Compilation of Standard Specifications from State Departments of Transportation

Veronica A. Martin

Compiled 2018

PennDOT Cultural Resources Unit

Bureau of Project Delivery

400 North Street, 7th Floor

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Preface

During the January, 2018 Annual TRB Meetings in Washington, DC, certain research topics were discussed. On was the question of what are the state DOT's doing for standard or special provisions? With the phasing out of the NCHRP 25-25 program, the ADC50 Committee considered whether this was an appropriate research topic for the larger NCHRP pool of topics. At that time, it was felt that scaling the question up to considering environmental standard or special provisions and not just cultural resource provisions was the right size of project.

In anticipation of preparing an NCHRP proposal for an environmental standard or special provisions nationwide survey, PennDOT offered to conduct a cultural resources review during the summer of 2018, most likely using student interns. Fortunately for our office, Veronica Martin was one of our summer interns and agreed to undertake this effort. We are sharing this publicly, not just to give Veronica a citation, but we believe this information could be useful to other state DOT's.

Veronica, thank you for your efforts. Perhaps we will see you again in a few years working professionally for us or for one of our partners.

Ira Beckerman
Cultural Resources Unit Head
PennDOT
October 5, 2018

Overview

The purpose of this project was to create a foundation for a library which will house standard specifications for cultural resources managers to utilize when composing special provisions. Each state has their own standard specifications for cultural resources; however, many states are conducting the same type of projects and could benefit from seeing what other states have already done. Standard specifications from all fifty states were collected over the course of two months. A total of 184 specifications covering topics such as masonry, archaeology, and historic properties were extracted and complied into a single document. The hope is that this small project will kick start a larger collaboration nationwide covering the range of environmental commitments for sharing standard specifications and special provisions.

Methodology

Step 1: Gathering Standard Specifications Documents from Fifty States

PennDOT provided a list of emails, consisting of cultural resources managers (CRMs) from Departments of Transportation around the county. A mass email request was made asking for Cultural Resource Specifications and Standard Contract Provisions including specifications or provisions on the protection of archaeological sites such as fencing and covering; context sensitive bridge design; rehabilitation to avoid adverse effect; or, alternative mitigation. After two weeks, this email was sent out again to ensure equal coverage. Replies and information provided by the CRMs was tracked with an Excel spreadsheet to maintain a reference document to use during the final draft stage. After three weeks, any remaining Standard Specifications were independently researched until the most recent document was found for all fifty states.

Step 2: Searching Standard Specifications for Keywords

Utilizing the Full Acrobat Search option in Abode Acrobat DC, Standard Specification documents were searched for the same specific keywords, featured below. Multiple spellings and formats for each keyword were searched to ensure that nothing was missed. The results of the search were first verified for content to make certain they were of use to cultural resources, then the information was transferred to a central Microsoft Word Document. This document was organized by state and formatted for a seamless transition. At the same time, a matrix was created to track which Standard Specifications contained the searched keywords.

Key Words
Cultural Resource Related
Archeology/Archaeology/Archeological/Archaeological
Artifact(s)
Cultural
Historic(al)
Human Remains/Burials
Bridge/Construction Related
Color(ed), Concrete
Facing, Stone
Form/Form Liner, Stone
Lighting, Bridge
Railing, Bridge
Rivet
Stamp/Stamping
Stone/Masonry/Brick Masonry
Wrought Iron

Matrix

State	Year Last Updated	Color, Concrete	Facing, Stone	Form Liner, Stone	Lighting, Bridge	Railing, Bridge	Rivet	Stamp/Stamping	Stone, Masonry	Wrought Iron	Artifacts	Archeology/Archaeology	Cultural Resources	Historic(al)	Human Remains/Burial
Alabama	2012								X		X	X		X	X
Alaska	2017														
Arizona	2008											X	X	X	X
Arkansas	2014										X	X		X	
California	2015			X		X						X	X		X
Colorado	2017										X	X		X	
Connecticut	2017		X						X		X	X			
Delaware	2016								X						
Florida	2018			X								X	X	X	X
Georgia	2016			X					X		X	X	X	X	
Hawaii	2005											X		X	X
Idaho	2018												X		X
Illinois	2016			X							X	X	X	X	
Indiana	2018			X							X	X	X	X	
Iowa	2015										X	X	X		
Kansas	2015										X			X	
Kentucky	2012													X	
Louisiana	2016										X	X	X	X	X
Maine	2014										X	X	X	X	
Maryland	2018			X					X			X	X	X	
Massachusetts	2012			X					X			X		X	
Michigan	2012										X	X			
Minnesota	2018											X		X	
Mississippi	2017			X					X		X	X		X	
Missouri	2018			X							X	X		X	X
Montana	2014										X	X	X	X	
Nebraska	2017			X								X		X	
Nevada	2014										X	X		X	
New Hampshire	2016								X		X	X	X	X	X
New Jersey	2007										X	X		X	

State	Year Last Updated	Color, Concrete	Facing, Stone	Form Liner, Stone	Lighting, Bridge	Railing, Bridge	Rivet	Stamp/Stamping	Stone, Masonry	Wrought Iron	Artifacts	Archeology/Archaeology	Cultural Resources	Historic(al)	Human Remains/Burial
New Mexico	2014											X	X	X	
New York	2018								X			X		X	
North Carolina	2018								X			X	X	X	
North Dakota	2014										X		X	X	X
Ohio	2013										X	X	X	X	X
Oklahoma	2009										X	X		X	X
Oregon	2018										X	X	X	X	
Pennsylvania	2018								X		X	X		X	
Rhode Island	2013										X	X		X	
South Carolina	2007			X											
South Dakota	2015												X	X	
Tennessee	2015								X		X	X			X
Texas	2014											X	X	X	
Utah	2017										X	X	X	X	X
Vermont	2018								X		X	X		X	
Virginia	2016											X		X	X
Washington	2018			X					X		X	X		X	
West Virginia	2017										X	X		X	
Wisconsin	2018	X							X		X	X		X	X
Wyoming	2010											X	X	X	
Total		1	12	0	1	1	0	0	15	0	31	43	22	42	16

Appendix A: Standard Specifications by State Alabama

SECTION 107: LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.12 Protection and Restoration of Property, Landscape and Utility Facilities.

(a) PROPERTY AND LANDSCAPE.

The Contractor shall not enter upon private property for any purpose without permission first being obtained from the owners and lessees. The Contractor shall be responsible for preservation of all public and private property, utilities, monuments, highway signs, etc. on or adjacent to the highway. He shall not remove, injure, or destroy without proper authority trees or plants that are shown on the plans or ordered by the Engineer to remain on or adjacent to the right of way. The Contractor shall protect from disturbance all land markers until an authorized agent has witnessed or referenced the locations and shall not move them until directed. The Contractor shall notify the Engineer immediately upon discovery of artifacts or other articles of possible archeological value revealed by his operations, and shall carefully preserve them and prevent disturbance of the site until the Engineer has had opportunity to arrange appropriate disposal. Highway signs and markers shall be carefully removed as the grading operations progress and stored in a manner to keep them clean and dry.

When the work affects the foundation support of any building along the work, the Contractor shall give property owners and lessees direct and sufficient notice to support such buildings. The Contractor and his surety shall hold the State, the County, the Municipality, the Director, and the Engineer harmless from any damage resulting from undercutting any such buildings.

The Contractor shall be solely and exclusively responsible for any and all restoration, repair or replacement of public and private property due to, caused by, or as a result of any act, omission, negligence or misconduct of the Contractor. The Contractor shall provide an appropriate remedy as approved by the Engineer.

Failure on the part of the Contractor to satisfy the requirements given in this Subarticle, shall result in the Engineer affecting an appropriate remedy at the Contractor's expense. […]

SECTION 208 REMOVAL AND REINTERMENT OF GRAVES

208.01 Description.

This Section shall cover the services necessary to remove, disinter, and reinter graves or remains found within the limits of the highway right of way. The removal, disinterment, and reinterment shall be in compliance with all State, County, and/or City rules and regulations. Reinterment shall be in approved, established cemeteries or burial grounds.

The number of graves specified in the contract is approximate only; the actual number may vary and will depend upon a close investigation of the existing burial site during preliminary grading operations. Only the number of graves actually moved as directed will be paid for at the contract unit price, and no claim will be allowed for extra compensation due to overruns or underruns of the items provided under this Section.

208.02 Materials.

All materials furnished for use in connection with work under this item must be acceptable to the Engineer and suitable for the particular work with which it is associated.

208.03 Construction Details.

(a) GENERAL.

In areas where graves or cemeteries have been located or suspected, the Engineer may direct the Contractor to perform such clearing and grubbing, stripping or excavation work as may be deemed necessary in a manner which will allow an examination of the area to ascertain if all graves have been properly located. After the area has been checked and disinterment of the graves or remains properly accomplished, the Engineer will authorize the Contractor to commence full grading operations. Cost of any clearing and grubbing, stripping, and/or excavation to accomplish the above details shall be considered as a part of the type work under which it is performed, and no additional compensation will be considered.

(b) DISINTERMENT AND REINTERMENT.

The removal, disinterment, and reinterment of remains shall be performed under the supervision of a qualified undertaker licensed to practice in the State of Alabama.

The Contractor shall be responsible for obtaining all of the necessary permits required by State, County, or City Authorities prior to beginning work under this Section.

In addition, the following services are considered to be essential and a part of the requirements of this operation:

1. Providing for ministerial service at the place of disinterment and reinterment.
2. Furnishing of a grave space at an approved established burial ground, unless otherwise noted on the plans or proposal.
3. Providing for proper legal notices for disinterment and reinterment.
4. Providing for opening and closing of each grave at the place of disinterment and reinterment.
5. Providing for the displacement of the existing burial box or, in case deterioration of the original box has occurred, providing a satisfactory new burial box for the displacement of the remains.
6. Providing for the relocation of existing grave markers and/or monuments or, in case none exist, providing a granite grave marker of at least 20 inches {500 mm} by 10 inches {250 mm} by 4 inches {100 mm}.

SECTION 210: EXCAVATION AND EMBANKMENT

210.03 Construction Requirements.

(a) GENERAL.

[…]

When the Contractor's excavation operations encounter artifacts of historical or archeological significance, the operations shall be temporarily discontinued. When directed by the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation, unless otherwise provided, will be considered and paid for as extra work. […]

SECTION 812: MASONRY STONE

812.01 Masonry Stone.

(a) TYPE I MASONRY STONE.

Stone for coursed and uncoursed rubble masonry shall be of approved quality, sound, durable, and free from segregations, seams, cracks, and other structural defects or imperfections tending to destroy its resistance to stresses and the weather. It shall be free from rounded, worn, or weathered surfaces. All weathered stone shall be rejected. It shall be kept free from dirt, oil, or any other injurious material which may prevent the proper adhesion of the mortar. Unless otherwise provided or shown on the plans, individual stones shall have a thickness of not less than 6 inches {150 mm}. No stone having a horizontal dimension less than 12 inches {300 mm} or less than its thickness shall be used except for filling the interior of the wall.

(b) TYPE II MASONRY STONE.

This stone shall meet the requirements of Type I Masonry Stone above, except that the dimensions of the individual stones shall be 4 to 6 inches {100 to 150 mm} in depth and shall have a reasonably flat top surface of a width not less than 2 inches {50 mm} and length not less than the depth. All stones shall be inspected before and after laying and all rejected material shall be removed immediately from the work.

(c) TYPE III MASONRY STONE.

Stone for rustic masonry shall be rough quarried or field stone of varying sizes and shapes, suitable for the purpose intended and with no attempt made toward squaring or dressing.

Alaska

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107-1.07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. When the Contractor's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, shell heaps, land or sea mammal bones, tusks, or other items of historical significance, the Contractor shall:

1. Immediately cease operations at the site of the find;
2. Immediately notify the Engineer of the find; and
3. Not disturb or remove the finds or perform further operations at the site of the finds until directed by the Engineer.

The Engineer will issue an appropriate Change Order if the Engineer orders suspension of the Contractor's operations or orders the Contractor to perform extra work in order to protect an archaeological or historical find.

Arizona

SECTION 104: SCOPE OF WORK
104.12 Environmental Analysis:
[…]

(G) The archaeological survey of the proposed source prepared by a person with acknowledged credentials, which credentials shall be attached to the survey. The survey shall be prepared in a State Historic Preservation Office standardized format. The survey shall identify cultural resources within the potential impact area of the materials source processing area, and haul road. Additionally, the survey report shall identify historic or archaeological sites in the vicinity. […]

SECTION 107: LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:
107.05 Archaeological Features:

The attention of the contractor is directed to Title 41, Article 4, Archaeological Discoveries, Sections 41-841, et seq., of the Arizona Revised Statutes, which make it a felony, punishable by a fine and imprisonment, to investigate, explore or excavate on State land, in or on prehistoric ruins, ancient burial grounds, fossilized footprints, hieroglyphics and all other archaeological features of Arizona without permits from the Arizona State Museum.

Section 6(a) of the Federal Archaeological Resources Protection Act of 1979 specifies that no person may excavate, remove, damage or otherwise alter or deface any archaeological resource located on public (Federal) lands or Indian lands unless such activity is pursuant to a permit issued under Section 4 of the Act. Violations of this act are considered a felony and are punishable by fine and imprisonment.

Although the Department will make every effort prior to construction to identify all cultural resources in a project area, previously unidentified archaeological materials could be found during the construction of the project. When archaeological, historical or paleontological features are encountered or discovered during any activity related to the construction of the project, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those features and notify the Engineer.

The Engineer will direct how to protect the features. The contractor shall not resume work until it is so directed by the Engineer. In the event of a suspension of work pursuant to this clause, the contractor shall refer to the provisions of Subsection 104.02.

107.06 Historic Preservation:

The attention of the contractor is directed to Title 41, Chapter 4.2, Historic Preservation, Section 41-861 et seq., Arizona Revised Statutes, which makes it a felony to intentionally possess, sell or transfer any human remain, funerary object or other artifact.

Although the Department will make every effort prior to construction to identify all items that require Historic Preservation in a project area, previously unidentified human remains, funerary objects, or artifacts may be found during the construction of the project. When human remains or funerary objects are encountered or discovered during any activity related to the construction of a project, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those items and notify the Engineer.

The Engineer will direct how to protect the items. The contractor shall not resume work until it is so directed by the Engineer. In the event of a suspension of work pursuant to the clause, the contractor shall refer to the provisions of Subsection 104.02.

SECTION 1001: MATERIAL SOURCES

1001-4.01 Approval Requirements:

(C) Historical and Cultural Resources:

If the Department determines that the proposed use will have major adverse impact on cultural or historic resources, the Department will not allow the use of the source.

Arkansas

SECTION 107: LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC:

107.10 Restraining Conditions

(a) General.

A "restraining condition" is defined as a condition and/or material that is, or can reasonably be suspected of being:

- Archeologically or historically significant.
- Environmentally sensitive.
- Hazardous substances or waste.

(1) Archeologically or historically significant sites may contain artifacts or the remains of prehistoric/historic people's dwelling sites. The determination of archeological or historical significance will be made by the Department in coordination with the appropriate authorities.

(2) Environmentally sensitive conditions include, but are not limited to, wetlands, caves, underground streams, and habitats of threatened or endangered species.

(3) Hazardous substances or waste are defined as: any chemical or biological element, compound, mixture, solution, or substance that, when released to the environment, may present substantial danger to public health or welfare or to the environment.

Potentially hazardous substance or waste sites may include, but are not limited to: tanks, drums, containers, and packages (with or without hazardous materials labels), plus any liquids or solids not typical in color, odor, or texture to the native soils or strata of the site. Any indication that the area was a dump site or landfill shall constitute a reason to stop work in that area until a determination can be made as to whether hazardous materials exist.

(b) Restraining Conditions Within the Right-of-Way

Known restraining conditions within the right-of-way will be shown on the plans and any special work requirements in the vicinity of such conditions shall be shown on the plans or included in the Contract.

When any restraining condition not shown on the plans is encountered, work in that area will stop and the Engineer shall be notified immediately. Work in that area shall not resume until the condition has been investigated, a determination made as to the disposition of the condition, and clearance to continue has been obtained.

(c) Restraining Conditions Outside of the Right-of-Way.

(1) Commercially Operated Site.

The term "commercially operated site" is defined as a pit or quarry from which material is obtained that has served the general public for purposes other than Department projects for more than one year and has furnished materials to the general public for purposes other than Department projects during the twelve month period immediately preceding the execution of the Contract.

The Contractor is advised that the owner/operator of the site has the responsibility to obtain clearances and ensure compliance with all Federal and State laws regarding the above restraining conditions.

(2) Non-commercially Operated Site. The Contractor shall notify the Engineer of the location of all proposed off-site locations, including borrow pits, waste areas, haul roads, equipment and materials storage areas, field offices, etc., prior to starting any site preparation in these areas. This notification shall include detailed information which will enable Department personnel to locate the site on the ground, and include a 7.5 minute topographic quadrangle or equivalent map showing the location and limits of the proposed off-site location. The limits of the off-site location shall be clearly and visibly flagged for easy recognition. Within 10 business days after notification by the Contractor, the Department will:

- Investigate for the presence of archeologically or historically significant sites. If no evidence is found of archeological/historical materials during the initial visual survey, the site will be conditionally approved, and
- Investigate for the presence of environmentally sensitive conditions. If no evidence is found the site will be conditionally approved.
- After Restraining Condition conditional approval has been given to the Contractor, the Department will provide the Contractor with an Endangered Species Clearance. This clearance may be used by the Contractor to obtain his NPDES Permit for the off right-of-way site.

The Contractor is responsible to carefully investigate off right-of-way sites to ensure the absence of hazardous materials or wastes.

If the site is determined to involve a restraining condition, no work in that area will be permitted. Any site preparation prior to conditional approval will cause the site to be rejected. The Contractor will not be reimbursed for work done prior to conditional approval.

If a restraining condition is discovered the Contractor may, at no cost to the Department, acquire approval for use of the site from the appropriate authorities. All sites that have been rejected because of prior site preparation are ineligible for clearance. All clearances or permits obtained by the Contractor regarding the dismissal of the restraining conditions shall be submitted to the Engineer for approval before site preparation begins.

If a restraining condition is discovered after operations have begun, work in the area of the restraining condition shall stop and the Engineer shall be notified immediately. Work in that area shall not resume until the condition has been investigated, a determination made as to the disposition of the condition, and clearance to continue has been obtained. If no further work is permitted at the site due to the restraining condition, the site shall be closed and the area dressed and restored under Sections 106 and 110 to the extent practicable without interfering with the disposition of the condition.

The following Special Provisions examples were supplied by Kristina U. Boykin, Lead Cultural Resources Specialist at the Arkansas Department of Transportation

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

August 14, 2009

Mr. George McCluskey
Section 106 Review Officer
1500 Tower Building
323 Center Street
Little Rock, Arkansas 72201

Re: AHTD Job Number 040411
Hwy. 62 Bypass (Prairie Grove)
W County

Dear Mr. McCluskey:

The noted project has a relatively long and somewhat confusing history and the following letter has been prepared to make the continuing review process a little clearer. The Phase I archeological survey was conducted by Michael Baker Jr. Inc. and the draft report was submitted to your office for review on February 20, 2007. Your review letter of April 9, 2007 concurs with the results of the archeological survey which recommended Phase II testing of archeological site 3WA1383. You did not concur with the results of the landscape analysis and suggested that a screen of vegetation and trees be planted to reduce the adverse visual and audible effects that the project may have on Prairie Grove Battlefield State Park.

Since the initial survey, comments received during the Public Hearing resulted in a slight alignment shift of a portion of the project. This shift resulted in the need for new right of way that had not been covered during Baker's initial survey. Staff archeologists Chris Branam and Milton Hughes surveyed the new right of way and prepared an addendum report that was submitted to your office on April 28, 2009. Survey methodology was consistent with that used by Baker and included a metal detector survey as well as standard shovel testing. No additional sites were found.

Chris and Milton also conducted Phase II testing at site 3WA1383 as recommended in Baker's initial testing report. A report containing the results of the testing was submitted to your office on July 20, 2009 and contained a recommendation of no further work.

The attached plan for a vegetative screen should be the final phase of the Section 106 documentation and should allow you to proceed with final project review. The attached plan was developed in consultation with State Parks. As you requested in your initial review letter, it is designed to reduce the visual and noise effects that the project may have on Prairie Grove Battlefield State Park.

If carried out, the plan should be sufficient to allow for a finding of no adverse effect. If acceptable, the plan along with the two previously documented surveys and the Phase II testing should complete the Section 106 process for the project. If you have any questions or need any additional information please do not hesitate to call John Miller of my staff at 501 569 2283.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

Enclosure

LPM:JM

AHTD Job Number 040411

Highway 62 Mitigation at Prairie Grove State Park

In order to mitigate for viewshed impacts to Prairie Grove Battlefield State Park, the Arkansas State Highway and Transportation Department is submitting a screening proposal incorporating native plantings. This proposal has been developed in consultation with State Parks. All plantings will occur on park property and will become the responsibility of the park after completion. Figure 1 illustrates the areas of the park to be planted. Figure 2 illustrates a cross-section of the Planting One area.

Trees and shrubs of the species below are to be planted in the area marked as Planting One. All tree saplings shall have a trunk that is 1.5 inches or greater in diameter, be 6-8 feet in height, and grown in a minimum container size of five gallons or balled and burlapped. Shrubs shall be at least two feet in height and grown in a minimum container size of five gallons.

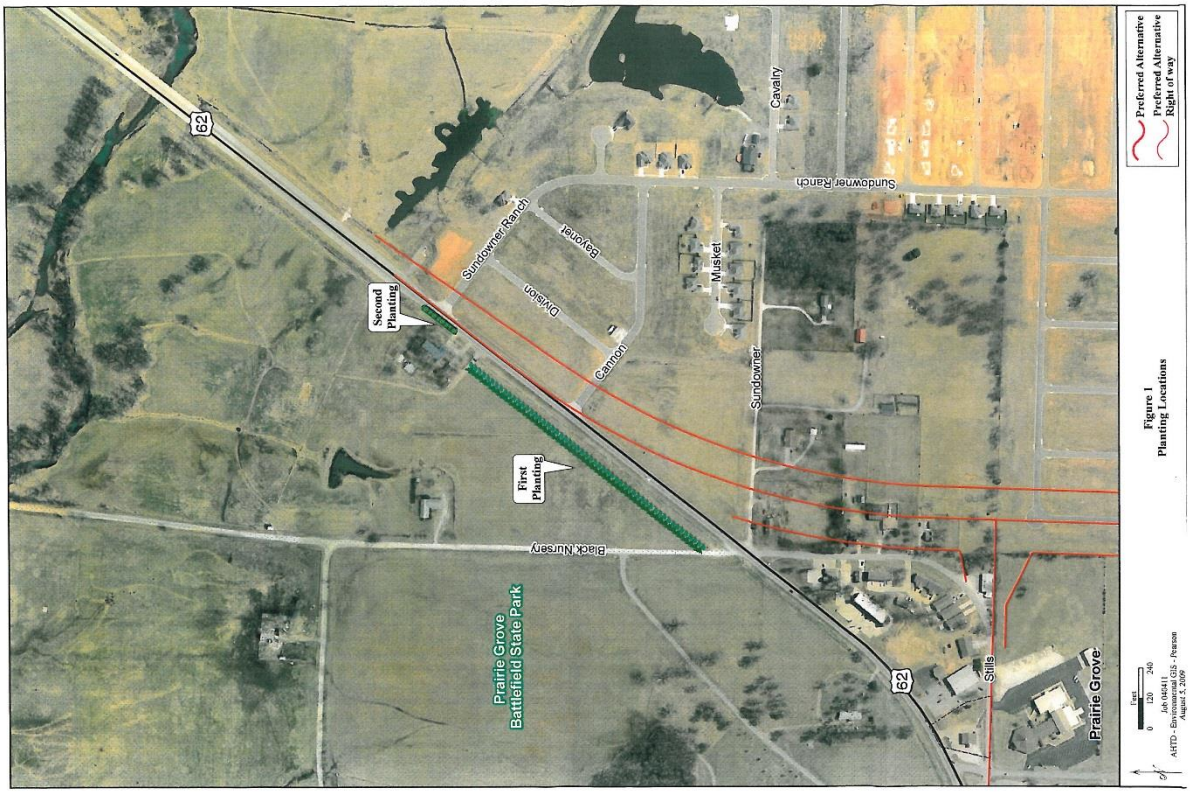
Species Common Name	Scientific Name
Evergreen trees (back row):	
Shortleaf Pine	(*Pinus ecinata*)
Deciduous trees (center row):	
White Oak	(*Quercus alba*)
Northern Red Oak	(*Quercus rubra*)
Sugar Maple	(*Acer saccharum*)
Black Walnut	(*Juglans nigra*)
Pecan	(*Carya illinoinensis*)
Sweet Gum	(*Liquidambar styraciflua*)
Deciduous trees (front row, closest to highway):	
Eastern Redbud	(*Cercis canadensis*)
Yellow Wood	(*Cladrastis kentuckea*)
White Flowering Dogwood	(*Cornus florida*)
Shrubs (distributed under deciduous trees)	
Fragrant Sumac	(*Rhus aromatica*)
Black Haw	(either *Viburnum rufrididum* or *V. prunifolium*)
Yaupon holly	(*Ilex vomitoria*)
Deciduous Holly or Possum Haw	(*Ilex decidua*)

Shrubs of the species and sizes listed above are to be planted in the area marked as Planting Two.

If plant materials are not available at the time of planting, the Engineer will select substitutions using other plants on the species list.

Reseeding of the area disturbed by planting trees and shrubs in the State Park will use the following native grasses and wildflowers.

Common Name	Scientific Name
Big bluestem	*Andropogon gerardii*
Little bluestem	*Schizachyrium scoparium*
Indian grass	*Sorghastrum nutans*
Purple coneflower	*Echinacea pupurea*
Black-eye Susan	*Rudbeckia hirta*
Showy evening primrose	*Oenothera speciosa*
Lanceleaf coreopsis	*Coreopsis lanceolata*



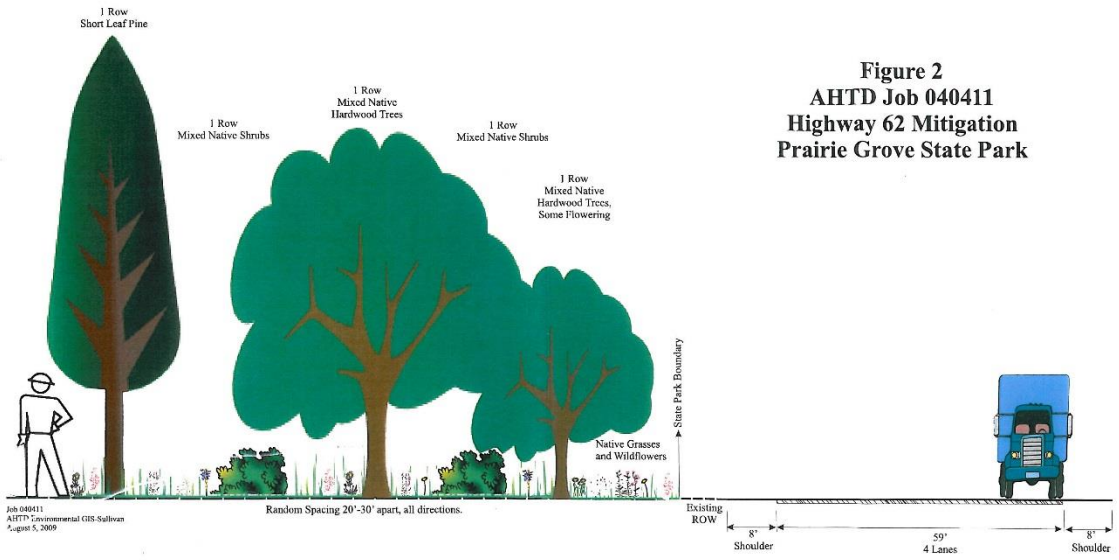


Figure 2
AHTD Job 040411
Highway 62 Mitigation
Prairie Grove State Park

ARKANSAS DEPARTMENT OF TRANSPORTATION
ArDOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2000

INTEROFFICE MEMORANDUM

April 23, 2018

TO: Trinity D. Smith, Engineer of Roadway Design
Perry Johnston, Division Head, Right of Way

FROM: John Fleming, Division Head, Environmental Division

SUBJECT: Special Provisions
Job Number 061508
I-30 – Alcoa Rd. (Benton) (S)
Saline County

Attached are the following Special Provisions for the referenced project: Historic Property Monitoring, Limitation of Vibratory Equipment and Restraining Conditions. Please ensure these documents are incorporated into the project plans. Any questions should be directed to Kristina Boykin at 2079.

JF:DW:KB:ym

Attachments
Historic Property Monitoring Special Provision
Limitation of Vibratory Equipment Special Provision
Restraining Conditions Special Provision

c: Construction
Program Management
Right of Way
District 6 Engineer
Master File

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 061508

HISTORIC PROPERTY MONITORING

Description. Monitoring of the historic property for this project is required by the Arkansas Historic Preservation Program; therefore, an ARDOT cultural resources staff member must be present during any construction activities between Stations 49+57 to 53+14 Left. In addition the presence of an ARDOT cultural resources staff member is required at the pre-construction and post-construction surveys of the historic property as noted in the Limitation of Vibratory Equipment Special Provision. Notification of these planned activities within the noted area must be sent two weeks prior to any construction activities through the Engineer to the email address EnvironmentalClearance@arkansashighways.com.

Contractor Compliance. Potential damages to the historic property will be addressed by Section 107.10(e) and Section 107.12 of the Standard Specifications for Highway Construction, Edition of 2014.

Contractor Negligence. The Contractor will be assessed the amount of any and all fines and penalties assessed against and costs incurred by the Department which are the results of the Contractor's failure to comply with the notification required by this Special Provision. The Department will not be responsible for any delays or costs due to the Contractor's failure with this Special Provision. The Contractor will not be granted additional compensation or contract time due to noncompliance.

Method of Measurement and Basis of Payment. All costs incurred in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 061508

RESTRAINING CONDITIONS

Section 107.10 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added to **Section 107.10 (b) and (c)**:

A restraining condition is located adjacent to the right-of-way from Stations 49+57 to 53+14 Left, as shown on page 2 of this Special Provision.

All construction activity related to the use of vibratory equipment within the existing right-of-way at this specified location should be limited and follow the Limitation of Vibratory Equipment and Historic Property Monitoring Special Provisions.

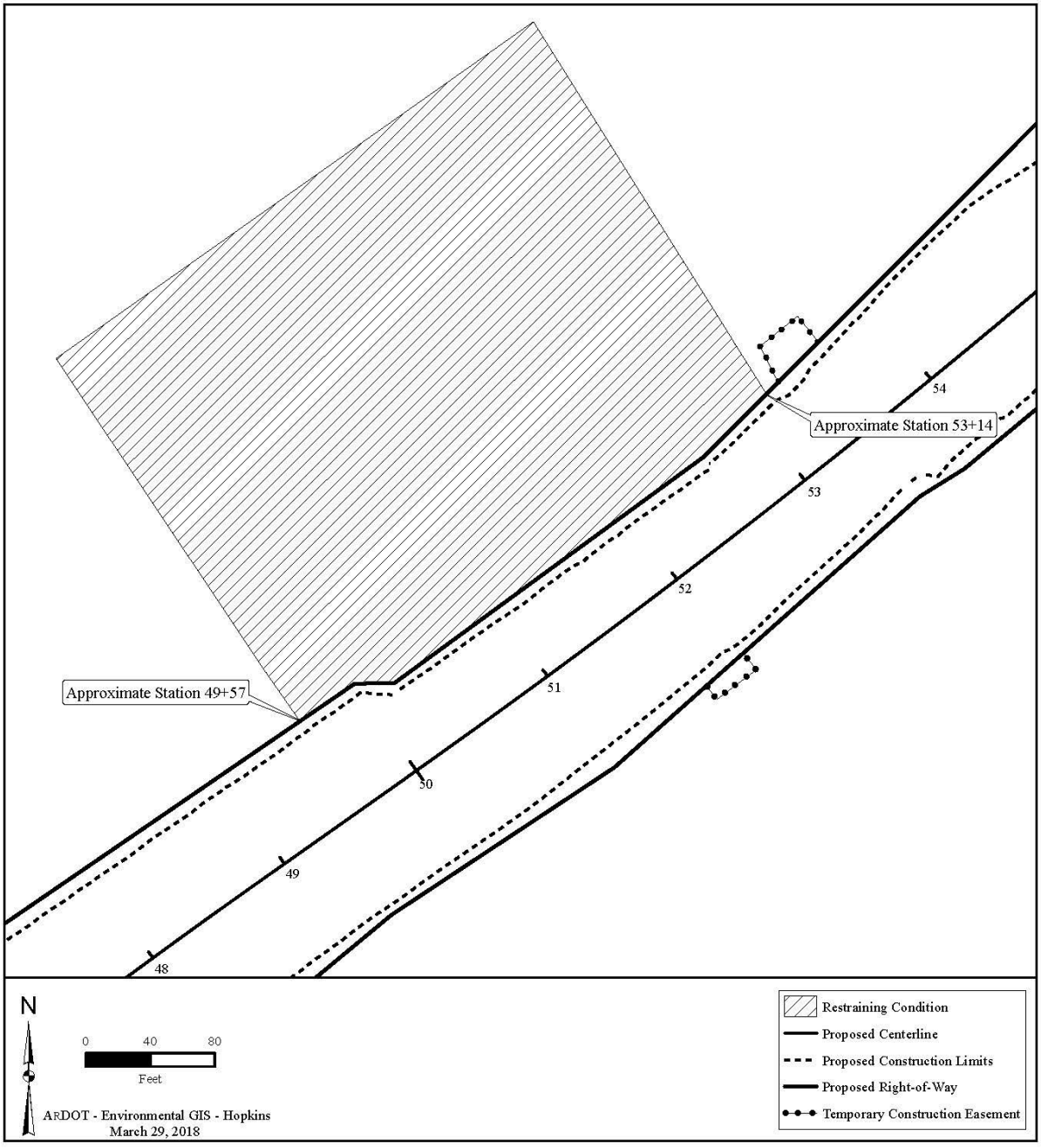
All construction activity adjacent to the right-of-way within this specified location to include utility relocation, the stockpiling and wasting of material, the driving and staging of equipment, and any other off-site activities, must be avoided.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 061508

RESTRAINING CONDITIONS



ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 061508

LIMITATION OF VIBRATORY EQUIPMENT

General. The Contractor is advised of the presence of a historic property located adjacent to the right-of-way between Stations 49+57 and 53+14 Left. The historic property is also marked as a Restraining Condition in accordance with Section 107.10 (a) of the Standard Specifications for Highway Construction, 2014. The Contractor shall take appropriate measures to limit the use of equipment which produces excessive vibration, including vibratory rollers, in construction operations in the vicinity of the area in order to minimize any detrimental effects. The Contractor will closely monitor the historic property to ensure that no damage occurs. The reduced use of such equipment will not waive any other specifications or the density requirements for earthwork, aggregate base courses, or ACHM paving in the vicinity of the structure.

Pre-construction Survey. The Contractor shall perform a pre-construction survey to document the existing conditions of the historic property, including the earthern cellar beneath the structure. A copy of the survey shall be submitted to the Engineer for information and documentation purposes only.

Vibratory Plan. A plan for limiting the use of vibratory equipment in the vicinity of the historic property described above must be submitted to the Engineer by the Contractor a minimum of 10 business days prior to beginning of construction in the area. The plan shall contain full details of the vibratory equipment patterns and controls the Contractor proposes to use and shall be submitted to the Engineer for information and documentation purposes only. The Contractor shall be responsible for the accuracy, adequacy, and results obtained when the plan is implemented in the field and for any damages in accordance with Section 107.10(e) and Section 107.12 of the Standard Specifications for Highway Construction, 2014.

Post-construction Survey. The Contractor shall conduct a post-construction survey of the historic property after construction is complete. The Contractor shall be responsible for repairing damages shown on the post-construction survey and settling any damage claims resulting from vibration impacts to the historic property during construction at no cost to

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. 061508

LIMITATION OF VIBRATORY EQUIPMENT

the Department. A copy of the post-construction survey shall be submitted to the Engineer for information and documentation purposes only.

Payment. No direct payment will be made for fulfilling the requirement of this Specification, including the Contractor's pre-and-post construction surveys and monitoring, but full compensation will be considered included in the contract unit prices bid for the various items of the Contract.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTEROFFICE MEMORANDUM

June 7, 2016

TO: David Bushey, Resident Engineer, District 9
Mitchel Archer, District Construction Engineer, District 9
David Henning, State Construction Engineer

FROM: John Fleming, Division Head, Environmental Division

SUBJECT: AHTD Job Number 090373
Hwy. 264 – Pleasant Grove Rd. (S)
Benton County
Archeological Monitoring and Restraining Conditions Special Provision

A Special Provision detailing avoidance measures of a Restraining Condition located between Station 408+10 and Station 409+10 Left and required archeological monitoring is attached for this project. This is to inform you that:

1. The demolition and removal of the structure at Station 480+50 Left must be monitored by an archeologist.
2. The demolition and removal of the structure must be conducted in a way that avoids any ground disturbing activities behind or south of the house.

If you have any questions, please contact Diana Wilks at 2283.

JF:DW:MH:ym

05/4/2016

Rev. 06/7/2016

ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT

SPECIAL PROVISION

JOB NO. 090373

ARCHEOLOGICAL MONITORING AND RESTRAINING CONDITION

DESCRIPTION. Archeological monitoring of the demolition and removal of the structure located between Stations 408+40 Left and 409+00 Left is required; therefore an AHTD staff archeologist will be present during any earth disturbing demolition activity that occurs in the designated area. Notification of the planned activities shall be sent through the Engineer to the email address EnvironmentalClearance@arkansashighways.com two weeks prior to any anticipated work or ground disturbing activities.

CONSTRUCTION METHODS. No earth disturbing activity, including the movements of or staging of equipment shall occur behind or south of the structure. All work associated with the removal of the structure shall take place from the work area shown on the figure on Page 2 of this Special Provision. A trackhoe shall be utilized to pull the structure down without causing significant subsurface disturbances under the structure.

CONTRACTOR NEGLIGENCE. The Contractor will be assessed the amount of any and all fines and penalties assessed against and costs incurred by the Department that are the result of the Contractor's failure to comply with the notification required by this Special Provision. The Department will not be responsible for any delays or costs due to the Contractor's failure to comply with this special provision. The Contractor will not be granted additional compensation or contract time due to noncompliance.

05/4/2016

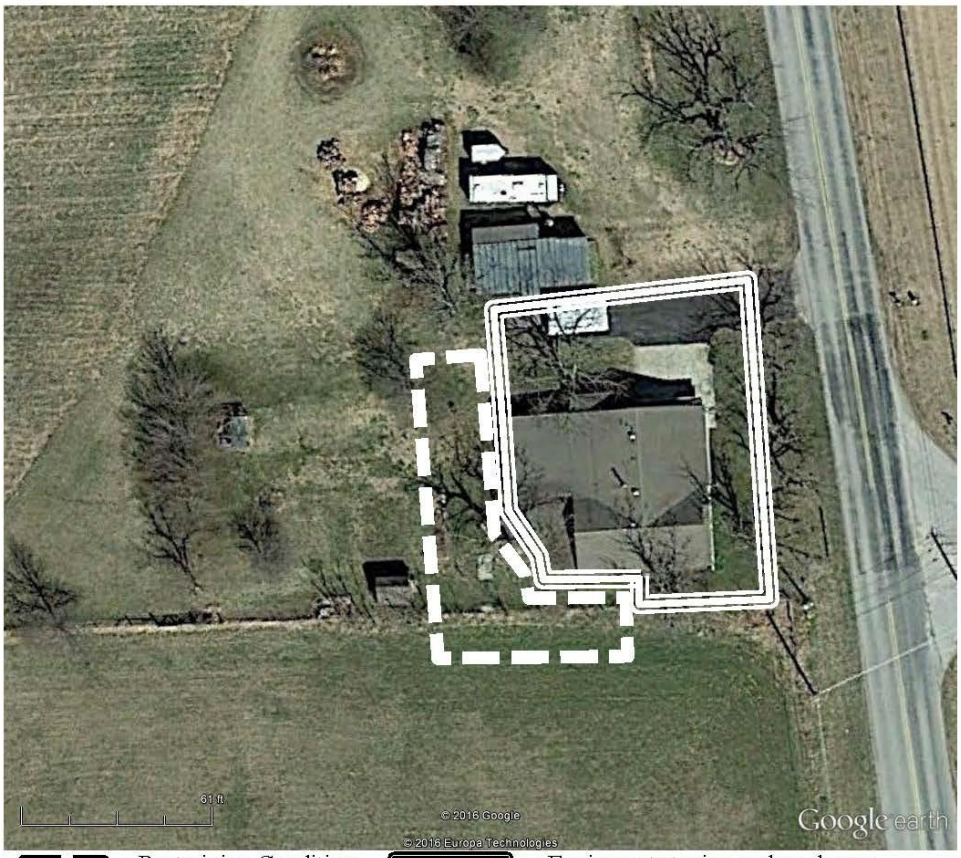
Rev. 06/7/2016

ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT

SPECIAL PROVISION

JOB NO. 090373

ARCHEOLOGICAL MONITORING AND RESTRAINING CONDITION



: Restraining Condition : Equipment staging and work area.

Figure 1. Allowed work area and Restraining Condition footprint.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTER OFFICE MEMORANDUM

August 27, 2012

TO: Trinity D. Smith, Engineer of Roadway Design
Mike Sebren, State Construction Engineer, Construction Division
Ray Woodruff, District Engineer, District One

FROM: Lynn P. Malbrough, Division Head, Environmental Division

SUBJECT: AHTD Job Number 110502
Cypress Corner – North
Lee County
Special Provision for Potential Burials in ROW at Pilgrim Cemetery

While conducting a cultural resources survey for the referenced project, evidence was found that would suggest the presence of human burials in the roadway ditch between Station 239+00 to Station 245+00 Left. Currently, no excavation activity is anticipated to take place outside of the existing roadway ditch on the left (west) side of the highway between these two stations. This area should be marked with a restraining condition on the plans.

Although no evidence was found to indicate that human burials are located under the existing roadway, there is a potential for burials to be present. Therefore, archeological monitoring will be required between the noted stations during construction activities.

Following the removal of the roadway surface pavement, a smooth blade bucket and operator will be needed in order to create a smooth surface to determine if burials or burial shafts can be under the highway. If burials or evidence of burials is encountered, the project will be halted, the county sheriff and coroner will be called, and the procedures outlined in Arkansas Burial Laws (Act 753 and Act 1533 [1991/1999]) will be followed.

A special provision for Archeological Monitoring is attached for your review and comments. Please review and return comments or questions to Brenda Price.

LPM:BP:ad

Attachment
Archeological Monitoring Special Provision

ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT

SPECIAL PROVISION

JOB NUMBER 110502

ARCHEOLOGICAL MONITORING

DESCRIPTION: Archeological monitoring of a segment of this project is required by the Arkansas Historic Preservation Program; therefore an AHTD staff archeologist must be present during any ground disturbing activity between Stations 239+00 and 245+00. Notification of these planned activities within the noted area must be sent two weeks prior to any anticipated earth disturbing activities through the Engineer to the email address EnvironmentalClearance@arkansashighways.com.

Pilgrim Cemetery is located between Stations 239+00 and 245+00 Left and evidence of human internments has been found in the existing highway ditch. There is also the potential for burials to be present underneath the existing highway. Therefore, archeological monitoring is required during all phases of construction between the noted stations. Following the removal of the roadway surface pavement, the Contractor shall have on-site an operator and equipment with a smooth-blade bucket in order to create a smooth surface to determine if burials, burial shafts or associated burial furniture can be identified under the highway.

If burials or evidence of burials is encountered, the project will be halted, the county sheriff, coroner and the Arkansas Historic Preservation Program will be notified, and the procedures outlined in the Arkansas Burial Laws (Act 753 and Act 1533 [1991/1999]) will be followed.

CONTRACTOR COMPLIANCE. Potential discoveries on the Right-of Way will be addressed by Section 107.10 (b) & (d)1 of the Standard Specification for Highway Construction, 2003 Edition. Refer to Section 104.02 (c) Differing Site Conditions for information related to potential changes in site conditions.

CONTRACTOR NEGLIGENCE. The Contractor will be assessed the amount of any and all fines and penalties assessed against and costs incurred by the Department which are the result of the Contractor's failure to comply with the notification required by this Special Provision. The Department will not be responsible for any delays or costs due to the Contractor's failure to comply with this special provision. The Contractor will not be granted additional compensation or contract time due to noncompliance.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT. All costs incurred in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTEROFFICE MEMORANDUM

February 24, 2016

TO: David Mayo, Jr., Engineer of State Aid Division

FROM: John Fleming, Division Head, Environmental Division JF

SUBJECT: AHTD Job Number BR7208
West Fork White River (Woolsey) Str. & Apprs. (S)
Washington County
Removal of Historic Bridge No. 17320 Special Provision

The attached special provision is proposed for use on the referenced project for removal of the two truss spans for re-use by the City of West Fork. Please ensure these documents are incorporated into the project plans. Any questions should be directed to Nikki Senn at 2979.

JF:DW:NS:ym

Attachment
Removal of Historic Bridge No. 17320 Special Provision

c: Construction
Programs and Contracts
District 4 Engineer
Master File

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

SPECIAL PROVISION

JOB NO. BR7208

REMOVAL OF HISTORIC TRUSS SPANS OF BRIDGE NO. 17320

This special provision governs the dismantling and transporting of the existing two 150 feet long historic steel through truss spans of Bridge No. 17320 in accordance with the plans, Section 205 of the standard specifications, and this special provision. The Contractor shall dismantle the bridge as approved by the Engineer and in such a manner that the trusses retain structural integrity for transport to the City of West Fork for reassembly at a later date.

The fourth paragraph of **Subsection 205.02 Construction Requirements** shall be deleted and the following substituted therefore:

> When specified on the plans as "salvage for re-erection," all materials of serviceable quality shall remain the property of the Owner. Pins, bolts, nuts, washers, and other metal parts shall be placed in well-sealed boxes. The Contractor shall dismantle the truss spans into the largest sections practical for transport. Structural members of truss spans shall be match marked and the distance center to center of shoes shall be accurately measured and marked on the lower chord before dismantling. The floor beams and bottom lateral bracing shall be removed from the truss for storage and reuse. Dismantling of the truss spans by using a torch will not be permitted on any member other than rivets or bolts. Care shall be exercised to avoid damaging or destroying any member or part of the truss spans in dismantling the structure. Any member rendered unfit for further use through the negligence of the Contractor shall be replicated at no cost to the Department.
>
> The Contractor shall transport, deliver, and unload all associated truss pieces to the City of West Fork recycling facility on Campbell Road for storage and later reassembly by the City at Riverside Park. Scheduling of the transport and delivery shall be coordinated through the Engineer with Charles Rossetti, Mayor of the City of West Fork at 479-839-3434.

The first paragraph of **Subsection 205.4 Basis of Payment** shall be deleted and the following substituted therefore:

> Work completed and accepted and measured as provided above will be paid at the contract lump sum price bid for Removal of Existing Bridge Structure (Site No. 1), which price shall be full compensation for salvaging the existing truss spans for later re-erection, for transportation, delivery and unloading, and for furnishing all labor, equipment, tools, and incidentals necessary to complete the work.

ARKANSAS DEPARTMENT OF TRANSPORTATION
ArDOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2000

INTEROFFICE MEMORANDUM

May 21, 2018

TO: Trinity D. Smith, Engineer of Roadway Design
Perry Johnston, Division Head, Right of Way

FROM: John Fleming, Division Head, Environmental Division

SUBJECT: Job Number CA0203
Louisiana State Line – Hamburg (Widening) (S)
Route 425/82, Sections 1 & 8
Ashley County

Please ensure the restraining conditions adjacent to the proposed ROW from Station 216+90 to 219+00 Right and Station 419+60 to 423+60 Right (see attached map) be marked on the plans in accordance with Section 107.10(b) of the Standard Specifications for Highway Construction, 2014 Edition. All construction activity within this specified location, including the staging of equipment and utility relocation, must be avoided. Barrier fencing will be required along these segments of ROW to prevent accidental impacts to these areas. This memo supersedes any prior memos. Any questions should be directed to me.

JF:DW:MH:ym

Attachment
Restraining Condition Special Provision

c: Construction
District 2 Engineer
Keli Wylie–CAP Administrator
Master File

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0203

RESTRAINING CONDITIONS

Section 107.10 of the Standard Specifications for Highway Construction, Edition of 2014 is hereby amended as follows:

The following is added to **Section 107.10(b)**:

DESCRIPTION. Restraining conditions are located adjacent to the right-of-way from Station 216+90 to 219+00 Right and from Station 419+60 to 423 +60 Right as shown on pages 2 and 3 of this Special Provision. The contractor shall not utilize these areas for any off-site activities. The contractor is required to install plastic barrier fencing to protect these locations from accidental impacts.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT. All costs incurred in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.

