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DATE
FEDERAL AID PROJECT NO. H020(001)
STATE PROJECT NO. 79-212

REPLACEMENT OF BRIDGE NO. 04185
CENTER STREET OVER HARBOR BROOK

City of Meriden
Federal Aid Project No. H020(001)

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020, as revised by the Supplemental Specifications dated July 2021 (otherwise referred to collectively as "ConnDOT Form 818") is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 818 is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362>. The Special Provisions relate in particular to the Center Street Bridge in the City of Meriden.

CONTRACT TIME AND LIQUIDATED DAMAGES

Three Hundred and ninety-seven (397) calendar days will be allowed for completion of the work on this Contract and the liquidated damages charge to apply will be One Thousand Dollars and No Cents (\$ 1,500.00) per calendar day.

NOTICE TO CONTRACTOR - PORTLAND CEMENT CONCRETE (PCC) MIX CLASSIFICATIONS

SECTIONS 6.01 and M.03 MIX CLASSIFICATION EQUIVALENCY

Sections 6.01 *Concrete for Structures* and M.03 *Portland Cement Concrete* have been revised to reflect changes to item names and nomenclature for standard Portland cement concrete (PCC) mix classifications. Special Provisions, plan sheets and select pay items in this Contract may not reflect this change. Refer to the Concrete Mix Classification Equivalency Table below to associate the Concrete Mix Classifications with Former Mix Classifications that may be present elsewhere in the Contract.

Concrete Mix Classification Equivalency Table

New Mix Classification (Class PCCXXXYZ ¹)	Former Mix Classification
Class PCC03340	Class "A"
Class PCC03360	Class "C"
Class PCC04460 ²	Class "F"
Class PCC04462 ²	High Performance Concrete
Class PCC04481, PCC05581	Class "S"

Table Notes:

1. See Table M.03.02-1, Standard Portland Cement Concrete Mixes, for the new Mix Classification naming convention.
2. Class PCC04462 (formerly Class "HP1" Concrete; also called low permeability concrete) is to be used for the following cast-in-place bridge components: decks, bridge sidewalks, and bridge parapets.

Where called for in the Contract, **Low Permeability Concrete** shall be used, as specified in Sections 6.01 and M.03. Please pay special attention to the requirements for Class PCC04462, including:

- Submittal of a mix design developed by the Contractor and a concrete supplier **at least 90 days prior to placing the concrete**
- Testing and trial placement of the concrete mix is to be developed and discussed with the Department

The Department will not consider any requests for change to eliminate the use of Low Permeability Concrete on this Project.

NOTICE TO CONTRACTOR – ADHESIVE BONDED ANCHOR AND DOWEL INSTALLATION, INSPECTION AND TESTING REQUIREMENTS

The Contractor is hereby notified that all adhesive bonded anchors and dowels shall be installed by qualified installers. Personnel instructed and trained on the installation of the adhesive bonded anchors and dowels in accordance with the manufacturer's printed installation instructions (MPII) by the adhesive bonding material manufacturer shall be considered qualified installers.

Anchors and dowels that are installed in horizontally drilled holes subject to sustained tension shall be installed by personnel with current ACI Adhesive Anchor Installer Certification credentials.

The installation of all anchors and dowels with adhesive bonding material shall be inspected by a Contractor-hired inspector holding current ACI Post-Installed Anchor Inspector Certification credentials. The installation of any horizontally oriented anchors and dowels subject to sustained tension load shall be continuously inspected by a Contractor-hired inspector holding current ACI Post-Installed Anchor Inspector Certification credentials.

Anchors and dowels installed in this Contract shall be subject to field proof load testing by an independent third-party testing agency, as noted on the plans.

The characteristic bond strength of the adhesive bonding material shall meet or exceed the design characteristic bond stress value specified on the plans.

For complete requirements, see Section 6.10 "Drilling Holes and Bonding Anchors and Dowels" in the General section of the special provisions.

NOTICE TO CONTRACTOR - ENVIRONMENTAL INVESTIGATIONS

Environmental site investigations have been conducted that involved the sampling and laboratory analysis of soil, sediment, surface water and groundwater collected from various locations and depths within the project limits. The results of these investigations indicated the presence of detectable concentrations of extractable total petroleum hydrocarbons (ETPH), volatile organic compounds (VOC), polynuclear aromatic hydrocarbons (PAH) and RCRA 8 metals in the soils within proposed construction areas. The DEEP groundwater classification beneath the site is GB. Based on these findings, two (2) AOEC's exist(s) within the proposed project limits. In addition, "Low Level" AOEC's exist within the proposed project limits, where the compounds detected at concentrations below the numeric criteria.

The proposed remediation methodology for the AOECs/LL-AOECs is controlled handling, management and disposal and/or re-use of material excavated. Excavated material from the AOECs shall be transported to and stockpiled at a Waste Stockpile Area (WSA) for characterization prior to disposal and/or re-use.

Materials generated from LLAOECs do not require special handling procedures and may be reused within the project limits assuming: (1) such soil is deemed to be structurally suitable for use as fill by the Engineer; (2) such soil is not placed below the water table; 3) the CTDEEP groundwater classification of the area where the soil is to be reused as fill does not preclude said reuse; and (4) such soil is not placed in an area subject to erosion.

Material from the LL-AOECs, which cannot be re-used within the project limits, shall be transported to the WSA for characterization and off-site disposal.

All controlled materials shall be sampled and characterized for disposal and/or re-use in accordance with the contract specifications and RSRs. Construction dewatering fluids will also require controlled handling and management compliant to the CTDEEP General Permit requirements. Surface waters are not considered a controlled material and pumping and diverting of surface waters shall be handled in accordance with the approved permits for the project.

Based on the proposed construction activities, it is anticipated that an area of approximately 6,000 square feet (ft²) will be required for the construction of a WSA. The WSA will be located on a parcel located on Center Street adjacent to the project limits (see contract plans).

The Contractor is hereby notified that controlled materials requiring special management or disposal procedures will be encountered during various 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 within the AOEC(s). 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 City of Meriden, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of contaminated sediments, water, and controlled materials.

