinity of the bridge on paved travel path not less than 11 feet in width.

All Other Roadways

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

Additional Lane Closure Restrictions

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one-mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one-mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

SECTION 1.09
MEASUREMENT AND PAYMENT

Section 1.09 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

"Municipality" or "Municipal" for "Department" and for "State".
Substitute "Engineer" for "Commissioner".

Article 1.09.06—Partial Payments

Subarticle B. Payment for Stored Materials *is amended as follows:*

B. Payment for Stored Materials: Non-perishable materials that are required for Project construction and that the Contractor has produced or purchased specifically for incorporation into the Project, but which have not yet been so incorporated, may be included in a payment estimate if:

(i) the materials meet all applicable Contract specifications,

(ii) the materials have been delivered to the Project site or to another location approved by the Engineer, and

(iii) the Contractor has submitted to the Engineer, as evidence of the Contractor's purchase of the materials, copies of notarized receipted bills and a notarized Certificate of Title, lien waiver, and right of entry to the materials, in the form approved by the Department, duly executed by the Contractor, the Vendor and any other parties deemed necessary by the Engineer to satisfy proof of unencumbered ownership.

The Engineer will decide at what fair and appropriate fraction of the applicable Contract price such materials may be included in a payment estimate.

Offsite storage may be approved by the Engineer, provided that the materials proposed for payment are stored in a secure area, segregated from other materials, clearly labeled as being owned by the Department for use on the identified Project, otherwise handled in compliance with Article 1.06.03 and stored in accordance with the manufacturer’s recommendations. All such materials must be readily available for inventory and inspection by the Engineer. Storage outside of the State of Connecticut may be considered only when a representative of the Department is able to verify that the above requirements have been satisfied.

For items requiring extended fabrication, manufacturing or assembly time, the Contractor may propose to the Engineer a schedule of values for completely fabricated portions of the related material. If the Engineer accepts such a schedule of values, it shall become the Basis of Payment for the stored materials, so long as all other pertinent Contract requirements have been satisfied.

Generic materials having a use on many projects will be considered for payment prior to their incorporation into the Project only if stored in unopened packaging or in large lots stored at the project site.

Stock and raw materials will not be considered for such advance payment without the Engineer's prior written consent thereto.

In no case shall material payments exceed the Contract unit price or lump sum price less the actual value of the remaining work under the item, including but not limited to delivery and installation of the materials. If the proposed material costs do exceed such a price, the Engineer reserves the right to reduce any related payment accordingly. In such an instance the Contractor shall provide documentation of ownership and written acceptance of the amount to be paid in a form acceptable to the Engineer prior to any payments being made by the Engineer. Such reductions in payment shall in no way affect the Department's ownership interest in the stored materials or release the Contractor from any other requirements of the Contract.

SECTION 1.10
ENVIRONMENTAL COMPLIANCE

1.10.02—Compliance with Laws and Regulations: *is amended as follows:*

Replace the word "Department" with "Municipality" throughout this Article.

In the last sentence of the last paragraph of this Article, add the phrase "under any other State contract".

1.10.03—Water Pollution Control: *is amended as follows:*

Replace the word "Department" with "Municipality" throughout this Article.
Add the following sentence after the second sentence of the third paragraph:

> The following items may also be superseded by specific permits from the Connecticut Department of Energy and Environmental Protection (DEEP) and/or the appropriate local wetlands and watercourses regulatory authority.

In the REQUIRED BEST MANAGEMENT PRACTICES No. 13, replace "State right-of-way" with "State or Municipal right-of-way."

Add the following after Required Best Management Practices Number 13:

14. The Contractor is hereby notified that one or more federally and State listed species of bat has been documented within the Project limits. In Connecticut, the Eastern small-footed bat (*Myotis leibii*), tri-colored bat (*Perimyotis subflavus*), little brown bat (*Myotis lucifugus*), Northern long-eared bat (*Myotis septentrionalis*) and the Indiana bat (*Myotis sodalis*) are listed as State endangered; while the silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*) and the red bat (*Lasiurus borealis*) are listed as State species of special concern. The Northern long-eared bat and the Indiana bat are also federally listed species. Bats are the only mammals capable of actual flight and are primarily nocturnal. During the daylight, bats roost in trees and caves, but many have now adapted to roost in structures including barns, houses, tunnels, and bridges. Within the Project limits, bats will use the snags, cavities, and underside of flakey bark to roost and raise young. This Project will have a Time of Year (TOY) restriction for tree clearing to protect the bat species listed.

    The Contractor shall at least 10 days prior to the commencement of any construction activities, arrange for the Engineer or their authorized delegate to be available to meet and discuss proper protocol for maintaining environmental commitments made for the protection of these bat species and their habitat. The Engineer will provide oversight to ensure that the following protocols are followed and maintained during the Project:

    a. The Contractor, through the Engineer, shall arrange a pre-construction tree-clearing Site walk to review all trees proposed to be removed for the Project.

b. Clearing of any tree three (3) inches diameter at breast height (DBH) or greater will be prohibited between the time of April 15th and October 31st.

These practices will be applied to the entire Project unless a specified location is identified within the Project plans, which denotes specific areas of concern.

If any bats are observed by the Contractor in or around the Project area, the Engineer shall be notified and be responsible for completing and submitting the NDDB Vertebrate Sheet at (https://portal.ct.gov/media/DEEP/wildlife/forms_applications/PublicBatSightingspdf.pdf).

All listed bat species are protected by federal and/or State laws which prohibit killing, harming, taking, harassing, or keeping them in your possession. A fact sheet(s) for the listed bats noted above shall be posted in the Contractor's and Inspection field offices and can be downloaded at the link below.

CTDEEP's Fact Sheet for Bats:

https://portal.ct.gov/-/media/DEEP/wildlife/pdf_files/outreach/fact_sheets/Bats.pdf

15. The Contractor is hereby notified that the State listed species of Special Concern Eastern hog-nosed snake (*Heterodon platyrhinos*), is present within the Project limits**.** The Eastern hog-nosed snake is one of the most unique snakes found in Connecticut because of its behavior, habits, and appearance. It's a short, stout snake and its coloration can be highly variable. The snake's most distinctive field mark is an upturned, hog-like snout which is used for digging up their main food item; toads. In Connecticut, the Eastern hog-nosed snake uses a variety of habitats including loose sandy, and well drained gravely soils. They are more adapted to inhabiting edge habitats and are seldom found in dense wooded areas. They travel underground using enlarged passages created by small mammals. These passages are found in fields, open grassy areas adjacent to woods, and open forest. Snakes cannot regulate their body temperature internally and must warm themselves in the sun. Eastern hog-nosed snakes are one of the rarer snakes in the State due to population declines cause by human disturbances and habitat loss. **They are not venomous.** They are harmless snakes. However when feeling threatened, the hog-nosed snake will try to bluff its way out of a situation by coiling, flattening its head and widening its neck to form a cobra-like hood, inflating its body, hissing fiercely and striking violently. The strike usually made with the mouth closed, almost always falls short of the target. They may also mimic a timber rattlesnake by vibrating their tail, although they do not have a rattle, the motion in dry leaves will create a similar sound. If these tactics do not scare away a predator, the snake will writhe about, excrete a foul-smelling musk, and then turn over with its mouth open, tongue hanging out, and lie still, feigning death. This snake is completely terrestrial. Eastern hog-nosed snakes hibernate in the winter from about November to April. They will use rodent burrows, shrubs, logs or shallow burrows in sandy soil for dens.

All construction activities taking place within the Project will need to be coordinated with the Town or their designated representative. At least 10 days prior to the commencement of

any physical construction activities, the Contractor shall, through the Engineer, arrange for a Town Environmental Inspector, Herpetologist, or their authorized delegate to meet and discuss proper protocol for maintaining environmental commitments made for the protection of this species and habitat. The Town will provide oversight through the Engineer to ensure that the following protocols are followed and maintained during the course of the Project.

For any work done during the Eastern hog-nosed snake's active period (April 1 to October 31) the CTDOT will require the following precautionary measures to protect the Eastern hog-nosed snake and Eastern hog-nosed snake habitat:

a. All construction personnel working within Eastern hog-nosed snake habitat must be apprised of the species description and the possible presence of this listed species.

b. Exclusionary practices will be required in order to prevent any Eastern hog-nosed snakes' access to construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.

c. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. The Contractor shall regularly inspect and maintain (at least bi-weekly and after major weather events) the fencing to prevent any gaps or openings at ground level. Standard silt fence is adequate; fencing with netting shall not be used.

d. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.

e. Any Eastern hog-nosed snake encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and the Engineer shall be immediately informed to contact the Town with the location.

f. All staging and storage areas in the vicinity of Eastern hog-nosed snake habitat, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed by and receive written approval from the Town through the CEI.

g. No heavy machinery or vehicles may be parked in any unapproved Eastern hognose snake habitat. Additionally, No vehicles or heavy machinery should be parked overnight in any sandy areas especially within early successional habitat or along forest edges.

h. Work conducted during early morning and evening hours should occur with special care not to harm basking individuals.

i. Areas where excavated or stockpiled materials are stored will be first cleared of animals and enclosed in exclusionary fencing.

j. Exclusionary fencing shall be removed when it is no longer needed, and silt fence shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.

Work may take place during the Eastern hog-nosed snake's inactive (hibernation) period (November 1 to May 31) with the following additional precautionary measure:

a. Exclusionary fencing must be installed and the area inspected for snakes by the Engineer or Engineer's approved representative prior to November 1.
b. Construction that will be confined to managed turf grass, agricultural fields, impervious or graveled surfaces, or areas confined to compacted soil can be conducted at any time of year.

These practices will be applied to the entire Project unless a sketch is attached which identifies specific areas of concern.

This species is protected by State laws, which prohibit killing, harming, taking, on keeping them in your possession. Photographs and the laws protecting Eastern hognose snakes shall be posted in the Contractor's and Town's field offices (species ID sheets will be provided by the Town or the Town's designated representative).

1.10.07—Controlled and Hazardous Materials: *is amended as follows:*

Replace the word "Department" with "Municipality" throughout this Article.

SECTION 1.11
CLAIMS

Section 1.11 *is supplemented and amended as follows:*

Throughout this Section make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Chief Administrative Official of the Municipality" for "Commissioner".
Substitute "Municipality" or "Municipal" for "Department".

DIVISION II
CONSTRUCTION DETAILS

Throughout all the various Sections contained in Division II, substitute the word "Municipality" or "Municipal" for "Department" wherever "Department" appears, except in those instances where the word "Department" is used to identify a state agency.

DIVISION III
MATERIALS SECTION

Throughout all the various Sections contained in Division III, substitute the word "Municipality" or "Municipal" for "Department" wherever "Department" appears, except in those instances where the word "Department" is used to identify a state agency.

CODE OF ETHICS

The Contractor shall comply with the provisions contained in Section 1-86e of the Connecticut General Statutes, which provides as follows:

(a) No person hired by the state as a Contractor or independent contractor shall:

(1) Use the authority provided to the person under the contract, or any confidential information acquired in the performance of the contract, to obtain financial gain for the person, an employee of the person or a member of the immediate family of any such person or employee;
(2) Accept another state contract which would impair the independent judgment of the person in the performance of the existing contract; or
(3) Accept anything of value to a person hired by the state as a Contractor or independent contractor based on an understanding that the actions of the Contractor or independent contractor on behalf of the state would be influenced.

(b) No person shall give anything of value to a person hired by the state as a Contractor or independent contractor based on an understanding that the actions of the Contractor or independent contractor on behalf of the state would be influenced.

The following clause is applicable to those contracts with a value of Five Hundred Thousand Dollars ($500,000) or more:

The Contractor shall comply with the Code of Ethics for Public Officials, Conn. Gen. Stat. §§ 1-79 *et seq.*, and Code of Ethics for Lobbyists, Conn. Gen. Stat. §§ 1-91 *et seq.*, when and where applicable. Insofar as state contractors are concerned, a summary of the most relevant provisions of the Codes of Ethics is contained in the Summary of State Ethics Laws for Current and Potential State Contractors. The Contractor acknowledges receiving such Summary, which is incorporated herein by reference. The Summary may change from time to time and may be accessed via the Internet at www.ethics.state.ct.us.

The Contractor agrees that the above clause will also be incorporated in all of its contracts with its subcontractors and consultants.

The Contractor agrees that any instance of its violating the Code of Ethics or the Department of Transportation Ethics Policy will be sufficient cause for the Department to terminate any or all of the Contractor's pending contracts with the Department.

In addition, the Contractor hereby acknowledges and agrees to comply with the policies enumerated in "Connecticut Department of Transportation Policy Statement Policy No. F&A-10, Subject: Code of Ethics Policy", dated June 1, 2007, a copy of which is attached hereto and made a part hereof.

CONNECTICUT DEPARTMENT OF TRANSPORTATION

POLICY STATEMENT

POLICY NO. F&A-10
June 1, 2007

SUBJECT: Code of Ethics Policy

The purpose of this policy is to establish and maintain high standards of honesty, integrity, and quality of performance for all employees of the Department of Transportation ("DOT" or "Department"). Individuals in government service have positions of significant trust and responsibility that require them to adhere to the highest ethical standards. Standards that might be acceptable in other public or private organizations are not necessarily acceptable for the DOT.

It is expected that all DOT employees will comply with this policy as well as the Code of Ethics for Public Officials, and strive to avoid even the appearance of impropriety in their relationships with members of the public, other agencies, private vendors, consultants, and contractors. This policy is, as is permitted by law, in some cases stricter than the Code of Ethics for Public Officials. Where that is true, employees are required to comply with the more stringent DOT policy.

The Code of Ethics for Public Officials is State law and governs the conduct of all State employees and public officials regardless of the agency in which they serve. The entire Code, as well as a summary of its provisions, may be found at the Office of State Ethics' web site: www.ct.gov/ethics/site/default.asp. For formal and informal interpretations of the Code of Ethics, DOT employees should contact the Office of State Ethics or the DOT's Ethics Compliance Officer or her designee.

All State agencies are required by law to have an ethics policy statement. Additionally, all State agencies are required by law to have an Ethics Liaison or Ethics Compliance Officer. The DOT, because of the size and scope of its procurement activities, has an Ethics Compliance Officer who is responsible for the Department's: development of ethics policies; coordination of ethics training programs; and monitoring of programs for agency compliance with its ethics policies and the Code of Ethics for Public Officials. At least annually, the Ethics Compliance Officer shall provide ethics training to agency personnel involved in contractor selection, evaluation, and supervision. A DOT employee who has a question or is unsure about the provisions of this policy, or who would like assistance contacting the Office of State Ethics, should contact the Ethics Compliance Officer or her designee.

The DOT Ethics Compliance Officer is:

Denise Rodosevich, Managing Attorney
Office of Legal Services

For questions, contact the Ethics Compliance Officer's Designee:

Alice M. Sexton, Principal Attorney
Office of Legal Services
2800 Berlin Turnpike
Newington, CT 06131-7546
Tel. (860) 594-3045

To contact the Office of State Ethics:

Office of State Ethics
20 Trinity Street, Suite 205
Hartford, CT 06106
Tel. (860) 566-4472
Facs. (860) 566-3806
Web: www.ethics.state.ct.us

Enforcement

The Department expects that all employees will comply with all laws and policies regarding ethical conduct. Violations of the law may subject an employee to sanctions from agencies or authorities outside the DOT. Whether or not another agency or authority imposes such sanctions, the Department retains the independent right to review and respond to any ethics violation or alleged ethics violation by its employees. Violations of this policy or ethics statutes, as construed by the DOT, may result in disciplinary action up to and including dismissal from State service.

Prohibited Activities

1. ***Gifts:*** DOT employees (and in some cases their family members) are prohibited by the Code of Ethics and this Policy from accepting a gift from anyone who is: (1) doing business with, or seeking to do business with, the DOT; (2) directly regulated by the DOT; (3) prequalified as a contractor pursuant to Conn. Gen. Stat. §4a-100 by the Commissioner of the Department of Administrative Services (DAS); or (4) known to be a registered lobbyist or a lobbyist's representative. These four categories of people/entities are referred to as "restricted donors." A list of registered lobbyists can be found on the web site of the Office of State Ethics (www.ct.gov/ethics/site/default.asp). A list of prequalified consultants and contractors, *i.e.,* those seeking to do business with the DOT, can be found on the DOT's Internet site under "Consultant Information" and "Doing Business with ConnDOT," respectively.

   The term "gift" is defined in the Code of Ethics for Public Officials, Conn. Gen. Stat. §1-79(e), and has numerous exceptions. For example, one exception permits the acceptance of food and/or beverages valued up to $50 per calendar year from any one donor and consumed on an occasion or occasions while the person paying or his representative is present. Therefore, such food and/or beverage is not a "gift." Another exception permits the acceptance of items having a value up to ten dollars ($10) provided the aggregate value of all things provided by the donor to the recipient during a calendar year does not exceed fifty dollars ($50). Therefore, such items are not a "gift." Depending on the circumstances, the "donor" may be an individual if the individual is bearing the expense, or a donor may be the individual's employer/group if the individual is passing the expense back to the employer/group he/she represents.

   This policy requires DOT employees to immediately return any gift (as defined in the Code of Ethics) that any person or entity attempts to give to the employee(s). If any such gift or other item of value is received by other than personal delivery from the subject person or entity, the item shall be taken to the Office of Human Resources along with the name and address of the person or entity who gave the item. The Office of Human Resources, along with the recipient of the item of value, will arrange for the donation of the item to a local charity (e.g., Foodshare, local soup kitchens, etc.). The Office of Human Resources will then send a letter to the gift's donor advising the person of the item's donation to charity and requesting that no such gifts be given to DOT employees in the future.

2. ***Contracting for Goods or Services for Personal Use With Department Contractors, Consultants, or Vendors:*** Executive Order 7C provides that: "Appointed officials and state employees in the Executive Branch are prohibited from contracting for goods and services, for personal use, with any person doing business with or seeking business with his or her agency, unless the goods or services are readily available to the general public for the price which the official or state employee paid or would pay."

3. ***Gift Exchanges Between Subordinates and Supervisors/Senior Staff:*** A recent change in the Code of Ethics prohibits exchanges of gifts valued at $100 or more between (*i.e.,* to and from) supervisors and employees under their supervision. The Citizen's Ethics Advisory Board has advised that: (1) the monetary limit imposed by this provision is a per-gift amount; (2) gifts given between supervisors and subordinates (or *vice versa)* in celebration of a "major life event," as defined in the Code of Ethics, need not comply with the $100 limit; and (3) the limitations imposed by this provision apply to a direct supervisor and subordinate *and to any individual up or down the chain of command.* The Citizen's Ethics Advisory Board has also advised that supervisors or subordinates may not pool their money to give a collective or group gift valued at $100 or more, even though each of the individual contributions is less than $100.

4. ***Acceptance of Gifts to the State:*** A recent change to the Code of Ethics for Public Officials modified the definition of the term "gift" to limit the application of the so-called "gift to the State" exception. In general, "gifts to the State" are goods or services given to a State agency for use on State property or to support an event and which facilitate State action or functions. Before accepting any benefit as a "gift to the State," DOT employees should contact the Ethics Compliance Officer.

5. ***Charitable Organizations and Events:*** No DOT employee shall knowingly accept any gift, discount, or other item of monetary value for the benefit of a charitable organization from any person or entity seeking official action from, doing or seeking business with, or conducting activities regulated by, the Department.

6. ***Use of Office/Position for Financial Gain:*** DOT employees shall not use their public office, position, or influence from holding their State office/position, nor any information gained in the course of their State duties, for private financial gain (or the prevention of financial loss) for themselves, any family member, any member of their household, nor any "business with which they are associated." In general, a business with which one is associated includes any entity of which a DOT employee or his/her immediate family member is a director, owner, limited or general partner, beneficiary of a trust, holder of 5 percent or more stock, or an officer (president, treasurer, or executive or senior vice president).

   DOT employees shall not use or distribute State information (except as permitted by the Freedom of Information Act), nor use State time, personnel, equipment, or materials, for other than State business purposes.

7. ***Other Employment:*** DOT employees shall not engage in, nor accept, other employment that will either impair their independence of judgment with regard to their State duties or require or induce them to disclose confidential information gained through their State duties.

   Any DOT employee who engages in or accepts other employment (including as an independent contractor), or has direct ownership in an outside business or sole proprietorship, shall complete an Employment/Outside Business Disclosure Form (see attached) and submit it to the Department's Human Resources Administrator. Disclosure of other employment to the DOT Human Resources Administrator shall *not* constitute approval of the other employment for purposes of the Code of Ethics for Public Officials.

   Inquiries concerning the propriety of a DOT employee's other employment shall be directed to the Office of State Ethics to assure compliance with the Code of Ethics for Public Officials. Employees anticipating accepting other employment as described above should give ample time (at least one month) to the Office of State Ethics to respond to such outside employment inquiries.

No employee of the DOT shall allow any private obligation of employment or enterprise to take precedence over his/her responsibility to the Department.

8. ***Outside Business Interests:*** Any DOT employee who holds, directly or indirectly, a financial interest in any business, firm, or enterprise shall complete an Employment/Outside Business Disclosure Form (see attached) and submit it to the Department's Human Resources Administrator. An indirect financial interest includes situations where a DOT employee's spouse has a financial interest in a business, firm, or enterprise. A financial interest means that the employee or his spouse is an owner, member, partner, or shareholder in a non-publicly traded entity. Disclosure of such outside business interests to the DOT Human Resources Administrator shall *not* constitute approval of the outside business interest under this Policy or the Code of Ethics for Public Officials. DOT employees shall not have a financial interest in any business, firm, or enterprise which will either impair their independence of judgment with regard to their State duties or require or induce them to disclose confidential information gained through their State duties**.** Inquiries concerning the propriety of a DOT employee's outside business interests shall be directed to the Office of State Ethics to assure compliance with the Code of Ethics for Public Officials.

9. ***Contracts With the State***: DOT employees, their immediate family members, and/or a business with which a DOT employee is associated, may not enter into a contract with the State, other than pursuant to a court appointment, valued at $100 or more unless the contract has been awarded through an open and public process.

10. ***Sanctioning Another Person's Ethics Violation*****:** No DOT official or employee shall counsel, authorize, or otherwise sanction action that violates any provision of the Code of Ethics.

11. ***Certain Persons Have an Obligation to Report Ethics Violations:*** If the DOT Commissioner, Deputy Commissioner, or "person in charge of State agency procurement" and contracting has reasonable cause to believe that a person has violated the Code of Ethics or any law or regulation concerning ethics in State contracting, he/she *must* report such belief to the Office of State Ethics. All DOT employees are encouraged to disclose waste, fraud, abuse, and corruption about which they become aware to the appropriate authority (see also Policy Statement EX.O.-23 dated March 31, 2004), including, but not limited to, their immediate supervisor or a superior of their immediate supervisor, the DOT Office of Management Services, the Ethics Compliance Officer, the Auditors of Public Accounts, the Office of the Attorney General, or the Office of the Chief State's Attorney.

12. ***Post-State Employment Restrictions:*** In addition to the above-stated policies of the Department, DOT employees are advised that the Code of Ethics for Public Officials bars certain conduct by State employees ***after they leave State service. Upon leaving State service:***

    - ***Confidential Information***: DOT employees must never disclose or use confidential information gained in State service for the financial benefit of any person.

    - ***Prohibited Representation***: DOT employees must *never* represent anyone (other than the State) concerning any "particular matter" in which they participated personally and substantially while in State service and in which the State has a substantial interest.

      DOT employees also must not, for one year after leaving State service, represent anyone other than the State for compensation before the DOT concerning a matter in which the State has a substantial interest. In this context, the term "represent" has been very broadly defined. Therefore, any former DOT employee contemplating post-State employment work that might involve interaction with any bureau of DOT (or any Board or Commission administratively under the DOT) within

their first year after leaving State employment should contact the DOT Ethics Compliance Officer and/or the Office of State Ethics.

- ***Employment With State Vendors:*** DOT employees who participated substantially in, or supervised, the negotiation or award of a State contract valued at $50,000 or more must not accept employment with a party to the contract (other than the State) for a period of one year after resigning from State service, if the resignation occurs within one year after the contract was signed.

13. ***Ethical Considerations Concerning Bidding and State Contracts:*** DOT employees also should be aware of various provisions of Part IV of the Code of Ethics that affect any person or firm who: (1) is, or is seeking to be, prequalified by DAS under Conn. Gen. Stat. §4a-100; (2) is a party to a large State construction or procurement contract, or seeking to enter into such a contract, with a State agency; or (3) is a party to a consultant services contract, or seeking to enter into such a contract, with a State agency. These persons or firms shall not:

    - With the intent to obtain a competitive advantage over other bidders, solicit any information from an employee or official that the contractor knows is not and will not be available to other bidders for a large State construction or procurement contract that the contractor is seeking;

    - Intentionally, willfully, or with reckless disregard for the truth, charge a State agency for work not performed or goods not provided, including submitting meritless change orders in bad faith with the sole intention of increasing the contract price, as well as falsifying invoices or bills or charging unreasonable and unsubstantiated rates for services or goods to a State agency; and

    - Intentionally or willfully violate or attempt to circumvent State competitive bidding and ethics laws.

    Firms or persons that violate the above provisions may be deemed a nonresponsible bidder by the DOT.

    In addition, no person with whom a State agency has contracted to provide consulting services to plan specifications for any contract, and no business with which such person is associated, may serve as a consultant to any person seeking to obtain such contract, serve as a contractor for such contract, or serve as a subcontractor or consultant to the person awarded such contract.

    DOT employees who believe that a contractor or consultant may be in violation of any of these provisions should bring it to the attention of their manager.

Training for DOT Employees

A copy of this policy will be posted throughout the Department, and provided to each employee either in hard copy or by e-mail. As set forth above, State law requires that certain employees involved in contractor/consultant/vendor selection, evaluation, or supervision must undergo annual ethics training coordinated or provided by the Ethics Compliance Officer. If you believe your duties meet these criteria, you should notify your Bureau Chief to facilitate compilation of a training schedule. In addition, the DOT Ethics Compliance Officer can arrange for periodic ethics training provided by the Office of State Ethics. Finally, the Department will make available, on its web site or otherwise, a copy of this policy to all vendors, contractors, and other business entities doing business with the Department.

Important Ethics Reference Materials

It is strongly recommended that every DOT employee read and review the following:

- Code of Ethics for Public Officials, Chapter 10, Part 1, Conn. General Statutes Sections 1-79 through 1-89a found at: www.ct.gov/ethics/site/default.asp

- Ethics Regulations Sections 1-81-14 through 1-81-38, found at: www.ct.gov/ethics/site/default.asp

- The Office of State Ethics web site includes summaries and the full text of formal ethics advisory opinions interpreting the Code of Ethics, as well as summaries of previous enforcement actions: www.ct.gov/ethics/site/default.asp. DOT employees are strongly encouraged to contact the Department's Ethics Compliance Officer or her designee, or the Office of State Ethics with any questions or concerns they may have.

(This Policy Statement supersedes Policy Statement No. F&A-10 dated January 6, 2006)

Ralph J. Carpenter
COMMISSIONER

Attachment

List 1 and List 3
(Managers and supervisors are requested to distribute a copy of this Policy Statement to all employees under their supervision.)

cc: Office of the Governor, Department of Administrative Services, Office of State Ethics

Emp&discForm 5/07

Department of Transportation
Employment & Outside Business
Disclosure Form

In accordance with Department of Transportation (Department) Policy Statement No. F&A-10, Code of Ethics Policy, I am hereby advising the Department that in addition to my current DOT position, I have other employment and/or a direct or indirect financial interest in an outside business as follows:

1. Full name of outside employer, or entity in which I or my spouse have a financial interest (e.g., ownership or member/partner):
_____

2. Location of Employer/Entity disclosed above: _____

3. Nature of my/my spouse's relationship to employer/entity disclosed above (check at least one):
   _____ Employee or Independent Contractor (circle one)
   _____ Owner/Member/Partner/etc.
   _____ Family Member of Owner/Member/Partner/etc.

4. State agency(ies) with which above employer/entity is doing business or seeking Business (write "N/A" if not applicable): _____

5. Job Title at Outside Employer: _____

6. Job Responsibilities at Outside Employer: _____
_____
_____

7. Current State Title: _____

8. Current State Job Responsibilities: _____
_____
_____

9. Name/Title of Current State Supervisor: _____

I understand that the filing of this Disclosure with the DOT Human Resources Administrator does not relieve me of any obligations I have to comply with the Code of Ethics for Public Officials, and does not constitute approval of my outside employment and/or financial interests under the Code of Ethics for Public Officials. *Employees engaging in outside employment are strongly urged to seek written approval of their outside employment from the Office of State Ethics, 20 Trinity Street, Hartford, CT 06106.* I also understand that if either my State or outside employment/financial interest changes in location or function I am required to notify the Department immediately.

Signed: _____ Date: _____
Printed Name: _____

ITEM #0020903A – LEAD COMPLIANCE FOR MISCELLANEOUS EXTERIOR TASKS

Description:

Work under this item shall include the special handling measures and work practices required for miscellaneous exterior tasks that impact materials containing or covered by lead paint. Lead paint includes paint found to contain **any** detectable amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF). Examples of typical miscellaneous exterior tasks includes; work impacting signs, guiderails, minor bridge rehabilitation, catenary structures, canopy structures, spot/localized paint removal, etc.

All activities shall be performed in accordance with the OSHA Lead in Construction Regulations (29 CFR 1926.62), the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260 through 274), and the CTDEEP Hazardous Waste Regulations (RCSA 22a-209-1 and 22a-449(c)).

All activities shall be performed by individuals with appropriate levels of OSHA lead awareness and hazard communication training and shall supervised by the Contractors Competent Person on the job site at all times. The Contractors 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.

Deviations from these Specifications require the written approval of the Engineer.

Materials:

All materials shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description, with MSDS sheets as applicable.

No damaged or deteriorating materials shall be used. If material becomes contaminated with lead, the material shall be decontaminated or disposed of as lead-containing waste material. The cost to decontaminate and dispose of this material shall be at the expense of the Contractor.

The following material requirements are to be met if to be used during the work:

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating minimum six (6) mil thickness.

Polyethylene disposable bags shall be minimum six (6) mils thick.

Tape (or equivalent) product capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Cleaning Agents and detergent shall be lead specific, such as TriSodium Phosphate (TSP).

Chemical strippers and chemical neutralizers shall be compatible with the substrate as well as with each other. Such chemical stripper shall contain less than 50% Volatile Organic Compounds (VOCs) by weight in accordance with RCSA 22a-174-40 Table 40-1.

Labels and warning signs shall conform to 29 CFR 1926.62, 40 CFR 260 through 274 and 49 CFR 172 as appropriate.

Air filtration devices and vacuum units shall be equipped with High-Efficiency Particulate Air (HEPA) filters.

Construction Methods:

(1) Pre-Abatement Submittals and Notices

A. Prior to the start of **any** work on a contiguous per site basis that will generate hazardous lead waste above conditionally exempt small quantities (greater than 100 kg/month or greater than 1000 kg at any time), the Contractor shall obtain from the Engineer on a contiguous per site basis a temporary EPA Hazardous Waste Generators ID number, unless otherwise directed by the Engineer. Temporary EPA ID numbers are good for six months from the date they are issued and can be extended once, for a maximum of six months and can't be used for longer than one year. The Contractor will be responsible for notifying the Engineer when an extension is needed.

B. Fifteen (15) working days prior to beginning work that impacts lead paint, the Contractor shall submit the following to the Engineer:

1. Work plan for work impacting lead paint including engineering controls, methods of containment of debris and work practices to be employed, as needed, to minimize employee exposure and prevent the spread of lead contamination outside the Regulated Area.

2. Copies of all employee certificates, dated within the previous twelve (12) months, relating to OSHA lead awareness and hazard communication training and training in the use of lead-safe work practices. SSPC training programs may be accepted as meeting these requirements if it can be demonstrated that such training addressed all required topics.

   This information shall be updated and resubmitted annually, or as information changes, for the duration of the activities impacting lead to verify continued compliance.

3. Name and qualifications of Contractor's OSHA Competent Person under 29 CFR 1926.62.

4. Documentation from the Contractor, typed on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following:

   a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.62;
   b. biological monitoring within the previous six (6) months, as required in 29 CFR 1926.62;
   c. respirator fit testing within the previous twelve (12) months, as required in 29 CFR 1910.134 (for those who don a tight-fitting face piece respirator)

   This information shall be updated and resubmitted annually, or as information changes, for the duration of the activities impacting lead to verify continued compliance.

5. Names of the proposed non-hazardous construction and demolition (C&D) lead debris bulky waste disposal facility (CTDEEP-permitted Solid Waste landfill).

6. Names of the proposed scrap metal recycling facilities. The Contractor shall submit to the Engineer all documentation necessary to demonstrate the selected facility is able to accept lead-painted scrap metal.

7. Names of the proposed hazardous waste disposal facility (selected from the Town approved list provided herein), and copies of each facilities acceptance criteria and sampling frequency requirements.

8. Copies of the proposed hazardous waste transporters current USDOT Certificate of Registration for Hazardous Materials Transport, and the proposed transporters current Hazardous Waste Transporter Permits for the State of Connecticut and the waste destination State.

9. Negative exposure assessments conducted within the previous 12 months documenting that employee exposure to lead for each task is below the OSHA Action Level of 30 $\mu g/m^3$. If a negative exposure assessment has not been conducted, the Contractor shall submit its air monitoring program for the work tasks as part of the Work Plan. Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized persons entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62.

No activity shall commence until all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal of acceptable documentation to, and review by, the Engineer.

Contractor shall provide the Engineer with a minimum of 48 hours notice in advance of scheduling, changing or canceling work activities.

(2) Lead Abatement Provisions

A. General Requirements:

1. All employees of the Contractor who perform work impacting lead paint shall be properly trained to perform such duties. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

Contractor shall provide all labor, materials, tools, equipment, services, testing, and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications.

Prior to beginning work, the Engineer and Contractor shall perform a visual survey of each work area and review conditions.

As necessary, the Contractor shall:

> Shut down and lock out electrical power, including all receptacles and light fixtures, where feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the site.

If adequate electrical supply is not available at the site, the Contractor shall supply temporary power. Such temporary power shall be sufficient to provide adequate lighting and power the Contractor's equipment. The Contractor is responsible for proper connection and installation of electrical wiring and shall ensure safe installation of electrical equipment in compliance with applicable electrical codes and OSHA requirements.

If water is not available at the site for the Contractor's use, the Contractor shall supply sufficient water for each shift to operate the wash facility/decontamination shower units in addition to the water needed at the work area.

The Engineer may provide a Project Monitor to monitor compliance of the Contractor and protect the interests of the Town. In such cases, no activity impacting lead paint shall be performed until the Project Monitor is on-site. Where no Project Monitor will be provided, Contractor shall proceed at the direction of the Engineer. Environmental sampling, including ambient air sampling, TCLP waste stream sampling, and dust wipe sampling, will be conducted by the Town as it deems necessary throughout the project. Air monitoring to comply with the Contractor's obligations under OSHA remains solely responsibility of the Contractor.

If at any time, procedures for engineering, work practice, administrative controls or other topics are anticipated to deviate from those documented in the submitted and accepted Lead Work Plan, the Contractor shall submit a modification of its existing plan for review and acceptance by the Engineer prior to implementing the change.

If air samples collected outside of the Regulated Area during activities impacting lead paint indicate airborne lead concentrations greater than original background levels or 30 ug/m^3, whichever is larger, or if at any time visible emissions of lead paint extend out from the Regulated Area, an examination of the Regulated Area shall be conducted and the cause of such emissions corrected. Cleanup of surfaces outside the Regulated Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming work.

Work outside the initial designated area(s) will not be paid for by the Engineer. The Contractor will be responsible for all costs incurred from these activities including repair of any damage.

B. Regulated Area

The Contractor shall establish a Regulated Area through the use of appropriate barrier tape or other means to control unauthorized access into the area where activities impacting lead paint are occurring. Warning signs meeting the requirements of 29 CFR 1926.62 shall be posted at all approaches to Regulated Areas. These signs shall read:

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

The Contractor shall implement appropriate engineering controls such as poly drop cloths, local exhaust ventilation, wet dust suppression methods, etc. as necessary, and as approved by the Engineer, to prevent the spread of lead contamination beyond the Regulated Area in accordance with the Contractor's approved work plan. Should the previously submitted work plan prove to be insufficient to contain the contamination, the Contractor shall modify its plan and submit it for review by the Engineer.

C. Wash Facilities:

The Contractor shall provide handwash facilities in compliance with 29 CFR 1926.51(f) and 29 CFR 1926.62 <u>regardless of airborne lead exposure</u>.

If employee exposure to airborne lead exceeds the OSHA Permissible Exposure Limit of 50 micrograms per cubic meter ($\mu g/m^3$), shower rooms must be provided. The Shower Room shall be of sufficient capacity to accommodate the number of workers. One shower stall shall be provided for each eight (8) workers. Showers shall be equipped with hot and cold or warm running water. Shower water shall be collected and filtered using best available technology and disposed of in accordance with all Federal, State and local laws, regulations and ordinances.

D. Personal Protection:

The Contractor shall initially determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 $\mu g/m^3$. Assessments shall be based on initial air monitoring results as well as other relevant information. The Contractor may rely on historical air monitoring data obtained within the past 12 months under workplace conditions closely resembling the process, type of material, control methods, work practices and environmental conditions used and prevailing in the Contractors current operations to satisfy the exposure assessment requirements. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.

Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized person entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings. Sufficient quantities shall be provided to last throughout the duration of the project.

Protective clothing provided by the Contractor and used during chemical removal operations shall be impervious to caustic materials. Gloves provided by the Contractor and used during chemical removal shall be of neoprene composition with glove extenders.

Respiratory protective equipment shall be provided and selection shall conform to 42 CFR Part 84, 29 CFR Part 1910.134, and 29 CFR Part 1926.62. A formal respiratory protection program must be implemented in accordance with 29 CFR Part 1926.62 and Part 1910.134.

E. Air Monitoring Requirements

The Contractor shall:

1. Provide air monitoring equipment including sample filter cassettes of the type and quantity required to properly monitor operations and personnel exposure surveillance throughout the duration of the project.

2. Conduct initial exposure monitoring to determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 micrograms per cubic meter. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.

3. Conduct personnel exposure assessment air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.62. Documentation of air sampling results must be recorded at the work site within twenty-four (24) hours and shall be available for review until the job is complete.

F. Lead Abatement Procedures

The Contractor's Competent Person shall be at the job site at all times during work impacting lead.

Work impacting lead paint shall not begin until authorized by the Engineer, following a pre-work visual inspection by the Project Monitor or Engineer to verify existing conditions.

Any activity impacting lead painted surfaces shall be performed in a manner which minimizes the spread of lead dust contamination and generation of airborne lead.

The Contractor shall conduct exposure assessments for all tasks which impact lead paint in accordance with 29 CFR 1926.62(d) and shall implement appropriate personal protective equipment until negative exposure assessments are developed.

All work impacting the materials identified below shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with "C. Wash Facilities" and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

The Contractor shall ensure proper entry and exit procedures for workers and authorized persons who enter and leave the Regulated Area. All workers and authorized persons shall leave the Regulated Area and proceed directly to the wash or shower facilities where they will HEPA vacuum gross debris from work suit, remove and dispose of work suit, wash and dry face and hands, and vacuum clothes. Lead chips and dust must not be removed by blowing or shaking of clothing. Wash water shall be collected, filtered, and disposed of in accordance with Federal, State and local water discharge standards. Any permit required for such discharge shall be the responsibility of the Contractor.

No one shall eat, drink, smoke, chew gum or tobacco, or apply cosmetics while in the Regulated Area.

Data from the limited lead testing performed by the Engineer is documented in the reports listed in the "Notice to Contractor – Hazardous Materials Investigations" or is presented herein. Under no circumstances shall this information be the sole means used by the Contractor for determining the extent of lead painted materials. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA, USEPA, USDOT and CTDEEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

The following details the extent of each phase of operation designated for this project. Phase areas may be combined or divided at the direction of the Engineer. Proceed through the sequencing of the work phases under the direction of the Engineer.

Bridge No. 04805, Forge Hill Road over Pachaug River, Voluntown, CT

- **Lead paint was identified on the metal railings/railing support components of Bridge No. 04805.**

- **No detectable amounts of lead were identified in the tan paint associated with the parapet concrete walls at Bridge No. 04805.**

Bridge Nos. 04805	Substrate	Color	Result
Railings, railing supports, guardrails	Metal	Grey	0.0-24.2 mg/cm^2

- **The paint waste stream generated from the metal railings/railing support components was characterized as CTDEEP/RCRA hazardous waste.**

Paint debris (metal railings/railing support components)	200 mg/L

- **Since no detectable amounts of lead were identified in the tan paint associated with the parapet concrete walls at Bridge No. 04805, any paint waste generated from them would be characterized as non-hazardous, non-RCRA lead bulky waste.**

While conducting work on Bridge No. 04805, where it is necessary to impact the lead painted metal, the Contractor shall either:

a. **Remove the paint to be impacted prior to impacting the metal in accordance with OSHA Lead in Construction Standard 29CFR 1926.62, or**
b. **Impact the metal using mechanical means with the paint in place in accordance with OSHA Lead in Construction Standard 29CFR 1926.62.**

The Contractor shall submit a Work Plan to the Town outlining the exact procedures that will be used to perform the work, contain the spread of lead debris and protect the employees performing the required renovation work impacting the lead paint. No work shall be started by the Contractor until the Work Plan is approved by the Engineer.

All work impacting the lead paint materials shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with "C. Wash Facilities" and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

The Engineer has characterized the paint waste stream associated with the metal railings/railing support components and guardrails at Bridge No. 04805 as <u>CTDEEP/RCRA hazardous waste</u>. If the paint is removed from the metal surfaces of the railing/railing support components, the paint shall be handled and disposed of as CTDEEP/RCRA hazardous waste as described under this Item 0020903A.

All steel and metal components generated from the miscellaneous exterior work tasks (painted or not) shall be segregated and recycled as scrap metal. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

Should lead contamination be discovered outside of the Regulated Area, the Contractor shall immediately stop all work in the Regulated Area, eliminate causes of such contamination and take steps to decontaminate non-work areas.

Special Requirements:

1. Demolition/Renovation:

    a. Demolish/renovate in a manner which minimizes the spread of lead contamination and generation of lead dust.

    b. Implement dust suppression controls, such as misters, local exhaust ventilation, etc. to minimize the generation of airborne lead dust.

    c. Segregate work areas from non-work areas through the use or barrier tape, drop cloths, etc.

    d. Clean up immediately after renovation/demolition has been completed

2. Chemical Removal:

    a. Apply chemical stripper in quantities and for durations specified by manufacturer.

    b. Where necessary, scrape lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use sanding, hand scraping, and dental picks to supplement chemical methods as necessary.

    c. Apply neutralizer compatible with substrate and chemical agent to substrate following removal in accordance with manufacturer's instructions.

    d. Protect adjacent surfaces from damage from chemical removal.

    e. Maintain a portable eyewash station in the work area.

f. Wear respirators that will protect workers from chemical vapors.

g. Do not apply caustic agents to aluminum surfaces.

3. Mechanical Paint Removal:

a. Provide sanders, grinders, rotary wire brushes, or needle gun removers equipped with a HEPA filtered vacuum dust collection system. Cowling on the dust collection system for orbital-type tools must be capable of maintaining a continuous tight seal with the surface being abated. Cowling on the dust collection system for reciprocating-type tools shall promote an effective vacuum flow of loosened dust and debris. Inflexible cowlings may be used on flat surfaces only. Flexible contoured cowlings are required for curved or irregular surfaces.

b. Provide HEPA vacuums that are high performance designed to provide maximum static lift and maximum vacuum system flow at the actual operating vacuum condition with the shroud in use. The HEPA vacuum shall be equipped with a pivoting vacuum head.

c. Remove lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use chemical methods, hand scraping, and dental picks to supplement abrasive removal methods as necessary.

d. Protect adjacent surfaces from damage from abrasive removal techniques.

e. “Sandblasting” type removal techniques shall not be allowed.

4. Component Removal/Replacement:

a. Wet down components which are to be removed to reduce the amount of dust generated during the removal process.

b. Remove components utilizing hand tools and follow appropriate safety procedures during removal. Remove the components by approved methods which will provide the least disturbance to the substrate material. Do not damage adjacent surfaces.

c. Clean up immediately after component removals have been completed. Remove any dust located behind the component removed.

G. Prohibited Removal Methods:

The use of heat guns in excess of 700 degrees Fahrenheit to remove lead paint is prohibited.

The use of sand, steel grit, air, CO_2, baking soda, or any other blasting media to remove lead or lead paint without the use of a HEPA ventilated contained negative pressure enclosure is prohibited.

Power/pressure washing shall not be used to remove lead paint.

Compressed air shall not be utilized to remove lead paint.

Chemical strippers containing Methylene Chloride are prohibited. Any chemical stripping may be prohibited on a project by project basis.

Power tool assisted grinding, sanding, cutting, or wire brushing of lead paint without the use of cowled HEPA vacuum dust collection systems is prohibited.

Lead paint burning, busting of rivets painted with lead paint, welding of materials painted with lead paint, and torch cutting of materials painted with lead paint is prohibited. Where cutting, welding, busting, or torch cutting of materials is required, lead paint in the affected area must be removed first.

Chemical stripping of coatings from bridge components is generally prohibited unless specifically allowed on a project by project basis.

H. Clean-up and Visual Inspection:

The Contractor shall remove and containerize all lead waste material and visible accumulations of debris, paint chips and associated items.

During clean-up the Contractor shall utilize rags and sponges wetted with lead-specific detergent and water as well as HEPA filtered vacuum equipment.

The Engineer will conduct a visual inspection of the work areas in order to document that all surfaces have been maintained as free as practicable of accumulations of lead in accordance with 29 CFR 1926.62(h). If visible accumulations of waste, debris, lead paint chips or dust are found in the work area, the Contractor shall repeat the cleaning, at the Contractor's expense, until the area is in compliance. The visual inspection will detect incomplete work, damage caused by the abatement activity, and inadequate clean up of the work site.

I. Post-Work Regulated Area Deregulation:

Following an acceptable visual inspection, any engineering controls implemented may be removed.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor or Engineer to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the lead paint removal remain. If this final visual inspection is acceptable, the Contractor will reopen the Regulated Area and remove all signage.

The Contractor shall restore all work areas and auxiliary areas utilized during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the Town.

J. Waste Disposal/Recycling:

Non-metallic building debris waste materials tested and found to be non-hazardous Construction and Demolition (C&D) bulky waste shall be disposed of properly at a CTDEEP approved Solid Waste landfill as described under this Item 0020903A.

Metallic debris shall be segregated and recycled as scrap metal at an approved metal recycling facility.

Concrete, brick, etc. coated with any amount of lead paint cannot be crushed, recycled or buried on-site to minimize waste disposal unless tested and found to meet the RSR GA/Residential standards.

Hazardous lead debris shall be disposed of as described under this Item 0020903A.

The Contractor shall comply with the latest requirements of the USEPA RCRA Hazardous Waste Regulations 40 CFR 260-274 and the DEEP Hazardous/Solid Waste Management Standards 22a-449(c).

Hazardous lead debris shall be transported from the Project by a licensed hazardous waste transporter approved by the Town and disposed of at an EPA-permitted and Town approved hazardous waste landfill within 90 days from the date of generation.

The Contractor must use one or more of the following approved disposal facilities for the disposal of hazardous waste:

Clean Earth of North Jersey, Inc., (CENJ) 115 Jacobus Avenue, South Kearny, NJ 07105 Phone: (973) 344-4004; Fax: (973) 344-8652	Clean Harbors Environmental Services, Inc. 2247 South Highway 71, Kimball, NE 69145 Phone: (308) 235-8212; Fax: (308) 235-4307
Clean Harbors of Braintree, Inc. 1 Hill Avenue, Braintree, MA 02184 Phone: (781) 380-7134; Fax: (781) 380-7193	ACV Enviro(CycleChem) (General Chem Co) 217 South First Street, Elizabeth, NJ 07206 Phone: (908) 355-5800; Fax (908) 355-0562
Triumverate (EnviroSafe Corp Northeast) (Jones Environmental Services (NE), Inc.) 263 Howard Street, Lowell, MA 01852 Phone: (978) 453-7772; Fax: (978) 453-7775	US Ecology Environmental Quality Detroit, Inc. 1923 Frederick Street, Detroit, MI 48211 Phone: (800) 495-6059; Fax: (313) 923-3375
Stericycle (Republic Environmental Systems) 2869 Sandstone Drive, Hatfield, PA 19440 Phone: (215) 822-8995; Fax: (215) 997-1293	Clean Habors – Spring Grove Facility 4879 Spring Grove Ave, Cincinnati OH 45322 Phone: (513) 681-6242; Fax: (513) 681-0869
Envirite of PA (US Ecology) 730 Vogelsong Road, York, PA 17404 Phone: (717) 846-1900; Fax: (717) 854-6757	Stablex, Canada, Inc. 760 Industrial Bl, Blainville Quebec J7C3V4 Phone: (451) 430-9230; Fax: (451) 430-4642
Environmental Quality Company: Wayne Disposal Facility 49350 North I-94 Service Drive Belleville, MI 48111 Phone: (800) 592-5489; Fax: (800) 592-5329	Stericycle (Northland Environmental, Inc.) (PSC Environmental Systems) 275 Allens Avenue, Providence, RI 02905 Phone: (401) 781-6340; Fax: (401) 781-9710

No facility may be substituted for the one(s) designated in the Contractor's submittal without the Engineer's prior approval. If the material cannot be accepted by any of the Contractor's designated facilities, the Town will supply the Contractor with the name(s) of other acceptable facilities.

Prior to the generation of any hazardous waste, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer (1) the transporter's current US DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain on a contiguous

per site basis a temporary EPA Generators ID number for the site that he will forward to the Contractor. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

Handling, storage, transportation and disposal of hazardous waste materials generated as a result of execution of this project shall comply with all Federal, State and Local regulations including the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260-271), the CTDEEP Hazardous Waste Regulations (22a-209 and 22a-449(c)), and the USDOT Hazardous Materials Regulations (49 CFR Part 171-180).

All debris shall be contained and collected daily or more frequently as directed by the Engineer, due to debris buildup. Debris shall be removed by HEPA vacuum collection. Such debris and paint chips shall be stored in leak-proof storage containers in the secured storage site, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding. Storage containers shall be placed on pallets and closed and covered with tarps at all times except during placement, sampling and disposal of the debris.

Hazardous waste materials are to be properly packed and labeled for transport by the Contractor is accordance with EPA, CTDEEP and USDOT regulations. The disposal of debris characterized as hazardous waste shall be completed within 90 calendar days of the date on which it began to be accumulated in the lined containers. Storage of containers shall be in accordance with current DEEP/EPA procedures.

The Contractor shall label hazardous waste storage containers with a 6-inch square, yellow, weatherproof, Hazardous Waste sticker in accordance with USDOT regulations.

Materials other than direct paint related debris which are incidental to the paint removal work activities (tarps, poly, plywood, PPE, gloves, decontamination materials, etc.) which may be contaminated with lead, shall be stored separately from the direct paint debris, and shall be sampled by the Engineer for waste disposal characterization testing. Such materials characterized as hazardous shall be handled/disposed of as described herein, while materials characterized as non-hazardous shall be disposed of as non-hazardous CTDEEP Solid Waste.

Direct paint related debris materials not previously sampled and characterized for disposal, which may be originally presumed to be hazardous waste, shall also be stored separately and sampled by the Engineer for ultimate waste disposal characterization testing and handled/disposed of based on that testing.

Project construction waste materials unrelated to the paint removal operations shall NOT be combined/stored with paint debris waste and/or incidental paint removal materials as they are not lead contaminated and shall NOT be disposed of as hazardous waste. The Engineer’s on-site Inspectors shall conduct inspections to verify materials remain segregated.

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal, including disposal facility waste profile sheets. It is solely the Contractor's responsibility to co-ordinate the disposal of hazardous materials with its selected treatment/recycling/disposal facility(s). Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all Federal and State regulations. **No claim will be considered based on the failure of the Contractor's disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

The Contractor shall process the hazardous waste such that the material conforms with the requirements of the selected treatment/disposal facility, including but not limited to specified size and dimension. Refusal on the part of the treatment/disposal facility to accept said material solely on the basis of non-conformance of the material to the facility's physical requirements is the responsibility of the Contractor and no claim for extra work shall be accepted for reprocessing of said materials to meet these requirements.

All DOT shipping documents, including the Uniform Hazardous Waste Manifests utilized to accompany the transportation of the hazardous waste material shall be prepared by the Contractor and reviewed/signed by an authorized agent representing the Town, as Generator, for each load of hazardous material that is packed to leave the site. The Contractor shall not sign manifests on behalf of the Town as Generator. The Contractor shall forward the appropriate original copies of all manifests to the Engineer the same day the material leaves the Project site.

Materials not related to lead paint removal and/or characterized as non-hazardous waste shall NOT be shipped for hazardous waste disposal in accordance with USEPA RCRA hazardous waste minimization requirements.

A load-specific certificate of disposal, signed by the authorized agent representing the waste disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

In addition to all pertinent Federal, State and local laws or regulatory agency polices, the Contractor shall adhere to the following precautions during the transport of hazardous materials off-site:

- All vehicles departing the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume, and contents of materials carried. Vehicles shall display the proper USDOT placards for the type and quantity of waste;

- No materials shall leave the site unless a disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste;

- Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported and received at the disposal facility; and,

- The Contractor shall segregate the waste streams (i.e. concrete, wood, etc.) as directed by the receiving disposal facility.

Any spillage of debris during disposal operations during loading, transport and unloading shall be cleaned up in accordance with EPA 40 CFR 265 Subparts C & D, at the Contractor's expense.

The Contractor is liable for any fines, costs or remediation costs incurred as a result of their failure to be in compliance with this Item and all Federal, State and Local laws.

K. Project Closeout Data:

Provide the Engineer, within thirty (30) days of completion of the project site work, a compliance package; which shall include, but not be limited to, the following:

1. Competent persons (supervisor) job log;
2. OSHA-compliant personnel air sampling data;
3. Completed waste shipment papers for non-hazardous lead construction and demolition (C&D) waste disposal or recycling and scrap metal recycling.
4. Copies of completed Hazardous Waste Manifests (signed by authorized disposal facility representative).

Method of Measurement:

The completed work shall be paid as a lump sum. This item will include all noted services, equipment, facilities, testing and other associated work for up to three (3) Town project representatives. Services provided to any Town project representatives in excess of three (3) representatives will be measured for payment in accordance with Article 1.09.04 – "Extra and Cost-Plus Work."

Basis of Payment:

The lump sum price bid for this item shall include: services, materials, equipment, all permits, notifications, submittals, personal air sampling, personal protection equipment, temporary enclosures, incidentals, fees and labor incidental to activities impacting lead removal, treatment and handling of lead contaminated materials, and the transport and disposal of any hazardous and/or non-hazardous, non-RCRA lead waste.

Final payment will not be made until all project closeout data submittals have been completed and provided to the Engineer. Once the completed package has been received in its entirety and accepted by the Engineer, final payment will be made to the Contractor.

Pay Item	Pay Unit
Lead Compliance for Miscellaneous Exterior Tasks	Lump Sum

ITEM #0101000A - ENVIRONMENTAL HEALTH AND SAFETY

Description:

Under this item, the Contractor shall establish protocols and provide procedures to protect the health and safety of its employees and subcontractors as related to the proposed construction activities performed within the Project. Work under this Item consists of the development and implementation of a written Health and Safety Plan (HASP) that addresses the relative risk of exposure to documented hazards present within Project limits. The HASP shall establish health and safety protocols that address the relative risk of exposure to regulated substances in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Such protocols shall only address those concerns directly related to site conditions.

Note: The Engineer will prepare a site-specific health and safety plan which is compatible with the Contractor's plan and will be responsible for the health and safety of all Project Inspectors, Municipality employees and consulting engineers.

Materials:

The Contractor must provide chemical protective clothing (CPC) and personal protective equipment (PPE) as stipulated in the Contractor's HASP during the performance of work in areas identified as potentially posing a risk to worker health and safety for workers employed by the Contractor and all subcontractors.

Construction Methods:

1-Existing Information: The Contractor shall utilize all available information and existing records and data pertaining to chemical and physical hazards associated with any of the regulated substances identified in the environmental site investigations to develop the HASP. A list of documents containing this information is found in "Notice to Contractor – Environmental Investigations".

2-General: The requirements set forth herein pertain to the provision of workers' health and safety as it relates to proposed Project activities when performed in the presence of hazardous or regulated materials or otherwise environmentally sensitive conditions. THE PROVISION OF WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS POSED TO CONTRACTOR EMPLOYEES IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Contractor shall be responsible for the development, implementation and oversight of the HASP throughout the performance of work within the limits of the Project, as identified in the Contract Documents, and in other areas identified by the Engineer or by the HASP where site conditions may pose a risk to worker health and safety and/or the environment.
No physical aspects of the work generating excess soil shall begin until the HASP is reviewed by the Engineer and is determined to meet the requirements of the specifications. However,

the Contract time, in accordance with Article 1.03.08, will begin on the date stipulated in the Notice to Proceed.

3-Regulatory Requirements: All construction related activities performed by the Contractor within the limits of the Project or in other areas where site conditions may pose a risk to worker health and safety and/or the environment shall be performed in conformance with 29 CFR 1926, Safety and Health Regulations for Construction and 29 CFR 1910, Safety and Health Regulations for General Industry. Conformance to 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response (HAZWOPER) may also be required, where appropriate.

4-Submittals: Three copies of the HASP shall be submitted to the Engineer within four (4) weeks after the Award of Contract or four (4) weeks prior to the start of any work in the Project generating reusable or surplus soil, whichever is first, but not before the Award of the Contract.

The HASP shall be developed by a qualified person designated by the Contractor. This qualified person shall be a Certified Industrial Hygienist (CIH), Certified Hazardous Material Manager (CHMM), or a Certified Safety Professional (CSP). He/she shall have review and approval authority over the HASP and be identified as the Health and Safety Manager (HSM). The HASP shall bear the signature of said HSM indicating that the HASP meets the minimum requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

The Engineer will review the HASP(s) within four (4) weeks of submittal and provide written comments as to deficiencies in and/or exceptions to the plan(s), if any, to assure consistency with the specifications, applicable standards, policies and practices and appropriateness given potential or known site conditions. Items identified in the HASP which do not conform to the specifications will be brought to the attention of the Contractor, and the Contractor shall revise the HASP to correct the deficiencies and resubmit it to the Engineer for determination of compliance with this item. The Contractor shall not be allowed to commence work activities generating reusable or surplus soil as shown on the Plan, or where site conditions exist which may pose a risk to worker health and safety and/or the environment, until the HASP has been reviewed and accepted by the Engineer. No claim for delay in the progress of work will be considered for the Contractor’s failure to submit a HASP that conforms to the requirements of the Contract.

5-HASP Provisions:

(a) General Requirements: The Contractor shall prepare a HASP covering all Project site work regulated by 29 CFR 1910.120(b)/ 1926.65(b) to be performed by the Contractor and all subcontractors under this Contract. The HASP shall establish in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed under this Contract. The HASP shall address site-specific safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted.

Therefore, the HASP shall address, in as much detail as possible, all anticipated tasks, their related hazards and anticipated control measures.

The HASP shall interface with the Contractor's Safety and Health Program. Any portions of the Safety and Health Program that are referenced in the HASP shall be included as appendices to the HASP. All topics regulated by the 29 CFR 1910.120(b)(4) and those listed below shall be addressed in the HASP. Where the use of a specific topic is not applicable to the Project, the HASP shall include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic.

(b) Elements:

(i) Site Description and Contamination Characterization: The Contractor shall provide a site description and contaminant characterization in the HASP that meets the requirements of 29 CFR 1910.120/1926.65.

(ii) Safety and Health Risk Analysis/Activity Hazard Analysis: The HASP shall address the safety and health hazards on this site for every operation to be performed. The Contractor shall review existing records and data to identify potential chemical and physical hazards associated with the site and shall evaluate their impact on field operations. Sources, concentrations (if known), potential exposure pathways, and other factors as noted in CFR 1910.120/126.65, paragraph (c)(7) employed to assess risk shall be described. The Contractor shall develop and justify action levels for implementation of engineering controls and personal protective equipment upgrades and downgrades for controlling worker exposure to the identified hazards. If there is no permissible exposure limit (PEL) or published exposure level for an identified hazard, available information from other published studies may be used as guidance. Any modification of an established PEL must be fully documented.

The HASP shall include a comprehensive section that discusses the tasks and objectives of the site operations and logistics and resources required to complete each task. The hazards associated with each task shall be identified. Hazard prevention techniques, procedures and/or equipment shall be identified to mitigate each of the hazards identified.

(iii) Staff Organization, Qualifications and Responsibilities: The HASP shall include a list of personnel expected to be engaged in site activities and certify that said personnel have completed the educational requirements stipulated in 29 CFR 1910.120 and 29 CFR 1926.65, are currently monitored under a medical surveillance program in compliance with those regulations, and that they are fit for work under "level C" conditions.

The Contractor shall assign responsibilities for safety activities and procedures. An outline or flow chart of the safety chain of command shall be provided in the HASP. Qualifications, including education, experience, certifications, and training in safety and health for all personnel engaged in safety and health functions shall be documented in the HASP. Specific duties of each on-site team member shall be identified. Typical team members

include Team Leader, Scientific Advisor, Site Safety Officer, Public Information Officer, Security Officer, Record Keeper, Financial Officer, Field Team Leader, and Field Team members.

The HASP shall also include the name and qualifications of the individual proposed to serve as Health and Safety Officer (HSO). The HSO shall have full authority to carry out and ensure compliance with the HASP. The Contractor shall provide a competent HSO on-site who is capable of identifying existing and potential 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 or control them. The qualifications of the HSO shall include completion of OSHA 40-hour HAZWOPER training, including current 8-hour refresher training, and 8-hour HAZWOPER supervisory training; a minimum of one year of working experience with the regulated compounds that have been documented to exist within Project limits; a working knowledge of Federal and State safety regulations; specialized training or documented experience (one year minimum) in personal and respiratory protective equipment program implementation; the proper use of air monitoring instruments, air sampling methods and procedures; and certification training in first aid and CPR by a recognized, approved organization such as the American Red Cross.

The primary duties of the HSO shall be those associated with worker health and safety. The Contractor's HSO responsibilities shall be detailed in the written HASP and shall include the following:

(A) Directing and implementing the HASP.

(B) Ensuring that all Project personnel have been adequately trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury (29 CFR 1926.21). All personnel shall be adequately trained in procedures outlined in the Contractor's written HASP.

(C) Authorizing Stop Work Orders, which shall be executed upon the determination of an imminent health and safety concern.

(D) Contacting the Contractor's HSM and the Engineer immediately upon the issuance of a Stop Work order when the HSO has made the determination of an imminent health and safety concern.

(E) Authorizing work to resume, upon approval from the Contractor's HSM.

(F) Directing activities, as defined in the Contractor's written HASP, during emergency situations; and

(G) Providing personal monitoring where applicable, and as identified in the HASP.

(iv) Employee Training Assignments: The Contractor shall develop a training program to inform employees, supplier's representatives, and official visitors of the special hazards and procedures (including PPE, its uses and inspections) to control these hazards during field operations. Official visitors include Federal Agency Representatives, State Agency Representatives, Municipal Agency Representatives, Contractors, subcontractors, etc. This program shall be consistent with the requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

(v) Personal Protective Equipment: The plan shall include the requirements and procedures for employee protection and should include a detailed section on respiratory protection. The Contractor shall describe in detail and provide appropriate personal protective equipment (PPE) to ensure that workers are not exposed to levels greater than the action level for identified hazards for each operation stated for each work zone. The level of protection shall be specific for each operation and shall be in compliance with all requirements of 29 CFR 1910 and 29 CFR 1926. The Contractor shall provide, maintain, and properly dispose of all PPE.

(vi) Medical Surveillance Program: All on-site Contractor personnel engaged in 29 CFR 1910.120/1926.65 operations shall have medical examinations meeting the requirements of 29 CFR 1910.120(f) prior to commencement of work.

The HASP shall include certification of medical evaluation and clearance by the physician for each employee engaged in 29 CFR 1910.120/1926.65 operations at the site.

(vii) Exposure Monitoring/Air Sampling Program: The Contractor shall submit an Air Monitoring Plan as part of the HASP which is consistent with 29 CFR 1910.120, paragraphs (b)(4)(ii)(E), (c)(6), and (h). The Contractor shall identify specific air sampling equipment, locations, and frequencies in the air-monitoring plan. Air and exposure monitoring requirements shall be specified in the Contractor's HASP. The Contractor's HSM shall specify exposure monitoring/air sampling requirements after a careful review of the contaminants of concern and planned site activities.

(viii) Site Layout and Control: The HASP shall include a map, work zone delineation (support, contamination, reduction and exclusion), on/off-site communications, site access controls, and security (physical and procedural).

(ix) Communications: Written procedures for routine and emergency communications procedures shall be included in the Contractor's HASP.

(x) Personal Hygiene, Personal Decontamination and Equipment Decontamination: Decontamination facilities and procedures for personnel protective equipment, sampling equipment, and heavy equipment shall be discussed in detail in the HASP.
(xi) Emergency Equipment and First Aid Requirements: The Contractor shall provide appropriate emergency first aid kits and equipment suitable to treat exposure to the hazards

identified, including chemical agents. The Contractor shall provide personnel that have certified first aid/CPR training on site at all times during site operations.

(xii) Emergency Response Plan and Spill Containment Program: The Contractor shall establish procedures in order to take emergency action in the event of immediate hazards (i.e., a chemical agent leak or spill, fire or personal injury). Personnel and facilities supplying support in emergency procedures will be identified. The emergency equipment to be present at the site and the Emergency Response Plan procedures, as required 29 CFR 1910.120, paragraph (1)(1)(ii) shall be specified in the Emergency Response Plan. The Emergency Response Plan shall be included as part of the HASP. This Emergency Response Plan shall include the street address (for GPS usage) and written directions to the closest hospital as well as a map showing the route to the hospital.

(xiii) Logs, Reports and Record Keeping: The Contractor shall maintain safety inspections, logs, and reports, accident/incident reports, medical certifications, training logs, monitoring results, etc. All exposure and medical monitoring records are to be maintained according to 29 CFR 1910 and 29 CFR 1926. The format of these logs and reports shall be developed by the Contractor to include training logs, daily logs, weekly reports, safety meetings, medical surveillance records, and a phase-out report. These logs, records, and reports shall be maintained by the Contractor and be made available to the Engineer.

The Contractor shall immediately notify the Engineer of any accident/incident. Within two working days of any reportable accident/incident, the Contractor shall complete and submit to the Engineer an accident report.

(xiv) Confined space entry procedures: Confined space entry procedures, both permit- and non-permit required, shall be discussed in detail.

(xv) Pre-entry briefings: The HASP shall provide for pre-entry briefings to be held prior to initiating any site activity and at such other times as necessary to ensure that employees are apprised of the HASP and that this plan is being followed.

(xvi) Inspections/audits: The HSM or HSO shall conduct Inspections or audits to determine the effectiveness of the HASP. The Contractor shall correct any deficiencies in the effectiveness of the HASP.

6-HASP Implementation: The Contractor shall implement and maintain the HASP throughout the performance of work. In areas identified as having a potential risk to worker health and safety, and in any other areas deemed appropriate by the HSO, the Contractor shall be prepared to immediately implement the appropriate health and safety measures, including the use of personal protective equipment (PPE), and engineering and administrative controls.

If the Engineer observes deficiencies in the Contractor's operations with respect to the HASP, they shall be assembled in a written field directive and given to the Contractor. The Contractor shall immediately correct the deficiencies and respond, in writing, as to how each was corrected. Failure

to bring the work area(s) and implementation procedures into compliance will result in a Stop Work Order and a written directive to discuss an appropriate resolution(s) to the matter. When the Contractor demonstrates compliance, the Engineer shall remove the Stop Work Order. If a Stop Work Order has been issued for cause, no delay claims on the part of the Contractor will be honored.

Disposable CPC/PPE, i.e. disposable coveralls, gloves, etc., which come in direct contact with hazardous or potentially hazardous material shall be placed into 55-gallon USDOT 17-H drums and disposed of in accordance with Federal, State, and local regulations. The drums shall be temporarily staged and secured within the WSA until the material is appropriately disposed.

7-HASP Revisions: The HASP shall be maintained at the site by the Contractor and shall be kept current with construction activities and site conditions under this Contract. The HASP shall be recognized as a flexible document which shall be subject to revisions and amendments, as required, in response to actual site conditions, changes in work methods and/or alterations in the relative risk present. All changes and modifications shall be signed by the Contractor's HSM and shall require the review and acceptance by the Engineer prior to the implementation of such changes.

Should any unforeseen hazard become evident during the performance of the work, the HSO shall bring such hazard to the attention of the Contractor and the Engineer as soon as possible. In the interim, the Contractor shall take action including; Stop Work Orders and/or upgrading PPE as necessary to re-establish and maintain safe working conditions and to safeguard site personnel, visitors, the public and the environment. The HASP shall then be revised/amended to reflect the changed condition.

Method of Measurement:

1-Within thirty (30) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for acceptance a breakdown of its lump sum bid price for this item detailing:

(a) The development costs associated with preparing the HASP in accordance with these Specifications.
(b) The cost per month for the duration of the Project to implement the HASP and provide the services of the HSM and the HSO.

2-If the lump sum bid price breakdown is unacceptable to the Engineer; substantiation showing that the submitted costs are reasonable shall be required.

3-Upon acceptance of the payment schedule by the Engineer, payments for work performed will be made as follows:

(a) The lump sum development cost will be certified for payment.

(b) The Contractor shall demonstrate to the Engineer monthly that the HASP has been kept current and is being implemented and the monthly cost will be certified for payment.

(c) Any month where the HASP is found not to be current or is not being implemented, the monthly payment for the Environmental Health and Safety Item shall be deferred to the next monthly payment estimate. If the HASP is not current or being implemented for more than thirty calendar days, there will be no monthly payment.

(d) Failure of the Contractor to implement the HASP in accordance with this Specification shall result in the withholding of all Contract payments.

Basis of Payment:

This work will be paid for at the Contract lump sum price for "Environmental Health and Safety" which price shall include all materials, tools, equipment and labor incidental to the completion of this item for the duration of the Project to maintain, revise, monitor and implement the HASP. Such costs include providing the services of the HSM and HSO, Contractor employee training, chemical protective clothing (CPC), personal protective equipment (PPE), disposal of PPE and CPC, medical surveillance, decontamination facilities, engineering controls, monitoring and all other HASP protocols and procedures established to protect the Health and Safety for all on-site workers.

Pay Item	Pay Unit
Environmental Health and Safety	Lump Sum

ITEM #0201020A – REMOVE AND RESET WOOD FENCE

Description:

Work under this item shall consist of removing the existing timber fencing with wood posts and resetting of the same fencing and wood posts in accordance with plans, specifications and as specified by the Engineer.

Construction Methods:

The existing fencing consists of timber rails and posts. In the event of damage, the Contractor shall supply additional fence hardware, materials, etc., necessary to supplement the existing materials so that the reset fence will match existing, at no additional cost. This may require custom made fence elements in order to match the look of the original fencing. The Contractor shall provide preliminary photos, video, or any other means of documentation of the existing fencing pre-construction, during construction, and post construction to the Engineer. This documentation will convey the conditions of the fencing throughout the construction process.

Any timber rails or posts and their attachments that are damaged prior to construction activity, and not the result of any action or disregard by the contractor while removing and resetting, shall be replaced as an extra work item.

Method of Measurement:

The quantity to be paid for will be the number of linear foot of completed timber fencing measured along the top of fencing center to center of end posts, reset in place as shown on the Plans and directions of the Engineer.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "Remove and Reset Wood Fence," complete in place, which price shall the complete removal, storage and resetting of existing timber fence, including excavation, backfilling and disposal of surplus or unsuitable material, documentation of the conditions of the fencing, and all equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Remove and Reset Wood Fence	L.F.

ITEM #0202216A – EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL

Description:

This work shall consist of excavating existing channel bottom material, herein referred to as natural streambed material, in areas where the channel bottom is to be disturbed and regraded to create a work area for a bridge, culvert, articulated concrete block placement, cofferdam installation, as shown on the plans or as directed by the Engineer. This item shall also include the stockpiling and protecting of the excavated material on-Site, subsequent placement, top dressing, or backfilling of the excavated stockpiled material within the watercourse, as shown on the plans or as directed by the Engineer.

Materials:

The material for this item shall consist of the existing naturally-formed rocks, cobbles, gravel, soils and clean natural sediments from within the channel.

Any material excavated from shale, ledge (bedrock) formations broken from larger boulders, or material with sharp acute edges will not be accepted. Broken concrete will not be accepted.

Geotextile: Geotextile shall be as specified in M.08.01-19 Geotextiles.

Construction Methods:

1. **Stockpiling of Material.** The Contractor shall submit for the Engineer's approval a proposed location for stockpiling material. The proposed location shall be upland where disruption to the stream channel or impact to wetland areas caused by moving the natural streambed material to and from the stockpile are minimized. The Contractor shall prepare the area approved by the Engineer, suitable in size and location for stockpiling the natural streambed material.

   The stockpile shall be located where it can remain undisturbed for the duration of the stream channel reconstruction or as shown on the plans and shall be protected using sedimentation control measures. The stockpile area shall be free of debris and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of a separation barrier such as: Geotextile – (Separation Class 1), polyethylene sheeting, or similar. The stockpile area shall be adequately covered to protect the excavated natural streambed material from erosion by rain, wind, or other forces.

2. **Excavation of Natural Streambed Material.** The Contractor shall notify the Engineer 10 days in advance of excavation and placement of natural streambed material activities. The Engineer will identify the limits of the exposed natural streambed material during excavation under this item. The Engineer will identify the bottom limit of excavation, an amount up to but not exceeding 24 inches in depth, unless approved by the Engineer or their authorized delegate, based upon visual inspection of the natural streambed material. After the limits of excavation have been determined, the Contractor shall excavate the natural streambed

material, separate from any other roadway, structure, channel or unsuitable material excavation on Site. After the natural streambed material has been excavated, it shall be placed in the pre-approved stockpile area.