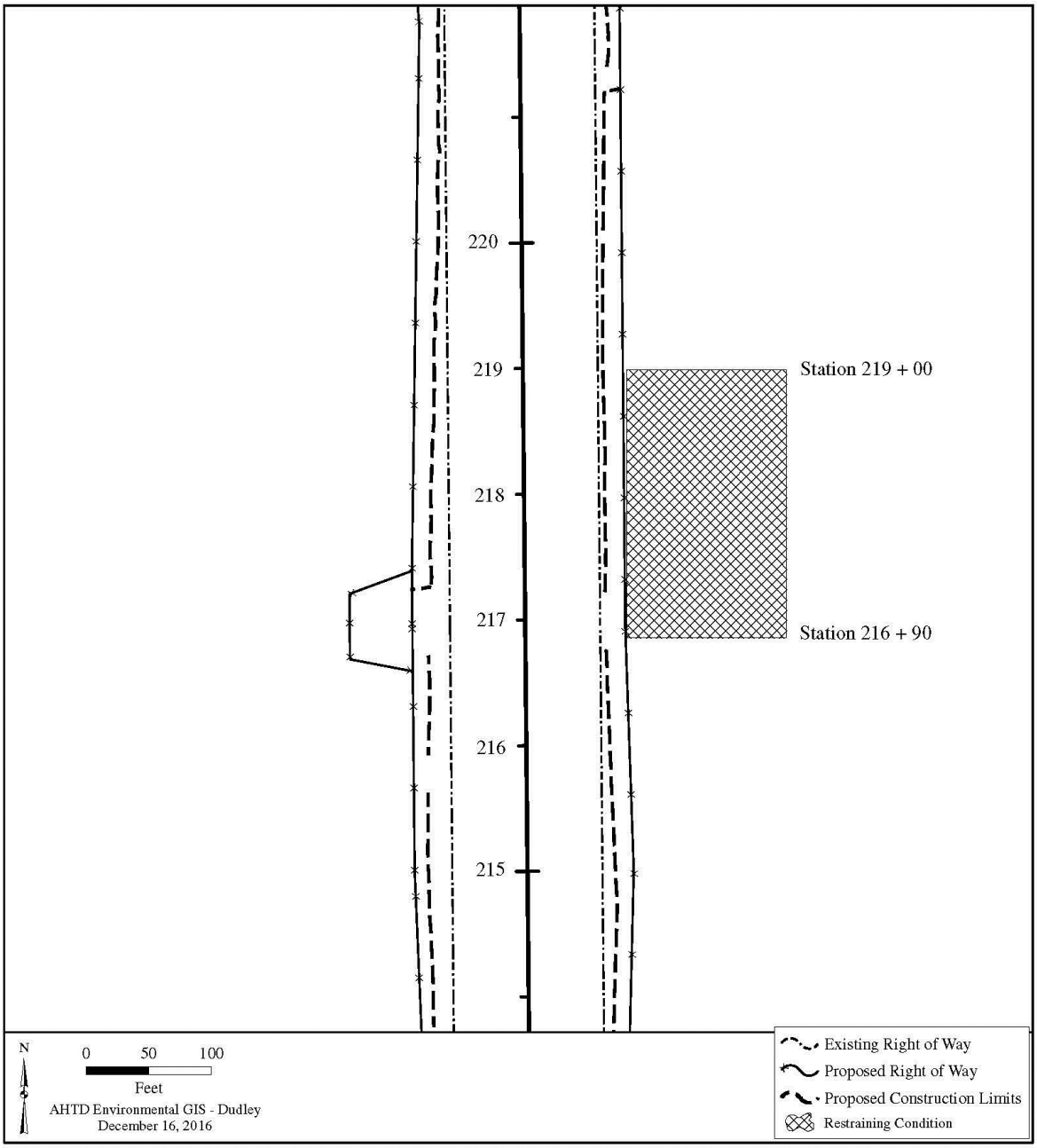
04-12-18
05-21-18 Rev.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0203

RESTRAINING CONDITIONS



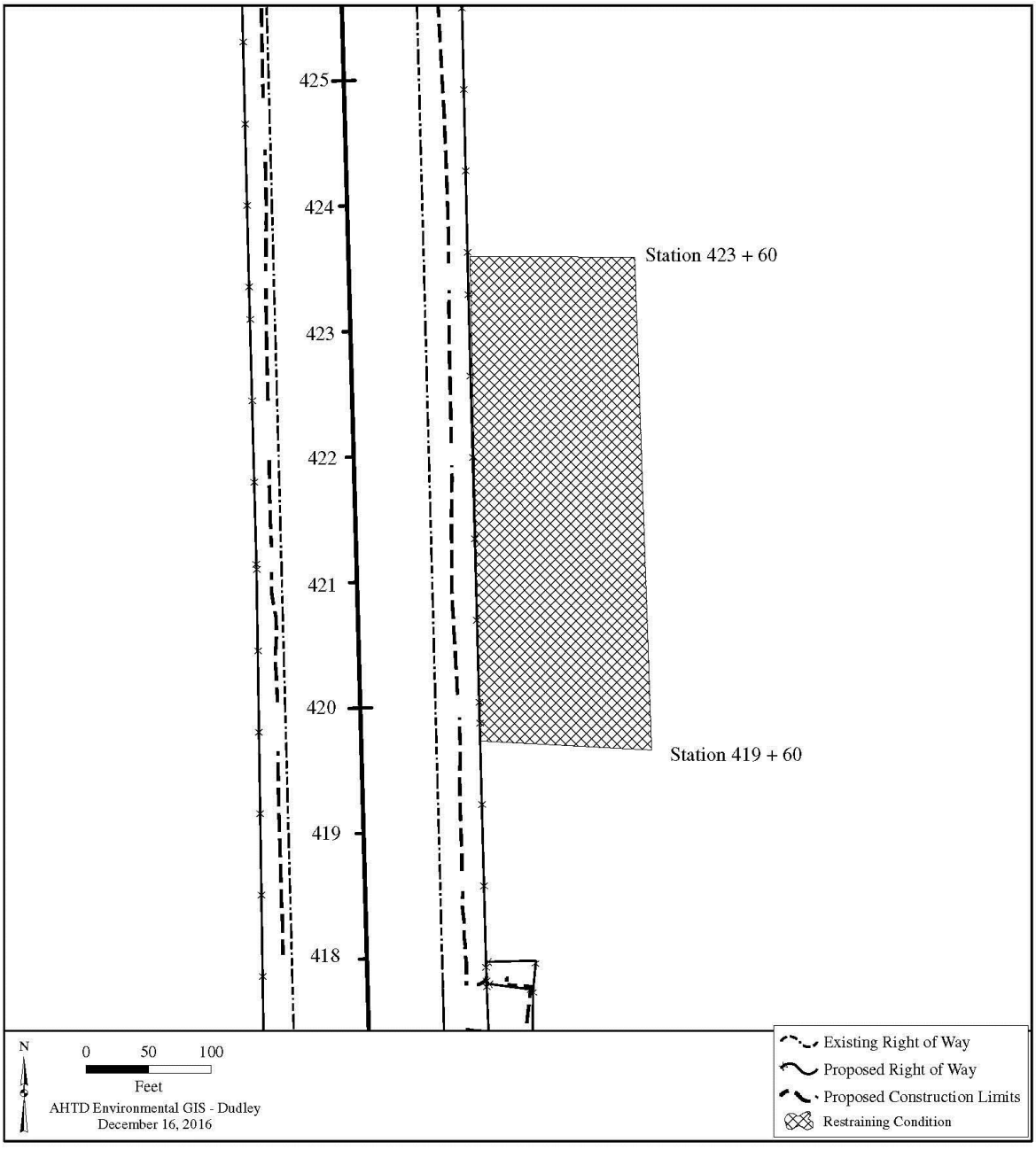
04-12-18
05-21-18 Rev.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. CA0203

RESTRAINING CONDITION



ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTEROFFICE MEMORANDUM

December 2, 2014

TO: Trinity D. Smith, Engineer of Roadway Design

FROM: John Fleming, Division Head, Environmental Division

SUBJECT: AHTD Job Number CA0907
Hwy. 112 – I-49 (S)
Benton County

Attached is a revised Construction Delay Due to Archeological Mitigation Special Provision for the referenced project. Please ensure this document is incorporated into the project plans. Any questions should be directed to Diana Wilks at 2283.

JF:DW:jh

Attachment
Construction Delay Due to Archeological Mitigation Special Provision

c: Construction
Program Management
CAP Program Administrator
District 9 Engineer
Job File

7/15/2014

(Rev 12/02/14)

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

SPECIAL PROVISION

JOB CA0907

CONSTRUCTION DELAY DUE TO ARCHEOLOGICAL MITIGATION

All earth disturbing activities in or adjacent to the right-of-way from Station 580+38 to 589+00 may be delayed until June 30, 2016 to allow for the completion of archeological investigations in the area.

The Contractor shall not be allowed to perform earth disturbing activities within this area until use of the area has, in fact, been extended to the Contractor in writing by the Engineer.

If there is a delay in allowing use of the area beyond June 30, 2016 that affects the Contractor's prosecution of the work, an equitable extension of contract time will be granted to the Contractor. No claim for extra compensation will be allowed, however, because of such delay.

BASIS OF PAYMENT: There will be no direct payment made for fulfilling the requirements of this Special Provision, but compensation shall be included in the price bid for the various contract items.

California

SECTION 14: ENVIRONMENTAL STEWARDSHIP

14-2 CULTURAL RESOURCES

14-2.02 DEFINITIONS

archaeological monitoring area: Area within or near construction limits where access is allowed but work is subject to archaeological monitoring.

archaeological resources: Remains of past human activity, including historic and prehistoric material such as tools and tool fragments, hearth and food remains, structural remains, and human remains.

14-2.03 ARCHAEOLOGICAL RESOURCES

14-2.03A General

If archaeological resources are discovered within or near construction limits, do not disturb the resources and immediately:

1. Stop all work within a 60-foot radius of the discovery
2. Secure the area
3. Notify the Engineer

The Department investigates the discovery. Do not move archaeological resources or take them from the job site. Do not resume work within the radius of discovery until authorized.

If ordered, furnish resources to assist in the investigation or recovery of archaeological resources. This work is change order work.

14-2.03B Archaeological Monitoring Area

If an archaeological monitoring area is shown within, near, or straddling the job site, the boundaries shown are approximate.

The Department assigns an archaeological monitor to observe work activities within the archaeological monitoring area. Do not work within the area unless the archaeological monitor is present.

The Engineer and the archaeological monitor will conduct a field review with you at least 5 business days before the start of job site activities. The Department marks the exact boundaries of the archaeological monitoring area on the ground.

If a high-visibility fence is shown, install it or other authorized enclosure to protect the area and define its boundaries before starting other job site activities.

Submit a schedule showing the days and hours that work will be performed in an archaeological monitoring area at least 5 business days before starting work in the monitoring area. Submit an updated schedule at least 5 business days before any changed work day.

14-2.04 HISTORIC STRUCTURES: Reserved

SECTION 51: CONCRETE STRUCTURES

51-1.03G(2) Form Liners

Use form liners for concrete surface textures except for heavy blast and formed relief textures. Other forming methods must be authorized.

Form liners must (1) be manufactured from an elastomeric material by a manufacturer of commercially available concrete form liners and (2) leave a crisp, sharp definition of the concrete surface texture.

Form liners must comply with the requirements shown in the following table:

Quality characteristic	Test method	Requirement
Shore A hardness	ASTM D2240	50–90
Tensile strength (psi, min)	ASTM D412	1,000

Comply with the form liner manufacturer's instructions for use.

Seal and repair cuts and tears in form liners under the form liner manufacturer's instructions. Do not use form liners that are delaminated or deformed.

Extend form liners the full length of texturing, with transverse joints at 8-foot minimum spacing. Do not use small pieces of form liners. Align grooves straight and true. Grooves must match at joints between form liners. For grooved patterns, joints in the direction of grooves must be located in depressions. Butt adjoining liners together without distortion, open cracks, or offsets. Clean joints between liners and remove mortar before use.

Adhesives must be compatible with the form liner material and the concrete. Adhesives must be recommended by the liner manufacturer and not cause swelling of the liner material.

Cast form liner patterns to prevent recurring textural configurations exhibited by repeating, recognizable shadow patterns. Remove surfaces with recurring textural configurations by reworking using authorized methods or by replacement.

Use a form release agent recommended by the form liner manufacturer. The release agent must not:

1. Cause swelling of the liner material
2. Cause delamination from the forms
3. Stain the concrete
4. React with the liner material

Coat form liners with a thin film of release agent. For textures with longitudinal patterns, apply the release agent using a natural bristle brush in the direction of the pattern. Clean excess release agent from liners using compressed air. Remove release agent buildup due to liner reuse at least every 5 uses.

Form liners must release without leaving pieces of liner on the concrete or removing concrete from the surface.

Except for formed relief textures, abrasive blast concrete surface textures with fine abrasive after removing forms to remove sheen without exposing coarse aggregate.

SECTION 83: RAILINGS AND BARRIERS

83-11.03B(3) Construction

Remove, refabricate, and install the metal bridge railing of the type shown.

Refabrication of removed material, fabrication of new material, and installation of the railing must comply with the specifications for a new metal bridge railing of the type being reconstructed. Perform aluminum welding by the inert-gas-shielded arc welding process. Finish exposed aluminum welds to a neat surface. Repair abraded and damaged galvanized surfaces on the removed material under section 75-1.02B.

Colorado

SECTION 107: LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC
107.23 Archaeological and Paleontological Discoveries.

When the Contractor's operations, including materials pits and quarries, encounter plant or animal fossils, remains of prehistoric or historic structures, prehistoric or historic artifacts (bottle dumps, charcoal from subsurface hearths, old pottery, potsherds, stone tools, arrowheads, etc.), the Contractor's affected operations shall immediately cease. The Contractor shall immediately notify the Engineer, or other appropriate agency for contractor source pits or quarries, of the discovery of these materials. When ordered to proceed, the Contractor shall conduct affected operations as directed. Additional work, except that in contractor source materials pits or quarries under subsection 106.02(b), will be paid for by the Department as provided in subsection 104.02 when contract unit prices exist, or as extra work as provided in subsection 104.03 when no unit prices exist. Delays to the Contractor, not associated with work in contractor sources, because of the materials encountered may be cause for extension of contract time in accordance with subsection 108.08. If fossils, prehistoric or historic structures, or prehistoric or historic artifacts are encountered in a contractor source materials pit or quarry, all costs and time delays shall be the responsibility of the Contractor.

Connecticut

SECTION 1.20-1.10: ENVIRONMENTALCOMPLIANCE FOR FACILITIES CONSTRUCTION
1.20-1.10.06—Facilities Construction - Protection of Archaeological and Paleontological Remains and Materials: The Contractor shall be alert to the possibility that Project operations may disturb or uncover significant archaeological or paleontological resources or other such remains which in many cases are protected by Federal laws, State laws or both. Archaeological resources are minimally defined by Federal regulations as materials 50 years of age or older. They typically consist of subsurface concentrations of metal, bone, ceramic, or flaked or other shaped stone artifacts. They might also consist of *features* such as buried building foundations, linear or circular walls made of individual stones rather than concrete or cement, trash-filled pits, patches of burned earth, or distinct patterns of nearly-circular, elliptical, or squared discolorations in newly-exposed soil, accompanied by the types of *artifacts* described above.

Paleontological resources are defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust. These typically include fossilized bones, teeth, shells, eggs, or distinct impressions made in bedrock.

When archaeological or paleontological materials are inadvertently encountered, the Contractor shall immediately halt operations in the location of same and shall notify the Engineer of said discovery. The Contractor shall make every effort to preserve archaeological or paleontological materials intact in their original positions, in order to preserve the geological context and information content of the remains in relation to one another and to the enclosing soil.

The Engineer shall have the authority to suspend Project work in the area of such discovery for the purpose of preserving or recovering and documenting the archaeological or paleontological materials. The Contractor shall carry out all instructions of the Engineer for the protection of such materials, including steps to protect the site from vandalism, unauthorized investigations, accidental damage, and damage from such causes as heavy rainfall or runoff. The Contractor shall reschedule its work to minimize any loss of the time needed to complete the Project while the State evaluates, records and salvages the archaeological or paleontological materials.

Extra work ordered by the Engineer in this connection will be paid for in accordance with 1.20-1.04.05 and 1.20-1.09.04. Delays caused by archaeological or paleontological preservation and protection, which the Contractor demonstrates have delayed completion of the Project, will be treated under the provisions for extension of time, 1.20-1.08.08.

SECTION 6.05: MASONRY FACING

6.05.01—Description: This item shall consist of a surface course or facing of masonry of the hereinafter specified quality, applied to the exposed surfaces of the concrete structures as a protection or ornamentation. It shall be constructed to the dimensions indicated on the plans or as ordered and in accordance with these specifications.

6.05.02—Materials: The materials for this work shall meet the requirements of M.11.01 for masonry facing stone, M.11.04 for mortar and M.06.01 for metal dowels and ties.

6.05.03—Construction Methods: Each grade of masonry facing stone shall be constructed in the location and to the dimensions shown on the plans or as ordered and shall be built in conjunction with concrete backing. The backing shall not be placed until the masonry facing and any required dowels or ties have been properly placed. The work shall be carried on in successive layers or lifts as permitted by the Engineer. Care must be taken to prevent any movement of the masonry already in place while placing and compacting the concrete. When required by the Engineer, the facing stone shall be supported by such bracing and form work as may be necessary to prevent movement. All stone shall be set by competent and experienced masons.

1. Dressing Stone: All stones shall be dressed to the required size and shape before being laid and, except in the case of granite, shall be cut to lie on their natural beds. The bottom bed shall be the full size of the stone, and no stone shall have an overhanging top. In rock-faced work the exposed surface of any stone shall not present an excessively undercut contour adjacent to its bottom arris giving a top heavy, unstable appearance when laid.

Beds and joints of dimensioned masonry stone, except for rock-faced surface finish stone, shall be fine finished a full 2 inches from the pitch line of the face from which point the bottom bed may fall under the square 1 inch per 12 inches; the top bed 1 1/2 inches per 12 inches; and the joints 2 inches per 12 inches; but all beds must have a reasonable area of bearing spots back of the face. They shall be free from large depressions which might impair the stability of the work. On rock‑faced stone, the beds shall be sawn or dressed full for at least the specified minimum width of the stone; beyond that the beds may fall under the square not in excess of 3 inches per 12 inches. The joints shall be cut full and square for at least 2 inches back of the pitch lines from which point they may fall away not over 3 inches per 12 inches. Headers, if called for, shall have a back dimension not less than 2/3 of the corresponding face dimension unless otherwise shown on the plans.

Beds and joints of ashlar stone shall be rough finished for a depth of not less than 2 inches from the arris lines, and the balance of the stone shall not fall off more than 1/4 of the minimum dimension of the piece. Holes for dowels or ties or for handling stone shall not be permitted to show in exposed surfaces.

2. Mixing Mortar: The mortar shall be hand or machine mixed as may be directed by the Engineer. In the preparation of hand mixed mortar, the fine aggregate, cement and lime, if used, shall be thoroughly mixed together in a clean, tight mortar box until the mixture is of uniform color, after which water shall be added in such quantity as to form a stiff paste. Machine mixed mortar shall be prepared in an approved mixer and shall be mixed not less than 1 1/2 minutes. Mortar shall be used before obtaining initial set. Re-tempering of mortar will not be permitted.

3. Laying Stone: Stone shall not be laid when the air temperature in the shade and away from artificial heat is 40°F or below and falling, except with the permission of the Engineer and subject to such conditions as the Engineer may impose. Dimensioned stone masonry shall be carefully and accurately constructed in accordance with the provisions of the approved plans.

Ashlar stone masonry shall be so constructed as to produce the general effect shown on the plans. As an aid in determining the required appearance, the Contractor shall lay up a

sample section of wall, under the direction of the Engineer, which when approved, shall be accepted as representing the appearance to be obtained in the construction.

Each stone shall be cleaned and thoroughly saturated with water before being set. Stone shall not be dropped on or slid over the wall, but shall be carefully set without jarring stone already laid and shall be handled with a lewis or other appliance which shall not cause disfigurement. All stones shall be well bedded in freshly made mortar and settled in place with a suitable wooden maul before the setting of the mortar. Whenever possible the face joints shall be properly pointed before the mortar becomes set. Joints which cannot be so pointed shall be prepared for pointing by raking them out to a depth of about2 inches before mortar has set. The face surfaces of stone shall not be smeared with the mortar forced out of joints or that used in pointing. Hammering, rolling or turning of s tones will not be allowed on the wall. Precautions shall be taken to prevent seepage of moisture, through or from the beds and joints, which may cause discoloration of the exposed surfaces.

For rock-faced stone, the course heights may vary from 2 feet to 3 feet 2 inches with the higher courses at the bottom. Face bond shall be not less than 12 inches.

Headers shall be placed in the masonry only if so specified. They shall then be placed in each course and shall have a face length of not less than the rise of the stone. They shall bond with the core or backing not less than 12 inches A minimum face bond of not less than 12 inches shall be maintained. In no case shall a joint occur over or under a header. Approximately 1/5 of the area of the wall shall consist of headers.

Beds and joints in dimensioned stone masonry, unless otherwise specified, shall be not less than 3/8 inch nor more than 3/4 inch thick and shall present a uniform appearance. Abrupt changes in the thickness of beds and joints will not be permitted. Beds and joints in ashlar masonry shall have an average thickness of not more than 1inch.

4. Dowels and Ties: Metal dowels and ties of the type called for on the plans or as ordered shall be installed during the placing of the stone and before the backing is placed.

5. Resetting: In case any stone is moved or the joint broken, the stone shall be taken up, the mortar thoroughly cleaned from bed and joints, and the stone reset in fresh mortar.

6. Concrete Backing: Before concrete backing is placed, the backs of all beds and joints shall be pargeted with not less than 1/2 inch of setting mortar. No concrete shall be placed until the pargeting mortar has set. In general, horizontal construction joints produced by successive placements of the backing concrete shall be located not less than6 inches below the top or above the bottom bed of any course of masonry.

7. Joints: Joints shall be pointed or raked as called for in the Contract.

8. Pointing: Pointing shall not be done in freezing weather or when the stone contains frost.

Joints not pointed at the time the stone is laid shall be thoroughly cleaned out, wet with water and filled with mortar. The mortar shall be well driven into the joints and finished with an approved pointing tool to produce the type of joint shown on the plans or required by the Engineer. The wall shall be kept wet while pointing is being done; and in hot or dry weather, the pointed masonry shall be protected from the sun and kept wet for a period of at least 3 days after completion. After the pointing is completed and the mortar set, the wall shall be thoroughly cleaned and left in a neat and workmanlike condition. The use of acid for cleaning will not be permitted.

Delaware

SECTION 619 – STONE AND BRICK MASONRY

619.01 Description.

Furnish and construct, reconstruct, or repair stone or brick masonry.

619.02 Materials.

1. Provide Portland cement in accordance with Section 1022.
2. Provide fine aggregate in accordance with Section 1003.
3. Provide water in accordance with Section 1021.
4. Provide stone of the type and dimensions as detailed and specified in the Contract Documents and in accordance with Section 1040. Stone must be free of iron content significant enough to cause rust-staining of the stone or Materials below the stone. Submit samples of stone for approval prior to starting work.
    1. For repair or reconstruction, use salvaged stone from the site or provide stone to match existing stone types, colors, sizes, shapes, and patterns as close as possible, to the satisfaction of the Engineer.
5. Provide brick in accordance with Section 1040. Submit samples of brick for approval prior to starting work.
    1. For repair or reconstruction, provide brick to match existing stone types, colors, sizes, shapes, and patterns as close as possible, to the satisfaction of the Engineer.
6. Provide steel wall ties or dovetails that are hot-dipped galvanized in accordance with Section 1039.10 or stainless steel in accordance with AASHTO M 163.

619.03 Construction.

A. *Excavation*. Excavate to the required depth when necessary in accordance with Section 207.

B. *Mortar*. Mix mortar in the proportion of one part Portland Cement to three parts fine aggregate, then add hydrated lime not to exceed 10 percent of the cement by weight. Mix the fine aggregate, Portland Cement, and lime in an approved manner until the mixture assumes a uniform color. Add water as needed while the mixing continues until the mortar attains such consistency as can be easily handled and spread with a trowel. Place mortar to form a firm bond. Dispose of mortar that is not used within 30 minutes after water has been added. Re-tempering of mortar will not be permitted.

C. Placing Masonry.

a. Do not perform any masonry work when the temperature is below 40 degrees Fahrenheit.

b. *Stone*. Use only experienced stone masons to perform the Work. Lay the stone to the wall to form the pattern shown in the Contract Documents. Thoroughly wet the stone before laying in mortar. Fill all joints completely with mortar and finish properly as work progresses. Mortar joints must be 1 inch to 1-1/2 inches thick.

c. *Brick*. Use only competent and experienced bricklayers to perform the Work. Lay bricks by means of the shove-joint method so as to thoroughly bed them into the

mortar. Buttered or plastered joints will not be permitted. Arrange all brick headers and stretchers so as to thoroughly bond the mass with alternate courses breaking joints. Fill all joints completely with mortar and finish properly as the Work progresses. Joints must be 1/4 inch to 1/2 inch thick. Spalls or bats are not permitted for use except for shaping irregular openings or when unavoidable to finish out a course. If spalls or bats are necessary and approved by the Engineer, place full bricks at the corners and place bats in the interior of the course.

D. *Cleaning.* After constructing the masonry, thoroughly clean the entire area of all efflorescence, mortar, scars, or spots to present a natural color. Clean the entire area with water, then treat with a solution of 1 percent hydrochloric acid, and then finally wash thoroughly again with water. When cleaning stone masonry with the solution, Contractor must be watchful to notice any deteriorating reaction. If a reaction is noticed, Contractor must stop using the solution and wash the treated area immediately. However, the Contractor is responsible to ensure the stone masonry is cleaned to present the natural color.

E. *Pointing Existing Masonry*. Rake all deteriorated and loose mortar from the joints. Clean the joints with water under high pressure. Remove excess water from the cavity with air under high pressure. Ensure all joints are thoroughly wetted before applying the mortar. Mix and place mortar in accordance with Section 619.03.B. Use only mortar that matches in color to the existing mortar. In hot or dry weather, protect the pointing Work from the sun and keep wet for a period of 3 days after completion.

F. *Reconstructing Existing Masonry*. Exercise care when handling to avoid breaking and scarring existing masonry. Do not drop existing masonry. Reuse exposed surfaces of existing stone in the reconstructed Structure except as directed by the Engineer. Ensure that the reconstruction results in a Structure that resembles the original and adjacent Structures in overall appearance. Where applicable, additional historical and restoration notes will be included in the Contract Documents and will require coordination with the Department's Environmental Studies Section.

G. *Backfilling.* Backfill the excavated areas in accordance with Section 207.

Florida

SECTION 7: LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC

7-1.6 Discovery of an Unmarked Human Burial:

When an unmarked human burial is discovered, immediately cease all activity that may disturb the unmarked human burial and notify the Engineer. Do not resume activity until specifically authorized by the Engineer.

7-1.8 Compliance with Section 4(f) of the USDOT Act:

Section 4(f) of the USDOT Act prohibits the U. S. Secretary of Transportation from approving a project which requires the use of publicly owned land of a public park, recreation area or a wildlife and waterfowl refuge, or of any historic site of national, state, or local significance unless there is no prudent or feasible alternative to using that land and the program or project includes all possible planning to minimize the harm to the site resulting from the use.

Before undertaking any off-project activity associated with any federally assisted undertaking, ensure that the proposed site does not represent a public park, recreation area, wildlife or waterfowl refuge, or a historic site (according to the results of the Cultural Resources Survey discussed in 120-6.2). If such a site is proposed, notify the Engineer and provide a description of the proposed off-site activity, the Financial Project ID, the location of the site by township, range, section, a county or city map showing the site location, including the access route and the name of the property. It is the Contractor's responsibility to submit justification for use of Section 4(f) property that is sufficient for the Florida Department of Transportation and the Federal Highway Administration to make a Section 4(f) determination. Submit this notification sufficiently in advance of planned commencement of the off-site activity to allow a reasonable time for the Engineer to conduct an investigation without delaying job progress. Do not begin any off-project activity without obtaining written clearance from the Engineer.

SECTION 120: EXCAVATION AND EMBANKMENT

120-6.2 Furnishing of Borrow Areas:

To obtain the Engineer's approval to use an off-site construction activity area that involves excavation such as a borrow pit or local aggregate pit, request in writing, a review for - cultural resources involvement. Send the request to the Division of Historical Resources (DHR), Department of State, State Historic Preservation Officer, Tallahassee, FL. As a minimum, include in the request the Project Identification Number, the County, a description of the property with Township, Range, Section, etc., the dimensions of the area to be affected, and a location map. Do not start any work at the off-site construction activity area prior to receiving clearance from the DHR that no additional research is warranted.

For certain locations, the DHR will require a Cultural Resources Assessment (CRA) Survey before approval can be granted. When this is required, secure professional archaeological services to complete an historical and archaeological survey report. Submit the report to the DHR and to the Department. The Engineer will determine final approval or rejection of off-site construction activity areas based on input from the DHR.

Before receiving approval or before use of borrow areas, obtain written clearance from the Engineer concerning compliance with the Federal Endangered Species Act and other Wildlife Regulations as specified in 7-1.4 and Section 4(f) of the USDOT Act as specified in 7-1.8.

SECTION 400: CONCRETE STRUCTURES

400-5.3.2 Form Liners:

Use form liners of durable, abrasion resistant materials that are unaffected by water. Use liners with a hard surface texture capable of rendering concrete surfaces of a smooth, uniform texture, without grain marks, patterns, or blemishes. Use form liner material of sufficient thickness to eliminate the reflection of irregularities, undesirable patterns, and marks from the forms to the surfaces. Replace liners as necessary to produce a consistent concrete surface texture. Use form liners in large sheets and with true, tight-fitted joints which are logically located. Obtain the Engineer's approval of the layout of sheets. Do not use liners which have been patched. Use liner material of the same stock throughout.

Georgia

SECTION 107: LEGAL REGULATIONS AND RESPONSIBILITY TO THE PUBLIC (From 2016 Edition)
107.13 Protection and Restoration of Property and Landscape
A. General Provisions

[...]

When the Contractor's excavating operations encounter remains of prehistoric people's dwelling sites or artifacts of historical or archeological significance, the operations shall be temporarily discontinued. The Engineer will contact archeological authorities and the Office of Environmental Services to determine the disposition thereof. When directed by the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and shall remove them for delivery to the custody of the proper authorities. Such excavation will be considered and paid for as Extra Work. [...]

107.23 Environmental Considerations
F. Environmentally Sensitive Areas

Some archaeological sites, historic sites, wetlands, streams, stream and pond buffers, open waters and protected animal and plant species habitat within the existing/required Right-of-Way and easement areas may be designated as ENVIRONMENTALLY SENSITIVE AREAs (ESAs). These areas are shown on the applicable Plan sheets and labeled "ESA" (e.g. ESA – Historical Boundary, ESA – Wetland Boundary). The Department may require that some ESAs or portions thereof be delineated with orange barrier fence. The Contractor shall install, maintain, and replace as necessary orange barrier fence at ESAs as delineated in the Plan sheets.

The Contractor shall not enter, disturb, or perform any construction related activities, other than those shown on the approved plan sheets within areas designated as ESAs including ESAs or portions thereof not delineated with orange barrier fence. This includes but is not limited to the following construction activities: clearing and grubbing; borrowing; wasting; grading; filling; staging/stockpiling; vehicular use and parking; sediment basin placement; trailer placement; and equipment cleaning and storage. Also, all archaeological sites, historic sites, wetlands, streams, stream and pond buffers, open waters, and protected animal and plant species habitat that extend beyond the limits of existing/required Right-of- Way and easement areas shall be considered ESAs and the Contractor shall not perform any construction related activities (such as those listed above) within these areas or make agreements with property owners to occupy these areas for construction related activities (such as those listed above). The Contractor shall make all construction employees aware of the location(s) of each ESA and the requirement to not enter or otherwise disturb these areas.

If the Contractor is found to have entered an ESA, either within or outside the project area, for any purpose not specifically shown on the approved plan sheets, the Department may, at its discretion, issue a stop work order for all activities on the project except erosion control and traffic control until such time as all equipment and other items are removed and the ESA is restored to its original condition.

However, should damage to an ESA occur as a result of the Contractor's action in violation of this section, and notwithstanding any subsequent correction by the Contractor, the Contractor shall be liable for any cost arising from such action, including but not limited to, the

cost of repair, remediation of any fines, or mitigation fees assessed against the Department by another government entity.

SECTION 205: ROADWAY EXCAVATION (From 2013)
205.1 General Description

Roadway excavation shall conform to the lines, grades, and cross-sections shown on the Plans or established by the Engineer.

If artifacts of historical or archaeological significance are encountered, temporarily stop excavation operations until directed by the Engineer. See Subsection 107.13.A.

Roadway excavation includes the following:

- Excavating, hauling, and placing or disposing of materials (not removed under another Contract Item) from within the limits of areas designated in the Contract.
- Excavating ditches (except channel excavation) and filling and/or plugging abandoned wells (both dug and drilled) located within the Right-of-Way and construction easements according to Georgia Standard 9031H.
- Removing paving, aggregates, and ballast not incorporated into the new work as a result of alignment shifts, grade changes, or reasons that may or may not be shown on the Plans.
- Salvaging aggregates, paving, (only if designated on the Plans) and removed railroad ballast.
- The Department claims salvaged materials unless the Engineer directs that materials be wasted. Dispose of materials not salvaged. Stockpile salvaged materials on the Project unless other sites for stockpiling are shown on the Plans

SECTION 206: BORROW EXCAVATION (From 2016)
206.3.05 Construction
A. General

The Department will investigate and take necessary actions to satisfy requirements of Section 106 of the National Historical Preservation Act.

SECTION 500 (From 2013)
CONCRETE STRUCTURES
500.3.05 Construction
C. Meet Form Design Criteria

Ensure that forms meet the following design criteria:

- Provide wet concrete and other loads and forces of construction support without bulging between the supports or bracing and without deviating from the lines and contours shown on the Plans.
- Meet the design criteria for falsework in Subsection 500.3.05.B.1, “Meet Design Criteria.”
- Account for the use of retarded concrete.

Ensure that bracing, ties, and supports are placed accurately.

If the formwork appears to be inadequately supported, tied, or braced (before or during concrete placement), the Engineer may require that the Work stop until the defects are corrected.

D. Use Acceptable Form Materials

Except as noted, fabricate forms from the following materials:

- Lumber
- Plywood
- Metal
- Plastic
- Combinations of these

Use material free of defects that materially affect form strength or materially impair the accuracy or appearance of the concrete surface.

Use the form materials as follows:

1. Lumber Forms

   Construct wood forms as follows:

   a. Size and dress the lumber.
   b. Use lumber at least 1 in (25 mm) thick.
   c. Use lumber for header forms used as screed supports and for curb face forms at least 2 in (50 mm) thick.
   d. Avoid using scrap material or doing patchwork.
   e. Stagger all joints but those between abutting panels.
   f. Line the lumber used to form outside vertical surfaces of exterior beams or girders with an approved form liner.
   g. Use chamfer strips mill-produced from high-quality lumber, free of defects.
   h. Dress and finish chamfer strips on all three sides.
   i. Size chamfer strips to the proper dimensions.

2. Plywood Forms

   Construct plywood forms as follows:

   a. If plywood is the type made for general concrete forms and is at least 5/8 in (16 mm) thick, use it in place of 1 in(25 mm) thick lumber to construct forms, if necessary.
   b. Ensure that plywood used to form open joints and to line forms is at least 1/4 in (6 mm) thick.
   c. When nailing plywood directly to form studs, do not space the studs more than 16 in (400 mm) apart.
   d. Use plywood in full sheets wherever practical. Do not do patchwork with small, irregular pieces.
   e. Have the Engineer inspect and approve plywood sheet layout.

3. Metal or Plastic Forms
4. Construct metal or plastic forms as follows:

   a. Use metal or plastic to form concrete only if the Engineer approves the forms and if the forms produce satisfactory results.
   b. Use metal forms that produce finished concrete equal to or superior to concrete made from comparable wooden forms.

c. Countersink bolts and rivets in the surfaces of metal forms that touch concrete.
d. Grind welds smooth in the surfaces of metal forms to provide a smooth plane surface.

5. Other Material Uses
   Use tempered fiberboard for form liners when necessary if it is at least 1/4 in (6 mm) thick. Use tempered fiberboard 1/8 in (3 mm) thick only to form open joints. Support the fiberboard with suitable spacers arranged properly.
   Use approved synthetic materials for forming open joints and for other special uses, if necessary.

E. Construct Form Supports

Construct form supports using metal ties, anchors, and hangers as follows:

1. Construct supports that will remain in the finished concrete so they can be removed from the concrete face to a depth of at least 1 in (25 mm) without damaging the concrete.
2. Weld form supports to girder or beam flanges in continuous or cantilever spans only in the flange areas which are in compression.
3. When ordinary wire ties or snap ties are permitted, cut them back at least 3/8 in (10 mm) from the face of the concrete.
4. Design metal tie fittings that minimize the cavities made when they are removed. Fill all cavities after removing metal tie fittings.

F. Construct Temporary Forms

Construct temporary forms as follows:

1. Construct and maintain forms in a mortar-tight condition.
2. Construct forms so that they can be removed easily without damaging the concrete, unless using forms that will remain in place.
3. Build, line, and brace forms so that the formed concrete surface conforms with the dimensions, lines, and grades shown on the Plans.
4. Build headwall forms for skewed pipe parallel to the roadway centerline or at right angles to the radius on curves.
   Construct headwall forms as follows:
   a. Lay enough pipe to extend through the headwall form.
   b. After the concrete is poured and hardened, carefully cut and dress the protruding pipe ends so no ragged edges remain.

   The Contractor may choose, as an alternate to the above method, to build a circular form that exactly fits the pipe circumference and face of the headwall form.
5. Construct form liner using plywood or other approved form liner as follows:
   a. Use form liner in large sheets. Do not do patchwork.
   b. Avoid irregular joint location in form liners.
   c. Have the Engineer inspect and approve the proposed liner layout.
6. Bevel forms at beam copings, girders, and other projections to ease removal.
7. Place chamfer strips to chamfer exposed edges of the concrete by the required amount. Use ¾ in (19 mm) chamfers unless otherwise shown on the Plans.
8. Patch with tin or other metal only in those areas of the superstructure lying between and including the inside faces of the exterior beams.

9. When shown on the Plans, splice water stops to form continuous water-tight joints. Hold stops in position while placing concrete.
10. Immediately before erecting forms or just before placing bar reinforcement steel, coat forms with a clear oil or other bond breaker to keep concrete from sticking to the forms.
    a. Do not allow the substance to stain or soften the concrete surface.
    b. Do not apply by reaching or pouring through previously placed reinforcement steel.
11. Wait to place concrete in any form until the Department inspects and approves the form.
    Inspection and approval does not diminish the responsibility to produce concrete surfaces free of warping, bulging, or other defects.
12. When removing forms, remove chamfer strips, blocks, and bracing.
13. Do not leave any part of a wooden form in the concrete.
14. If concrete surfaces do not meet finish specifications, correct the problems with the following steps, as directed by the Engineer:
    - Repair the defects using approved methods.
    - Remove and replace the affected portion of the Work.

G. Reuse Forms

Reuse forms and form material in good condition and satisfactory as determined by the Engineer. Do not use forms or form materials that are warped, cracked, split, bulging, have separated plies, or have unsatisfactory form liner.

Ensure that used forms are mortar tight and produce a finished concrete equivalent to that produced by new forms.

I. Install Forms

Install and maintain forms in a mortar-tight condition and according to approved fabrication and erection Plans.

Place transverse construction joints at the bottom of a flute. Field drill 1/4 in (6mm) weep holes no less than 12 in (300mm) on center along the line of the joint.

1. Highway Bridge Forms
   Install highway bridge forms using either Method 1 or Method 2:
   1. **Method 1.** Place forms so the ribs of the forms align with how the bottom transverse reinforcing in the slab is spaced.
   2. **Method 2.** Place forms with a 1 in (25 mm) minimum clearance between the top of the form and the bottom of the main deck reinforcement. See Figure 1 (Figure 1 metric).
2. Railroad Bridge Forms
   Install railroad bridge forms as follows:
   a. Place the forms so the tops of the form ribs adjacent to the beam flange are at the bottom of the deck slab specified by the Plans.
   b. Maintain the full slab depth detailed on the Plans.
   c. Do not allow form ribs to project above the Plan bottom of the deck slab.
   d. Do not place form sheets directly on top of the stringer or floor beam flanges.

e. Securely fasten form sheets to form supports using self-drilling screw fasteners, not by welding. If the Engineer approves, use fastener pins driven into place by a power tool.
f. Ensure that form sheets have a minimum bearing length of 1 in (25 mm) at each end.
g. Do not leave loose sheets or accessories on the deck at the end of a day's work.
h. Place form supports so that they contact the flange of the stringer or floor beam.
i. Attach form supports using welds, bolts, clips, or other approved means.
j. Do not weld form supports to the flanges of non-weldable steel or to portions of the flange subject to tensile stresses.
k. Ensure that welding and welds comply with AWS D 2.0 for fillet welds. However, 1/8 in (3 mm) fillet welds are permitted.

SECTION 834: MASONRY MATERIALS

834.2.02 Masonry Stone (2013)

A. Requirements

1. Type: Use stone for rubble masonry that is sound, durable, and does not contain segregations, seams, cracks, pyrite intrusions, or other structural defects or imperfections that affect weather resistance.
    a. Do not use stone with rounded, worn, or weathered surfaces. Exposed faces cannot show scars caused by quarrying. Weathered stone will be rejected.
    b. Ensure that the stone has no more than 65 percent wear and no more than 15 percent loss after the magnesium sulfate soundness test.
    c. Use stone that can be wrought truly to lines and surfaces (curved or plain).
    d. Ensure that each stone is at least 6 in (150 mm) thick and 1 ft (300 mm) wide, except for fill stones used in wall interiors.

Hawaii

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC
107.13 Pollution Control and Protection of Archeological, Historical, and Burial Sites.
(B) Archaeological, Historical, and Burial Sites.

Whenever the Contractor encounters sites of potentially historic or archaeological significance such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentration of charcoal or shells, work shall cease in the immediate vicinity of the site and the site shall be protected from damage. The Contractor shall suspend any work that may affect the site and inform the Engineer immediately. Upon direction by the Engineer, the Contractor shall provide and install temporary fencing to protect such sites. The Contractor shall not resume the work suspended without the prior written direction of and subject to the conditions set by the Engineer.

Idaho

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
107.17 Environmental and Cultural Resource Protection.
H. Inadvertent Discovery of Cultural Resources Including Human Remains.

If cultural resources are discovered, cease all work within 50 feet in all directions.

If human remains are discovered, cease all work within 150 feet in all directions.

In both cases, clear the area of all unnecessary personnel, secure the area, and immediately notify the Engineer. If human remains are discovered, also notify the local police. One or more individuals must stay with the human remains until law enforcement officials are on the project site.

1. Call the local police and provide all known information related to the discovery. Follow their instructions. Inform the Engineer after the local authorities have been notified.
2. Photography of human remains is not allowed.
3. If allowed by the police, cover the human remains completely with a tarp or plain piece of cloth (e.g., rug, towel, blanket).
4. Do not disturb any additional ground.
5. Do not touch, move, or in any way cause the human remains to change position from the original position noted upon discovery.
6. Keep all information related to the discovery in the strictest confidence.
7. Follow all associated laws and policies.

The Engineer will communicate the status of any restrictions implemented as a result of the inadvertent discovery:

1. Time necessary for the Department to manage the inadvertent discovery process.
2. Project areas where the Contractor may work during the inadvertent discovery process.
3. Written confirmation when the inadvertent discovery process is complete.
4. Payment and contract time extension due to the inadvertent discovery and required cultural resource clearance not previously identified in the contract is specified in 104.02 and 108.07.

Illinois

SECTION 107. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

107.21 Protection and Preservation of Aboriginal Records and Antiquities.

The Contractor shall take reasonable precautions to avoid disturbing aboriginal records and antiquities of archaeological, paleontological, or historical significance. No objects of this nature shall be disturbed without written permission of the Engineer. When such objects are uncovered unexpectedly, the Contractor shall notify the Engineer of their presence and shall not disturb them until written permission to do so is granted.

If it is determined by the Engineer, in consultation with the Illinois Historic Preservation Agency, that exploration or excavation of aboriginal records or antiquities on land owned or leased by the State is necessary to avoid loss, the Contractor shall cooperate in the salvage work attendant to preservation. If the Engineer determines the salvage work will delay the Contractor's work, an appropriate extension of contract time will be granted.

107.22 Approval of Proposed Borrow Areas, Use Areas, and/or Waste Areas.

All proposed borrow areas, including commercial borrow areas; use areas, including, but not limited to temporary access roads, detours, runarounds, plant sites, and staging and storage areas; and/or waste areas are to be designated by the Contractor to the Engineer and approved prior to their use. Such areas outside the State of Illinois shall be evaluated, at no additional cost to the Department, according to the requirements of the state in which the area lies; and approval by the authority within that state having jurisdiction for such areas shall be forwarded to the Engineer. Such areas within Illinois shall be evaluated as described herein.

A location map delineating the proposed borrow area, use area, and/or waste area shall be submitted to the Engineer for approval along with an agreement from the property owner granting the Department permission to enter the property and conduct cultural and biological resource reconnaissance surveys of the site for archaeological resources, threatened or endangered species or their designated essential habitat, wetlands, prairies, and savannahs. The type of location map submitted shall be a topographic map, a plat map, or a 7.5 minute quadrangle map. Submittals shall include the intended use of the site and provide sufficient detail for the Engineer to determine the extent of impacts to the site. The Engineer will initiate cultural and biological resource reconnaissance surveys of the site, as necessary, at no cost to the Contractor. The Engineer will advise the Contractor of the expected time required to complete all surveys. If the proposed area is within 150 ft (45 m) of the highway right-of-way, a topographic map of the proposed site will be required as specified in Article 204.02.

(a) Archaeological Resources. If potentially significant archaeological resources are identified, the Contractor shall have the option of choosing another site or paying for additional archaeological testing. If the Contractor chooses the option of additional testing, the Engineer will obtain a time and cost proposal for the Contractor's approval prior to the testing work being done. The archaeological testing may result in two possible conclusions:

(1) Results of the tests show that no further archaeological work is warranted and the site is approved, or

(2) Results of the test indicate that data recovery is warranted and the Contractor shall have the option of selecting another location or paying for the salvage operations.

If the area is approved as a borrow area, use area, and/or waste area, the Contractor shall obtain as part of the agreement with the property owner, the release of ownership of any artifacts found on the site. The agreement shall also provide that such artifacts will become the property of the State of Illinois.

The Contractor shall furnish copies of the proposed and final agreement to the Engineer for approval.

In the event hydraulic fill or commercial material from rock quarries, waste material, etc., is to be used, a reconnaissance survey for archaeological resources will be conducted only if disturbance of previously undisturbed areas is required to provide such material.

SECTION 503. CONCRETE STRUCTURES

503.06 Forms.

(a) Form Liners. When form liners are specified, the Contractor shall submit plans for the form liner pattern along with an installation procedure for approval by the Engineer.

All form liner joints and tie holes shall be sealed.

Form release agents shall be according to the recommendations of the form liner manufacturer. The form release agent shall be compatible with all curing agents and admixtures.

The temperature differential between the form liner and concrete shall not be greater than 9 °F (5 °C) for normal ambient conditions. During cold weather, the form liner shall be applied in the same ambient conditions as concrete placement is to take place. In ambient conditions above 90 °F (32 °C), form liner attachment shall allow for thermal expansion.

Variations in dimensions for the cast-in-place concrete with a textured surface shall be within the following tolerances: the width and depth of textured joints shall be within ± 1/8 in. (± 3 mm); the location of the joints shall be within ± 1/2 in. (± 13 mm); and the maximum variation of a joint from a straight line shall be ± 1/4 in. (± 6 mm) in 10 ft (3 m).

A 2 x 2 ft (600 x 600 mm) test sample that includes the proposed textured surface shall be cast and supplied to the Engineer for his/her approval 30 days prior to pouring the cast-in-place concrete.

Indiana

SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.10 Archaeological Artifacts

If archaeological artifacts, including cultural features or skeletal remains are discovered, all work within a minimum 100 ft radius of the discovery shall cease immediately, the area shall not be further disturbed and the Contractor shall notify the Engineer immediately.

In accordance with IC 14-21-1-27, if skeletal remains are encountered, the Contractor shall notify the local law enforcement agency immediately and the Engineer immediately thereafter. The Department will notify IDNR within two days. Work within the area of the discovery shall not resume without written authorization.

For discoveries other than skeletal remains, the Department will coordinate with IDNR to mitigate impacts to the discovery. Work within the area of the discovery shall not resume without written authorization.

In no event shall an employee of the Contractor or the State of Indiana share in ownership or profit from salvaged archaeological findings.

SECTION 203 – EXCAVATION AND EMBANKMENT

203.08 Borrow or Disposal

(a) Borrow and Disposal Site Requirements

3. General Site

Proposed General Sites shall have a qualified archaeologist perform a field survey, with record check, to determine if any significant archeological sites exist within the proposed site. The Indiana Department of Natural Resources Division of Historic Preservation and Archeology maintains a roster of qualified archeological consultants. If any archaeological sites are identified, the archaeologist shall establish the limits of the site along with a reasonable border. The Contractor shall demarcate the border of all identified archeological sites within the proposed borrow or disposal site in a method acceptable to the Engineer.

(b) Additional Requirements

Identified archeological sites shall not be disturbed unless the site is cleared by established procedures and written authorization to enter the site has been obtained from the Department's Cultural Recourses office. Archaeological artifacts encountered during operations shall be addressed in accordance with 107.10.

No excavation shall occur and no material shall be disposed of within the boundaries of the demarcated wetlands and archeological areas unless the operations are in compliance with all required permits and these specifications.

Iowa

SECTION 2102: ROADWAY AND BORROW EXCAVATION
2102.03 CONSTRUCTION.
J. Archaeological Salvage.

Temporarily discontinue operations at sites whenever remains of prehistoric people's dwelling sites, burial sites, or artifacts of historical or archaeological significance are encountered. The Engineer, in conjunction with proper archaeological authorities of the State of Iowa, will promptly examine the exposure and determine the disposition.

D. **Cultural Resources.**

1. No activity will be authorized which violates the requirements of Section 106 of the National Historic Preservation Act.
2. When required, the Contracting Authority will obtain Section 106 authorization for essential work on the right-of-way prior to the award of the contract. The Contractor shall adhere to the requirements of the authorization.
3. The Contractor shall comply with Article 2102.03 J if historic, cultural or archeological remains and artifacts are discovered while accomplishing the work under contract.

From Standard Specifications to the Contractor provided by Brennan Dolan, Cultural Resources Manager/Archaeologist, Office of Location and Environment

The following Special Provisions examples were supplied by Brennan Dolan, Cultural Resources Manager/Archaeologist, Office of Location and Environment.

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SMARTER I SIMPLER I CUSTOMER DRIVEN
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January 30, 2017

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Clayton County
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FEB 02 2017
by SHPO

Mr. Dan Higginbottom
State Historic Preservation Office
600 East Locust
Des Moines, Iowa 50319

RE: Proposed Bridge Replacement [FHWA #121410] along 130th Avenue over Roberts Creek, Phase II National Register Evaluation of Site 13CT270, Grand Meadow Township, Clayton County, Iowa; T95N-R6W Sections 15 & 22; ***No Adverse Effect***

Dear Dan:

Enclosed for your review and comment is the phase II National Register evaluation of Site 13CT270. This proposed bridge replacement is located 4 miles south of Postville in northwest Clayton County. This site was originally recorded by Dave Mather in 1992. The current evaluation took the 1992 data into account to maximize the current field effort.

930122085

13CT270 has been identified as a multicomponent (Middle Woodland and Early Late Woodland) seasonal base camp. This effort focused on review of previous findings, the excavation of 5 - 1x1 meter units and soil probing to assess this site and this landform. Two archaeological features were identified, one in Test Unit 1 and one in Test Unit 2. Artifacts analyzed from the site include locally sourced lithic flaking debris, fire-cracked rock, faunal remains, charcoal, botanical remains, and burned earth. The two cultural components are superpositioned under a blanket of recent alluvium and were encountered consistently on the east side of Roberts Creek. It is critical to note that evaluation data from west of Roberts Creek failed to identify any intact cultural deposits in that part of the site. However, on the east side of the Roberts Creek the site represents a rare, well-preserved example of a seasonal base camp on an interior stream in northeast Iowa. Due to the presence of intact features, the collection of fauna and botanical remains and the overall excellent integrity of the site, the consultant has recommend that 13CT270 is eligible for nomination to the National Register of Historic Places under Criterion D. Our office agrees with this recommendation.

The county and their engineering consultant have worked hard to develop and change this project to avoid impacts to this site. Enclosed for your review are two sets of project plans, one is the initial set of plans showing the original impact area, and the other is the most recent set of plans showing the currently proposed impact area. You will see that all easement east of Roberts Creek has been eliminated; the horizontal footprint of the project has been limited to the existing ROW east of Roberts Creek. Additionally,

the vertical footprint of the project will not impact Site 13CT270 because the roadbed will be raised by 2 feet. To further avoid the site the temporary workspace needed to construct the bridge has been shifted to the southwest quadrant of the bridge project and away from Site 13CT270.

There are a three aspects of this project that are noteworthy. First, in the late 1980 and early 1990s the professional archaeological community in Iowa shifted to a more rigorous landform approach to site identification that included more detailed geomorphic assessments and deep testing. This site was recorded as a direct result of that effort. Second, 25 years later this Phase II evaluation was able to plug directly into that earlier work. This evaluation relies on solid data and thorough analysis, and this effort as a whole was well done. Lastly, the engineering solutions put forth to avoid 13CT270 are equally thoughtful and worthy of our appreciation. Overall this project exemplifies how excellent resource management and first-rate planning lead to better project delivery.