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. 0101128A - Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area
- Item No. 0101130A – Environmental Work – Solidification
- Item No. 0101117A - Controlled Materials Handling
- Item No. 0202315A - Disposal of Controlled Materials
- Item No. 0202318A - Management of Reusable Controlled Material
- Item No. 0204213A – Handling Contaminated Groundwater

The Contractor is alerted to the fact that a Department environmental consultant will be on site for excavation and dewatering activities within the AOEC(s), to collect soil and groundwater samples (if necessary), and to observe site conditions for the State. **The WSA on the plans is to be used exclusively for temporary stockpiling of excavated materials from within project AOEC(s) for determination of disposal classification.**

Information pertaining to the results of the environmental investigations discussed can be found in the documents listed below. The results contained in the environmental investigation reports listed below show levels of various contaminants 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 as non-hazardous at one or more of the disposal facilities listed in Item No. 0202315A - Disposal of Controlled Materials. These documents shall be available for review at the City of Meriden Town Hall Engineering Department, 142 East Main Street, Meriden, Connecticut.

Task 210: Subsurface Site Investigation – Replacement of Center Street Bridge over Harbor Brook Meriden Connecticut.

Rev. Date 09/05/19

Task 310: Subsurface Site Investigation – Replacement of Center Street Bridge over Harbor Brook Meriden Connecticut.

NOTICE TO CONTRACTOR

UTILITY COORDINATION

The contractor is required to maintain access to all temporary and permanent utility structures including but is not limited to poles, manholes junction boxes etc. Emergency cell phone contact numbers for the primary Contractor and all subcontractors must be provided to all utility owners prior to the commencement of any work.

UTILITY WORK SCHEDULE

CTDOT Project Number: 79-212 Town: Meriden

Project Description: Bridge Replacement...Center St. Bridge over Harbor Brook, Meriden

CTDOT Utilities Engineer: Xiuyun Cai

Phone: 860-594-3329 Email: Xiuyun.Cai@ct.gov

Utility Company: Eversource Energy

Prepared By: Steve Wells Date Prepared: 05/24/19/2019

Phone: 860-280-2417 Email: steven.wells@eversource.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

In order to accommodate CDOT and the City of Meriden's proposed replacement of the Center St. Bridge over Harbor Brook, 3 of the 4 existing Eversource medium voltage cable in the bridge must be temporarily relocated on 2 parallel pole lines east of the bridge construction area. The overhead medium voltage electric conductors that cross the bridge parallel to the western curb of Center St. must be relocated on to the eastern most of the 2 temporary pole lines mentioned above. The poles in this area are jointly owned by Eversource and Frontier Tel. Co. with Frontier being the custodian. Therefore, Frontier is responsible for the installation of permanent and temporary poles & guying in this area that will be jointly used by the 2 companies. Eversource needs 4 additional poles that will be solely used by Eversource. In addition, Eversource must enlarge 2 existing manhole structures north and south of the bridge and extend conduit to 4 temporary poles. Also, 2 additional manholes must be installed with conduit in an area where Eversource electrical distribution equipment exists on easement property of 290 Pratt St. This is to accommodate the replacement and updating of the above mentioned electrical equipment. Following the placement of the 2 new culverts and the installation of permanent conduits across the new culverts, the installation of 4 med. voltage underground cable in the new conduit, will take place. Also, the overhead pole line along the western curb of Center St. will be restored including the installation of a pole and 3 polemounted transformers to feed an electric service on the property of 290 Pratt St. All temporary cable, poles and guying installed by Eversource will then be removed.

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...

Due to the volume and complexity of this work, the time to perform is significant. Some of the cutovers to the affected circuits can not be done during the moratorium period of June 1st thru Sept. 1st. This proposal hinges on the ability to install temp. poles & wires adjacent to the proposed construction area. In order to accommodate the poles with adequate clearance from the Harbor Brook retaining wall, it may be necessary to slightly encroach on the area that is supposed to be kept clear of overhead wires. Currently it is impossible to precisely spot poles and anchors for this job due to the heavy vegetation growth in the area. Once all the clearing and grubbing of vegetation takes place, we will find the best location for the temp. poles in order to safely support all the aerial utilities and to try and keep the area as clear as possible for construction.

UTILITY WORK SCHEDULE

CTDOT Project Number:	79-212	
Utility Company:	Eversource Energy, Electrical Distribution	
Prepared By:	Steve Wells	Total Working Days: 117

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)
2+27 , 18' Lt. & 4+59 , 19' Lt.	Frontier to install 2 poles & 8 anchors along west side of Center street	Notice to proceed from State. Clearing & Grubbing of Trees by State. Shutdown of Center St. for Construction	1
3+03 - 68' Rt., 4+22 , 62' Rt.	Frontier to install 2 poles & 4 anchors on town & private property east of Center St.	Notice to proceed from State. Clearing & Grubbing of Trees. Shutdown of Road	1
3+07 - 59' Rt. To 4+02 , 104' Rt.	Eversource Elec. (ESE) to clear trees east of construction area on private property @ 290 Pratt St.	Notification to proceed from State. Concurrent w/ other pole setting	2
3+07 - 59' Rt. & 3+52 , 122' Rt.	ESE to install 2 poles & 4 Anchors on town & private property east of Center St.	Installation of Frontier Poles & Anchors	1
4+02 - 104' Rt. & 4+13 , 60' Rt.	ESE to install 2 poles & 4 Anchors on private property east of Harbor Brook.	Installation of Frontier Poles & Anchors	1
Various	Install guying , 4 pole tops, 3 transformrs & 4 spans of overhead 3 phse wire to by-pass construction. area.	Installation of ESE & Frontier Poles & Anchors	5