3. **Backfilling and Placement with Natural Streambed Material.** The stockpiled natural streambed material shall be placed as fill material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placement methods likely to cause segregation of the various sizes of stone will not be permitted. Placement techniques shall prevent integration with non-natural streambed material and shall keep the natural streambed material relatively homogenous. The natural streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

4. **Top Dressing with Natural Streambed Material.** The stockpiled natural streambed material shall be used as top dressing over riprap or other material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placement techniques shall prevent integration with the non-natural streambed material and shall keep the natural streambed material relatively homogenous. The natural streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

5. **Site Maintenance.** When backfilling, placing, or top dressing, the Contractor shall perform all containment, diversion, or other separation of the channel flow to minimize sediment transport downstream.

The disposal of any surplus and/or unsuitable material shall be in accordance with Article 1.09.04.

If the Engineer determines that there is an insufficient quantity of natural streambed material within the Project limits, the Contractor shall procure Supplemental Streambed Channel Material as specified under Item #0202217A.

If it is required for the Project to have washing-in of supplemental streambed material, the Contractor shall procure Washing-in Supplemental Streambed Material as specified under Item #0202218A.

The pre-approved stockpile areas shall be restored to the satisfaction of the Engineer. Work to restore/regrade stockpile areas will be paid for under the respective pay item(s).

Method of Measurement:

This work will be measured for payment by the number of cubic yards of natural streambed material excavated, stockpiled, maintained, installed, and accepted.

The Engineer will delineate the horizontal pay limit prior to the start of excavation. The vertical pay limit will be measured from the top of the existing channel bottom to the bottom of excavation

required specifically for the stockpiling of channel bottom material.

Any material excavated beyond the approved horizontal pay limits or deeper than the depth of natural streambed material identified and approved by the Engineer will not be measured for payment under this item. Should such additional excavation be required to complete the Contract work, it will be measured for payment separately under the applicable pay item(s).

Basis of Payment:

Payment for this work will be made at the Contract unit price per cubic yard for "Excavation and Reuse of Existing Channel Bottom Material." The price shall include all materials, equipment, geotextile, tools, and labor incidental to the preparation of the stockpile area, excavation of natural streambed material, hauling of the material to the stockpile, and separation of any rock ledge or concrete debris, storing, and protecting (including sedimentation controls and covering) excavated material.

Payment for clearing and grubbing of the approved stockpile area will be included in the item "Clearing and Grubbing."

Payment for the removal and proper disposal of all surplus and/or unsuitable material will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Riprap or other specified material as shown on the plan will be paid for under the respective items.

Payment for supplemental streambed channel material will be included in the Item #0202217A "Supplemental Streambed Channel Material." If no item appears in the proposal, payment for the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for washing in supplemental streambed channel material will be included in the Item #0202218A "Washing-in Supplemental Streambed Material." If no item appears in the proposal, payment for the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for all containment, diversion or other separation of stream flow will be included in the item "Cofferdam and Dewatering" or special provision for "Handling Water."

Pay Item	**Pay Unit**
Excavation and Reuse of Existing Channel Bottom Material	c.y.

ITEM #0202217A – SUPPLEMENTAL STREAMBED CHANNEL MATERIAL

Description:
This work shall consist of procuring, transporting, and placing supplemental streambed channel material, herein referred to as supplemental streambed material, meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications. This item shall also include any necessary temporary protection and stockpiling of the supplemental streambed material on–Site, subsequent placement, top dressing, or backfilling of the supplemental streambed material within the watercourse, as shown on the plans or as directed by the Engineer.

Materials:
When a sufficient quantity of material is not available from the existing streambed channel for placement, top dressing, or backfilling within the permitted footprint of the stream bank/channel improvement locations, the Contractor shall furnish supplemental streambed material from an off-Site source. Supplemental streambed material must be visually inspected and accepted by the Engineer or their authorized delegate prior to being delivered to the Site. The Contractor shall notify the Engineer at least 10 working days in advance of the need for inspection of proposed off-Site material.

The supplemental streambed material for this item shall be consistent with the existing naturally-formed cobbles and rocks, gravel, and clean natural sediments found within the existing channel. Rock excavated from shale, ledge (bedrock) formations broken from larger boulders, broken concrete or angular material, or material with sharp acute edges will not be accepted.

Geotextile: Geotextile shall be as specified in M.08.01-19 Geotextiles.

Construction Methods:

1. **Stockpiling of Material**. At the start of construction, the Contractor shall prepare an area, approved by the Engineer, suitable in size and location for stockpiling the supplemental streambed material. The Contractor shall select an upland location where disruption to the stream channel or impact to wetland areas caused by moving the supplemental streambed material to and from the stockpile are minimized during the placement of material. The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures.

   The stockpile area shall be free of debris and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of Geotextile – (Separation Class 1), or similar, if required. The stockpile area shall be adequately covered to protect the supplemental streambed channel material from erosion by rain or other forces. After supplemental streambed material and existing natural streambed material have been placed in the stockpile areas, no other excavated or off-Site material shall be placed in the stockpiles.

2. **Backfilling and Placement with Supplemental Streambed Material.** The stockpiled supplemental streambed material shall be placed as fill material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placing this material by methods likely to cause segregation of the various sizes of stone will not be permitted. Placement techniques shall prevent integration with non-natural streambed material and shall keep the streambed material relatively homogenous. The streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

3. **Top Dressing with Supplemental Streambed Material.** The stockpiled supplemental streambed material shall be used as top dressing over riprap or other material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placement techniques shall prevent integration with the non-natural streambed material and shall keep the streambed material relatively homogenous. The streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

4. **Site Maintenance.** When placing, backfilling, or top dressing streambed material, the Contractor shall perform all containment, diversion, or other separation of the channel flow to minimize sediment transport downstream.

If it is required for the Project to have washing-in of supplemental streambed material, the Contractor shall procure Washing-in Supplemental Streambed Material as specified under Item #0202218A.

The pre-approved stockpile areas shall be restored to the satisfaction of the Engineer. Work to restore/regrade stockpile areas will be paid for under the respective pay item(s).

Method of Measurement:
Work under this item will be measured for payment as provided under Article 1.09.04 – Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as “Estimated Cost” for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the Contract.

Basis of Payment:
Payment for “Supplemental Streambed Material” shall include all materials, equipment, geotextile, tools, and labor incidental to the preparation of the stockpile area, hauling of the material to the stockpile, placement of supplemental streambed material, and separation of any

rock ledge or concrete debris, storing, and protecting (including sedimentation controls and covering) excavated material.

Payment will be as specified under Article 1.09.04 – Extra and Cost-Plus Work.

Payment for clearing and grubbing of the approved stockpile area will be included in the item "Clearing and Grubbing."

Payment for excavation and reuse of existing channel bottom material will be included in the Item #0202216A "Excavation and Reuse of Existing Channel Bottom Material."

Payment for washing in supplemental streambed material will be included in the Item #0202218A "Washing-in Supplemental Streambed Material." If no item appears in the proposal, the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for all containment, diversion or other separation of stream flow will be included in the item "Cofferdam and Dewatering" or special provision for "Handling Water."

Pay Item	**Pay Unit**
Supplemental Streambed Channel Material	est.

ITEM #0202218A – WASHING-IN SUPPLEMENTAL STREAMBED MATERIAL

Description:

This work shall consist of procuring, transporting, stockpiling, and washing in of supplemental streambed material, meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications or as directed by the Engineer. This item shall also include any necessary temporary protection and stockpiling of the washing-in supplemental streambed material on–Site and subsequent washing in of supplemental streambed material for filling voids of riprap areas within the watercourse, as shown on the plans or as directed by the Engineer.

Materials:

When washing in of supplemental streambed material is required, the Contractor shall furnish the washing-in supplemental streambed material from an off-Site source. The supplemental streambed material for washing in must be visually inspected and accepted by the Engineer or their authorized delegate prior to being delivered to the Site. The Contractor shall notify the Engineer at least 10 working days in advance of the need for inspection of proposed off-Site material.

Geotextile: Geotextile shall be as specified in M.08.01-19 Geotextiles.

Construction Methods:

1. Stockpiling of Material. At the start of construction, the Contractor shall prepare an area, approved by the Engineer, suitable in size and location for stockpiling the supplemental streambed material for washing in. The Contractor shall select an upland location where disruption to the stream channel or impact to wetland areas caused by moving the supplemental streambed material to and from the stockpile are minimized during the placement of material. The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures. The stockpile of streambed material for washing in shall be kept separate from other streambed material stockpile areas.

The stockpile area shall be free of debris and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of Geotextile – (Separation Class 1), or similar, if required. The stockpile area shall be adequately covered to protect the supplemental streambed material from erosion by rain or other forces. After supplemental streambed material for washing in has been placed in the stockpile area, no other excavated or off-Site material shall be placed in the stockpiles.

2. Washing-in Supplemental Streambed Material. If it is specified on the plans that washing-in supplemental streambed material for filling voids between riprap, or other material, is required, the Contractor must submit a Washing-In Supplemental Streambed Material Plan (SMP) for the Engineer's acceptance. The SMP shall include the following:

1) Provide a plan and section identifying the completed installation and preparation of riprap area to receive streambed material as shown on the plans or as directed by the Engineer or their authorized delegate.
2) Provide means and methods for washing in the supplemental streambed material. Means and methods shall include:
   a. Equipment used to place material.
   b. Washing in of material is to be done manually. Water from the watercourse shall be used to wash in the streambed material into the voided areas between the riprap or other material as specified on the plans. Washing in should be done carefully and at a controlled flow rate/velocity (approximately 4.0 gpm) to not cause erosion of adjacent erodible soils or cause turbid effluent to flow out of the riprap-filled area.
   c. Provide a Catalogue Cut of type and size of pump and hose proposed to be used.
   d. Measures to prevent turbidity from the work area. The Contractor may dewater the areas as defined under Article 2.04 Cofferdam and Dewatering or Item Handling Water.
3) Show calculations of estimated quantity of streambed material needed to wash in and fill riprap voids. The ratio of natural streambed material to riprap shall be approximately 1:3 (assuming 30% voids in the riprap).

Method for washing in supplemental streambed material:

Pre-blending riprap with the supplemental streambed material is prohibited. Placement and washing in of supplemental streambed material shall occur after all the riprap has been installed and shaped to final dimensions and grade as shown on the plans or as directed by the Engineer. Placement and washing in of supplemental streambed material must occur within a confined area.

1) Initially place approximately 12-inch lift of the washing-in streambed material over the riprap. Manually hand shovel/rake to assist with placing the streambed material into the riprap voids prior to washing in the streambed material.
2) Begin to manually wash the streambed material into the voids, slowly add more washing-in streambed material on top, in a manner to prevent turbid effluent flow from exiting the work area.
3) If turbidity is observed discharging from the confined work area, cease operations immediately and implement preventative measures as outlined in the approved SMP, until the water level subsides and naturally permeates. Continually observe the confined work area.
4) The Contractor may be allowed to move to different area(s) and continue the washing in process, as noted in Steps 1-3 above, if other locations need the water levels to subside

and permeate. (It may be necessary to stop temporarily if the rate of water application exceeds the storage capacity and natural infiltration of the riprap area.)

5) The Contractor shall continue until all voids are filled with streambed material to the satisfaction of the Engineer or their authorized delegate. The ratio of streambed material to riprap shall be approximately 1:3 (assuming 30% voids in the riprap). This ratio should be considered as a guideline in deciding whether riprap voids are likely to be filled. If the calculated volume of streambed material based on 30% void space has not been washed in, it should be assumed that the voids are not fully filled.
6) Partially remove water-handling-cofferdams or cofferdams to allow watercourse to flow through the area in a controlled manner. Observe watercourse over a period of time; should the water flow go under the surface through the recently created riprap area, reinstall water-handling-cofferdams and continue washing streambed material into riprap voids. Repeat this process as necessary until subsurface flow is no longer observed.

The Contractor may propose alternative methods to meet the requirements noted above. The means and methods will be reviewed by the Engineer or their authorized delegate for acceptance.

3. Site Maintenance. When washing in supplemental streambed material, the Contractor shall perform all containment, diversion, or other separation of the channel flow to minimize sediment transport downstream.

The pre-approved stockpile areas shall be restored to the satisfaction of the Engineer. Work to restore the stockpile areas shall be paid for under the respective pay item.

Method of Measurement:

Work under this item shall be measured for payment as provided under Article 1.09.04 – Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as “Estimated Cost” for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded, and the original price will be used to determine the total amount bid for the Contract.

Basis of Payment: The price shall include all materials, equipment, geotextile, pumps, hoses, tools, and labor incidental to the preparation of the stockpile area, hauling of the material to the stockpile, placement and washing-in supplemental streambed material to fill riprap voids, and separation of any rock ledge or concrete debris, storing, and protecting (including but not limited to sedimentation controls and covering of excavated material).

Payment for Washing-in Supplemental Streambed Material will be paid for under Article 1.09.04 – Extra and Cost-Plus Work.

Payment for clearing and grubbing of the approved stockpile area will be included in the Item "Clearing and Grubbing."

Payment for excavation and reuse of existing channel bottom material will be included in the ITEM #0202216A "Excavation and Reuse of Existing Channel Bottom Material."

Payment for supplemental streambed channel material, other than washing-in streambed material, will be included in the Item #0202217A "Supplemental Streambed Channel Material."

Payment for all containment, diversion or other separation of stream flow will be included in the item "Cofferdam and Dewatering" or special provision for "Handling Water."

Pay Item	Pay Unit
Washing-in Supplemental Streambed Material	EST.

ITEM #0202315A - DISPOSAL OF CONTROLLED MATERIALS

Description:

Work under this item is intended to provide specific procedural requirements to be followed by the Contractor during excavation of excess Controlled Materials from within the project and as shown on the Project Plans. Work under this item shall also consist of stockpiling, covering, securing and maintaining the stockpiled materials and loading, transportation and final off-site disposal/ recycling/treatment of excess controlled materials that have been generated from excavations within the project, brought to the temporary stockpile location (including material from catch basin cleaning operations), managed as typical construction materials utilizing appropriate erosion and sedimentation control measures, and determined to have concentrations reflective of a typical incidental public roadway release at non-hazardous levels. This is documented in the reports listed in the "Notice to Contractor – Environmental Investigations" which indicate the levels that the Contractor may encounter during construction. Actual levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed of as non-hazardous at one or more of the disposal facilities listed herein. All materials, excluding the existing pavement structure (asphalt and subbase), rock, ledge, and concrete, excavated within the project, and if considered excess may be considered Controlled Materials, if so, determined by the Engineer. If the vertical limits of the existing subbase cannot be determined visually, the subbase will be presumed to extend 12" below the bottom of the existing pavement. The controlled materials, after proper characterization by the Engineer, shall be taken from the temporary stockpile location, loaded, transported to and treated/recycled/disposed of at a permitted treatment/recycle/disposal facility listed herein.

The Contractor must use one or more of the following approved treatment/recycle/ disposal facilities for the disposal of non-hazardous controlled materials:

Allied Waste Niagara Fall Landfill, LLC 5600 Niagara Falls Blvd. Niagara, NY 14304 (716) 285-3344; Ralph Larimore	Bondi Island (Covanta) M Street Agawam, MA 01001 (508) 291-4408; Steven Melloni, P.E.
Clean Earth – Hatfield PA (Formerly ESMI of New York) 304 Towpath Lane Fort Edward, NY 12828 (518) 747-5500; Peter Hansen	Clean Earth of Carteret 24 Middlesex Avenue Carteret, NJ 07008 (732) 541-8909; Tejas Shah
Clean Earth of Connecticut (formerly Phoenix Soil LLC) 58 North Washington Street Plainville, CT 06062 (860) 803-1000; Todd Mahler	Clean Earth of New Jersey, Inc. (CENJ) 105/115 Jacobus Avenue Kearny, NJ 07105 (973) 344-4004; Jim Gustavson

Clean Earth of Philadelphia 3201 S. 61 Street Philadelphia, PA 19153 (215) 724-5520; Jim Siravo	Clean Earth of Southeast Pennsylvania, Inc. 7 Steel Road Morrisville, PA 19067 (215) 428-1700; Jim Siravo
Colonie Landfill (Waste Connections, Inc.) 4 Arrowhead Lane Cohoes, NY 12047 (518) 783-2827: Eric Morales	Coplay Aggregates Regulated Fill Site (Materials Solution Services-Brokerage Firm) 5101 Beekmantown Road Whitehall, PA 18052 (610) 440-2301; Brian Hilliard
Cumberland County Landfill (Managed by Interstate Waste Services) 620 Newville Road Newburg, PA 17240 (717) 423-9953; Mike McIntyre	ESMI – Clean Earth 67 International Drive Loudon, NH 03307 (603) 783-0228; Marc Aubrey
Greentree Landfill 635 Toby Road Kersey, PA 15846 (814) 265-1744; Anthony LaBenne	Hazelton Creek Properties, LLC* 280 South Church Street Hazelton, PA 18201 (870) 501-5050; Ronak Patel
Manchester Landfill 311 Olcott Street Manchester, CT 06040 (860) 647-5278; Ray Carr	Ondrick Materials & Recycling, LLC 58 Industrial Road Chicopee, MA 01020 (413) 592-2566; David S. Costanzo
Ontario County Landfill (Managed by Casella Waste) 1879 Routes 5 & 20 Stanley, NY 14561 (603) 235-3597; Scott Sampson	Plainville Landfill Grainger Lane Plainville, CT 06062 (860) 410-3070; John Sullivan
Red Technologies Soil 232 Airline Avenue Portland, CT 06980 (860) 342-1022; Christopher Windangle	Republic Services Conestoga Landfill* 420 Quarry Road Morgantown, PA 19543 (610) 286-6844; James Kuhn
Soil Safe, Inc. 378 Route 130 Logan Township, Bridgeport, NJ 08085 (410) 872-3990; Billy Booth	Soil Safe, Inc. 378 Route 130 Logan Township, Bridgeport, NJ 08085 (410) 872-3990; Billy Booth

Stablex, Canada, Inc. (US Ecology Company) 760 Industrial BLVD Blainville, Quebec J7C 3V4 (800) 404-4408; Eric Congdon	Tunnel Hill Reclamation 2500 Township Road, 205 Route 2 New Lexington, OH 43764 (740) 342-1180; Josh Rennicker
Turnkey Landfill (Waste Management of New Hampshire) 176 Rochester Neck Road, PO Box 7065 Rochester, NH 03839 (800) 963-4776; Ellen Bellio	Waste Management – Middleborough Sanitary Landfill 207 Plympton Street Middleborough, MA 02346 (508) 823-6570; Dave Pope
Waste Management – RCI Fitchburg Landfill 101 Fitchburg Road Westminster, MA 01473 (978) 874-0037; Frank Sepiol	Winchendon Landfill (W.L French Excavating Corp) 580 River Street Winchendon, MA 01475 (978) 600-2125; Jarrett Everton

* - Please note that if this facility is to be used, each bin letter will require an additional 10 day (or more) waiting period in addition to the 15 day lab period designated in the Specifications to allow for Pennsylvania Department of Environmental Protection (PADEP) review.

The above list contains treatment/recycle/disposal facilities which can accept the waste stream generated by the project in quantities that may be limited by their permits and their operations restrictions. It is the responsibility of the contractor to verify that a facility will be available and capable of handling the volume as well as the chemical and physical characteristics of material generated by the project.

Materials:

The required materials shall conform to the requirements of the Contract.

Plastic Sheet: Polyethylene plastic sheeting for underlayment shall be at least 30 mil thick. Polyethylene plastic sheeting for covering excavated material shall be a thickness of 10 mil. Both shall be at least 10 feet wide.

Covers for roll-off/storage containers shall be made of polyethylene plastic, or similar water-tight material, that is of sufficient size to completely cover top opening and can be securely fastened to the container.

Sand Bags: Sandbags used to secure polyethylene covers shall be at least 30 pounds.

Sorbent Boom: Shall be 8 inches in diameter and 10 feet long and possess petrophilic and hydrophobic properties. Sorbent booms shall also have devices (i.e. clips, clasps, etc.) for connection to additional lengths of boom.

Hay Bales shall be mad of hay with 40 lb. minimum weight and 120 lb. maximum weight held together by twine or wire.

Construction Methods:

A. Material Disposal

The Engineer will sample the stockpiled materials at a frequency established by the selected treatment/recycling/disposal facilities. The Contractor shall designate to the Engineer which facility(ies) it intends to use, as well as the facility acceptance criteria and sampling frequency, prior to samples being taken. The Contractor is hereby notified that the laboratory turnaround time is expected to be fifteen (15) working days. Turnaround time is the period beginning when the Contractor notifies the Engineer which facility it intends to use and that the stockpiled material is ready for sampling and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended treatment/recycling/disposal facility may prompt the need to resample and will therefore restart the time required for laboratory turnaround. The laboratory will furnish such results to the Engineer. Upon receipt, the Engineer will make available to the Contractor the results of the final waste characterization determinations. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

It is solely the Contractor's responsibility to coordinate the disposal of Controlled Materials with its selected treatment/recycling/disposal facility(ies). The Contractor shall obtain and complete **all paperwork** necessary to arrange for material disposal (e.g., disposal facility waste profile sheets, Qualified Environmental Professional (QEP) certifications/letters, checklists, manifests/shipping papers/bills of lading, and/or any other supporting documentation, etc.). The Contractor shall retain the services of a QEP (i.e., CT Licensed Environmental Professional (LEP), MA Licensed Site Professional (LSP), Certified Hazardous Materials Manager (CHMM), etc.), as necessary, to facilitate the completion of such documents as required by the Contractor's selected disposal facility. Prior to submission to the receiving facility, the Contractor shall provide all disposal documents to the Engineer for review and Generator signature(s), as applicable.

Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all applicable Federal and State regulations. **No claim will be considered based on the failure of the Contractor's selected disposal facility(ies) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

Any material processing (including but not limited to the removal of woody debris, scrap metal, pressure-treated and untreated wood timber, large stone, concrete, polyethylene sheeting or similar material) required by the Contractor's selected facility will be completed by the Contractor prior to the material leaving the site. It is solely the Contractor's responsibility to meet any such requirements of its facility. Any materials removed shall be disposed of or recycled in a manner acceptable to the Engineer at no additional cost.

All manifests or bills of lading utilized to accompany the transportation of the material shall be prepared by the Contractor and signed by an authorized Municipality representative, as Generator, for each truckload of material that leaves the site. The Contractor shall forward the appropriate original copies of all manifests or bills of lading to the Engineer the same day the material leaves the Project.

A load-specific certificate of treatment/recycling/disposal, signed by the authorized agent representing the disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

B. Stockpile Maintenance

The Contractor shall provide all necessary materials, equipment, tools and labor for anticipated activities within the stockpile location. Such activities include, but are not limited to, handling and management of stockpiles and drummed CPC/PPE; uncovering and recovering stockpiles; maintenance of the stockpile location; replacement of damaged components (i.e. sand bags, plastic polyethylene sheeting, etc.); and waste inventory record management and as directed by the Engineer. The Contractor shall manage all materials in the stockpile location in such a way as to minimize tracking of potential contaminated materials across the site and off site and minimize dust generation.

Each stockpile shall be securely covered when not in active use with a cover of sufficient size to prevent generation of dust, infiltration of precipitation, and wind erosion.

The staged stockpiles shall be inspected at least daily by the Contractor to ensure that the cover and containment have not been damaged and that there is no apparent leakage from the pile. If the cover has been damaged, or there is evidence of leakage from the piles, the Contractor shall immediately replace the cover or containment as needed to prevent the release of materials to the environment from the piles.

An inventory of stockpiled materials and drummed CPC/PPE shall be conducted on a daily basis. Inventory records shall indicate the approximate volume of material/drums stockpiled per day; the approximate volume of material/drums stockpiled to date; material/drums loaded and transported off site for disposal; any materials loaded and transported for on-site reuse; and identification of stockpiles relative to their points of generation.

Following the removal of all stockpiled Controlled Materials, residuals shall be removed from surrounding surfaces of the stockpile location as directed by the Engineer. This operation shall be accomplished using dry methods such as shovels, brooms, mechanical sweepers or a combination thereof. Residuals shall be collected, controlled and disposed of as Controlled Materials.

C. Dewatering

Dewatering activities shall conform to Items in pertinent articles of the Contract.

D. Dust Control

The Contractor shall implement a fugitive dust suppression program in accordance with the Contract to prevent the off-site migration of particulate matter and/or dust resulting from excavation, loading and operations associated with Controlled Materials. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. The Contractor shall:

1. Employ reasonable fugitive dust suppression techniques.

2. Visually observe the amounts of particulate and/or fugitive dust generated during the handling of Controlled Materials. If the apparent amount of fugitive dust and/or particulate matter is not acceptable to the Engineer, the Engineer may direct the Contractor to implement corrective measures at their discretion, including, but not limited to, the following:

    (a) apply water to pavement surfaces
    (b) apply water to equipment and excavation faces; and
    (c) apply water during excavation, loading and dumping.

E. Material Transportation

In addition to all pertinent Federal, State and local laws or regulatory agency polices, the Contractor shall adhere to the following precautions during the transport of controlled materials off-site:

3. Transported controlled materials are to be covered sufficiently prior to leaving the site to prevent the loss of material during transport. Controlled materials must remain covered until the arrival at the selected treatment/recycling/disposal facility.

4. All vehicles departing from the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, approximate volume, and contents of materials carried.

5. No materials shall leave the site unless a treatment/recycling/disposal facility is willing to accept all the material being transported and has agreed to accept the type and quantity of waste.

F. Equipment Decontamination

All equipment shall be provided to the work site free of gross contamination. The Engineer may prohibit from the site any equipment that in their opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project site that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and supplies leaving the Project and between stages of the work.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

G. Permit Compliance

The Contractor shall comply with the terms and conditions of the most current DEEP "General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)," including the General Operating Conditions and the Specific Operating Conditions, except that the Engineer will conduct all soil/sediment characterization and perform all record keeping. In particular, the Contractor shall:

1. Operate, maintain and repair the stockpile location in conformance with the requirements of the General Permit.
2. Maintain a communications system capable of summoning fire, police, and/or other emergency service personnel.
3. Prevent unauthorized entry onto the stockpiles by the use of fences, gates, or other natural or artificial barriers.
4. Separate incidental excavation waste to the satisfaction of the receiving facility or to an extent that renders the contaminated soil and/or sediment suitable for its intended reuse.
5. Isolate and temporarily store incidental waste in a safe manner prior to off-site transport to a facility lawfully authorized to accept such waste.
6. Not store more than 100 cubic yards of incidental waste at any one time.
7. Sort, separate and isolate all hazardous waste from contaminated soil and/or sediment.
8. Prevent or minimize the transfer or infiltration of contaminants from the stockpiles to the ground as detailed in "B. Transportation and Stockpiling" above.
9. Securely cover each stockpile of soil as detailed in "B. Stockpile Maintenance" above.
10. Minimize wind erosion and dust transport as detailed in "D. Dust Control" above.

Method of Measurement:

The work of "Disposal of Controlled Materials" will be measured for payment as the actual net weight in tons of material delivered to the treatment/recycling/disposal facility from the stockpile location. Such determinations shall be made by measuring each hauling vehicle on the certified permanent scales at the treatment/recycling/disposal facility. Total weight will be the summation of weight bills issued by the facility specific to this Project. Excess excavations made by the Contractor beyond the payment limits specified in Specification Sections 2.02, 2.03, 2.06, 2.86, or the Contract Special Provisions (as appropriate) will not be measured for payment and the Contractor assumes responsibility for all costs associated with the appropriate handling, management and disposal of this material.

The disposal of excavated materials, originally anticipated to be controlled materials, but determined by characterization sampling not to contain concentrations of regulated chemicals (non-polluted or "clean" materials) will not be measured for payment under this item but will be considered as surplus excavated materials and will be paid in accordance with Article 1.04.05.

Equipment decontamination, the collection of residuals, and the collection and disposal of liquids generated during equipment decontamination activities will not be measured separately for payment.

Any material processing required by the Contractor-selected disposal facility, including the proper disposal of all removed materials other than creosote treated wood, will not be measured for payment.

Basis of Payment:

This work will be paid for at the Contract unit price, which shall include all the intermediate handling steps, stockpiling the Controlled Materials at the stockpile location, covering, securing, and maintaining the individual stockpiles throughout the duration of the project; and all tools, equipment, materials and labor incidental to this work. This item shall also include preparation of **all related waste profile and shipping paperwork**, the loading and transportation of Controlled Materials from the stockpiles to the treatment/recycling/disposal facility; the fees paid to the facility for treatment/recycling/disposal; the preparation of all related paperwork; and all equipment, materials, tools, and labor incidental to this work.

All materials, labor and equipment associated with compliance with the most recent General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer) will not be measured separately but will be considered incidental to this work.

This unit price will be applicable to all of the listed disposal facilities and will not change for the duration of the Project. Nothing herein shall prevent changes as outlined in Article 1.04.02.

This price shall also include equipment decontamination; the collection of residuals generated during decontamination and placement of such material in the stockpiles; and the collection and disposal of liquids generated during equipment decontamination activities. Payment for dust control or dewatering activities shall be made under the appropriate Contract items.

Pay Item	Pay Unit
Disposal of Controlled Materials	TON

ITEM #0204151A - HANDLING WATER

Description:

Work under this item shall consist of designing, furnishing, installing, maintaining, and removing of a temporary water handling system. This may include water-handling-cofferdams, bypass pipes, bypass pumps/hoses, temporary energy dissipation, sump pumps, drainage channels, water handling for ancillary drainage, and dewatering.

A temporary water handling system redirects water beyond, through, or around the limits of construction to allow work to be done in the dry.

Materials:

The materials required for this work shall be as shown on the plans, on the accepted Contractor's Working Drawing submittal, or as ordered by the Engineer.

Construction Methods:

The Contractor shall prepare and submit written procedures for handling water. Working Drawings, in accordance with Article 1.05.02, shall also be prepared and submitted.

The Contractor shall consider stream conditions, water elevations, expected weather, and risks associated with the Site to determine the type of temporary water handling system required to redirect water away from work being performed. The system shall be designed to comply with the Temporary Hydraulic Table in the Contract plans and be compatible with the stage of construction and Maintenance and Protection of Traffic scheme, as indicated in the Contract, and shall conform to Section 1.10.

The Contractor shall be responsible to maintain and repair the water handling system throughout the duration of the Contract. If the system becomes damaged, displaced, or not functioning properly due to construction activities, stream conditions or storm events, the Contractor shall be responsible to remediate the system back to working order per plan or as required at the direction of the Engineer.

Unless otherwise directed by the Engineer, all temporary water handling system components shall be removed in an acceptable manner when no longer required.

Bypass Pumping:

The bypass pump system shall be designed by the Contractor to comply with the Temporary Hydraulic Table in the Contract plans.

When incorporating a bypass pump/hose system, the Contractor shall provide a means to maintain continuous flow to the downstream channel to protect resources, unless otherwise noted in the

Contract plans or as accepted by the Engineer. The Contractor shall provide for both maintaining continuous flow and accommodating temporary design flows using appropriate pump size for each case, valving, metering, or adjusting the flow during construction.

A pump screen shall be provided on the intake with maximum 0.5 inch diameter openings.

Method of Measurement:

The work under this item, being paid on a lump sum basis, will not be measured for payment.

Basis of Payment:

This work will be paid for at the Contract lump sum price for "Handling Water" completed and accepted, which price shall include designing (including submittals and Working Drawings), furnishing, installing, maintaining, and removing of all temporary water handling system components as are necessary for completion of the work. This price shall include all materials, equipment, tools, labor and work incidental thereto.

A schedule of values for payment shall be submitted to the Engineer for review and comment.

Pay Item	Pay Unit
Handling Water	Lump Sum

ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCH BASIN

Description:

Work under this item shall consist of furnishing, installing, maintaining, replacing, and removing sediment control system at catch basins, herein referred to as Silt Sack, at the locations as shown on plans or as directed by the Engineer. The work shall also include removal of accumulated sediment, and disposal of accumulated sediment,

Materials:

The Silt Sack must be commercially produced and marketed for the specific application(s) on the Project. All Silt Sack must be manufactured from a specially designed woven polypropylene geotextile sewn material. The Silt Sack must be able to handle flows of at least 180 gallons per minute per square foot, fit any sized catch basin or drop inlet, and be UV resistant.

The Silt Sack product shall be one of the following or an approved equal:

1. Siltsack®
2. Dandy Sack®
3. FleXstorm Catch-It™
4. PIG®Sediment-Drain Filter
5. ACF Environmental Silt Sack

The Sediment Control System at Catch Basin must have the following features: two dump straps attached at the bottom to facilitate the emptying of the Silt Sack and lifting straps to be used to lift the Silt Sack from the catch basin or drop inlet. The Silt Sack shall have a restraint cord approximately halfway up to keep the sides away from the catch basin or drop inlet walls. When required, a curb deflector shall be installed as directed by the Engineer.

Product Data for the Silt Sack to be used by the Contractor must be submitted for review and acceptance by the Engineer or their authorized delegate prior to the installation on-Site.

Construction Methods:

The Contractor shall install the Silk Sack per the manufacturer's instructions and recommendations at each catch basin or drop inlet as shown on the plans or as directed by the Engineer to provide inlet protection to prevent silt, sediment, or debris from entering the stormwater drainage system.

When the Silt Sack becomes 1/2 full of accumulated sediment, the Contractor shall empty, clean, and replace the Silt Sack back into the catch basin or drop inlet. Sediment emptied shall be considered unsuitable material and be disposed of at an off-Site approved upland facility per federal, State, and local environmental laws and regulations.

At the completion of the Project, the Contractor shall remove all Silt Sacks within the Project limits. Any spilled sediment material during removal operations shall be removed by the Contractor at no cost to the State.

Method of Measurement:

Sediment Control System at Catch Basin will be measured as each installed, maintained, accepted, and removed. There will be no separate measurement for maintenance or replacement associated with this item.

Basis of Payment:

The item "Sediment Control System at Catch Basin" will be paid at the Contract unit price for each completed system in place and accepted, which price shall include installing, maintaining, replacing, removal of material, off-Site disposal of accumulated material, materials, equipment, tools, and labor incidental thereto.

The cost of installing hay bales, geotextile, check dam, or fiber roll for inlet protection shall be paid for under their respective Contract item or special provision.

Pay Item	Pay Unit
Sediment Control System at Catch Basin	EA.

ITEM #0406303A – SAWING AND SEALING JOINTS

Description:

This work shall consist of sawing bituminous concrete pavement and applying hot-applied asphalt crack sealant to create a sealed pavement joint at the locations specified on the Plans. It shall be constructed in close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer.

Materials:

1. Crack Seal: The crack seal material shall be composed of a hot-applied asphalt meeting ASTM D6690 Type II requirements.

   Prior to the start of work, the Contractor shall submit a Materials Certification (MC) in accordance with Article 1.06.07 certifying the joint seal material meets these requirements. The Contractor must submit to the Engineer all Safety Data Sheets (SDS) from the material manufacturer prior to the commencement of work.

2. Blotting Agent – Detackifier: This material shall be a fine-graded granular material with 100% aggregate passing the 3/16-inch sieve and no more than 5% passing the #200 sieve when tested in accordance with AASHTO T 27 and T 11.

   The material shall be one recommended by the supplier of the crack sealant and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials will be allowed. Product Data shall be submitted to the Engineer for review in accordance with Article 1.05.02.

Construction Methods:

The sawing and sealing operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications.

1. Equipment: The equipment used by the Contractor shall include the following:

   a. Saw and Blades: A minimum of one (1) power saw shall be used for the cutting of bituminous concrete. The saw shall be capable of providing straight, clean cuts of uniform depth and width to the dimensions shown on the Plans. The saw(s) shall be capable of making both a single, deeper cut (for reflective crack control) as well as a wider, shallower cut (to form the upper sealant reservoir), in one single pass, using multiple blades mounted side-by-side in "gang blade" arrangement. The saw shall have diamond-tipped blades.

   b. Melter Applicator: This shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and

pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack seal material at the manufacturer's specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical full sweep agitator to provide continuous blending. Thermometers shall monitor the material temperature and the heating oil temperature. Thermostatic controls shall allow the operator to regulate material temperature up to at least 425°F.

c. Application Wand and Squeegee Applicator: The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality designed with a "U" shaped configuration. It shall be of a size adequate to strike off, flush with the surrounding pavement surface and without overflow around the sides, all crack seal material placed. This tool shall be either attached to the applicator wand or be a separate long handled tool.

d. Hot Air Lance: This shall be designed for cleaning and drying the pavement saw cuts. Minimum compressed air capacity shall be 100 psi. The compressed air emitted from the tip of the lance shall be oil free and capable of achieving a temperature of at least 1500°F.

2. Weather Requirements: Work shall be performed only when the pavement is dry. No frost, snow, ice, or standing water may be present on the roadway surface or within the pavement saw cuts. The ambient temperature must be at least 40ºF during field application operations.

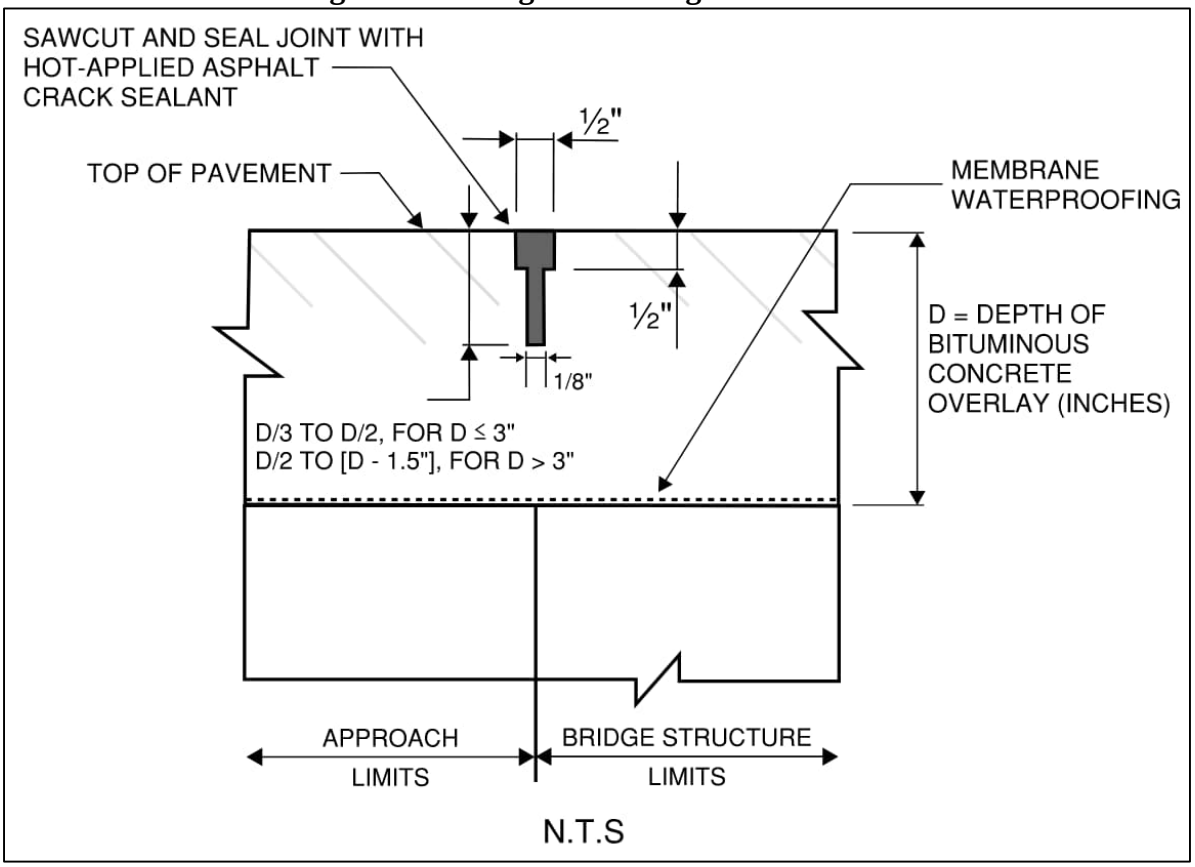
3. Material Mixing Procedure: The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack sealant shall never exceed 400°F.

4. Delineation of Transverse Joints: Prior to the sawing and sealing operation, the Contractor shall establish sufficient controls to determine the exact location of each transverse joint. This shall include setting markers at each joint to reference its location and alignment, while having each of these markers tied. Survey shall be established while the joint elements are exposed and must be done before placement of the proposed pavement, base, or other fill materials. A written procedure for this work shall be submitted to the Engineer for review prior to commencement.

5. Cutting of Bituminous Concrete: Saw cutting shall be performed a minimum of 48 hours and a maximum of 5 days after the surface lift of the bituminous concrete overlay is placed. After final paving is completed, the proposed saw cut lines shall be marked on the overlay by the Contractor. The saw cut lines must be approved by the Engineer before performing the work.

The joint shall consist of a gang-blade saw cut made in a single pass and shall span from edge-of-road to edge-of-road, as shown on the Plans. The cuts shall be made using blades of appropriate thickness to achieve the joint detail shown in Figure 1.

Figure 1: Sawing and Sealing – Joint Detail



The inner 1/8-inch-wide cut shall be made in a straight line across the pavement directly over the transverse joint. For total bituminous concrete overlay depths of 3 inches and less, the depth of the inner saw cut shall be between one third (D/3) and one half (D/2) the specified depth of the overlay as shown on the Plans. For total overlay depths exceeding 3 inches, the minimum required depth of the inner saw cut shall be one half (D/2) the specified depth of the bituminous concrete overlay as shown on the Plans, and a maximum of 1.5 inches above the bottom of the overlay (D – 1.5”). The saw cut shall not damage or impact any portion of the membrane waterproofing, bridge deck, joint, or other structural element.

The outer cuts shall be made using a gang blade arrangement within the same pass as the inner cut to form the 1/2-inch by 1/2-inch upper reservoir and properly support the installation of the sealant.

The saw cut shall provide straight, clean vertical faces with no cracking, tearing, or breakage along the cut edge.

6. Saw Cut Preparation: Saw cuts to be sealed shall be treated with a hot air lance immediately prior to application of the crack seal material. Two (2) passes minimum shall be made with the hot air lance. There shall be no more than 10 minutes between the second hot air lance treatment and the material application.

   The use of the hot air lance is not intended to heat the saw cut. It is to be used to blow all debris from the saw cut to the depths specified below and to remove any latent moisture from the saw cut until the inside of the saw cut is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water from the bottom of a saw cut. If standing water is present in the bottom of any saw cut, the sealing operation shall be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water from a saw cut to help accelerate the natural evaporation process. If standing water remains after using compressed air, the saw cut shall be allowed to dry naturally until remaining standing water evaporates. The hot air lance shall be used after visible water has evaporated. If a saw cut is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

7. Crack Sealing: Immediately after saw cuts have been prepared, they shall be filled to refusal along their entire length with the crack sealant material. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range at all times. The sealing operation shall be suspended if the temperature of the crack seal material falls outside the specified temperature range and shall remain suspended until the crack seal material is brought within the specified range.

   Sealed saw cuts shall be squeegeed immediately following application of the crack sealant material, striking the excess even with the adjacent pavement surface. There shall be no build-up of treatment material above or adjacent to the crack. If the initial application of crack sealant material fails to fill the saw cut or shrinks upon cooling with a depression of 1/8 inch or greater, a second application of sealant shall be placed. Care shall be taken during the sealing operation to ensure that overfilling and spilling of material is avoided.

8. Protection of Sealed Joints: Traffic shall not be permitted on the pavement until the crack seal material is set, so that the material does not deform or track and be pulled out by tires. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent shall be used. If the work under this item is being performed prior to placing a surface treatment (e.g., chip seal), a detackifier or blotting agent will not be allowed.

9. Removal and Disposal of Material: All debris generated from the operations described above shall be removed by the Contractor. Treatment material remaining in the Contractor's kettle at the end of the work shift shall be discarded. Treatment material shall not be re-heated for use in subsequent crack sealing applications unless permitted by the Engineer. All debris and surplus treatment material shall be properly disposed of in accordance with Article 1.10.03 and State of Connecticut regulations.

10. Acceptance of Work: When work is complete, an inspection shall be scheduled. The Engineer will note all deficiencies including areas exhibiting adhesion failure, cohesion failure, tracking of sealant material, locations of missing, incompletely, or incorrectly constructed joints, or other factors that show the work is not acceptable. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

    Any reflective cracking attributable to improper joint referencing or construction methods shall be repaired at the expense of the Contractor, in a manner approved by the Engineer.

Method of Measurement:

This work will be measured by the total number of linear feet of sawn and sealed joints, verified and accepted by the Engineer.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "Sawing and Sealing Joints" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

Pay Item	Pay Unit
Sawing and Sealing Joints	L.F.

ITEM #0406312A – GUTTER LINE SEALING FOR BRIDGES

Description:

This work shall consist of applying hot-applied asphalt crack sealant along the gutter line of bridges after paving to seal the joint between the bituminous concrete overlay and parapet, curb, or barrier at the locations and to the limits shown on the Plans.

Materials:

1. Crack Seal: The crack seal material shall be composed of a hot-applied asphalt meeting ASTM D6690 Type II requirements.

   Prior to the start of work, the Contractor shall submit a Materials Certification (MC) in accordance with Article 1.06.07 certifying the joint seal material meets these requirements. The Contractor must submit to the Engineer all Safety Data Sheets (SDS) from the material manufacturer prior to the commencement of work.

2. Blotting Agent – Detackifier: This material shall be a fine-graded granular material with 100% aggregate passing the 3/16-inch sieve and no more than 5% passing the #200 sieve when tested in accordance with AASHTO T 27 and T 11.

   The material shall be as recommended by the supplier of the crack sealant and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials will be allowed. Product Data shall be submitted to the Engineer for review in accordance with Article 1.05.02.

Construction Methods:

The sealing operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications.

1. Equipment: The equipment used by the Contractor shall include the following:

   a. Melter Applicator: This shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack seal material at the manufacturer's specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical full sweep agitator to provide continuous blending. Thermometers shall monitor the material temperature and the heating oil temperature.

Thermostatic controls shall allow the operator to regulate material temperature up to at least 425°F.

b. Application Wand and Squeegee Applicator: The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality and be designed with a configuration to properly strike off the sealant placed along the gutter line of the bridge, adjacent bituminous concrete overlay and parapet, curb, or barrier to the dimensions specified. It shall be of a size adequate to strike off, flush with the surrounding areas, all crack seal material placed. This tool shall be either attached to the applicator wand or be a separate long handled tool.

c. Hot Air Lance: This shall be designed for cleaning and drying the pavement edge along the curb parapet or barrier. Minimum compressed air capacity shall be 100 psi. The oil-free compressed air emitted from the tip of the lance shall be oil free and capable of achieving a temperature of at least 1500°F.

2. Weather Requirements: The pavement shall be dry without frost, snow, ice, or standing water on the roadway surface and within the areas to be sealed. The ambient temperature must be at least 40ºF and rising during application.

3. Material Mixing Procedure: The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack sealant shall never exceed 400°F. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range during application. The sealing operation shall be suspended if the temperature of the crack sealant falls outside the specified temperature range and shall remain suspended until the crack sealant is brought within the specified range.

4. Delineation of Areas to be Sealed: Prior to the sealing operation, the Contractor shall locate and mark out the start and end limits of the work. The sealing shall span the entire length of the structure and be done along each side of the bridge such that both gutter lines are completely sealed, as shown on the Plans. Sealing shall be performed after the surface lift of the bituminous concrete overlay is placed, at a time determined by the Engineer, not to exceed 4 weeks after final paving is completed. The sealing operation shall not damage or otherwise negatively impact the performance of any portion of the overlay, membrane waterproofing, bridge deck, joint, or other structural element.

   Sealing Preparation: Areas to be sealed shall be treated with a hot air lance prior to application of the crack seal material. A minimum of two (2) passes shall be made. Within 10 minutes of the second hot air lance treatment the sealant shall be applied. The use of the hot air lance is not intended to heat the areas to be sealed. It is to be used to blow away all debris and remove any latent moisture from the areas to be sealed until the area is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water. If standing water is present, the sealing operation shall

be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water to help accelerate the natural evaporation process. If standing water remains after using compressed air, the area shall be allowed to dry naturally until remaining standing water evaporates. The hot air lance shall be used after visible water has evaporated. If an area is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

The parapet, curb, or barrier face shall be masked off above the sealant line to ensure straight, clean, and neat lines are provided along the vertical surface and that crack seal material is placed within the dimensions specified below.

5. Sealing Operation: Once prepared, all specified areas shall be sealed along their entire length with the crack seal applicator. Crack seal shall be placed 2 inches up onto the parapet, curb, or barrier face and 4 to 6 inches onto the adjacent bituminous concrete overlay. There shall be no build-up of sealant material above or adjacent to the sealed areas beyond these limits. Sealed areas are to be flattened with the squeegee applicator immediately following application of the crack sealant, striking excess material flat and even with the adjacent surface(s). If the initial application of crack sealant fails to fill the area flush or shrinks upon cooling with a depression of 1/8 inch or greater, additional applications of sealant shall be placed where necessary. Care shall be taken during the sealing operation to ensure that overfilling and spilling of material is avoided.

6. Protection of Sealed Areas: Traffic shall not be permitted on the sealed area of pavement along the gutter line until the crack sealant is set, so that the material does not deform or track and be pulled out by tires. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent shall be used. If the work under this item is being performed prior to placing a surface treatment (e.g., chip seal), a detackifier or blotting agent will not be allowed.

7. Removal and Disposal of Material: All debris generated from the operations described above shall be removed by the Contractor. Treatment material remaining in the Contractor's kettle at the end of the work shift shall be properly discarded. Treatment material shall not be re-heated for use in subsequent crack sealing applications unless permitted by the Engineer. All debris and surplus treatment material shall be properly disposed of in accordance with Article 1.10.03 and State of Connecticut regulations.

8. Acceptance of Work: When work is complete, an inspection shall be scheduled. The Engineer will note all deficiencies including areas exhibiting adhesion failure, cohesion failure, tracking of sealant material, locations of missing, incompletely or incorrectly constructed sealant, or other factors that show the work is not acceptable. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

Method of Measurement:

This work will be measured by the total number of linear feet sealed, verified and accepted by the Engineer.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "Gutter Line Sealing for Bridges" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

Pay Item	Pay Unit
Gutter Line Sealing for Bridges	L.F.

ITEM #0406999A - ASPHALT ADJUSTMENT COST

Description:

The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of the following:

I. Hot Mix Asphalt (HMA) and Polymer Modified Asphalt (PMA),
II. Ultra-Thin Bonded HMA (UTB-HMA) and Ultra-Thin Bonded PMA (UTB-PMA),
III. Thin Friction Wearing Course (TFWC),
IV. Binder Rich Intermediate Courses (BRIC) and Stone Matrix Asphalt (SMA), and
V. Asphalt Rubber Chip Seal (ARCS) treatments completed and accepted during the Contract.

The Asphalt Price is available on the Department of Transportation website at:
http://www.ct.gov/dot/asphaltadjustment

Construction Methods:

An asphalt adjustment will be applied only if all the following conditions are met per mixture:

I. For HMA, PMA, TFWC, BRIC, and SMA mixtures:
   a. The HMA, PMA, TFWC, BRIC, or SMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
   b. ***The total quantity for all HMA, PMA, TFWC, BRIC, and SMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.***
   c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.

II. For UTB-HMA and UTB-PMA mixtures:
   a. The UTB-HMA or UTB-PMA mixture for which the adjustment would be applied is listed as a Contract item.
   b. ***The total quantity for the UTB-HMA or UTB-PMA mixture in the Contract exceeds:***
      i. 800 tons if the UTB-HMA or UTB-PMA item has a pay unit of tons,
      ii. 30,000 square yards if the UTB-HMA or UTB-PMA item has a pay unit of square yards, or
      iii. the Project duration is greater than 6 months.

Note: The quantity of UTB-HMA or UTB-PMA measured in tons shall be determined from the material documentation requirements set forth in the UTB-HMA or UTB-PMA item specification.

   c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.
   d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the UTB-HMA or UTB-PMA mixture system.

III. For Asphalt Rubber Chip Seal (ARCS) treatments:

a. The ARCS treatment for which the adjustment would be applied is listed as a Contract item.
b. ***The total quantity for the ARCS treatment in the Contract exceeds 30,000 square yards or the Project duration is greater than 6 months.***

Note: The quantity of asphalt binder measured in tons used for the Asphalt Rubber Chip Seal treatment shall be determined from the material documentation requirements set forth in the ARCS item specification. The Asphalt Adjustment Cost will also be applied to the asphalt binder used to pre-coat the cover aggregate as part of the ARCS and will be considered as a portion of the total tons of binder for the treatment. The additional quantity of binder measured in tons will be determined based on a percentage of the cover aggregate weight per the requirements set forth in the ARCS item specification.

c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.

Regardless of the binder used in all mixtures or treatments, the Asphalt Adjustment Cost will be based on PG 64-22.

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor®** furnished by Poten & Partners, Inc. under the "East Coast Market – New England, New Haven, Connecticut area," F.O.B. manufacturer's terminal.

The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US$/ST).

Method of Measurement:

A.

Formula A: HMA x [PG%/100] x [(*Period Price - Base Price*)] = $ ____

Where:

- **HMA:**
  1. For HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, and SMA mixtures with pay units of tons:
     The quantity in tons of accepted HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, or SMA mixture measured and accepted for payment.
  2. For UTB-HMA and UTB-PMA mixtures with pay units of square yards:
     The quantity of UTB-HMA and UTB-PMA mixture delivered, placed, and accepted for payment, calculated in tons as reported according to the Material Documentation provision of the UTB-HMA and UTB-PMA specification.

- ***Asphalt Base Price***: The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- ***Asphalt Period Price***: The asphalt price posted on the CTDOT website during the period the HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, or SMA mixture was placed.
- **PG%** (Performance-Graded Binder percentage):
  1. For HMA or PMA mixes:
     - PG% = 4.5 for HMA S1 and PMA S1
     - PG% = 5.0 for HMA S0.5 and PMA S0.5
     - PG% = 6.0 for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25
  2. For UTB-HMA, UTB-PMA, TFWC, BRIC, and SMA mixes:
     - PG% = Design % PGB (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

B. For Asphalt Rubber Chip Seal:

Formula B: Total Tons x [(*Period Price - Base Price*)] = $ ____

Where:

- ***Total tons:*** The tons of asphalt binder for each lot of asphalt rubber produced, as reported according to the Testing and Certification article of the specification for Asphalt Rubber Chip Seal, and the tonnage of binder used to coat the cover aggregate calculated as follows: 0.6% x tons of cover aggregate.
- ***Asphalt Base Price***: The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- ***Asphalt Period Price***: The asphalt price posted on the CTDOT website during the period the Asphalt Rubber Chip Seal mixture was placed.

The Asphalt Adjustment Cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

Basis of Payment:

The "Asphalt Adjustment Cost" will be calculated using the applicable formula(s) indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

Pay Item	Pay Unit
Asphalt Adjustment Cost	EST.

ITEM #0502195A – TEMPORARY BRIDGE

Description:

Work under this item shall consist of designing, fabricating, furnishing, constructing, maintaining, and removing the temporary vehicular bridge of a clear span shown on the plans or as directed by the Engineer in accordance with these specifications. The bridge shall accommodate roadway and hydraulic criteria as shown on the plans or as directed, including superstructure, substructure, foundations, and all associated work.

The work to construct, maintain, remove, and restore the approaches to the temporary vehicular bridge is not included under this item and shall be paid for separately under the applicable roadway items.

Materials:

The Contractor may use timber, steel, concrete or any other material or combination of materials that are in sound condition, capable of safely carrying the specified loads, and meet the approval of the Engineer. Materials for the temporary bridge shall confirm to the applicable sections of Form 819.

Design:

1 - Design Computations: The Contractor shall be responsible for the design, detailing and additional specifications required. Prior to construction, the Contractor shall prepare and submit working drawings and design computations for the temporary bridge superstructure, substructure, and foundations to the Engineer for review in accordance with Article 1.05.02. The submittal shall be signed and sealed by a professional engineer licensed in the State of Connecticut.

2 - Design Guidelines: The temporary bridge shall be designed in accordance with the current AASHTO LRFD Bridge Design Specifications and the AASTHO Guide Design Specification for Bridge Temporary Works, 2nd Edition. In addition, the design shall incorporate the following criteria:

(a) Design Loads –The temporary bridge shall be designed to support AASHTO HL-93 live load including impact, for the applicable AASHTO Load Combination Groups and all AASHTO and CT Legal Loads (refer to the CTDOT Load Rating Manual).

(b) Allowable Stresses– Appropriate reductions in allowable stresses shall be used in design when other than new or undamaged materials are used in the construction of the temporary bridge.

(c) Hydraulic Clearance – The bridge shall be a single span structure with a minimum clear span as shown in the contract documents. No portion of the structure's low chord shall extend beneath the elevation shown in the contract documents.

(d) Width – The bridge shall accommodate a roadway with a minimum travel way width of 14 feet.

(e) Alignment – The horizontal and vertical alignment of the temporary bridge shall be as shown on the plans.

(f) Wearing Surface – Skid resistance of the temporary bridge wearing surface shall match or exceed the approach pavement wearing surface. If requested by the Engineer, the surface shall be tested for proper skid resistance by the Department's Research Unit prior to use as a temporary bridge. The top of the wearing surface shall permit snow removal with snow plowing equipment. Deck joints, if included, shall be installed flush with the top of the wearing surface to provide continuous surface.

(g) Railings – Provide 42-inch-high railings meeting MASH or NCHRP 350 TL3 loading and curbs on both sides of the bridge conforming to the requirements of the AASHTO Specifications, for protection of vehicular and pedestrian traffic. The vehicular railing shall be continuous with the approach railing.

(h) Substructures – The abutments and foundations shall be designed to support the superstructure and retain the approaches.

(i) Footings – Temporary bridge shall be supported on shallow footings founded on 12 inches of compacted bedding below the Miscellaneous Fill stratum (Elev. 273+/-), the design and detailing of which shall adhere to the following in the calculations:

- The 12 inches of compacted bedding shall be Granular Fill or No. 8 Crushed Stone and shall extend a minimum of one foot beyond footing edges.
- A geotextile fabric separation layer shall be placed over subgrade soils prior to placing crushed stone, and the Crushed Stone shall be wrapped with the geotextile fabric.
- The minimum footing width shall be 24 inches.
- Footings shall bear a minimum of 4 feet below the lowest adjacent grades, and shall consider the presence of any slopes adjacent to the proposed structure.
- Footings design shall conform to the static design parameters listed in the geotechnical report.
- Anticipated footing settlement based on the allowable soil bearing values.
- Consider anticipated construction and soil conditions in determining the soil's support capacity.
- Show method of draining water from around the spread footings to comply with all required permits.
- The design of the substructure foundations shall be based on the provided geotechnical report and existing borings or based upon additional borings done at this site by the contractor at his own expense for the purpose of the temporary bridge design.

3 - Working Drawings: Working drawings shall be submitted on 11" x 17" (Ledger/Tabloid) sheets with an appropriate border and title block. Design computations, procedures and other supporting data shall be submitted on 8 ½" x 11" (Letter) sheets The Working drawings and design computations shall be signed and sealed by a Professional Engineer licensed in the State of Connecticut, who shall also be available for consultation in interpreting the computations and drawings, and aid in the resolution of any problems which may occur during the performance of the work. Please note that each working drawing must be sealed. The working drawings shall include the following minimum information:

(a) Type and grade of structural materials.
(b) Allowable material stresses in bending, compression, and shear.
(c) Modulus of elasticity "E".
(d) Stress factors if used for short term duration loading (timber only).
(e) References for load data used for standardized, manufactured components.
(f) Specification references for design criteria.
(g) The design Live Loads used.
(h) The bearing value of the soil as determined by the Contractor when footing type foundations are to be used.
(i) The total design reaction at each substructure foundation.

The design computations shall include inventory and operating live load ratings for the temporary bridge. The rating computations, including a summary form and supporting computations, shall be packaged separately. The rating analysis shall be performed using the methods described in the latest edition of the CTDOT Load Rating Manual and AASHTO Manual for Bridge Evaluation.

The Contractor shall verify that the quality of the materials and workmanship employed in the construction of the bridge are consistent with that assumed in the design.

Construction:

Construct the temporary bridge according to the applicable sections of Form 819.

Inspection: Prior to opening the temporary bridge to traffic, the Contractor shall perform an initial inspection of the bridge. After opening the temporary bridge to traffic, the Contractor shall perform routine inspections of the bridge at 3-month intervals. The initial and subsequent inspections shall be performed and documented by qualified personnel in accordance with the current Department's "Bridge Inspection Manual". All forms and supporting documents shall be forwarded to the Department's Bridge Safety and Evaluation Section.

Maintenance: After opening the temporary bridge to traffic, the Contractor shall maintain the bridge by repairing or replacing any portion or component of the bridge that has become worn or damaged as determined by the Engineer including wearing surfaces, in a safe and functional condition. For stream crossings, all debris or drift shall be removed from the site/structure. The Contractor shall keep the structure in a suitable condition for the use of traffic at all times until the permanent construction is completed and open to traffic.

Structure Removal: Upon completion and opening to traffic of the permanent construction and when the temporary bridge is no longer needed, the Contractor shall remove and dispose of the temporary bridge, regrade and restore the area to its original or planned condition, as shown on the plans or as directed by the Engineer. Unless otherwise shown or specified, all temporary bridge materials will remain the property of the Contractor.

Method of Measurement:

This work will be paid for on a lump sum basis and will not be measured for payment.

Basis of Payment:

This work will be paid for at the contract lump sum for "Temporary Bridge", complete in place, which price shall include designing, fabricating, furnishing, installing, maintaining, and removing the temporary bridge including the superstructure, substructure and foundation and restoration of the temporary bridge site, including all equipment, labor, and incidentals necessary to complete the work as specified.

When construction at the site begins for the temporary bridge substructure, 25% of the contract lump sum price for this item will be certified for payment.

When the temporary bridge is constructed, accepted and opened to traffic, 50% of the contract lump sum price for this item will be certified for payment.

When the temporary bridge has been removed from the site and the approach areas regraded and restored to the satisfaction of the Engineer, the remaining 25% of the contract lump sum price for this item will be certified for payment.

Pay Item	Pay Unit
Temporary Bridge	L.S.

ITEM #0514232A – PRESTRESSED DECK UNITS (4’-0” X 1’-6”) MODIFIED

Work shall conform to Section 5.14 of the Standard Specifications, as amended herein:

5.14.01—Description: *Add the following:*

Work under this item shall consist of furnishing and placing prestressed solid deck beams of the type and size shown on the plans, and all necessary materials and equipment to complete the work.

Solid Deck Beam dimensions and details are based on Beam Designation SDB48-18 as shown in the Northeast Solid Deck Beam Guide Details, First Edition 2024 by PCI Northeast. More information can be found at WWW.PCINE.ORG under “Technical Resources”.

A Quality Control Plan is required from the fabricator of the precast components. A detailed Assembly Schedule is required from the Contractor.

Dry fit of adjacent components at the precast facility is required.

Anchorage assemblies cast into the deck units for the 3-tube curb mounted bridge rail, which include anchorage plates, anchor bolts, nuts, washers and optional inserts are included under this item.

5.14.02—Materials: *Add the following:*

The anchor rods shall be fully threaded rods in accordance with ASTM F1554, Grade 105. The nuts shall meet the requirements of ASTM A563, Grade DH. The washers shall meet the requirements of ASTM F436. The bolts, nuts and washers shall be galvanized in accordance with ASTM F2329 or ASTM B695, Class 55.

5.14.03—Construction Methods: *Add the following:*

Installation Requirements: The anchor rods shall be securely bolted to anchor plates to create anchorage assemblies.

5.14.05—Method of Measurement: *Add the following:*

Prestressed Solid Deck Beams will be measured for payment by the number of linear feet installed and accepted of the size and at the location indicated on the plans.

5.14.06—Basis of Payment: *Add the following:*

Prestressed Solid Deck Beams will be paid for at the Contract unit price per linear foot for the size indicated on the plans for "Prestressed Deck Units (4'-0" X 1'-6") Modified" complete in place, including all materials, equipment and tools and labor incidental thereto.

Pay Item	Pay Unit
Prestressed Deck Units (4'-0" X 1'-6") Modified	L.F.

ITEM #0521021A – STEEL-LAMINATED ELASTOMERIC BEARINGS

5.21.01—Description: *Add the following:*

Work under this item shall consist of furnishing and installing steel-laminated elastomeric bearing pads and all other necessary materials and equipment to complete the work as shown on the plans. Work shall conform to Section 5.21 of the Standard Specifications, as amended herein.

5.21.02—Materials: *In addition to the requirements of 5.21:*

Steel Laminates: The internal steel laminates, used for reinforcement, shall be a mild rolled steel conforming to ASTM A1011, Grade 36.

Load Plate: Load Plate shall conform to AASHTO M270 Grade 36

5.21.04—Method of Measurement:

This work will be measured for payment by cubic inches of elastomeric bearing pads, installed and accepted. Steel laminates and load plates will not be measured for payment.

5.21.05—Basis of Payment:

This work will be paid for at the Contract unit price per cubic inch of "Steel-Laminated Elastomeric Bearings" complete in place, which price shall include all materials, steel laminates, load plates, equipment, tools and labor incidental thereto, including all the cost of furnishing test pads.

Pay Item	Pay Unit
Steel-Laminated Elastomeric Bearings	C.I.

ITEM #0601088A - CONCRETE FORM LINERS

Description:

Work under this item shall include construction of textured, colored formed concrete surfaces using simulated stone form liners, a color stain system designed to closely duplicate the appearance of natural stone. This item shall include the following:

1) Furnishing, installing, and removing a concrete form liner that will be used to produce a simulated stone facing on exposed surfaces and to the limits shown on the contract documents or requested by the engineer.
2) Grouting, patching and hand or tool finishing work after the forms are removed as necessary to remove lines and irregularities on the finished facing that are not in keeping with the intended "look" of the simulated stone facing.
3) Color staining of the concrete surfaces as may be required by the style of simulated stone facing used, including test panels to establish colors and patterns of staining before initiating this portion of the work.
4) Preparation, submittal and approval of pattern layout drawings, maximizing re-use and minimizing cutting of form liners, for each surface shown on the plans, or other surface where form liners are to be used.

Materials:

Acceptable concrete form liner manufacturers and form liner patterns are:

- Custom Rock Formliners, as manufactured by Custom Rock International, Inc., St. Paul, MN 55116, (800) 637-2447. Pattern: No. 2209 – New England Drystack

- Fitzgerald Formliners, as manufactured by Fitzgerald Formliners, 1500 East Chestnut Street, Santa Ana CA 92701, (800) 547-7760. Pattern: No. 17033 – Sierra Drystack

- Spec Formliners as manufactured by Spec Formliners, Inc., 1038 E 4th Street, Santa Ana, CA 92701, (888) 429-9550. Pattern: No. 1587 – California Dry Stack

Form Liners - The form liners shall be reusable, made of high strength urethane and not compress more than ¼" when concrete is placed at a rate of 10 vertical feet per hour. Form liners shall be removable without causing deterioration of surface or underlying concrete.

Release Agent - The release agent shall be compatible with the form liners, simulated stone masonry and with the color stain system, as recommended by the manufacturer.

Form Ties - The form ties shall be designed to separate at least one inch back from the finished surface, leaving only a neat hole that can be plugged with patching material.

Color Stain - Special penetrating stain mix as provided by the manufacturer, shall achieve color variations present in the natural stone being simulated by the pattern selected for the project. The Engineer/Town shall select a color pattern from photos of completed projects. The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, alkali, fungi, sunlight or weathering. The stain shall be a water borne, low V.O.C. material less than 11.25 lb/cf and shall meet requirements for; weathering resistance - 2000 hours accelerated exposure in accordance with the 3-bulb test of ASTM G152, scrub test - 100 revolutions, abrasion resistance (Tabor CF-10) - 500 cycles, adhesion – 0.04" cross cuts on glass pass 3 or higher on a scale of 1 to 5 in accordance with ASTM D3359, chemical resistance - ASTM D1308.

Construction Methods:

The manufacturer of the simulated stone form liners and custom coloring systems shall demonstrate at least three (3) years of experience making custom simulated stone form liners and color stains to create formed concrete surfaces to match natural stone shapes, surface textures and colors. Evidence and color pictures of projects actually constructed over the last three years shall be submitted prior to approval.

The contractor or subcontractor who is to install the form liners and perform the work shall demonstrate at least three (3) years of experience placing vertically formed architectural concrete, including training in the manufacturer's special techniques as may be required in achieving realistic surfaces.

An authorized representative from both the form liner manufacturer and the color stain manufacturer (if color stain is used) shall be present at the site for installation of the facing test panel and during placing of all structural concrete utilizing form liners.

Prior to initiating any work, a meeting shall be scheduled by the contractor to assure full understanding of the work by all parties involved and to coordinate the work. Included for attendance shall be the manufacturer's authorized representatives, the contractor, the subcontractor (installer), the Engineer and the Town.

The Contractor shall submit the following for approval by the Engineer/Town prior to beginning the form operations:

Photographs - Color photographs of at least three (3) similar projects recently performed by the contractor (or his subcontractor) and at least three (3) similar projects recently produced by the manufacturer.

Form Tie Sample - A sample, description, and demonstration of the form tie the Contractor proposes to use.

Pattern Layout Drawings (3 copies) - Layout drawings shall be the plan, elevation, and details showing the overall pattern, joint locations, form tie locations, weephole locations, drainage and other protrusions, and any other special considerations. These drawings shall maximize re-use of

form liners and minimize cutting of form liners and shall be approved prior to installation of the form liners.

Concrete Facing Test Panel - At least 30 days prior to placing structural concrete requiring form liners, a concrete test panel shall be built on-site, using the same materials and methods of work force that will be used for the project. Location of the test panel shall be approved by the Engineer and the concrete test panel shall conform to the following:

1. The size of the test panel shall be 5 square yards, or larger if needed to adequately illustrate the pattern selected.
2. The test panel shall contain an area demonstrating simulated stone masonry butt joint, the continuation of the pattern through an expansion joint and an outside corner.
3. The test panel shall include staining as may be required for the selected pattern.
4. The test panel shall be removed when it is no longer needed, to the satisfaction of the Engineer.

All work associated with the process of form lining, texturing and color staining of the hardened concrete shall be performed in strict accordance with the manufacturer's recommendations and as approved by the Engineer/Town. The contractor shall:

- Provide, cut and install the form liners in accordance with the approved pattern drawings for each structural component
- Provide and apply manufacturer's release agent
- Hand carve top exposed texture surfaces (as applicable)
- Remove form liner after concrete is sufficiently set to avoid damage
- Patch, grind or bush hammer form liner seams as required
- Power wash hardened concrete just prior to staining
- Power wash and patch form liners as may be required before re-use

Form Liners: Design and pattern of the form lined concrete surfaces shall follow the manufacturer's standard drawing and the approved pattern layout drawings. The completed color and formed concrete surfaces shall match the pattern, color and texture of the approved test panel and shall accurately simulate the appearance of real stone, demonstrating the colors that may be apparent due to aging, rusting, and staining from oxidation, soil and/or vegetation.

All form liners shall be placed with less than ¼" separation between form liners. Form liners shall be securely attached to the forms with wood or sheet metal screws, securely bolted through the forms with bolts secured into threaded inserts in the back of the form liners, or securely bolted through the form liner and forming system with flat head bolts inserted in a pattern joint, all according to manufacturer's recommendations for the pattern and form liner used. Construction adhesives may be used but not on re-usable form liners.

Release of Form Liners: Only manufacturer recommended form release agents shall be utilized and shall be applied to the form liners before the concrete is placed. Release agents shall be applied in strict accordance with release agent manufacturer recommendations. Hand-charged sprayers will only be allowed if a thin uniform coating of release agent is obtained on the form liner.

Form liners shall be removed from the wall within 24 hours of placing the concrete. The form liners may be detached from the forms and then removed from the concrete, or they may remain attached to the forms and the entire forming system removed from the concrete. Remove the form liners from the top, down. Curing of concrete may be accomplished with form liners and forms placed back against the wall after the initial detachment. **Curing compounds shall not be used,** as they are incompatible with the color staining material.

Care & Cleaning of Form Liners: Form liners shall be cleaned the same day they are removed from the wall with a power wash and mild detergent. Synthetic brushes with stiff bristles may be used on stubborn areas. Mild acid washes may also be used. **Solvents shall not be used.** If necessary, patching of holes shall be performed with 100% clear silicone caulk. Form liners shall be stored inside or under a protective, non-transparent cover, in a vertical position.

Wall Patching and Preparation: After form liners are removed from the hardened concrete, the textured uncolored surface shall be prepared for color staining. All holes larger then 3/8" in greatest principal dimension shall be filled with concrete patching material from the approved product list, as approved by the Engineer. All honeycombed areas shall be filled and textured to match surrounding areas. Seam lines and other unnatural protrusions shall be ground down to match adjacent areas with a hand-held power grinder using discs made for concrete. Grinding of seams shall be performed immediately after removal of the form liners. Perform final bush hammering to blend defects and ground areas into the final rock texture. In particular, the process of wall patching and preparation shall be subject to approval of the manufacturer and Engineer.

Color Staining: All color staining shall be performed by the manufacturer, or their authorized representative, and the hardened concrete shall be a minimum of 30 days old before color staining is applied. The Contractor shall power wash the wall to free it from latent, dirt, oil and other objectionable materials. After the wall has dried, the color staining process shall be applied using colors approved by the Engineer/Town. Color staining shall be applied in such a way that the stones shall have individual colorations from one to the other. Water-based stains shall be used in air temperatures ranging from 50 degrees F to 100 degrees F. Solvent-based stains shall be used in air temperatures of 50 degrees F and below, but in no case when the temperature of the hardened concrete is 40 degrees F and falling.

All staining work shall be scheduled after backfilling is completed to avoid contaminating or damaging of the surfaces. After staining is complete and approved, topsoil and rip rap shall be placed in a way that does not damage the finished surfaces.

Method of Measurement:

The work covered under this special provision and associated with construction of textured and colored formed concrete surfaces using simulated stone form liners and a color stain system, will be measured for payment by the actual number of square feet of concrete patterned on cast-in-place concrete surfaces, within the pay limits shown on the drawings or as approved by the Engineer.

Basis of Payment:

This work will be paid for at the contract unit price per square foot for "Concrete Form Liners", complete in place, which price shall include all work and materials incidental thereto, including form liners, release agents, form ties, color stains or additives, pattern drawings, test panels, scaffolding, patching, preparation, cleaning, staining and all other work, materials, tools, and labor incidental thereto.

Pay Item	Pay Unit
Concrete Form Liners	S.F.