Currently, there are no plans to impact Site 13CT270. The county will take the following steps to avoid any unintended impacts to the site:

- Project plans will contain a note identifying a vertical restriction east of Roberts Creek that will limit the contractor to grading no deeper than the current ditch profile.
- Project plans will contain a note informing the contractor of the "Restricted Area – No Disturbance" at the ROW limits.

At this time we request you concurrence with our determination of ***No Adverse Effect*** for this undertaking. We will plan to provide your office with check plans and final plans for this project. As with any Iowa Department of Transportation project, should any new important archaeological, historical, or architectural materials be encountered during construction, project activities shall cease and the Office of Location and Environment shall be contacted immediately.

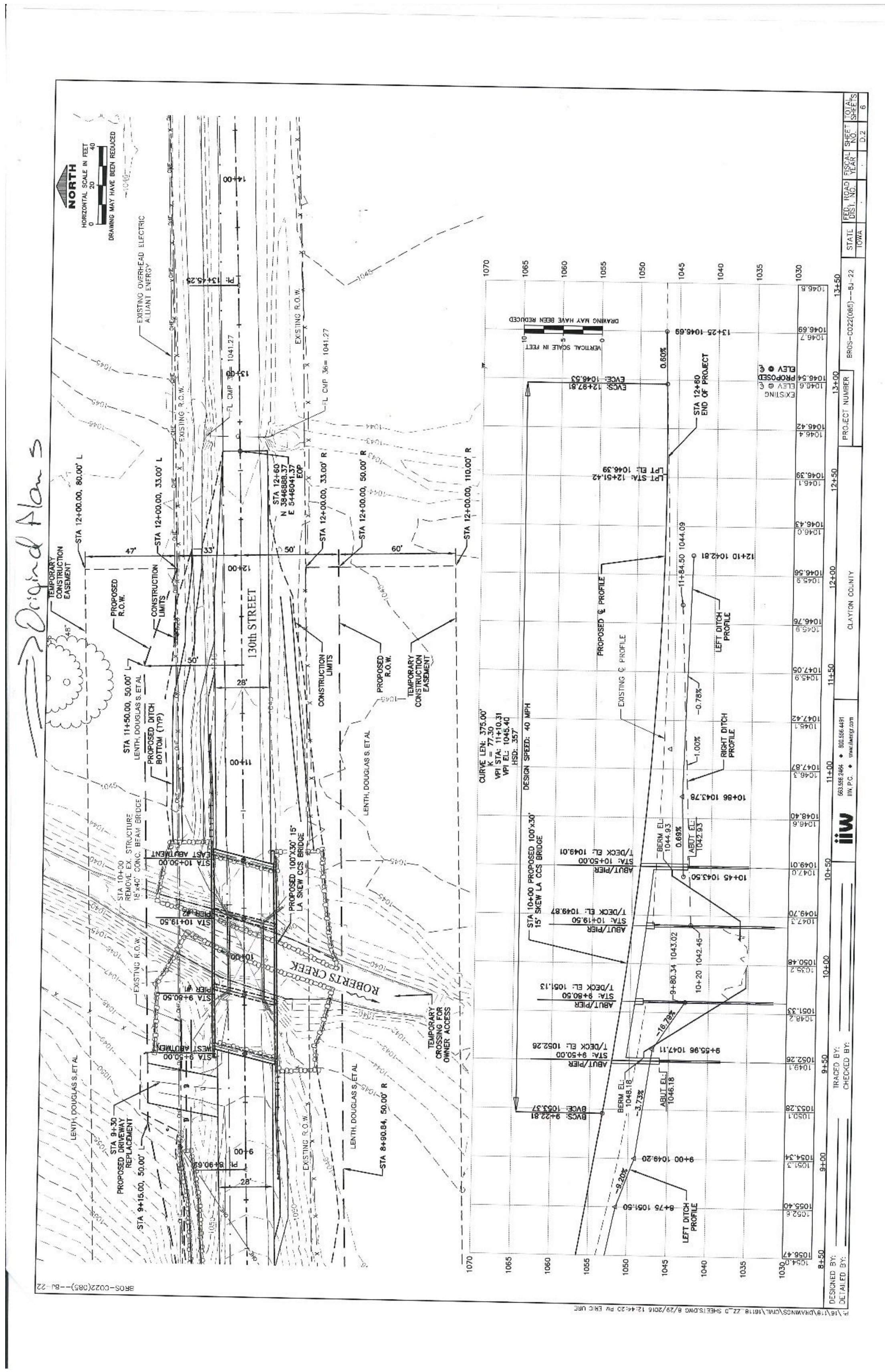
If you have any questions, please contact me at (515) 239-1795 or brennan.dolan@iowadot.us.

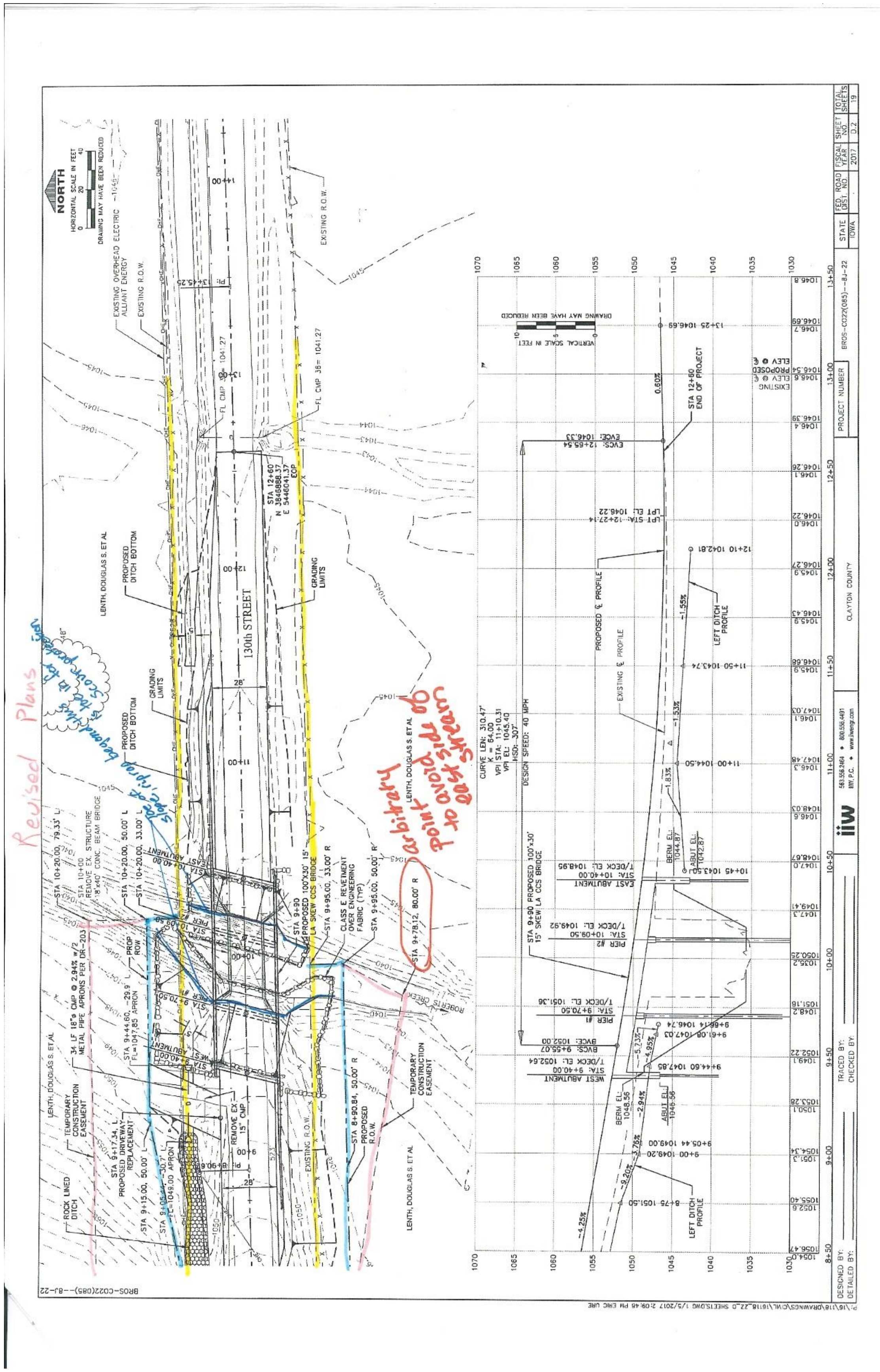
Sincerely,

Brennan J. Dolan
Office of Location and Environment

BJD: enclosures
Cc: Rafe Koopman – Clayton County Engineer
Tribes/Nations – Clayton County Interest
Robert Welper – District 2 Local Systems Engineer
DeeAnn Newell – NEPA Team Lead
Julie Neebel – IIW Engineers

Concur: _____ Date: 2/13/2017
SHPO Archaeologist
Comments:


Designed Plans
NORTH
130th STREET
ROBERTS CREEK
PROPOSED 100'x30' 15' LA SKEW CCS BRIDGE
CLAYTON COUNTY
BROS-C022(085)--8J-22
IOWA



Revised Plans
NORTH
130th STREET
ROBERTS CREEK
CLAYTON COUNTY
BROS-C022(085)--8J-22
LENTH, DOUGLAS S. ET AL
STA 9+90 PROPOSED 100'x30' 15° SKEW LA CCS BRIDGE
WEST ABUTMENT
EAST ABUTMENT
PIER #1
PIER #2
PROPOSED € PROFILE
EXISTING € PROFILE
LEFT DITCH PROFILE
TEMPORARY CONSTRUCTION EASEMENT
GRADING LIMITS
PROPOSED DITCH BOTTOM
arbitrary point avoid side of east stream

IOWA DOT
SMARTER I SIMPLER I CUSTOMER DRIVEN
www.iowadot.gov

Office of Location and Environment
800 Lincoln Way I Ames, Iowa 50010
Phone: 515.239.1795 I Email: brennan.dolan@iowadot.us

December 21, 2017

Ref. BRS-C003(62)--60-03
Local System
Allamakee County
BCA 2331, 2357a, 2357b
R&C: 170203091

Mr. Dan Higginbottom
State Historic Preservation Office
600 East Locust
Des Moines, Iowa 50319

RE: Phase I Archaeological Survey for a Proposed Bridge Replacement Along County A26 Over Irish Hollow Creek, Temporary Crossing Area, and Associated Borrow Area, Allamakee County, Iowa; FHWA 63070; T100N-R4W Sections 20 & 21; ***No Adverse Effect***

Dear Dan:

Enclosed for your records are three phase I archaeological investigations for the above referenced project. This proposed bridge replacement and temporary crossing is located along County A26 and spans Irish Hollow Creek approximately 3.0 miles southwest of New Albin. The associated borrow area is located approximately 160m northwest of the proposed bridge replacement along the north side of Irish Hollow Creek. A total of 3.5 acres (1.4 ha) were surveyed for this project.

The first phase I archaeological report for the proposed bridge replacement documents field methods used in this survey including background research, archival investigation, geomorphic assessment, pedestrian survey, soil probing and auger testing. No cultural material was found, therefore, the consulting archaeologist has recommended no further archaeological investigation for this area.

The second phase I archaeological report for the proposed borrow area documents field methods used in this survey including background research, archival investigation, geomorphic assessment, terrace riser inspection, pedestrian survey, soil probing and shovel testing. Site 13AM609 was identified during this investigation and is interpreted to be a prehistoric short-term occupation. The site boundaries beyond the borrow limits have not been confirmed and the overall determination of National Register of Historic Places eligibility has not been determined. However, the portions of the site within the borrow area have been recommended by the consultant as not contributing to the overall significance of the site due to poor (disturbed) context. The consulting archaeologist has recommended no further archaeological investigation for this area.

The final phase I archaeological report is for a temporary crossing area associated with the proposed bridge replacement. The report documents field methods used in this survey including background research, archival investigation, geomorphic assessment, pedestrian survey, soil probing and auger testing. Site 13AM610 was identified during this investigation. Site 13AM610 is interpreted to be a short-term late prehistoric encampment, and has not been evaluated for eligibility to the National Register of Historic Places. The consulting archaeologist has recommended avoidance or additional investigation for this site.

Our office agrees with the findings and recommendations in all three reports. Due to the proximity of Site 13AM610 to the proposed bridge construction activities and the unevaluated eligibility of Site 13AM609 outside of the proposed borrow area, the project sponsor shall take the following steps to avoid any adverse effects to these sites.

- Site 13AM610 (and areas out to negative tests) will be identified as "**Restricted Area – No Access**" on project plans (see enclosed Preliminary Plans)
- If the project sponsor chooses to use the proposed borrow area identified, the borrow shall be limited to the area subject to testing with the remaining portions of the landform to the north, east, and south identified as identified as "**Restricted Area – No Access**"
- Both "**Restricted Area – No Access"** locations shall receive temporary fencing (silt or snow fence) during construction and/or borrow activities; Installation of this fence shall be guided by an archaeologist who meets or exceeds Secretary of the Interior Standards
- Check Plans will be provided to OLE and SHPO for review

We commend the project sponsor and their consultant in their willingness to adjust project plans to avoid these sensitive areas. In general, the area around the Upper Iowa River holds exceptional archaeological resources, and they have taken a very cautious and responsible approach to project planning.

Based on the proposed project and conditions outlined above, our office has given this project a determination of ***No Adverse Effect***. If you concur, please sign the concurrence line below, add your comments, and return this letter. As with any Iowa Department of Transportation project, should any new important archaeological, historical, or architectural materials be encountered during construction, project activities shall cease and the Office of Location and Environment shall be contacted immediately.

If you have any questions, please contact me at (515) 239-1795 or brennan.dolan@iowadot.us.

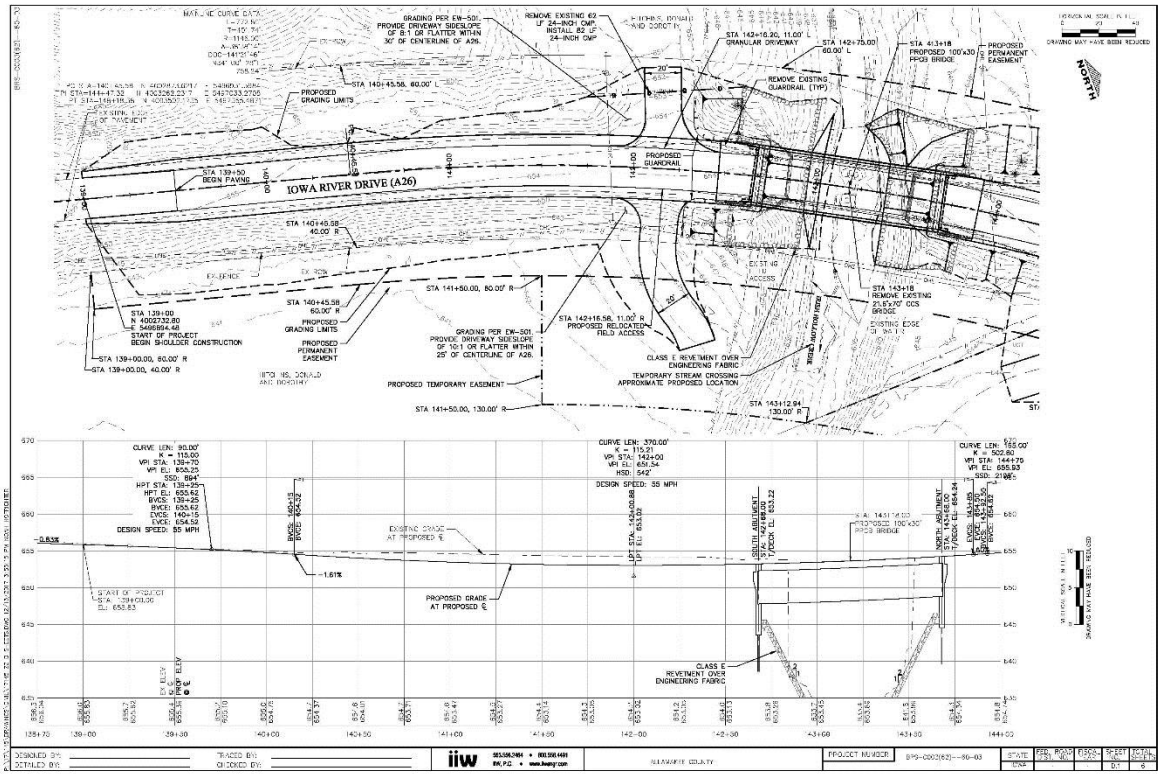
Sincerely,

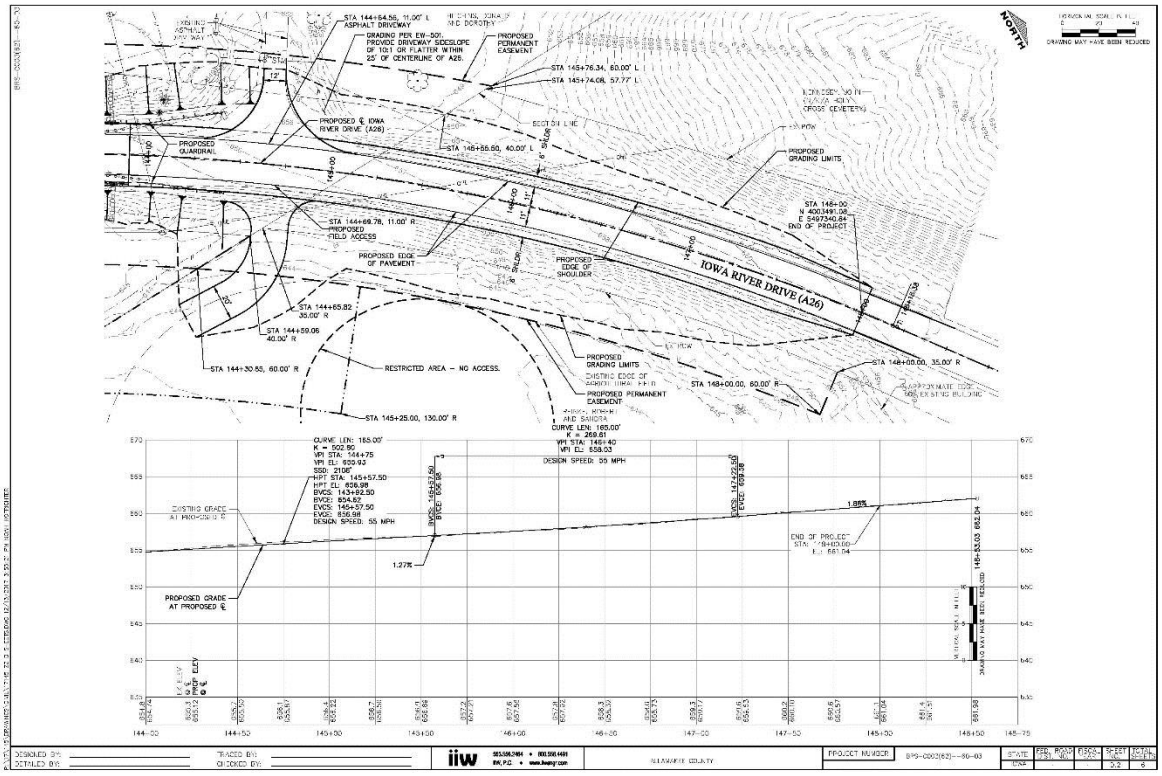
Brennan J. Dolan
Office of Location and Environment

BJD: enclosures
cc: Brian Ridenour – Allamakee County Engineer
Robert Welper – District 2 Local Systems Engineer
DeeAnn Newell – NEPA Team Lead
Derek Lee – Bear Creek Archeology

Concur: _____ Date: 1/22/2018
SHPO Archaeologist

Comments: While SHPO concurs with the findings presented in the BCA report and with OLE's determination of "No Adverse Effect" we feel obligated to point out the possibility of deep pit features extending ~~below~~ beyond agricultural disturbance (PZ). 13AM220, of which 13AM609 may be a part, is described in the records as an Oneota occupation site. Judging from its size it could be a long-term village. SHPO encourages vigilance during excavation and plans for unanticipated discovery.


IOWA RIVER DRIVE (A26)
STA 139+00 BEGIN PAVING
STA 139+00 N 4002732.80 E 5466994.48 START OF PROJECT BEGIN SHOULDER CONSTRUCTION
STA 140+45.56, 60.00' L
STA 140+45.58 60.00' R
STA 140+40.58 40.00' R
STA 141+50.00, 80.00' R
STA 141+50.00, 130.00' R
STA 142+16.58, 11.00' R PROPOSED RELOCATED FIELD ACCESS
STA 142+20.20, 11.00' L GRANULAR DRIVEWAY
STA 142+75.00 60.00' L
STA 143+18 PROPOSED 100'x30' PPCB BRIDGE
STA 143+18 REMOVE EXISTING 21.5'x70' CCS BRIDGE
STA 143+12.94 130.00' R
REMOVE EXISTING GUARDRAIL (TYP)
REMOVE EXISTING 63 LF 24-INCH CMP, INSTALL 82 LF 24-INCH CMP
GRADING PER EW-501, PROVIDE DRIVEWAY SIDESLOPE OF 6:1 OR FLATTER WITHIN 30' OF CENTERLINE OF A26.
GRADING PER EW-501, PROVIDE DRIVEWAY SIDESLOPE OF 10:1 OR FLATTER WITHIN 25' OF CENTERLINE OF A26.
PROPOSED GRADING LIMITS
PROPOSED PERMANENT EASEMENT
PROPOSED TEMPORARY EASEMENT
PROPOSED GUARDRAIL
EXISTING ACCESS
CLASS E REVETMENT OVER ENGINEERING FABRIC
TEMPORARY STREAM CROSSING APPROXIMATE PROPOSED LOCATION
EXISTING EDGE OF WATER
EX. DITCH
EX. FENCE
BEGIN SHOULDER CONSTRUCTION
START OF PROJECT STA 139+00.00 EL 653.83
CURVE LEN: 90.00' K = 115.00 VPI STA: 139+70 VPI EL: 655.25 SSD: 894'
HPT STA: 139+25 HPT EL: 655.62 BVCS: 139+25 BVCE: 655.62 EVCS: 140+15 EVCE: 654.52 DESIGN SPEED: 55 MPH
CURVE LEN: 370.00' K = 115.91 VPI STA: 142+00 VPI EL: 656.54 HSD: 540'
DESIGN SPEED: 55 MPH
CURVE LEN: 165.00' K = 502.60 VPI STA: 144+75 VPI EL: 655.93 SSD: 2106'
-0.63%
1.61%
EXISTING GRADE AT PROPOSED ℄
PROPOSED GRADE AT PROPOSED ℄
SOUTH ABUTMENT STA: 142+68.00 TYCON EL: 650.02
NORTH ABUTMENT STA: 143+68.00 TYCON EL: 654.84
PROPOSED 100'x30' PPCB BRIDGE
RAIL 143+18.03 PROPOSED 100'x30' PPCB BRIDGE
EX ELEV
PROP ELEV ℄
CLASS E REVETMENT OVER ENGINEERING FABRIC
NORTH
DRAWING MAY HAVE BEEN REDUCED
DESIGNED BY:
DETAILED BY:
TRACED BY:
CHECKED BY:
iiw
RIVERSIDE COUNTY
PROJECT NUMBER
BRS-0002(62)--56--03
STATE
FED. ROAD DIST. NO.
FISCAL YEARS
SHEET NO.
TOTAL SHEETS
D1
6


IOWA RIVER DRIVE (A26)
STA 144+54.58, 11.00' L ASPHALT DRIVEWAY
GRADING PER EW-501, PROVIDE DRIVEWAY SIDESLOPE OF 10:1 OR FLATTER WITHIN 25' OF CENTERLINE OF A26.
PROPOSED PERMANENT EASEMENT
STA 145+76.34, 60.00' L
STA 145+74.08, 57.77' L
PROPOSED ℄ IOWA RIVER DRIVE (A26)
STA 145+55.60, 40.00' L
PROPOSED GUARDRAIL
PROPOSED GRADING LIMITS
STA 144+69.78, 11.00' R PROPOSED FIELD ACCESS
PROPOSED EDGE OF PAVEMENT
PROPOSED EDGE OF SHOULDER
STA 144+65.82 35.00' R
STA 144+50.06 40.00' R
STA 144+30.55, 60.00' R
RESTRICTED AREA – NO ACCESS.
STA 145+25.00, 130.00' R
STA 148+00 N 4003491.08 E 5467340.84 END OF PROJECT
STA 148+00.00, 35.00' R
STA 148+00.00, 80.00' R
PROPOSED PERMANENT EASEMENT
CURVE LEN: 165.00' K = 269.61 VPI STA: 145+40 VPI EL: 658.03
DESIGN SPEED: 55 MPH
CURVE LEN: 165.00' K = 502.60 VPI STA: 144+75 VPI EL: 655.93 SSD: 2106'
HPT STA: 145+57.50 HPT EL: 656.98 BVCS: 143+82.50 BVCE: 654.62 EVCS: 145+57.50 EVCE: 656.98 DESIGN SPEED: 55 MPH
1.27%
1.88%
EXISTING GRADE AT PROPOSED ℄
PROPOSED GRADE AT PROPOSED ℄
END OF PROJECT STA: 148+00.00 EL: 661.84
EX ELEV
PROP ELEV ℄
NORTH
DRAWING MAY HAVE BEEN REDUCED
DESIGNED BY:
DETAILED BY:
TRACED BY:
CHECKED BY:
iiw
RIVERSIDE COUNTY
PROJECT NUMBER
BRS-0002(62)--56--03
STATE
FED. ROAD DIST. NO.
FISCAL YEARS
SHEET NO.
TOTAL SHEETS
2-2
6

RC#1402-30017

IOWA DOT
SMARTER I SIMPLER I CUSTOMER DRIVEN
www.iowadot.gov

Office of Location and Environment
800 Lincoln Way I Ames, Iowa 50010
Phone: 515.239.1795 I Email: brennan.dolan@dot.iowa.gov

February 11, 2014

Ref. HSIPX-86-1(17)--3L-30
Primary System
Dickinson County
R&C: _____

FEB 13 2014

Mr. Ralph Christian
State Historic Preservation Office
600 East Locust
Des Moines, Iowa 50319

RE: Two-Lane Paved-Shoulders Project Iowa 86; Dickinson County; Iowa; T99N-R37W Section 23; *No Adverse Effect*

Dear Ralph:

The Iowa Department of Transportation in cooperation with the Federal Highway Administration (FHWA) has plans to add paved shoulders to Iowa 86 in Dickinson County. The project will run north from the junction with US 71 (MP 0.04) to just south of the junction with Iowa 9 (MP 7.61). See the enclosed map. Plans call for the existing 10 ft. granular shoulders to be overlaid with 6 ft. of asphalt.

Iowa Lakeside Laboratory Historic District (30-00001) is located adjacent to this project. As you know, this property including the park entrance portals adjacent to Iowa 86, is listed on the National Register of Historic Places.

While no milling will take place near the portals, it is anticipated that some vibration will be created during construction. Therefore, the following steps will be taken to avoid any adverse effects to this property:

- The construction plans will contain a plan note to the contractor informing them that the Iowa Lakeside Laboratory Historic District (including entrance portals) is listed on the National Register of Historic Places.
- The construction plans shall contain a plan note to the contractor informing them that construction methods and equipment to be used shall achieve low project vibration levels when working near this area.

- If damage to this property occurs during construction, all activities will cease until approval from the Construction Engineer is provided.
- Project plans will be provided to the SHPO for their information.

With these terms in place our office requests your concurrence with our determination of **No Adverse Effect** with conditions for this undertaking. If your office concurs with this determination please sign below, add your comments and return this letter.

If you have any questions, please contact me at (515) 239-1795 or brennan.dolan@dot.iowa.gov.

Sincerely,

Brennan J. Dolan
Office of Location and Environment

BJD:sm
Enclosures
cc: Tony Lazarowicz – District 3 Engineer
Shane Tymkowicz – Assistant District 3 Engineer
Scott Marler – Environmental Resources Manager
DeeAnn Newell – NEPA Section Leader

Concur: _____ Date: 2/28/14
SHPO Historian
Comments:

IOWA DOT
SMARTER I SIMPLER I CUSTOMER DRIVEN
www.iowadot.gov

Office of Location and Environment
800 Lincoln Way I Ames, Iowa 50010
Phone: 515.239.1795 I Email: brennan.dolan@dot.iowa.gov

August 15, 2016

RECEIVED
AUG 18 2016
by SHPO

NHSN-018-8(42)--2R-33
Primary System
Fayette County
R&C: 160833060

Ms. Sara André
State Historic Preservation Office
600 East Locust
Des Moines, Iowa 50319

RE: Intensive Architectural and Historical Survey and Evaluation for the HMA Resurfacing Project along U.S. 18, City of West Union, Fayette County, Iowa; T94N-R08W Sections 8, 9, 16, & 17; ***No Adverse Effect***

Dear Sara:

Enclosed for your review and comment is the intensive architectural and historical survey and evaluation, Iowa Site Inventory forms, and photo prints for the above referenced project. Currently, the Iowa DOT proposes to mill and resurface (asphalt) parts of U.S. 18 in West Union. The proposed project also entails the replacement of sidewalk, and ADA updates along the corridor from west of the North Oak Street intersection to east of the County Road B64 intersection.

This survey identified 44 individual historic-age properties, two proposed historic residential districts, and 16 modern properties. Evaluation of these properties recommended the two proposed districts, Graham Corner Historic District (33-00837) and Maple/Adams Street Historic District (33-00839), eligible for the National Register of Historic Places (NRHP). These districts encompass 18 properties, 12 of these properties are contributing and six are non-contributing. The proposed Maple/Adams Historic District boundaries expand beyond the current project APE, so properties outside the current APE were not individually inventoried or evaluated. Three additional properties were also evaluated as individually eligible for the NRHP (33-00806, 33-00819, and 33-00821). All historic-age properties identified during this survey are listed in Table 1.

The proposed boundaries for the historic districts and individual properties are considered to be the private property lines just inside the sidewalks where sidewalks exist or at road right of way where there are no sidewalks. The City Grist Mill, 33-00819, is the only property with little to no buffer between the building and the sidewalk.

Table 1 – Properties Investigated

Site Inventory	Eligible	Address	Historic District
33-00794	No	302 W. Bradford St.	
33-00795	No	208 W. Bradford St.	
33-00796	No	206 W. Bradford St.	
33-00797	No	101 Jones St.	
33-00798	No	102 Jones St.	
33-00799	No	118 W. Bradford St.	
33-00800	No	114 W. Bradford St.	
33-00801	No	112 W. Bradford St.	
33-00802	No	110 W. Bradford St.	
33-00803	Yes	108 W. Bradford St.	Graham Corner (Contributing)
33-00804	Yes	106 W. Bradford St.	Graham Corner (Contributing)
33-00805	Yes	301 N. Vine St.	Graham Corner (Contributing)
33-00806	Yes	101 E. Bradford St.	
33-00807	No	103 E. Bradford St.	
33-00808	No	105 E. Bradford St.	
33-00809	No	107 E. Bradford St.	
33-00810	No	111 E. Bradford St.	
33-00811	No	303 E. Bradford St.	
33-00812	No	499 East St.	
33-00813	No	338 E. Bradford St.	
33-00814	No	110 Carpenter St.	
33-00815	No	310 E. Bradford St.	
33-00816	No	308 E. Bradford St. Unit B	
33-00817	No	308 E Bradford St.	
33-00818	No	300 E. Bradford St.	
33-00819	Yes	311 N. Pine St.	
33-00820	No	211 E. Maple St.	
33-00821	Yes	207 E. Maple St.	
33-00822	Yes	108 W. Maple St.	Maple/Adams Streets (Contributing)
33-00823	Yes	110 W. Maple St.	Maple/Adams Streets (Contributing)
33-00824	Yes	112 W. Maple St.	Maple/Adams Streets (Contributing)
33-00825	No	118 W. Maple St.	Maple/Adams Streets (Non-Contributing)
33-00826	No	120 W. Maple St.	Maple/Adams Streets (Non-Contributing)
33-00827	Yes	122 W. Maple St.	Maple/Adams Streets (Contributing)
33-00828	No	124 W. Maple St.	Maple/Adams Streets (Non-Contributing)
33-00829	No	128 W. Maple St.	Maple/Adams Streets (Non-Contributing)
33-00830	No	200 W. Maple St.	Maple/Adams Streets (Non-Contributing)
33-00831	Yes	202 W. Maple St.	Maple/Adams Streets (Contributing)
33-00832	Yes	206 W. Maple St.	Maple/Adams Streets (Contributing)
33-00833	Yes	208 W. Maple St.	Maple/Adams Streets (Contributing)
33-00834	No	210 W. Maple St.	Maple/Adams Streets (Non-Contributing)
33-00835	Yes	214 W. Maple St.	Maple/Adams Streets (Contributing)
33-00836	No	219 N. Oak St.	
33-00837	Yes	Graham Corner Historic District	
33-00838	Yes	305 N. Vine St.	Graham Corner (Contributing)
33-00839	Yes	Maple/Adams Streets Historic District	

Currently, sidewalk replacement is planned for the northern length of the U.S. 18 project area and will not impact 33-00819. Based on these boundaries the current project does not appear to have a potential for direct impacts on the newly identified eligible historic districts and properties.

As we discussed in our 2015 Vibration Monitoring workshop milling with select full depth pavement patching creates project vibration with limited potential to adversely affect historic structures. In an attempt to monitor structures on a commensurate level with the scope and scale of the project, we are proposing to sample vibration monitor the four structures identified in Table 2 due to their proximity to the project.

Table 2 – Structures to be Monitored

Site Inventory	Address	Notes
33-00806	101 E. Bradford St.	Individually Eligible
33-00822	108 W. Bradford St.	Graham Corner District (Contributing)
33-00823	110 W. Maple St.	Maple/Adams Streets (Contributing)
33-00835	214 W. Maple St.	Maple/Adams Streets District (Contributing)

To avoid any adverse effects to these four properties we will require a Special Provision for vibration monitoring. The Special Provision will consist of:

- A preconstruction survey of the properties at 101 E. Bradford St., 108 W. Bradford St., 110 W. Maple St., and 214 W. Maple St. will be completed that will document the present condition of each property. The preconstruction survey will also establish a peak particle velocity (PPV) threshold for vibration.
- Sensors (crack and/or seismic) will be installed and tested daily. If 80 percent of the PPV threshold is reached sensors will alert the contractor and in turn the construction engineer.
- If the PPV is reached, a meeting with the contractor and the construction engineer will identify alternative demolition/construction methods and/or equipment to be used to minimize project vibration.
- A post construction survey will be performed.

Also, we anticipate consultation with the Fayette County Historic Preservation for this project. Per 36CFR800.3(f) we are requesting your input regarding other potential consulting parties.

Based on the current project plans and survey recommendations we request your concurrence with our determination of **No Adverse Effect**. As with any Iowa Department of Transportation project, should any new important archaeological, historical, or architectural materials be encountered during construction, project activities shall cease and the Office of Location and Environment shall be contacted immediately.

If you have any questions, please feel free to contact me at 515-239-1795 or brennan.dolan@dot.iowa.gov.

Sincerely,

Brennan J. Dolan
Office of Location and Environment

BJD:
Enclosures
cc: Jon Ranney – District 2 Engineer
Dave Little – District 2 Assistant Engineer
DeeAnn Newall – NEPA Section Leader
Terry Landsgaard – Fayette County Historic Preservation
Leah Rogers – Tallgrass Historians

Concur: _____ Date: 9/22/2016
SHPO Historian

Comments:
Concur with No Adverse Effect. However potential historic districts should be carefully evaluated regarding the contributing vs. non-contributing resources - esp. with regard to integrity, if nomination status is planned.

SP-150XXX
(New)

SPECIAL PROVISIONS
FOR
VIBRATION MONITORING TO PROTECT HISTORIC STRUCTURES

Fayette County
NHSN-018-8(42)--2R-33

Effective Date
February 21, 2017

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

092007.01 DESCRIPTION.

A. This specification identifies the Contractor's responsibilities for protecting the properties listed below. The Contractor shall develop a work plan which minimizes the potential for possible vibration damage due to construction and demolition activities near the identified structures. The Contractor will also be asked to monitor vibrations and crack behavior at the identified structures in order to protect them from any vibration induced damage.

B. The following properties shall be protected per the requirements in this special provision.

Address	**Property Owner** (Subject to Change)	**National Register Status (SHPO #)**
101 E. Bradford St.	Gloria Schatz	Eligible (33-00806)
108 W. Bradford St.	Donald and Miranda Balk	Eligible (33-00822)
110 W. Maple St.	Kleppe Properties No. One	Eligible (33-00823)
214 W. Maple St.	Todd and Tamera Wolverton	Eligible (33-00835)

092007.02 PRECONSTRUCTION SURVEY.

A. No information is available concerning the condition of these properties.

B. The Contractor shall perform a pre-construction condition survey at the above listed addresses (see table), and provide a copy of survey report(s) to the Engineer no later than 30 calendar days prior to starting work. The Contractor shall have a Professional Engineer licensed in the State of Iowa and experienced in evaluating structural vulnerabilities and vibration monitoring perform the survey.

The Contractor can find the list of prequalified firms at the following URL http://www.prof-tech-consultant.dot.state.ia.us/default.asp. The Contractor shall choose from the list of prequalified firms under work category 359 including the following:

- Exponent, Inc., 185 Hansen Ct., Suite 100 Wood Dale, IL 60191
- Klienfelder East, Inc. 3730 South 149th Street, Suite 107, Omaha, NE 68144
- Wiss, Janney, Elstner Associates, Inc., 330 Pfingsten Road, Northbrook, IL 60062
- Terracon Consultants, Inc., 600 SW 7th Street, Suite M, Des Moines, IA 50309
- Braun Intertec Corp., 5915 4th Street SW, Suite 100, Cedar Rapids, IA 52404

C. At a minimum the survey shall document all aspects of the structural condition through observations, actual measurements, plan sketches, photographs, and any other data the preparer may deem appropriate. The survey report shall be submitted to the Engineer electronically.

D. The Contractor shall perform a pre-construction condition survey that includes photos and plan sketches indicating existing vulnerabilities, an evaluation of the risk from construction vibration, and recommendation of maximum safe peak particle velocity (PPV) threshold. The Contractor shall determine the construction methods required to protect the properties listed above based on the pre-construction survey and the safe vibration threshold.

E. The Contractor is responsible for arranging with the property owner the rights-of-entry to their property in order to engage in condition surveys, vibration monitoring, and crack monitoring.

092007.03 MONITORING PLAN.

A. The Contractor shall provide to the Engineer a monitoring plan no later than 30 calendar days prior to commencing work. The plan will be reviewed by the Engineer and any comments will be returned to the Contractor within 20 calendar days. The Contractor will then have 10 calendar days to revise the work plan and resubmit a final plan to the Engineer prior to commencing work.
B. The plan shall describe the following:

- Construction methods and equipment that the Contractor chooses to use to achieve low project vibration levels.
- Alternative construction methods and equipment that will be used if the PPV threshold is reached or exceeded.
- Detailed description of the vibration and structural integrity monitoring systems and if necessary catalog cuts of monitoring equipment that will be used; how the monitoring equipment will be calibrated and re-calibrated if necessary during the life of the project; description and schematics if necessary of how the independent components will function as a system.
- Identification of the individual, and their contact information, designated to oversee the vibration and crack monitoring system(s); and daily recording activities required in this specification. A brief description of qualifications or resume of the individual is also required.
- How monitoring equipment will be deployed to continuously record vibration events, including crack monitoring during construction activity. Depending on the monitoring equipment deployed and method chosen for networking, it is possible there will need to be both electrical and telecommunications connections available at multiple remote locations. The monitoring plan will address how the Contractor will provide utility service to the monitoring equipment, protect the monitoring equipment from potential vandalism and the elements, and monitor the overall system's day-to-day operation. The plan shall describe in reasonable detail the method and means the Contractor will use to identify and monitor existing cracks and document new cracks. For significant cracks or cracks that appear to have a high potential to migrate, it is recommended that the Contractor employ crack monitoring gauges.
- Details for establishing and deploying an alarm system to announce immediate shut down of all site activities if a vibration event occurs which exceeds the PPV threshold established for the properties listed above. The alarm system shall include a phone modem which will dial cell phones of the Engineer and Contractor site personnel in the event of an exceedance.

- Method for coordinating with the Engineer whereby the Contractor's retained licensed engineer will conduct a post-alarm survey in the event of a PPV threshold alarm occurrence.
- Establish a protocol for the identification of the activity or construction equipment that caused the PPV threshold to be exceeded.
- Description of the process which will be used to verify that the monitoring equipment will function as planned before starting work and the process which will be used to verify (daily) that the monitoring equipment remains in calibrated working order.
- Detail a protocol including responsible parties to be notified if an exceedance occurs. This includes, but is not limited to the construction superintendent and the DOT's lead inspector.
- Daily activity log of vibration activity and crack monitors to ensure the identification of the cause of any vibration event. Depending on equipment deployed, crack monitors could be monitored remotely or by visual inspection. In either case, a daily inspection log for the duration of the construction project shall be maintained either in written or electronic form.
- Daily testing and logging of entire geophone/seismograph/communications network (start of day test) If the equipment fails the daily test, the Contractor shall correct the deficiency before proceeding with planned activities for that day or temporarily suspend work until the equipment is repaired or replaced. All daily logs will be available to the Engineer for review and a summary of daily logging will be provided in the post-condition survey.

092007.04 PRE-CONSTRUCTION SITE PREPARATION.
At the properties designated in Article 092007.01:

A. Crack Monitoring:
In accordance with the project's monitoring plan (Article 092007.03) the Contractor shall mark existing cracks in such a way that future observations would clearly indicate whether cracks remained unchanged, opened, closed, or propagated. The Contractor shall monitor and log all cracks and crack monitoring devices daily and immediately notify the Engineer of any observed change. It is recommended, but not required, to have and record metrological data for the close proximity to the project. Cracks that can be documented during the project to respond to changes in meteorological conditions will not require additional explanation in the final report.
Following is a list of companies that supply crack monitoring equipment; however other equipment of equal reliability and quality will be acceptable.

- Tell-Tale Crack Monitors, RST Instruments Ltd.; 800.665.5599; www.rstinstruments.com
- Crack Monitoring Equipment, Geotest Instrument Corp.; 866.430.7645; www.crackgauge.com
- Avongard Crack Monitor, Avongard Products USA; 800.244.7241; www.avongard.com

B. Vibration Monitoring:
In accordance with the project's monitoring plan (Article 092007.03) all monitoring equipment shall be initially installed and maintained during the project in accordance with manufacturer's recommendations, calibration standards, and specifications. No site work can begin until all monitoring equipment is deployed and verified to be operating in accordance with factory recommendations and specifications.

C. Proof of Installation:
The Contractor shall demonstrate that the installed equipment will continuously and accurately measure vibrations, electronically log the vibration history (date/time stamp), and provide a communication notice system that notifies site personnel should the PPV threshold be exceeded. The monitoring equipment shall remain in-place and in operation throughout the project.

092007.05 VIBRATION LIMITS.
After a thorough conditions evaluation, the Contractor shall propose in the pre-construction survey a PPV level for the monitored structure. The PPV level proposed by the Contractor shall be determined by a qualified expert in the field of vibration monitoring. If the Engineer agrees that the level proposed by the Contractor will reasonably protect the structure, that PPV level will be added to the contract documents by mutual benefit for the specific property. In no case shall the PPV level exceed 0.2 inches/second [ips] as measured at or in very close proximity to the monitored structure. To ensure the PPV level is not

exceeded, an alarmed monitoring system shall be implemented to signal any vibration event that equals or exceeds a threshold of 80% of the PPV level.

092007.06 DEMOLITION/CONSTRUCTION.
A. The Contractor shall periodically check to ensure that the monitoring system(s) are continuously operating within manufacturer's specifications during the project.

B. The Contractor shall immediately cease work if the alarm at the structure indicates the PPV threshold is reached or exceeded causing a vibration event. In the event of an exceedance the Engineer shall be notified immediately. The Contractor shall conduct a post-alarm survey. The shut down shall remain in effect until the Contractor has, to the Engineer's satisfaction, identified the cause of the exceedance; addressed the potential for another exceedance by replacing faulty monitoring equipment; modified the work process; or provided a recommended change to the equipment being used. Work shall not resume until approved by the Engineer.

092007.07 POST-CONSTRUCTION SURVEY.
The Contractor shall perform a post-construction survey and analysis at the designated adjacent structure to determine if any structural changes are the result of the construction activity. The Contractor shall provide the Engineer with a copy of all post construction survey reports, daily log summaries for vibration and crack monitors, and analysis documents comparing pre and post structural condition prior to contract acceptance.

092007.08 METHOD OF MEASUREMENT.
The item Vibration Monitoring will be measured as a lump sum unit of work.

092007.09 BASIS OF PAYMENT.
Vibration Monitoring will be paid for at the contract lump sum price. This price shall be full payment for pre-construction surveys; furnishing, installing, monitoring, and removing crack monitoring gauges; preparing and providing a report documenting crack monitoring during this project; furnishing, installing, monitoring, and removing vibration monitoring equipment; preparing and providing a report documenting vibration data collected during this project; notification of vibration events; post-construction surveys; reports; and all labor, equipment and materials necessary to complete the work as described. There will be no compensation for delays as the result of exceeding the PPV threshold or delays from faulty or damaged monitoring equipment. There will be no compensation for adjustment of construction activities or equipment to reduce the vibration levels to less than the maximum PPV, should an exceedance occur.

discretion of the Engineer.

D. Use of materials on the basis of the producer's certification, quality control tests, and evaluations may be permitted or required. Contractor and supplier laboratories performing testing for all projects on Interstate and Primai routes shall be qualified laboratories in accordance with Materials I.M. 208. The Engineer may require specific data obtained by qualified persons and procedures be provided with the material when delivered. Certified gradation testing by a certified aggregate technician will be required for all aggregates to be furnished by the Contractor, and this shall be done in accordance with Materials I.M. 209 and 213. This requirement shall apply to aggregate furnished in accordance with Article 1106.05 only when gradation of that aggregate is a contract requirement.

1106.02 SAMPLES AND TESTS.

A. Each consignment of material shall be tested or inspected before being incorporated into the project and shall be approved by the Engineer in charge of the contract before it is used. The Contractor shall afford such facilitie for collecting and forwarding samples as the Engineer may require.

B. When not designated in the standard or supplemental specifications or Materials I.M.s, the inspection, sampling, testing, and basis of acceptance of materials shall be in accordance with the current AASHTO "Standard Specifications for Transportation Materials and Methods of Sampling and Testing," including published interim standards.

1106.03 STORAGE OF MATERIALS.
The Contractor shall be responsible for care and storage of materials delivered to the project site or purchased for use. Material that has been delivered to the project site and has become damaged or contaminated before actual ncorporation in the work may be rejected by the Engineer even though it may have been previously acceptable. Stored materials shall be so located as to facilitate thorough inspections.

1106.04 UNACCEPTABLE MATERIALS.
All materials not conforming to requirements of the specifications at the time they are to be used shall be considered unacceptable, and these materials will be rejected and shall be removed immediately from the work site unless otherwise instructed by the Engineer. Rejected material shall not be used until the defects have been corrected and approval has been given.

1106.05 AGGREGATE FURNISHED BY COUNTY.
On some Secondary asphalt concrete paving or base construction projects, part or all of the aggregates may be furnished by the County in the pit, stockpile, or on the road, as stated in the contract documents. When the proposal st that the County will furnish the aggregate, the material will be furnished in the designated pit, stockpile, or on the road without cost to the Contractor, unless otherwise stated.

A. Aggregate Furnished by County in Pit.

1. When aggregate is furnished by the County in a pit, the Contractor will be required to do all work necessary, including stripping, pumping, processing, and hauling, to produce pit run material or material of the quality specified. The operation in any county owned or county controlled pit will be under the general direction of the County Engineer. All gravel aggregate produced for base construction or produced from wet pits for any pa the construction shall be stockpiled for a period of not less than 24 hours before being used in the project.

2. In the operation of the pits, the Contractor will be required to conduct the work in such a manner that a uniform product is obtained. This may require working full faces, partial faces, and/or simultaneous operations fror different locations in the pit, as directed by the Engineer. All oversize aggregate less than 8 inches in diameter shall be crushed to pass the 3/4 inch sieve.

B. Aggregate Furnished by County in Stockpile.
When aggregate is furnished in a stockpile or stockpiles at stated locations, the Contractor will not be responsible for quality of the aggregate unless designated, but the Contractor will be required to mix, blend, haul, compa the material, and do all other work necessary to incorporate this material into the project.

C. Aggregate Furnished by County on Road.
When aggregate is furnished on the road, the material will be deposited by dumping the required amount onto the road. The Contractor will not be responsible for quality of the aggregate unless designated, but the Contract will be required to windrow, equalize, mix, blend, wet, compact the material, and do all other work necessary to incorporate this material into the project.

D. Filler.
When it is possible to predetermine, with a reasonable degree of accuracy, that the aggregate specified for use and furnished will require the addition of filler or another aggregate to produce a workable and satisfactory mix the contract documents will identify the filler or other aggregate and will include an estimate of the quantity and a basis of payment.

1106.06 REUSING HMA AND OTHER BITUMINOUS MATERIALS.
Unless specified otherwise, bituminous materials not specifically addressed in the contract documents shall become property of the Contractor. The Contractor may remove from the project according to the rules and regulations of tl DNR or, with approval of the Engineer, use the material as allowed by the contract documents.

1106.07 CONTRACTOR FURNISHED BORROW AND WASTE AREAS.

A. The Contractor shall obtain necessary environmental clearances and permits.

B. The Contractor shall ensure areas (including haul roads and staging areas) selected for waste or disposal of excess material (excavated material or broken concrete), or furnishing borrow have been reviewed for impacts to not limited to the following:

- Culturally sensitive sites or graves.
- Wetlands or "Waters of the U.S.", including streams or stream banks below the "ordinary high water mark", without an approved U.S. Army Corps of Engineers Section 404 Permit.
- Threatened or endangered species.
- Floodplains.
- Regulated Materials.
- Sovereign lands.
- Storm water discharge.

C. No payment for overhaul will be allowed for material hauled to or from these sites. Excess material shall not be placed within the right-of-way unless specifically stated on the plans.

minimize the duration of the disturbance, turbidity increases, substrate disturbance, bank disturbance, and disturbance to vegetation.

s. **Threatened and Endangered Species.**
Activities shall be completed in accordance with Article 1107.18, B, 1.

t. **Historic Properties.**
No activity will be authorized which violates the requirements of Section 106 of the National Historic Preservation Act.

u. **Mitigation.**
The work shall be constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States at the project site (i.e., on site).

B. Threatened and Endangered Species.

1. **Threatened and Endangered Species.**
No activity will be authorized which jeopardizes the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or will destroy or adversely modify the critical habitat of such species.

2. **Threatened and Endangered Bats.**
To protect threatened/endangered bats, trees deemed suitable habitat shall be removed in accordance with Article 2101.01, A, unless otherwise directed in the contract documents. The Contractor shall limit removal of forest cover to those areas which are absolutely necessary for the construction of the work. Areas of suitable habitat for threatened and endangered bats shall be determined by the Contracting Authority.