Various	Install 3 spans of aerial cable across Harbor Brook on temp. poles & 2 short spans of bare neutral.	Installation of ESE Poles & Anchors	1
2+27 , 18' Lt. to 4+59 , 19' Lt.	Energize overhead pri. by-pass of construction area and cutover 290 Pratt St. svc to new 3 phase bank.	Installation of ESE & Frontier Poles & Anchors	0.5
2+27 , 18' Lt. to 4+59 , 19' Lt.	Remove 2 spans of overhead wire, pole top, 3 phase transformer bank, secondary wire & st. light, along the western curb of Center St.	Overhead by-pass energized	0.5
2+73 , 8' Lt.	Eversource Elec. civil contractor, Charter Oak Utility Constructors, (COU) , to enlarge MH-80	Shutdown of Road. Eversource Gas to relocate 2" steel gas svc. to 200 Pratt St.	15
2+73 , 8' Lt., 3+07 , 59' Rt.	COU to install 2 concrete encased conduits from MH-80 to ESE Pole	Enlargement of MH-80, Install of ESE poles.	1
2+73 , 8' Lt., 3+03 , 68' Rt.	COU to install 2 encased conduits from MH-80 to Frontier Pole	Enlargement of MH-80, Install of Frontier poles.	1
4+54 , 8' Lt.	Eversource Elec. civil contractor, Charter Oak Utility Constructors, (COU) , to enlarge MH-82	Possible removal of un-used section of 8" san. sewer to be abandoned.	12
4+04 , 32' Rt.	COU to install cast in place MH-1077 on Eversource easement property for new switch gear.	Shutdown of road.	10
4+54 ,8' Lt. to 4+04, 32' Rt. & 4+22,32' Rt.	COU to install 4 encased ducts from MH-82 to MH-1077 & stub 4 ducts : MH-82 to future MH-1078.	Installation of MH-80 & MH-1077	2
3+80 , 35' Rt. & 4+22 , 62' Rt.	COU to install 2 encased conduits from MH-12 to Frontier Pole	Installation of Frontier Poles & Guying	0.5

3+80 , 35' Rt. & 4+13 , 60' Rt.	COU to install 2 encased conduits from MH-12 to ESE Pole	Installation of ESE Poles & Guying	0.5
Various	ESE to install swgr on MH-1077, instl. 6 perm. cbls., 7 temp. cbls., & perform cutovers.	Installation of all manholes & conduit.	15
4+22 , 32' Rt.	COU to install cast in place MH-1078 on Eversource easement property for new switch gear.	Cutovers involving swgr. on MH-1077	10
Various	ESE to install swgr. on MH-1078, instl. 4 perm. cbls., 4 temp. cbls., & perform cutovers.	Installation of MH-1078, Removal of existing swgr. in easement area	10
2+73 , 8' Lt. to 4+54 , 8' Lt.	COU to install 12-5" & 1-2" duct bank of steel @ culverts & enc. pvc in approaches. MH-80 to MH-82	Installation of 2 new culverts.	4
2+73 , 8' Lt. to 4+54 , 8' Lt.	ESE to install 4 permanent cables in new ducts across culverts, MH-80 to MH-82, & do cutovers.	Installation of new duct bank...MH-80 to MH-82.	15
2+27 , 18' Lt. & 4+59 , 19' Lt.	Reinstall overhead 3 phase wire on Center St. & instl. new pole 1065, 3 transformers and service to feed 290 Pratt St. env. station.	Completion of culvert installation.	3
Various	Remove 11 temp. cables installed to feed temp. conductors over Harbor Brook	Cutover of all 4 new cables over culverts. Rmvl of temp OH wires bypass.	2
Various	Remove all overhead conductors temporarily installed over Harbor Brook	Cutover of all 4 new cables over culverts. Rmvl of temp OH wires bypass.	1
Various	Remove all temp. poles and anchors installed by ESE.	Removal of all temp. conductors.	2

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number:	SHP 79-212	Town:	Meriden
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Project Description:	Center St bridge over Harbor Brook		
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CTDOT Utilities Engineer:	Xiuyun Cai		
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Phone:	860-594-3269	Email:	Xiuyun.Cai@ct.gov
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Utility Company:	Frontier Communications		
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Prepared By:	Marino Limauro	Date Prepared:	8/16/2019
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Phone:	203-771-3110	Email:	marino.a.limauro@ftr.com
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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.

This project involves the relocation of Frontier Communication's outside plant facilities on Center Street in Meriden, CT. This relocation will be completed in two phases. In the temporary phase, Frontier will set four poles. Poles P1064 and P1066 as well as temporary poles P1 and P3. Frontier will also remove the existing pole P1065. Frontier will temporarily feed all existing cables to the temporary poles set on the east side of Center St. The temporary aerial cables will be placed on the east side of the road and the existing aerial cables will be removed. The permanent phase of relocation will occur once the contractor has completed construction on the bridge. Poles P1065 will be relocated back to the east side of Center St by Eversource. The permanent aerial cables will again be placed on the east side of the Center Street and the temporary cables will be removed. Services to all existing Frontier customers will remain intact throughout the duration of this project. Prior to setting any new poles, the elevation must be within 6 inches of final grade and the face of curb and rear of sidewalk must be clearly marked.

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..

All work on this time line is dependant on weather, storms, work load and customer high speed data circuit turndowns. All calendar days and work days are approximate. Regarding high speed special circuits to our customers, this part of Frontier's work is dependent on getting permission and a schedule from our customers for these turndowns and may take up to three months to change over. Overtime and afterhours service may be required to complete high speed data service cut-overs. Also, if there are any natural or unnatural disasters that happen within Frontier serving area, crews will be expected to help restore services in the affected area and will return once all services are restored.

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: SHP 79-212
 Utility Company: Frontier Communications - Temporary relocation
 Prepared By: Marino Limauro Total Working Days: 19

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)
1+00 to 5+00	Place (4) poles on east side of Center St	Upon receipt of Notice to Proceed.	5
1+00 to 5+00	Place Anchors and guying for new poles		4
1+00 to 5+00	Place temporary aerial cables	Other utilities must be complete.	2
1+00 to 5+00	Splice temporary cables.		5
1+00 to 5+00	Remove old aerial cables and guying.		2
1+00 to 5+00	Remove existing P1065		1

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number:	SHP 79-212	Town:	Meriden
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Project Description:	Center St bridge over Harbor Brook
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CTDOT Utilities Engineer:	Xiuyun Cai
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Phone:	860-594-3269	Email:	Xiuyun.Cai@ct.gov
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Utility Company:	Frontier Communications
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Prepared By:	Ian Birtwistle	Date Prepared:	8/16/2019
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Phone:	203-238-5144	Email:	ian.birtwistle@ftr.com
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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.

This project involves the relocation of Frontier Communication's outside plant facilities on Center Street in Meriden, CT. This relocation will be completed in two phases. The existing 4 conduits and cables over the existing culvert will temporarily be removed in the area of construction. The conduits connecting to FTR's manholes will be capped underground. Once the culvert is in place, the 4 new conduits will be built into the proposed sidewalk. FTR's contractor and the state contractor will coordinate rebuilding our structure within the proposed sidewalk. Once FTR's conduits are placed, the sidewalk can be poured. When outside of the sidewalk, FTR's structure will be reconnected with the existing structure and concrete encased.