ITEM #0603474A - METALLIZING STRUCTURAL STEEL (SITE NO. 1)

Description:

Work under this item shall consist of the surface preparation, shop application of a thermal spray (metallizing) coating, shop application of a sealer and topcoat, and field painting and touch-up painting operations of new structural steel used for the fabrication of the proposed 3-Tube Curb Mounted Bridge Rail, as shown on the plans, or as directed by the Engineer.

Materials:

Only one metallizing supplier and one sealer and topcoat manufacturer may be used for the Project including material supplied for field painting and touch-up painting operations.

Abrasives: Abrasives shall conform to the following:

1. SSPC AB 1 for mineral slag abrasives
2. SSPC AB 2 for recycled ferrous metal abrasives
3. SSPC AB 3 for new steel abrasives

Thermal Spray Coating (TSC) Materials: The thermal spray coating (TSC) wire feedstock material used for metallizing must be 85%/15% (Zn/Al alloy) and meet the Chemical Composition requirements stated in Table 2 of AWS C2.25, classification W-ZnAl-2. The Contractor shall provide a Certified Test Report (CTR) in accordance with 1.06.07 for the feedstock from the feedstock supplier.

Sealer and Topcoat: The Contractor shall select one of the following semi-gloss topcoats of the color shown on the plans from the list below:

AkzoNobel: *International Interthane 870UHS*
Carboline: *Carbothane 133 LV*
Sherwin Williams: *Hi-Solids Polyurethane 250*
or approved equal

The Contractor shall select a sealer compatible with the topcoat chosen. The sealer shall be capable of penetrating into the body of the TSC to seal the interconnected surface porosity as defined in AWS C2.18-93R.

The sealer and topcoats shall be packaged and sealed, in the original container with labeling bearing the manufacturer's name, type of material, brand name, shelf life, batch number, and instructions for mixing and thinning. The topcoat shall meet the color and gloss retention performance criteria of SSPC Paint 36, Level 3, for accelerated weathering. The Contractor shall provide Materials Certificates in accordance with 1.06.07. The color of the topcoat shall be AMS-STD-10091 Dark Oak.

Caulking Materials: Caulking shall be as recommended by the coating manufacturer.

Construction Methods:

The Contractor shall implement procedures that comply with this specification. If a state or local regulation is more restrictive than the requirements of this specification, the more restrictive requirements shall prevail. The Contractor must comply with all local OSHA and EPA standards and regulations, even if the regulation or standard is not specifically referenced herein.

The complete coating system shall be shop-applied except for surfaces that are otherwise listed on the plans or otherwise noted in this specification. Such surfaces shall be coated only after all members are erected and bolts are fully tensioned.

Metallizing Contractor Worker Qualifications: The Metallizing Contractor shall be certified by the SSPC Painting Contractor Certification Program QP-6, entitled "Thermal Spray (Metallizing) Contractor Certification Program" in the *enclosed shop* category or be certified in the American Institute of Steel Construction (AISC) Sophisticated Paint Endorsement (SPE) category – *enclosed shop* P1 or *covered shop* P2. A list of approved contractors can be found on the AISC website at www.AISC.org.

The Metallizing Contractor shall be fully certified, including endorsements, for the duration of the time they are doing the surface preparation and coating application. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued. Requests for extension of time for any delay to the completion of the Project due to an inactive certification will not be considered, and liquidated damages will apply.

Each person applying a metallized coating shall be qualified according to ANSI/AWS C2.18-93R.

The Metallizing Contractor shall have a certified NACE Coatings Inspector Program (CIP) Level 3 inspector, or approved equal, on staff for the duration of the project and actively engaged in the metallizing activities before during and after the coating application.

The Metallizing Contractor and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)** – certified (Level II-Interim Status Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

Submittals: The Contractor shall submit the following to the Material Evaluation and Specification Unit (MESU), the Designer of Record and the Project Engineer, for review a minimum of thirty (30) days prior to metallizing.

Metallizing Quality Control (QC) Plan, including:

A. Written procedures for the preparation of surfaces and the application of the metallizing, the sealer, and topcoat in the shop; and procedures for the repair and touch up of any damage that occurs to the newly applied metallizing or coatings. Shop and field repair procedures must be clearly identified.
B. Hold points for surface preparation, metallizing application, adhesion testing of metallizing application and top coating thickness measurements.
C. Identification of the metallizing and coating materials to be applied, including manufacturer's name, product names, and product numbers.
D. Product Data Sheets, VOC levels for liquid coatings, MSD sheets, and written application instructions including mixing requirements, proposed thinners, and manufacturer's recommended thinner amounts for liquid coatings.
E. Identification of the type and brand name of the abrasive proposed for use.
F. Copies of qualification records along with continuity logs for all thermal spray operators.
G. Copies of NACE CIP Level 3 certifications, or approved equal, for all staff required to possess same. Copies of CAS (SSPC ACS/NACE No. 13) certifications, for all staff required to possess same.
H. Identification of the thermal spray equipment.
I. A work schedule that includes timelines for surface preparation, metallizing, sealing and topcoating.
J. Color chips to be supplied for the review and approval of the Engineer and the Municipality.

Notification: Contact the Material Evaluation and Specification Unit (MESU) at DOT.Steel@ct.gov a minimum of two (2) weeks prior to the start of work.

Surface Preparation:

A. Weld Spatter, Sharp Edges, and Holes: All slag, flux deposits, and weld spatter and steel irregularities such as fins, tears and slivers shall be removed from the surfaces to be metallized. Any resulting burrs from such removal shall be ground smooth, including burrs around holes. All corners and edges shall be rounded to a 0.0625 inch radius or chamfered to a 0.0625 inch chamfer.
B. Cleaning of Steel: All visible contaminants shall be removed from surfaces in accordance with SSPC-SP 1 using only solvents or detergents.
C. Compressed Air Cleanliness: The cleanliness of the compressed air shall be confirmed in accordance with ASTM D4285 at least once per shift for each compressor system.
D. Surface Requirements: The required surface preparation shall meet SSPC SP 5. Surface preparation shall not be performed under damp environmental conditions or when the surface temperature of the steel is less than 5°F above the dewpoint temperature as determined by a surface thermometer and an electric or sling psychrometer.
E. Abrasives/Profile:

1. The Contractor shall use abrasives that are free of oil, soluble salts and other similar substances that could contaminate the surface.
2. A uniform sharp angular profile with a profile of 3.0 to 6.0 mils shall be provided in accordance with ASTM D4417, Method B or C.

F. Acceptance Prior to Metallizing: The cleaned surface shall be accepted by the Engineer before application of metallizing. Failure of the Contractor to prepare and clean the surfaces to be metallized in accordance with these specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be re-cleaned to the satisfaction of the Engineer at no additional cost to the Municipality.

G. Pre-Production Test Section and Bend Tests:

1. The Contractor shall blast clean and metallize at least 9 square feet of steel surface prior to initiating the full-scale metallizing operation using the same metallizing equipment, set up, materials, and calibration and operating procedures in the test section(s) that shall be used for the production operations.
2. Spray parameters shall be validated by passing a bend test as follows:

    a. Five (5) steel coupons 2 × 8 × 0.05 inches shall be fabricated of the same steel grade proposed as the member being coated.
    b. The coupons shall receive the same surface preparation, and metallizing as the actual member.
    c. The coupons may be fastened to larger pieces of stock during the blast cleaning and metallizing operations.
    d. Bend coupons 180 degrees around a 0.5 inch diameter mandrel.
    e. The bend test passes if there is no cracking or only minor cracking visually observed on the bend radius.
    f. The bend test fails if the coating cracks and lifts from the substrate.

3. Additional coupons and testing may be required by the Engineer to establish the suitability of the surface preparation and the thermal spray coating. Full-scale metallizing shall not commence until the Engineer has inspected and approved the Test Section and coupons.

Metallizing Application:

A. Quality of Surface Preparation: The Contractor shall verify that the surface meets the specified SSPC-SP 5 surface requirements immediately prior to application of the metallized coating.
B. Surface Cleanliness: Subsequent coats shall not be applied until overspray, spent abrasive, dirt, dust, and other contaminants have been removed in accordance with SSPC-SP 1.
C. Ambient Conditions: Metallizing shall be applied when the relative humidity is less than 80%. Metallizing shall not be applied under damp environmental conditions or when the surface temperature of the steel is less than 5°F above the dewpoint temperature as determined by a surface thermometer and an electric or sling psychrometer.

D. Metallizing: The coating shall be applied by thermal spray employing multiple passes to achieve a uniform thickness of 0.008 to 0.012 inches (8-12 mils) unless otherwise specified. No single pass shall deposit more than 0.004 inches.

E. Metallizing Adhesion: Adhesion strength of the metallizing shall be 700 psi minimum as measured with approved equipment per ASTM D4541, Annex A4. Measurements shall be taken on companion coupons 4 × 6 × 0.25 inches of the same steel grade as the member being coated and processed concurrently. If adhesion is less than 700 psi but greater than 560 psi, four (4) additional adhesion tests shall be made. If any of the additional adhesion tests are less than 700 psi, the coating shall be removed and re-applied. Any single adhesion test result less than 560 psi, will be justification for the Engineer to have the Contractor remove the entire coating. All corrective action will be at the Contractor's expense.

F. Quality Control of Metallizing Operation:

1. The Metallizing Contractor shall verify proper spray equipment set up, calibration, and operating procedures by performing a bend test at the beginning of each work shift that metallizing is to be applied in accordance with requirements described in the Pre-Production Test Section.
2. In addition to the bend test, a cut test shall be performed on the companion coupons, one during the production day and one at the end of each shift, to confirm that metallizing is being properly applied. The cut test consists of a single cut 1.5 inches long through the thermal spray coating to the substrate without severely cutting the substrate. A cut shall be made with a hammer and sharp chisel. The chisel cut shall be made at a shallow angle. The bond of the metallizing is considered unsatisfactory if any part of the metallizing lifts from the substrate along the cut.
3. The Engineer shall be notified immediately of any unsatisfactory tests.

G. Bolted Connections and Other Areas:

1. The Contractor shall state in writing to the Engineer a list of areas they believe are inaccessible prior to the start of work. The Engineer will have the final determination as to the accessibility of those areas.
2. All connection points shall be appropriately masked off either before or after metalizing and prior to the application of seal coat.
3. After members have been erected in the field, all previously masked areas that remain exposed shall be thoroughly cleaned and lightly sanded by hand to receive a brush-applied coat of the same sealer and topcoat used in the shop.
4. Areas such as bolt holes, backs of snipes and other similar areas where the standard application of a metallized coating cannot be performed shall be cleaned and free of dirt and any loose overspray, and shall receive a brush applied coating of the approved coating system.
5. Metallized coating applied to surfaces not required to be coated may remain if found to be tightly adhered, as determined by the Engineer.

Sealer and Topcoat Application:

A. The sealer shall be applied in a single mist coat followed by a full topcoat.

1. The Metallizing Contractor shall apply the sealer in accordance with the manufacturer's recommendations, unless otherwise specified.
2. The sealer shall be applied no more than 8 hours after application of the metallizing, and in no case shall the sealer be applied over dust, rust that may have bled through (if there was not enough thickness), loose oxides or other visible contaminants that would interfere with the sealer.
3. When conventional spray equipment is used, the Contractor shall verify that the compressed air supply is clean and dry as determined by the blotter test (ASTM D4285).
4. The topcoat shall be applied to achieve a 4 to 6 mils dry film thickness and shall be applied after the seal coat has been allowed to dry as required by the recoat time in the manufacturer's written instructions, but in no case shall a coat remain exposed for longer than ten (10) calendar days prior to overcoating.

B. Coverage and Continuity: All surfaces shall be completely coated and free of voids, runs, sags or other defects. Special attention shall be given to hard-to-reach or inaccessible areas and irregular surfaces. Some configurations may require spraying from multiple directions to assure complete coverage.

C. Sealer and Topcoat Adhesion to Metallized Surfaces:

1. The Metallizing Contractor shall apply the sealer and topcoat in such a manner to assure adherence to the underlying surface. Any lifting of an underlying coat, or poor adhesion between coats or to the substrate, will require removal of the coating in the affected area to adjacent intact, adherent, coating, and reapplication of the material.
2. Topcoat adhesion shall be verified using adhesion tests in accordance with ASTM D4541 as directed by the Engineer.

D. Coating Thickness

1. Wet Film Thickness: The Contractor shall verify and document the thickness of each liquid coat at the time of application using wet film thickness gages in accordance with ASTM D4414.
2. Dry Film Thickness: The dry film thicknesses of the completed coating shall be:

Metallizing	8 to 12 mils
Topcoat	4 to 6 mils
TOTAL SYSTEM	12 to 18 mils

The Contractor shall measure the thickness of each coat using nondestructive magnetic dry film thickness gages. The procedure shall comply with SSPC-PA2 for the calibration and use of the gages, and the frequency of thickness measurements. Spot readings both 20% above and 20% below the thicknesses shown above are permitted, provided the average thicknesses are within the specified tolerances.

Field Required Coating Operations: Any areas requiring sealer or topcoat after erection shall be done in accordance with the previously submitted and approved field coating procedures and shall be in accordance with the manufacturer's recommendations.

Repair of Film Discontinuities and Damage to Coating System after Erection: A repair procedure shall be submitted for concurrence by the Engineer prior to the start of repair work.

Shipping and Storage: All materials shall be shipped and stored in a manner to prevent damage from all physical and environmental factors.

Method of Measurement:

The work under this item, being paid on a lump sum basis, will not be measured for payment.

Basis of Payment:

The coating of structural steel, incorporated in the completed and accepted metal bridge rail, along with the field coating of the exposed galvanized bolts, nuts and washers will be paid for at the Contract lump sum price for "Metallizing Structural Steel (Site No. 1)." The lump sum price shall include all materials, equipment, tools, transportation, repairs, corrective actions, inspection access, and labor incidental thereto.

A schedule of values shall be submitted to the Engineer for review and comment prior to application of the metallizing coating.

Pay Item	Pay Unit
Metallizing Structural Steel (Site No. 1)	Lump Sum

ITEM #0707009A - MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)

Description:

Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, and as directed by the Engineer. Work shall also include conditioning of the surface to be coated, and all submittals and quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat, reinforcing material as specified or directed, membrane coating (minimum total thickness of 80 mil and maximum total thickness not to exceed 120 mil), an additional 40 mil membrane layer with aggregate broadcast into the material while still wet, and an application of tack coat.

Materials:

The Contractor shall select a waterproofing membrane system from the Department's Qualified Products List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the work shall meet the Manufacturer's specification for the chosen system. A Manufacturer is the original source of supply as defined in Article 1.06.01 of CTDOT's Standard Specifications. The Engineer will reject any system that is not on the QPL.

Reinforcing material (to bridge gaps, joints and cracks) shall be as recommended by the manufacturer.

Aggregate: The aggregate shall be a nonfriable, durable #8 aggregate stone with no more than one-half percent (0.5%) passing the #200 sieve by weight.

Concrete Deck Repair Material: Depressions greater than ½ inch that are required to be filled before application of the membrane shall be repaired with a neat repair mortar as approved by the Engineer. If the repair includes engagement of reinforcing steel, the repair shall be performed under separate, appropriate Contract items.

Construction Methods:

1. Submittals:

   At least 30 days prior to installation of the membrane system, the Contractor shall submit to the Engineer the following:

   a) A Site-specific Installation Plan that includes, but is not limited to, the manufacturer's recommended equipment, materials and procedure for:
      1) Authorization by Manufacturer of applicator
      2) Safety precautions, SDS documents
      3) On site storage of material
      4) preparation of the deck surface and recommended surface moisture content at

time of priming

5) Pre-treatment or preparation procedure at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities
6) Overspray protections (masking and shielding)
7) Method and equipment for taking/calculating onsite temperatures and dewpoint temperatures as well as listing of acceptable temperature and dewpoint ranges for application of primer and/or membrane
8) Method and equipment for application of the primer and membrane
9) Treatment of already primed areas when delays occur; include allowable time frame for covering already placed primer or treatment if the primed surface is compromised
10) Treatment at overlap areas
11) Method for placement of the aggregated coat
12) All Quality Control (QC Plan) tests and procedures to be performed prior to and during the membrane system's installation
13) Recommended repair methods for system non-compliant issues identified during application

b) Materials Certificate for the primer, membrane and aggregate in accordance with the requirements of Article 1.06.07.

c) Concrete Mix Design: At least two weeks before installation, the Contractor shall submit the concrete mix design to the Engineer for acceptance. For RSCP material, NTPEP lab test data shall be submitted that demonstrates that the concrete mix matches the mix that was tested by NTPEP and meets the pre-qualification criteria in the QPL. This test data shall be submitted with a Materials Certificate and a Certified Test Report in accordance with Article 1.06.07.

Automated mechanical applicators will be considered for approval for use, provided there is a trial installation area to demonstrate that the required thickness can be consistently achieved. The Installation Plan shall identify and differentiate between areas using automated applicators and areas where hand application will be used, such as on vertical surfaces and at areas prior to installation of reinforcing material.

2. A technical representative, in the employ of the manufacturer, shall be present on-Site immediately prior to and during application of the membrane. The technical representative shall not be an employee of the installation contractor but is on Site solely to perform QC. The technical representative shall review environmental conditions for proper application, inspect and approve the surface prior to priming, provide guidance on the handling, mixing and addition of components, observe application of the primer and membrane. The technical representative is required to notify the Engineer immediately when conditions are not within acceptable parameters and any further installation will be analyzed by the Engineer under Article 1.06.04. The technical representative shall be qualified and shall perform all required QC testing and remain on the Project site until the membrane has fully cured.

All QC testing, including verbal direction or observations at the time of installation, shall be recorded and submitted to the Engineer for inclusion in the Project records. The QC testing data shall be received by the Department's Project personnel prior to any paving over the finished membrane, or within 24 hours following completion of any staged portion of the work.

3. Applicator Approval: The Contractor's membrane Applicator shall be fully trained and authorized by the membrane manufacturer and shall have successfully completed at least six spray membrane projects in the past two years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the submittal of the Installation Plan. The Engineer shall have sole authority to determine the adequacy and compliance of the submitted information. Inadequate proof of ability to perform the work will be grounds to reject proposed applicators.

4. Job Conditions:
   a) Environmental Requirements: Air and substrate temperatures shall be between 40°F and 104°F and the substrate shall be above the dew point. Outside of this range, the Manufacturer shall be consulted.

      The Applicator shall be provided with adequate disposal facilities for nonhazardous waste generated during installation of the membrane system. The applicator shall follow safety instructions regarding respirators and safety equipment.

      Extra care shall be taken to prevent the introduction of moisture onto the area to be membraned including, but not limited to, locating water rest break areas/devices away from the works, prevent vehicles from accessing the prepared areas that may have AC units that drip water. If there is any potential for moisture to impact application, operations shall cease until conditions warrant proper adherence to specification requirements.

   b) Safety Requirements: All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

      Personnel not involved in membrane application or inspection duties shall be kept out of the work area.

5. Delivery, Storage and Handling:
   a) Packaging and Shipping: All components of the membrane system shall be delivered to the Site in the Manufacturer's packaging, clearly identified with the product type, lot and batch number, manufactured date and expiry or “Best-used-by Date.”

   b) Storage and Protection: The Applicator shall be provided with a storage area for all

components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

Copies of Safety Data Sheets (SDS) for all components shall be kept on Site for review by the Engineer or other personnel.

c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf-life date sealed by the Manufacturer. No membrane components whose original shelf life has expired shall be used.

6. Pre-application Meeting: A minimum one week prior to beginning any membrane waterproofing work, an on-site Pre-application meeting shall be scheduled to review all requirements of the approved Installation Plan. This meeting shall include representatives from the membrane system's Manufacturer and from the Installer as well as the Prime Contractor.

7. Surface Preparation:
   a) Protection: The Contractor shall be responsible for the protection of equipment, adjacent areas, and affected pedestrians/traffic from over spray or other contamination. Permanent highway features adjacent to the work such as, but not limited to, curbs, parapets, sidewalks and bridge joints shall be masked prior to application of the materials.

   b) Surface Preparation: Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, previous waterproofing materials or any material that will affect the proper bonding/adhesion of the membrane to the surface receiving the membrane application. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

   Sharp peaks and discontinuities within the areas to be coated shall be ground smooth. Any peak greater than ¼ inch above the surface profile of the prepared substrate shall be ground to the surrounding elevation and voids and holes greater than ½" in the surface patched with appropriate material. The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance and shall achieve a Concrete Surface Profile (CSP) as defined by the International Concrete Repair Institute (ICRI) of between 4 and 6. The QC representative shall have on their person and available for use by Department Engineers, a full CSP Chip Set to confirm concrete surface meets above profile requirement. Areas not falling within the noted range shall be re-addressed as needed.

   Steel components to receive membrane waterproofing shall be blast cleaned in accordance with the Society of Steel Protective Coatings' SSPC-SP6, Commercial Blast Cleaning, and shall be coated with the membrane waterproofing system within the same

work shift.

8. Inspection and Testing: Prior to priming of the surface, the Engineer, the Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

   a) Random tests for deck moisture content shall be conducted on the substrate by the Contractor at the Site using a “Sovereign Portable Electronic Moisture Master Meter,”

   “Tramex CMEXpertII Concrete Moisture Meter” or approved equal. The minimum frequency shall be one test per 1000 s.f. but not less than three tests per shift for each contiguous section worked on during that shift. Additional tests may be required if atmospheric conditions change and retesting of the substrate moisture content is warranted.

   The membrane system shall not be installed on substrate with a moisture content greater than 6%, or at a moisture content above the amount recommended by the written submittal installation documentation from the system's Manufacturer.

   b) The ambient air temperature and dew point temperature readings shall be taken immediately prior to starting any primer or membrane application and continuously throughout the installation process. No primer or membrane application shall be allowed if the difference between the two is 5° deg or less, or is not within the recommended air and dew point temperature ranges noted in the submitted Installation Plan from the system's Manufacturer.

   c) Random tests for adequate tensile bond strength shall be conducted by the Contractor on the substrate using an adhesion tester in accordance with the requirements of ASTM D7234 for concrete substrate or ASTM D4541 for steel substrate. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically based procedure of stratified random sampling approved by the Engineer.

   Adequate surface preparation will be indicated by tensile bond strengths of the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

   If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation.

   d) Grouted joints, materials that the membrane cannot bond to, and cracks or discontinuities that cannot be bridged over by the membrane material shall be covered by a reinforcing material recommended by the membrane system's Manufacturer prior to application of membrane layers as approved or directed by the Engineer.

9. Application:
   a) The System shall be applied in the following distinct steps as follows:
      1) Substrate preparation,
      2) Priming,
      3) Reinforcing material application over grouted joints, cracks, etc., embedded in wet membrane bonding layer,
      4) Membrane application,
      5) Membrane with aggregate.

   b) Immediately prior to the application of any components of the System, the surface shall be adequately dry (see Section 8(a) of this specification) and any remaining dust or loose particles shall be removed using clean, dry, oil-free compressed air or industrial vacuum.

   c) Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the membrane system shall be continued up the vertical, if shown on the plans or directed by the Engineer.

   d) The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results, in accordance with the Manufacturer's recommendations or as approved or directed by the Engineer. All components shall be used from its original packaging (barrels) or be discarded – no mixing of like materials from different batches shall be allowed.

   e) A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.

   f) Primer: The primer shall consist of one coat with an overall coverage rate of 125 to 175 s.f./gal unless otherwise recommended in the Manufacturer's written instructions.

      All components shall be measured and mixed in accordance with the Manufacturer's recommendations.

      The primer shall be spray applied using a single component spray system approved for use by the Manufacturer. If required by Site conditions and allowed by the manufacturer brush, squeegee or roller application will be allowed.

      The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

      Porous concrete (brick) may require a second coat of primer should the first coat be absorbed.

      Bond Strength: Random tests for adequate adhesion capacity shall be conducted on

the primed substrate in accordance with the requirements of ASTM D7234 for concrete or ASTM D4541 for steel substrate. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically based procedure of stratified random sampling approved by the Engineer.

Adequate adhesion will be indicated by tensile bond strengths of primer to the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

Any primer not adequately applied shall be removed and new primer applied at the Contractor's expense, as directed by Engineer.

Delays to the membrane installation following installation of the primer may necessitate remedial measures. Re-application of the primer or any work required due to, but not limited to, precipitation, ambient or dew point temperatures falling out of allowable zone, materials dropped on the surface, shall be accomplished as outlined in the Installation Plan.

g) Membrane and Reinforcing Material: Application of the membrane on the primed surface shall not commence until the primer is cured and adequate adhesion capacity achieved as described in Section 9(f) of this specification.

The waterproofing membrane shall consist of two equal 40 mil coats for a total dry film thickness of a minimum 80 mils but not to exceed 120 mils. successive coats shall be of a contrasting color to aid in Quality Assurance and inspection.

Hand sprayer application of a single layer at 80 mils may be allowed after demonstration on a test section of not less than 100 sq. feet, of the applicator's ability to meet specified tolerances has been reviewed and found acceptable to the Engineer.

Use of an automated mechanical applicator to achieve the required thicknesses in either one or two equal layers, may be allowed after demonstration on a test section of not less than 100 sq. feet, of the applicator's ability to meet specified tolerances has been reviewed and found acceptable to the Engineer.

Reinforcing material, if required, shall be applied as described in the Installation Plan.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out once every 100 s.f. Where

rapid set time of the membrane does not allow for wet film thickness checks, ultrasonic testing (steel surfaces only), calibrated point-penetrating (destructive) testing, in-situ sampling (cutout of small sections for measuring thicknesses), or other methods approved by the Engineer shall be employed for determination of dry film thickness.

The measured thickness of each and every individual test of the membrane shall be greater than or equal to the required thickness.

Bond Strength: Random tests for adequate adhesion shall be conducted on the membrane in accordance with the requirements of ASTM D7234 for concrete substrate or ASTM D4541 for steel substrate. The minimum test frequency shall be one test per 5,000 s.f. but no less than three adhesion tests per bridge. Adequate adhesion will be indicated by tensile bond strengths of the membrane to the substrate of greater than or equal to 150 psi or failure in a concrete surface, and greater than or equal to 300 psi for steel surfaces.

Repair the membrane system following destructive testing and correct any deficiencies in the membrane system or substrate noted during QC testing in accordance with the Manufacturer's recommendations to the satisfaction of the Engineer at no additional cost to the State.

h) Repairs: For areas left untreated or where the membrane hasn't bonded or becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials, abraded and wiped with solvent (e.g. acetone or other manufacturer-recommended material) up to a width of at least six inches on the periphery, removing any contaminants unless otherwise recommended by the Manufacturer. The substrate shall be primed as necessary and tested for adhesion before the membrane layer(s) are applied. A continuous layer shall be obtained over the substrate with a six-inch overlap onto any adjacent existing membrane. The repaired area shall be tested for adhesion, with a minimum of one test per repair area.

i) Overlapped areas: Where the membrane is to be joined to existing cured material, the overlapped area shall be cut back to sound material if necessary, abraded and wiped with solvent (e.g. acetone or other manufacturer-recommended material) or cleaned in accordance with the Installation Plan, up to a width of at least six inches prior to application of the overlapping membrane material. A continuous layer shall be obtained over the substrate with a six-inch overlap onto existing membrane. The overlapped section shall be tested for adhesion, with a minimum of one test per 200 lineal feet.

j) Aggregated Finish:
   1) Apply an additional 40 mil thick layer of the membrane material immediately followed by an aggregate coating, before the membrane cures, at a rate to fully cover the coated area to a point where no membrane material is visible. The

membrane and aggregate shall be fully integrated after the aggregate has been applied and the membrane cured.

2) Using motorized mechanical sweepers followed by a vacuum or motorized blower apparatus, remove all loose and excess aggregate and fines from the surface, to the satisfaction of the Engineer, and dispose of properly prior to application of tack coat and overlay.
3) Traffic shall not be allowed to travel on the completed membrane system without prior approval of Engineer upon consultation with Manufacturers technical representative.
4) Localized areas not fully coated following removal of loose aggregate, defined as being at least 90% covered with well-adhered aggregate within any one square foot area, shall be touched-up with additional membrane and aggregate as needed. These areas shall then be swept and/or vacuumed or blown again prior to application of tack coat and overlay.
5) Tack coat: a Tack Coat Emulsion shall be applied to the aggregated finish prior to covering with a bituminous concrete mat. Material shall be applied in two coats of 0.06 - 0.08 gal/s.y. allowing it to break in between coats. This work shall be done as part of the paving operation and paid under separate, applicable Contract items.

10. Final Review: The Engineer and the Applicator shall jointly review the area(s) over which the completed system has been installed. Any irregularities or other criteria that do not meet the requirements of the Engineer shall be addressed at this time.

Method of Measurement: This item will be measured by the number of square yards of waterproofed surface completed and accepted.

Basis of Payment: This item will be paid for at the Contract unit price per square yard of "Membrane Waterproofing (Cold Liquid Elastomeric)," complete and accepted in place, which price shall include submittals, Pre-Work Meeting, all surface preparation, furnishing, storing and applying the system, technical representative and Quality Control testing, and any necessary repairs and remediation work as well as all materials, equipment, tools, labor incidental to this work.

The asphalt emulsion (tack coat) will be paid separately.

Pay Item	Pay Unit
Membrane Waterproofing (Cold Liquid Elastomeric)	s.y.

ITEM #0707200A - GEOGRID

Description:

This work shall consist of furnishing and placing geogrids, in conformity to the lines, grades, and dimensions shown on the plans or as directed by the Engineer.

Materials:

Materials shall conform to the following requirements:

The geogrid shall be a regular network of integrally connected polymer tensile elements with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil. The polymer shall be either a polypropylene (PP), a polyethylene (HDPE), or a polyester (PET). The geogrid structure shall be dimensionally stable and able to retain its geometry under manufacture, transport, and installation.

The geogrid shall have certified properties as shown on Table 1. The Contractor shall submit a manufacturer's certification that the geogrid supplied meets the requirements as shown on Table 1, measured in full accordance with all test methods and standards specified, as set forth in these specifications, and in conformance with Article 1.06.07.

Table 1

Geogrid Type	Property	Test Method	Criteria
All Polymers	Long Term Allowable Tensile Strength (T_{all})	$T_{all} = T_{ult} / (RF_{CR} * RF_{ID} * RF_{D})$	Min. 84 lbs./ft. (Biaxial)
Polyester	Geogrid Rib Tensile Strength (T_{ult})	ASTM D6637	Min. 203 lbs./ft. (Biaxial)
Polypropylene	Geogrid Rib Tensile Strength (T_{ult})	ASTM D6637	Min. 410 lbs./ft. (Biaxial)
Polyethylene	Geogrid Rib Tensile Strength (T_{ult})	ASTM D6637	Min. 254 lbs./ft. (Biaxial)
Polyester	Creep Reduction Factor (RF_{CR})	ASTM D 5262	Min. 2.0
Polypropylene	Creep Reduction Factor (RF_{CR})	ASTM D 5262	Min. 4.0
Polyethylene	Creep Reduction Factor (RF_{CR})	ASTM D 5262	Min. 2.5

Table 1 (cont.)

Geogrid Type	Property	Test Method	Criteria
All Polymers	Installation Damage Reduction Factor (RF_{ID})	ASTM D 5818	Min. 1.1
Polyester	Durability Reduction Factor (RF_D)	Hydrolysis Degradation Testing (extrapolated to 100yrs)	Min. 1.1
Polypropylene and Polyethylene	Durability Reduction Factor (RF_D)	Oxidation Degradation Testing (extrapolated to 100yrs)	Min. 1.1

The geogrid reinforcement shall be manufactured with a high degree of quality control. The Manufacturer is responsible for establishing and maintaining a quality control (QC) program to ensure compliance with the requirements of the specification. The purpose of the QC testing program is to verify that the reinforcement geogrids being supplied to the project is representative of the material used for performance testing and approval by the department.

Conformance testing shall be performed as part of the manufacturing process and may vary for each type of product. As a minimum the following index test shall be considered as applicable for an acceptable QA/QC program: Specific Gravity (HDPE only, ASTM D-1505); Wide Width Tensile (GRI:GG1); Melt Flow (HDPE and PP only, ASTM D-1238); Intrinsic Viscosity (PET only, ASTM D-4603); Carboxyl End Group (PET only, ASTM D-2455).

Sampling and conformance testing shall be in accordance with ASTM D-4354. Conformance testing procedures shall be established as noted in the specification. Geogrids product acceptance shall be based on ASTM D-4759.

The certified test report shall include roll number and identification, sampling procedures, and results of control test (including a description of test methods used).

Construction Methods:

The Contractor shall ensure that during all periods of shipment and storage, the geogrid material is protected from mud, dirt, all deleterious materials that might become affixed to the geogrids or geocomposite, and temperatures greater than 140˚ F. Follow manufacturer's recommendations with regards to protection from direct sunlight. At the time of installation, the geogrid shall be free of any defects, including, but not limited to tears, punctures, flaws, deterioration, or any damage due to manufacture, transportation, and storage.

All areas beneath the installation area for the geogrid reinforcement shall be properly prepared as detailed on the plans, or as directed by the Engineer. All excavation required for construction shall conform to Article 2.02.03. The subgrade surface shall be free from frozen soil.

The geogrid shall be installed in accordance with the plans, specifications, and manufacturer's recommendation, or as directed by the Engineer.

The geogrid reinforcement shall be placed in continuous strips. If the Contractor is unable to complete a required length with a single continuous length of geogrid, a joint may be made with the Engineer's approval. Only one joint per length of geogrid shall be allowed. This joint shall be made for the full width of the strip by using a similar material with similar strength. Joints in geogrid reinforcement shall be pulled and held taut during placement of fill. The minimum length of geogrid placed shall be 8 feet. Adjacent, overlying, and underlying rolls of geogrid shall not have a joint within 6 feet of each other.

Place only that amount of geogrid reinforcement required for immediately pending work to prevent undue damage.

Geogrid reinforcement shall be placed to lay flat and pulled tight prior to backfilling. After a layer of geogrid reinforcement has been placed, suitable means, such as pins or small piles of soil, shall be used to hold the geogrid reinforcement in position until the subsequent soil layer can be placed.

Geogrid reinforcements are to be placed within 3 inches of the design elevation view unless otherwise directed by the Engineer. The Contractor shall verify the correct orientation of the geogrid reinforcement.

Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid reinforcement. Turning of tracked vehicles shall be kept to a minimum to prevent tracks from displacing the fill and the geogrid reinforcement.

The Engineer may allow rubber tired equipment to pass over the geogrid reinforcement at speeds less than 10mph. Sudden braking and sharp turning shall be avoided.

Method of Measurement:

This work will be measured for payment by the actual number of square yards of geogrid indicated on the plans or authorized by the Engineer. Geogrid specifically included in the payment of another item will not be measured for payment under this item. No additional measurement will be made for necessary lap material.

Basis of Payment:

This work will be paid for at the contract unit price per square yard of "Geogrid", complete in place, which price shall include all materials, labor, tools and equipment incidental and necessary for installation.

Pay Item	Pay Unit
Geogrid	S.Y.

ITEM #0819002A - PENETRATING SEALER PROTECTIVE COMPOUND

Description:

Work under this item shall consist of cleaning concrete surfaces of dirt, dust, and debris, and furnishing and applying a clear, penetrating sealer to concrete surfaces where shown on the plans, to provide a barrier against the intrusion of moisture and chlorides. This work also includes furnishing, installing, and removing platforms, scaffolding, ladders, and other means of access as well as shields, as required, to protect adjacent areas and traffic from overspray.

Materials:

The penetrating sealer shall conform to Article M.03.09. A Materials Certificate shall be submitted for the penetrating sealer in accordance with Article 1.06.07. A product not listed on the Qualified Products List (QPL) may be considered for approval. A Certified Test Report shall be submitted in accordance with Article 1.06.07 indicating that the product being considered conforms to the Test Requirements listed on the QPL.

Construction Methods:

Submittals: The Contractor shall submit to the Engineer Safety Data Sheets (SDS), Technical Data Sheets and product literature for the approved sealer. The literature shall include written instructions how to apply the sealer to vertical and horizontal surfaces, and where required, overhead surfaces. Application rate and number of applications of sealer shall be addressed.

The Contractor shall submit to the Engineer, in accordance with Article 1.05.02, written procedures for cleaning the concrete surfaces prior to sealer application The submittal shall include proposed equipment and materials and shall address how adjacent traffic and other areas shall be protected from dust, debris and overspray during the cleaning and application processes. Where the sealer is to be applied to parapets before pavement is placed, the submittal shall address protection of the deck and curb to which membrane waterproofing will be applied. Should the membrane already be present, the submittal shall address shielding of the membrane. It shall also indicate how vegetation and regulated areas shall be protected from overspray. The submittal shall address the conditions under which work may proceed, including wind speed, temperature and precipitation. It shall also include procedures to be followed to protect the work should unfavorable weather conditions occur before the product has been absorbed.

The Contractor shall inspect the surfaces to be sealed to identify surface cleaning needs before submitting the procedures. The Contractor shall identify concrete surfaces that:

- Need repair
- Require special attention or cleaning procedures
- Have been previously treated with coatings or curing compounds that would hinder penetration of the sealer into the concrete
- Will be new or newly repaired

Written procedures shall include observations listed above. Application of penetrating sealer to new concrete shall be addressed in the application procedures. Forms for surfaces of new concrete to receive penetrating sealer shall not be treated using form release oil, which can inhibit or prevent penetration of the sealer into the concrete.

Surface Preparation: Concrete surfaces to which penetrating sealer will be applied shall be clean and free of grease, oil, and other surface contaminants, including biological growth. Dry surfaces may be cleaned by sweeping with brushes or brooms, and blowing clean with oil-free, compressed air. The Contractor shall take care not to damage the concrete surface finish during cleaning operations. Care shall be taken so that cleaning methods do not damage joint sealant or other components of the structure that are to remain.

Application: Application of the sealer may begin only after the Engineer evaluates the concrete surfaces and determines that conditions for installation comply with the accepted written application procedures.

The sealer shall be applied in accordance with the accepted application procedures at the rate specified by the manufacturer. The Contractor shall monitor and record the number of square feet of concrete surface sealed and the number of gallons of sealer applied over that surface area to verify that the required application rate is being met. A minimum of three applications of sealer shall be assumed to be needed. After the first application of the sealer, curing time shall be recorded and submitted to the Engineer. Additional applications of sealer shall be applied as specified in the application instructions, provided adequate time between applications and appropriate curing of the sealer have occurred. For each application, the Contractor shall record the area and number of gallons of sealer applied as well as the curing time for that application. The Contractor may be directed to apply sealer in up to three separate applications if concrete surfaces readily absorb the previous application.

If the Contractor is directed to apply more than three applications of sealer, the additional applications will be compensated as extra work. Should salts, oil or other visually undesirable materials be evacuated from the concrete by the penetrating sealer and remain on the surface after sufficient rain events have occurred, the Engineer may order surface cleaning of the concrete as extra work.

The Engineer shall be provided access to inspect the concrete surface during application and after the sealer has had adequate time to cure.

Method of Measurement:

This work will be measured for payment by the actual number of square yards of concrete, sealed and accepted, within the designated limits. The area will be measured once, regardless of the number of applications required.

Basis of Payment:

This work will be paid for at the Contract unit price per square yard for "Penetrating Sealer Protective Compound," complete, which price shall include all equipment tools, labor and materials, incidental thereto, including the preparation of the concrete surfaces and proper disposal of debris.

The following are not included in the cost of this item and will be considered Extra Work:

- Special cleaning procedures ordered by the Engineer to properly prepare the concrete surface for application of the penetrating sealer (such as removal of tightly adherent biological growth, graffiti, or other difficult-to-remove surface contaminants)
- Additional applications of sealer as noted in the Construction Methods
- Cleaning of evacuated material from sealed surfaces as ordered by the Engineer.

Pay Item	Pay Unit
Penetrating Sealer Protective Compound	S.Y.

ITEM #0904051A – 3-TUBE CURB MOUNTED BRIDGE RAIL

Description:

Work under this item shall consist of fabricating, galvanizing (components), transporting and erecting a curb mounted bridge rail comprised of concrete inserts, plates, posts, rails, fasteners and epoxy grout in accordance with the plans.

Materials:

Structural steel shapes and plates shall meet the requirements of ASTM A572, Grade 50. Hollow structural sections shall meet the requirements ASTM A500, Grade C or ASTM A501, Grade B. Certified Test Reports and Materials Certificates shall be submitted in accordance with Article 1.06.07. The Certified Test Reports shall address that the steel meets the requirements of Article 1.06.01, Buy America.

All exposed steel shapes, plates and hollow structural sections shall have a controlled content of silicon within the range 0.0% to 0.4% or 0.15% to 0.25%. Before metallizing, mill test certificates verifying silicon content shall be submitted to the Engineer and the metallizer.

All steel shapes, plates and hollow structural sections, including exposed hardware shall be metallized in accordance with item #0603474A – Metallizing Structural Steel (Site No. 1). A sample of the color shall be provided to the Engineer and Town for approval prior to fabrication.

All high strength bolts shall meet the requirements of ASTM F3125, Grade A325, Type 1. Nuts shall conform to ASTM A563, Grade DH. Circular, flat, hardened steel washers shall meet the requirements of ASTM F436. The bolts, nuts and washers shall be galvanized in accordance with ASTM F2329 or ASTM B695, Class 55.

Dome head bolts with wrench slots shall meet the requirements of ASTM F3125, Grade A325, Type 1 or ASTM A449, Grade 1. The nuts shall meet the requirements of ASTM A563, Grade DH. The washers shall meet the requirements of ASTM F436. The bolts, nuts and washers shall be galvanized in accordance with ASTM F2329 or ASTM B695, Class 55.

Concrete inserts shall meet the requirements shown on the plans. The concrete inserts shall be hot dip galvanized in accordance with ASTM A153. The bolts shall meet the requirements of ASTM A307 and the washers shall meet the requirements of ASTM F436. The bolts and washers shall be galvanized in accordance with ASTM F2329.

All hardware shall be topcoated after installation in accordance with Item #0603474A – Metallizing Structural Steel (Site No. 1).

Epoxy grout shall capable of being installed in the void below the baseplate and meet the following requirements:

Compressive strength, ASTM C579, @ 73 degrees F, 10,000 psi
Tensile strength, ASTM C307 @ 7 days or ASTM D638 @ 7 days, 2,000 psi
Bond strength to concrete, ASTM C882, concrete failure
Bond strength to steel, ASTM C882, 2,500 psi
Volatile organic compounds (VOC), 0.0
Color, gray or concrete gray

Damaged areas of the hot-dip galvanized or metallizing coatings shall be repaired in accordance with ASTM A780 amended as follows:

Paints containing zinc dust used for repairs shall contain either between 65% to 69% metallic zinc by weight or greater than 92% metallic zinc by weight in dry film.

Construction Methods:

A. Submittals: Prior to fabrication, the Contractor shall submit shop drawings for the bridge rail at each location in accordance with Article 1.05.02 and welding procedures in accordance with Article 1.05.17.

Prior to placing the epoxy grout, the Contractor shall submit the following to the Engineer for review in accordance with Article 1.05.02 Product Data requirements:

1. A copy of the epoxy grout manufacture's data sheet documenting the grout meets the specification requirements.
2. A copy of the epoxy grout manufacturer's printed installation instructions (MPII)
3. A copy of the epoxy grout manufacturer's printed safety instructions

B. Fabrication Requirements: The steel fabricator shall meet the requirements of the AISC Certification Program for Manufacturers of Bridge and Highway Components (CPT).

Shop fabrication of the bridge rail shall meet the requirements of Article 6.03.03-3.

C. Installation Requirements: The concrete inserts shall be accurately positioned and restrained against movement during the placement of concrete.

Field installation of the rail components shall be as shown on the plans.

The connection of the post baseplate to the anchor rods shall be a double nut connection. The post baseplate shall be installed on washers supported by leveling nuts. The baseplate shall be secured in place with a washer topped with a nuts at each anchor rod.

High-strength bolts, including nuts and washers, shall be installed and tensioned in accordance with Subarticle 6.03.03-5(f).

Dome headed bolts shall be installed with a washer, a lock washer and nut.

Epoxy grout shall be placed between the concrete curb and the baseplate at all post locations. The concrete and steel surfaces that will be in contact with the grout shall be dry, clean and free of all loose concrete and contaminants. The metallized surface of the baseplate shall not be abrasively cleaned. Solvent cleaning is acceptable if allowed by the epoxy grout manufacturer. The grout shall be placed within an area formed around each baseplate. The forms shall be liquid tight and treated with a form release agent. The forms shall have chamfer strips placed along all vertical and horizontal finished grout edges. The vertical faces of the grout shall extend beyond the vertical edges of the baseplate.

Prior to placing the epoxy grout, the curb concrete shall have obtained the compressive strength shown on the plans.

The grout shall be mixed and placed in accordance with the manufacturer's printed installation and safety instructions. Conditions, including the temperature of the mixed grout, air and substrate, at the time of the installation shall meet the manufacturer's recommendations. The grout shall be placed from one side allowing it to flow beneath the baseplate to the formed surfaces and avoid air entrapment. After removal of the forms, rough surfaces and edges shall be trimmed or ground down to provide smooth surfaces and defined edges.

All steel shall be painted Federal Standard Color 595 No. 17038 Black. Paint shall meet the requirements of Article M.07.

Damage that occurs to the hot-dip galvanized or metallized surfaces during transport or during installation shall be repaired in accordance with the requirements of ASTM A780. If paint containing zinc dust is used for repairs, the dry coating thickness shall be at least 50% greater than the thickness of the adjacent hot-dip galvanized or metallized coating, but no greater than 4.0 mils. The paint shall be brush applied. The use of aerosol spray cans or galvanizing repair stick is not permitted. The color of the finished repair area shall match the color of the adjacent hot-dip galvanized or metallized surface at the time of the repair to the satisfaction of the Engineer.

During installation of the rail and any component parts, the Contractor shall take necessary precautions to prevent any injury or property damage from any falling materials.

After installation, all rails and posts shall be free of burrs, sharp edges, and irregularities.

All work shall proceed in accordance with the special provisions "Maintenance and Protection of Traffic" and "Prosecution and Progress."

Method of Measurement:

This work will be measured for payment by the number of linear feet of bridge rail installed, complete and accepted, measured within the pay limits shown on the plans.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "3-Tube Curb Mounted Bridge Rail," complete and accepted in place, which price shall include all materials, equipment, tools, and labor incidental thereto.

Metallizing, sealing, and topcoating of 3 Tube Bridge Rail and topcoating of the hardware shall be paid for under Item #0603474A – Metallizing Structural Steel (Site No. 1).

Anchorage plates, anchor bolts, nuts, washers and optional inserts shall be paid for under Item #0514232A – Prestressed Deck Units (4’-0” X 1’-6”).

Pay Item	Pay Unit
3-Tube Curb Mounted Bridge Rail	L.F.

ITEM #0905019A – REMOVE AND REBUILD EXISTING STONE WALL

Description:

Work under this item shall consist of removing, as necessary, storing, and reconstructing existing fieldstone walls in as close to the same plan location and to the approximate original lines, dimensions, and appearance, constructed to the limits shown on the plans or as directed by the Engineer.

This work shall be performed by experienced stone masons. The stone mason required for this project shall have demonstrated skills in this type of work and at least five (5) years' experience working on similar stone masonry projects. The Contractor shall demonstrate, by submittal with the bid, the documented skills of the mason by describing at least three projects completed, which describes their responsibility on similar projects, to document this experience.

Materials:

The materials for this work shall consist of the salvaged stones from the original walls. However, if additional stones are required, stones shall come from a stone quarries company specializing in manufacturing stones for field stone walls with a minimum of five years documented experience. Alternative suppliers shall be acceptable upon approval of the Engineer. The supplemental stone shall match the existing and shall be subject to the approval of the Engineer prior to use on the project.

Method of Construction:

The existing fieldstone walls shall be documented with photographs and sketches such that they may be reconstructed to the approximate size and in as close to their existing location as possible. The walls shall be carefully dismantled in such a manner as to avoid damaging the existing stones. If necessary, the stones shall be stored securely until the walls are to be reconstructed. The walls shall be reconstructed in the style and appearance of the existing walls, or of that of similar walls in the vicinity if in a poor state of repair. Approved undisturbed portions of the existing or neighboring walls shall be used as a point of reference for the acceptable standard for reconstruction.

Walls shall be reconstructed in accordance with Article 6.07.03.

Method of Measurement:

This work shall be measured as the actual number of linear feet, completed and accepted, of stone wall removed and rebuilt as shown on the plans or as ordered by the Engineer. Any supplemental stones for replacement of existing stones that cannot be used as a result of previous damage or condition, and not the result of any action or disregard by the contractor while removing or rebuilding, shall be replaced as an extra work item. Additional stone required due to damage by the Contractor will not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for "Remove and Rebuild Existing Stone Wall", which price shall include equipment, materials, storing, tools, labor, temporary support of earth, shoring, and labor incidental thereto.

Any supplemental stones for replacement of existing stones that cannot be used will be paid as extra work in accordance with Article 1.04.05.

Pay Item	Pay Unit
Remove and Rebuild Existing Stone Wall	L.F.

ITEM #0906003A – REMOVE AND RESET WIRE FENCE WITH WOOD POSTS

Description:

Work under this item shall consist of removing existing wire fencing with wood posts and resetting of the same fencing and wood posts in accordance with plans, specifications and as specified by the Engineer. The existing fencing may have been partially or completely removed by the property owner. Any existing or subsequently installed fence within the construction limits shall be removed and reset.

Construction Methods:

In the event of damage, the Contractor shall supply additional fence hardware, materials, etc., necessary to supplement the existing materials so that the reset fence will match existing, at no additional cost. This may require custom made fence elements in order to match the look of the original fencing. The Contractor shall provide preliminary photos, video, or any other means of documentation of the existing fencing pre-construction, during construction, and post construction to the Engineer. This documentation will convey the conditions of the fencing throughout the construction process.

Any rails or posts and their attachments that are damaged prior to construction activity, and not the result of any action by the contractor while removing and resetting, shall be replaced as an extra work item in accordance with Article 1.04.05.

Method of Measurement:

The quantity to be paid for will be the number of linear feet of completed wire fencing measured along the top of fencing center to center of end posts, reset in place as shown on the Plans and directions of the Engineer.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "Remove and Reset Wire Fence with Wood Posts," complete in place, which price shall the complete removal, storage and resetting of existing fence, including excavation, backfilling and disposal of surplus or unsuitable material, documentation of the conditions of the fencing, and all equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Remove and Reset Wire Fence with Wood Posts	L.F.

ITEM #0950019A – TURF ESTABLISHMENT - LAWN

Description:
The work included in this item shall consist of providing an accepted stand of grass by furnishing and placing seed as shown on the plans or as directed by the Engineer.

Materials:

The materials for this work shall conform to the requirements of Section 9.50 of Standard Specification Form 819. The following mix shall be used for this item:

Turf Seed Mix:
In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed below. Other proposed mixtures must be approved by the Town.

Proportion (Percent)	Species Common Name	Scientific name
20	Kentucky Bluegrass Improved varieties	Poa pratensis
45	Red Fescue Improved varieties	Festuca rubra
35	Perennial Ryegrass Improved varieties	Lolium perenne

Construction Methods:

Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 250 lbs. per acre. The seed shall be mulched in accordance with Article 9.50.03.

Method of Measurement:

This work will be measured for payment by the number of square yards of surface area of accepted established grasses as specified or by the number of square yards of surface area of seeding actually covered and as specified.

Basis of Payment:

This work will be paid for at the contract unit price per square yard for "Turf Establishment - Lawn" which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

Pay Item	Pay Unit
Turf Establishment - Lawn	S.Y.

ITEM #0950040A - CONSERVATION SEEDING FOR SLOPES

Description:

The work included in this item shall consist of providing an accepted uniform stand of established conservation seed mixture by furnishing and placing seed and cover crop as shown on the plans, permits, or as directed by the Engineer within the wetland mitigation Sites(s) or other areas when required.

Materials:

All conservation seed mixture sources shall be obtained within the New England States, New York, Pennsylvania, New Jersey, Delaware, Virginia or Maryland to preserve and enhance the diversity of native conservation grass and plant species.

Four qualified conservation seed mixtures are detailed below:

1. **New England Conservation/Wildlife Mix**, New England Wetland Plants, Inc. 820 West Street Amherst, MA 01002, or equal. Rate shall be 25 lbs. PLS per acre (1 lb. PLS per 1,750 sq. ft.)

2. **Mesic to Dry Native Pollinator Mix,** Ernst Conservation Seeds, Inc. 8884 Mercer Pike, Meadville, PA 16335, or equal. Rate shall be 20 lbs. PLS per acre (1 lb. PLS per 2,178 sq. ft.)

3. **Vermont Conservation and Wildlife**, Vermont Wetland Plant Supply, LLC, P.O. Box 153, Orwell, VT 05760, or equal. Rate shall be 20 lbs. PLS per acre (1 lb. PLS per 2,178 sq. ft.)

4. **Upland Partial Shade to Full Sun Mixture**, Chesapeake Valley Seed, 8869 Greenwood Place, Suite C, Savage, MD 20763, or equal. Rate shall be 25 lbs. PLS per acre (1 lb. PLS per 1,750 sq. ft.)

The Contractor must apply 30 lbs. of cover crop per acre in conjunction with the qualified conservation seed mixture selected. The 30 lbs. of cover crop shall consist of grain oats when seeding between March 15 to June 30 or grain rye when seeding between August 15 to October 31.

Fertilizer, if required, shall meet the requirements of Article M.13.03.

Mulch shall meet the requirements of Article M.13.05.

Erosion control matting shall be bio-degradable and meet the requirements of Article M.13.09.

The Contractor shall submit the selected qualified conservation seed mixture or equal including cover crop seed mixture information to the Engineer for review and acceptance in advance of purchase and prior to application.

The Materials Certificate for all seed mixtures shall have a statement that certifies that the seed mixture does not include any invasive species pursuant to Connecticut General Statutes Sec. 22a-381d or any State Threatened or State Endangered species pursuant to Connecticut General Statutes Sec. 26-303. The seed tags from the bags are to be removed by the Engineer upon delivery and attached to the Materials Certificate. Seeding shall not occur if these requirements are not met.

All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture.

Construction Methods:

Construction methods shall be those established as agronomically acceptable and feasible and shall be accepted by the Engineer. The methods described in Article 9.50.03 shall be amended as follows:

Preparation of Seedbed Areas:

a. Level Areas, Median Areas, Interchanges and Lawns: These areas shall be made friable and receptive for seeding by discing or by other accepted methods to the satisfaction of the Engineer. The final prepared surface which has been seeded shall meet the lines and grades for such surface areas as shown on the plans, permits or as directed by the Engineer. In no event, will seeding be permitted on hard or crusted soil surface.

b. Slope and Embankment Areas: These areas shall be made friable and receptive to seeding by accepted methods which will not disrupt the line and grade of the slope surface. In no event, will seeding be permitted on hard or crusted soil surface.

All areas to be seeded shall be reasonably free from weeds taller than 3 inches. Level Areas, Median Areas, Interchanges and Lawns: Seeding shall not be permitted until substantial weed growth is removed and accepted by the Engineer. Slope and Embankment Areas: Removal of weed growth shall be those methods which do not rut or scar the slope surface or cause excessive damage of the slope line or grade as accepted by the Engineer.

Conservation seeding for slopes for wetland mitigation Site(s): Seeding shall occur during the fall season immediately following construction of the wetland mitigation Site(s). Seeding for wetland mitigation Site(s) must occur from August 15 to October 31.

For non-wetland mitigation Site(s), seeding shall occur during the dates specified in Article 9.50.03-2.

If seed is purchased in bulk rather than by PLS, the rate of application must be adjusted to meet the required PLS seeding rate. This seeding rate shall be increased by the appropriate percentage as determined by the following formula based off the information provided on the seed tags at delivery.

(Germination Percentage X Purity Percentage)/ 100 = Percentage PLS

The Engineer will verify that the seed is applied at a rate that will allow for 100 percent PLS.

Mowing will not be allowed within areas that are seeded with conservation seed mix, unless authorized by the Engineer.

Method of Measurement:

This work will be measured for payment by the number of square yards of surface area of accepted established conservation grasses as specified.

Basis of Payment:

This work will be paid for at the Contract unit price per square yard for "Conservation Seeding for Slopes," which price shall include all materials, maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 50% may be made for work completed, but not accepted. Full payment shall not be made until the area has been accepted by the Engineer.

Pay Item	Pay Unit
Conservation Seeding for Slopes	s.y.

ITEM #0950043A - WETLAND GRASS ESTABLISHMENT

Description:

The work included in this item shall consist of providing an accepted stand of established wetland grasses by furnishing and placing seed as shown on the plans, permits, or as directed by the Engineer within the Wetland Mitigation Area(s) or other areas when required.

Materials:

All wetland grass mixture sources shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland in order to preserve and enhance the diversity of native wetland grass species.

The placement of fertilizer, mulch or bio-degradable erosion control matting will not be allowed within any wetland area.

All wetland seed mixture sources shall be approved by the Engineer prior to purchase.

Three (3) qualified wetland seed mixtures are as follows:

1. **New England Wet Mix (Wetland Seed Mix)**, New England Wetland Plants, Inc. 820 West Street Amherst, MA 01002, or equal. Rate shall be 1 pound PLS per 2,500 sq. ft.

2. **OBL Wetland Mix,** Ernst Conservation Seeds, Inc. 8884 Mercer Pike, Meadville, PA 16335, or equal. Rate shall be 1 pound PLS per 2,000 sq. ft.

3. **Vermont Wetland Shrub**, Vermont Wetland Plant Supply, LLC, P.O. Box 153, Orwell, VT 05760, or equal. Rate shall be 1 pound PLS per 2,420 sq. ft.

All seed mixtures must be reviewed and approved by the Engineer prior to application. All seed Materials Certificates must have seed mixtures that shall not include any invasive species pursuant to Connecticut General Statute Sec. 22a-381d, or any State Threatened or State Endangered species known pursuant to Connecticut General Statute Sec. 26-303 which would be a violation of the Connecticut Endangered Species Act. The seed tags from the bags are to be removed by the Engineer upon delivery and attached to the Materials Certificate. No seeding shall occur if the requirements are not met.

All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture.

Construction Methods:

Construction methods shall be those established as agronomically acceptable and feasible and approved by the Engineer.

Wetland grass establishment seeding for Wetland Mitigation Site(s): Seeding shall occur during the fall season immediately following construction of the wetland site(s). Fall seeding must occur from August 15th to October 31st.

Wetland grass establishment seeding for areas other than the Wetland Mitigation Site(s), when required: Seeding dates shall adhere to Section 9.50 – Turf Establishment.

Seeding shall be applied to wetland areas that will not be routinely inundated. If seed is purchased in bulk rather than by PLS, the rate of application must be adjusted to meet the required PLS seeding rate. This seeding rate shall be increased by the appropriate percentage based on the information provided on the seed tags at delivery, as determined by the following formula:

(Germination Percentage X Purity Percentage)/100 = Percentage PLS

The Engineer shall verify that the seed is applied at a rate that will allow for 100% PLS.

Method of Measurement:

This work will be measured for payment by the number of square feet of surface area of established wetland seed mixture, planted, and accepted as specified or by the number of square feet of surface area of seeding actually covered as specified.

Basis of Payment:

This work shall be paid at the Contract unit price per square foot for "Wetland Grass Establishment," which price shall include all materials maintenance, equipment, tools, labor, transportation, operations and all work incidental thereto. Partial payment of up to 50% may be made for work completed but not accepted. Full payment shall not be made until the area has been accepted by the Engineer.

Pay Item	Pay Unit
Wetland Grass Establishment	S.F.

ITEM #0952051A - CONTROL AND REMOVAL OF INVASIVE VEGETATION

Description:

This work shall include the development and implementation of an Invasive Vegetation Removal Plan (IVRP) to outline the identification and treatment methods for the control of invasive vegetation, including trees if present, as directed by the Engineer or their authorized delegate. This work will also include the removal and off-Site disposal of invasive vegetation from within the Project limits in accordance with the accepted IVRP.

The list of invasive vegetation to be controlled, removed, and disposed off-Site under this item can be found on the following websites:

- Connecticut Invasive Plant Working Group (CIPWG) Invasive Plants Council (http://cipwg.uconn.edu/invasive_plant_list/)
- US Army Corps of Engineers (ACOE) New England District Compensatory Mitigation Guidance Appendix K (http://www.nae.usace.army.mil/portals/74/docs/regulatory/Mitigation/2016_New_England_Compensatory_Mitigation_Guidance.pdf)

Materials:

The herbicide shall be formulated as applicable for target-species foliar treatment or a flush cut/stump treatment. All herbicide applications shall be in accordance with Product label rates and in conjunction with Sections 22a-46 to 22a-66z of the Connecticut General Statutes (CGS).

Flagging tape, if used, shall be fluorescent, 'All-Weather' type, resistant to UV and water damage.

Stakes shall be survey-grade, as specified under Article 9.80.02.

Construction Methods:

The Contractor shall be responsible to identify invasive vegetation at all times of the year and to prepare a plan for its control, removal, and off-Site disposal without assistance.

1. **IVRP:** Prior to any ground disturbance within the Project limits, the Contractor shall submit a proposed IVRP to the Engineer or their authorized delegate for review and comment. The Contractor shall address any comments to the satisfaction of the Engineer and resubmit their revised IVRP for review and acceptance.

   The IVRP shall include the following information:
   1) Proposed dates for the initial walk through of the invasive vegetated areas to be controlled and removed for off-Site disposal.

2) Schedule identifying specific dates when herbicide treatment or mechanical excavation or removal of invasive species is to occur for the life of the Contract, including the 1-year warranty period that begins at Substantial Completion. The treatment schedule shall coincide with the Contractor's schedule.
3) Plan sheets identifying the species of invasive vegetation and trees within the Project limits showing the total square yards proposed to be controlled and removed for off-Site disposal. For each species of invasive vegetation present on-Site, the following shall be described:
   a. Types and concentrations of any herbicides to be used to control the identified species for the life of the Contract, including any adjuvants, SDS sheets, types of tools, equipment, or machinery to be used.
   b. Mechanical excavation and removal methods including the type of machinery to be used.
4) Provide proof of DEEP Pesticide Application Business registration pursuant to CGS Section 22a-66b, and certifications for each supervisor and operational commercial applicator on-Site or as required under CGS Sections 22a-54 to 22a-58. All Contractors physically applying pesticides on Department construction Projects to treat invasive vegetation in the State highway right-of-way must ensure that the "6 Rights-of-Way Pest Control" certification is held by at least one Commercial Supervisory Pesticide Applicator employed at the Pesticide Application Business. If the applicator does not have a commercial supervisory certificate, then the applicator must have a junior operator certificate in "6 Rights-of-Way Pest Control" and operate under the written or in-person directions of the supervisor who is certified in "6 Rights-of-Way Pest Control." More information on DEEP certifications and permits for applying pesticides is available at the Pesticide Management Program page website. The Department reserves the right to require additional DEEP certifications based on Project Site specific requirements.
5) A description of safety equipment required.
6) Procedures for handling chemical spills.
7) Proposed disposal methods:
   a. Procedures for off-Site removal of invasive vegetation including trees.
   b. Provide address of disposal location, current permits / letters from the town authorizing such activity and a Site map (showing regulated areas).
   c. Invasive vegetation shall not be buried on-Site.

If changes are required to the accepted IVRP during the life of the Contract (including registration/certification changes for the personnel applying pesticides or new invasive species not previously identified in the original IVRP submission) or additional invasive vegetation control and/or removal are ordered by the Engineer, these changes shall be documented by the Contractor and resubmitted to the Engineer or their authorized delegate for review and acceptance. Only those changes recommended by the appropriately licensed supervisor/ applicator will be considered. At no time shall the Contractor direct or advise workforces on the pesticide treatment. All direction must be generated from the licensed Pesticide Application Business and approved by the Engineer.

The IVRP or any amended version must be accepted by the Engineer or their authorized delegate prior to beginning of any mechanical excavation or herbicide treatment in the areas which require invasive species control, removal and off-Site disposal as identified Contractor's marked up plan

sheets. The accepted methods must be capable of total control and removal of all identified invasive species in the identified areas throughout the life of the Contract and the 1-year warranty period.

2. **Special Handling of Invasive Species Vegetation:** The Contractor will be allowed to mechanically excavate invasive vegetation and underlying soils using the accepted methods in the IVRP. The accepted methods must be capable of the removal of all soil to a depth where invasive plant material and root system is no longer evident, to the satisfaction of the Engineer or their authorized delegate. Suitable material shall be provided and placed to final grade as shown on the plans or as directed by the Engineer.

   All excavated invasive vegetation and underlying soils shall be considered an unsuitable material and must be removed separately from clearing and grubbing operations and disposed of off-Site at an approved location as described in the Contractor's IVRP.

   Whether the Contractor's method of removal is by flush cutting/stump treatment or spraying of herbicides, invasive species, including trees identified as invasive in the above websites or IVRP, must be removed separately from clearing and grubbing operations and disposed of at an approved location as described in the Contractor's IVRP.

   The Contractor will not be allowed to strip/cut topsoil from any location and reuse this material within the Project limits identified within the IVRP as an area requiring treatment. The stripped/cut material is considered unsuitable material and is to be taken off-Site to an approved disposal facility as described in the Contractor's IVRP.

   Wood chips from invasive species are not allowed to be stockpiled or reused on-Site. Wood chipping on-Site may be allowed to remain on-Site if temporarily stored in a properly contained enclosure and removed off-Site at the end of the treatment cycle, to the satisfaction of the Engineer or their authorized delegate.

   No equipment or vehicles other than those required to complete the work as described in the Contractor's IVRP will be permitted in the areas designated for invasive vegetation removal. Any equipment used to process invasive vegetation, such as chippers and transport vehicles, must be cleaned prior to further use.

3. **Site Maintenance:** Broadcast or uncontrolled spray application will not be permitted, and care must be taken to avoid contacting non-target native species. If any non-target native species to remain within the Project limits are inadvertently treated with herbicide and perish, they shall be replaced with in-kind species at the Contractor's expense.

   Vines shall be cut from the ground to the tree canopy. Twining vines within a tree canopy shall be removed to the greatest extent possible without damaging the existing tree to remain. Should branches be damaged, the Contractor shall prune damaged limbs at their expense. All corrective pruning shall meet the requirements of the National Arborists Association Pruning

Standards. Note: Use of aerial equipment is encouraged; use of a pole saw to cut vines leaving unsightly debris hanging from the trees will not be allowed.

Flush cutting/stump treatment of brush and trees shall not be more than 2 inches above the ground line.

Any invasive species control and removal work performed throughout the duration of the Contract that causes damage or soil disturbance shall be repaired at the Contractor's expense within 7 days. Disturbed areas shall be vegetatively stabilized with the appropriate seed mix and protected with hay mulch, cellulous fiber mulch, or erosion control matting.

Limits for control and removal of invasive vegetation shall be maintained for the life of the Contract. Should stakes or flagging be damaged during the course of construction, the Contractor shall re-establish limits. Use of reference staking is permissible.

4. **Field Meetings:** The Contractor's IVRP must receive acceptance from the Engineer, or their authorized delegate and have the Site surveyed, staked, and flagged prior to any field meeting.

   The Contractor shall provide at least 10 working days' notice to the Engineer for any scheduled field meeting(s) as described in the IVRP. During the meeting, the Contractor's IVRP shall be reviewed to verify the identified invasive species and to review the square yardage on the marked-up plan sheet(s). At this time, the Engineer or their authorized delegate may identify additional invasive species or designate additional areas for removal that are not included within the Contractor's submitted IVRP.

   Additional field meetings may be warranted at any time, as directed by the Engineer or their authorized delegate, to ensure the Contractor is compliant with the IVRP or amended versions.

5. **Treatment**: The treatment schedule as identified in the IVRP may be modified based on changes to the Contractor's construction schedule or based on existing field conditions. The Contractor shall provide at least 10 working days' notice to the Engineer or their authorized delegate prior to proceeding with each treatment.

   Treatment of invasive species will not be permitted without notifying the Engineer or their authorized delegate prior to activity and such personnel shall be on-Site to observe the work, unless specifically authorized otherwise. Treatment shall not be permitted outside of normal working hours, unless specifically authorized.

   Prior to any herbicide treatment on-Site, the Contractor shall provide proof of DEEP Pesticide registration/certification, as specified above in **1. IVRP**. The Contractor shall not perform, nor allow subcontractors to perform, any treatment work at any time unless proof of current registration/certification for the actual supervisor and operator conducting or overseeing the herbicide application is available to the Engineer, upon request.

   At a minimum, the Contractor shall treat all areas within the optimal growing season between

April 15 and October 15. Additional spot treatment measures may be warranted within the same optimal growing season in any year throughout the life of the Contract if full control and removal of the invasive species is not achieved within the Project limits as outlined in the IVRP or as identified by the Engineer or their authorized delegate. When herbicide is used, a minimum of 10 working days is required prior to clearing and grubbing, planting, and seeding operations, so the herbicide application can take effect.

Mechanical excavation and disposal may occur at any time of the year as specified above in **2. Special Handling of Invasive Species Vegetation**.

If rain or windy conditions are anticipated on the day of the scheduled treatment, the Contractor will not be allowed to proceed, unless authorized by the Engineer or their authorized delegate.

Method of Measurement:

The work to remove invasive vegetation, as defined above, will be measured for payment by the number of square yards of invasive vegetation surveyed, treated, and removed as required, including any required re-treatment of any regrowth or new growth. This work shall also include the removal of invasive trees, if present. No additional payment will be made for subsequent treatments.

All areas for removal shall be surveyed, flagged, and measured prior to treatment. After a review of the surveyed limits during the field meeting(s), the Engineer may designate additional areas for removal not indicated on the plans which will be measured for payment by the number of square yards treated.

Basis of Payment:

The work for the removal of invasive vegetation and trees will be paid for at the Contract unit price per square yard for "Control and Removal of Invasive Vegetation." Payment shall include all labor, surveys, materials, tools, and equipment necessary for limits of the invasive area(s); development and required revisions of the IVRP; maintenance of the limits throughout the Project; species identification; proof of DEEP pesticide registration/certification; and cutting, excavation and replacement of in-kind material, treating, re-treating, removal, and off-Site disposal of designated invasive plant and tree material. Off-Site disposal of residue shall include the loading, transport, dumping, and fees associated with legal off-Site disposal.

- Upon Engineer's acceptance of the required IVRP, the Contractor will receive payment equal to 10% of the estimated Contract Item value.
- Upon completed initial herbicide or mechanical removal treatment methods as described in the IVRP, the Contractor will receive payment equal to 20% of all areas receiving treatment.
- The Contractor will receive incremental payments for each additional treatment throughout the duration of the Project of all areas receiving treatment. The total of incremental payments will not exceed 40% of the Contract item value.
- Upon successful completion of the 1-year warranty period covering all treated areas on the Project, the Contractor will receive final payment.

- Any fines levied against the Department due to the Contractor's or Subcontractor's failure to comply with the specifications or applicable regulations will be deducted from the monies due the Contractor.

All other vegetation to be removed which is not designated as invasive vegetation or invasive tree shall be removed in accordance with the Item "Clearing and Grubbing" or other Contract items. Vegetative stabilization of disturbed areas will be paid for under the respective Contract items.

Pay Item	Pay Unit
Control and Removal of Invasive Vegetation	S.Y.

ITEM #0969060A - CONSTRUCTION FIELD OFFICE, SMALL

Description:

Under the item included in the bid documents, adequate weatherproof office quarters with related furnishings, materials, equipment, and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of CTDOT forces and others who may be engaged to augment CTDOT forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Furnishings/Materials/Supplies/Equipment: All furnishings, materials, equipment, and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below:

Description \ Office Size	Small	Med.	Large	Extra Large
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	400	720	1400	2800
Minimum number of exterior entrances.	2	2	2	2
Minimum number of parking spaces.	7	7	10	15

Office Layout: The office shall have a minimum square footage as indicated in the table above and shall be partitioned as shown on the building floor plan as provided by the Engineer.

Unless otherwise approved by the Engineer, office space shall be partitioned into segregated work areas for each user as follows:

A. Each work area (or cubicle) shall be a minimum of 8 feet × 8 feet, with full height walls or tall cubicle partitions (minimum 6 feet high), placed to provide a minimum of 6 feet walking space around and between each user work area (for social distancing).
B. Only one user (workstation/desk) per work area.
C. Desks, tables, and other work surfaces shall be arranged so that adjacent users do not face each other.

Tie-downs and Skirting: Modular offices shall be tied-down and fully skirted to ground level.

Lavatory Facilities: For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by CTDOT personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and cold running

water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds, and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the CTDOT and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred, or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel, wiring, outlets, etc., to serve the electrical requirements of the field office, including lighting, general outlets, computer outlets, electronics, etc., and meet the following minimum specifications:

A. 120/240 volt, 1 phase, 3 wire
B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
D. Additional 120-volt, single phase, 20-amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
E. Additional 120-volt, single phase, 20-amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.

G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120-volt, straight blade.
H. After work is complete and prior to energizing, the State's CTDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
I. Prior to field office removal, the CTDOT Office of Information Systems (CTDOT OIS) must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient and properly operating, heating, air conditioning, and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office. The Contractor shall increase ventilation rates and increase the percentage of outdoor air that circulates into the system where possible.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium, and Large field office this shall consist of the installation of one (1) telephone line for phone/voice service. For an Extra-Large field office this shall consist of three (3) telephone lines for phone/voice service. The Contractor shall pay all charges.

The Contractor shall provide the field office telephone number(s) to the CTDOT Project Engineer within 10 calendar days after the signing of the Contract as required by Article 1.08.02.

Data Communications Facility Wiring: As soon as the field office is in place, the Contractor shall propose a central wiring location, to designated CTDOT District personnel for the review and approval of CTDOT OIS. The central wiring location shall be large enough to house the Contractor supplied modem, Contractor supplied patch panel (if applicable), and CTDOT OIS supplied LAN switch and router. The Contractor shall supply the number of Category 6A 568B patch panels necessary to support the anticipated number of networked devices. The central wiring location shall also house the data circuit with appropriate power requirements and Category 6A cable run to the location of the installed data circuit. Power shall be provided at the central wiring location to power the hardware installed.