3. **Working in Topeka Shiner Watersheds.**
When critical habitat for Topeka shiner is identified in the contract documents, the following special conditions shall be implemented:
   a. The Contractor shall not deposit sweepings, washings, treatment chemicals, or grouting and bonding materials in the stream or into any location where such pollutants can be washed in the stream by runoff water.
   b. To protect Topeka Shiners during their peak spawning period, Contractor shall not conduct project activity within the stream bed between the dates of May 15 and July 31, inclusive. Constructing or removing temporar crossings, causeways, and weirs is prohibited between those dates as well. Previously constructed crossings, causeways, and weirs may remain in place between those dates.
   c. Prompt attention is required for placing and maintaining temporary erosion control measures to minimize unnecessary sediment loading of the stream. Within one week of land disturbance at the project site, place appropriate temporary erosion control measures (e.g. silt fencing, hay bale ditch checks, erosion control blankets, rock ditch checks, etc.) and/or temporary grass seeding.
   d. Within one month (or during the next appropriate seeding period) following completion of construction, reseed all areas denuded of vegetation as a result of the permitted action, including all borrow areas that drain int the stream, using a permanent seed mix.
   e. The Contractor shall not take sand for use in mixing concrete and/or asphalt from the project site, unless indicated otherwise in the contract documents.
   f. The Contractor shall protect off-channel wetland complexes, such as old oxbow meanders, that are present near the project area.
   g. The Contractor shall locate and protect temporary storage and/or staging facilities for waterways, tributaries, or drainageways within the project areas. In the event of an accidental spill, follow established state and federal spill reporting procedures. For Iowa DOT projects, immediately notify the Office of Location and Environment.

4. **Mussel/Shellfish Beds.**
When mussel/shellfish beds have been identified in the contract documents, no construction activity shall occur in areas of concentrated shellfish populations.

C. Active Nests of Migratory Birds.

1. To protect migratory birds, the Contractor shall not conduct construction activities where active nests are present. Active nests are likely to be present between the dates of April 1 and July 15. Active nests are nests containin eggs or young of migratory birds.

2. Prior to the date the contract is fully executed, the Contracting Authority will be responsible to remove non-active, existing migratory bird nests and monitor to prevent the establishment of active nests.

3. Beginning on the date the contract is fully executed, the Contractor shall remove non-active, existing migratory bird nests and monitor to prevent establishment of active nests. Only costs associated with removing nests prio to initial mobilization will be paid as extra work as per Article 1109.03, B.

4. In the event that active nests are discovered, stop work and notify the Engineer.

D. Cultural Resources.

1. No activity will be authorized which violates the requirements of Section 106 of the National Historic Preservation Act.

2. When required, the Contracting Authority will obtain Section 106 authorization for essential work on the right-of-way prior to the award of the contract. The Contractor shall adhere to the requirements of the authorization.

3. The Contractor shall comply with Article 2102.03, J, if historic, cultural or archeological remains and artifacts are discovered while accomplishing the work under contract.

E. Regulated Materials.

1. The Contractor shall comply with Article 1107.07, C.

2. The removal, transport, and disposal of asbestos from buildings and structures scheduled for demolition or renovation shall be done in accordance with Section 2536.

3. The removal of underground tanks and remediation of petroleum contaminated soil shall be done in accordance with Section 2537.

4. The salvage, removal, and disposal of buildings and other obstructions from the project site shall be done according to in accordance with Section 2538.

F. Noise.
The Contractor shall comply with Article 1107.07, D.

G. Loess Hills Protection.

Kansas

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
107.9 PROTECTING PROPERTY, LANDSCAPE, AND THE ENVIRONMENT

a. Protect public and private property from damage until final acceptance. Install temporary fence if the Contractor's operations require temporary fence to protect adjacent property, animals, or both.
b. Disturb no land monuments or property marks before the Engineer or Contractor (whichever is responsible) verifies the location of these markers.
c. Cease construction operations upon encountering historical or archaeological artifacts. The Engineer will determine whether to suspend operations until third parties are able to extract the artifacts or the Contractor has approval to excavate the site. The Engineer may allow work to continue in other Project locations.
d. Prevent and avoid pollution and wildlife interference. […]

Kentucky

SECTION 205 BORROW AND EXCESS EXCAVATION SITES

205.03.01 Historic Preservation.

Protect cultural resources on borrow sites pursuant to the Historical Preservation Act of 1966.

Before using any site for borrow material, certify to the Department that a professional archaeologist has performed an archaeological reconnaissance survey on the site and has completed a report confirming the presence, on the site, of any known cultural resources affected that are eligible for, or on, the national register of historic places. Additionally, certify to the Department that the state historic preservation officer has reviewed the professional archaeologist's survey report of the site, and concurs with his findings. If any applicable cultural resources are present, mitigate according to Section 106 of the Historical Preservation act of 1966 and certify that the adverse effects upon the resources have been palliated before using the site for borrow material.

For borrow sites designated by the Department, the Department is responsible for assurances relative to cultural resources pursuant to the Historical Preservation Act of 1966.

If, during the course of borrow operations, any archaeological materials are encountered, cease work in the immediate area and notify the Engineer. Provide a professional archaeologist to conduct the necessary investigations to determine the significance of the cultural resources. Avoid the area of discovery until the investigation is complete. Should the resources prove to be significant (eligible for the National Register of Historic Places), fulfill the requirements of Section 106 of the Historic Preservation Act before proceeding. When operations on the project are suspended due to the unanticipated finding of archaeological materials in a previously approved borrow site, the Department will adjust the Contract time according to Subsection 108.07.

Louisiana

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC
107.27 ARCHAEOLOGICAL FINDINGS AND UNMARKED BURIALS.

If the contractor encounters cultural artifacts or archaeological or historical sites, operations in the area of the discovery shall be discontinued. The engineer will contact the DOTD Environmental Engineer Administrator, or designee, in order that an appropriate assessment may be made to determine the disposition thereof and necessary actions relative to the site. Those decisions will be made in consultation with, as applicable, the State Archaeologist, the State Historic Preservation Officer, and the lead federal agency. When directed, the contractor shall perform services on the site to preserve the artifacts encountered. Such extra work will be paid for in accordance with 109.04, including an appropriate adjustment in contract time in accordance with 108.07. Borrow and muck disposal areas furnished by the contractor will be subject to such assessment by the contractor prior to use.

If the contractor discovers unmarked burial sites, human skeletal remains, or burial artifacts, operations in the area of the discovery shall be discontinued. The contractor will notify the proper authorities, as well as the engineer, in compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (RS 8:680-681).

Maine

SECTION 105 - GENERAL SCOPE OF WORK

105.9 Historic and Archaeological Considerations

Unless otherwise provided in the contract, the Contractor is approved to construct the project in accordance with the contract plans. This in accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. 1-63 470 f), the Regulation (36 CFR Part 800), and the 2004 Section 106 Maine Programmatic Agreement.

Changes during construction that vary from the project contract plans must be approved by the Department. These changes could have adverse effects to Historic Resources, as well as jeopardize federal funding.

If the Contractor or any subcontractor discovers any object of potential historic archaeological or other historic interest, all work that could disturb the object will immediately cease and will not resume until investigation of the object and related deposits have been completed, and if necessary recovered. The Contractor will notify the MaineDOT immediately. (The first indications of deposits may be burial grounds or campsites of Native Americans that reveal the bones of the dead and implements. Also the exposure of marine fossils or shells found mainly in clay deposits, as well as, exposure of dumps in landfill areas, abandoned campfire sites, and building foundations.)

Any delay of the Contractor's operations resulting from the above will be analyzed in accordance with MaineDOT Standard Specification Section 109.5 – Adjustment for Delay, except that in no event will such delay be a compensable delay.

The Contractor is notified of a Maine Statute, 27 MRSA §371, which states that artifacts, specimens, and material, which are public property by virtue of having been found on, in, or beneath State controlled lands, and places ownership of the same in the State of Maine.

Maryland

SECTION 5: LEGAL RELATIONS AND PROGRESS
TC-5.04 CULTURAL RESOURCES

The Contractor shall be aware of the potential of cultural resources on the project. During the construction phase, whenever anything that might appear to be a cultural resource of a historical, archeological, or paleontological nature is encountered, such an object shall not be disturbed. Work shall be stopped and rescheduled in a way that shall avoid not only the objects but also the area of discovery, and the Engineer shall be notified at once. The Engineer will arrange for the evaluation of the situation by the appropriate authorities and for the ultimate disposition of the matter, taking the evaluation of the situation by the appropriate authorities into consideration.

SECTION 420 PORTLAND CEMENT CONCRETE STRUCTURES
420.03 CONSTRUCTION
420.03.02 Forms

[…] (c) Forms at Construction Joints and Corners. Provide ties or bolts 3 to 6 in. from each side of construction joints for tightening the forms against the hardened adjacent concrete prior to placing fresh concrete. At joints where forms have been removed and reconstructed, extend the form over the concrete already in place; and draw tightly against the previously placed concrete. Provide fillets at all sharp corners, except when otherwise specified, and provide a bevel or draft in the case of all projections. Chamfer all exposed corners of concrete with 3/4 x 3/4 in. milled chamfer strips, except on unexposed footings or where specified.

(d) Form Scaffolds and Platforms. Build form scaffolds and platforms along the outside of bridge deck fascias during construction of forms for bridge decks. Design and construct them as integral parts of the form supports. Furnish separate design calculations with the working drawing submission. Assume the responsibility of TC-4.01 even after approval of the working drawings.

(e) Forms for Unexposed Surfaces. Ensure that sheathing, studs, and bracing are of sound material, and that studs and wales are straight, true, and surfaced on two edges to a uniform width. Ensure that the inside faces of the forms are constructed sufficiently smooth so that the resulting concrete surfaces are accurately formed.

(f) Forms for Exposed Surfaces. Unless otherwise specified in the Contract Documents, support the bridge deck concrete between stringers with steel forms which remain in place, except in panels where a longitudinal deck construction joint is located between stringers. Ensure that forms used for widening and rehabilitation provide exposed finished concrete surfaces that match the existing structure.

(1) Lined Forms for Exposed Surfaces. Use approved composition board, sanded plywood, or metal for contact surfaces of lined forms for surfaces exposed to weather or view. Ensure that all studs are surfaced two edges to a uniform width. The studs and backing shall be solid, straight, and free of detrimental defects. However, the backing need not be of the quality used for contact forms for unexposed surfaces. Sheathing for form backing shall be surfaced

two sides to a uniform thickness of at least the dimension approved on the working drawings. Ensure that form sheathing is built solidly, securely nailed to studs, and placed to prevent any bulging of the lining.

(2) Unlined Forms for Exposed Surfaces. Use five ply sanded plywood of the specified thickness for surfaces exposed to weather or view. Use plywood manufactured especially for concrete formwork using waterproof glue. All studs and wales shall be surfaced two edges to a uniform width. Use full size sheets of plywood except where smaller pieces cover an entire area. Solidly back joints to prevent leakage, and nail the edges of abutting sheets to the same stud or blocking with sixpenny nails not more than 8 in. apart. Where rustication occurs, construct horizontal plywood joints behind a rustication strip. Otherwise, place horizontal joints at the same respective elevations in all portions of the structure. Where vertical rustication occurs, construct vertical joints in the lining behind a rustication strip. Otherwise, keep vertical joints to a minimum, butted tightly together and sealed with crack filler as the plywood is nailed in place.

(g) Steel Forms Which Remain in Place

(1) Installation. The surface in contact with concrete shall be smooth and free of surface irregularities. Ensure that working drawings specify the grade of steel, the physical and sectional properties, and a clear indication of where the forms are supported by steel beam flanges subject to tensile stresses.

Do not weld form supports to flanges of steel that are not considered weldable or to portions of flanges that are subject to tensile stresses. Welding and welds according to AWS Bridge Welding Code pertaining to fillet welds.

Unless otherwise specified, use steel forms between stringers to support bridge deck concrete, except where a longitudinal deck construction joint is located between stringers.

(2) Procedure Check and Inspection. Remove at least one section of the forms at a location and time selected by the Engineer from each span of each bridge in the Contract. If the bridge has a longitudinal joint, remove a form on each side of the joint from each span. Do this as soon after placing the concrete as practical to provide visual evidence that the concrete mix and the placement procedures are obtaining the desired results. Remove an additional section if the Engineer determines that there have been any changes in the concrete mix or in the placement procedures that warrant additional inspection.

At locations where sections of the forms are removed, replacement of the forms will not be required, but the adjacent metal forms and supports shall be repaired to present a neat appearance and ensure their satisfactory retention. As soon as the form is removed, the concrete surfaces will be examined for cavities, honeycombing, and other defects. If the Engineer finds irregularities but determines that the irregularities do not justify rejection of the work, repair the concrete as directed. Give the concrete an ordinary surface finish as specified in 420.03.07(a). If the concrete where the form is removed is unsatisfactory, remove additional forms, as necessary, to inspect and repair the slab. Modify the method of construction as required to obtain satisfactory concrete. Remove all unsatisfactory concrete and replace or repair as directed. Provide facilities required for the safe and convenient conduct of the Engineer’s inspection procedures.

(h) Steel Forms Which Do Not Remain in Place. The contact surface shall be smooth and free of bolts, bolt heads, nuts, rivet heads, welding seams, and surface irregularities. Forms that produce unacceptable results will be rejected, and shall not be reused.

(1) For Round Columns and Piers. Use steel forms that are at least 10 gauge, have a minimum number of horizontal joints, and are column height.

(2) For Pier Caps and Crash Walls. Prefabricated girder type steel forms may be used for forming pier caps or crash walls. Use one piece where practical for each element of these forms including side, bottom, and end. Arrange splices to provide a symmetrical pattern.

(3) For Reinforced Concrete Box Culverts and Rigid Frames. Use steel forms or forms constructed of wood or composition wood panel sheathing set in metal frames. Steel forms for box culverts and rigid frames shall be at least 10 gauge.

(i) Fiber Column Forms. Fiber column forms shall only be used for round columns. The forms shall produce columns truly round and straight. Protect forms from dampness before concrete is placed. Do not splice fiber forms.

(j) Release Agents. Apply form release compound immediately before placing concrete.

(k) Temporary Supports. Build temporary supports used for centering and falsework on good firm foundations. Unless otherwise provided, ensure that they bear upon strata at or below the frost line unless rock is available. Where required, drive piling for support. Ensure that the strength and bracing of the temporary supports will provide a completed structure having the shape specified. Use jacks or hardwood wedges in connection with the temporary supports to take up settlement either before or during placing of concrete. Set temporary supports to give the structural camber specified, and allowance for shrinkage and settlement. If during construction, any weakness, settlement, or distortion develops, stop the work and remove any masonry affected. Strengthen the temporary structures before resuming. Construct centering to permit gradual and uniform lowering.

(l) Defective Forms. Use an approved device for removing or modifying steel forms which remain in place. Burning is prohibited.

(m) Form Ties. Use approved form ties. Ensure that ties leave no metal closer than 2 in. from the surface. They shall not be fitted with lugs, cones, washers or other devices that act as spreaders within the form or for any purpose that leaves a hole larger than 7/8 in. diameter. When prefabricated steel girder forms are used, use tapered ties no greater than 1-1/2 in. diameter. Ensure that ties are clean and free of rust. When ties are removed, pressure grout the holes with a nonshrink mortar mixed to match the color and texture of the concrete.

Coat the removable portions of ties with a clear lubricant or other approved material.

During removal of form ties, avoid spalling the concrete on the exposed surface.

Do not cut the ties back from the surface.

(n) Form Support Brackets or Devices. Devices attached to previously placed concrete may be used, provided all parts are acceptable. No metal part of an insert, threader, or anchor that remains in the concrete shall be within 2-½ in. of the surface. Do not attach brackets or other devices until the concrete is cured and it has attained a compressive strength of at least 3000 psi. All voids left in the concrete after removal of brackets and other devices shall be no greater than 2 in. diameter. Fill them with mortar and finish the surface as specified in 420.03.07(a).

(o) Form Removal. For determining the time when falsework and forms may be removed, backfill placed, and when loads may be applied to structures, make an adequate number of concrete test specimens in addition to those required to check the quality of the concrete being produced. After meeting all formwork requirements, remove and dispose of all forms except those specified to remain in place.

Do not use methods of form removal likely to cause overstressing of the concrete.

Do not remove forms and their support without approval. Remove supports in a manner that permits the concrete. […]

463 BRICK MASONRY

463.03 CONSTRUCTION

Unless otherwise specified, lay all brick masonry in level courses with faces plumb, square, and true to the dimensions specified. Ensure that all exposed surfaces are smooth. Lay brick masonry for parapets and end posts parallel to the roadway or barrier. Construct brick facing as specified.

463.03.01 Bond. Unless otherwise specified, lay brick masonry in running bond. Lay adjoining courses to break joints by half brick as nearly as practical.

463.03.02 Bricklaying. Spray all brick with water to dampen the surface prior to laying. Only use fresh plastic mortar that is soft and workable when placed on the wall. Spread a layer of mortar on the beds and make not more than a shallow furrow in it that can be readily closed by the laying of the brick. Solidly fill all bed and head joints with mortar. Fully butter end joints of stretchers and side or cross joints of headers with mortar and make a shoved joint so that mortar is squeezed out at the top of the joint. Ensure that no bricks loosened after the mortar has taken its set, relay bricks with fresh mortar. Do not use broken or chipped bricks in the face. Do not use spalls or bats except where necessary to shape around irregular openings or edges. Place full bricks at ends or corners where possible. Use the bats in the interior of the course. In making closures, do not use bricks shorter than the width of a whole brick. Use only whole brick as headers.

463.03.03 Joints. Slush all joints with mortar at every course, slushing alone will not be considered adequate for making an acceptable joint. Lay exterior faces in advance of backing. Back plaster or parge exterior faces with a coat of mortar at least 3/8 in. thick before the backing is laid up. Prior to parging, cut flush all joints on the back of face courses. Joints shall be 1/4 to 1/2 in. wide. Uniformly maintain whatever width is adopted throughout the work.

463.03.04 Pointing. Tool all exterior head and bed joints with a round tool, slightly larger than the joint, pressed tight against the plastic mortar for a concave finish. When nails or line pins are used, plug the holes with mortar and point them immediately upon removal.

463.03.05 Cleaning. Upon completion of the work, clean all exterior surfaces by scrubbing and washing down with water. If necessary, clean with a 5 percent solution of muriatic acid, then rinse off with liberal quantities of clean fresh water.

463.03.06 Curing. After the work has been laid up and pointed, cure the exposed surfaces using one of the following methods:

(a) Cover with two layers of burlap and keep wet for three days.

(b) Apply a non-asphalt colorless liquid curing compound using an approved hand or motor driven spray operated at a pressure of 40 to 60 psi. Apply uniformly at a rate of

27 yd2/gal. Ensure that the surface is completely coated and sealed in one application. Where there is evidence of insufficient coating, apply additional material as directed.

463.03.07 Cold Weather Protection. Do not perform brick masonry work and pointing when there is frost in the brick or when the air temperature is below 50 F, unless suitable housing and heating devices are provided as necessary to keep the atmosphere surrounding the masonry at a temperature of at least 50 F for the curing period.

463.03.08 Backfill. Do not backfill before seven days after completion of the section.

903 MASONRY PRODUCTS

903.06 MORTAR FOR MASONRY

Composed in accordance with one of the following:

(a) One part portland or blended cement and three parts mortar sand by dry loose volume and hydrated lime not to exceed 20 percent of the cement by weight.

(b) One part masonry cement and three parts mortar sand by dry loose volume.

(c) Prepared bag mixes consisting of masonry cement and mortar sand. The prepared mixes shall produce a minimum compressive strength of 500 psi in seven days when tested using the applicable procedures specified in C 91.

Materials for mortar shall meet the following:

Mortar Sand	901.01
Portland Cement	902.03
Blended Hydraulic Cement	902.04
Masonry Cement	902.05
Water	921.01
Lime	921.03

Massachusetts

SECTION 7.00 Legal Relations and Responsibility to Public
7.23 Archeological and Paleontological Discoveries. (1988)

The Contractor's attention is directed to the United States Department of Transportation, Federal Highway Administration, Federal Aid Highway Program Manual, Volume 7, Chapter 7, Section 4, subject ''Archeological and Paleontological Salvage'', incorporating Policy and Procedure Memorandum 20-7, dated March 31, 1971, and to the Commonwealth of Massachusetts, Acts of 1973, Chapter 1155. In compliance with these procedures and legislation, the contractor shall exercise special care during his operations to avoid injury to underground prehistoric and historic archeological remains or paleontological remains. Should any archeological or paleontological remains be encountered during any phase of construction, the contractor shall immediately suspend all work in the area and shall notify the Engineer. The Engineer shall immediately notify the State Archeologist and the Massachusetts Historical Commission. All Construction work in that area will be temporarily delayed while the State Archeologist and Representatives of Massachusetts Historical Commission inspect the site to determine the importance of the discovery. Areas of prehistorical, historical, or paleontological significance shall be carefully protected in accordance with Section 7 .18 and shall not be disturbed by the Contractor until so directed by the Engineer.

SECTION 901 CEMENT CONCRETE
901.61 Forms, Falsework, and Centering. (2012)

Approved centers and forms shall be provided by the Contractor. Piles shall be used for falsework if required by the Engineer. No extra compensation for falsework or falsework piling shall be allowed, such work shall be considered part of the form work. Falsework shall be set to give the structural camber indicated on the plans or as specified, plus allowance for shrinkage, shortening under load or settlement. Forms, falsework, and centering shall be designed for a liquid head, equal to the maximum height of the liquid concrete in the forms for various placing conditions assuming the load of the liquid concrete to be 150 pounds per cubic foot (2400 kg/m3), and in addition thereto a live load allowance of 50 pounds per square foot (2.4 kPa) on horizontal surfaces.

All falsework or centering shall be adequate for the type of construction involved. The Contractor shall submit all shop drawings for falsework and centering, including design computations, formally signed and sealed by the Contractor's Massachusetts registered Professional Engineer.

The Contractor's Professional Engineer shall certify that the falsework system has been assembled and constructed according to the approved falsework drawings, prior to placing loads on such falsework.

When structures are to be constructed over railroad tracks, the centering shall also conform to the requirements of the Railroad Company as to temporary operating clearances, safety and design.

Unless otherwise specified on the plans, or in the special provisions, forms for all exposed portions of bridges and structures shall be lined with approved material, or form sheathing which shall consist of five-ply water-proof plywood, approved metal sheathing or other approved material in order to give the concrete a smooth even finish and uniform appearance. This requirement shall not apply to any part of a structure that will be at least 2 feet (600 mm) below the surface of adjacent ground in the completed project that will not be coated with bituminous damp-proofing. Any material that will provide tight forms will be acceptable for such locations.

Full sheets of plywood or other approved material shall be used wherever possible and shall be placed in a regular pattern. The use of small pieces and leftovers will not be permitted except as they may be needed to complete the design. Forms in good condition may be reused, but forms for any one exposed face shall be all new or all used material and a mixture of old and new forms will not be permitted. Forms for cylindrical pier columns shall be smooth and reasonably free of joints.

The sheathing shall be jointed tightly to prevent leakage from the mix and it shall be of sufficient strength to hold the concrete without bulging between supports. Forms shall be properly braced and tied so as to maintain proper dimensions. Bolts, rods, or other approved form ties shall be used for internal ties. Wire ties will not be permitted except when directed or where concrete is not exposed to view. The Engineer may require the Contractor to employ screw jacks or hard wood wedges in connection with the centering of falsework in order to take up any distortion or settlement in the form work either before or during the placing of the concrete.

Approved inserts required for form and/or falsework support shall be used in connection with all ties in the region of exposed surfaces on the concrete. They shall be so designed as to permit their removal from the concrete without injury to the concrete, and the metal remaining in the concrete shall be not closer than 1½ inches (40 mm) to the surface. The inserts shall be truly round, not more than 1½ inches (40 mm) in outside diameter and shall be treated with non-staining mineral oil or other satisfactory material adequate for preventing any adherence to surrounding concrete. Special tools and methods shall be used to remove the inserts from the concrete in a manner to prevent damage to the concrete. All ties and embedded devices required for form and/or falsework support that are to be left in place shall be either epoxy coated or galvanized to match the reinforcement within the concrete placement. Galvanizing of such ties and embedded hardware shall be in accordance with Subsection 960.64.

Form ties of a design with a weakened section 1½ inches (40 mm) back from the concrete face may be used at places of minor pressure when permitted by the Engineer, but such ties shall be provided with special inserts so as to assure the breaking off of the ties at the proper depth inside the face of the concrete. When such ties fail to break off at the designed depth, the tie metal shall be drilled out before the tie hole is patched. Voids and forming accessory holes shall be patched as necessary to match the surrounding texture and color to produce a uniform appearance.

The use of wooden struts within forms, or of metal ties without approved inserts, as required, will not be permitted.

The centers shall be true to the lines, satisfactorily supported and firmly secured. They shall remain in place as long as directed and shall be replaced with new ones if they lose their proper dimensions and shape.

Forms for the roadway deck slabs shall be so construed that under full dead load, the thickness of the slabs shall be the required thickness shown on the plans and the surface of the pavement will accurately conform to the profile grades, cross sections and alignment shown on the plans. Allowance shall be made for the camber of the floor members as erected and for the additional dead load deflections of the floor members.

Slab haunches shall be provided over steel girders, floor beams or stringers. The depth of haunches shall be variable as required to maintain the uniform thickness of slab between the steel supports.

All exposed edges and corners of concrete not otherwise specified on the plans shall be formed with a wooden triangular 45° chamfer strip ¾ inch (20 mm) on the square sides. These triangular chamfer strips shall be machine surfaced on all sides and shall be of uniform dimensions throughout the project. Any chamfered or beveled corners of concrete specified on the plans of larger size shall be formed and finished as required for other parts of the adjacent forms.

Surfaces of the abutments and wingwalls that are designated to receive striation texturing shall be cast using one of the following fractured fin form liner patterns:

1. GREENSTREAK Architectural Form Liners, pattern number 367, as manufactured by GREENSTREAK, 3400 Tree Court Industrial Blvd., St. Louis, MO 63122
2. SYMONS Form Liner, P/C 30492 pattern, as manufactured by SYMONS Corporation, Des Plaines, IL 60018
3. LITHOTEX Form Liner, T33050 texture, as manufacture by L.M. SCOFIELD Co., Los Angeles, CA 90040
4. An equal fractured fin form liner approved by the Engineer that meets the dimensions as shown on the Plans.

The same form liner pattern must be used exclusively for all textured surfaces on the job. Using form liners of different manufacturers together on the same job will not be permitted. Form liners shall be installed to the limits as shown on the Plans. The Contractor shall ensure that the striation fins are plumb. Horizontal joints are not allowed in the form liner.

Form liners shall be used and installed in accordance with the manufacturer's written instructions and recommendations. Additional job site training in the proper use of the form liner shall be provided by an authorized manufacturer's representative at no additional cost to the project. A test panel with a minimum size of 4 x 4 feet (1.2 x 1.2 meters) shall be erected at the job site for establishing acceptance criteria for the finished surface.

Bridge bearing anchor bolts in piers shall be set accurately by a template prior to placing concrete. Anchor bolts in abutments may be set by a template or by drilling and grouting. Grout shall be a non-shrinking type approved by the Engineer.

The shape, strength, rigidity, water-tightness and surface smoothness of re-used forms shall be maintained at all times. Any warped or bulged lumber must be resized before being used. Forms that are unsatisfactory in any respect shall not be used and shall be removed immediately from the work.

The inside of forms shall be coated with non-staining mineral oil or other approved material to prevent adherence of the concrete to the forms, immediately before placing the concrete. When oil is used, it shall be applied before the reinforcing steel is placed. Any material that will adhere to, discolor or affect the concrete in any manner shall not be used. Forms for bridge decks shall not be oiled but shall be dampened with water ahead of concrete placement.

In the construction of copings, railings and other intricate sections, extreme care shall be taken in the construction to insure true lines.

Prior to placing concrete in the forms all foreign matter and any extraneous materials shall be removed.

Forms shall be inspected immediately preceding and during the placing of the concrete. All dimensions shall be checked carefully and any errors, bulges, warping or other defects shall be remedied before any concrete is placed.

Temporary openings shall be provided for inspection at the base of the column and wall forms and near the bottom of all deep members.

The foregoing specifications for forms as regards to design, mortar-tightness, chamfers or moldings, bracing, alignment, treatment by coating with oil or other approved material, removing and reuse, shall apply to metal forms when such forms are approved for use. The metal forms used shall be of such strength that the forms will remain true to shape. All bolt and rivet heads shall be countersunk. Clamps, pins or other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or which do not line up properly shall not be used. Special care shall be exercised to keep metal forms free from rust, grease or other foreign matter that will tend to discolor the concrete. Metal forms shall be provided with an adjustable metal section or occasional sections where wooden forms may be inserted to compensate for slight inaccuracies in measurement.

Removable or stay-in-place forms for bridge decks may be used as alternates except in hazardous locations where stay-in-place forms shall be used. Hazardous locations are defined as high volume roadways and all railroads under the bridge.

Removable forms shall be used for forming end diaphragms, bays with longitudinal construction joints, and overhanging portions of decks.

Material to prevent concrete from adhering to the forms shall not be used when stay-in-place forms are used.

Michigan

SECTION 107. LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

107.09. Archaeological and Historical Findings.

If the Contractor finds what appear to be items of potentially archaeological or historical significance (such as bones, artifacts, or buried foundations), the Contractor must immediately stop operations in that location and notify the Engineer. The Engineer will investigate and will direct the Contractor either to resume operations or to continue the suspension of operations, in accordance with subsection 104.01.B.

The Contractor must cooperate in the recovery of archeological and historical items, as directed by the Engineer. The Department will pay the Contractor and grant a time extension for any delay related to the recovery of archeological and historical items as extra work in accordance with subsection 103.02.

Minnesota

SCOPE OF WORK
1406 PRESERVATION OF HISTORICAL OBJECTS

Immediately upon discovery of potential historical objects of an archeological or paleontological nature within the Project Site, the Contractor shall do the following:

(1) Restrict or suspend operations in the immediate area of the discovery to preserve the potential historical objects, and

(2) Notify the Engineer of the presence of potential historical objects.

The Engineer will make arrangements for their disposition or record the desired relevant data.

The Contractor shall support the preservation and salvage effort directed by the Engineer. The Contractor shall not perform work related to the preservation and salvage efforts that the Contractor considers Extra Work without the written approval of the Engineer.

The Department may restrict or suspend the Contractor's operations in the immediate area of the historical objects for a period not to exceed 72 h, without a Contractor claim for damages. The Department will not impose restrictions over 72 h, unless agreed by the Contractor and the Department in writing.

Special Provisions for Unanticipated Discovery provided by Teresa Martin

Discovery of Human Remains During Monitoring of Approach Roadbed Work

In the event that human remains or other indications of burials are discovered during construction monitoring, the following steps will be carried out.

1. All ground-disturbing activities will cease in the area where any indications of human remains are discovered as well as in the immediately adjacent area (within 100 feet). The area will be secured. MnDOT CRU has the authority to stop the work.

2. The MnDOT CRU monitoring archaeologist (or MnDOT CRU Project Manager if on site) will immediately notify local law enforcement authorities and the MnDOT CRU Project Manager (if they are not on site). The CRU Project Manager will inform the Mille Lacs Band THPO, MIAC, and OSA of the discovery. MnDOT CRU will also notify Federal Highway Administration (FHWA) within 24 hours.

3. If the remains are determined to be American Indian, the MnDOT CRU will work with the Mille Lacs THPO and the MIAC to conduct appropriate tribal consultation.

4. If the remains are determined to be American Indian, the MnDOT CRU will develop a plan to appropriately address the remains in consultation with the FHWA, the MIAC, and the Mille Lacs THPO, prior to ground-disturbing work being allowed to proceed in the area of discovery. Only the MnDOT CRU can approve the resumption of ground-disturbing work. The FHWA will ensure that the terms of any reburial plan are fully implemented.

5. If the remains are determined to be other than American Indian, the law enforcement authorities will take control of the remains.

Discovery of Intact Archaeological Features During Monitoring of Approach Roadbed Work

1. At the discretion of the MnDOT CRU monitoring archaeologist, excavation or other ground-disturbing activities must be halted any time a suspected archaeological feature or intact archaeological deposit is encountered. Ground disturbance in the area of the discovery must remain halted until the archaeologist can determine the nature and extent of the archaeological resource. If the initial examination determines the resource may have sufficient integrity and content to be considered potentially eligible for the National Register, the MnDOT CRU has authority to halt all further excavations in the vicinity of the deposit until an eligibility determination can be made. Ground moving activities outside of the find location may proceed with continued monitoring.

2. The MnDOT CRU will record, document and evaluate the National Register eligibility of archaeological resources in accordance with 36 CFR 800. If eligible resources are identified, the MnDOT CRU, in consultation with the State Historic Preservation Office, Mille Lacs THPO, and the FHWA, will design a plan for avoiding, reducing or mitigating any adverse effect prior to resuming ground-disturbing work in the area of discovery. Only the MnDOT CRU can approve the resumption of ground-disturbing work.

Discovery of Human Remains During Bridge Interior Excavations

In the event that human remains are discovered during excavation of the soil from the interior of the bridge, the following steps will be carried out.

1. All activities will cease and the area will be secured. MnDOT CRU has the authority to stop the work.

2. The MnDOT CRU monitoring archaeologist (or MnDOT CRU Project Manager if on site) will immediately notify local law enforcement authorities and the MnDOT CRU Project Manager (if they are not on site). The CRU Project Manager will inform the Mille Lacs Band THPO, MIAC, and OSA of the discovery. MnDOT CRU will also notify Federal Highway Administration (FHWA) within 24 hours.

3. If the remains are determined to be American Indian, the MnDOT CRU will notify the Mille Lacs THPO, OSA and MIAC and together begin implementation of their agreed upon plan to remove the soil to the area designated for secure storage. Only the MnDOT CRU can approve the resumption of ground-disturbing work. The FHWA will ensure that the terms of the agreed upon plan are fully implemented.

5. If the remains are determined to be other than American Indian, the law enforcement authorities will take control of the remains.

6. It is understood the soil inside of the bridge may not be removed all at once because of the need to maintain the structural integrity of the bridge during construction. If so, and human remains have been discovered in the fill of the bridge, the bridge interior will covered and secured between soil removal activities.

Soil removal requirements for approach areas of the bridge and bridge interior

Bridge approach areas

The soil removal process on the bridge approaches, north and south of the bridge deck, will be monitored by MnDOT archaeologists. These monitors will be looking for any evidence of human remains or intact archaeological features. The soil removal will be done by the contractor backhoe operator using a straight edged (no teeth) bucket. Soil will be removed in approximately 5 inch layers or as needed to carefully observe the exposed layers to identify any remains. If no remains or intact features are identified during the monitoring, this soil does not need to be stockpiled for screening.

Bridge Interior

1) After the bridge deck is removed, construction work will halt for 2-3 days (as needed) and archaeologists will access the content by testing to determine soil stratigraphy and identify if any human remains are present within the upper gravel road base layer. If human remains are identified, the plan outlined above will be followed. If no human remains are identified in this road bed gravel layer, the gravel can be removed.
2) After the gravel layer has been examined removed, the lower soil fill will be removed and taken to the secured area at the MnDOT staging area on the west side of TH 169 (old CCC Camp).

LAWS TO BE OBSERVED (CULTURAL RESOURCES –FEDERALLY FUNDED)

SP2016-34

The provisions of MnDOT 1701 are modified and supplemented with the following:

S-1.1 For any project that MnDOT funds or conducts, or that is located in MnDOT Right of Way, including owned or leased Natural Materials Resources, the following terms will apply:

(A) MnDOT is responsible for obtaining a Cultural Resources Unit (CRU) findings letter.

(B) Contractor will notify MnDOT if contractor intends to use any material from a proposed excavation area on any land controlled by MnDOT. MnDOT must request a review from the MnDOT CRU before allowing any contractor to use any material from a proposed excavation area on any land controlled by MnDOT. The review may take 45 calendar days or longer (includes up to 35 days for tribal consultation when necessary) after receipt of the request. If MnDOT CRU determines that a survey is needed, the review period may be even longer. Contractor is responsible for any delays due to the length of the review and may not base a claim for damages due to delay of Contract on the length of the review.

S-1.2 If the Contractor selects the excavation and disposal of material from locations other than MnDOT Right of Way, the following term will apply:

(A) A CRU findings letter is not necessary.

(B) Contractor must comply with Minnesota Statutes § 307.08, Minnesota Private Cemeteries Act, if applicable.

S-1.3 If any human remains are encountered within the Project limits, the Contractor shall immediately stop work in the vicinity, notify the Engineer, and request suspension of work near the discovery area, in accordance with MnDOT 1803.6.

Mississippi

Division 200 – Earthwork and Roadside Development
203.03.1--General.

[…] When excavating operations encounter the remains of prehistoric dwelling sites or other artifacts of historical or archeological significance, the operations shall be temporarily discontinued. The Engineer will contact appropriate authorities to determine their significance and appropriate disposition. When directed by the Engineer, the Contractor shall excavate the site in a manner to preserve the artifacts encountered, or aid in the determination of significance and disposition, and when ordered, shall remove them for delivery to the custody of the proper State authorities. Such excavation and removal will be considered and paid for as Extra Work. […]

Division 600 – Incidental Construction
611.03.2--Laying Brick.

Brick masonry shall not be constructed in freezing weather or when bricks contain frost except by written permission of the Engineer and subject to the conditions set forth.

Brick for exposed surfaces, comers, etc. shall be selected for color and uniformity.

Mortar shall be mixed only in quantities required for immediate use. See Subsection 714.11.5 for more information on masonry mortar.

Brick shall be laid upon prepared foundations in accordance with the design indicated on the plans or as directed. All brick shall be thoroughly cleaned and saturated with water immediately prior to laying. They shall be laid in courses and in a manner that will thoroughly bond them into the fresh mortar by means of the "shove joint" method. "Buttered" or plastered joints will not be permitted. The arrangement of headers and stretchers shall be that which will thoroughly bond the mass. Unless otherwise specified, brick work shall be of alternate headers and stretchers with consecutive courses breaking joints. Other types of bonding, such as for ornamental work, will be specified on the plans.

All joints shall be completely filled with mortar. They shall not be less than 1/4 inch nor more than 1/2 inch in thickness, and the thickness shall be uniform throughout. All joints shall be finished properly as the work progresses, and on exposed walls they shall be neatly struck using the "weather" joint.

Bats or spalls shall not be used except for shaping around irregular openings or when unavoidable to finish out a course. When used to finish out a course, full bricks shall be placed at the corners and the bats placed in the interior course. Filling materials for the interior of the walls shall be the same quality as used in the face of the unit unless otherwise indicated on the plans or directed.

Weep holes shall be constructed as shown on the plans or as directed.

In case a brick is moved or the joint broken after laying, the brick shall be taken up, the mortar thoroughly cleaned from the brick bed and joint, and the brick relaid in fresh mortar.

In hot or dry weather, brick masonry shall be protected and kept wet for a period of at least 48 hours after the brick are laid.

Only expert bricklayers shall be used for this work, and all details of the construction shall be in accordance with approved and satisfactory practice.

All exposed masonry shall present an even, unifom1, neat, and workmanlike appearance, and the exposed surfaces shall be thoroughly cleaned of all mortar and scars and the surface left the natural color of the brick.

Division 800 – Bridges and Structures
804.03.14--Forms.
804.03.14.1--General.

Forms shall be wood, metal, or other material approved by the Engineer. All forms shall be built mortar-tight and sufficiently rigid to prevent distortion due to pressure of the concrete and other loads incident to the construction operations. Forms shall be constructed and maintained so as to prevent warping and the opening of joints due to shrinkage. The forms shall be substantial and unyielding and shall be so designed that the finished concrete will conforn1 to the proper dimensions and contours.

The design of the forms shall take into account the effect of vibration of concrete as it is placed.

Minimum requirements for slab overhang forms shall be 3/4-inch plywood supported on 2-inch x 6-inch S4S wood timbers placed flatwise on 16-inch centers.

Adjustable brackets for support of slab overhang forms shall be spaced at a maximum distance of 3' 0" center to center unless specifically approved otherwise. Grade points for fom1s shall coincide with the location of the adjustable form brackets.

Forms for surfaces exposed to view shall be of uniform thickness with a smooth inside surface of an approved type. Joints in forms for exposed surfaces shall be closely fitted to eliminate fins, stone pockets, or other variations in the surface of the concrete that would mar a smooth and uniform texture.

Forms shall be filleted at all sharp comers and shall be given a bevel or draft in the case of all projections, such as girders and copings, to ensure easy removal.

Metal ties or anchorages within the forms shall be so constructed as to permit their removal, without injury to the concrete, to a depth of at least the reinforcing steel clearance shown on the plans. In case ordinary wire ties are permitted, all wires, upon removal of the forms, shall be cut back at least I /4 inch from the face of the concrete with chisels or nippers. Nippers shall be used for green concrete. All fittings for metal ties shall be designed so that upon their removal the cavities that are left will be the smallest practicable size. The cavities shall be filled with cement mortar and the surface left sound, smooth, even, and uniform in color.

Forms shall be set and maintained to the lines designated until the concrete is sufficiently cured for form removal. Forms shall remain in place for periods determined as hereinafter specified. 1 Forms are deemed to be unsatisfactory in any way, either before or during the placing of concrete, the Engineer will order the work stopped until the defects have been corrected.

The shape, strength, rigidity, water-tightness, and surface smoothness of reused forms shall be maintained at all times. Warped or bulged lumber shall be resized before being reused. Forms that are unsatisfactory in any respect shall not be reused.

Access to the lower portions of forms for narrow walls and columns shall be provided for cleaning out extraneous material immediately before placing the concrete.

All forms shall be treated with an approved oil or saturated with water immediately before placing the concrete. For rail members or other members with exposed faces, the forms shall be treated only with an approved oil to prevent the adherence of concrete. Any material that will adhere to or discolor the concrete shall not be used.

When metal forms are used they shall be kept free from rust, grease, or other foreign matter that will discolor the concrete. They shall be of sufficient thickness and so connected that they will remain true to shape and line, and shall conform in all respects as herein prescribed for mortar tightness, filleted corners, beveled projections, etc. They shall be constructed so as to ensure easy removal without injury to concrete. All inside bolt and rivet heads shall be countersunk.

All chamfer strips shall be dressed, straight, and of uniform width and shall be maintained as such at all times.

Missouri

SECTION 107: LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
107.8 Preservation of Monuments and Artifacts.
107.8.2

Human and Archaeological Remains. The contractor shall report to the engineer the discovery of human remains, artifacts, fossils and other items of historical, archaeological or geological significance discovered within the right of way during construction. Such items will remain in the Commission's custody and shall not be removed from the site unless directed by the engineer. The preservation and handling of such items shall be in accordance with Sec 203.4.8.

SECTION 203: ROADWAY AND DRAINAGE EXCAVATION, EMBANKMENT AND COMPACTION
203.4.8 Human, Criminal, Historical, Archaeological or Geological Remains.

If any human remains, or archaeological artifacts that may be of historical, archaeological or geological significance such as arrowheads, pottery, stone tools, animal bones, or fossils, are encountered during construction, the contractor shall stop all work within a 50-foot buffer around the human remains and/or artifacts, and then shall notify the MoDOT resident engineer or construction inspector. T he contractor shall maintain the 50-foot minimum buffer until otherwise directed by the Engineer.

203.4.8.1 In the case of human remains, MoDOT HP staff will notify the local law enforcement and the State Historic Preservation Office (SHPO) as per state law. If the contractor is unable to contact appropriate MoDOT staff, the contractor shall initiate this involvement by local law enforcement and the SHPO. In this instance, a description of the contractor ’s actions shall be promptly made to MoDOT.

203.4.8.2 In the case of archaeological artifacts, MoDOT HP will contact the appropriate staff at the Federal Highway Administration (FHWA) and the SHPO to report the discovery after a preliminary evaluation of the artifacts is made and reasonable efforts to see if the findings represent an archaeological site which can be avoided. If MoDOT determines that the site/artifact is significant and will be adversely affected by the contract work, MoDOT HP will immediately notify the FHWA and SHPO of this finding and provide recommendations to minimize and/or mitigate the adverse effect.

203.4.8.3 If a temporary suspension of work under this section lasts for an unreasonable period of time, as defined in Sec 108.15.1, and the suspension results in an actual increase in the time or cost of performance of the contract, then this condition will be deemed a suspension of the work directed by the engineer under Sec 108.15 and will be handled in accordance with that section.

SECTION 703 CONCRETE MASONRY CONSTRUCTION

703.3.2 Forms. Forms for concrete shall be built true to the lines and grades specified, and shall be mortar tight and of sound material adequate to prevent distortion during the placing and curing of concrete. All concrete shall be formed unless otherwise specified. A concrete pad of approved thickness may be used as a form for the unexposed bottom of end bent beams on piles. If required by the engineer, formwork plans shall be submitted by the contractor before formwork is started. If during or after placing the concrete the forms sag or bulge, the affected concrete shall be removed, the forms realigned and new concrete placed. Construction camber to accommodate shrinkage or settlement impairing the strength of the structure by the reduction of depth will not be permitted. The forms shall be designed for following minimum criteria: a fluid pressure of 150 pounds per cubic foot, and for a live load of 50 pounds per square foot on horizontal surfaces and 30 pounds per square foot on vertical surfaces for impact and vibration.

703.3.2.1 Face lumber of forms for exposed surfaces of concrete shall have a smooth dressed surface free of loose knots, knotholes and other defects. The spacing of supports and the thickness of face lumber shall be adequate to prevent distortion due to the pressure of the concrete. Form material shall be placed with horizontal joints. T riangular moulding, smooth on three sides and having a 3/4-inch width on each of the two form sides, shall be used to bevel all exposed edges of the structure, except where special bevels are shown on the plans.

703.3.2.2 Forms reused shall be in good condition.

703.3.2.3 Design and construction of forms shall permit the removal of the forms without damage to the concrete. Cofferdam braces or struts that will extend through any exposed concrete section will not be permitted. Forms under copings and around offsets may be given a draft of no more than one inch per foot to permit removal without damage to the concrete. For narrow walls where access to the bottoms of the forms is not otherwise obtainable, an opening shall be provided to allow chips, dirt, sawdust or other foreign material to be removed immediately prior to placing concrete.

703.3.2.4 Form lining will be permitted, and will be required for exposed curved surfaces. Liners other than plywood may be used with approval from the engineer.

703.3.2.5 Fiber tubes for column forms above the ground line shall have a finish free of gaps or overlaps in the inside ply and shall be coated inside with a waterproofing material that will not stick or bond to, or discolor the concrete surface of the column. Fiber tubes for column forms from 6 inches below the finished ground line down may show seams, shall be waterproofed and need not be removed.

703.3.2.6 If wood forms are to be used in combination with metal forms, form details shall be submitted for approval if requested by the engineer. Steel panels, or panels with metal frames and wood that leaves permanent impressions or ridges shall not be used, except for concrete box culvert-type structures and other non-exposed areas.

703.3.2.7 The inside of all forms shall be oiled, except for forms having composition linings. The oil used shall be a light, clear paraffin-based oil or other approved material that will not discolor or damage the
exposed concrete surface. The coating shall be applied before placing reinforcing steel.

703.3.2.8 Ties, spreaders and all metal appliances used inside of forms to hold the forms in correct alignment and location shall be constructed such that after removal of the forms, the

metal may be removed to a depth of at least one inch below the surface of the concrete. Metal tie rods used inside the forms where concrete will have an exposed surface shall be of a type that will not produce a cavity at the surface of the concrete greater than 1 1/2 inches in diameter. Bolts and rods used as ties shall not be removed by pulling the bolts and rods through the concrete. Wire ties and pipe spreaders will not be permitted, and metal or wood spreaders, which are separate from form ties, shall be removed as concrete is being placed. A bolt-through method of supporting forms for massive substructure units may be used with approval from the engineer. No form ties shall be embedded in concrete above the roadway surface on bridges, except that coil ties and threaded rods may be permitted through the vertical face of the base and vertically through the top of barrier curbs. Coil ties, and all metal to be embedded in barrier curbs shall be epoxy-coated or galvanized.

703.3.2.9 Cavities produced by the removal of metal tie rods shall be filled with mortar composed of approximately one part Portland cement to two parts sand or a non-shrinking, non-staining type of mortar. After the cavities are filled, the finished surface shall be left smooth, even and uniform in color and texture with minimal evidence of shrinkage. White cement may be added to the mortar if necessary to obtain the required color. T ie rod cavities in surfaces against which backfill is to be placed shall be filled with mortar or an approved plastic compound in accordance with Sec 1057. Patching of tie rod cavities in the interior surfaces of box girders will not be required.

703.3.2.10 Fiber tubes for voids shall be properly designed for the use indicated. T he outside surface shall be waterproof. Distortion of the tubes shall be prevented. T he ends shall be covered with suitably designed mortar-tight caps. If material used for capping tubes expands when moist, preformed joint filler 5/16 inch thick shall be used around the perimeter of the caps to prevent distortion, or another method approved by the engineer.

703.3.2.11 Steel tubes for voids shall be properly designed for the use indicated. Excessive distortion shall be prevented in handling, storage and placing. T he diameter of the tube shall be as shown on the plans with a tolerance of plus zero and minus 3/4 inch. T he ends of tubes shall be covered with suitably designed mortar-tight metal end caps.

703.3.2.12 Tubes for producing voids in concrete slab superstructures shall be accurately located in positions shown on the plans and shall be positively anchored to the joists carrying the floor forms. Anchors and ties shall be designed to leave a minimum of supporting material exposed in the bottom of the finished slab of the completed structure. Details of proposed anchorage and ties for the tubes shall be submitted for approval before work is started on the bridge superstructure. One 3/4-inch diameter weepholem shall be provided near each end of each tube. Weepholes shall be placed in straight lines parallel to bents, and shall extend through the forms and be kept open at all times. Tubes shall be protected from moisture and heat until concrete is placed. Distortion of tubes after placing of concrete shall not increase the tubes' vertical axis by more than 1/2 inch.

703.3.2.13 Falsework and form removal from under any structural concrete unit shall not be started until the concrete has attained at least the required compressive strength shown. T he falsework support of all concrete spans of a continuous or monolithic series shall be first released from the center of all spans, and shall proceed simultaneously from all span centers each way toward adjacent bents. Release shall be in such a manner as to permit the

concrete to gradually and uniformly take stresses due to the self weight of the concrete. Compressive strength will be determined by tests conducted in accordance with AASHT O T 22.

703.3.2.14 Except in accordance with Sec 703.3.6, forms for vertical surfaces of bridge superstructures shall be removed as soon as the concrete is self-supporting to permit prompt patching of tie holes. 703.3.2.15 Girders and beams shall not be set on bent cap until the concrete in the bent cap has attained at least the required compressive strength shown in Sec 703.3.2.13.

SECTION 1066 MORTARS AND GROUT

1066.2.3 Mortar For Rubble and Brick Masonry. The mortar shall be composed of one part Portland cement plus 10 percent, by volume, of hydrated lime and of two parts sand by volume. Hydrated lime shall be in accordance with AST M C 207, Type N. After the dry material has been thoroughly mixed, water shall be added, and the mixture shall be turned and chopped by hand or mechanical methods until a stiff mortar results. Mortar shall be mixed no more than 30 minutes prior to use. Mortar for pointing shall be mixed in the proportions of one part Portland cement to one part sand by volume.

The following Special Provisions examples were supplied by Mike Meinkoth, Historic Preservation Manager at the Missouri Department of Transportation.

Wayne HH Section 106 JSP

SPECIAL CONDITIONS FOR ARCHAEOLOGICAL SITE PRESERVATION

1.0 Description. The contractor is notified that additional work needs to be conducted by MoDOT for compliance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 U.S.C. §§ 470 et seq.). The intent of this special provision is to determine if flood deposits have buried or damaged archaeological sites. Prior to implementation of any exceptions, changes, or modifications to this provision the contractor, the MoDOT Resident Engineer and the MoDOT Archaeologist must mutually agree and that agreement must be formally documented.. If the contractor fails to comply with this provision, federal funding could be jeopardized.