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..

All work on this time line is dependant on weather, storms, work load and customer high speed data circuit turndowns. All calendar days and work days are approximate. Regarding high speed special circuits to our customers, this part of Frontier's work is dependent on getting permission and a schedule from our customers for these turndowns and may take up to three months to change over. Overtime and afterhours service may be required to complete high speed data service cut-overs. Also, if there are any natural or unnatural disasters that happen within Frontier serving area, crews will be expected to help restore services in the affected area and will return once all services are restored.

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number:	pro.79-212	Town:	Meriden
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Project Description:	Eversource temp line relocating
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CTDOT Utilities Engineer:	Xiuyun Cai
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Phone:	860-594-3269	Email:	xiuyun.cai@ct.gov
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Utility Company:	Cox Communications
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Prepared By:	Jose Ceden	Date Prepared:	8/15/2019
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Phone:	860-250-3445	Email:	jose.cedeno@cox.com
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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.

Once the temporary poles are installed, Cox will temporarily attach overhead utilities to new poles and then move them back to original poles. Would need to extend coax feeder to 255 Center st off pole#1066, move lines from pole#1065 and pole#1063, email states pole#1064 but Cox prints and actual pole is #1063. Please advice when this work is scheduled to begin. Thanks.

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..

This cutover would have to be scheduled during night shift, will create outage to customers. We can prep during day.

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number:	79-212	Town:	MERIDEN
Project Description:	CENTER ST BRIDGE OVER HARBOR BROOK		
CTDOT Utilities Engineer:	XIUYUN CAI		
Phone:	(860)594-3269	Email:	Xiuyun.Cai@ct.gov

Utility Company:	CROWN CASTLE FIBER		
Prepared By:	TERENCE J SHEA	Date Prepared:	8/9/2019
Phone:	(203)649-3905	Email:	terence.shea@crowncastle.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.

Crown Castle Fiber's work will consist of moving slack to project area, run new strand on temporary pole line, shift cable to new strand and remove old strand for temporary move. For move to permanent poles at project completion, run new strand to permanent poles, shift cable, create backlash with slack and remove temporary strand.

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..

PLEASE NOTE THAT ANY TIME FRAME GIVEN AS A START TIME OR DURATION OF WORK CAN BE AFFECTED BY MANY FACTORS INCLUDING, BUT NOT LIMITED TO, MAKE READY WORK, OTHER UTILITIES, PERMIT APPLICATIONS, CHANGES IN SCOPE, INCLEMENT WEATHER, HOLIDAYS AND EMERGENCY SITUATIONS.

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number: 079-212	Town: Meriden
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Project Description: Replacement of Center St Bridge over Harbor Brook Roadway Plan

CTDOT Utilities Engineer:

Phone: 860-665-2471	Email: nicole.karinchak@eversource.com
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Utility Company: Eversource Gas

Prepared By: Nicole Karinchak	Date Prepared: 08/07/2019
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Phone:	Email:
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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.

Eversource Gas has two gas mains in the scope of this project. One 6" LP main and one 6" IP main. Each of these mains currently run in the deck of the bridge. These two mains will need to be relocated to facilitate the replacement of the bridge. A temporary bridge will need to be provided by the DOT/CITY/TOWN for ESG to run the main, this bridge will need to be approved prior ESG relocating the main. Please note ESG requires as much planning time as possible, minimum of three months notice. ESG will require onsite walk through. Eversource Gas abandons all main in place, removal of abandoned pipe will need to be facilitated by contractor.

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..

Please note the working days estimates are based on the drawings provided. Actual working days will be based on test pits, weather and site conditions (utility crossings/ledge). Also note, the relocation plan, under the culvert or on the side of the bridge will govern the location of this main. ES Gas will not be responsible for permanent restoration.

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 079-212

Utility Company: Eversource Gas

Prepared By: Nicole Karinchak

Total Working Days: 30

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)
2+00 - 4+00	Relocate 6" LP gas main to facilitate the cities new bridge construction. The relocated gas main will	Notice to proceede, Temp Bridge Approval, Site Visit, Test Pits to determine if scope	15
VN for ESG to run its n	temporary bridge to be constructed for support, this design will be approved by ES Gas prior to installing	needs to be revised	
	main - Approximately ~350 ft 4" Diameter (min) gas main		
2+00 - 4+00	Relocate 6" IP gas main to facilitate the cities new bridge construction. The relocated gas main will	Notice to proceede, Temp Bridge Approval, Site Visit, Test Pits to determine if scope	15
	temporary bridge to be constructed for support, this design will be approved by ES Gas prior to installing	needs to be revised	
	main - Approximately ~350 ft 4" Diameter (min) gas main		
****	Please note the working days estimates are based on the drawings provided. Actual working days will be		
	based on test pits, weather and site conditions (utility crossings/ledge). Also note, the relocation plan, under		
	the culvert or on the side of the bridge will govern the location of this main.		

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: 079-212

Utility Company: Eversource Gas

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Total Working Days: 30

Schedule

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Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
2+00 - 4+00	Reconnect 6" LP gas main to facilitate the cities new bridge construction. The relocated gas main will	Notice to proceed, Temp Bridge Approval, Site Visit, Test Pits to determine if scope	15
VN for ESG to run its n	temporary bridge to be constructed for support, this design will be approved by ES Gas prior to installing	needs to be revised	
	main - Approximately ~200 ft 6" Diameter (min) gas main		
2+00 - 4+00	Reconnect 6" IP gas main to facilitate the cities new bridge construction. The relocated gas main will	Notice to proceed, Temp Bridge Approval, Site Visit, Test Pits to determine if scope	15
	temporary bridge to be constructed for support, this design will be approved by ES Gas prior to installing	needs to be revised	
	main - Approximately ~200 ft 6" Diameter (min) gas main		
****	Please note the working days estimates are based on the drawings provided. Actual working days will be		
	based on test pits, weather and site conditions (utility crossings/ledge). Also note, the relocation plan, under		
	the culvert or on the side of the bridge will govern the location of this main.		

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

The attached project specific utility work schedules were provided to the Connecticut Department of Transportation (Department) 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, the Department 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 the Department'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 the Department in accordance with Section (*insert 1.05.08 or Project Coordinator here*) 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.