The Contractor shall install CAT 6A cables from the central wiring location to each workstation, Smart Board/TV location, Multifunction Laser Printer/Copier/Scanner and any other networked devices. The CAT 6A cables shall terminate in a (Category 6A 568B) wall or surface mount data jack at each networked device. Each run / jack shall be clearly labeled with an identifying Jack Number. The CAT 6A cables shall be terminated at the central wiring location with a service loop and RJ45 connectors. The Contractor shall also supply CAT6A cables of adequate length to reach from the wall or surface mount jack to the device being networked.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner, Contractor supplied devices, and smartboards listed below.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.	1	3	5	8
Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.	-	-	-	1
Personal computer tables (4 ft. x 2.5 ft.).	2	3	5	8
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafter's stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1	1	1	2
Conference table, 3 ft. x 12 ft.	-	-	-	1
Table – 3 ft. x 6 ft.	-	-	-	1
Office Chairs.	2	4	8	20
Mail slot bin – legal size.	-	-	1	1
Non-fire-resistant cabinet.	-	-	2	4
Fire resistant cabinet (legal size/4 drawer), locking.	1	1	2	3
Storage racks to hold 3 ft. x 5 ft. display charts.	-	-	1	2
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1	1	2	2
Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.	-	-	1	2
Case of cardboard banker boxes (Min 10 boxes/case)	1	1	2	3
Open bookcase – 3 shelves – 3 ft. long.	-	-	2	2
White Dry-Erase Board, 36" x 48" min. with markers and eraser.	1	1	1	1
Interior partitions – 6 ft. x 6 ft., soundproof type, portable and freestanding.	-	-	6	6
Coat rack with 20 coat capacity.	-	-	-	1
Wastebaskets - 30 gal., including plastic waste bags.	1	1	1	2
Wastebaskets - 5 gal., including plastic waste bags.	1	3	6	10
Electric wall clock.	-	-	-	2
Electronic Level	1	1	1	2

Furnishing Description (continued)	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Telephone.	1	2	3	-
Full size stapler 20 (sheet capacity, with staples)	1	2	5	8
Desktop tape dispensers (with Tape)	1	2	5	8
8 Outlet Power Strip with Surge Protection	3	4	6	9
Rain Gauge	1	1	1	1
Business telephone system for three lines with ten handsets, intercom capability, and one speaker phone for conference table.	-	-	-	1
Mini refrigerator - 3.2 c.f. min.	1	1	1	1
Hot and cold-water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1	1	1	1
Microwave, 1.2 c.f., 1000W min.	1	1	1	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*	*	*	*
Electric pencil sharpeners.	1	2	2	2
Multi-Function Laser Printer/Copier/Scanner combination unit, network capable, as specified below under Field Office Technology	1	1	1	1
Field Office Internet Service and Hardware as specified below under Field Office Technology	1	1	1	1
Digital Camera as specified below under Field Office Technology	1	1	3	3
Teleconferencing Equipment as specified below under Field Office Technology	-	-	-	-
Infrared Thermometer, including annual third-party certified calibration, case, and cleaning wipes.	1	1	1	2
Concrete Curing Box as specified below under Concrete Testing Equipment.	1	1	1	1
Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1	1	1	1
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1	1	1	1
First Aid Kit	1	1	1	1
T-handle concrete cylinder mold splitter as specified below under Concrete Testing Equipment	1	1	1	1
Smart Phones as specified under Computer Related Hardware and Software.	-	-	-	-

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Field Office Technology:
The Contractor shall supply the internet service connection, Contractor supplied modem, associated hardware, Digital Camera(s), Smart Phones, Multifunction Laser Printer/Copier/Scanner, Conference Room Teleconferencing Equipment, associated hardware and software meeting the requirements of this specification, as well as the latest minimum specifications posted, as of the Project advertising date, at CTDOTs Construction Field Office Technology web site.

Within 10 calendar days after the signing of the Contract, but before ordering/purchasing the required Digital Camera(s), Smart Phones, Multifunction Laser Printer/Copier/Scanner, Teleconferencing Equipment, as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Administering CTDOT District for review and approval. The modem, digital cameras, smart phones, and Teleconferencing Equipment will be reviewed by CTDOT District personnel for approval. The Multifunction Laser Printer/Copier/Scanner will be reviewed by the CTDOT OIS. The Contractor shall not purchase the hardware, software, or services until the Administering CTDOT District informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation, setup of the internet service connection and the configuration of the modem with a static IP address. Installation shall be coordinated with CTDOT District and Project personnel. Specifically, the Contractor shall supply the District with a Static IP Address, Subnet Mask Address and Gateway Address immediately upon establishment of internet service connection to assist with OIS equipment installation.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the CTDOT administering District, a minimum of 2 working days in advance of the proposed delivery or installation of the modem / Internet Service Connection, Digital Camera(s), Smart Phones, Multifunction Laser Printer/Copier/Scanner, Teleconferencing Equipment, as well as associated hardware, software, supplies, and support documentation. The hardware and cabling shall be installed in the field office to and at locations acceptable to the Engineer. Adequate electric service shall be supplied at all hardware and workstation locations to support the Department staff and hardware specified.

The Contractor shall provide all supplies, paper, maintenance, service, and repairs (including labor and parts) for the printer(s), copiers, field office Wi-Fi / internet service, and other equipment and facilities required by this specification for the duration of the Contract. All repairs of contractor supplied equipment and internet service must be performed with-in 48 hours. If the repairs require more than 48 hours, then an equal or better replacement must be provided.

Once the Contract has been completed, the Contractor supplied hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply, install and maintain a rain gauge for the duration of the Project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rainwater from the top of the post into the rain gauge. The location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Electronic Level: The Contractor shall supply and maintain in working order, for the duration of the Contract, the number of electronic levels, identified in the Additional Equipment, Facilities and Services table of this specification. The electronic level(s) shall meet the following requirements:

A. 48-inch length, box beam type
B. IP65 water and dust proof
C. 0.1-degree accuracy
D. Backlit display
E. Carrying case included
F. New or like new condition

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

A. Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
B. Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.
C. Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T 119, Standard Test Method for Slump of Hydraulic-Cement Concrete.
D. T-handle concrete cylinder mold splitter.

All testing equipment will remain the property of the Contractor at the completion of the Project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars ($5,000) to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the CTDOT shall be an additional named insured on the policy. Insured losses shall include, but

not be limited to, theft, fire, and physical damage. The CTDOT will be responsible for all maintenance costs of CTDOT owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, CTDOT may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the Contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, CTDOT will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During field office occupancy by CTDOT, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of professional cleaning including vacuuming carpet, washing and waxing floors, cleaning restrooms, removal of trash, general cleaning, etc.

Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance way areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement:

The furnishing and maintenance of the Construction Field Office will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

Basis of Payment:

The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for “Construction Field Office, Small” which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements specified herein.

Pay Item	Pay Unit
Construction Field Office, Small	Month

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress:

Forge Hill Road, North Shore Road, and Wylie School Road
The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, until the temporary bridge is constructed and the one-way alternating traffic pattern is set up and the temporary signal is operational.

1. During the one-way traffic operation the contractor will maintain a paved travel path of not less than 11' for each roadway.
2. There will be a truck-only 7.4-mile detour of Forge Hill Road located entirely within the town of Voluntown utilizing state and local roads which will be implemented throughout the duration of construction.
3. The Contractor shall notify the Town of Voluntown, at least 14 days in advance of the implementation of one-way alternating traffic at the work zone and the implementation of the Truck Detour in order to provide enough time for the Municipality to notify the Emergency Services and all other Municipal Departments and Services that will be affected by the new traffic patterns.

All Other Roadways
The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer.

Commercial and Residential Driveways
The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the Project limits. The Contractor will be permitted to temporarily close affected driveways while actively working with coordination and permission from the owner or proprietor.

Article 9.71.03 - Construction Methods *is supplemented as follows:*

General
Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction. The unpaved section shall be the full width of the road and shall be perpendicular to the travel lanes. The Contractor will be allowed to maintain traffic on processed aggregate for a

duration not to exceed 10 calendar days and opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific Contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway or bridge section by the end of a work shift, or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall then install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3 foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the work shift if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary bituminous concrete traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of any active overhead construction work, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken.

When an existing sign is to be relocated or replaced, the work shall be completed during the same work shift.

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

Existing Signing
The Contractor shall maintain all existing overhead and side-mounted signs within the Project limits throughout the duration of the Project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and shall install temporary sign supports if necessary and as directed by the Engineer.

Signing Patterns
The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

Pavement Markings - Non-Limited Access Roadways
Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

Final Pavement Markings
Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

Traffic Control During Construction Operations
The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for a safer and more efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

Traffic Control Patterns
Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder or is within the clear zone. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic.
- Duration of operation.
- Exposure to hazards.

Traffic control patterns shall be uniform, neat, and orderly in order to command respect from the motorist.

Lane reduction tapers should be placed so that the entire length of the taper is installed on a tangent section of roadway and the entire taper area can be seen by the motorist.

All existing conflicting signs shall be removed, covered with an opaque material, or turned so that they are not legible to oncoming traffic prior to implementing a traffic control pattern. The existing signs shall be uncovered or reinstalled once the pattern is removed.

A buffer area should be provided during installation of a traffic control pattern and maintained for the duration of the work. The buffer area shall be free of any equipment, workers, materials, and parked vehicles.

Traffic control patterns are not required for vehicles on an emergency patrol type activity or for a short duration stop of up to one hour, as long as the equipment is contained within the shoulder. Flashing lights, arrow boards, truck-mounted or trailer-mounted impact attenuators, and appropriate Trafficperson(s) shall be used when required.

In a situation not adequately covered by the Construction Traffic Control Plans, the Contractor shall contact the Engineer for assistance prior to setting up a traffic control pattern.

Placement of Signs
Signs shall be placed in a position that allows motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads) where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

Allowable Adjustment of Signs and Devices Shown on the Construction Traffic Control Plans
The Construction Traffic Control Plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans.

The proper application of the Construction Traffic Control Plans and installation of traffic control devices is dependent upon actual field conditions.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

Adjustments to the Construction Traffic Control Plans shall only be made at the direction of the Engineer.

Table 1 indicates the minimum taper lengths required for a lane closure based on the posted speed limit and lane width of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the Construction Traffic Control Plans cannot be achieved.

Table 1 – Minimum Taper Length

POSTED SPEED LIMIT (MPH)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE (FEET)	
	FREEWAYS	SECONDARY ROADS
30 OR LESS	180	165
35	245	225
40	320	295
45	540	495
50	600	550
55	660	605
65	780	715

1. Work Zone Safety Meetings

1.a) Prior to the commencement of work, a Work Zone Safety Meeting shall be conducted with representatives from DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the Project. DOT Traffic Engineering shall be invited to the Work Zone Safety Meeting. Other Work Zone Safety Meetings during the course of the Project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the Meeting to outline the anticipated traffic control issues during the construction of this Project. Any issues that can't be resolved at these Meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda shall include:

i. Review Project scope of work and time;
ii. Review Section 1.08, Prosecution and Progress;
iii. Review Section 9.70, Trafficpersons;
iv. Review Section 9.71, Maintenance and Protection of Traffic;
v. Review Contractor's schedule and method of operations;
vi. Review special concern areas: ramps, turning roadways, medians, lane drops, etc.;
vii. Open discussion of work zone questions and issues;
viii. Discussion of review and approval process for changes in Contract requirements as they relate to work zone areas.

2. General

2.a) Traffic control patterns shall only be installed if the required minimum number of signs, traffic cones, traffic drums, and other equipment (i.e. one Arrow Board for each lane closed, two Truck-Mounted or Trailer-Mounted Attenuators (TMAs), Changeable Message Sign, etc.) are on Site.

2.b) The Contractor shall have spare maintenance and protection of traffic equipment (TMAs, Arrow Board, Changeable Message Sign(s), construction signs, traffic cones, traffic drums, etc.) available at all times in case of mechanical failures, etc. Spare maintenance and protection of traffic equipment installed as a result of a sudden equipment breakdown shall be replaced by the Contractor within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel, and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for lost time.

2.d) In cases of differences of opinion between the Contractor and the Inspection staff, the Contractor shall follow the directions of the Engineer. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

3. Installing and Removing Traffic Control Patterns

3.a) Lane closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.

3.b) Lane closures shall be removed in the reverse order, beginning at the end of the work area, or traffic control pattern, and proceeding back toward the advance warning signs.

3.c) Stopping traffic may be allowed within the allowable hours stated in Section 1.08.04:

i. For those activities stated within the Contract.

ii. During paving, milling operations, or similar activities where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway so traffic does not travel across the longitudinal joint or difference in roadway elevation.

iii. To move slow moving equipment across live traffic lanes into the work area.

3.d) The Contractor shall adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

3.e) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging with or exiting from the mainline traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

3.f) Workers are prohibited from crossing the travel lanes on limited access roadways to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

4. Implementation of Rolling Road Block (RRB)

4.a) Temporary road closures using a RRB may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:

i. Refer to the Limitation of Operations Chart provided in Section 1.08.04 for the hours allowed for implementing a RRB operation. The Contractor shall only implement a RRB operation within the hours shown in the Chart.

ii. In areas with good sight lines and full shoulders, signs on the side of the road opposite the traffic pattern should be installed in a separate operation.

iii. TMAs equipped with Arrow Boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including TMAs and police vehicles, leave the shoulder or on-ramp and accelerate to normal roadway speeds in each lane. The vehicles will then position themselves side by side and decelerate to the RRB speed on the highway.

iv. A Pre-Warning Vehicle, as specified elsewhere in the Contract, shall be used to advise the motorists that sign pattern installation or removal is underway.

v. The RRB duration shall not exceed 15 minutes from the start of the traffic block until all lanes are opened as designated in the Limitation of Operations chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the District.

vi. RRB shall not be used to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. TMAs (and State Police if available) shall be used to protect the workers installing the taper in the additional lane.

vii. Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days shall be allowed for review and comment by the District.

viii. The Engineer and the Contractor will review and discuss the RRB procedures (including any revisions) in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety Meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, then the work will proceed as recommended by the Department. Any unresolved issues shall be addressed the following day.

5. Use of Arrow Boards

5.a) On limited access roadways, one Arrow Board shall be used for each lane that is closed. The Arrow Board shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the Construction Traffic Control Plans. Additional Arrow Boards shall be deployed if sight distances are limited.

5.b) On non-limited access roadways, the use of an Arrow Board for lane closures is optional. The roadway geometry, sight distance, and traffic volume shall be considered in the decision to use the Arrow Board.

5.c) A vehicle displaying an arrow board shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.

5.d) The flashing arrow mode shall be used for lane closure (merge) tapers.

5.e) The flashing arrow mode shall not be used for temporary alternating one-way traffic operations or to laterally shift lanes of traffic.

5.f) The flashing double arrow mode shall only be used for closing a center lane on a multilane roadway where adjacent left and right lanes remain open.

5.g) For shoulder work or roadside work near the shoulder, the Arrow Board shall be positioned in the shoulder and the flashing alternating diamond mode should be used.

5.h) The flashing alternating diamond caution mode should also be used when supplemental Arrow Boards are positioned in an already closed lane.

6. Use of Truck-Mounted or Trailer-Mounted Impact Attenuators (TMAs)

6.a) On limited access roadways, lane closures shall use a minimum of two TMAs to install and remove traffic control patterns. If two TMAs are not available, then the pattern shall not be installed.

6.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to utilize the TMAs.

6.c) On limited access roadways, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane to establish the advance and transition signing. The Arrow Board mounted on the TMA shall be in the arrow mode when taking the lane. The sign truck and workers shall be at sufficient distance ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Portable Changeable Message Signs, signs, Arrow Boards, and cones/drums are installed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when traveling in the closed lane.

6.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when in the closed lane.

6.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to Section 18.06. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) shall be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

6.f) TMAs will be paid for in accordance with how the unit is used. If it is used as a TMA and is in the proper location as specified, then it will be paid for at the specified hourly rate for Truck-Mounted or Trailer-Mounted Impact Attenuator. When the TMA is used as an

Arrow Board, it will be paid for at the daily rate for Arrow Board. If a TMA is used to install and remove a pattern and is also used as an Arrow Board in the same day, then the unit will be paid for as a Truck-Mounted or Trailer-Mounted Impact Attenuator for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as an Arrow Board during the same day, then the unit will only be paid for at the daily rate as an Arrow Board.

7. Use of Traffic Drums and Traffic Cones

7.a) On limited-access highways, ramps, and turning roadways:

i. Traffic drums shall be used for taper channelization.
ii. Traffic drums shall be used to delineate raised catch basins and other hazards.
iii. Traffic cones with a minimum height of 42 inches may be used in place of drums in the tangent section of a closed lane or shoulder.
iv. Traffic cones less than 42 inches in height shall not be used.

7.b) On all roadways:

i. Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
ii. Traffic cones shall not be left unattended.
iii. Traffic cones with a minimum height of 42 inches shall be used when the posted speed limit is 45 MPH or above.

7.c) Typical spacing of traffic drums and/or cones shown on the Construction Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

8. Use of Barricade Warning Lights

8.a) Barricade Warning Lights may be installed on channelizing devices when used in a merge taper. The Barricade Warning Lights shall flash in a sequential pattern when used in a merge taper. The successive flashing shall occur from the upstream end (beginning) of the merge taper to the downstream end (end) of the merge taper.

8.b) Type C Barricade Warning Lights may be used at night to delineate the edge of the travel way.

8.c) Type B Barricade Warning Lights shall be used on post-mounted advanced warning signs.

9. Use of Portable Changeable Message Signs (PCMS)

9.a) On limited access roadways, one PCMS shall be used in advance of the traffic control pattern for all lane closures. Prior to installing the pattern, the PCMS shall be installed and in operation, displaying the appropriate lane closure information. The PCMS shall be positioned ½ to 1 mile ahead of the start of the lane closure taper.

9.b) On non-limited access roadways, the use of PCMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to use the PCMS.

9.c) PCMS should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the PCMS, it should be placed off the shoulder and outside of the clear zone. If a PCMS has to be placed on the shoulder of the roadway or within the clear zone, it should be placed on the paved shoulder with a minimum of five traffic drums placed in a taper in front of it to delineate its position. The taper shall meet minimum distance requirements for a shoulder closure. The PCMS shall be protected if it is used for a continuous duration of 36 hours or more.

9.d) The PCMS shall be removed from the clear zone and have the display screen cleared and turned 90 degrees away from the roadway when the PCMS is no longer required.

9.e) The PCMS should not be used within 1,000 feet of an existing PCMS or Variable Message Sign (VMS).

9.f) A PCMS message shall:

i. consist of no more than two phases;
ii. contain no more than three lines of text per phase;
iii. have no more than eight characters per line, including spaces.

9.g) The PCMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs. The PCMS should not be used for generic messages (ex.: Road Work Ahead, Bump Ahead, Gravel Road, etc.) or for messages that need to be displayed for long periods of time, such as during stage construction. These types of messages should be displayed with construction signs. Special signs shall be coordinated with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

9.h) Typical messages that are allowed on the PCMS are shown below. Approval must be received from the Office of Construction for any message(s) different than the typical messages shown in Figure 1.

9.i) All messages shall comply with the information provided in Tables 2 and 3.

Message No.	Phase 1	Phase 2	Message No.	Phase 1	Phase 2
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	EXIT XX CLOSED	USE EXIT YY
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	EXIT XX CLOSED USE YY	FOLLOW DETOUR
5	RIGHT LANE CLOSED	MERGE LEFT	13	2 LANES SHIFT AHEAD	USE CAUTION
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	3 LANES SHIFT AHEAD	USE CAUTION
7	RIGHT LANE CLOSED	REDUCE SPEED			
8	2 RIGHT LANES CLOSED	REDUCE SPEED			

Figure 1: Typical PCMS Messages

Table 2: Acceptable Abbreviations

Word Message	Standard Abbreviation	Word Message	Standard Abbreviation
Access	ACCS	Minimum	MIN
Afternoon / Evening	PM	Minor	MNR
Ahead	AHD	Minute(s)	MIN
Alternate	ALT	Monday	MON
Avenue	AVE, AV	Morning / Late Night	AM
Bicycle	BIKE	Mount	MT
Blocked	BLKD	Mountain	MTN
Boulevard	BLVD	National	NATL
Bridge	BR	Normal	NORM
CB Radio	CB	North	N
Center	CTR	Northbound	NBND
Center	CNTR	Oversized	OVRSZ
Chemical	CHEM	Parking	PKING
Circle	CIR	Parkway	PKWY
Compressed Natural Gas	CNG	Pavement	PVMT
Condition	COND	Pedestrian	PED
Congested	CONG	Place	PL
Construction	CONST	Pounds	LBS
Court	CT	Prepare	PREP
Crossing	XING	Quality	QLTY
Crossing (other than highway-rail)	XING	Right	RT
Downtown	DWNTN	Road	RD
Drive	DR	Roadwork	RDWK
East	E	Route	RT, RTE
Eastbound	EBND	Saint	ST
Electric Vehicle	EV	Saturday	SAT
Emergency	EMER	Service	SERV
Entrance, Enter	ENT	Shoulder	SHLDR
Exit	EX	Slippery	SLIP
Express	EXP	South	S
Expressway	EXPWY	Southbound	SBND
Feet	FT	Speed	SPD
Freeway	FRWY, FWY	State, county, or other non-US or non-Interstate numbered route	[Route Abbreviation determined by highway agency]**
Friday	FRI	Street	ST
Frontage	FRNTG	Sunday	SUN
Hazardous	HAZ	Telephone	PHONE
Hazardous Material	HAZMAT	Temporary	TEMP
High Occupancy Vehicle	HOV	Terrace	TER

Highway	HWY	Thruway	THWY
Highway-Rail Grade Crossing	RR XING	Thursday	THURS
Hospital	HOSP	Tons of Weight	T
Hour(s)	HR, HRS	Traffic	TRAF
Information	INFO	Trail	TR
International	INTL	Travelers	TRVLRS
Interstate	I-	Tuesday	TUES
Junction / Intersection	JCT	Turnpike	TPK
Lane	LN	Two-Way Intersection	2-WAY
Left	LFT	Two-Wheeled Vehicles	CYCLES
Liquid Propane Gas	LP-GAS	Upper	UPR
Local	LOC	US Numbered Route	US
Lower	LWR	Vehicle(s)	VEH, VEHS
Maintenance	MAINT	Warning	WARN
Major	MAJ	Wednesday	WED
Maximum	MAX	West	W
Mile(s)	MI	Westbound	WBND
Miles Per Hour	MPH		

** A space and no dash shall be placed between the abbreviation and the number of the route.

Table 3: Unacceptable Abbreviations

Unacceptable Abbreviation	Intended Word	Common Misinterpretation
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

10. Use of State Police Officers

10.a) State Police may be used only on limited access highways and secondary roadways that are under their primary jurisdiction. A minimum of one Officer may be used per critical sign pattern; however, a State Police presence is not required. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Left lane closures may also be implemented without State Police presence in areas with only moderate traffic and wide, unobstructed medians. It may be desirable to have a State Police presence, when available, under specific situations, such as nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur; however, they are not required.

10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall reposition so that they are located prior to the backup. The State Police Officer should not be located immediately behind or within the roll ahead area of any TMA or within the work zone buffer area. The State Police Officer shall not be positioned in such a way that the State Police Officer obstructs any construction warning signs or PCMS from view of the motorist.

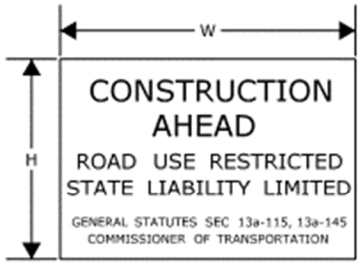
10.c) Other functions of the State Police Officer(s) may include:

i. Assisting construction vehicles entering and exiting the work area.

ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.

10.d) State Police Officers assigned to a work site shall take direction from the Engineer.

SERIES 16 SIGNS



		W H
16-E	80-1605	84" x 60"
16-H	80-1608	60" x 42"
16-M	80-1613	30" x 24"



		W H
16-S	80-1619	48" x 30"

SIGN 16-S SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS. SERIES 16 SIGNS SHOULD BE LOCATED TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHOULD BE INSTALLED ON MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHOULD BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

CONSTRUCTION TRAFFIC CONTROL PLAN
SERIES 16 SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

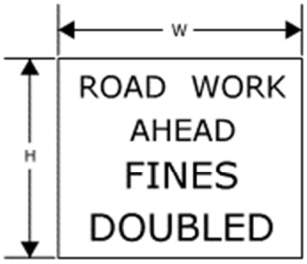
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PRINCIPAL ENGINEER

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

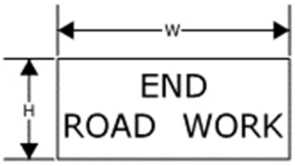
	W	H
31-1906	48"	42"
31-1907	60"	54"



"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN SHALL BE THE "END ROAD WORK" SIGN.

	W	H
80-9606	36"	18"
80-9612	48"	24"



CONSTRUCTION TRAFFIC CONTROL PLAN

ROAD WORK AHEAD SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Tracy L. Fogarty P.E.

PRINCIPAL ENGINEER

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED IN ADVANCE TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.

5. ALL CONFLICTING SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 48 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT $\leq$ 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10 SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180'
35	245'
40	320'
45	540'
50	600'
55	660'
65	780'

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

SCALE: NONE

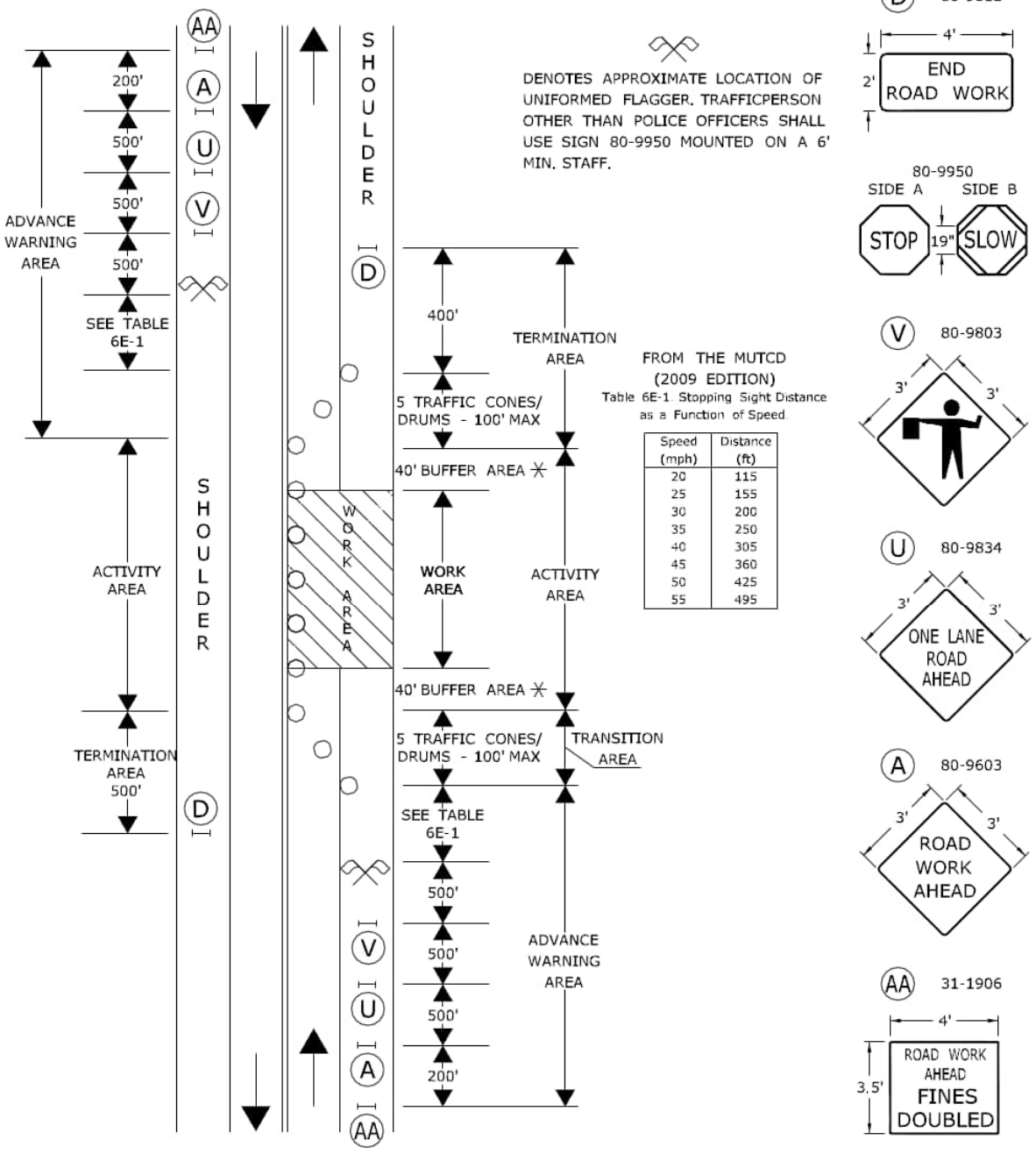
CONNECTICUT DEPARTMENT OF TRANSPORTATION
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PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)



FROM THE MUTCD (2009 EDITION)
Table 6E-1 Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

D 80-9612

80-9950
SIDE A SIDE B

V 80-9803

U 80-9834

A 80-9603

AA 31-1906

○ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 1 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:55:23-04'00'
PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢⊣ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

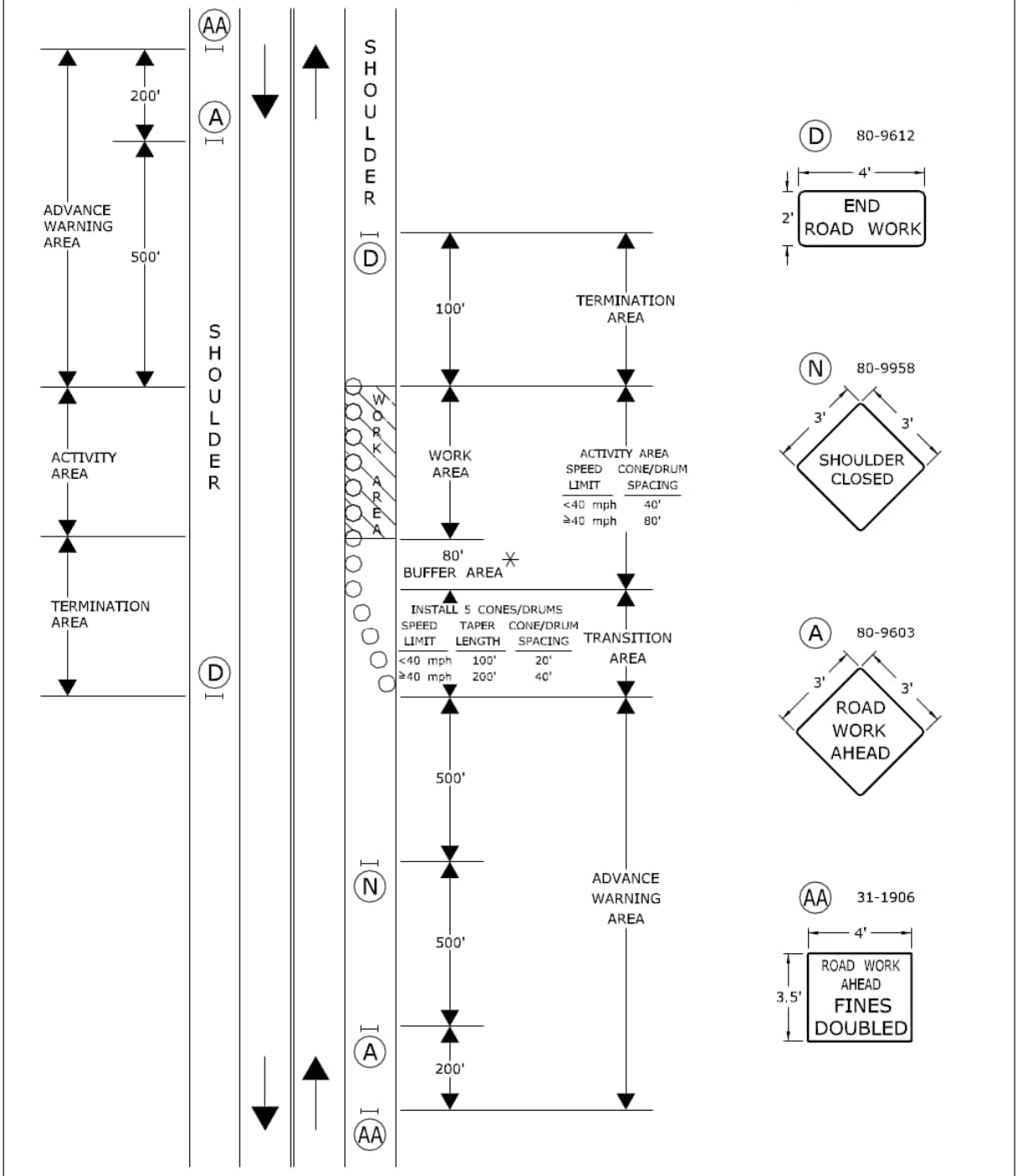
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

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APPROVED _____ PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:45-04'00'

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE
71 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 14

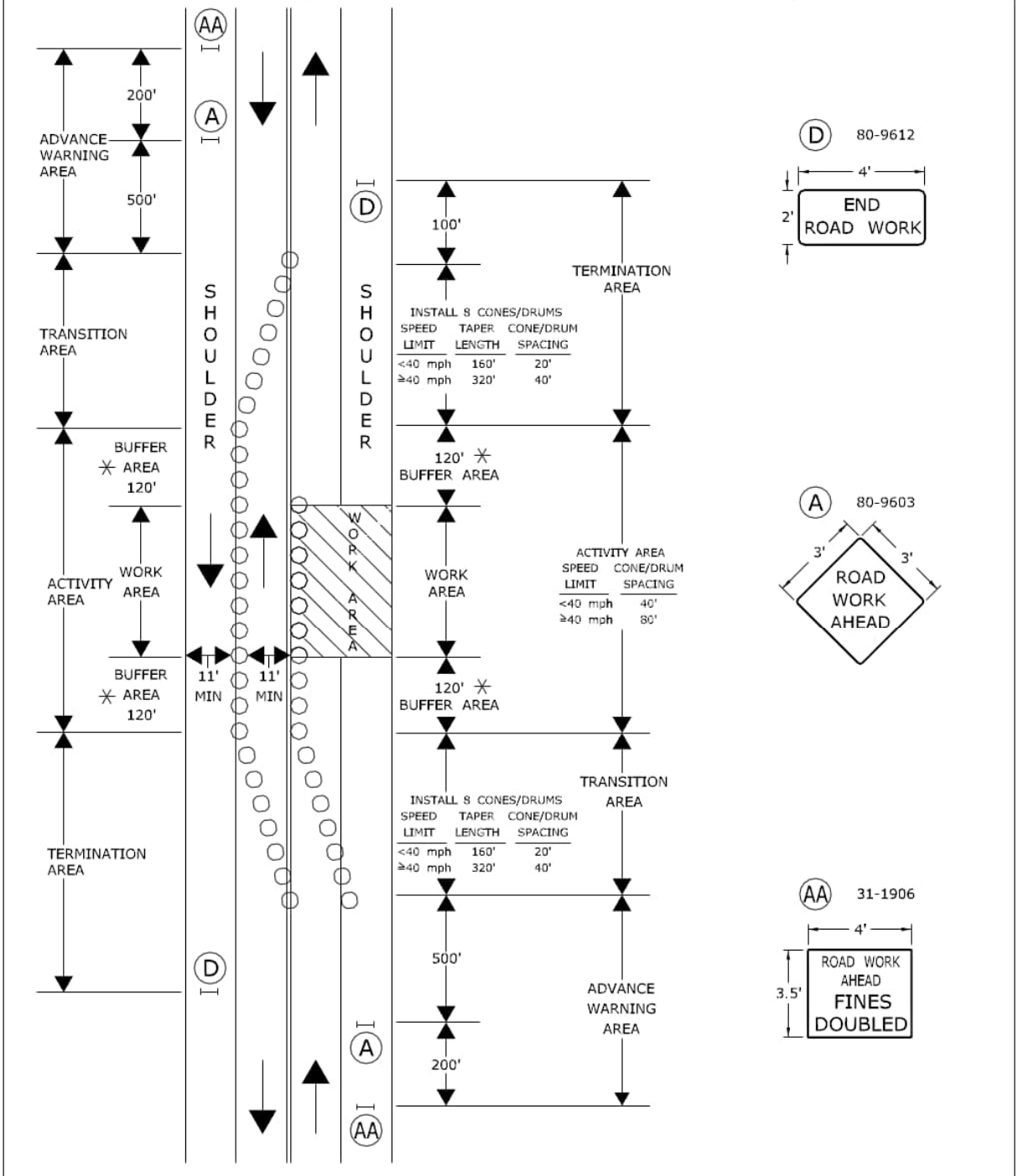
SEE NOTES 1, 2, 4, 7, 8

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APPROVED Charles S. Harlow 2012.06.05 15:56:09-04'00'
PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



○ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 15

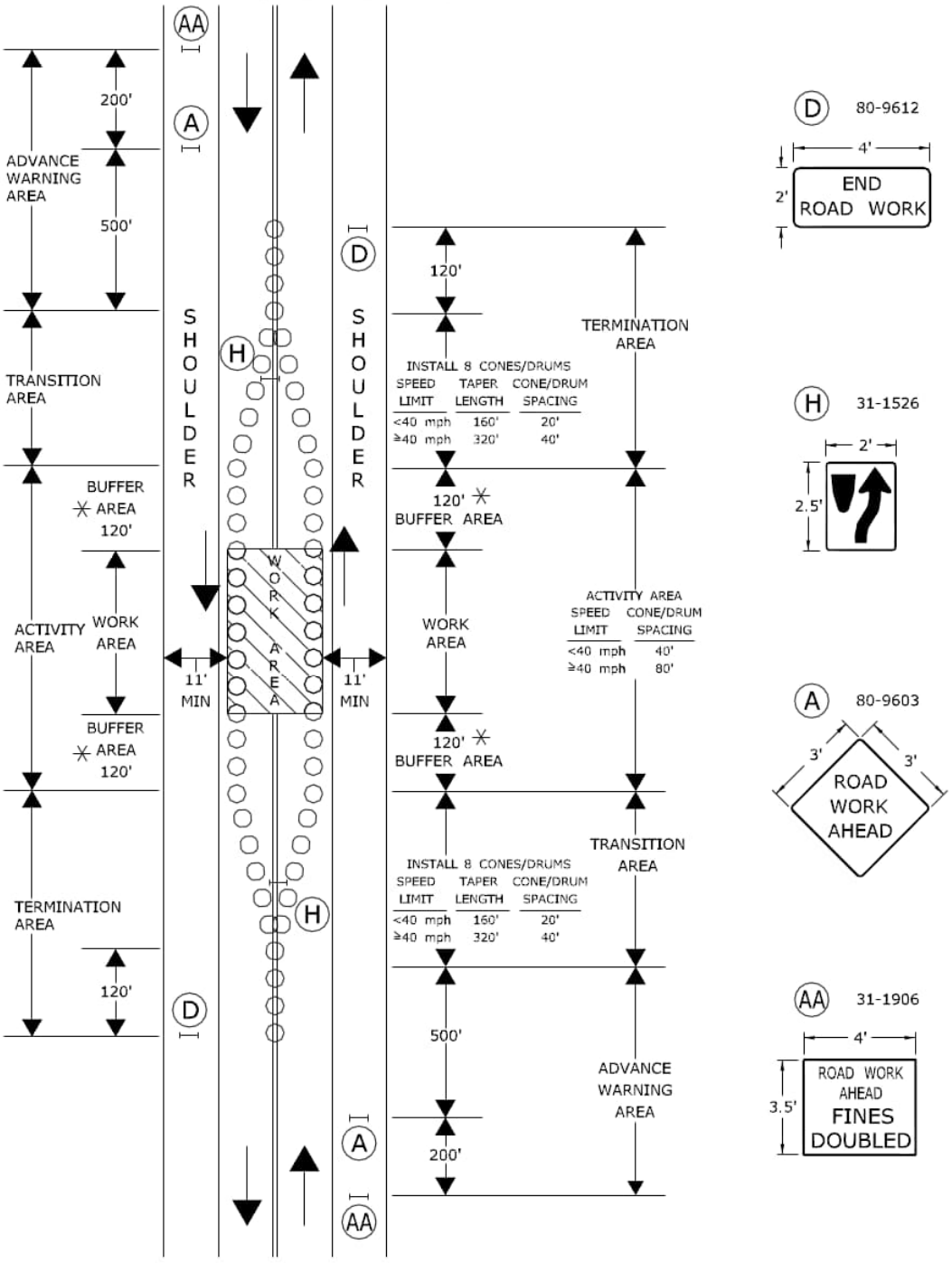
SEE NOTES 1, 2, 4, 6, 7, 8

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BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:56:29-04'00'
PRINCIPAL ENGINEER

WORK IN MIDDLE OF ROADWAY
TWO LANE HIGHWAY

SIGN FACE
72 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 16
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER
Charles S. Harlow 2012.06.05 15:56:51-04'00'

Article 9.71.05 – Basis of Payment *is supplemented by the following:*

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item "Maintenance and Protection of Traffic". Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item "Maintenance and Protection of Traffic".

Pay Item	Pay Unit
Maintenance and Protection of Traffic	Lump Sum

ITEM #1111201A – TEMPORARY DETECTION (SITE NO. 1)

Description:

Provide a Temporary Detection (TD) system at signalized intersections throughout the duration of construction, as noted on the contract plans or directed by the Engineer. TD is intended to provide an efficient traffic-responsive operation which will reduce unused time for motorists travelling through the intersection. A TD system shall consist of all material, such as pedestrian pushbutton, accessible pedestrian signal, conduit, handholes, cable, messenger, sawcut, loop amplifier, microwave detector, Video Image Detection System (VIDS), Self-Powered Vehicle Detector (SPVD), and any additional components needed to achieve an actuated traffic signal operation.

Materials:

Material used for TD is either owned by the Contractor and in good working condition, or existing material that will be removed upon completion of the contract. Approval by the Engineer is needed prior to using existing material that will be incorporated into the permanent installation. New material that will become part of the permanent installation is not included or paid for under TD.

Construction Methods:

The work for this item includes furnishing, installation, relocating, realigning, and maintaining the necessary detection systems as to provide vehicle and pedestrian detection during each phase of construction. If not shown on the plan, program the TD modes (pulse or presence) as the existing detectors or as directed by the Engineer. If the TD method is not specified elsewhere in the Contract, (loops, SPVD, microwave, VIDS, pushbutton, or other) it may be the Contractor's choice. The method chosen for TD must be indicated on the TD Plan submission.

The traffic signal plan-of-record, if not in the controller cabinet will be provided upon request. Ensure the controller phase mode (recall, lock, non-lock) and phase timing are correct for the TD. Adjust these settings as needed or as directed by the Engineer.

At least 30 days prior to implementation of each phase of construction submit a TD proposal to the Engineer for approval. Submit the TD proposal at the same time as the Temporary Signalization plan. Indicate the following information for each intersection approach:

- Phase Mode
- Temporary Detection Method
- Area of Detection
- Detector Mode

Submit the proposed temporary phase timing settings and the TD installation schedule with the TD proposal. See the example below.

Example Proposed Temporary Detection and Timing

Site 1

Warren, Rt. 45 at Rt. 341, Location #149-201

Approach	Phase	Phase Mode	TD Method	Area of Detection	Det Mode
Rt. 45 NB	***2***	***Min Recall***	***VIDS***	***150' from Stop Bar***	***Presence***
Rt. 45 SB	***2***	***Min Recall***	***SPVD***	***150' from Stop Bar***	***Pulse***
Rt. 341	***4***	***Lock***	***Microwave***	***30' from Stop Bar***	***Pulse***
Rt. 341	***4***	***Lock***	***Pushbutton***	***At SE & SW corners***	***n/a***

Temporary Phase Timing Settings:

Phase	Min	Ped	Ped Clr	Ext	Max 1	Max2	Yel	Red
2	***20***	***0***	***0***	***6***	***45***	***60***	***4***	***1***
4	***14***	***7***	***9***	***3***	***27***	***35***	***3***	***1***

Scheduled TD: *July 4, 2011*

Site 2

Scotland, Rt. 14 at Rt. 97, Location #123-201

Approach	Phase	Phase Mode	TD Method	Area of Detection	Det Mode
Rt. 15 WB Left Turn	***1***	***Non-Lock***	***VIDS***	***5' in front to 10' Behind Stop Bar***	***Presence***
Rt. 14 EB	***2***	***Min Recall***	***Existing Loop***	***150' from Stop Bar***	***Pulse***
Ped Phase	***3***	***Non-Lock***	***Pushbutton***	***At all corners***	***n/a***
Rt. 14 WB	***6***	***Min Recall***	***VIDS***	***150' from Stop Bar***	***Presence***
Rt. 97	***4***	***Lock***	***Loop, Pre-formed***	***20' from Stop Bar***	***Pulse***

Temporary Phase Timing Settings:

Phase	Min	Ped	Ped Clr	Ext	Max 1	Max2	Yel	Red
1	***5***	***0***	***0***	***2***	***12***	***18***	***3***	***1***
2 & 6	***24***	***0***	***4***	***4***	***26***	***36***	***4***	***1***
3	***16***	***7***	***9***	***0***	***16***	***16***	***4***	***1***
4	***14***	***7***	***9***	***3***	***27***	***35***	***3***	***1***

Scheduled TD: *July 4, 2011*

When at any time during construction the existing vehicle or pushbutton detection becomes damaged, removed, or disconnected, install TD to actuate the affected approaches. Install and make TD operational prior to removing existing detection. TD must be operational throughout all construction phases.

Provide a list of telephone numbers of personnel who will be responsible for the TD to the Engineer. If the TD malfunctions or is damaged, notify the Engineer and place the associated phase on max recall. Respond to TD malfunctions by having a qualified representative at the site within three (3) hours. Restore detection to the condition prior to the malfunction within twenty-four (24) hours.

If the Engineer determines that the nature of a malfunction requires immediate attention and the Contractor does not respond within three (3) hours following the initial contact, then an alternative maintenance service will be called to restore TD. Expenses incurred by the State for alternative service will be deducted from monies due to the Contractor with a minimum deduction of $500.00 for each service call. The alternate maintenance service may be the traffic signal owner or another qualified Contractor.

TD shall be terminated when the detection is no longer required. This may be either when the temporary signal is taken out of service or when the permanent detectors are in place and fully operational.

Any material and equipment supplied by the Contractor specifically for TD shall remain the Contractor's property. Existing material not designated as scrap or salvage shall become the property of the Contractor. Return and deliver to the owner all existing equipment used as TD that is removed and designated as salvage.

Method of Measurement:

Temporary Detection (TD) shall be measured for payment as follows:

- Fifty percent (50%) will be paid when Temporary Detection is initially set up, approved, and becomes fully operational.
- Fifty percent (50%) will be paid when Temporary Detection terminates and all temporary equipment is removed to the satisfaction of the Engineer.

Basis of Payment:

This work will be paid at the contract Lump Sum price for "Temporary Detection (Site No.)". The price includes furnishing, installing, relocating, realigning, maintaining, and removing, the necessary detection systems and all incidental material, labor, tools, and equipment. This price also includes any detector mode setting changes, timing or program modifications to the controller that are associated with TD. All Contractor supplied material that will remain the Contractor's property will be included in the contract Lump Sum price for "Temporary Detection (Site No.)."

Any items installed for TD that will become part of the permanent installation will not be paid for under this item but are paid for under the bid item for that work.

Pay Item	Pay Unit
Temporary Detection (Site No. 1)	Lump Sum

ITEM #1118051A – TEMPORARY SIGNALIZATION (SITE NO. 1)

Description:

This item shall consist of furnishing, installing, maintaining, relocating and removing temporary traffic signal equipment and all necessary hardware as ordered and in conformance with the plans and applicable specifications.

Materials:

All materials used for Temporary Signalization shall conform to the plans and pertinent articles of the Standard Specifications, the Supplemental Specifications, and the Special Provisions contained in this contract, or as approved by the Engineer. The materials can be new or used. Used material must not be damaged and its operation must be reliable. The Contractor must replace damaged or faulty material immediately. A Materials Certificate will be required.

Construction Methods:

The Contractor shall review the traffic signal plan, contained in the contract plans, and, if any changes are necessary, the Contractor shall submit a revised plan to the Engineer for approval. In no case will the Contractor be allowed to revise an installation without prior knowledge and approval by the Engineer. The Engineer will send to the Division of Traffic Engineering and/or the Design Engineer for review as applicable.

Prior to the beginning of Temporary Signalization, the Contractor and the Engineer are required to meet with any property owners that have driveways that will be signalized and explain how the temporary signalization will operate.

Temporary Signalization shall begin when the Contractor installs the temporary traffic signal equipment.

The Contractor shall provide and maintain a temporary traffic signal capable of providing the approved phasing as shown on the plans or as directed by the Engineer. The Contractor shall relocate temporary signal equipment, including signal heads, vehicle detectors, etc., as many times as deemed necessary during construction to maintain and protect traffic where shown on the plans or as directed by the Engineer. The Contractor shall make modifications to the signal controller as necessary to maintain temporary signalization during each phase/stage of construction and shall make adjustments to the timing of the controller as necessary based on field conditions and as directed by the Engineer.

All equipment shall be relocated and/or removed in such a manner as to cause no hazard to pedestrians, traffic or property. When the Contractor is performing signal work, the Contractor shall maintain traffic as specified in the Special Provisions “Prosecution and Progress” and “Maintenance and Protection of Traffic.”

The Contractor shall be responsible for providing power to the temporary traffic signal via solar panels or by obtaining secondary service. The Contractor shall be responsible for the cost of the electricity to operate the temporary traffic signal and the intersection shall have a metered service.

The Contractor shall be responsible for maintenance of the temporary traffic signal during Temporary Signalization. The Contractor shall provide to the Engineer and the local Police Department a list of telephone numbers of personnel who will be responsible for the maintenance of the temporary traffic signal on a 24-hour basis. The Contractor shall respond to traffic signal malfunctions by having a representative at the site within three hours and the temporary traffic signal back in operation within 24 hours.

Temporary signal equipment supplied by the Contractor will remain the Contractor's property at the completion of the project unless otherwise noted.

Temporary Signalization shall terminate when construction is complete and the temporary signal equipment is removed from the project as approved by the Engineer.

Method of Measurement:

Temporary Signalization shall be measured for payment as follows:

- Fifty percent (50%) shall be paid when Temporary Signalization is operational as shown on the plan and to the satisfaction of the Engineer.
- Fifty percent (50%) shall be paid when Temporary Signalization terminates.

Basis of Payment:

This work shall be paid at the contract Lump Sum price for "Temporary Signalization (Site No. 1)". This item shall consist of furnishing, installing, maintaining, relocating and removing temporary traffic signal equipment and all necessary hardware, materials, labor and work incidental thereto. This item shall also include supplying the electricity to operate the temporary traffic signal. All Contractor supplied items that will remain the Contractor's property shall be included in the contract Lump Sum price for "Temporary Signalization (Site No. 1)"

Pay Item	Pay Unit
Temporary Signalization (Site No. 1)	Lump Sum

ITEM #1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description *is supplemented with the following:*

Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction *Methods is supplemented with the following:*

The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement *is supplemented with the following:*

Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment *is supplemented with the following:*

This work will be paid for at the contract lump sum price for "Removal and Relocation of Existing Signs" which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

Pay Item	Pay Unit
Removal and Relocation of Existing Signs	Lump Sum

ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)
ITEM #1208937A – SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

All signs shall use Type XI retroreflective sheeting with the exception of side-mounted signs with white background which shall be Type IX.

This item shall also include field testing of metal sign base posts as directed by the Engineer. Signs shall conform to the sign details located at https://portal.ct.gov/DOT/Traffic-Engineering/Catalog-of-Signs with legend for variable signs as shown in the plans.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for "Sign Face - Sheet Aluminum" of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	**51-100**	**101-250**	**251-1000**	**>1000**
Sample Size=>	**5 Posts**	**10 Posts**	**40 Posts**	**60 Posts**
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing

Pay Item	Pay Unit
Sign Face - Sheet Aluminum (Type IX Retroreflective Sheeting)	S.F.
Sign Face - Sheet Aluminum (Type XI Retroreflective Sheeting)	S.F.

ITEM #1220027A – CONSTRUCTION SIGNS

Section 12.20 *is supplemented and amended as follows:*

Article 12.20.01 – Description:

Add the following:

The Contractor shall also furnish, install, maintain, and remove Bipartisan Infrastructure Law project signs. The Bipartisan Infrastructure Law project signs shall be of the details, colors and materials as shown on the attached detail sheet.

The sign legend for this Project shall include the U.S. Department of Transportation pictograph on the lower right side of the sign with the legend: Federal Highway Administration

Article 12.20.03 — Construction Methods:

Add the following:

The Contractor shall install the Bipartisan Infrastructure Law (BIL) project signs prior to initiating construction.

The Contractor shall install BIL project sign 80-5957 on each major roadway approach to the construction Site in advance of the Project limit(s).
The sign detail is included and is also available at 80-5957.

The Contractor shall maintain the BIL project signs for the entire duration of the Project. The Contractor shall relocate the BIL project signs during construction as needed and shall remove the signs after construction work is completed.

Article 12.20.05 – Basis of Payment:

Add the following:

The price shall also include furnishing, installing, maintaining, relocating, and removing the Bipartisan Infrastructure Law project signs and sign posts and all hardware, materials, and labor incidental thereto.

SIGN DETAIL
1:35

LEGEND NOTE: THE LEGEND NEXT TO THE US DOT LOGO SHALL BE ONE OF THE FOLLOWING BASED ON PROJECT FUNDING SOURCE:

Federal Highway Administration
U.S. Department Of Transportation FTA
U.S. Department Of Transportation FRA
U.S. Department Of Transportation NHTSA



SIGN NUMBER	80-5957
PANEL SIZE	8'-0" x 5'-0"
TOTAL AREA	40.0 Sq.Ft.
MUTCD	N/A
BDR INSET/WIDTH	0" / 0.75"
CORNER RADIUS	3"
BACKGROUND	TYPE: IX
	COLOR: Green
LEGEND/BORDER	TYPE: IX
	COLOR: White/White

* REFER TO CATALOG OF SIGNS FOR SHEETING TYPE. WHEN COLOR IS BLACK TYPE IS "PLAIN".

SYMBOL	ROT	X	Y	WID	HT
CT DOT LOGO	0	3.5	3.5	9.21	7
US DOT LOGO	0	75.0	3.5	17.5	7

REV'D 7/24

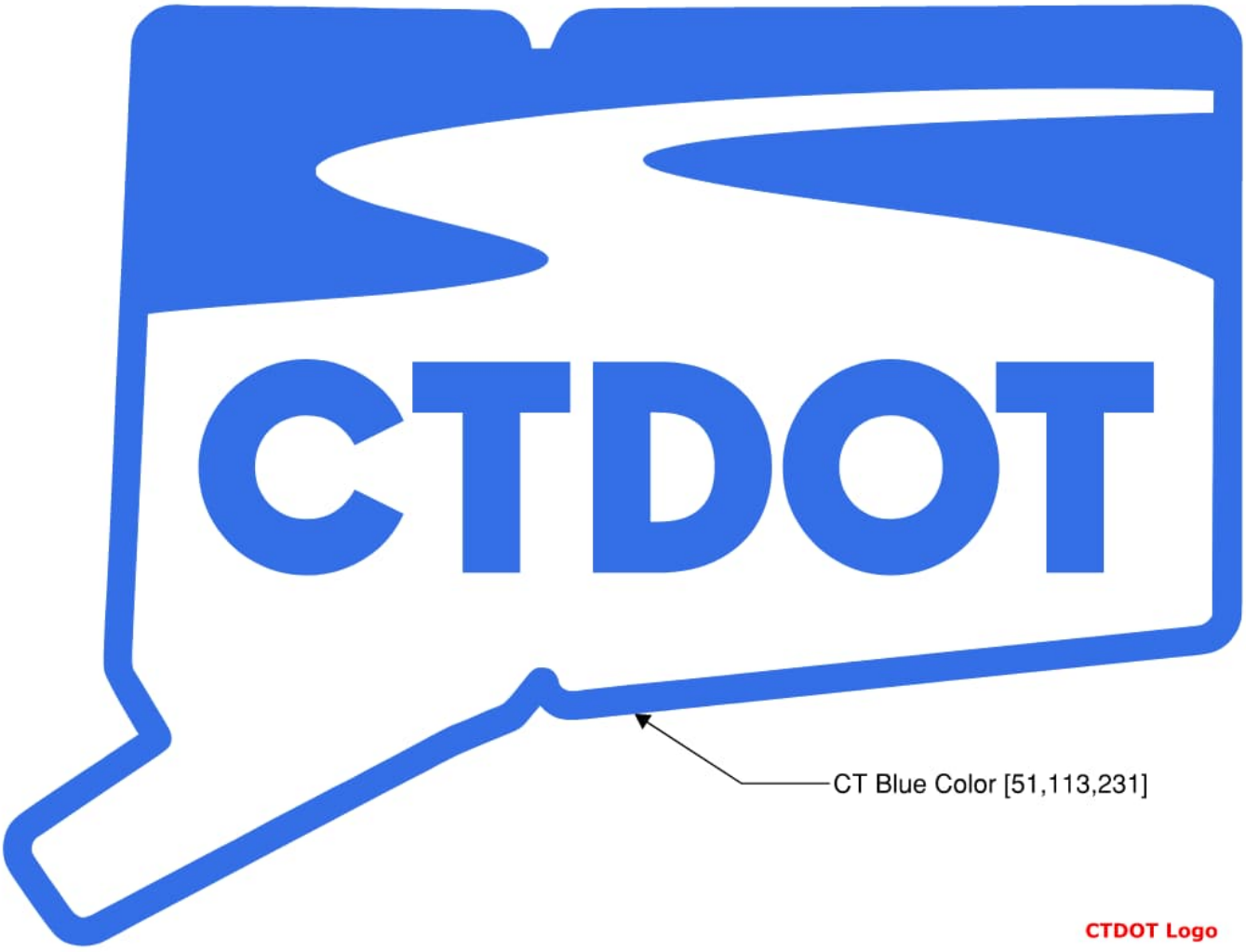
Dimensions are In Inches
Material : 0.125" Thick Sheet Aluminum
Ground Mounted

File name: 80-5957

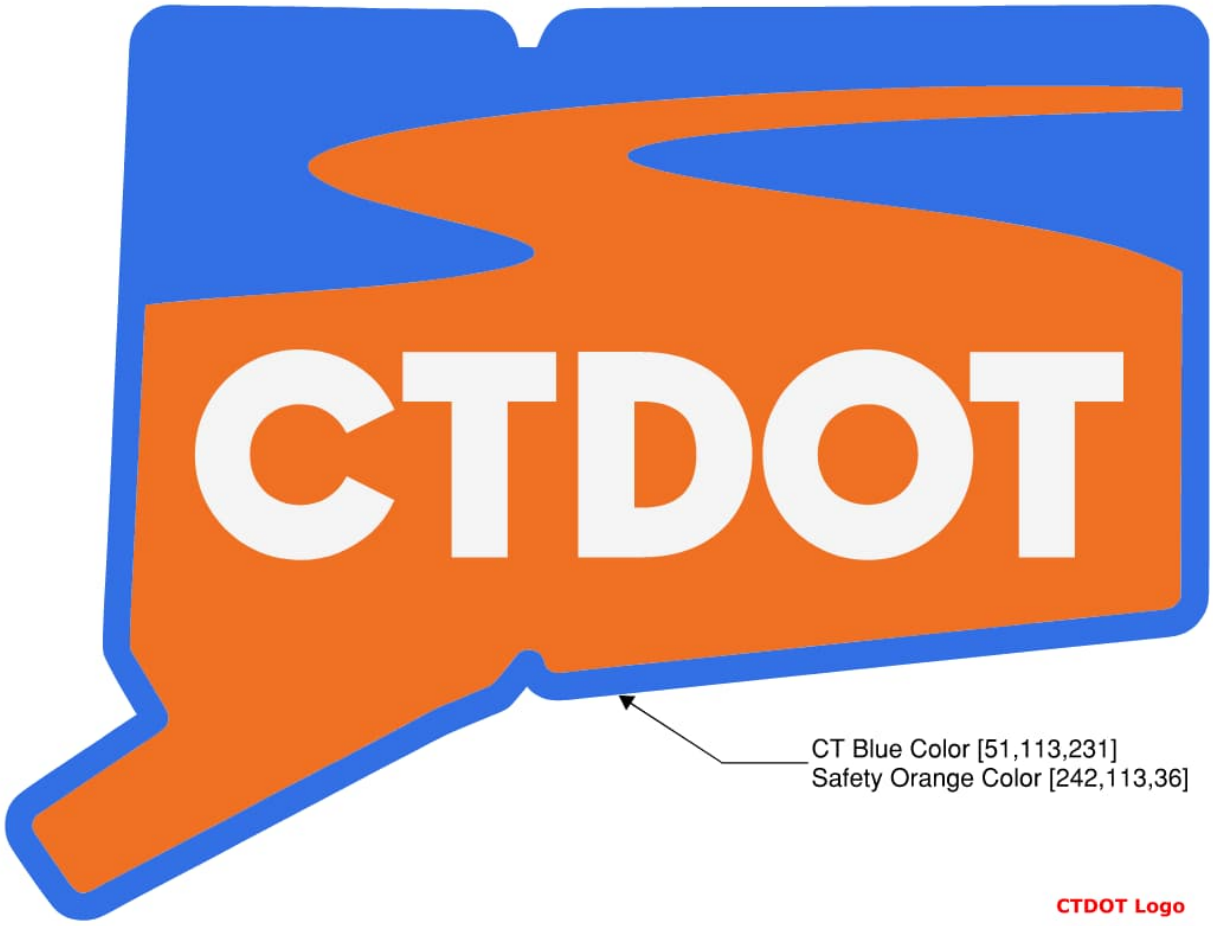
Printed: 9/13/2024

LETTER POSITIONS (X)

P	R	O	J	E	C	T	F	U	N	D	E	D	B	Y	T	H	E					LENGTH	SERIES/SIZE
5.8	9.9	14.1	18.3	22.7	26.5	30.6	37.7	41.5	46.1	50.7	55.2	59.2	66.6	70.4	78.7	82.6	87.2						D 2000
																						84.5	5
B	I	p	a	r	t	I	s	a	n														
3.4	7.6	9.6	13.2	17.1	19.2	21.8	23.4	26.2	30.2														
I	n	f	r	a	s	t	r	u	c	t	u	r	e	L	a	w							D 2000
36.1	38.2	41.8	44.3	46.6	50.2	52.8	55.4	57.9	61.8	65	67.6	71.6	74	79.9	83.5	87						89.3	5/3.8
I	N	V	E	S	T	I	N	G	I	N													Arial Black
22	24.9	29.9	35.4	40	44.7	49.9	52.8	58.2	66.8	69.7												52.1	4.5
A	M	E	R	I	C	A																	Arial Black
30.8	36.4	42.8	47.7	52.9	55.5	60.3																34.3	4.5

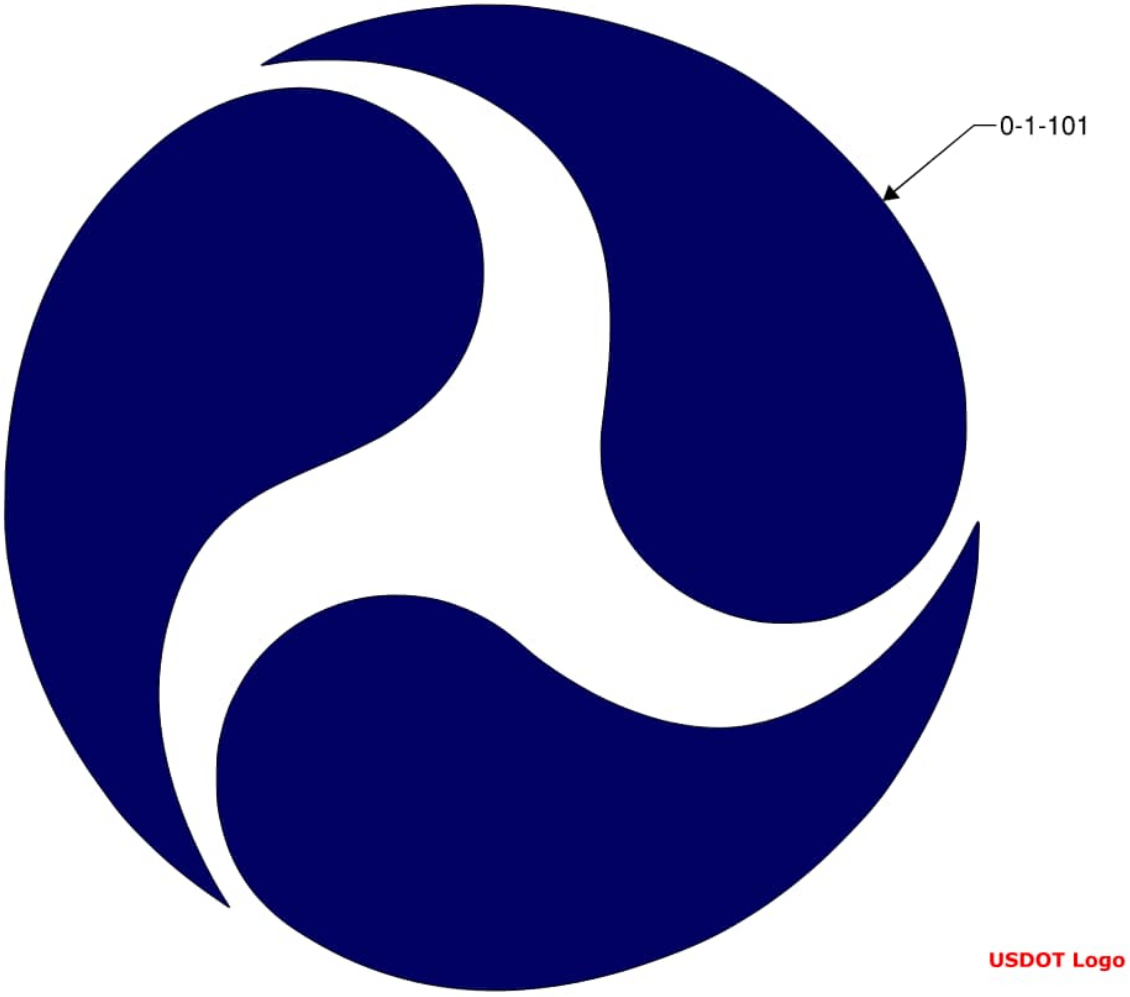


CTDOT Logo



CTDOT Logo

Link to .dgn file: New_CTDOT_Logos.dgn



Link to .dgn file: USDOT_logo.dgn

SUPPLEMENTAL SPECIFICATIONS TO STANDARD SPECIFICATIONS FORM 819

The following Permits and Required Provisions follow this page and are hereby made part of this Contract.

PERMITS AND/OR PERMIT APPLICATIONS

Permit	Permit No.	Approval Date
Town of Voluntown Inland Wetlands and Watercourse Commission Permit	1	June 17, 2025
Flood Management Certification – Municipal	2	Pending Approval
US Army Corps of Engineers Self Verification	3	Pending Approval

PERMIT

TOWN OF VOLUNTOWN INLAND WETLANDS AND WATERCOURSES COMMISSION

ISSUE DATE OF PERMIT: 6/17/2025;

Applicant: **Town of Voluntown**
Location of Regulated Activity: **Forge Hill Rd., Voluntown.**

This permit has been granted by the Voluntown Inland Wetlands and Watercourses Commission based on your application, or such final revisions, if applicable, to allow you to conduct Regulated Activities in the Town of Voluntown.

This Permit is valid for 5 years from the Permit Date.

The Voluntown Inland Wetlands and Watercourses Commission has considered your application with due regard for their regulations and has found that the proposed work as specified and **subject to the conditions below**, conforms to said regulations. This authorization constitutes the permit required by Section 22a-42 of the Connecticut General Statues, as amended.

This Permit authorizes the following activity(s) for the purpose(s) stated in your application:

Bridge re-construction project as shown on approved plan.

This permit is subject to and does not derogate any rights or powers of the Town of Voluntown. It conveys no property rights or exclusive privileges, and is subject to all public and private rights and all applicable federal, state and local laws. Further, if the authorized activity also involves activity or a project that requires zoning or subdivision approval, special permit, variance or special exception, no work pursuant to this wetlands permit may begin until such approval(s) are obtained.

A copy of this permit will be referred to the Voluntown Planning and Zoning Commission

This Permit is issued subject to the following conditions and modifications:

STANDARD CONDITIONS

1. **The Wetlands Agent shall be immediately notified upon commencement of work and upon its completion.** If the authorized activity is not completed on or before the Permit expiration date stated above, all activity shall cease and, if not revoked or specifically renewed or extended by the Commission, or its agent, this Permit shall become null and void.
2. All work and all regulated activity conducted pursuant to this authorization shall be consistent with the terms and conditions of this Permit. Any structures, evacuation, fill, obstructions, encroachments, or regulated activities not specifically identified and authorized herein shall constitute a violation of the permit and may result in its modification, suspension or revocation.
3. This authorization is not transferable or assignable without written consent of the Voluntown Inland Wetlands and Watercourses Commission.
4. In evaluating this application, the Commission relied on information provided by the applicant. If such information is subsequently proven to be false, incomplete, or misleading this permit may be modified, suspended, or revoked and the permittee may be subject to any remedies or penalties provided by law.
5. The permittee shall employ the best management practices consistent with the terms and conditions of this permit, to control storm water discharges and to prevent erosion and sedimentation and to otherwise prevent pollution of the wetlands or watercourses. The permittee shall immediately inform the Commission of any problems involving wetlands or watercourses that have developed in the course of or that are caused by the authorized work. No equipment or material including without limitation, fill, construction materials, or debris, shall be deposited, placed, or stored in any wetland or watercourse or regulated area on or off site unless specifically authorized by this Permit.
6. In conducting and maintaining any activities authorized herein, the permittee may not cause pollution, impairment, alteration, or destruction of any inland wetlands or watercourses in the Town of Voluntown.

7. The permittee shall maintain sediment and erosion controls at the site, which will be established at the start of the activity, in such operable condition as to prevent the pollution of wetlands and watercourses. Said controls are to be inspected by the permittee for deficiencies at least once per week and immediately after any rainfall. The permittee shall correct any such deficiencies within 24 hours of said deficiencies being found. The permittee

shall maintain such control measures until all areas of disturbed soils at the site are stabilized.

8. **SPECIAL CONDITIONS AND TERMS**:

1. A pre-construction meeting will be held with the Wetlands Agent and contractors prior to any work starting.

By Chairman, Voluntown Inland Wetlands and Watercourses Commission

Scott Arseneault _____

or, as authorized by the Commission

By Wetlands Agent for the Town of Voluntown

Joseph R. Theroux

Rev 1/12

Total Fee: 0.00

25-5W

TOWN OF VOLUNTOWN, CT

115 Main Street Voluntown, CT 06384
860-230-3028

File no: _____
Received: _____
Approved: _____
Denied: _____
Fee Paid: _____

APPLICATION FOR INLAND WETLANDS AND WATERCOURSES PERMIT

04/23/2025 25-5W

Site Location 115 MAIN ST **Assessors Map** 27B **Lot** 045-00 0115 **Zone** VD

Total Parcel Acreage .91 Total Area of Wetlands Disturbance 0.029

Owner of Record Town of Voluntown Tel: (H) _____ (W) 860 376 4089

Mailing Address 115 MAIN STREET VOLUNTOWN, CT 06384

Email Address _____

Applicant Town of Voluntown Tel: (H) _____ (W) 860 376 4089

Mailing Address 115 MAIN STREET VOLUNTOWN, CT 06384

Email Address MVillano@chasolutions.com

Agent/Lessee Michael Villano Tel:(H) _____ (W) 860 885-1068

Mailing Address 400 Capital Blvd, Rocky Hill, CT 06067

Email Address MVillano@chasolutions.com

To the Inland Wetlands and Watercourses Commission:

I, Town of Voluntown, hereby apply for an Inland Wetlands and Watercourses Permit, pursuant to Section(s) 6.1 & 6.2 of the Inland Wetlands and Watercourse Regulations for:

(describe proposed regulated activities)

Replacement of Bridge No. 04805 - Forge Hill Road over Pachaug River

The undersigned hereby applies for an Inland Wetland and Watercourses Permit for the property described herein and confirms that:

1) He/She is familiar with the currently effective Inland Wetlands and Watercourse Regulations of the Town.
2) The statements and representation contained herein and in all supporting documents are true to the best of his/her knowledge.
3) By making this application, he/she gives permission to the Inland Wetlands and Watercourses Commission or its representative to enter the portions of the applicant's premises, which are the subject of this application for the purpose of inspection and investigation and otherwise evaluating the merits of the application.

_____ Signature of Owner

Michael Villano
Signature of Agent/Lessee

_____ Signature of Applicant

PermitLink

Nature and Purpose of Project: Replacement of Bridge No. 04805 - Forge Hill Road over Pachaug River

Applicant's Interest in Property: Owner

Is there a conservation or preservation easement on any part of this property? _____ YES _____ NO

Total Property Acreage: 0.91 **Total Acreage of Development:** 0.91

Total Acreage of Wetlands on Site: 0.093 **Total Acreage Altered:** 0.025

Total Acreage of Open Water Body on Site: 0.43 **Total Acreage Altered:** 0.031

Total Linear Feet of Watercourses on Site: 350 **Total Linear Feet Altered:** 100

Total Buffer/Upland Review Area Altered: 0.75 **Total SQFT Regulated Area:** _____

Total Area of Wetlands and/or Watercourses Restored, Enhanced, or Created: 0.1 acres

Property Use: Other - Bridge

Were there prudent and feasible alternatives to the proposed wetland, watercourse, and upland review area alterations?

_____ YES _____ NO

If yes, what were they?

If no, why not? The proposed project involves bridge replacement & realigning the road to improve safety and meet current standards. The new bridge will also be longer to meet USACE BMP of 1.2 times bankfull width.

Is this property within 500 feet of a town line? _____ YES _____ NO

(If yes, the applicant must notify the adjacent municipal wetlands agency by certified mail, return receipt requested, on the same day of filing this application with the Inland Wetlands Commission/Land Use Office. Documentation of this notice shall be provided to the Commission.)

Does any portion of this proposed project fall within a Public Watershed Protection Zone (R-WP)?

_____ YES _____ NO

(If yes, the applicant must notify the Water Company by certified mail, return receipt requested, on the same day of filing this application with the Inland Wetlands Commission/Land Use Office. Documentation of this notice shall be provided to the Commission.)