2.0 Construction Requirements. To maintain compliance with the NHPA the following will be required:

2.1 Flood Deposit Removal between Sta. 822+60 and Sta. 825+94.23 in Reynolds Co. and Sta. 0+00 and Sta. 5+00 in Wayne Co., including the permanent easement on Parcel 2 (Goodrum). The contractor shall notify the Resident Engineer and the MoDOT Archaeologist ten (10) working days prior to beginning any earthmoving activities within the area defined above. The MoDOT archaeologist will monitor the removal of the recently deposited flood sediment to determine if the flooding has buried or damaged any archaeological sites. The MoDOT archaeologist will be provided the time to evaluate any identified archaeological deposits and report the results to the Federal Highway Administration and the State Historic Preservation Office [five (5) days].

2.2 Ditch Excavations between 822+60 and 825+94.23 in Reynolds Co. and Sta. 0+00 and Sta. 5+00 in Wayne Co. The contractor shall notify the Resident Engineer and the MoDOT Archaeologist ten (10) working days prior to beginning any excavation activities within the area defined above. The contractor shall provide an operator and backhoe/ track hoe to excavate the ditches under the guidance of MoDOT archaeologist for the complete exposure of archaeological site within the defined limits. The MoDOT archaeologist will be provided the time to map and excavate any exposed archaeological features.

2.3 Human Remains. If human remains are encountered during construction, their treatment will be handled in accordance with Missouri Unmarked Human Burial Sites Act, §§ 194.400 – 194.410, RSMo, as amended. When human, or potential human, remains are encountered, the Contractor shall first stop all work within a 50-foot radius of the remains, and secondly, shall notify the MoDOT Construction Inspector and/or Resident Engineer who will contact the MoDOT Archaeologist. The MoDOT Archaeologist will in turn notify the local law enforcement (to ensure that it is not a crime scene) and the State Historic Preservation Office (SHPO) as per RSMo 194. If the Contractor is unable to contact appropriate MoDOT staff, the Contractor shall initiate the involvement by local law enforcement and the SHPO. A description of the Contractor's actions will be promptly made to MoDOT.

3.0 Method of Measurement. This item will not be measured for payment and the cost shall be included in the quantities of Clearing & Grubbing, Sand Drainage Blanket, Permanent Erosion Control Fabric, and Rock Fill.

4.0. Basis of Payment. No direct pay shall be provided for any labor, equipment, time, or materials necessary to complete this work. The contractor shall have no claim, or basis for any claim or suit whatsoever, resulting from compliance with this provision. No time extensions will be granted due to the contractor's failure to comply with this provision.

Ozark PP

SPECIAL CONDITIONS FOR ARCHAEOLOGICAL SITE PRESERVATION

1.0 Description. The contractor is notified that National Register of Historic Places (NRHP) eligible archaeological sites are present within the area of construction between Sta. 163+00 and Sta. 171+25, and Sta. 176+50 and Sta. 180+00. This special provision has been written to keep this project in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §§ 470 et seq.). The intent of this special provision is to minimize construction impacts to these significant archaeological sites and to preserve in situ these archaeological deposits, which lie between 20 to 40 inches below the ground surface. Prior to implementation of any exceptions, changes, or modifications to this provision the contractor, the MoDOT Resident Engineer and the MoDOT Archaeologist must mutually agree and that agreement must be formally documented.. If the contractor fails to comply with this provision, federal funding could be jeopardized.

2.0 Construction Requirements. Minimization of impacts throughout the archaeological site areas will require:

2.1 Clearing & Grubbing. Trees and brush in the site areas shall be flush cut as close to the existing ground as possible with the stumps to remain in place. Trees within the existing roadway fill can be grubbed out. Logs and slash (limbs, tops, brush) shall not be burned within the site limits and must be removed. Clearing and removal of the trees shall be in such a manner that no rutting of ground takes place.

2.2 Ditch Excavations between Sta. 163+00 and 171+25. The contractor shall notify the Resident Engineer and the MoDOT Archaeologist ten (10) working days prior to beginning any excavation activities within the area defined above. The contractor shall provide an operator and backhoe/ track hoe to excavate the ditches under the guidance of MoDOT archaeologist for the complete exposure of archaeological site within the defined limits. The MoDOT archaeologist will be provided the time to map and excavate any exposed archaeological features.

2.3 Human Remains. If human remains are encountered during construction, their treatment will be handled in accordance with Missouri Unmarked Human Burial Sites Act, §§ 194.400 – 194.410, RSMo, as amended. When human, or potential human, remains are encountered, the Contractor shall first stop all work within a 50-foot radius of the remains, and secondly, shall notify the MoDOT Construction Inspector and/or Resident Engineer who will contact the MoDOT Archaeologist. The MoDOT Archaeologist will in turn notify the local law enforcement (to ensure that it is not a crime scene) and the State Historic Preservation Office (SHPO) as per RSMo 194. If the Contractor is unable to contact appropriate MoDOT staff, the Contractor shall initiate the involvement by local law enforcement and the SHPO. A description of the Contractor's actions will be promptly made to MoDOT.

2.4 Archaeological Artifacts. If archaeological artifacts are encountered during construction (see Engineering Policy Guide Chapter 127.2.8), the Contractor shall first stop all work within a 50-foot buffer around the limits of the artifacts, and secondly, shall notify the appropriate MoDOT Resident Engineer or Construction Inspector who will contact the MoDOT's Historic Preservation (HP)

section. The MoDOT Archaeologist will need to determine if these are in disturbed context or in an archaeological feature that will need to be avoid, and if that is not possible excavated.

3.0 Method of Measurement. This item will not be measured for payment and the cost shall be included in the quantities of Clearing & Grubbing, Sand Drainage Blanket, Permanent Erosion Control Fabric, and Rock Fill.

4.0. Basis of Payment. No direct pay shall be provided for any labor, equipment, time, or materials necessary to complete this work. The contractor shall have no claim, or basis for any claim or suit whatsoever, resulting from compliance with this provision. No time extensions will be granted due to the contractor's failure to comply with this provision.

Montana

SECTION 107: LEGAL RELATIONS AND RESPONSIBLITIES TO THE PUBLIC
107.22 PROTECTION OF ARCHEOLOGICAL AND HISTORICAL FINDINGS

Submit written evidence that no historic or pre-historic sites on or eligible for listing in the National Register of Historic Places are located on property used for construction activities that are outside of the Department obtained right of way, easements, material sites, or other areas designated in the contract before construction starts. These areas include but are not limited to staging areas, Contractor furnished material sites, or other related areas to be used for the work.

Submit the legal descriptions, the area involved, a description of the work activity, a site plan, and a description of the ground surface of all sites not included in the contract plans. Within 10 business days, the Department will notify the Contractor if the presence of or potential for cultural resources exists in the areas and recommend if a professional cultural resource survey is needed or not needed. If a survey is not recommended, no further cultural resource work is required.

If a survey is recommended, hire a professional cultural resource contractor to perform a survey. A directory of cultural resource contractors is available from the Department Archeologist.

If the survey does not identify any historic or pre-historic site within the area of proposed disturbance, the Department will issue a notice to proceed with the work. If the cultural resource contractor or the Department identifies any historic or pre-historic sites within the proposed area of disturbance, the Department, in concert with SHPO will determine whether the site(s) may be eligible for listing in the National Register of Historic Places.

Choose one of the following options if a site is eligible:

A. Do not use or disturb the proposed site.

B. Request the Department to proceed with the steps to comply with 36 CFR 800. Use a professional cultural resource contractor to perform all field work, surveys, etc. required to complete the process identified by the Department. No additional compensation or delay considerations are allowed under these requirements.

Immediately stop work if archeological or historical artifacts are encountered. Immediately notify the Project Manager of the find. The Project Manager will stake the area to remain undisturbed until further notice.

SECTION 108: PROSECUTION AND PROGRESS
108.03.1 General

Begin obtaining all air quality, water quality and storm water runoff permits, approval of reclamation plans, and archaeological and historical clearances immediately upon receipt of the notice of contract award letter from the Department. Furnish the completed applications to secure permits, approvals or clearances as they are submitted to the respective agency. Furnish approved permits, reclamation plans and clearances necessary to complete the work in conformance with all federal, state and contract requirements.

SECTION 203: EXCAVATION AND EMBANKMENT

203.01.1 Excavation

A. Unclassified Excavation. Unclassified excavation is excavating and disposing, when required, of material from the R/W or construction easement areas except borrow excavation and muck excavation.

B. Borrow Excavation. Borrow for embankment construction is Contractor furnished excavation from outside the R/W or construction easement areas.

1. Unclassified Borrow. Use Department approved sources meeting current environmental and cultural resource preservation regulations. Material from a Department-optioned or Department-owned borrow source may be available at no cost. The applicable provisions of Subsections 102.06 and 106.02 apply to unclassified borrow.

2. Special Borrow. Special borrow-excavation and special borrow-neat line is the providing and placing of the specified quality of borrow material from designated sources or from other approved sources. The applicable provisions of Subsections 106.02 and 203.01.1(B)(1) apply to special borrow-excavation and special borrowneat line.

C. Unclassified Channel Excavation. Unclassified channel excavation is excavating and disposing of all materials from new watercourses or channels and the widening, deepening, or relocation of existing channels.

D. Street Excavation. Street excavation is excavating and disposal of all material to the street template.

E. Muck Excavation. Muck excavation is removing and disposing of unsuitable material in cut sections or below the natural ground line in embankment sections. Material defined as muck must be deemed unsuitable and is unable to be excavated using the same equipment and methods as for unclassified excavation.

Material is considered unsuitable if:

1. It contains soil or organic matter unsuitable for foundation material, regardless of moisture content; or

2. It is too wet to be properly compacted and cannot be dried within a demonstrated reasonable timeframe prior to incorporating into work. Excessive moisture alone is not sufficient cause for determining unsuitable material.

Topsoil removed below the natural ground line in embankment sections unsuitable material.

Excavated unsuitable material areas will be measured before they are backfilled.

Do not place fill over unsuitable or unstable foundation soils without the Project Manager's approval. Materials placed before approval may be ordered removed and replaced at Contractor expense.

F. Sub-excavation. Sub-excavation is removing unstable material from below the plan subgrade elevation as shown or directed.

G. Digout Excavation. Digout excavation is removing and replacing sections of material at neat lines as shown in the contract or directed by the Project Manager.

Nebraska

SECTION 107 -- LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
107.01 -- Laws to be Observed
[…] g. No activity which may affect historic properties listed, or eligible for listing, in the *National Register of Historic Places* is authorized until the Engineer has complied with the provisions of 33 CFR 325, Appendix C. The Contractor shall notify the Engineer immediately if the authorized activity may affect any historic properties listed, determined to be eligible, or which the Contractor has reason to believe may be eligible for listing on the *National Register of Historic Places*, and shall not begin the activity until notified by the Engineer that the activity is reauthorized. Information on the location and existence of historic resources can be obtained from the State Historical Preservation Officer and the *National Register of Historic Places*.[…]
107.10 -- Archaeological and Paleontological Discoveries

1. Should the Contractor encounter any fossils, meteorites, Native American relics, or other articles of historical or geological interest, such articles shall become the property of the State. The Engineer shall be immediately notified when any such articles are uncovered, and the Contractor shall immediately suspend operations in the area involved until such time that arrangements are made for their removal and preservation.

SECTION 704 -- CONCRETE CONSTRUCTION
704.03 -- Construction Methods
6. Forms:

a. Formwork shall be constructed in accordance with the current AASHTO *Guide Design Specification for Bridge Temporary Works*.
b. Forms for concrete shall conform to the dimensions, lines, and grades shown in the contract. They shall be substantial, unyielding, and constructed mortar tight. They shall be sufficiently rigid to prevent distortion due to pressures of concrete, vibration, and other loads incidental to the construction operations.
c. Form Materials:
    i. Aluminum or other materials that react adversely with the concrete shall not be used in the forms.
    ii. Form liners shall be made of plywood, water-resistant composition board, or other approved material. Only one type of liner shall be used throughout the structure. Liners shall be a uniform size and as large as practical. Joints shall be tight and smoothly cut.
    iii. Forms for 42 inch bridge rails shall be made of steel. Wood forms that are commercially manufactured to the specific shape of the 42 inch rail may be permitted. Forms shall be capable of producing a uniform surface, texture and appearance equal to that obtained by using steel panels in good condition.
d. Form Design:
    i. Concrete for exposed surfaces shall be cast against form panels or surfaces capable of producing a uniform surface, texture, and appearance

at least equal to that obtained by using plywood form panels of good condition.

ii. Forms not capable of producing such a surface shall be lined.

iii. Adjacent panels shall be oriented and aligned so that the joints and grain give a continuous, uniform appearance.

iv. Forms shall be filleted or chamfered approximately 3/4 inch (19 mm) at all exposed corners.

v. Forms shall be set and maintained true to the line designated without the use of temporary internal bracing.

vi. Form surfaces shall be treated with a nonstaining form oil or other approved material. No material which will adhere to or discolor the concrete shall be used.

vii. Metal ties or anchorages within the forms shall be designed to allow their removal to a depth of at least 1/2 inch (13 mm) from the face without damaging the concrete.

viii. Tie and anchorage cavities shall be filled with cement mortar and the surface left sound, smooth, even, and uniform in color.

ix. Protruding ends of plastic ties shall be removed flush with the concrete surface.

x. When a monolithic layer cannot be completed in one operation, it shall be terminated in a vertical bulkhead.

e. Successive Pours:

i. Twelve hours after placing concrete, the reinforcing steel and form work for the succeeding pours may be set on the curing concrete.

ii. It is recognized that for the forming to proceed, it will be necessary to remove the wet burlap from the specific areas where the forming will take place. The exposed area shall be kept to an absolute minimum and shall be kept damp.

iii. Reinforcing steel and form work for bridge curbs and bridge rails shall not be placed until after the 10-day wet curing.

f. Girder Bridge Deck Forms:

i. Forms for concrete floor slabs on steel or precast concrete girders or beams shall be hung from adequate metal hangers.

ii. Forms shall be adjustable to vary the slab thickness.

iii. Forms shall be of such substantial design that no measurable settlement of forms occurs when the concrete deck is placed.

iv. Tack welding of form hangers or other miscellaneous hardware to the flanges of girders is prohibited.

g. Steel stay-in-place forms will be allowed for concrete floor slabs on steel or precast concrete “I” girders. Stay-in-place forms shall be used for interior areas only, where the forms are supported on both sides by girders. Stay-in-place forms must be adjustable to maintain proper slab thickness and shall be designed so no measurable settlement of forms occurs when the concrete deck is poured. Stay-in-place form support systems must be designed so as to

maintain a minimum 1/2 inch (12 mm) clearance between the form support and the bridge deck reinforcing steel. Removable forms must be used outside of the exterior girders.

i. The form corrugations shall be filled with polystyrene strips to prevent excess slab dead load.

ii. The Contractor shall submit four copies of the stay-inplace form design plans and computations to the Engineer prior to construction. These plans and computations are for information only. The Contractor is responsible for the performance of the stay-in-place forms.

iii. Steel stay-in-place form material shall conform to the requirements of ASTM A 653/A 653M Coating Designation G615/Z500.

iv. The stay-in-place forms will not be measured and paid for directly but shall be considered subsidiary to the item Class 47BD-_____Concrete for Bridges.

Nevada

SECTION 106 - CONTROL OF MATERIAL
106.03 Possible Local Material Sources.

[…] **Antiquities and objects of historic value.** When American antiquities or other objects of historic or scientific interest, including but not limited to historic or prehistoric ruins, vertebrate fossils or artifacts, are discovered in the performance of the work, the item(s) or condition(s) will be left intact and immediately brought to the attention of the district manager or his authorized representative. […]

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILTY TO THE PUBLIC
107.12 Protection and Restoration of Property and Landscape

[…] Be responsible for the preservation of archeological and paleontological objects, including all ruins, sites, buildings, artifacts, fossils, or other objects of antiquity encountered during construction. When such objects are encountered, immediately cease operations and give notification that such objects exist. The Engineer will notify the Manager of the Cultural Resource Section of the Department. Reschedule construction operations to avoid the section until given written notification to proceed with operations.

Extension of contract time will be allowed for any delay due to preservation of archeological and paleontological objects. […]

New Hampshire

SECTION 107: **LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

107.09.1 Cultural Resources.

When construction operations encounter possible historic or potential Native American artifacts of archeological significance, operations shall be immediately suspended in the area and the Engineer notified. The Engineer will contact the Department's Cultural Resource Manager (603-271-3226) and the State archaeologist who with the Project Manager will determine the disposition of the site. It may be necessary for others to conduct investigations to determine the extent of importance of the site and to recover the remains prior to commencement of the project within the defined boundaries of the site. Compensation and time extensions for this work shall be determined in accordance with 104.02.

When construction operations encounter human remains, operations in the immediate area shall be temporarily discontinued and the Contractor shall notify the Engineer who will notify state and local police and the Department's Cultural Resource Manager. The County Medical Examiner will determine whether the remains require a criminal or archaeological investigation. A buffer zone will be defined for the burial sites; no work will be performed within that zone until after removal of the remains by others. The Contractor will be directed to continue work in the area when the investigation is completed. Compensation and time extensions for this work shall be determined in accordance with 104.02.

The Contractor shall maintain a 25-foot buffer zone around known cemeteries. If the Contract specifies work within this buffer zone or cemetery, contact the NHDOT Cultural Resource Manager two (2) weeks prior to beginning work in that area. The Contractor's attention is directed to RSA 227-C:8 a-g, RSA 290, RSA 635, and Federal Regulations 36-CFR-800 dealing with cemeteries and human remains.

SECTION 570 -- STONE MASONRY

Description 1.1 This work shall consist of furnishing all materials and constructing masonry of approved stones, laid with or without cement
mortar, as shown on the plans or ordered.

Materials 2.1 Stone shall be furnished in accordance with Table 570-1.

Table 570-l - Stone for Stone Masonry

Stone	Source	Quality	Dress and Cut	Finish	
				Top and Bottom	Vertical Face Joints
Ashlar	approved quarry having the required quantity	compact, hard and practically non-absorbent; texture and color as indicated on plans or ordered	to exact dimensions	fine	fine
Squared	approved quarry having the required quantity	compact, hard and practically non-absorbent; texture and color as indicated on plans or ordered	roughly squared and to approximate dimensions	rough for at least 12" depth	rough for at least 9" depth
Rubble	field, quarry, or rock excavation	approved, sound, clean, and free from structural defects	unsquared, roughly dressed	---	---

2.1.1 Ashlar and Squared Stone.

2.1.1.1 Stones shall have their edges pitched to a true line with tops and bottoms parallel and cut to lie on their natural beds.The bottom beds shall be the full size of the stone, and hollow beds or overhanging tops will not be permitted.

2.1.1.2 When specified as random or broken-ranged, stone shall have vertical joints unless otherwise indicated on the plans.

2.1.1.3 Size of stone shall be as indicated on the plans.

2.1.1.4 Surface finish shall be as shown on the plans in accordance with the following schedule:

(a) Smooth finished: surfaces in which the variations from the pitch line do not exceed 1/16"

(b) Fine finished: surfaces in which the variations from the pitch line do not exceed 1/4"

(c) Rough finished: surfaces in which the variations from the pitch line do not exceed 1/2"

(d) Scabbled: surfaces in which the variations from the pitch line do not exceed 3/4"

(e) Rock-faced: surfaces on which there are no tool marks and which have irregular projection beyond the pitch line of not more than 1-1/4"

(f) Weather-faced: surfaces which have been exposed to the weather for sufficient time to become weather beaten in appearance

(g) Seam-faced: surfaces which are formed by seams in the natural ledge before stone is quarried

2.1.1.5 All stone shall be so finished that no holes or portions of holes will show on surfaces which will be exposed in the finished work.

2.2 Cement mortar shall conform to Section 707.

2.3 Stone masonry anchors shall be of the shapes and dimensions shown on the plans. The minimum ultimate tensile strength
shall be 42,000 psi. Anchors shall be zinc-coated (galvanized) in accordance with ASTM A 653, coating designation G 90.

Construction Requirements

3.1 Classification.

3.1.1 Stone masonry shall be classified by pattern: ranged, broken ranged, or random.

(a) Ranged masonry shall be laid up in regular courses of uniform height throughout their entire lengths. When the height of
courses is varied, it shall be regularly diminished from bottom to top masonry.

(b) Broken-ranged masonry shall be laid up with courses not continuous throughout their entire lengths.

(c) Random masonry shall be laid up without courses.

3.1.2 Stone masonry shall be classified by type of stone and thickness of joints, in accordance with Table 570-2.

3.2 Laying Stone.

3.2.1 All shaping and dressing of stone shall be done before it is placed.

3.2.2 When required, the Contractor shall submit details of falsework or centering for approval.

3.2.3 No stone in broken-ranged or random work shall be laid in a structure until at least 50 percent of the amount required for the structure has been delivered at the site.

3.2.4 Stone shall be carefully set without jarring stone already laid and shall be handled with a lewis or other suitable device
which will not mar the stone. Rolling or turning of stone on masonry already in place will not be permitted.

Table 570-2 - Stone Masonry Classification

Class of Masonry	Type of Stone	Joint Material	Max. Thickness
Ashlar	Ashlar	Cement mortar	½
Mortar Squared Stone	Squared	Cement mortar	1
Dry Squared Stone	Squared	Dry (closely and lightly pinned)	
Mortar Rubble	Rubble	Cement mortar	1-1/2
Dry Rubble	Rubble	Dry (closely and lightly pinned	
Copings	Squared (Sawn Finish)	Cement Mortar	1/2

3.2.5 Stone to be laid in cement mortar shall be thoroughly cleaned before being set, and the bed to receive it shall be well cleaned. The thickness of all joints and beds shall be uniform throughout. Spalls shall not be used as pinners in mortar beds or joints. When any stone is disturbed or mortar joint broken, the stone shall be taken up, and after all mortar has been cleaned from the stone, bed, and joints, it shall be reset in fresh mortar.

3.2.6 All stones shall be well bedded with the face joints properly pointed before the mortar has set, unless otherwise permitted. When permitted, joints to be pointed after mortar has set shall be raked out to a depth of 2” before mortar has set and when pointed, shall be

moistened and filled with mortar well driven in. All pointing shall be finished with an approved pointing tool to form the type of joint indicated on the plans or ordered.

3.2.7 The masonry shall be kept wet during the pointing and in hot or dry weather shall be protected from the sun and kept wet for a period of 3 days after completion unless otherwise permitted or ordered. The exposed surfaces of the stones shall not be smeared with mortar. The joints shall be wiped free of loose mortar. Stone shall not be set when containing frost or during freezing weather unless permitted. When permission is granted, the masonry shall be protected in the same manner as concrete in 520.3.7 except that liquid curing compound shall not be used, and the masonry temperature shall be controlled as provided in 520.3.7.4.7.

3.3 Bond.

3.3.1 Stretchers shall have a depth of bed of not less than 1-1/2 times their height. They shall have a length not less than their height, nor less than 3 ft., nor more than 3-1/2 times their height, unless otherwise indicated on the plans.

3.3.2 Headers shall have a length of 1-1/2 times their height and shall extend entirely through masonry having a thickness of 4 ft. or less. In masonry having a thickness greater than 4 ft., the depth of headers shall not be less than 2-1/2 times their height when the course is 18” or less in height, and not less than 4 ft. in courses of greater height. Headers shall hold into the heart of the wall the same size shown on the face, bonding not less than 12” with the core or backing. Headers shall be placed over stretchers equally dividing the spaces between headers of adjoining courses with no joints coming immediately over or under headers. Headers shall be spaced not more than 8 ft. apart, and there shall be at least 1 header to every 2 stretchers unless otherwise indicated on the plans.

3.4 Copings. Stone for copings shall be selected. Copings shall be as shown on the plans.

3.5 Cores and backing. Cores or backing shall be of stone or concrete masonry as indicated on the plans.

3.5.1 Stone backing shall be laid as specified for face stone, with headers interlocking with face headers when the thickness of the masonry permits. Stone in backing or cores shall break joints with the face stone and bond not less than 12” with the face stone and with each other. Stone backing or cores shall be carried up with face stone and at least 50 percent of the stone shall be of the same size and character as the face stone and shall have parallel ends. When stone is laid in cement mortar, the beds shall be full and shall not exceed 1” in thickness, and the joints shall be completely filled and shall not exceed 4” in thickness.

3.5.2 Concrete backing or cores shall be of the class shown on the plans and as specified in 520. The concrete shall be so worked and compacted that all spaces around stones are completely filled and an adequate bond with the stone is secured. Construction joints in the concrete, required by intermittent placing, shall be located not less than 6” below the top bed of any course of the stone facing. The concrete shall be so placed that the stone masonry facing is not disturbed.

3.6 Metal dowels and cramps. Dowels and cramps shall be of the material, size, and shape, and at the locations indicated on the plans or as ordered. Holes for dowels or cramps shall be drilled in the stones before they are placed unless otherwise permitted. Cramps shall be countersunk flush with the top of the stone in which they are set. This work shall be subsidiary.

3.7 Culvert headwalls and retaining walls. In addition to applicable construction requirements, unless otherwise specified on the plans or in the special provisions, culvert headwalls and retaining walls to be constructed of mortar rubble masonry or dry rubble masonry shall conform to the following requirements: At least 75 percent of the stone shall be larger than 6 by 9 by 12" No dressing, finishing, or coursing will be required. The stone shall be set without disturbing stone already in place. Stone to be laid in mortar shall be clean and moist and shall be placed on a full mortar bed. The stones shall be bonded in a workmanlike manner.

3.8 Weepers. Unless otherwise indicated on the plans, the Contractor shall furnish and place 4" weepers in all closed abutments and retaining walls. These weepers shall be approximately 10 ft. apart and placed at the elevation which will best drain backfill. French drains of stone or coarse gravel shall be placed adjacent to the fill face of such walls and at such elevations as will permit drainage to and outletting into the weepers.

3.9 Stone Masonry Arches.

3.9.1 Masonry for rings shall be ashlar or mortar squared stone unless otherwise indicated on the plans. Voussoirs shall be full size and shall have a bond of not less than the depth of the stones. Their beds shall be dressed to bring them to radial planes and to permit them to rest properly on the centering. The inside faces of stone backing or spandrel walls and extrados shall be given a finishing coat of 1:2-1/2 cement mortar troweled smooth, and waterproofed as indicated on the plans.

3.9.2 Masonry in arch rings shall be placed in such a manner as to load the ring uniformly about the center or as indicated on the plans.

The following additional information was supplied by Sheila Charles, Cultural Resources Program Specialist/Archaeologist, Bureau of Environment at the New Hampshire Department of Transportation.

SSD: 1/19/95, 4/6/99, 2/14/03 & 7/14/08

SPECIAL ATTENTION

HISTORIC AND ARCHAEOLOGICAL RESOURCES

In order to avoid impacts to archaeological resources, the Contractor shall obtain and submit to the Engineer a written certification from either: 1) the State Archaeologist, or 2) a qualified archaeologist as defined below prior to any offsite excavation or other work at any disposal site, haul road, storage area, staging area, or other areas located outside the right-of-way limits of the project. Such certification shall be made on one of the attached forms. One is intended for site clearance by the state archaeologist and the other for investigation by a qualified archaeologist. Any work in such areas may only commence after receipt of this certification and upon written authorization to proceed by the Engineer.

This Special Attention does not apply to natural materials obtained from pre-existing (i.e., owned and operated by the Contractor prior to bidding on the subject contract) and/or commercially available sources. Commercially available sources is meant to include licensed or permitted sources where anyone could purchase natural materials.

If the State Archaeologist determines that further field investigation is necessary the Contractor must decide whether to pursue alternative locations or to have the site(s) in question evaluated. If the latter is decided, it will be necessary for the Contractor and the Engineer to meet with the NHDOT Bureau of Environment, the Division of Historic Resources and the Federal Highway Administration to determine the appropriate course of action. Note that the latter parties meet twice a month on the first and second Thursdays of each month.

Professional Qualifications for Principal Investigators in Archaeological Investigations

All archaeologists contracting with NHDOT as principal investigators will be qualified for such work, as determined by NHDHR. **See list of qualified archaeological firms at www.nh.gov/nhdhr/consultants_archaeology.html.** According to NHDHR guidelines, principal investigators must meet the minimum standards presented in 36 CFR 61.

These regulations require a graduate degree in archaeology, anthropology, or related field; at least one year full-time professional experience or an equivalent period of training in archaeological research, administration, or management; at least four months of supervised field and analytical experience in general North American archaeology; and demonstrated capability to complete archaeological research through all its phases. These standards distinguish between the prehistorian and historical archaeologist. Each must have a specialization in his/her respective areas and at least one year of full-time professional experience at the supervisory level in the study of the Native American cultural traditions or the historic period.

NHDHR also requires the following additional qualifications. All prehistorians will have at least one year of supervisory experience in the region encompassing the glaciated Northeast. Historical archaeologist will have a least one year of supervisory experience in New England, New Jersey, New York, or Pennsylvania. Historical archaeologists specializing in submerged nautical resources will possess at least one year's experience in the study of such resources along the Atlantic seaboard. NHDOT requires that the principal investigator has successfully completed one or more projects in New Hampshire in a timely manner. Principal investigators will be knowledgeable about the federal and state cultural resources management laws and regulations including those relating to the treatment of human remains in marked and unmarked graves. As soon as research or initial investigations indicate the likely presence of Native American or historic deposits, a principal investigator with training and experience in that area shall supervise the work.

The principal investigator is responsible for each aspect of the project. The principal investigator will maintain sufficient presence in repositories, the field, and laboratory to set up the study, ensure appropriate collection and accurate documentation of data, direct needed modifications as investigations proceed, field-check accuracy of field data, establish and direct analysis, and oversee documentation and preparation of recommendations at its close. In phases II and III as the intensity of excavation increases, it is anticipated that this presence will proportionately rise. All research, field investigations, analysis, and report preparation will be completed within the schedule set in the authorization of work unless notification is given and adequate justification is provided to NHDOT.

Depending on the nature of the site, the prehistoric or historic archaeologist may require additional qualifications or additional personnel qualified in other fields that may not be specified under 36CFR61. For example, projects for NHDOT encounter situations in which personnel with expertise and/or demonstrated experience in geomorphology, botany, faunal analysis, forensic anthropology, and industrial and urban archaeology are needed. These individuals will possess graduate training in their field, two years of professional experience in the area of expertise for which they are being consulted, and the demonstrated ability to complete a research project with a report of findings. Principal investigators may also need to add architectural historians, historians, historical landscape architects, etc. to their team whose professional qualifications will follow those provided in 36 CFR 61.

SA

CERTIFICATION BY NHDHR

For the purpose of compliance with the Special Attention, Historic and Archeological Resources, dated February 14, 2003, relative to Federal-Aid Highway Project No. _____, NHDOT Project No. _____, I certify the following:

1. That I have reviewed the maps, plats, photographs or other identifying geographical information supplied to me by the Contractor.

2. That the areas located on these maps, etc. are to be utilized by the Contractor _____ _____ for the following purposes:

   a. Excavation area _____.
   b. Waste material area _____.
   c. Storage or staging area _____.
   d. Haul road _____.
   e. Other (describe) _____
      _____
      _____.

3. That I have reviewed the NHDHR site files relative to these locations and proposed uses.

4. On the basis of the above information, I have concluded that:

   a. The location(s) have been previously reviewed, no resources have been identified, and there is no need for further archaeological evaluation _____.
   b. The location(s) are such that no further archaeological evaluation is necessary _____.
   c. The location(s) are such that further field investigation is necessary _____.

_____ _____
NHDHR Review and Compliance Coordinator Date

Received:

_____ _____
NHDOT Contract Administrator Date

cc: FHWA
NH Division of Historical Resources
NHDOT, Bureau of Environment

SA

CERTIFICATION BY ARCHAEOLOGICAL CONTRACTOR

For the purpose of compliance with the Special Attention, Historic and Archeological Resources, dated February 14, 2003, relative to Federal-Aid Highway Project No. _____, NHDOT Project No. _____, I certify the following:

1. That I have examined the areas identified on the attached plans, maps, or property plats.

2. That these areas are to be utilized by the Contractor _____ for the following purposes:
   a. Excavation area _____.
   b. Waste material area _____.
   c. Storage or staging area _____.
   d. Haul road _____.
   e. Other (describe) _____
   _____
   _____.

3. That I have used the following techniques in my examination:

   a. Literature search _____
   b. Walkover (describe methodology) _____
   _____
   c. Subsurface testing (if appropriate) _____
   _____

4. That in my professional opinion, there is minimal or no likelihood that there are cultural resources (either historic or pre-historic) present or that any such resources present have integrity, and that there is no need for any other evaluative measures prior to the use of the areas described above for the purposes noted.

_____ _____
Archaeological Contractor Date

Review by: _____ _____
NHDHR Review and Compliance Coordinator Date

Received:

_____ _____
NHDOT Contract Administrator Date

cc: FHWA
NH Division of Historical Resources
NHDOT, Bureau of Environment

New Jersey

SECTION 105: CONTROL OF WORK
105.08 ENVIRONMENTAL PROTECTION

[...]Obtain all permits, grants, licenses, authorizations, and other approvals, for off-site disposal, storage, and borrow locations. These may include but are not limited to wetlands, floodplains, regulated waste, threatened and endangered species, and historic properties (archeological sites, historic buildings, and historic districts). Conduct the studies required to obtain the necessary environmental clearances, permits, grants, licenses, authorizations, and other approvals for off-site disposal, storage, and borrow locations. Provide the RE a copy of all of the permits, grants, licenses, authorizations, and other approvals. […]

[…] 1. Historical and Archeological Sites.

Ensure that locations eligible for or listed on the State or National Registers of Historic Places are not used for disposing, storing, or obtaining borrow excavation. For information about historical places, consult the New Jersey Department of Environmental Protection Historic Preservation Office website at www.state.nj.us/dep/hpo/1identify/nrsr.htm.

When prehistoric or historic artifacts or remains are encountered, immediately cease construction operations in that area and notify the RE. Do not resume construction operations until the Department provides direction. […]

New Mexico

SECTION 107: LEGAL RELATIONS, ENVIRONMENTAL REQUIREMENTS, AND RESPONSIBILITY TO THE PUBLIC

107.11 ENVIRONMENTAL, HAZARDOUS MATERIALS AND CULTURAL RESOURCES APPROVAL

The Department will obtain the environmental, hazardous material, and Cultural Resource approvals for the Project before construction. The Department will describe in the Contract any special environmental, hazardous material and Cultural Resource requirements developed to protect resources.

107.12 ENVIRONMENTAL, HAZARDOUS MATERIALS AND CULTURAL RESOURCE DISCOVERIES

The Contractor shall terminate operations in the immediate area of environmental, Hazardous Materials or Cultural Resources not identified in the Contract and immediately notify the Project Manager. While the Project Manager, Environmental Geology Bureau Manager, Environmental Program Manager, and regulatory authorities complete appropriate mitigation actions the Contractor shall continue Work in other areas. The Project Manager shall provide written notification to the Contractor when Work may commence in the area of terminated operations. Any adjustments shall be made in accordance with Section 109.5, “Payment for Changes, Differing Site Conditions and Extra Work,”

107.13 CONTRACTOR’S RESPONSIBILITY FOR DAMAGE TO ENVIRONMENTAL AND CULTURAL RESOURCES

The Contractor shall restore or mitigate all damage to environmental or Cultural Resources caused by the Contractor’s failure to abide by requirements included in the Contract as well as those areas covered under Section 107.14, “Contractor’s Responsibility for Environmental and Cultural Resource Protection” at no additional cost to the Department. The Department, in coordination with regulatory authorities, will determine the extent of restoration or mitigation. The Contractor shall pay any fine imposed on the Department by a regulatory agency for a regulatory violation caused by the Contractor. The Project Manager may suspend the Work in areas where environmental or Cultural Resource violations occur.

107.14 CONTRACTOR’S RESPONSIBILITY FOR ENVIRONMENTAL AND CULTURAL RESOURCE PROTECTION

107.14.1 Environmental and Cultural Resource Studies and Approvals

Before beginning soil-disturbing activities (in accordance with Section 106.1, “Contractor- Furnished Aggregate and Borrow Sources”), the Contractor shall obtain the necessary study permits, and employ an Environmental Specialist and a Cultural Resource Professional to conduct environmental and Cultural Resource studies at any disturbed site, including, but not limited to the following:

1. Camp sites;
2. Plant sites;
3. Crusher sites;
4. Stockpile sites;
5. Equipment yards;

6. Borrow Pits;
7. Surfacing Pits; and,
8. Water sources.

The Contractor shall obtain the environmental and Cultural Resource approvals regardless of land ownership. For the environmental approval, the Contractor shall use the Department-furnished checklist Categorical Exclusion form (or equivalent form furnished by the Department), which shall be signed by the Contractor and the Environmental Specialist. For Cultural Resource reports, use the standard site investigation forms approved by the New Mexico Historic Preservation Division and the New Mexico Cultural Properties Review Committee. The Contractor shall ensure that the resource studies meet the standards of the Department, the State historic preservation officer, and any State, tribal, or federal land managing agency or entity with jurisdiction. The Contractor shall ensure that the resource studies are in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. § 4321 et seq.), the National Historic Preservation Act (16 U.S.C. § 470 et seq.), and the New Mexico Cultural Properties Act (NMSA 1978, § 18-6-1 to 18-6-17), or any other successor statutes.

The Contractor may use previously-completed environmental and Cultural Resource studies, provided all other requirements of this Section are met.

The Contractor shall complete other coordination required by environmental regulations.

The Contractor shall submit the documentation prepared for the environmental and Cultural Resource approvals to the Project Manager and the Environmental Program Manager. The Department will then submit the documentation to the appropriate agencies for approval, and will notify the Contractor when approvals have been obtained. Approvals may take 45 Days or more after the Contractor delivers the resource studies to the Department. Adjustments shall only be made in accordance with Section 109.5, “Payment for Changes, Differing Site Conditions and Extra Work,” when the time needed to obtain approvals exceeds Federal or State law or regulatory requirements containing time limits.

The Contractor shall comply with all conditions and commitments for protection of resources contained in resource agency permits and in the environmental and Cultural Resource approvals. The environmental approval is the FHWA-approved checklist categorical exclusion, or its equivalent. The Cultural Resource approval is the concurrence letter signed by the State historic preservation officer, or its equivalent.

The Contractor shall repair at the Contractor’s expense all damage to environmental or Cultural Resources caused by the Contractor’s failure to meet the requirements for environmental acceptability or abide by Department directives issued to protect resources identified during the environmental and Cultural Resource evaluation. The nature and extent of such repairs shall be determined after consultations between the Contractor, Department representatives, and the regulatory authorities with management jurisdiction over the subject resources.

New York

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC (Revised January, 2018)
107-01 LAWS, RULES, REGULATIONS AND PERMITS.

D. Archaeological Salvage. Whenever, during the course of construction, historical or prehistoric objects or human remains are encountered, such objects shall not be destroyed or moved. The Contractor shall stop work to avoid disturbing such areas and notify the Engineer immediately. The Engineer will notify the appropriate Department personnel and other authorities and arrange to have an immediate inspection of the site conducted. Removal or salvage of archaeological objects will be considered extra work. Such work will be limited to that performed within the right-of-way, and at any location under direct control of the Contractor used as a source of approved borrow material or a spoil disposal area.

SECTION 560 - MASONRY

560-3.04 Stone Masonry. The construction provisions of §560-3.02 shall apply. The individual stones shall be trimmed, recut and dressed, as may be necessary at the site, to obtain a pattern in the finished wall which will be in character with the requirements of drawings, specifications and the approved sample wall.

The following general requirements will apply to the placing of stone masonry:

A. Cross-Joints, Steps or Ladders. There shall be no cross-joints, steps or ladders.

B. Subdivision of Rectangles. There shall be no subdivision of rectangles.

C. Stone Shapes. There shall be no unusually shaped stone.

D. Clusters. There shall be no clusters of stone of the same length and height.

E. Horizontal Joint Length. There shall be no continuous horizontal joint greater in length than 10 feet.

F. Vertical Joints. There shall be no more than five stones abutting any one vertical joint.

G. Stone Proportions. There shall be no stone longer than six times its height nor shorter than one and
one half times its height. The length of the average stone shall be three to five times its height.

H. Horizontal Joints. Horizontal joints shall not have a slope varying from the horizontal by more than one percent.

I. Color. Where stone masonry and dimension masonry are specified, for the same structure or in close proximity to each other, there shall be no great contrast in size or color between the Stone Masonry and the Dimension Masonry. Prior to beginning the work the Contractor shall lay up a sample wall conforming to the requirements of §560-3.03A except that the material details for the work shall conform to those for Stone Masonry.

560-3.05 Rubble Stone Masonry.

The provision of §560-3.01 shall apply with the following additional requirements: The stone shall be laid to form substantial masonry presenting a neat, finished appearance. The minimum size of stone to be used shall be 4 inches in depth or rise, 9 inches in width, and 12 inches long. Spalls and pinners will not be allowed to show on the face of the work and shall be used

otherwise only where necessary. All stones shall be soundly and completely bedded in the mortar. The length of stretchers shall not exceed three times their rise, and the width of stretchers shall in no case be less than one and one-half times their rise. At least one-fourth of the stones in the face shall be headers and shall be evenly distributed. The length of headers shall be not less than 32 inches nor more than the thickness of the wall, where the work is 4 feet or less in thickness. Where the work is more than 4 feet thick, the length of headers shall be not less than 32 inches. The width of headers shall be not less than their rise. All stones shall be laid to break joints 6 inches or more and to thoroughly bond the work. No joint in the face shall be over 1 inch in width. Backing shall be good-sized, well-shaped stones so laid as to break joints. Spaces between stones shall be filled with spalls set in mortar. The degree of roughness of exposed faces shall be measured with a 6 foot straight edge supported between adjacent projections on the stone face. Variations in the stone face, in excess of 4 inches, measured from the straight edge to the extreme depression in stone or mortar will not be permitted. Rear faces shall present approximately plane surfaces.
Pointing shall conform to the requirements of §560-3.02E.

SECTION 705 – JOIN MATERIALS
705-21 MASONRY MORTAR

SCOPE. Requirements for the 3 common types of masonry mortar (N, S and M - increasing in strength, respectively). Use these mortars to bind masonry units together to construct masonry structures, repair masonry structures (tuck pointing), or bed and bond masonry or concrete units together. For historic masonry structures made with soft hydrated lime mortars, use a specially designed lime mortar as shown in the Contract Documents or as approved by the Engineer.

- Type N Masonry Mortar- for tuck pointing repair of structures made with fired clay bricks
- Type S Masonry Mortar- for new structures made with all types of masonry, including brick
- Type S Masonry Mortar- for tuck pointing repair of structures made with masonry other than clay brick
- Type M Masonry Mortar- for new and tuck pointing repair of rigid masonry riding surfaces, such as bridge decks, pavements, sidewalks, and other roadway areas subject to severe weathering and abrasion conditions

North Carolina

SECTION 230: BORROW EXCAVATION
230-4 CONSTRUCTION METHODS
(B) Contractor Furnished Sources

Before the approval of any borrow sources developed for use on any project, obtain certification from the State Historic Preservation Officer of the State Department of Cultural Resources certifying that the removal of the borrow material from the borrow sources will have no effect on any known district, site building, structure or object, architectural and/or archaeological that is included or eligible for inclusion in the National Register of Historic Places. Furnish a copy of this certification to the Engineer before performing any work on the proposed borrow source. Borrow sources will not be allowed in any area under the Corps of Engineers regulatory jurisdiction until the Contractor has obtained a permit for such borrow sources from the Corps District Engineer having jurisdiction and has furnished a copy of this permit to the Engineer. Requests for additional contract time, additional compensation or for work stoppage due to permit violations will not be considered.

SECTION 1040 - MASONRY
1040-9 MORTAR

Proportion mortar used in all brick and block masonry by volume as shown below. Do not add any more water than is necessary to make a workable mixture.

Mix No. 1: 1 part Portland cement
1/4 part hydrated lime
3 3/4 parts mortar sand (maximum)

Mix No. 2: 1 part Portland cement
1 part masonry cement
6 parts mortar sand (maximum)

Apply Articles 1040-4, 1040-5, 1040-6 and 1040-7 to all cement, hydrated lime, mortar sand and water.

For the hydrated lime and cement portion of Mix No. 1, the Contractor may substitute Type M or Type S masonry cement that meets ASTM C270 for Type S masonry cement the minimum compressive strength of the test specimens shall be 2,500 psi at 28 days and the test specimens shall be composed of one part Type S masonry cement and 3 parts sand. Furnish a Type 3 certification for the Type M or Type S masonry cement in accordance with Article 106-3.

North Dakota

SECTION 107: LEGAL RELATIONS AND RESPONSIBILITIES

107.05 MATERIAL SOURCE APPROVAL

A. **General.**

[…] Destruction of cultural resources prior to approval is considered Anticipatory Demolition [National Historic Preservation Act (NHPA), Section 110(k)(16 U.S.C. 470h-2], and a COA will not be issued. […]

107.06 DISCOVERIES

If the Contractor encounters a threatened or endangered species, prehistoric dwelling sites, human remains, or concentrated historic or prehistoric artifacts anywhere the Contractor performs the work, the Contractor shall immediately suspend the work and notify the Engineer of the encounter. If encountering prehistoric dwelling sites, human remains, or concentrated historic or prehistoric artifacts protect the location of the encounter from further disturbance. Resume work in the location of the encounter only with written approval from the Engineer. If the Contractor fails to notify the Engineer within 24 hours of the encounter, the Contractor shall be liable for all standby costs and all damage incurred.

Ohio

107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.10 Protection and Restoration of Property.

Do not create staging areas, store materials and equipment, or borrow or waste materials in areas labeled as an environmental resources areas in the Contract Documents. All properties to be utilized by the Contractor outside the project Right-of-Way must be cleared for all environmental resource impacts prior to the beginning of work. Environmental resources include but may not be limited to:

1. Cultural Resources
    a. Buildings, structures, objects, and sites eligible for or listed on the National Register of Historic Places
    b. Historic or prehistoric human remains, cemeteries, and/or burial sites (pursuant with ORC 2909.05 and 2927.11
2. Ecological Resources
    a. Wetlands
    b. Streams
    c. Wooded areas with trees to be removed in excess of 8 inches diameter at breast height
3. Public Lands
    a. Lands meeting the criteria of 49 U.S.C. 303, 23 CFR 771.I35: 4(f).
    b. Lands meeting the criteria of 16 U.S.C. 4601-4, 36 CFR59.1: 6(f).
4. FEMA Mapped 100 year Floodplains
5. Hazardous Waste Areas

SECTION 200 EARTHWORK

ITEM 203: ROADWAY EXCAVATION AND EMBANKMENT

203.04 General.

Temporarily discontinue operations when the excavating operations encounter remains of prehistoric archaeological sites, historical archaeological sites, or human remains. The Engineer will contact the Department‟s Office of Environmental Services to determine the disposition thereof. Preserve the artifacts or other archeological items or human remains until a determination as to what the disposition and/or removal of such items is made by the Office of Environmental Services. Such excavation is considered Extra Work.

Oklahoma

107.09 PROTECTION OF ARCHEOLOGICAL AND UNMARKED HUMAN BURIAL SITES

The Contractor shall observe all laws and regulations when establishing off-site facilities. including plant sites, borrow pits, waste areas, haul roads, storage sites, parking areas, and similar areas associated with the acquisition, production, and delivery of borrow material and related road building materials.

Examine all intended locations of off-site facilities for archeological significance. Identify the intended location (legal description of the ¼ section) to the Resident Engineer, who will examine the site and confer with the proper authorities for this determination. Allow up to 10 working days for the archeological investigation. If the Resident Engii1eer and proper authority determine a site to be of potential or established archeological significance requiring fiu1her investigation, the Contractor shall either postpone the excavation until the artifacts have been removed or obtain an alternate location for the source of borrow material.

Whenever encountering archeological remains during construction operations on the project site or during the excavation of a previously approved off-site facility, immediately cease the operation and notify the Engineer, who will contact State archeological authorities to determine the disposition of the remains or artifacts.

The Contractor shall temporarily discontinue construction operations if remains of prehistoric dwelling sites or artifacts of historical or archaeological significance are encountered on the project site or on a previously approved off-site facility, and notify the Resident Engineer. The Resident Engineer will contact the State archaeological authorities to determine the disposition of the remains or artifacts. The Contractor shall excavate the site to preserve the artifacts and remove and deliver them to the custody of the proper State authorities as directed by the Resident Engineer. For off-site facilities. if the delay for the archeological investigation is too long, the Contractor may consider an alternate source of material. In such case, with approval of the archeological authorities, it may be possible to re-bury the archeological materials and move to another location. The Contractor shall remove or rebury the archeological material in compliance with the National Historic Preservation Act and the Archaeological Resources Protection Act of 1979, the Oklahoma State Register of Historic Places Act, and the Oklahoma Violating Sepulcher and the Remains of the Dead Act (refer to Oklahoma Stature 21, Section 1168, and Section 53, Section 361, OS 21, Chapter 47 Section 1168).

The Department will pay for this removal work as extra work and adjust the Contract in accordance with Subsection 109.04. “Differing Site Conditions, Changes, and Extra Work.”

If the construction operation is delayed due to archeological finds in an off-site facility. the Department will compensate a Contractor only with an extension of time commensurate with the amount of delay involving items on the critical path. Monetary compensation will not be allowed for these purposes.

When an unmarked human burial is discovered, immediately cease all activity in the surrounding area and notify the Resident Engineer. Do not resume activity until specifically authorized by the Resident Engineer.

Oregon

SECTION 00290 – ENVIRONMENTAL PROTECTION

00290.50 Protection of Cultural Resources - Comply with all Laws governing preservation of cultural resources. Cultural resources may include, but are not limited to, dwellings, Bridges, trails, fossils, and artifacts. If cultural resources are encountered on the Project area or in material sources, and their disposition is not addressed in the Special Provisions, do the following:

- Immediately discontinue operations or move to another area of the Project Site or material source.
- Protect the cultural resource from disturbance or damage.
- Notify the Engineer.

The Engineer will do the following:

- Arrange immediate investigations.
- Arrange for disposition of the cultural resources. The Engineer may direct the Contractor to perform salvage operations according to 00140.30 or 00140.60.
- Notify the Contractor when to begin or resume construction operations in the affected area.

00290.51 Protection of Sensitive Cultural Sites - Comply with and require that all the Contractor's employees, agents, and Subcontractors on the Project Site comply with all Laws applicable to the preservation and protection of sensitive cultural sites. The existence of any sensitive cultural sites affecting the Project, and the mandatory preservation and protection measures applicable to the sites, are determined according to the Laws including, but not limited to, the following:

- National Historic Preservation Act (NHPA) of 1966, Section 106, codified in 36 CFR Part 800 (Protection of Historic Properties).
- ORS 97.740 to ORS 97.760, ORS 97.990(5), and ORS 97.990(6) (Indian Graves and Protected Objects).
- ORS 358.905 to ORS 358.955 (Archaeological Objects and Sites).
- ORS 390.235 to ORS 390.240 (Archaeological Sites and Historical Material).

Ensure protection for sensitive cultural sites according to the following:

- Except as authorized by the Engineer for the purpose of installing or maintaining approved sensitive cultural site protective measures, keep all persons, Equipment, and materials off known sensitive cultural sites.
- Install all sensitive cultural site protection required by the Plans and Special Provisions prior to staging Equipment or starting Work near the sites.
- Instruct all Contractor and Subcontractor personnel to regard the locations of these sites and their contents as confidential.