NOTICE TO CONTRACTOR – ADVANCED NOTIFICATION

The contractor shall notify CR Parkside Limited Partnership at least 30 days prior to the start any on-site work; as they would be using the City's vacant parking lot during construction.

Contact Info:

Norman Isko, Esq.

CR Parkside Limited Partnership

200 Pratt Street

Meriden CT. 06450

Tel. [\(203\) 639-5121](tel:2036395121)

NOTICE TO CONTRACTOR – MAINTAINING ACCESS TO CR LIMITED PARTNERSHIP

The contractor shall maintain access to the heating oil refilling station for the CR Parkside Limited Partnership property located within the project limits. The contractor will also be required to relocate the dumpster unit on the CR Parkside property to a location on the property which is accessible to both the property owner and trash service pick up company.

**NOTICE TO CONTRACTOR - INCREASED REQUIREMENTS FOR
CONSTRUCTION FIELD OFFICE**

This Notice is to alert the Contractor of the increased size and other requirements for the Contract item “Construction Field Office, (Size)” due to Covid-19 and other considerations.

The revisions to special provisions:

ITEM #0969060A - CONSTRUCTION FIELD OFFICE, SMALL

ITEM #0969062A - CONSTRUCTION FIELD OFFICE, MEDIUM

ITEM #0969064A - CONSTRUCTION FIELD OFFICE, LARGE

ITEM #0969066A - CONSTRUCTION FIELD OFFICE, EXTRA LARGE

include but not limited to, increased field office size, increased ventilation requirements, increase cleaning requirements, and additional field office supply requirements.

All costs for these requirements shall be included in the Construction Field Office item included in the Contract.

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Article 1.07.13 - Contractor's Responsibility for Adjacent Property, Facilities and Services is supplemented as follows:

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Mr. Augusto Grazuna
District 1 Electrical Supervisor
Department of Transportation
Hartford, Connecticut
(860) 566-3156/3157

Mr. Richard Russo
District 2 Electrical Supervisor
Department of Transportation
Colchester, Connecticut
(860) 537-8942/8943

Mr. Arnold Ozols
District 3 Electrical Supervisor
Department of Transportation
Milford, Connecticut
(203) 878-1869

Mr. Mark Russo
District 4 Electrical Supervisor
Department of Transportation
Southbury, Connecticut 06488
(203) 264-9590

Mr.
Cablevision of Connecticut

Mr.
Eversource

, CT 06
(203)

, CT 06
(860)

Mr.
Frontier Communications

Mr.
United Illuminating

, CT 06
(860)

, CT 06
(203)

The following Department representative shall be contacted by the Inspector or Field Engineer to coordinate an inspection of the service entrance into the controller/flasher cabinet for controllers within the State right-of-way. When ready for inspection, the Contractor should be present for the release of the connection of electrical service. The local Building Department shall be contacted for electrical service inspections for controllers located on Town roads located within the respective municipality.

Mr. Michael LeBlanc
Property & Facilities
Department of Transportation
Newington, CT 06111
DOT.BUILDINGCODEINSP@CT.GOV
860-594-2238
Cell 860-983-5114

Please provide the electrical service request number provided by the power company. This is a Work Request (WR) Number provided by Eversource (formerly Northeast Utilities [CL&P]) or a Work Order Number provided by United Illuminating (UI). For State-owned traffic signals in Eversource territory, contact the Department's Traffic Electrical Unit to obtain

the WR Number. For State-owned traffic signals in UI territory, contact the Department's Traffic Electrical Unit to obtain a Request for Metered Service to provide to UI to obtain the Work Order Number. The street address is required for release to local power companies (Groton Utilities or Wallingford Electric).

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

In order 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:

Center Street

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.

The Contractor will be allowed to close Center Street and detour traffic as shown on the plans for the duration of the project, 58 weeks.

The Contractor shall notify the Engineer at least 14 days in advance of the start of the closure.

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.

Night Work

The contractor will not be allowed to perform any work between 7:00 p.m. and 7:00 a.m. on all roadways, on weekdays, unless the Contractor obtains approval from the City. The Contractor must submit a request in advance of the implementation of a night work period.

SECTION 1.10 ENVIRONMENTAL COMPLIANCE

In Article 1.10.03-Water Pollution Control: REQUIRED BEST MANAGEMENT PRACTICES

Add the following after Required Best Management Practice Number 13:

14. The Contractor is hereby notified that the State listed species of Special Concern wood turtle (*Glyptemys insculpta*), is present within the Project limits. Wood turtles require riparian habitats bordered by floodplain, woodland, or meadows. Their summer habitat includes pastures, old fields, woodlands, power line cuts, and railroad beds bordering or adjacent to streams and rivers. Wood turtles spend most of their summer on land and can use areas up to 1500 feet from the streams/rivers where they overwinter. They hibernate submerged in tangled tree roots along river banks or in deep pools.

All construction activities taking place within the Project limits will need to be coordinated with the Engineer. At least 10 days prior to the commencement of any construction activities, the Contractor shall, through the Engineer, arrange for an environmental inspector to meet and discuss proper protocol for maintaining environmental commitments made for the protection of this species and habitat. The Engineer will provide oversight to ensure that the following protocols are followed and maintained during the course of the Project.

During the wood turtle's dormant period (November 1 to March 31):

- Construction activities will be allowed in upland areas.
- Work is not allowed in wetland/watercourse areas unless these areas were in active construction prior to November 1, and additionally, do not contain any areas of turtle habitat (no stream edge vegetation, stumps, or roots).

For any work done during the wood turtle's active period (April 1 to October 31), the Municipality will require the following precautionary measures to protect the wood turtle and wood turtle habitat:

- i. Exclusionary fencing will be required to prevent any turtle access into construction areas. These measures shall be installed at the limits of disturbance around the work area prior to construction.
- ii. Exclusionary fencing shall be at least 20 inches tall and be secured to and remain in contact with the ground. Silt fencing installed for erosion control may serve this like purpose; however avoid the use of plastic or netted silt fence.
- iii. Exclusionary fencing shall be regularly inspected and maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may allow turtles to pass through.