APPLICATION TYPE:

_____ **Basic Application** _____ **Map/Reg Amendment Petition** _____ **Agent Determination**

_____ **As of Right / Non-Regulated Use** _____ **Subdivision** **Lots** _____ _____ **Mod of Previous Approval**

PermitLink

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Pursuant to section 22a-39(m) of the General Statutes of Connecticut and section 22a-39-14 of the Regulations of Connecticut State Agencies, Municipal Inland Wetlands Agencies (here after called the Agency) ***must*** complete the Statewide Inland Wetlands & Watercourses Activity Reporting Form for ***each*** action taken by such agency.

This form may be made part of a municipality's inland wetlands application package. If the municipality chooses to do this, it is recommended that a copy of the Town and Quadrangle Index of Connecticut and a copy of the municipality's subregional drainage basin map be included in the package as well.

Please remember, the Agency is responsible for ensuring that the information provided is accurate and that it reflects the ***final*** action of the Agency. Incomplete or incomprehensible forms will be mailed back to the Agency. Instructions for completing the form are located on the following page.

The Agency shall mail completed forms for actions taken during a calendar month no later than the 15th day of the following month to the Department of Environmental Protection (DEP). ***Do not*** mail this cover page or the instruction page. ***Please print and mail only the completed yellow reporting form to***:

WETLANDS MANAGEMENT SECTION
INLAND WATER RESOURCES DIVISION
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET 3RD FLOOR
HARTFORD, CT 06106

Questions may be directed to the DEP's Wetlands Management Section at (860) 424-3019.

Instructions For Completing

THE STATEWIDE INLAND WETLANDS & WATERCOURSES AC TIVITY REPORTING FORM

PART I: To Be Completed By Agency Only

Please note: a) Incomplete or incomprehensible forms will be mailed back to the Agency; b) Use a separate form to report each action taken by the Agency; c) Utilize the instructions below and fill in the fields on page 4; d) Print, ***sign,*** *and send to CT-DEP, Wetlands Management Section.*

1. Enter the year and month the Agency took the action being reported.

2. Enter ***ONE*** code letter to describe the final action or decision taken by the Agency. *Do not submit a reporting form for withdrawn applications*. Do not enter multiple code letters (for example: if an enforcement notice was given and subsequent permit issued - two forms for the two separate actions are to be completed).

   A = A Permit Granted by the Agency (*not including map amendments, see code D below*)

   B = Any Permit Denied by the Agency

   C = A Permit Renewed or Amended by the Agency

   D = A Map Amendment to the Official Town Wetlands Map - or -

   An Approved/Permitted Wetland or Watercourse Boundary Amendment to a Project Site Map

   E = An Enforcement Notice of Violation, Order, Court Injunction, or Court Fines

   F = A Jurisdictional Ruling by the Agency (i.e.: activities "permitted as of right" or activities considered non-regulated)

   G = An Agent Approval pursuant to CGS section 22a-42a(c)(2)

   H = An Appeal of Agent Approval pursuant to CGS section 22a-42a(c)(2)

3. Check "Yes" if a public hearing was held in regards to the action taken; otherwise check "No".

4. Enter the name of the Agency official verifying that the information provided on this form is accurate and that it reflects the ***FINAL*** action of the Agency.

PART II: To Be Completed By The Agency Or The Applicant - If Part II is completed by the applicant, the ***applicant must return the form*** to the Agency. The Agency must ensure that the information provided is accurate and that it reflects the ***FINAL*** action of the Agency.

5. Enter the name of the municipality for which the Agency has jurisdiction and in which the action/project/activity is occurring.

   Check "Yes" if the action/project/activity crosses municipal boundaries and enter the name(s) of the other municipality(ies) where indicated. Check "No" if it does not cross municipal boundaries.

6. Enter the USGS Quad Map name and number (1 through 115) as found on the Connecticut Town and Quadrangle Index Map (the directory to all USGS Quad Maps) that contains the location of the action/project/activity. See reverse side of the reporting form for the Connecticut Town and Quadrangle Index Map or at: (www.ct.gov/dep/lib/dep/gis/resources/Index_NamedQuadTown.pdf)

   ALSO enter the four-digit identification number of the corresponding Subregional Drainage Basin in which the action/project/activity is located. If the action/project/activity is located in more than one subregional drainage basin, enter the number of the basin in which the majority of the action/project/activity is located. A town subregional drainage basin map has been mailed to each Agency. Further, sub-regional drainage basin maps can be found at UCONN-CLEAR (www.clear.uconn.edu/data/map_set/index.htm) for each town in an easy to understand format.

7. Enter the name of the individual applying for, petitioning, or receiving the action.

8. Enter the name and address or location of the action/project/activity site. Also provide a brief description of the action/project/activity. Select if the action/project/activity impacts are ***TEMPORARY*** or ***PERMANENT*** in nature.

9. ***CAREFULLY REVIEW*** the list below and enter ***ONE*** code letter which best characterizes the action/project/activity. All state agency projects must code "N".

A = Residential Improvement by Homeowner
B = New Residential Development for Single Family Units
C = New Residential Development for Multi-Family / Condos
D = Commercial / Industrial Uses
E = Municipal Project
F = Utility Company Project
G = Agriculture, Forestry or Conservation
H = Wetland Restoration, Enhancement, Creation
I = Storm Water / Flood Control
J = Erosion / Sedimentation Control
K = Recreation / Boating / Navigation
L = Routine Maintenance
M = Map Amendment
N = State Agency Project
P = Other (this code includes the approval of concept plans with no-on-the-ground work)

10. Enter between one and four codes to best characterize the project or activity being reported. Enter "NA" if this form is being completed for the action of map amendment. You must provide code 12 if the activity is located in an established upland review area (buffer, setback). You must provide code 14 if the activity is located ***BEYOND*** the established upland review area (buffer, setback) or ***NO*** established upland review area (buffer, setback) exists.

1 = Filling
2 = Excavation
3 = Land Clearing / Grubbing (no other activity)
4 = Stream Channelization
5 = Stream Stabilization (includes lakeshore stabilization)
6 = Stream Clearance (removal of debris only)
7 = Culverting (not for roadways)
8 = Underground Utilities (no other activities)
9 = Roadway / Driveway Construction
10 = Drainage Improvements
11 = Pond, Lake Dredging / Dam Construction
12 = Activity in an Established Upland Review Area
14 = Activity in Upland

Examples: Jurisdictional ruling allowing construction of a parking lot in an upland where the municipality *does not* have an established upland review area must use code 14, other possible codes are 2 and 10. Permitted construction of a free standing garage (residential improvement by homeowner) partially in an established upland review area with the remainder in the upland must use code 12 and 14, other possible codes are 1 and 2. Permitted dredging of a pond must use code 11, other possible codes are 12 and 5.

11. Leave blank for ***TEMPORARY*** alterations but please indicate action/project/activity is temporary under question #8 on the form (description). For ***PERMANENT*** alterations, enter in acres the area of wetland soils or watercourses altered. Include areas that are permanently altered, or are proposed to be, for all agency permits, denials, amendments, and enforcement actions. For those activities that involve filling or dredging of lakes, ponds or similar open water bodies enter the acres filled or dredged under "open water body". For those activities that involve directly altering a linear reach of a brook, river, lakeshore or similar linear watercourse, enter the total linear feet altered under "stream". Remember that these figures represent only the acreage altered not the total acreage of wetlands or watercourses on the site. You ***MUST*** provide all information in ***ACRES*** (or linear feet as indicated) including those areas less than one acre. To convert from square feet to acres, divide square feet by the number 43,560. Enter zero if there is no alteration.

12. Enter in acres the area of upland altered as a result of an ***ACTIVITY REGULATED BY*** the Agency, or as a result of an ***AGENT APPROVAL*** pursuant to 22a-42a(c)(2). Leave blank for ***TEMPORARY*** alterations but please indicate action/project/activity is temporary under question #8 on the form (description). Include areas that are permanently altered, or proposed to be permanently altered, for all agency permits, denials, amendments, and enforcement actions. Inland wetlands agencies may have established an upland review area (also known as a buffer or setback) in which activities are regulated. Agencies may also regulate activities beyond these established areas. You ***MUST*** provide all information in ***ACRES*** including those areas less than one acre. To convert from square feet to acres, divide square feet by the number 43,560. Enter zero if there is no alteration. Remember that these figures represent only the upland acreage altered as a result of an activity regulated by the Agency, or as a result of an agent approval.

13. Enter the acres that are, or are proposed to be, restored, enhanced or created for all agency permits, denials, amendments, and enforcement actions. ***NOTE:*** “restored” or “enhanced” applies to previously existing wetlands or watercourses. “Created” applies to a non-wetland or non-watercourse area which is converted into wetlands or watercourses (question #10 must provide 12 and/or 14 as an answer, and question #12 must also be answered). You ***MUST*** provide all information in ***ACRES*** including those areas less than one acre. To convert from square feet to acres, divide square feet by the number 43,560. Enter zero if there is no restoration, enhancement or creation.

PART III: To Be Completed By The DEP - Please leave this area blank.

25-5W

Inland Water Resources Division
Department of Environmental Protection
79 Elm Street, 3rd Floor
Hartford, CT 06106-5127
www.ct.gov/dep

GIS CODE #: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
For DEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Complete this form in accordance with the instructions on the previous two pages.

PART I: To Be Completed By The Municipal Inland Wetlands Agency *Only*

1. DATE ACTION WAS TAKEN: Year Month
2. ACTION TAKEN (see instructions):
3. WAS A PUBLIC HEARING HELD? Yes No
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:

   (print): (signature) _____

PART II: To Be Completed By The Municipal Inland Wetlands Agency Or The Applicant

5. TOWN IN WHICH THE ACTION IS OCCURRING: **Voluntown**

   Does this project cross municipal boundaries? Yes No

   If Yes, list the other town(s) in which the action is occurring:

6. LOCATION: USGS Quad Map Name: **Voluntown**

   Quad Number: **74**

   Subregional Drainage Basin Number: **3600**

7. NAME OF APPLICANT, VIOLATOR OR PETITIONER: **Town of Voluntown**

8. NAME & ADDRESS/LOCATION OF PROJECT SITE:

   Bridge No. 04805
   Forge Hill Road over Pachaug River

   Briefly describe the action/project/activity: Temporary Permanent

   Replacement of Bridge No. 04805

9. ACTIVITY *PURPOSE* CODE (see instructions): **E**
10. ACTIVITY *TYPE* CODE(S) (see instructions): **9**, **2**, **10**, **12**
11. WETLAND / WATERCOURSE AREA ALTERED [must be provided in acres or linear feet as indicated]:

    Wetlands: **0.025** acres Open Water Body: **0.031** acres Stream: **100** linear feet
12. UPLAND REVIEW AREA ALTERED [must be provided in acres]: **0.75** acres
13. AREA OF WETLANDS AND / OR WATERCOURSES RESTORED, ENHANCED OR CREATED: **0.1** acres
    [must be provided in acres]

PART III: To Be Completed By The DEP

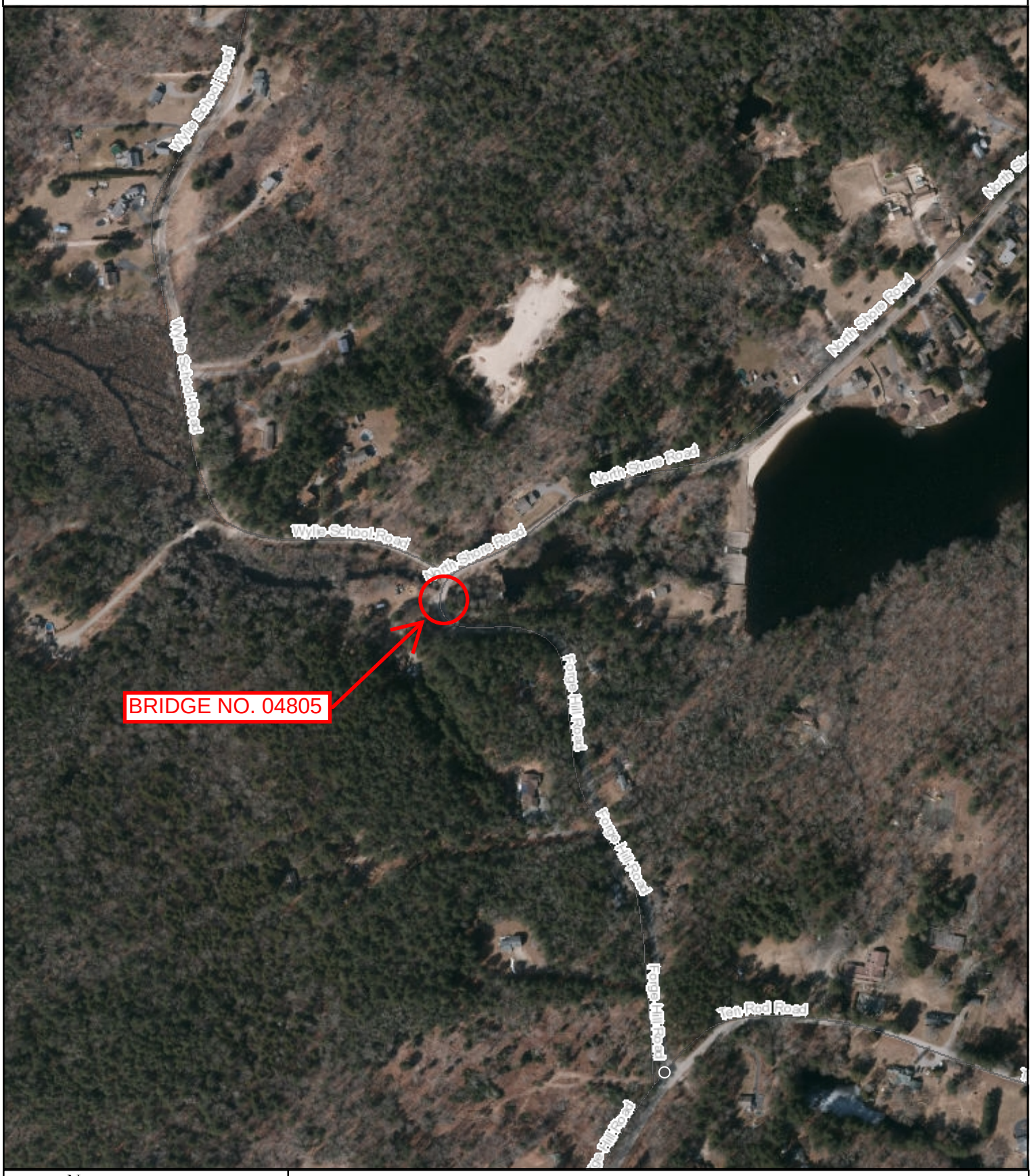
DATE RECEIVED: DATE RETURNED TO DEP:

FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO

Location Map

DETAILED AERIAL MAP

PROJECT NO. 0147-0062 BRIDGE NO. 04805
FORGE HILL ROAD OVER PACHAUG RIVER



N

CTECO AERIAL MAP
VOLUNTOWN,
CONNETICUT

1 INCH = 500 FEET

0 250 500 1,000 1,500 Feet

USGS Topographic Map

USGS QUADRANGLE MAP

PROJECT NO. 0147- 0062 BRIDGE NO. 04805
FORGE HILL ROAD OVER PACHAUG RIVER



N

USGS QUAD #74
Voluntown, CT

1 INCH = 2,000 FEET

0 1,000 2,000 4,000 6,000 Feet

PROJECT DESCRIPTION
Project Number: 0147-0062
Town: Voluntown, Connecticut
Bridge Number: 04805
Forge Hill Road over Pachaug River

Existing Conditions

Bridge No. 04805 carries Forge Hill Road over Pachaug River in the Town of Voluntown, Connecticut. The bridge superstructure comprises of a reinforced concrete slab with a bituminous concrete wearing surface which is supported by reinforced concrete abutments that are founded on spread footings; however, the exact dimensions or details of the footings and the bearing stratum are unknown due to absence of original bridge construction plans and soil boring information. The bridge was originally built in 1920 and is over 100 years old. The bridge originally carried bi-directional traffic in a north-south direction over a 20'-2" roadway curb-to-curb width and has span length of approximately 20'-0". A vehicular collision incident on 1/10/22 resulted in severe damage to the west bridge rail system from tearing of the rail and twisting of rail posts resulting in closure of the bridge. Subsequent temporary repairs performed by the Town has resulted in the bridge to be open to a stop-controlled alternating one way traffic. Forge Hill Road forms a T-Junction with Wylie School Road and North Shore Road at the north end of the bridge. The Average Daily Traffic (ADT) on the bridge is estimated to be 463 vehicles (Year 2020) and the roadway over the bridge is classified as a Rural Local Road. Pachaug River flows under the bridge from the east towards the west.

Purpose and Need Statement

The purpose of this project is to address the deficiencies in this bridge identified by recent inspections. The bridge deck and substructure are rated to be in fair condition respectively, while the superstructure is rated to be in poor condition. The bridge rail system comprising of rail posts with only a top rail does not meet current safety and geometric standards. The approach rail system along with its connection to the bridge rail system is also substandard. The existing 20'-2" roadway width on the bridge is substandard and needs to be widened to a minimum 22'-0" to meet Federal and State standards. Recent bridge inspection reports rate the Waterway Adequacy a 5 indicating that while the bridge deck is above the roadway approaches, occasional overtopping of the approaches will cause significant traffic delays. The Scour Critical rating for this bridge is rated a 5 indicating that the bridge foundations are stable for assessed scour conditions due to the presence of dams controlling the flow of the river. The actual load carrying capacity of the bridge is unknown due to lack of available plans.

Proposed Project

The two full replacement alternates considered for this bridge are:

- Alternate 1A – Prestressed Concrete Adjacent Deck Unit Bridge
- Alternate 1B – Prestressed Concrete Solid Deck Beam Bridge

Alternate 1A – Prestressed Concrete Adjacent Deck Unit Bridge

This alternate includes replacing the existing bridge with a 31'-0" wide structure with the superstructure consisting of eight 18" deep prestressed concrete adjacent deck unit beams. The superstructure includes six 4'-0"wide beams and two 3'-0" wide beams, with Ultra High Performance Concrete (UHPC) closure joints. The proposed adjacent deck units would have voids to reduce the weight of the individual beams.

The hydraulic requirements of the site have driven the depth of the cross-section. Alternates 1A and 1B both eliminate the standard concrete topping slab that is typically installed for better distribution of loads, to minimize differential deflection, and prevent cracking of closure joints thereby mitigating water leakage through the joints between the adjacent deck units. In lieu of a topping slab, UHPC shear keys are utilized in Alternate 1A to create strong and watertight joints between the units.

UHPC is more fluid than traditional concrete and therefore must have water-tight formwork. This characteristic also means that it cannot be finished on a slope without using top forms. UHPC placement typically utilizes top forms, which create a mold for the slope of the concrete, and these forms are set approximately ¼" above the surface of the prestressed concrete beams. After the UHPC has hardened, the forms are removed, and the excess concrete is ground flush with the adjacent surfaces. The process of grinding the surface of the shear key flush is time-intensive due to the strength of the UHPC. The rehabilitation is estimated to cost approximately $4,440,000 including incidentals (20%), contingencies (10%) and escalation to the bid opening.

Alternate 1B – Prestressed Concrete Solid Deck Beam Bridge

This alternate includes replacing the existing bridge with a 31'-0" wide structure with the superstructure consisting of eight 18" deep prestressed concrete solid deck beams. The superstructure includes six 4'-0" wide solid deck beams, joined by five 15" wide standard reinforced concrete closure joints. These beams are cast with transverse hooked connection bars, and longitudinal reinforcing is installed inside overlapping hooked connection bars during form placement for the closure joints. The full-depth closure pour provides continuity throughout the cross-section, resulting in a solid slab, which is the reason this section was developed.

The standard concrete for the closure pour does not require water-tight formwork and can be finished on a slope without top forms. Once the concrete has cured, no additional work is required to grind the closure pour to be even with the adjacent prestressed concrete beams unlike UHPC joint in Alternate 1A. The rehabilitation is estimated to cost approximately $4,360,000 including incidentals (20%), contingencies (10%) and escalation to the bid opening.

Based on the engineering analysis for this structure and deliberation of the previously described alternates, CHA recommends Alternate 1B – Prestressed Concrete Solid Deck Beam Bridge as the preferred alternate for the replacement of Bridge No. 04805. Both alternates meet the Project's Purpose and Needs, except for providing underclearance. Additionally, neither option meets the Goal of providing a 1.0' of underclearance and 1.0' of freeboard.

The prestressed concrete solid deck beam bridge alternate was selected primarily because of the following:

-The shallow depth of the superstructure slightly improves the freeboard and backwater surface elevation for a 100-year storm event.
-The full depth closure pours provide a continuous bridge cross-section.
-The closure pour is easier to construct utilizing standard concrete and avoids UHPC which is expensive, needs special formwork, and requires post-cure grinding.

Based on the condition of the existing bridge, a full replacement of the structure is proposed in order to correct the substandard roadway geometric width, unknown load carrying capacity, unknown foundation depths and scour concerns and considering the age of structure exceeding the 50-75 year service life of a traditional bridge. The proposed replacement will involve:

1. Removal of the existing bridge.
2. Construction of a new single span bridge with a 5' wide sidewalk to carry a 22'-0" wide roadway meeting current FHWA and CTDOT design standards.
3. The proposed bridge rail system will comprise of an aesthetically pleasing open bridge rail system meeting current safety standards. The deck out-to-out width is estimated to be approximately 31'-0" wide.
4. The proposed clear span length is estimated to be approximately 25'-0" to maintain/improve on the hydraulic adequacy and to build the new substructure behind the existing abutments.
5. The proposed bridge will be a prestressed concrete solid deck beam supported on concrete abutments, supported by piles socketed into bedrock.
6. Approach roadways will be reconstructed to approximately 100' on Forge Hill Road (south approach) and 75' each on Wylie School Road and North Shore Road (north approach).
7. New guiderails will be installed at all approach corners to the bridge to meet current design standards.
8. Maintenance and protection of traffic will be accomplished with the installation of a temporary bridge, this will accommodate emergency vehicle traffic as well. A detour is proposed for large trucks on this project.

Site Information

The Pachaug River flows under the bridge from the east towards the west. Beach Pond Dam is located approximately 900 feet upstream of the bridge and a historic dam exists approximately 150 feet upstream of the bridge which moderates the flow. The bridge is approximately 0.6 miles north of Route 165. The area around the bridge is comprised of residential properties. Beach Pond is a CT DEEP owned waterbody. There are no identified historic properties or structures located in the vicinity of the bridge according to the National Register of Historic Places Map (September 2020). According to the EPA's Environmental Justice Screening and Mapping Tool (Version 2.11), there are no environmental or demographic indicators of concern in the project area.

Wetland and Environmental Resources

The project location is within the Pachaug River subregional drainage basin (#3600) of the Pachaug regional drainage basin (#36). The bridge is located within Special Flood Hazard Zone AE with a base flood elevation of 278-feet according to FEMA Flood Insurance Rate Map #09011C0254G (effective date July 18, 2011). The bridge is not located within a regulated Aquifer Protection Area according to the CT DPH. The project is located in a Natural Diversity Database (NDDB) area per the December 2024 mapping. NDDB has identified the Eastern Hognose snake as a species of concern for this project. According to the U.S Fish and Wildlife Service Information for Planning and Consultation (IPaC) resource, the Northern Long-eared Bat and the Monarch Butterfly is a species that may be potentially affected by activities in this location. However, the project is not located in a critical habitat. According to the National Wetlands Inventory, the Pachaug River in the vicinity of the bridge is a riverine habitat (R5UBH) and Beach Pond located downstream of the bridge is a 267-acre lake habitat (L1UBH). Wetlands have been delineated as a part of this project.

A narrow, wetland area is located at the toe-of-slope immediately north of Wylie School Road. The existing wetland consists of mostly sand and gravel filled soils and functions as a drainage swale that collects runoff north of the bridge. Approximately 550 sq ft of permanent wetland impacts at this location are the result of drainage improvements. This area will be modified with the installation of a catch basin that will discharge the storm water through pipes below the roadway and a riprap apron into Pachaug River downstream of the bridge. This will re-establish the flow path at the steep slope.

The existing drainage system south of the bridge will be modified with the addition of new catch basins installed along both curbs of the road to catch the runoff approximately 130 feet before the bridge. The stormwater will be discharged thru a C-L catch basin, pipes below driveways, and a riprap apron into Pachaug River at a point east of the bridge. Approximately 150 sq ft of permanent watercourse impacts and 60 sq ft of permanent wetland impacts are anticipated because of these activities.

There are approximately 1000 sq ft of permanent watercourse impacts and 200 sq ft of wetland impacts as a result of the removal of the existing bridge structure, and regrading for slope stability. Additionally, there are approximately 220 sq ft of permanent watercourse impacts and 200 sq ft of permanent wetland impacts due to the installation of a new type C-L catch basin and modified riprap apron to the northwest of the bridge. Additionally, portion of these impacts are also the result of the installation of the temporary bridge. There is also approximately 360 sq ft of temporary watercourse impacts due to water handling activities. It is also worth nothing that the entire project site is located within the town 100-foot upland buffer zone.

EXISTING SITE PHOTOGRAPHS



Bridge Identification No. 04805



East elevation looking Northwest



West Elevation looking Southeast



Forge Hill Road looking North



Forge Hill Road looking South



Downstream conditions looking West



Upstream conditions looking East



Upstream conditions looking further East



Beach Pond Dam upstream of Bridge No. 04805 looking East



Above Beach Pond Dam looking West towards Bridge No. 04805



Pond upstream of Beach Pond Dam

Names and Addresses of Adjoining Properties

103 Forge Hill Road

REDDY ROBERT B & WILLIS LISA L
WILLIS ANGELINA ESTELLE
103 FORGE HILL RD
VOLUNTOWN, CT 06384

108 Forge Hill Road

BEACH POND CABINS
CIPRIANO JUACKINO
616 BEACH POND RD
VOLUNTOWN, CT 06384

101 Forge Hill Road

SABROWSKI PAUL J
32 HILLSIDE AVE
MILFORD, CT 06460

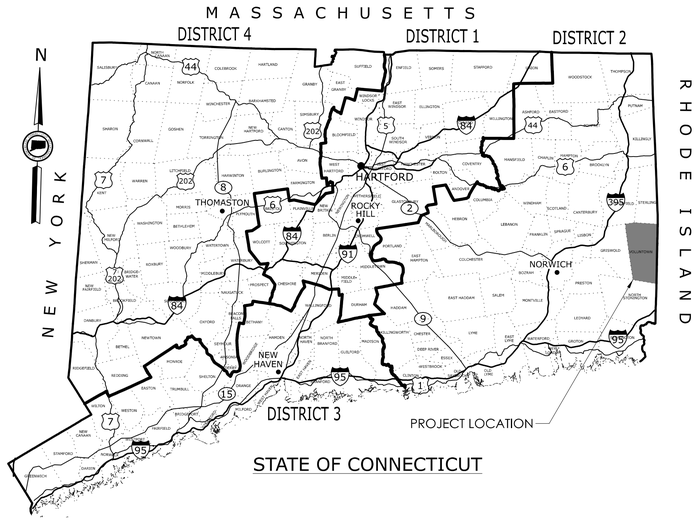
10 Wylie School Rd

BARBER BRADLEY D & SUZANNE G
10 WYLIE SCHOOL RD
VOLUNTOWN, CT 06384

3 North Shore Rd

NETTLETON JAMES R & LAURA A
319 HORSE HILL ROAD
WESTBROOK, CT 06498

Project Site Plans

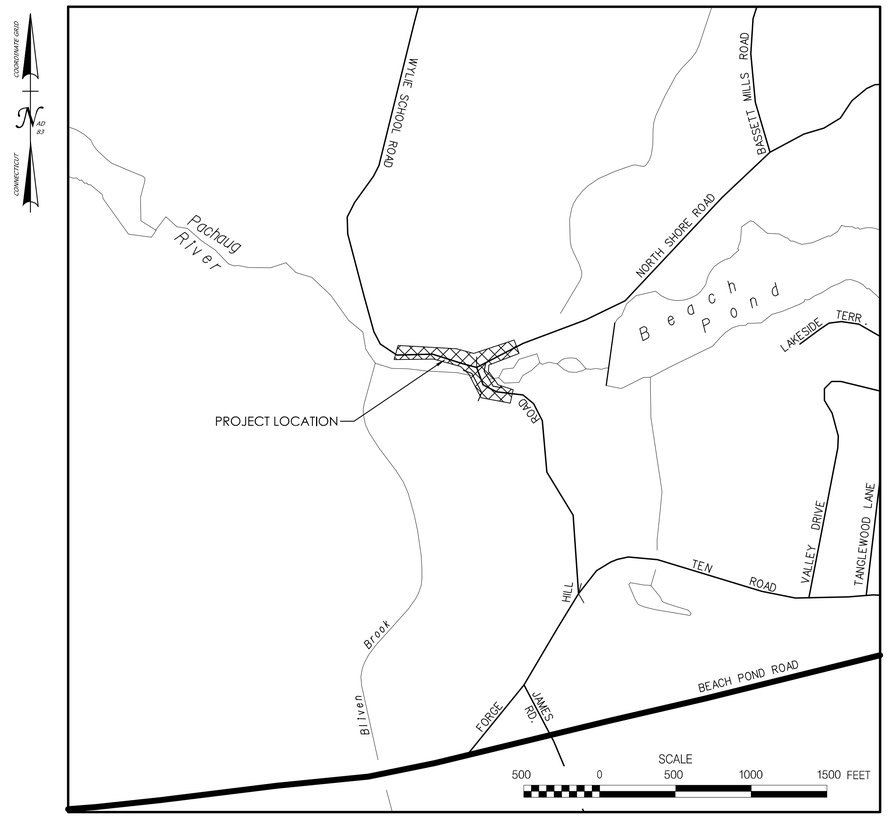


STATE OF CONNECTICUT

ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 0147-0062
REPLACEMENT OF BRIDGE NO. 04805 - FORGE HILL ROAD OVER PACHAUG RIVER

Town of

VOLUNTOWN



LOCATION PLAN

GENERAL NOTES:

1. THESE PLANS ARE NOT FOR CONSTRUCTION AND ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT, REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS, SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
3. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM OF 1983 (NAD'83) (2011), EPOCH 2011, GEOID 2018.
4. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION, FORM 819, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL AND THE CONNECTICUT STORMWATER QUALITY MANUAL.

LIST OF DRAWINGS	
DRAWING NOS.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	100-YR FLOOD IMPACT PLAN
PMT-05	BRIDGE ELEVATION AND MISCELLANEOUS DETAILS
PMT-06	WATER HANDLING PLAN
PMT-07	PERMIT PLANTING PLAN

DESIGNED BY: **BENESCH**

STATE OF CONNECTICUT · STEVEN J. DRECHSLER · No. 23441 · LICENSED PROFESSIONAL ENGINEER

Steven Drechsler 2025.04.11 15:26:07-04'00'

PLAN DATE: APRIL 11, 2025

REV.	DATE	REVISION DESCRIPTION

SIGNATURE BLOCK: Alfred Benesch & Company, 120 Hebron Avenue, 2nd Floor, Glastonbury, CT

DESIGNER/DRAFTER: A. BISI CHECKED BY: M. HABEK

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE: **REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER**

TOWN(S): **VOLUNTOWN**

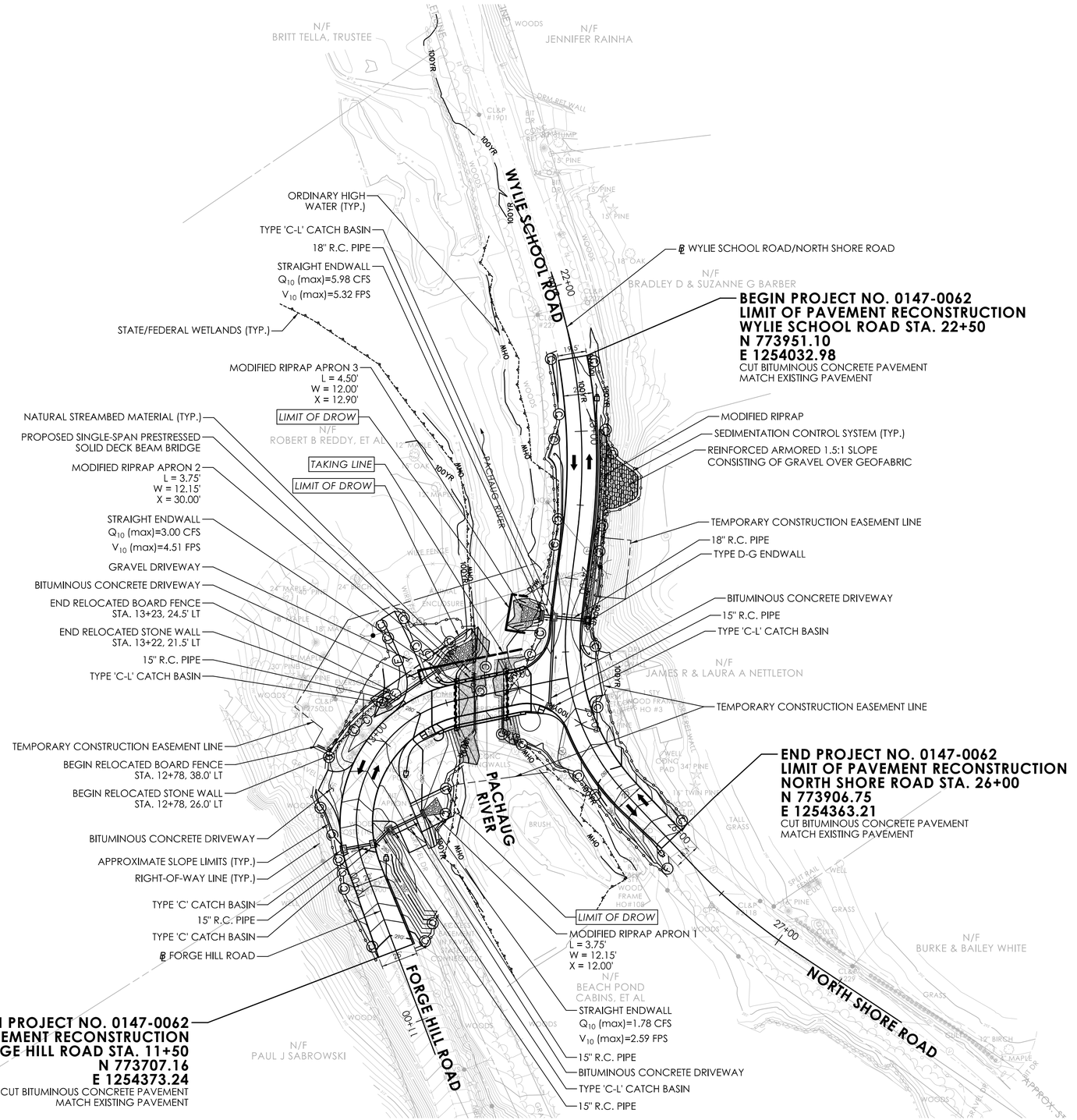
DRAWING TITLE: **TITLE SHEET**

PROJECT NO.: **0147-0062**

DRAWING NO.: **PMT-01**

SHEET NO.: 1

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\d0227544\Permit - Title Sheet.dgn
PLOTTED DATE: 4/8/2025



GENERAL SITE PLAN

SCALE: 1"=40'

LEGEND	
WETLAND LIMIT (STATE AND FEDERAL)	
FEMA 100-YEAR FLOOD (CALCULATED)	100YR
ORDINARY HIGH WATER	OHW
WATER HANDLING COFFERDAM	
COFFERDAM	
SEDIMENTATION CONTROL SYSTEM	

NOTES

1. DISTURBED AREA BELOW THE WETLAND LIMIT SHALL BE TREATED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE TREATED WITH CONSERVATION SEEDING FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.
2. ANY TREE CLEARING WORK INCLUDING TRIMMING, CUTTING AND REMOVAL OF TREES WITH A 3" DBH OR GREATER SHOULD BE RESTRICTED TO THE PERIOD FROM NOVEMBER 1 TO APRIL 14. GROUND DISTURBING ACTIVITIES SHOULD BE DONE BETWEEN APRIL 1 AND OCTOBER 31 (INCLUSIVE) TO AVOID KILLING HIBERNATING ANIMALS.

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 11, 2025

REV.	DATE	REVISION DESCRIPTION

SIGNATURE BLOCK: Alfred Benesch & Company, 120 Hebron Avenue, 2nd Floor, Glastonbury, CT

DESIGNER/DRAFTER: D. WALSH CHECKED BY: M. HABEK

0 40 80
HORIZONTAL SCALE
1" = 40'

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER

TOWN(S): VOLUNTOWN

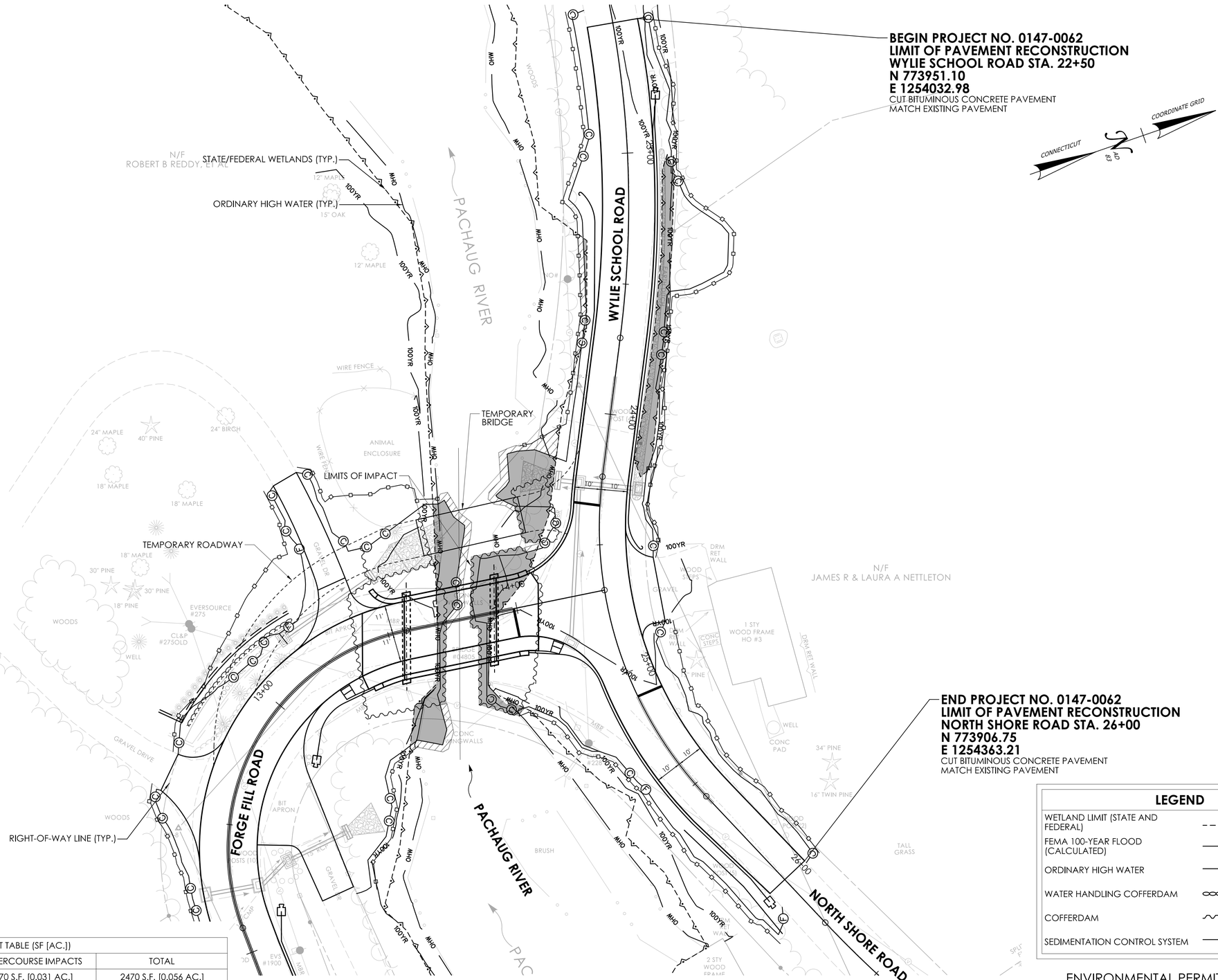
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PROJECT NO.: 0147-0062

DRAWING NO.: PMT-02

SHEET NO.: 2

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\d0227544\Permit - General Site Plan.dgn
PLOTTED DATE: 4/8/2025



NOTE:

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

LEGEND	
PERMANENT WETLAND/WATERCOURSE IMPACT	
TEMPORARY WETLAND/WATERCOURSE IMPACT	

WETLAND/WATERCOURSE IMPACT TABLE (SF [AC.])			
	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	1100 S.F. [0.025 AC]	1370 S.F. [0.031 AC.]	2470 S.F. [0.056 AC.]
TEMPORARY IMPACTS	170 S.F. [0.004 AC.]	360 S.F. [0.008 AC.]	530 S.F. [0.012 AC.]
TOTAL IMPACTS	1270 S.F. [0.029 AC.]	1730 S.F. [0.039 AC.]	3000 S.F. [0.068 AC.]

LEGEND	
WETLAND LIMIT (STATE AND FEDERAL)	
FEMA 100-YEAR FLOOD (CALCULATED)	100YR
ORDINARY HIGH WATER	OHW
WATER HANDLING COFFERDAM	
COFFERDAM	
SEDIMENTATION CONTROL SYSTEM	

WETLAND/WATERCOURSE IMPACT PLAN
SCALE: 1"=20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 11, 2025

REVISION DESCRIPTION | DATE | REV.

SIGNATURE BLOCK:

Alfred Benesch & Company
120 Hebron Avenue
2nd Floor
Glastonbury, CT

DESIGNER/DRAFTER: A. BISI CHECKED BY: M. HABEK

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE:
REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER

TOWN(S): **VOLUNTOWN**

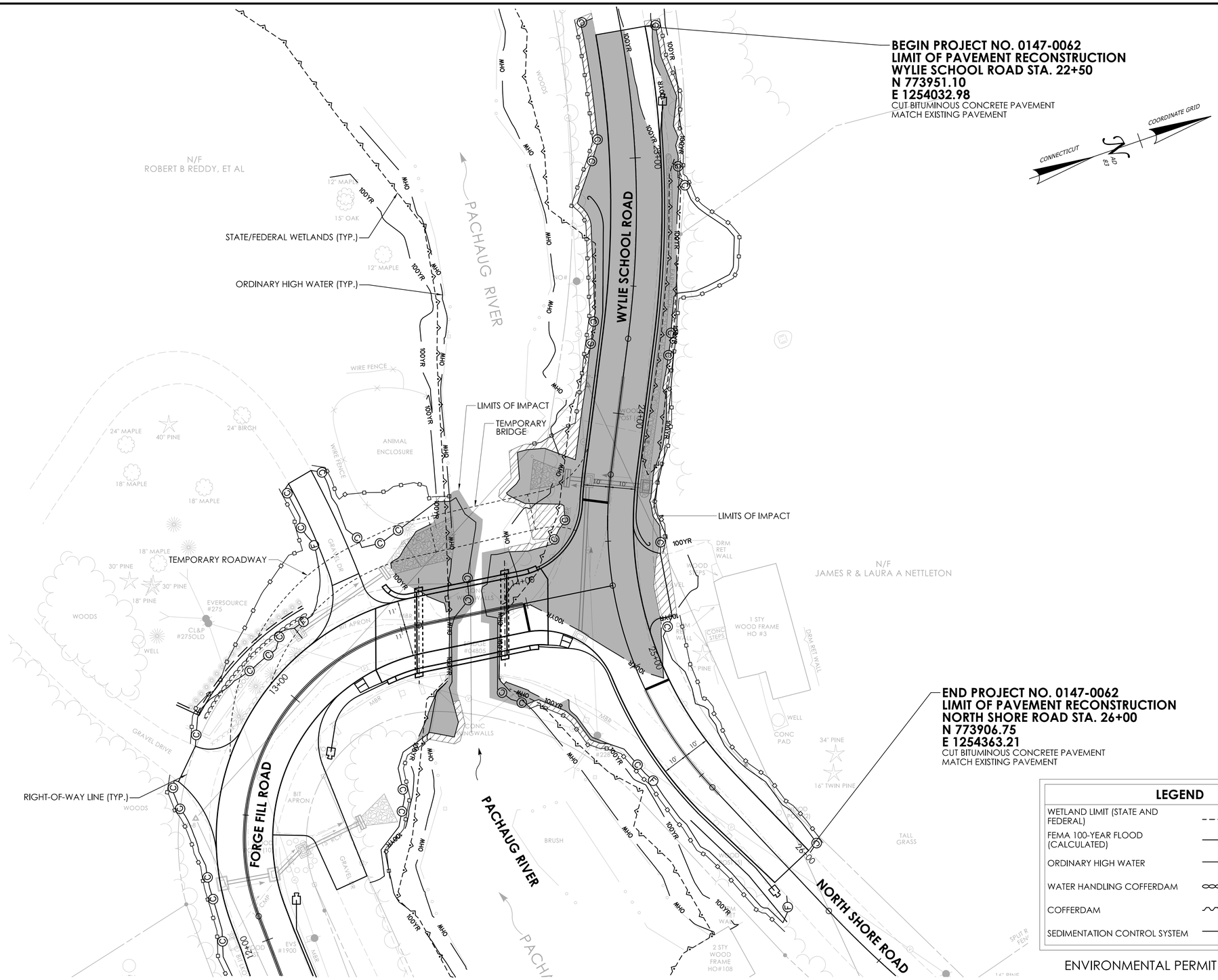
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WETLAND/WATERCOURSE IMPACT PLAN

PROJECT NO.: **0147-0062**

DRAWING NO.: **PMT-03**

SHEET NO.: 3

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\d0227544\Permit - WetlandWatercourse Impact.dgn
PLOTTED DATE: 4/8/2025



NOTES

1. ANY TREE CLEARING WORK INCLUDING TRIMMING, CUTTING AND REMOVAL OF TREES WITH A 3" DBH OR GREATER SHOULD BE RESTRICTED TO THE PERIOD FROM NOVEMBER 1 TO APRIL 14. CONSTRUCTION THE INVOLVES GROUND DISTURBANCE SHOULD BE RESTRICTED TO THE PERIOD FROM APRIL 1 TO OCTOBER 31.

LEGEND	
PERMANENT IMPACT	
TEMPORARY IMPACT	

100-YEAR FLOODPLAIN IMPACTS CUT AND FILL	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
250 C.Y.	25 C.Y.

LEGEND	
WETLAND LIMIT (STATE AND FEDERAL)	
FEMA 100-YEAR FLOOD (CALCULATED)	100YR
ORDINARY HIGH WATER	OHW
WATER HANDLING COFFERDAM	
COFFERDAM	
SEDIMENTATION CONTROL SYSTEM	

100-YEAR FLOOD IMPACT PLAN
SCALE: 1"=20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 11, 2025

REV.	DATE	REVISION DESCRIPTION

SIGNATURE BLOCK: Alfred Benesch & Company, 120 Hebron Avenue, 2nd Floor, Glastonbury, CT

DESIGNER/DRAFTER: A. BISI CHECKED BY: M. HABEK

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE: **REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER**

TOWN(S): **VOLUNTOWN**

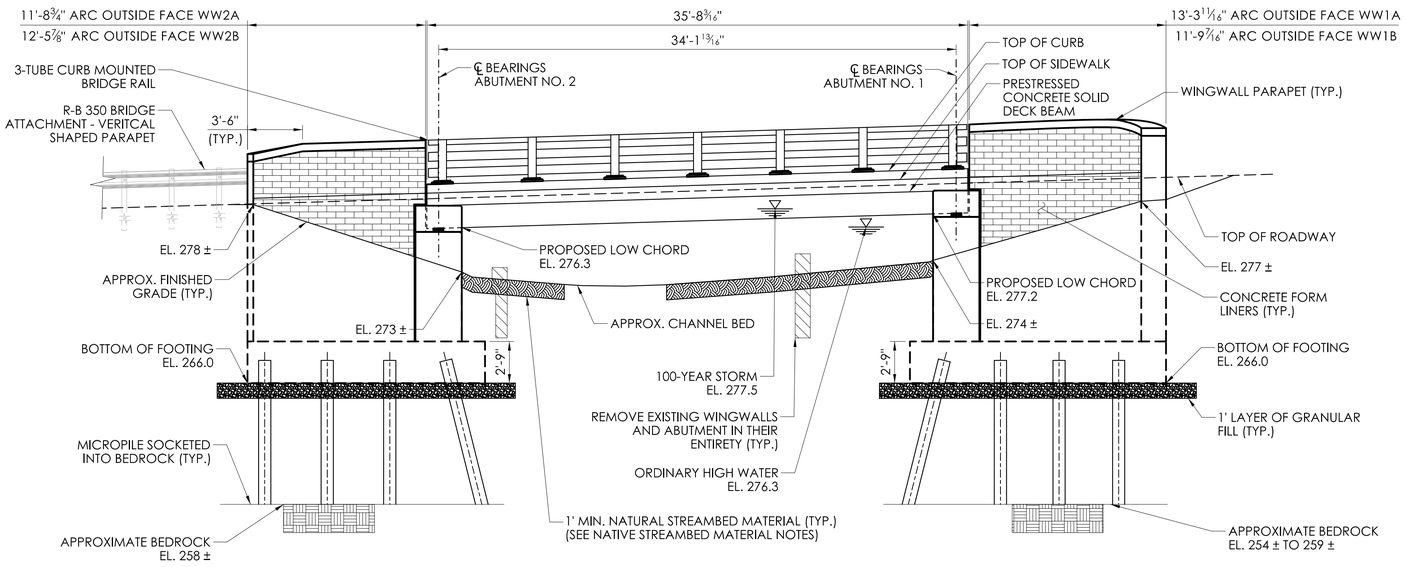
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PROJECT NO.: **0147-0062**

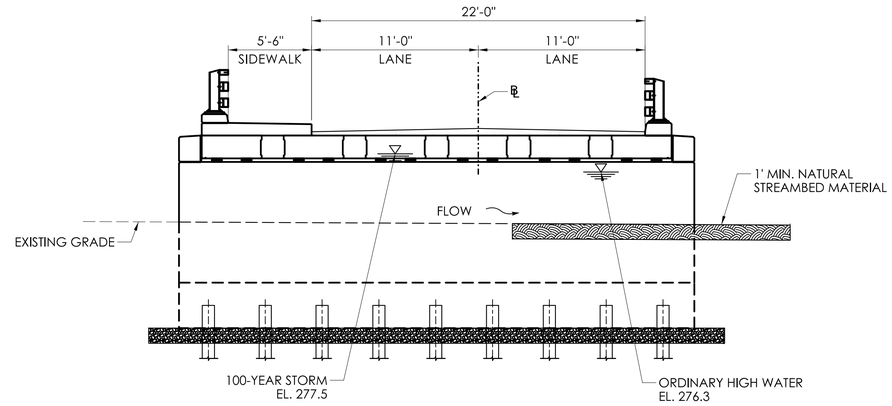
DRAWING NO.: **PMT-04**

SHEET NO.: 4

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\d0227544\Permit - 100 Year Flood.dgn
PLOTTED DATE: 4/8/2025

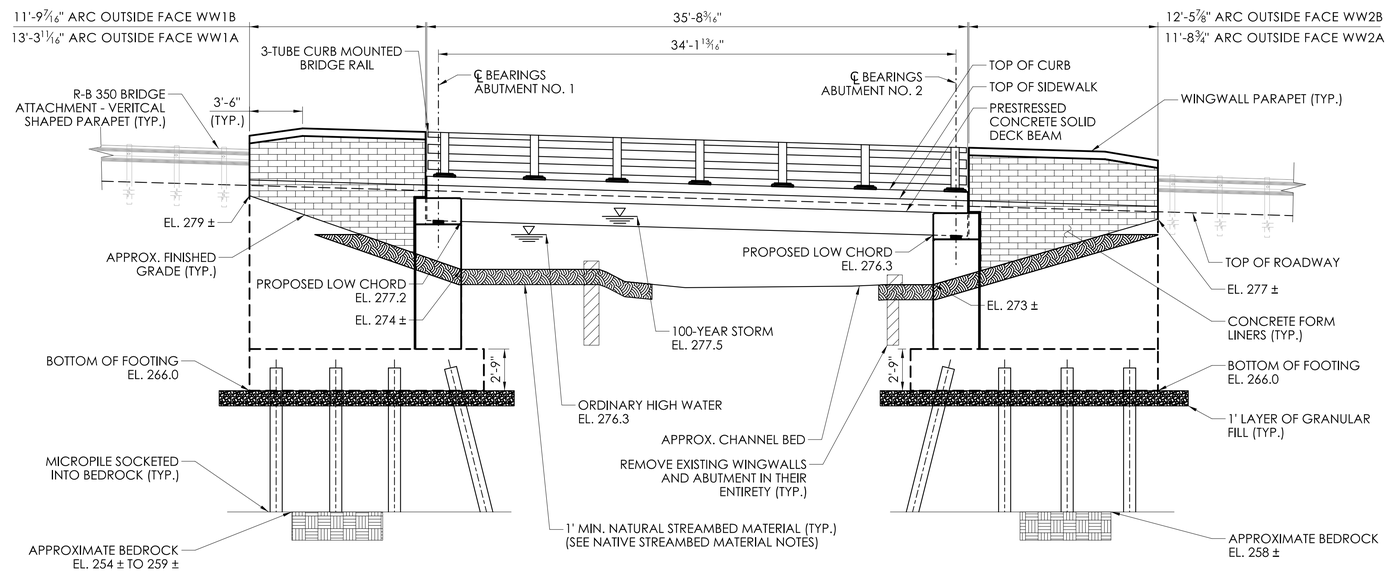


OUTLET ELEVATION
SCALE: 1"=5'



BRIDGE LONGITUDINAL SECTION
SCALE: 1"=5'

NOTE: SECTION TAKEN ALONG CENTERLINE OF CHANNEL



INLET ELEVATION
SCALE: 1"=5'

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE INSTALLATION OF THE STRUCTURE SHALL BE STOCKPILED AND THEN REPLACED TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.
4. 1' NATURAL STREAMBED MATERIAL SHALL BE PLACED UP TO PROPOSED CONTOUR ELEVATION 277.3 ON BOTH SIDES OF THE RIVER WITHIN THE DISTURBED AREAS.

BRIDGE PERMIT NOTES:
1. OPENNESS RATIO (OR):
   OR = OPEN AREA/BRIDGE LENGTH
   OR = 107.9 S.F./32 FT. = 3.3 FT.
   3.3 FT. > 0.82 FT. (RECOMMENDED MINIMUM)
2. BANKFUL WIDTH (BFW):
   BFW = 25 FT. EXISTING UPSTREAM
   1.2 X BFW = 30 FT.
   30 FT. < 30.5 FT. PROPOSED BRIDGE SPAN

HYDRAULIC SUMMARY TABLE	
DRAINAGE AREA [SQ. MI.]	5.5
DESIGN FREQUENCY [YEAR]	100
DESIGN DISCHARGE [CFS]	350
AVERAGE DAILY FLOW ELEVATION [FT]	273.6
DESIGN WATER SURFACE EL. - UPSTREAM [FT]	277.5
DESIGN WATER SURFACE EL. - DOWNSTREAM [FT]	277.2

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 11, 2025

REV.	DATE	REVISION DESCRIPTION

SIGNATURE BLOCK:

Alfred Benesch & Company
120 Heteon Avenue
2nd Floor
Glastonbury, CT

DESIGNER/DRAFTER: A. BISI CHECKED BY: M. HABEK

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER

TOWN(S): VOLUNTOWN

DRAWING TITLE: BRIDGE ELEVATION AND MISCELLANEOUS DETAILS

PROJECT NO.: 0147-0062

DRAWING NO.: PMT-05

SHEET NO.: 5

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\d0227544\Permit - Bridge Elevation and Mis Details.dgn
PLOTTED DATE: 4/8/2025

CONNECTICUT COORDINATE GRID

SUGGESTED SEQUENCE OF CONSTRUCTION

ADVANCE WORK

1. TEMPORARILY RELOCATE EXISTING OVERHEAD UTILITIES (BY OTHERS). SEE DWG. NO. S-25 FOR DETAILS.

PHASE 1

1. INSTALL PHASE 1 SIGNAGE AND TEMPORARY TRAFFIC BARRIERS.
2. CLEAR & GRUB AND INSTALL SEDIMENTATION CONTROL SYSTEM.
3. INSTALL PHASE 1 COFFERDAM, TEMPORARY BARRICADES AND DEWATERING FOR CONSTRUCTION OF TEMPORARY BRIDGE ABUTMENTS.
4. CONSTRUCT TEMPORARY BRIDGE. TEMPORARY BRIDGE TO BE DESIGNED BY THE CONTRACTOR TO THE REQUIREMENTS SPECIFIED IN THE SPECIAL PROVISIONS FOR ITEM 0502195A TEMPORARY BRIDGE. FOR FOUNDATION RECOMMENDATIONS REFER TO GEOTECHNICAL REPORT.
5. CONSTRUCT TEMPORARY BYPASS ROAD WEST OF THE EXISTING BRIDGE.
6. MODIFY WYLIE SCHOOL RD. / N. SHORE RD. INTERSECTION TO ALLOW FOR ONE-WAY ALTERNATING TRAFFIC

PHASE 2

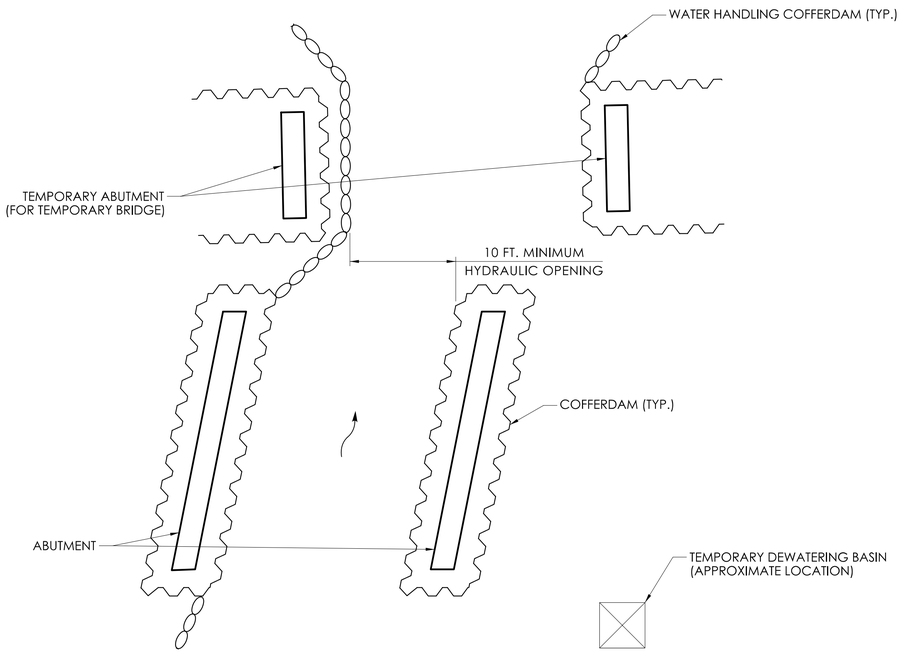
1. INSTALL PHASE 2 SIGNAGE AND TEMPORARY TRAFFIC BARRIERS AND RE-ROUTE TRAFFIC ONTO TEMPORARY BYPASS ROAD.
2. INSTALL TEMPORARY DEBRIS SHIELD FOR REMOVAL OF EXISTING SUPERSTRUCTURE (PAID FOR UNDER "REMOVAL OF SUPERSTRUCTURE"). MINIMUM ELEVATION OF TEMPORARY DEBRIS SHIELD EL. 275.90. TEMPORARY LOW CHORD EL. 275.0.
3. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND REMOVE DEBRIS SHIELD.
4. INSTALL PHASE 2 COFFERDAMS. INSTALL WATER HANDLING COFFERDAM ON THE EAST SIDE OF THE BRIDGE AS SHOWN. REMOVE EXISTING BRIDGE SUBSTRUCTURES.
5. EXCAVATE INSIDE COFFERDAMS TO APPROXIMATE BOTTOM OF NEW SUBSTRUCTURES. STOCKPILE NATURAL STREAMBED MATERIAL (IN UPLAND AREA).
6. INSTALL MICROPILES FOR PROPOSED SUBSTRUCTURES.
7. CONSTRUCT FOOTINGS, ABUTMENTS AND WINGWALLS FOR THE PROPOSED BRIDGE STRUCTURE.
8. RE-GRADE PROPOSED CHANNEL WITHIN COFFERDAMS AND WATER HANDLING COFFERDAMS. INSTALL NATURAL STREAMBED MATERIAL.
9. REMOVE COFFERDAM AND DEWATERING BASIN INSTALLED IN PHASE 2 FOR THE PROPOSED WORK ON THE NORTH SIDE OF THE RIVER.
10. INSTALL WATER HANDLING COFFERDAM ON THE WEST SIDE OF THE BRIDGE AS SHOWN.
11. RE-GRADE PROPOSED CHANNEL WITHIN WATER HANDLING COFFERDAM. INSTALL STREAMBED MATERIAL.
12. REMOVE COFFERDAM AND WATER HANDLING COFFERDAM INSTALLED IN PHASE 2 FOR THE PROPOSED WORK ON THE SOUTH SIDE OF THE RIVER.

PHASE 3

1. INSTALL PRESTRESSED SOLID DECK BEAMS.
2. TIE REBAR, FORM AND POUR CLOSURE JOINTS BETWEEN DECK BEAMS.
3. CONSTRUCT APPROACH SLABS.
4. TIE REBAR, FORM AND POUR CONCRETE SIDEWALK AND CURBS.
5. INSTALL MEMBRANE WATERPROOFING AND 1" HMA S0.25 ON BRIDGE.
6. INSTALL 3-TUBE CURB MOUNTED BRIDGE RAIL.
7. INSTALL CATCH BASIN AT STA. 14+18 R AND SECTION OF R.C.P. AS ALLOWED WITHOUT DISRUPTING TEMPORARY ROADWAY.
8. INSTALL PROPOSED ROADWAY SUBBASE (USED AS A TEMPORARY DRIVING SURFACE) AND TEMPORARY PAVEMENT FOR ROADWAY TRANSITION ONTO APPROACH SLABS.
9. RE-ROUTE TRAFFIC ONTO NEWLY CONSTRUCTED BRIDGE AND PARTIALLY CONSTRUCTED PROPOSED ROADWAY. REMOVE TEMPORARY BYPASS ROAD, TEMPORARY BRIDGE AND COFFERDAMS.
10. COMPLETE INSTALLATION OF ROADWAY DRAINAGE AND INSTALL RIPRAP SPLASHPADS. REMOVE REMAINING WATER HANDLING COFFERDAM.
11. INSTALL ROADWAY GUIDERAILS AND PAVE ROADWAY.
12. INSTALL PLANTINGS AND TURF ESTABLISHMENT.
13. REMOVE SEDIMENTATION CONTROL SYSTEMS UPON PERMANENT STABILIZATION.

POST-CONSTRUCTION PHASE

RELOCATE UTILITIES TO THE FINAL LOCATIONS (BY OTHERS).



WATER HANDLING PLAN
NOT TO SCALE

NOTE: WATER HANDLING FOR INSTALLATION OF TEMPORARY BRIDGE, REMOVAL OF EXISTING BRIDGE, AND INSTALLATION OF PROPOSED BRIDGE.

WATER HANDLING NOTES

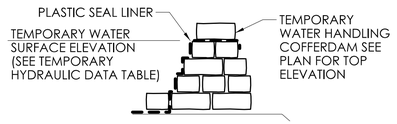
1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE COFFERDAM (10'-0" MIN. OPENING) DURING CONSTRUCTION OF THE TEMPORARY BRIDGE AND NEW STRUCTURE.
2. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
3. COFFERDAM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.
4. TEMPORARY WATER HANDLING SYSTEM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.
5. ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENTS 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL. COFFERDAMS SHALL BE PAID FOR UNDER "COFFERDAM AND DEWATERING."
6. WATER HANDLING SYSTEM SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.

UNCONFINED IN-STREAM WORK BMP NOTE:

ANY UNCONFINED IN-STREAM WORK WITHIN THE WATERCOURSE SHALL BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.

THE DEPARTMENT WILL REVIEW AND MAY APPROVE THE METHODS OF UNCONFINED IN-WATER WORK WITH CONSIDERATION OF THE FOLLOWING:

* PROPOSED SCHEDULE FOR WORK OPERATIONS
* ALL UNCONFINED IN-WATER WORK SHALL BE MINOR IN NATURE
* DISTURBANCE SHALL BE LIMITED TO AREAS THAT HAVE BEEN APPROVED FOR TEMPORARY AND PERMANENT IMPACT
* BEST MANAGEMENT PRACTICE SHALL BE UTILIZED WHEREVER POSSIBLE TO MINIMIZE TURBIDITY/SEDIMENT TRANSPORT DOWNSTREAM
* DISTURBED AREAS AND THE DURATION OF DISTURBANCE SHALL BE MINIMALIZED TO THE EXTENT POSSIBLE
* IN-STREAM WORK SHALL BE DONE DURING PERIODS OF LOW FLOW



WATER HANDLING COFFERDAM SANDBAGS
NOT TO SCALE

TIME-OF-YEAR RESTRICTION NOTE:

ANY TREE CLEARING WORK INCLUDING TRIMMING, CUTTING AND REMOVAL OF TREES WITH A 3" DBH OR GREATER SHOULD BE RESTRICTED TO THE PERIOD FROM NOVEMBER 1 TO APRIL 14. GROUND DISTURBING ACTIVITIES SHOULD BE DONE BETWEEN APRIL 1 AND OCTOBER 31 (INCLUSIVE) TO AVOID KILLING HIBERNATING ANIMALS.

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW (ADF) [CFS]	10
AVERAGE SPRING FLOW (ASF) [CFS]	20
2 YEAR FREQUENCY DISCHARGE [CFS]	30
TEMPORARY DESIGN DISCHARGE [CFS]	70
TEMPORARY DESIGN FREQUENCY	5-YEAR
TEMPORARY WATER SURFACE EL. - UPSTREAM	275.0 FEET
TEMPORARY WATER SURFACE EL. - DOWNSTREAM	274.7 FEET

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 11, 2025

REVISION DESCRIPTION | DATE | REV.

SIGNATURE BLOCK: Alfred Benesch & Company, 120 Hebron Avenue, 2nd Floor, Glastonbury, CT

DESIGNER/DRAFTER: A.BISI CHECKED BY: M. HABEK

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE: **REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER**

TOWN(S): **VOLUNTOWN**

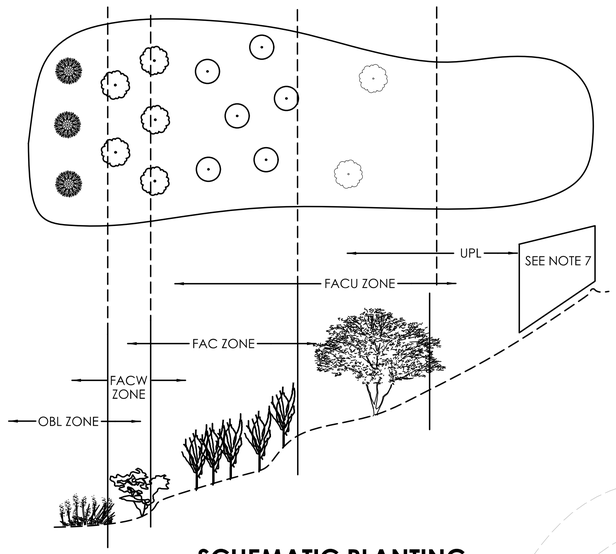
DRAWING TITLE: **WATER HANDLING PLAN**

PROJECT NO.: **0147-0062**

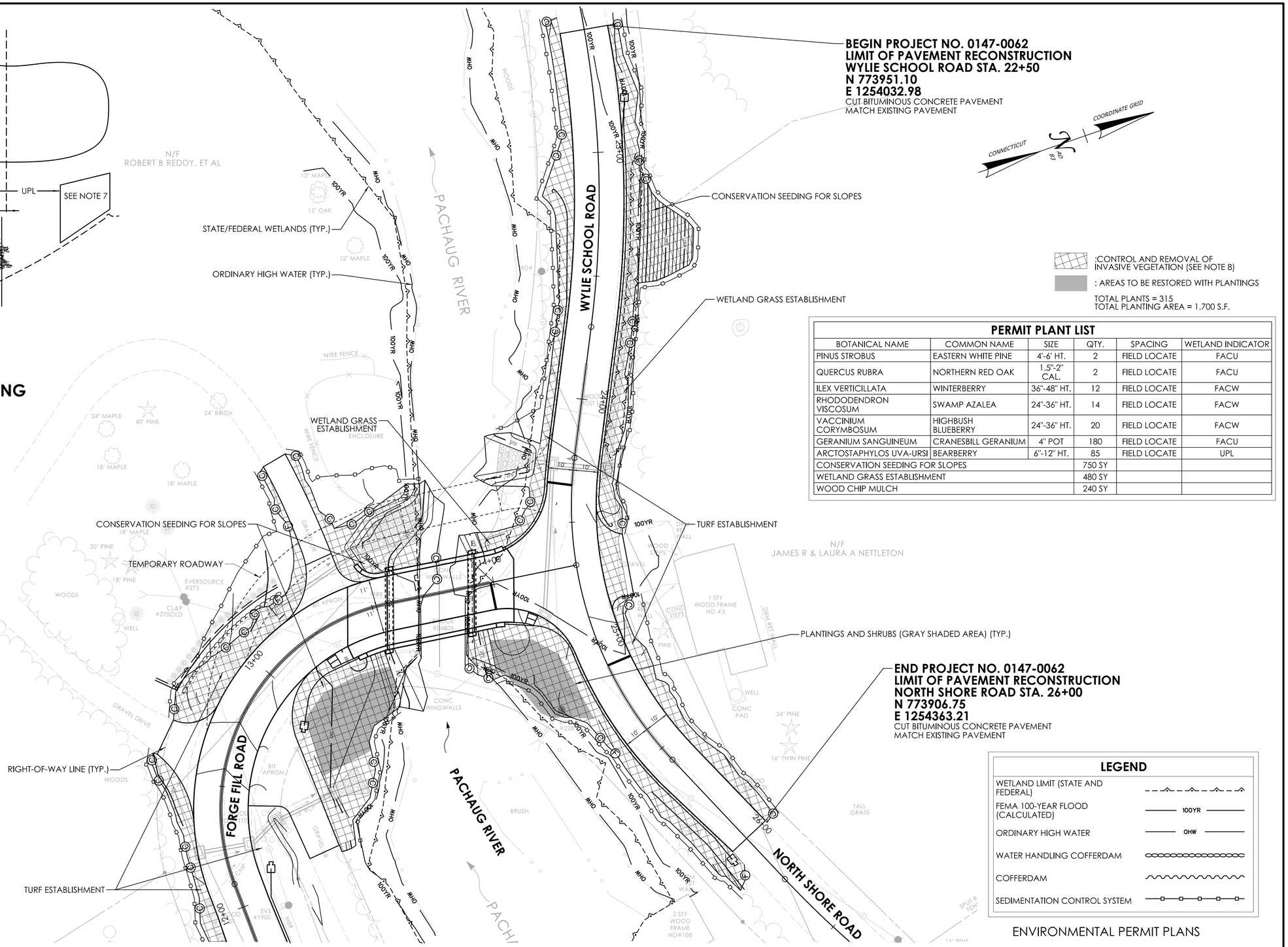
DRAWING NO.: **PMT-06**

SHEET NO.: 6

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\d0227544\Permit - Water Handling Phase.dgn
PLOTTED DATE: 4/8/2025



SCHEMATIC PLANTING



PLANTING PLAN
SCALE: 1"=20'

PERMIT PLANT LIST

BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
PINUS STROBUS	EASTERN WHITE PINE	4'-6' HT.	2	FIELD LOCATE	FACU
QUERCUS RUBRA	NORTHERN RED OAK	1.5"-2" CAL.	2	FIELD LOCATE	FACU
ILEX VERTICILLATA	WINTERBERRY	36"-48" HT.	12	FIELD LOCATE	FACW
RHODODENDRON VISCOSUM	SWAMP AZALEA	24"-36" HT.	14	FIELD LOCATE	FACW
VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	24"-36" HT.	20	FIELD LOCATE	FACW
GERANIUM SANGUINEUM	CRANESBILL GERANIUM	4" POT	180	FIELD LOCATE	FACU
ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	6"-12" HT.	85	FIELD LOCATE	UPL
CONSERVATION SEEDING FOR SLOPES			750 SY		
WETLAND GRASS ESTABLISHMENT			480 SY		
WOOD CHIP MULCH			240 SY		

NOTES

1. ANY TREE CLEARING WORK INCLUDING TRIMMING, CUTTING AND REMOVAL OF TREES WITH A 3" DBH OR GREATER SHOULD BE RESTRICTED TO THE PERIOD FROM NOVEMBER 1 TO APRIL 14. GROUND DISTURBING ACTIVITIES SHOULD BE DONE BETWEEN APRIL 1 AND OCTOBER 31 (INCLUSIVE) TO AVOID KILLING HIBERNATING ANIMALS.
2. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH THE TOWN OR DESIGNATED REPRESENTATIVE.
3. PROPOSED PLANTINGS TO BE FIELD LOCATED BY THE TOWN OR THEIR DESIGNATED REPRESENTATIVE.
4. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.
5. DISTURBED AREAS BELOW THE WETLAND LIMIT SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE SEEDED WITH CONSERVATION SEEDING FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.
6. ALL PLANT MATERIAL SHALL BE NURSERY GRADE STRAIGHT SPECIES, CONFORMING TO SECTION 3 OF THE AMERICAN STANDARDS FOR NURSERY STOCK. THE TOWN WILL REVIEW AND APPROVE PROPOSED PLANTINGS.
7. NO PLANTINGS SHALL BE PLACED IN MOW AREA.
8. AREA TO BE TREATED FOR INVASIVES SHALL BE PROPERLY PREPARED FOR FINAL PLANTING, SEEDING, AND RESTORATION.