The Engineer has the authority to bar from the Project any person entering a protected site other than for the purpose of installing or maintaining protective measures.

If sensitive cultural sites are known to be on the Project, additional information will be provided in the Special Provisions.

(a) Disturbing Known Sensitive Cultural Sites - Willful violation of Laws exposes the offending Contractor and other violators to criminal and civil sanctions. Civil sanctions include, but are not limited to, the offender's sole liability for all costs associated with monitoring, recovery, site restoration or other archaeological Work required by Tribal, federal, and State authorities. Costs can exceed $100,000.

The Engineer may suspend Work until the Contractor and the Engineer meet to determine damage to the site and the nature and scope of necessary site restoration and maintenance. The Engineer may require the Contractor to submit a written plan for protection of other sites for the duration of the Project before Work resumes.

(b) Disturbing Unknown Sensitive Cultural Sites - If the Contractor finds a previously undiscovered sensitive cultural site, immediately cease all activities at that site, follow procedures listed in 00290.50, and notify the Engineer. If the Contractor inadvertently disturbs unknown sensitive cultural sites, but immediately ceases all activities and follows the procedures listed in 00290.50, the Agency, to the extent permitted by Article XI, section 7 of the Oregon Constitution and by the Oregon Tort Claims Act, will indemnify, within the limits of the Tort Claims Act, the Contractor for costs associated with monitoring, recovery, site restoration or other required archaeological Work, provided neither the Agency nor the State shall be required to indemnify the Contractor for such costs resulting from, arising out of or relating to the willful misconduct, negligence or other wrongful acts attributable to the Contractor or other persons on the Project site.

Delays to Work due to new cultural resource finds will be considered for exclusion from Contract Time according to 00180.50(e).

Work required for monitoring and site restoration for newly discovered sensitive cultural sites encountered by the Contractor will be paid for according to 00195.20.

The following additional information was supplied by Tobin Bottman from the Oregon Department of Transportation.

SP00290 (2018 Specifications: 08-01-18) *(This Section requires SP00245 when temporary water management is required. Requires SP00253 when a temporary work access/containment system is required.)*

SECTION 00290 - ENVIRONMENTAL PROTECTION

(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include it in the project. The specifications may be modified to include project specific specifications, but all additions, deletions, or modifications must be sent to the ODOT Technical Resource and Senior Specifications Engineer for review and approval. Generally, the subsections that include instructions comply with the most current SLOPES requirements. Modify these subsections only for site specific conditions.)

(Use only one of the following lead-in paragraphs as instructed below.)

[Use the following lead-in paragraph when NONE of the following subsections are included in the project special provisions.]

Comply with Section 00290 of the Standard Specifications.

[Use the following lead-in paragraph when ANY of the following subsections are included in the project special provisions.]

Comply with Section 00290 of the Standard Specifications modified as follows:

(Use the following subsection .10 when specific staging areas have been approved. Delete the language in orange parentheses that does not apply and delete all orange parentheses. Obtain information from the Environmental Coordinator.)

00290.10 Staging and Disposal Sites -
Add the following to the end of this subsection:

Use the following *(*staging*)(*disposal*)* site*(*s*))*:

- **Site Type -** _____(staging, disposal)_____
- **Location -** _____(Highway MP/TRS, etc.)_____
- **Access -** _____(ingress/egress)_____
- **Available Area -** _____(acreage, etc.)_____

No other sites may be used on this Project, including non-Agency sites. Delineate the limits of the site with orange plastic mesh fencing from the QPL for the duration of the Project.

Remove the fencing when the Project is complete and the site has been restored to preconstruction conditions.

Restore the site by:

- Removing all imported fabric, rock, and other construction debris.
- Smoothing the ground.
- Reseeding all disturbed earth.

(Use the following subsection .20(c)(2) only when Section 00294 is included in the Special Provisions.)

00290.20(c)(2) Clean Fill - Add the following paragraph to the end of this subsection:

Manage all excavated soil that does not meet the definition of clean fill according to Section 00294.

(Use the following subsection .30(a) when either subsections (7) or (8) are required)

00290.30(a) Pollution Control Measures - Add the following subsections and bullets:

(Use the following subsection (7) when there is work in, adjacent to, or over a Regulated waterway, even if there is no direct in-water work. Modify as needed for site-specific circumstances and project-specific permit conditions. If subsection (8) is used, be sure to delete the second bullet "Do not cause turbidity..." and the fifth bullet "If monitoring or inspection..." below. Obtain information from the Environmental Coordinator.)

[Begin subsection (7)]

(7) Water Quality:

- Do not discharge contaminated or sediment-laden water, including drilling fluids and waste, or water contained within a work area isolation, directly into any waters of the State or U.S. until it has been satisfactorily treated (for example: bioswale, filter, settlement pond, pumping to vegetated upland location, bio-bags, dirt-bags). Treatment shall meet the turbidity requirements below.
- Do not cause turbidity in waters of the State or U.S. greater than 10% above background reading (up to 100 feet upstream of the Project), as measured 100 feet downstream of the Project.
- During construction, monitor in-stream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately meeting treatment requirements.
- If construction discharge water is released using an outfall or diffuser port, do not exceed velocities more than 4 feet per second, and do not exceed an aperture size of 1 inch.

- If monitoring or inspection shows that the erosion and sediment controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.
- Underwater blasting is not allowed.
- Implement containment measures adequate to prevent pollutants or construction and demolition materials, such as waste spoils, fuel or petroleum products, concrete cured less than 24 hours, concrete cure water, silt, welding slag and grindings, concrete saw cutting by-products and sandblasting abrasives, from entering waters of the state or U.S.
- End-dumping of riprap within the waters of the state or U.S. is not allowed. Place riprap from above the bank line.
- Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
- The Project Manager retains the authority to temporarily halt or modify the Project in case of excessive turbidity or damage to natural resources.

[End subsection (7)]

(Use the following subsection (8) when turbidity monitoring is required. Select one of the following subsection (8)'s as instructed below. Check with Regional Environmental Coordinator for correct one to use. Delete the ones that do not apply.)

[Begin subsection (8)]

[Use this subsection (8) when visual turbidity monitoring is required.]

[Begin visual turbidity monitoring]

(8) Visual Turbidity Monitoring - Perform visual turbidity monitoring each day when working in regulated work areas according to the following:

- Before beginning work, make in stream turbidity observation approximately 100 feet upstream and, based on the wetted stream width, at the compliance distance listed in Table 00290-1 downstream of the in-water work area.
- Make in stream turbidity observations upstream and downstream every four hours.
- If a turbidity plume is observed within the compliance distance downstream of the in-water work area, implement in-water best management practices (BMP). If a turbidity plume is still observed at the second four hour observation, stop all in-water work and implement additional BMP. Resume in-water work activity the next morning.
- If a turbidity plume is observed beyond the compliance distance downstream of the in-water work area at any observation interval, stop all in-water work and implement additional BMP. Resume in-water work activity the next morning.

Table 00290-1

Wetted Stream Width	**Compliance Distance**

≤ 30 feet	50 feet
> 30 feet to 100 feet	100 feet
> 100 feet to 200 feet	200 feet
> 200 feet	300 feet
Lakes, Ponds, and Reservoirs	Lesser of 100 feet or max. surface dimension

[End visual turbidity monitoring]

[Use this subsection (8) when meter turbidity monitoring is required.]

[Begin meter turbidity monitoring]

(8) Meter Turbidity Monitoring - Perform meter turbidity monitoring each day when working in regulated work areas according to the following:

- Use a turbidity meter that has been calibrated to meet manufacturer requirements.
- Before beginning work, take in stream turbidity readings approximately 100 feet upstream and, based on the wetted stream width, at the compliance distance listed in Table 00290-1 downstream of the in-water work area.
- Take in stream turbidity readings upstream and downstream at four hour intervals or more frequently and perform in-water work based on turbidity measurements according to the following:
  - If the downstream reading at the compliance distance is 0 to 4 nephelometric turbidity units (NTU) above upstream levels, continue to work and take readings every four hours.
  - If the downstream reading at the compliance distance is 5 to 29 NTU above upstream levels, modify work procedures and best management practices (BMP) and take a subsequent downstream reading four hours later. If at the subsequent four hour reading, the downstream reading is still 5 to 29 NTU above upstream levels, stop all in-water work and implement additional BMP. Resume in-water work activities the next morning.
  - If the downstream reading at the compliance distance is 30 to 49 NTU above upstream levels, modify work procedures and BMP and take a subsequent downstream reading two hours later. If, at the subsequent two hour reading, the downstream reading is still 30 to 49 NTU above upstream levels, stop all in-water work and implement additional BMP. Resume in-water work activities the next morning.
  - If the downstream reading at the compliance distance is 50 NTU or more above upstream levels, stop all in-water work and implement BMP. Resume in-water work activities the next morning.

Table 00290-1

Wetted Stream Width	Compliance Distance
≤ 30 feet	50 feet
> 30 feet to 100 feet	100 feet
> 100 feet to 200 feet	200 feet
> 200 feet	300 feet

Lakes, Ponds, and Reservoirs	Lesser of 100 feet or max. surface dimension

[End meter turbidity monitoring]

[Use this subsection (8) when individual permit conditions apply.]

[Begin permit turbidity monitoring]

(8) Turbidity Monitoring - Perform turbidity monitoring when working in regulated work areas according to the following:

(Insert permit turbidity monitoring frequency and requirements here. Be sure to only include project specific information. Use bullets to list information. Write in imperative mood and write in plain language.)

- _____
- _____

[End permit turbidity monitoring]

(Use the following two paragraphs on all projects that require turbidity monitoring.)

Document all turbidity monitoring results including date, time, and location on the Agency provided form or another form approved by the Agency. Submit reports to the Engineer weekly when working in regulated work areas and keep copies of the reports at the project site.

If work activities violate permit conditions or cause water quality violations which may endanger the health of aquatic life or environment, stop all in-water work activities and notify the Engineer. Submit a written report of violations to the Engineer within 5 Calendar Days of violation.

[End subsection (8)]

(Use the following subsection .32 on City of Portland projects where applicable.)

00290.32 Noise Control - Add the following paragraphs to the end of this subsection:

The Contractor's attention is directed to City of Portland Ordinance No. 159276 which describes noise control regulations. Comply with the applicable noise control requirements of the ordinance for project work.

Copies of the ordinance and noise control code are available at the office of the Project Manager.

(Use the following subsection .34 when fish or fish habitat resources require protection. Modify as needed for site-specific conditions. Check to make sure

applicable to project permit conditions. Obtain information from the Environmental Coordinator.)

00290.34 Protection of Fish and Fish Habitat - Add the following paragraph:

Meet with the Agency Biologist, Resource Representative, Project Manager, and inspector on site, before moving equipment on-site or beginning any work, to ensure that all parties understand the locations of sensitive biological sites and the measures that are required to be taken to protect them.

(Use the following subsections .34(a) when regulated work areas are required. Fill in the blanks as necessary. Obtain information from the Environmental Coordinator.)

00290.34(a) Regulated Work Areas - Add the following to the end of this subsection:

The regulated work area is the area at or below the ordinary high water (OHW) elevation shown on the plans.

(Use one of the following two options as instructed. Delete the option that does not apply.)

[Begin Options]

[Option 1 - Use the following paragraph when the Agency will identify and mark the Regulated Work Area in the field.]

For this Project, the Regulated Work Area is defined as the area at or below the OHW elevation. The Engineer will identify and mark the Regulated Work Area.

[Option 2 - Use the following paragraph when the Agency will NOT identify and mark the Regulated Work Area in the field. Fill in the blanks.]

For this Project, the regulated work area is the area at or below _____ feet elevation and between stations _____ and _____.

[End Options]

(Delete the following paragraph if it does not apply. Fill in the blanks with dates.)

Perform work within the regulated work area only during the in-water work period. The in-water work period is from ___(date)___ to ___(date)___.

(Delete the following paragraph if it does not apply. Fill in the blank.)

The total volume of material filled or discharged into waters of the state and waters of the U.S. shall not exceed ____ cubic yards.

(Delete the following paragraph if it does not apply. Fill in the blank.)

The total volume of material excavated from the waters of the state and waters of the U.S. shall not exceed _____ cubic yards.

Submit a schedule to complete all work within the regulated work area within the in-water work period at least 10 days prior to the preconstruction conference.

(Use the following subsections .34(b) when regulated work areas are required.)

00290.34(b) Prohibited Operations - Replace this subsection, except for the subsection number and title, with the following:

Except where allowed by the Contract or by permit, do not:

- Blast underwater.
- Use water jetting.
- Release petroleum products or chemicals in the water.
- Disturb spawning beds.
- Obstruct stream channels.
- Cause silting or sedimentation of waters of the State or waters of the U.S.
- Use treated timbers within the regulated work area.
- Impede adult and juvenile fish passage, including intermittent streams.

(Use the following two bullets when regulated work areas are required. Fill in the blanks as necessary. Delete what does not apply. Obtain information from the Environmental Coordinator.)

- Allow entry within the Regulated Work Area or between stations _____ and _____.
- Allow equipment to enter or work in or on the water.

(Use the following bullet for projects permitted under the Endangered Species Act Consultation (ESA) on the Federal-Aid Highway Program (FAHP), unless modified by consultation with NMFS.)

- Install steel piles greater than 24 inches in diameter or H-pile larger than designation HP 24 within the regulated work area.

(Use the following lead-in paragraph and subsection .34(c) to list required environmental permits. Edit buffer distances as relevant to project permits. Obtain information from the Environmental Coordinator. (Include paragraphs (1) through (14) as necessary. When paragraphs are NOT included, renumber the remaining paragraphs beginning with the appropriate number.)

[Begin subsection .34(c)]

Add the following subsection:

00290.34(c) Aquatic Species Protection Measures Required by Environmental Permits:

(1) General Requirements:

- Do not install fish ladders (for example: pool and weirs, vertical slots, fishways) or fish trapping systems.
- Do not apply surface fertilizer within 50 feet of any stream channel.

Use heavy equipment as follows:

- Choice of equipment must have the least adverse effects on the environment (for example: minimally sized, low ground pressure).
- Secure absorbent material around all stationary power equipment (for example: generators, cranes, drilling equipment) operated within 150 feet of wetlands, waters of the State, waters of the U. S., drainage ditches, or water quality facilities to prevent leaks, unless suitable containment is provided to prevent spills from entering waters of the state or waters of the U.S.
- Do not cross directly through a stream for construction access, unless shown or approved. If shown or approved, cross perpendicular to the stream and do not block stream flow. When a crossing is no longer needed, completely remove the crossing and restore the soils and vegetation to the original condition.
- Store fuel and maintain all equipment in staging areas that are at least 150 feet away from any waters of the State, waters of the U.S., or storm inlet or on an impervious surface that is isolated from any waters of the State, waters of the U.S., or storm inlet.
- If temporary access roads are needed within 150 feet of any body of water, use existing routes unless new routes are shown or approved.
- Before beginning work on temporary access routes that are not shown, submit a proposal to the Engineer for approval.

(Use this subsection (2) when Section 00245 is required.)

(2) Work Area Isolation - Provide work isolation according to Section 00245. Provide safe passage around or through the isolated work area for adult and juvenile migratory fish unless passage did not previously exist.

(3) Water Intake Screening - Install, operate, and maintain fish screens on each water intake used for project construction, including pumps used to isolate an in-water work area. When drawing or pumping water from any stream, protect fish by equipping intakes with screens having a minimum 27% open area and meeting the following requirements:

- Perforated plate openings shall be 3/32 inch or smaller.
- Mesh or woven wire screen openings shall be 3/32 inch or smaller in the narrowest direction.
- Profile bar screen or wedge wire openings shall be 1/16 inch or smaller in the narrow direction.

Choose size and position of screens to meet the following criteria:

Type	Approach Velocity [1] (Ft./Sec.)	Sweeping Velocity [2] (Ft./Sec.)	Wetted Area of Screen (Sq. Ft.)	Comments
Ditch Screen	≤ 0.4	Shall exceed approach velocity	Divide max. water flow rate (cfs) by 0.4 fps	If screen is longer than 4 feet, angle 45° or less to stream flow
Screen with proven self-cleaning system	≤ 0.4	–	Divide max. water flow rate (cfs) by 0.4 fps	–
Screen with no cleaning system other than manual	≤ 0.2	–	Divide max. water flow rate (cfs) by 0.2 fps	Pump rate 1 cfs or less
[1] Velocity perpendicular to screen face at a distance of approximately 3 inches [2] Velocity parallel to screen				

Provide ditch screens with a bypass system to transport fish safely and rapidly back to the stream.

(Use the following subsection (4) when special aquatic habitats are required. Obtain information from the Environmental Coordinator.)

(4) Special Aquatic Habitats - The following exploration or construction activities are not allowed in special aquatic habitats:

- Use of pesticides and herbicides, unless allowed according to Section 01030.
- Use of short pieces of plastic ribbon to determine flow patterns.
- Temporary roads or drilling pads built on steep slopes, where grade, soil type, or other features suggest a likelihood of excessive erosion or slope failure.
- Exploratory drilling in estuaries that cannot be conducted from a work barge, or an existing bridge, dock, or wharf.
- Installation of a fish screen on any permanent water diversion or intake that is not already screened.
- Drilling or sampling in an EPA-designated Superfund Site, a state-designated clean-up area, or the likely impact zone of a significant contaminant source, as identified by historical information, U. S. Army Corps of Engineers representative, or the Agency.

(5) Site Restoration - Restore damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation unless precluded by pre-project conditions (for example: natural rock substrate):

- Replant all damaged streambanks before the first April 15 following construction.

- If use of large wood, native topsoil, or native channel material is required for the site restoration according to the roadside development plans, stockpile all large wood, native vegetation, weed-free topsoil, and native channel material displaced by construction. Cut trees or large wood and trees into pieces of no less than 20 feet in length, or as shown on the roadside development plans or as directed. Stockpiled native wood and vegetation remain the property of the Agency.
- Stabilize all disturbed soils, including obliteration of temporary access roads, following any break in work unless construction will resume in 4 Calendar Days.

(6) Surface Water Diversions - Surface water may be diverted to meet construction needs other than work area isolation, consistent with Oregon law, only if water from sources that are already developed, such as municipal supplies, small ponds, reservoirs, or tank trucks, is unavailable or inadequate, and meeting the following conditions:

- When alternative surface sources are available, divert from the stream with the greatest flow.
- Install, operate, and maintain a temporary fish screen.
- Do not exceed a pumping rate and volume of 10% of the available flow. For streams with less than 5 cubic feet per second, do not exceed drafting of 18,000 gallons per day. Do not use more than one pump for each site.

(7) Hydro-Acoustic - Unless otherwise shown or approved, steel piling may be installed below the ordinary high water as follows:

- Minimize the number and diameter of pilings, as feasible.
- Repairs, upgrades, and replacement of existing pilings consistent with these conditions are allowed. In addition, up to five single pilings or one dolphin consisting of three to five pilings may be added to an existing facility.
- Whenever feasible, use vibratory hammer for piling installation. Otherwise, use the smallest drop or impact hammer necessary to complete the job, and set the drop height to the minimum necessary to drive the piling.
- For all pile installed or removed, maintain a pile installation and removal log and submit the log when the related work is completed. Include types, sizes, locations, installation or removal methods, and dates in the log.
- When using an impact hammer to drive or proof steel piling within a body of water, or as directed, use one of the following sound attenuation devices to effectively dampen sound:

    - Completely isolate the pile from the waters of the state and waters of the U.S. by dewatering the area around the pile according to Section 00245.
    - If water velocity is 1.6 feet per second or less, surround the pile being driven with a bubble curtain that distributes small air bubbles around 100% of the piling perimeter for the full depth of the water column and is in accordance with the guidance in Appendix 10 of The ODOT-FHWA Programmatic Endangered Species Act Consultation on the Federal-Aid Highway Program (FAHP) User's Guide. The FAHP User's Guide is available on the Agency's website at:

      http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/Pages/fahp.aspx

- If water velocity is greater than 1.6 feet per second, surround the piling being driven by a confined bubble curtain (for example: a bubble ring surrounded by a fabric or metal sleeve) that will distribute air bubbles around 100% of the piling perimeter for the full depth of the water column and is in accordance with the guidance in Appendix 10 of The ODOT-FHWA FAHP User's Guide.

(8) Drilling, Boring, or Jacking - If drilling, boring, or jacking is used, the following conditions apply:

- Design, build, and maintain facilities to collect and treat all construction and drilling discharge water using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present. An alternate to treatment is collection and proper disposal offsite.
- Isolate drilling operations from wetted stream to prevent drilling fluids from contacting waters of the state or waters of the U.S.
- Use casing to prevent loss of drilling fluid to the subsurface formation. Do not drill open hole.
- If it is necessary to drill through an over-water bridge deck, use containment measures to prevent drilling debris from entering the stream channel.
- If drilling fluid or waste is released to surface water, wetland or other sensitive environment, cease all drilling pending written approval from appropriate regulatory agencies through the Project Manager to resume drilling.
- Recover all waste and spoils if precipitation is falling or imminent. Recover, recycle, or dispose of all drilling fluids and waste to prevent entry into flowing water.

    - Recycle drilling fluids using a tank instead of drill recovery/recycling pits, whenever feasible.
    - When drilling is completed, make attempts to remove the remaining drilling fluid from the sleeve (for example: by pumping) to reduce turbidity when the sleeve is removed.

(9) Treated Wood - Treated wood includes any wood treated with any pesticide or wood preservatives. Do not use lumber, pilings, or other wood products that are treated or preserved with pesticidal compounds below the ordinary high water (OHW) or as part of an in-water or over-water structure, except as described below:

- Store treated wood shipped to the Project out of contact with standing water and wet soil, and protected from precipitation.
- Visually inspect each load and piece of treated wood. Reject for use in or above aquatic environments if visible residues, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.
- Use pre-fabrication to the extent feasible. When field fabrication is necessary, all cutting and drilling of treated wood, and field preservative treatment of wood exposed by cutting and drilling, shall occur above the OHW. Use tarps, plastic

tubs, or similar devices to contain the bulk of any fabrication debris, and wipe off any excess field preservative.

- All treated wood structures, including pilings, shall have design features to avoid or minimize impacts and abrasion by livestock, pedestrians, vehicles, vessels, and floats.
- Treated wood may be used to construct a bridge, over-water structure or an in-water structure, with the exception of the work containment system, provided that all surfaces exposed to leaching by precipitation, overtopping waves, or submersion are coated with a water-proof seal or barrier are maintained. Apply and contain coatings and paint-on field treatment to prevent contamination. Surfaces that are not exposed to precipitation or wave attack, such as parts of a timber bridge completely covered by the bridge deck, are exempt from this requirement.
- During demolition of treated wood, ensure that no treated wood debris falls into the water. If treated wood debris does fall into the water, remove it immediately.
- Store removed treated wood debris in appropriate dry storage areas, at least 150 feet away from the regulated work area.

(10) Piling Removal - Remove temporary or permanent piling according to the following:

- Dislodge the piling with a vibratory hammer, whenever feasible.
- Once loose, place the piling onto the construction barge or other appropriate dry storage site.

(Use the following bullet when future river dredging is anticipated where piles are being removed.)

- When piles are not completely removed, locate each unremoved pile and submit the locations to the Agency. Submitted pile locations shall be accurate to within 10 feet of the actual pile location.

a. Non-Treated Piling - Use the following methods to remove non-creosote piling:

(Use the following bullet when piling will be removed from uncontaminated sediment. Check with the Region HazMat Coordinator.)

- If a pile in uncontaminated sediment cannot be removed or breaks, cut or push the pile or stump off at least 3 feet below the surface of the sediment and cover with a cap of clean, native substrates that match surrounding streambed materials.

(Use the following bullet when piling will be removed from contaminated sediment. Check with the Region HazMat Coordinator.)

- If a pile in contaminated sediment cannot be removed or breaks above the sediment line, cut the pile or stump off at the sediment line. If the pile breaks below the sediment line, make no further effort to remove it.
- Fill holes left by each pile with clean, native sediments whenever feasible.

- Do not excavate to remove piling.

b. Treated Piling - To minimize toxic release, sediment disturbance, and total suspended solids, use the following methods to remove treated piling:

- Install a floating surface boom to capture floating surface debris.
- Keep all equipment out of the water, grip piles above the waterline, and complete all work during low water and low current conditions.
- Dislodge the piling with a vibratory hammer, whenever feasible. Do not intentionally break a pile by twisting or bending.
- Slowly lift the pile from the sediment and through the water column.
- Place the pile in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment.

(Use the following bullet when piling will be removed from uncontaminated sediment. Check with the Region HazMat Coordinator.)

- If a pile in uncontaminated sediment cannot be removed or breaks, cut or push the pile or stump at least 3 feet below the surface of the sediment and cover with a cap of clean, native substrates that match surrounding streambed materials.

(Use the following bullet when piling will be removed from contaminated sediment. Check with the Region HazMat Coordinator.)

- If a pile in contaminated sediment cannot be removed or breaks above the sediment line, cut the pile or stump of at the sediment line. If the pile breaks below the sediment line, make no further effort to remove it.
- Fill the hole left by each removed or partially removed pile with clean, native sediments and cap with clean, native substrates that match surrounding streambed materials immediately after removal.
- Dispose of all removed piles, floating surface debris, contaminated supplies, and sediment spilled on work surfaces at a permitted upland disposal site.

(11) Ditch and Culvert Cleaning - Complete ditch cleaning, culvert and trash rack cleaning by working from the top of bank, unless work area isolation would result in less habitat disturbance.

- Do not work more than 20 feet upstream or downstream the culvert or trash rack.
- Remove only the minimum amount of wood, sediment, or other natural debris necessary to maintain the facility's function, without disturbing spawning gravel or changing the configuration of the original ditch, unless the new configuration is part of the project design.
- Place all large wood, cobbles, and gravels recovered from during culvert and trash rack cleaning downstream from the structure.
- Complete drift removal in the following priority, as directed:

- Pull and release whole logs or trees downstream.
- Pull whole logs and trees and place in the riparian area, as directed.
- Remove whole logs or trees only if roadside development plans have been developed for replacement in-kind.
- Pull, cut only as necessary, and release logs and trees downstream.

(12) Floating Structures - The following types of over-water or in-water structures are not allowed:

- boat house
- boat ramp made of asphalt
- buoy or float in an active anchorage or fleeting area
- covered moorage
- floating storage unit
- houseboat
- marine
- pier
- non-water related facilities (including staging areas) inside riparian management areas
- any other over-water structure more than 6-feet wide unless otherwise approved in writing by appropriate regulatory agencies through the Project Manager

The following conditions apply to floatation structures:

- Concrete boat ramps that consist of pre-cast concrete slabs below the ordinary high water elevation, and higher elevation portions that are completed in the dry so that no wet concrete that has cured less than 24 hours is allowed to contact any wetland or waters of the state or waters of the U.S.
- Rock may be used to construct a boat ramp footing, or other protection necessary to prevent scouring, down-cutting, or failure of the boat ramp, provided that the rock does not extend further than 4 feet from the edge of the ramp in any direction.
- Any replacement roof, wall, or garage door for covered moorages and boat houses must be made of translucent materials or skylights. In addition, each side, except the door, of the boat house shall have windows at least 4 feet wide installed the length of the boat house, subject to breaks only for structural support.
- An existing marina may be modified within the existing footprint of the moorage, or in the water more than 50 feet from the shoreline and more than 20 feet deep, except that structures may not be placed in areas that support aquatic vegetation or areas where boat operations may damage aquatic vegetation.
- Fit all pilings, mooring buoys, and navigational aids with devices to prevent perching by piscivorous birds.
- Permanently encapsulate all synthetic flotation material to prevent breakup into small pieces and dispersal in water.

- Install small temporary floats less than 7 Calendar Days before a scheduled event, remove them five days after a scheduled event is concluded, and do not leave them in place longer than 21 Calendar Days.
- Install mooring buoys and temporary floats (for example: shellfish traps) more than 300 feet from native submerged aquatic vegetation, more than 50 feet from the shoreline, and in water deeper than 20 feet deep at all times, or as necessary to ensure that gear does not ground out unnecessarily, and boats do not prop wash the bottom.

(Use the following barge language when using a barge. Delete bullets within the barge language that do not apply to the project.)

[Begin barge language.]

(Use one of following two bullets depending on permit conditions. Fill in the blank with the barge location (stream, pier, bridge, etc.) and reference the plan sheet(s) that show restricted areas. Delete "(s)" or parentheses as applicable.)

- Prohibit barge use at _____, as shown on sheet*(s)* _____ of the Plans.
- Barge use is allowed only at _____, as shown on sheet*(s)* _____ of the Plans.

When using a barge:

- Before moving the barge to the Project Site, unless the barge is transported solely by water and entirely within the State, inspect the barge and ballast for invasive species to ensure that invasive species are not brought to the Project Site. Notify the Oregon State Marine Board if invasive species are found.
- Before moving the barge to the Project Site, clean and pressure wash the barge deck.
- Do not use impact hammers for spud placement.
- Install and maintain containment measures to prevent barge surface runoff from flushing oil, fuel, or other contaminants into the water.
- Secure all equipment, portable toilet facilities, and containers with fuel, hazardous materials, or waste to the barge deck.
- If the barge is equipped with a toilet facility, pump it out into an approved waste removal system when work requiring a barge is complete, or as often as is necessary. Move temporary toilet facilities to shore before pumping them out.
- If a fuel container is used on the barge, provide a double-walled fuel container and place an absorbent containment boom around the container when it is on the barge.
- Remove hand carried fuel containers from the barge at the end of each work shift unless containers are secured to the barge and stored within a secondary containment vessel of sufficient capacity to hold the entire volume of liquid available.
- Refill hand carried fuel containers within a secondary containment vessel of sufficient capacity to hold the entire volume of liquid available.
- Provide individual containment for each piece of equipment on the barge, including containment pans or absorbent booms to locally contain minor spills.

- Remove waste material from the barge at least every 3 working days and:
  - Before any pause in work that is longer than 1 day; or
  - Before reaching the calculated safe load weight of the barge according to Section 00253.

[End barge language.]

(13) Temporary Power, Communication and Water Lines - Before installing temporary power, communication, or water lines across streams or bodies of water, submit a proposed plan to the Engineer for approval. Do not begin installation before receiving approval from the Engineer. Proposed plans for installation of temporary power, communication, and water lines and stream crossings shall utilize the following design methods in the listed order of priority:

1. Aerial lines, including lines hung from existing bridges.

2. Directional drilling, boring and jacking that spans the channel migration zone and any associated wetland.

3. Trenching, which is restricted to intermittent streams and may only be used when the stream is naturally dry. For all sections of trenches below the ordinary high water line, backfill with native material and cap with clean gravel suitable for fish use in the project area.

Align each crossing as perpendicular to the watercourse as possible. For drilled, bored, or jacked crossings, ensure that the line is below the total scour prism. Return any large wood displaced by trenching or plowing as nearly as possible to its original position, or otherwise arranged to restore habitat functions.

(14) Injured Fish Notification - If a dead or injured fish is found in the project area, immediately notify the Agency. If the injured fish is in a location where further injury or stress may take place, attempt to move the fish to a safer location, if one is available, near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead or dies while being captured or moved, save the fish and any tags. The Agency will notify appropriate regulatory agencies about the injured or dead fish and provide additional direction to the Contractor.

[End subsection .34(c)]

(Use the following lead-in paragraph and subsection .35 when the Marine Mammal Protection Act applies to the project. Check with the Environmental Coordinator and the ODOT NMFS Liaison.)

Add the following subsection:

00290.35 Protection of Marine Mammals - ***[Coordinate with the ODOT NMFS Liaison to develop appropriate specification language.]***

(Use the following subsection .36(a) when ODOT Biological Staff or USDA APHIS Wildlife Services will be overseeing bird management for the project. Obtain information from the ODOT Region Environmental Coordinator.

A letter of public interest finding (LPIF) is required if USDA APHIS Wildlife Services will be used for bird management.)

00290.36(a) Migratory Birds - Add the following paragraphs to the end of this subsection:

Bird management activities to comply with the Migratory Bird Treaty Act (16 U.S.C. 703 712) will be performed by the Agency. Ensure that the Agency and its permitted agents have access to the project area, including existing work platforms, as needed to prevent migratory bird nesting. Nesting prevention may include daily bird harassment and the installation and maintenance of devices that exclude birds.

Notify the Engineer, in writing, a minimum of 10 calendar days prior to starting activities that could harm nesting birds. Avoid disturbing migratory bird nesting habitat (shrubs, trees, and structures) from March 1 to September 1 of each year. If avoidance is not possible, obtain approval from the Engineer before falling trees or clearing vegetation that could disturb migratory bird nesting habitat between March 1 and September 1.

(Use the following subsection .36(b) when there is potential disturbance to maternal bat colonies. Delete what does not apply. Obtain information from the Environmental Coordinator.)

00290.36(b) Bats - Add the following to the end of this subsection:

Protect bats by doing the following:

- Schedule bridge demolition outside of the bat breeding season (___(date)___ to ___(date)___).
- If this is not feasible and if approved by the Project Manager, apply exclusionary methods prior to this date to exclude bats from accessing suitable habitat. An exclusionary device is any method that denies bats physical access to an area (for example: nets and hole blockers).
- Exclusionary devices must be installed a minimum of 15 days prior to this period.
- Inspect, maintain, and repair exclusionary devices to prevent active occupancy by bats during the period listed above.

(Use one of the following option lead-in paragraphs and subsection .36(c)'s only when subsection .36(a) above is NOT included in the special provisions and as directed by instruction below. Delete the one that does not apply. Obtain information from the Environmental Coordinator.)

[Use this lead-in paragraph and subsection .36 when migratory birds or bats are known to use the bridge or vegetation in the area and avoidance is feasible. Modify as needed. Delete items that do not apply.]

[Begin option 1 subsection .36(c)]

Add the following subsection:

00290.36(c) Avoid Nesting - Comply with Migratory Bird Treaty Act (16 U.S.C. 703-712). Submit a migratory bird protection plan for review and approval at least 10 Calendar Days before the pre-construction conference. Include the following:

- Describe measures to avoid disturbance to migratory bird nesting habitat (vegetation, structures) from March 1 to September 1 of each year.
- Do not begin work until the migratory bird protection plan is approved.
- In the event the nesting birds or bats are encountered during construction, the Engineer may suspend the work according to 00180.70.

[End option 1 subsection .36(c)]

[Use this lead-in paragraph and subsection .36(c) when migratory birds or bats are known to use the bridge or vegetation in the area and avoidance is NOT feasible. Modify as needed. Delete items that do not apply.]

[Begin option 2 subsection .36(c)]

Add the following subsection:

00290.36(c) Prevent Nesting - Comply with Migratory Bird Treaty Act (16 U.S.C. 703-712). Submit a migratory bird protection plan for review and approval at least 10 Calendar Days before the pre-construction conference. Include the following:

- Provide a list of qualified personnel experienced in bird identification, including a summary of their qualifications. A qualified individual shall have at least 2 years of work experience identifying nesting birds in the Pacific Northwest.
- Describe measures to avoid disturbance to migratory bird nesting habitat (vegetation, structures) from March 1 to September 1 of each year. If complete avoidance is not feasible, describe measure and method to prevent birds and bats from nesting within the Project Site. Describe measures to install, inspect, maintain, and repair exclusionary devices and/or harassment methods, and a schedule for installing, inspecting, and removing exclusionary measures.
- Do not begin work until the migratory bird protection plan and the implementation schedule are approved.
- Prevent nesting by native birds on structures to be removed or repaired and on vegetation to be removed as follows:
    - Install, inspect, repair and maintain exclusionary methods or begin harassment methods to prevent nesting of native birds in, on, or under the structures and the vegetation from March 1 to September 1 of each year.
    - If exclusionary measures have been installed or harassment methods have begun on-site prior to NTP, within 15 Calendar Days of the preconstruction conference, assume responsibility for ensuring that native birds do not nest in, on, or under the structures or the vegetation, according to Agency's migratory bird protection plan, including maintaining and inspecting exclusionary measures.

- Using qualified personnel from the list, perform inspections on the structures (and the vegetation) according to the implementation schedule for nesting activity and effectiveness of exclusionary measures. Document inspections and maintain documentation on-site.
- Remove existing bird nests only if no eggs or young are found.
- Meet with the Agency Biologist, the Engineer, and inspector on-site if nests containing eggs or young are found.
- Use equivalent materials when repairing or replacing damaged exclusionary measures.
- If on-site work is completed prior to September 1, discontinue exclusionary measures or harassment methods.

In the event the Contractor fails to prevent nesting of native birds, the Engineer may suspend the work according to 00180.70.

Unless authorized in writing by the Engineer, return to the Engineer, within 5 Calendar Days of removal, all exclusionary measures applied by others prior to the NTP for the Project.

[End option 2 subsection .36(c)]

(Use the following lead-in paragraph and subsection .36(d) when there is high noise production work near listed birds. Change "(d)" to "(c)" if either of the above (c)'s are NOT used. Obtain information from the Environmental Coordinator.)

[Begin subsection .36(d)]

Add the following subsection:

00290.36(d) Wildlife Avoidance/Harassment (High Noise) - For purposes of this project, "high noise" is defined as sound pressure levels greater than 10 dBA above the ambient as measured by the L_{AFmax} and L_{AFeq} at sensitive habitat as shown:

(Use the following bullets when suitable habitat for marbled murrelet is located within one mile of the project.)

- Non-blasting high-noise producing construction activities are not allowed between April 1 and August 5. Blasting activities within one mile of sensitive habitat shall be conducted only between September 15 and March 30.
- Non-blasting high noise producing construction activities conducted from August 6 to September 15 shall implement a daily limited operating period of daytime work being conducted from two hours after sunrise to two hours before sunset. If night construction is needed, then activity shall be conducted one hour after sunset to one hour before sunrise.

(Use the following bullet when nesting or communal roosting sites for bald eagles are within one mile of blasting activities, 0.5 mile line of sight of construction activities, or 0.25 mile of construction activities.)

- High-noise producing activities, including blasting, are allowed only between November 1 and August 31.

(Use the following bullets when there is suitable habitat for northern spotted owl near the project site. Delete bullets that do not apply.)

- Blasting and high-noise producing activities shall be prohibited during the following critical nesting period:
  - March 1 to July 7 for the North Coast Province.
  - March 1 to June 30 for the Rogue/Siskiyou National Forest (NF) and Medford District of U.S. Bureau of Land Management (BLM) in the Southwest Province.
  - March 1 to July 15 for the Umpqua NF in the Southwest Province.
  - March 1 to July 15 for the Willamette Province.
  - March 1 to September 30 for the Deschutes NF, Fremont, and Winema NF and unlisted areas.

[End subsection .36(d)]

(Use the following subsection .41(b) when required by relevant permits. Obtain information from the Environmental Coordinator.)

00290.41(b) Disturbing Wetlands - Add the following to the end of this subsection:

Permits have been obtained for this project from the [US Army Corps of Engineers (Corps)] and the [Department of State Lands (DSL)]. Keep a copy of Corps and DSL permits at the project site during construction. These permits authorize the placement of _____ cubic yards of fill within wetlands located at Station(s)_____. A total of ____ acres of wetlands will be permanently filled and _____ acres will be temporarily impacted. Changes to the project that may increase the amount of fill placed in wetlands or the acreage of wetlands impacted are not authorized.

(Use the following lead-in paragraph and subsection .42 when a work containment plan and Section 00253 are required. Obtain information from the Environmental Coordinator and Structural Designer.)

[Begin subsection .42]

Add the following subsection:

00290.42 Work Containment Plan - A Work Containment Plan (WCP) is required on this Project for _____ activity(ies).

Develop and submit a WCP for approval at least 28 Calendar Days prior to mobilization for ____ activity(ies). Maintain a copy of the WCP on the Project Site at all times during construction, readily available to employees and inspectors. Ensure that all employees comply with the provisions of the WCP. Design the WCP to avoid or minimize disturbance to protected features (sensitive cultural or natural resources, Regulated Work Areas, aquatic life or habitat in Regulated Work Areas) related to Contractor operations.

Before developing the WCP, meet with Agency to review the Contractor's activities that require the WCP to ensure that all parties understand the locations of protected features to be avoided and the measures needed to avoid and protect them.

Notify the Project Manager at least 10 Calendar Days before beginning work access or containment construction activities.

The Agency reserves the right to stop work and require the Contractor to change the WCP methods and equipment before any additional Contract work, at no additional cost to the Agency, if and when, in the opinion of the Agency, such methods jeopardize sensitive cultural or natural resources, Regulated Work Areas, or aquatic life or habitat in Regulated Work Areas.

The WCP shall identify how the Contractor's construction operations will protect regulated features during mobilization, construction, maintenance, and demolition. Include a narrative describing compliance with Section 00290 as related to construction, operation, and demolition activities specified in Section 00253.

Design, construct, maintain, and remove temporary work access and containment systems according to Section 00253.

[End subsection .42]

(Use the following subsection .51 when there are known sensitive cultural sites on the project.)

00290.51 Protection of Sensitive Cultural Sites - Add the following to the end of this subsection:

(Fill in the blank with the number of sensitive cultural sites. Select either "sites were" or "site was" depending on the number of sites. Delete the language in orange parentheses that does not apply and delete all orange parentheses.)

There are sensitive cultural sites on this Project. At the time of preparation of the Plans, _____ *(*sites were*)* *(*site was*)* identified.

(Use the following two paragraphs to list the Tribal Representative and Agency Archaeologist. Do not include phone numbers. Delete the first paragraph if the project does not have a Tribal Representative.)

The Tribal Representative for this Project is _____.

The Agency Archaeologist for this Project is _____.

(Delete "(the Tribe or)" or parentheses as applicable.)

All contact with *(*the Tribe or*)* the Agency Archaeologist shall be through the Project Manager's office.

Contractor, Inspector, ODOT Regional Environmental Coordinator and Agency Archaeologist will discuss location of archaeological sites and high probability areas, prior to construction. Identify all No Work Zones with orange plastic mesh fencing from the QPL or lath and flagging, as shown.

(Use the following subsection .90 when a work containment plan and a work containment system are required, when staging areas are required, when there are known sensitive cultural sites on the project, or when turbidity monitoring is required. Remove the parentheses in "paragraph(s)" when more than one paragraph below is used. Remove "(s)" when only the plastic mesh fencing paragraph is used.)

00290.90 Payment - Add the following paragraph(s) to the end of this subsection:

(Use the following paragraphs when a work containment plan and a work containment system are required.)

The Work Containment Plan will be paid for at the Contract lump sum amount for the item "Work Containment Plan".

Payment will be payment in full for furnishing all materials, equipment, labor, and incidentals necessary to complete the work as specified. Payment includes providing and updating the Work Containment Plan.

(Use the following paragraphs when turbidity monitoring is required.)

The accepted quantities of turbidity monitoring will be paid for at the Contract lump sum amount for the item "Turbidity Monitoring".

Payment for turbidity monitoring will be payment in full for furnishing and placing all materials and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified.

(Use the following paragraph when staging areas are required or when there are known sensitive cultural sites on the project.)

No separate or additional payment will be made for orange plastic mesh fencing.

Pennsylvania

SECTION 105 – CONTROL OF WORK

105.15 ARCHEOLOGICAL AND HISTORICAL FINDINGS—In areas where remains of prehistoric people's dwelling sites or where artifacts of historical or archeological significance are encountered, discontinue construction operations in the general area. Contact will be made with the State Historical and Museum Commission to determine how to proceed. When directed, satisfactorily excavate the site to preserve the artifacts encountered, then remove them for delivery to the custody of the Pennsylvania Historical and Museum Commission. In the event construction operations are halted or delayed because of archeological or historic findings, appropriate adjustments will be made in the contract time as specified in Section 108.06. Such site excavation will be considered extra work as specified in Section 104.03.

SECTION 663—BRICK MASONRY

663.3 CONSTRUCTION—

(a) Excavation. Excavate for masonry structure footer, as required, to form a compacted, firm, even foundation surface as specified in Section 204 for Class 3 excavation. Remove unsuitable material as specified in Section 203.1(b).

(b) Footing. Construct masonry structure footer as detailed and as specified in Section 1001 using Class A cement concrete as specified in Section 704.

(c) Sample Panel. Construct an on-site, sample, masonry panel approximately 4 feet square, indicating the color range, texture, bonding pattern, mortar color, tooling, and workmanship of the proposed brick masonry structure.

Obtain approval of the sample panel before erecting the brick masonry.

(d) Placing Brick. Lay brick with exposed surfaces true to line, in courses, in a full bed and head of mortar, and with joints not exceeding 3/8 inch in width. Do not furrow beds. Stagger head joints on adjoining courses one-half brick, as nearly as practicable. Make courses level, except as otherwise indicated or directed. Construct at least one course in every six entirely of headers, common bond, unless otherwise directed. Saturate bricks with water and ensure that bricks are surface dry before placement. Do not use broken or chipped brick in exposed faces. When making closures, do not use less than the width of a brick and lay whole brick, with the long side at right angle to the face.

(e) Pointing. Finish mortar joints with a concave pointing tool to a depth not exceeding 1/8 inch and to an approved appearance.

(f) Curing and Protection. Do not place mortar and bricks or point, in freezing weather, unless otherwise authorized in writing. Protect brickwork and other masonry from freezing until cured. Provide adequate protection from frost, and remove and replace work damaged by frost. Protect completed brickwork from the elements. Cure brickwork with water moisture for at least 3 days. Wet and clean the exposed brick faces with a 10% (by volume) solution of muriatic acid, applied with stiff fiber brushes.

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SPECIAL PROVISION

Project: 10371	Standard / PENNDOT Oversight Non-NHS		Final
Short Description:	Trexler Historical Bridge	**Org Code:**	0510
County:	Berks	**SR:** 1017	**Section:** 04B
District:	05	**Group ID:** ---	**Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**

Sequence ID: 0

Version: 0

Provision Name: b09300 DISMANTLING AND RESETTING ARCH BARREL

Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

DISMANTLING AND RESETTING ARCH BARREL

Provision Body

I. DESCRIPTION – This work is the dismantling and resetting of existing arch barrel.

II. MATERIAL –

Mortar – Section 705.7 and in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007) or pre-approved equal in consultation with PHMC.

Provide a mortar that meets the requirements of Type K mortar with a composition of one (1) part Portland cement, three (3) parts hydrated lime and ten (10) parts sand. Adjust final composition based on the approved sample. Type N mortar is not permitted.

Stone – Reuse existing stone unless directed by the Department, additional stone required is to match the existing stone in material, size, texture/finish and color.

III. CONSTRUCTION – In accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007).

Dismantle the existing stone masonry arch barrel to the limits as indicated. Take sufficient measurements, prior to demolition, to permit masonry reconstruction to the existing configuration, dimensions and structural detail.

Care is to be taken to avoid damaging the existing stone so it can be reused to reconstruct the dismantled barrel. Any damage to the existing arch barrel beyond the limits of dismantling shown in the contract is to be repaired to the satisfaction of the engineer at no additional cost to the Department.

Stockpile the stone in an acceptable location to the Representative.

Reset the stone masonry arch barrel to match the barrel sections immediately adjacent to the dismantled barrel.

Damaged or cut stone faces are prohibited from being on an exposed face. Any stone work deemed unacceptable by the Representative is to be removed and replaced at no additional cost to the Department.

After the barrel construction is complete, satisfactorily clean the exposed masonry faces.

Equipment: Power driven hand tools for the removal of mortared stone may be required and are subject to the following restrictions:

Operations that require the use of pneumatic hammers is restricted to the period from 9:00AM to 4:00PM. Perform pneumatic hammer operations during other hours only with the specific permission of the Representative.

Do not use pneumatic hammers with more mass than the nominal 30 pound class.

Do not operate pneumatic hammers or mechanical chipping tools at an angle in excess of 45 degrees relative to the surface of the mortared stone.

Do not use hydraulic hammers mounted on skid-steer loaders, backhoe loaders, or compact excavators for any mortared stone removal.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Includes final pointing in the area of resetting.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:50:14 PM	Candace Funston/PennDOT BP-001370	02/15/2017 07:53:46 AM

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SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge **Org Code:** 0510
County: Berks **SR:** 1017 **Section:** 04B
District: 05 **Group ID:** --- **Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: b09400 DISMANTLING EXISTING STONE MASONRY BARRIER
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

DISMANTLING EXISTING STONE MASONRY BARRIER

Provision Body

I. DESCRIPTION – This work is the removal and salvaging, for reuse, of the existing stone masonry barrier and the removal and disposal of auxiliary rods and clamps.

II. MATERIAL – N/A

III. CONSTRUCTION – Dismantle the existing stone masonry barrier to the limits shown as indicated. Remove and dispose auxiliary rods and clamps.

Care is to be taken to avoid damaging the existing stone so it can be reused to construct the barrier stone veneer as indicated. Any damage to the existing spandrel walls or wingwalls beyond the limits of barrier removal is to be repaired to the satisfaction of the engineer at no additional cost to the Department.

Stockpile the stone in an acceptable location to the Representative.

Equipment: Power driven hand tools for the removal of the mortared stone region may be required and are subject to the following restrictions:

Operations that require the use of pneumatic hammers is restricted to the period from 9:00AM to 4:00PM. Perform pneumatic hammer operations during the other hours only with the specific permission of the Representative.

Do not use pneumatic hammers with more mass than the nominal 30 pound class.

Do not operate pneumatic hammers or mechanical chipping tools at an angle in excess of 45 degrees relative to the surface of the mortared stone.

Do not use hydraulic hammers mounted on skid-steer loaders, backhoe loaders, or compact excavators for any mortared stone removal.

IV. MEASUREMENT AND PAYMENT – Linear Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Includes removal and disposal of the existing concrete or stone coping.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:49:12 PM	Candace Funston/PennDOT BP-001370	02/15/2017 07:54:50 AM

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SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks
SR: 1017
Section: 04B
District: 05
Group ID: ---
Municipality: ALBANY

General

Type: Project Specific
Addendum: 0

Detail

Index or Category:
District:
Sequence ID: 0
Version: 0

Provision Name: b09450 LIGHTWEIGHT CEMENT CONCRETE FILL, CLASS A
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

LIGHTWEIGHT CEMENT CONCRETE FILL, CLASS A

Provision Body

I. DESCRIPTION – This work is the placement of lightweight cement concrete on the rehabilitated arch structures and within the wingwalls as indicated.

II. MATERIAL – In accordance with Section 1001 and as follows:

Lightweight Aggregate - Section 703.2(a)6

The maximum average unit weight of the cured concrete is to be 118 pounds per cubic foot.

III. CONSTRUCTION – In accordance with Section 1001 and as follows:

Backfilling of the rehabilitated arch structure and wing walls, where indicated to be performed in a maximum of two (2) foot vertical increments. Symmetrically backfill about the centerline of all arches to prevent unsymmetrical loadings.

Submit the sequence of operations at least 2 weeks before starting the work.

IV. MEASUREMENT AND PAYMENT – Cubic Yard. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:51:53 PM	Candace Funston/PennDOT BP-001370	02/15/2017 07:55:08 AM

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SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks
SR: 1017
Section: 04B
District: 05
Group ID: ---
Municipality: ALBANY

General

Type: Project Specific
Addendum: 0

Detail

Index or Category:
District:
Sequence ID: 0
Version: 0

Provision Name: b09500 MASONRY CLEANING
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

MASONRY CLEANING

Provision Body

I. DESCRIPTION – This work is the cleaning of all exposed masonry surfaces not scheduled for reconstruction. Also included is cleaning of the arch extrados in preparation for placing the lightweight concrete fill.