- iv. In areas where silt fencing is used for exclusion, it shall be removed as soon as soils are stable to allow for reptile and amphibian passage to resume.
- v. All construction personnel and work crews working within the turtle habitat shall be apprised of the species description and possible presence, and shall also be advised that any turtles found inside the work areas shall be relocated or to notify the appropriate authorities to relocate them.
- vi. The contractor, a consulting herpetologist, or a qualified professional familiar with the turtle habitat requirements and behavior shall conduct a search for any turtles within the work site area each morning prior to the start of any work activities. Any turtles that are discovered shall be carefully moved, unharmed, to an area immediately outside of the fenced area in the same direction that it was walking. If a turtle is found within the work site an inspection of the site to identify and remove the access point shall be completed.
- vii. Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove the access point.
- viii. Any confirmed sightings of box, wood, or spotted turtles shall be reported and documented with the NDDDB at nddbrequestdep@ct.gov using the special animal form found at http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641.
- ix. No heavy machinery or vehicles shall be parked in any turtle habitat.
- x. If felling trees adjacent to brooks and streams, they shall be cut to fall away from the waterway, not dragged across waterway, and not have their stumps removed from the banks

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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, or keeping them in your possession. Photographs and the laws protecting wood turtles shall be posted in the Contractor's and engineer's field office (species ID sheets will be provided by the Engineer).

SECTION 6.10 - DRILLING HOLES AND BONDING ANCHORS AND DOWELS

6.10.01 - Description: Work under this item consists of drilling holes in concrete and bonding anchors or dowels into the holes with adhesive bonding material as shown on the plans, in accordance with the manufacturer's recommendations, and as directed by the Engineer.

Adhesive bonded anchors are composed of adhesive bonding material and steel anchors, either fully threaded rods or deformed reinforcing bars, with an embedment no greater than 20 times the diameter of the anchor.

Adhesive bonded dowels are composed of adhesive bonding material and deformed steel reinforcing bars embedded no less than the tension development length of the bar calculated using its full yield strength and no greater than 60 times the diameter of the reinforcing bar.

6.10.02 - Materials: For adhesive bonded anchors, the adhesive bonding material shall meet the assessment requirements of ACI 355.4 latest edition and of ICC Evaluation Service (ICC-ES) *AC308 Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements*, including use under sustained tension loads and installation in holes drilled horizontally. The characteristic bond strength of the adhesive bonding material shall meet or exceed the design characteristic bond stress value specified on the plans.

Steel anchors shall meet the requirements specified on the plans.

For adhesive bonded dowels, the adhesive bonding material shall meet the assessment requirements of ACI 355.4 latest edition and of ICC-ES *AC308 Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements* including use under sustained tension loads, installation in holes drilled horizontally, and for use with reinforcing bars embedded the code-required tension development length of the bar. The characteristic bond strength of the adhesive bonding material shall meet or exceed the design characteristic bond stress value specified on the plans.

Dowels shall meet the requirements specified on the plans.

6.10.03 - Construction Methods: The Contractor shall select adhesive bonding material based on, and compatible with, the Site conditions, the requirements shown on the plans, the material's ICC-ES Evaluation Service Report, and the manufacturer's printed installation instructions (MPII).

A. Submittals: Prior to drilling holes for the anchors and dowels, 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 ICC-ES Evaluation Service Report for the adhesive bonding material. The ICC-ES Evaluation Service Report shall have been issued or reissued no more than 2 years prior to its submission and be valid at the time of installation.
2. A copy of the adhesive bonding material manufacturer's printed installation instructions (MPII)
3. type of drill and diameter of bit
4. method of cleaning holes
5. method of placement of the adhesive bonding material

B. Installation Requirements: The drilling of the holes for the anchors and dowels shall proceed only after the Contractor's Product Data submittal has been reviewed, stamped, and returned to the Contractor and copies have been delivered to the Engineer.

The Contractor shall resubmit the Product Data should the Evaluation Service Report become invalid before the installation of the anchors and dowels as determined by the Engineer.

The installation, including the drilling of the holes, of the anchors and dowels with adhesive bonding material shall be performed by qualified installers. Personnel instructed and trained on the installation of the adhesive bonded anchors and dowels in accordance with the MPII by the adhesive bonding material manufacturer shall be considered qualified installers. The Contractor shall arrange for a manufacturer's representative to provide onsite installation instruction and training for the Contractor's installation personnel and the Engineer.

Installers of horizontally oriented anchors and dowels subject to sustained tension loads as shown on the plans, shall hold current ACI Adhesive Anchor Installer Certification credentials.

The installation of all anchors and dowels with adhesive bonding material shall be inspected by an inspector, provided by the Contractor, holding current ACI Post-Installed Anchor Inspector Certification credentials. The installation of any horizontally oriented anchors and dowels subject to sustained tension load shall be continuously inspected during installation by the inspector provided by the Contractor, holding current ACI Post-Installed Anchor Inspector Certification credentials.

Prior to drilling holes for the anchors and dowels, the Contractor shall provide the following installer and inspector information to the Engineer:

1. documentation confirming that all the installers are qualified and have been trained by the adhesive bonding material manufacturer
2. a copy of each installer's ACI Adhesive Anchor Installer Certification card, as applicable
3. a copy of the inspector's ACI Post-Installed Anchor Inspector Certification card

The installation, including drilling of holes, of the anchors and dowels with adhesive bonding material shall be in accordance with the adhesive bonding material MPII. The methods and equipment used to drill and clean the holes, weather conditions at the time of installation, temperature of the concrete, anchor and dowel, and the condition of the hole at time of installation shall also be in accordance with the MPII. The use of tools, such as drill bits and cleaning brushes, from a manufacturer different from the manufacturer of the adhesive bonding material is not permitted unless noted otherwise in the adhesive bonding material MPII. In case of conflict between these specifications and the MPII, the requirements of the MPII shall govern.

The anchors and dowels shall be installed in clean, dry holes (no water present) drilled into structurally sound concrete and bonded with adhesive bonding material. Structurally sound concrete is solid when sounded with a hammer, uncracked, greater than 21 days old, and has a compressive strength no less than its design strength when it was originally placed. If the hole is filled with water, partially filled with water, or water entered the hole during drilling, the Contractor shall blow out the water using compressed air and allow a minimum of 24 hours before cleaning the hole and installing the anchors or dowels. The Contractor shall not install anchors or dowels in saturated, surface dry holes (holes with damp surfaces, but no standing water).