LEGEND

WETLAND LIMIT (STATE AND FEDERAL)	
FEMA 100-YEAR FLOOD (CALCULATED)	100YR
ORDINARY HIGH WATER	OHW
WATER HANDLING COFFERDAM	
COFFERDAM	
SEDIMENTATION CONTROL SYSTEM	

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 11, 2025

REV.	DATE	REVISION DESCRIPTION

SIGNATURE BLOCK: Alfred Benesch & Company, 120 Hebron Avenue, 2nd Floor, Glastonbury, CT

DESIGNER/DRAFTER: A. BISI CHECKED BY: M. HABEK

CONNECTICUT DEPARTMENT OF TRANSPORTATION

PROJECT TITLE: REPLACEMENT OF BRIDGE NO. 04805; FORGE HILL ROAD OVER PACHAUG RIVER

TOWN(S): VOLUNTOWN

DRAWING TITLE: PERMIT PLANTING PLAN

PROJECT NO.: 0147-0062

DRAWING NO.: PMT-07

SHEET NO.: 7

LASTED SAVED BY: abisi **FILE NAME:** c:\pwwordir\benesch projects\projects\a0227544\Permit - Planting.dgn
PLOTTED DATE: 4/8/2025

Wetland Report

EcoMaps, LLC
42 Bar Gate Trail
Killingworth, CT 06419
p. 248.885.5477
e. michelle@ecomapsllc.com

February 8, 2023

CHA Consulting, Inc.
Attn: Stephany L. Dubina (SDubina@chacompanies.com)
Rachelle Clark (RachelleClark@chacompanies.com)

RE: **Wetland Delineation Report, CT DOT State Project No. 147-0062**
Rehabilitation of Bridge No. 04805 carrying Forge Hill Road over Pachaug River,
Voluntown, CT

Ms. Dubina and Ms. Clark,

At the request of CHA, I conducted an inspection of the area demarcated on the Wetlands Delineation Limits Map which was provided in the Request for Proposals for the above-referenced project. A sketch map of flagged locations is included in Attachment A: Wetland Sketch Map. The purpose of the inspection was to delineate federal and State of Connecticut jurisdictional wetlands and watercourses and was conducted by myself, a soil scientist as defined in the Connecticut General Statutes, Title 22a, Chapter 440, Inland Wetlands and Watercourses Act, Section 22a-38.

Regulated Wetlands and Watercourses

In Connecticut wetlands are defined as "land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35, inclusive, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey, as may be amended from time to time, of the Natural Resources Conservation Service of the United States Department of Agriculture."

Watercourses are defined as being "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon this state or any portion thereof, not regulated pursuant to sections 22a-28 to 22a-35, inclusive. Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) Evidence of scour or deposits of recent alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation."

Federal Wetlands are defined as "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Federal wetlands are delineated based on three-parameters looking at soils, vegetation and hydrology.

EcoMaps, LLC
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e. michelle@ecomapsllc.com

State and federal wetland resource areas were delineated by examining the upper 18 - 20" of the soil profile and those areas which met the criteria noted above were demarcated in the field with pink flagging and/or orange, wire stake flags and numbered sequentially as shown on the attached wetland sketch map (Attachment A).

Site Description and Wetlands

The delineation was focused on the overpass of Forge Hill Road and the Pachaug River, immediately south of the intersection of Wylie School Road and North Shore Road in the town of Voluntown, CT. The Pachaug River flows from east to west beneath the bridge which is bound to the north by Wylie Hill Road and North Shore Road, to the southwest by a residential property, and to the west by a recreational camp to the southeast. A large, historic stone dam which moderates flow within the River is located approximately 150' east of the bridge. Upgradient of the dam is a large, open water and emergent wetland.

The State and Federal wetland boundaries were observed to be coincident throughout the delineation area. Although mapping shows alluvial floodplain soils beyond what was flagged in the field, on-site conditions dictated the true extent of wetland soils which included the Pachaug River and a portion of the adjacent, vegetated floodplain. Flagged resource area are as follows:

Northeast of Bridge 147-0062:

Wetlands were flagged as W1-1A located at the dam through W1-10A at the bridge. Approximately 125 feet east of the bridge is an abandoned residential structure that lies within the wetland resources and is directly connected to the dam. The area located just upgradient of Wetland Flags W1-4A through W1-9A was found to contain anthropogenic fill material that appeared to be comprised of charcoal and/or ash. Wetland resources followed the toe-of-slope nearest to the River.

Southeast of Bridge 147-0062:

Wetlands were flagged as W1-1 at the dam through W1-9 at the bridge. Wetlands generally followed the toe-of-slope along the river at the base of a densely forested/vegetated upland located between the River and the driveway to the camp.

Northwest of Bridge 147-0062:

Wetlands were flagged as W1-11A at the west side of the bridge to W1-24A. Wetlands in this area include the floodplain associated with the Pachaug River and are located several feet south of Wylie School Road where they, in general, follow the road parallel to the River. Based upon the microtopographic conditions, the area appears to have been historically manipulated although fill material was limited to areas proximal to Wylie School Road.

Southwest of Bridge 147-0062:

Wetlands were flagged as W1-10 through W1-18. The area immediately northeast of the Bridge is a residential property with a small-scale farm. Nearest to the river the homeowner maintains a garden, wood pile and multiple animal pens amongst a mown lawn that abuts the River. The absence of an alluvial soil profile in this area is likely due to the presence of the upstream dam that regulates flow and keeps the area from regularly flooding.

EcoMaps, LLC
42 Bar Gate Trail
Killingworth, CT 06419
p. 248.885.5477
e. michelle@ecomapsllc.com

A narrow, drainage swale located at the toe-of-slope immediately north of Wylie School Road was demarcated with wetland flags W2-1 through W2-12. The wetland functions as a drainage swale to convey water to a now defunct culvert which flows beneath the road to the Pachaug River. No evidence of a culvert was visible on the south side of Wylie School Road.

To aid in the evaluation of wetland soils which may occur in the project area, digitally available soil survey information was obtained from the Natural Resources Conservation Service (Attachment B: Soils Map). Although the NRCS soil data is not representative of exact, on-site conditions, it provides a general representation of soil characteristics and the soil catena present in the region. The following is a description of wetland and upland soil types observed on the site. Wetland delineation data forms are provided in Attachment C.

Wetland Soil Types

The NRCS Soil Survey Geographic Database (SSURGO) maps the soils within the project area as Rippowam fine sandy loam which are described as being "very deep, poorly drained loamy soils formed in alluvial sediments. They are nearly level soils on flood plains subject to frequent flooding."

According to the Soil Survey Geographic Database made available through CT Department of Energy and Environmental Protection (CT DEEP) mapping of inland wetland soils, soils within the area of delineation are mapped as alluvial and floodplain soils.

If you have any questions regarding the concerns, please don't hesitate to contact me by email at michelle@ecomapsllc.com or by phone at 248-885-5477.

Regards,

Michelle Ford

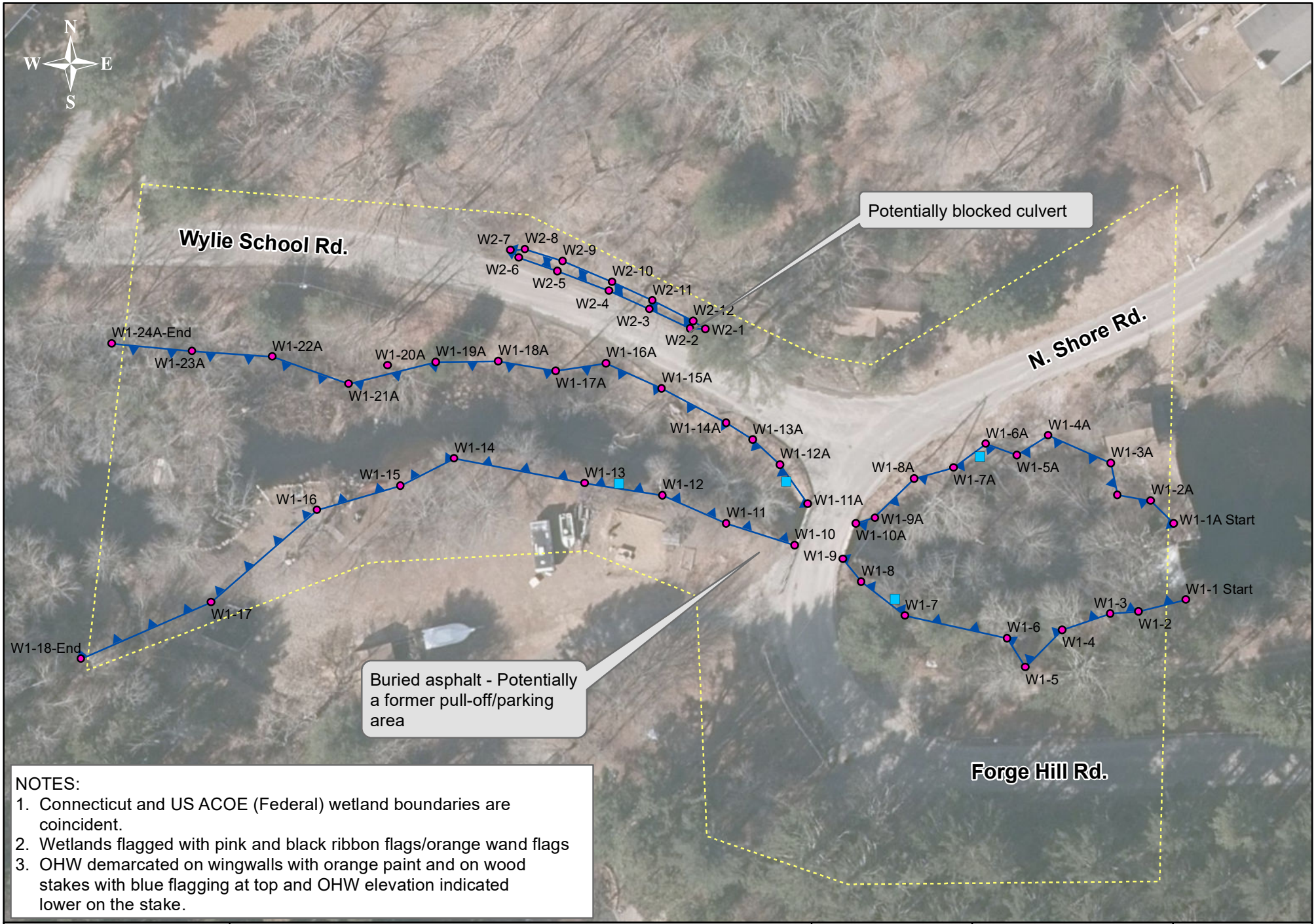
Michelle Ford, PWS, CWB®, CESSWI
Registered Professional Soil Scientist
EcoMaps, LLC.

Attachments:

- Attachment A: Wetland Sketch Map
- Attachment B: Soils Map
- Attachment C: ACOE Wetland Determination Data Forms
- Attachment D: Site Photographs
- Attachment E: Wetland Functions and Values evaluation form
- Attachment F: OHW Data Form

ECO maps LLC

Attachment A
Wetland Sketch Map



NOTES:
1. Connecticut and US ACOE (Federal) wetland boundaries are coincident.
2. Wetlands flagged with pink and black ribbon flags/orange wand flags
3. OHW demarcated on wingwalls with orange paint and on wood stakes with blue flagging at top and OHW elevation indicated lower on the stake.

Field Sketch Map
CT DOT 0147-0062
Forge Hill Rd., Voluntown

Legend

OHW Stake (Est.)
Wetland Boundary (Est.)
Wetland Flag (Est.)
Delineatin Boundary (Est.)

Locations are approximate for field location of flags only

1 inch = 60 feet

0 15 30 60 Feet

Mapping and delineation services provided by:
ECO maps LLC

Attachment B
Soils Map

Soil Map—State of Connecticut
(Attachment B)



Map Scale: 1:877 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 40 80 160 240

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 22, Sep 12, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
38E	Hinckley loamy sand, 15 to 45 percent slopes	0.1	3.9%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	0.7	17.5%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	0.7	18.1%
103	Rippowam fine sandy loam	2.3	60.5%
Totals for Area of Interest		**3.7**	**100.0%**

Attachment C:
ACOE Wetland
Determination Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT 0147-0062 City/County: New London Sampling Date: 10/18/2022

Applicant/Owner: CHA/DOT State: CT Sampling Point: W1-20A

Investigator(s): M.Ford Section, Township, Range:

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 41.581 Long: -71.821 Datum: NAD83

Soil Map Unit Name: Rippowam fine, sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**	
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W1-20A

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus strobus*	60	Yes	FACU
2. *Quercus rubra*	10	No	FACU
3.			
4.			
5.			
6.			
7.			
	70	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Quercus rubra*	10	Yes	FACU
2. *Cornus alba*	10	Yes	FACW
3. *Spiraea alba*	5	Yes	FACW
4.			
5.			
6.			
7.			
	25	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Rubus flagellaris*	10	Yes	FACU
2. *Pteridium aquilinum*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *Vitis labrusca*	1	No	FACU
2. *Toxicodendron radicans*	3	No	FAC
3.			
4.			
	4	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	3	x 3 =	9
FACU species	96	x 4 =	384
UPL species	0	x 5 =	0
Column Totals:	114 (A)		423 (B)
Prevalence Index = B/A =			3.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W1-20A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/2	100					Sandy	Sandy/gravely fill
1-18	10YR 5/6	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT 0147-0062 City/County: New London Sampling Date: 10/18/2022

Applicant/Owner: CHA/DOT State: CT Sampling Point: W2-5

Investigator(s): M.Ford Section, Township, Range:

Landform (hillside, terrace, etc.): Roadside swale Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 41.581 Long: -71.821 Datum: NAD83

Soil Map Unit Name: Charlton Chatfield Complex NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W2-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus pensylvanica*	10	Yes	FACU
2. *Acer saccharinum*	5	Yes	FACW
3. *Fagus grandifolia*	5	Yes	FACU
4.			
5.			
6.			
7.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Prunus pensylvanica*	5	No	FACU
2. *Quercus alba*	5	No	FACU
3. *Berberis thunbergii*	25	Yes	FACU
4.			
5.			
6.			
7.			
	35	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Rubus flagellaris*	10	Yes	FACU
2. *Pteridium aquilinum*	5	Yes	FACU
3. *Spiraea alba*	5	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *Celastrus orbiculatus*	10	Yes	UPL
2. *Smilax glauca*	3	Yes	FACU
3.			
4.			
	13	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 22.2% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	68	x 4 =	272
UPL species	10	x 5 =	50
Column Totals:	88 (A)		342 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W2-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sandy	Sandy/gravely fill
6-18	10YR 4/4	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT 0147-0062 City/County: New London Sampling Date: 10/18/2022

Applicant/Owner: CHA/DOT State: CT Sampling Point: W2-5

Investigator(s): M.Ford Section, Township, Range:

Landform (hillside, terrace, etc.): Roadside swale Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 41.581 Long: -71.821 Datum: NAD83

Soil Map Unit Name: Charlton Chatfield Complex NWI classification: PUBd

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	**Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	x Water-Stained Leaves (B9)	___ Surface Soil Cracks (B6)
___ High Water Table (A2)	___ Aquatic Fauna (B13)	x Drainage Patterns (B10)
X Saturation (A3)	___ Marl Deposits (B15)	___ Moss Trim Lines (B16)
___ Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)	___ Dry-Season Water Table (C2)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)	___ Crayfish Burrows (C8)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)	___ Saturation Visible on Aerial Imagery (C9)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)	___ Stunted or Stressed Plants (D1)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)	___ Geomorphic Position (D2)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)	___ Shallow Aquitard (D3)
___ Sparsely Vegetated Concave Surface (B8)		x Microtopographic Relief (D4)
		X FAC-Neutral Test (D5)

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? Yes X No ____ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: W2-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus pensylvanica*	10	Yes	FACU
2. *Acer saccharinum*	5	Yes	FACW
3. *Fagus grandifolia*	5	Yes	FACU
4.			
5.			
6.			
7.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Dichanthelium clandestinum*	20	Yes	FACW
2. *Solidago rugosa*	10	No	FAC
3. *Impatiens capensis*	5	No	FACW
4. *Aster novae-angliae*	5	No	FACW
5. *Juncus effusus*	25	Yes	OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *Smilax glauca*	1	No	FACU
2.			
3.			
4.			
	1	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	35	x 2 =	70
FAC species	10	x 3 =	30
FACU species	16	x 4 =	64
UPL species	0	x 5 =	0
Column Totals:	86 (A)		189 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W2-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Sandy	Sandy/gravely fill
4-18	2.5Y 4/2	90	5YR 4/6	10	C	M	Sandy	Sandy fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Attachment D:
Site Photographs



Photo 1: View of Bridge 04805. View facing south.



Photo 2. View of west side of Bridge 04805 and Pachaug River. View facing south.



Photo 3: View of east side of Bridge 04805 and Pachaug River. View facing southwest.



Photo 4. View of stone dam located approximately 150' east of Bridge 04805.



Photo 5: View of abandoned house located north of the stone dam and within wetland resources. View facing east.



Photo 6. View of upland fill area adjacent to Pachaug River and located immediately northeast of Bridge 04805. View facing east.



Photo 7: View of residential property within floodplain wetlands located west of Bridge 04805. View facing west.



Photo 8. View of Pachaug River downstream of Bridge 04805. View facing northeast.



Photo 9: View of wetland boundary along the south side of Wylie School Road northwest of Bridge 04805. View facing southeast.



Photo 10. Portion of Wetland 2 showing narrow swale at slope base north of Wylie School Road. View facing north.



Photo 11: Asphalt area partially naturalized through soil/runoff deposition located immediately southwest of Bridge 04805. View facing east.



Photo 12. Expanded view of asphalt area southwest of Bridge 04805. View facing north.

ECO maps LLC

Attachment E: Wetland Functions and Values Evaluation Form

Wetland Function-Value Evaluation Form

Total area of wetland 0.01 Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Roadway and developed residential Distance to nearest roadway or other development 3'

Dominant wetland systems present NA - drainage swale Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W2

Latitude 41.581 Longitude -71.821

Prepared by: MF Date 10/18/2022

Wetland Impact:
Type NA Area 0.00

Evaluation based on:
Office _____ Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N			
Floodflow Alteration	N			
Fish and Shellfish Habitat	N			
Sediment/Toxicant Retention	Y	1,2,4	X	
Nutrient Removal	Y	4		
Production Export	N			
Sediment/Shoreline Stabilization	N			
Wildlife Habitat	N			
Recreation	N			
Educational/Scientific Value	N			
Uniqueness/Heritage	N			
Visual Quality/Aesthetics	N			
ES Endangered Species Habitat	N			
Other				

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland 10+ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Residential and forested undeveloped Distance to nearest roadway or other development 10'

Dominant wetland systems present Riverine Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Unk.

How many tributaries contribute to the wetland? 4+ Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W1

Latitude 41.581 Longitude -71.821

Prepared by: MF Date 10/18/2022

Wetland Impact:
Type Dammed Area

Evaluation based on:
Office Field x

Corps manual wetland delineation completed? Y x N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	1, 2,4,7,12, 15		
Floodflow Alteration	Y	5,6,8, 9, 14		
Fish and Shellfish Habitat	Y	7,10,12,14,17		
Sediment/Toxicant Retention	Y	1,2,4,5,8,10,14,16	X	
Nutrient Removal	Y	3,4,5,6,8,9,10,11,12,14	X	
Production Export	Y	1,4,5,6,7,8,10,12		
Sediment/Shoreline Stabilization	Y			
Wildlife Habitat	Y	1,2,3,4,6,7,8,13,		
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics	Y			
ES Endangered Species Habitat				
Other				

Notes:

* Refer to backup list of numbered considerations.

ECOmaps LLC

Attachment F:
CT DOT Appendix A:
OHW Data Form

Appendix A: OHW Data Form

ORDINARY HIGH WATER MARK DELINEATION

DATA FORM (Part 1 – Field Work)

Project #: CT DOT 147-0062 Date: 10/19/2022

Town/Route: Voluntown/Forge Hill Road

Watercourse/Waterbody (if available): Pachaug River

Investigator(s): M.Ford
Mapping referenced: NA
Weather Conditions at Investigation: Overcast, 52F
Measurable precipitation in the past 72 hours? Yes No
Other preceding events (i.e, hurricane, dam failure upstream, etc.) that would make physical indicators unreliable? (circle one) Yes No
Observed Water Level: (circle one) High Typical Low
Notes: (Specify locations (generally) where physical indicators were located):(*Example: Upstream of bridge had the presence of litter and debris, shelving, and vegetation matted down. Downstream of the bridge had the presence of scour, shelving and exposed roots. Within the bridge/culvert water staining was present.)* Physical indicators of OHW were observed at Bridge 04805 on wingwalls as well as up and downstream of the bridge along the banks of the Pachaug River as follows: - Wingwalls had observable water staining - Streambanks up and downstream of the bridge had an abrupt change in vegetative community, shelving, a natural line impressed on the bank, and exposed root systems

OHW marked at structure inlet [X] outlet [X] N/A [ ]

[X] Photo Documentation Attached
(Depict on photos – any estimated OHW marks, flagging and physical indicators)

[X] Sketch Attached (ensure sketch is sent to central surveys)
(Depict on sketch – any estimated OHW marks, flagging and physical indicators)

Supporting Feature Identification Table			
Feature	**Description**	**Interpretations**	**Insert Check if Present**
Drift/wrack	Debris deposited as streamflow recedes (typically during/following flood events); commonly forms linear features or piles and often collects on the upstream side of inundated vegetation or other flow barriers	May indicate the spatial extent of a recent flow event; a concentration of drift features may suggest relatively frequent inundation.	
Erosion/scour	The removal of sediment or rock due to mechanical forces (e.g., water or wind)	Typically occurs within the active channel (i.e., below the OHWM) but can also result from extreme flood events or non-fluvial processes.	X
Bank undercutting	Erosion of channel banks beneath the ground surface such that a "roof" of sediment, roots, etc., remains	Typically occurs within the active channel (i.e., below the OHWM); more commonly in entrenched streams.	
Root exposure	Exposure of previously buried roots due to erosion; common along active channel banks, particularly on the outside of bends (meanders)	Suggests the presence of active erosional processes; can also result from infrequent flood events.	X
Point bars	Depositional features found on the inside of stream bends (meanders).	Suggests relatively frequent inundation; the tops of point bars typically occur below the OHWM.	
Water staining	Staining or discoloring of natural (e.g., bedrock) or man-made (e.g., bridges) objects due to the frequent presence of water.	In bedrock or colluvial channels or confined reaches where primary indicators cannot develop, water stains are sometimes the best or only indicator of ordinary flow conditions. However, they may indicate the most frequently experienced flow level (e.g., mean flow) rather than the ordinary extent of high flows, or they may indicate the spatial extent of a recent flood.	X
Litter removal	The removal of leaves, needles, and other organic ground cover due to flowing water	May indicate the extent of recent flows (depending on the time of year) or may be useful for verifying streamflow in small or hard-to-detect streams.	
Silt deposits	Deposition of fine sediments	Generally depositional features rather than erosional ones. Silt deposits found on a floodplain often stand in contrast to the relatively course substrate of the active channel.	
Shelving	The presence multiple "benches" and breaks in slope along the margins of the active channel.	Suggests downcutting of the active channel. The lowest bench may represent an emerging floodplain.	X
Headcut/ knickpoint	An abrupt vertical drop in the stream bed that typically migrates upstream	Sometimes indicates the upper, longitudinal extent of a headwater stream and the OHWM (i.e., the point of stream initiation).	
Macro-invertebrates	Invertebrates (animals lacking vertebral columns) that are visible to the naked eye (e.g., aquatic insect larvae, clams, crayfish, aquatic worms, etc.)	Certain aquatic species and aquatic life stages of macroinvertebrates have been found to be strongly tied to streamflow permanence (i.e., ephemeral vs. intermittent vs. perennial) in the Pacific Northwest (Mazzacano and Black 2008, Nadeau 2011, Blackburn and Mazzacano 2012).	X
Note: Some potential supporting features and generalized interpretations of their utility for OHWM delineation purposes. These features do not generally indicate the precise location of the OHWM but may be useful as supplementary information (i.e., in addition to interpretation of primary indicators) for interpreting recent or long-term hydrologic and geomorphic conditions within a given stream system. This list is not exhaustive and other supporting features may occur			



Photo 1: View of OHW demarcation on Bridge 04805. View facing southwest.



Photo 2. View of southeast wingwall on Bridge 04805 indivating OHW based on water stating.



Photo 3: View of Bridge 04805 and associated OHW stake and flagging. View facing southwest.

21 Griffin Rd. North
Windsor, CT 06095

T 860.298.9692
TRCcompanies.com

March 4, 2025

Mr. Jason Coite P.E.
Principal Engineer
Division of Environmental Compliance
Bureau of Engineering and Construction
State of Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT 06131-7546

Attention: Michael Bedson, P.E. / Mandy Socolosky

Subject: On-Call Asbestos, Lead, Air Quality & Demolition Compliance
Agreement No. 10.04-02 (23)
HazMat Inspection – Replacement of Bridge No. 04805, Forge Hill Road over Pachaug River, Voluntown, CT
ConnDOT Assignment No. 524-8379
ConnDOT Project No. 147-62
TRC Project No. 501871.8379.0710

Dear Mr. Coite:

TRC performed a limited hazardous materials site investigation associated with the replacement of Bridge No. 04805, Forge Hill Road over Pachaug River, Voluntown, CT. Results of the survey identified/presumed lead paint on the metal railings/railing support components. TCLP waste stream sampling and analysis for leachable lead from the paint on the railings/railing support components characterized the paint waste streams at Bridge No. 04805 as **CTDEEP/RCRA hazardous waste**. No detectable amounts of lead were identified in the tan paint associated with the parapet concrete walls, therefore any paint waste generated would be characterized as non-hazardous, non-RCRA lead bulky waste. Suspect asbestos-containing tar on the roadway of the bridge was sampled and determined to contain no asbestos. No bird/pigeon guano, bloodborne pathogens (BBP) concerns, or other hazmat/regulated items were identified in accessible areas of Bridge No. 04805.

Laboratory results, XRF Measurement Data Summary Table, TRC Mobile Data Solutions report, and Task 710 request are attached.

If you have any questions, please call TRC at (860) 298-9692.

Very Truly Yours,

TRC

Stephen R. Arienti, CHMM
NE Regional Practice Leader – Program Manager

Erik R. Plimpton, P.E., CHMM, CMC
Vice President – Engineer in Charge

80 Lupes Drive
Stratford, CT 06615

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cet1@cetlabs.com

COMPLETE ENVIRONMENTAL TESTING, INC.

Client: Mr. Stephen Arienti
TRC Environmental Consultants
21 Griffin Rd., North
Windsor, CT 06095

Analytical Report

CET# 25A0430

Report Date:January 31, 2025
Project: Bridge 04805, Forge Hill Rd over Pachaug River
Project Number: 501871.8379.0710

Connecticut Laboratory Certificate: PH 0116
Massachusetts Laboratory Certificate: M-CT903
Rhode Island Laboratory Certificate: 199

NELAP ACCREDITED TNI LABORATORY

New York NELAP Accreditation: 11982
Pennsylvania Certificate: 68-02927

SAMPLE SUMMARY

The sample(s) were received at 22.0°C.

This report contains analytical data associated with following samples only.

Sample ID	Laboratory ID	Matrix	Collection Date/Time	Receipt Date
1	25A0430-01	Paint Chip	1/17/2025 11:00	01/21/2025
2	25A0430-02	Paint Chip	1/17/2025 11:00	01/21/2025

Analyte: Total Lead [EPA 6010D] **Analyst: SS**

Prep: EPA 3051A **Matrix: Paint Chip**

Laboratory ID	Client Sample ID	Result	RL	Units	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
25A0430-02	2	ND	0.10	%	1	BA52837	01/28/2025	01/30/2025 17:04	

Analyte: TCLP Lead [EPA 6020B] **Analyst: EAS**

Matrix: Extract

Laboratory ID	Client Sample ID	Result	RL	Units	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
25A0430-01	1	200	0.013	mg/L	1	BA52217	01/22/2025	01/22/2025 16:04	

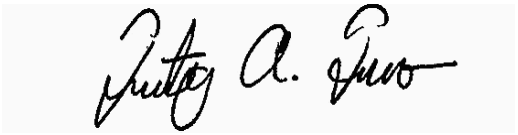
All questions related to this report should be directed to David Ditta, Timothy Fusco, or Jeffrey Smith at 203-377-9984.

Sincerely,



David Ditta
Laboratory Director

This technical report was reviewed by Timothy Fusco



Project Manager

This report shall not be reproduced except in full, without the written approval of the laboratory

Report Comments:

Sample Result Flags:
E- The result is estimated, above the calibration range.
H- The surrogate recovery is above the control limits.
L- The surrogate recovery is below the control limits.
B- The compound was detected in the laboratory blank.
P- The Relative Percent Difference (RPD) of dual column analyses exceeds 40%.
D- The RPD between the sample and the sample duplicate is high. Sample Homogeneity may be a problem.
+- The Surrogate was diluted out.
*C1- The Continuing Calibration did not meet method specifications and was biased low for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased low.
*C2- The Continuing Calibration did not meet method specifications and was biased high for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased high.
*F1- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the low side.
*F2- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the high side.
*I- Analyte exceeds method limits from second source standard in Initial Calibration Verification (ICV). No directional bias.

All results met standard operating procedures unless indicated by a data qualifier next to a sample result, or a narration in the QC report.

For Percent Solids, if any of the following prep methods (3050B, 3540C, 3545A, 3550C, 5035 and 9013A) were used for samples pertaining to this report, the percent solids procedure is within that prep method.

Complete Environmental Testing is only responsible for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt.

ND is None Detected at or above the specified reporting limit
Reporting Limit (RL) is the limit of detection for an analyte after any adjustment made for dilution or percent moisture.
All analyses were performed in house unless a Reference Laboratory is listed.
Samples will be disposed of 30 days after the report date.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 6010D in Solid	
Lead	CT,NY,PA
EPA 6020B in Water	
Lead	CT

Complete Environmental Testing operates under the following certifications and accreditations:

Code	Description	Number	Expires
CT	Connecticut Public Health	PH0116	09/30/2026
NY	New York Certification (NELAC)	11982	04/01/2025
PA	Pennsylvania DEP	68-02927	05/31/2025

25A0430

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

Edition: November 2013
Supersede Previous Edition

TCLP CHAIN OF CUSTODY

LAB ID #.

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
50187.8379.0710	Bridge 04805, Forge Hill Rd over Pachaug River		Tot Pb: 24hr 48hr 3day X 5day TCLP: 24hr 48hr 3day X 5day

INSPECTOR: (SIGNATURE) Andrew Smith (PRINTED) Andrew Smith

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	RCRA Pb	RCRA Pb, AS, CR, CD	8 RCRA Metals	TCLP Pb	SPLP Pb	Tot Pb AAS	MATERIAL
1	1/17/25	11:08		X	Railing on Bridge				X			Grey paint on railings
2	〃	〃		〃	wall 5 ant of bridge						X	tan paint on walls at top of bridge
3	〃	〃		〃	〃				X			〃

22°

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	1/17/25	1040 1/21/25		1/21/25	
(Printed) Andrew Smith	Time: 13:00	(Printed) GREG GILOATY	(Printed) GREG GILOATY	Time: 13:55	(Printed)

IF Sample #2 is positive, Run #3 for TCLP

Page 1 of 1

Results to sarienti@trccompanies.com

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Transportation

Lab Log #: 0066212
Project #: 501871.8379.0710
Date Received: 01/17/2025
Date Analyzed: 01/17/2025

Site: Bridge 04805, Forge Hill Road over Pachaug River, Voluntown, CT

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Sample Location	Homogeneous Material Description	Other Matrix Materials	Asbestos %	Asbestos Type
01	Base of concrete walls	Black T 1 - Road Tar	- - -	ND	None
02	Base of concrete walls	Black T 1 - Road Tar	- - -	ND	None

ND - asbestos was not detected
Trace - asbestos was observed at level of 1% or less - This is the reporting limit
NA/PS - Not Analyzed / Positive Stop
SNA - Sample Not Analyzed- See Chain of Custody for details
Notes: Asbestos-Containing Material (ACM) is any material containing more than 1% asbestos

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows 18/01A EPA -- 40 CFR Appendix E to subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples and 18/A03 EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials which utilize polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 101424-01. TRC is accredited by the AIHA Laboratory Accreditation Programs AIHA LAP (ID: LAP-100122) in the Industrial Hygiene Program (IHLAP) for PLM. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and QC data related to the samples is available upon written request from client.

This report shall not be reproduced, except in full, without the written approval of TRC. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the items tested, as received by the laboratory.

Analyzed by: Kathleen Williamson, Laboratory Manager

Reviewed by Najaat Bhura, Approved Signatory

Date Issued 01/20/2025

TRC
21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: October 2009
Supersede Previous Edition

LAB ID #. 66212

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
501871.8379.0710	ConnDOT — Bridge 04805, Forge Hill Rd over Pachaug River, Forge Hill rd, Voluntown, CT		PLM: [ ] 8hr [X] 24hr [ ] 48hr [ ] 3day TEM: [X] 24hr [ ] 48hr [ ] 3day [ ] 5day
SIGNATURE	INSPECTOR		
	Andrew Smith, Zac Smith		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	1/17/2025	10:59		X	Base of concrete walls	X				X	T 1 - Black Road Tar
02	1/17/2025	10:59		X	Base of concrete walls	X					T 1 - Black Road Tar

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	1/17/25	1/17/25			
(Printed) Zachary Smith	Time: 1300	(Printed) Nayeat Bhuiya 1330	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples: _____
Acceptable: Yes ✓ No _____
Comments:

Aerobiology Laboratory Associates, Inc.

22 Cummings Park, Woburn, MA 01801 Ph. 781-935-3212 Fax 781-932-4857

TEM Bulk Chain of Custody Record

Date: 01/17/2025

PO#: **C501871** Analysis Type: Chatfield **EPA N.O.B** Qualitative

Client: TRC

Client Job#: 501871.8379.0710

Client Job Ref./Loc.: CT DOT- Bridge 04805, Forge Hill Road, Voluntown, CT

Relinquished by: K. Williamson

Received by:

Report to: KWilliamson@trccompanies.com; SArienti@trccompanies.com; EPlimpton@trccompanies.com; KGraff@trccompanies.com; DCarillo@trccompanies.com; MKostruba@trccompanies.com

Samplers Name: A. Smith & Z. Smith

Turnaround Time: <12 Hour **<24 Hour** <48 Hour <3 Day 5 Day Other:

				For Lab Use Only	
Client ID #	**Lab ID#**	**Description**	**Location**	**Acceptable on Receipt**	**Comments**
01	66212	Road Tar	See COC		

For Lab Use Only	# Spies	Total	Client #	Batch #	Results Reported	Comments

Pace®

Steve Arienti
TRC Companies, Inc. (CT)
21 Griffin Road North
Windsor, CT 06095

January 21, 2025

Dear Steve Arienti,

Results of samples you described and submitted to Pace Analytical Services, LLC. are shown on the enclosed data sheets. The analytical results in this report apply to the items tested only.
The listed samples were prepared and analyzed in compliance with the New York State Transmission Electron Microscope Method for Identifying and Quantitating Asbestos in Non-Friable Organically Bound Bulk Samples. This method is used for the determination of weight percent of asbestos in non-friable materials.
The sample is processed to remove non-asbestos interference. The remaining residue is examined using a Philips transmission electron microscope equipped with selected area electron diffraction (SAED) and an Evex energy dispersive x-ray analyzer.

The following are reported: identification numbers, type of material, initial weight of the sample, weight percent of organic material lost by ashing, weight percent of carbonates lost by acid dissolution, weight percent of non-fibrous/non asbestos inorganic material, total weight percent of asbestos in the original sample, and the type(s) of asbestos, if any.
The EPA recognizes asbestos as the following: actinolite, amosite, anthophyllite, chrysotile, crocidolite, and tremolite. To be considered asbestos containing, a material must be determined to contain greater than one percent asbestos. Samples are retained for a period of 2 months.

The quality control data related to the samples analyzed are available for review upon the written request of the client. Pace Analytical Services, LLC. and its personnel assume no responsibility for potential sample contamination, misuse, misinformation, or misrepresentation by the client. The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.
This report may not be reproduced, except in its entirety, without permission of the Pace Analytical Services, LLC.'s Laboratory Manager.

Please contact me if you have any questions regarding this report or related information.

Aimee L Cormier

Aimee Cormier, Laboratory Manager

Enclosure:

BATCH NUMBER : NT 21352 CLIENT PROJECT ID: 501871.8379.0710
Client Ref: CT DOT - Bridge 04805, Forge Hill Road, Voluntown, CT
CT ID# PH-0209; MA ID# AA000251; ME ID# LB-055; ME ID# LA-056; VT ID# AL254362; RI ID# TEM 00150.

Pace Analytical Services, LLC. - Woburn

22 Cummings Park, Woburn, Massachusetts 01801
781-935-3212 ~ E-Mail bostonaero@pacelabs.com

Laboratory Report

Client Project #: 501871.8379.0710
Client Reference: CT DOT - Bridge 04805, Forge Hill Road, Voluntown, CT
PO #: C501871
Client #: 297
Client Name: TRC Companies, Inc. (CT)

Batch: **NT 21352**
Method: NOB
Date Received: 1/20/2025
Date Analyzed: 1/21/2025
Date of Report: 1/21/2025

LAB ID	Field ID	Description:	Color	Initial Weight	% Asbestos Types						% Other Non-asb.	% Organic	% Carb.	Total % Asbestos	Analyzed / Charged	Prepped / Charged
					CHR	AMO	ACT	CRO	ANT	TRE						
NT153786	01	Black Road Tar		.2375	.00	.00	.00	.00	.00	.00	58.48	13.35	28.17	**ND**	Yes	No

Comments:

Key: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

Aimee L Cormier

Aimee Cormier, Analyst

NT 21352

Aerobiology Laboratory Associates, Inc.

22 Cummings Park, Woburn, MA 01801 Ph. 781-935-3212 Fax 781-932-4857

TEM Bulk Chain of Custody Record

Date: 01/17/2025

PO#: **C501871** Analysis Type: Chatfield **EPA N.O.B** Qualitative

Client: TRC

Client Job#: 501871.8379.0710

Client Job Ref./Loc.: CT DOT- Bridge 04805, Forge Hill Road, Voluntown, CT

Relinquished by: K. Williamson

Received by: Doreen Lourie 1.20.25 9:51

Report to: KWilliamson@trccompanies.com; SArienti@trccompanies.com; EPlimpton@trccompanies.com; KGraff@trccompanies.com; DCarillo@trccompanies.com; MKostruba@trccompanies.com

Samplers Name: A. Smith & Z. Smith

Turnaround Time: <12 Hour **<24 Hour** <48 Hour <3 Day 5 Day Other:

				For Lab Use Only	
Client ID #	**Lab ID#**	**Description**	**Location**	**Acceptable on Receipt**	**Comments**
01	66212	Road Tar	See COC		

For Lab Use Only	# Spies	Total	Client #	Batch #	Results Reported	Comments

NT21352

TRC
21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: October 2009
Supersede Previous Edition

LAB ID #. 66212

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
501871.8379.0710	ConnDOT — Bridge 04805, Forge Hill Rd over Pachaug River, Forge Hill rd, Voluntown, CT		PLM: 8hr X 24hr 48hr 3day TEM: X 24hr 48hr 3day 5day
SIGNATURE	INSPECTOR		
	Andrew Smith, Zac Smith		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
01	1/17/2025	10:59		X	Base of concrete walls	X				X	T 1 - Black Road Tar
02	1/17/2025	10:59		X	Base of concrete walls	X					T 1 - Black Road Tar

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	1/17/25	1/17/25 1330			
(Printed) Zachary Smith	Time: 1300	(Printed) Nagaat Bhuva	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples:
Acceptable: Yes ✓ No
Comments:

SIH - WinSIH HBM Survey

ConnDOT, Bridge 04805, Forge Hill Rd over Pachaug River, Forge Hill rd Voluntown CT

3/4/2025, 1:43:16 PM EST

CREATED

1/17/2025, 10:38:04 AM EST
by Andrew Smith

UPDATED

3/4/2025, 1:43:16 PM EST
by Stephen Arienti

STATUS

In Progress

ASSIGNED TO

No Assignment

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NOTE: No site sketch detected!
Please be sure to add at least one.

JOB INFORMATION

Site Name	Bridge 04805, Forge Hill Rd over Pachaug River
Address	Forge Hill rd Voluntown CT
TRC Project Number	501871.8379.0710
Project Manager	Erik Plimpton, Stephen Arienti
Inspector(s)	Andrew Smith, Zac Smith
Client	ConnDOT
Type of Asbestos Survey	Reno/Demo
Site Sketch Diagrams	
Additional Analysis for NOB Materials (Calc)	TEM NY NOB 198.4
PLM Turnaround Time (TAT)	3-day
TEM Turnaround Time (TAT)	5-day
Date	January 17, 2025
General Notes	

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Overview Photo









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WWW.FULCRUMAPP.COM

Options & Other Settings

Use auto-numbering?	No
Auto-fill gaps?	Yes
Alert user about missing site sketch?	Yes

SURVEYS PERFORMED	Asbestos, XRF, TCLP Sampling

Asbestos Survey

Materials & Samples (1 Item)

Materials & Samples - 1. (2) Samples #01–02: T 1–Black Road Tar

Sample Information

Asbestos Samples (2 Items)

Asbestos Samples - 1. Sample #01: T 1…Base of concrete walls

Sample Number	01
Sample Location	Base of concrete walls
Asbestos Bulk Analysis	PLM EPA 600/R93/116
Grab or Composite	Grab
Date	January 17, 2025
Time	10:59

Sample Location Photo

Asbestos Samples - 2. Sample #02: T 1…Base of concrete walls

Sample Number	02
Sample Location	Base of concrete walls
Asbestos Bulk Analysis	PLM EPA 600/R93/116
Grab or Composite	Grab
Date	January 17, 2025
Time	10:59

Sample Location Photo

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Material Information

Sampled or Assumed?	Sampled
Material Acronym	T 1
Material Description	Black Road Tar
Material Color	Black

Representative Photos



Analyze by layer?	No
Is material non-friable organically bound (NOB)?	Yes
Homogeneous Area	
Total Approximate Quantity	
Notes	

XRF Survey

Niton XRF Model No.	22323
XRF Survey Completed	Yes
XRF Data Downloaded	Yes

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XRF Shots >1.0 on non-metallic building materials	Yes
Date Data Downloaded	January 17, 2025

TCLP/SPLP/Total Lead Survey

Samples (2 Items)

Samples - 1. Grey paint on top railing

TCLP/SPLP/Total Lead Sample Description	Grey paint on top railing

TCLP/SPLP/Total Lead Components

Type of Analysis	
Sample Number	
Grab or Composite	Grab
Date	January 17, 2025
Time	10:54
TCLP/SPLP/Total Lead Notes	

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TCLP/SPLP/Total Lead Photos



Samples - 2. Tan paint on concrete walls

TCLP/SPLP/Total Lead Sample Description	Tan paint on concrete walls

TCLP/SPLP/Total Lead Components

Type of Analysis	TCLP Lead
Sample Number	
Grab or Composite	Grab
Date	January 17, 2025
Time	11:08
TCLP/SPLP/Total Lead Notes	
TCLP/SPLP/Total Lead Photos	

LAB & SAMPLE SUBMISSION INFO

Signature	

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Asbestos Bulk Samples

Remarks to be added to the CoC	
Asbestos samples submitted to TRC lab?	Yes
Date Submitted to Lab	January 19, 2025
Asbestos bulk sample CoC data electronically sent to lab yet?	Yes
Asbestos bulk sample results reviewed?	No

TCLP Samples

TCLP/SPLP Samples Submitted to Lab	No
TCLP/SPLP Samples Submitted To:	
Date Submitted to Lab	

REPORT CREATION

Select one or more documents below to be generated. Once completed in the cloud, they will be sent to the listed email address.	
NOTE: Asbestos bulk sample CoC data must now be sent electronically to the lab by selecting "Asbestos chain-of-custody - Send to Lab" from the list below.	
What documents should be generated?	Asbestos chain-of-custody - Send to Lab
Generate Documents	

PROJECT STATUS TRACKING

Has this survey been completed?	No
Has the report been written?	No
Has the report been reviewed?	No

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Subject: Task 710 Request

Project No.: 0111-0147
F.A.P. No.: 6147(001)
Replacement of Bridge 04805
Town of Voluntown

MEMORANDUM

DATE: January 13, 2025

TO:
Jason M. Coite, P.E.
Transportation Principal Engineer
Bureau of Engineering and Construction

FROM:
Marc P. Byrnes, P.E.
Marc Byrnes, P.E.
2025.01.14
08:18:29-05'00'
Transportation Principal Engineer
Bureau of Engineering and Construction

The Semi-Final Design (SFD) submission for the Replacement of Bridge No. 04805 has been uploaded to the 310 Review Documents folder on Compass.

Link to Documents: 60 Review

Based on the SFD documents, estimated excavation quantities are as follows:
- Earth Excavation = 1187 C.Y.
- Channel Excavation = 55 C.Y.
- Structure Excavation (Earth) = 710 C.Y.
- Structure Excavation (Rock) = 40 C.Y.
- Total Estimated Excess Excavated Material = 1,992 C.Y.

Please provide a Task 710 screening for this project and prepare any associated plans, special provisions, and cost estimate by **February 27, 2025**.

Project Schedule:

FDP: 7/23/25
DCD: 8/13/25
ADV: 9/17/25

Federal Program: OFF-SYSTEM IIJA (BRFZ) (80% Federal/ 20% State)

PE Funding: STBG PROGRAM – OFF-SYSTEM BRIDGE (BRZ), 0147-0062

Please contact Andrew Shields, Project Engineer, at (860) 594-2077, should you have any questions or require additional information.

Please address your response to the attention of: Marc Byrnes, Project Manager – Andrew Shields, Project Engineer.

Rachelle L. Clark/rlc/
cc: Derick M. Lessard – Marc P. Byrnes – Andrew. C. Shields
DOT-FLBP@ct.gov
Donald P. Wurst – Anand Seshadri – Rachelle L. Clark (CLE)

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

FINAL DESIGN GEOTECHNICAL ENGINEERING REPORT

REPLACEMENT OF BRIDGE NO. 04805
FORGE HILL ROAD OVER PACHAUG RIVER
VOLUNTOWN, CONNECTICUT

STATE PROJECT NO. 147-062

Prepared for:

Alfred Benesch & Company
120 Hebron Avenue, Floor 2
Glastonbury, Connecticut 06033

Prepared by:

Down To Earth Consulting, LLC
27 Siemon Company Drive #363W
Watertown, Connecticut 06795

March 2025
File No. 0015-041.00

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

September 27, 2024 (rev. May 12, 2025)
File No. 0015-041.00

Mr. Mark Habek, PE, VMA
Alfred Benesch & Company
120 Hebron Avenue, Floor 2
Glastonbury, Connecticut 06033

Via email: MHabek@benesch.com

Re: Final Design Geotechnical Engineering Report
Forge Hill Road over Pachaug River (Bridge No. 04805)
Voluntown, Connecticut

Dear Mr. Habek:

Down To Earth Consulting, LLC (DTE) is pleased to submit this revised geotechnical engineering report for the proposed Forge Hill Road Bridge Replacement Project that will span the Pachaug River in Voluntown, Connecticut. We appreciate this opportunity to work with you. Please call if you have any questions.

Sincerely,

Down To Earth Consulting, LLC

Thomas J. Orszulak, P.E.
Project Manager

Raymond P. Janeiro, P.E.
Reviewer/Principal

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1.0 INTRODUCTION

Down To Earth Consulting, LLC (DTE) is pleased to submit this final design geotechnical engineering report for the proposed Forge Hill Road Bridge Replacement Project that will span the Pachaug River in Voluntown, Connecticut. Refer to Figures 1 and 2 (in Appendix 1) for the approximate site and bridge location, respectively.

Our geotechnical engineering services included: reviewing project plans, test boring logs (by others), laboratory testing results (by others), characterizing subsurface conditions within the project limits, performing geotechnical engineering analyses, and providing geotechnical design and construction recommendations for the proposed bridge replacement. Our services were performed in accordance with our agreement, executed on September 12, 2024, which was based in part on the scope of work DTE and Alfred Benesch and Company (Benesch) developed for this project. We were also provided with the following documents:

- *Structure Drawings, Replacement of Bridge No. 04805, Forge Hill Road over Pachaug River, Voluntown, CT*, prepared by Benesch, plot dated September 20, 2024;
- *Foundation Plan and Pile Layout,* prepared by Benesch, plot dated September 24, 2024;
- *Foundation Forces for Stability Analysis, Replacement of Bridge No. 04805; Forge Hill Road over Pachaug River, Voluntown, CT,* prepared by Benesch, dated September 17, 2024*; and*
- *Preliminary Design Geotechnical Engineering Report, Replacement of Bridge No. 04805,* prepared by Freeman Companies, dated November 15, 2023.

Our recommendations are based on load and resistance factor design and the following references:

- 2020 AASHTO LRFD Bridge Design Specifications
- The Connecticut Department of Transportation (CTDOT) Geotechnical Manual, 2005 edition (revised February 2020)
- CTDOT Bridge Design Manual, 2003 edition (revised December 2019)
- CTDOT Standard Specifications for Roads, Bridges, and Incidental Construction, Form 819.

Elevations (El.) stated in this report are in feet and based on the North American Vertical Datum of 1988 (NAVD 88). The coordinates are based on Connecticut State Plane Coordinate System, NAD 1983. Elevations and locations were reported by others.

2.0 BACKGROUND

The proposed bridge replacement is located on Forge Hill Road over the Pachaug River in Voluntown, Connecticut. The existing structure is located at the southern extent of the intersection between Forge Hill Road, Wylie School Road, and North Shore Road. Based on available information, we understand that the existing structure consists of a 20-foot-long, single-span bridge consisting of a reinforced concrete slab supported by concrete abutments presumed to be founded on soil. We understand that a temporary bridge is being considered west of the new bridge to accommodate vehicular traffic during construction.

We understand the project will consist of demolishing the existing bridge and constructing a new, 34-foot-long, single-span bridge with prestressed deck units supported by traditional concrete abutments and wingwalls. The abutments and associated wingwalls will be supported by drilled micropiles socketed into bedrock.

Based on correspondence with Benesch, the following factored foundation design loads have been calculated for the proposed abutments and wingwalls:

Maximum Abutment Vertical Load:	34.92 kip/ft (Strength I) 25.03 kip/ft (Service I) 23.03 kip/ft (Extreme II)
Maximum Abutment Lateral Load:	6.83 kip/ft (Strength I) 4.32 kip/ft (Service I) 4.32 kip/ft (Extreme II)
Maximum Abutment Moment:	25.04 kip-ft/ft (Strength I) 15.84 kip-ft/ft (Service I) 15.84 kip-ft/ft (Extreme II)
Maximum Wingwalls Vertical Load:	27.13 kip/ft (Strength I) 19.80 kip/ft (Service I) 19.80 kip/ft (Extreme II)
Maximum Wingwalls Lateral Load:	6.83 kip/ft (Strength I) 4.32 kip/ft (Service I) 4.32 kip/ft (Extreme II)
Maximum Wingwalls Moment:	29.60 kip-ft/ft (Strength I) 18.72 kip-ft/ft (Service I) 18.72 kip-ft/ft (Extreme II)

We understand the maximum design scour elevation (based on the 500-year storm) is El. 261.7, which is 4.3 feet below the proposed bottom of pile cap elevation for the abutments and wingwalls (El. 266.0).

3.0 SUBSURFACE DATA

3.1 GENERAL SITE GEOLOGY

Published surficial and bedrock geological map data (*1:125,000 scale, Surficial Materials Map of Connecticut, Janet Radway Stone, 1992 and Bedrock Geological Map of Connecticut, John Rodgers, 1985*) was reviewed. The surficial material within the Site area is mapped as alluvium deposits (fine sand and silt with possible organics) overlying Sand and Gravel. The underlying bedrock is mapped as Granitic Gneiss.

3.2 SUBSURFACE EXPLORATIONS

New England Boring Contractors, Inc. advanced six test borings (B-101 through B-106) between May 12 and 15, 2023. The borings were observed and logged by Freeman Companies, LLC (Freeman). Drive and wash methods with 4-inch-diameter casing were used to advance the borings to depths between about 25 and 35 feet bgs (approximate El. 243 to 249).

The exploratory program overseen by Freeman supplemented a preliminary boring program completed by DTE. Associated Borings Company, Inc. (the drilling subcontractor retained by DTE) advanced the two preliminary test borings (B-1 and B-2) between January 13 and 15, 2022. Hollow-stem augers were used to advance borings B-1 and B-2 to depths of approximately 29.5 and 33.5 feet below grade (bgs; approximate El. 245.5 and 249.5).

Soil samples were obtained in the borings by split barrel sampling procedures and rock coring was performed at each boring location. Recovery and Rock Quality Designation (RQD) are presented in the logs. Recovery is defined as the length of core obtained expressed as a percentage of the total length cored. RQD is the total length of core pieces, 4 inches or greater in length, expressed as a percentage of the total length cored. RQD provides an indication of the quality of the rock mass and relative extent of foliations and rock mass jointing.

Groundwater levels were also measured and recorded on the boring logs. Stabilized groundwater readings were also obtained from an observation well that was installed during the Freeman exploratory program (B-104OW). Refer to Figure 2 for approximate observation well location.

3.3 LABORATORY TESTING

Soil and rock samples were submitted by Freeman to Geotesting Express, Inc. of Acton, Massachusetts. Eight soil samples were submitted for grain size analyses and two rock core samples were submitted for compressive strength testing. Bulk soil samples were obtained and tested for scour evaluation. The results of the laboratory analyses (by others) are included in Appendix 3.

4.0 SUBSURFACE CONDITIONS

4.1 SUBSURFACE PROFILE

The subsurface conditions from the borings (from both exploratory programs) were generally consistent with published geologic mappings and generally consisted of Miscellaneous Fill over Natural Sand & Gravel Deposits and Bedrock. Silty Sand and Glacial Till were also encountered in the vicinity of Abutment 2. The following is a more detailed description of the primary subsurface materials encountered at the site.

4.1.1 Miscellaneous Fill

Miscellaneous Fill (Fill) was encountered at each exploration below the pavement structure and extended to about 4 to 6 feet bgs (approximate El. 275 to 272) in the borings. This stratum typically consisted of loose to dense, light brown to brown, fine to coarse sand with little to and amounts

(10 to 50%) of fine to coarse gravel and trace to little (0 to 20%) amounts of silt. The thickness, character, and consistency of the Fill will vary between boring locations.

4.1.2 Silty Sand

Silty Sand was encountered below the Fill at Borings B-103 and B-104OW and extended to about 5 to 7 feet bgs (approximate El. 274 to 271). This stratum typically consisted of very loose to loose, dark brown, fine to coarse sand with some amounts (20 to 35%) of silt and little amounts (10 to 20%) of fine gravel.

4.1.3 Sand and Gravel

Sand and Gravel Deposits were encountered below the Fill (and Silty Sand where encountered) between about 4 and 8 feet bgs (El. 275 to 271). The Sand and Gravel deposits extended to depths of about 13 to 21 feet bgs (approximate El. 265 to 258). This stratum typically consisted of loose to very dense, gray to brown, fine to coarse sand with trace to and amounts (0 to 50%) of fine to coarse gravel and trace to little amounts (0 to 20%) of silt. Cobbles and possible boulders were inferred in the Sand and Gravel deposit based on drilling action and split spoon sampler refusals.

4.1.4 Glacial Till

A Glacial Till deposit was encountered below the Sand and Gravel deposit at Borings B-103 and B-104OW and at depths of about 13 and 16 feet bgs (approximate El. 263 and 265), respectively. The Glacial Till extended to depths of about 18 and 17 feet bgs (approximate El. 261) where encountered. This stratum typically consisted of dense to very dense, gray, fine to coarse sand with little to and amounts (20 to 50%) of fine to coarse gravel and trace to little amounts (0 to 20%) of silt.

4.1.5 Bedrock

Approximately 2- to 5-feet of Weathered Rock was encountered at each boring location (excluding B-105 where an apparent Weathered Rock layer was not encountered) prior to encountering drilling refusal on Sound Bedrock. Sound Bedrock was cored at each boring location at a depth ranging from about 15 to 25 feet bgs (approximate El. 259 to 254). The core recoveries and RQDs ranged from 50% to 100% and 0% to 70%, respectively. Bedrock was classified as white to brown and orange, fine to coarse grained, medium interbedded, moderately to intensely fractured, slightly to moderately weathered, medium strong to weak, granitic Gneiss.

4.2 GROUNDWATER

Groundwater was measured at about 3.2 to 5 feet bgs (approximate El. 274 to 275) in the borings. A stabilized groundwater reading was measured at about 3.2 feet bgs (approximate El. 275) at Boring B-104OW. Groundwater levels measured in the boreholes may not have had sufficient time to stabilize and should be considered approximate. Groundwater levels will vary depending on factors such as temperature, season, precipitation, Pachaug River level, construction activity, and other conditions, which may be different from those at the time of these measurements.

5.0 GEOTECHNICAL DESIGN RECOMMENDATIONS

We offer the following geotechnical design recommendations based on the subsurface conditions encountered at the site, available project information, and the proposed construction. We recommend that the proposed permanent abutments and wingwalls be supported on drilled micropiles socketed into sound bedrock. Shallow foundation recommendations are also provided for the proposed temporary bridge structure.

5.1 DRILLED MICROPILE FOUNDATION RECOMMENDATIONS

The proposed abutments and associated wingwalls should be supported on drilled micropiles socketed into sound bedrock. In accordance with CTDOT guidelines, the Contractor should be responsible for the final design of the micropile elements and Benesch would need to provide the foundation (e.g., pile cap) layout and design loads on the contract drawings. Notwithstanding, we recommend that the micropiles be designed in accordance with the following parameters:

- Micropile Foundations:
  - Materials shall conform to Form 819 Section 7.06.
  - Micropile casing shall have a minimum outside diameter of 9-5/8 inches and a minimum wall thickness of 0.472 inches. Micropile casing shall have a minimum yield strength of 80 kips per square inch (ksi). Permanent casing shall extend a minimum of 5 feet into sound bedrock prior to constructing the bond zone.
  - A minimum 8.5-inch-diameter bond zone shall be provided with a minimum bond length of 10 feet within competent bedrock.
  - Central reinforcement bar (No. 10 minimum – test piles will require larger bars) shall have a minimum yield strength of 75 ksi and extend the full length of the micropile from the foundation connection to the bottom of the bond length.
  - Grout shall have a minimum grout compression strength of 5 ksi.
  - Micropile shall be constructed using “Type A” installation methods.
- Resistance factors shall be selected from AASHTO LRFD Table 10.5.5.2.5-1.
- Strength Limit Axial Compression: Assume a geotechnical strength limit of 312 kips (using a resistance factor of 0.7 assuming micropiles are load tested as recommended below). This value is provided to advance foundation design but the final micropile design will be done by the Contractor's designer.
- We recommend testing micropiles to an Ultimate Pile Capacity of 175 kips based on a dynamic resistance factor (φ_{dyn}) of 0.7 (AASHTO Table 10.5.5.2.5-1). This assumes that the provided design loads and pile layouts provided in the referenced structural drawings are not modified.
- Anticipated pile lengths are approximately 30 feet based on the observed subsurface conditions, a 2-foot embedment into the abutment, a 5-foot “plunge” depth into bedrock, and a 10-foot bond length.

We recommend that one verification load test be performed in accordance with Form 819 Section 7.06.03. In accordance with AASHTO guidance, proof tests loaded to the required factored load should be performed on one pile per substructure, or five percent of the piles, whichever is greater. If multiple construction stages are proposed, a minimum of one proof test shall be performed for each stage.

Based on the loading conditions and foundation geometries provided by Benesch, the above micropile parameters, and the encountered subsurface conditions, a GROUP 2019 (by Ensoft, Inc.) model was developed to estimate loading conditions for the proposed Abutment 1 and wingwalls micropiles. The Abutment 1 geometry, subsurface conditions, and loading were analyzed, and the results from that model are included in Appendix 4, which include plots with estimated Lateral Shear, Deflection, and Bending Moment for the Strength I and Extreme II conditions. The design scour elevation (El. 261.7) is also incorporated in the model under the Extreme II loading conditions.

The Group model also estimates that the provided design loads will result in a deflection of less than 0.1 inches assuming a fixed head condition. Based on our discussions with Benesch, we understand that this estimated deflection is within the structural tolerances of the bridge. The following soil design parameters were used for the lateral analyses:

- Unit weight of Sand and Gravel below the water table = 67.6 pcf
- Angle of internal friction of Sand and Gravel = 34°
- Lateral soil modulus of Sand and Gravel below the water table = 75 pci

- Unit weight of Weathered Rock below the water table = 82.6 pcf
- Angle of internal friction of Weathered Rock = 38°
- Lateral soil modulus of Weathered Rock below the water table = 200 pci

- Unit Weight of Sound Bedrock below the water table = 165 pcf
- Unconfined Compressive Strength of Bedrock = 7,600 psi

Pile spacing should be in accordance with AASHTO LRFD, such that center-to-center spacing should not be less than 30 inches, or 3 pile diameters, whichever is greater. The design of horizontally loaded piles must also account for the effects of interaction in groups. Piles should be embedded in the abutment footings a minimum of 24 inches to establish a fixed condition connection between the piles and the pile cap.

Total settlements are estimated at less than ½ inch. Settlement will occur during construction and will primarily result from elastic compression of the pile elements.

We recommend a corrosion sacrificial allowance of 1/16-inch thickness be applied to the micropile casing.

5.2 ABUTMENT AND WINGWALLS

We recommend backfilling the proposed abutments and walls with Pervious Structural Fill in accordance with CTDOT Standard Specifications Form 819, Section 2.16, and installing footing drains. The limits of backfill should extend upwards from the wall heel at a slope of 1.5H:1V (Horizontal to Vertical) to the intersection of unexcavated, undisturbed materials. The drains should consist of 6-inch diameter perforated PVC pipe, surrounded by 6-inches of Crushed Stone, wrapped in non-woven filter fabric. The drains should be gravity drained and fitted with rodent screens.

5.3 SHALLOW FOUNDATION RECOMMENDATIONS (TEMPORARY BRIDGE)

The proposed temporary bridge may be supported on conventional, shallow footings founded below the Miscellaneous Fill stratum and be supported on 12 inches of compacted bedding (Granular Fill or No. 8 Crushed Stone) placed on undisturbed, natural Sand and Gravel. The Granular Fill or Crushed Stone should extend a minimum of one foot beyond footing edges. A geotextile fabric separation layer (medium survivability) may be placed over subgrade soils prior to placing Crushed Stone and the Crushed Stone should be wrapped.

The minimum footing width should be 24 inches. Foundations should bear a minimum of 4 feet below the lowest adjacent grades. The minimum footing embedment should also consider the presence of the slope adjacent to the proposed structure.

We recommend the following static design parameters:

<u>General</u>

- Total Unit Weight of Miscellaneous Fill = 120 pcf
- Total Unit Weight of Natural Sand & Gravel and Pervious Structure Backfill (above water table)= 125 pcf
- Total Unit Weight of Natural Sand & Gravel and Pervious Structure Backfill (below water table)= 130 pcf
- Total Unit Weight of Natural Glacial Till Deposits (below water table) = 135 pcf

- Soil Angle of Internal Friction (Miscellaneous Fill), (φ') = 30°
- Soil Angle of Internal Friction (Natural Sand and Gravel Deposits), (φ') = 34°
- Soil Angle of Internal Friction (Pervious Structure Backfill), (φ') = 35°
- Soil Angle of Internal Friction (Natural Glacial Till Deposits), (φ') = 36°

<u>Bearing*:</u>

- Bearing Resistance Factor – Strength Limit State (φ_b) = 0.55
- Nominal Bearing Resistance (Strength Limit State) = 18.2 kips per square foot
- Factored Bearing Resistance (Strength Limit State) = φ_b x Nominal Bearing Resistance 10 kips per square foot

- Bearing Resistance Factor – Service Limit State (φ_b) = 1.00
- Nominal Bearing Resistance (Service Limit State) = 5 kips per square foot
- Factored Bearing Resistance (Service Limit State) = φ_b x Nominal Bearing Resistance 5 kips per square foot

**These values do not include reductions for bearing near slopes. The required minimum structure setback from slopes shall be measured from an imaginary plane 45 degrees to the horizontal, projected upward from the toe of the slope to proposed foundations. DTE must confirm slope stability once foundation configurations are made available.*

Sliding/Overturning:

- Coefficient of Friction for Sliding = 0.55 – mass concrete *AASHTO LRFD Table C3.11.5.3-1*
  0.40 – precast concrete
- Sliding Resistance Factor (φ_T) = 1.0 (soil shear only) *AASHTO LRFD Table 11.5.7-1*
- Coefficient of Friction for Soil Against Formed Wall (tan delta) = 0.40
- Coefficient of At-Rest Earth Pressure (Ko) = 0.45
- Coefficient of Active Earth Pressure (Ka) = 0.28
- Earth pressure calculations should assume a surface surcharge of a minimum of 24 inches of soil depth or 250 psf.

5.4 SEISMIC DESIGN

In accordance with CTDOT and AASHTO (Section 4.7.4.1) guidance, the single-span bridge and wingwalls do not need to be designed for seismic forces. We recommend adopting a Seismic Site Class "C" for the site. Based on the standard penetration test results, visual soil classification, and design peak ground acceleration at this locale, the saturated site soils are not susceptible to liquefaction.

6.0 MATERIALS RECOMMENDATIONS

6.1 ON-SITE MATERIALS

Excavated materials are not anticipated to be suitable for re-use as Granular Fill or Pervious Structure Backfill. On-site materials can be reused as General Fill for site grading purposes.

6.2 BACKFILL MATERALS

We recommend that backfill materials conform to the following CTDOT Standards:

- Granular Fill - CTDOT Standard Form 819, Section M.02.01
- Crushed Stone - Size No. 8 per CTDOT Standard Form 819, Section M.01.02
- Pervious Structure Backfill - CTDOT Standard Form 819, Section M.02.05

7.0 CONSTRUCTION RECOMMENDATIONS

7.1 SUBGRADE PREPARATION

Excavation to foundation subgrade elevations for temporary bridge should be performed using a smooth-edged bucket to minimize possible disturbance to the subgrade. Soil subgrades should be proof-compacted prior to Granular Fill placement with a vibratory plate compactor with a minimum of 2,500 pounds of centrifugal force. Any soft or loose zones, or areas with nestled boulders or debris, identified during compaction should be over-excavated and replaced with Granular Fill, as necessary, and as recommended by the geotechnical engineer. The base of foundation excavations should be free of debris materials, water, ice, and loose and frozen soils prior to placing Granular Fill. Should the materials at bearing level become disturbed, the impacted materials should be removed prior to placing Granular Fill. Subgrade preparations should be completed to the satisfaction of the Engineer.

7.2 TEMPORARY EXCAVATIONS

The Fill and natural site soils are classified as OSHA Class "C" soil and can be cut at a maximum one vertical to one and a half horizontal (1V:1.5H) slope up to a maximum excavation depth of 20 feet. These maximum slope and excavation depths assume no surcharge load (i.e., stockpiles, construction equipment, traffic, etc.) at the top of the excavations or groundwater seepage.

Care should be taken to not undermine the adjacent roads, sidewalks, and utilities. If excavations cannot be sloped in accordance with OSHA requirements or will potentially undermine adjacent structures, temporary excavation support systems will be required. Due to the shallow depth to bedrock, it is anticipated that the proposed excavations may be achieved with internally braced sheetpiles. Proposed TERS systems should be chosen and installed by the contractor and designed by a Professional Engineer registered in the State of Connecticut.

7.3 TEMPORARY GROUNDWATER CONTROL

Construction will likely occur below the adjacent river and groundwater levels. Water inflows will need to be temporarily controlled using cofferdams and sump pumps to allow construction of the bridge substructures in the dry. Cofferdams should be adequately sealed to prevent river and groundwater from infiltrating into the excavations and have sufficient basal stability and pumping systems designed (e.g., filters) to prevent soil migration.

The construction dewatering system means and methods should be chosen by the contractor and designed by a Professional Engineer registered in the State of Connecticut. This should include providing a discharge water management plan that avoids endangering public health and nearby property and meets applicable local, state, and environmental regulations.

8.0 REVIEW OF FINAL DESIGN, PLANS, AND SPECIFICATIONS

When project plans and specifications are available they should be provided to DTE for review of conformance with our geotechnical recommendations. If any changes are made to the proposed bridge, the recommendations provided in this report will need to be verified by DTE for applicability.

9.0 CONSTRUCTION QUALITY CONTROL

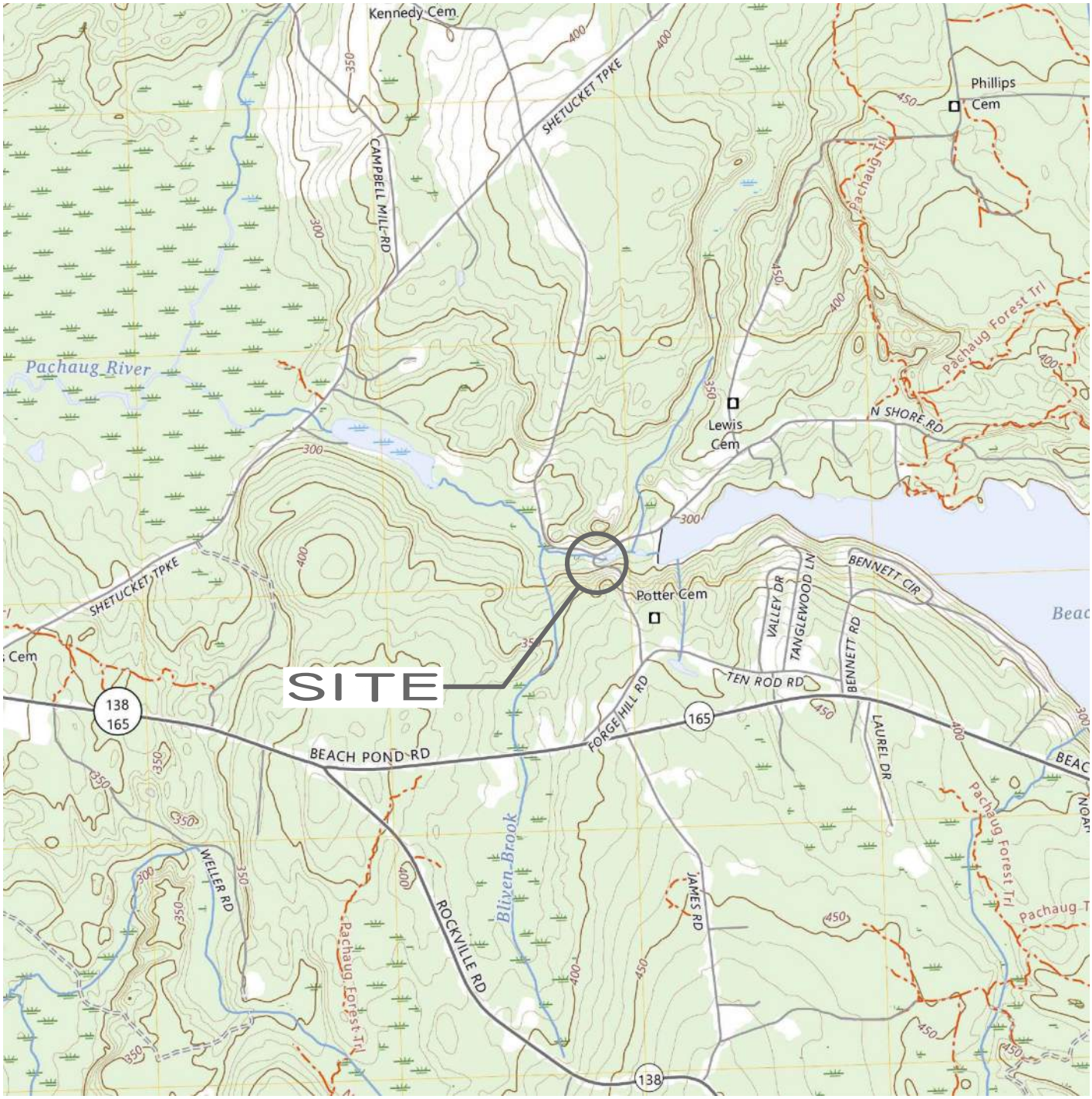
We recommend that DTE make field observations of excavations and foundation construction to monitor compliance with our recommendations and project specifications. Specifically, we recommend field observation of excavations, removal of unsuitable materials, subgrade preparation, Fill placement and compaction, and drilled micropile installation to monitor compliance with project specifications.

10.0 LIMITATIONS

This report is subject to the limitations included in Appendix 5.