II. MATERIAL – Mild biodegradable detergent scrub as approved by the Representative.

III. CONSTRUCTION – Section 1017.3(a) and as follows:

Use pressurized water for cleaning masonry surfaces. Do not exceed a water pressure of 800 psi. Exercise extreme care so masonry surfaces are not damaged or scored. Test pressure settings on an inconspicuous area of masonry to insure damage will not result.

(a) Detergent Scrub. In case pressure washing does not clean the masonry to the satisfaction of the representative, scrub masonry with a solution of potable water and an approved detergent to remove as much of the surface dirt as possible. Thoroughly rinse clean with potable water all affected areas.

(b) Clean arch extrados in accordance with these specifications after excavation of the arch fill. Provide clean surfaces for the application of the lightweight concrete fill. A detergent scrub will not be required.

Be responsible for completing the task in accordance with applicable environmental and safety regulations. Provide a tarp and wash water collection system below cleaning operation to prevent wash water from entering the stream or ground below. Submit details of proposed methods of containment and disposal of wash water for approval prior to beginning work.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Cleaning of the arch extrados is included in this item of work.

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SPECIAL PROVISION

Project: 10371	Standard / PENNDOT Oversight Non-NHS		Final
Short Description:	Trexler Historical Bridge	**Org Code:**	0510
County:	Berks	**SR:** 1017	**Section:** 04B
District:	05	**Group ID:** ---	**Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**

Sequence ID: 0

Version: 0

Provision Name: b09550 MASONRY REPOINTING

Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

MASONRY REPOINTING

Provision Body

I. DESCRIPTION – This work is cleaning and repointing of existing masonry joints not indicated on the drawings for reconstruction. The finished color of pointing is to be consistent throughout and match pointing used for reconstruction at arch walls and veneer. Also included is installing weep holes and existing drain extensions in the abutments.

II. MATERIAL – Sections 701, 703, 720 and the following:

Mortar – Section 705.7 and in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007), or pre-approved equal in consultation with PHMC.

III. CONSTRUCTION – Construction is to be in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007).

Carefully measure all mortar components and thoroughly mix. Do not perform work when the temperature is below 35 degrees Fahrenheit.

Perform all masonry work by competent and experienced masons with demonstrated ability and expertise with minimum of 10 years of experience and a minimum of 5 similar projects. Perform the work in accordance with generally accepted conservation/ preservation standards as set by the National Park Service. Submit a list of similar projects in the region and a resume of the mason(s) to the Representative for review and approval prior to the start of work.

Submit mortar samples on a 6' x 6' area of the existing structure for the Representative to approve for its color, joint style, and finish. The Representative will give final acceptance and approval of the sample pointing. Do not proceed with the pointing until written approval by the Representative is received. The approved sample will serve as the basis for acceptance of all work.

Remove deteriorated mortar from existing masonry, not scheduled for reconstruction, carefully using hand- chisels.

The use of power tools is not permitted unless skill in their use is demonstrated and approved by the Representative.

Thoroughly clean exposed masonry joints of loose mortar and dirt to a depth of not less than twice the joint width. (Refer to the special provision titled "MASONRY CLEANING".) Thoroughly saturate the joints with clean water, fill with mortar and ram well in place. Satisfactorily finish with a pointing tool. Do not point in freezing weather, except when permitted, and then only with adequate protection. Remove and replace work damaged by frost.

Keep the wall wet while pointing. Protect pointed masonry from the elements and keep wet for a period of at least three (3) days.

Satisfactorily clean the exposed masonry faces.

Only joints with loose, missing or deteriorated mortar are to be repointed.

Install 4" O.D. PVC pipe weepholes through each abutment spaced at no more than 15'-0". Repoint area around new weepholes.

Install PVC extensions to the existing drains through the abutments. Field measure and cut to provide extensions that end 1" past the stone masonry face (intrados). Repoint area around drain extensions as required.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Measurement made in accordance with the exposed surface area of original masonry reconstruction. The removal of vegetation from the masonry joints is included in this item of work.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:53:43 PM	Kelley R Sartori/PennDOT	02/15/2017 10:08:40 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
County: Berks **SR:** 1017
District: 05 **Group ID:** ---
Org Code: 0510
Section: 04B
Municipality: ALBANY

General

Type: Project Specific
Addendum: 0

Detail

Index or Category:
District:
Sequence ID: 0
Version: 0

Provision Name: b09350 DISMANTLING AND RESETTING STONE MASONRY WALL
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

DISMANTLING AND RESETTING STONE MASONRY WALL

Provision Body

I. DESCRIPTION – This work is the dismantling and resetting of existing spandrel walls and existing wingwalls.

II. MATERIAL –

Mortar – Section 705.7 and in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007) or pre-approved equal in consultation with PHMC.

Provide a mortar that meets the requirements of Type K mortar with a composition of one (1) part Portland cement, three (3) parts hydrated lime and ten (10) parts sand. Adjust final composition based on the approved sample. Type N mortar is not permitted.

Stone – Reuse existing stone unless directed by the Department, additional stone required is to match the existing stone in material, size, texture/finish and color.

III. CONSTRUCTION – In accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007).

Dismantle the existing stone masonry spandrel walls and wingwalls to the limits as indicated. Take sufficient measurements, prior to demolition, to permit masonry reconstruction to the existing configuration, dimensions and structural detail.

Care is to be taken to avoid damaging the existing stone so it can be reused to reconstruct the dismantled walls. Any damage to the existing spandrel walls or wingwalls beyond the limits of dismantling shown in the contract is to be repaired to the satisfaction of the engineer at no additional cost to the Department.

Stockpile the stone in an acceptable location to the Representative.

Reset the stone masonry walls to match the wall sections immediately adjacent to the dismantled wall. Damaged or cut stone faces are prohibited from being on an exposed wall face. Any stone work deemed unacceptable by the Representative is to be removed and replaced at no additional cost to the Department.

After the wall construction is complete, satisfactorily clean the exposed masonry faces.

Equipment: Power driven hand tools for the removal of mortared stone may be required and are subject to the following restrictions:

Operations that require the use of pneumatic hammers is restricted to the period from 9:00AM to 4:00PM. Perform pneumatic hammer operations during other hours only with the specific permission of the Representative.

Do not use pneumatic hammers with more mass than the nominal 30 pound class.

Do not operate pneumatic hammers or mechanical chipping tools at an angle in excess of 45 degrees relative to the surface of the mortared stone.

Do not use hydraulic hammers mounted on skid-steer loaders, backhoe loaders, or compact excavators for any mortared stone removal.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Includes final pointing in the area of resetting.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:51:02 PM	Candace Funston/PennDOT BP-001370	02/15/2017 07:54:17 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks **SR:** 1017 **Section:** 04B
District: 05 **Group ID:** --- **Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: b09250 CLASS 3 EXCAVATION OVER MASONRY ARCH
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

CLASS 3 EXCAVATION OVER MASONRY ARCH

Provision Body

In accordance with Section 204 and as follows:

204.3 CONSTRUCTION – Add the following:

Excavation of the existing arch fill is to be accomplished with equipment within the weight and location limits indicated on the temporary arch support system details. The excavation equipment is to be kept to a minimum size to perform its planned task.

Prior to the start of the existing arch fill removal submit for approval the excavation equipment specifications.

Excavation is to be performed in a maximum of two (2) foot vertical increments along the entire length of the arch structure.

Symmetrically excavate longitudinally about the centerline of all arches to prevent unsymmetrical loadings.

Care is to be taken to prevent excavation equipment from contacting the existing stone arch barrel. Do not operate equipment directly on exposed existing stone arch barrel.

Do not allow equipment to come closer than one foot to the arch extrados or two feet to the inside faces of the arch spandrel/wingwalls. Remove the remaining fill from the top of the arches and adjacent to the walls by use of shovels, or other approved hand tools.

Lay back excavation or provide temporary earth retaining structure as required to access masonry components. Submit for approval the temporary plan, design and details to the Representative. Allow ten (10) days for review. Do not install temporary earth retaining structures until approval has been obtained.

Refer to special provision titled "MASONRY CLEANING" for final cleaning and preparation of arch for placement of lightweight concrete fill.

Excavation of the existing fill from below the approach spans is to be accomplished without damage to existing concrete and masonry components to remain. Lay back excavation or provide temporary earth retaining structure as required to safely perform work. Submit for approval the temporary plan, design and details to the Representative. Allow ten (10) days for review. Do not commence excavation until approval has been obtained.

204.4 MEASUREMENT AND PAYMENT – Cubic Yard. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

All costs associated with temporary earth retaining structures are included in this item of work.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:48:14 PM	Kelley R Sartori/PennDOT	02/15/2017 09:59:52 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks
SR: 1017
Section: 04B
District: 05
Group ID: ---
Municipality: ALBANY

General

Type: Project Specific
Addendum: 0

Detail

Index or Category:
District:
Sequence ID: 0
Version: 0

Provision Name: b09700 TEMPORARY ARCH SUPPORT SYSTEM
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

TEMPORARY ARCH SUPPORT SYSTEM

Provision Body

I. DESCRIPTION – This work is temporarily supporting the arch during construction using a Contractor designed support system.

II. MATERIAL - As required. Submit all details, catalog cuts and specifications for all material to be used for temporary arch centering. Do not procure any material for temporary centering prior to approval by the Representative.

III. CONSTRUCTION –

Submit for approval the temporary arch support plan, design and details to the Pennsylvania Department of Transportation for review and approval prior to any construction. Have plan and design signed and sealed by a professional engineer registered in the Commonwealth of Pennsylvania.

(a) General. Provide temporary support so that all masonry of the arch barrel is restricted from any movement for the duration of construction. Provide temporary arch centering, that is properly braced longitudinally and transversely and which conforms accurately to the curve of the intrados of the arch. The temporary support system is to be in full contact with the intrados of the arch barrel so that stones are restricted from moving for duration of construction. Extend a minimum of one foot temporary support system beyond arch barrel to prevent debris from falling in the creek below. Provide an appropriate sidewalk based on the contractor's proposed work methods to prevent debris from entering the creek. Clean masonry of gunite coating as required prior to installation so that support structure is in full contact with intrados.

The temporary arch centering system depicted on the contract drawings is for illustrational purposes only and is to be used as a guide for designing and detailing the actual temporary support system. Submit details for the temporary centering system for approval prior to any excavation or removal operations. Be responsible for the maintenance and protection of each masonry structure during construction. This will include providing temporary bracing supports during dismantling and reconstruction. The use of vibratory and impact equipment will not be permitted.

(b) Falsework. Provide and erect falsework for the temporary support of arch. This may be of any preferred design, subject to approval, but is to be of ample strength and stiffness to safely, and without undue deformation, carry the

whole load of each completed arch span. Be entirely responsible for the stability of the falsework and for any damage that may result from overloading, wind, floods, backwater, logs, ice, fire or other cause.

(c) Centers. Provide and erect centers strongly framed and braced longitudinally and transversely, the upper surface conforming accurately to the curve of the intrados of the arch, after making proper allowance for settlement under load. Construct lagging of two-inch by three-inch dressed plank laid transversely along the joints of the voussoir. Centering may be of any preferred design.

Support the ends of the centers on sills or plates, provided with sandboxes, folding oak or other hardwood wedges, or both. Do not unequally or eccentrically load centers. Exercise great care in the removal of arch centers to insure a slow and even subsidence, and to avoid unequal stresses in masonry.

Do not remove arch centering until:

• All mortar has cured.

• Spandrel walls, and portions of the arch ringstones are reconstructed if required.

• Cleaning and pointing has been performed.

• Lightweight concrete fill is in place to proper elevations and is cured.

Adequate hydraulic opening is to be maintained in temporary arch centering system where constructed in waterway for duration of construction. Do not block more than 25% of the span's hydraulic opening with temporary arch centering system. Remove daily and satisfactorily dispose of all debris, logs, ice, etc. that blocks the channel opening while temporary arch support system is in place at no additional cost to the Department.

Perform all excavation in accordance with Publication 408/2016.

IV. MEASUREMENT AND PAYMENT – Each. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Any excavation or cofferdams required for the installation of the arch centering system are included in this item of work.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:58:41 PM	Candace Funston/PennDOT BP-001370	02/15/2017 07:50:53 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks **SR:** 1017 **Section:** 04B
District: 05 **Group ID:** --- **Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: b09150 BARRIER STONE FACING
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

BARRIER STONE FACING

Provision Body

I. DESCRIPTION - This work is the construction of a stone facing on the barrier.

II. MATERIAL

Mortar – Section 705.7 and in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007) or pre-approved equal in consultation with PHMC.

Stone – Reuse existing stone unless directed by the Representative, additional stone required is to match the existing stone in material, size, texture/finish and color.

Galvanized Dovetail Slot and Galvanized Corrugated Dovetail from an approved supplier in Bulletin 15.

III. CONSTRUCTION – In accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007).

Construct a stone facing on the concrete barrier core to the limits as indicated. Construct the stone facing to match the appearance of the existing barrier as near as practical.

Cut the stone, as required, to the facing thickness as indicated. Damaged or cut stone faces are prohibited from being on an exposed barrier face.

Incorporate Historic Bridge Plaque where present.

Secure the stone facing to the concrete barrier core with galvanized dovetail slots and galvanized corrugated dovetails, spaced as per the manufacturer specifications. Submit the manufacturer specification for approval prior to barrier construction.

Submit stone facing and mortar samples installed on a 6 x 6 SF sample board for the Representative to approve for its color, joint style and finish. The Representative will coordinate with the Consulting Parties to view the sample board. The Representative will give final acceptance and approval of the sample board. Do not proceed with the stone facing until written approval by the Representative is received. The approved sample will remain in place for the duration of the project and will serve as the basis for acceptance of all work.

Final acceptance of the stone facing design will be based on a 6 x 6 SF panel board that is prepared by mason at onset of the project. Coordinate between the mason (s) and Representative. The bond pattern and dominant stone color of the facing will emulate the appearance of the existing bridge. The bond will consist of varying depth courses. Remove and replace any stone work not matching sample board at no additional cost to the Department.

After the stone facing construction is complete, satisfactorily clean the exposed masonry faces.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866

Includes cleaning the existing barrier stones, which are being reused to construct the stone facing, the galvanized dovetail slots and galvanized corrugated dovetails. Also includes final repointing of the facing.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:46:41 PM	Kelley R Sartori/PennDOT	02/13/2017 11:17:49 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge **Org Code:** 0510
County: Berks **SR:** 1017 **Section:** 04B
District: 05 **Group ID:** --- **Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: b09600 MEMBRANE WATERPROOFING SYSTEM INSTALLED ON MOMENT SLAB
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

MEMBRANE WATERPROOFING SYSTEM INSTALLED ON MOMENT SLAB

Provision Body

I. DESCRIPTION - This work is furnishing and installation of membrane waterproofing on the top surface of the concrete fill and stone masonry arch as indicated and as specified.

II. MATERIAL -

(a) Rubberized Asphalt Membrane - Supply a rubber membrane constructed of self-adhesive, cold-applied preformed layer of heat resistant woven polypropylene mesh and a layer of heat resistant woven polypropylene mesh and a layer of rubberized asphalt formed on plastic film conforming to the following requirements:

Property Requirements Test Methods

Membrane Thickness 0.065 in. min. ASTM D3767

Permeability 1.0 perms. ASTM E96, Method B

Flexibility, 180 bend over ¼ in. mandrel at 25 F unaffected ASTM D1970

Crack Cycling at 25 F, 100 Cycles unaffected ASTM C836

Peel Adhesion 5 lbs./in. ASTM D903

Puncture Resistance, Mesh 200 lbs. ASTM E154

Elongation 50% minimum ASTM D882

Tensile Strength 75 lbs./in. ASTM D882

(b) Miscellaneous Materials: Surface conditioner, mastic, liquid membrane, tape and accessories specified or acceptable to manufacturer of membrane waterproofing.

(c) Base material acceptance on certification of the material manufacturer that the materials comply with the specifications.

III. CONSTRUCTION - Install waterproofing membrane in accordance with manufacturer's installation procedures and the following:

Do not apply rubberized asphalt membrane when the atmospheric and surface temperatures are below 50 degrees F without written permission of the Representative. Surfaces to be waterproofed must be clean, smooth, dry, and free of fins, sharp edges, oil, grease, and loose or foreign materials.

Apply a surface primer to the concrete fill and stone masonry in accordance with the manufacturer's recommendations prior to the installation of the waterproofing membrane. Apply an approved rubber based specialty primer to all new mortar surfaces that have not cured the minimum amount of days specified by the membrane manufacturer.

Patch any holes in the membrane with a minimum overlap of 6 inches in accordance with manufacturer's instructions. Exercise care during construction to prevent damage to the waterproofing by workers or equipment.

Be responsible for maintaining the condition of the waterproofing membrane until it is covered with bituminous.

IV. MEASUREMENT AND PAYMENT – Square Yard. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:54:35 PM	Kelley R Sartori/PennDOT	02/13/2017 03:28:51 PM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 95374 Municipal / PENNDOT Oversight Non-NHS Final

Short Description: Rock Covered Bridge
County: Schuylkill **SR:** 7233 **Org Code:** 0560
District: 05 **Group ID:** --- **Section:** 01B
Municipality: WASHINGTON

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: c87001 4" CUT STONE VENEER
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

4" CUT STONE VENEER

Provision Body

DESCRIPTION – This work is the fabrication and installation of natural cut stone veneer to the front face of the abutments and wingwalls as indicated.

MATERIAL –

a. Cut Stone Veneer – Provide a cut stone veneer using local stone that matches closely to the existing stone on abutment 2 in shape, size and color. Utilize cut stone with a maximum thickness of 4". Apply stone to the front face of the abutments and wingwalls as indicated. Use corner stones at the abutment corners to provide a neat finished look. Provide a mock-up panel for review and approval by the District 5-0 Cultural Resources Professional prior to installation. Make the panel available for a minimum of three weeks prior to installation. Manufacturers included:

SCHOFIELD STONE (PA Fieldstone 1-3")

P.O. Box 255, Creek Road

Harford, PA 18823

(570) 434-2536

MESHOPPEN STONE INC. (4" Sawed Fieldstone Veneer)

131 Frantz Road

Meshoppen, PA 18630

(570) 833-5021

PINNACLE STONE PRODUCTS, LLC (Belmont Ledge)

3001 Lower Valley Road

Parkesburg, PA 19365

(877) 762-5702

Or Approved Equal.

Provide the design and pattern of the stone as indicated and follow the manufacturer's configuration for the selected pattern. Provide patterning of cut stone masonry to appear natural and non-repeating.

Provide material and applicator having a minimum of five consecutive years of experience in stone masonry construction. Furnish evidence to the satisfaction for the Engineer, that the proposed products have been successfully used in similar applications

b. Metal Lath – Provide metal lath on the front face of the abutments and wingwalls to hold cut stone veneer tight against front face of abutments and wingwalls.

c. Fasteners – Utilize powder actuated fasteners to attach metal lath to front face of concrete abutments and wingwalls. Ensure that fasteners have a minimum penetration of 3/4" in the concrete.

d. Mortar – Mix mortar per manufacturer's recommendations. Use cement as specified in Section 701 and fine aggregate as specified in Section 703.1. Mortar is to be used for scratch coat, attaching stone veneer and filling joints.

e. Samples and Working Drawings

1. Sample Panels. Submit samples of three (3) different stone veneer patterns. Submit samples of the stone veneer finish that demonstrate the finishes described herein. Sample panels to be a minimum 4'x8'. Sample panels are to be presented for approval.

2. Mock-ups. After approval of samples, prepare shop drawings for three types of full size (4'x8') mock-ups. Do not construct mock-ups until a sample panel has been approved and the shop drawings have been approved. Do not perform production work until all shop drawings and mock-ups have been approved.

3. Stone Placement Drawings. Submit design plans, elevation and details to show overall pattern, shape, size, color and corner transitions, etc.

4. Quality Assurance. Provide supplier of stone masonry having at least five years experience in delivering a complete system to the industry consisting of stone masonry, technical support and on site assistance.

5. Pre-Installation Meeting. Schedule conference with supplier, contractor, the County and the Department, to assure understanding of stone masonry use, requirements for construction of mock-up and to coordinate the work.

CONSTRUCTION – In accordance with the manufacturer's recommendations, as indicated, as directed and as follows:

a. Mock-ups. Build on site, using same materials, methods and work force that will be used for the project. Prepare mock-ups as described herein and using the approved samples as the quality standard. The Engineer will determine the location, and whether mockups will be incorporated into the project.

1. Include areas to demonstrate cut stone corner transitions, continuation of pattern through expansion and construction joints and finished mortar joints.

2. After cut stone pattern is determined to be acceptable, construction of project may proceed, using mockup as quality standard. Meet these same quality standards on all surfaces with the same treatments depicted on the mockups.

b. Special Techniques – Cut Stone Veneer.

1. Concrete surface preparation. Clean and make free of debris prior to construction of cut stone veneer. Clean per

manufacturer's recommendations.

2. Metal Lath. Attach metal lath using powder actuated fasteners in accordance with manufacturer's recommendations.

3. Scratch Coat – Apply mortar scratch coat prior on metal lath in accordance with manufacturer's recommendations.

4. Use a supplier of the cut stone veneer having a minimum of five years of experience in furnishing stone masonry and technical assistance to the Contractor.

5. Avoid creating defects in concrete surface during dovetail anchor installation and related construction. Correct any defects to the satisfaction of the Engineer.

6. Provide cut corner stones at corner transitions on the abutments to provide a neat finished look.

7. Include the "pointing" in the work. Apply mortar in each stone joint if applicable to stone veneer pattern. The mortar color is subject to the approval of the Engineer.

Place the cut stone veneer on the front face of the abutments and wingwalls as indicated and directed. Place the cut stone veneer from a minimum of one foot below finished ground up to the concrete cap on the abutments and wingwalls. The cut stone veneer shall sit on top of the concrete shelf that is constructed with the abutments and wingwalls.

Corner stones shall be used at the abutment corners to provide a neat finished look.

Cut stone veneer shall not extend across the expansion joints between the abutment and wingwalls.

Each layer of cut stone veneer shall be mortared in place.

Contact the Cultural Resources Professional from District 5-0 and Lisa Mahall, Schuylkill County Engineer to review panels and mock-ups in the field for approval prior to installing cut stone veneer. Contact Information: Kristina Thompson, Cultural Resources Professional, Districts 4-0 & 5-0, PA Department of Transportation Bureau of Project Delivery, 1002 Hamilton Street, Allentown, PA 18101, Phone Number: (610) 871-4459. Lisa Mahall, P.E., Schuylkill County Engineer, Schuylkill County Engineering Department, Schuylkill County Courthouse, 401 North Second Street, Pottsville, PA 17901, Phone Number: (570) 628-1213

MEASUREMENT AND PAYMENT – Square Foot

As measured on the plane of the surface of the substructure element, as if the cut stone veneer was not present.

This work is a component item of 8700-0010 – Concrete Bridge Substructure, S-33855. No separate payment will be made for this work.

Payment includes all work and materials required to prepare samples, mock-ups and final cut stone veneer to the front faces of the abutments and wingwalls.

Audit Information

Created By	Created On	Modified By	Modified On
Corey A Ulrich/PennDOT BP-000007	01/03/2014 02:52:57 PM	Marc E Rhan/PennDOT	02/03/2014 11:50:20 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 11565	Standard / PENNDOT Oversight NHS	Construction

Short Description: Tilghman St over Lehigh River and RR **Org Code:** 0530
County: Lehigh **SR:** 1002 **Section:** 04B
District: 05 **Group ID:** --- **Municipality:** ALLENTOWN

General

Type: Project Specific **Addendum:** 2
Action: Modified

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: zITEM 9000-0200 – HISTORIC RESOURCES CONSULTATION
Completed: Yes

Associated Items

Item Number	Item Description
9000-0200	HISTORIC RESOURCES CONSULTATION

Header

ITEM 9000-0200 – HISTORIC RESOURCES CONSULTATION

Provision Body

I. DESCRIPTION – This work is to coordinate and obtain required approvals for all aesthetics required for this historic bridge rehabilitation.

II. MATERIAL - N/A

III. CONSTRUCTION – This item includes coordination and obtaining approvals for the following items:

- **Concrete color** ~~Look~~ and finish of cast-in-place **bridge railing with precast inset panels** or precast railing
- **Concrete color and finish of approach railing on east and west approaches**
- **Concrete color and finish of pylons and pilasters**
- **Concrete color and finish** ~~Tinting~~ of concrete **to be used for Type 1 or Type 2 repairs**
- Vinyl-coating color to be used in Item 5016-0103 Sidewalk Protective Fence Vinyl-Coated Steel, Colored
- Item 9000-0019 Decorative Lighting Pole with 6 Foot Arm, 30 Foot Mounting Height, Type "A" Base
- Item 9000-0020 LED Teardrop Luminaire

Designs to be in accordance with AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014, as supplemented by design Manual, Part 4, April 2015. **Refer to Section 1001 special provision.**

- ~~Concrete Tint: Provide Federal Standard 595, Color No. 33617~~
- ~~Sidewalk Protective Fence, Vinyl Coated Steel: Provide Federal Standard 595, Color No. 33617, Class D Coating~~
- ~~Lighting Samples: Provide a catalog cut for pole, arm, base, and luminaire.~~

Concrete: Furnish concrete materials that satisfy the following chromaticity coordinates (for the cured material), using the CIE L*a*b* color scale for the D65 Illuminant and 10° standard observer:

	1		2		3		4	
	a*	b*	a*	b*	a*	b*	a*	b*
Tilghman Concrete	1.55	8.90	1.40	13.70	3.40	17.75	5.10	15.35

In addition, Luminosity, L*, must be ≥ 45 (for the cured material).

Provide a 45/0 degree hand-held color meter device such as:

1. BYK-Gardner – Spectr-guide 45/0 gloss

2. Hunter Lab – miniScan EZ 4500L

3. Xright – C16 series (60 series)

Or and equipment judged by the Department to be equivalent.

Provide sample panels (minimum 1'x1'x4") for each concrete source of supply and curing method. Multiple panels may be provided for each sample in order to determine an acceptable concrete color and texture.

Construct an on-site railing mock-up at least twenty-one (21) days before the work starts at a location approved by the Representative. Submit a sketch of the railing mock-up for approval prior to constructing. The railing mock-up is to include a full sized section of the bridge railing, either cast-in-place or precast, (including the precast inset panel) and a full sized section of approach railing including one 4'-0" long panel including the mitered inset panel. The railing mock-up is to include one expansion joint at the 4'-0" long panel. The railing mock-up is to be constructed from the top of the sidewalk to the top of the posts or railing.

The railing mock-ups are to be constructed using the same materials, methods and work force that will be used for the project. Demonstrate that the railing mock-up will simulate the patterns, textures and colors used on the bridge. If additional railing mock-ups are required, they are to be provided as directed by the Representative.

Allow 21 days for review of the sample panels and railing mock-ups by the District Cultural Resource Professional and other local agencies to review the sample panels and railing mock-ups in person. If the sample panel(s) and/or railing mock-up(s) are not accepted, prepare new sample panel(s) and/or railing mock-up(s) at no additional cost to the Department until it is accepted by the District Cultural Resources Professional. This work is incidental to the bridge construction with no separate or additional payments made.

Final acceptance will be provided by the Department Cultural Resource Professional. Do not proceed with the work until written approval is received. The approved sample panel(s) and railing mock-ups will remain in place for the duration of the project and will serve as the basis for acceptance of all work and be the quality standard for both the precast and cast-in-place components.

Sidewalk Protective Fence, Vinyl-Coated Steel: Provide Federal Standard 595, Color No. 23617, Class D Coating

Lighting Samples: Provide a catalog cut for pole, arm, base, and luminaire.

A field meeting is anticipated to submit each color sample. The field meeting may be attended by the Department's Cultural Resource Professional and other local agencies to view the samples in person. The field

meetings are intended to expedite the approval process, however the contractor must plan on full review periods. Contact the Department Cultural Resources Professional to schedule the field meeting. Allow no less than 21 days for review, after contact is made. At a minimum, provide on person responsible for concrete components present at each field meeting and be available for questions, comments, and further direction.

Department Cultural Resource Professional contact information:

Ms. Kristina Lammi Thompson
Cultural Resources Professional, Districts 4-0 & 5-0
PA Department of Transportation, Bureau of Project Delivery
1002 Hamilton Street
Allentown, PA 18101
Phone: 610-871-4459
FAX: 610-871-4122
Email: krthompson@pa.gov

After construction is complete, provide documentation with photos of all elements being replaced or rehabilitated in their existing condition, and their final condition. Submit two hard copies and one electronic copy of the documentation to the Department's Representative.

No construction of any item requiring Item 9000-0200 approvals can be started without written authorization from the Department's Representative.

IV. MEASUREMENT AND PAYMENT – Lump Sum

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	10/12/2017 02:15:48 PM	Candace Funston/PennDOT BP-001370	10/13/2017 03:55:53 PM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks
SR: 1017
Section: 04B
District: 05
Group ID: ---
Municipality: ALBANY

General

Type: Project Specific
Addendum: 0

Detail

Index or Category:
District:
Sequence ID: 0
Version: 0

Provision Name: b09500 MASONRY CLEANING
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

MASONRY CLEANING

Provision Body

I. DESCRIPTION – This work is the cleaning of all exposed masonry surfaces not scheduled for reconstruction. Also included is cleaning of the arch extrados in preparation for placing the lightweight concrete fill.

II. MATERIAL – Mild biodegradable detergent scrub as approved by the Representative.

III. CONSTRUCTION – Section 1017.3(a) and as follows:

Use pressurized water for cleaning masonry surfaces. Do not exceed a water pressure of 800 psi. Exercise extreme care so masonry surfaces are not damaged or scored. Test pressure settings on an inconspicuous area of masonry to insure damage will not result.

(a) Detergent Scrub. In case pressure washing does not clean the masonry to the satisfaction of the representative, scrub masonry with a solution of potable water and an approved detergent to remove as much of the surface dirt as possible. Thoroughly rinse clean with potable water all affected areas.

(b) Clean arch extrados in accordance with these specifications after excavation of the arch fill. Provide clean surfaces for the application of the lightweight concrete fill. A detergent scrub will not be required.

Be responsible for completing the task in accordance with applicable environmental and safety regulations. Provide a tarp and wash water collection system below cleaning operation to prevent wash water from entering the stream or ground below. Submit details of proposed methods of containment and disposal of wash water for approval prior to beginning work.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Cleaning of the arch extrados is included in this item of work.

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania IRA C. BECKERMAN

SPECIAL PROVISION

Project: 2542 Standard / PENNDOT Oversight Non-NHS Post-Construction

Short Description: Old Rt 6/Irvine Run Br **Org Code:** 0160
County: Warren **SR:** 3022 **Section:** B03
District: 01 **Group ID:** --- **Municipality:** BROKENSTRAW

General

Type: Project Specific **Addendum:** 1
Action: Modified

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: A60014 ARCHITECTURAL SURFACE TREATMENT
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

ARCHITECTURAL SURFACE TREATMENT

Provision Body

DESCRIPTION - This work is forming the architectural pattern and applying a surface finish to the concrete on the rear face of the barriers as shown on the drawings and as specified.

MATERIAL -

a. Form Liners: Use reusable form liners, made of high-strength elastomeric materials, easily attachable to forms, to provide an architectural surface treatment to the rear face of the barriers to the limits indicated on the contract drawings for architectural surface treatment. Form liners shall be removable without causing deterioration of the form liner and without causing damage to the surface of the underlying concrete. Form liners shall be custom designed to the dimensions as shown on the contract drawings and as specified.

b. Release Agent - Compatible with form liner and surface finish.

c. Penetrating Stain: ~~To be determined by District 1-0.~~

Weight Solids: 40.3%

Volume Solids: 29.5%

Lb/Gallon: 9.8 +/- .5

VOC: (170 g/l)

Viscosity (77 Degrees F): 58 KU +/- 2

Hardness: H-2H

Abrasion Resistance

(Tabor/CF-10) 500 Cycles: 17 Gram Loss

Gloss 60 Degrees: Low Lustre

Coverage: 250 +/- SF/Gallon

Scrub Test (1000 Revolutions): Pass

Ultraviolet Resistance QUV 100+: No Effect

Alkali Resistance: Excellent

Acid Resistance: Good-Excellent

Color - Provide Hex Color Code # 840f0f (Burnt orange) for the insert design and # d2c9af (Light Beige) for the background within the shadow box frame as shown per detail on sheet 4 of 40 of structure plan..

Submit a penetrating color staining plan to the Department Representative for approval prior to application of the penetrating color stain. The penetrating color stain is to be applied to surfaces as directed by district.

Provide materials and applicator having a minimum of three consecutive years of experience in colored concrete construction. Furnish evidence to the satisfaction of the Department Representative that the proposed products have been successfully used in similar applications.

CONSTRUCTION - Conduct a pre-construction meeting with the form liner supplier to assure understanding of form liner use, color application, and requirements for construction of mockup. Submit a drawing of the form liner pattern to the Department Representative for approval prior to ordering the forms.

Build a mock-up on site 20 days before work starts using the same materials, methods, and work force that will be used for the project. Requirements for the mock-up include:

1. Size: 3'-6" x 5'-0", or larger if needed to adequately illustrate the pattern and stain selected. Construct the mock-up in the upright position.

2. Include an area to demonstrate a form liner with continuation of pattern through a deflection.

3. Application of penetrating color stain to the mock-up.

4. After mock-up is determined to be acceptable by the Department Representative, construction of the project may proceed, using the mock-up as the quality standard.

Apply the architectural pattern to the concrete surfaces and to the limits shown on the drawings and as specified herein. The vertical joints are to be level.

The architectural pattern is to be applied to the rear face of the cast-in-place bridge barriers for the limits shown on the drawings.

Repair or replace damaged or worn out form liners as needed to assure a consistent appearance and sharpness of the architectural treatment.

Clean the concrete surfaces having the architectural pattern of all latency, dirt, dust grease, form oils, efflorescence, and any foreign material, as needed and as recommended by the stain manufacturer, prior to application of the penetrating color stain.

Do not sandblast for cleaning concrete surfaces. Pressure wash with water using a pressure of 3,000 psi at a rate of three to four gallons per minute using a fan nozzle held perpendicular to the surface at a distance of 2' to 3', to remove laitance, dirt, dust, grease, form oils, efflorescence, and any foreign material.

Do not apply penetrating color stain when air and/or concrete temperatures are less than 45°F.

MEASUREMENT AND PAYMENT - Square Foot. Included in the Lump Sum price for Item 8010-0001.

Penetrating color stain and construction of the mock-up are incidental to this work.

Audit Information

Created By	Created On	Modified By	Modified On
Bob W Loy/PennDOT	06/15/2016 09:59:09 AM	Bob W Loy/PennDOT	06/15/2016 11:55:04 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371	Standard / PENNDOT Oversight Non-NHS		Final
Short Description:	Trexler Historical Bridge	**Org Code:**	0510
County:	Berks	**SR:** 1017	**Section:** 04B
District:	05	**Group ID:** ---	**Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**

Sequence ID: 0

Version: 0

Provision Name: b09550 MASONRY REPOINTING

Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

MASONRY REPOINTING

Provision Body

I. DESCRIPTION – This work is cleaning and repointing of existing masonry joints not indicated on the drawings for reconstruction. The finished color of pointing is to be consistent throughout and match pointing used for reconstruction at arch walls and veneer. Also included is installing weep holes and existing drain extensions in the abutments.

II. MATERIAL – Sections 701, 703, 720 and the following:

Mortar – Section 705.7 and in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007), or pre-approved equal in consultation with PHMC.

III. CONSTRUCTION – Construction is to be in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007).

Carefully measure all mortar components and thoroughly mix. Do not perform work when the temperature is below 35 degrees Fahrenheit.

Perform all masonry work by competent and experienced masons with demonstrated ability and expertise with minimum of 10 years of experience and a minimum of 5 similar projects. Perform the work in accordance with generally accepted conservation/ preservation standards as set by the National Park Service. Submit a list of similar projects in the region and a resume of the mason(s) to the Representative for review and approval prior to the start of work.

Submit mortar samples on a 6' x 6' area of the existing structure for the Representative to approve for its color, joint style, and finish. The Representative will give final acceptance and approval of the sample pointing. Do not proceed with the pointing until written approval by the Representative is received. The approved sample will serve as the basis for acceptance of all work.

Remove deteriorated mortar from existing masonry, not scheduled for reconstruction, carefully using hand- chisels.

The use of power tools is not permitted unless skill in their use is demonstrated and approved by the Representative.

Thoroughly clean exposed masonry joints of loose mortar and dirt to a depth of not less than twice the joint width. (Refer to the special provision titled "MASONRY CLEANING".) Thoroughly saturate the joints with clean water, fill with mortar and ram well in place. Satisfactorily finish with a pointing tool. Do not point in freezing weather, except when permitted, and then only with adequate protection. Remove and replace work damaged by frost.

Keep the wall wet while pointing. Protect pointed masonry from the elements and keep wet for a period of at least three (3) days.

Satisfactorily clean the exposed masonry faces.

Only joints with loose, missing or deteriorated mortar are to be repointed.

Install 4" O.D. PVC pipe weepholes through each abutment spaced at no more than 15'-0". Repoint area around new weepholes.

Install PVC extensions to the existing drains through the abutments. Field measure and cut to provide extensions that end 1" past the stone masonry face (intrados). Repoint area around drain extensions as required.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866.

Measurement made in accordance with the exposed surface area of original masonry reconstruction. The removal of vegetation from the masonry joints is included in this item of work.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:53:43 PM	Kelley R Sartori/PennDOT	02/15/2017 10:08:40 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 47647 Standard / Non - Federal (100% State) Final

Short Description: 2026 over Tributary to Saucon Creek **Org Code:** 0530
County: Lehigh **SR:** 2026 **Section:** 01B
District: 05 **Group ID:** --- **Municipality:** COOPERSBURG

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: ITEM 4620-1075 TYPE 2-S GUIDE RAIL, POWDER COATED
Completed: Yes

Associated Items

Item Number	Item Description
4620-1075	TYPE 2-S GUIDE RAIL , POWDER COATED

Header

ITEM 4620-1075 TYPE 2-S GUIDE RAIL, POWDER COATED

Provision Body

In accordance with Section 620 and as follows:

620.3 CONSTRUCTION - Add the following:

Where the 3' minimum unobstructed distance requirement from the back of the guide rail is not met, use extra long post guide rail.

Apply powder coating to the Type 2-S guide rail in a powder coating facility.

Perform application of powder coating within 1 hour of sweep blasting the galvanized surface. If more than 1 hour elapses prior to coating re-blast galvanized surfaces. Do not lose 15% or more of its original galvanized coating thickness when re-blasted.

Coat all exterior surfaces with a urethane or triglycidyl isocyanurate (TGIC) polyester powder of a degassing grade only to a minimum dry film thickness of 4 mils.

Preheat all galvanized articles to be powder coated in an oven to the temperature recommended by the manufacturer of the powder coat to avoid pinholing during powder cure.

Electrostatically apply the coating and cure in a gas fired convection oven by heating the coated components to specified temperature, and holding that temperature for a duration of time recommended by the manufacturer of the powder coat to ensure sufficient stoving time to meet curing specification of the powder.

Check for correct cure by solvent testing. The powder coating is to achieve a minimum hardness of 2H as per ASTM D3363. It is to be capable of withstanding an impact test of 130 lb-ft as per ASTM D2794 without any sign

of cracking or lack of adhesion.

Powder coated articles that arrive to the worksite with damage to the coating greater than 1 inch and/or extending to the galvanized coating will be rejected and returned to the powder coating facility for cleaning and powder coating at no additional cost to the department.

Audit Information

Created By	Created On	Modified By	Modified On
Sammy Albors/PennDOT BP-000043	07/21/2016 10:18:18 AM	Sammy Albors/PennDOT BP-000043	08/30/2016 01:11:32 PM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 9329	Standard / PENNDOT Oversight Non-NHS	Construction
Short Description: Pond Eddy Crossing		**Org Code:** 0440
County: Pike	**SR:** 1011	**Section:** 470
District: 04	**Group ID:** ---	**Municipality:** SHOHOLA

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: c ARCHITECTURAL TREATMENT
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

ARCHITECTURAL TREATMENT

Provision Body

DESCRIPTION – This work is providing and applying a special textured and colored formed layer of concrete placed simultaneously with the concrete of the abutments, wing walls and piers using simulated cut stone masonry molds (form liners) and color stain system designed to duplicate closely the appearance of Pennsylvania Bluestone.

MATERIAL –

(a) Concrete. Cement Concrete that is placed simultaneously with the components that have the architectural surface treatment.

(b) Form Liners. Reusable, made of high-strength elastomeric materials, easily attachable to forms. Plastic, or other non-durable forms, are not permitted. Provide removable form liners that do not cause deterioration of the surface or underlying concrete.

Provide a random stone pattern form that will result in a stone pattern resembling Pennsylvania Dry Stacked Bluestone to the finished concrete surface. The architectural surface treatment is to be applied to the front face of all wing walls and pier, as indicted. Provide Random Dry Stack Stone architectural surface with a repeating vertical relief detail. Possible patterns to consider include:

- Customrock Pattern; Drystack (Keyed) #1208K;
- AP Formliner Pattern; Large Stone Drystack #911; or
- Other approved equals.

Submit the proposed formliner manufacturer, pattern, and specifications to the Representative and the District 4-0 Cultural Resources Professional. Allow 20-days for approval.

Stone patterns must be a mixture of large and small stones with a majority of large stone. The majority of the stone

must be rectangular in shape with the long dimension oriented horizontally.

Stone Size: 3" to 42"

Stone Height: 2" to 12"

Maximum Relief: 2 1/2"

Minimum Average Relief: 1"

No seams will be permitted across the stone face. No expansion joints will pass through the stone face. The form liners will wrap around corners rather than terminate in a right angle. Elastomeric molds will be used on entire structure. The stone will be tinted in tones of blue/gray with some tan/brown to match the existing substructure units and canal wall.

Approved Manufacturers include but are not limited to:

FITZGERALD FORMLINERS

1500 E. Chestnut Avenue

Santa Ana, CA 92701

(714) 547-6710

Formliners.com

CUSTOMROCK FORMLINER

2020 West 7th Street

St. Paul, MN 55116

(651) 699-1345

www.customrock.com

SPEC FORMLINERS

1038 E. 4th Street

Santa Ana, CA 92701

(714) 429-9500

www.specformliners.com

ARCHITECTURAL POLYMERS

1220 Little Gap Road

Palmerton, PA 18071

(610) 824-3322

www.apformliner.com

Or approved equal.

(c) Release Agent: Compatible with simulated stone masonry form liners and with the coloring system as supplied by the form supplier for use by the contractor.

(d) Form ties: Provide form ties that are made of either metal or fiberglass. Metal ties which result in a portion of the tie permanently embedded in the concrete are to be designed to separate at least one inch back from finished surface leaving only a neat hole that can be plugged with patching material. Submit the type of form ties to the Representative for approval prior to use in this work.

(e) Color Stain: Penetrating stain as provided and applied by form supplier, to achieve color variations present in the natural stone and joints between the stones being simulated for this project. Create a stained surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight or weathering. Provide a stain mix that is a water borne, low V.O.C. material, less than 289 grams/liter, and meets the requirements for weathering resistance of 2000 hours accelerated exposure measured by weather-o-meter in accordance with ASTM g-23. Scrub test 1000 revolutions. Abrasive resistance (Tabor-CF-10) 500 cycles. Adhesion ASTM D-3359 LOOMM cross cuts on glass pass 3 or higher on a scale of 1 to 5. Supply information pertaining to chemical resistance ASTM D-1308 to 87.

Provide material and applicator having a minimum of five consecutive years of experience in textured and stained concrete construction. Furnish evidence to the satisfaction of the Representative, that the proposed products have been successfully used in similar applications to duplicate the appearance of natural stone.

(f) Samples and Working Drawings.

1. Sample Panels: Submit samples of the simulated stone masonry finish and joint-type that demonstrate the finishes and colorations described herein. Submit to the Representative and the District 4-0 Cultural Resources Professional for approval. Allow 30-days for approval.

2. Mock-ups: After approval of samples, prepare shop drawings for three types of full size mock-ups. Panel size is a minimum 4'x 8'. Do not construct mock-ups until a sample panel and shop drawings have been approved. Do not perform production work until all shop drawings and mock-ups have been approved by the Representative and the District 4-0 Cultural Resources Professional. Allow 30-days for approval.

3. Liner Placement Drawings: Submit design plans, elevation and details to show overall pattern, color treatments, joint locations, form tie locations, end, edge, treatment transitions, filled joints, etc.

4. Form ties: A sample and description, showing method of separation when forms are removed.

5. Quality Assurance: Provide supplier of simulated stone masonry form liners and custom coloring system having at least five years' experience in delivering a complete system to the industry consisting of form liners, technical support, on site assistance, and coloring of the architectural surface.

6. Pre-Installation Meeting: Conduct a pre-construction meeting with the form liner supplier, contractor, and the Representative, to assure understanding of simulated stone masonry form liner use, color application, requirements for construction of mock-up, and to coordinate the work.

7. Project Conditions: Environmental requirements: Apply color stain when ambient temperatures are between 50 and 100 degrees F. Consult manufacturer if conditions differ from this requirement. Schedule color stain application with earthwork and backfilling of any wall areas making sure that all simulated stone texture is colored to the minimum distance below grade, as indicated. Delay adjacent plantings until color application is completed.

CONSTRUCTION –

Provide the design and pattern of the concrete as indicated and follow the manufacturer's form liner configuration for the selected pattern. Provide patterning of simulated stone masonry to appear natural and non-repeating. Provide seam lines or match lines caused from two or more form liners coming together such that they are not apparent when viewing the completed wall. Provide coloration of the cast stone concrete surface to accurately simulate the appearance of real stone native to the project area including the multiple colors, shades, flecking, and veining that are apparent in natural stone and joints between the stones. Demonstrate the colors that may be apparent from aging, such as staining from oxidation, rusting and/or organic staining from soil and/or vegetation. In order to achieve the desired results, obtain the forms and staining materials from the same manufacturer/supplier and be responsible for performing the field staining operations or be responsible for training, instructing, and approving others to perform the work on his behalf.

As indicated on the drawings and as specified using simulated cut stone masonry molds (form liners) and color stain system designed to closely duplicate the appearance of natural stone.

(a) Mock-ups: Build on site, using same materials, methods and work force that will be used for the project. Prepare mock-ups as described herein and using the approved samples as the quality standard. A mock-up panel will be reviewed and approved by the District 4-0 Cultural Resources Professional prior to installation. The panel will be made available for a minimum 30 days prior to installation.

1. Include areas to demonstrate form liner butt joint, continuation of pattern through expansion and construction joints, continuation through joints due to staged construction, and around corners. Mortar joints intersecting a corner are to line up on both sides of the corner to represent the continuation of the same stones on both sides of the corner joint.

2. After concrete work on mock-up is completed and cured for a minimum of 28 days, and after the surface is determined to be acceptable for coloring, apply color stain.

3. After coloring is determined to be acceptable by the Representative, construction of project may proceed, using mockup as quality standard. Meet these same quality standards on all surfaces with the same treatments depicted on the mockups.

(b) Special Techniques - Forming Textured Concrete.

1. Form liner preparation: Clean and make free of build-up prior to each pour. Inspect for blemishes or tears. Repair if needed following supplier's recommendations.

2. Form liner attachments: Place form liners in accordance with liner placement drawings. Fuse form liners, according to the manufacturer's recommendations to provide leak-proof joints and seams. No unfused seams will be permitted. The placement of seams will be subject to the approval of the Representative. Place form liner seams so that the architectural finish will be unbroken and continuous. Attach form liners to forms securely following supplier's recommendations.

3. Use a supplier of the form liner having a minimum of five years experience in furnishing form liners, liner placement drawings and technical assistance to the Contractor.

4. Form release agent: Apply following supplier's recommendations.

5. Avoid creating defects in finished surface during form stripping and related construction. Correct any defects to the satisfaction of the Representative.

6. If the pattern selected has form liners connecting through the middle of the stones, carefully remove the seam line created by abutting molds. Match the texture and shape of the surrounding stone, avoiding visible seams or mold marks.

7. Place form ties at thinnest points of form liners (high points of finished wall). Neatly patch the hole remaining after disengaging the protruding portion of the tie so that it will not be visible after coloring the concrete surface.

8. Provide "same stone" appearance on adjacent faces of "corner stones".

9. Where possible, do not provide continuous vertical joints between elements of staged construction. Alternately, match the formliner segments to provide the "same stone" appearance through the construction joints, and continuous stone masonry appearance. Repair/patch concrete as needed to maintain proper appearance of the surface to the satisfaction of the Representative.

10. Where horizontal construction joints are placed, make the horizontal joint/stone course in the formliner coincident with the construction joint, where possible. Alternately, match the formliner segments to provide the "same stone" appearance through the construction joints, and continuous stone masonry. Repair/patch concrete as needed to maintain proper appearance of the surface to the satisfaction of the Representative.

(c) Special Techniques - Applying Color Stain System.

1. Apply stain by an experienced skilled craftsman with a minimum of 5 years direct experience in the same type of work.

2. Do not apply stain prior to 28 days after form removal or subsequent patching.

3. Clean surface prior to application of stain material to assure that surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material, following supplier's instructions for surface preparation in order to provide completes surface that is free of blemishes, discoloration, surface voids and unnatural form marks. Do no sand blast. Preferred method to remove latency is pressure washing with water.

4. Apply the base color of stain to the simulated stone surface.

5. Apply accent colors to individual stones as shown on the Liner Placement Drawings and as depicted on the mock-up panels.

6. Apply highlight colors by "hand wiping".

7. Color and texture joint lines with an acrylic emulsion. Provide the color as directed herein.

8. Where exposed soil or pavement is adjacent to the textured surface, which may splatter dirt or soil from rainfall or where surface may be subject to over spray from other processes, provide temporary cover of completed work.

At each abutment, all wing walls, and the pier; apply the architectural surface treatment to the exposed faces within the limits indicated on the final construction plans and described herein. Where applied to elements in contact with the ground, the architectural surface treatment must extend a minimum of two (2) feet below finished grade. Additional architectural surface treatment may be constructed below the limits indicated for the ease of construction at no additional expense to the Department.

Provide recessed block outs in formliners for the installation of the following items such that they are installed flush against a smooth concrete surface, as indicated on the final construction plans:

- River Elevation Sign – Pier
- Wayfinding Signs – Pier
- Steel Cutwater Assembly – Pier
- Water Quality Monitor System Attachments - Pier
- USGS Temperature Gauge Attachments – Abutment 1

MEASUREMENT AND PAYMENT –

(a) Square Foot. Payment for Architectural Treatment is part of the lump sum for ITEM 8130-0000 – BRIDGE STRUCTURE, AS-DESIGNED, S-34736

Payment includes all work and materials required to prepare samples, mock-ups and final architectural surface treatment incorporated into the work. The volume of Cement Concrete that is placed in the special stone pattern formwork beyond the plane of the typical exterior surface of the substructure or superstructure components will not be measured for payment, but will be incidental to the architectural surface treatment.

Audit Information

Created By	Created On	Modified By	Modified On
Ivan Prabhakher/PennDOT BP-000100	12/22/2015 09:05:54 AM	Ivan Prabhakher/PennDOT BP-000100	03/01/2016 10:05:49 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 95374 Municipal / PENNDOT Oversight Non-NHS Final

Short Description: Rock Covered Bridge **Org Code:** 0560
County: Schuylkill **SR:** 7233 **Section:** 01B
District: 05 **Group ID:** --- **Municipality:** WASHINGTON

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: c90012 ITEM 9000-0106 TIMBER FIRE PROTECTION
Completed: Yes

Associated Items

Item Number	Item Description
9000-0106	TIMBER FIRE PROTECTION

Header

ITEM 9000-0106 – TIMBER FIRE PROTECTION

Provision Body

DESCRIPTION – This work is the application of a fire protection coating to the new and existing timber truss members, siding, deck, curb and rubrails, as indicated.