Holes for the anchors and dowels shall be located and drilled to a depth no less than the anchor embedment depth shown on the plans. A pachometer shall be used to locate existing reinforcing steel. If existing reinforcing is encountered during the drilling operation, the holes shall be relocated as noted on the plans. Core drilling through the reinforcing bars may be allowed if noted on the plans. Drilled holes that are abandoned shall be completely filled with adhesive bonding material or non-shrink grout and finished flush with the adjacent concrete surface.

C. Field Testing: After the adhesive bonding material has fully cured in accordance the MPII, the anchors and dowels shall be field tested to verify the installation procedures and installed adhesive anchor strength. Field testing shall be performed by an independent third-party testing agency, hired by the Contractor.

The Contractor shall provide the testing agent with a copy of the plans and these provisions and instruct the testing agent to perform the following:

1. Verify the adhesive bonding material used
2. Check that the anchorage size and type match the requirements of the Contract
3. Perform all field testing in accordance with the Contract
4. Record all test results on a field proof load test report form (sample form included herein)
5. Sign and date the test form

The Contractor shall submit the completed, and signed test report form to the Engineer.

The adhesive bonded anchors and dowels to be field tested at each location shall be randomly selected by the Engineer based on the tabulated number to be tested shown on the plans. A confined static tension test shall be performed in accordance with ACI 355.4 and ASTM E488 for the proof test load shown on the plans, in the presence of the Engineer. The test equipment shall be capable of measuring displacement of the anchor or dowel. The proof test load shall be maintained for a minimum of 10 seconds. In order to pass the field test, the tested anchors and dowels shall have no visible damaged during or after the proof load, no indications of displacement at the proof test load and no cracking of concrete in the vicinity of the anchor or dowels. An additional anchor or dowel shall be tested for each anchor or dowel that does not pass the field test.

All anchors and dowels that do not pass the field test shall be removed without any damage to surrounding concrete. The Contractor shall reinstall new anchors and dowels in accordance with the requirements described herein. Holes can be re-drilled to remove the adhesive bonding material residue prior to new anchor or dowel installation. The anchors and dowels at the failed locations shall not be reused.

D. Repairs: The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the area below, which may result in damage to any existing construction or to adjoining property. Should any damage occur to the structure as a result of the Contractor's operations, the Contractor shall make repairs at their expense. The repair work shall be approved in advance and shall be of a quality acceptable to the Engineer.

6.10.4 - Method of Measurement: This work will be measured for payment by the actual number of drilled holes in which anchors and dowels are embedded and accepted.

6.10.5 - Basis of Payment: This work will be paid for at the Contract unit price each for "Drilling Holes and Bonding Anchors" or "Drilling Holes and Bonding Dowels," which price shall include drilling and preparing holes, furnishing, and installing adhesive bonding material, furnishing anchors and dowels, providing an ACI Certified inspector, testing of the installed anchors and dowels, and all material, equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Drilling Holes and Bonding Anchors	ea.
Drilling Holes and Bonding Dowels	ea.

Name, address and contact information for testing firm

Field Proof Load Test Report -				Page of				
CTDOT Project:		Date:						
Contractor:		Weather:						
Contractor Rep.:		Temperature: AM		PM				
		Technician:						
		Arrival Time:						
		Departure Time:						
General Location of Work: Include Town, Description of crossing, Bridge number, as applicable								
Item Details								
Item Tested	Size	Grade	Embed Depth					
Equipment Information								
Hydraulic Ram Number	Hydraulic Ram Capacity	Dial Gauge Number	Dial Gauge Capacity					
Test Application Method:								
Required Load (lbs):			Required Dial Reading (psi):					
Test Results								
Test #	Location	Dial Reading (psi)	Maximum Load (lbs)	Failure Type				Pass/Fail
				None	Bond	Concrete	Component	
Comments								
<p>Describe location, total number of anchors/dowels. Provide sketch of anchor/dowels and test locations</p> <p>Adhesive bonding material product name</p> <p>Describe equipment used to measure displacement and provide displacement measurements/results</p> <p>List names and affiliations of engineers witnessing testing</p> <p>Use additional sheets, similar to this sheet, if required</p>								
Signature:				Date:				

SECTION 8.22 - TEMPORARY TRAFFIC BARRIER

Section 8.22 is hereby replaced with the following:

8.22.01—Description: Work under this item shall consist of furnishing, installing, relocating and removing temporary traffic barrier.

8.22.02—Materials: The precast concrete materials for temporary traffic barrier shall meet the requirements of Article 8.21.02 except that reinforcing steel does not need to be galvanized.

Any temporary precast concrete barrier curb that was fabricated after December 31, 2019 that does not, at a minimum, meet AASHTO MASH (TL-3) is not allowed to be used as temporary traffic barrier. The condition of all precast concrete temporary traffic barrier must meet the “acceptable” or “marginal” definitions in the ATSSA “Quality Guidelines for Temporary Traffic Control Devices and Features.”

An alternate to the temporary traffic barrier shown on the plans may be requested. The alternate temporary traffic barrier must be documented to meet the minimum crash performance for MASH (TL-3) and its dynamic deflection distance must not exceed the values indicated on the plans for the type of temporary traffic barrier proposed.

The delineator shall be fabricated of aluminum, steel, plastic, or of a material approved by the Engineer. The retroreflective sheeting shall be Type IV, Type V, or Type IX as specified in Article M.18.09. Delineator fastening hardware or adhesive shall be suitable for the purpose intended.

The connection rod and anchors shall be manufactured in accordance with AASHTO M 314, Grade 55. Threads shall be UNC Series as specified in ANSI B1.1 and shall have Class 2A threaded tolerances before galvanizing.

Plain steel washers shall be manufactured in accordance with ANSI B18.22.

Heavy hex nuts shall be Grade A, manufactured in accordance with AASHTO M 291.

Connection loop bars shall be bent from smooth bars that meet the requirements of ASTM A36.

Steel tube for the connection key shall meet the requirements of ASTM A500, Grade B or C.

Steel plate shall be AASHTO M270 Grade 36 or 50.

Adhesive bonding material shall meet the requirements of Article 6.10.02.

Non-shrink, non-staining grout shall meet the requirements of Article M.03.05.

Membrane waterproofing (cold liquid elastomeric) shall be selected from the Qualified Products List and shall be able to be applied by brush.