APPENDIX 1 -

FIGURES



DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

27 SIEMON COMPANY DRIVE – SUITE 363W
WATERTOWN, CONNECTICUT 06795

DRAWN BY: BV | REVIEWED BY: RPJ



AREA PLAN
FORGE HILL ROAD OVER PACHAUG RIVER
BRIDGE NO. 04805
VOLUNTOWN, CONNECTICUT

REFERENCE:
USGS TOPOGRAPHIC QUADRANGLE: VOLUNTOWN, CT

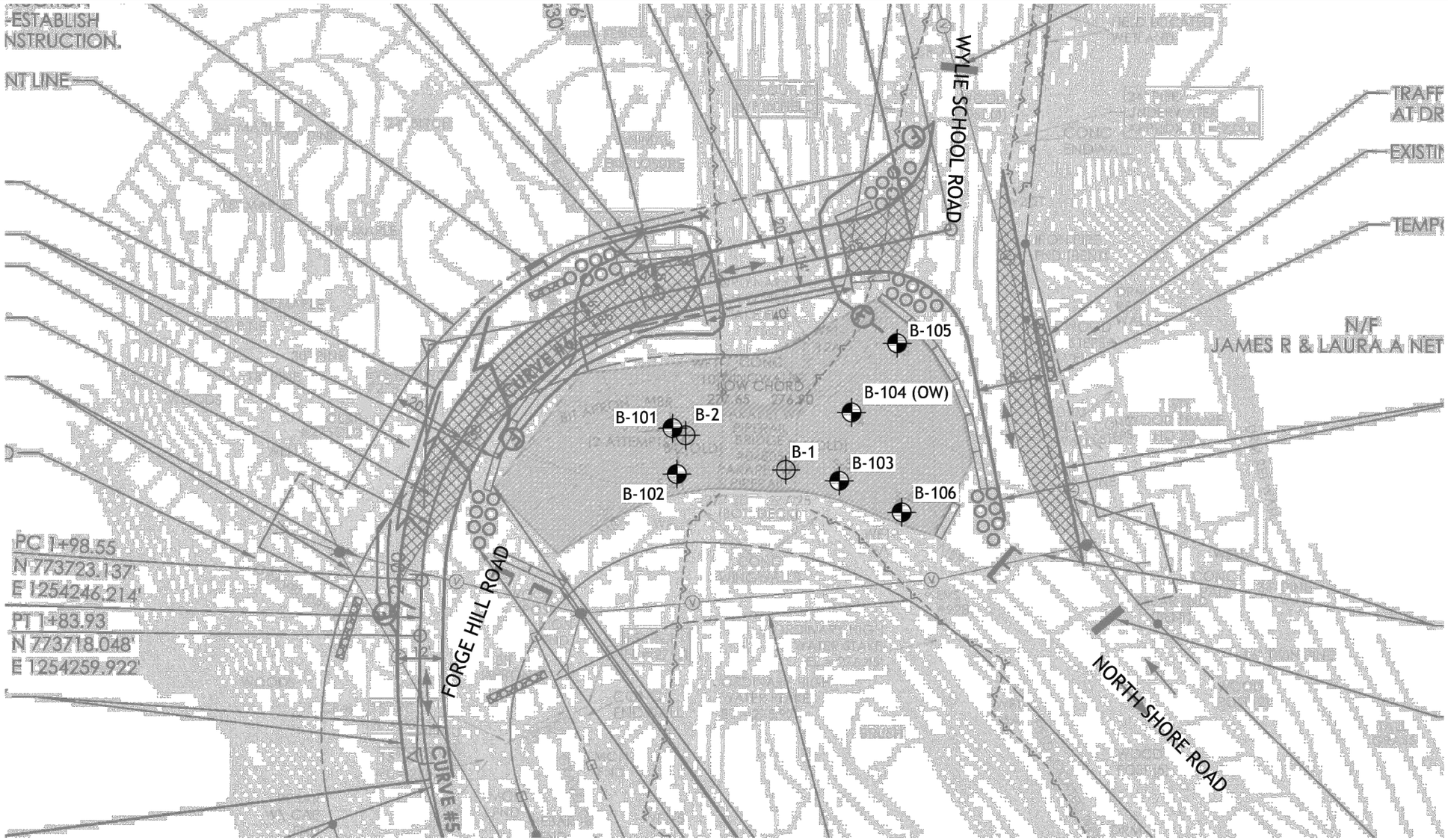
SCALE 1"= 2,000'

2,000' 1,000' 0 2,000'

PROJECT NO. 0015-041.00

DATE: 9/23/24

FIGURE NO. 1



LEGEND:

⊕	B-101	TEST BORINGS
⊕	B-1	PREVIOUS BORINGS (BY OTHERS)
	OW	OBSERVATION WELL

NOTES:

1. BASE PLAN PROVIDED CHA
2. BORING LOCATIONS ARE BASED ON SURVEYED LOCATIONS PROVIDED BY CHA
3. REFER TO THE TEXT AND APPENDICES FOR ADDITIONAL INFORMATION

GRAPHIC SCALE
30 15 0 30
SCALE IN FEET

NOTES:
1) SITE AND EXPLORATION LOCATION PLAN WERE TAKEN FROM THE REPORT TITLED "PRELIMINARY DESIGN GEOTECHNICAL ENGINEERING REPORT" PREPARED BY FREEMAN COMPANIES DATED NOVEMBER 15, 2023.

DESIGNED BY OTHERS							
DRAWN BY OTHERS							
CHECKED BY BV							
	NO.	DATE	REVISIONS	DRWN.	CHKD	APPVD	
APPROVED BY RPJ							

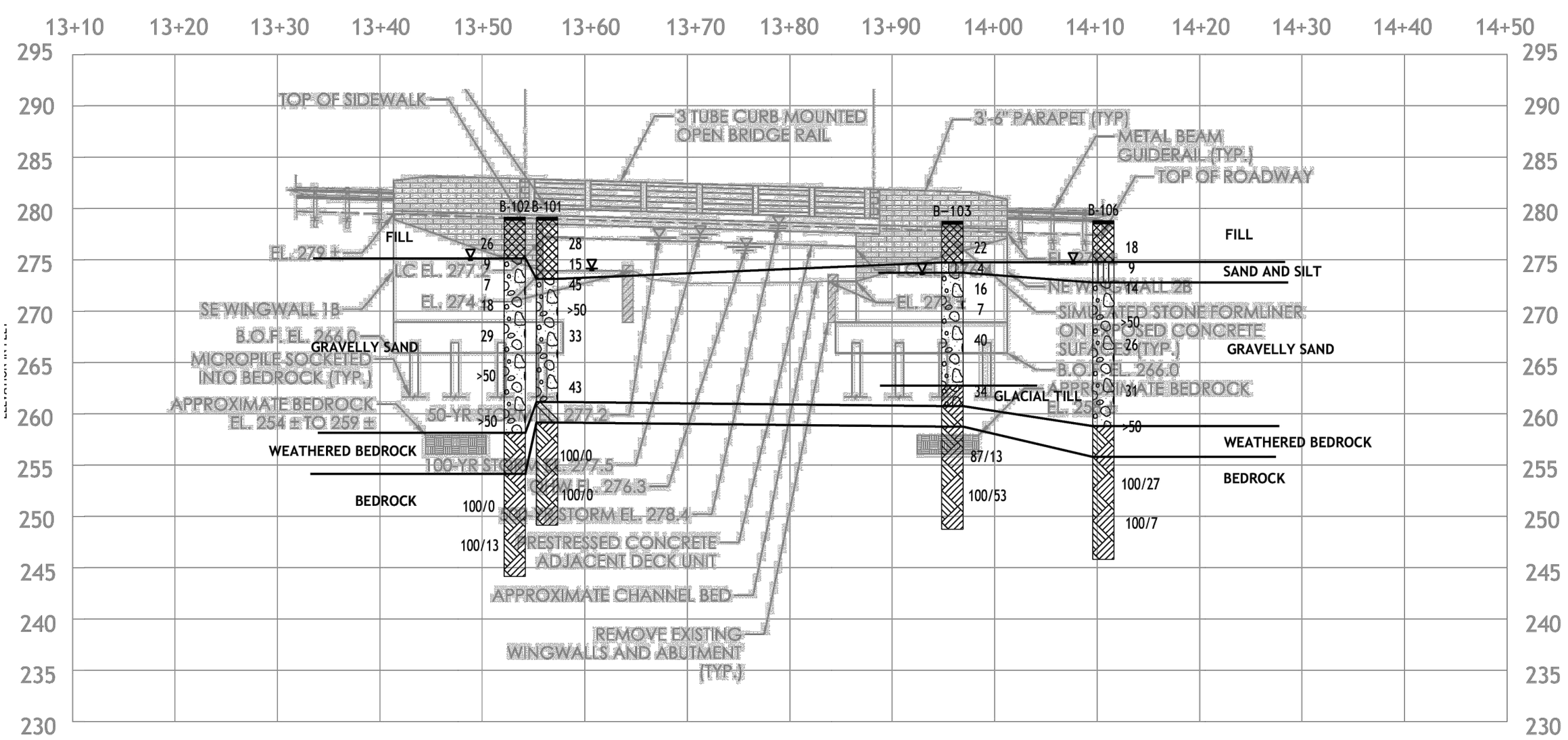
SCALE 1"= 30'
30' 15' 0 30'

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING
27 SIEMON COMPANY DRIVE #363W
WATERTOWN, CONNECTICUT 06795

PROJECT
FORGE HILL ROAD OVER
PACHAUG RIVER
VOLUNTOWN, CONNECTICUT

DWG. TITLE.
SITE AND EXPLORATION
LOCATION PLAN

DTE FILE NO. 0015-041.00
STATE PROJ. NO. 0147-0062
SCALE AS NOTED
DATE 9/23/24
FIGURE NO. 2



LEGEND

24	SPT N–VALUE
100/92	RECOVERY% / RQD%
▽	OBSERVED GROUNDWATER LEVEL

NOTE:

1) THE INTERPRETED STRATA BOUNDARIES INDICATED ARE KNOWN ONLY AT THE BORING LOCATIONS AND WILL VARY BETWEEN LOCATIONS
2) BASE PLAN PROVIDED BY CHA

NOTES:

1) THE SUBSURFACE PROFILE WAS TAKEN FROM THE REPORT TITLED "PRELIMINARY DESIGN GEOTECHNICAL ENGINEERING REPORT" PREPARED BY FREEMAN COMPANIES DATED NOVEMBER 15, 2023.

DESIGNED BY OTHERS						
DRAWN BY OTHERS						
CHECKED BY BV						
	NO.	DATE		DRWN.	CHKD	APPVD
APPROVED BY RPJ	REVISIONS					

SCALE 1"= 10'

10' 5' 0 10'

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING
27 SIEMON COMPANY DRIVE #363W
WATERTOWN, CONNECTICUT 06795

PROJECT
FORGE HILL ROAD OVER PACHAUG RIVER
VOLUNTOWN, CONNECTICUT

DWG. TITLE.
SUBSURFACE PROFILE

DTE FILE NO. 0015–041.00
STATE PROJ. NO. 0147–0062
SCALE AS NOTED
DATE 9/23/24
FIGURE NO. 3

APPENDIX 2 -

TEST BORING LOGS (BY OTHERS)

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-101
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	13+57.2/R3
Engineer:	A. McCauliffe	Project No.:	147-062	Northing:	773813
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254228
Finish Date:	5-12-23	Bridge No.:	04805	Surface Elevation:	279.15
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@5.0 after ATD hours				

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement Structure	Asphalt (4")	
	S-1	16 15 13 12	24	11		Misc Fill	Brown c-f SAND, little c-f gravel, trace silt	
	S-2	12 8 7 6	24	13			Brown c-f SAND, little c-f gravel, trace silt, (Top 7") Light brown c-f SAND, little c-f gravel, trace silt, (Bottom 6")	275
5	S-3	11 14 31 54	24	12			Brown c-f SAND, little c-f gravel, little silt, (Top 6")	
	S-4	47 50/5"	11	6		Sand and Gravel	Gray c-f SAND, little c-f gravel, little silt, (Bottom 6") Gray c-f SAND, little m-f gravel, little silt	
							Boulder from 7ft to 10ft	270
10	S-5	15 16 17 23	24	18			Gray and brown c-f SAND, some m-f gravel, little silt	
								265
15	S-6	17 20 23 30	24	6			Gray c-f SAND, and c-f gravel, trace silt	
						Weathered Rock	Change in drilling action. Suspected top of weathered bedrock	260
20						Bedrock		
	C-1		60	60	0		White and Tan, Granitic GNEISS, fine, slightly weathered, medium interbedded, highly fractured to intensely fractured, weak, 15° to 90° bedding angle, Fracture spacing contains silt (3-3-3-3-3)	255
25								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18ft Rock: 12ft No. of Soil Samples: 6 No. of Core Runs: 2	NOTES: Boring offset 2ft north due to broken off shoe. Roller bit down to 2ft	Sheet 1 of 2 SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-101
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	13+57.2/R3
Engineer:	A. McCauliffe	Project No.:	147-062	Northing:	773813
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254228
Finish Date:	5-12-23	Bridge No.:	04805	Surface Elevation:	279.15
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@5.0 after ATD hours				

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
25	C-2		60	60	0	Bedrock *(con't)*	White and Tan, Granitic GNEISS, fine, slightly weathered, medium interbedded, highly fractured to intensely fractured, weak, 15° to 90° bedding angle, Fracture spacing contains silt (3-3-3-3-3)	250
30							END OF BORING 30ft	245
35								240
40								235
45								230
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18ft Rock: 12ft No. of Soil Samples: 6 No. of Core Runs: 2	NOTES: Boring offset 2ft north due to broken off shoe. Roller bit down to 2ft	Sheet 2 of 2 SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-102
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	13+54.8/R15
Engineer:	A. McCauiliffe	Project No.:	147-062	Northing:	773811
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254237
Finish Date:	5-12-23	Bridge No.:	04805	Surface Elevation:	279.15
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours				

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement Structure	Asphalt (3")	
						Misc Fill		
	S-1	13 16 10 7	24	14			Light brown c-f SAND, and c-f gravel, little silt	
	S-2	7 6 3 2	24	10			Light brown c-f SAND, little c-f gravel, little silt, (Top 4")	
						Sand and Gravel	Brown c-f SAND, little c-f gravel, little silt, (Bottom 6")	275
5	S-3	3 4 3 6	24	11			Gray brown c-f SAND, little c-f gravel, little silt	
	S-4	3 11 7 10	24	14			Gray c-f SAND, some c-f gravel, trace silt	
								270
10	S-5	21 18 11 12	24	15			Gray and orange c-f SAND, some c-f gravel, trace silt	
								265
15	S-6	35 50/2"	8	2			Gray and orange c-f SAND, some c-f gravel, trace silt	
								260
20	S-7	50/2"	2	2			Gray c-f SAND, some c-f gravel, little silt	
							Change in drilling action at 21ft. Suspected top of weathered bedrock	
						Weathered Rock		
								255
25								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 21ft Rock: 14ft No. of Soil Samples: 7 No. of Core Runs: 2	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-102
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	13+54.8/R15
Engineer:	A. McCauliffe	Project No.:	147-062	Northing:	773811
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254237
Finish Date:	5-12-23	Bridge No.:	04805	Surface Elevation:	279.15
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours				

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
25	C-1		60	60	7	Bedrock	White and Tan, Granitic GNEISS, coarse, slightly weathered, medium foliated, highly fractured, weak to medium strong, 15° to 75° bedding angle, (3-3-3-3-3)	250
30	C-2		60	60	13		White and Tan, Granitic GNEISS, coarse, slightly weathered, medium foliated, highly fractured, weak to medium strong, 15° to 75° bedding angle, (3-3-3-3-4)	245
35							END OF BORING 35ft	240
40								235
45								230
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 21ft Rock: 14ft	NOTES:	Sheet 2 of 2
No. of Soil Samples: 7 No. of Core Runs: 2		SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-103
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	13+96.7/R24.8
Engineer:	A. McCauliffe	Project No.:	147-062	Northing:	773838
Start Date:	5-15-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254250
Finish Date:	5-15-23	Bridge No.:	04805	Surface Elevation:	278.75
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@5.0 after ATD hours				

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement Structure	Asphalt (4")	
	S-1	17 15 7 4	24	10		Misc Fill	Light brown c-f SAND, little c-f gravel, little silt	
	S-2	4 3 1 1	24	0		Sand and Silt	Inferred similar to S-1 Inferred from Boring S-6 (dark brown f-sand and silt)	275
5	S-3	8 12 4 4	24	8		Sand and Gravel	Gray c-f SAND, some c-f gravel, trace silt	
	S-4	4 6 1 5	24	16			Gray c-f SAND, little c-f gravel, little silt, (Top 10") Brown and orange c-f SAND, some m-f gravel, little silt, (Bottom 6")	270
10	S-5	16 20 20 24	24	20			Brown c-f SAND, some c-f gravel, little silt	
								265
15	S-6	13 11 23 28	24	14			Gray c-f SAND, little c-f gravel, trace silt, (Top 8")	
						Glacial Till	Gray c-f SAND, some c-f gravel, little silt, (Bottom 6")	
						Weathered Rock	Change in drilling action at 18ft	260
20						Bedrock		
	C-1		60	52	13		White and Tan, Granitic GNEISS, coarse, slightly weathered, medium bedded, moderately fractured to highly fractured, highly weathered, medium strong, 0° to 90° bedding angle, (3-3-3-3-4)	255
25								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18ft Rock: 12ft No. of Soil Samples: 6 No. of Core Runs: 2	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-103
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	13+96.7/R24.8
Engineer:	A. McCauliffe	Project No.:	147-062	Northing:	773838
Start Date:	5-15-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254250
Finish Date:	5-15-23	Bridge No.:	04805	Surface Elevation:	278.75
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@5.0 after ATD hours				

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
25	C-2		60	60	53	Bedrock *(con't)*	White and Tan, Granitic GNEISS, coarse, slightly weathered, medium bedded, moderately fractured, medium strong, 15° to 75° bedding angle, (3-3-3-3-4)	250
30							END OF BORING 30ft	245
35								240
40								235
45								230
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 18ft Rock: 12ft No. of Soil Samples: 6 No. of Core Runs: 2	NOTES:	Sheet 2 of 2 SM-001-M REV. 1/02

Driller:	M. St. John	**Connecticut DOT Boring Report**		Hole No.:	B-104 (OW)
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	14+3.4/R7.75
Engineer:	A. McCauiliffe	Project No.:	147-062	Northing:	773844
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254239
Finish Date:	5-12-23	Bridge No.:	04805	Surface Elevation:	278.25
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	300lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours, @3.2 after After 72hrs hours				

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement Structure	Asphalt (4")	
	S-1	21 18 16 12	24	18		Misc Fill	Brown c-f SAND, little m-f gravel, trace silt	
								275
	S-2	11 12 10 10	24	12			Brown c-f SAND, little m-f gravel, little silt	
5							Brown c-f SAND, little m-f gravel, little silt, (Top 6")	
	S-3	6 3 2 4	24	10		Sand and Silt	Dark brown c-f SAND, some silt, little f gravel (Bottom 4")	
	S-4	14 15 18 11	24	11		Sand and Gravel	Brown c-f SAND, trace silt	270
10							[2ft boulder from 10-12ft]	
							Gray brown c-f SAND, some c-f gravel, trace silt, (Top 4")	
	S-5	7 17 37 97	24	8		Glacial Till	Gray c-f SAND, little c-f gravel, little silt (Bottom 4")	265
15	S-6	50/3"	3	3			Gray c-f SAND, and c-f gravel, trace silt	
						Weathered Rock	Hard grinding from 17ft to 20ft. Inferred top of weathered bedrock at 17ft.	260
20						Bedrock		
	C-1		60	60	17		White and Tan, Granitic GNEISS, medium bedded, moderately weathered, moderately fractured to highly fractured, medium strong, 30° to 90° bedding angle, (Silt between fracture spacing) (3-3-4-4-4)	255
25								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 17ft Rock: 18ft No. of Soil Samples: 6 No. of Core Runs: 3	NOTES: Filter sand and backfill to 18ft, slotted pipe from 18 to 8ft, riser 8 to 0.5ft	Sheet 1 of 2 SM-001-M REV. 1/02

Driller:	M. St. John	**Connecticut DOT Boring Report**		Hole No.:	B-104 (OW)
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	14+3.4/R7.75
Engineer:	A. McCauiliffe	Project No.:	147-062	Northing:	773844
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254239
Finish Date:	5-12-23	Bridge No.:	04805	Surface Elevation:	278.25
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	300lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours, @3.2 after After 72hrs hours				

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
25	C-2		60	30	0	Bedrock *(con't)*	White and Tan, Granitic GNEISS, coarse, moderately weathered, medium interbedded, moderately fractured to highly fractured, weak to medium strong, 15° to 90° bedding angle, (Isolated spots of completely weathered bedrock) (3-3-4-3-3)	250
30	C-3		60	30	0		White and Tan, Granitic GNEISS, coarse, moderately weathered, medium interbedded, moderately fractured to highly fractured, weak to medium strong, 15° to 90° bedding angle, (Isolated spots of completely weathered bedrock) (3-2-2-3-3)	245
35							END OF BORING 35ft	240
40								235
45								230
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 17ft Rock: 18ft No. of Soil Samples: 6 No. of Core Runs: 3	NOTES: Filter sand and backfill to 18ft, slotted pipe from 18 to 8ft, riser 8 to 0.5ft	Sheet 2 of 2 SM-001-M REV. 1/02

Driller:	M. St. John	**Connecticut DOT Boring Report**		Hole No.:	B-105
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	14+18.7/L8
Engineer:	A. McCauiliffe	Project No.:	147-062	Northing:	773869
Start Date:	5-12-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254223
Finish Date:	5-15-23	Bridge No.:	04805	Surface Elevation:	278.8
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	300lb Fall: 30in.	Hammer Wt.:	300lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours				

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement Structure	Asphalt (3")	
	S-1	19 18 29 17	24	14		Misc Fill	Brown to gray c-f SAND, little c-f gravel, little silt	
	S-2	12 7 7 4	24	12			Brown to gray c-f SAND, little c-f gravel, little silt, (Top 6")	275
5	S-3	7 8 7 5	24	16		Sand and Silt	Dark brown c-f SAND, some silt, (Bottom 6")	
	S-4	4 6 7 10	24	20			Gray SILT, some f sand	
						Sand and Gravel	Gray f SAND, and silt, (Top 10")	
10	S-5	9 14 26 39	24	14			Gray c-f SAND, little silt, Orange band of c-sand (Bottom 10")	270
							Brown c-f SAND, some c-f gravel, trace silt	
								265
15						Bedrock		
	C-1		60	52	33		White and Tan, Granitic GNEISS, coarse, medium bedded, slightly weathered, slightly fractured to moderately fractured, medium strong, 15° to 60° bedding angle, (3-4-4-4-4)	260
20	C-2		60	60	70		White and Tan, Granitic GNEISS, coarse, medium bedded, slightly weathered, slightly fractured to moderately fractured, medium strong, 15° to 60° bedding angle, (4-4-4-4-4)	255
25							END OF BORING 25ft	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 15ft Rock: 25ft No. of Soil Samples: 5 No. of Core Runs: 2	NOTES:	Sheet 1 of 1 SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-106
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	14+11.2/R36
Engineer:	A. McCauliffe	Project No.:	147-062	Northing:	773857
Start Date:	5-15-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254263
Finish Date:	5-15-23	Bridge No.:	04805	Surface Elevation:	278.8
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours				

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement Structure	Asphalt (3")	
	S-1	14 10 8 8	24	3		Misc Fill	Brown c-f SAND, little c-f gravel, little silt	
	S-2	10 5 4 3	24	16			Brown c-f SAND, little c-f gravel, little silt, (Top 8")	275
5						Sand and Silt	Dark brown to black f SAND, and silt, (Bottom 8")	
	S-3	3 6 8 14	24	18		Sand and Gravel	Dark brown c-f SAND, some silt, trace f gravel, (Top 8") Gray brown c-f SAND, little c-f gravel, little silt, (Bottom 10")	
	S-4	50/5"	5	2			Gray c-f SAND, and c-f gravel, trace silt	270
10	S-5	15 12 14 11	24	18			Gray brown c-f SAND, little m-f gravel, trace silt	
								265
15	S-6	20 16 15 21	24	10			Gray c-f SAND, some c-f gravel, little silt	
								260
20	S-7	31 50/5"	11	6		Weathered Bedrock	Brown and orange Decomposed bedrock	
								255
25							White and Tan, Granitic GNEISS, coarse, slightly	

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 20ft Rock: 13ft No. of Soil Samples: 7 No. of Core Runs: 2	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller:	D. DeAngelas	**Connecticut DOT Boring Report**		Hole No.:	B-106
Inspector:	T. Ta	Town:	Voluntown	Stat./Offset:	14+11.2/R36
Engineer:	A. McCauiliffe	Project No.:	147-062	Northing:	773857
Start Date:	5-15-23	Route No.:	Forge Hill Road over Pauchag River	Easting:	1254263
Finish Date:	5-15-23	Bridge No.:	04805	Surface Elevation:	278.8
Project Description:	Forge Hill Road Bridge 04805				
Casing Size/Type:	4-in. Casing	Sampler Type/Size:	1-3/8 inch ID	Core Barrel Type:	NX
Hammer Wt.:	140lb Fall: 30in.	Hammer Wt.:	140lb Fall: 30in.		
Groundwater Observations:	@4.0 after ATD hours				

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
25	C-1		60	60	27		weathered, medium foliated, moderately fractured to moderately fractured, medium strong, 15° to 75° bedding angle, (3-2-3-3-3)	
								250
30	C-2		60	60	7		White and Tan, Granitic GNEISS, coarse, slightly weathered, medium foliated, moderately fractured to moderately fractured, medium strong, 15° to 60° bedding angle, (3-2-2-3-4)	
						Bedrock	END OF BORING 33ft	245
35								
								240
40								
								235
45								
								230
50								

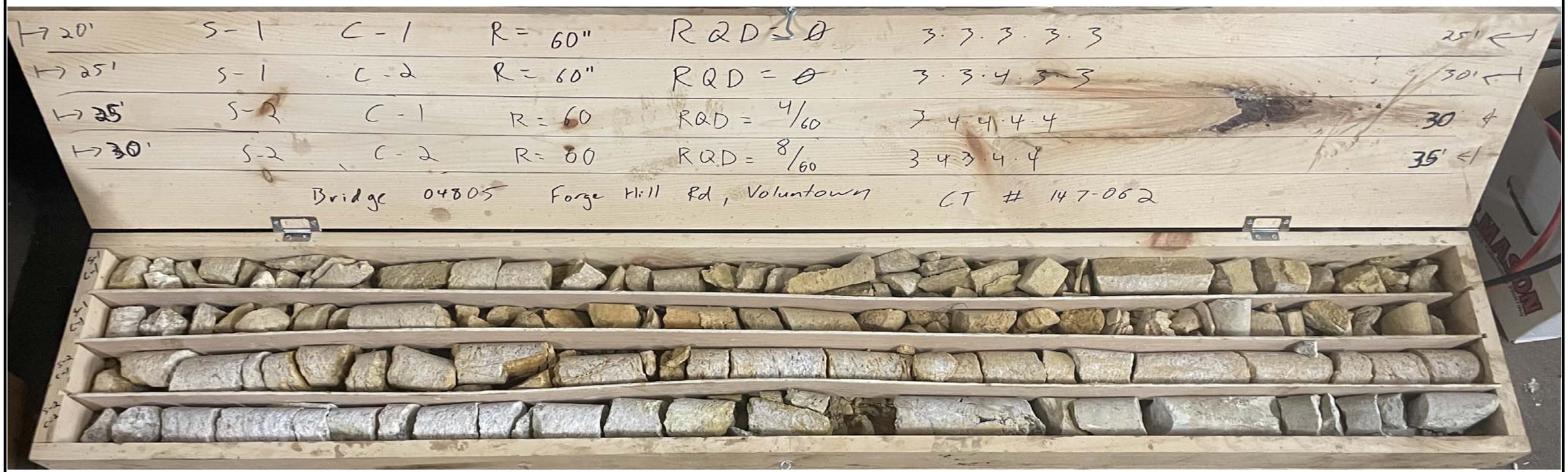
Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in	NOTES:	Sheet 2 of 2
Earth: 20ft Rock: 13ft		
No. of Soil Samples: 7 No. of Core Runs: 2		SM-001-M REV. 1/02

Rock Core Data Sheet

Project No.		Project Description	Town	Route No.	Bridge No.	Driller	Inspector	Engineer	Start Date	End Date
SPN: 147-062	FPN: 2017-0802.21	Replacement of Forge HIll Road over Pachaug River	Voluntown	Forge Hill Road	04805	D. Deangelis	T. Ta	Freeman Companies, LLC	5/12/2023	5/12/2023



Boring No.	Sample No.	Sample Depth (ft.)	Rock Type	Color	Grain Size	Bedding	Fracturing	Weathering	Strength	Drill Rates (min/ft)					Pen. (in)	Rec. (in)	Rec. (%)	RQD (%)
B-101	C1	20 - 25	Granitic Gneiss	White and Tan	Fine Grained	Medium Bedded	Highly fractured	Slightly Weathered	Weak	3	3	3	3	3	60	60	100%	0%
B-101	C2	25 - 30	Granitic Gneiss	White and Tan	Fine Grained	Medium Bedded	Highly fractured	Slightly Weathered	Weak	3	3	3	3	3	60	60	100%	0%
B-102	C1	25 - 30	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Highly fractured	Slightly Weathered	Weak	3	4	4	4	4	60	60	100%	4%
B-102	C2	30 - 35	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Highly fractured	Slightly Weathered	Weak	3	4	3	4	4	60	60	100%	8%

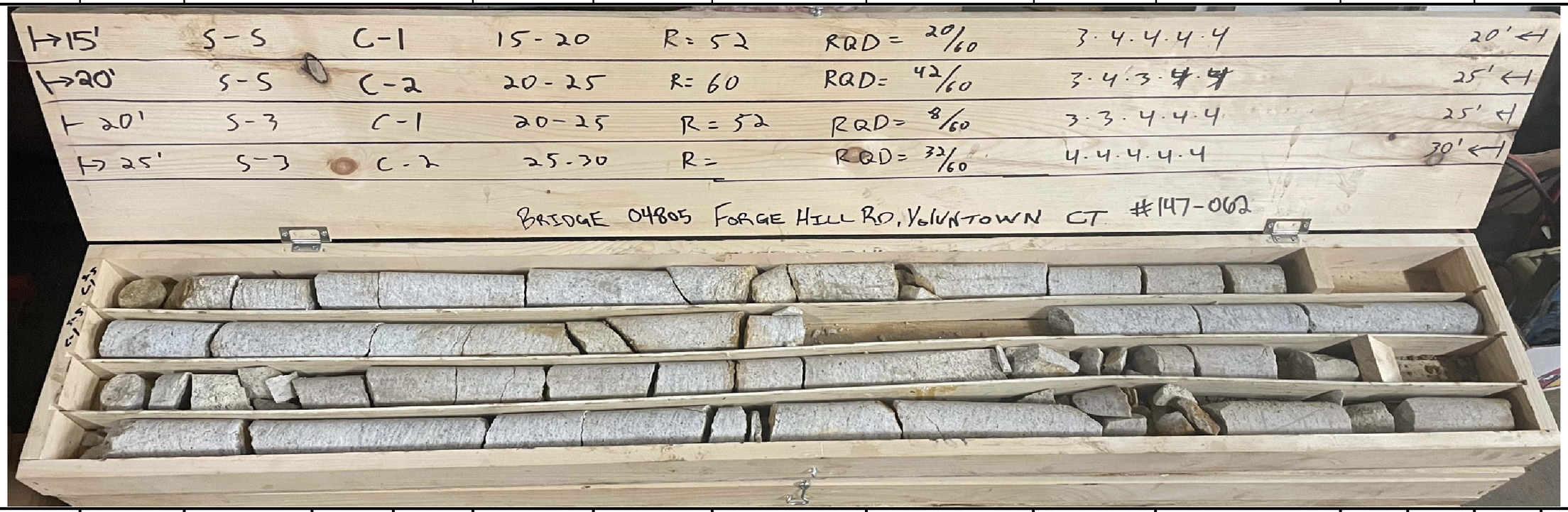
FREEMAN COMPANIES
LAND DEVELOPMENT : ENGINEERING DESIGN : CONSTRUCTION SERVICES

NOTES:

Casing Type/Size:	4in Driven Casing
Hammer Weight:	300 lbs
Hammer Fall:	30 in
Core Barrel Type:	NX

Rock Core Data Sheet

Project No.		Project Description	Town	Route No.	Bridge No.	Driller	Inspector	Engineer	Start Date	End Date
SPN: 147-062	FPN: 2017-0802.21	Replacement of Forge HIll Road over Pachaug River	Voluntown	Forge Hill Road	04805	D. Deangelis / M. St. John	T. Ta	Freeman Companies, LLC	5/12/2023	5/15/2023



Boring No.	Sample No.	Sample Depth (ft.)	Rock Type	Color	Grain Size	Bedding	Fracturing	Weathering	Strength	Drill Rates (min/ft)					Pen. (in)	Rec. (in)	Rec. (%)	RQD (%)
B-105	C1	15 - 20	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Moderately fractured	Slightly Weathered	Medium Strong	3	4	4	4	4	60	52	87%	33%
B-105	C2	20 - 25	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Moderately fractured	Slightly Weathered	Medium Strong	4	4	4	4	4	60	60	100%	70%
B-103	C1	20 - 25	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Highly fractured	Slightly Weathered	Medium Strong	3	3	4	4	4	60	52	87%	13%
B-103	C2	25 - 30	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Moderately fractured	Slightly Weathered	Medium Strong	4	4	4	4	4	60	60	100%	53%

FREEMAN COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES

NOTES:

Casing Type/Size:	4in Driven Casing
Hammer Weight:	140 lbs / 300 lbs
Hammer Fall:	30 in
Core Barrel Type:	NX

Rock Core Data Sheet

Project No.		Project Description	Town	Route No.	Bridge No.	Driller	Inspector	Engineer	Start Date	End Date
SPN: 147-062	FPN: 2017-0802.21	Replacement of Forge HIll Road over Pachaug River	Voluntown	Forge Hill Road	04805	M. St. John	T. Ta	Freeman Companies, LLC	5/12/2023	5/12/2023



Boring No.	Sample No.	Sample Depth (ft.)	Rock Type	Color	Grain Size	Bedding	Fracturing	Weathering	Strength	Drill Rates (min/ft)					Pen. (in)	Rec. (in)	Rec. (%)	RQD (%)
B-104	C1	20 - 25	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Highly fractured	Moderately Weathered	Medium Strong	3	3	4	4	4	60	60	100%	17%
B-104	C2	25 - 30	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Highly fractured	Moderately Weathered	Weak	3	3	4	3	3	60	30	50%	0%
B-104	C3	30 - 35	Granitic Gneiss	White and Tan	Coarse Grained	Medium Bedded	Moderately fractured	Moderately Weathered	Weak	3	2	2	3	3	60	30	50%	0%

FREEMAN COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES

NOTES:

Casing Type/Size:	4in Driven Casing
Hammer Weight:	140 lb or 300 lbs
Hammer Fall:	30 in
Core Barrel Type:	NX

Rock Core Data Sheet

Project No.		Project Description	Town	Route No.	Bridge No.	Driller	Inspector	Engineer	Start Date	End Date
SPN: 147-062	FPN: 2017-0802.21	Replacement of Forge HIll Road over Pachaug River	Voluntown	Forge Hill Road	04805	D. Deangelis	T. Ta	Freeman Companies, LLC	5/15/2023	5/15/2023



Boring No.	Sample No.	Sample Depth (ft.)	Rock Type	Color	Grain Size	Bedding	Fracturing	Weathering	Strength	Drill Rates (min/ft)					Pen. (in)	Rec. (in)	Rec. (%)	RQD (%)
B-106	C1	23 - 28	Granitic Gneiss	Gray/ Green	Coarse Grained	Medium Bedded	Moderately fractured	Slightly Weathered	Medium Strong	3	2	3	3	3	60	60	100%	27%
B-106	C2	28 - 33	Granitic Gneiss	Gray/ Green	Coarse Grained	Medium Bedded	Moderately fractured	Slightly Weathered	Medium Strong	3	2	2	3	4	60	60	100%	7%

FREEMAN COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES

NOTES:

Casing Type/Size:	4in Driven Casing
Hammer Weight:	300 lbs
Hammer Fall:	30 in
Core Barrel Type:	NX

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
BRIDGE REPLACEMENT
FORGE HILL ROAD OVER PACHAUG RIVER
VOLUNTOWN, CONNECTICUT

BORING NO. B-1
SHEET 1 of 1
FILE NO. 0020-072.00
CHKD. BY TO

Boring Co.	Associated Borings Company	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	278.46	Datum	NAVD88
Logged By	Daniel Lamesa	Date Start	1/14/2022	Date End	1/14/2022

Hammer Type:	Donut hammer driven by cathead with 30 inch drop
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	CME 55
Drilling Method:	3.25-inch I.D. Hollow-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth (ft)	Elev.	Stabilization Time
1/14/22		3.5	274.96	End of Boring

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	REC/PEN (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	Core Time (min./ft)	SAMPLE DESCRIPTION	STRATA
1								5.5" Asphalt
2		S-1	13/24	1 to 3	28-29-15-26		Dense, brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt	FILL
3								
4								
5								SAND
6		S-2	7/24	5 to 7	17-5-2-1		Loose , gray/brown, fine to coarse SAND, little fine Gravel, trace Silt	
7								
8		S-3	0/24	7 to 9	1-WH-1WH		Very loose, No Recovery	
9								
10								
11		S-4	16/24	10 to 12	10-27-35-40		Very dense, gray/brown, fine to medium SAND, trace fine Gravel, trace Silt	
12								
13								
14								
15								
16		S-5	11/24	15 to 17	10-23-51-31		Very dense, gray/brown, fine to coarse SAND, some fine to coarse Gravel, trace Silt	
17								
18								INFERRED DECOMPOSED BEDROCK
19								
20								
21		C-1	54/60	19.5 to 24.5		2.1	Fair quality, moderately weathered, moderately hard, gray/white/pink, GRANITIC GNEISS (RQD = 55%)	BEDROCK
22						2.6		
23						2.4		
24						3.2		
25						3.3		
26		C-2	58/60	24.5 to 29.5		4.2	Fair quality, moderately weathered, moderately hard, gray/white/pink, GRANITIC GNEISS (RQD = 53%)	
27						4.9		
28						5		
29						5.3		
30						5.6		
31							END OF EXPLORATION AT 29.5 FEET BELOW GROUND SURFACE	
32								
33								
34								
35								
36								
37								
38								
39								
40								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 0 to 10%	1. S denotes split-barrel sampler.	7. WH denotes weight of hammer
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. WR denotes weight of rods
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. C denotes core run number.

FIELD NOTES: 1) Stratification lines represent approximate boundaries between soil types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations may occur due to other factors.
3) Sample S-3 was inferred to be sand based on auger cuttings and no silt or clay residue on the split spoon.
4) Decomposed bedrock was inferred based on auger chatter from about 17 to 19.5 feet below grade.

DOWN TO EARTH CONSULTING, LLC
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING

PROJECT
BRIDGE REPLACEMENT
FORGE HILL ROAD OVER PACHAUG RIVER
VOLUNTOWN, CONNECTICUT

BORING NO. B-2
SHEET 1 of 1
FILE NO. 0020-072.00
CHKD. BY TO

Boring Co.	Associated Borings Company	Boring Location	See Boring Location Plan		
Driller	Jaime Lloret	Ground Surface El.	279.2	Datum	NAVD88
Logged By	Daniel Lamesa	Date Start	1/13/2022	Date End	1/13/2022

Hammer Type:	Donut hammer driven by cathead with 30 inch drop
Sampler Size:	1-3/8" I.D. Split Spoon
Type Drill Rig:	CME 55
Drilling Method:	3.25-inch I.D. Hollow-Stem Augers

Groundwater Readings (from ground surface)

Date	Time	Depth (ft)	Elev.	Stabilization Time
1/13/22		4	275.2	End of Boring

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	REC/PEN (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	Core Time (min./ft)	SAMPLE DESCRIPTION	STRATA
1								5.5" Asphalt over 5" Oil/Gravel Base FILL
2		S-1	8/24	1 to 3	37-19-18-9		Dense, brown, fine to medium SAND, little Silt, trace fine Gravel	
3								
4		S-2	7/24	3 to 5	8-8-6-5		Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt	
5								SAND
6		S-3	10/24	5 to 7	8-9-9-9		Medium dense, brown, fine to coarse SAND, little fine Gravel, trace Silt, trace Wood	
7								
8								
9								
10								
11		S-4	14/24	10 to 12	12-23-14-14		Dense, gray, fine to medium SAND, trace fine Gravel, trace Silt	
12								
13								
14								
15								
16		S-5	3/3	15 to 15.3	50/3"		Very dense, Coarse Gravel (Fractured Rock)	
17								
18								
19								
20								
21		S-6	0/1	20 to 20.1	50/1"		Very dense, No Recovery	INFERRED DECOMPOSED BEDROCK
22								
23								
24								
25		C-1	60/60	23.5 to 28.5		2	Very poor quality, moderately weathered, moderately hard, gray/white/pink, GRANITIC GNEISS (RQD = 20%)	BEDROCK
26						2.1		
27						2.6		
28						2.5		
29						2.1		
30		C-2	60/60	28.5 to 33.5		2.4	Poor quality, moderately weathered, moderately hard, gray/white/pink, GRANITIC GNEISS (RQD = 31%)	
31						2.5		
32						2.3		
33						2.2		
34						2.7		
35							END OF EXPLORATION AT 33.5 FEET BELOW GROUND SURFACE	
36								
37								
38								
39								
40								

SPT N-Values	SPT N-Values	Proportions	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	Trace = 0 to 10%	1. S denotes split-barrel sampler.	7. WH denotes weight of hammer
5 to 10 - Loose	3 to 4 - Soft	Little = 10 to 20%	2. ST denotes 3-inch O.D. undisturbed sample.	8. WR denotes weight of rods
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	Some = 20 to 35%	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	And = 35 to 50%	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff		5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard		6. SPT denotes Standard Penetration Test.	12. C denotes core run number.

FIELD NOTES: 1) Stratification lines represent approximate boundaries between soil types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations may occur due to other factors.
3) Decomposed bedrock was inferred based on auger chatter from about 20 to 23.5 feet below grade.

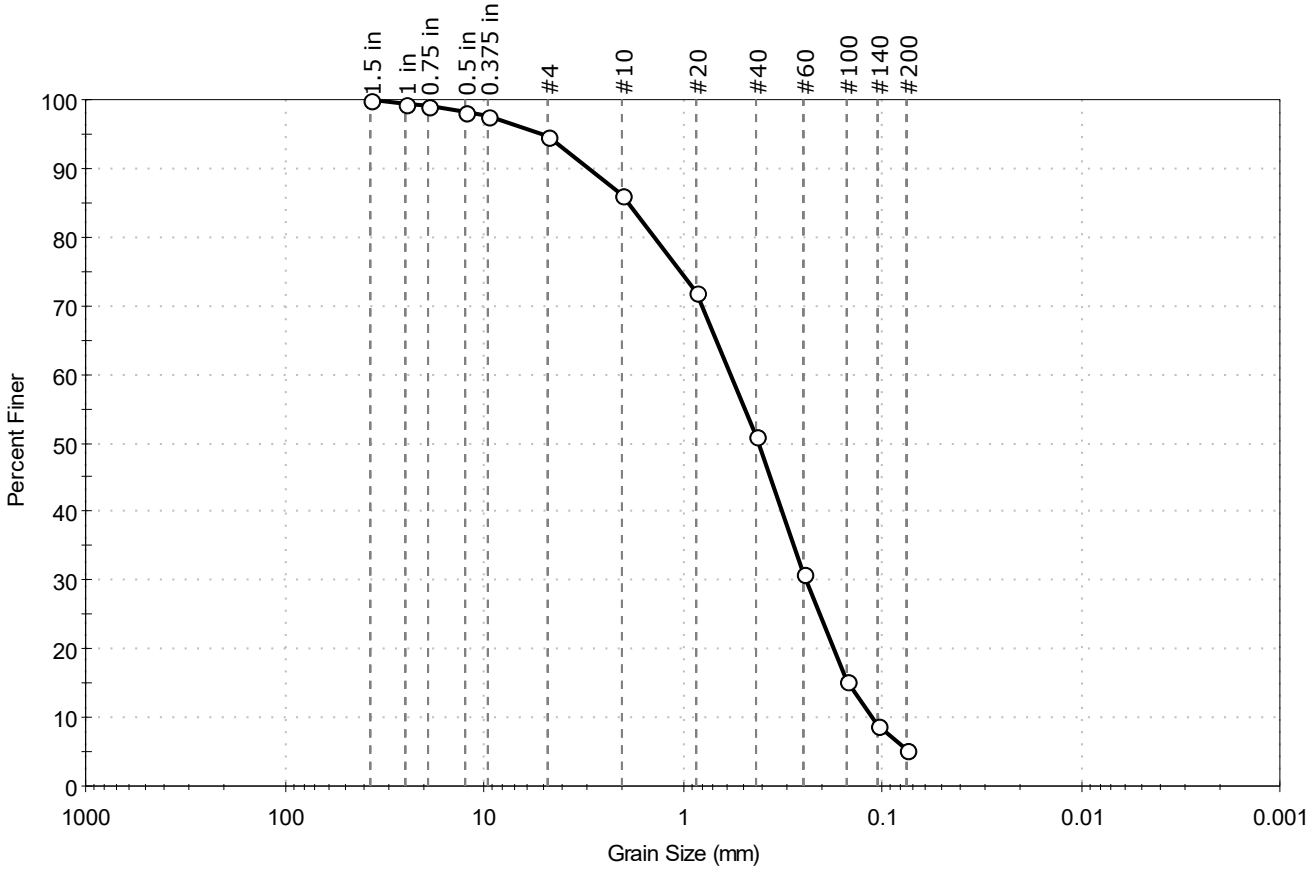
APPENDIX 3 -

LABORATORY TESTING RESULTS (BY OTHERS)

GeoTesting EXPRESS

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	Downstream	Sample Type:	bag	Tested By:	ckg
Sample ID:	Composite	Test Date:	03/10/23	Checked By:	ank
Depth :	0-0.5	Test Id:	707457		
Test Comment:	---				
Visual Description:	Moist, dark gray sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	5.3	89.3	5.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	100		
0.75 in	19.00	99		
0.5 in	12.50	98		
0.375 in	9.50	98		
#4	4.75	95		
#10	2.00	86		
#20	0.85	72		
#40	0.42	51		
#60	0.25	31		
#100	0.15	15		
#140	0.11	9		
#200	0.075	5.4		

Coefficients

D_{85} = 1.8603 mm
D_{30} = 0.2412 mm
D_{60} = 0.5725 mm
D_{15} = 0.1473 mm
D_{50} = 0.4149 mm
D_{10} = 0.1128 mm
C_u = 5.075
C_c = 0.901

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

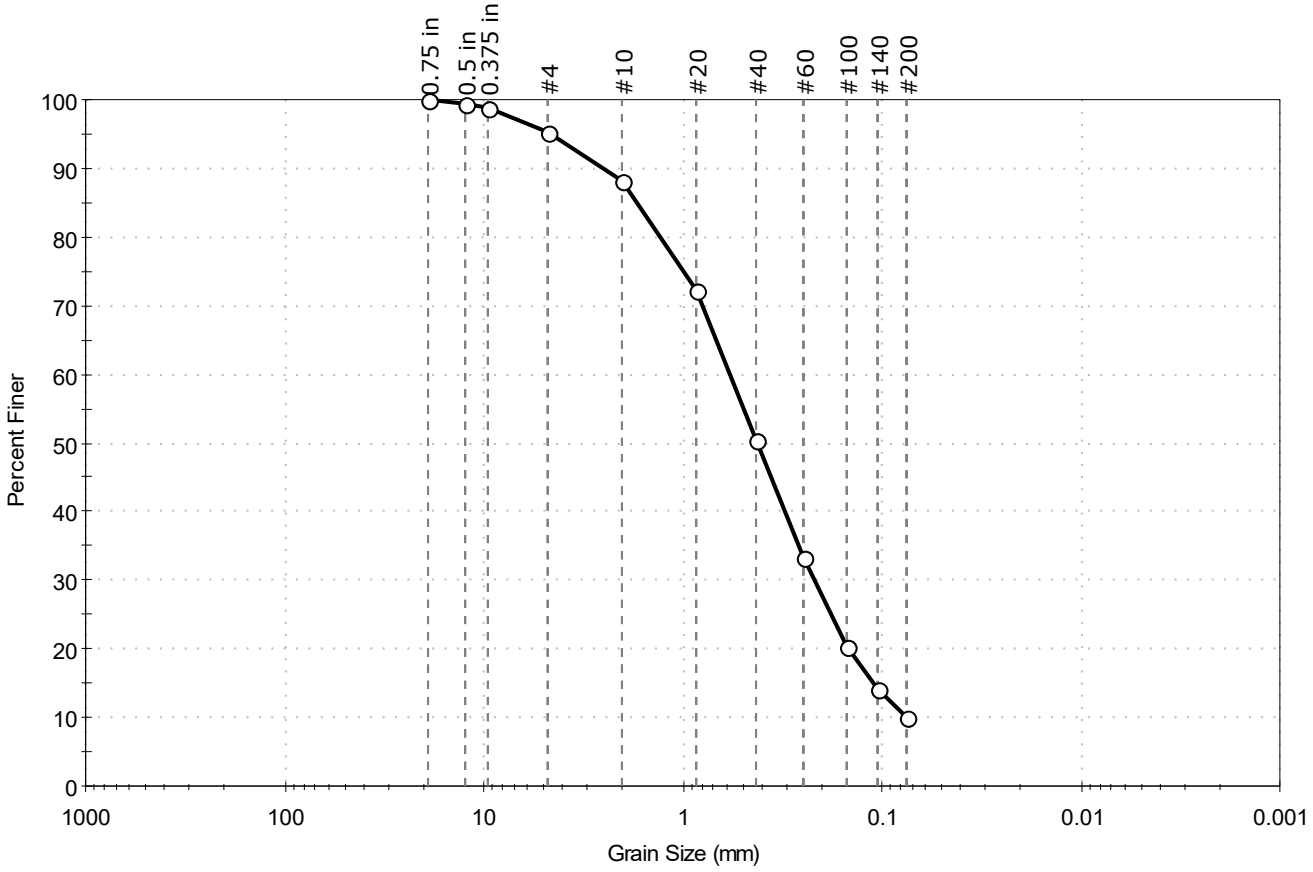
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	Upstream	Sample Type:	bag	Tested By:	ckg
Sample ID:	Composite	Test Date:	03/10/23	Checked By:	ank
Depth :	0-0.5	Test Id:	707456		
Test Comment:	---				
Visual Description:	Wet, very dark brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.7	85.4	9.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	95		
#10	2.00	88		
#20	0.85	72		
#40	0.42	50		
#60	0.25	33		
#100	0.15	20		
#140	0.11	14		
#200	0.075	9.9		

Coefficients

D_{85} = 1.6937 mm	D_{30} = 0.2194 mm
D_{60} = 0.5773 mm	D_{15} = 0.1119 mm
D_{50} = 0.4208 mm	D_{10} = 0.0754 mm
C_u = 7.656	C_c = 1.106

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

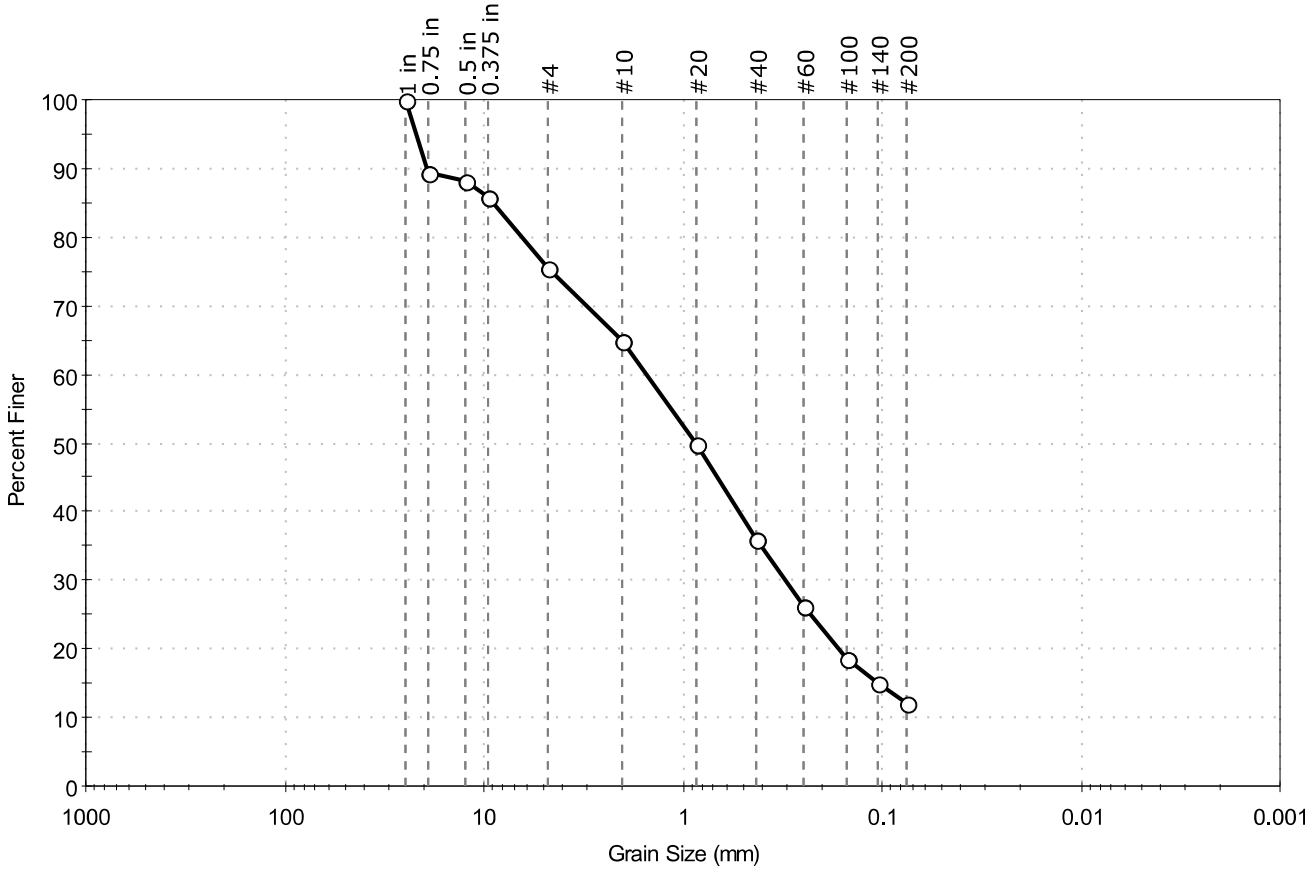
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	B-101	Sample Type:	bag	Tested By:	ckg
Sample ID:	S5	Test Date:	06/06/23	Checked By:	ank
Depth :	10-12	Test Id:	717958		
Test Comment:	---				
Visual Description:	Moist, yellowish brown silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	24.5	63.3	12.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	89		
0.5 in	12.50	88		
0.375 in	9.50	86		
#4	4.75	75		
#10	2.00	65		
#20	0.85	50		
#40	0.42	36		
#60	0.25	26		
#100	0.15	19		
#140	0.11	15		
#200	0.075	12		

Coefficients

D_{85} =8.9894 mm	D_{30} =0.3077 mm
D_{60} =1.5082 mm	D_{15} =0.1068 mm
D_{50} =0.8508 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

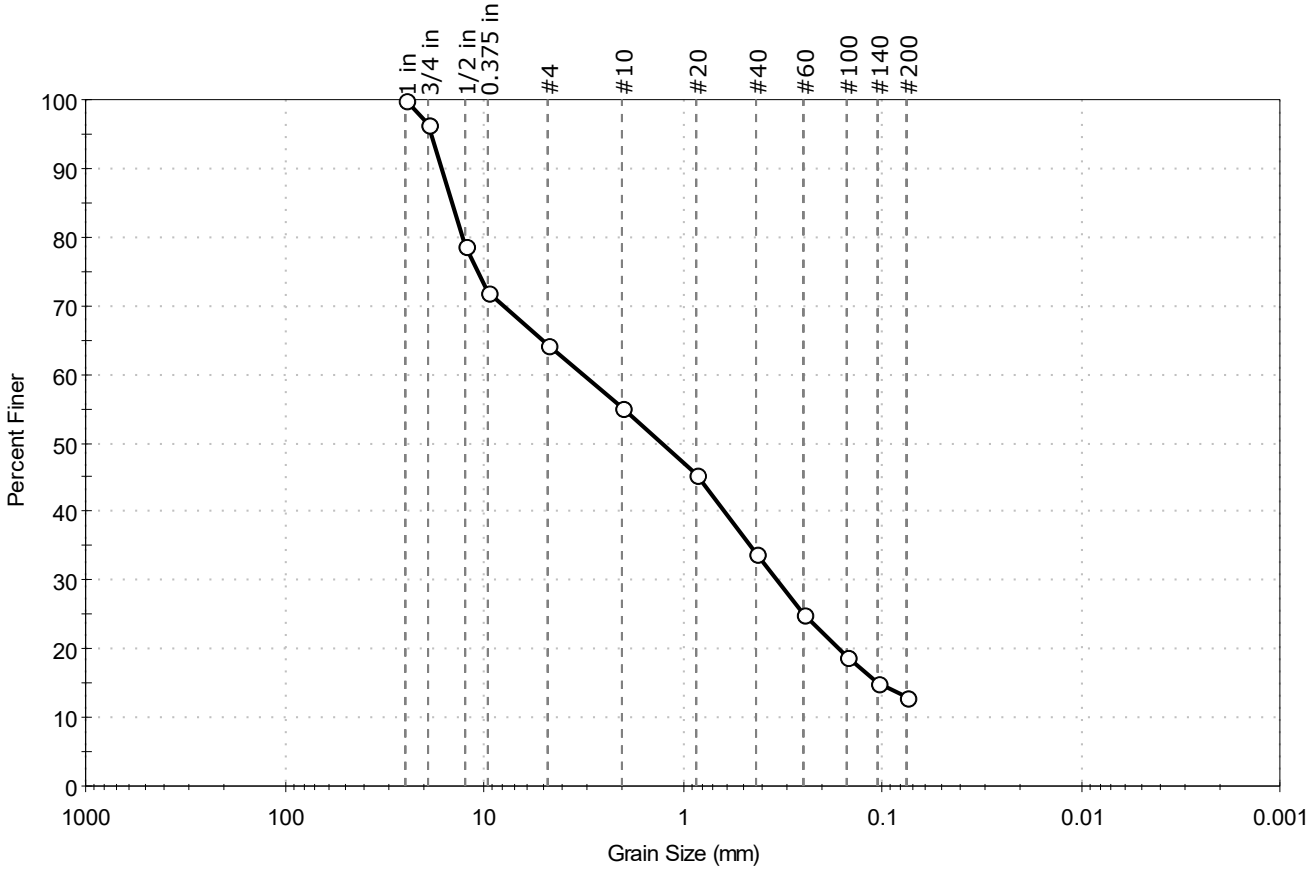
Sand/Gravel Hardness : HARD

GeoTesting EXPRESS

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	B-102	Sample Type:	bag	Tested By:	ckg
Sample ID:	S1	Test Date:	06/05/23	Checked By:	ank
Depth :	1-3	Test Id:	717959		

Test Comment: ---
Visual Description: Moist, light yellowish brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	35.8	51.4	12.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
3/4 in	19.00	96		
1/2 in	12.50	79		
0.375 in	9.50	72		
#4	4.75	64		
#10	2.00	55		
#20	0.85	46		
#40	0.42	34		
#60	0.25	25		
#100	0.15	19		
#140	0.11	15		
#200	0.075	13		

Coefficients

D_{85} = 14.4825 mm
D_{30} = 0.3355 mm
D_{60} = 3.1555 mm
D_{15} = 0.1039 mm
D_{50} = 1.2553 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

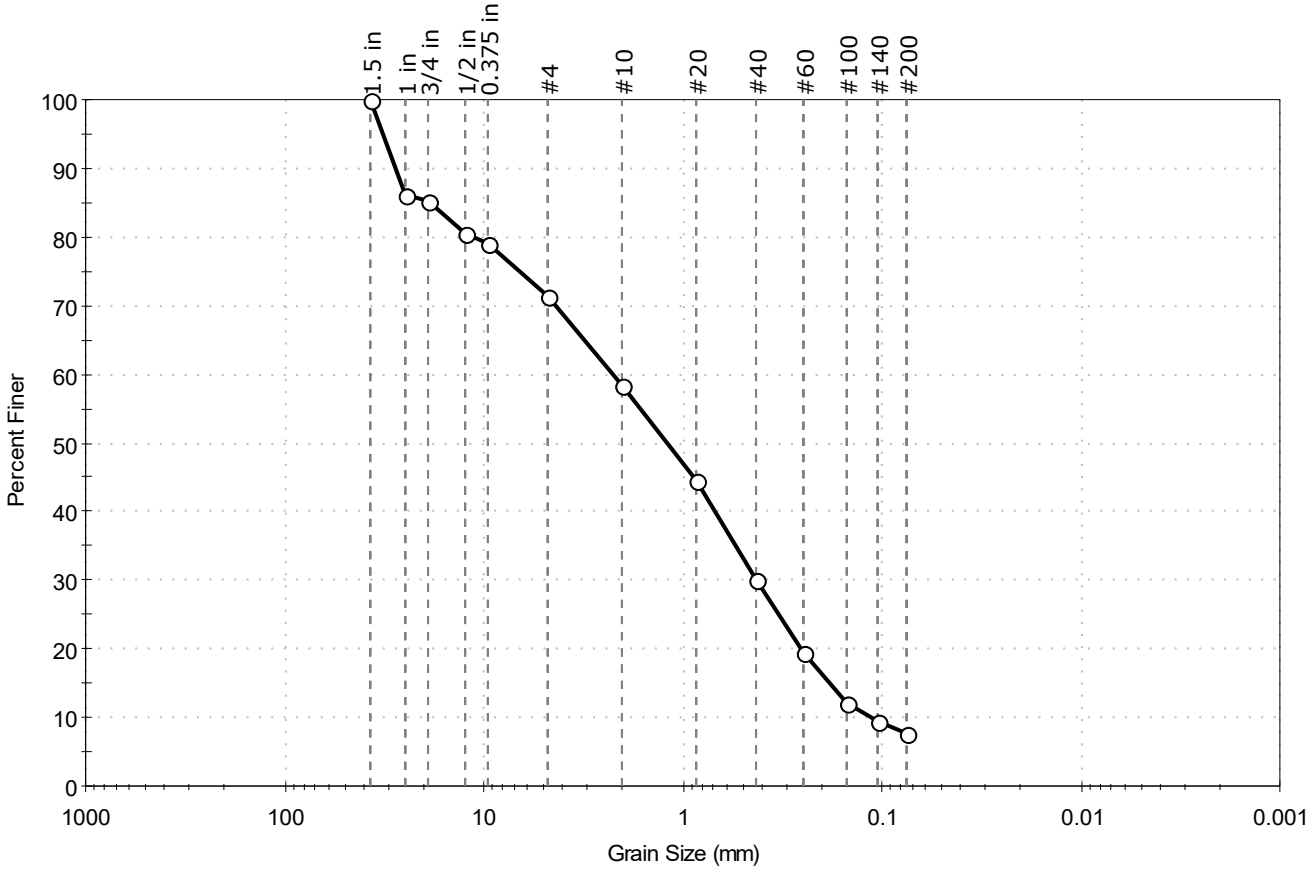
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD

GeoTesting EXPRESS

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	B-103	Sample Type:	bag	Tested By:	ckg
Sample ID:	S3	Test Date:	06/05/23	Checked By:	ank
Depth :	5-7	Test Id:	717960		
Test Comment:	---				
Visual Description:	Moist, dark brown sand with silt and gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	28.8	63.5	7.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	86		
3/4 in	19.00	85		
1/2 in	12.50	80		
0.375 in	9.50	79		
#4	4.75	71		
#10	2.00	58		
#20	0.85	45		
#40	0.42	30		
#60	0.25	19		
#100	0.15	12		
#140	0.11	9		
#200	0.075	7.7		

Coefficients

D_{85} = 18.6611 mm	D_{30} = 0.4202 mm
D_{60} = 2.2376 mm	D_{15} = 0.1835 mm
D_{50} = 1.1943 mm	D_{10} = 0.1134 mm
C_u = 19.732	C_c = 0.696

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (1))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

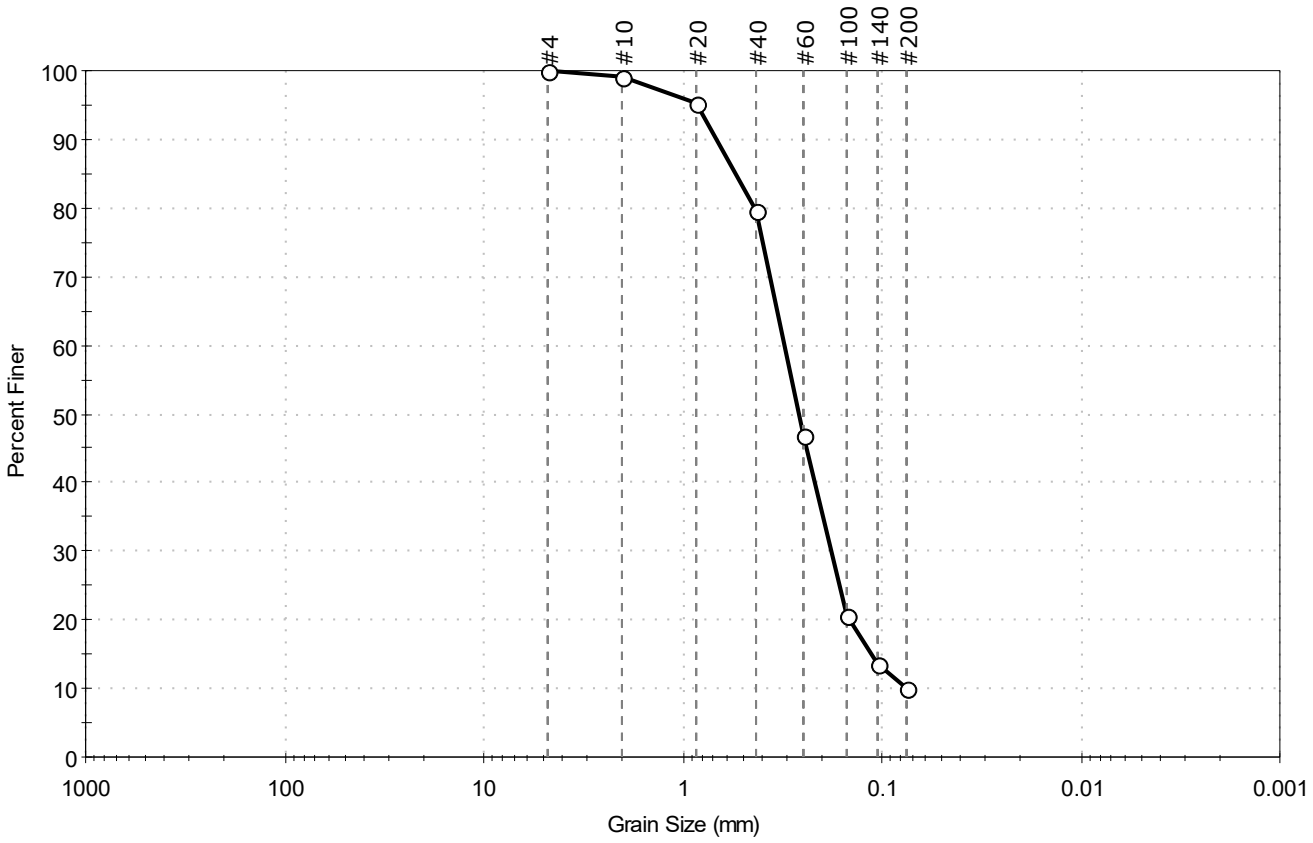
Sand/Gravel Hardness : HARD

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GeoTesting EXPRESS

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	B-104	Sample Type:	bag	Tested By:	ckg
Sample ID:	S4	Test Date:	06/06/23	Checked By:	ank
Depth :	7-9	Test Id:	717961		
Test Comment:	---				
Visual Description:	Moist, very dark brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	90.1	9.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	95		
#40	0.42	80		
#60	0.25	47		
#100	0.15	21		
#140	0.11	13		
#200	0.075	9.9		

Coefficients

D_{85} = 0.5399 mm	D_{30} = 0.1798 mm
D_{60} = 0.3095 mm	D_{15} = 0.1141 mm
D_{50} = 0.2632 mm	D_{10} = 0.0758 mm
C_u = 4.083	C_c = 1.378

Classification

ASTM N/A

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

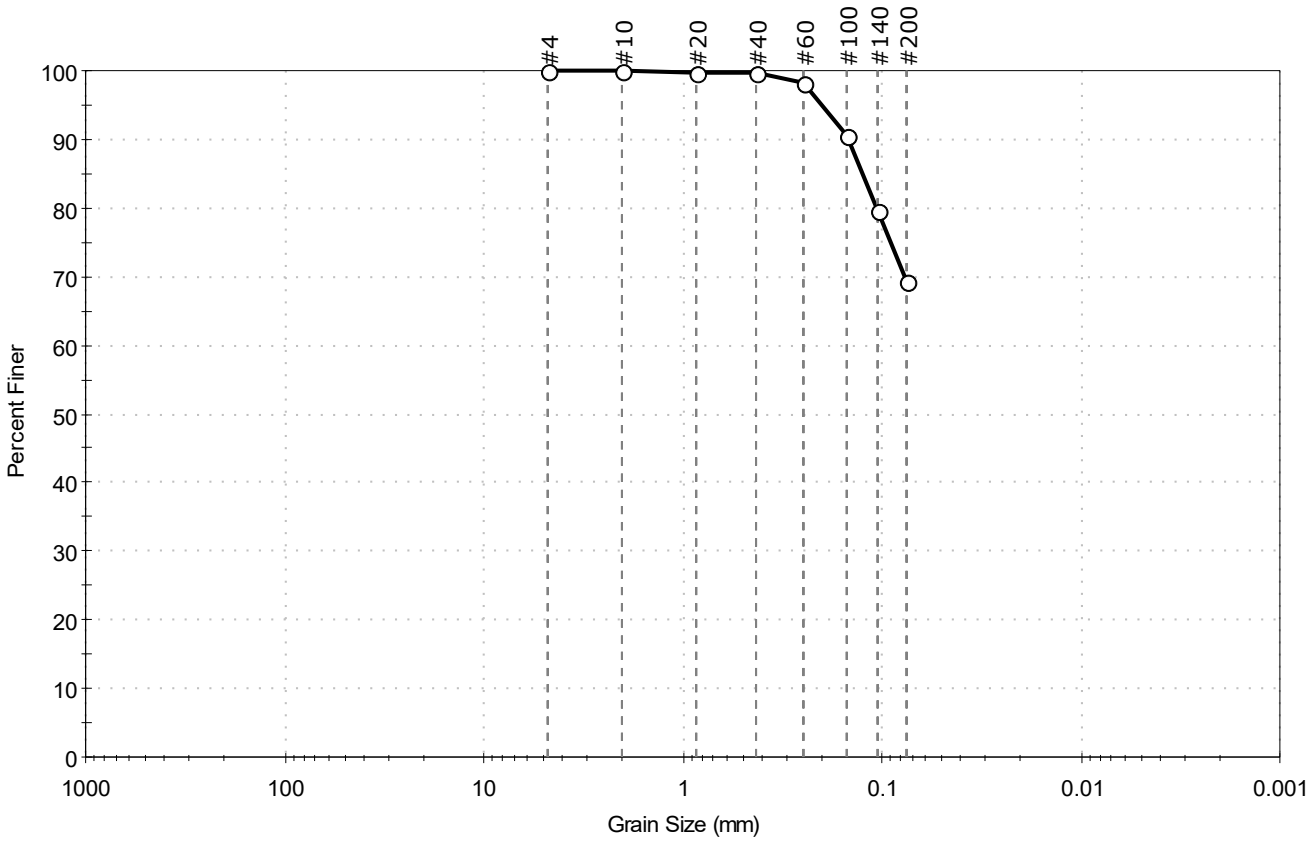
Sand/Gravel Hardness : ---

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GeoTesting EXPRESS

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	B-105	Sample Type:	bag	Tested By:	ckg
Sample ID:	S3	Test Date:	06/06/23	Checked By:	ank
Depth :	5-7	Test Id:	717962		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	30.6	69.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	98		
#100	0.15	91		
#140	0.11	80		
#200	0.075	69		

Coefficients

D_{85} = 0.1259 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

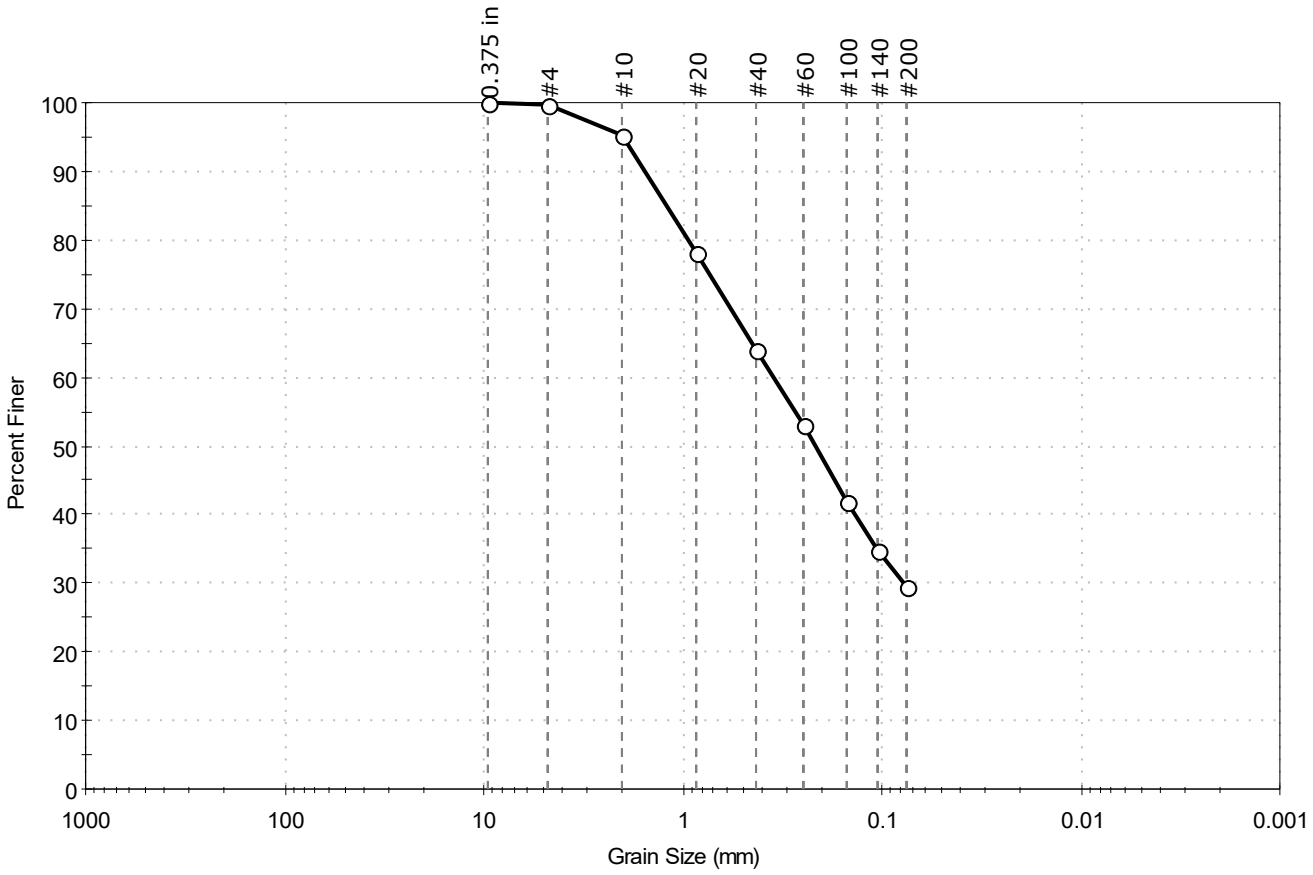
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	B-106	Sample Type:	bag	Tested By:	ckg
Sample ID:	S3	Test Date:	06/05/23	Checked By:	ank
Depth :	5-7	Test Id:	717963		
Test Comment:	---				
Visual Description:	Moist, dark brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.3	70.1	29.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	95		
#20	0.85	78		
#40	0.42	64		
#60	0.25	53		
#100	0.15	42		
#140	0.11	35		
#200	0.075	30		

Coefficients

D_{85} = 1.2016 mm D_{30} = 0.0772 mm

D_{60} = 0.3498 mm D_{15} = N/A

D_{50} = 0.2179 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Br 04805 Forge Hill Rd over Pachaug CHA				
Location:	Voluntown, CT			Project No:	GTX-316867
Boring ID:	---	Sample Type:	---	Tested By:	tlm
Sample ID:	---	Test Date:	06/21/23	Checked By:	smd
Depth :	---	Test Id:	717965		

Bulk Density and Compressive Strength of Rock Core Specimens by ASTM D7012 Method C

Boring ID	Sample Number	Depth	Bulk Density, pcf	Compressive strength, psi	Failure Type	Meets ASTM D4543	Note(s)
B-102	C2	21.5-22 ft	161	11736	1	Yes	---
B-104	C1	32.7-33.1 ft	170	3497	3	Yes	---

Notes: Density determined on core samples by measuring dimensions and weight and then calculating.