MATERIAL –

a. Fire Protection Coating and Sealant

NOCHAR INC. (Nochar's Fire Preventer and S325 Sealant)

8650 Commerce Park Place, Suite K

Indianapolis, IN 46268

(317) 613-3046

Unishield International LLC (Wood Shield W-1000)

3544 Waterfield Parkway

Lakeland, FL 33803

(800) 608-5699

Flame Stop Inc (Flame Stop II)

924 Bluemound Road

Fort Worth, TX 76131

(817) 306-1222

Or Approved Equal

Certify as specified in Section 106.03(b)3.

CONSTRUCTION – In accordance with the manufacturer's recommendations and as follows:

Follow manufacturer's recommended surface preparation instructions and recommended application procedure.

Provide fire protection coating product that penetrates the wood. Do not use an intumescent coating.

Submit product specifications for the fire protection coating and sealant for approval by the Engineer.

Prior to any fire protection coating application in the field, submit samples to the Engineer for approval. Include one (1) sample of the fire coating on bare wood, one (1) sample of the fire coating with paint applied overtop, one (1) sample of the fire coating with stain applied overtop and one (1) sample of the fire coating with stain and then sealant applied overtop.

Prior to painting or staining, treat all timber, new and existing, with a minimum of two coats of fire protection coating, per the manufacturer's recommendations.

Treat all stained wood with a minimum of two coats of sealant after staining is completed.

Comply with manufacturer's recommendations as to environmental conditions under which coatings can be applied.

Do not apply fire protection coating in areas where dust is being generated.

Do not apply with spraying equipment in the field. Only use spraying equipment in the shop. Apply with brushes and rollers only in the field. Allow fire protection coating to soak into the wood.

Keep brushes, rollers and spraying equipment clean, dry and free from contaminants and suitable for the finish required.

Remove all loose material from existing members.

Do not apply fire coatings to new timber members that have been pressure treated with Alkaline Copper Quaternary (ACQ) preservative treatment until the moisture content of the timber surface is considered air dried and for a minimum of 60 calendar days after pressure treatment.

MEASUREMENT AND PAYMENT – Lump Sum.

Audit Information

Created By	Created On	Modified By	Modified On
Corey A Ulrich/PennDOT BP-000007	01/03/2014 03:13:30 PM	Corey A Ulrich/PennDOT BP-000007	02/05/2014 12:01:58 PM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 10371 Standard / PENNDOT Oversight Non-NHS Final

Short Description: Trexler Historical Bridge
Org Code: 0510
County: Berks **SR:** 1017 **Section:** 04B
District: 05 **Group ID:** --- **Municipality:** ALBANY

General

Type: Project Specific **Addendum:** 0

Detail

Index or Category: **District:**
Sequence ID: 0
Version: 0

Provision Name: b09150 BARRIER STONE FACING
Completed: Yes

Associated Items

Item Number	Item Description
No records found.	

Header

BARRIER STONE FACING

Provision Body

I. DESCRIPTION - This work is the construction of a stone facing on the barrier.

II. MATERIAL

Mortar – Section 705.7 and in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007) or pre-approved equal in consultation with PHMC.

Stone – Reuse existing stone unless directed by the Representative, additional stone required is to match the existing stone in material, size, texture/finish and color.

Galvanized Dovetail Slot and Galvanized Corrugated Dovetail from an approved supplier in Bulletin 15.

III. CONSTRUCTION – In accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the PennDOT Stone Arch Bridge Maintenance Manual (October 2007).

Construct a stone facing on the concrete barrier core to the limits as indicated. Construct the stone facing to match the appearance of the existing barrier as near as practical.

Cut the stone, as required, to the facing thickness as indicated. Damaged or cut stone faces are prohibited from being on an exposed barrier face.

Incorporate Historic Bridge Plaque where present.

Secure the stone facing to the concrete barrier core with galvanized dovetail slots and galvanized corrugated dovetails, spaced as per the manufacturer specifications. Submit the manufacturer specification for approval prior to barrier construction.

Submit stone facing and mortar samples installed on a 6 x 6 SF sample board for the Representative to approve for its color, joint style and finish. The Representative will coordinate with the Consulting Parties to view the sample board. The Representative will give final acceptance and approval of the sample board. Do not proceed with the stone facing until written approval by the Representative is received. The approved sample will remain in place for the duration of the project and will serve as the basis for acceptance of all work.

Final acceptance of the stone facing design will be based on a 6 x 6 SF panel board that is prepared by mason at onset of the project. Coordinate between the mason (s) and Representative. The bond pattern and dominant stone color of the facing will emulate the appearance of the existing bridge. The bond will consist of varying depth courses. Remove and replace any stone work not matching sample board at no additional cost to the Department.

After the stone facing construction is complete, satisfactorily clean the exposed masonry faces.

IV. MEASUREMENT AND PAYMENT – Square Foot. This work is component of Item 8700-0001 Masonry Arch Bridge Structure, Rehabilitated, As Designed, S-35866

Includes cleaning the existing barrier stones, which are being reused to construct the stone facing, the galvanized dovetail slots and galvanized corrugated dovetails. Also includes final repointing of the facing.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	02/06/2017 06:46:41 PM	Kelley R Sartori/PennDOT	02/13/2017 11:17:49 AM

pennsylvania DEPARTMENT OF TRANSPORTATION home site map help ECMS pennsylvania PA

KRISTINA L. THOMPSON

SPECIAL PROVISION

Project: 11565	Standard / PENNDOT Oversight NHS	Construction
Short Description:	Tilghman St over Lehigh River and RR	**Org Code:** 0530
County: Lehigh	**SR:** 1002	**Section:** 04B
District: 05	**Group ID:** ---	**Municipality:** ALLENTOWN

General

Type: Project Specific

Addendum: 2

Action: Modified

Detail

Index or Category:

District:

Sequence ID: 0

Version: 0

Provision Name: zITEM 9000-0040 – PRECAST ORNAMENTAL RAILING

Completed: Yes

Associated Items

Item Number	Item Description
9000-0040	PRECAST ORNAMENTAL RAILING

Header

ITEM 9000-0040 – PRECAST ORNAMENTAL RAILING

Provision Body

I. DESCRIPTION – This work is the design and preparation of shop drawings, manufacture, storage, delivery, installation, and assembly of precast ~~reinforced~~ concrete ~~pedestrian~~ railing**s consisting of ornamental inset** panels, posts, **and** top~~,~~ and bottom rails.

II. MATERIAL –

(a) Precast Reinforced Concrete Elements. Obtain from a manufacturer listed in Bulletin 15. Furnish precast elements in accordance with the requirements of Section 704, "Cement Concrete", Class AA, as shown on the approved shop drawings.

(b) Epoxy Coated Reinforcement Bars. Section 709.1(a)1, Grade 60, and Section 709.1(d).

(c) Inserts (lifting devices). ASTM A51. Galvanized. Provide minimum safety factor of 4:1.

(d) Bondbreaker. Section 518.2.(e).

(e) Joint Sealing Material. Section 705.4(a)

(f) Joint Backing Material. Section 705.1

(g) Waterstops. Section 705.5(c)

(k) Closed-Cell Neoprene Sponge. Section 1107.02(p)1l

(l) Non-shrink grout. Section 1080.2(g)

III. CONSTRUCTION –

(a) General. Lift point locations, if indicated on plans, are to be verified. Confirm/adjust spacing of lifting devices (inserts) as required by design. Determine size of lifting devices (inserts). Embedded inserts to have a pullout strength equal to four (4) times the calculated load on the device.

Design to be performed by a professional engineer registered in the Commonwealth of PA.

Temporary supports/bracing are to be designed and provided as part of this work.

Design to account for stresses due to stripping of formwork, storage and handling, shipping, erection (lifting, rotation and bracing).

Surface Finish:

Fabricate precast **ornamental inset** panels, posts, top, and bottom rails and provide exposed surface finishes as follows:

The use of powdered color additives to the concrete mix is prohibited. Use liquid color additives.

Do not use any form-coating compounds that would bond with, stain, or otherwise adversely affect concrete surfaces and impair subsequent treatments of concrete surfaces requiring bond or adhesion. Completely remove all traces of bond breaking compound from the finished product.

Exposed aggregate finish, using chemical retarding agents applied to concrete forms, with washing and brushing procedures after form removal to match ~~Architect's~~ control sample. ~~Surface~~ **Concrete** color and texture to match **approved sample panels** ~~existing~~. Finished panels are to comply with specifications detailed in ITEM 9000-0200 – HISTORIC RESOURCES CONSULTATION.

~~Contractor to prepare a test panel consisting of two posts, top and bottom rail, and one inset panel during construction, before application to the structure to demonstrate that the quality, patterns, textures, colors and finishes are acceptable to the Department. Consulting Parties, including the PHMC, will be given an opportunity to review and provide comment on the test panel. The test panel will be made available for a period of no less than 14 days.~~

(b) Shop Drawings. Obtain approval of shop drawings before fabricating precast elements.

Provide shop drawings as specified in Section 105.02(d). **All precast concrete elements to match the shape and architectural detail of existing railing.**

Provide shop drawings clearly showing all items incorporated into the precast elements including all reinforcing. List items such as chairs, couplers, and inserts by source, type, and supplier.

(c) Inspection and Tolerances. The Department will inspect precast elements during the entire fabrication process. The necessary facilities for inspection include a plant office as specified in Section 714.5(a). Dry Fit mockup of the precast panels to be performed and inspected prior to shipping to project site. Design and provide stabilization and support during the dry fit process.

Tolerances are to be in accordance with PCI MNL-116-99 "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products." Tolerances are to be in accordance with Division 7, "Division Tolerances" and Appendix B. All tolerances are to be in accordance with Product B-1, "Solid or Insulated Flat Wall Panel" as modified below:

a = Length: In accordance with B-15, "Bridge Deck Unit" dimension "a".

k2 = Location of mild reinforcement (any direction): In accordance with B-15, “Bridge Deck Unit” dimension “k2”.

s2 = Mild reinforcement projection from surface: In accordance with B-15, “Bridge Deck Unit” dimension “s2”.

Note: All architectural treatments including through holes in balustrade are to be in accordance with dimensions “t1” and “t2”.

(d) QC.

1. General. Establish a level of QC based on uniform production practices. Submit the plant's QC plan and mix design to the Structural Materials Engineer, MTD, for review and approval. Include with the QC Plan a company organizational chart indicating separate chain of command from the QC Manager to the Owner/Plant Manager, independent of the Production Manager. Resubmit the QC Plan, mix design, and organizational chart if processes, materials, or personnel change.

2. QC Manager. Provide a QC Manager who has overall responsibility for the adequacy of production facilities, QC, sampling and testing, and fabrication of the product, and who will ensure that items are fabricated as designed and specified.

3. QC Personnel. Assign sufficient qualified personnel with precast concrete experience, to be responsible for QC sampling and testing during complete fabrication process, storage and shipment. Technicians responsible for concrete sampling and testing are required to provide written evidence that they successfully completed the certification requirements for an ACI Grade I, Field Technician or have approval from the Structural Materials Engineer as a technician-in-training. Do not proceed with production until qualified personnel are present and approved by the Department. After initially obtaining the ACI certification, technicians are not required to obtain recertification-unless there has been more than a six month interval where actual plastic concrete testing has not been performed by the technician.

4. Plant Acceptance. Section 714.4. Submit an annual endorsed copy for continued qualification.

(e) Handling and Storage. Handle and store precast reinforced concrete elements in such a manner that does not cause undue stress on the element. Submit a handling and storage plan to the Representative for review prior to the construction of any element.

The Representative will inspect all elements and reject any defective elements. The rejected elements will be replaced at the Contractor's expense. The Contractor is responsible for any schedule delays due to rejected elements.

Provide suitable lifting devices for handling and installing precast reinforced concrete elements. Galvanize metal devices as specified in Section 1105.02(s).

(f) Delivery. Replace precast reinforced concrete elements damaged by improper storage, handling, transporting, or erection. The Representative will inspect the panels at the site for possible damage and cracking during shipment and for tolerances and other dimensions required for acceptance.

Do not ship the precast elements until the 28-day compressive strength is attained.

Provide 24-hour advance notice of loading and shipping schedule. Have the Department representative verify Form CS-4171 and properly tag the precast elements before shipping. Do not ship unapproved items.

After the precast elements are in their final locations, fill any lifting holes with non-shrink grout.

(g) Erection Plan. Submit to the Representative, for review and approval, plans and design calculations for handling, temporary supports and erection of precast elements, prepared in accordance with Section 105, PennDOT Design Manual Part 4M (Design Manual Part 4) and the Contract Documents. Submittal is to include erection sequence, loadings and size of equipment. The work is not to allow tension in any arch element. In general it is anticipated the existing bridge elements will be removed from the center of each span outward toward the piers. And erection be from the piers, toward the center of the span to avoid eccentric loadings on

any arch elements. Do not begin fabrication or perform any construction prior to approval of working drawings and shop drawings.

Have a Professional Engineer, registered in the Commonwealth of Pennsylvania, sign and date the first sheet of the plan and computations.

IV. MEASUREMENT AND PAYMENT – Linear Foot

~~No additional payment will be made for mock-ups required for Historic Resource Consultation.~~

~~Architectural Surface Treatment, Reinforcement Bars, threaded inserts, mechanical splices, Lifting Anchors, Leveling Hardware, Joint Sealing Material, Joint Backing Material, Waterstops, Closed-Cell Neoprene Sponge, Post-Tensioning Hardware and Nonshrink Grout are incidental to this item.~~

Railing sections that do not meet the required concrete color and exposed aggregate finish of the approved sample panels will require mitigation as follows:

1. Remove and replace with a railing that meets the approved concrete color and exposed aggregate finish at no additional cost to the Department.

OR

2. Accept payment at 25% of the contract bid price for length of rejected cast-in-place railing AND mitigate for the substandard appearance of the railing by applying an approved concrete sealant per Section 1019. Color of sealant to be determined as detailed in Item 9000-0200 – Historic Resources Consultation.

No additional payment will be made for the required mitigation.

Audit Information

Created By	Created On	Modified By	Modified On
Candace Funston/PennDOT BP-001370	10/12/2017 03:36:46 PM	Candace Funston/PennDOT BP-001370	10/13/2017 07:51:44 AM

Rhode Island

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC
107.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE.

[…] When the Contractor's operations encounter remains of prehistoric dwelling sites or artifacts of historical or archaeological significance, the operations shall be temporarily discontinued. The Engineer will contact archaeological authorities to determine the disposition thereof. When directed by the Engineer, the Contractor shall excavate the site to preserve the artifacts and shall remove and deliver them to the custody of the proper state authorities. Such excavation will be paid for as hereinafter provided in **Subsection 109.04; Differing Site Conditions, Changes, Extra Work, and Force Account Work**.

SECTION 202 EXCAVATION AND EMBANKMENT
202.03 CONSTRUCTION METHODS.

[…] When the Contractor's excavating operations encounter remains or artifacts of potential historical or archaeological significance, the operations shall be temporarily discontinued. The Contractor will immediately contact the Engineer who will determine the disposition thereof. When directed by the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and shall remove them for delivery to the custody of the proper State authorities. Such excavation will be considered and paid for as Extra Work in accordance with **Subsection 104.05** of these Specifications.

SECTION 939 STONE WALLS IN HISTORIC, SCENIC OR RURAL AREAS

939.01 DESCRIPTION. This work consists of the resetting and construction of stone walls in historic, scenic, or rural areas. Such walls require special treatment as indicated herein, and shall be constructed at locations indicated on the Plans or as directed by the Engineer, all in accordance with these Specifications.

939.02 MATERIALS.

939.02.1 Stones. Stones for walls to be reset shall include stones in the existing wall, with additional stones as required to complete the wall construction. Additional stones shall conform to the stones in the existing wall relative to shape, color, texture and geological composition. Stones for new walls shall conform to stones found in nearby walls relative to the aforementioned characteristics, unless otherwise noted on the Plans or directed by the Engineer. Stones used below grade, for the core, or for the back of a retaining wall need not meet these criteria. However, the stones must conform to **SECTION M.14; STONE FOR MASONRY**, of these Specifications, and must be appropriately sized and shaped to permit proper interlocking with the existing stones. Any special features such as lintels, gate posts, copings, markers, etc., shall be retained for resetting.

939.02.2 Mortar. Mortar shall conform to the requirements of **Subsection M.04.03.5; Mortar**, of these Specifications.

939.03 CONSTRUCTION METHODS.

939.03.1 General Requirements. The construction of new walls or the resetting of existing walls will be carried out as indicated on the Plans. Laying of stones shall conform to the

requirements of **Subsections 911.03 and 912.03** of these Specifications for wet masonry walls and dry-laid walls, respectively. The construction of walls in historic areas must be accomplished by stone masons with demonstrated proficiency in historic stone masonry construction/restoration practices. Documentation in the form of professional certifications and the locations of at least three successfully completed stone walls similar in type to the work to be performed must be presented to the Engineer no less than 30 days prior to the start of work. This documentation must be approved by the Engineer in consultation with the RIDOT Historic Preservation Specialist in order for the masonry contractor to be allowed to perform the work. The approved mason(s) are to complete the entire work item for which the approval was given.

939.03.2 Documentation. Prior to dismantling historically significant walls, the Contractor will measure and record their width and height at 25-foot intervals and at locations where characteristics of the wall change. He must also take a minimum of six, 35mm, 4-inch by 6-inch color photographs of each wall to be dismantled. The photographs are to be taken in locations that are representative of the walls original type. If no representative wall sections exist, the Engineer in consultation with the RIDOT Historic Preservation Specialist will determine the finished appearance/dimensions. Two copies of the measurements and two sets of photographs are to be given to the Engineer. This documentation must be reviewed and approved by the Engineer in consultation with the RIDOT Historic Preservation Specialist for accuracy before the walls are dismantled. Once approved, this record of the walls will be referenced during the reconstruction of the walls and will remain the property of the State.

939.03.3 Dismantling. Historically significant walls to be removed and reset must be carefully dismantled to avoid fracturing and chipping the stones. The stones shall be stockpiled in the area where the wall is to be rebuilt. If they must be temporarily moved to a different location, they must be kept separate from any other stones. Use of a dump truck will not be permitted to transport stone from historically significant walls. The Contractor will be responsible for protecting all stockpiled stones from damage, theft and vandalism.

939.03.4 Resetting. Exposed face(s) must be composed of stones from the extant walls. Care shall be taken during resetting to keep weathered stone faces exposed. Additional stones required to complete the walls are to be blended with the existing stone in order to reduce any incompatibility in the appearance of the walls. The Contractor shall carefully duplicate the original wall and any special features such as lintels, gateposts, openings, copings, markers, etc.

939.03.5 New Walls. When new stone walls are required in the vicinity of historic properties and districts, a 5-foot long sample section of wall must be constructed. The Engineer in consultation with the RIDOT Historic Preservation Specialist is to approve stone, joint construction and overall character of installation of the sample section. The approved sample section may be part of the finished work. A rejected sample section must be demolished and rebuilt to the approval of the Engineer.

939.0376 Weep Holes. Weep holes shall be constructed of solid, gray PVC pipe in the manner and at the locations indicated on the Plans or required by the Engineer.

939.03.7 Cleaning. All excess material shall be removed and the site left in a presentable condition, satisfactory to the Engineer. If surplus stones exist, the Engineer will determine whether to transport the surplus stones to an offsite, permanent stockpile area, or to dispose of the material.

South Carolina

SECTION 501 PORTLAND CEMENT CONCRETE PAVEMENT

501.4.4.2 Form Setting

After the forms have been set to the correct grade, thoroughly tamp the subbase mechanically or by hand at both the inside and outside edges of the base of the forms. No settlement or springing of forms under the finishing machine is permissible.

Stake forms into place with not less than 3 pins for each 10-foot section. Place a pin at each side of every joint. Tightly lock form sections so that they are free from play or movement in any direction. Ensure that the forms do not deviate from true line by more than ¼ inch at any point. Ensure that forms are cleaned and oiled before the placing of concrete.

Set and maintain sufficient forms and conduct operations so that the final minor corrections, compaction of base, and checking and approval of forms is complete at least 800 feet in advance of the point of depositing concrete when that distance is available.

501.4.4.3 Removing Forms

Except for auxiliary forms used temporarily in widened areas, do not remove forms from freshly placed concrete until it has cured at least 8 hours. Removal of forms at the end of contraction joints to be sawed may occur as soon as joints can be sawed without raveling. Under no circumstance use form pullers that depend on the new pavement for support. As soon as the side forms have been removed, fill any minor honeycombed areas with mortar composed of 1-part Portland cement to 2-parts fine aggregate by weight. Major honeycombed areas are considered defective work requiring removal and replacement. Immediately after the forms have been removed, spray the sides of the slab with curing compound at the appropriate rate.

South Dakota

SECTION 7 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC
7.21 ENVIRONMENTAL CONSIDERATIONS AND COOPERATION WITH ENVIRONMENTAL REGULATORY AGENCIES

The Contractor will comply with all federal, state, and local laws and regulations controlling environmental protection. Project specific requirements may be found in the plans and specifications.

The responsibility for obtaining all necessary environmental requirements and permits will fall under the responsibility of the Department or the Contractor according to the party responsible for securing the source, area, or site of material or construction activity, as described below.

A. Project Construction and Department Directed Work Activities outside Plan Work Limits:

For project construction work specifically addressed in the plans and Department directed work activities that disturb soil and are not specifically addressed in the plans, the Department will obtain all required environmental clearances.

If the Contractor discovers, finds, locates, or becomes aware of any cultural or historical site or other unanticipated environmental effect, the Contractor will immediately suspend operations at the site or sites and will immediately notify the Engineer. The Engineer will contact the Department's Environmental Engineer to determine an appropriate course of action. […]

B. Material Sources, Stockpile Sites, Storage Areas, and Waste Sites and Contractor Work Sites Outside of Plan Work Limits

[…]1. Department Designated and Designated Option

[…] If the Contractor discovers, finds, locates, or becomes aware of any cultural or historical site or other unanticipated environmental effect, the Contractor will immediately suspend operations at the site or sites and will immediately notify the Engineer. The Engineer will contact the Department's Environmental Engineer to determine an appropriate course of action.

2. Contractor Furnished:

a. Cultural Resources Clearance:

All earth disturbing activities not designated within the plans require a cultural resources clearance. The Contractor will arrange and pay for a cultural resources survey, a records search, or both. A record search may be sufficient for clearance; however, a cultural resources survey by a qualified archaeologist may be required.

The Contractor may obtain a list of individuals with professional qualifications to perform this work from the South Dakota State Historical Society.

For work activities outside of the plan work limits, the Contractor must submit the cultural resources clearance to the Engineer prior to beginning any earth disturbing activity.

The Department will not be responsible for costs incurred by the Contractor or for delays or other inconveniences encountered in obtaining the cultural resources clearance.

Cultural resources clearance will not relieve the Contractor of the responsibility of complying with all laws and regulations which govern the salvage and preservation of any cultural resources discovered during execution of the work.

If the Contractor discovers, finds, locates, or becomes aware of any cultural or historical site or other unanticipated environmental effect during construction operations, the Contractor will immediately suspend construction operations at the site or sites and will immediately notify the Engineer. The Engineer will contact the Department's Environmental Engineer to determine an appropriate course of action.

Tennessee

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY
107.06 Federal Aid Provisions
2. Comply with Section 106 of the National Historic Preservation Act for all waste and borrow areas outside the Project right-of-way. Furnish the Engineer and the Environmental Division with an Archaeological Clearance certified by the State Historic Preservation Office at least thirty (30) calendar days before starting work on all non-commercial material sources requiring excavation or fill.
3. Regardless of prior certification, if prehistoric remains or human burial sites are encountered at any time during construction, suspend operations and immediately notify the Engineer and the State Historic Preservation Office.

SECTION 203 – EXCAVATION AND UNDERCUTTING
203.04 General
Temporarily discontinue excavating operations upon encountering remains of prehistoric archeological sites or artifacts of historical or archaeological significance. The Engineer will contact archaeological authorities to determine the disposition thereof.

SECTION 612 – STONE MASONRY
612.03 Classification
Stone Masonry will be classified under the following designations:

1. Uniform-Course Stone Masonry shall consist of masonry constructed with roughly squared stones laid in uniform courses, and in which all courses have approximately the same thickness.
2. Nonuniform-Course Stone Masonry shall consist of masonry constructed with roughly squared stones laid in uniform courses, and in which the courses may have different thicknesses.
3. Uncoursed Stone Masonry shall consist of masonry constructed with roughly squared stones of varying thicknesses and not constructed in courses.
4. Rustic Stone Masonry shall consist of masonry constructed with stones broken to various shapes and sizes.

612.07 Preparing Stone
Complete all shaping and dressing of stone before the stone is placed. For angles, ends of walls, copings, and similar features, use selected stone that is squared and pitched to line. The exposed faces of stones shall not show tool marks.

Uniform-coursed masonry stone shall be of the thickness shown on the Plans. In any one course of nonuniform-coursed masonry, use stone of the same thickness, with a minimum thickness of 5 inches. In uncoursed masonry, not more than 10% of the stone shall be of the same thickness, with a minimum thickness of 5 inches.

Stone for uniform-coursed masonry, nonuniform-coursed masonry, and uncoursed masonry shall have a width not less than 1-1/2 times the thickness with a minimum of 12 inches, and a length not less than 1-1/2 times the width, unless otherwise shown on the Plans

or directed by the Engineer. Headers shall have a width not less than the thickness, with a minimum of 12 inches, and a length sufficient to extend entirely through walls of 2 feet or less in thickness, and at least 1 foot into the core of the wall for walls more than 2 feet thick. Dress the beds and sides of all stone so that adjacent stones will not touch and so that the face joint will not exceed 1-1/2 inches. The face protrusions shall not exceed 2 inches.

Rustic masonry stone shall consist of stone broken to various shapes and sizes and roughly squared back from the face not less than 3 inches. At least 80% of the stone shall have a minimum face dimension (rise) of not less than 6 inches. The other face dimension at right angles to the rise shall not exceed 2 times the rise, or 2 feet, whichever is smaller. The third dimension shall be at least 1-1/2 times the rise with a minimum of 12 inches. Not more than 10% of the stones shall be of the same face dimensions. Headers shall be of such length as to extend entirely through walls of 2 feet or less in thickness, and at least 1 foot into the core of walls more than 2 feet in thickness. Dress the beds and sides of all stones so that the adjacent stones will not touch and so the face joints will not exceed 1-1/2 inches. The face protrusions shall not exceed 2 inches.

612.08 Laying Stone

When shown on the Plans, build, at a site designated by the Engineer, an L-shaped sample section of wall not less than 5 feet high and 8 feet long, showing an example of face wall, end wall, top wall, method of turning corners, and method of forming joints. Do not lay any masonry, other than the foundation bed, before obtaining the Engineer's approval of the sample walls.

Do not construct stone masonry in freezing weather, or when the stone contains frost.

Construct the bottom of the foundation course of large, selected stones that are laid on bearing beds parallel to the natural bed of the material.

Use larger stones in the bottom courses, and then gradually decrease stone size from the bottom to the top of the wall; however, uniformly distribute stones of various sizes throughout the wall. Prevent small stones or stones of the same size from meeting or bunching.

Use selected large stones, roughly pitched to lines, at all corners and ends of walls.

Uniformly distribute unweathered stones and stones of the same color throughout the exposed faces of the wall to avoid the appearance of patches. Thoroughly clean each stone and moisten with water before setting. Clean and moisten the bed that is to receive the stone before spreading the mortar.

Embed stones in freshly made mortar. The joints shall be full and the stones carefully settled in place before the mortar is set. Stones shall not contact adjacent stones, but shall be suspended in the mortar. Do not set the four corners of adjacent stones to be contiguous unless otherwise indicated or directed.

Build the backing chiefly of large stones laid in full mortar beds, well bonded with each other and interlocked and bonded with the face stones. Completely fill all spaces and interstices with mortar, or with spalls surrounded completely with mortar.

Do not jar or displace stones already set. Do not roll or turn stones on the wall.
If a stone is moved or the joint broken after setting, remove the stone, clean off the mortar from the stone bed and joints, and reset the stones in fresh mortar.

Headers shall hold in the heart of the wall, the same size shown in the face, and shall extend not less than 12 inches into the core or backing, unless otherwise indicated. Uniformly

distribute headers throughout the walls ofstructures to occupy at least 1/5 of the wall faces. In walls 2 feet or less in thickness, extend headers entirely through the walls.

Except in rustic masonry, spalls will not be permitted in the beds or face joints. The bed joints and beds shall have an average thickness of not more than 1 inch. Horizontal face joints shall be not less than 1/2 inch nor more than 1 inch and shall be approximately uniform in thickness. Vertical face joints shall be not less than 1/2 inch nor more than 1-1/2 inches in thickness.

Lay uniform-course and non-uniform-course masonry to line and grade, and in courses that are roughly leveled up. Break vertical joints in coursed masonry with those in adjoining courses at approximately the middle of the stones.

Lay uncoursed stone masonry to line and with the bed of the stone approximately parallel and level. Do not extend horizontal face joints through more than four stones, and vertical face joints through more than two stones. Break all joints approximately at the middle of the adjacent stones.

Construct rustic stone masonry so that the stone of the various face sizes will be well and uniformly distributed throughout the face of the wall.

Prevent small stones or stones of the same size from meeting or bunching. Spalls may be used but shall not be segregated. Construct the joints along the face to be not less than 1/2 inch nor more than 1-1/2 inches in thickness, to have an approximately uniform width, and to not extend in a straight line through more than two stones. Form face joints to run in all directions and at various angles with each other. In general, bed surfaces shall be practically perpendicular to the face of the wall for not less than 3 inches, from which point they may be irregular and fall off not to exceed 3 inches in 12 inches, and shall be free from depressions or projections that will impair the strength of the masonry or hinder the securing of full bearing on the mortar.

Construct weep holes of such shape and size as indicated or directed. Unless otherwise shown on the Plans or directed by the Engineer, space weep holes not over 10 feet center to center, and locate them at the lowest point where free outlet may be obtained. Protect the inlet end of weep holes by placing a wire basket of 1 foot by 1 foot by 1 foot, filled with coarse aggregate, size 7, 8, 57 or 68 immediately over or behind the holes as directed. Take care at all times to keep the surface free from mortar stains. Immediately after laying and while the mortar is fresh, clean face stones of all mortar stains and keep in a clean condition.

Finish the top edge or course to a true line with a uniform surface on top of the wall.

612.09 Pointing

Properly point face joints before the mortar in the joints sets. Where raked joints are required, squarely rake all mortar in exposed face joints to a depth of approximately 2 inches before the mortar has set. Use clean water to thoroughly wet joints that are not pointed at the time the stone is laid, and fill with mortar. Ensure that the mortar is well driven into the joints, and then finish with an approved pointing tool.

Where weather joints are required, the bed shall be weather struck. Slightly rake the joints to conform to the bed weather joints. Do not leave the mortar flush with the stone faces. If required by the Engineer, wet the joints and point with mortar.

Rake out joints on top surfaces to a depth of approximately 1 inch at the edges, and crown the mortar to drain. Keep the walls upon which pointing is being performed moist for a

period of at least 72 hours after completion. In hot, dry weather, protect the pointed masonry from the sun during this period. Do not smear the face surfaces of stone with the mortar forced out of the joints or mortar used in pointing. After the pointing is completed and the mortar has set, thoroughly clean the stone and leave it in a neat and workmanlike condition.

612.10 Arch Rings

Lay out a full size template of the arch ring near the quarry site, showing face dimensions of each ring stone and thickness of joints. Obtain the Engineer's approval of the template before starting the shaping of any ring stone. Place no ring stone in the structure until all ring stones have been shaped, dressed, and approved.

Construct arch centering in accordance with construction drawings submitted by the Contractor in accordance with **105.02**. Provide suitable wedges for adjusting the elevation of the forms and for taking up any settlement occurring during loading. Lower the centering gradually and symmetrically to avoid overstresses in the arch.

When directed by the Engineer, support centering with approved jacks to take up and correct any slight settlement that may occur after masonry placement begins. In general, strike centering and make the arch selfsupporting before placing railing or coping.

Construct, in a manner satisfactory to the Engineer, any additional falsework or bracing needed to hold the stones in position.

Furnish arch ring stones of the size shown on the Plans and dress them to form radial joints not more than 1-inch in width. On the face and soffit, the joints shall be cut hard for a distance of at least 3 inches, from which point, they may fall off not to exceed 1 inch in 1 foot. Completely fill the joints with mortar, and grout if necessary. Point or finish the joints while the mortar is fresh.

Place an anchor composed of 1/2 inch steel bar bent into an elongated letter S in each voussoir joint extending at least 1 foot into the backing and to within 3 inches of the face of the stone.

Texas

ITEMS 1 – 9 GENERAL REQUIREMENTS AND COVENANTS

7. PRESERVATION OF CULTURAL AND NATURAL RESOURCES AND THE ENVIRONMENT

7.1. Cultural Resources. Cease all work immediately if a site, building, or location of historical, archeological, educational, or scientific interest is discovered within the right of way. The site, building, or location will be investigated and evaluated by the Department.

Utah

SECTION 00820 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
1.12 PROTECTING AND RESTORING PROPERTY AND LANDSCAPE

[…] E. Temporarily discontinue work if remains of prehistoric dwelling sites or artifacts of historical or archeological significance are encountered. Refer to Section 01355.

SECTION 01355 ENVIRONMENTAL **COMPLIANCE**
PART 3 EXECUTION
3.7 ENVIRONMENTAL CLEARANCE BY THE CONTRACTOR

A. Obtain authorization before starting any ground disturbing activity not previously cleared by the Department such as wasting project-generated material, excavating borrow material, locating equipment, storage areas, office sites, utility lines, or holding ponds.

1. Cultural and Paleontological – Perform and provide a cultural survey as determined by the Engineer to verify no cultural or paleontological resources are affected by the activity. […]

3. 8 DISCOVERY OF HISTORICAL, ARCHAEOLOGICAL, OR PALEONTOLOGICAL OBJECTS, FEATURES, SITES, OR HUMAN REMAINS

A. Suspend work within the vicinity if historical, archaeological or paleontological objects, features, sites or human remains are discovered during construction:

1. Provide a 100 ft minimum buffer around the perimeter of the discovery.
2. Protect the discovery area.
3. Contact the Engineer and send notice of the nature and exact location of the discovery.
4. Provide written documentation to the Engineer within two calendar days of discovery.

B. Do not recommence work within the area of discovery until the Engineer provides notice.

Vermont

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
107.14 PROTECTION OF HISTORICAL AND ARCHAEOLOGICAL SITES. When the Contractor's excavation operations encounter sites or artifacts of historical or archaeological significance, the operations shall be immediately discontinued. The Engineer will contact the VTrans Archaeology Officer for instructions.

SECTION 602 – MASONRY
602.06 REBUILT STONE MASONRY AND REPAIRING STONE MASONRY.
(a) General.

(1) Rebuilt Stone Masonry. The stone masonry of the existing substructure and wingwalls shall be mapped, removed, and rebuilt as indicated and specified in the Contract Documents.

Following backfill excavation, the existing stones, tree stumps, roots, and other foreign matter shall be removed in the areas shown on the Plans or where directed by the Engineer. The existing stones shall be reset in their original locations, removing any gaps that occurred due to previous damage to the walls. Rebuilt Stone Masonry shall match securely into adjacent masonry.

(2) Repairing Stone Masonry. Earth, minor vegetation, and other foreign matter shall be removed and cavities in the stone substructure and wingwalls filled as indicated and specified in the Contract Documents.

(b) Construction Requirements.

(1) Rebuilt Stone Masonry. The work shall be performed by a stone mason who is highly knowledgeable and experienced in the construction of dry stone masonry walls and fascia. The Contractor's stone mason performing the work must demonstrate at least five years of experience in the construction of dry stone masonry walls. Documentation of experience, including a list of previous Projects and references, shall be submitted to the Engineer prior to commencement of the work.

The existing stone masonry in the areas of reconstruction shall be mapped out and documented. Each stone size and location shall be noted. The Contractor, prior to stone removal, shall submit documentation to the Engineer for approval.

Special care and precautions shall be taken during removal and storage of the existing stone masonry to ensure that the stone is not damaged.

All stones shall be carefully removed in the areas shown on the Plans. The Contractor shall shore the remaining portions of the walls to ensure that they do not shift during construction.

The existing stones shall be replaced in their original locations, removing any gaps that occurred due to previous damage to the walls. All joints in the reconstructed stone walls shall be no larger than 3/4 inch between stones. Any existing stones that are not suitable for replacement or missing shall be replaced by the Contractor with stones of similar size and appearance.

(2) Repairing Stone Masonry.

a. **Examination.** The Contractor and Engineer shall jointly examine the abutments and wingwalls to field verify the extent of the work

All work shall be performed by stonemasons with a minimum of three years of experience with similar work.

b. Repair. Gaps between horizontal faces of existing stones less than 1 inch shall not be repaired. The size of these gaps shall equal the approximate diameter of a 7/8-inch steel dowel.

Gaps between horizontal faces of existing stones between 1 inch and 6 inches shall have small stone blocks added, with the depth of the blocks as large as possible for good bearing. The minimum width of said blocks shall be 4 inches.

Gaps between horizontal faces of existing stones greater than 6 inches shall have crushed gravel and stone blocks added. The crushed gravel shall be placed at the back of the stone and compacted in place up to 12 inches of the exposed wall face. The crushed gravel shall be compacted by tamping rods or other methods acceptable to the Engineer. Stone blocks shall then be added to achieve a tight fit. New stone blocks shall not extend beyond the face of the stone wall.

Virginia

SECTION 107— LEGAL RESPONSIBILITIES
107.16—Environmental Stipulations

[…](d) **Archeological, Paleontological, and Rare Mineralogical Findings:** In the event of the discovery of prehistoric ruins, Indian or early settler sites, burial grounds, relics, fossils, meteorites, or other articles of archeological, paleontological, or rare mineralogical interest during the prosecution of work, the Contractor shall act immediately to suspend work at the site of the discovery and notify the Engineer. The Engineer will immediately notify the proper state authority charged with the responsibility of investigating and evaluating such finds. The Contractor shall cooperate and, upon the request of the Engineer, assist in protecting, mapping, and removing the findings. Labor, tools, or equipment furnished by the Contractor for such work will be paid for in accordance with Section 104.03. Findings shall become the property of the Commonwealth unless they are located on federal lands, in which event they shall become the property of the U.S. government. […]

Washington

Division 1 – General Requirements

1-07.16(4) Archaeological and Historical Objects

Archaeological or historical objects, such as ruins, sites, buildings, artifacts, fossils, or other objects of antiquity that may have significance from a historical or scientific standpoint, which may be encountered by the Contractor, shall not be further disturbed. The Contractor shall immediately notify the Engineer of any such finds.

The Engineer will determine if the material is to be salvaged. The Contractor may be required to stop Work in the vicinity of the discovery until such determination is made. The Engineer may require the Contractor to suspend Work in the vicinity of the discovery until salvage is accomplished.

If the Engineer finds that the suspension of Work in the vicinity of the discovery increases or decreases the cost or time required for performance of any part of the Work under this Contract, the Engineer will make an adjustment in payment or the time required for the performance of the Work in accordance with Sections 1-04.4 and 1-08.8.

1-07.16(4)A Inadvertent Discovery of Human Skeletal Remains

If human skeletal remains are encountered by the Contractor, they shall not be further disturbed. The Contractor shall immediately notify the Engineer of any such finds, and shall cease all Work adjacent to the discovery, in an area adequate to provide for the total security and protection of the integrity of the skeletal remains. The Engineer may require the Contractor to suspend Work in the vicinity of the discovery until final determinations are made and removal of the skeletal remains is completed.

If the Engineer finds that the suspension of Work in the vicinity of the discovery increases or decreases the cost or time required for performance of any part of the Work under this Contract, the Engineer will make an adjustment in payment or the time required for the performance of the Work in accordance with Sections 1-04.4 and 1-08.8.e cost or time required for performance of any part of the Work under this Contract, the Engineer will make an adjustment in payment or the time required for the performance of the Work in accordance with Sections 1-04.4 and 1-08.8.

Division 6 – Structures

6-02.3(14)D General Requirements for Concrete Surface Finishes Produced by Form Liners

Horizontal and vertical joints shall be spliced in accordance with the manufacturer's printed instructions. The Contractor shall submit a Type 1 Working Drawing consisting of the manufacturer's joint splice instructions.

Horizontal splicing of ABS and plastic form liners to achieve the required height is not permitted and there shall be no horizontal joints. The concrete formed with ABS and plastic form liners shall be given a light sandblast to remove the glossy finish.

Once the forms are removed, the Contractor shall treat the joint areas by patching or light sandblasting as required by the Engineer to ensure that the joints are not visible.

Form liners shall be cleaned, reconditioned, and repaired before each use. Form liners with repairs, patches, or defects which, in the opinion of the Engineer, would result in adverse effects to the concrete finish shall not be used.

Care shall be taken to ensure uniformity of color throughout the textured surface. A change in form release agent will not be allowed.

All surfaces formed by the form liner shall also receive a Class 2 surface finish. Form ties shall be a type that leaves a clean hole when removed. All spalls and form tie holes shall be filled as specified for a Class 2 surface finish.

6-03.3(36) Setting and Grouting Masonry Plates

The following procedure applies to masonry plates for all steel spans, including shoes, keeper plates, and turning racks on movable bridges.

To set masonry plates, the Contractor shall:

1. Set masonry plates on the anchor bolts;
2. Place steel shims under the masonry plates to position pin centers or bearings to line and grade and in relationship to each other. Steel shims shall be the size and be placed at the locations shown in the Plans;
3. Level the bases of all masonry plates;
4. Draw anchor bolt nuts down tight;
5. Recheck pin centers or bearings for alignment; and
6. Leave at least ¾ inch of space under each masonry plate for grout.

After the masonry plates have been set and the span or series of continuous spans are completely erected and swung free, the space between the top of the masonry and the top of the concrete bearing seat shall be filled with grout. Main masonry plates for cantilever spans shall be set and grouted in before any steel Work is erected.

Grout shall conform to Section 9-20.3(2) and placement shall be as required in Section 6-02.3(20).

West Virginia

SECTION 207 EXCAVATION AND EMBANKMENT

207.3.4-Archeological and Historical Findings: Should the Contractor's excavation operations encounter remains of prehistoric people's dwelling sites or artifacts of historical or archeological significance, the operation in that locality shall be temporarily discontinued. The Engineer will contact appropriate authorities to determine the disposition thereof. When directed by the Engineer, the Contractor shall excavate the site in such manner as to preserve the artifacts encountered and shall remove them for delivery to the custody of the proper State authorities. Such excavation will be considered and paid for as defined by 104.3.

Wisconsin

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC
107.25 Archaeological and Historical Findings

(1) For construction operations on the project, if encountering human remains or if encountering artifacts of potential archaeological or historical significance, immediately stop operations at the encounter site and notify the engineer. Cooperate, as necessary, by moving construction operations from the encounter site and complying with the engineer's directions. The contractor may continue work elsewhere on the project unless the engineer directs otherwise. Do not resume operations at the encounter site without the engineer's permission.

(2) For operations on private property, if encountering human remains or if encountering artifacts of potential archaeological or historical significance, immediately stop operations at the encounter site and notify the engineer and the responsible state agencies. Cooperate, as necessary, by moving construction operations from the encounter site and complying with the responsible state agencies' directions. Do not resume operations at the encounter site without the responsible state agencies' permission.

SECTION 405 COLORING AND STAMPING CONCRETE
405.2 Materials
405.2.1 Coloring Concrete
405.2.1.1 Concrete

(1) Integrally color concrete using non-fading pigments conforming to ASTM C979. For WisDOT red: use synthetic iron oxides at a loading of 6 percent or more by weight of total cementitious material in the mix. Match the concrete color in reasonably close conformance with WisDOT red color, which is similar to Federal Standard 595 - FS 31136.

(2) Add integral concrete colorant according to manufacturer's instructions. Provide a copy of those manufacturer instructions to the engineer before producing material for incorporation into the work.

(3) The department will accept the color based on comparison to WisDOT color samples available for viewing at the department's regional offices.

(4) Maintain mix characteristics for colored concrete requiring a matching finish. Use the same source, brand, type, and color of cement, supplementary cementitious materials, aggregates, and admixtures for colored concrete throughout the project. Use constant cement content, supplementary cementitious material content, and water/cementitious materials ratio to maintain consistent color.

(5) Under the Coloring Concrete Custom bid item conform to additional project-specific requirements modifying 405.2.1 specified in an associated Coloring Concrete Custom contract special provision.

405.2.1.2 Curing Compound

(1) Furnish a liquid membrane-forming clear curing compound conforming to ASTM C1315, type 1.

405.2.1.3 Admixtures

(1) Furnish admixtures designed for use with and compatible with colored concrete pigments. Do not use calcium chloride or other admixtures containing chlorides.

405.2.1.4 Colored Concrete Mix Approval

405.2.1.4.1 General

(1) Obtain the engineer's approval for colored concrete mixes before placing colored concrete. The engineer will base approval either on a successful performance history or on trial batches. The engineer will evaluate color no earlier than 5 days after pouring and sealing the test concrete. Upon the engineer's approval, the submitted sample panel or the test slab will be the visual quality standard for finished work under the contract.

405.2.1.4.2 Performance History

(1) Use the same materials mixed in the same proportions as used on another department project where the engineer approved the color the current contract Coloring Concrete bid item designates. Ensure that all materials, including admixtures, are of the same type and brand and from the same sources.

Provide the following to the engineer for review and approval:

1. Project Info: Project ID, and location.
2. Mix proportions: quantities per cubic yard expressed as SSD weights and net water, water to cementitious material ratio, air content, and 28-day or earlier compressive strength.
3. Materials: type, brand, and source.
4. Sample panel: a finished colored concrete sample from the previous project having minimum dimensions of 2-foot by 2-foot by 1.5-inch.

405.2.1.4.3 Trial Batches

(1) The contractor may use preliminary laboratory or field trial batching to establish the mix proportions necessary to conform to the contract-required color.

(2) Produce test slabs to demonstrate the texture, surface finish, color, and color intensity. At least 2 business days in advance, provide the engineer with the date and time for test slab construction.

(3) At an engineer-allowed location on the project, place, finish, and cure a 10-foot by 10-foot by 6-inch colored concrete test slab using the same methods proposed for contract work. Produce test slabs using the same workers designated to perform the contract work. Retain samples of cements, sands, aggregates, and color additives used in test slabs for comparison with materials used in contract work. Dispose of surplus or unsuitable material as specified under 205.3.12.

(4) Submit final mix design information to the engineer. Including specific sources and, if applicable, trade names for materials.

405.2.2 Stamping Colored Concrete

(1) Under the Stamping Colored Concrete bid item, furnish full-depth colored concrete conforming to 405.2.1. An associated Stamping Colored Concrete contract special provision will contain additional project-specific requirements including the following: - Modifications to 405.2.1 for coloring requirements. - Provisions for required stamps, stamping materials, and surface staining materials.

405.3 Construction

405.3.1 Coloring Concrete

(1) Construct work incorporating colored concrete conforming to contract specifications under the associate bid items except cure with clear curing compound and use only non-chloride admixtures as as specified in 405.2.

(2) Produce consistently colored concrete in full cubic yard increments. The engineer will not allow variations in the quantities, types, or source of materials with the exception of minor adjustments of water and air-entraining agent. Other changes require mix re-approval.

(3) Schedule placement to minimize exposure to rapid drying conditions, wind, and full sun before applying curing compound. Do not place colored concrete if rain, snow, or freezing temperatures are forecast within 24-hours.

(4) Cover or otherwise protect adjacent concrete work from discoloration and spillage while placing and curing colored concrete. Remove and replace discolored concrete as the engineer directs.

(5) Perform finishing operations consistently to avoid color variation. Do not begin finishing while bleed water is present. The engineer will order removal and replacement of colored concrete if the contractor adds water to the surface to aid in finishing. Apply strokes in the same direction during final finishing and texturing.

(6) Protect colored concrete from premature drying and excessive cold or hot temperatures by promptly applying curing compound. Do not allow plastic sheeting to come in contact with colored concrete.

(7) Protect the colored concrete from damage. Do not permit construction traffic or material storage on colored concrete. Exclude foot traffic from colored concrete for at least 24 hours after placement.

(8) Remove test slabs not permanently incorporated into the work and restore the site after the engineer determines the test slab is no longer needed.

405.3.2 Stamping Colored Concrete

(1) Under the Stamping Colored Concrete bid item, conform to 405.3.1. An associated Stamping Colored Concrete contract special provision contains additional project-specific construction requirements for stamping and surface staining operations.

SECTION 519 BRICK MASONRY AND CONCRETE BRICK OR BLOCK MASONRY

519.3 Construction

(1) Unless the plans or contract provides otherwise, construct concrete footings, not less than 6 inches thick, and that cover the entire structure area under all brick or concrete block masonry.

(2) The contractor shall not construct brick or block masonry in freezing weather or if the bricks or blocks contain frost, except with the engineer’s written permission and subject to the conditions the engineer requires.

(3) Before laying, thoroughly wet bricks or blocks and let the surface dry just enough to prevent slipping on the mortar.

(4) The contractor shall not use broken or chipped bricks or blocks on the structure faces except if using to shape around irregular openings.

(5) Lay the first course of bricks or blocks on a full bed of mortar. Lay bricks or blocks in courses with full and close mortar joints. Maintain horizontal courses throughout the structure. Adjoining courses shall break joints by 1/2 the length of a brick or block, if possible. Make at least one course in every 7, for double-wall construction, all headers. If using brick for making closures, make their length not less than the width of a whole brick and, if possible, make closures with whole brick as headers.

(6) Do not make joints more than 1/2 inch thick and use a uniform thickness throughout the structure. Finish joints properly as the work progresses and on exposed faces strike them neatly using the "weather" joint, except if a plaster coat is required rake the joint.

(7) Apply a plaster coat of mortar to the interior and exterior surfaces of brick, concrete brick, or block masonry, in manholes, inlets, and similar drainage structures. Make this plaster coat with the same mortar used in laying the bricks or blocks and make it not less than 1/2 inch thick. Before applying a plaster coat to a brick or block surface, wet them with water and let the surface dry enough to bond to the plaster coat.

(8) As soon after applying the plaster coat to a structure as possible, apply a uniform coating of curing compound conforming to 501.2.9 to the interior and exterior surfaces.

Wyoming

SECTION 112 ARCHAEOLOGIC, PALEONTOLOGIC, AND HISTORIC SITES

112.1 Discovery of Potential Sites

Upon discovering evidence of a potential archaeologic, paleontologic, or historic site, stop work in the area and notify the engineer. The engineer will contact the proper authorities, who will conduct a field inspection to evaluate the findings. Cooperate fully in facilitating this evaluation. The engineer will notify the contractor of the results and of when work in the area may resume. For delays due to the discovery, the engineer may make an extension to the contract completion date in accordance with Subsection 108.6, Extension to the Contract Completion Date.

112.2 Cultural Clearances

The department will obtain and provide the cultural clearances and permits for the specified right-of-way and for material, plant, and similar sites and facilities as described in Subsection 106.3.2, Department-Furnished. Before using sites other than those provided, obtain such clearances and permits, in accordance with Subsection 107.2, Permits, Licenses, and Taxes, and Subsection 106.3.3, Contractor-Furnished.

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