8.22.03—Construction Methods:

1. Submittals:

- a. When used temporary traffic barrier is furnished, the Contractor shall provide documentation stating where the material originated, the Department project for which it was produced, the casting dates, and certification that the barrier meets the Contract requirements.
- b. When an alternative temporary traffic barrier is requested, the Contractor shall submit to the Engineer a Materials Certificate, in accordance with Article 1.06.07, and a copy of the Federal-aid eligibility letter issued to the manufacturer documenting that the device complies with the minimum requirements of MASH (TL-3).

- c. Submit Materials Certificates for the steel plate, connection rods, anchors and non-shrink, non-staining grout.
 - d. A Materials Certificate for the membrane waterproofing (cold liquid elastomeric) shall be submitted to the Engineer, in accordance with Article 1.06.07, along with the manufacturer's written installation instructions for application of the membrane when repair of deck membrane is required after removal of anchors.
 - e. Submit Product Data for the selected adhesive bonding material, in accordance with Article 6.10.03-A.
2. **Precast Unit:** Concrete temporary traffic barrier units shall be precast in accordance with the pertinent requirements of Article 8.21.03, except the penetrating sealer protective compound need not be applied to the precast unit.
3. **Installation & Removal:** Temporary traffic barrier units shall be placed as shown on the plans or as directed by the Engineer, on a firm even surface to produce a smooth continuous length of barrier.

Any damaged material shall be removed and replaced by the Contractor at their expense. The Contractor shall maintain the condition and alignment of the temporary traffic barrier during all stages of construction.

The Contractor shall relocate the temporary traffic barrier and its appurtenances to locations within the Project limits when shown on the plans or as ordered by the Engineer. When the temporary traffic barrier is no longer required, it shall be removed completely from the Project and shall remain the property of the Contractor.

Any holes in concrete decks created for anchoring shall be filled with non-shrink, non-staining grout up to the concrete surface after barrier removal. Anchors secured to the deck using adhesive bonding material shall be cut flush with the concrete surface when no longer needed. If the temporary traffic barrier is set on a bituminous wearing surface on top of the concrete deck and the existing membrane is to remain, a six-inch diameter pavement core shall be drilled around each anchor to the top of deck to remove the wearing surface and to provide access to cut off the anchor or fill the hole in the deck. All loose or poorly adhering membrane and other materials that could adversely affect the bond of the membrane to the deck shall be removed from the concrete surface. Cold liquid elastomeric membrane shall be brush-applied to the exposed concrete surface in accordance with the accepted installation instructions submitted by the manufacturer. The minimum thickness of membrane shall be 80 mils which shall be measured using a wet film gage. After the membrane is cured in accordance with the manufacturer's written recommendations, the core hole shall be filled using a bituminous concrete mixture at a minimum temperature of 240°F containing the same or smaller nominal maximum aggregate size and compacted with a hand compactor or other mechanical means to the maximum compaction possible. The bituminous concrete shall be compacted to 1/8 inch above the finished pavement.

4. **Delineator:** The delineator shall be installed in the center on top of all barriers on the roadway and those installed within 8 feet from the edge of road, and at the locations designated on the plans. They shall be fastened by adhesive or hardware and must be maintained in good condition at all times. The color of the delineator shall match the color of the adjacent pavement marking edge line.

DE-7 (One Way White) delineators shall be used when the barriers are on the right side of traffic or dividing traffic in the same direction.

DE-7A (One Way Yellow) delineators shall be used when the barriers are on the left side of traffic.

DE-7B (Two Way Yellow) delineators shall be used when the barriers divide opposing traffic lanes.

DE-7D (Two Way White) delineators shall be used when the barriers are installed in an alternating one-way traffic operation.

Spacing of delineators on temporary traffic barriers shall be as specified on Traffic Standard Sheet TR-1205_01.

5. **Connection:** Nuts for the connection rod pin and loop connection shall be turned until the washer is drawn up against the connection loop. The connection loops must not be bent in the tightening process. For ease in removing the nuts, the threads may be waxed. Connection keys shall be installed as shown on the Plans
6. **Anchoring:** Anchoring temporary traffic barrier shall be with adhesive bonding material, thru-bolting, or pinning as shown on the plans, except only threaded inserts shall be used on new prestressed concrete members and shall be cast into the deck in locations that accommodate the stage construction. Shop drawings for the new prestressed concrete members shall reflect the use of inserts. Drilling into prestressed concrete members is not permitted. Installation of anchors with adhesive bonding material shall be in accordance with Article 6.10.03.

The terminal units of temporary barrier curb shall be 20 feet in length and shall be anchored with pins on both sides as shown on the plans.

Method of Measurement: This work will be measured for payment along the centerline of the top of the temporary traffic barrier and will be the actual number of linear feet of temporary traffic barrier furnished, installed and accepted.

Relocated temporary traffic barrier will be measured along the centerline of the top of the barrier each time the barrier has been satisfactorily relocated as directed by the Engineer, including to and from the storage area. Storage of barrier will not be measured for payment. Relocation of temporary traffic barrier for access to the work area, or for the convenience of the Contractor, shall be considered incidental to Maintenance and Protection of Traffic and will not be measured for payment.

The terminal units will not be measured separately. Their length will be included in the length of temporary traffic barrier installed.

Delineators will not be measured for payment.

Anchoring materials, filling of holes, cutting off adhesive bonded anchors, coring, furnishing and applying waterproofing membrane and filling in core holes with bituminous concrete will not be measured for payment.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Temporary Traffic Barrier" or "Temporary Traffic Barrier (Type)," complete in place, which price shall include all furnishing, transportation, initial installation, final removal, storage, materials, reinforcing steel, connecting rods, anchoring materials, equipment, tools and labor incidental thereto. Each temporary traffic barrier will be paid for once regardless of the number of times it is used on the Project. Any temporary traffic barrier that become lost, damaged or defaced shall be replaced by the Contractor at no cost to the State.

The relocation of the temporary traffic barrier will be paid for at the Contract unit price per linear foot for "Relocated Temporary Traffic Barrier" or "Relocated Temporary Traffic Barrier (Type)," which price shall include all transportation, installation, removal, materials, equipment , tools, storage and labor incidental thereto.

Pay Item	Pay Unit
Temporary Traffic Barrier	l.f.
Temporary Traffic Barrier (Pinned)	l.f.
Temporary Traffic Barrier (Bolted)	l.f.
Relocated Temporary Traffic Barrier	l.f.
Relocated Temporary Traffic Barrier (Pinned)	l.f.
Relocated Temporary Traffic Barrier (Bolted)	l.f.