All specimens tested at the approximate as-received moisture content and at standard laboratory temperature.

The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.

Failure Type: 1 = Intact Material Failure; 2 = Discontinuity Failure; 3 = Intact Material and Discontinuity Failure (See attached photographs)

Client:	Freeman Companies, LLC	Test Date:	6/19/2023
Project Name:	Br 04805 Forge Hill Rd over Pachaug CHA	Tested By:	te
Project Location:	Voluntown, CT	Checked By:	smd
GTX #:	316867		
Boring ID:	B-102		
Sample ID:	C2		
Depth:	21.5-22 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.12	4.12	4.12
Specimen Diameter, in:	1.98	1.98	1.98
Specimen Mass, g:	536.65		
Bulk Density, lb/ft^3	161	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.1	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

END FLATNESS AND PARALLELISM (Procedure FP1)

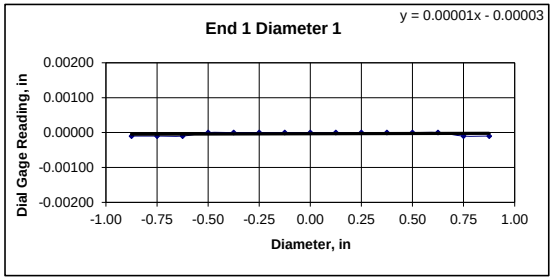
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00010	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00010	-0.00010
Diameter 2, in (rotated 90°)	-0.00020	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

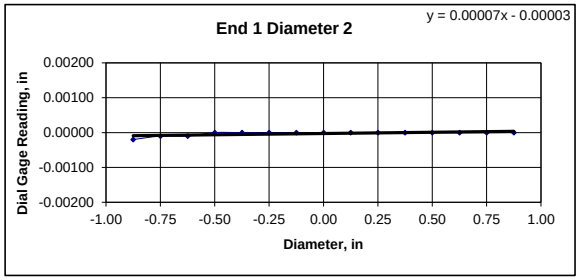
Difference between max and min readings, in:
0° = 0.00010 90° = 0.00020

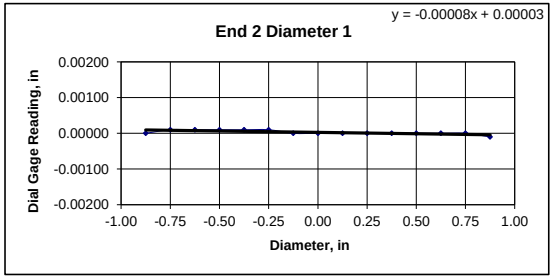
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00000	0.00010	0.00010	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00010
Diameter 2, in (rotated 90°)	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00010	-0.00010	-0.00010

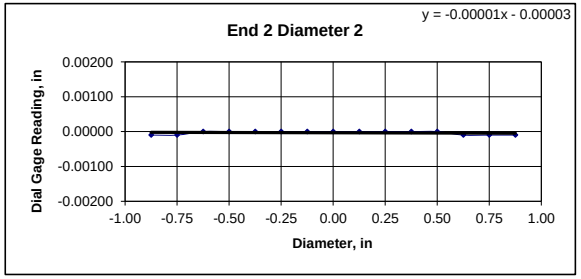
Difference between max and min readings, in:
0° = 0.0002 90° = 0.0001

Maximum difference must be < 0.0020 in. Difference = ± 0.00010
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00001
Angle of Best Fit Line: 0.00082

End 2:
Slope of Best Fit Line 0.00008
Angle of Best Fit Line: 0.00442

Maximum Angular Difference: 0.00360

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00007
Angle of Best Fit Line: 0.00409

End 2:
Slope of Best Fit Line 0.00001
Angle of Best Fit Line: 0.00082

Maximum Angular Difference: 0.00327

Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00010	1.980	0.00005	0.003	YES
Diameter 2, in (rotated 90°)	0.00020	1.980	0.00010	0.006	YES
END 2					
Diameter 1, in	0.00020	1.980	0.00010	0.006	YES
Diameter 2, in (rotated 90°)	0.00010	1.980	0.00005	0.003	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	Freeman Companies, LLC
Project Name:	Br 04805 Forge Hill Rd over Pachaug CHA
Project Location:	Voluntown, CT
GTX #:	316867
Test Date:	6/21/2023
Tested By:	jss
Checked By:	smd
Boring ID:	B-102
Sample ID:	C2
Depth, ft:	21.5-22 ft



After cutting and grinding



After break

Client:	Freeman Companies, LLC	Test Date:	6/19/2023
Project Name:	Br 04805 Forge Hill Rd over Pachaug CHA	Tested By:	te
Project Location:	Voluntown, CT	Checked By:	smd
GTX #:	316867		
Boring ID:	B-104		
Sample ID:	C1		
Depth:	32.7-33.1 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.02	4.02	4.02
Specimen Diameter, in:	1.97	1.97	1.97
Specimen Mass, g:	546.7		
Bulk Density, lb/ft^3	170	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.0	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

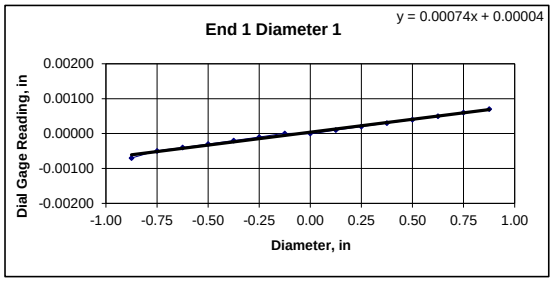
Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

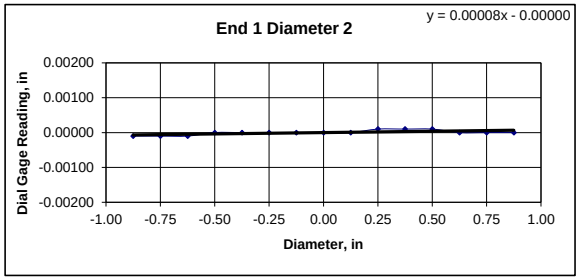
END FLATNESS AND PARALLELISM (Procedure FP1)

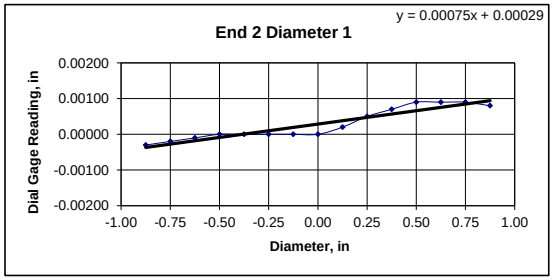
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00070	-0.00050	-0.00040	-0.00030	-0.00020	-0.00010	0.00000	0.00000	0.00010	0.00020	0.00030	0.00040	0.00050	0.00060	0.00070
Diameter 2, in (rotated 90°)	-0.00010	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000
											Difference between max and min readings, in:				
											0° =	0.00140	90° =	0.00020	

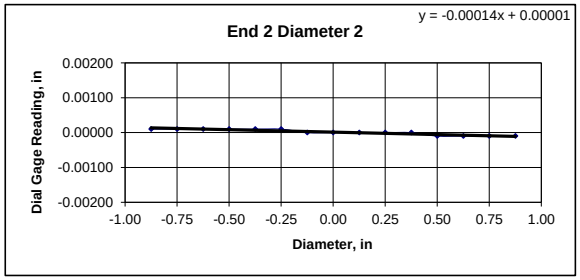
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00030	-0.00020	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00050	0.00070	0.00090	0.00090	0.00090	0.00080
Diameter 2, in (rotated 90°)	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00010	-0.00010	-0.00010	-0.00010
											Difference between max and min readings, in:				
											0° =	0.0012	90° =	0.0002	

Maximum difference must be < 0.0020 in. Difference = ± 0.00070
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00074
Angle of Best Fit Line: 0.04240

End 2:
Slope of Best Fit Line 0.00075
Angle of Best Fit Line: 0.04289

Maximum Angular Difference: 0.00049

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00008
Angle of Best Fit Line: 0.00442

End 2:
Slope of Best Fit Line 0.00014
Angle of Best Fit Line: 0.00802

Maximum Angular Difference: 0.00360

Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00140	1.970	0.00071	0.041	YES
Diameter 2, in (rotated 90°)	0.00020	1.970	0.00010	0.006	YES
END 2					
Diameter 1, in	0.00120	1.970	0.00061	0.035	YES
Diameter 2, in (rotated 90°)	0.00020	1.970	0.00010	0.006	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	Freeman Companies LLC
Project Name:	Br 04805 Forge Hill Rd over Pachaug CHA
Project Location:	Voluntown, CT
GTX #:	316867
Test Date:	6/21/2023
Tested By:	jss
Checked By:	smd
Boring ID:	B-104
Sample ID:	C1
Depth, ft:	32.7-33.1 ft



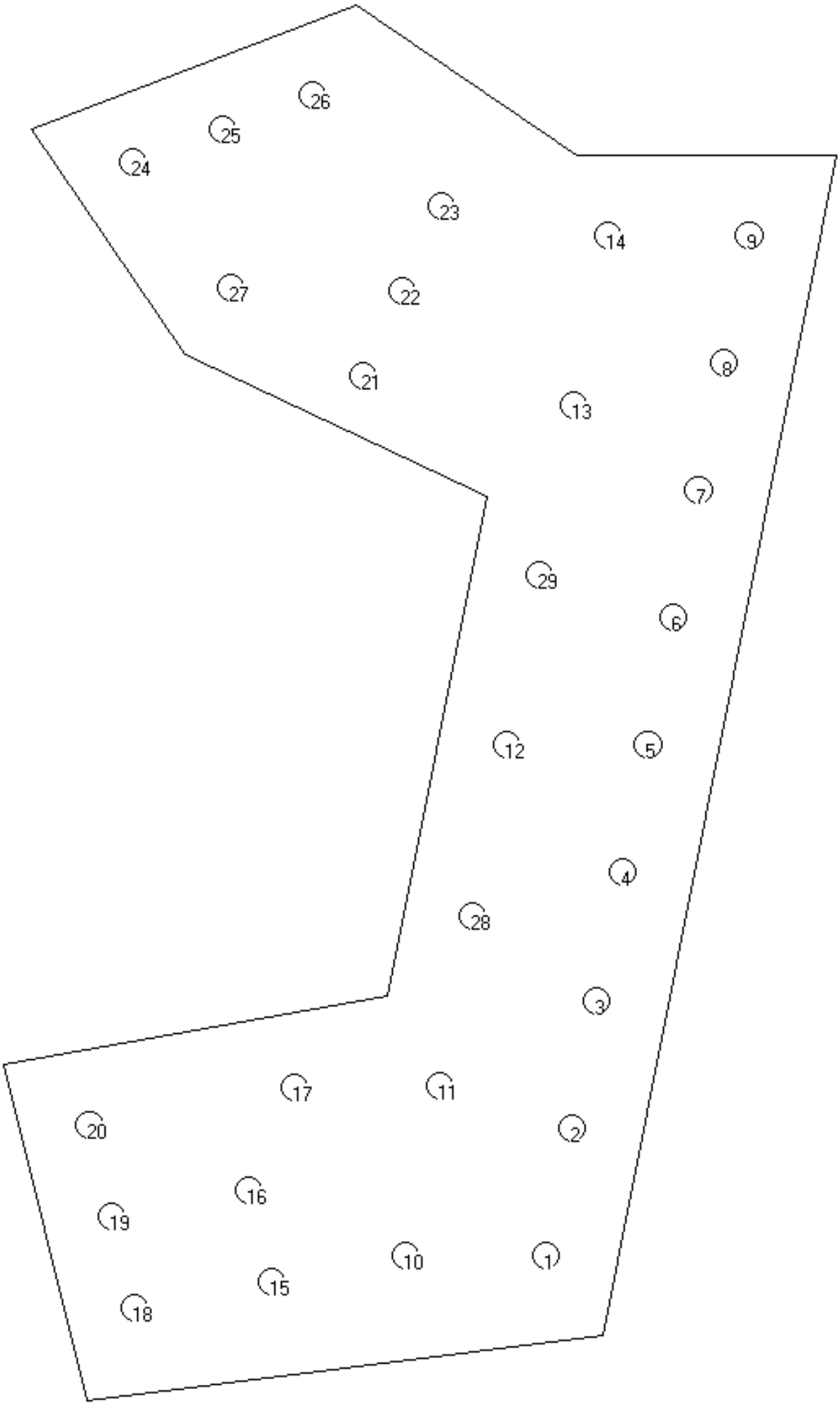
After cutting and grinding

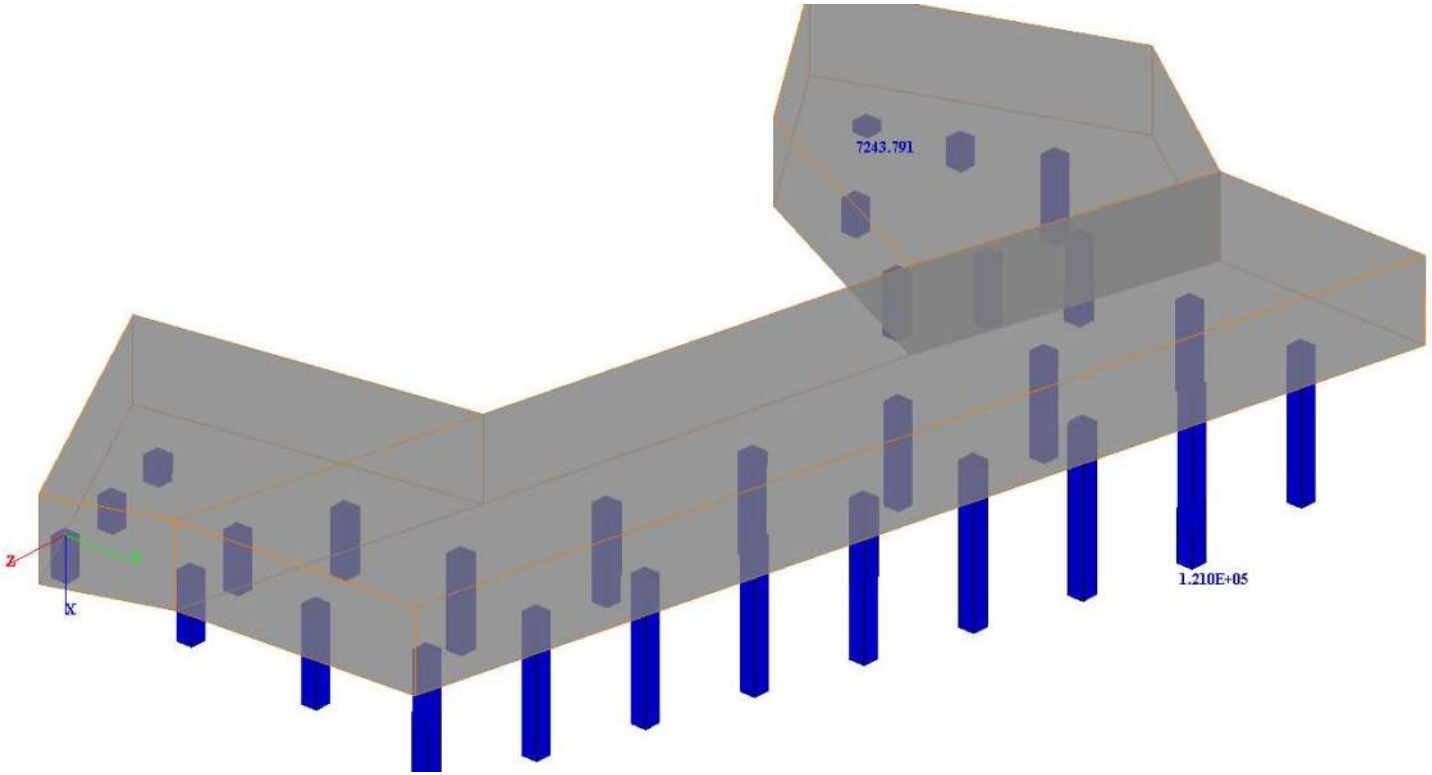


After break

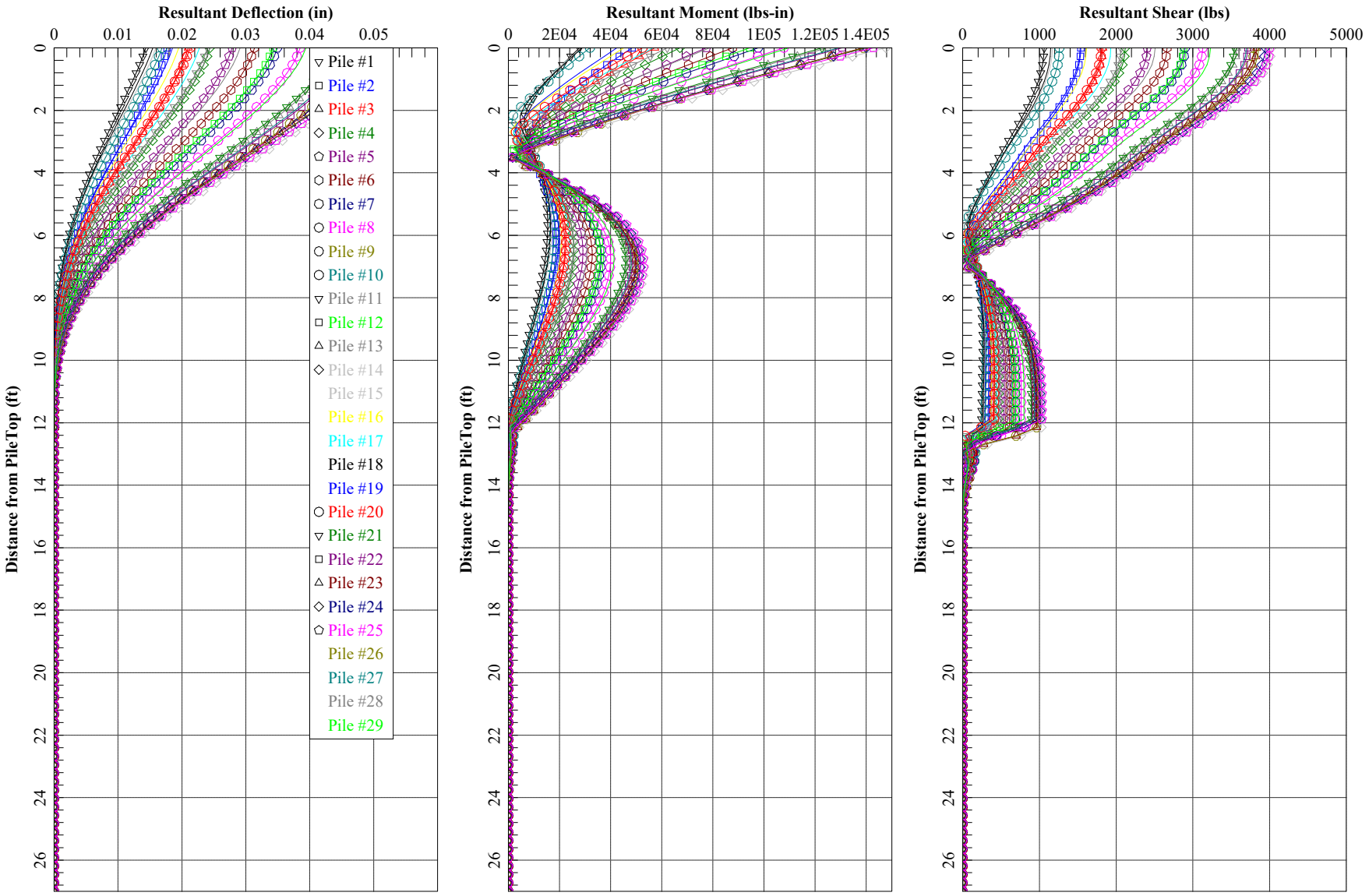
APPENDIX 4 -

LATERAL PILE ANALYSIS

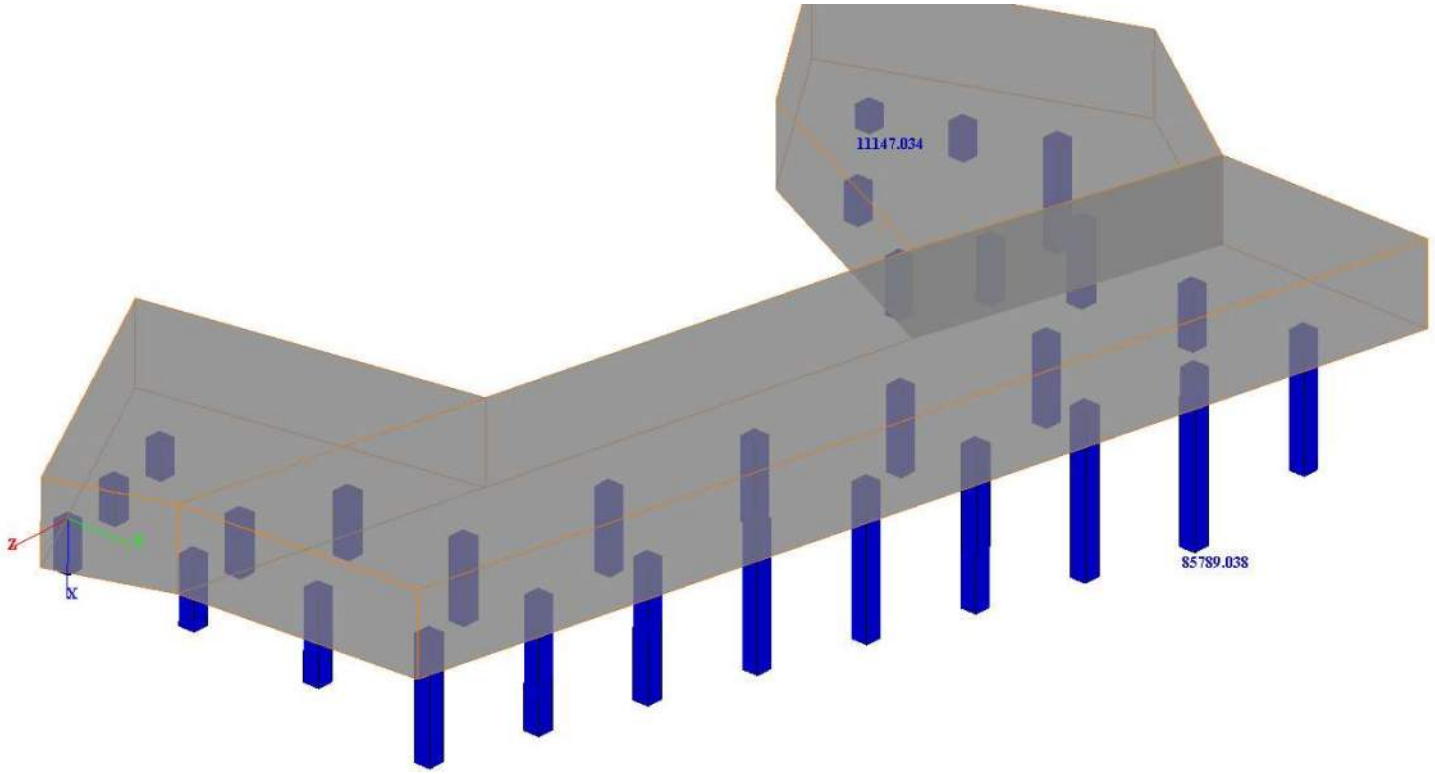

26
25
24
23
14
9
27
22
8
21
13
7
29
6
12
5
4
28
3
17
11
20
2
16
19
10
1
15
18



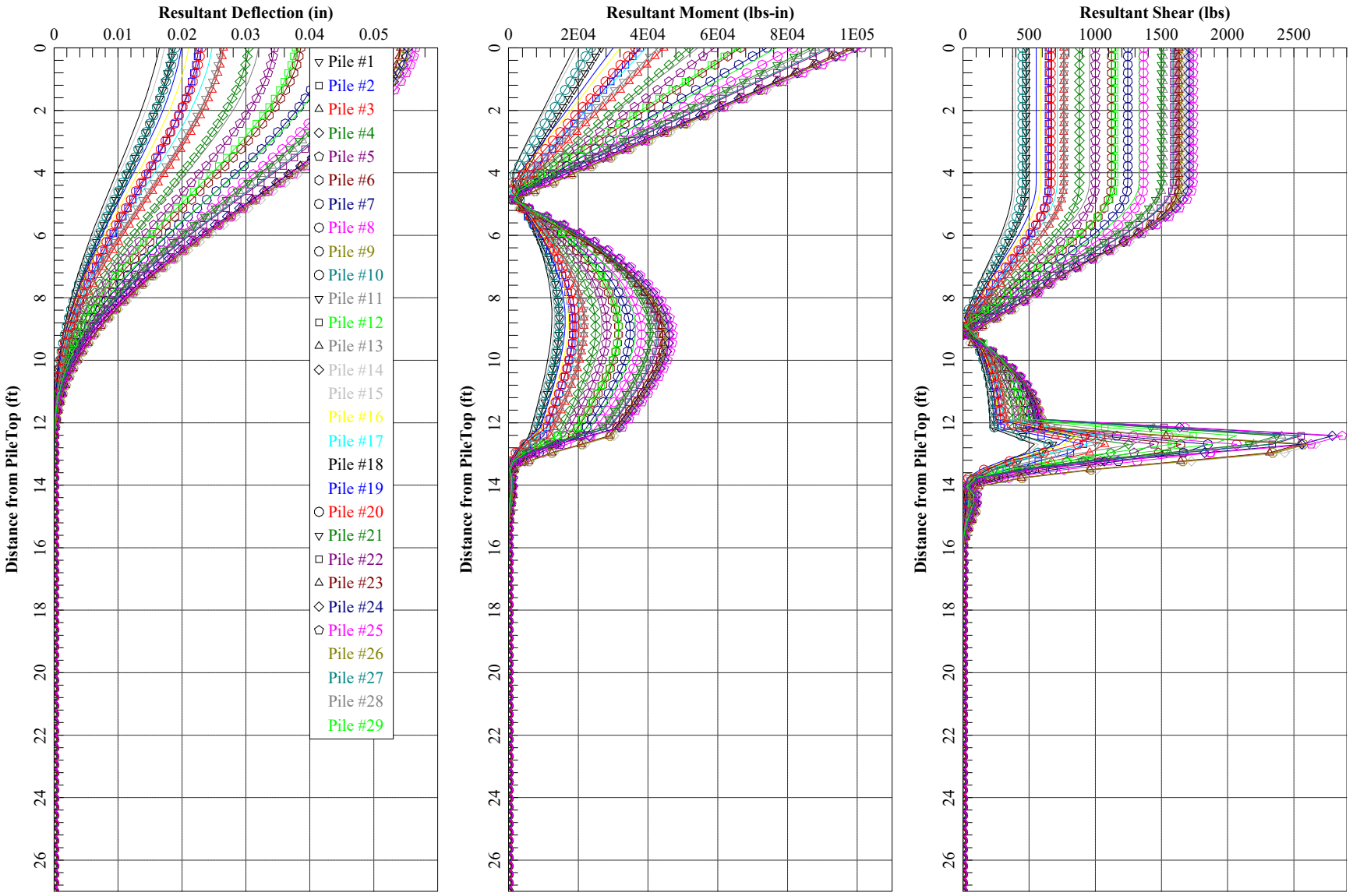
Strength I - Max./Min. Axial Loads (lbs.)


Resultant Deflection (in)
0
0.01
0.02
0.03
0.04
0.05
Distance from PileTop (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Pile #1
Pile #2
Pile #3
Pile #4
Pile #5
Pile #6
Pile #7
Pile #8
Pile #9
Pile #10
Pile #11
Pile #12
Pile #13
Pile #14
Pile #15
Pile #16
Pile #17
Pile #18
Pile #19
Pile #20
Pile #21
Pile #22
Pile #23
Pile #24
Pile #25
Pile #26
Pile #27
Pile #28
Pile #29
Resultant Moment (lbs-in)
0
2E04
4E04
6E04
8E04
1E05
1.2E05
1.4E05
Distance from PileTop (ft)
Resultant Shear (lbs)
0
1000
2000
3000
4000
5000
Distance from PileTop (ft)

STRENGTH I



Extreme II - Max./Min. Axial Loads (lbs.)


Resultant Deflection (in)
0
0.01
0.02
0.03
0.04
0.05
Distance from PileTop (ft)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Pile #1
Pile #2
Pile #3
Pile #4
Pile #5
Pile #6
Pile #7
Pile #8
Pile #9
Pile #10
Pile #11
Pile #12
Pile #13
Pile #14
Pile #15
Pile #16
Pile #17
Pile #18
Pile #19
Pile #20
Pile #21
Pile #22
Pile #23
Pile #24
Pile #25
Pile #26
Pile #27
Pile #28
Pile #29
Resultant Moment (lbs-in)
0
2E04
4E04
6E04
8E04
1E05
Distance from PileTop (ft)
Resultant Shear (lbs)
0
500
1000
1500
2000
2500
Distance from PileTop (ft)

EXTREME II

APPENDIX 5 -

LIMITATIONS

LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations by others. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

3. Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, tidal, temperature, and other factors occurring since the time measurements were made.

Review

4. In the event that any changes in the nature, design or location of the proposed structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by DTE. It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

Construction

5. It is recommended that this firm be retained to provide soil engineering services during construction of the earthworks and foundation phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

Use of Report

6. This report has been prepared for the exclusive use of Alfred Benesch and Company for specific application to the project noted in this geotechnical report in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

7. This soil and foundation engineering report has been prepared for this project by DTE. This report is for design purposes only and is not sufficient to prepare an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to design considerations only.

8. This report may contain comparative cost estimates for the purpose of evaluating alternative foundation schemes. These estimates may also involve approximate quantity evaluations. It should be noted that quantity estimates may not be accurate enough for construction bids. Since DTE has no control over labor and materials cost and design, the estimates of construction costs have been made on the basis of experience. DTE does not guarantee the accuracy of cost estimates as compared to contractor's bids for construction costs.

CONSTUCTION CONTRACTS - REQUIRED CONTRACT PROVISIONS (FHWA FUNDED CONTRACTS)

See following page

Construction Contracts - Required Contract Provisions
(FHWA and State Funded Contracts)

Index

1. Federal Highway Administration (FHWA) Form 1273 (Revised October 2023)

2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

3. Requirements of Title 49, CFR, Part 26, Participation by DBEs

4. Contract Wage Rates

5. Americans with Disabilities Act of 1990, as Amended

6. Connecticut Statutory Labor Requirements

    a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
    b. Debarment List - Limitation on Awarding Contracts
    c. Construction Safety and Health Course
    d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
    e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)

7. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

8. Executive Orders (State of CT)

9. Non-Discrimination Requirement and Certification (pursuant to section 4a-60 and 4a- 60a of the Connecticut General Statutes, as revised)

10. Whistleblower Provision

11. Connecticut Freedom of Information Act

    a. Disclosure of Records
    b. Confidential Information

12. Service of Process

13. Substitution of Securities for Retainages on State Contracts and Subcontracts

14. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

15. Forum and Choice of Law

16. Summary of State Ethics Laws

17. Audit and Inspection of Plants, Places of Business and Records

18. Campaign Contribution Restriction

19. Tangible Personal Property

20. Bid Rigging and/or Fraud – Notice to Contractor

21. Consulting Agreement Representation

22. Federal Cargo Preference Act Requirements (46 CFR 381.7(a)-(b))

23. Sovereign Immunity

24. Large State Contract Representation for Contractor

25. Large State Contract Representation for Official or Employee of State Agency

26. Iran Energy Investment Certification

27. Access to Contract and State Data

28. Affirmative Action Policy Statement

29. Compliance with Consumer Data Privacy and Online Monitoring

Index of Exhibits

EXHIBIT A – FHWA Form 1273 (Begins on page 17)
EXHIBIT B – Title VI Contractor Assurances (page 31)
EXHIBIT C – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 33)
EXHIBIT D – Affirmative Action Policy Statement (page 41)
EXHIBIT E – State Wage Rates & Other Related Information (Attached at the end)
EXHIBIT F – Federal Wage Rates (Attached at the end)

1. Federal Highway Administration (FHWA) Form 1273

The Contractor shall comply with the Federal Highway Administration (FHWA), Form 1273 attached at Exhibit A, as revised, which is hereby made part of this contract. The Contractor shall also require its subcontractors to comply with the FHWA – Form 1273 and include the FHWA – Form 1273 as an attachment to all subcontracts and purchase orders.

2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit B, all of which are hereby made a part of this Contract.

3. Requirements of Title 49, Code of Federal Regulations (CFR), Part 26, Participation by DBEs, as may be revised.

Pursuant to 49 CFR 26.13, the following paragraph is part of this Contract and shall be included in each subcontract the Contractor enters into with a subcontractor:

"The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26, Participation by DBEs, in the award and administration of U.S. DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this contract or such other remedy as ConnDOT (recipient) deems appropriate, which may include, but is not limited to: (1) Withholding monthly progress payments, (2) Assessing sanctions, (3) Liquidated damages; and/or, (4) Disqualifying the contractor from future bidding as non-responsible."

4. Contract Wage Rates

The Contractor shall comply with:

The Federal and State wage rate requirements indicated in Exhibits F and G hereof, as revised, are hereby made part of this Contract. The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (http://www.wdol.gov/dba.aspx) as may be revised 10 days prior to bid opening. These applicable Federal wage rates will be physically incorporated in the final contract document executed by both parties. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents, prior to the bid opening date. During the bid advertisement period, bidders are responsible for obtaining the appropriate Federal wage rates from the US Department of Labor website.

To obtain the latest Federal wage rates go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose "Selecting DBA WDs" and follow the instruction to search the latest wage rates for the State, County and Construction Type. Refer to the Notice to Contractor (NTC) - Federal Wage Determinations (Davis Bacon Act).

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by Section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 819), as may be revised, every Contractor or subcontractor performing project work on a Federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

5. Americans with Disabilities Act of 1990, as Amended

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

6. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. 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 (i) of section 31-53 of the Connecticut General Statutes, 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 pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 3l-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner 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 of the Connecticut General Statutes, as revised, 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.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six 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.

7. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or **Telephone**: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

8. Executive Orders and Other Enactments

(a) All references in this Contract to any Federal, State, or local law, statute, public or special act, executive order, ordinance, regulation or code (collectively, "Enactments") shall mean Enactments that apply to the Contract at any time during its term, or that may be made applicable to the Contract during its term. This Contract shall always be read and interpreted in accordance with the latest applicable wording and requirements of the Enactments. Unless otherwise provided by Enactments, the Contractor is not relieved of its obligation to perform under this Contract if it chooses to contest the applicability of the Enactments or the Client Agency's authority to require compliance with the Enactments.

(b) This Contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of this Contract as if they had been fully set forth in it.

(c) This Contract may be subject to (1) Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services; and (2) Executive Order No. 61 of Governor Dannel P. Malloy promulgated December 13, 2017, concerning the Policy for the Management of State Information Technology Projects, as issued by the Office of Policy and Management, Policy ID IT-SDLC-17-
04. If any of the Executive Orders referenced in this subsection is applicable, it is deemed to be incorporated into and made a part of this Contract as if fully set forth in it.

9. Non-Discrimination Requirement and Certification (pursuant to section 4a-60 and 4a-60a o f the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

i. "Commission" means the Commission on Human Rights and Opportunities;

ii. "Contract" and "contract" include any extension or modification of the Contract or contract;

iii. "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;

iv. "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose;

v. "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;

vi. "good faith efforts" includes, but is not 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;

vii. "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;

viii. "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;

ix. "minority business enterprise" means any small contractor (1) fifty-one per cent or more of the capital stock, if any, or assets of which are owned by a person or persons who (a) exercise operational authority over the daily affairs of the enterprise, (b) have the power to direct the management and policies and receive the beneficial interest of the enterprise, (c) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, and (d) are members of a minority, as defined in C.G.S. § 32-9n, or are individuals with a disability, or (2) which is a nonprofit corporation in which fifty-one per cent or more of the persons who exercise operational authority over the enterprise, (a) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, (b) have the power to direct the management and policies of the enterprise, and (c) are member of a minority, as defined in C.G.S. § 32-9n, or are individuals with a disability; and

x. "public works contract" means any agreement (A) for construction, rehabilitation, conversion, extension, demolition or repair of changes or improvements in real property, and (B) that is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees where such funding equals one hundred fifty thousand dollars or more.

For purposes of this Section, the terms “Contract” and “contract” do not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, unless the contract is a public works contract, (2) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in C.G.S. § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in the immediately preceding enumerated items (1), (2), (3),or (4).

(b) (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, sexual orientation, gender identity or expression, status as a veteran, status as a victim of domestic violence, status as a victim of sexual assault or status as a victim of trafficking in persons, 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 ensure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, status as a veteran, status as a victim of domestic violence, status as a victim of sexual assault or status as a victim of trafficking in persons,

intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the 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 the Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which the 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 Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e, 46a-68f and 46a-86; and

(5) the Contractor agrees to provide the Commission 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 Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

(c) 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; the timing and value of bids; 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.

(d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(e) The Contractor shall include the provisions of subsection (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 in every subcontract entered into in order to fulfill any obligation of a public works contract, 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 Connecticut General Statutes § 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.

(f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.

(g) Pursuant to subsection (c) of section 4a-60 of the Connecticut General Statutes, the Contractor, for itself and its authorized signatory of this Contract, affirms that it understands the obligations of this Section and that it will maintain a policy for the duration of the Contract to assure that the Contract will be performed in compliance with the nondiscrimination requirements of such section. The Contractor and its authorized signatory of this Contract demonstrate their understanding of this obligation by (A) having provided an affirmative response in the required online bid or response to a proposal question which asks if the contractor understands its obligations under such sections, (B) signing this Contract, or (C) initialing this nondiscrimination affirmation in the following box: ☐

10. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars ($5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the 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 any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, 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 this 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 State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

11. Connecticut Freedom of Information Act

(a) Disclosure of Records. This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.

(b) Confidential Information. The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and

interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply, and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.,* Conn. Gen. Stat. §1- 210(b)(5) (A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

12. Service of Process

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

13. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-ll2a of the General Statutes of the State of Connecticut, as revised.

14. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit D, and hereby made part of this Contract.

15. Forum and Choice of Law

The parties 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 Contractor 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.

16. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes (a) the State has provided to the Contractor the summary of State ethics laws developed by the Office of State Ethics pursuant to section 1-81b of the Connecticut General Statutes, which summary is incorporated by reference into and made a part of this Contract as if the summary had been fully set forth in this Contract; (b) the Contractor represents that the chief executive officer or authorized signatory of the Contract and all key employees of such officer or signatory have read and understood the summary and agree to comply with the provisions of state ethics law; (c) prior to entering into a contract with any subcontractors or consultants, the Contractor shall provide the summary to all subcontractors and consultants and each such contract entered into with a subcontractor or consultant on or after July 1, 2021, shall include a representation that each subcontractor or consultant and the key employees of such subcontractor or consultant have read and understood the summary and agree to comply with the provisions of state ethics law; (d) failure to include such representations in such contracts with subcontractors or consultants shall be cause for termination of the Contract; and (e) each contract with such contractor, subcontractor or consultant shall incorporate such summary by reference as a part of the contract terms.

17. Audit and Inspection of Plants, Places of Business and Records

(a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.

(b) The Contractor shall maintain and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.

(c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.

(d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.

(e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct, and the Contractor shall cooperate with an exit conference.

(f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

18. Campaign Contribution Restriction

Campaign Contribution Restriction. For all State contracts, defined in section 9-612 of the Connecticut General Statutes as having a value of $50,000 or more, or a combination or series of such agreements or contracts having a value of $100,000 or more in a calendar year, the authorized signatory to this Agreement represents that they have received the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice.

19. Tangible Personal Property

(a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:

(1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;

(2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;

(3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;

(4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and

(5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.

(b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or

that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.

(c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

20. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially, and anonymity respected.

21. Consulting Agreement Representation

Pursuant to section 4a-81 of the Connecticut General Statutes, the person signing this Contract on behalf of the Contractor represents, to their best knowledge and belief and subject to the penalty of false statement as provided in section 53a-157b of the Connecticut General Statutes, that the Contractor has not entered into any consulting agreements in connection with this Contract, except for the agreements listed below or in an attachment to this Contract. "Consulting agreement" means any written or oral agreement to retain the services, for a fee, of a consultant for the purposes of

(A) providing counsel to a contractor, vendor, consultant or other entity seeking to conduct, or conducting, business with the State, (B) contacting, whether in writing or orally, any executive, judicial, or administrative office of the State, including any department, institution, bureau, board, commission, authority, official or employee for the purpose of solicitation, dispute resolution, introduction, requests for information, or (C) any other similar activity related to such contracts. "Consulting agreement" does not include any agreements entered into with a consultant who is registered under the provisions of chapter 10 of the Connecticut General Statutes as of the date such contract is executed in accordance with the provisions of section 4a-81 of the Connecticut General Statutes.

Consultant's Name and Title _____ Name of Firm (if applicable) _____

Start Date _____ End Date _____ Cost _____

The basic terms of the consulting agreement are: _____

Description of Services Provided: _____

Is the consultant a former State employee or former public official? ☐ YES ☐ NO If YES: _____

Name of Former State Agency Termination Date of Employment

22. Cargo Preference Act Requirements (46 CFR 381.7(a)-(b)) – Use of United States Flag Vessels

The Contractor agrees to comply with the following:

(a) ***Agreement Clauses***.

(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of- lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(b) ***Contractor and Subcontractor Clauses.*** The contractor agrees—

(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean

bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

23. Sovereign Immunity

The parties acknowledge and agree that nothing in the Solicitation or the Contract shall be construed as a modification, compromise or waiver by the State of any rights or defenses of any immunities provided by Federal law or the laws of the State of Connecticut to the State or any of its officers and employees, which they may have had, now have or will have with respect to all matters arising out of the Contract. To the extent that this section conflicts with any other section, this section shall govern.

24. Large State Contract Representation for Contractor

Pursuant to section 4-252 of the Connecticut General Statutes and Acting Governor Susan Bysiewicz Executive Order No. 21-2, promulgated July 1, 2021, the Contractor, for itself and on behalf of all of its principals or key personnel who submitted a bid or proposal, represents:

(1) That no gifts were made by (A) the Contractor, (B) any principals and key personnel of the Contractor, who participate substantially in preparing bids, proposals or negotiating State contracts, or (C) any agent of the Contractor or principals and key personnel, who participates substantially in preparing bids, proposals or negotiating State contracts, to (i) any public official or State employee of the State agency or quasi- public agency soliciting bids or proposals for State contracts, who participates substantially in the preparation of bid solicitations or requests for proposals for State contracts or the negotiation or award of State contracts, or (ii) any public official or State employee of any other State agency, who has supervisory or appointing authority over such State agency or quasi-public agency;

(2) That no such principals and key personnel of the Contractor, or agent of the Contractor or of such principals and key personnel, knows of any action by the Contractor to circumvent such prohibition on gifts by providing for any other principals and key personnel, official, employee or agent of the Contractor to provide a gift to any such public official or State employee; and

(3) That the Contractor is submitting bids or proposals without fraud or collusion with any person.

25. Large State Contract Representation for Official or Employee of State Agency

Pursuant to section 4-252 of the Connecticut General Statutes and Acting Governor Susan Bysiewicz Executive Order No. 21-2, promulgated July 1, 2021, the State agency official or employee represents that the selection of the person, firm or corporation was not the result of collusion, the giving of a gift or the promise of a gift, compensation, fraud or inappropriate influence from any person.

26. Iran Investment Energy Certification

(a) Pursuant to section 4-252a of the Connecticut General Statutes, the Contractor certifies that it has not made a direct investment of twenty million dollars or more in the energy sector of Iran on or after October 1, 2013, as described in Section 202 of the Comprehensive Iran Sanctions, Accountability and Divestment Act of 2010, and has not increased or renewed such investment on or after said date.

(b) If the Contractor makes a good faith effort to determine whether it has made an investment described in subsection (a) of this section, then the Contractor shall not be deemed to be in breach of the Contract or in violation of this section.

A "good faith effort" for purposes of this subsection includes a determination that the Contractor is not on the list of persons who engage in certain investment activities in Iran created by the Department of General Services of the State of California pursuant to Division 2, Chapter 2.7 of the California Public Contract Code. Nothing in this subsection shall be construed to impair the ability of the State agency or quasi-public agency to pursue a breach of contract action for any violation of the provisions of the Contract.

27. Access to Contract and State Data

The Contractor shall provide to the Client Agency access to any data, as defined in Conn. Gen Stat. Sec. 4e-1, concerning the Contract and the Client Agency that are in the possession or control of the Contractor upon demand and shall provide the data to the Client Agency in a format prescribed by the Client Agency and the State Auditors of Public Accounts at no additional cost.

28. Affirmative Action Policy Statement

The Contractor shall comply with the Affirmative Action Policy Statement, as applicable, attached at Exhibit E and hereby made part of this Contract.

29. Compliance with Consumer Data Privacy and Online Monitoring

Pursuant to section 4e-72a of the Connecticut General Statutes, Contractor shall at all times comply with all applicable provisions of sections 42-515 to 42-525, inclusive, of the Connecticut General Statutes, as the same may be revised or modified.

EXHIBIT A

FHWA-1273 – Revised October 23, 2023

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. **Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

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3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

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XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B) This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

EXHIBIT B
TITLE VI CONTRACTOR ASSURANCES
APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations**: The contactor (hereinafter includes consultants) will comply with the Regulations relative to Nondiscrimination in Federally assisted programs of the United States Department of Transportation Federal Highway Administration and Federal Transit Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income or Limited English Proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials** and Equipment: In all solicitations, either by bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and Acts and the Regulations relative to Non- discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration or Federal Transit Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to the Recipient or the Federal Highway Administration or the Federal Transit Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration or the Federal Transit Administration may determine to be appropriate, including, but not limited to:

   a. withholding contract payments to the contractor under the contract until the contractor complies; and/or
   b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration or the Federal Transit Administration may direct as a means of enforcing such provisions including sanctions for non-compliance. Provided, that if the contractor becomes involved in, or is threatened with, litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX B

TITLE VI CONTRACTOR ASSURANCES

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. § 2000d et seq.), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 et seq. and 49 C.F.R. part 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 et seq.) (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794 et seq.) (prohibits discrimination on the basis of disability); and 49 C.F.R. part 27;
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (Pub. L. 97-248 (1982)), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (102 Stat. 28) *(" ... which restore[d] the broad scope of coverage and to clarify the application of Title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and Title VI of the Civil Rights Act of 1964.");*
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 --12189), as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;

- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681 et seq).

EXHIBIT C

Health Insurance Portability and Accountability Act of 1996 ("HIPAA").

(a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.

(b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and

(c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the "Department") is a "covered entity" as that term is defined in 45 C.F.R. § 160.103; and

(d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of "individually identifiable health information," as that term is defined in 45
C.F.R. § 160.103; and

(e) The Contractor is a "business associate" of the Department, as that term is defined in 45 C.F.R. § 160.103; and

(f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.

(g) Definitions

(1) "Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))

(2) "Business Associate" shall mean the Contractor.

(3) "Covered Entity" shall mean the Department of the State of Connecticut named on page 1 of this Contract.

(4) "Designated Record Set" shall have the same meaning as the term "designated record set" in 45 C.F.R. § 164.501.

(5) "Electronic Health Record" shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

(6) "Individual" shall have the same meaning as the term "individual"' in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).

(7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.

(8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.

(9) "Required by Law"' shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.

(10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.

(11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.

(12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.

(13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R.§ 164.304.

(14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.

(15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).

(h) Obligations and Activities of Business Associates.

(1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.

(2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.

(3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.

(4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

(5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.

(6) Business Associate agrees to ensure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.

(7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.

(8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.

(9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.

(10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.

(11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated

thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.

(12)Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.

(13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

(14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.

(15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations

(16) Obligations in the Event of a Breach

A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)). A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:

1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.

2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).

3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.

4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.

5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.

E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notification's requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.

(i) Permitted Uses and Disclosure by Business Associate.

(1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by

Covered Entity or the minimum necessary policies and procedures of the Covered Entity.

(2) Specific Use and Disclosure Provisions

(A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.

(B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).

(j) Obligations of Covered Entity.

(1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.

(2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.

(3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.

(k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.

(l) Term and Termination.

(1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.

(2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:

(A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or

(B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or

(C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.

(3) Effect of Termination

(A) Except as provided in (l)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

(1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.

(2) Amendment. The Parties agree to take such action as in necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.

(3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.

(4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.

(5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.

(6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

EXHIBIT D
AFFIRMATIVE ACTION POLICY STATEMENT (October 2023)

It is the policy of this firm to assure that applicants are employed, and that employees are treated during employment, without regard to an individual's race, color, religion, creed, sex, gender identity or expression, marital status, national origin, age, ancestry, status as a veteran, intellectual disability, mental disability, learning disability or physical disability, including but not limited to blindness, unless such disability prevents performance of the work involved and to promote the full realization of equal employment opportunity through positive and continuous affirmative efforts. Such action shall include employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or terminations, rates of pay or other forms of compensation, selection for training/apprenticeship, pre-apprenticeship opportunities, and on-the-job training opportunities.

This firm will implement, monitor, enforce and achieve full compliance with this Affirmative Action Policy Statement in conjunction with the applicable Federal and State laws, regulations, executive orders, and contract provisions, including but not limited to those listed below:

Dissemination of Policy:
All members of the firm who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, this firm's Equal Employment Opportunity (EEO) policy and contractual responsibilities to provide EEO in each grade and classification of employment. These actions shall include:

1. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the firm's EEO policy and its implementation will be reviewed and explained. These meetings will be conducted by the EEO officer.
2. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
3. All personnel who are engaged in direct recruitment for the firm will be instructed by the EEO Officer of the contractor's procedures for locating and hiring minority group employees.
4. Notices and posters setting forth the firm's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
5. The firm's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
6. Sexual Harassment Prevention Resources including training and remedies must be available to all employees. See Connecticut General Assembly Public Acts 19–16 and 19–93.

Recruitment:
When advertising for employees, the firm will include in all advertisements the notation; "An Affirmative Action/Equal Opportunity Employer." All such advertisements will be placed in

publications having a large circulation among minority groups in the area where the workforce would normally be derived.

1. The firm will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants. To meet this requirement, the firm will identify referral sources and establish procedures for recruitment to obtain the referral of minority and female applicants.
2. In the event the firm has a valid bargaining agreement providing for exclusive hiring referrals, he/she is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The United States Department of Labor has held that where implementation of such agreements has had the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)
3. The firm will encourage his/her present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

Personnel Actions:

Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to an individual's race, color, religion, creed, sex, gender identity or expression, marital status, national origin, age, ancestry, status as a veteran, intellectual disability, mental disability, learning disability or physical disability, including but not limited to blindness, unless such disability prevents performance of the work involved. The following procedures shall be followed:

1. The firm will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of personnel.
2. The firm will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take correction action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
3. The firm shall periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
4. The firm will promptly investigate all complaints of alleged discrimination made to the firm and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective actions shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

Training and Promotion:

The firm will assist in locating, qualifying, and increasing the skills of minorities and women. The firm will utilize the following tools to identify training and promotional opportunities in the firm:

1. The firm will advise employees and applicants for employment of available training programs and the entrance requirements.
2. The firm will periodically review the training and promotion of minority group and female employees and will encourage eligible employees to apply for such training and promotion.

Unions:

If the firm relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the firm either directly or through a contractor's association acting as agent will include the procedures set forth below:

1. The firm will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
2. The firm will use best efforts to incorporate an EEO clause into each union agreement to the extent that such union will be contractually bound to refer applicants without regard to their to an individual's race, color, religion, creed, sex, gender identity or expression, marital status, national origin, age, ancestry, status as a veteran, intellectual disability, mental disability, learning disability or physical disability, including but not limited to blindness, unless such disability prevents performance of the work involved.
3. The firm is to obtain information as to the referral practices and policies of the labor union except that to the extent that such information is within the exclusive possession of the labor union and such labor union refuses to furnish the information to the contractor, the contractor shall notify the Connecticut Department of Transportation (CTDOT) of the efforts made to obtain the information.
4. In the event the union is unable to provide the firm with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies. (The United States Department of Labor has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations under Executive Order 11246 as amended, and in compliance with 23 CFR Part 230, the firm will notify CTDOT.

Selection of Subcontractors:

The firm will not discriminate on the grounds race, color, religion, sex, sexual orientation, gender identity or expression, marital status, national origin, ancestry, age, intellectual disability, learning disability, physical disability, including, but not limited to, blindness, or status as a veteran in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

1. The firm shall use his/her best efforts to ensure subcontractor/subconsultant compliance with Federal and State Equal Opportunity (EO) and EEO requirements.

Records and Reports:

The Contractor shall keep records as necessary to document compliance with EO/EEO requirements. Such reports shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of CTDOT and/or the United States Department of Transportation. The following records should be maintained:

6. The number of minority and non-minority group members and women employed in each work classification;
7. The progress and efforts being made in cooperation with unions, when applicable to increase the employment opportunities for minorities and women;
8. The documentation showing progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
9. Complaints of Discrimination.

In implementing this policy and ensuring that affirmative action is being provided, each time a hiring opportunity occurs this firm will contact and request referrals from minority and female organizations, referral sources, and media sources. All advertising will emphasize that the firm is "An Affirmative Action/Equal Opportunity Employer."

In order to substantiate this firm's efforts and affirmative actions to provide equal opportunity, the firm will maintain and submit, as requested, documentation such as referral request correspondence, copies of advertisements utilized and follow-up documentation to substantiate that efforts were made in good faith. This firm will maintain the necessary internal audit procedures and record keeping systems to report the firm's affirmative action efforts.

It is understood by Owner/CEO/President of the firm and the firm's Equal Employment Opportunity Officer and supervisory and managerial personnel that failure to effectively implement, monitor and enforce this firm's affirmative action program and/or failure to adequately document and submit as required, the affirmative actions taken and efforts made to recruit and hire minority and female applicants in accordance with our affirmative action program in each instance of hire, will result in this firm being required to recommit itself to a modified and more stringent affirmative action program as a condition of approval. It is recognized that this policy is a contractual requirement and is a prerequisite for performing services for the contracting agency. This policy in addition to CTDOT's EO/EEO contract provisions and requirements, shall constitute the CTDOT Affirmative Program requirements.

The ultimate responsibility for the full implementation of this firm's Affirmative Action Program rests with the Chief Executive Officer of this firm.

EXHIBIT E

(Federal wage rate package will be inserted at the end after State wages for the final executed contract only. Refer to NTC – Federal Wage Determinations)

"General Decision Number: CT20250002 08/22/2025

Superseded General Decision Number: CT20240002

State: Connecticut

Construction Type: Highway

County: New London County in Connecticut.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for

performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2025
1	01/17/2025
2	03/07/2025
3	03/28/2025
4	04/25/2025
5	05/09/2025
6	05/30/2025
7	06/06/2025
8	06/13/2025
9	07/25/2025
10	08/15/2025
11	08/22/2025

BRCT0001-003 01/06/2025

	Rates	Fringes
BRICKLAYER BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, PLASTERERS, STONE MASONS	$ 43.14	34.74

CARP0326-001 05/05/2025

	Rates	Fringes
Carpenters:		
CARPENTERS, PILEDRIVERS	$ 42.03	29.19
DIVER TENDERS	$ 42.03	29.19
DIVERS	$ 50.49	29.19

CARP1121-006 01/06/2025

	Rates	Fringes
MILLWRIGHT	$ 43.25	29.13

ELEC0035-003 06/01/2024

	Rates	Fringes

Electricians:
Bozrah, Colchester,
Franklin, Griswold,
Lebanon, Ledyard, Lisbon,
Montville, North
Stonington, Norwich,
Preston, Salem, Sprague,
Stonington and Voluntown....$ 45.75 3%+33.97

ELEC0090-003 06/01/2025

East Lyme, Groton, New London, Old Lyme, Waterford, plus the part of Ledyard wherein the property of the Submarine Base is located

	Rates	Fringes
ELECTRICIAN	$ 46.48	3%+36.66

ENGI0478-002 04/06/2025

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 58.19	29.80
GROUP 2	$ 57.78	29.80
GROUP 3	$ 56.79	29.80
GROUP 4	$ 51.92	29.80
GROUP 5	$ 50.63	29.80
GROUP 6	$ 50.22	29.80
GROUP 7	$ 49.25	29.80
GROUP 8	$ 49.25	29.80
GROUP 9	$ 48.67	29.80
GROUP 10	$ 45.96	29.80
GROUP 11	$ 45.96	29.80
GROUP 12	$ 45.87	29.80
GROUP 13	$ 47.91	29.80
GROUP 14	$ 45.12	29.80
GROUP 15	$ 44.70	29.80
GROUP 16	$ 43.60	29.80
GROUP 17	$ 43.06	29.80
GROUP 18	$ 42.20	29.80
GROUP 19	$ 53.33	29.80
GROUP 20	$ 52.92	29.80
GROUP 21	$ 51.92	29.80

Hazardous waste premium $3.00 per hour over classified rate.

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.

1) Crane handling or erecting structural steel or stone, hoisting engineer(2 drums or over)
2) Cranes(100 ton rated capacity and over) Bauer Drill/Caisson
3) Cranes(under 100 ton rated capacity)

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.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane Handling or Erecting Structural Steel or tone; Hoisting Engineer (2 drums or over).

GROUP 2: Cranes (100 ton rated capacity and over) Bauer Drill/Caisson.

GROUP 3: Cranes (under 100 ton rated capacity).

GROUP 4: Trenching machines; Lighter Derrick; Concrete Finishing Machine, cmi Machine or Similar; Koehring Loader Skooper).

GROUP 5: Specialty Railroad Equipment; Asphalt Spreader; Asphalt Reclaiming achine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24"" Mandrell); Side Boom; Combination Hoe and Loader; Directional Driller.

GROUP 6: Front End Loader (3 cu. yds. up to 7 cubic yards); Bulldozer (Rough grade dozer).

GROUP 7: Asphalt Roller; Concrete Saws and Cutters (Ride on Types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24"" and Under Mandrel).

GROUP 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welder; Work Boat Under 26 ft.; Transfer Machine.

GROUP 9: Front End Loader (under 3 cubic yards); Skid Steer

Loader (regardless of attachments); (Bobcat or similar); Fork Lift; Power Chipper; Landscape Equipment (including Hydroseeder).Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).

GROUP 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.

GROUP 11: Conveyor; Earth Roller; Power Pavement Breaker (Whiphammer); Robot Demolition Equipment.

GROUP 12: Wellpoint Operator.

GROUP 13: Portable Asphalt Plant Operator; Portable Concrete Plant Operator; Portable Crusher Plant Operator. Portable grout plant operator, portable water filtration plant operator

GROUP 14: Compressor Battery Operator.

GROUP 15: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL License)

GROUP 16: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).

GROUP 17: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater operator.

GROUP 18: Maintenance Engineer.

GROUP 19: Front end loader(7 cubic yards or over); work boat 26 ft. and over.

GROUP 20: Excavator over 2 cubic yards; pile driver($3.00 premium when operator controls hammer).

GROUP 21: Excavator, gradall, master mechanic, hoisting engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power or operaing), rubber tire excavator (drott 1085 similar), grader operator, bulldozer finegrade (slopes shaping, laser or GPS, ect.)

IRON0015-003 06/02/2025

	Rates	Fringes

Ironworkers: (Reinforcing &
Structural).....$ 45.25 43.62

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0146-001 04/06/2025

	Rates	Fringes
Laborers:		
GROUP 1	$ 35.70	28.85
GROUP 2	$ 35.95	28.85
GROUP 3	$ 36.20	28.85
GROUP 4	$ 38.70	28.85
GROUP 5	$ 37.45	28.85
GROUP 6	$ 37.70	28.85
GROUP 7	$ 21.42	28.85
GROUP 8:	$ 36.70	28.85
GROUP 9:	$ 38.70	28.85

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason
tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

GROUP 8: Acetylene burner (Hours worked with a torch)

GROUP 9: Toxic Waste Removers A or B
With PPE

(On a site designated as a SuperFund Site by the U.S. Army Corps of Engineers and is deemed a HAZ-MAT site, and applies to employees required to wear OSHA leval A or B even if the PPE is not worn.)

LABO0146-002 04/06/2025

	Rates	Fringes
Laborers: (TUNNEL CONSTRUCTION)		
CLEANING, CONCRETE AND CAULKING TUNNEL:		
Concrete Workers, Form Movers and Strippers	$ 36.96	28.85
Form Erectors	$ 37.29	28.85
ROCK SHAFT, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:		
Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	$ 36.96	28.85
Laborers Topside, Cage Tenders, Bellman	$ 36.85	28.85
Miners	$ 37.93	28.85
SHIELD DRIVE AND LINER PLATE TUNNELS IN FREE AIR:		
Brakemen and Trackmen	$ 36.96	28.85
Miners, Motormen, Mucking Machine Operators, Nozzlemen, Grout Men, Shaft and Tunnel, Steel and Rodmen, Shield and Erector, Arm Operator, Cable Tenders	$ 37.93	28.85
TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR:		
Blaster	$ 44.42	28.85
Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	$ 44.22	28.85
Change House Attendants, Powder Watchmen, Top on Iron Bolt	$ 42.24	28.85
Mucking Machine Operator	$ 45.01	28.85

a. PAID HOLIDAYS: On tunnel work only: 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.

PAIN0011-002 06/01/2025

	Rates	Fringes
Painters:		
Blast and Spray	$ 42.57	26.75
Brush and Roll	$ 39.57	26.75
Tanks, Towers, Swing	$ 41.57	26.75

PAIN0011-003 06/01/2024

	Rates	Fringes
Painters: (BRIDGE CONSTRUCTION)		
Brush, Roller, Blasting (Sand, Water, etc.) Spray	$ 59.70	26.90

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* TEAM0064-003 04/06/2025

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix	$ 36.27	32.68
2 Axle	$ 36.16	32.68
3 Axle Ready Mix	$ 36.33	32.68
3 Axle	$ 36.27	32.68
4 Axle Ready Mix	$ 37.19	32.68
4 Axle	$ 36.39	32.68
Heavy Duty Trailer 40 tons and over	$ 38.66	32.68
Heavy Duty Trailer up to 40 tons	$ 37.39	32.68
Snorkle Truck	$ 36.54	32.68
Specialized (Earth moving equipment other than conventional type on-the-road trucks and semi-trailers, including Euclids)	$ 36.44	32.68

Hazardous waste removal work receives additional $1.25 per hour.

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.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

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 clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union

whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

"General Decision Number: CT20250017 07/25/2025

Superseded General Decision Number: CT20240017

State: Connecticut

Construction Type: Heavy

County: New London County in Connecticut.

HEAVY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for

performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

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7	07/25/2025

BRCT0001-011 01/06/2025

	Rates	Fringes
BRICKLAYER	$ 43.14	34.74

CARP0326-004 05/06/2024

	Rates	Fringes
CARPENTER		
CARPENTERS, PILEDRIVERS	$ 42.03	29.19
DIVER TENDERS	$ 42.03	29.19
DIVERS	$ 50.49	29.19

CARP1121-006 01/06/2025

	Rates	Fringes
MILLWRIGHT	$ 43.25	29.13

ELEC0035-011 06/01/2024

Bozrah, Colchester, Franklin, Griswold, Lebanon, Ledyard, Lisbon, Montville, North Stonington, Norwich, Preston, Salem, Sprague, Stonington and Voluntown

	Rates	Fringes
ELECTRICIAN	$ 45.75	3%+33.97

ELEC0090-003 06/01/2025

East Lyme, Groton, New London, Old Lyme, Waterford, plus the part of Ledyard wherein the property of the Submarine Base is located

	Rates	Fringes
ELECTRICIAN	$ 46.48	3%+36.66

ENGI0478-001 04/06/2025

	Rates	Fringes
Power equipment operators:		
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GROUP 18	$ 42.20	29.80
GROUP 19	$ 53.33	29.80
GROUP 20	$ 52.92	29.80
GROUP 21	$ 51.92	29.80

Hazardous waste premium $3.00 per hour over classified rate.

Crane with boom, including jib, 150 feet - $1.50 extra.
Crane with boom, including jib, 200 feet - $2.50 extra.
Crane with boom, including jib, 250 feet - $5.00 extra.
Crane with boom, including jib, 300 feet - $7.00 extra.
Crane with boom, including jib, 400 feet - $10.00 extra

1) Crane handling or erecting structural steel or stone, hoisting engineer(2 drums or over)
2) Cranes(100 ton rated capacity and over) Bauer Drill/Caisson
3) Cranes(under 100 ton rated capacity)

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.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over)

GROUP 2: Cranes (100 ton capacity & over) Bauer Drill/Caisson

GROUP 3: Cranes (under 100 ton rated capacity)

GROUP 4: Trenching machines, lighter derrick, concrete finishing machine, CMI machine or similar, Koehring Loader (skooper).

GROUP 5: Specialty railroad equipment, asphalt spreader, asphalt reclaiming machine, line grider, concrete pumps, drills with self contained power units, boring machine, post hole digger, auger, pounder, well digger, milling machine (over 24' mandrel), side boom, combination hoe and loader, directional driller

GROUP 6: Front end loader (3 cu. yds. up to 7 cu. yards), bulldozer (Rough grade dozer) .

GROUP 7: Asphalt roller, concrete saws and cutters (ride on types), Vermeer concrete cutter, stump grinder, scraper, snooper, skidder, milling machine (24"" and under Mandrel).

GROUP 8: Mechanic, grease truck operator, hydoblaster, barrier mover, power stone spreader, welder, work boat under 26 ft. transfer machine.

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), Vacuum Exacavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).

GROUP 10: Vibratory hammer,ice machine, diesel & air, hammer, etc.

GROUP 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.

GROUP 12: Wellpoint operator.

GROUP 13: Portable asphalt plant operator, portable concrete plant operator, portable crusher plant operator, portable grout plant operator, portable water filtration plant operator.

GROUP 14: Compressor battery operator.

GROUP 15: Power Safety boat, Vacuum truck, Zim mixer, Sweeper; (Minimum for any job requiring a CDL license) .

GROUP 16: Elevator operator, tow motor operator (solid tire no rough terrain).

GROUP 17: Generator operator, compressor operator, pump operator,welding machine operator; Heater operator.

GROUP 18: Maintenance engineer.

GROUP 19: Front end loader(7 cubic yards or over); work boat 26 ft. and over.

GROUP 20: Excavator over 2 cubic yards; pile driver($3.00 premium when operator controls hammer).

GROUP 21: Excavator, gradall, master mechanic, hoisting engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power or operaing), rubber tire excavator (drott 1085 similar), grader operator, bulldozer finegrade (slopes shaping, laser or GPS, ect.)

ENGI0478-008 04/06/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Asphalt Paver	$ 50.63	29.80
Asphalt Roller	$ 49.77	29.80
Asphalt Spreader	$ 50.63	29.80
Backhoe/Excavator 2 cubic yards and over	$ 52.92	29.80
Backhoe/Excavator under 2 cubic yards	$ 51.92	29.80
Bulldozer (Rough Grade Dozer)	$ 50.22	29.80
Bulldozer Fine Grade(includes slopes,		

shaping, laser or gps).....	$ 51.92	29.80
Crane handling or erecting structural steel or stone...	$ 58.19	29.80
Cranes (100 ton capacity & over).....	$ 57.78	29.80
Cranes (under 100 ton rated capacity).....	$ 56.79	29.80
Drills with self contained power units; Directional driller.....	$ 50.63	29.80
Earth Roller.....	$ 45.96	29.80
Forklift.....	$ 48.67	29.80
Front End Loader (3 cubic yards up to 7 cubic yards)..	$ 50.22	29.80
Front End Loader (7 cubic yards or over).....	$ 53.33	29.80
Front End Loader (under 3 cubic yards).....	$ 48.67	29.80
Grader/Blade.....	$ 51.42	29.80
Maintenance Engineer/Oiler..	$ 42.20	29.80
Mechanic.....	$ 49.25	29.80
Rubber Tire Backhoe/Excavator.....	$ 51.92	29.80

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.

b. Crane with boom, including jib, 150 feet - $1.50 extra .
Crane with boom, including jib, 200 feet- $2.50 extra.
Crane with boom, including jib, 250 feet - $5.00 extra.
Crane with boom, including jib, 300 feet - $7.00 extra.
Crane with boom, including jib, 400 feet - $10.00 extra.

1) Crane handling or erecting structural steel or stone, hoisting engineer(2 drums or over)
2) Cranes(100 ton rated capacity and over) Bauer Drill/Caisson
3) Cranes(under 100 ton rated capacity)

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* IRON0015-008 06/02/2025

	Rates	Fringes
IRONWORKER, REINFORCING AND STRUCTURAL.....	$ 45.25	43.62

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0146-002 04/06/2025

	Rates	Fringes
Laborers: (TUNNEL CONSTRUCTION)		
CLEANING, CONCRETE AND CAULKING TUNNEL:		
Concrete Workers, Form Movers and Strippers	$ 36.96	28.85
Form Erectors	$ 37.29	28.85
ROCK SHAFT, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:		
Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	$ 36.96	28.85
Laborers Topside, Cage Tenders, Bellman	$ 36.85	28.85
Miners	$ 37.93	28.85
SHIELD DRIVE AND LINER PLATE TUNNELS IN FREE AIR:		
Brakemen and Trackmen	$ 36.96	28.85
Miners, Motormen, Mucking Machine Operators, Nozzlemen, Grout Men, Shaft and Tunnel, Steel and Rodmen, Shield and Erector, Arm Operator, Cable Tenders	$ 37.93	28.85
TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR:		
Blaster	$ 44.42	28.85
Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	$ 44.22	28.85
Change House Attendants, Powder Watchmen, Top on Iron Bolt	$ 42.24	28.85
Mucking Machine Operator	$ 45.01	28.85

a. PAID HOLIDAYS: On tunnel work only: 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.

LABO0146-005 04/06/2025

	Rates	Fringes
LABORERS		
GROUP 1	$ 35.70	28.85
GROUP 2	$ 35.95	28.85
GROUP 3	$ 36.20	28.85
GROUP 4	$ 38.70	28.85
GROUP 5	$ 37.45	28.85
GROUP 6	$ 37.70	28.85
GROUP 7	$ 21.42	28.85
GROUP 8	$ 36.70	28.85
GROUP 9	$ 38.70	28.85

LABORERS CLASSIFICATIONS

GROUP 1: Laborers (Unskilled), concrete specialist

GROUP 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

GROUP 3: Pipelayers, Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block paver and curb setter

GROUP 4: Asbestos/lead removal

GROUP 5: Blasters

GROUP 6: Toxic waste remover

GROUP 7: Traffic control signalman

GROUP 8: Acetylene burner (Hours worked with a torch)

GROUP 9: Toxic Waste Removers A or B With PPE

(On a site designated as a SuperFund Site by the U.S. Army Corps of Engineers and is deemed a HAZ-MAT site, and applies to employees required to wear OSHA leval A or B even if the PPE is not worn.)

PAIN0011-013 06/01/2021

	Rates	Fringes
PAINTER		
Brush and Roller	$ 36.42	22.90
Spray Only	$ 39.42	22.90
Steel Only	$ 38.42	22.90

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* TEAM0064-001 04/06/2025

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix	$ 36.27	32.68
2 Axle	$ 36.16	32.68
3 Axle Ready Mix	$ 36.33	32.68
3 Axle	$ 36.27	32.68
4 Axle Ready Mix	$ 37.19	32.68
4 Axle	$ 36.39	32.68
Heavy Duty Trailer 40 tons and over	$ 38.66	32.68
Heavy Duty Trailer up to 40 tons	$ 37.39	32.68
Snorkle Truck	$ 36.54	32.68
Specialized (Earth moving equipment other than conventional type on-the-road trucks and semi-trailers, including Euclids)	$ 36.44	32.68

Hazardous waste removal work receives additional $1.25 per hour.

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.

SUCT2002-012 12/16/2008

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 25.52	8.49
TRUCK DRIVER: 3 Axle & Semi		
- Truck	$ 19.93	7.01

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

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 clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council

number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested

party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

EXHIBIT F
State Wages and Other Related Information

Please refer to the Department of Labor website for the latest updates, annual adjusted wage rate increases, certified payroll forms and applicable statutes.
http://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm

Prevailing Wage Law Poster Language

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.

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 non-compliance;

(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.

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.

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):_____

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.**

⌜ FORKLIFT 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 artwork 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 J1,2,3,4 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 re-laid.)

⌐ SHEETMETAL WORKERS

Fabricate, assembles, installs and repairs sheet metal 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, sunshades, 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 required 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.

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.

Rev. 7/1/19

SEE BELOW FOR STATE WAGE RATES

EXHIBIT E